

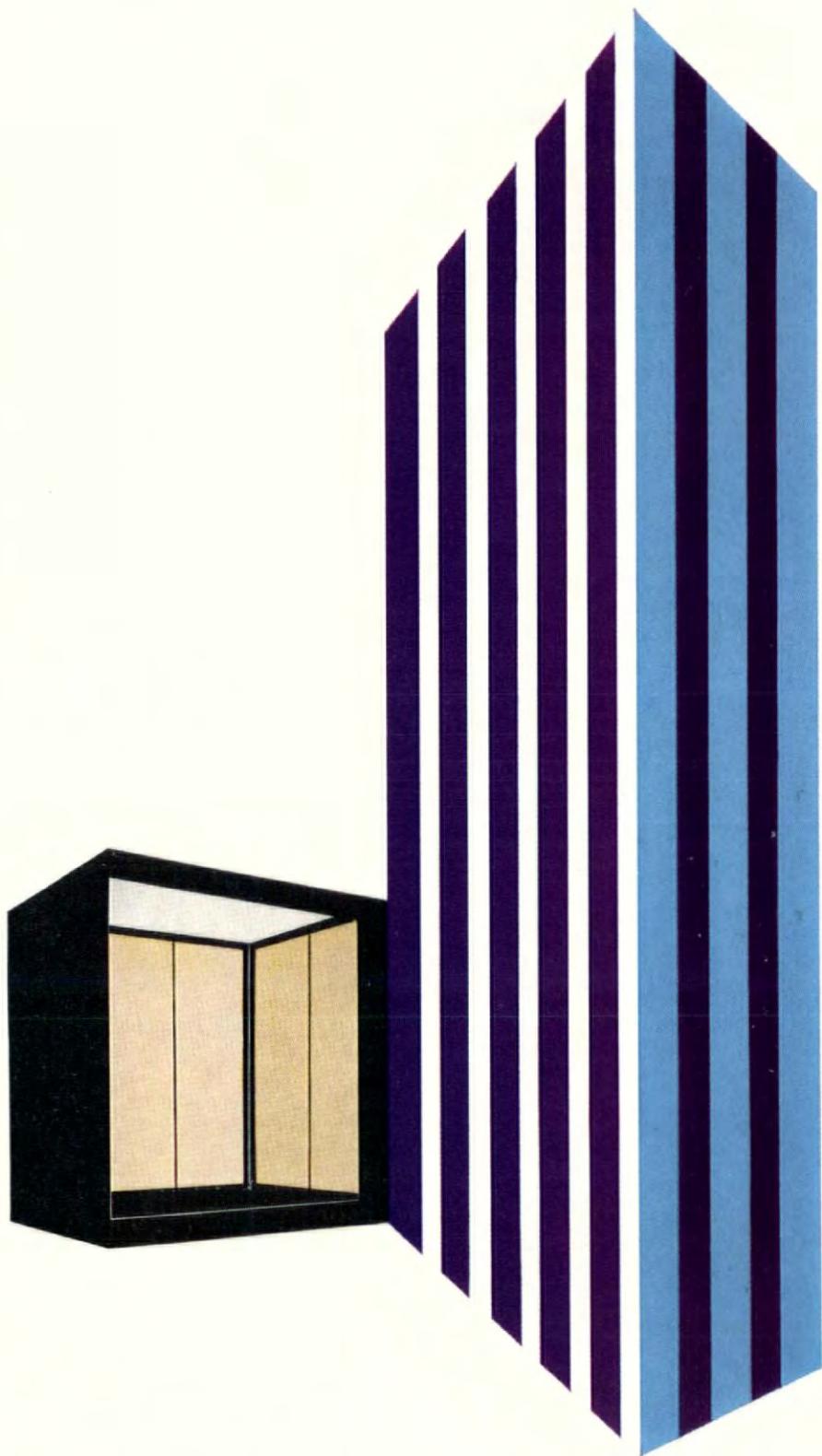
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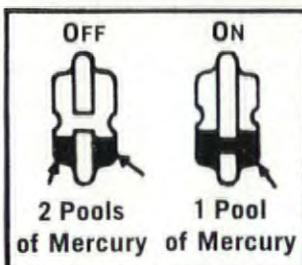
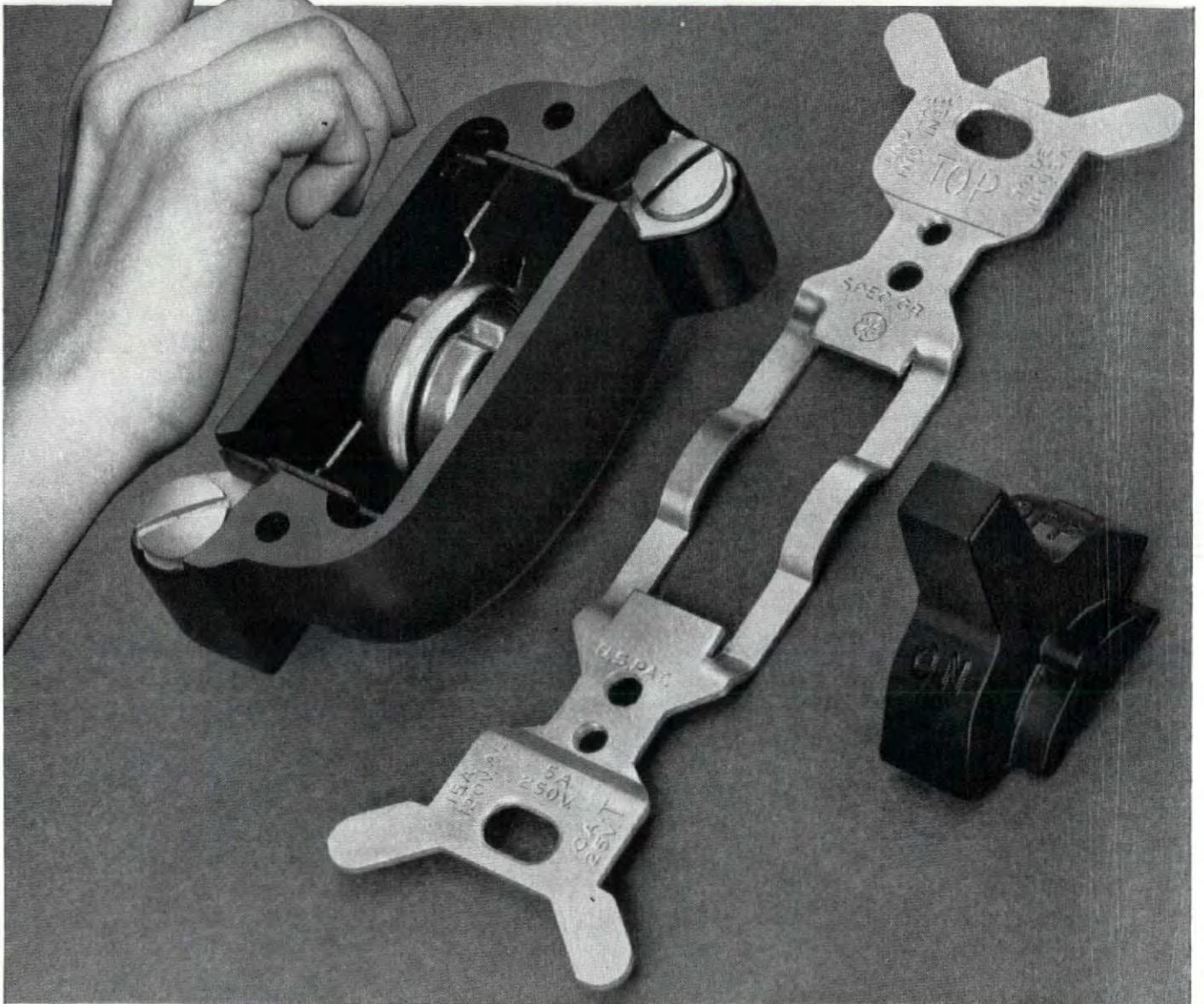
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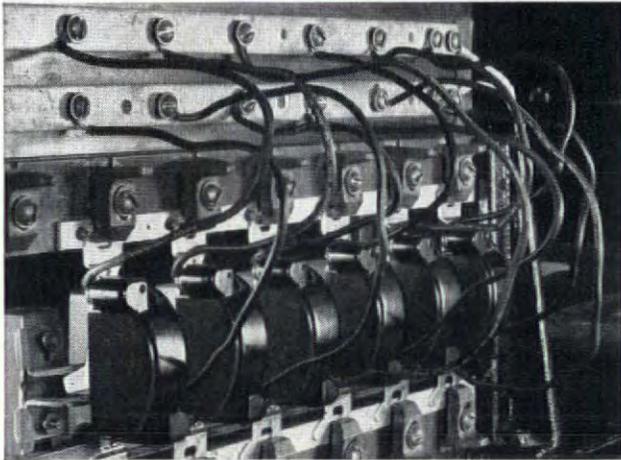
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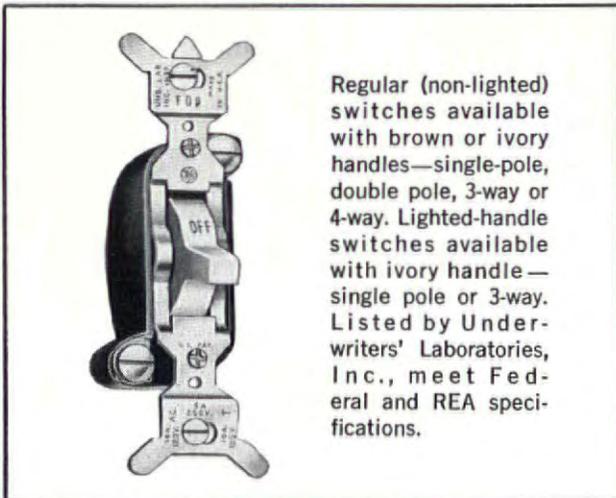
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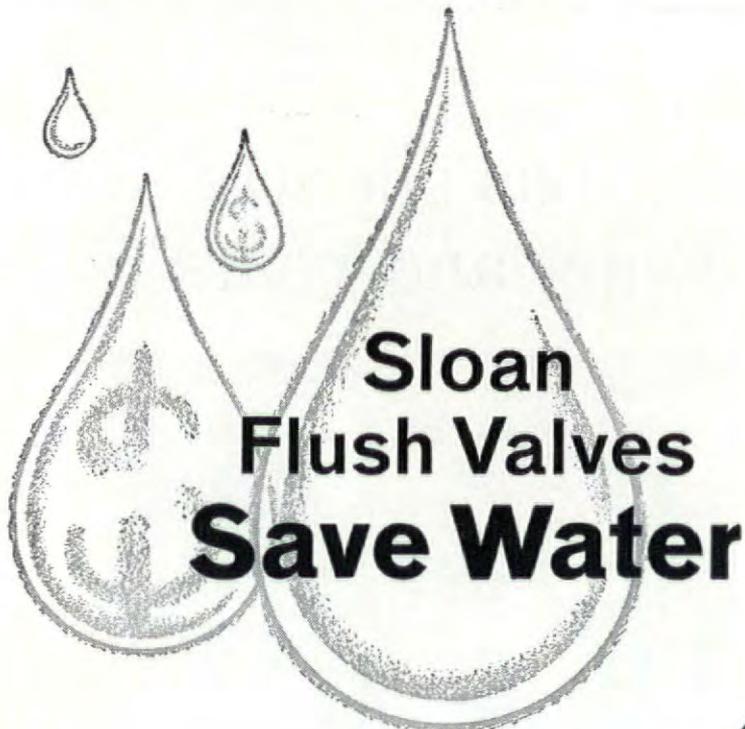
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Southerners fight Weaver's HHFA post nomination; Kennedy gets three reports urging expanded building

The rough shape of greatly expanded federal assistance programs for housing, urban development, and school and college construction that can be anticipated under the new administration of President Kennedy began to emerge last month. At the same time, it also was becoming evident that many of them would run into difficulty and that it would be many months before any were translated into law.

For years various federal-assistance programs have faced an uncertain, unresolved threat of serious complications if they should ever become a battleground of open-occupancy housing and other civil-rights issues. Now this threat loomed larger and much closer on the horizon. Giving it stark reality for many congressmen from southern states was the new President's nomination of Dr. Robert C. Weaver, a Negro and the board chairman of the National Association for the Advancement of Colored People, to be administrator of the federal Housing and Home Finance Agency. Harvard Graduate Weaver, 53, also had an exceptional background in housing and urban affairs to qualify him for this position, however. He first entered the field in 1934 as a consultant to the housing division of the federal Public Works Administration, and later was special assistant to U. S. Housing Authority Administrator Nathan Strauss. In 1948 he wrote *The Negro Ghetto*, a housing study. In 1956 Governor Averell Harriman appointed him New York State Rent Administrator, and last year he was named vice chairman of the reorganized Housing and Redevelopment Board in charge of New York City's vast Title I urban renewal program.

When Kennedy introduced Weaver at a press conference on December 31, one reporter asked a key question. Would Weaver favor a requirement that homes



WEAVER

be available for sale to Negroes before they would be eligible for federal mortgage insurance? The prospective HHFA Administrator replied that he thought it premature to go into the technique that might be employed, whether by administrative action or other means, "but certainly I favor the idea of open occupancy and nondiscrimination in housing."

Within a week, powerful southern opposition to his nomination was manifest. Senator A. Willis Robertson, Democrat of Virginia, the chairman of the Senate Banking Committee, which must act on the nomination, said he would urge the new President to nominate someone else, or he would oppose Weaver in committee if his nomination was submitted. Senator Robertson said his objection to Weaver was not based on race. He complained that Kennedy had not notified him of his selection of Weaver in advance. But he also said that he felt Weaver was not "the right man" for the job. Senator John J. Sparkman, Democrat of Alabama, chairman of the Banking Committee's housing subcommittee also expressed dissatisfaction over Weaver's nomination, but said he wanted to hear the testimony at a hearing before taking a stand on his confirmation.

Countering the southern discomfort over Weaver's nomination, New York's two Republican senators, Jacob K. Javits and Kenneth B. Keating, pledged militant support for his confirmation. Senator Keating said he would appear before the Banking Committee to support him, and Senator Javits, a member of the committee, said he would fight for Weaver's appointment despite the fact he was the nominee of the rival party.

The *New York Times* also took issue with Senator Robertson in an editorial that challenged the argument that Weaver's pledge to enforce nondiscrimination in federal housing programs would discourage builders from using such financing, and would thus be bad for the building industry, particularly in the South. Rapping Weaver's southern opponents who presumably would be willing to vote for his confirmation if Weaver would forget the Democratic platform, President Kennedy's civil rights campaign speeches, and "the federal statutes and the Constitution," the *Times* declared: "We hope the

President and the Senate liberals will stand by their guns. This is a test case."

If the dispute over Weaver's nomination became the focus for a bitter civil rights battle, or stirred up any lasting animosities, the Kennedy administration would find it much harder to obtain the congressional approval of any new or liberalized housing measures and its proposed cabinet-rank Department of Urban Affairs. Whatever the ultimate outcome of this nomination, however, last month the new administration suffered no lack of plans for expanding various programs supervised by HHFA and other federal building activity.

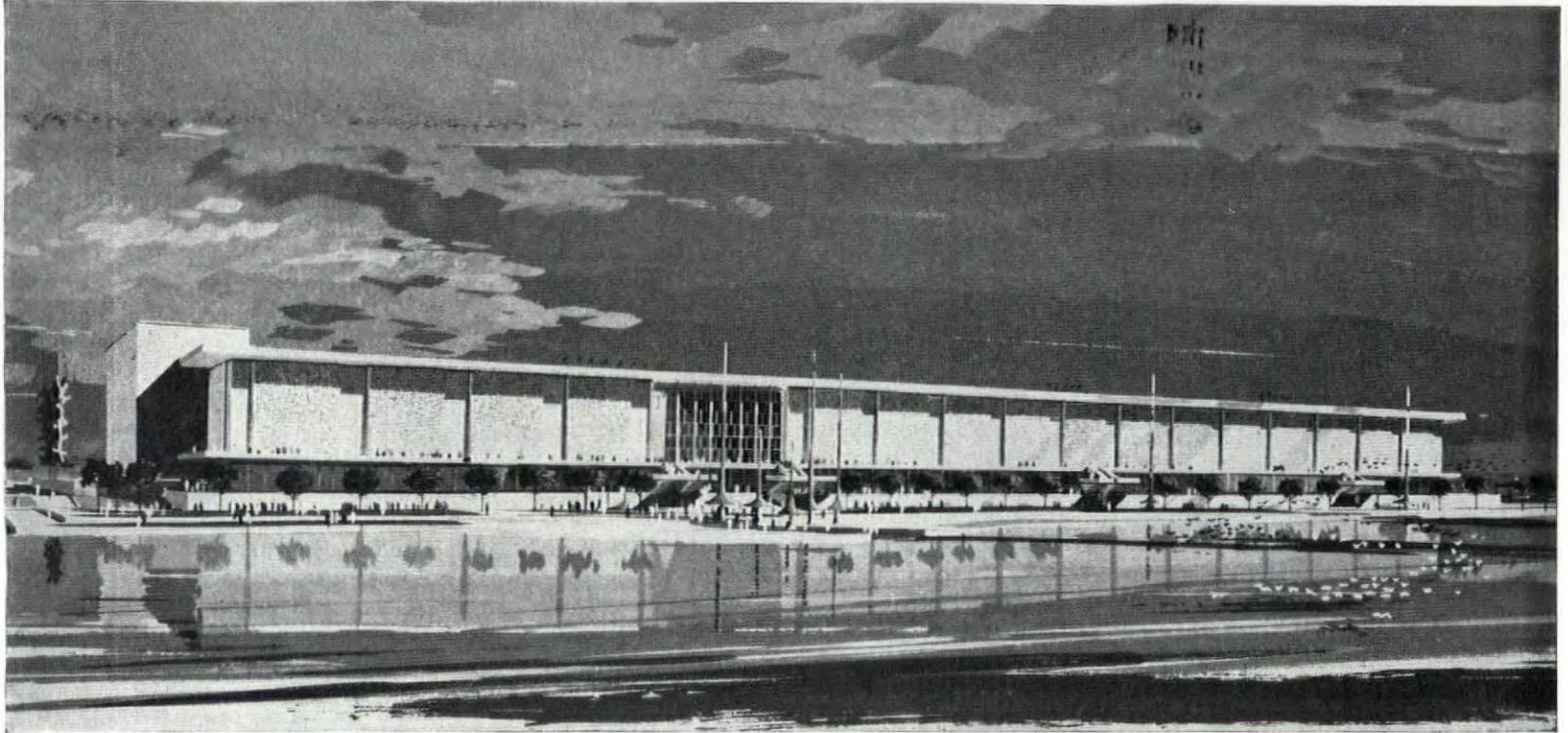
► One of the President's special advisory committees outlined a sweeping \$3 billion to \$5 billion spending program to offset the current economic recession. This proposal included stepped-up urban renewal, housing, and highway construction activity, as well as increased defense and foreign aid spending. It suggested that FHA insurance premiums be reduced from 1/2 to 1/4 of 1 per cent and that interest rates on FHA mortgages be cut to 4 1/2 per cent. It also suggested increased mortgage purchasing by Fanny May, and additional stimulation of housing for the elderly.

► Another special housing and urban development task force headed by Joseph P. McMurray, former New York State Housing Commissioner, gave the President a more detailed set of recommendations in these fields. This committee recommended a maximum of private enterprise and local direction in all housing and urban renewal activity, but at the same time a greatly increased volume of federal loans and grants to finance such programs. This committee included in its recommendations: 1) \$650 million a year for urban renewal grants for four years; 2) grants for three-fourths instead of two-thirds of the net costs of renewal projects if planned on a regional basis; 3) a \$100 million loan program for commuter railroad and rapid transit improvements; 4) a \$500-million-a-year program of college housing loans; 5) a four-year \$750 million loan and grant program for community facilities; 6) a ten-year \$900 million subsidy program for pollution control and sewage-plant construction; 7) expanded programs

continued on page 7



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for housing for the elderly, farm housing, and housing research.

▶ A task force on aid for education recommended to the new President a \$10 billion, four-year program that would assist both elementary schools and colleges. For public-school assistance, this committee proposed a basic \$30 per pupil federal subsidy that local school boards could spend in any manner they see fit for either teaching or construction purposes; also additional \$20-per-pupil subsidies in low-income states and in heavily populated cities. For colleges and universities it proposed the inauguration of a new loan and matching grant program for academic building construction at an initial rate of at least \$500 million a year. It also would boost funds for the existing college housing loan program to a rate of \$350 million a year.

One week later, the final report of the federal Civil Rights Commission urged that all federal aid be withheld from colleges or universities that practice racial discrimination. Up to now HHFA college housing loans have been made to many segregated institutions. Thus, if the recommendations of the Civil Rights Commission are followed, the Kennedy administration may also become embroiled in a civil rights battle over aid-to-education legislation, as well as over housing legislation.

White House parley urges more elderly housing aid

Sessions on housing for the elderly at the White House Conference on Aging last month were enlivened by typical private vs. public housing debate, and in the end the public assistance advocates carried most of their points.

In the only vote that was tallied officially, propublic housing delegates won, 73 to 41, when private-housing proponents opposed a recommendation to authorize local government agencies as well as private nonprofit organizations to obtain direct federal loans for housing for the elderly "above the level of public housing but below that of private rental housing." Private-housing supporters opposed this proposal's "undesirable potential" for extending government competition into the private enterprise housing market. The minority also tried to strike a recommendation to extend the federal direct loan program for another two years, and increase its appropriations to \$100 million annually. They lost on that by a vote of about 10 to 1. (The direct loan program, supervised by the Housing

and Home Finance Agency, was authorized by Congress in 1959, but lacked any funds until President Eisenhower signed the first \$20 million appropriation for it last July. Since then, HHFA has approved loans for nine projects totaling \$3.8 million, to consist of 396 dwelling units.)

In another bit of sparring between these rival camps, private enterprise proponents were unable to defeat a recommendation to increase public housing for the elderly that would be given "additional subsidy" from federal, state, and local governments. In this case, however, Charles B. Shattuck, of Los Angeles, former president of the National Association of Real Estate Boards, did succeed in having this proposal softened by addition of the words "for aged of inadequate income."

The final report of the housing section of the conference also urged:

▶ A broad research program, including the creation of a consulting and research unit in HHFA or in the proposed Department of Urban Affairs that would advise states and local communities on various problems.

▶ Consideration of housing for the elderly in all comprehensive community planning. (The Governors of each state would immediately designate an appropriate agency or citizens committee to draft model zoning and subdivision regulations to encourage more housing for the aging on a planned basis).

▶ Revisions in local zoning laws and regulations so they will recognize that multioccupant housing facilities for the elderly are primarily living accommodations, or structures to be permitted in residential zones, even though they may include components of medical and nursing care.

▶ More liberal regulations covering both profit and nonprofit elderly housing projects insured by the Federal Housing Administration, and greater encouragement for housing for the elderly whenever feasible in all federally aided urban renewal projects.

Most elderly people are in the low-income brackets, Marie G. McGuire, director of the San Antonio Housing Authority, stressed at one session. A recent Labor Department survey indicated that an elderly couple needs from \$220 to \$280 per month for an acceptable standard of living, she said, but 37 per cent of families headed by persons over 65 have incomes of less than \$165 a month, and among unrelated elderly persons 74 per cent have incomes of less than \$125 a month. (For more information on incomes and housing needs of the elderly see *A new housing market: the old*, FORUM, Dec. '60.)

Hilton finally wins battle for San Francisco hotel

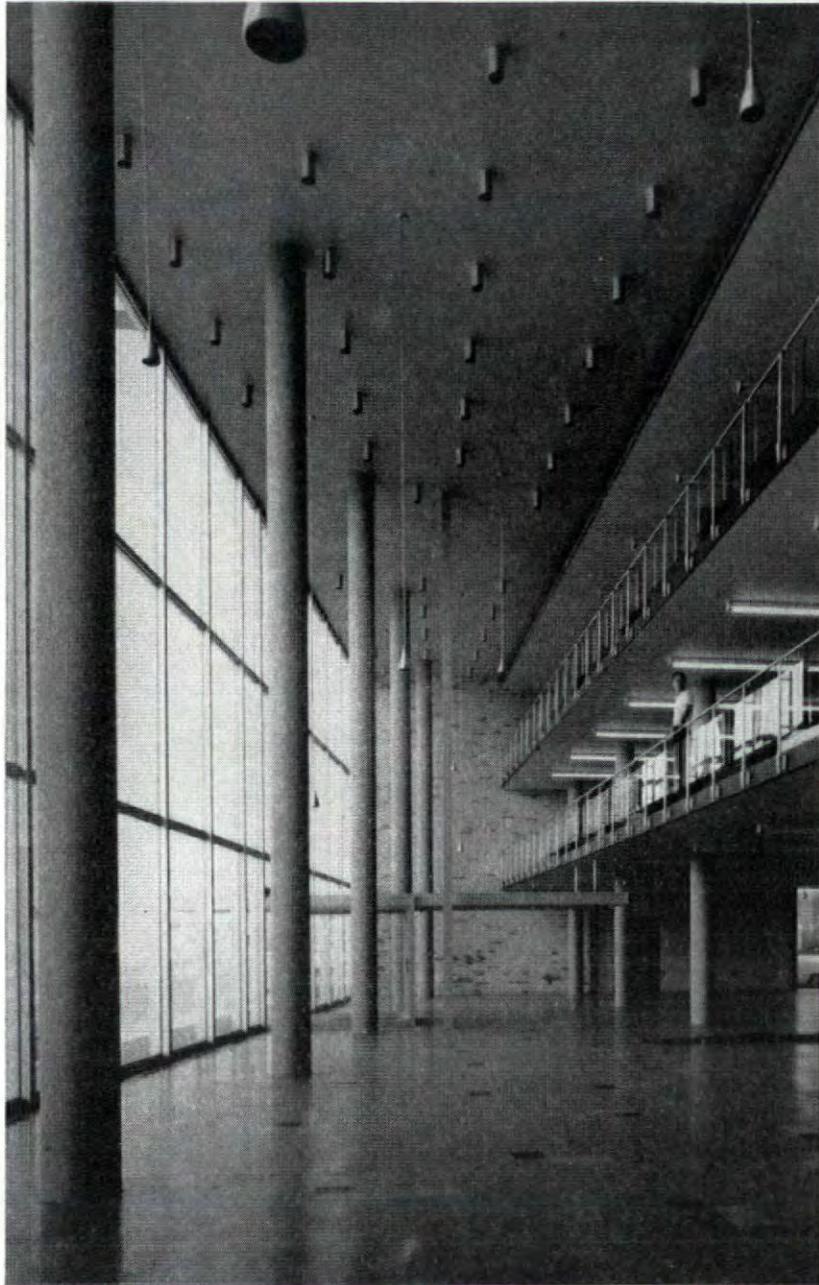
Conrad Hilton and Architect William B. Tabler have finally won their long battle to obtain a building permit to erect a new \$27 million Hilton Hotel and office center in San Francisco (FORUM, Nov. '60).

After their dispute with city building officials moved into court last summer, a three-Judge District Court of Appeal late in November unanimously ordered the city's Department of Public Works to grant a permit, as twice vainly ordered earlier by the city's Board of Permit Appeals. City Attorney Dion R. Holm promptly requested a rehearing—without success—and then in mid-December filed an appeal to the State Supreme Court. At that point, worried over reports that any further protracted delay might cause

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UNUSUAL VENTURE OF ATLANTA BANK
Innards of this odd-looking 20-story Atlanta building completed last fall are just as unusual as its exterior. Originally the Citizens & Southern National Bank planned a six-story garage on the site, but it "grew like Topsy" after the Chamber of Commerce and similar groups kept asking to have extra floors added for their use. Now the building has nine parking floors, and above them five office floors, a two-story southern mansion-style businessmen's luncheon club, a utility floor, a penthouse floor for overnight guests of the bank, an observation deck floor, and then a final glass-enclosed machinery floor. The bank invested \$3.5 million in the venture, and as a "civic contribution" will be content with a 4 per cent return plus amortization over 40 years. Tucker & Howell, architects, say the style mostly resembles 1810-30 Regency, while the upper-portion screens suggest Byzantine.



White's Store, Albuquerque, N. M. Owner: Capital Company. Architect: Flatow, Moore, Bryan and Fairburn. Contractor: Underwood-Testman Co. Photo: Herbert W. Crittenden.

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Hilton to abandon the entire project, Mayor Christopher threw protocol to the winds and personally telephoned the State's Chief Justice to beseech early action on this case. Just one week after the appeal had been filed, the Supreme Court rejected it without comment. There was no further recourse for the stubborn Department of Public Works, and six days later it issued the \$13,000 permit, and another for \$15,000 for use of the city's streets during construction.

Ostensibly it was Hilton and Tabler who had won, but technically it was the Board of Permit Appeals that was sustained in the various court decisions, and this board's legal right to interpret San Francisco building and fire codes and overrule decisions of the regular code authorities. The city Building Inspection Bureau Superintendent, the head of its Division of Fire Prevention and Investigation, and City Attorney Holm had previously refused to issue the permit on orders of the Board of Permit Appeals on the somewhat paradoxical contention that while the Appeals Board could grant variances it could not compel the other agencies "to break the law," which they claimed they would be doing if they granted a permit for plans not conforming to the various codes.

Architects beat plan for Grand Central bowling

The New York chapter of the American Institute of Architects, staunchly supported by other civic and esthetic groups, scored a page-one victory last month in defeating a proposal for the installation of three floors of bowling alleys and fight arenas in the precious upper-air space of the imposing waiting room in New York's Grand Central Terminal (FORUM, Jan. '61).

In a letter from Chapter President Frederick J. Woodbridge to Mayor Wagner, and at a public hearing before the city's Board of Standards and Appeals on an application for a zoning variance to allow construction of the alleys, the architects' organization took the position that any construction in this air space would be "a shocking desecration of a nobly designed room, constructed of excellent materials and of excellent workmanship, and also an infringement of public interests and the public good."

Opposing the bowling-alley scheme, which would lower the ceiling height of the waiting room from 58 to 15 feet, Woodbridge said: "Grand Central is, *de*

facto if not necessarily legally, a public building. . . . In 1964, New York will play host at its World's Fair to millions of visitors who will pass through Grand Central and it is of vital concern to the city that they get an impressive greeting, unmarred by overcrowding and honky-tonk. . . . It seems paradoxical, if railroad companies expect subventions, tax advantages, state loans for new railroad cars (as just received by the New York Central) in order to improve and enlarge their passenger business, that they should simultaneously engage in measures which diminish the convenience, efficiency, and beauty of their terminal facilities."

After a two-hour session listening to 11 opponents and three supporters of the variance application, the Board of Standards and Appeals rejected it 4 to 0. Disappointingly, however, it was only a technical knockout rather than a victory on esthetic merits for the architects and their allies. Both the existing zoning ordinance for New York and the new one to become effective next December specifically bar bowling alleys in a restricted retail zone, in which the terminal is located, and the Board of Standards and Appeals merely refused to approve the requested variance. On the other hand, the terminal owners were still free to rebuild in this air space for some other approved uses, which could have the same devastating esthetic effects on the grandeur of the high-ceilinged waiting room; they could seek a court order to reverse the Board, or try to have the zoning changed.

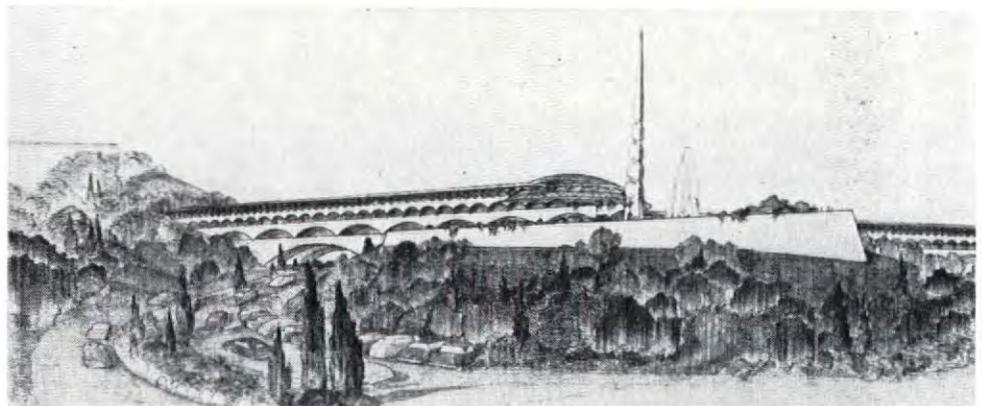
FLLW job resumed after halt; another advancing

Two civic projects designed by Frank Lloyd Wright were centers of controversies and complex legal situations last month.

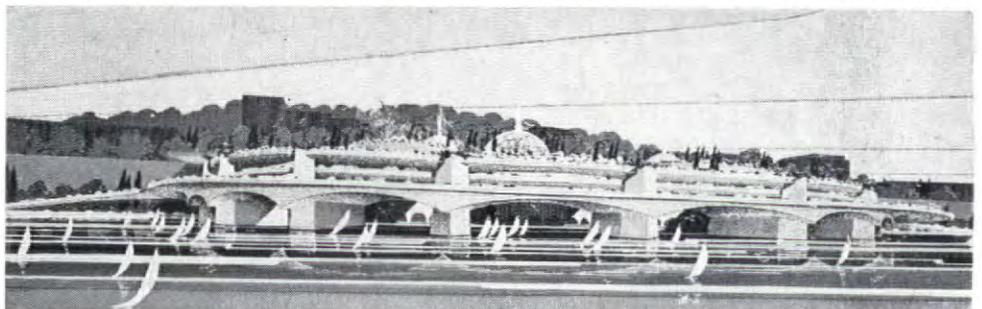
In Marin County, Calif., the Board of Supervisors, by 3 to 2 vote, abruptly ordered all work stopped on the first unit of the \$12 million County Civic Center being developed under supervision of the Frank Lloyd Wright Foundation and Taliesin Associated Architects, of Spring Green, Wis., and Aaron G. Green, associated architect of San Francisco. This \$3.8 million administration building was started last February and is now about half finished. The new chairman of the Supervisors, long a foe of the Wright plan, said the stoppage was dictated by "economic reasons," and would "reduce the impact on taxpayers' pocketbooks." While the work was halted, he said, a study would be made of the architectural and financial feasibility of converting the structure into county hospital facilities. The Supervisors asked Crawford & Banning, of San Rafael, architects for a county hospital project that was defeated in a recent bond issue referendum, to give them a report on this subject.

The following week Architect Eugene Crawford told a meeting of the Supervisors attended by a large turnout of indignant citizens that conversion would cost an extra \$1.5 to \$2 million and

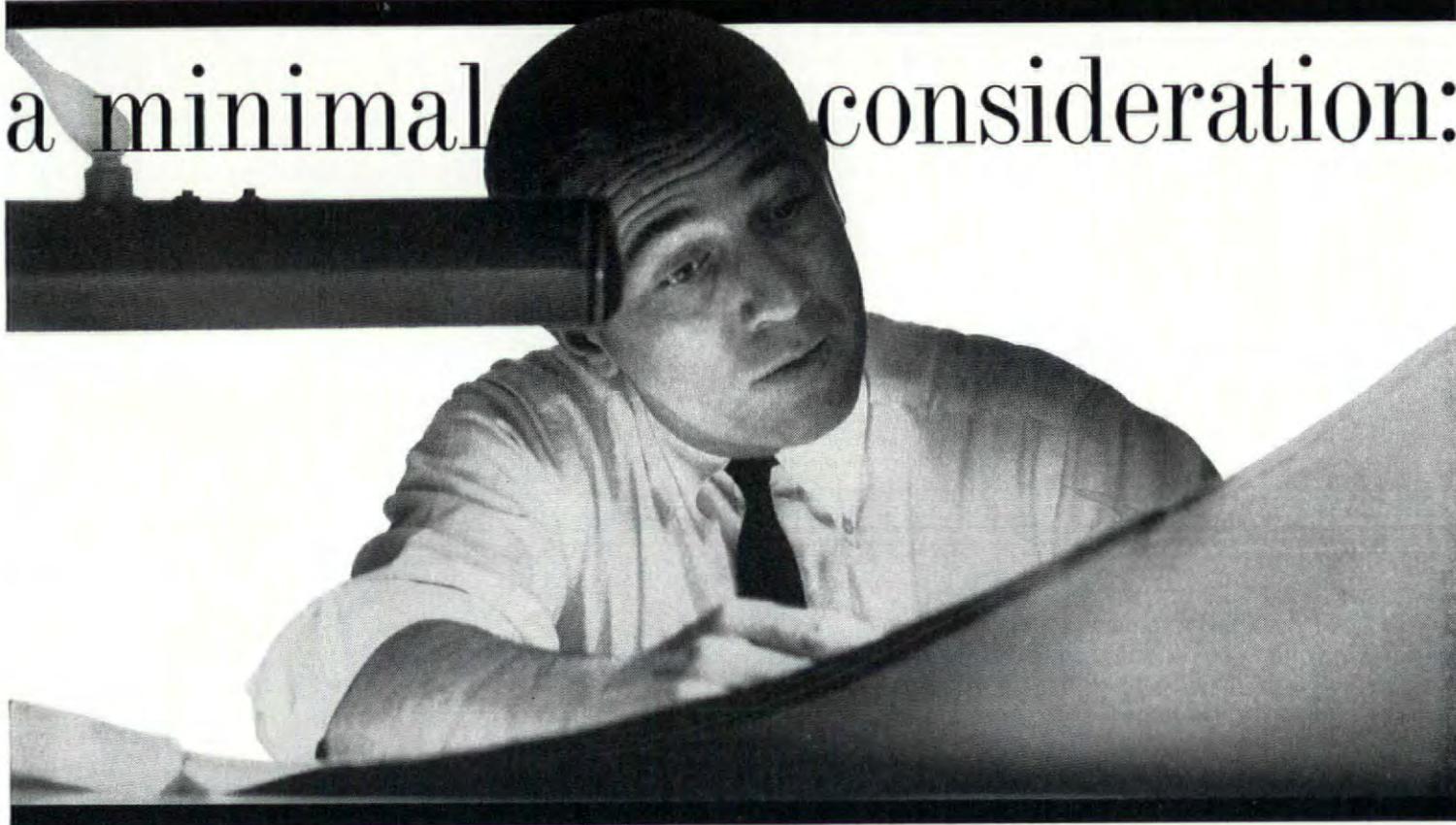
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MARIN COUNTY CIVIC CENTER (ABOVE) AND MONONA TERRACE IN MADISON (BELOW)



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People

Filling out his new administration, President Kennedy last month nominated **Rex M. Whitton**, 62, chief engineer of the Missouri Highway Dept. and former chairman of the executive committee of the National Highway Research Board, to be the new Federal Highway Administrator. He will succeed **Bertram D. Tallamy**, former New York State Superintendent of Public Works, who will open a consulting office in Washington. To head the giant General Services Administration, in charge of construction and maintenance of almost all nonmilitary federal buildings, the new President nominated **John L. Moore**, 57, business vice president of the University of Pennsylvania and former GSA regional director in Philadelphia. To be GSA's Deputy Administrator he nominated **Bernard L. Boutin**, former mayor of Laconia, N.H., and twice unsuccessful Democratic candidate for Governor of New Hampshire. Moore will succeed **Franklin G. Floete**.

In the last hours of the Eisenhower administration, retiring HHF Administrator **Norman Mason** appointed **Michael Doud Gill**, 25, a nephew of Mrs. Eisenhower, as a \$13,730 aide for liaison with Congress and other federal agencies. Gill's position is not covered by civil service tenure rules, and the new HHF Administrator will be free to replace him with an appointment of his own.

Last November's election also precipitated a change in administration of the Associated General Contractors of America two months ahead of schedule. Because he was elected Governor of Massachusetts, and took office January 5, **John A. Volpe** resigned as AGC president on December 31, and **M. Clare Miller**, of McPherson, Kan., and **Frank F. Burrows**, of Belmont, Calif., were sworn in as acting president and vice president, respectively. They also have been elected to these positions for regular terms that will begin during the association's annual convention in Boston starting Feb. 27.

ON AND OFF CAMPUS

The Association of University Architects, composed of college or university staff architects in charge of campus planning and construction, has elected **Louis A. DeMonte**, Campus Architect, University of California, Berkeley, as president, succeeding **Winston Close**, University of Minnesota.

At Harvard University for three months of the 1961-62 term, **R. Buckminster Fuller** will serve as Charles Eliot Norton Professor of poetry—a chair not restricted to practicing poets but awarded periodically to architects, musicians, and other artists who "are interested in putting things to

continued on page 16

still produce very unsatisfactory medical facilities, as well as incalculable costs caused by a delay of at least six months while plans were redrawn to meet state hospital code requirements. As the enormity of their original mistake became more apparent, the hostile Supervisors hastily reversed their position and immediately issued orders for the builder to resume work again.

Halfway across the continent, the Wisconsin Supreme Court unanimously dismissed a taxpayer's suit that was one of the last bars to construction of Wright's Lake Monona Terrace civic center auditorium project in Madison, Wis. (FORUM, Apr. '55). This decision overruled two technical objections. The first was based on the fact that state permits for riparian area water-front improvements are revocable, and therefore it would be unwise for the city to invest a large sum in any improvement on such a site. When the legislature granted the city its Monona Terrace permit it knew what the city's project would be, the court observed. So, assuming that both parties acted in good faith, it added, there was no justification to suppose the state would ever have reason to revoke its permit after the project was completed. The second objection cited a state law against building across street ends that abut on lakes and rivers. It would not matter that the Monona Terrace construction would cross three street ends, the court ruled, because the total project would really serve the same purpose as that law; extending into the lake on a semi-circle, it would actually make more lakefront accessible to the public (see photo page 9).

Two other hurdles still remain to a start on Monona Terrace although both of these may be resolved by the end of April. One is a campaign by the Citizens Realistic Auditorium Association, which wants the city to cancel the entire project. Last fall this group collected more than 10,000 signatures on petitions for a referendum on abandoning the project. The city council refused to call such a referendum, however, and now the association has gone into court in an effort to compel the council to hold such a referendum in April. The second remaining hurdle is insufficient money, because costs will now far exceed the \$5.5 million bond issue for the project that was approved by voters in 1954. Within the next few weeks the city intends to advertise for conditional bids on the project. On the basis of these bids, the city council then plans an April referendum on an additional bond issue to cover current total costs.



CORBU

A.I.A. Medals for Corbu, Calder, and Knoll

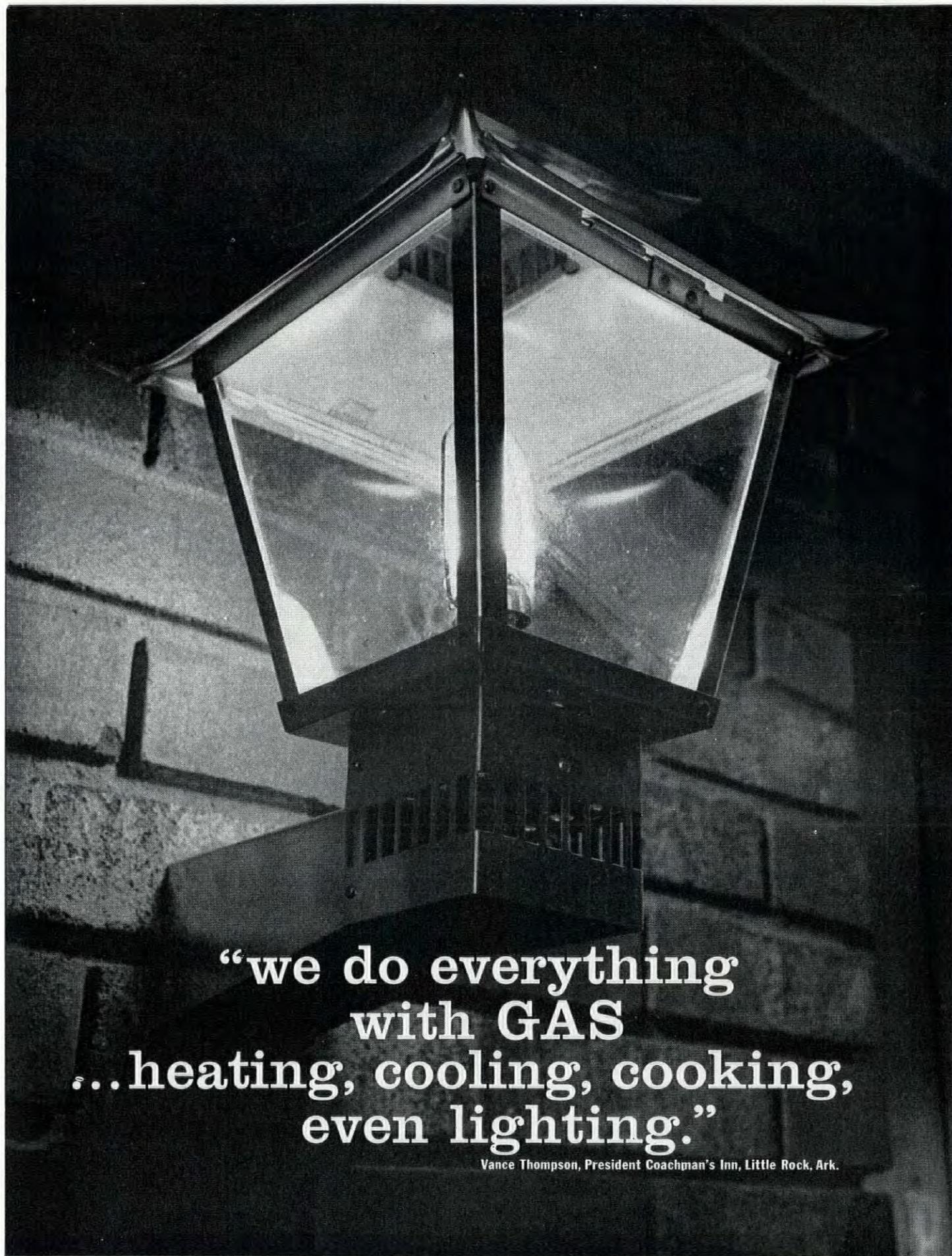
The board of directors of the American Institute of Architects has voted to award its 1961 Gold Medal to Le Corbusier at its annual convention in Philadelphia in April.

Other medals and citations voted by the board: to Sculptor Alexander Calder, of mobile fame, the Fine Arts Medal; to Annie Albers, for her weaving and artistic textiles, the Craftsmanship Medal; to Florence Knoll, for well-designed furniture, the Industrial Arts Medal; to Ezra Stoller, for his unique leadership in raising the standards of architectural photography, an Architectural Photography Medal; to CBS-TV, a Special Citation for its recent telecast *Big City 1960*; to the Philadelphia City Planning Commission, a citation; and to Earl H. Reed, chairman of the A.I.A. Committee on the Preservation of Historic Buildings, the Kemper Award.

By resolution, the board also commended the Franklin Delano Roosevelt Memorial Commission and its chairman, former U.S. Attorney General Francis Biddle, for its outstanding success in "tapping the creative and artistic resources of the entire nation" in its recent Roosevelt Memorial competition (page 94).

Brief

Biggest mortgage ever placed on a single commercial building, a commitment to lend up to \$70 million, has been arranged for the \$100 million Pan Am Building (formerly called Grand Central City) being erected over the back portion of Grand Central Terminal in New York City. For the present, Erwin S. Wolfson, head of the joint American-British investment combine erecting the 59-story tower, declined to identify the pension fund that has agreed to make the permanent mortgage or to reveal the interest rate.



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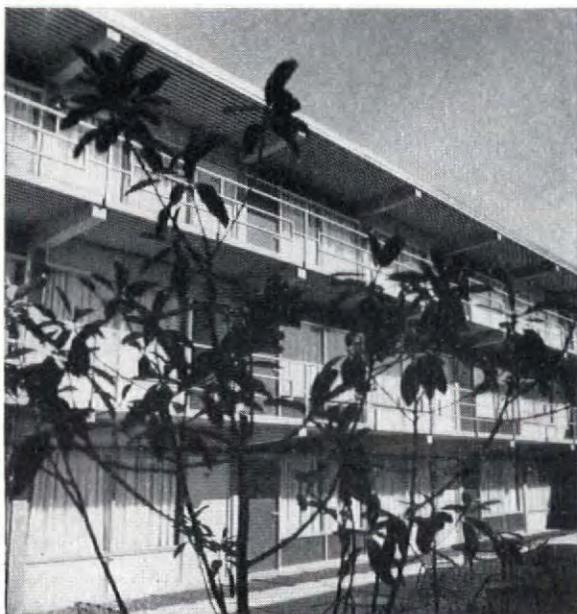
Vance Thompson, President Coachman's Inn, Little Rock, Ark.



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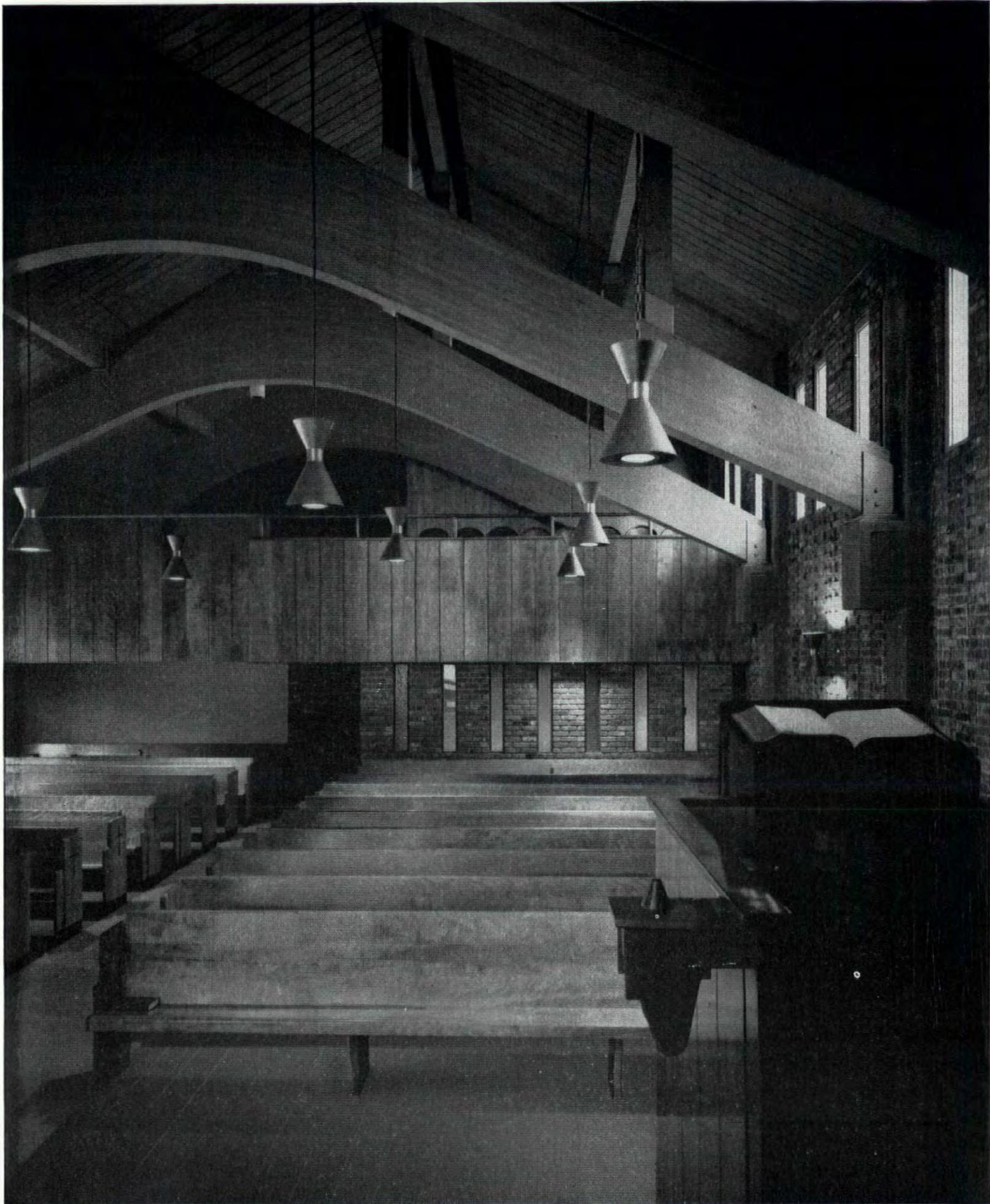
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The hardwood benches, plank-and-beam ceiling, and the heavy arched members in this church interior achieve hushed dignity, a functional honesty that is singularly wood's. Note how all this wood "warms" the cold brick walls. The architect is Edgar Tafel.

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Gracefully bowed laminated beams supporting a parabolic arch, spacious wood-framed glass areas at either end—all combine to create a wide-open setting for a unique treatment of the crucifix. Note how simplicity of design dramatically demonstrates wood's quality throughout this unusual house of worship. Architect: Orus O. Eash.

gether creatively for society." At Long Beach State College, Calif., Fuller also recently helped students develop a design for a very low-cost easy-to-erect elementary shelter suitable for large densely populated areas of Asia: a 60-foot-diameter structure that can be made entirely of bamboo and fishing twine and "so simple that anyone can build it with only a color-coded picture to go by." The State Dept. will help make the plans available abroad.

At Carnegie Institute of Technology, in Pittsburgh, Architect and City Planner

Robert C. Weinberg, of New York, has been appointed A. W. Mellon Distinguished Visiting Professor in the College of Fine Arts, in which he will initiate a graduate program in urban design in the department of architecture.

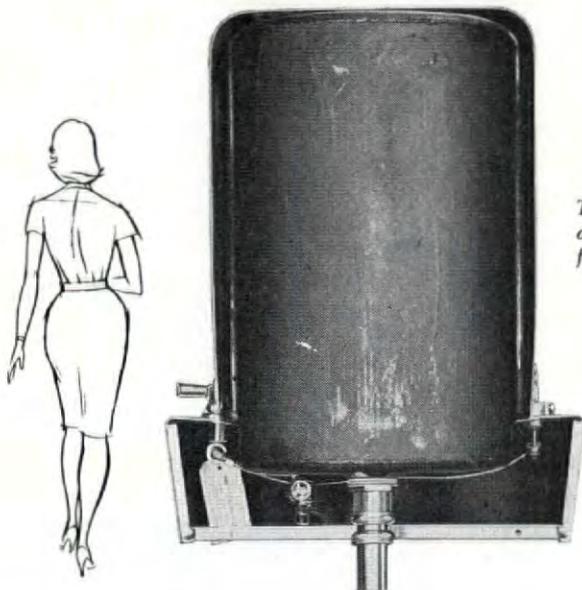
William G. Perry, secretary for the Rotch Traveling Scholarship of the Boston Society of Architects, has announced a March 20 deadline for applications for this year's \$4,500 Rotch stipend—open to Americans under 31 whose architectural record includes Massachusetts study or experience.

New York Realtor-Builder Marvin Kratter, Brooklyn College '37, has given his alma mater \$100,000 to provide three undergraduate and two graduate scholarships annually ranging from \$750 to \$2,500 each.

COMPETITIONS AND AWARDS

Five teams of finalists (from a pool of 260 entrants) have been named in the design competition for a \$250,000 permanent civic center fountain to be built as part of the Century 21 Exposition in Seattle in 1962. Given until next month to submit final competition designs were: **Alain Le Normand** and a sculptor known only as **Adam**, both of Paris; **Hideki Shimizu** and **Kazuyuki Matshusita**, Tokyo; **Alan H. Rider** and **Glen Michels**, and **W. Byron Ireland** and **Rostislav G. Spacek**, two separate teams from Birmingham, Mich.; and **Richard A. Moore** and **George Hall**, of Pomona, Calif.

The A.I.A., which administers the annual \$25,000 R. S. Reynolds Memorial Award for distinguished achievement in architecture employing aluminum, named the five architect jurors who will meet in Washington March 1 and 2 to select the recipient of the 1961 award, which will be presented during the A.I.A. convention in Philadelphia, April 24 to 28. The jurors will be: **Paul Thiry** of Seattle; **Minoru Yamasaki**, of Birmingham, Mich.; **Samuel T. Hurst**, Dean of Alabama Polytechnic Institute's School of Architecture and the Arts; **Hugh A. Stubbins Jr.**, of Cambridge, Mass., and **Henrique E. Mindlin**, of Rio de Janeiro, designer of Brazil's Ministry of Foreign Affairs Building and editor of *Brazil—Architecture Contemporary*. END



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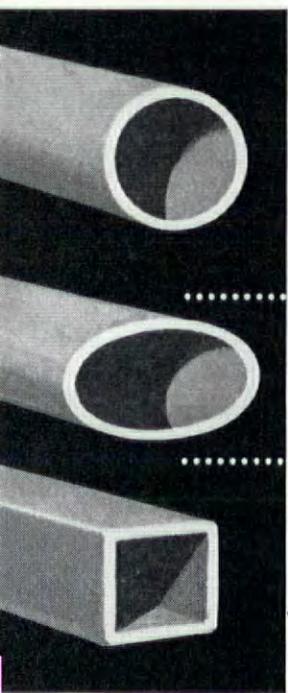
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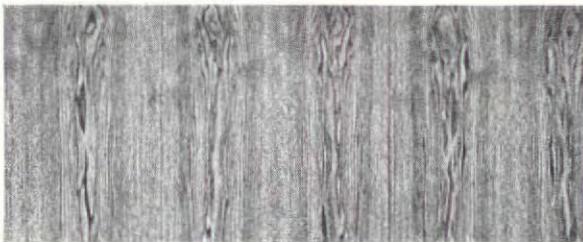


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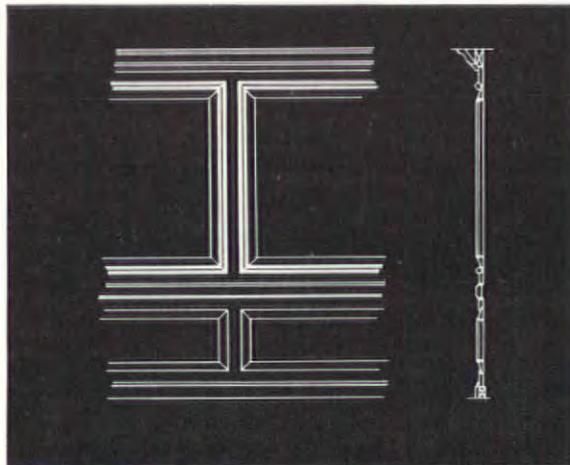
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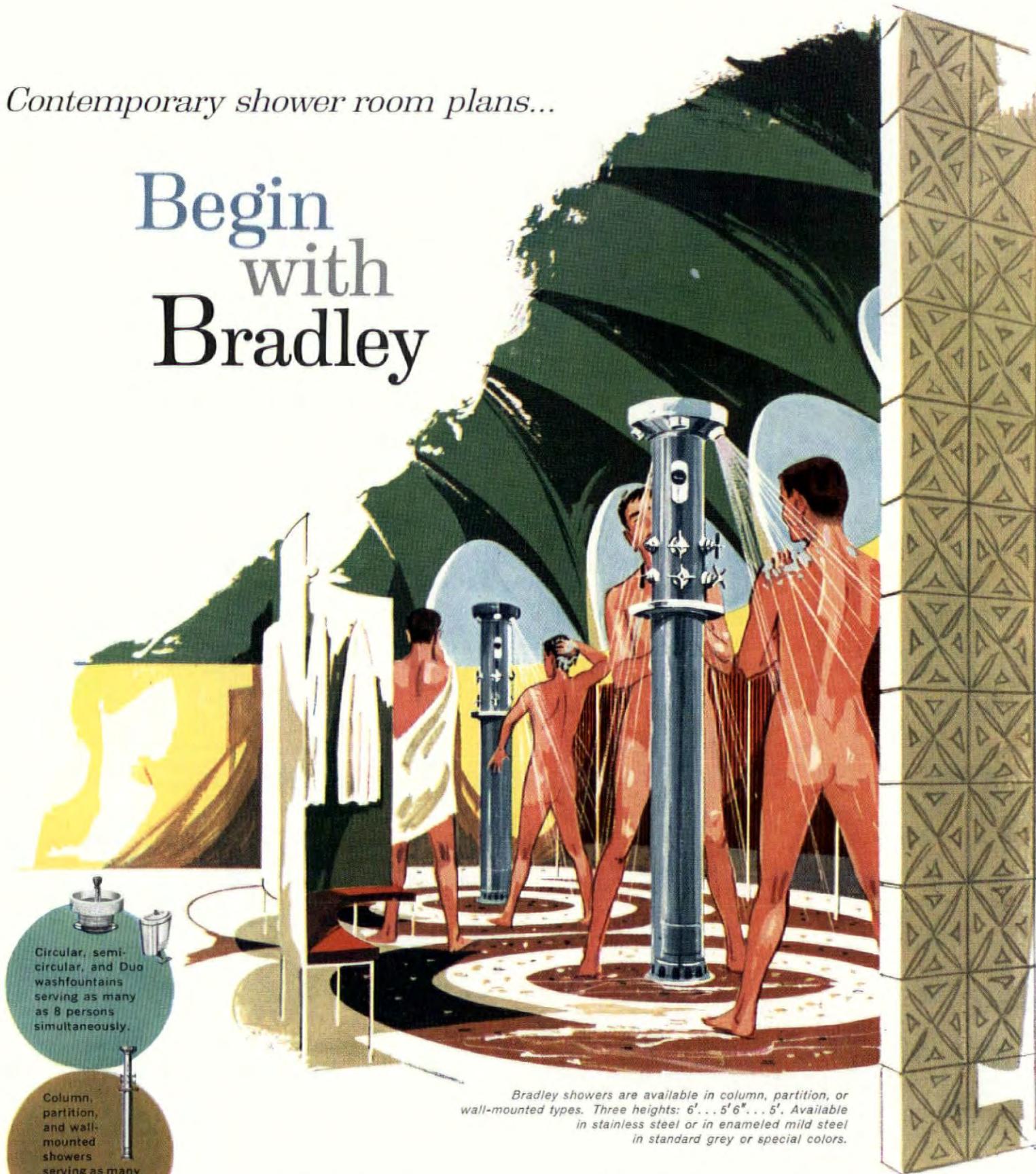
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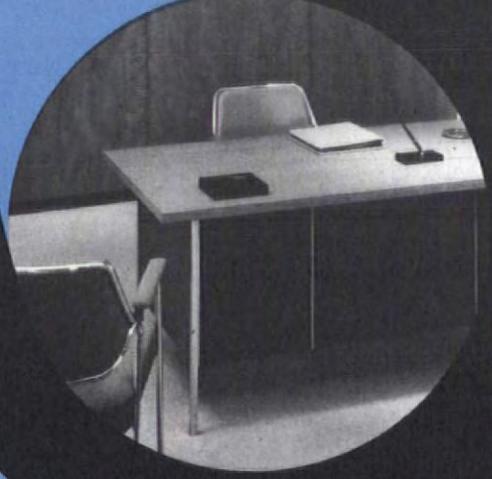
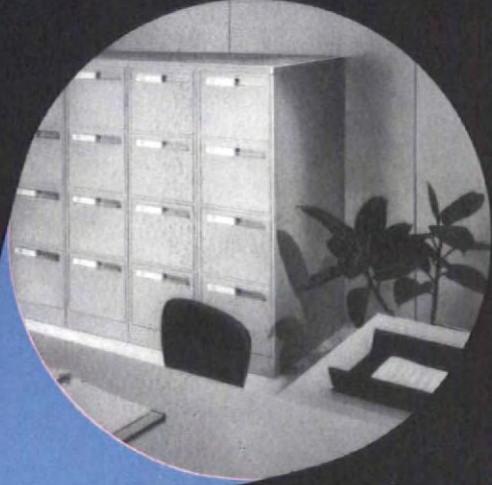
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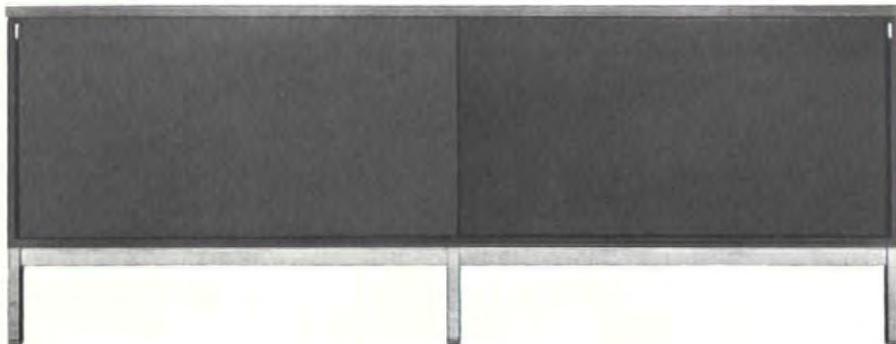
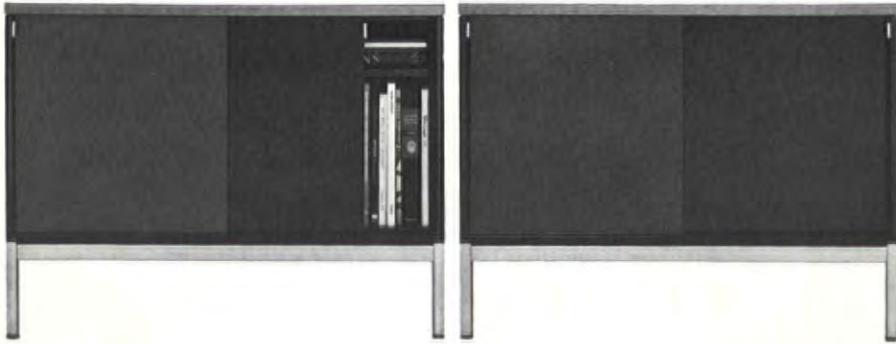
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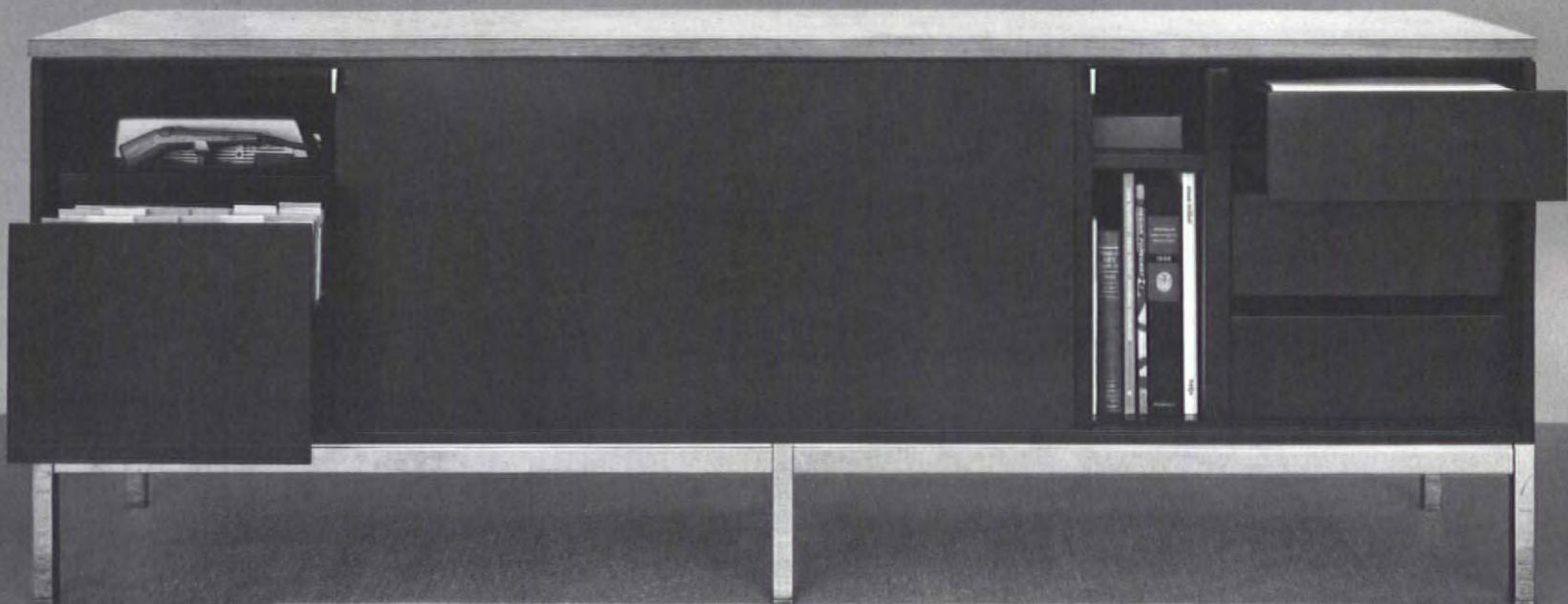
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A. R. REID	SPRINGFIELD
G. E. STIMPSON CO., INC.	WORCESTER

MICHIGAN

TYPEWRITER EXCHANGE INC.	BAY CITY
SILVER OFFICE SUPPLY CO.	DETROIT
TYPEWRITER EXCHANGE	FLINT
BALL OFFICE SUPPLY, INC.	JACKSON
DOUBLEDAY BROS. & CO.	KALAMAZOO



MICHIGAN (Continued)

WEGER BUSINESS SYSTEMS, INC.
 CURTIS-FERRELL CO.
 GENERAL PRINTING & OFFICE SUPPLY
 SUBURBAN PRINTERS
 MARSH OFFICE SUPPLY INC.

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THE OFFICE SUPPLY CO.
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BYRNE BUSINESS FURNITURE CO.
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LANSING
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 PONTIAC
 ROYAL OAK
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MINNEAPOLIS
 ST. PAUL
 VIRGINIA

JACKSON
 GREENVILLE
 MACON

KANSAS CITY
 ST. LOUIS
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REPORTER PRINTING & SUPPLY CO.
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BILLINGS
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 SCOTTSBLUFF

RENO

CLAREMONT
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EAST ORANGE

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 NEWARK
 NEWARK

NEW JERSEY (Continued)

HARRY STRAUSS & SONS
 SECURITY OFFICE FURNITURE CO., INC.
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 BUFFALO
 BUFFALO
 HICKSVILLE
 JAMESTOWN
 KINGSTON
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ART METAL 500 GROUP



These chairs, and other styles not illustrated, are available in a wide range of exciting colors in natural and synthetic fibers and vinyl upholstery.

NEW YORK (Continued)

GOLDEN OFFICE OUTFITTERS, INC.	NIAGARA FALLS
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VERNON R. EVANS COMPANY	UTICA
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STORR SALES CO.	RALEIGH
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OHIO

PRINZ OFFICE EQUIPMENT	AKRON
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CINCINNATI OFFICE OUTFITTERS, INC.	CINCINNATI
DEAN OFFICE EQUIPMENT CO.	CLEVELAND
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PIQUA OFFICE SUPPLY CO.	TOLEDO
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SOUTH CAROLINA

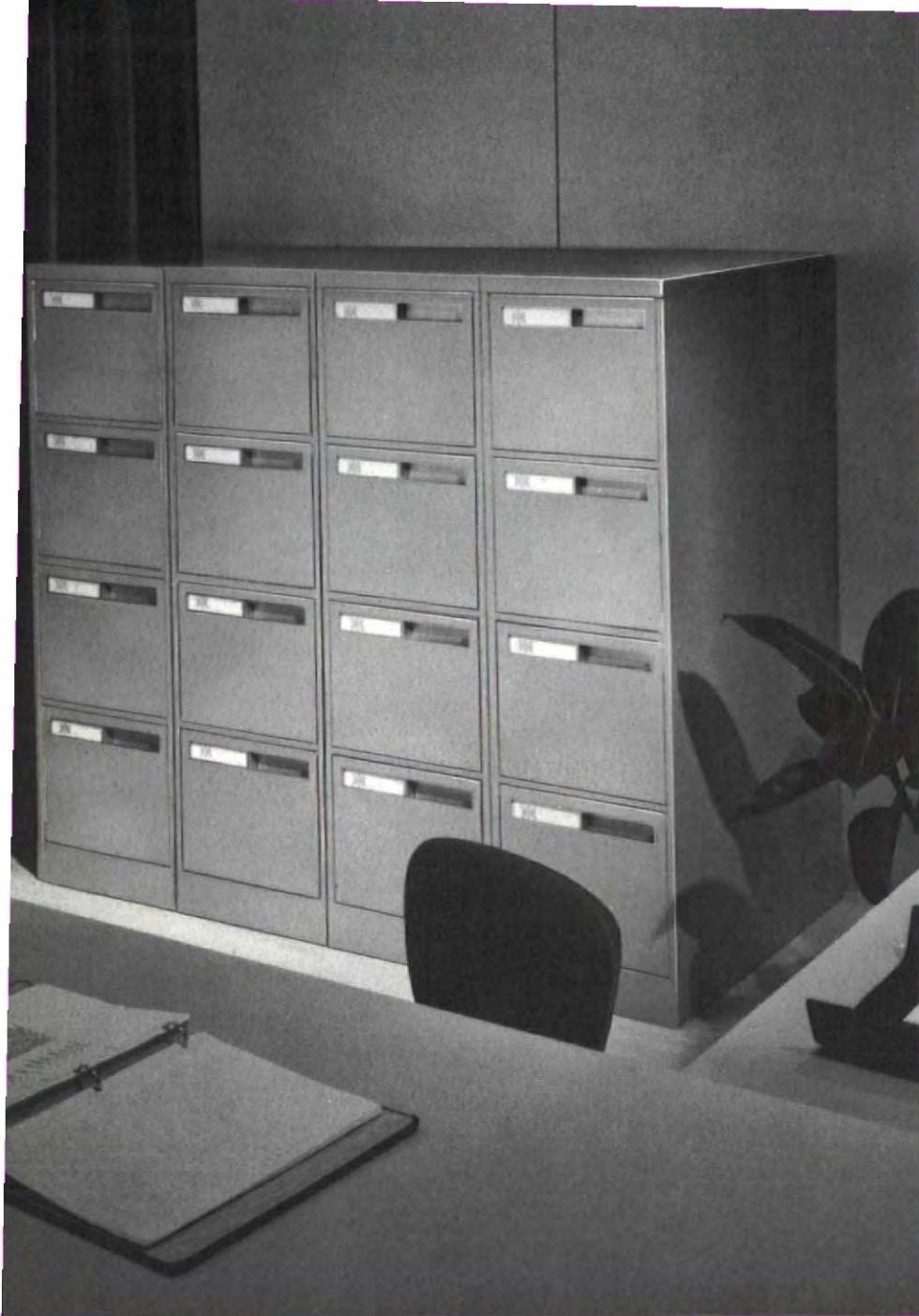
JIM HARBIN INC.

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BELLEFONTE
BUTLER
GREENVILLE
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PHILADELPHIA
PHILADELPHIA
WASHINGTON
WAYNE
WILLIAMSPORT

SAN JUAN

PROVIDENCE

COLUMBIA



ART METAL 500 GROUP

Outstanding feature of the new files is recessed drawer pull, incorporated into a single design element with label-holder.

SOUTH CAROLINA (Continued)

IVAN ALLEN
YOUNG OFFICE SUPPLY CO.

GREENVILLE
SPARTANBURG

SOUTH DAKOTA

MIDWEST BEACH CO.

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PEELER'S OFFICE OUTFITTERS
NEWS OFFICE SUPPLY CO.
TEXAS OFFICE FURNITURE COMPANY
FIELD-PARKER CO., INC.
THE STAFFORD-LOWDON CO.

AMARILLO
BEAUMONT
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BRYAN
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EL PASO
FORT WORTH

TEXAS (Continued)

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THE LUBBOCK PRINTING COMPANY
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THE HOWARD COMPANY
THE HOWARD COMPANY
THE ORANGE STATIONER
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WEBER OFFICE SUPPLY COMPANY
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HOUSTON
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ODESSA
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TEMPLE
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HAMPTON
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VIRGINIA (Continued)

EVERETT WADDEY COMPANY

RICHMOND

WASHINGTON

TRICK & MURRAY
JOHN W. GRAHAM CO.
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TACOMA
YAKIMA

WEST VIRGINIA

THE S. SPENCER MOORE COMPANY
STATIONERS INCORPORATED
LAIDLEY & SELBY
KIRBY OFFICE SUPPLY

CHARLESTON
HUNTINGTON
MORGANTOWN
WHEELING

WISCONSIN

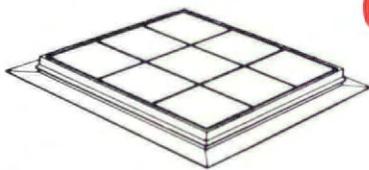
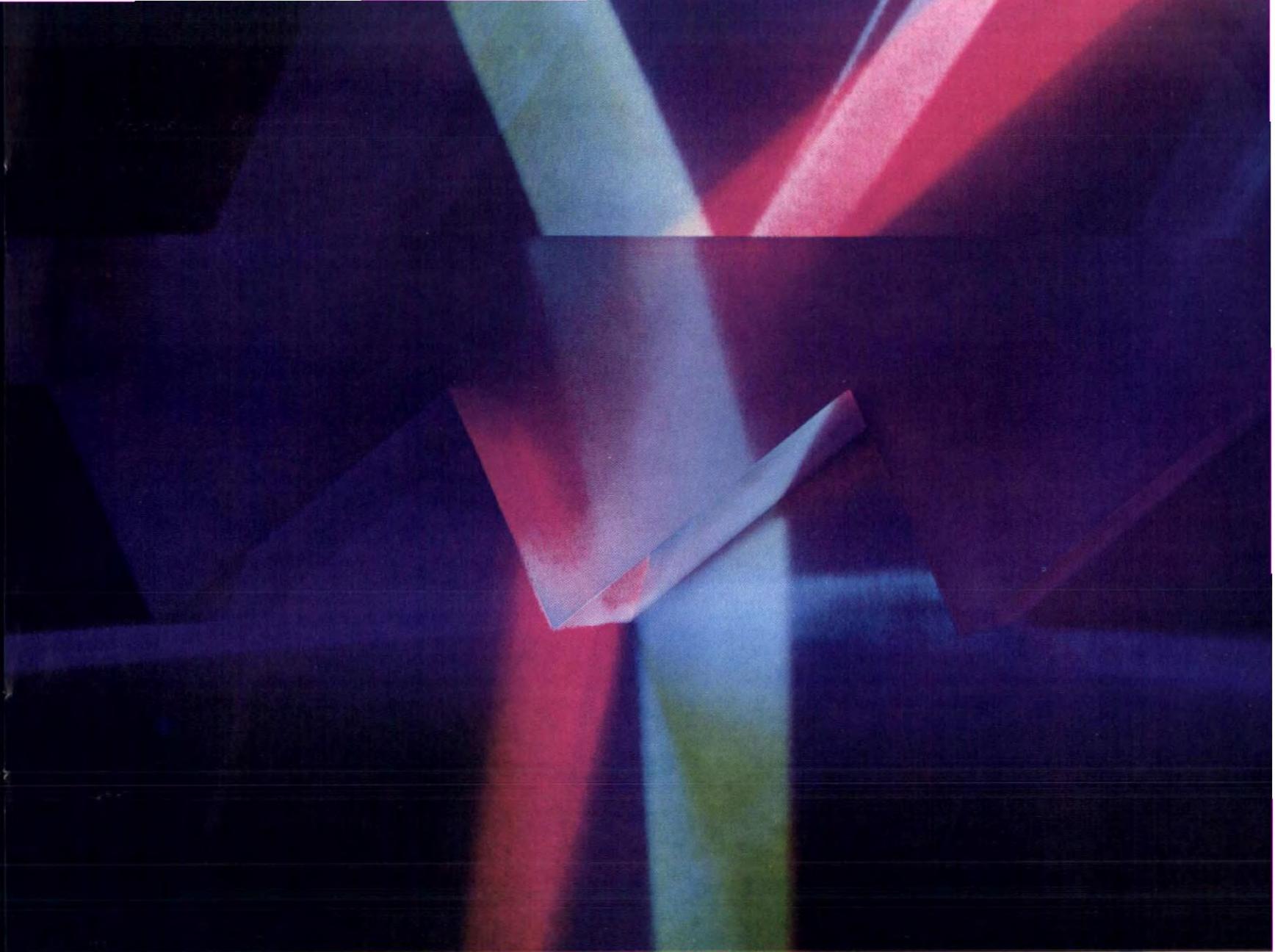
BROSK OFFICE & SCHOOL SUPPLIES
THE PARKER CO.
FORRER EQUIPMENT CO.

KENOSHA
MADISON
MILWAUKEE

WYOMING

PIONEER PRINTING CO., INC.
THE MILLS COMPANY

CHEYENNE
SHERIDAN



CONTROLLED SUNLIGHT

... a new concept in modern architecture

PRC Toplite—a roof panel of prismatic, hollow, evacuated glass blocks—controls glare and heat transmission while minimizing brightness and apparent shadows.

The above photo graphically demonstrates the control that PRC Toplite roof panels provide. North light and low winter sunlight are accepted and transmitted as a finely diffused light with no shadows; the heat and glare of hot summer sunlight is rejected.

Modern and imaginative architects and builders are contributing to the vast number of exciting applications possible with PRC Toplite. Controlled sunlight with Toplite is possible in all types of buildings from commercial structures, offices, field houses and factories to churches, schools and private dwellings.

Toplite is now manufactured and sold by Products Research Company through an exclusive licensing agreement with Owens Illinois Glass Company and its subsidiary, Kimble Glass Company. Toplite panels are sealed with PRC Rubber Calk®, the proven sealant designed to provide a lasting weather seal under the most adverse conditions... combining the unique properties of both these quality products for new architectural achievements.

For complete technical and dealer information on PRC Toplite, please direct your inquiry to Products Research Company, Toplite Division, 2919 Empire Avenue, Burbank, California.



PRODUCTS RESEARCH COMPANY

Dealers in all principal cities

ANNOUNCING

Threadline*

... a new mortar for bonding masonry products

RAY-BOND® Threadline is a unique new mortar for bonding ground concrete, cinder and lightweight blocks—any masonry product—with joints 1/16 in. or less. It is many times stronger than standard concrete mortar.

Threadline can be applied in temperatures 10° lower than water-mixed standard mortar—offering additional productive days each season. Independent tests show no joint failures after 50 freeze-thaw cycles; compressive strength of joint in excess of 50,000 psi; failures occur in masonry, not Threadline. Fire and hose-stream tests are progressing favorably.

We invite you to write us for detailed technical information and laboratory findings.

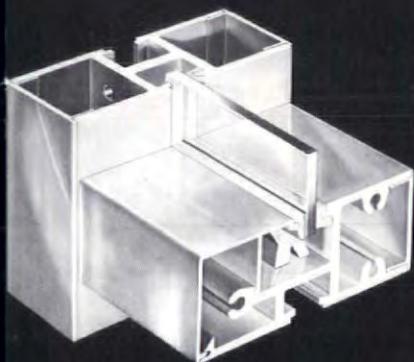
**Trademark*



RAYBESTOS-MANHATTAN, INC.
Adhesives Department, Bridgeport, Conn.

See Threadline at NCMA Show
in Detroit Jan. 30-Feb. 2, 1961
Booth No. 333





IDEAS IN GLASS FROM PPG

How glass lightens, colors, beautifies buildings



Only glass can brighten the inside, color the outside, make design stand out on every side of your building. PPG is your most complete source for all types of glass and related metal products. And that source is close to you. PPG can offer you the services of a nationwide organization of branches and distributors — integrated with a central engineering department—and a staff of over 50 architectural representatives in the field. Consult your PPG architectural representative any time. Ask him about PPG's unique ability to handle your complete curtain wall needs—including erection. For printed material, see Sweet's.

Pittsburgh Plate Glass Company



Paints • Glass • Chemicals • Fiber Glass
In Canada: Canadian Pittsburgh Industries Limited
West Coast Distributor: W. P. Fuller & Company,
San Francisco, Calif.

SEE THE NEXT FIVE PAGES →

Crown Zellerbach's new building makes a striking addition

Exterior wall showing installation detail of PPG SOLEX and SPANDRELITE Glass.



clad in PPG GLASS to San Francisco's skyline



The Crown Zellerbach Building is one of the first major projects using an all-glass facing to be constructed in San Francisco. The building is 20 stories high and opens up a crowded area on Market Street.

This light and airy building brings a new look to San Francisco's lower Market Street. The 20-story tower is sheathed completely in glass.

PPG SOLEX® heat-absorbing plate glass in the window areas allows plenty of light to get through but absorbs about 50% of direct solar radiation. The pleasing greenish tint is easy on the eyes. Glare is greatly reduced and air conditioning costs are lower because less solar heat enters the building.

In between the windows, PPG SPANDRELITE® Glass in soft color adds beauty to the exterior. This is a heat-strengthened glass, with ceramic color fused to the back. It is strong and durable . . . resists impact . . . its color lasts.

Entrances feature eight HERCULITE® doors with PITT-COMATIC® handle-operated door openers. The doors complete the open spacious feeling of the building. They are well-known for their sturdiness, strength and endurance. Your PPG architectural representative will give you specific data on any of these products. Or check the Pittsburgh Glass-Clad Curtain Wall Systems Catalog in Sweet's.



Pittsburgh Glass

. . . the basic architectural material



PPG Rough Plate Glass partitions with a knurled finish provide light, airy privacy.



The board room is a bright and cheerful place to work because of the wide expanse of window area. SOLEX heat-absorbing glass used here absorbs about 50% of direct solar radiation and reduces glare.

Associated Architects: Hertzka & Knowles and Skidmore, Owings & Merrill, San Francisco, California
Contractor: Haas & Haynie Corporation, San Francisco, California
Glazed by: W. P. Fuller & Co., San Francisco, California

What a wonderful place to work!

Colorful PPG SPANDRELITE® glass makes the new home of Electro-Mechanical Research in Sarasota, Florida a wonderful place to work. The beauty of the SPANDRELITE is enhanced with SOLARGRAY® heat-absorbing, glare-reducing plate glass in the window areas.

PPG SPANDRELITE is a heat-strengthened glass with ceramic color fused to the back. It comes in 18 standard colors or in the custom color of your choice. And its shade doesn't vary from panel to panel. You can match it years later. Because it's glass, SPANDRELITE will never warp, pit or corrode. It withstands impact and wide temperature changes. It's easy to maintain and its color lasts.

The metal framing is PITTCO® 82X, specially developed for leak-proof glass-clad construction. Other PPG products used were Fiber Glass Insulation, Polished Plate Glass, PENNVERNON® Window Glass, PITTCO Metal and TUBELITE® Doors. Your PPG Architectural Representative is available to talk over the advantages of PPG Curtain Wall Systems with you.

Only PPG offers you single-source responsibility for the supply and erection of a complete curtain wall system —the metal grid, the panels, the insulation, the glass.

 **Pittsburgh Glass**
... the basic architectural material

SPANDRELITE

glass in color



Electro-Mechanical Research Building, Sarasota, Florida. Architects: Sellev & Gremlı Associates, Sarasota, Florida. General Contractor: George D. Brown, Sarasota, Florida.

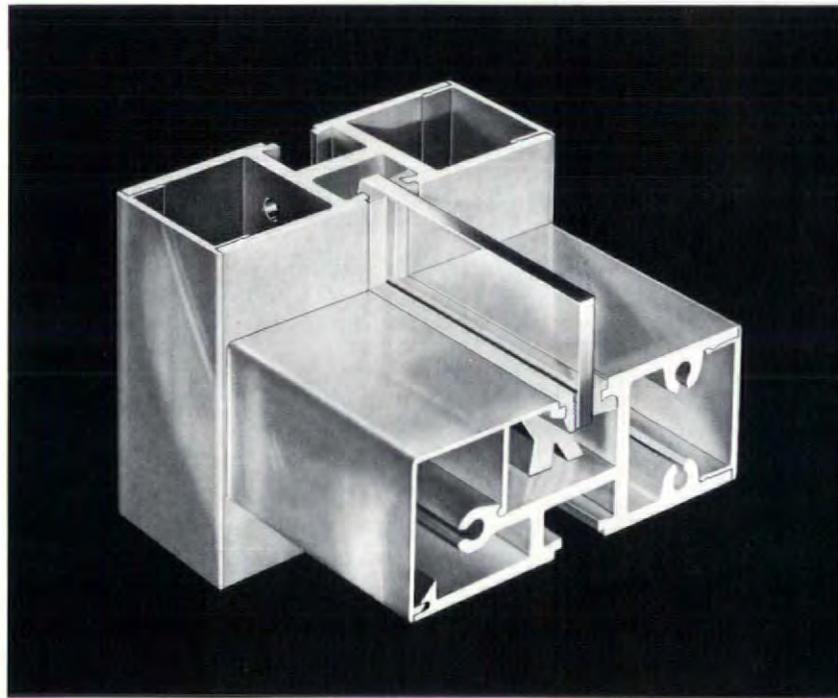
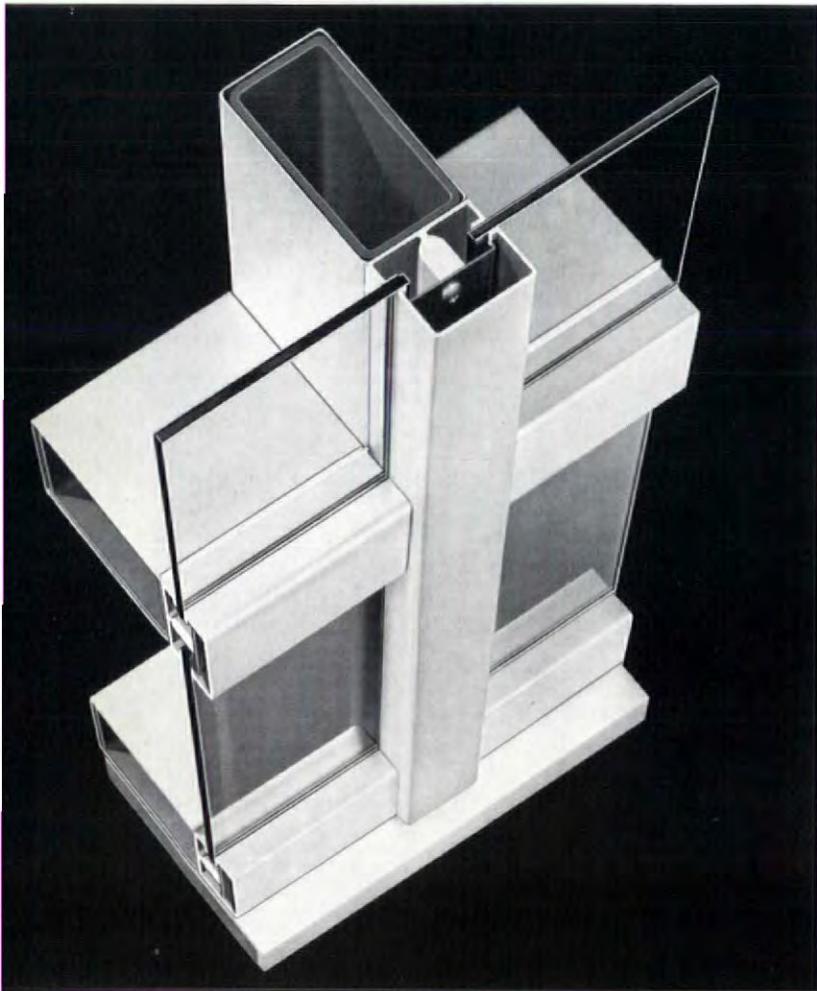


Two curtain wall framing systems available to you in PITTCO® METAL

PITTCO® Metal has been used for years and years in important buildings throughout the country. Now it is available in two framing systems that fit most types of curtain walls. You can specify PITTCO with utmost confidence.

PITTCO 82-X Series—This framing is available with rolled face members in aluminum, bronze or stainless steel; extruded face members are in aluminum only. It provides a dry setting for the glass with the option of using thin narrow strips of No. 1072 sealer, a compound that retains its elasticity indefinitely. Joints are sealed with a special compound that stays flexible even at -30°F . The draining and ventilating system really works. Adjustments can be made to accommodate various thicknesses of glass. No. 25-X companion framing for one-inch TWINDOW® is also available.

The new PITTCO "900" Series—You can frame windows and glass-clad walls completely with the related components of the new PITTCO "900" series. It is provided with an effective system of gaskets and drainage openings to assure a leak-proof assembly. All members are aluminum; all fastenings are concealed; all glass is held in neoprene strips and recessed to increase daylight opening. And the clean beauty of every line is strikingly apparent. For details, consult your PITTCO Metal Representative or contact your local PPG Branch or Distributor.



Pittsburgh Plate Glass Company



Paints • Glass • Chemicals • Fiber Glass
In Canada: Canadian Pittsburgh Industries Limited

THE MOSAIC TILE COMPANY

CURTAIN WALLS IN CERAMIC TILE

A.I.A. FILE NO. 23-A

The Ultimate in
**CURTAIN
WALLS**
... enriched with

MOSAIC[®]

CERAMIC TILE

PLATE NO. 686. City National Bank & Trust Co., Columbus, Ohio.
Architects: Tully & Hobbs, 5'-0" x 10'-0" panels fabricated by The Marietta
Concrete Division, American-Marietta Company, surfaced with special
Mosaic Medley Pattern 3015. Installation by Michaels Art Bronze Co.

CITY NATIONAL BANK
& TRUST COMPANY

PLATE NO. 665, Fuhrmann Junior High School, Warren, Mich. Architects: Smith, Tarapata & McMahon, Inc. Panels fabricated by Maul Macotia Corporation, surfaced with 1" x 1" unglazed mosaics, colors: Velvetone 104, 184, Velvetex 161.



Colorful CURTAIN WALLS
in Mosaic Ceramic Tile

With many of the good materials currently used for the facing of curtain wall panels, there is only one major penalty. That is a tendency toward sameness, a lack of individual character, that special feeling of quality which is the essence of architecture.

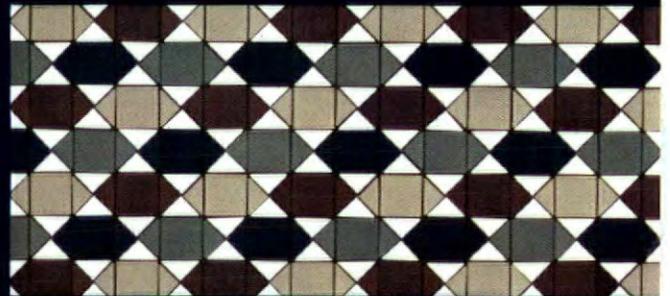
That is one important reason why architects are turning to ceramic tile for curtain walls. In tile's wide range of colors, textures and shapes, they find the means of giving their structures specially significant character. And, utter freedom from surface maintenance. The oldest of building materials is the finest choice for the newest building methods.



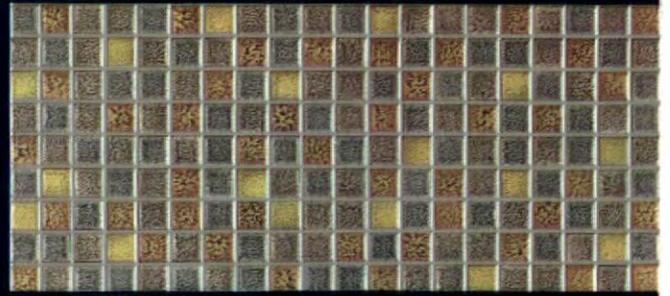
THE MOSAIC TILE COMPANY

Member—Tile Council of America, Inc. and The Producers' Council, Inc.

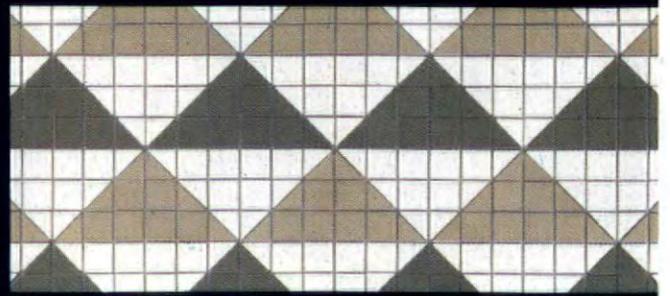
Offices, Showrooms, Warehouses: Atlanta, Baltimore, Beverly Hills, Boston, Buffalo, Chicago, Cincinnati, Cleveland, Corona, Dallas, Denver, Detroit, El Monte, El Segundo, Fresno, Greensboro, E. Hartford, Hempstead, Houston, Ironton, Jackson, Jacksonville, Kansas City, Little Rock, Matawan, Miami, Milford, Milwaukee, Minneapolis, New Orleans, New York, Philadelphia, Portland, Salt Lake City, San Antonio, San Bernardino, San Diego, San Francisco, Santa Clara, Seattle, Tampa, Van Nuys, Washington, D.C., Zanesville. Representatives: Birmingham, Fair Haven, Oklahoma City, Pittsburgh, Spokane, St. Louis. Distributors: Albuquerque, Hato Rey, P.R., Havana, Honolulu, Newburgh, St. Louis, Quebec. Plants: Corona and El Segundo, Calif., Jackson, Miss., Little Rock, Ark., Matawan, N.J., Ironton and Zanesville, Ohio.



BYZANTILE® PATTERN 2572-N3 (unglazed)



MOSAIC MEDLEY® PATTERN 3015-ZGAA (Faientex)



BYZANTILE® PATTERN 2551-N1 (unglazed)

*Exclusively-Mosaic
Patterns*

in glazed and unglazed
ceramic tile, ideal for exterior
or interior walls.

For free estimates on
Mosaic Tile, see the
yellow pages for your
Tile Contractor, Ceramic



NEW

from **Amana** . . .

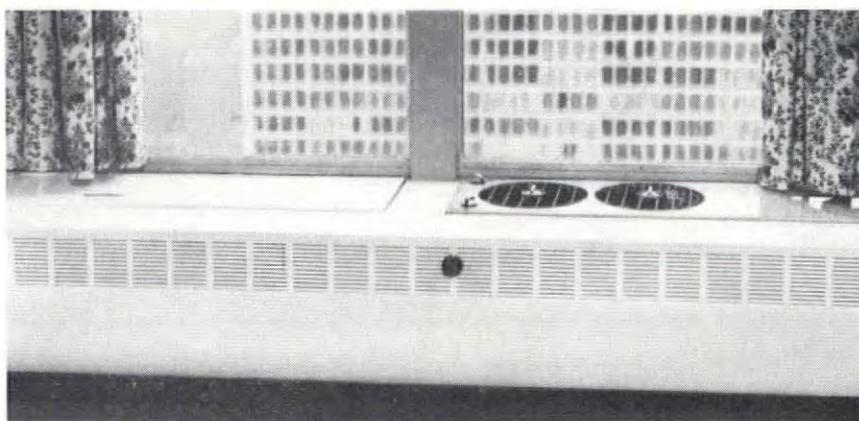
INDIVIDUAL ROOM AIR CONDITIONERS FOR CURTAIN WALL CONSTRUCTION!

Amana now brings to architecture a new product . . . and even greater freedom of design!

The new Amana "Curtain Wall" Room Air Conditioner . . . slim, compact, designed to easily and quickly slip into a ventilating cabinet beneath a window . . . makes possible self-contained air conditioning in a structurally integrated interior wall cabinet.



This Mies van der Rohe apartment complex in Newark, N. J. is an outstanding application of Amana "Curtain Wall" Room Air Conditioners.



INSIDE . . . The Amana "Curtain Wall" Air Conditioner has been held to minimum dimensions so the cabinet may be designed to fit any decor. Only a pair of decorative plastic grills reveal the unit. Even the sound level is lower than with conventional window units.

OUTSIDE . . . The same uninterrupted flow of design you created! Grill work blended in the curtain wall serves perfectly to exhaust heat. No trace of a room air conditioner, no obstruction.

NEW ECONOMY AND CONVENIENCE . . . Amana "Curtain Wall" Air Conditioners add new design possibilities . . . Help keep initial building costs down. They also eliminate costly maintenance while providing greater versatility to owners and tenants. Amana's heritage of craftsmanship is proof of the quality, performance, dependability and value!

AMANA REFRIGERATION, INC.

Amana 3, Iowa

Gentlemen:

Please send me detailed specifications and information on Amana "Curtain Wall" Air Conditioners.

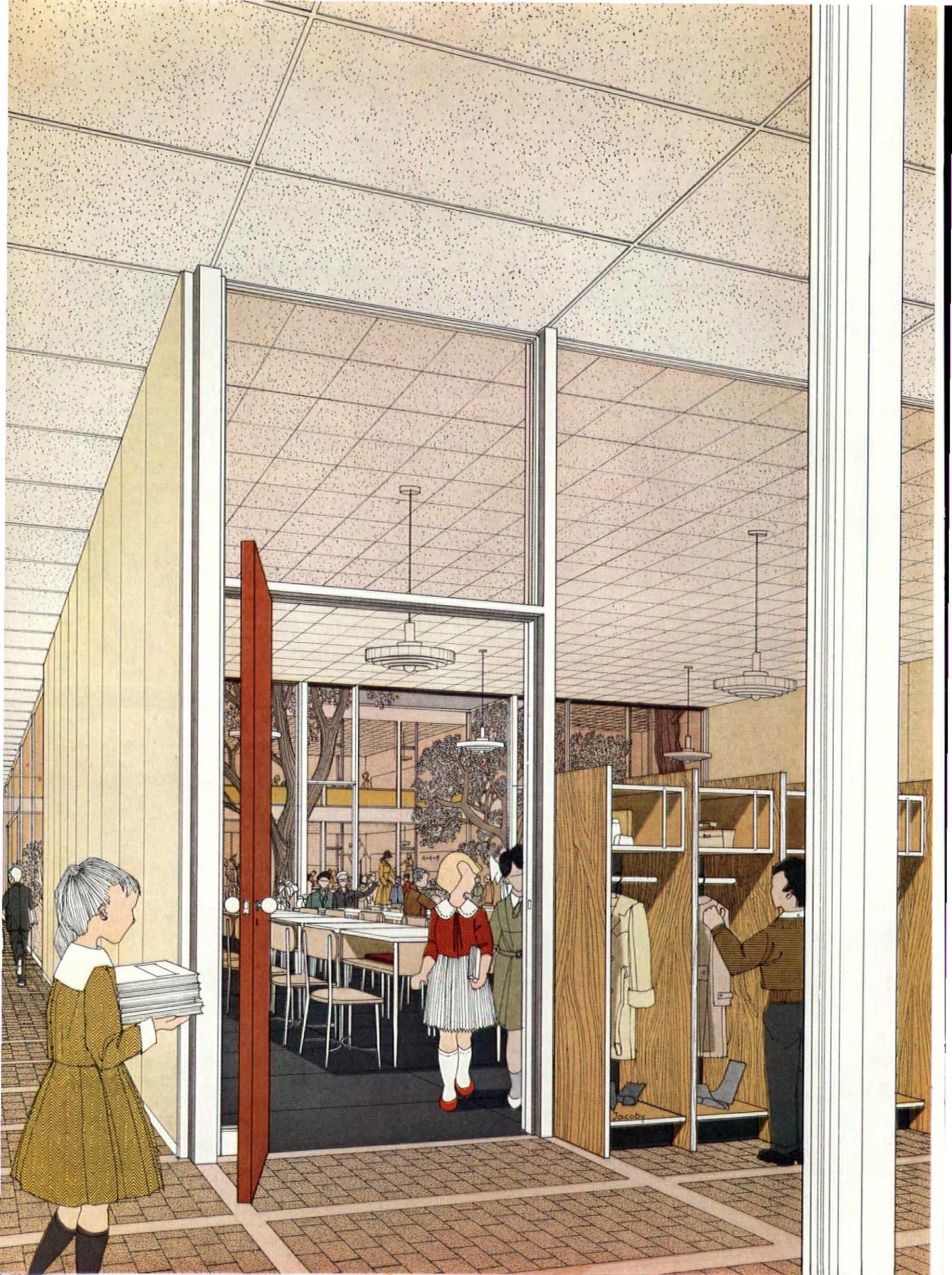
Name _____ Title _____

Company _____

Address _____

City _____ State _____





From Armstrong: a giant step in fire-retardant ceilings

**Now, for new schools: two types
of Acoustical Fire Guard—12" x 12" tiles
and exclusive new lay-in units**

In the school corridor on the left you see the new Armstrong Acoustical Fire Guard *lay-in* ceiling system. The classroom has a ceiling of Acoustical Fire Guard *tile*.

This was the first time-design-rated acoustical tile. Since its development two years ago, millions of feet have been installed.

The new lay-in system is another great advance in fire-retardant ceilings.

Three-hour U.L. rating

The Armstrong Acoustical Fire Guard lay-in ceiling system combines the advantages of an exposed grid system—economy and fast installation—with those of a time-design-rated acoustical ceiling. It protects the structural components of a building by resisting the dangerous transmission of heat from one area to another. Underwriters' Laboratories, Inc., has given this new ceiling system a beam protection rating of three hours. Floor-ceiling assemblies combining this system with bar joist and slab, as well as with beam and steel floor construction, earned two-hour ratings.

Resists 2,000-degree heat

The Acoustical Fire Guard lay-in ceiling system achieves its remarkable fire-retardant quality through two new developments.

The first is the Acoustical Fire Guard lay-in unit. Because of its composition, this new lay-in unit can withstand exposure to flames and 2,000-degree heat. It also offers excellent acoustical and sound attenuation properties.

The second element is a new suspension system capable of withstanding the same extreme conditions as the lay-in unit. Called the Armstrong Acoustical Fire Guard Grid Suspension System,* it is designed to accommodate the expansion of both main runners and cross-tees, and thus to hold the lay-in unit securely in place when exposed to fire. The Fire Guard Grid Suspension System is the first to be combined with a lay-in ceiling unit to offer rated fire protection. Both the lay-in unit and the grid system carry the U.L. label.

Economy in time and money

In most cases, the new lay-in ceiling system will cost even less than ordinary plaster ceilings on metal lath. And like Fire Guard tile, it can save builders up to *two months'* construction time because it goes in dry. This is especially important in school construction. Schools *must* open on time. Fire Guard helps meet deadlines — at savings of thousands of dollars.

The Acoustical Fire Guard lay-in ceiling system is now available in both a Fissured and the popular Classic designs. There are two nominal sizes: 24" x 24" x 5/8" and 24" x 48" x 5/8".

For more information about either Acoustical Fire Guard tile or lay-in units, call your Armstrong acoustical contractor (he's in the Yellow Pages under "Acoustical Ceilings") or your nearest Armstrong District Office. Or write to Armstrong Cork Company, 4202 Rooney Street, Lancaster, Pennsylvania.

* Patent Pending

Armstrong ACOUSTICAL CEILINGS
First in fire-retardant acoustical ceilings

Architectural design and
rendering by Helmut Jacoby



Office designed with an EXECUTIVE in mind...



his furniture, of course, by **All-Steel**

ALL-STEEL EQUIPMENT INC.
Aurora, Illinois

4000 Line by All-Steel combines beauty with functional design. Here is furniture as flexible as your imagination to create distinguished offices for every type of business. See your ASE dealer or write for brochure.



Projects

A roundup of recent and significant proposals



TALL COOPERATIVE APARTMENTS FOR PUERTO RICO

A narrow lot and rigid setback regulations forced the architects of this San Juan apartment building to think tall and thin, resulting in a tower 230 feet high (the tallest in Puerto Rico) and only 30 feet deep. Rising from a two-story base of shops, lobby, and recreation areas, the 20 apartment floors will have similar layouts: four

apartments to a floor, each with three bedrooms and a balcony. An additional two apartments and their private terraces will occupy the penthouse. Architects Horacio Diaz & Associates designed the structure of reinforced concrete and the spandrels and railings of precast concrete with exposed aggregate.



COMMUNITY CENTER IN CONNECTICUT

To supplement the Jewish Community Center in Hartford, three new wings will be built this year: a theater (left), lounges and social rooms (center), and an ath-

letic wing with a gymnasium, swimming pool, and health club (not shown). Plans by The Architects Collaborative call for red brick and concrete as the principal materials.

BOSTON OFFICES

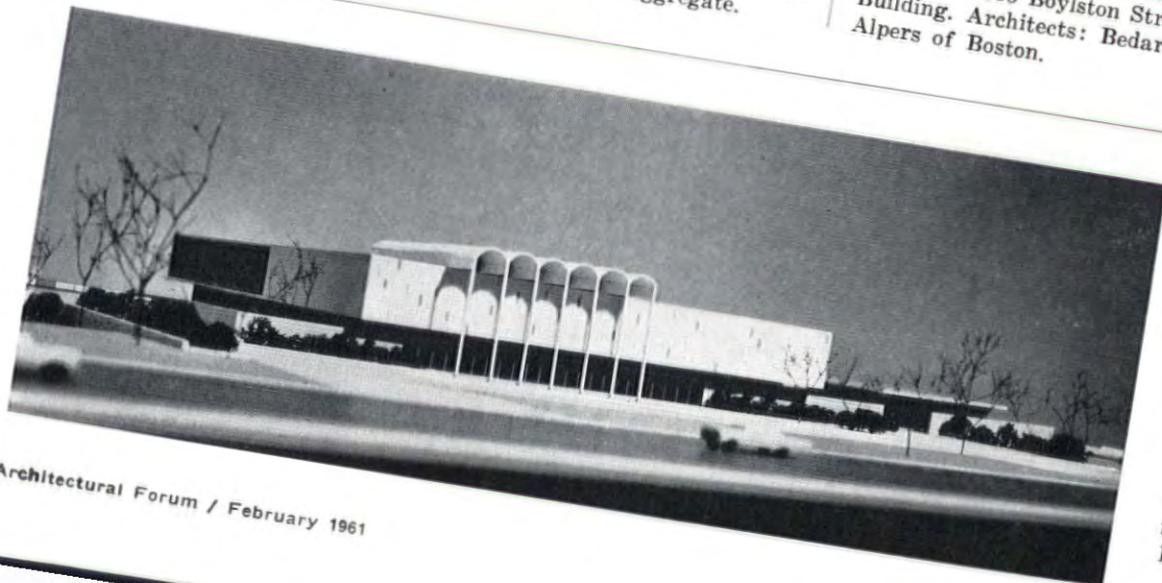
Three old brownstones in Boston's Copley Square, facing Trinity Church, will be torn down this year, to be replaced by this 12-story metal-and-glass office building. It will be erected as a speculative venture, to cost about \$3 million, by a group of private investors known as the Bristol Trust, in an effort to attract national firms' offices to Boston. Floors of 6,000 square feet, adapted to individual tenants' requirements, will be ready for occupancy in 1962. Its official name will be the 535 Boylston Street Building. Architects: Bedar & Alpers of Boston.



ST. LOUIS STUDENT CENTER

Besides providing room for a multitude of social activities, this student union at St. Louis University will shelter a couple of observers: the dean of men and the dean of women. Of concrete construction, the center will have brick, masonry, glass, and translucent panel walls. Architects: John A. Campbell; consultant: Commercial Design Div., Bank Building & Equipment Corp.

continued on page 49





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PHOENIX MUNICIPAL BUILDING AND COUNCIL CHAMBER

Ending its 1960 deliberations, the Phoenix City Council voted approval of a new municipal building and, close beside it, a circular council chamber for itself, to be built at a combined cost of \$3.5 million. Cast concrete will be the chief exterior material, forming strongly vertical projections around the copper-framed win-

dows; the sharply sloping sills are supposed to be pigeon-proof. Arches 24 feet high will form an arcade around the building at ground level. The architects, Edward L. Varney Associates and Ralph Haver & Associates, expect construction to begin next fall. Total area of the 8½-story building will be 174,000 square feet.

PORTLAND INSURANCE OFFICE

In a real-estate swap with the city of Portland, Ore., the Standard Insurance Co. will dig up the sidewalks around its new building, replace them with garage ramps, and give the city new sidewalks *inside* the ramps, next to the landscaped plaza. The entrance ramp will be on the building's north side, and the exit on the south. This scheme was worked out by the building's architects, Skidmore, Owings & Merrill, and Standard's realty manager with the City Council, to give access to the two underground parking levels. Over these, the building's 16 stories will be clad in three anodized aluminum colors: light natural for column and beam covers, black for window reveals, and gray for frames and mullions.

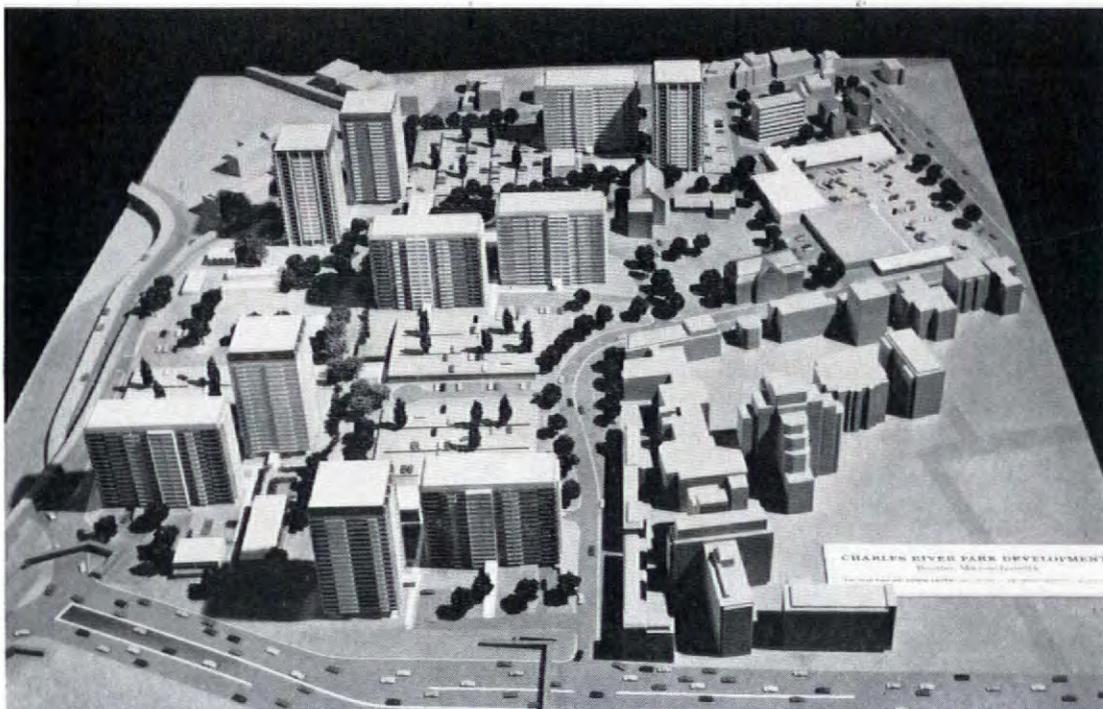


ARIZONA HIGH SCHOOL



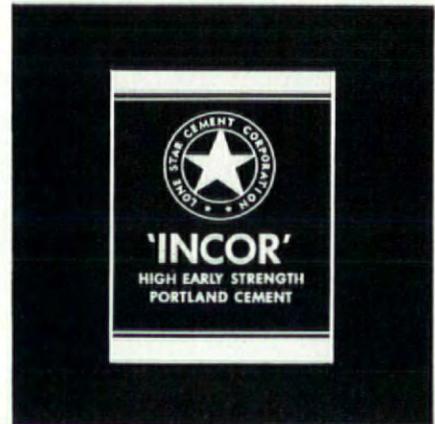
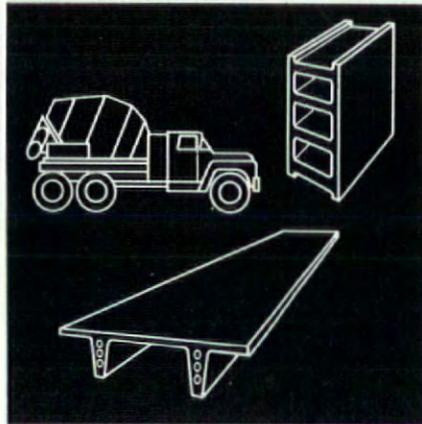
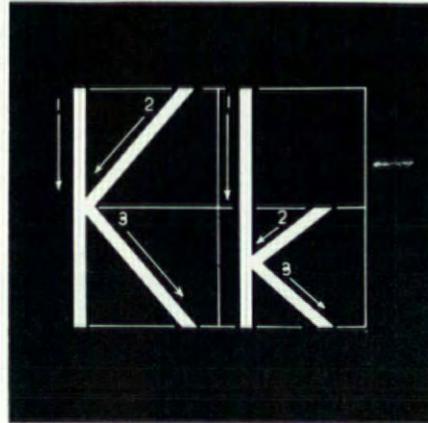
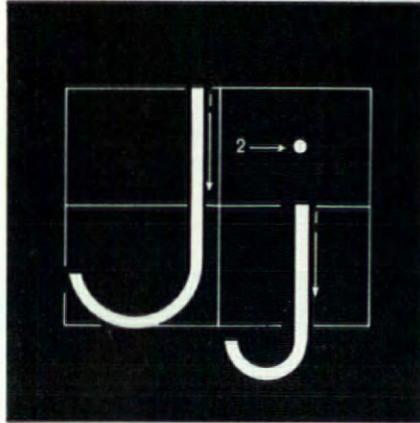
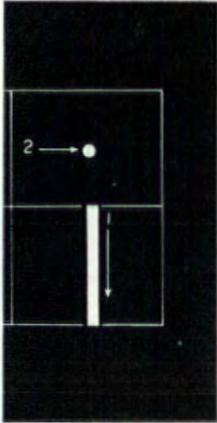
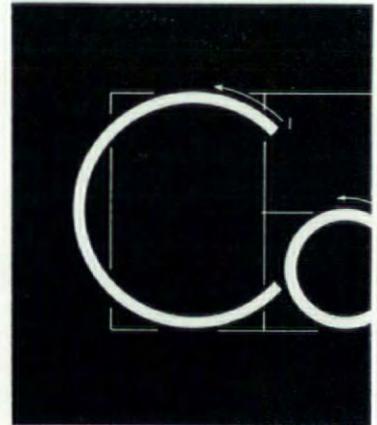
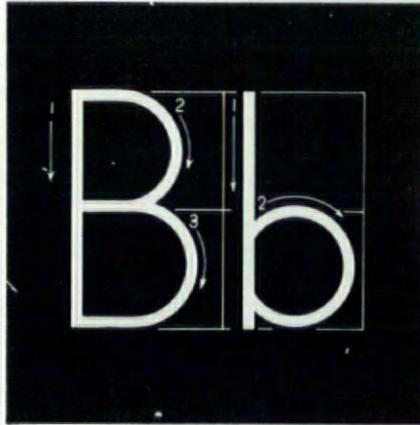
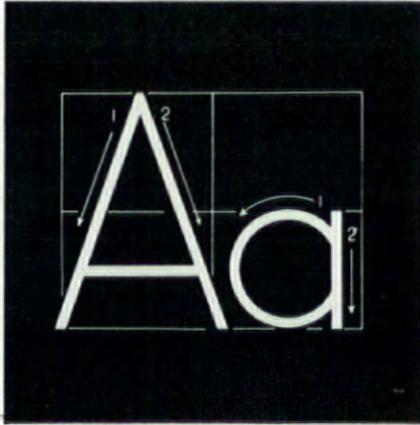
This sprawling school is for Phoenix, one of three to be built from the same plans by Weaver & Drover. The three buildings at left are of concrete frame construction, and except for concrete barrel vaults topping the gymnasium and auditorium, all three will have flat-slab roofs 10 inches thick. Orange porcelain panels, placed at intervals, will relieve the buff-colored brick walls. This will be the first all-electric high school in Arizona, and it is expected to cost \$11.20 per square foot for a student capacity of 3,150.

BOSTON APARTMENTS



Victor Gruen Associates have designed this \$55 million, 45-acre apartment project for Charles River Park in the West End of Boston. One cluster of buildings—two high-rise apartments and two town houses—is already under construction and will be occupied in September. This first group contains 477 rental units, divided among efficiencies, one-bedroom and two-bedroom apartments, and a smaller number of larger units, renting from \$125 to \$430 a month. The towers are 16 and 23 stories; the town houses, three.

continued on page 51



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for school**

One valuable "aid to education" is Incor 24-hour portland cement. It speeds construction of attractive fire-safe schools, whether designed with precast or cast-in-place concrete. Incor permits earlier occupancy...cuts the cost of forms and equipment...and saves taxpayers' money. Check into Incor's 33 years of proved on-the-job performance.

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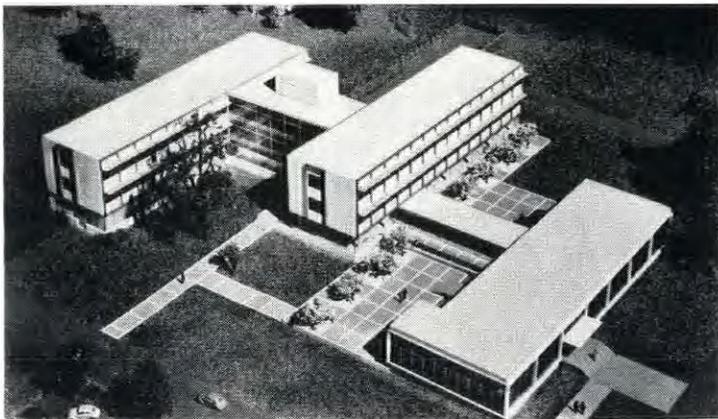
LONE STAR CEMENT CORPORATION, NEW YORK 17, N. Y.



EXECUTIVE OFFICES OUTSIDE BOSTON

On Route 9, about 15 minutes from downtown Boston, a hill-top 60 feet above the road has been chosen for the Boylston Executive Building (above). Tenants will park their cars underneath the reinforced concrete building and

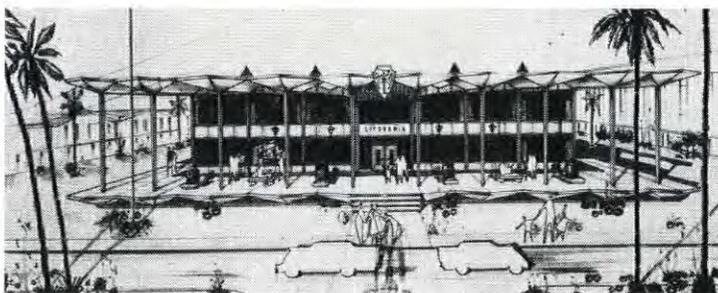
walk directly to an elevator lobby dug into the hillside. On three sides of the building, louvers, vertical aluminum sunshades, and window setbacks will control the sun. Architects: Salsberg & Le Blanc of Brookline, Mass.



BIG NEW U.S. HEADQUARTERS FOR SMALL-CAR MAKER

As a measure of the Volkswagen's phenomenal success in this country, Volkswagen of America, Inc., which started out with only three employees in 1955, is expanding into the new \$2.5 million American headquarters above, planned for more than 200 employees.

It will be built this year, of quartz-faced precast concrete and heat-absorbing gray glass, on a rolling 18-acre site in Englewood Cliffs, N. J. Architects: Fellgraff, Ballou, Daly of Ridgefield Park, N.J.; T. W. Beddall of Toronto, consulting architect.



LITHUANIAN EMBASSY FOR BRASILIA

On Embassy Row in Brazil's new capital, Lithuania will build an embassy identified by the country's seal above the entrance and a series of panels representing several cities, which will extend across the front of the precast concrete building between the first and second floors. Most of the first floor, which will be raised

above ground, will be for offices; the second, living quarters and an auditorium-chapel; and the basement, stock rooms, library, guest rooms, and housekeeper's quarters. This design, winner of a competition, is by Lithuanian-born Edmund Arbas, now on the staff of Charles Luckman Associates in Los Angeles.



DESK-SIDE PARKING IN HOUSTON OFFICE BUILDING

In a bid to line up drive-to-work tenants, the Siteman Organization asked Wyatt C. Hedrick to design an office building with an attached garage that would be more than sufficient to park tenants' and visitors' cars. Hedrick's design, for a corner site in Houston, is a 20-story gray-and-gold square tower and an eight-

level, 750-car garage connected to it, banded together by a pierced masonry screen. Behind the screen around the office base, a glass curtain wall will be recessed enough for window washing; the garage will be enclosed by the screen alone. The office-building exterior will be porcelain enamel on steel and tinted glass.

GEORGIA INSURANCE OFFICES ON A PLATFORM

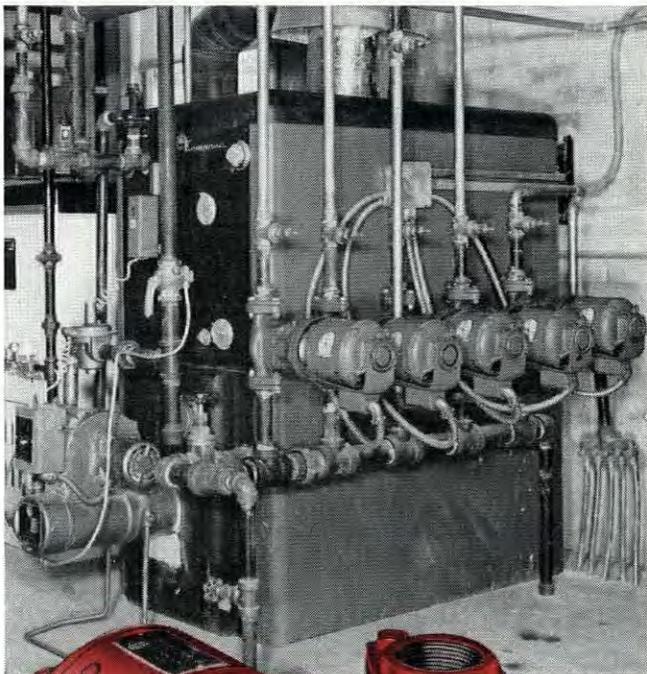
Standing on a terraced platform raised above the sidewalk, this new eight-story building on Atlanta's Peachtree Road will be the headquarters of both the Great Republic Holding Corp. and the Banker's Fidelity Life Insurance Co., though it will be known by the less cumbersome name of The Bankers Fidelity Life Building. Behind exterior walls of glass

and precast concrete, the aggregate left exposed, the interior will have 60,000 square feet (net) of flexible office space, served by three high-speed automatic elevators. Four decks underneath the building will park 230 employees' and customers' cars. Construction will start this spring. Architects: Edwards & Portman of Atlanta. END





**TENANTS SELECT THEIR OWN TEMPERATURE IN 25
APARTMENTS ZONED BY **B&G Hydro-Flo®** SYSTEM**



Stratford Manor Apartments, Schiller Park, Ill., attracts tenants with such luxury features as *individually controlled Hydro-Flo* Heating for each apartment.

Five buildings, each with five apartments, are heated with one boiler in each building. Five B&G Boosters, together with auxiliary *Hydro-Flo* equipment, are installed on each boiler to provide thermostatically controlled circulation to individual apartments. Tenants receive all the comforts of *radiant hydronic* heating plus their own choice of temperature. Only a forced hot water heating system can provide zoning so effectively and economically.

The B&G *Hydro-Flo* Systems installed in these apartments have proved so satisfactory that the builder plans to install the same system in 92 additional housing units to be built.

**B&G BOOSTER®...key unit of the
B&G Hydro-Flo System**

Engineered for compactness, silent operation and years of service, this electric pump circulates boiler water for heating. It is built by precision manufacturing methods which translate good design into a superior product. This key unit and other auxiliary *Hydro-Flo* equipment can be installed on any hot water boiler.



B&G BOOSTER

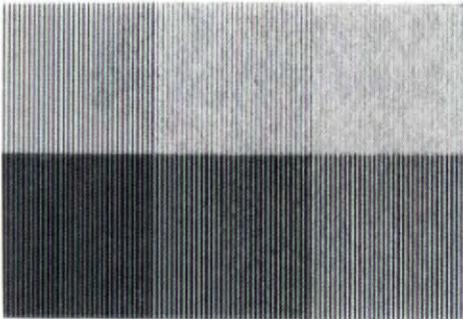


BELL & GOSSETT
C O M P A N Y

Dept. GN-62, Morton Grove, Illinois

Canadian Licensee: S.A. Armstrong, Ltd., 1400 O'Connor Drive, Toronto 16, Ontario

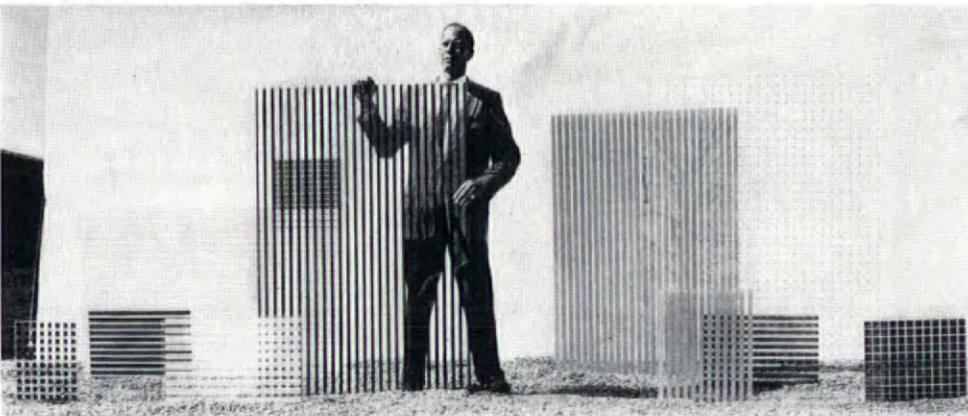
Controlled transparencies . . . heated and air-conditioned ceilings



PRECISION GLASS

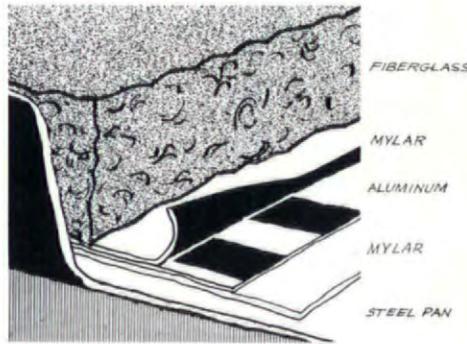
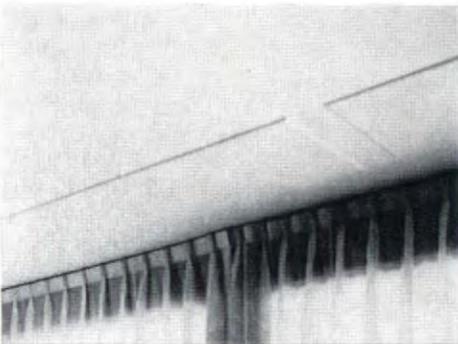
These new glass patterns, based on technical, physiological, and psychological research, control transparency to a carefully calculated degree. Taking into account the way the eye perceives images, Robertson Ward Jr., a Chicago architect, developed these patterns as a consultant to the Virginia Glass Products Corp. By fusing ceramic color in extremely precise pat-

terns to a polished plate-glass surface, quite startling visual effects are secured: images are obscured as the viewer comes close to the glass and clear as he moves away. The panel at left shows, on a much reduced scale, a series of stripes whose light transmission graduates from 10 to 90 per cent. The photograph below, of several stripes and one or two squares of ceramic on glass, gives an idea of how varied the patterns and effects can be.



This glass, called *Transpan*, offers the architect a wide choice of color, degree of privacy, light transmission, and solar radiation. In dark colors it transmits less solar heat than gray glass of equal visibility; white *Transpan* transmits still less because of reflection. At present Virginia Glass is producing six graded transmissions in striped and square patterns whose open areas range from 99 down to 10 per cent. They are available in 22 standard Tempar-Glas spandrel colors, plus matte black, all in 1/4-inch thicknesses. Other colors and thicknesses are made to order.

Manufacturer: Virginia Glass Products Corp., Martinsville, Va.



ELECTRIC CEILING

Designed for use on the ceiling, these prefabricated radiant heating panels embody printed electrical circuits which heat evenly all over, putting out 70 per cent radiant and 30 per cent convection heat. Because they may be flush-mounted in grid systems or bolted to ceilings (photo), they provide an unobtrusive and space-saving primary heating system. These panels consist of two layers of Du Pont's Mylar polyester film and one of aluminum, finished off with a steel pan painted to match the ceiling, and backed with 3/4 inch of dense glass-fiber insulation. Automatic wall thermostats maintain set temperatures.

The panels come in two sizes: one for inserting in exposed grid ceilings and another for direct mounting (with toggle bolts) to plaster, wallboard, or plywood

ceilings. Both sizes are 13/16 inch thick and measure about 2 by 4 feet in their other dimensions, the grid model being slightly smaller. The heating elements, 500 watts at 240 volts for the grid model and 500 watts at 120 volts for the other, are guaranteed for five years. The panels cost about \$38 retail and are shipped prewired, no assembly needed. One panel will heat an average of 50 square feet, so that about 16 panels are required to heat a schoolroom 20 by 40 feet.

Manufacturer: Arvin Industries, Inc., Columbus, Ind.

NUCLEAR ALARM

The *Pyr-A-Larm* nuclear sentry is so sensitive that it will warn of fire before there is smoke, flame, or heat, when the fire may be nothing more than an overheated resistor or a smoldering pile of waste material in a corner. To report a fire in its earliest stages, *Pyr-A-Larm* has an electronic "nose" which senses the presence of invisible particles in combustion gases given off by a fire. When these particles enter the sampling chamber in the detector, they interrupt the flow of a tiny electrical current, activating a power unit, which sounds an audible warning and lights a signal lamp. In large office buildings and warehouses, the flashing lamp

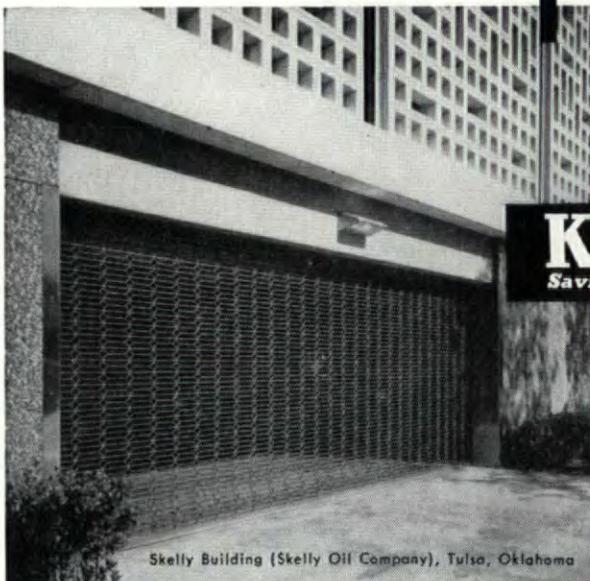
continued on page 54



Upward-acting, all-metal grilles that block intrusion when closed, without cutting off light, air or vision . . . coil quickly out of the way above the opening whenever desirable . . . and complement the beauty of today's most distinguished buildings and architectural designs

Kinnear Steel Rolling Grilles

Built of steel, aluminum or bronze, to fit any doorway or other opening — with motor or manual control — for face-of-wall or under-lintel installation — made by the makers of . . .



Skelly Building (Skelly Oil Company), Tulsa, Oklahoma

KINNEAR
ROLLING DOORS
Saving Ways in Doorways

**The KINNEAR
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FACTORIES:

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helps watchmen and firemen pinpoint the trouble.

The cost of a Pyr-A-Larm system depends on the degree of protection wanted and, therefore, on the number of detectors and control boxes required to do the job, but as a general guide, the manufacturer



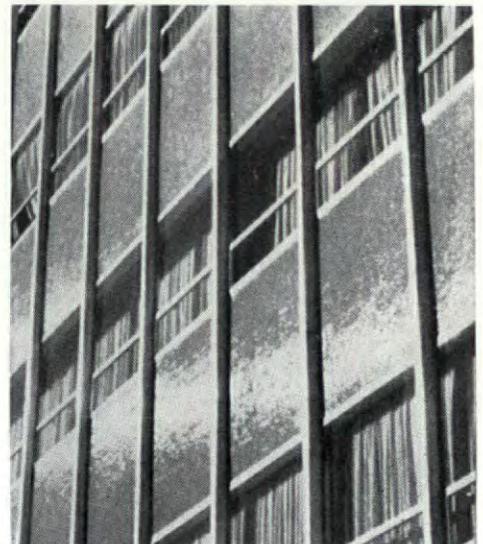
says that its cost is about one-fourth to one-third that of a sprinkler system to protect the same area. The operating cost for an entire system in a medium-sized building is about the same as that for a 25-watt light bulb.

Manufacturer: Pyrotronics, Div. of Baker Industries, Inc., 10 Empire St., Newark 12, N. J.

MOSAIC SANDWICH

Three manufacturers, The Mosaic Tile Co., the Structural Panel Corp., and the Nautaguck Chemical Division of U. S. Rubber Co., have coordinated their research to perfect this prefabricated, lightweight curtain-wall panel of weatherproof ceramic tile. To insure complete weatherability, the tile is set into a special frostproof inorganic bed and grouted with a flexible frostproof compound.

Under the exterior tile face, an insulating core, any of several foamed plastics on the market, is bonded between cement asbestos boards, and faced inside with a steel pan, galvanized and bonderized for a permanent finish. When faced with tile on both sides, these panels may serve as complete insulated exterior-interior walls or, faced singly, as interior partitions.



Panels may be specified in several Mosaic Tile types, and may be designed to fit all standard curtain-wall systems. The recommended maximum panel size is 4 by 8 feet. The in-place cost is about \$3 to \$3.75 per square foot.

Manufacturer: Structural Panel Corp., 253 Roosevelt Dr., Derby, Conn.

PLASTIC COVER

Keuffel & Esser is marketing a new plastic surface for drafting boards: a layer of Mylar laminated to green vinyl and backed with adhesive. Patted firmly into place on a drawing board, *Paramount* gives a smooth, slightly cushioned surface which keeps instruments from sliding yet is not so impressionable as to retain pencil lines or small compass holes. It cleans easily with soap or a mild cleanser.

K&E offers *Paramount* in one color only, a pale green, in sheets and rolls. The list price of a sheet 38 by 60 inches is \$14.50, but the price is less for quantity orders.

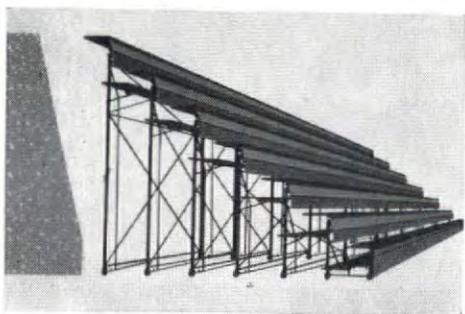
Manufacturer: Keuffel & Esser Co., Third and Adams Sts., Hoboken, N. J.

FOLDING SEATS

V.O.S. folding gym seats take their name from their vinyl-on-steel construction. The vinyl finish, which has some sound-deadening value, resists scratches, burns, stains, and temperature changes, and washes easily with ordinary detergents. The crackle pattern resembles leather's texture, and the brown-and-beige color scheme harmonizes with gym floors and walls. The heavy-gauge steel seats are cross-braced with steel tubing for even load distribution.

In folded or closed position, a three-row section occupies a strip of floor less than 2 feet wide, while a 20-row section occupies 6½ feet. The folded stands have a "safety slope front" without projections or sharp edges to injure a player who might fall against them. Between rows, skirtboards hang at an angle and swing back for more leg room and easier passage. One row at a time may be opened, or a few rows used, without opening a whole section; each row locks in place separately.

Standard sections, which hold 13 people per row, are 18 feet long, mounted in stands of three to 20 rows. Other sizes, *continued on page 56*



BEAUTY and PERMANENCE

145 *Ellison* DOORS in BRONZE
For O'KEEFE CENTRE, Toronto, Ontario



Flush
Stile-Rail and
Acoustical Doors
with Framing.

All are Ellison VARI-STILE
construction with Ellison
#61 checking Pivots.

architects

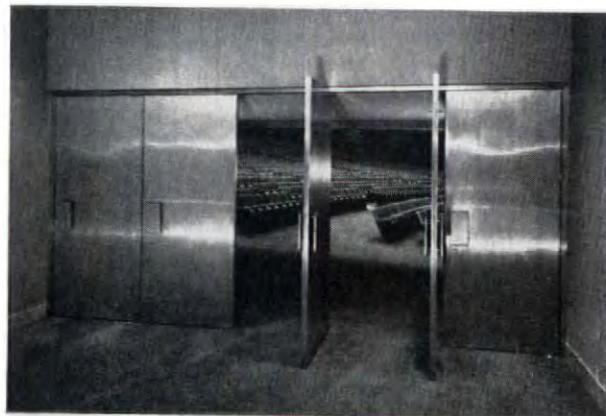
EARLE C. MORGAN
PAGE and STEELE



Entrance to one of the lounges



West entrance
to the Centre



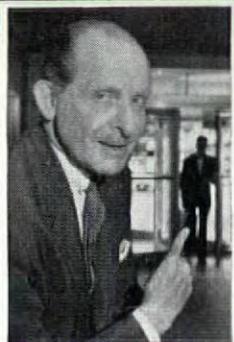
One of the entrances to the Auditorium

Executed by the
manufacturers of



Ellison
the BALANCED DOOR

representatives in 72 principal cities in U. S., Canada and Puerto Rico
ELLISON BRONZE CO., INC. • Jamestown, N. Y.



"The only effective answer to draft and heat problems at the CORNHUSKER HOTEL!"

says Mr. A. Q. Schimmel, President, Schimmel Hotel Company, Lincoln, Nebraska

"INTERNATIONAL REVOLVING DOORS!"

"We were plagued with blasts of cold air in winter and hot air in summer," says Mr. Schimmel, "with our last three sets of doors — all swing-door types. Our heating plant couldn't keep our lobbies warm — desk and elevator employees had to wear sweaters . . . and summer cooling was equally impossible. Supplementary equipment had to be purchased — yet it wasn't until we installed INTERNATIONAL Revolving Doors that our problem was finally solved!"

● MAINTENANCE COSTS REDUCED 80% THE FIRST YEAR!

"Our new revolving doors replaced automatic swing doors which required a great deal of attention . . . burned contacts and tubes in the control panel, glass broken in doors slammed by winds which also wore out hinges and door checks. Such problems — and expenses — are fortunately past since installing INTERNATIONAL Revolving Doors!"

● DUST AND DIRT PRACTICALLY ELIMINATED!

"We had no additional cleaning problem last summer, the first hot weather for our newly installed revolving doors. When we used swing doors dirt and dust came through our entrances steadily. About 100,000 persons register with us each year, and many thousands more local residents use our facilities . . . traffic that had the swing doors open almost as much as they were closed. This same amount of annual traffic moves smoothly through our revolving doors, with only routine lubrication and upkeep necessary."



● REVENUE INCREASED!

"The side entrance of the Cornhusker which opens directly into the Teepee, a small café, faces north and takes a buffeting from high winds. Even heavy-duty checks on the swing doors could not control the winds . . . customers chose tables away from the door in winter causing revenue to drop. INTERNATIONAL Revolving Doors make space usable right up to the entrance . . . customers and employees stay comfortable year 'round . . . and revenues have increased!"

REVOLVING DOOR ENTRANCE DIVISION

INTERNATIONAL STEEL COMPANY

1725 Edgar Street • Evansville 7, Indiana



cut-out aisles, portable sections, end rails, and automatic folding operations are available. Prices for V.O.S. units average about \$9 per linear foot.

Manufacturer: Brunswick Corp., 2605 E. Kilgore Rd., Kalamazoo, Mich.

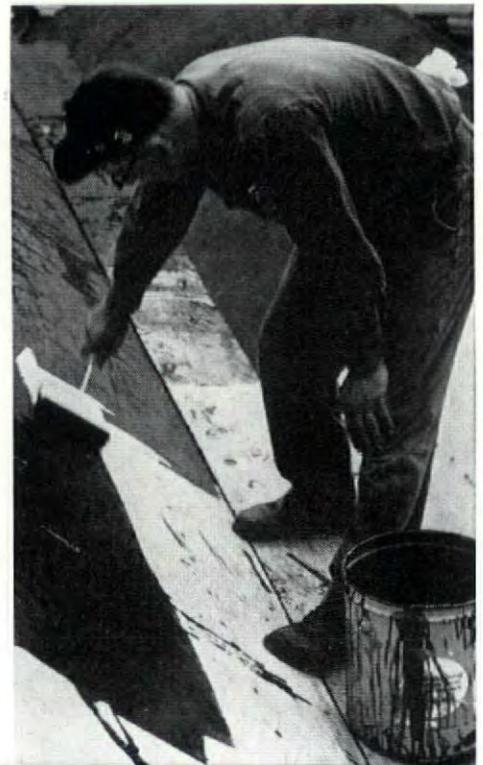
PLASTIC ROOF

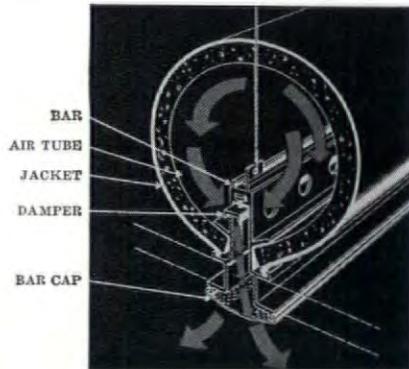
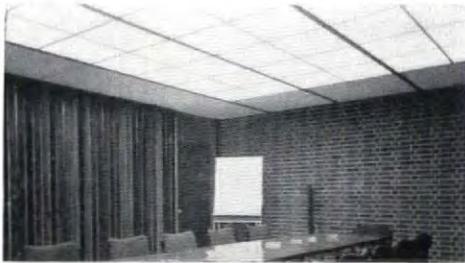
A new weatherproof roofing is a two-part fluid-applied finish for unusual designs, particularly thin-shell concrete and plywood hyperbolic paraboloids, domes, and folded-plate roofs, and for canopies, marquees, and other building projections. Hypalon and neoprene are the two compounds used in the *F/A Roofing* system, their proportions, like the application method, varying with the kind of surface to be covered. The roof's pitch and form determine whether air-operated, pressure-fed rollers, hand rollers, or conventional spraying equipment are suitable. Long used for gaskets and cable jackets, both neoprene and Hypalon have demonstrated their resistance to sunlight, heat, cold, and other damaging elements. Combined into roofing, they form an elastic membrane that cures quickly, remains stable without becoming soft or brittle during temperature changes, and weighs less than 20 pounds per 100 square feet.

The general procedure is to apply the neoprene compound, F/A 400, first as a primer base coat, then the Hypalon compound, F/A 600, as a weather coat which may be white for maximum reflection and cooling or pigmented to order. The total recommended thickness of all coats is 20 dry mils.

Installed F/A Roofing costs two or three times as much as a bituminous built-up flat roof, but the manufacturer believes that the initial outlay is offset by the new roofing's lower maintenance expense and adaptability to unusual roof shapes.

Manufacturer: Armstrong Cork Co., Lancaster, Pa.





CONDITIONED CEILING

The new through-the-ceiling air-conditioning system shown above delivers low-velocity air through an insulated tube and diffuses it through slotted metal bars running from wall to wall. Owens-Corning, developer of the *Fiberglas Acousti-Flo System*, calls it a ceiling "package," for it combines air distribution, noise control, thermal efficiency, and lighting in one ceiling. The system supports a variety of ceiling types, including luminous ones.

There are five basic parts to the system, labeled on the drawing. First the bar, a hollow aluminum extrusion 15 feet long, hung directly from the structure by wire or pencil rod hangers 6 feet on center. The bar supports the entire system, including the ceiling material, and contains an adjustable damper. Lapped around the bar and running its entire length, the Acousti-Flo tube is a slit cylinder of Fiberglas, the sound absorber and insulator for the system. A conventional duct-distribution system supplies air at one end; the other end is blanked. Bar and tube function as a unit to supply air along the entire length. The Fiberglas tube's inside diameter may be as large as 14 inches, and is available in wall thicknesses of $\frac{3}{4}$ inch for diameters up to 12 inches and 1 inch for diameters of 12 and 14 inches. Slipped over this Fiberglas tube, a thin aluminum alloy sheet forms an exterior vapor barrier. Turned-up flanges along the edge snap into lips on the bar. An aluminum channel, the damper, fits inside the bar, where it may be raised or lowered to produce more or less air circulation by adjusting the screws holding it in place. The finishing piece is the bar cap, a perforated aluminum section which snaps onto the bar and snaps off for access to the damper and for cleaning. It is shaped to give the proper temperature and velocity distribution patterns.

Manufacturer: Owens-Corning Fiberglas Corp., 717 Fifth Ave., New York 22.

END



...make your concrete floors

**LOOK BETTER,
LAST LONGER!**

Specify and Install
hydroment

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CONCRETE DENSIFIER and HARDENER

**CHOICE OF 9
RICH COLORS**

- TILE RED
- TAN
- TERRA COTTA
- FRENCH GRAY
- GREEN
- GRASS GREEN
- BROWN
- BLACK
- WHITE
and NATURAL



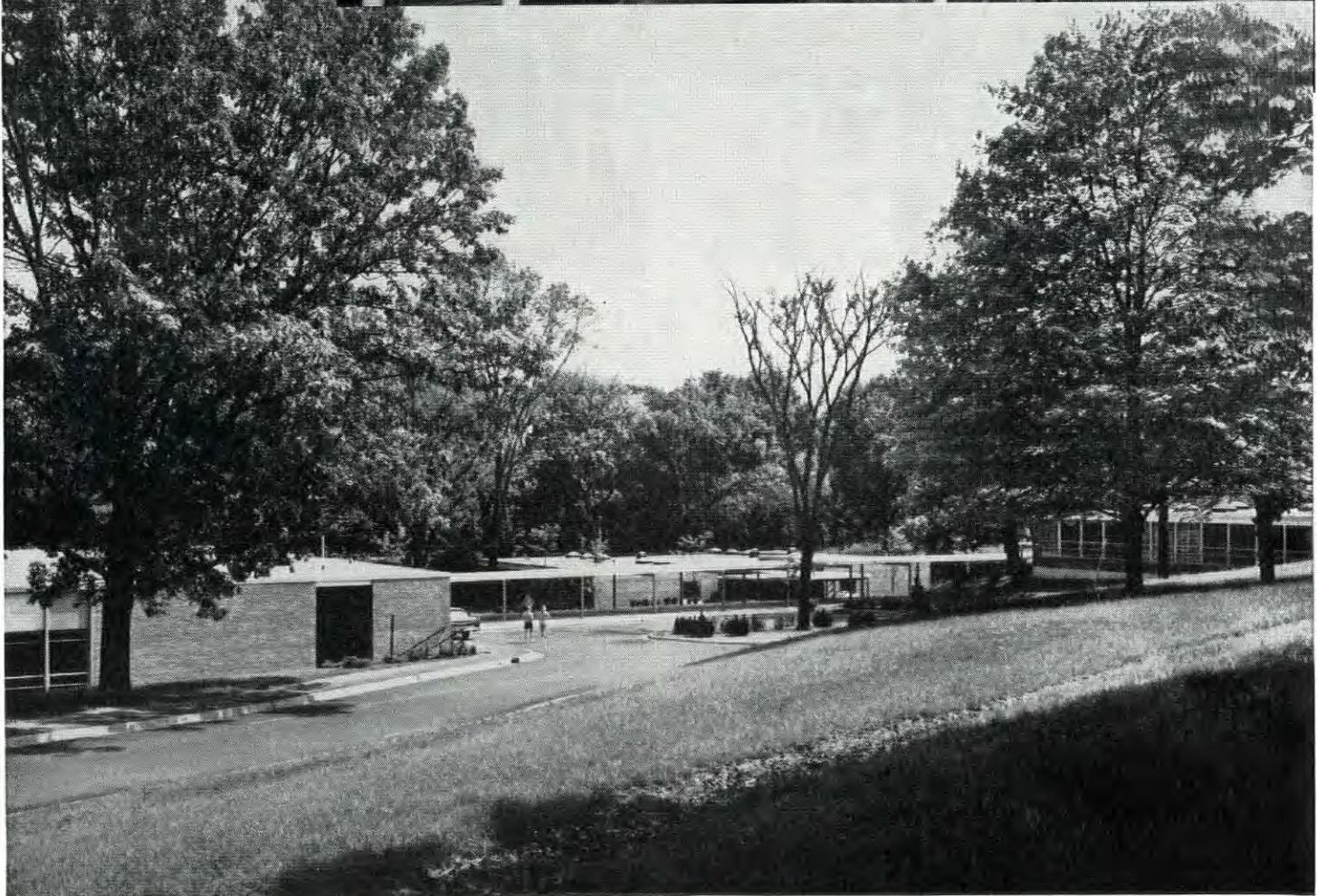
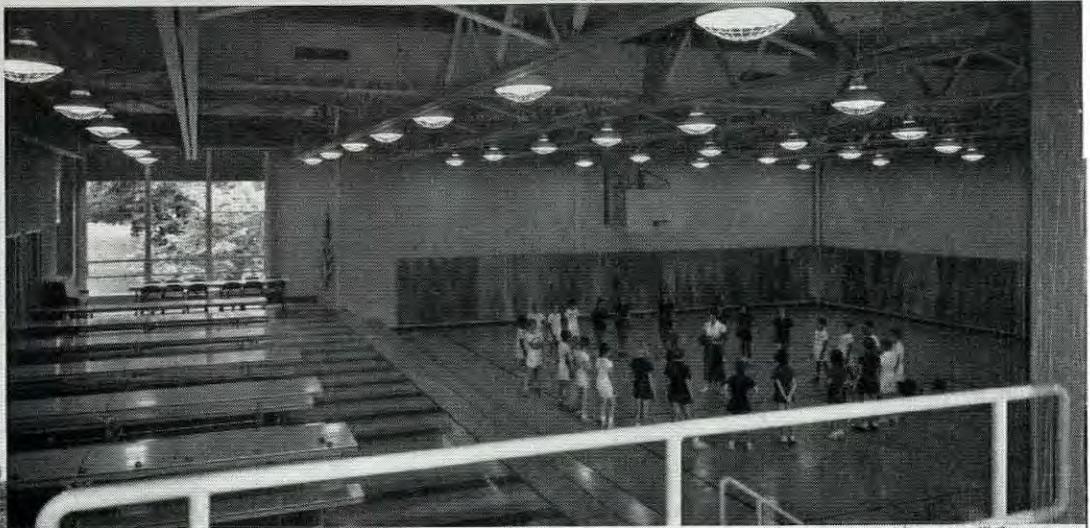
Pioneers in Industrial Research Since 1881

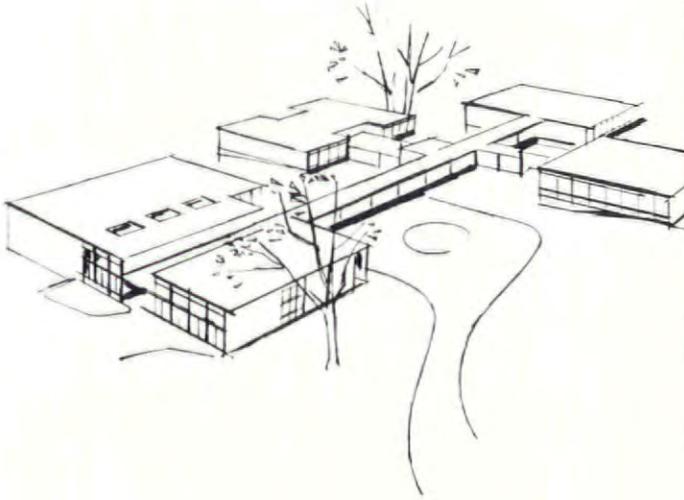
THE UPCO COMPANY

4805 Lexington Ave. • Cleveland 3, Ohio

In the West... HYDROMENT, INC., 829 N. Coffman Drive, Montebello, Calif.

Hilltop Elementary School, Wyoming, Ohio. Charles Burchard, A. M. Kinney Associates, architects & engineers, Cincinnati; Peck-Hannaford & Briggs Co., mechanical contractor, Cincinnati.





Johnson
Pneumatic Control
lets you

CUT THE COST OF COMFORT!

Forward-thinking planners created a pleasant, highly efficient environment for learning in Hilltop Elementary School, Wyoming, Ohio. Situated on a large wooded site, the campus-planned school consists of four separate buildings connected by covered walks. Three contain classrooms. The fourth houses the kindergarten, multi-purpose room, and kitchen.

Naturally, careful consideration was given to providing a thermal environment that would contribute the most to this modern school. This is accomplished by a specially planned Johnson Pneumatic Control System which regulates radiant ceiling panels and ventilating units utilizing high-temperature water. With a Johnson Thermostat on the wall of each room, youngsters get the benefit of closely controlled thermal conditions at all times.

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NEWS FROM PALO ALTO, CALIFORNIA

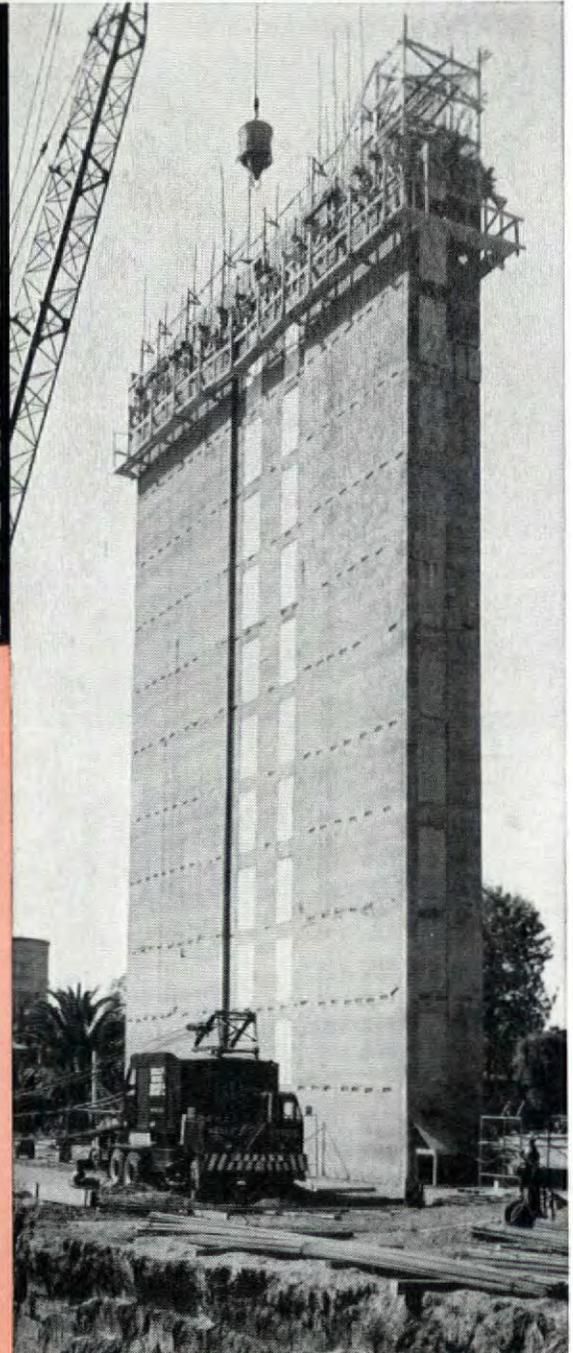
MUELLER BRASS CO. *Streamline* COPPER TUBE IN THE NEW TYPE "CENTRAL CORE" 15 STORY LUXURY



The first application of "slip-form" central core construction in the United States has been employed in the erection of the new 101 unit Palo Alto apartment building. With this method, the form in which the concrete is poured rides on high strength steel rods equipped with hydraulic jacks. The slip form is progressively lifted to each elevation after the concrete has been poured and allowed to set. By using this system, the 15 story core of the building was completed in 5 working days at an estimated saving of 8% on labor costs. Pre-stressed slabs, poured in place, serve as both floors and ceilings in the core. This Swedish-originated method has been used extensively in this country for bridge piers and storage silos, but is completely new in the construction of buildings.

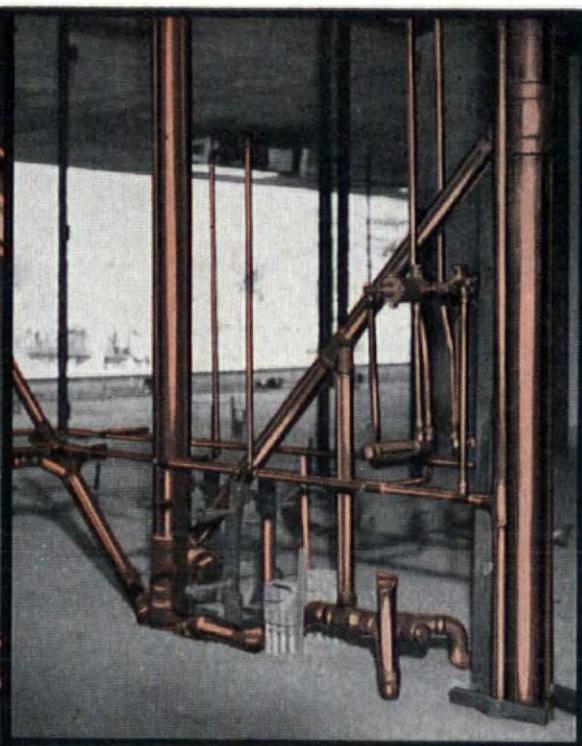
.....

Architect for the new Palo Alto apartments is William F. Hempel, AIA. The North State Builders Ltd. own and are constructing the 15 story building; engineering was by R. B. Welby of Modesto with H. B. Brewster, Fresno, consulting. The plumbing is being installed by the Herman Lawson Company of San Francisco. According to Mr. Hempel, the location of the utilities in the central core of a building sometimes creates problems in relation to local codes. But, in the case of the Palo Alto apartments, the city of Palo Alto changed code requirements so all plumbing in the building could be copper.



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Since the entire supply and drainage plumbing systems are contained in the walls of the new Palo Alto apartments, the smaller size and lighter weight of copper are essential factors. One unique innovation in this piping system is that many of the lines which customarily would be run horizontally have been installed diagonally, thus eliminating the need for pipe hangers. (Note the photo above). Copper was also used for all heating and cooling lines in this modern structure.

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Architects: William W. Bond, Jr., and Louis Ost, Jr., 4985 Summer Avenue, Memphis, Tennessee.

Structural Engineer: S. S. Kenworthy, Sterick Building, Memphis, Tennessee.

General Contractor: Harmon Construction Company, Oklahoma City, Oklahoma.



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SAYS "TINY" KIRK OF KIRK PLASTERING AND TILE COMPANY, LITTLE ROCK, ARKANSAS

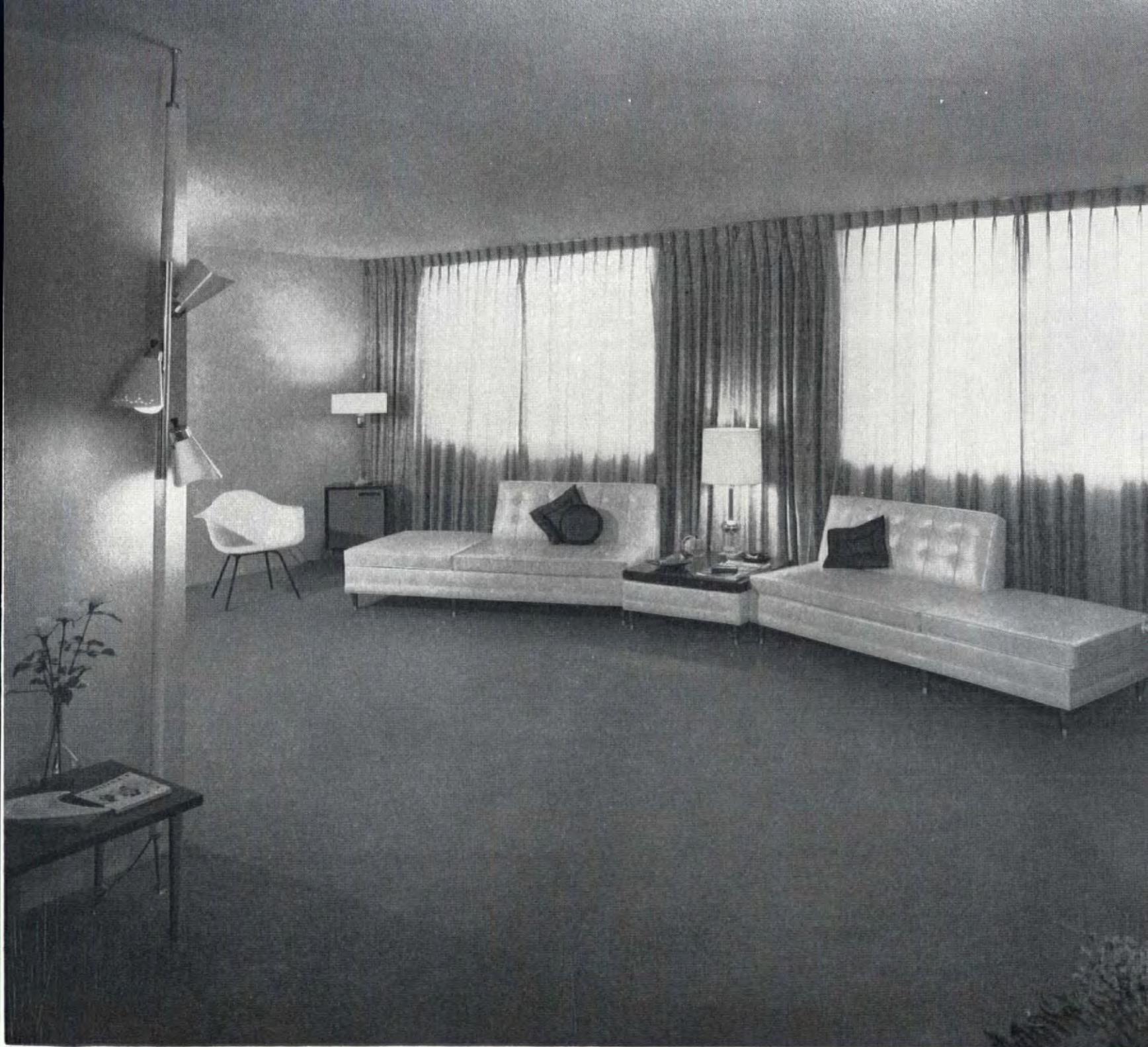
Architects and builders like "Tiny" Kirk's reasons for using Keycorner.

And they like what *doesn't* happen afterward. "Test results showed that Keycorner lends more crack resistance," said Tiny.

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Keycorner comes in easy-to-handle four foot lengths and goes up in a hurry. "But what I like most about Keycorner, it doesn't cut up my hands," says Carl Kennedy, one of Kirk's best workers.





A living room in one of the apartments of Plaza Towers. The owner, W. C. Mason of Little Rock says, "I shudder to think of what the upkeep on our apartments would be if the walls and ceiling weren't plaster. We chose it for its beauty, superior fire resistance and economy as well. And we're happy we did."

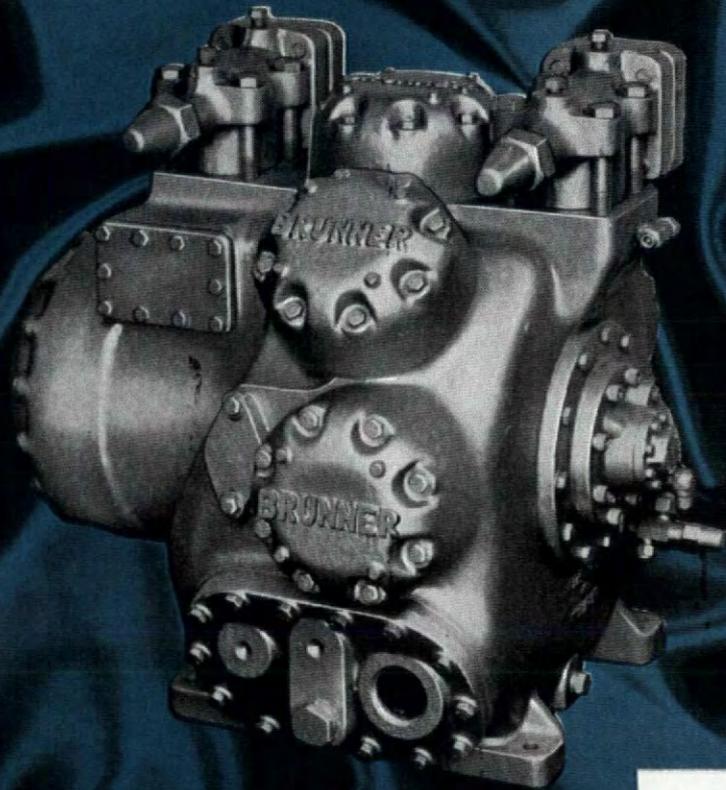
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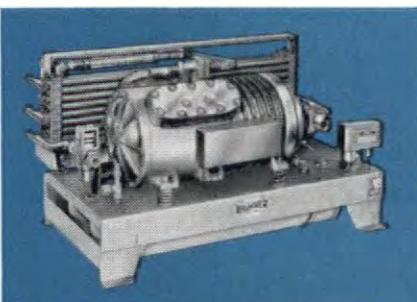
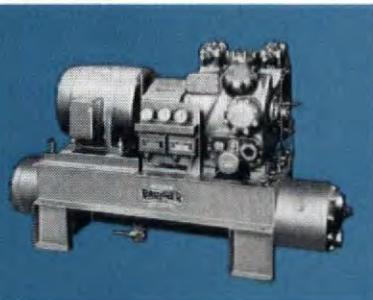
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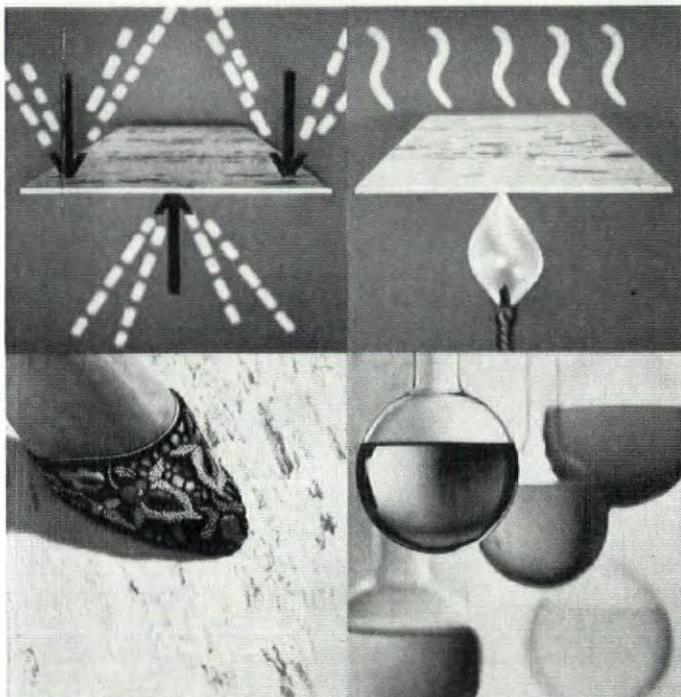
Hermetic compressors of the Multi-Drive line range in capacity from 10 H.P. to 100 H.P. and use R-22 refrigerant. Temperature ranges are from 10° to 50°F. Features include a motor winding or stator that can be conveniently removed without the use of special tools, a safety device specifically designed to automatically trip all three phases of current as a protection against motor burnout, and suction cooled motor windings which maintain lower motor temperatures and assure longer life.

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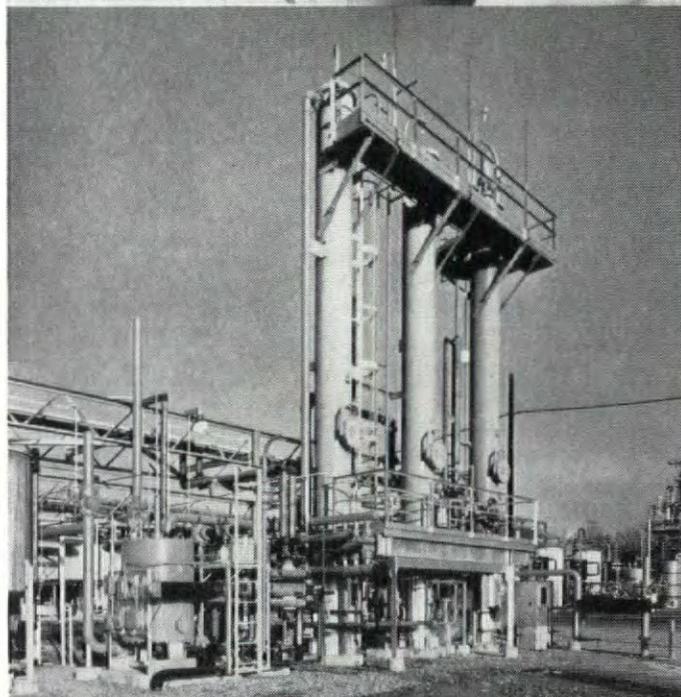


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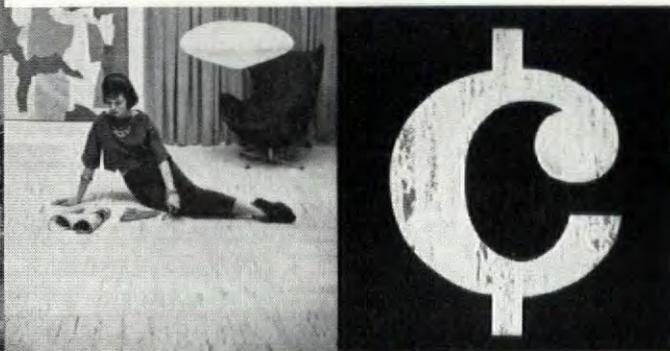
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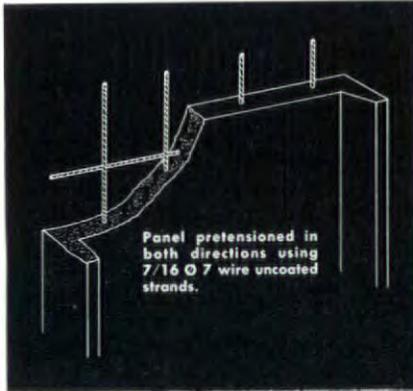
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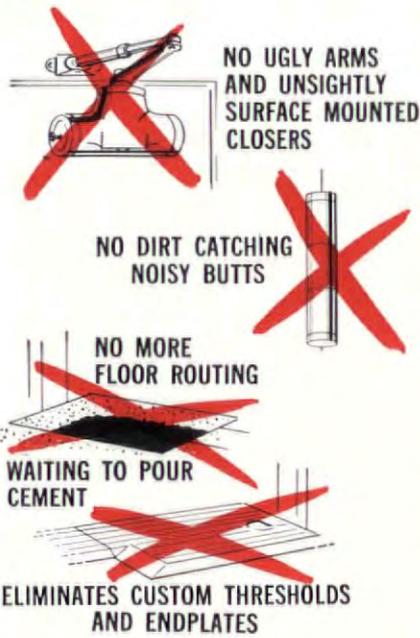
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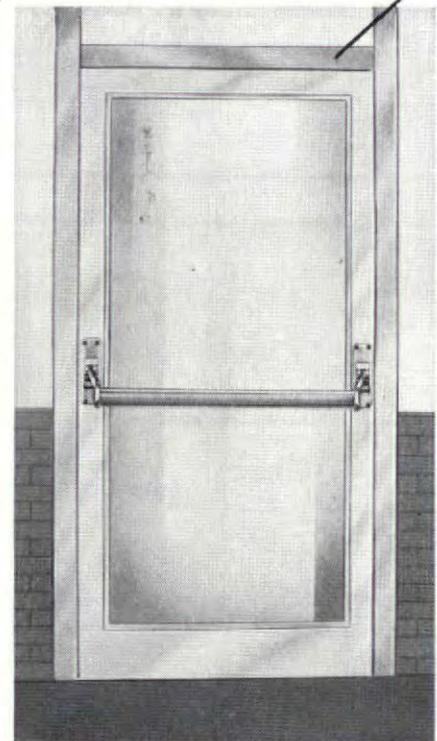
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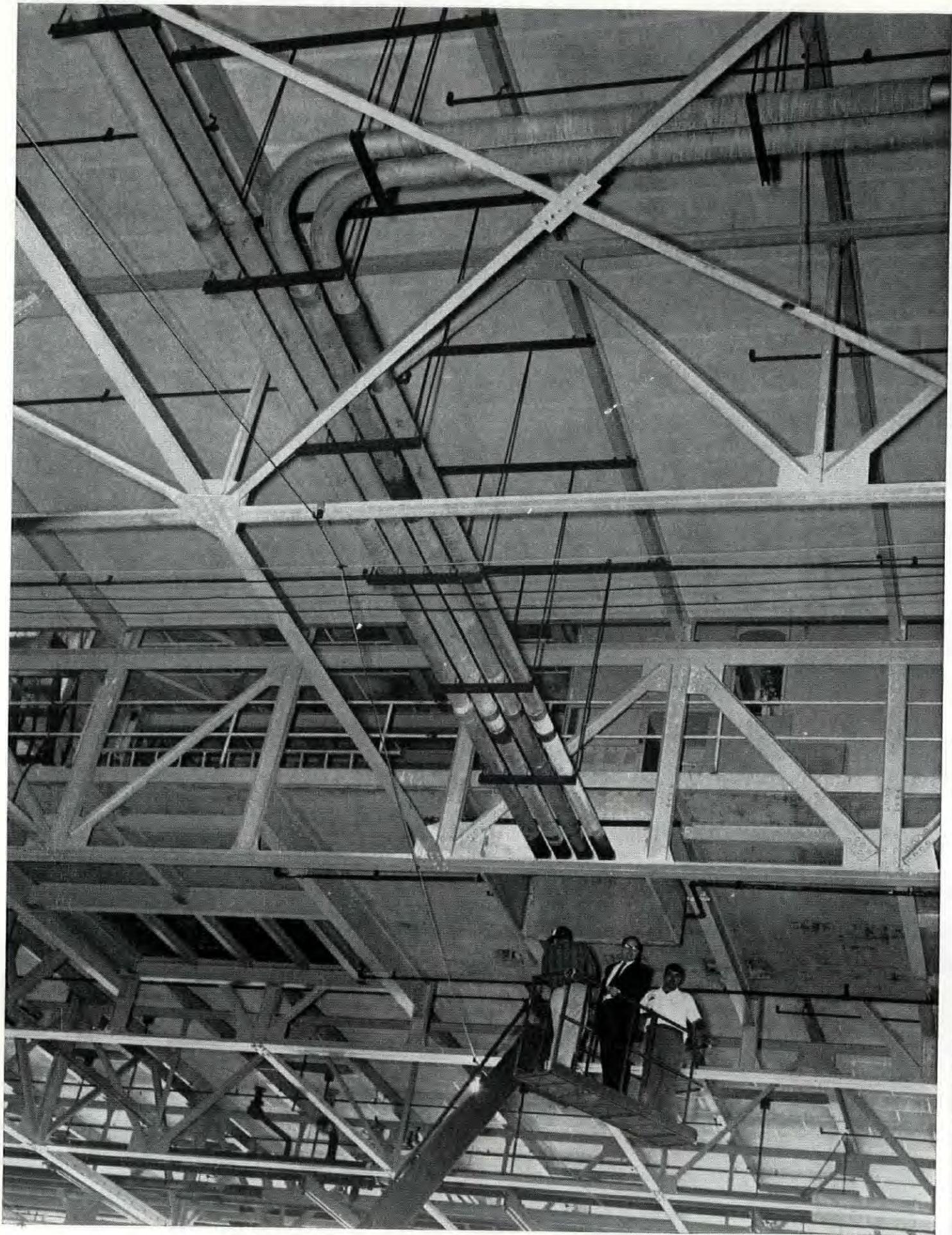
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Work shirt: “It's easy to install. You can thread with regular dies, and you don't need special lubricants.”

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Necktie: “Fine. Okay, let's get down off . . .”

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Work shirt: “You don't have to give steel any special coating for concrete installations.”

Necktie: “I've never been up on one of these things before . . . feel a little shaky . . .”

White shirt: “Steel conduit provides a grounded metallic system; induced currents are drained off without danger.”

Necktie: “Let's go down.”

Work shirt: “Steel conduit has a smooth interior . . . makes it easy to pull and fish wires. Saves time and money.”

Necktie: “Let's go down.”

White shirt: “We wouldn't use anything *but* steel conduit here. You know . . . don't send a pony to do a horse's job. Okay. Want to go down?”

Necktie: “Yes . . . yes . . . steel conduit . . . certainly!”

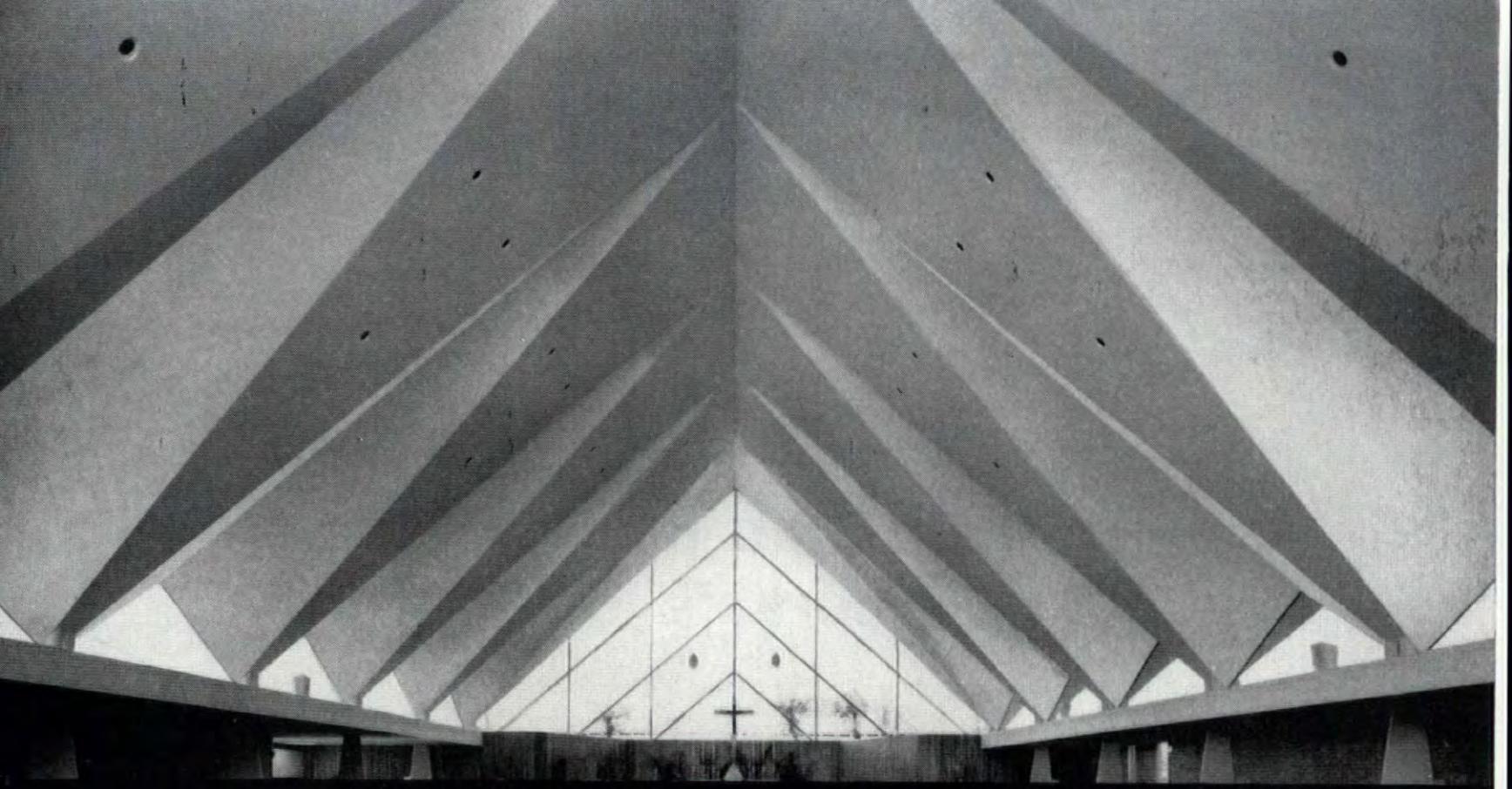
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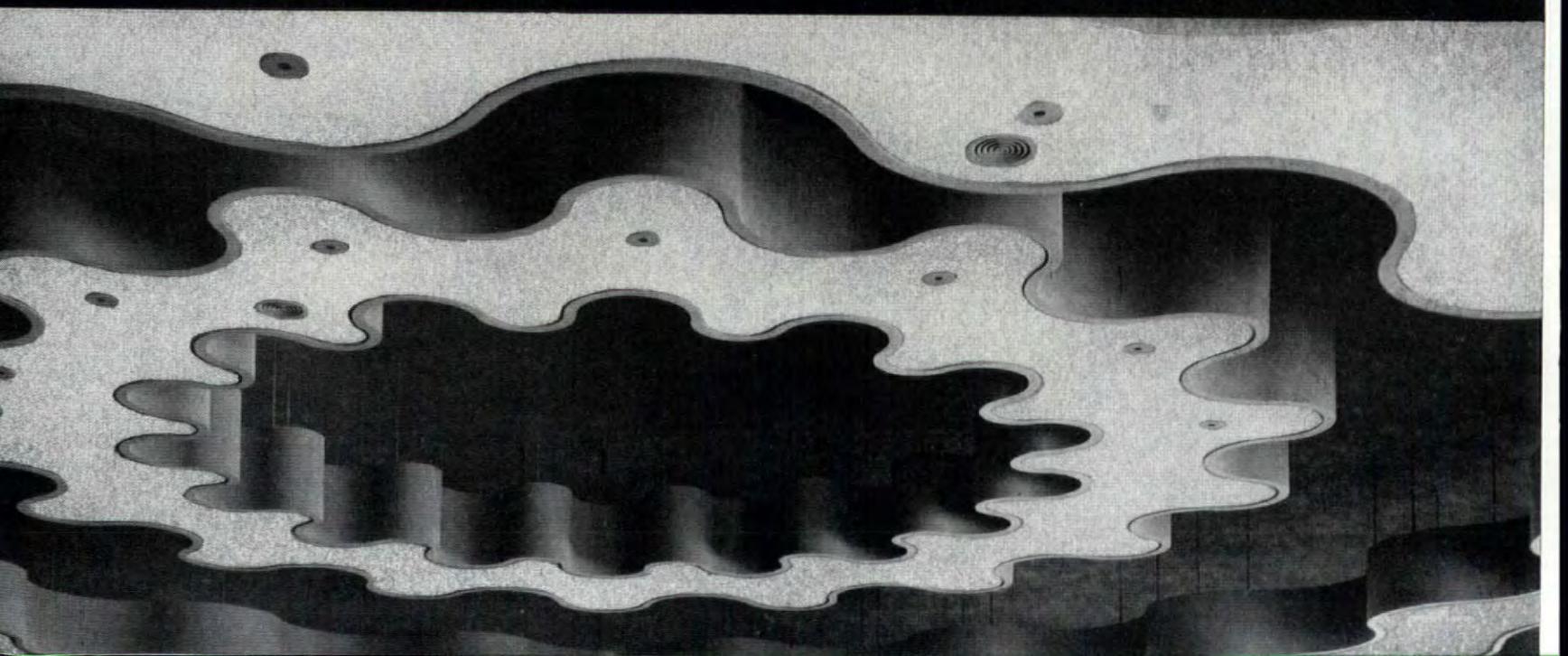
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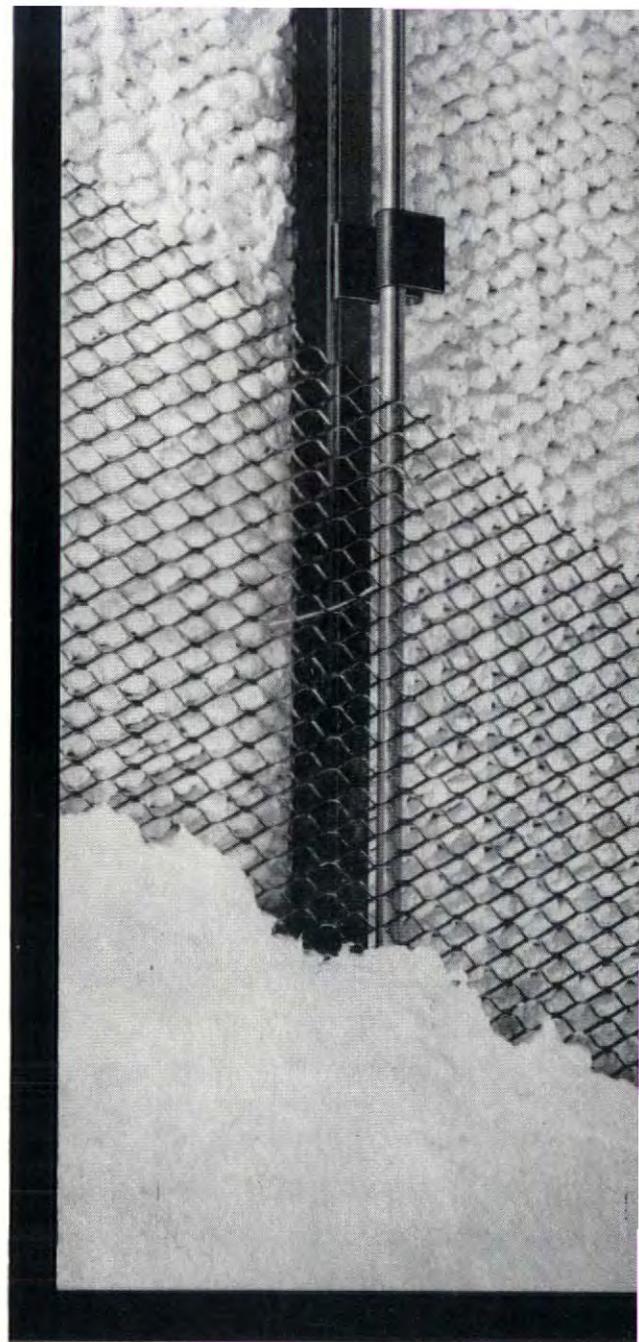


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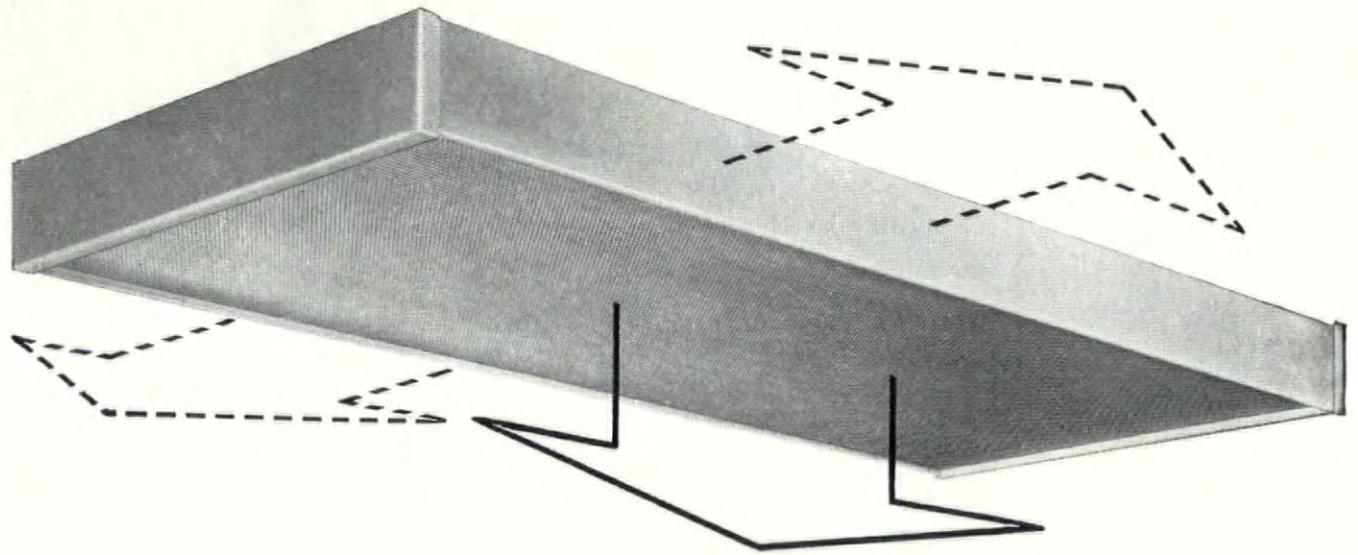
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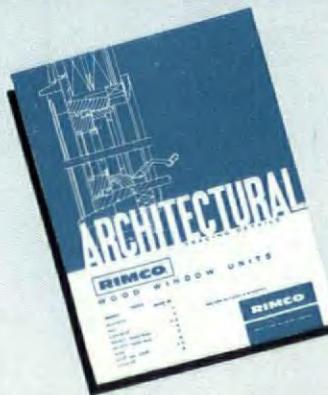
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Editorial

Toward a higher order of rebuilding

Somewhat like a child after the holidays, Americans were left at the end of the fifties with visions of sugarplums still dancing in their heads. Dreams of ever new, ever more perfect cities rising above smoothly razed acres lingered on. But today the sugarplums are being replaced by more digestible dreams. Older buildings redesigned to function as if new, and standing beside newer neighbors, are being recognized as esthetically desirable and economically necessary. Rebuilding, the architecture of continuity, is becoming as important as the business of building afresh.

As important, but requiring a different focus. Planners and designers of new building complexes are apt to make their first pass at the site in a plane (propeller-driven, to be sure). From a great height the pencil lines (highways) are drawn; the checkmarks (possible subdivisions) are made. The rebuilders, by contrast, find themselves initially in the street, where the questions require more immediate answers—how to put what's there back in competition. It is the street-level focus that must be recultivated in this day of spatial adventures.

Rebuilding is, indeed, a phase of construction which at present receives only the halfhearted attention of the sky-gazing architect, the engineer, and the lender and owner. As a result, most rebuilding jobs are only half as effective as they might be esthetically, technically, and economically. The art of rebuilding, which centers around the continuity of existing space seen close up, is sadly undeveloped. The technology of rebuilding, which is vastly different from the technology of new construction, is almost nonexistent. And the economics of rebuilding are often little understood even by the seasoned financier and building owner.

It is becoming increasingly obvious that rebuilding merits attention. The money spent on it totals 40 per cent of the sum spent on new buildings; i.e., rebuilding in 1960 (a \$55 billion construction year) was a \$24 billion business. And the portion will doubtless be increased in years to come, for there just is not enough money, private or public, to redevelop with new buildings our cities which seem all of a sudden to have become middle-aged. An increasing share of it must be done by rebuilding existing buildings.

In recognition of this, FORUM in the past has devoted several special issues to the subject of rebuilding—most recently in January 1960. Henceforth, FORUM will regularly devote a department of each issue to this increasingly important sector of construction activity.

This new department (which begins on page 80) is dedicated to the proposition that it would be architectural and financial folly to try to replace every obsolete building with a new one, that it would be sounder policy for America to capitalize on its architectural heritage and cash in on the physical inventory that has been built up over the past two centuries. This, of course, presupposes a new, higher order of rebuilding, and to this, too, FORUM's new department is dedicated.



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design
idea

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STEELCASE INC

Dr. Weaver at the head of HHFA

The first responses to President Kennedy's appointment of Dr. Robert Weaver to head the Federal Housing and Home Finance agency are reported in "News." To opposition from the southern contingent in Congress, the President replied simply that he had selected the man "he thought would do the job." And Dr. Weaver's qualifications as to background, training, level temperament, experience, ability, and concern, rank with the best that have hitherto been brought to HHFA; he is indeed outstanding for the job.

Is the pressure against him caused, then, by the color of his skin? The responsible southern senators and congressmen say not. The real objection to Dr. Weaver seems to be that he favors "the idea of open occupancy and nondiscrimination in housing." But this is the direction in which a free America manifestly must move, and *move*. The hazards are being vastly overrated: what the country needs is the gains. FORUM agrees with *The New York Times* and other sober heads that the appointment should stick.

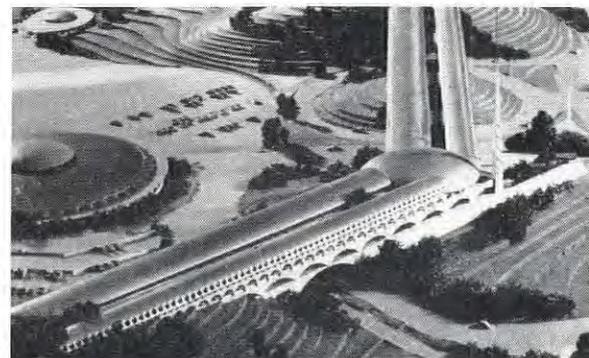
A fine monument can be a profit, too

Good sense and honorable dealing were very nicely restored in California's Marin County last month when the county's new Board of Supervisors reversed a stop-order and allowed the building of Frank Lloyd Wright's posthumous Marin County Civic Center to proceed (see "News"). Apparently two new county supervisors had been infected with the nervousness felt by some of the newer, less art-conscious, settlers in the county, lest taxes be increased by construction of an architectural monument of high aims. A report was asked of the architectural firm of Crawford & Banning whether the building, already half-framed at a cost to date of perhaps half of the \$3.8 million contract, might be replanned into a hospital instead; in the meantime work was to be stopped. The sensible report of these architects was that this conversion could not be made without adding even greater expense—and creating an inefficient hospital to boot. So now the civic center is allowed to proceed.

Let Marin County rest easy. If this should turn out as Frank Lloyd Wright work usually does, it will bring into the county a veritable stream of tourists and sight-seers

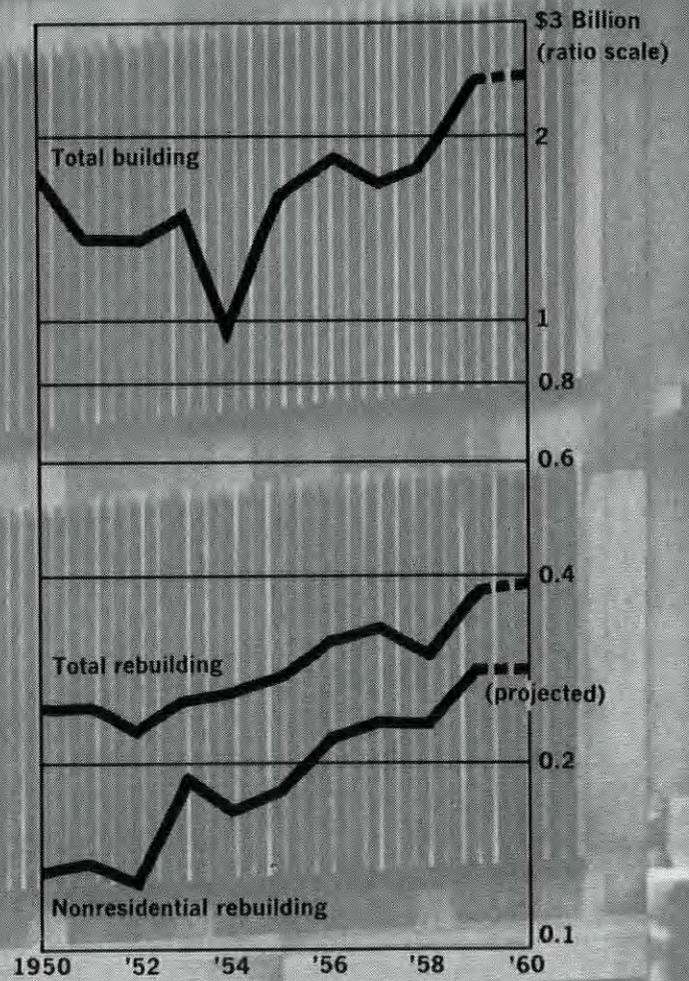
and their families, profitable to the whole county.

Architect Kenneth Welch tells the story that Herbert ("Hib") Johnson, of Johnson Wax Co. at Racine, asked him many years ago how much money he might save by having a proposed building designed by a man named Frank Lloyd Wright. Did Welch know Wright? "Save?" asked Welch: "What ever made you think that a building by Wright would do that? It will cost you money, man, but think how much you will *make*. Profits, not savings, are what you should do it for. Twenty years from now you will still need guides to show the visitors through; the building will do for your business as much as any advertising ever did." And this has been so, and something like it promises to happen also in Marin.



REBUILDING:

Trends of building and rebuilding in nine cities



A new business in old buildings

BY RUSSELL BOURNE

Rebuilding has become more than a mere stopgap for bad times. It is now a \$24 billion business of strength and diversity.

Economic historians of the future may well date the reawakening of the rebuilding business from the early fifties. It was then that the slumbering giant, last noticed large on the land in the depressed thirties, began to stir mightily and to display a notable difference in its economic behavior. Whereas rebuilding historically had made itself felt primarily in times of general distress, it was more recently showing strength during the prosperity of the postwar building boom.

Indeed there are now indications that, in the advance of total U.S. construction activity, rebuilding may be asserting itself as the new steadying partner that will add vigor in cycles good and bad. The most unmistakable indication is its size. Others are its diversity and the quickening attitudes of the men who stand to profit from its growth.

Economist Miles Colean, who fully recognizes the difficulties of measuring rebuilding, sets the total at no less than \$24.3 billion for 1960 (heavy construction not included). Of this total, he considers that the smallest segment (\$4.75 billion) is residential additions and alterations, that an impressive \$6.5 to \$7.5 billion is nonresidential addi-

tions and alterations, and that the largest segment, labeled maintenance and repair (\$13 billion), is both residential and nonresidential. Colean ventures further that at least 40 per cent of this maintenance and repair allotment is nonresidential work, putting the full measure of nonresidential rebuilding at about \$12 billion.

How big the pie?

Other industry leaders find Colean's analysis not offbeat, but somewhat conservative. Officials at General Electric believe that rebuilding will average \$25 billion a year over the course of the next ten years, as against \$50 billion a year for new construction—10 per cent of which will have to be remodeled in ten years. And Armstrong Cork Economist Albert G. Matamoros, commenting only on the size of the nonresidential slice, says: "As we see it, the total commercial-institutional renovation market as it exists today (maintenance not included) is somewhere in the neighborhood of \$10 to \$15 billion annually. The limited amount of research which has been conducted in this field to date indicates that about \$10 billion of this is in light commercial remodeling; specifically, stores, churches, hospitals, schools, banks, etc. The remaining \$5 billion would fall in industrial plants and large multistory office buildings."

Some of the difficulty in fixing the precise size of the rebuilding business is clearly related to a lack of definition, as well as to the great dearth of accurate data. FORUM's definition, like Colean's, includes all residential and nonresidential additions and alterations plus those nonperiodic maintenance and repair expenditures which are included in permits for additions and alterations.

FORUM also concludes, contrary to the opinion of some experts, that the volume of permits issued by cities for additions and alterations (such as those charted at left) is an accurate guide to the market's behavior. The Bureau of

Census now regards permit figures as more reliable than building start figures because more than 98 per cent of units authorized are actually built. Of course, permits understate actual construction activity, perhaps by 15 per cent; they are thus consistently conservative.

Another indication of rebuilding's vitality is its city-by-city diversity, demonstrated in the table on page 163. Even more significant than these variations, however, is the changing relationship of nonresidential to residential rebuilding in the cities whose permit figures are available. Residential and nonresidential were nearly equal in 1950; by the end of the decade nonresidential had taken over about three-quarters of the business. A closer examination of this trend can be made by analyzing the data collected from five cities for the first nine months of 1960 reported in the table on page 163. The same trend has been apparent in other areas; thus the ratio of nonresidential to residential rebuilding during the period 1959-60 has been: Philadelphia, 2:1; Los Angeles, 4:3; Seattle, 4:1; Washington, D.C., 5:2; Atlanta, 5:1; Denver, 4:1; San Francisco, 2:1; Chicago, 1:1; Buffalo, 5:2; Minneapolis, 2:1.

Disagreement about the very definition and vital statistics of the business of rebuilding will doubtless continue—at least until Congress appropriates sufficient funds for the Census Bureau to provide adequate statistics. But there is complete industry agreement on at least one point: the big market is likely to grow even bigger. This opinion is based on two unavoidable bench marks: 1) sales of replacement materials have commanded a greater share of the construction market at certain times in the past than at present, and therefore they can go much higher again; 2) men in the industry are now recognizing the steps that must be taken to increase volume.

Reasonably, one would think that the plumbing industry should have devel-

continued on page 163

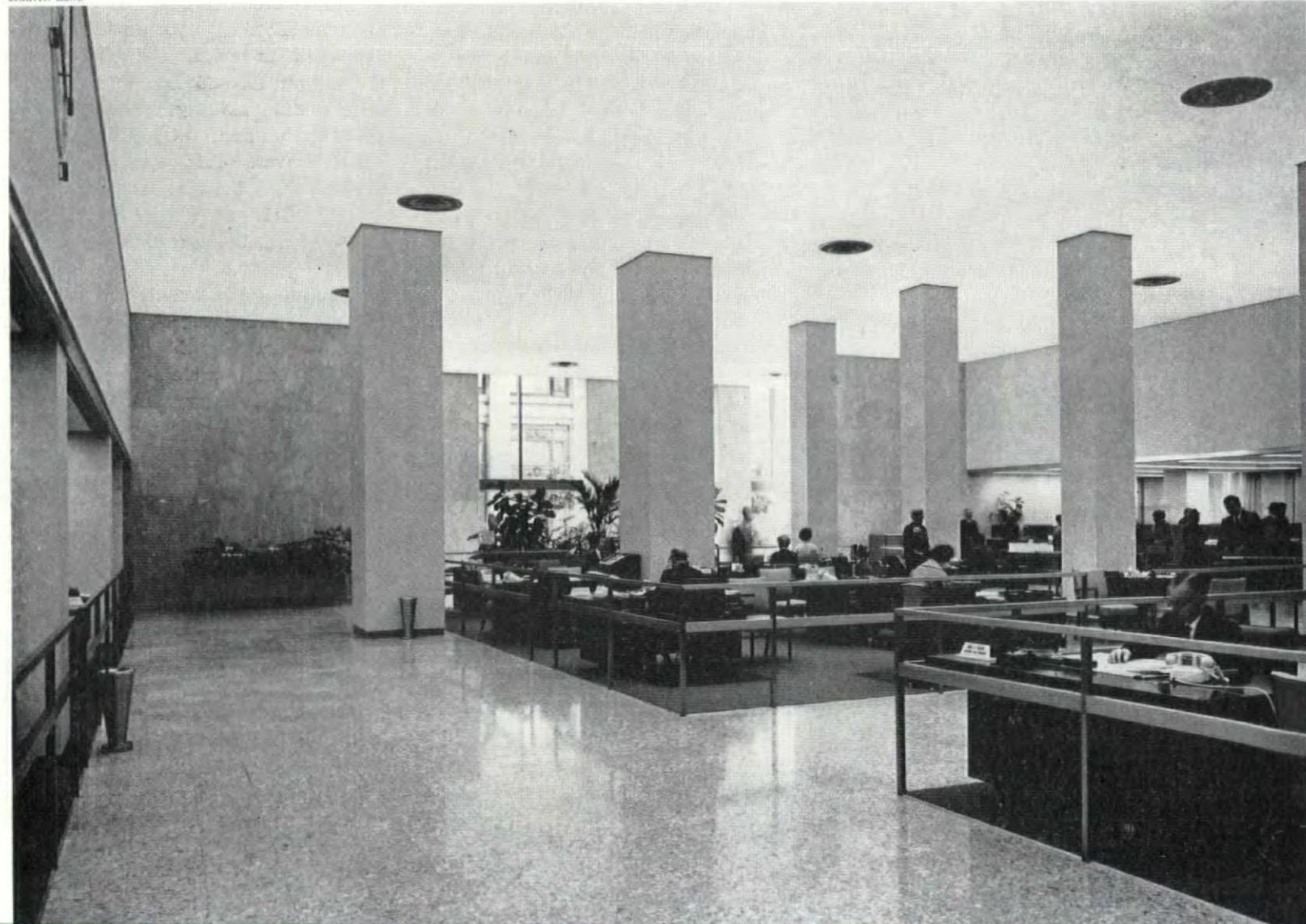
The upward trend of rebuilding in nine cities is reflected in this chart (a semi-logarithmic scale is used to indicate relative growth). The data are derived from permit authorizations in Boston, New York, Philadelphia, Cleveland, Detroit, San Francisco, Los Angeles, Pittsburgh, and Washington, D. C. (city centers only). The chart traces rebuilding's steady growth in a decade when new building boomed. Its growth was stunted only slightly by the recessions of 1954 and of 1957. Also notable is the relative increase of nonresidential rebuilding.

PHOTO (OPP.): LOUIS REINS



D. L. STOUSE

MARVIN BAND



Rebuilding

The bank that stayed

A fifty-year-old Los Angeles building capitalizes on its familiar face and its downtown location.

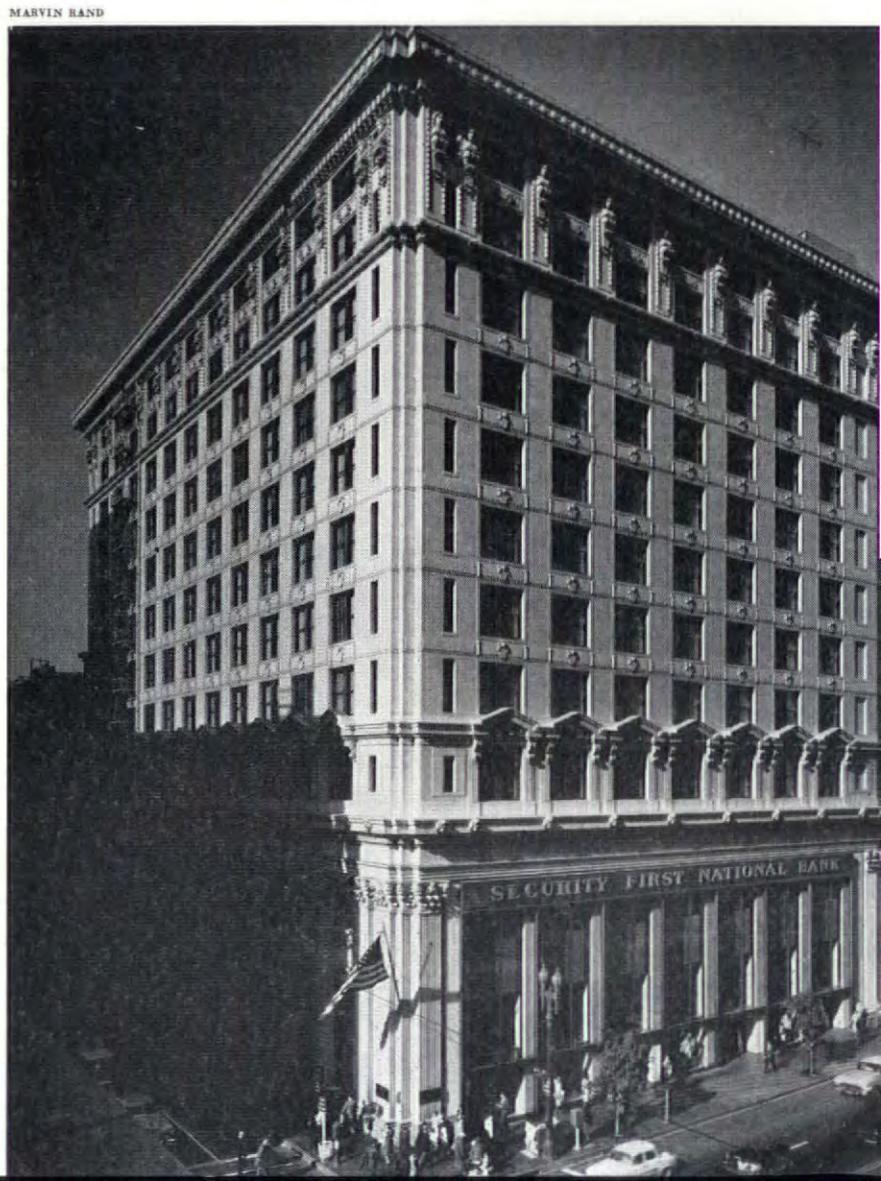
Los Angeles' downtown, which has seemed to float like a middle-aged derelict on an endlessly new suburban ocean, looked suddenly more seaworthy last year when the much-merged Security First National Bank decided not to abandon its old home. In making this decision to consolidate its operations on a significant site, the bank approved Architect Welton Becket's proposal that it spend \$4.5 million to carry out one of the biggest rebuilding jobs yet seen in L.A. The result is a clever architectural blend of old and new, and a marked operational improvement.

Structurally, the job was complicated by the building's schizoid past. In 1925 a concrete-frame structure was added to the steel-frame bank that Architects John Parkinson and Edwin Bergstrom had erected on the corner of Spring and Sixth Streets in 1910. In the court between the buildings an ornate, four-story hall had been set that served as the main banking area. The forest of massive columns necessary to hold up the bank's various parts (photo, left) was a recurrent nightmare for Becket as he set about the job of providing a more open, less awe-some space while also adding 5,000 more square feet of floor area on new floors spanning the main hall.

The main banking floor was formerly a fusty, two-story maze surrounding the impressive, four-story central hall (photo left, above). Despite the lowering of the ceiling, the new space appears considerably more open, if somewhat more sterile, than it was. Main entrance (at back in photo, left) is through the remodeled Spring Street façade (right).



DICK WHITTINGTON



MARVIN RAND

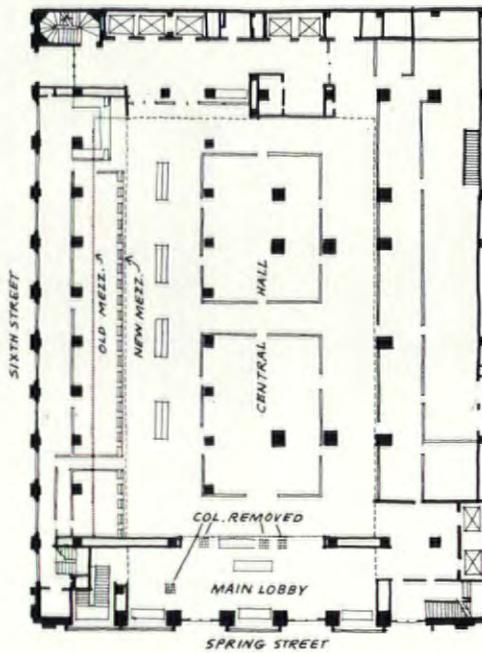
Four major columns (three steel and one concrete) were removed from the main entrance lobby after extensive work on the foundations had been done and four outsized girders had been put in place. The main banking floor was then stripped to bare concrete for redecorating, the new floors put in, and the obsolete, 11-story tandem was on its way to becoming an efficient, 13-story building.

Mechanical work was even more extensive. But because the chief design objective of the rebuilding was to get more floor area, Becket had to find ways to eliminate the possible obstruction of bulky air-conditioning ducts. He discovered that he could keep ducts small by splitting the load, treating the first four floors from equipment located in the subbasement. Other equipment for the 500-ton system was located on a specially designed roof platform with ducts running outside the building, down the face of the interior court. Three passenger elevators were replaced by high-speed, automatic cars (each costing \$87,000), two new elevators installed, and two freight cars refurbished.

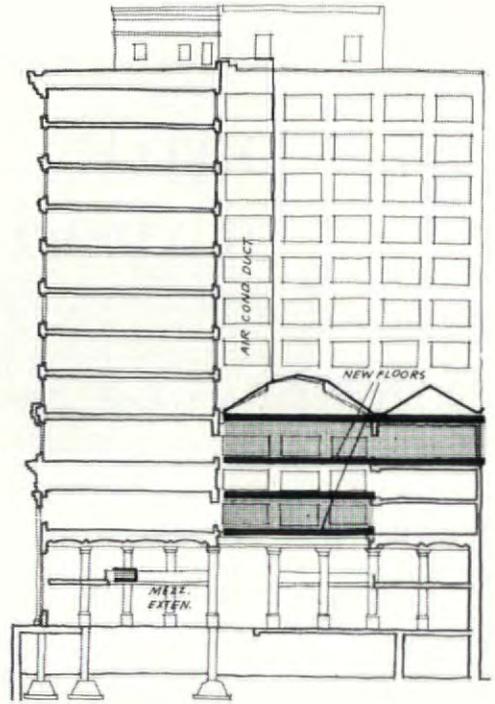
In general office areas the lighting level was raised from 20 to 60 foot-candles by means of fluorescent lighting recessed in the dropped acoustical ceiling. On the main banking floor the level was raised to 70.

From the street, the bank looks familiar, but subtly renewed. A clue to the strenuous structural and mechanical changes within is given by the new charcoal-colored concrete sidewalks on Spring and Sixth Streets and by the new Spring Street façade. The original, ornate terra-cotta and granite front has been replaced with 14 vertical glass panels (each 22 feet high and 6 feet long), alternating with strips of low-keyed bronze anodized aluminum.

The decision to stay with the old building was thus carried out with the thoroughness and originality that are usually reserved for new buildings only. Originality is particularly evident, appropriately, in the bank's financial design. The owners planned it to take full advantage of the tax write-off that Los Angeles gives to structures that are demolished in whole or part—however well they may be rebuilt.



Plan of the bank's main floor shows the columns that were removed to unclutter the Spring Street lobby, and the extension of the mezzanine (dotted lines). The section shows the insertion of the two added floors. The wing rising above the central hall is part of a former concrete-framed addition to the original steel-framed building. The new air-conditioning duct was fitted into the court.

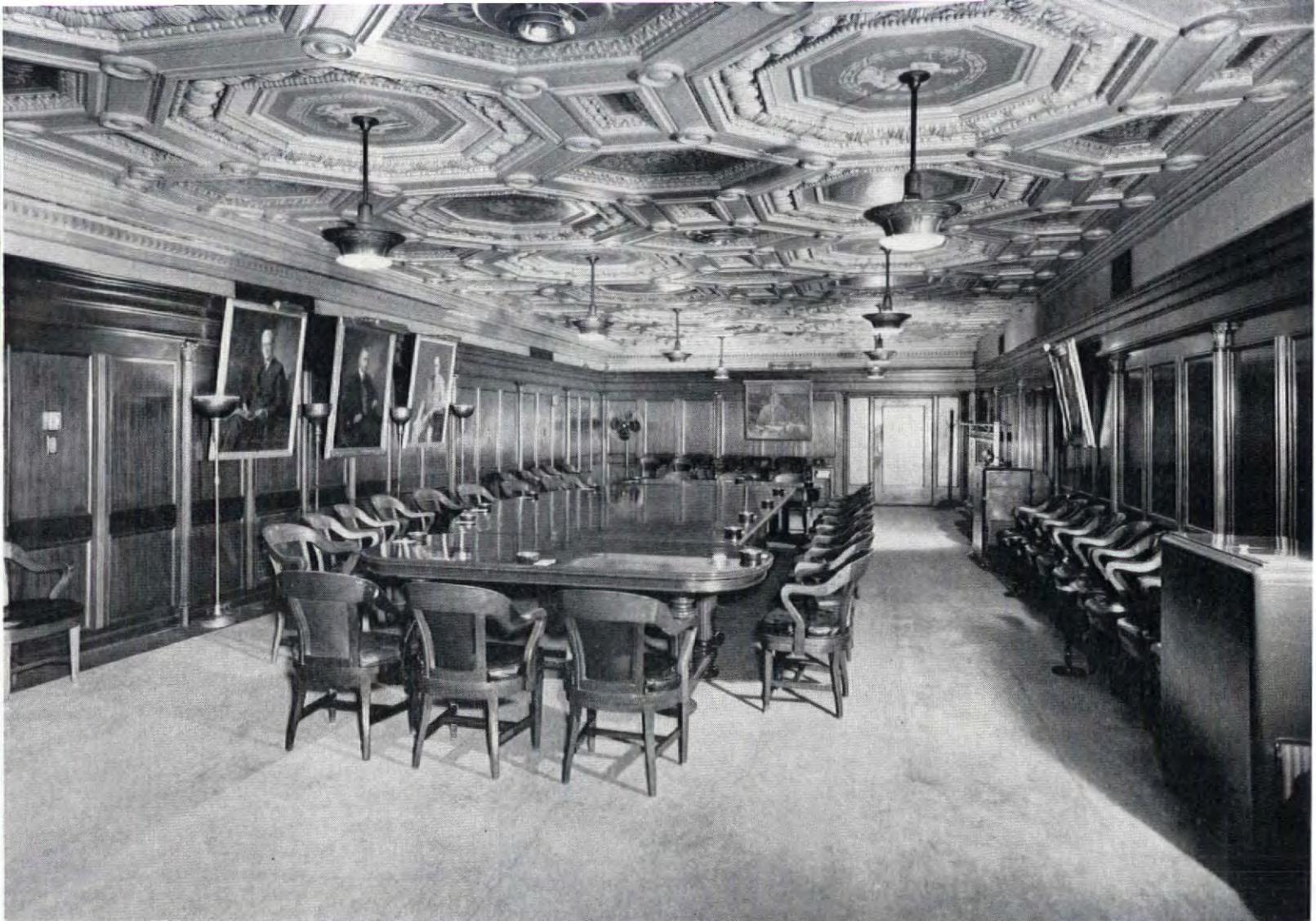


Net cost: \$4,500,000. Principal elements: electrical, \$700,000; air conditioning, \$550,000; plumbing, \$225,000; lathe and plaster, \$350,000; marble and tile, \$240,000; elevators, \$450,000; acoustical ceilings, \$100,000; carpeting, \$200,000.

Architects: Welton Becket & Associates. General contractor: The McNeil Construction Co. Structural: Brandow & Johnston.

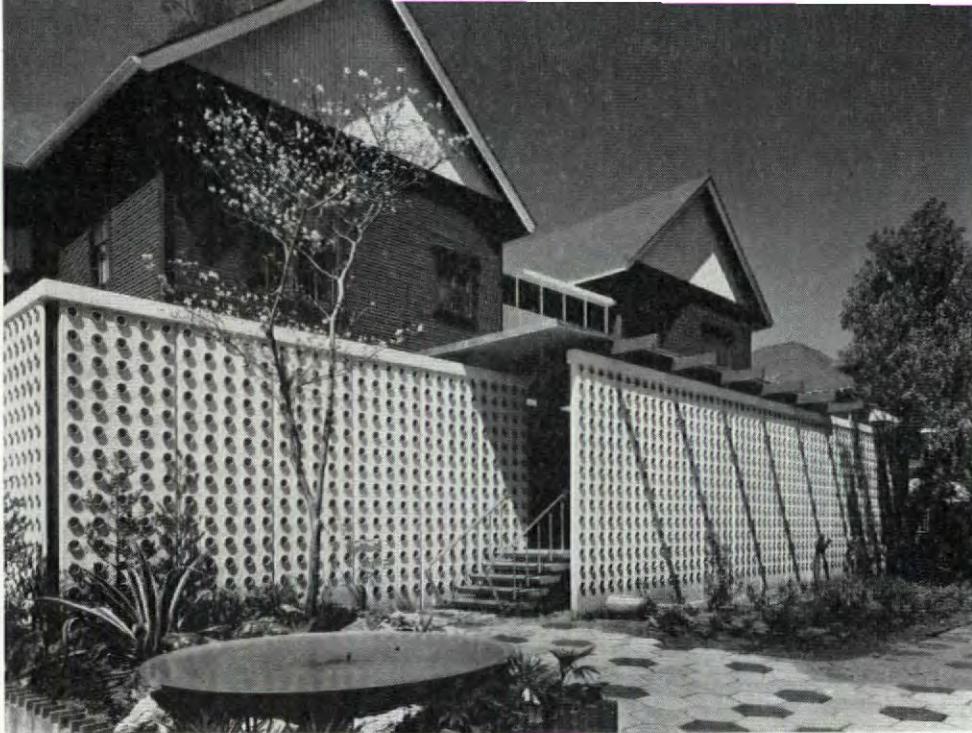


Executive areas, like the third-floor suite above, gained elbowroom when the former central hall was filled in. Walnut-paneled offices are on the perimeter of the vast interior secretarial and staff spaces. The board room (photos, right) lost some elegance as a result of rebuilding, but gained style and mechanical efficiency. In the horizontal elements of the aluminum frame that holds the grass-cloth wall panels are air-conditioning ducts to supplement outlets in the hung ceiling. Lighting in two independent systems can be modulated as desired. Furniture designed by the Becket staff gives the room additional spaciousness.



PHOTOS: (ABOVE) D. L. STOUSE; (OTHERS) MARVIN RAND





From Siamese twin houses a new design center.

A pair of identical 60-year-old Cracker Victorian houses (1) in one of Jacksonville's oldest residential districts (where commercial encroachment was already evident) were transformed recently into a new design center by the architects who own the property. Ultimately, they plan to tear down the old houses, bought separately and at different prices, and erect a totally new structure.

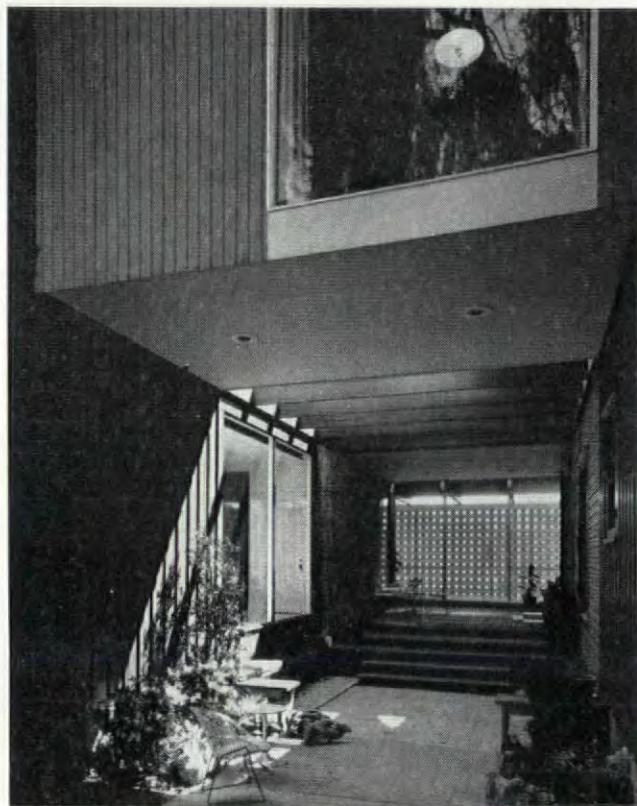
Exploiting the character of the houses rather than denying it, the architects painted the gables a bright yellow, then tied the structures together visually with a freestanding, 13-foot-high, perforated concrete screen wall (2). Two bridges, one a "secret" design room, the other a conference room, span the alley between the buildings, adding 425 square feet to the total floor area and enclosing a handsomely open interior court (3). Almost all of the second-floor partitions have been removed, creating a feeling of openness (4); and imaginatively placed landscaped gardens between the buildings and the screen wall heighten the spatial variety.

Total cost of the center, which houses the offices of the architects, a commercial art studio, a furniture showroom, and a business consultant, was \$56,300. Breakdown: site purchase, \$28,300 (first house, \$11,300; second house, \$17,000); air conditioning, removal of partitions and landscaping, \$23,950; screen wall, \$4,050.

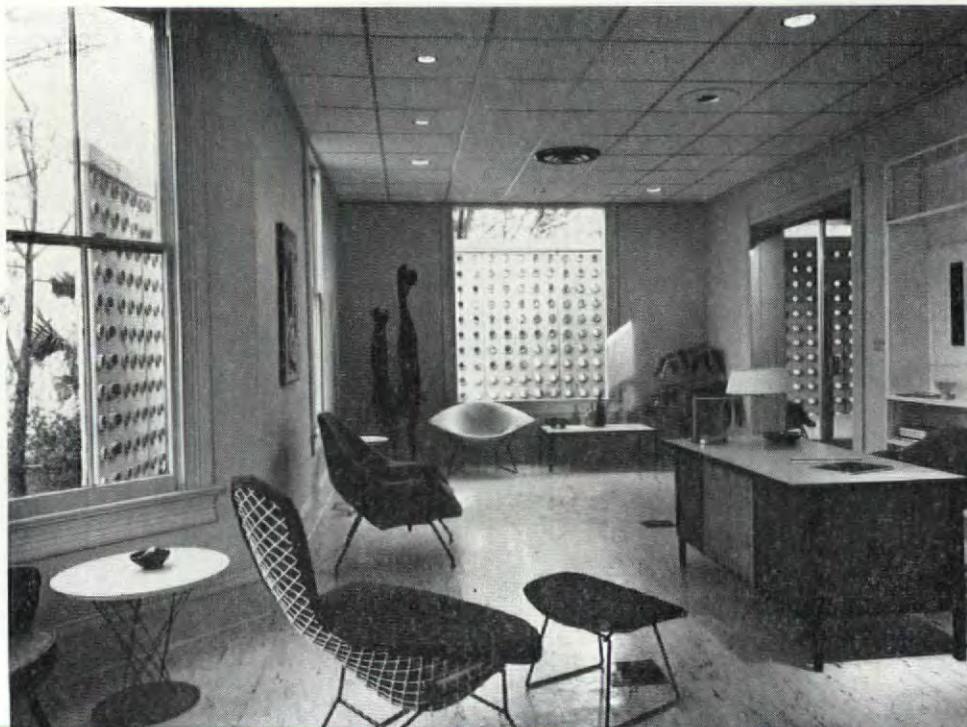
Architects: Hardwick & Lee. Landscape architects: Eckbo, Dean & Williams. Structural engineer: Gomer E. Kraus. Electrical and mechanical engineer: Frank B. Wilder & Associates. General contractor: Fred M. Cox.



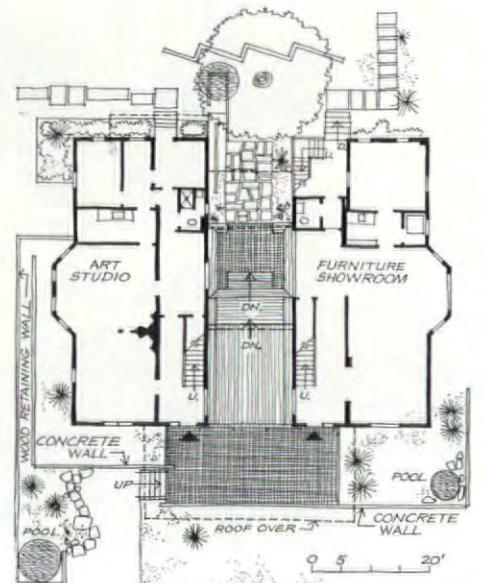
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PHOTOS: (1) ELSNER & SOY; (2, 3, 4) ALEXANDRE GEORGES



4

Brownstone becomes new showroom for handcrafts.

The management of America House, Manhattan sales outlet for products designed by U.S. craftsmen, faced the problem of building on a small budget an appropriately original home for their showrooms and offices. The most readily available space was in a conventional four-story brownstone with severe design limitations (for example, the second of the two display floors had to be no greater in area than 49 per cent of the first floor to qualify under the code as a "mezzanine"). The architect made a virtue of the interior limitations by floating the mezzanine within the two-story height (1), by creating a display court at the rear of the main floor (2), and by using simple materials to provide the handcrafts with a sympathetic background. Outside he hung a paneled and louvered aluminum screen with a "bronze" finish (3).

Total cost for 9,100 square feet of office and display space was \$395,000. Breakdown: original building, \$100,000; mechanical, \$153,000; structural, \$20,000; screen, \$21,500; interior finish, \$101,000.

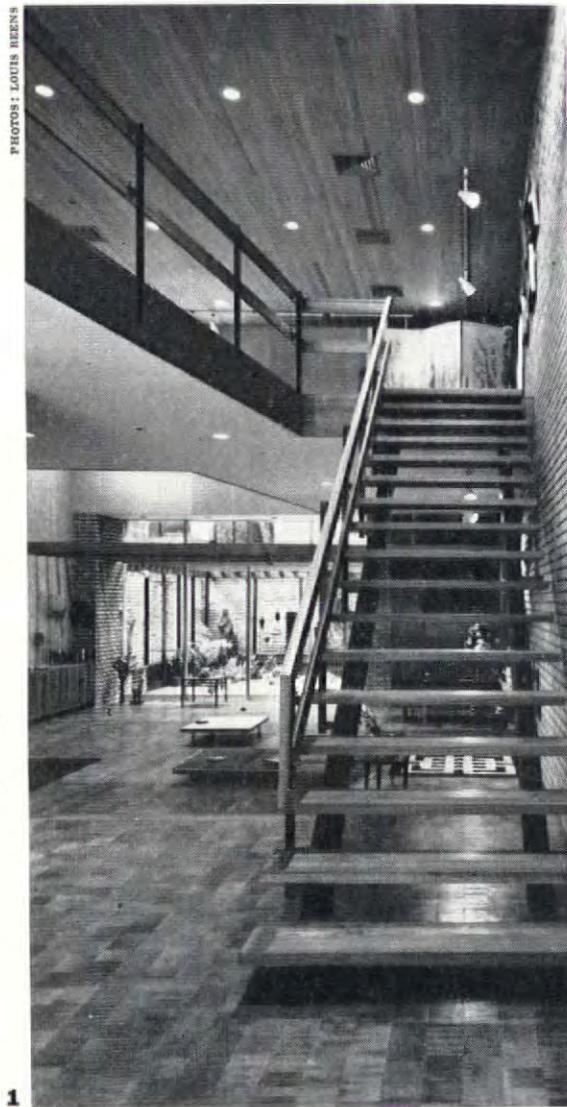
Architect: David R. Campbell. General contractor: James E. Mitchell.



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PHOTOS: LOUIS REENS

Press turns dingy bakery into new home.

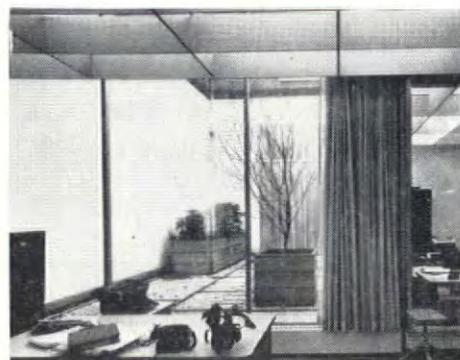
Seeking a new home for its rapidly expanding activities, the Yale University Press recently bought and moved into the 35-year-old Bond Bakery building in one of New Haven's newly rejuvenated downtown areas. By choosing to rebuild, the Press obtained adequate space at half the cost of new building.

The existing floor plan and structure of the bakery were ideally suited to printing operations which require big, open spaces for storage and sturdy floors to bear the weight of heavy presses. But, as the architect describes it, the interior was "... a dark, dingy, depressing, and gloomy mess." A great deal of white paint, a luminous-acoustical-ventilating ceiling of hardboard (hiding a labyrinth of ductwork), and two courts (achieved by cutting out the roof) have transformed the space into

a gay, bright work area (1). The front of the building, formerly as drab as the inside (2), has been concealed by an inexpensive but handsome tile screen which also serves as a sun shield (3).

Total cost for 51,000 square feet of space was \$568,650, including the \$200,000 purchase price of the bakery.

Architect: Office of Carleton Granbery. Structural engineer: Henry A. Pfisterer. Mechanical and electrical engineer: Hubbard, Lawless, & Blakely.



1



3



PHOTOS: LOUIS REENS



PHOTOS (BELOW): THOMPSONS

Banks promise \$3 million pool for N.Y. rebuilding.

The kind of fund-pooling that many a U.S. city wishes it had to finance stalled rebuilding projects has actually been achieved in New York City. Three leading savings banks (Central, Bowery, and the Bank for Savings) agreed to allocate at least \$1 million each for new FHA Section 220 first mortgage loans on houses in a rehabilitation pilot area in the ambitious \$169 million West Side Urban Renewal Area project. This project will be the first Title I undertaking to combine conservation, rehabilitation, and partial rebuilding instead of complete clearance and redevelopment.

Without FHA insurance and the city's stated plan to compel all owners in the area to improve and maintain their properties to an acceptable standard, bank spokesmen said, these institutions would make few if any loans in this neighborhood. By summer, said Housing and Redevelopment Board Chairman J. Clarence Davies Jr., the city intends to resort to condemnation to acquire any properties that need rehabilitation but are not fixed despite the availability of mortgage funds from the pool; then the city will resell them to buyers who will agree to bring them up to standard.

Relighting sales potential set at \$5 billion.

In 1930 lighting of 20 foot-candles was common. By 1940 the level had been raised to about 35 foot-candles; by 1950, to 50 foot-candles. Today the recommended standard for comfortable vision is about 100 foot-candles. Considering this rapid upgrading in acceptable illumination levels, it is a sad commentary that only 12 per cent of new lighting-fixture sales are made to the rebuilding market: of the industry's estimated \$646 million sales for 1960, \$566 million were for new construction.

Instead of a mere \$80 million market, Graybar Electric Co. officials estimate that there is a potential \$5 billion market for relighting in existing commercial and industrial buildings, and another \$12 billion market for rewiring and the installation of related electrical materials. Consequently, Graybar has taken an unusual step for a wholesale organization and has embarked on a



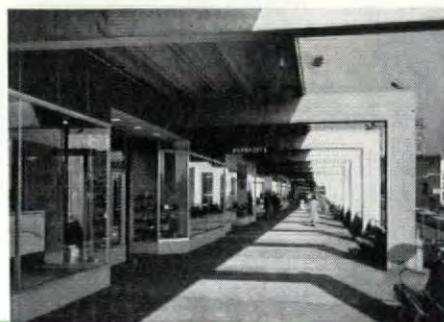
Row of stores gets second front at rear.

One of the economically most successful small-scale urban improvements in the country runs along the rear of 12 stores in Knoxville, Tenn. Called the "Gay Street Promenade" (the stores front on Gay Street), the porchlike connector is already responsible for a steady 10 per cent business pickup in what was rapidly becoming a neglected downtown area. Financed by the merchants, on the basis of a \$585-per-front-foot assessment, the promenade was conceived by the Downtown Knoxville Assn. The two main elements of the project were the clearing of some ancient warehouses (1) for a 200-car parking lot behind the stores, and the construction of the promenade which consists of a 50-foot-high, 550-foot-long aluminum screen, anchored to the old façades and supported by massive

concrete bents (2). A "moving sidewalk" leads from the parking lot (an immense asphalt lake distressingly unrelieved by any landscaping) up to the Musaked, 25-foot-wide promenade (3).

Total cost including demolition was \$750,000. Breakdown (not fully available): remodeling of individual stores, \$524,000; structural, \$98,000; mechanical, \$5,000; electrical, \$9,000; "moving sidewalk," \$26,000; parking lot, \$20,000.

Architects: Painter, Weeks & McCarty. Structural engineer: Allen Jones Jr. Mechanical engineer: Albert Bedinger. Electrical engineer: Fred Vreeland. General contractor: Rentenbach Engineering Co.



nationwide market-expansion program to help local electrical equipment distributors and electrical contractors expand their relighting sales. As the nation's largest independent electrical equipment distributor, with branches in over 130 cities, Graybar, in cooperation with a group of 12 manufacturers, has developed a standardized line of fixtures geared to relighting needs, and by extra-quantity ordering from these manufacturers is offering this lighting equipment at relatively low prices. At the same time, Graybar promises immediate delivery and helps local distributors and contractors install these products under easy-financing plans.

Another part of the program is the instruction of distributors and contractors in the merchandizing and installation of the new products. Since October, Graybar has conducted training sessions in more than 100 cities, each attended by an average of about 60 persons.

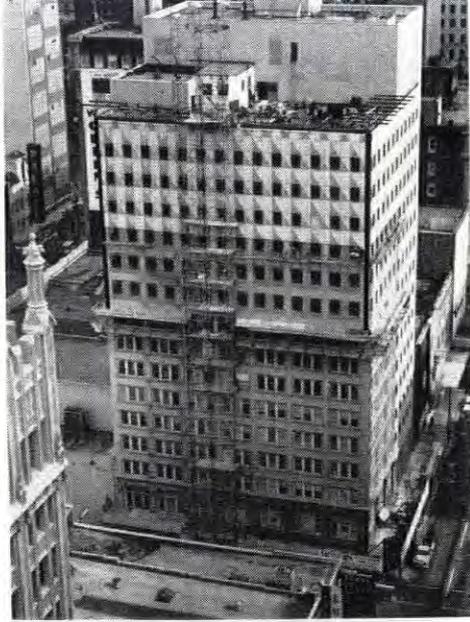
Altogether, this program to invigorate the relighting business for the benefit of all segments of the industry is costing the cooperating organizations well over \$1 million.

Oldest Dallas office tower rebuilt from top down.

The oldest office skyscraper in Dallas will also be its newest, after its \$3 million rebuilding and expansion is completed this June.

When the Praetorian Mutual Life Insurance building was erected in 1908 as the city's first steel-frame and masonry tower, it covered a 50 by 100 foot plot. During the past 18 months its size has been doubled by an addition two stories higher than the original 15. Upon completion, it will be impossible to distinguish the old half from the new half. A modern white and yellow checkered porcelain-enamel curtain wall will cover both sections, the color selected to contrast with the predominantly blue and green buildings erected in the city during recent years. For uniformity with the new section (and to reduce the air-conditioning load) window areas in the old structure are being reduced one-third.

"I wouldn't say the building was run-down before, but it just wasn't modern enough to compete in the Dallas market," says Ronald Roorbach, assistant to the president of Praetorian Mutual, which will occupy about 20 per cent of the enlarged structure. By thorough rebuilding inside and out the company



TOP-TO-BOTTOM application of a new curtain wall made an arresting sight during complete refurbishing of Praetorian Mutual Life Insurance Building in downtown Dallas.

expects to serve the prestige market and to obtain rents of \$4 to \$5 per square foot, a 50 per cent greater increase than obtainable if only the interior were modernized. The present rate averages \$3.50.

The elevator core has been completely eliminated from the old building and four new high-speed lifts installed in the new addition. After the addition was completed, with the two upper floors housing new heating, air conditioning, and utilities, the old building was completely refurbished three floors at a time, working down from the top. The new utilities were extended down through the old building; meanwhile the lower floors were serviced by old utilities coming up from below. In this way it was possible to maintain 80 per cent occupancy in the old portion throughout the job without any interference to tenants' services on the occupied floors. "You can't cut off the revenue during the job," says Roorbach.

Installation of the new curtain wall to the old building from the top down presented no unusual problems, but did present an unusual sight (see photo). Architects for this unusual project were Grayson Gill, Inc.

Commercial rebuilding is aided by federal loans.

Loans from the federal Small Business Administration for remodeling and building modernization have totaled over \$125 million since the SBA was inaugurated in 1953.

Through December 30, SBA's total loans have amounted to more than \$1 billion. Almost one-quarter of this sum,

\$254 million, has been advanced for building purposes and, although precise data is not available, SBA officials believe that more than half of it was spent on rebuilding. SBA loans, which cannot exceed \$350,000 in principal or 5½ per cent in interest, are made only to businessmen who can show that they have been denied loans by at least two banks in large cities, or by at least one lender in smaller communities.

Outside columns support new bus terminal decks.

Even relatively new buildings may need rebuilding only a few years after completion. A case in point is the Port of New York Authority's \$24 million full-block union bus terminal near the Manhattan end of the under-Hudson Lincoln Tunnel, which was opened in December 1950, but is already undergoing a \$20 million expansion. The immense 3-acre roof of the structure, at first used as a parking area for 450 autos, is now being converted into a third level of bus-loading platforms. Above it will be added three new levels of parking for more than 1,000 cars.

The most interesting detail of the expansion is its structure which is being erected outside of the original building to avoid interruption of the terminal operation and overloading of its existing structure. The load will be carried by 30 new steel columns along the sides of the building and 15 huge Vierendeel trusses which will span the full 200-foot width of the terminal.

The rebuilding plans also call for the installation of 25 new escalators and the removal of 16 of the original ones, thus raising the building's total to 40.

Contractors are Starrett Brothers & Eken and the Port Authority's engineering department has served as architects and engineers for the project.



GIANT TRUSSES will support three new auto-parking decks over Port Authority bus terminal in New York without placing any additional load on remodeled structure below.

Powerful tower, delicate shell

The Pirelli building in Milan fulfills most of the great promises of Ponti and Nervi—but not all.

BY WALTER McQUADE

Milan is a very businesslike city, but one which preserves the ancient Italian graces. The streets of the city are shambles because of the subway being built beneath them, but elegantly dressed policemen (2) still direct traffic with the dignity of the maestro at La Scala. Manufacturing plants have sprawled onto the pleasant plain surrounding the city, but, between the factories, farmers still plow their fields with the help of oxen, creating scenes like those in travel posters. In the evening, it is true that the old statues near the entrance of Milan's fourteenth-century cathedral, the vast *Duomo* (1), are doomed by progress to stare stonily across the paved plaza at a wall of commercial buildings solid with illuminated advertising spectaculars, flashing cascades of light bulbs chasing themselves in endless maniac cycles. Industrialism has arrived. Coca-Cola is for sale on the roof of the cathedral, and there is even an *American Snack Bar* in Milan, where people stand up to chomp rapidly through industrialized lunches, a module of ham on rye with a chocolate malt.

But when Architect Gio Ponti gathered a large team of collaborators and consultants together in American fashion several years ago to begin plotting the slim shaved slab which was to bear the name of a famous Italian rubber manufacturer, Pirelli, he scorned the snack-bar approach, it is clear. The team must have begun with a conference in one of those incomparable courtyard restaurants which stretch the Italian lunch hour into a cultivated rite. For Ponti was to think deeply and speak loquaciously about the Pirelli building. A reinforced concrete structure, it was to be poured into a formwork of strongly expressed ideas, then wrapped in glittering logic.

He made it clear from the beginning that the building was intended to be an unashamed work of art, an expression of machine art, but beyond the machine, back into the mind of man: "The desire to return to a finite form, that is to *create a form*, a composition, has haunted me . . ." (3).

It was not to be whimsical or pretentious, however. Stern demands were made upon the design: its construction system had to be reduced to essentials, he ruled, and



MARK KAUFFMAN—LIFE
JOHN C. ROSS

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had also to be inventive, not just another exercise in slide rulery. To ensure this, he engaged as structural consultant none other than Pier Luigi Nervi.* Ponti also demanded a building which would have more character than the sum of its inevitably industrialized parts. It had to be a building to excite the public, not just the architectural profession—an expressive building.

The search was to be toward an essential "illusiveness"—this must place the building on a poetic plane, without which it cannot become architecture." Ponti pontificated that the building must be a success in the city at night as well as by day, in its "luminous nocturnal aspect." It must also be a serious, civilized building for the sake of its hard-working employees, and must be built of "incorruptible" materials that would not wear or soil easily. It had to be a good citizen of its city, providing parking for its large population, and it had to be a tall building, but not overbearing—a light, exciting building, not a brutal one.

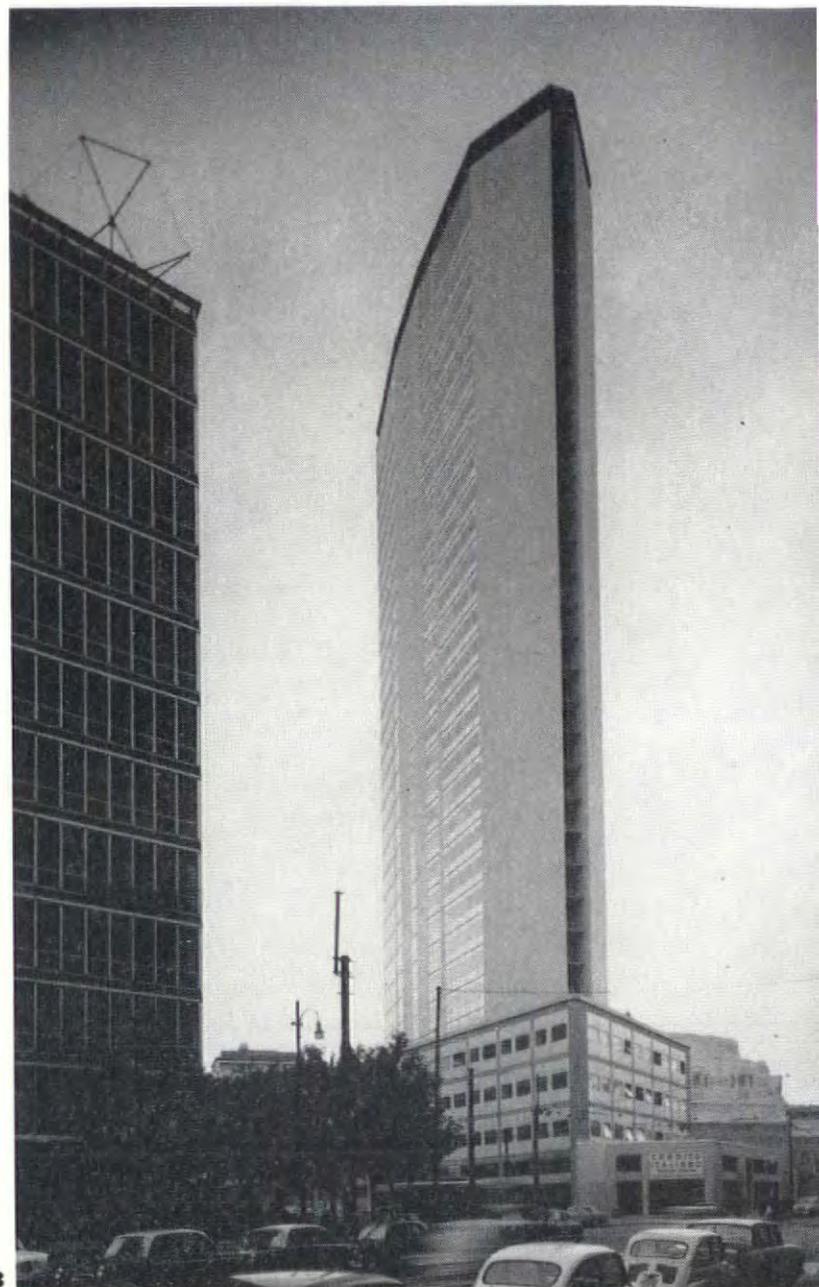
Seldom has an architect put himself so far out on a limb, and Ponti knew it. He called for "enterprise and courage. History is a record of human endeavor and achievement, and architecture is one of the greatest testimonials that man can leave behind him."

The surprising thing about the completed Pirelli building is that so much of Ponti's own advance praise does come true. It is a lean, handsome skyscraper with as much presence as any new skyscraper anywhere. It is also one of those rare commercial buildings which can afford to be gloriously impractical for the greater glory of its owner. Pirelli wanted a monument to signal the completion of the company's post-World War II reconstruction program (plants and offices, both, were hit hard by allied bombers), and Pirelli was willing to pay for one whose tower has almost unheard-of luxury, in American terms, in terms of usable tower space. The eight bulky reinforced concrete piers which taper up through the building for vertical support (and for windbracing, the major structural requirement in this wafer-thin building) eat up a great deal of space (4), counting in their adjunct service stairs, emergency elevators, and all vertical service runs; but the clusters of elevator shafts are placed and supported separately, so another big chunk had to be cut out of the center of the small floor space for these. In shape, Pirelli is a successful poem. U.S. adaptations of this form now under construction will be stockier and thus more practical, and a Canadian version completed at Vancouver is more consistent, but it is already obvious they will not have the visual excitement Pirelli achieved—that side view, the steep silhouette stabbing the sky.

Putting aside visual drama for the moment, actually a more significant aspect of the building is its organization of interior spaces, which has a kind of culminating skyscraper logic—function set to music. The most evident part of this is in the hallways of the tall starved slab, which start wide at the central elevators and narrow toward the ends of the slab, where there are fewer people using the halls. This of course is mostly design music. The real quality is in the cross-section of the lower floors under the tower.

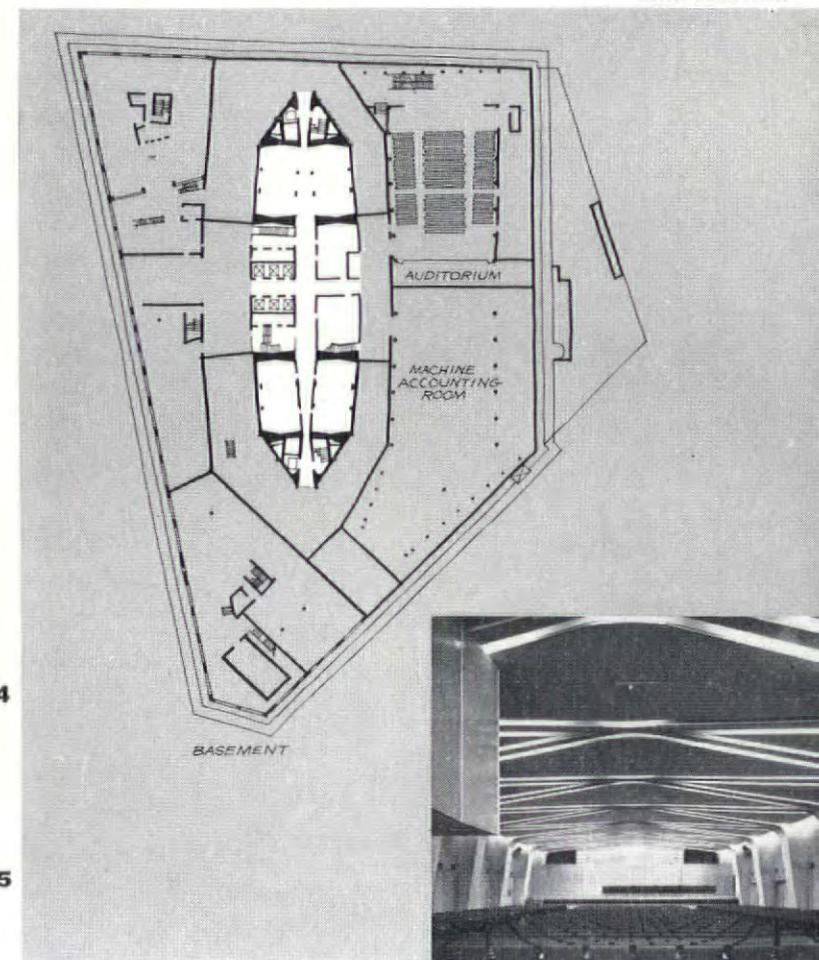
Most skyscrapers are rather pedestrian designs, by force of necessity, because to earn the ability to go high they have to sacrifice two things: dignity of approach and the glory of large rooms. Their entrances have to be fairly ordinary, with everyone—stenographers to visiting satraps—using the same door off the street. Their rooms

*Other collaborators and consultants: Architect Alberto Rosselli; Engineers Antonio Fornaroli, Giuseppe Valtolino, Egidio dell'Orto, and Arturo Danuso.



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SALA DINO
PHOTO: CASALI STUDIO



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BASEMENT

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PUBLI FOTO
PHOTO: BALTAZAR KORAB

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have to be small, because big rooms do not fit into the forest of vertical structural elements implied by tall buildings.

But Ponti swept the first of these practical handicaps aside by putting the Pirelli tower up on a platform which clearly marks off the formal entrance (in front, up a ramp) from the employees' entrance (in back, at street level). Then, under the broad, deep stage on which he set the Pirelli slab, he put the large rooms, such as the auditorium (5). Upstairs in the tower, of course, are the hives of offices.

It was a shrewd move in more than two ways. When permission was first sought to build a skyscraper on this site, the city of Milan had wanted to limit Pirelli to 11 stories. Their reason: the plaza facing the site is presently dominated by the Milan railroad station (perhaps the limpest piece of concrete pastry-chef architecture in Italy), and the highest building fronting on the plaza is a heavily anonymous office block of 11 stories. It was only by agreeing to back off from the plaza that Pirelli got permission to go up to 34 stories.

But Ponti played a trick on the city when he built his platform. His Pirelli shaft will always lord it over the open space of the plaza because its formal entrance looks down upon it. The building sits over the square like a house over its gardens (6). To get to the entrance the visitor drives up a steep ramp finished in Pirelli rubber and heated by pipe for the few freezing days Milan expects each winter. Rubber mats also carpet the plateau used for visitors' parking in front of the building. Then, inside, the elegant lobby has a different Pirelli rubber floor, of yellow-puddle pattern. No snobbism over the ordinary employees is implied, incidentally, by this division of entrances for visitors' parking; the ground-level approach is simply a much faster way for anyone to get to work. Living up to its civic responsibility, the Pirelli company has also provided a parking building for employees' cars across the street from this entrance; and inside the main building, in one of the basements, is plenty of stall space for the motor-scooter fans who can make Italian evenings hideous.

Buried glory

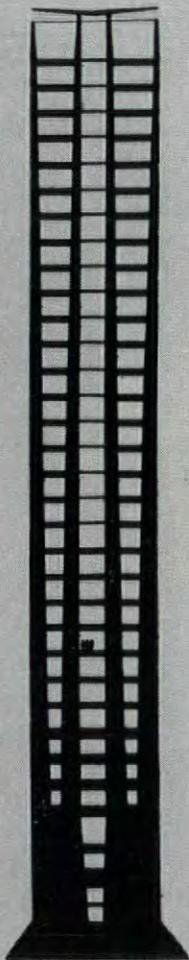
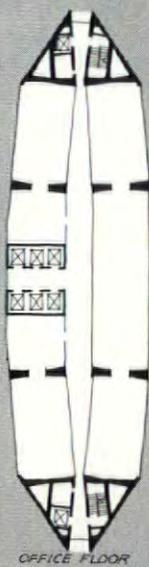
The massive structural system of Pirelli is very impressive, thanks to Nervi's vivid but dignified touch. Eight huge stalagmites of reinforced concrete rise inside the slab, and ribbed floors are hung on these (8). Inside, the big concrete tusks are left exposed (7) as they taper up through the building, and their rugged porosity is an effective play against the slick aluminum-and-glass movable partitions on the typical floors. On the top floor, the concrete shapes finally break out of their office imprisonment and stand free, sculptural, in an open gallery for visitors—as exciting to see as the view of Milan. Also sculptural is the structure of the big meeting room 37 floors down, (5) and, its continuation, the even-bigger machine record room where electronic tabs are kept on all operations of the far-flung Pirelli empire. The atmosphere of the floors of offices (9) between ground and gallery fill an early prescription of Ponti's "homage to work," but there is a good deal of spare style, besides. The deliberate exoticism found today in much Italian design, varying from elegant nuances to outright corn, is firmly controlled in this context. The sauce is not allowed to overcome the taste of the roast.

These are some of the high qualities of the Pirelli building. All these rational effects are apparent to the visitor, as predicted lyrically by the designer. But is the

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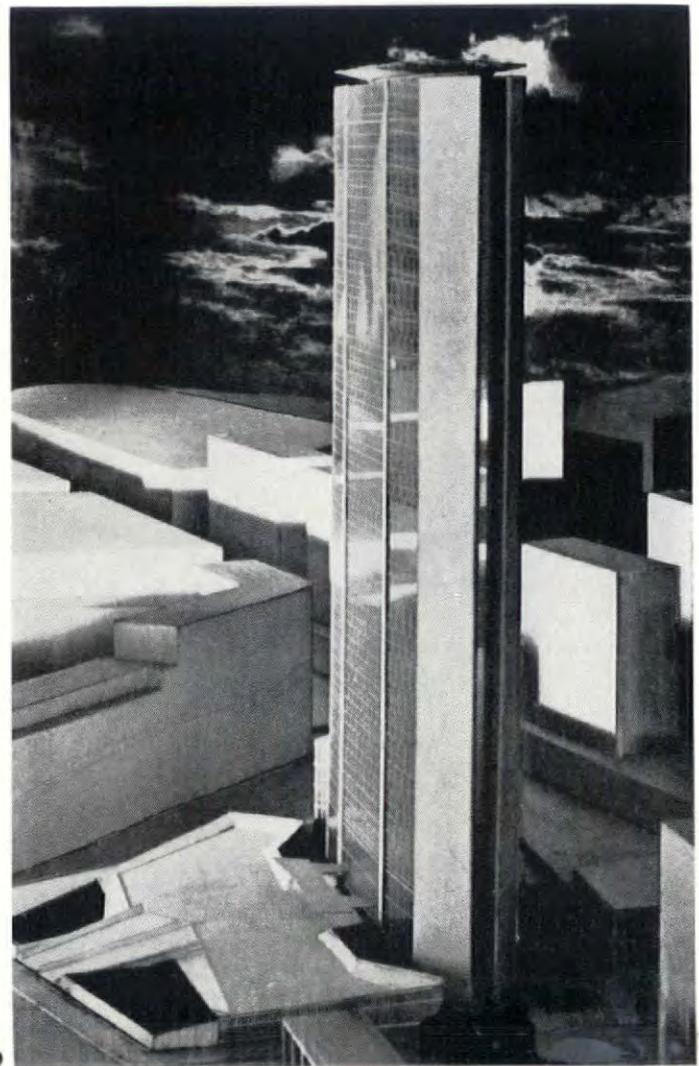
building itself strongly lyrical, the finite work of art that was attempted? The final test for this is visual, and the building does not come up to the concept in that regard.

As expected from the model, Pirelli is a blade of a building, slicing the sky, but it is slicker in final effect than it is sharp. There are reasons for this. Because of the sun-heat problem, the window wall, in all intelligence, had to be changed, not built as Ponti showed it in his model (10). The result is that it is no longer the crystalline thing of the model, but a rather pedestrian curtain wall (11), and one which is not very well proportioned in its parts. (The feeling the viewer gets is that it was deliberately made featureless.) In side elevation the verticality of the shaft is still present, but in broadside view Pirelli wears horizontal stripes of spandrels which largely kill the effect intended, day and night.

It also might be that Ponti and his collaborators made another mistake, one which has been made endlessly in America: overestimating the quality of glass as a material which would contrast strongly with the masonry flanks of the Pirelli building. Recent designs of tall buildings in the U.S. suggest that American architects finally are accepting the truth that glass can be a dull material in a building, appearing opaque, if it is not used carefully. Seen from outdoors, under most conditions, it is reflective, not transparent. And the glum Milanese sky (200 days of rain, snow, or gloom per year) reflected in these finished windows is a long way from the glittering delight promised by the model of Pirelli. The walls do not glisten; their façade does not float upward. Ponti did produce a good deal of the lightness in effect he predicted, but it is a relatively wan lightness, not soaring. In sum, the dramatization simply does not come off so well as intended; the simplicity of it seems, in some lights, to be somewhat frail, in other lights, somehow a little fancy.

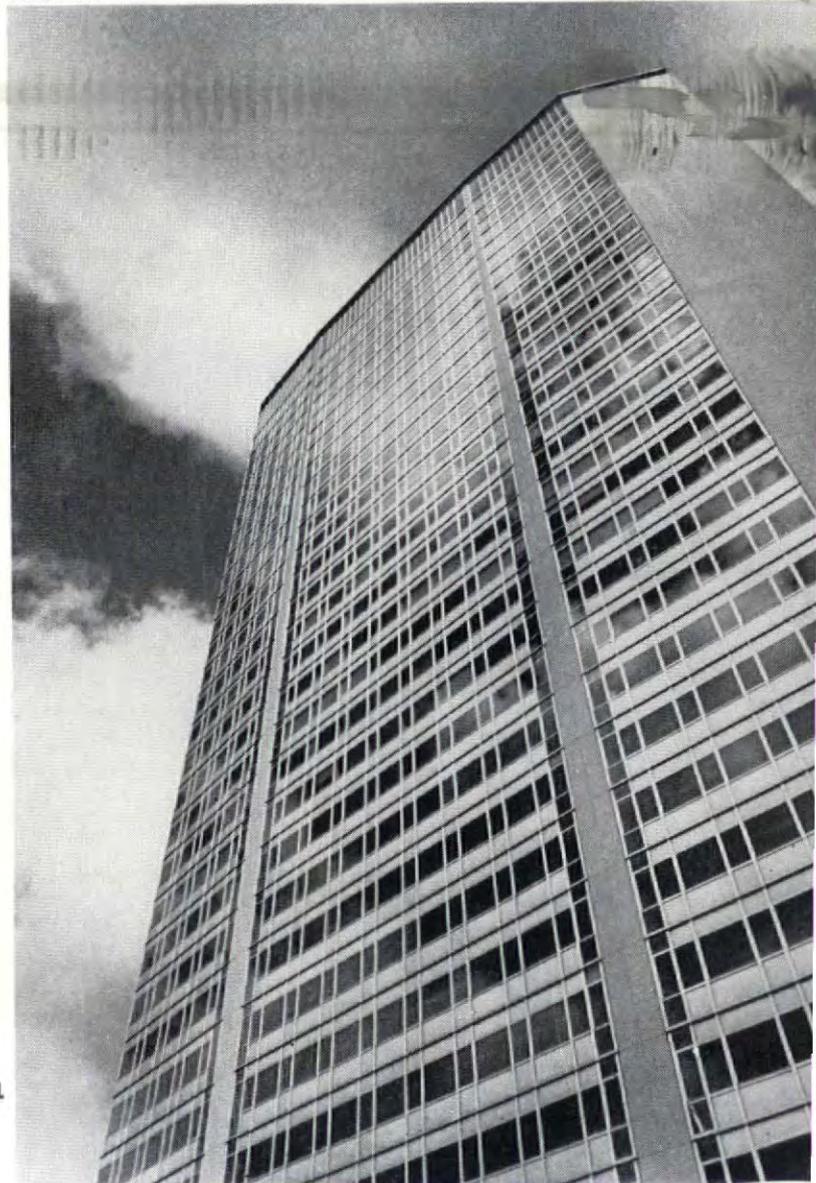
Something that is hard to forgive is the fact that the contribution of Nervi to the structure is so subdued. This was perhaps inevitable, since the structural system is intrinsic, not extra-skeletal, not an outer garment. But the fact that this noble frame is not realized in the sleek skin of the building puts the architectural expression out of balance. It is true that the strength of this inner structure against windage is implied by the thin end elevations, but this essential component of the building is not expressed well in the front view. The little canopies that project out into the visitors' parking lot might have implied this structural technique if designed in a way reminiscent of Nervi's rugged, massive frame. They might also have enlivened the aloof, dispassionate air of the building to the passer-by.

It is the spirit of any design which is most vulnerable in execution; it generally is not delivered to the site intact. Ponti wrote a really marvellous program—in intangibles as well as tangibles—and had the strength necessary to deliver a great deal of it. Some practical considerations tortured him along the way, evidently, and robbed him of his full triumph. But this is a building that would grace any city in the world, especially the vertical city of New York, so much of which is becoming a plastic elephants' graveyard of synthetic ivory towers. It is a building which can instruct anyone who is even aware of architecture. It is a building which must irritate Ponti when he thinks what it might have been, but is not, quite. There are few architects, however, who would not be pleased to have designed such a building as "one of the testimonials that man can leave behind."



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PAOLO MONTI



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The F.D.R. competition

BY OGDEN TANNER

One of the more challenging and widely entered architectural competitions of recent years ended in a controversial first choice and some pointed questions last month with the exhibition of design for a Franklin D. Roosevelt Memorial in Washington, D.C.

The winner (right)—eight graven concrete tablets soaring 172 feet above the Tidal Basin site—drew immediate fire. "Instant Stonehenge . . . a cemetery of broken dreams," quipped the *Washington Post*; "A poor addition to the capital scene," mused the *New York Herald Tribune*. The Roosevelt heirs seemed bewildered. Even informed critics shot from the hip, calling it "book ends out of a deep freeze," a collection of stone quotations which would give visitors little more than a crick in the neck.

There were also convictions, however, that the concept could prove a strong and peculiarly twentieth-century design, more sculpture than architecture, full of the raw power and open, dynamic relationships of its time. Rather than inscribing words on a monument designed for other uses, it quite literally made FDR's words his monument, in huge, marble-surfaced pages rising from the earth. This was bold design, of the kind that can win competitions over others more careful of rules. But with its overtones of literature, epitaph, and ancient law, was it really a monument to Roosevelt the buoyant, all-embracing man? Even with more considered landscape transitions, with pools or fountains softening and vitalizing it with the water woven so strikingly through Roosevelt's own life, would it evoke a universal response? Were great tablets bearing great ideas enough?

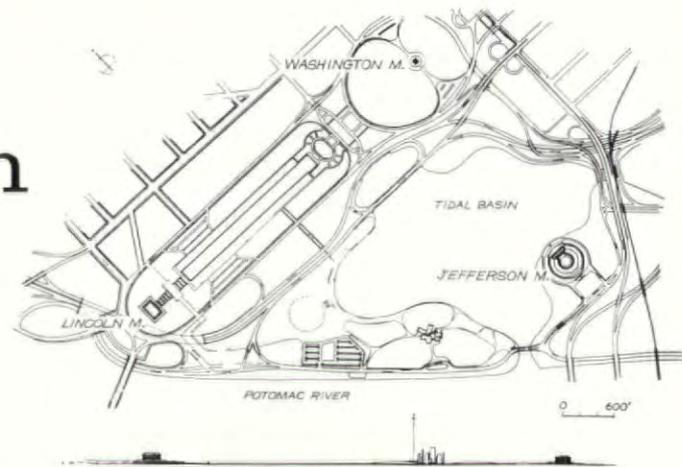
Not only the winner, but the competition as a whole raised more questions than it answered, which may prove its

healthiest result. Can a man as complex and historically important as Roosevelt be placed in sharp perspective after only 15 years? Is modern architecture, reflecting all the dynamic divergences and confusions of its era, capable of monuments? Should the program have been left quite as wide open as it was? And how does one judge "winners" in a fluid context such as this? Looking over the raft of 574 entries received from registered architects in the U.S. (an international competition, appropriate to FDR as it might have been, was ruled out as impractical), the jury* was impressed by the wide variety of solutions offered, termed the competition an "unqualified success."

Varied they surely were, as the following pages suggest. Some were buildings sheltering sculpture, modern counterparts of the nearby Lincoln and Jefferson memorials. Others, like the winner, were pieces of sculpture in themselves. Still others, of which one very nearly took the prize, were landscape schemes nurturing the parklike character of the site with earth forms, gardens, fountains, courts. Much fresh talent came to light; the chosen designs bore few big architectural "names."

Where does the project go from here? To make it worth-while, full study must first be given the breadth of ideas uncovered by the six finalists and 22 honorable mentions (on public view at Washington's Corcoran Gallery until February 19). Some will question the jurors' choices; but the results should be regarded as a beginning, not

*Pietro Belluschi, F.A.I.A., dean of M.I.T.'s School of Architecture and Planning, chairman; Thomas D. Church, landscape architect; Bartlett Hayes Jr., director of the Addison Gallery of American Art, Phillips Academy, Andover; Joseph Hudnut, Harvard Professor of Architecture Emeritus; Paul Rudolph, A.I.A., chairman of Yale's Department of Architecture.



an end. The FDR Memorial Commission, composed of Roosevelt's former attorney general, Francis Biddle, and 11 other figures largely from government, may accept or reject the winner or any of the other five finalists, or seek modifications or new designs (the competition was to recommend the architects, not necessarily the final design). Whatever emerges will have to run the gauntlet of the National Capital Planning Commission, the Fine Arts Commission, the National Capital Parks—and Congress, where more than one worthy architectural innovation has had hard times. Finally, and perhaps most appropriately to FDR, the project will go to the American people, whose private subscriptions must provide much of the money with which his memorial is built (Congress will be asked to make up the rest). A final acceptance or rejection may take five years or more, but historically this would not be long for projects of its kind. FORUM wishes it careful consideration, and good luck.



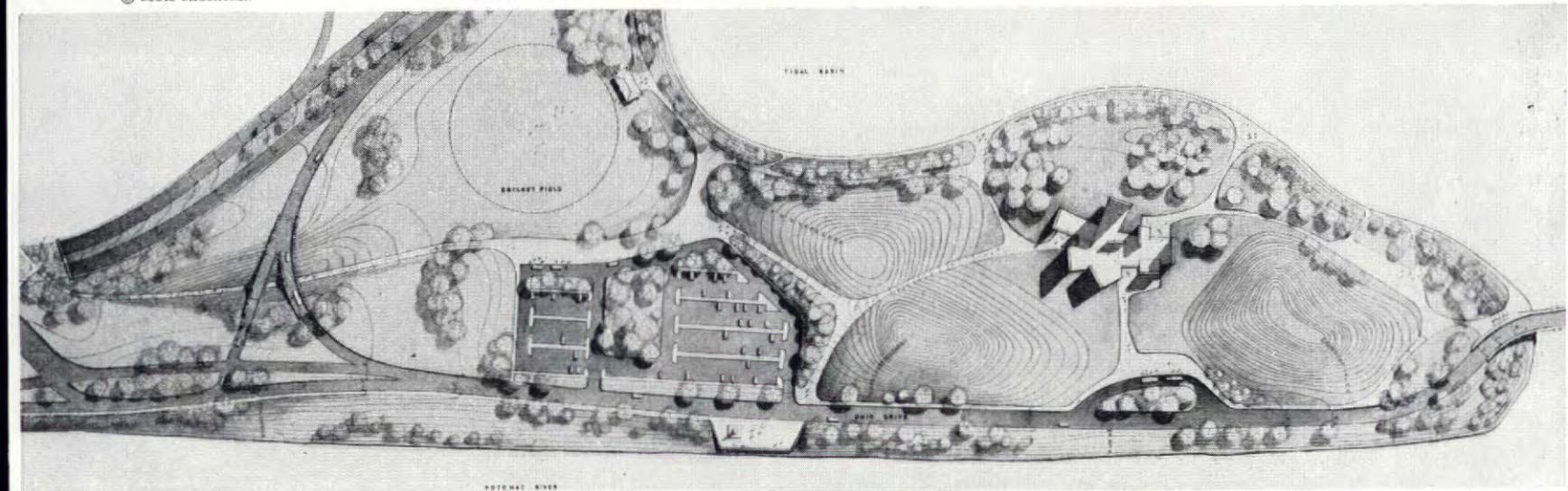
First prize (\$50,000): William F. Pedersen & Bradford S. Tilney, architects of Boston and New York; Norman Hoberman, sculptor; Joseph Wasserman and David Beer, associates; Amman & Whitney, structural engineers.

Jury: ". . . a clear image of Roosevelt's greatness through carefully chosen excerpts from his writings . . . his humanity, charity, and concern for all people emerge with great [simplicity and] force . . . the vast concrete tablets emphasize the intervening spaces as positive entities . . . As one moves onto the various levels of the platform, the views change and new spaces acquire significance. The whole [can be apprehended] from many approaches, and is visible, but without massiveness,

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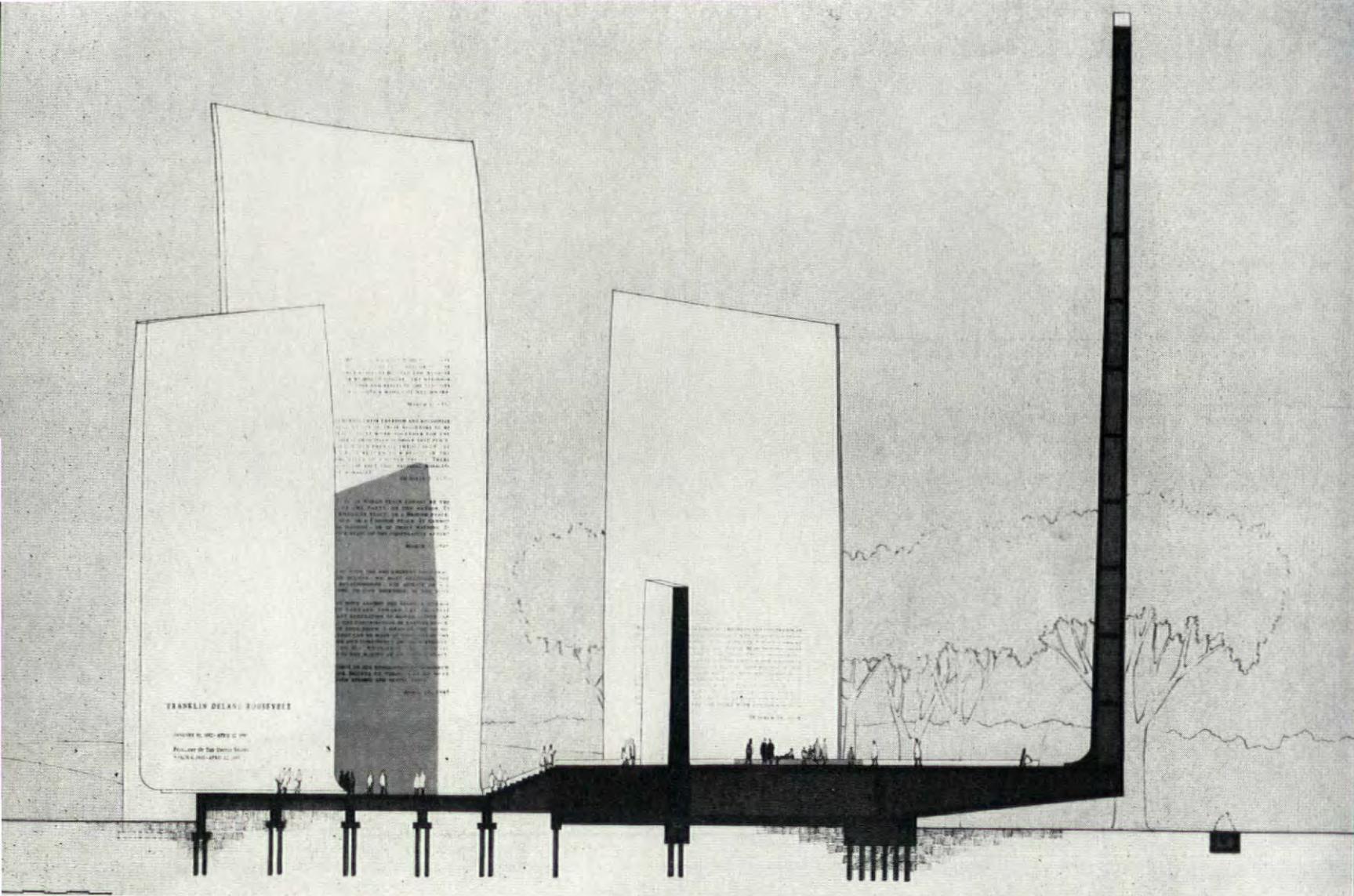


LOUIS CHECKMAN



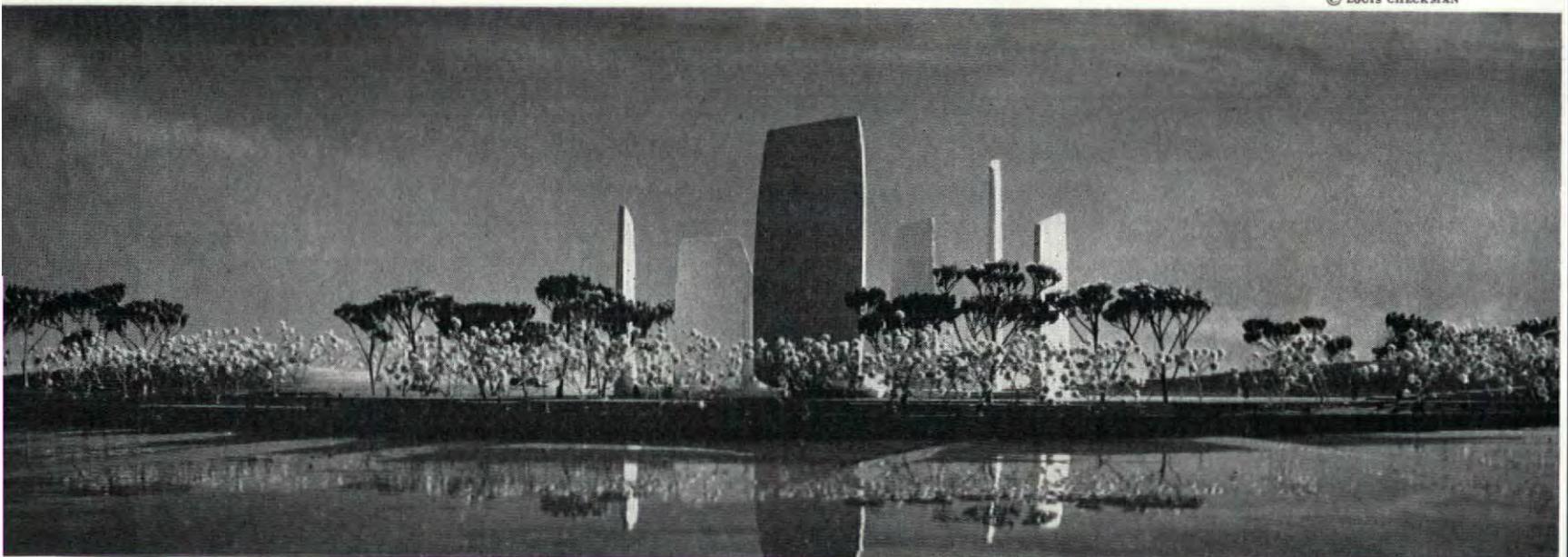
GEORGE CSERNA





GEORGE CSERNA

© LOUIS CHECKMAN



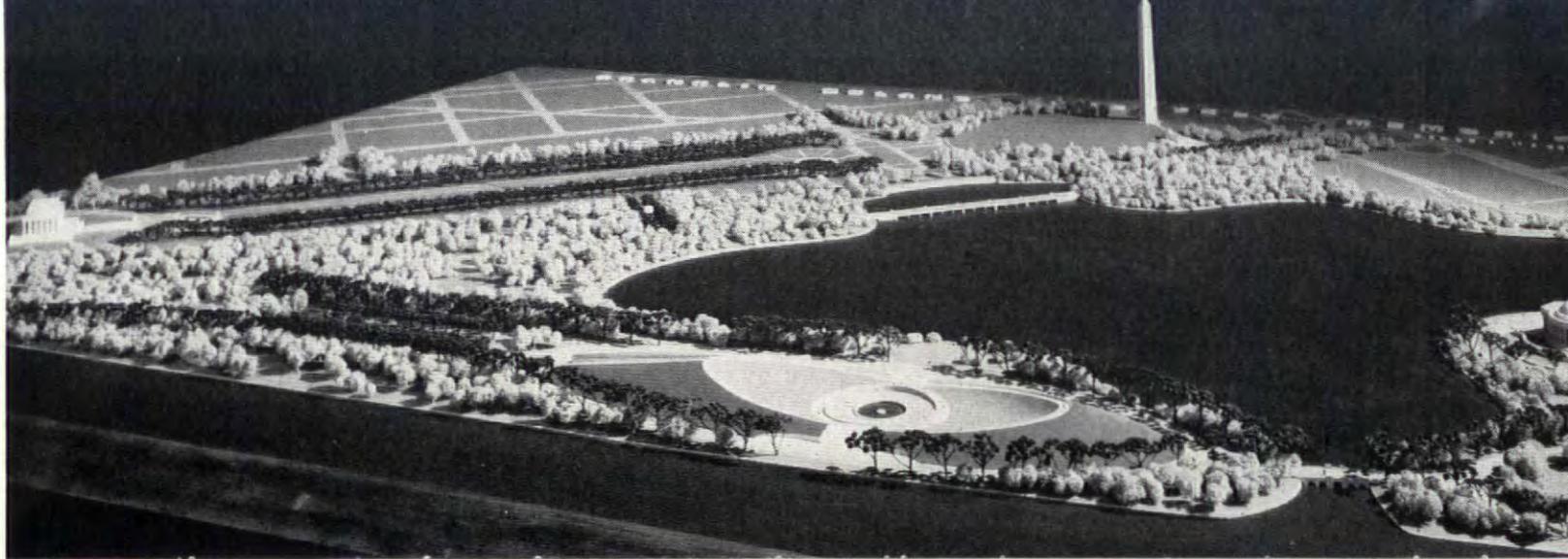
First prize (continued)

from the distance. The open character incorporates the beauty of the landscape, including altering views of the Potomac and the Tidal Basin, in which the bright shafts are reflected . . .” Edmund Bacon, professional advisor: “. . . an exceedingly fine design.”

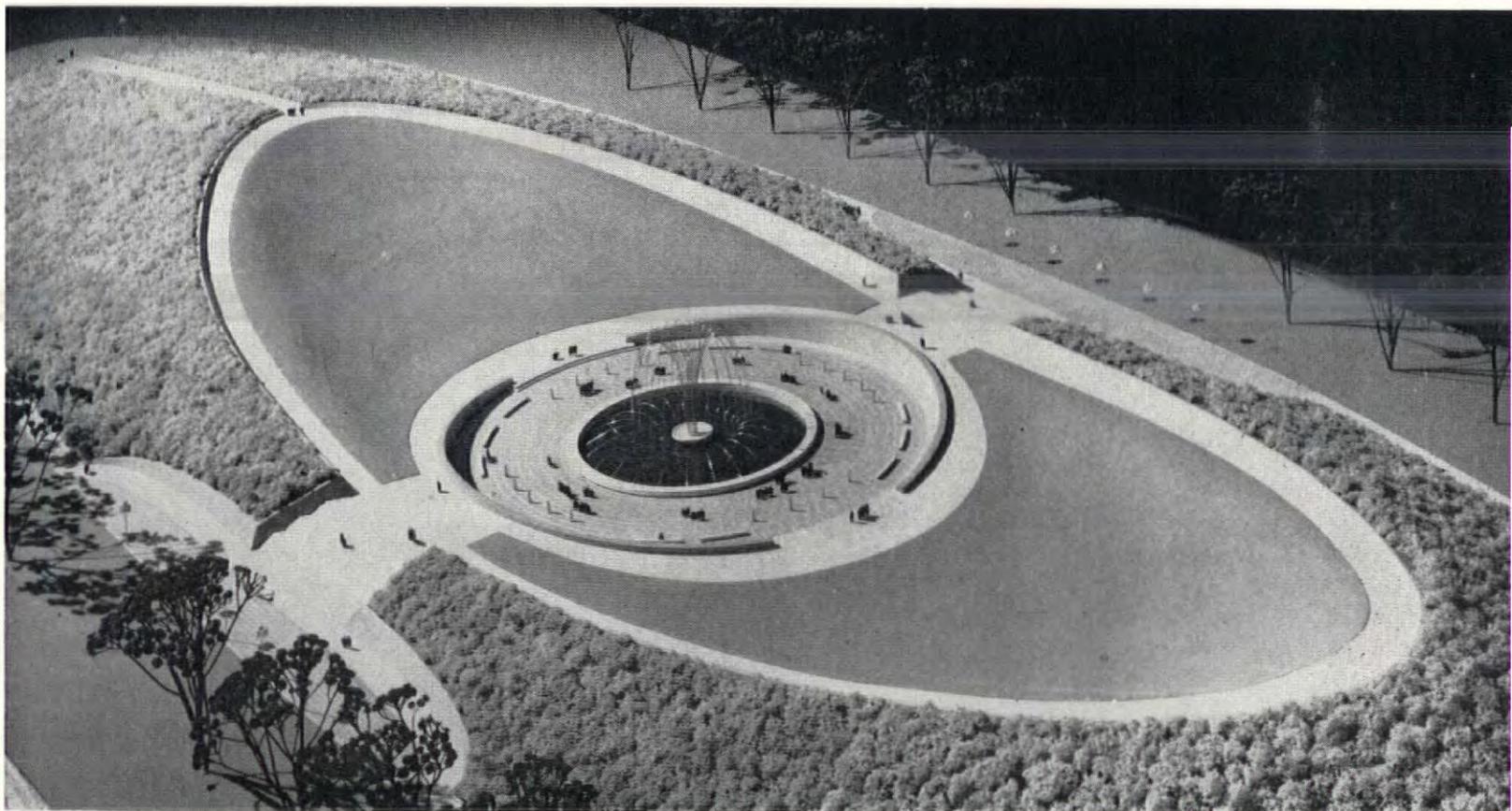
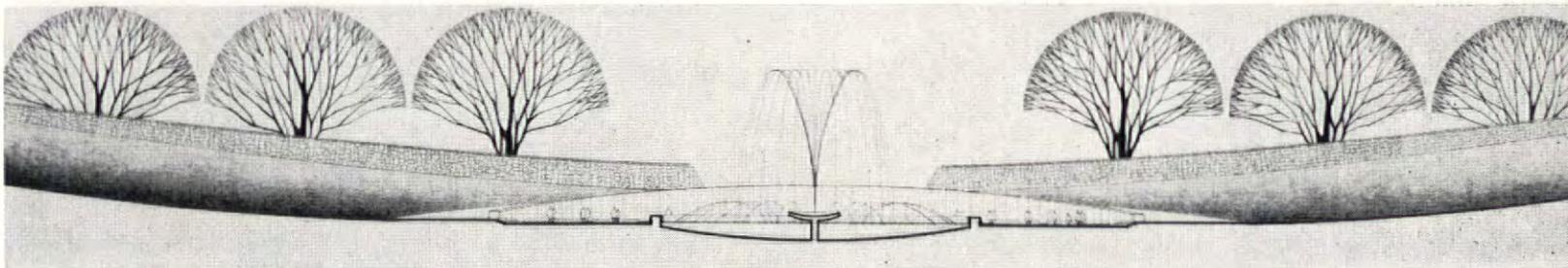
The eight steles are turned back to

form plazas on four levels on which visitors circulate freely, looking up to read FDR’s words in letters 8 and 12 inches high. The shafts are of cellular construction in reinforced concrete, finished in a bush-hammered white marble aggregate into which the letters are cast (size, placement, and color will be

studied further for legibility, though some doubts remain as to general sun glare within the memorial from clean white walls and floors). The tallest shaft is poured monolithically to provide the weight to stabilize its cantilever unit. Cost estimate: \$4,254,366 (including \$989,026 for sitework).



PHOTOS: JAMES R. WYNLOP, INC.



Finalist: a fountain in a bowl of earth

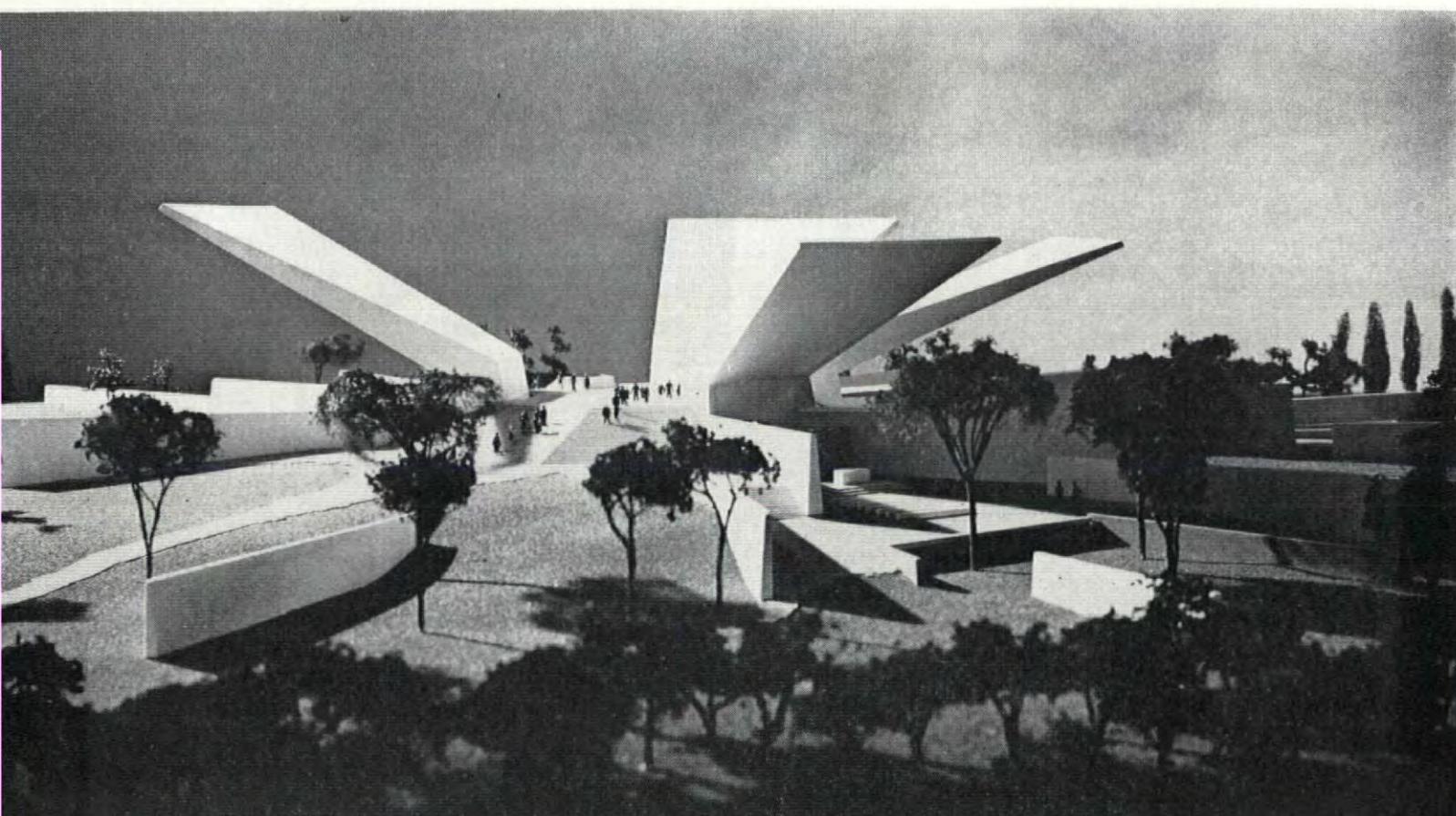
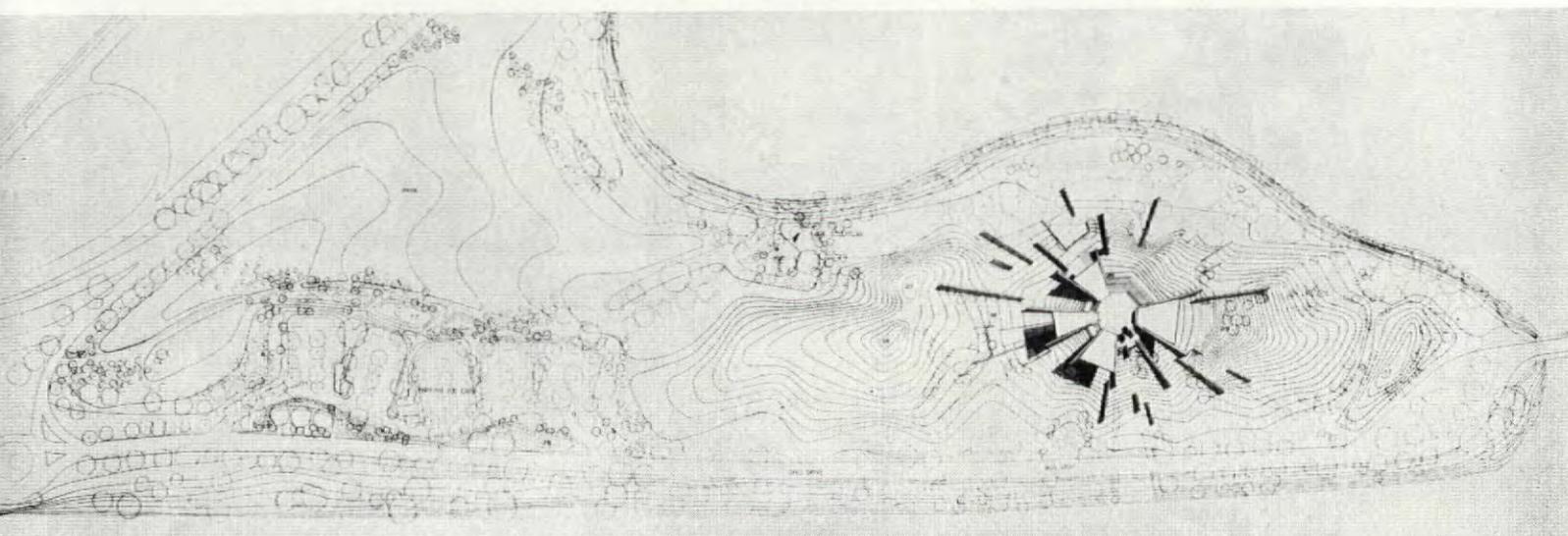
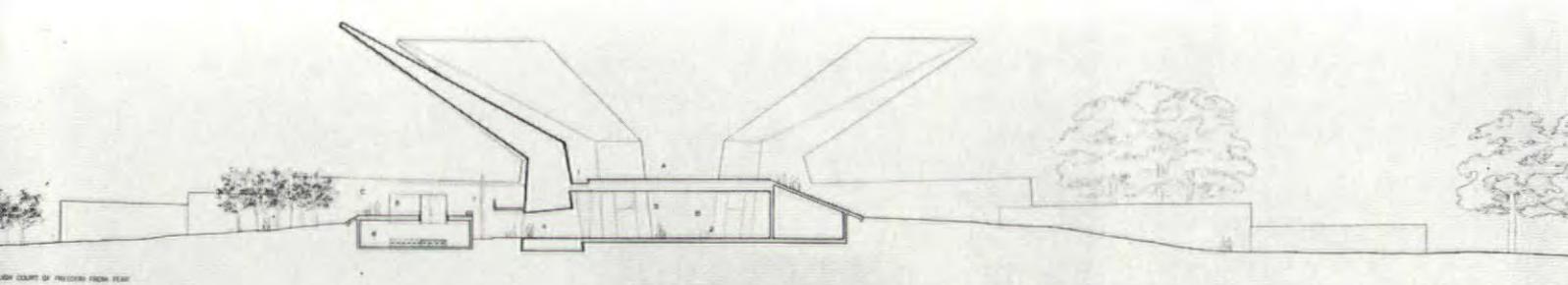
J. Edward Luders, architect; Hideo Sasaki, landscape architect; Don Olson, Robert J. Reilly, associated as Sasaki-Walker-Luders, Watertown, Mass.

"As one approaches the memorial, one must ascend to enter, and only then is

the entire scheme revealed. The visitor is embraced by the enfolding rise of land; the vast scale creates a reflective calm. The fountain portrays the essence of FDR: his ability to receive inspiration from many sources and to give generously in return. The sprays develop gradually to a full display at

noon, subsiding to calm at sunset. At night the fountain is lighted and played at half level; on special occasions, at its full glory. Within the earth bowl a carpet of lawn grass acts as a simple backdrop; outside, juniper gives a dense evergreen ground cover."* Cost estimate: \$5,531,000.

*Comments of finalists are paraphrased or condensed.



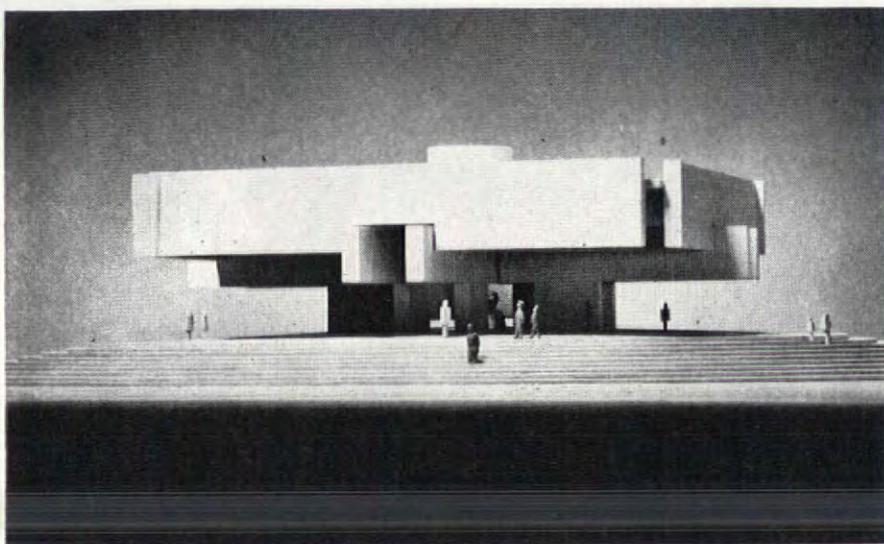
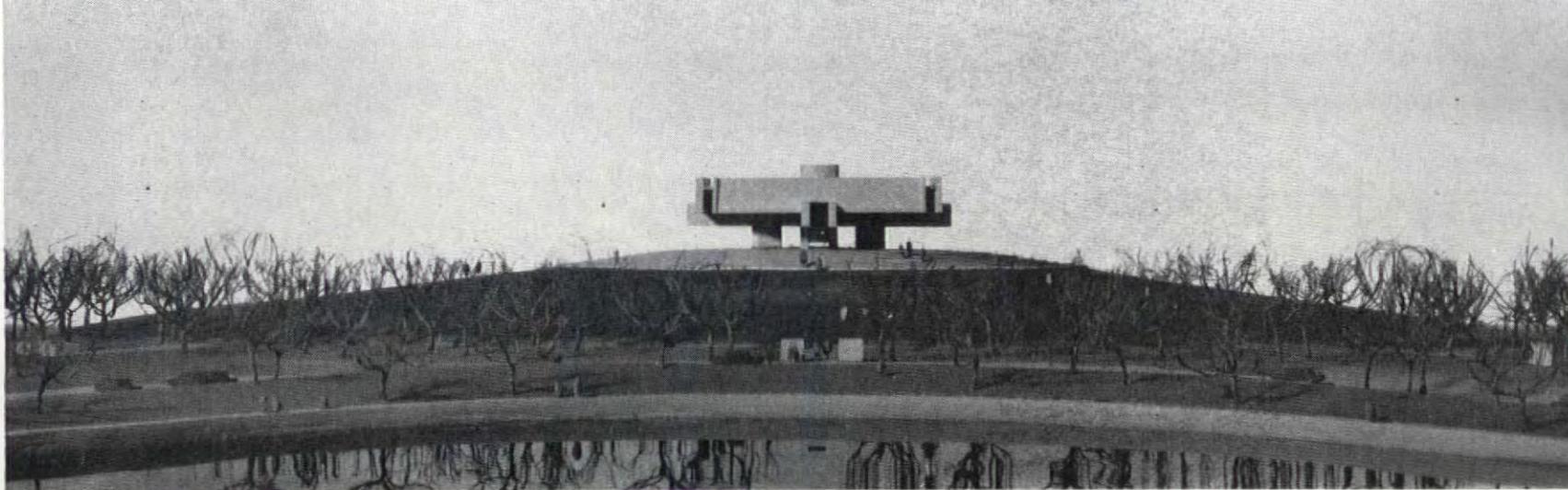
Finalist: four freedoms, four courts

Abraham W. Geller, architect, of New York City. Associates: Douglas Gordon, Diana Kirsch, Claude Samton, Peter Samton. Landscape architect: Richard Haag. Structural consultants: Salvadori & Weidlinger. Sculptors: Mirko

Basaldella, Nathan Rappaport. Artists: Glen Michaels, Tony Paladino.

"Radiating from a plaza and a gallery containing the Four Freedoms document beneath, four great cantilevered concrete planes shelter four courts. Freedom from want is symbolized in an entrance court; water runs out of

a sculptured spout. Freedom of worship is an open-air chapel of all faiths; freedom of speech, an amphitheater for debate above a small auditorium for lectures and films. In the court of freedom from fear, vertical glass slabs, containing documents, light a reading room below." Cost estimate: \$8,014,000.

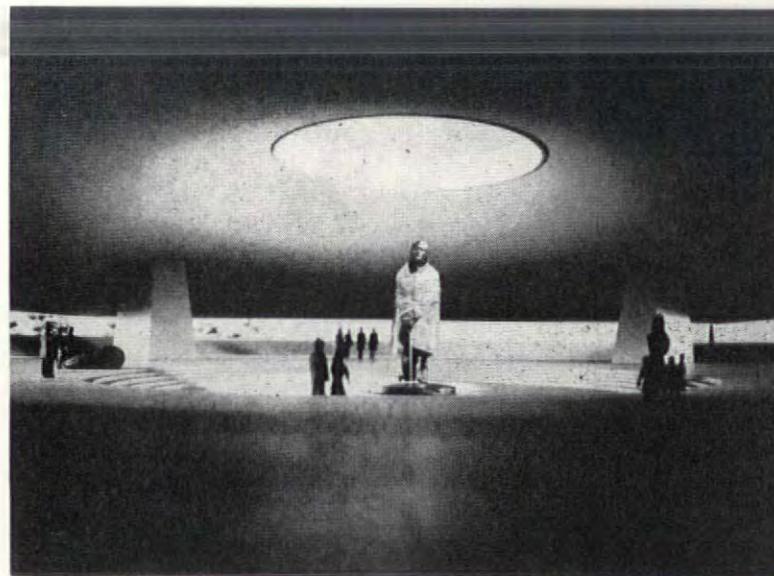
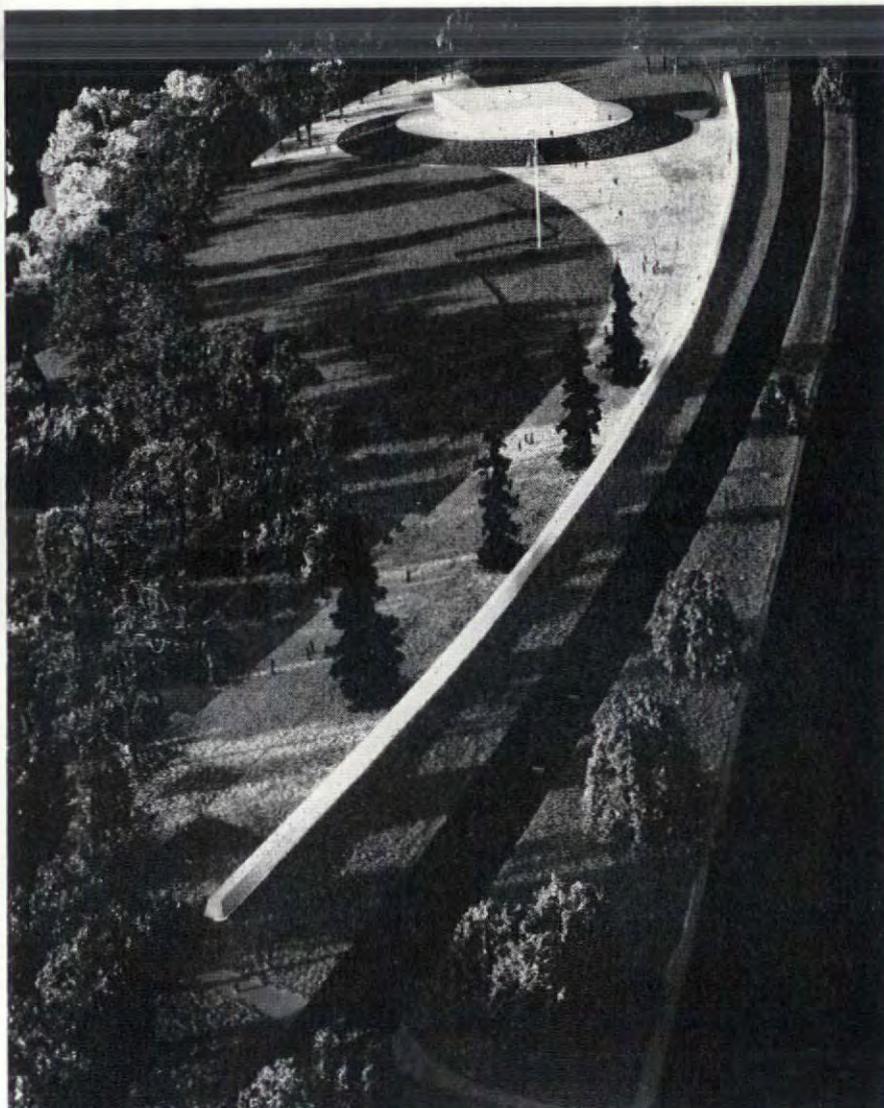


PHOTOS: (ABOVE) JAY-BEE STUDIO; (BELOW) GEORGE CSERNA

Finalist: temple on a rise

Tasso Katselas, architect, of Pittsburgh. Associates: Troy West, Norman Erbrecht, Joel Kranich, Anthony DeChicchis, Alfred Belle, Richard Palmer, Zoran Jovanovic. Gensert, Williams & Associates, structural engineers.

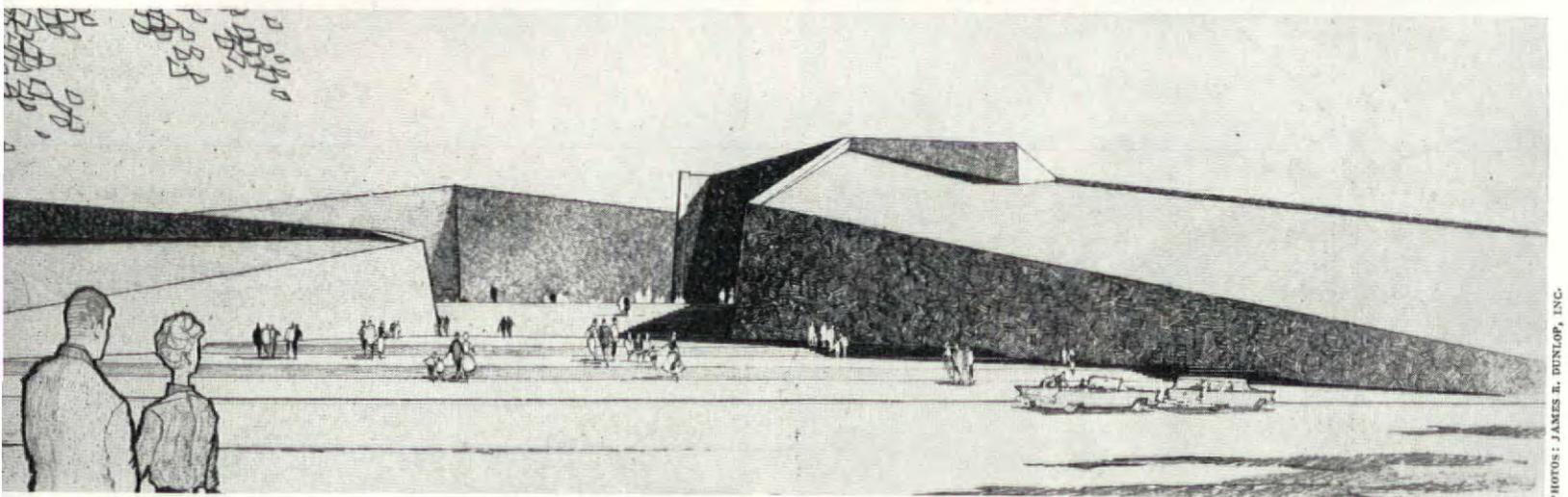
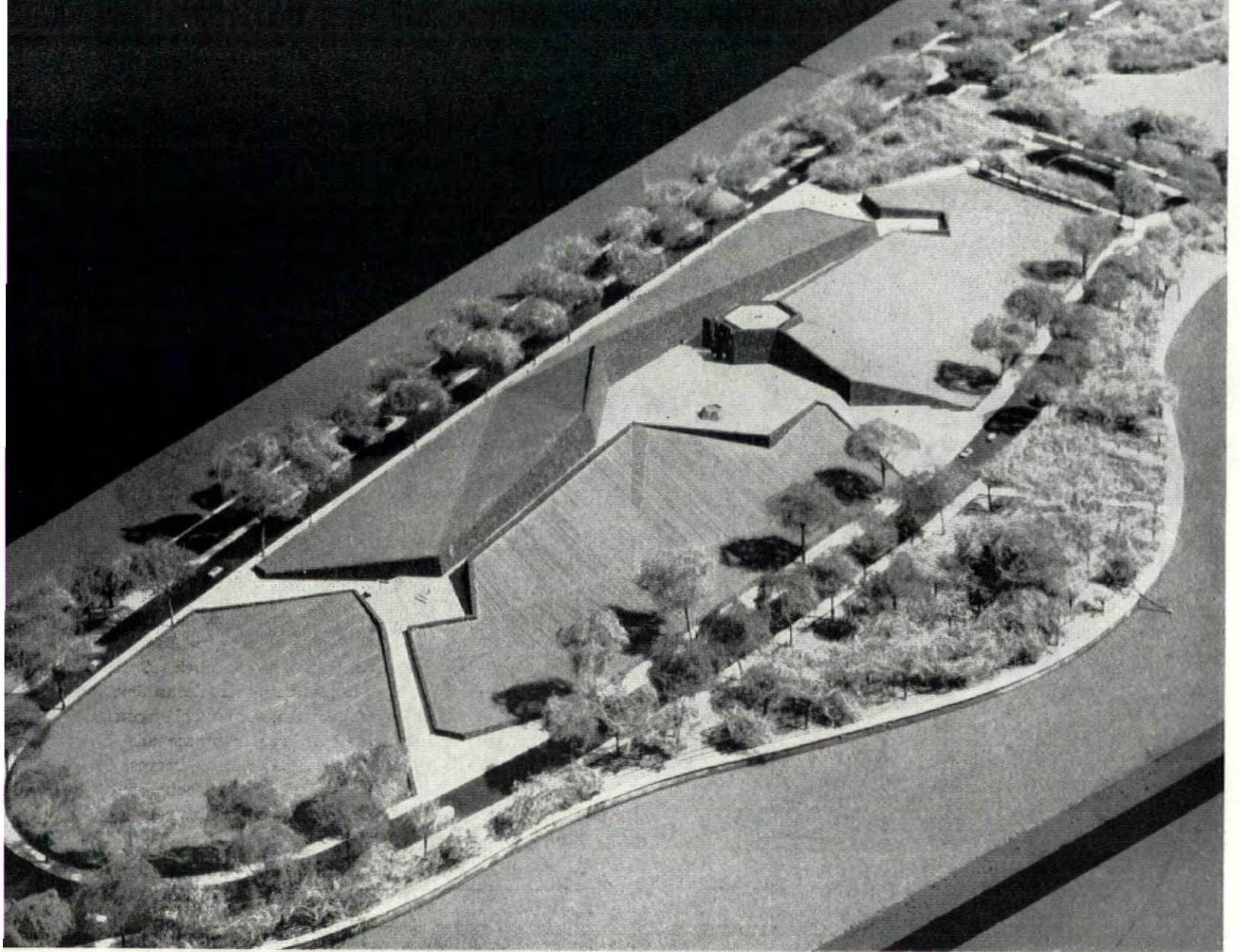
"On top of a mound and a circular promenade four double columns support cantilevered concrete beams, deep fascias, and a central light well of precast concrete. Beneath is a central bust flanked by four sculpture niches." Cost estimate: \$1,480,000.



Finalist: a wall, a roof, a statue

Rolf Myller, architect, of New York City. Consultants: Lev Zetlin (structural), Robert S. Malkin (landscape), David Chapin (artist). Job captain: Henry Szwarcz. Sculptor: Rolf Myller.

"Four giant black firs against a long curving wall lead to a mound of granite cobblestones and steps. Beneath a low hovering roof is a circular space with a 17-foot statue of FDR." Cost estimate: \$2,705,576.



PHOTOS: JAMES E. DUNLOP, INC.

Finalist: earthworks, and an FDR award

Joseph J. Wehrer and Harold J. Borkin, architects, of Ann Arbor, Mich. William Johnson, landscape architect; Thomas McClure, sculptor.

"As a continuing focus for high performance in human affairs, we propose

a Franklin D. Roosevelt Award to be presented each spring from a podium in the central court. Opening concurrently in a covered awards gallery would be an exhibit of the ideas and accomplishments of the recipient. The exhibit continues through the year, while the podium, inscribed with a pas-

sage from FDR's writings, stands silent as a symbol of the pursuit of excellence. Raised above the level of the roadway and defined by sloping granite walls, the presentation court is linked to the three major monuments by smaller courts and fountains at three portals." Cost estimate: \$6,100,000.

**Honorable mentions:
some of the many
ideas that emerged.**

Though there were arguments as to what constituted appropriate forms and proper relationships to other monuments and the site, the jury felt that the competition's 574 entries represented a "significant index of contemporary American culture"; in this varied bunch, picking winners was no easy task.

One of several sculptural solutions was a cluster of monumental shafts housing elevators, projection booths, and stairs for film and exhibit rooms underground (1). Architect: *John M. Johansen* of New Canaan, Conn., with Constantino Nivola, John D. McVitty, and Maria Fenyo.

In a design by *Harry Weese & Associates* of Chicago (2), visitors would ascend a pyramid of red granite, or enter on sloping ramps to an inner atrium, where other ramps led up to a view platform, sheltered by an open, coffered roof.

Joseph D. Murphy & Eugene J. Mackey of St. Louis, with Sculptor Hillis Arnold, crowned the peninsula site with a three-pointed form soaring 235 feet in the air (3).

Philadelphia Architects *Mitchell & Giurgola* and *David Crane*, with Carlos Vallhonrat, planted a symbolic field of wheat (4) and bisected it with a promenade flanked by sitting areas and low sloping friezes telling of FDR's times. Nearby were gardens, a Four Freedoms plaza, and a new National Children's School.

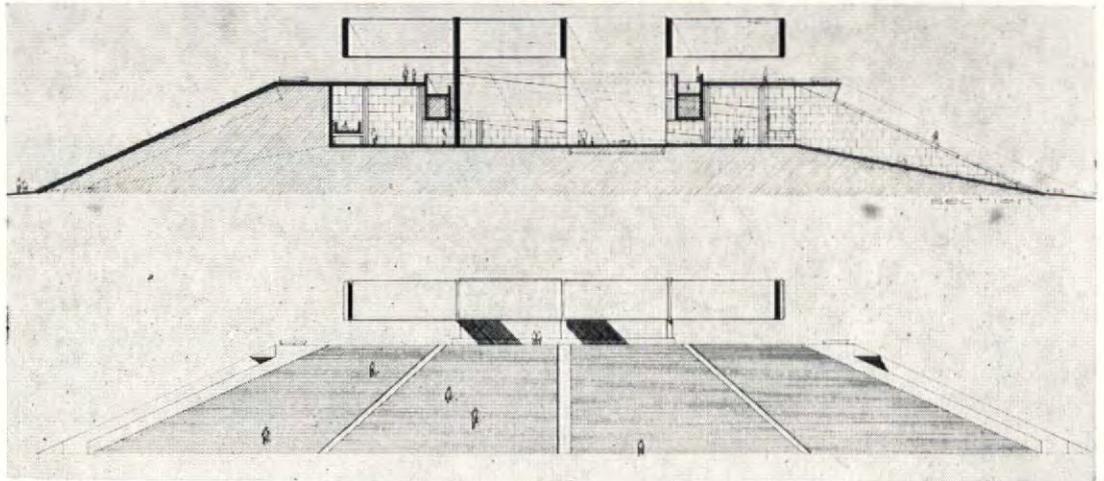
A circular display gallery raised on piers around an open court (5) was the work of San Francisco Architect *Frank F. Ehrenthal* associated with Tibor Fecskes, Valentine Agnoli, and Elio Benvenuto.

In other mentions (not shown) *H. P. Davis Rockwell* of Flossmoor, Ill. made a composition of high and low walls and a rectangular, open pavilion. *William J. Stanley* of Los Angeles, with Landscape Architect K. A. Rickerson, arranged a circle of pylons around a 40-foot statue of FDR. *Bruce A. Abrahamson & John Rauma* of Minneapolis placed a triple row of columns around a central pool. *Paul Schweikher* of Pittsburgh, with William Metcalf, focused on a large pool and fountains where varying "water paintings" would be controlled by electronic means. Two great reflecting pools were joined by an opening through a giant wall in a design

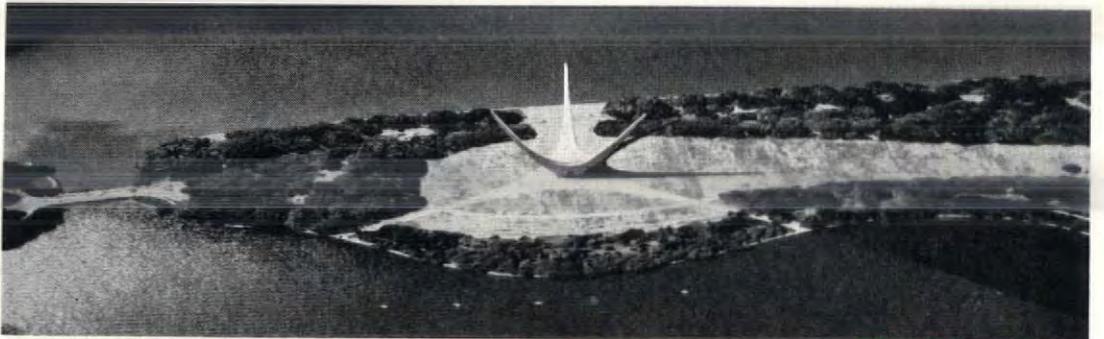
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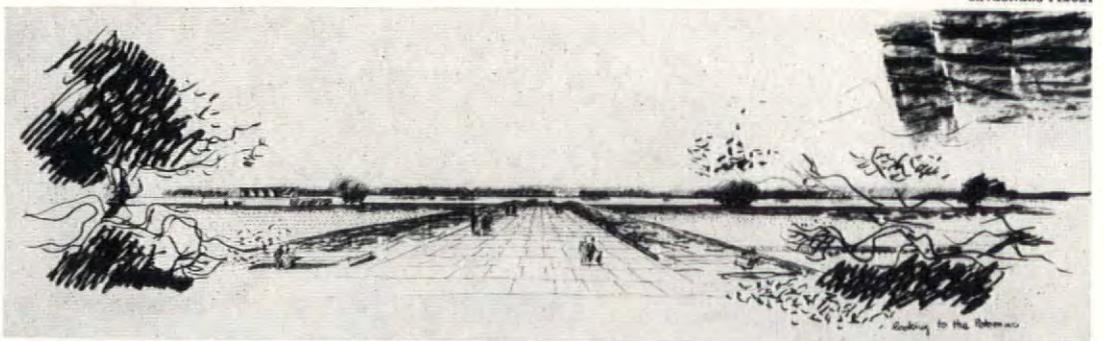
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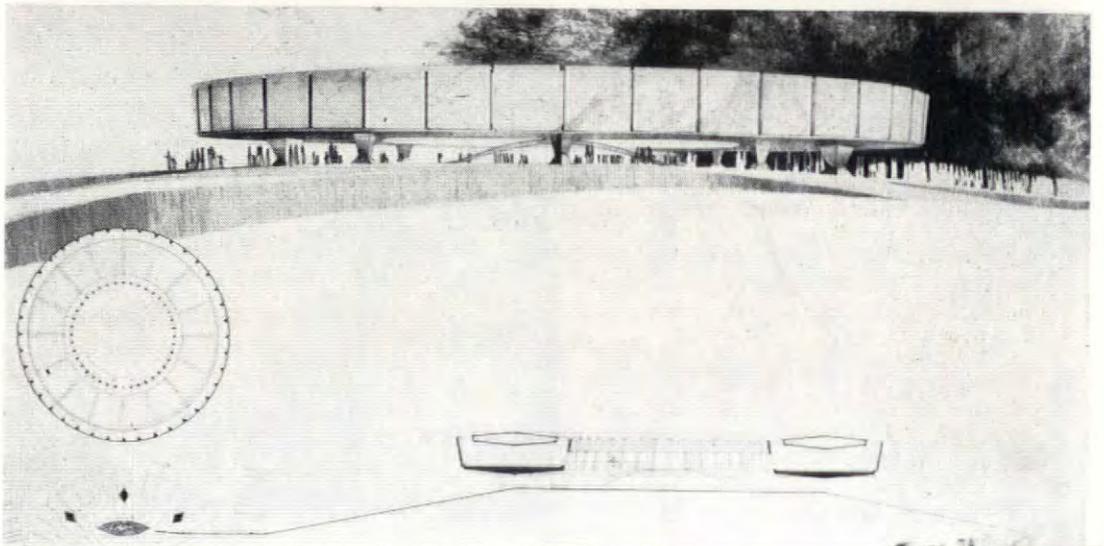
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5



by Reid, Rockwell, Bunwell & Tarics of San Francisco, with Rockrise & Watson, Landscape Architects Boyston, Hanamoto & Mayes, and Robert F. Olwell.

A team led by Lewis Davis, Samuel M. Brody, and Chester Wisniewski of New York ranged a strongly sculptural cage around a courtyard and eternal flame (6). William A. Gould, Carl H. Dropers, and Raymond P. Chaty of Cleveland, with Manuel Dumlao, supported a long, narrow museum on two elevator-service cores (7). A sculpture platform above a pool (8) was the entry of Oskar Stonorov and J. Frank Haws of Philadelphia, with Associates Otto Reichert-Facilides, Richard E. Martin, Peter Nicholson, Alfred and Jane West Clauss.

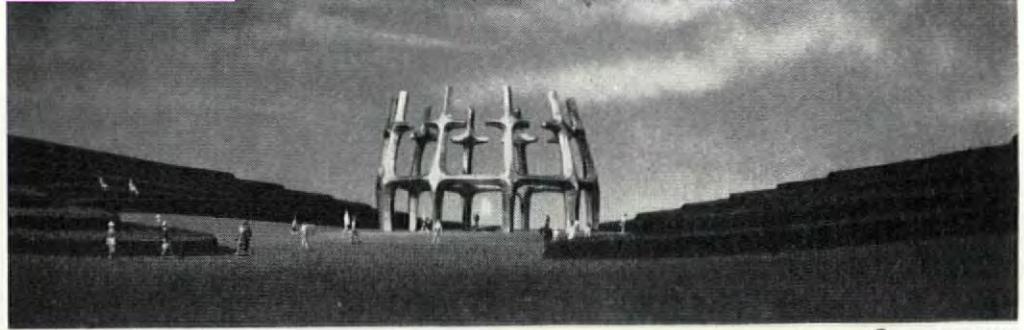
Robert Venturi of Philadelphia, with John Rauch, Landscape Architect George Patton, and Structural Engineer Nicholas Gianopolous, erected long retaining walls on either side of a widened drive; visitors could park anywhere along the road, walk through multiple portals in the lower sculpture wall, emerge on a broad river-front promenade (9).

In Corbusian forms, Architect Percival Goodman of New York led visitors up to a Freedoms court, through a sculpture chamber, over a bridge and out to a high platform and fountain pool emptying into the river (10).

Other mentions (not shown):

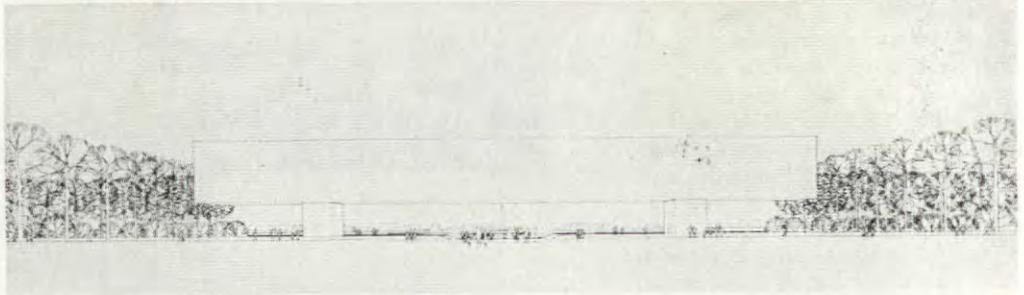
Elizabeth & Winston Close of Minneapolis: a long curved promenade through gardens, walls, pools. Anthony V. Genovese of Ridgewood, N. J., with Eugene A. Meroni and Herbert Maddalene: a massive, quadripartite roof above a statue, surrounded by a pool. Edward Larrabee Barnes of New York, with Giovanni Pasanella and Jacquelin Robertson: a rectangular lawn rising 75 feet to an elevated river promenade. Leonard Wolf & Karol Kocinski of Iowa State University, Ames, Iowa: an elevated ring 600 feet in diameter, with bold sculptural forms on its outside surface, symbolic murals inside. Charles Finney & Charles R. Kahrs of Sausalito, Calif., with Robert Olwell: fountain pools centering on a monumental court. Perry, Shaw, Hepburn & Dean of Boston, with Landscape Architect Richard K. Webel: a high, rectangular pavilion roof sheltering sculpture, on an island in a pool. S. Robert Anshen & William Stephen Allen of San Francisco, with Robert B. Howard, sculptor: a 150-foot shaft niched on three sides for single, inset fountains.

6

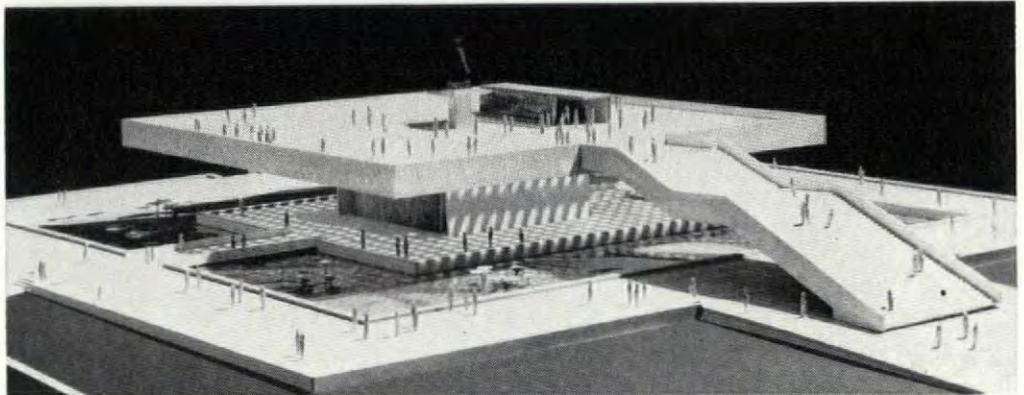


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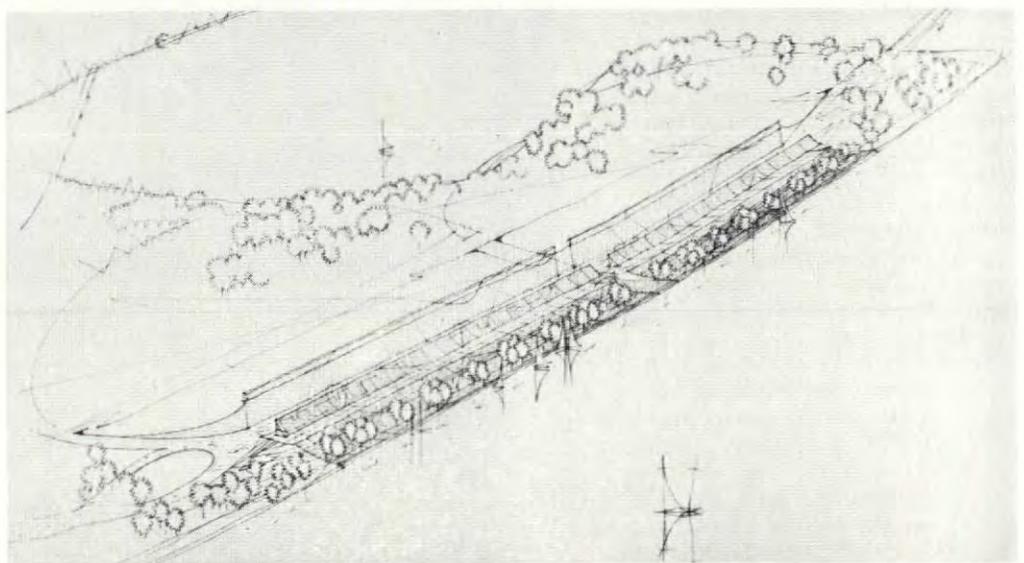


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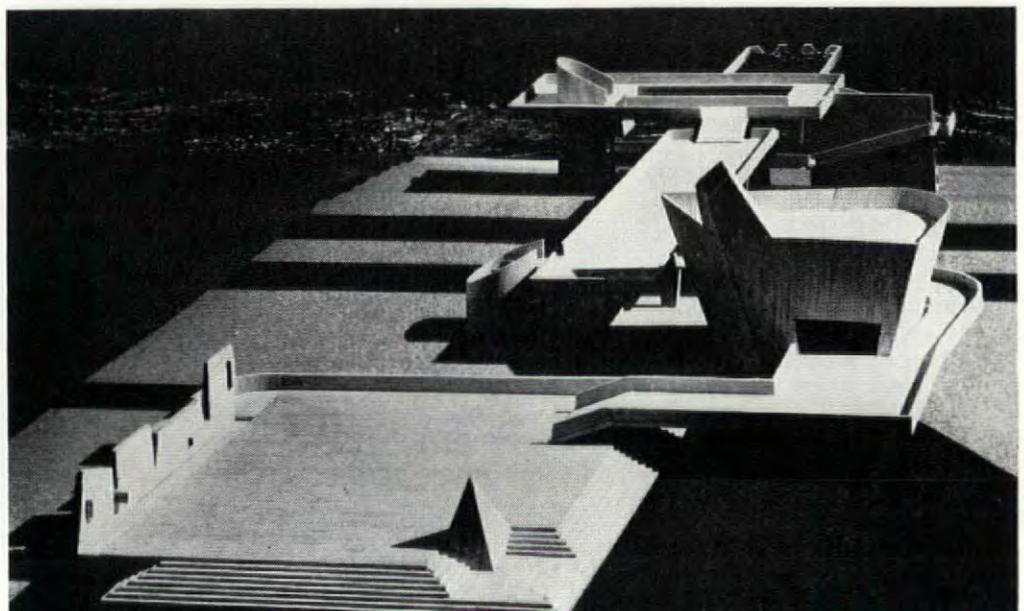
JACOB STILMAN

9



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10



Profits in "nonprofit" renewal

BY DAVID B. CARLSON

Nonprofit redevelopment corporations are showing how private initiative can generate public benefits and gain from them.

Perhaps the most salutary single development in the complex process of urban renewal in the past eight years has been the growing support of local business for local projects. This has involved vigorous business backing of public urban renewal programs, and has extended to the devising of corporate methods for combating residential and commercial blight using private funds. In most cases, the instrumentality has been a nonprofit redevelopment corporation (or "foundation") contributions and subscriptions to which are deductible as business expenses.

The redevelopment activities of private business range over a wide area of projects and comprise varying degrees of involvement with the redevelopment process. In several cities (e.g., Spokane, Cincinnati, Buffalo, Philadelphia) organizations of private businessmen have concentrated on being catalysts in the redevelopment process. They operate on limited budgets to guide and focus the redevelopment efforts of other private and public agencies. Sometimes this involves backing studies and surveys of specific areas, as in the case of Buffalo's Elliott renewal project or the center-city study of Spokane, carried out with a \$150,000 fund raised by downtown business enterprises. In many other cases, business enterprises have taken the redevelopment initiative on a specific project, such as the \$127 million Charles Center project in Baltimore (FORUM, June '58), the Midtown Plaza project in Rochester (FORUM, July '59), and the \$15 million project of Kansas City's Downtown Redevelopment Corp. And some, like northwestern Indiana's Purdue-Calumet Development Foundation, combine their planning efforts with specific redevelopment projects.

Probably the best known of all the

redevelopment corporations, and in many ways the most successful, is the Cleveland Development Foundation. Founded in 1954 in an effort to get business backing for the city's urban renewal program, the foundation achieved what was then a remarkable feat, much admired by planners, administrators, and businessmen in other cities—in a short period of time, it raised \$1.7 million for a revolving loan fund with which to aid a variety of city projects. About 60 per cent of the money came via an exchange of ten-year notes of the foundation bearing 4 per cent interest (if earned), the rest from straight contributions. The pitch for funds was strictly business: "For its prosperity, Cleveland industry needs the labor that is coming from the South, and is being crowded into slums. . . . Slums are an economic waste and slum dwellers are not good customers." The roster of contributors included just about every big business in the city (e.g., Republic Steel, Ohio Bell Telephone Co., M. A. Hanna Co., Standard Oil of Ohio).

The foundation has concentrated on housing. It first lent \$786,000 to the developers of the Longwood slum clearance project, which eventually involved public and other private expenditures totaling \$15.2 million. Since then, it has bought a former slag dump of Republic Steel's (for original cost) and resold it to developers who (with a loan of \$425,000 from the foundation) built the 1,546-unit Garden Valley project. In this case, the efforts of CDF spurred \$16 million of other private investment, and \$13 million of public investment. In the East Woodland project, CDF advanced \$200,000 to the city for land purchase, and put up \$330,000 in loans for the building of the housing. The foundation is supporting city rehabilitation projects in seven neighborhoods, and has offered to finance any such projects which seem financially uncertain. In fact, the foundation considers such support to be one of its chief functions. Upshur Evans, executive director of the foundation, has said: "Our job is to bring together the industrial, commercial, financial, and

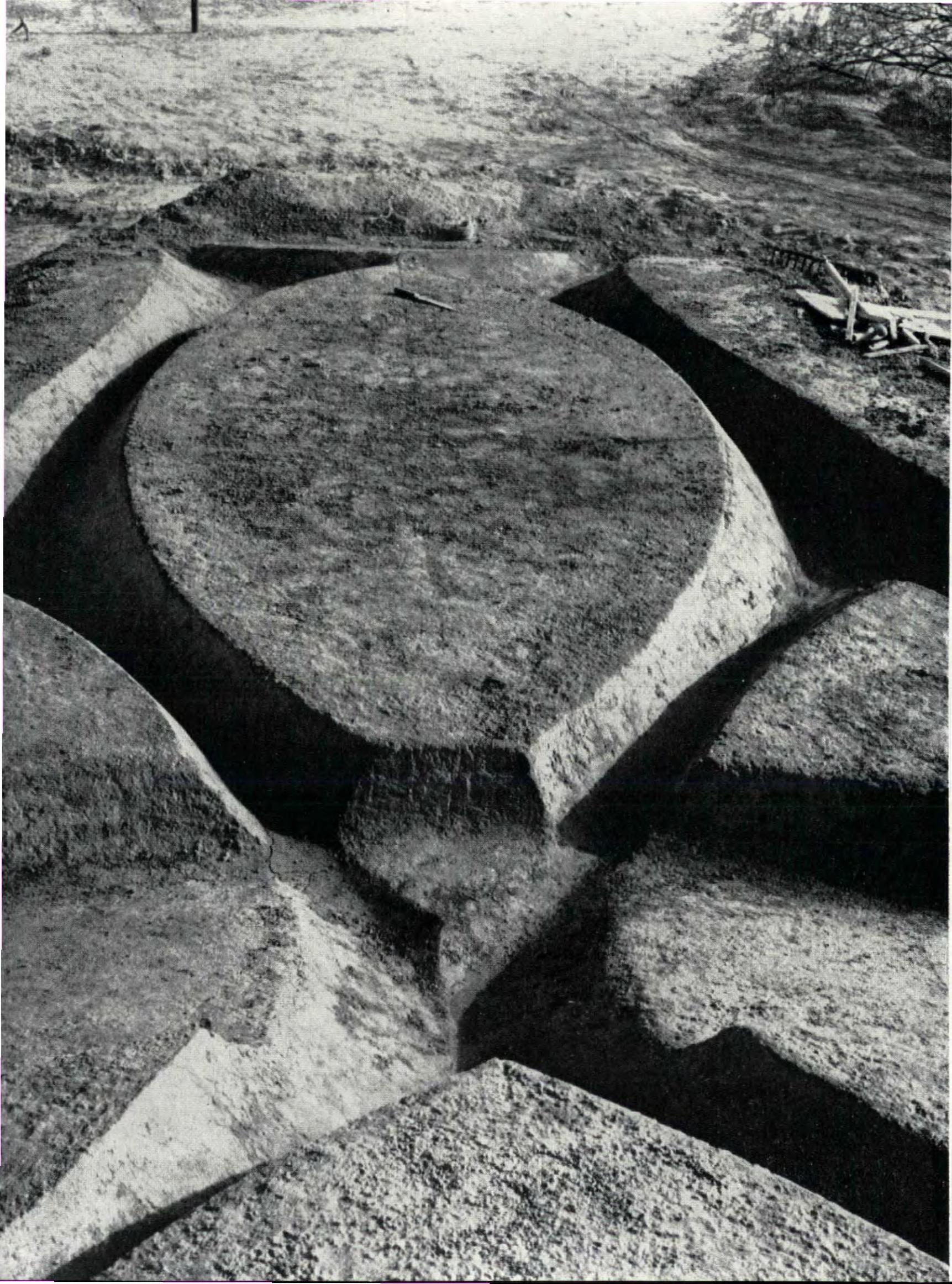
social forces that need to be combined for the development of the city. We put our money into economically doubtful projects to make them acceptable to lending institutions."

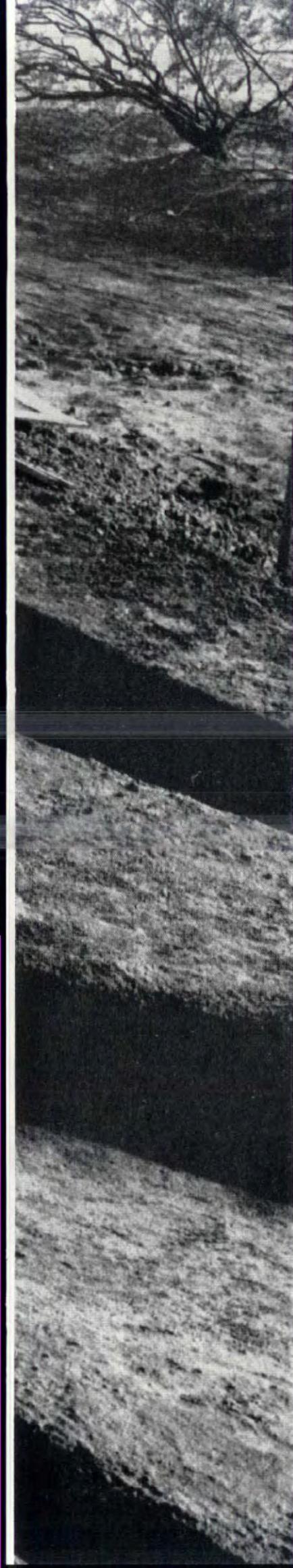
How well CDF has done this job can be seen in a single rather startling figure: \$133 million. That is how much investment has been generated in six years of effort by the initial \$1.7 million in the revolving fund. The foundation has more recently put its support into planning studies for the whole central business district, especially via its 50,000 grant for a \$100,000 downtown study. It has given a \$25,000 annual grant to a local organization engaged in governmental research to update a series on metropolitan problems. And it has vigorously supported a plan for metropolitan government in greater Cleveland, as well as commercial redevelopment in downtown. Its unsuccessful efforts to get voter approval for the former have generated the only criticism that has been heard against CDF. Presently, the foundation is backing the tremendous half-billion-dollar Erievue program, which would replace aging commercial and residential buildings with new office buildings and luxury apartments. CDF has put up \$25,000 for preliminary planning, and the federal government has reserved \$10 million for the project.

Action in Pittsburgh

Although not so venerable as Cleveland's foundation, ACTION-Housing Inc. of Pittsburgh has a record of achievement second to none. Formed in 1957 by a group of businessmen and civic leaders, with Bernard E. Loshbough as executive director, ACTION-Housing is in some respects a companion effort to the solid commercial redevelopment by business of Pittsburgh's Golden Triangle. ACTION-Housing has concentrated on slum clearance and on pioneering design innovations in new low-cost housing. One of its most significant achievements was in breaking the red-tape snarl that had prevented Section 221 of the National Housing Act from attract-

continued on page 167





STUART WEINER

The fantastic world of Paolo Soleri

BY PETER BLAKE

The small, wiry figure sitting at his long drafting board (above) is that of a 41-year-old Italian architect and visionary named Paolo Soleri. He lives, with his family, in Paradise Valley, a desert near Phoenix, Ariz., only a few miles from *Taliesin West*, where he received a part of his training under Frank Lloyd Wright's direction. In Paradise Valley, Paolo Soleri is redesigning the world.

To most of his fellow architects, Soleri is a complete stranger: it is true that a stunningly beautiful, dome-covered desert house built by him in collaboration with another Taliesinite, Mark Mills, was published in *FORUM's* "Young architects" issue ten years ago; it is further true that Soleri built a strangely sculptural ceramics factory on the Amalfi coast, south of Naples—but he never bothered to have it photographed or exhibited, and few Americans have seen it; finally, there is a Soleri design of pure genius for a tubular, reinforced concrete bridge—perhaps the first new bridge concept since Maillart—but it was never built. In short, Soleri is practically unknown to the "real world" of architecture: he is an "outsider," supporting his family by making ceramic bells that are weird in shape, and sound lovely.

If Soleri has withdrawn from the "real world," he has created another kind of world around him: a fantastic world of form within which he lives and works. This is the first of two *FORUM* reports on Soleri's world: this first one is concerned with his structural experiments; the second will deal with the dreamlike "City on a Mesa" which Soleri has been designing and drawing up in meticulous detail on dozens of rolls of butcher paper, each several hundred feet long.

What is Soleri's aim? "We are put on an earth of splendor, of ever changing beauty, of power and grace," he said recently. "Architecture could offer man a way of equaling nature." He is trying to find that way.



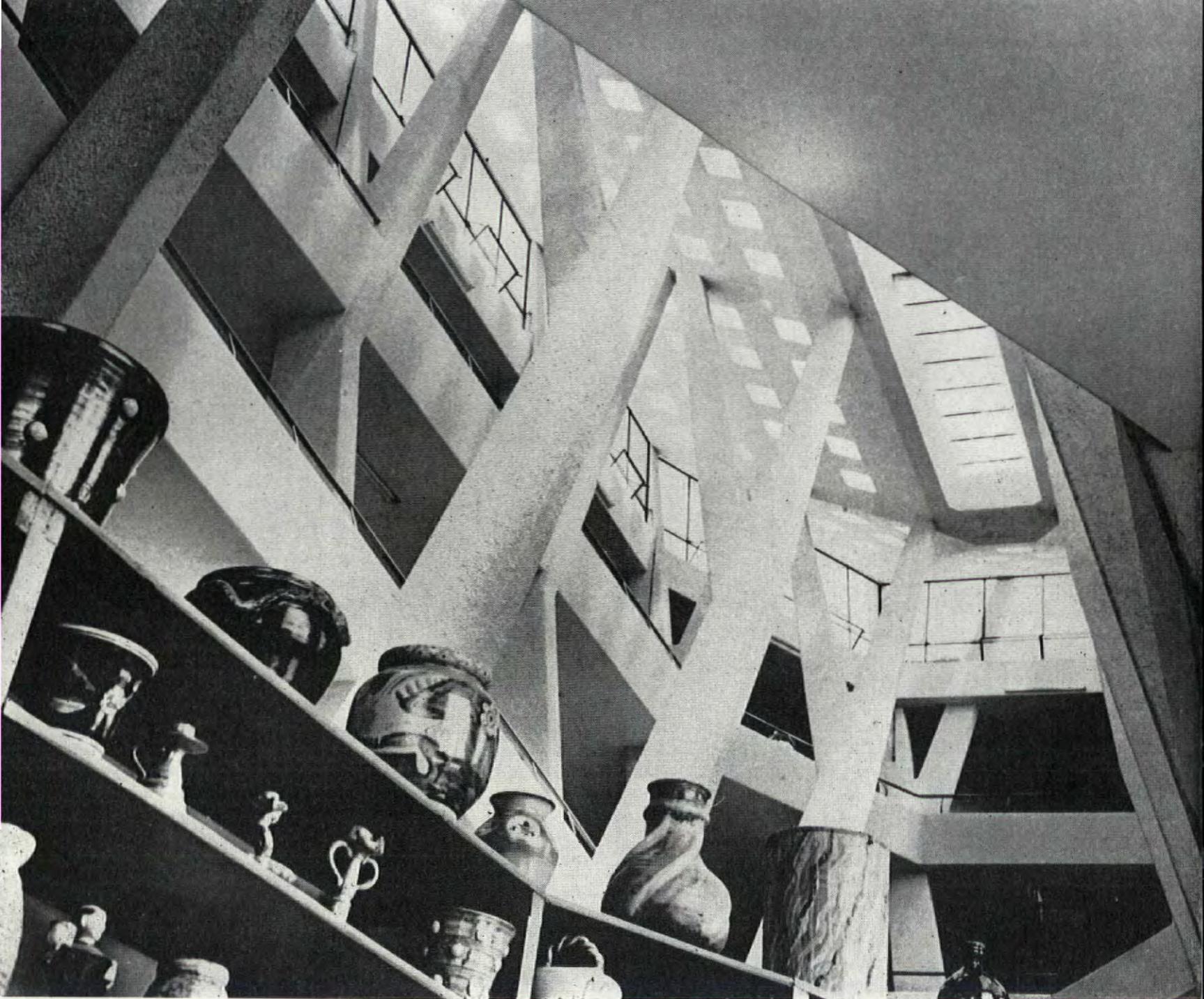
JULIUS SHULMAN



ROBERT DAMORA

Domed desert house by Soleri and Mark Mills (top) was built ten years ago. **Tubular bridge** (bottom) was designed by Soleri in the late forties; it unfolds where structural stresses are small, closes back into tube shape at midspans. Opposite: detail of formwork for Soleri's new "earth houses."

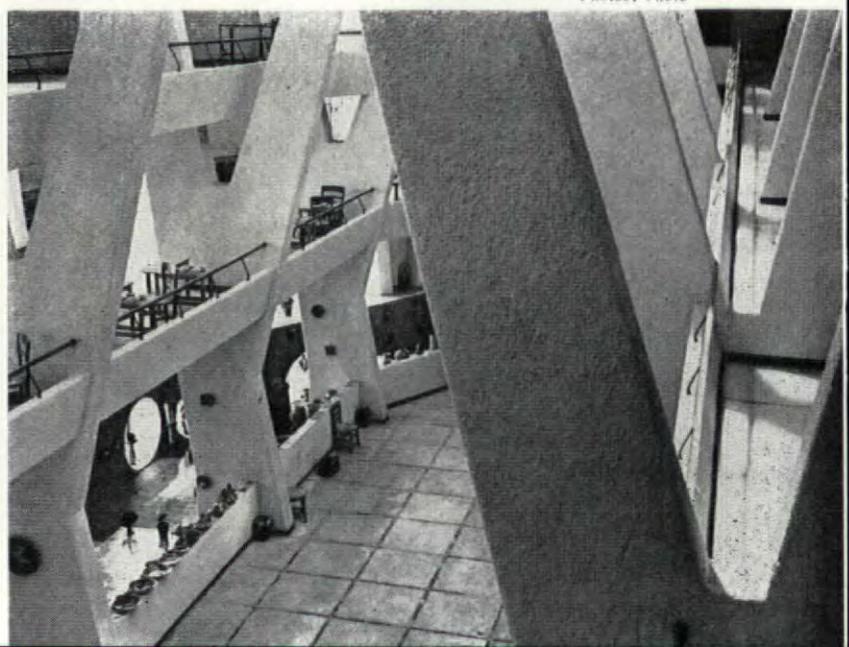
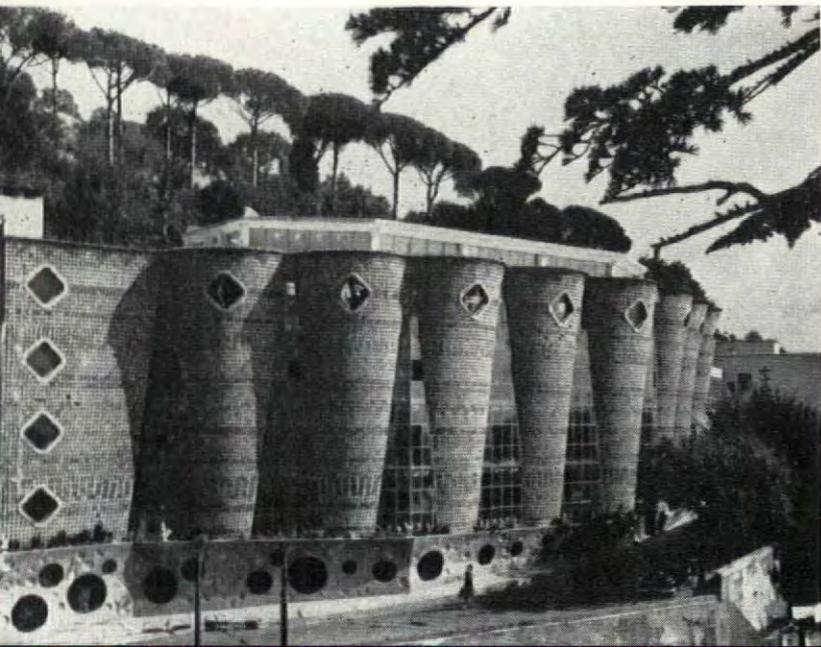
STUART WEINER



Ceramics factory at Vietri sul Mare, near Salerno, is a single hall, about five stories high and ringed by ramps that spiral upward and are supported on reinforced concrete "trees." The space is lit chiefly from above, and is reminiscent of Wright's Guggenheim Museum. But the exterior is indigenous to the Amalfi coast: great,

tapered shells that recall the pine-cone shapes so natural to this region. Colorful patterns of ceramic tile are applied to the outside walls. Openings in this exterior shell are circular or round-cornered so as to avoid clashes with the fluid forms of the building. Soleri designed this factory during a stay in Italy in the early fifties.

Photos: Vuolo



For all his withdrawal from the "real world," Soleri is a very sophisticated artist: prior to Taliesin, he received a doctorate with highest honors from the Polytechnic of Torino, and he is not unaware of the presurrealist work of Antoni Gaudi in Barcelona, or of Wright's twin principles of "plasticity" and "continuity." There are traces of all this in Soleri's buildings; but there also is unmistakable evidence of a highly creative mind.

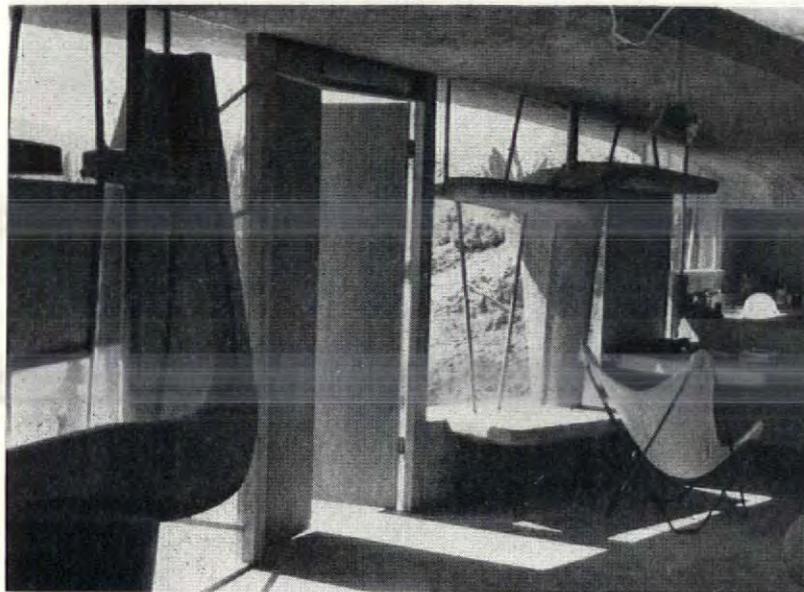
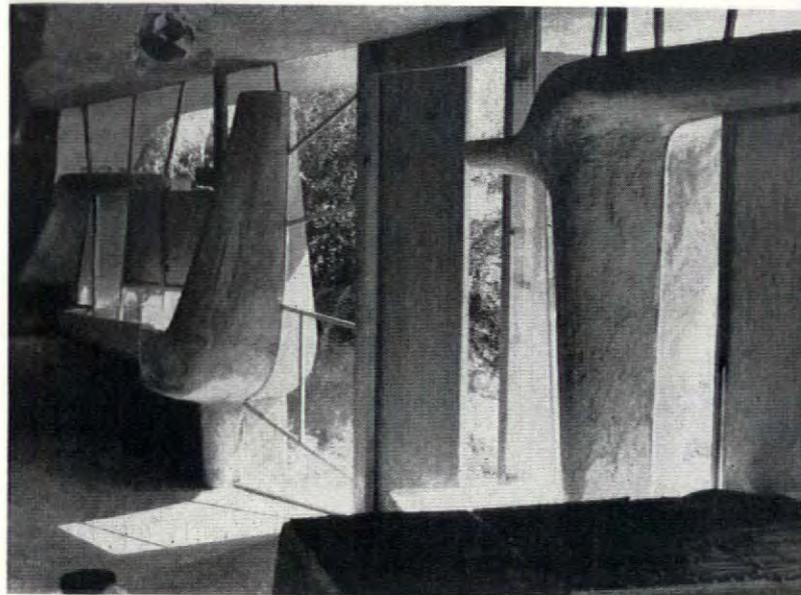
The ceramics factory at Vietri sul Mare is, admittedly, reminiscent of Gaudi's *Sagrada Familia* in its interiors (opposite); but it is a remarkably original building in its cliffside setting: the bulging, thin-shelled walls enhance rather than interrupt the curving cliffs that have made the Amalfi Drive one of the favorite obstacle courses for motorized Italians; and the ceramic-tile facing on the exterior declares the purpose of this building without recourse to billboards. Except for the angularity of the treelike structures inside (Soleri's original drawings showed them more curvilinear, but budget problems intervened), this factory, with all its complex surfaces and openings, does not seem to strike a single false note.

The "earth house" shown below and at right is one of two related structures built by Soleri in Paradise Valley. Its construction is described on the next page; these illustrations reveal how far Soleri has gone in his search for more natural forms that literally grow out of the earth. Here, again, are traces of Gaudi's work and some suggestions of the kind of structure that Wright used to dream about; but, once again, the forms and techniques are completely original: forms inspired by natural organisms found in the desert, and techniques developed out of the special qualities of the desert clay.

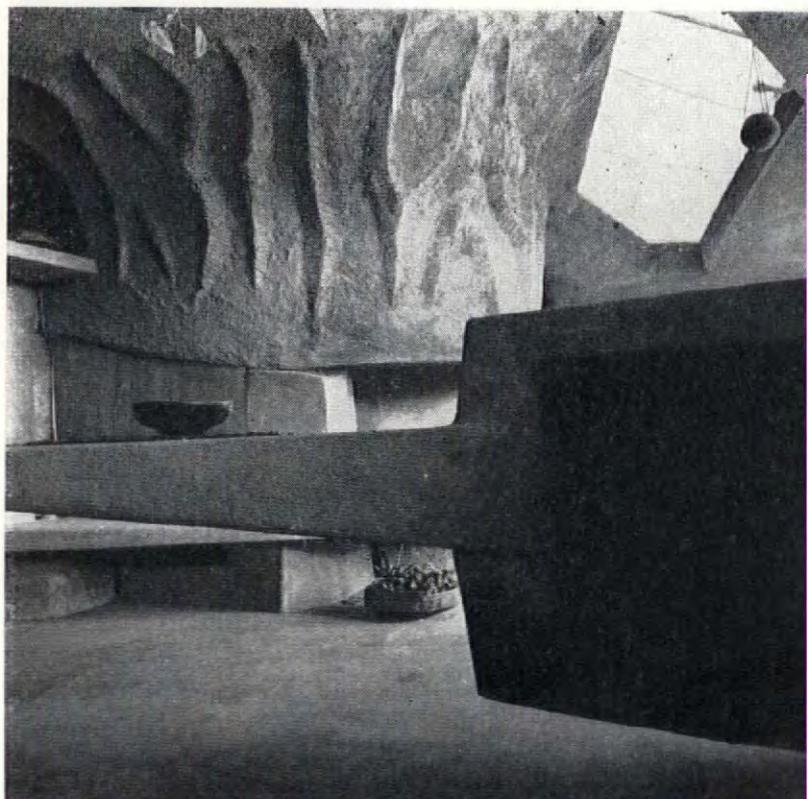
The "earth house" is about 25 feet wide and 35 feet long; its floor is 6 feet below that of the desert, and the curved and ribbed thin-shell roof (about 3 inches thick) meets the desert floor on the two long sides of the plan; the ends of the house open into two excavated patios; these patios were designed to collect rain water in special collection pits, and this water is used to grow plants in and around the patios. Eventually, planting will be used to cover the roof as well, so that the house will merge with and enhance the desert—rather than destroy it as do the tract houses all around Phoenix.



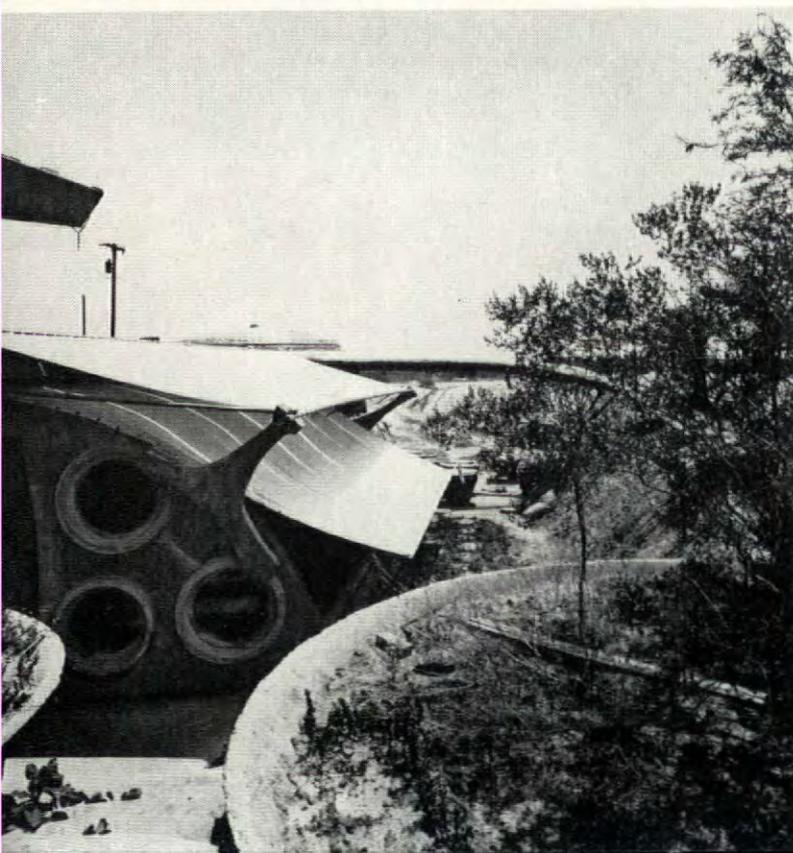
First "earth house" (above and right) is centered on a concrete fireplace sculptured to resemble a natural rock. Glass walls at each end of the house are interrupted by concrete stalagmites that serve as occasional shelves. Roof shell is being covered with planting.



PHOTOS (LEFT AND BELOW): STUART WEINER; (ABOVE) PETER BLAKE



Five steps in the construction of Soleri's "earth house."



The second "earth house" built by Soleri contains his drafting room (left and page 105), and an outdoor workshop where he makes his ceramic bells. The construction of the "earth houses" is disarmingly simple (see pictures above): first, Soleri makes a huge mold out of hard desert sand; this mold is scored with V-shaped indentations that crisscross the mold from one end to the other; next, reinforcing rods are placed into the indentations, and reinforcing mesh is laid over the entire mold; after that, concrete is poured or sprayed over the mold and left to harden—being cured every so often with a garden hose; finally, a small bulldozer is brought in to excavate the earth under the concrete shell.

The excavated dirt is piled up around the shell to make the roof blend more gently with the desert landscape. Meanwhile the walls, floors, partitions, fireplaces, and some built-in furniture are formed directly in concrete, by hand. A few elements (like the Y-shaped arm shown at left which holds the canvas sunshade over the drafting room) may be precast and applied later. Circular windows are framed by sections of concrete pipe, and the skylight over the outdoor workshop is a paper honeycomb inserted into an opening left in the roof shell.

While the first two "earth houses" were built by relatively primitive means, the technique is adaptable to more sophisticated construction in areas where the ground contains a fair proportion of clay. But however primitive these first "earth houses" may appear in terms of technique, they are anything but primitive in spirit: for unlike the tract builders who have desecrated the desert all around him, Soleri has made his structures look as if they had always been a natural part of the landscape. "Violence against nature is violence against man," Soleri has said. "It is unconscious envy that makes man a destroyer of that which he cannot equal. Of all the tasks that concern architecture, the one of making an environment in cooperation with nature and in harmony with man is the most urgent." Here, in these earth-formed structures, cool in the hot desert day, and warm in the cold desert night, Paolo Soleri lives and works in harmony with nature.

Second "earth house" (left and opposite) contains Soleri's drafting room (which is shaded by double sails of canvas) and his outdoor ceramics workshop, which is lit and ventilated through a skylight of paper honeycomb (right). Interior of drafting room is shown on page 105; windows are glazed sections of concrete pipe.

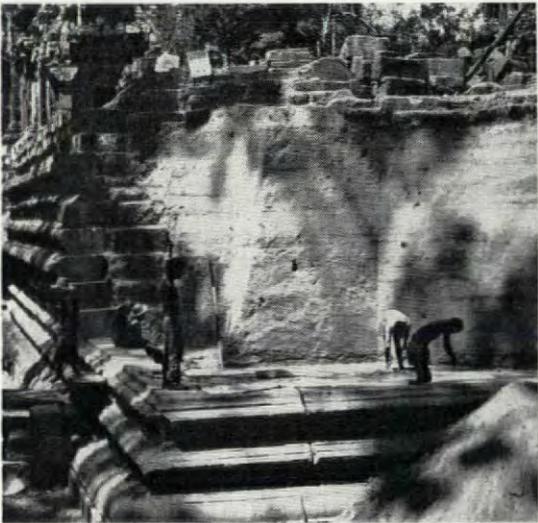
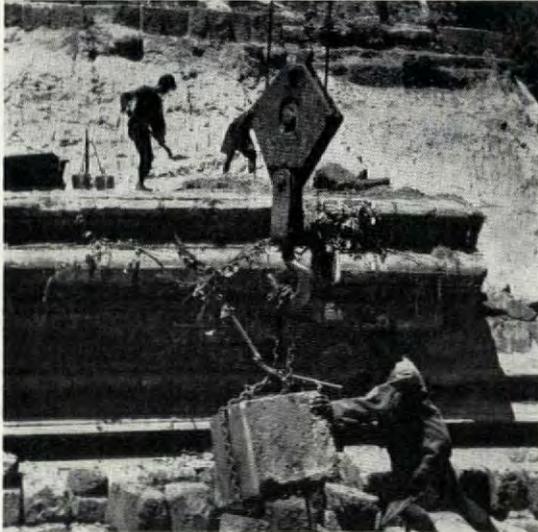


PHOTOS: STUART WEINER



Gallery

Relic of the Khmers



The restoration of Angkor Wat was begun last century by French archaologists and continues today with the aid of modern machinery, under direction of a young Frenchman named Jean Laur. The big destroyer was tree roots which penetrated joints and pushed the stonework apart.

PHOTOGRAPHS BY EZRA STOLLER

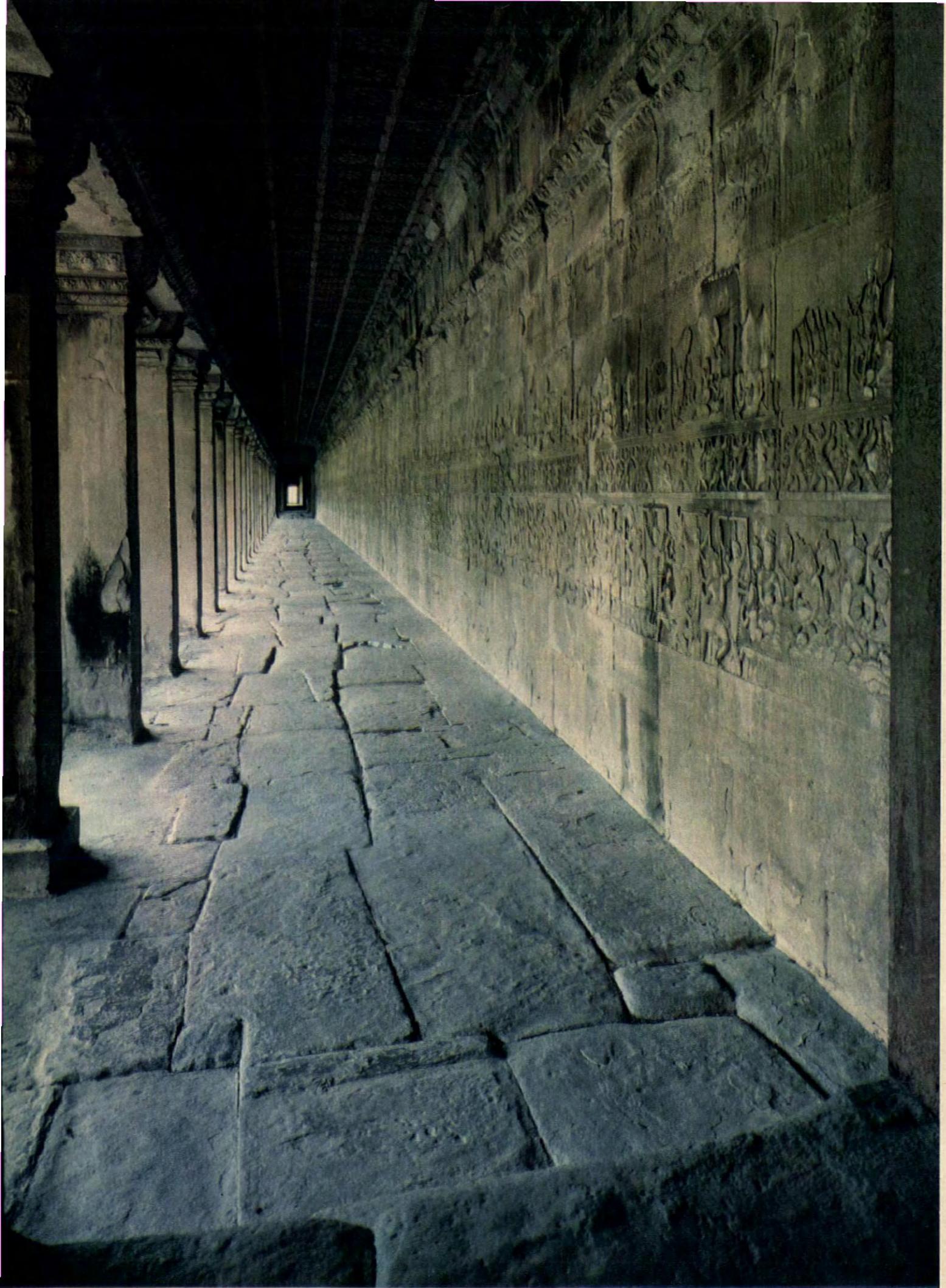
Lost cities and abandoned cultures have always cast a hypnotic spell on their discoverers. It was the proud Portuguese and Spanish empire builders who, in the late sixteenth century, were the first Europeans to penetrate Cambodia—south of Thailand and Laos, across the Gulf of Siam from Borneo and Malaya—and they stood astonished in the deserted ruins of the silent old capital of the Khmers, Angkor. They did not loot the ruins; that had already been done a century earlier by the Siamese. The explorers did not even add the areas to their empires; perhaps, for once, it did not seem practical, or perhaps the ghostly impact of the past shook their mighty self-confidence momentarily.

What they could not have guessed is that the focus of Angkor, its inner temple, Angkor Wat, which is almost a full square mile of masonry buildings encompassing “the navel of the earth and the gateway of heaven,” was built in the twelfth century in just 30 years to the order of a single emperor, Suryavarman II. Its companion masterpiece, Angkor Thom, even bigger, was built at the end of the same century by Jayavarman VII, who ascended to the throne in 1181, ruling until 1220. Historians now believe that this ruler might have been a leper. They have translated inscriptions such as “The ills of the people are the ills of the king. . . . As the people suffer, so their king suffers . . .” and think his great work was intended to bring him the merciful attention of his god, Buddha, while he was still alive, and membership among the gods after death. It is also speculated that these two Khmer builder kings may even have begun their kingdom’s languishing decline by putting such fanatical emphasis upon their pet projects. The Khmer empire, which had once had as many as 5 million soldiers under arms, waned steadily after the twelfth century and finally was overrun by the Siamese 200 years later, unresisted.

It was not until 1863 that European influence really penetrated Cambodia, when the country became a French protectorate, and by that time Angkor had sunk so into the jungle that the old Spanish and Portuguese records were thought to be myths. The native Cambodians knew the ruined city was there, but their superstition was that it had been built not by their ancestors, but by the gods; they avoided the ruins, fearful. It was the French who found Angkor again and who undertook an exquisite revelation and restoration, cutting away the strangling jungle and replacing stone on stone. For their architects the particular fascination of Angkor Wat and Angkor Thom was that both were such polished urban creations. Exterior spaces—courts, streets, passages, canals—were worked out, it appears, with a calculated intricacy which perfectly reflected the life of their vanished tenants. And although the buildings were encrusted with carving and ornament this decoration was always subordinate to the strong architectural forms underneath.



Remains of stone lions flank a ramp which approaches the temple's west gate across a wide moat.



Wall carvings represent suffering of sinners after death; raised threshold (foreground) is to prevent the entrance of spirits.



The struggle between the forces of good and evil continues in this carving six centuries after the demise of the Khmer empire.





Inner temple of Angkor Wat is entered by this ceremonial causeway whose carved balustrade is part of a huge snake. Detail of battle scene (left) is typical of bas-reliefs decorating the walls.

Earlier temple, Banteai-Srey (right), about 30 miles from Angkor Wat, shows stronger Indian influence. Statue is about one-third life size.





Nature did little to hide or ameliorate this suburban blighted area.

Rural redevelopment

An adventurous architect clears a countryside slum—and makes money at it.

Suburban slums are nothing new (see FORUM, Jan. '61). But in the comfortable countryside about an hour north of New York city, which gradually is filling with higher-bracket commuter homes, a very odd one has just disappeared.

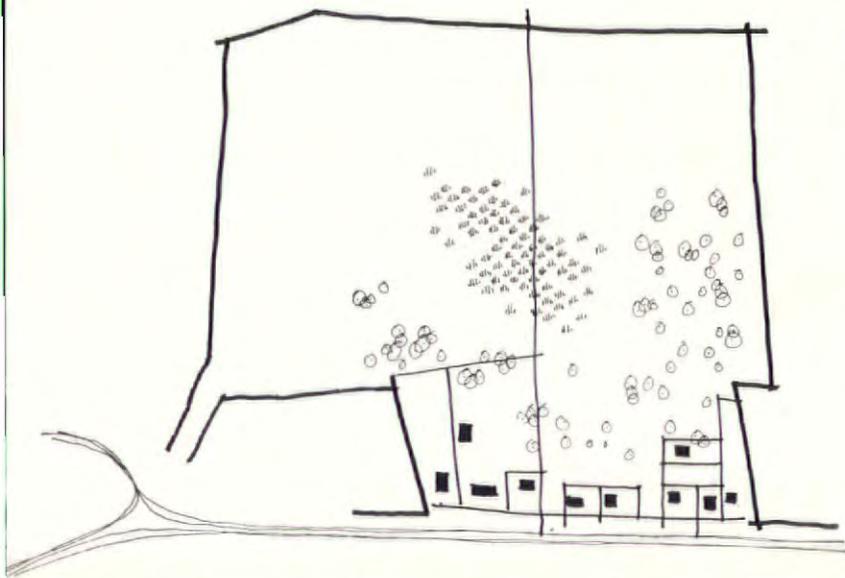
It was composed of just eight slovenly little shacks on one side of a road which Architect Victor Christ-Janer found himself traveling often during the summer of 1957, on his way to supervise a house of his design being built farther north. These eight habitations straggled along the rural road, 50 feet apart, in an area called Vista, as a defiant reminder of the second-hand side of our civilization. They had been built during wartime restrictions out of assorted second-hand building materials, and were nicely landscaped with por-

tions of old car bodies hanging from trees out front waiting to rust away or be reused. Christ-Janer found out that this patch of blight was a most touchy sore spot in the civic consciousness of other residents of Lewisboro, and was one reason Lewisboro Township was lagging a little behind its neighbors in residential development. Real estate men told him that people taken past this slum cooled toward buying property in the area. Yet Lewisboro, paradoxically, was a place so tightly zoned against the feared smudge of business that it had no real town, just a couple of stores in two small commercially zoned parcels at the far ends of the long township, plus a few roadside taverns predating zoning.

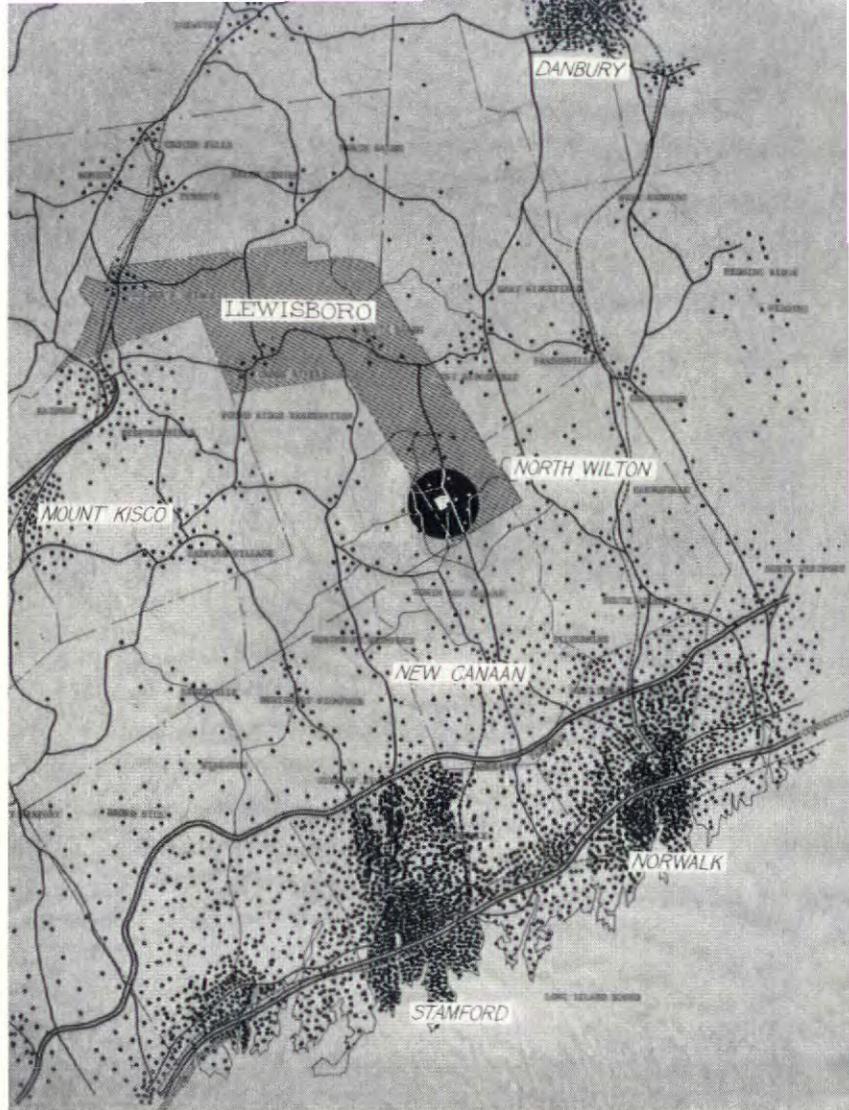
Christ-Janer's office is in an extraordinary town, New Canaan, which, by



PHOTOS: DANNY WANN



Run-down houses huddled together, fronting the highway.



Lewisboro is the hub of a rapidly developing residential area.

legend, has an architect for each 35 residents (national average: about one architect per 8,000), a competitive situation which may help sharpen the perceptions of all the architects. Or perhaps driving a car is a good thinking time for a very busy young architect. At any rate, one day Christ-Janer stopped his station wagon near the slum to make a visit, and within four days had put together a business proposition. This would eliminate the blighted area, would replace it with something the cautious Lewisborites wanted, and would make everyone happy in the process, even the slum residents — who naturally were most suspicious of any scheme which involved ripping down their houses.

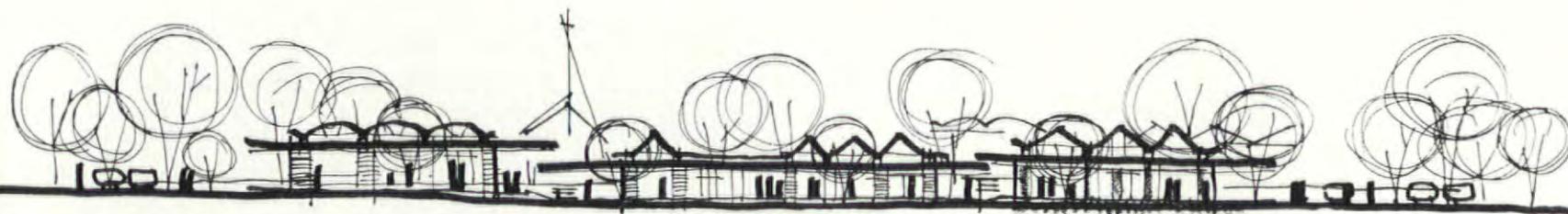
It was a scheme architectural in its financing, a cantilever into the future.

Less than three years later this idea has already demolished the slum and helped raise land values in the area, but it really has only just begun unfolding.

Here is what Christ-Janer did that first day: the spot in Lewisboro where he stopped was the driveway of a carpenter he knew who lived near the eight eyesore houses. In return for a one-third participation in what profit might come out of his plan, Christ-Janer asked the carpenter to help him get options to buy all eight houses, including the semi-swamp behind them; the terms of the purchases were to be cash plus replacement houses, the replacement houses to be either a typical lumberyard prefab from a catalogue he could show them (to be put up on sites in town selected by the dislocated

families), or, if they preferred, older houses of their choice to be purchased for them in Lewisboro.

As already hinted, Christ-Janer is an unusually venturesome architect. He is a fluent man, as well, with an intellectual ebullience that conquers doubt. At 45 he has been in practice eight years (including three as a designer before he secured his license) and has just leaped the big gap between the residential field and more substantial architectural commissions. Introduced by the neighboring carpenter, Roslyn Peck, who had known the slum-dwellers for years, the architect secured his 90-day options. Then he went back to New Canaan to Earl Smith, president of the New Canaan Development Co., and asked him to be an adviser, to lend his backing to



Schematic sketch of elevation indicates the intent of the architect and developers to avoid assertive architecture.



First stage of development will open a small parking space before the early buildings; eventually the parking space will surround the group.

Christ-Janer before the Lewisboro Supervisor and Board of Selectmen, Smith being a well-regarded realty man. Smith, too, was offered a one-third participation, and accepted immediately.

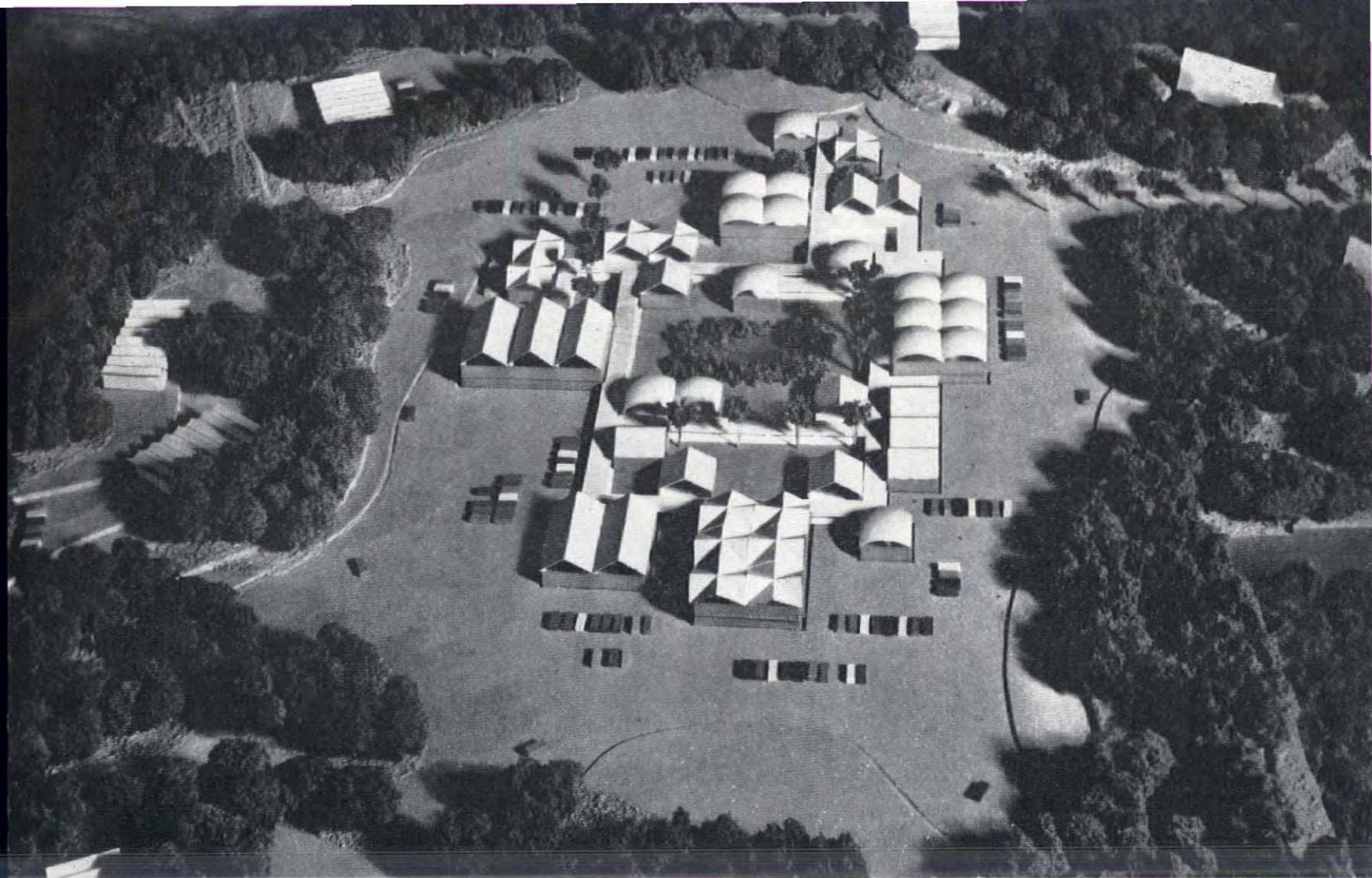
What the two men asked the Board of Selectmen to do was to rezone the 60 acres under option to be business property. The arguments in favor of this were strong: if such zoning were obtained, the single pocket of blight in Lewisboro could be eliminated; a business center was something the township ultimately would need; Christ-Janer and his cohorts would guarantee a thoughtful solution, one to be developed gradually, including adequate parking, to be financed on a basis of long-term gain, not sudden profit; sites would also be included for small industrial research buildings, further to

broaden the town's tax basis.

The response of the selectmen and the supervisor, John S. Mead, was measured, but affirmative: by the time the 90-day options held by Christ-Janer expired, a town meeting had verified the move and a city planner was called in to make the change in the code and designate the acres as commercial development. At this point all that was left to Christ-Janer was the delicate detail of finding eight sites for eight prefabs, or else eight older houses suitable for this private relocation project. Even in big-city public redevelopment, where condemnation powers exist to aid the developer, relocation frequently turns out to be the most tortuous part of the project, and it did here, too. But that is all over now; the families are happily ensconced in

houses much better than they left (all finally preferred older houses, not new construction), and the last slum dwelling was razed two months ago (by the Vista Fire Dept., for practice). Not long ago Christ-Janer and his associates took to their slide rules and county maps and figured they had possession of what turned out to be no less than 1 per cent of all the commercially zoned property in Westchester, one of the richest counties per capita in the U.S.—and their 1 per cent is isolated and protected in what will eventually become a very rich sea of householders.

The finances of the enterprise inevitably have grown from the simple options picked up by Christ-Janer. These cost him \$3,000; the land purchase and relocation was to cost \$200,000, in ad-



Roofs will be of varied forms. The surrounding buffer strip of trees will contain sites zoned to receive research buildings.

dition to weeks of time. With this prospect before him the architect was ready to listen when Smith, of the Redevelopment Co., made a managerial offer in 1957. Smith proposed to give up his one-third interest in the immediate profit in exchange for an option to buy the entire property from the architect and his carpenter partner, once it had been assembled and rezoned. The price was a fat 10 per cent of the New Canaan Development Co. Smith got the option and, six months later, exercised it, also adding Christ-Janer to the board of the company.

Christ-Janer is now designing the first eight units for the new center, which will be begun this spring: a service station, six stores, a grocery, and a farm store. These are part of a long-term plan already completed (see

drawing, page 118) and described by the architect as "a village in which we will incorporate some of the small-scale charm related to what recently was a wooded, rural farming area. It is my feeling that a simple and direct approach to structure, and I stress *simple*, might give the entire building complex a sculptural integrity which a great many of our fake-façade cowboy villages in New England do not have. But to do this we had to fix it so everyone will come out ahead financially."

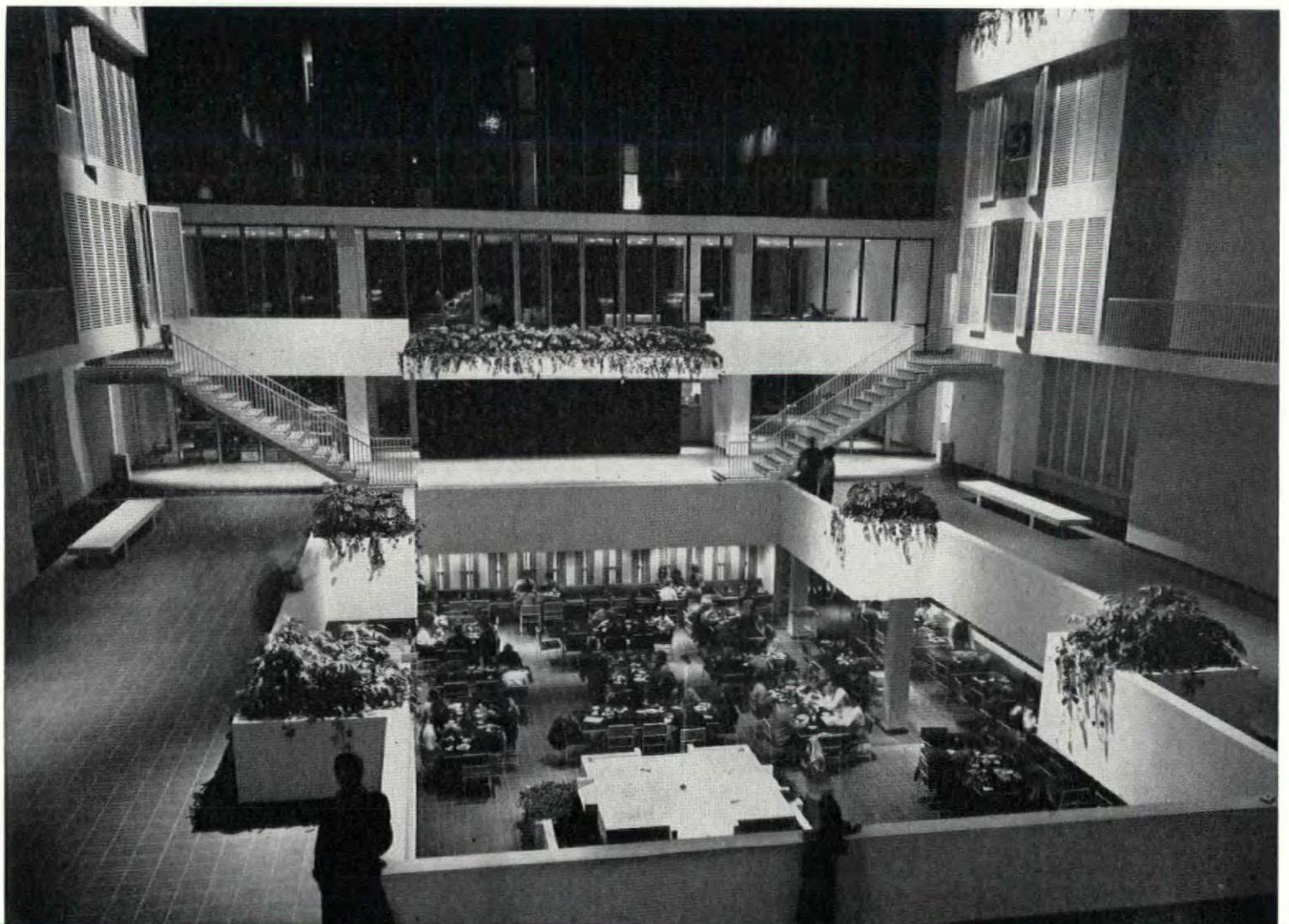
The parking field will be an irregularly shaped asterisk around the stores and other facilities, which will also have pleasant courts at their core. The research sites will be in the wooded areas around the parking, and there will be nothing to prevent one of these sites from becoming a doctors' build-

ing. Christ-Janer also wants his fellow directors of the development company to donate a site to a church in the central group, but they have not yet decided. The company knows it has lots of time to bring the project along, as the residential land around the township fills in, and they know also that eventually they will have strong advantages over competing marketing centers such as New Canaan, because these older towns already are deep in parking problems. Even the fact that the land was swampy has turned out to be an advantage in this guileless success story: Christ-Janer discovered, after optioning it, that there is enough of a pitch across the acreage so it can easily be drained, leaving him a flat, firm stretch of land, just right for building his village.



Central court is five stories high and completely enclosed. Main entrance is at the second-floor level (above), which also contains recreation rooms.

Well in center of the court (below) opens up the dining room on the first floor. Shuttered "balconies" are living rooms for the dormitory suites.



Court for coeds

Eero Saarinen's \$4 million women's dormitory at the University of Pennsylvania is a remarkable building in more ways than one: it is remarkable in its exterior and fenestration, in its detailed planning, and in its dramatic, interior spaces.

Finished in hand-molded red brick to blend into a brick campus, the building is a single block, five stories high above grade, 262 feet long and 143 feet wide. The fenestration of deeply revealed, vertical and horizontal slots (right) does three things: it makes each dormitory room different from its neighbor (girls do a lot of visting back and forth); it makes all windows seem large from the outside and thus brings the dorms into scale with other, high-floor buildings on the campus; and it echoes some of the "medieval" spirit of the surrounding structures.

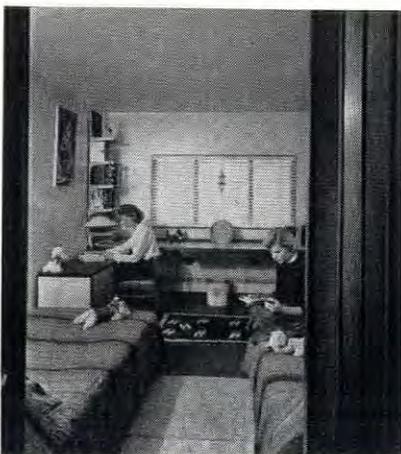
The plan of the perimeter dorms was developed to break down the student population of 656 into small, intimate suites of 16 to 24 girls, with each suite centered on a living room and kitchenette of its own. While the bedrooms face outward through the window slots, most living rooms face inward onto a great, central court.

This five-story-high interior space is the most successful part of the building. Saarinen realized that an open-to-the-sky court would not be usable for a large part of the academic year, so, at relatively little extra cost, he roofed over the interior court and lit it through clerestories and end walls of glass. The result is a stunning, multilevel space (left) centered upon a fountain in the first-floor dining area, and overlooked by galleries and shuttered balconies that suggest scenes from *The Arabian Nights* (a fantasy made all the more fantastic by the somewhat forbidding Philadelphia exterior of the building). If this does not bring romance back into co-education, then nothing can. The court scheme works very well, for the big, interior space is the social area of the building (to which men students may be admitted); while the peripheral dorms are entirely private.

Construction of the dorms was financed by the HHFA and by private donations. A second dormitory building is planned for an adjoining site.

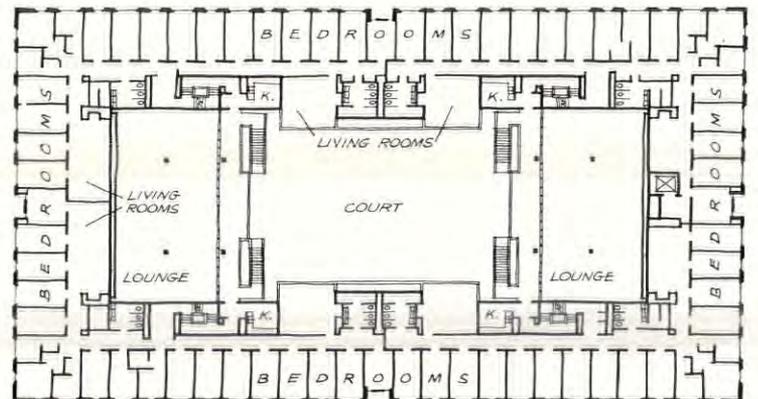
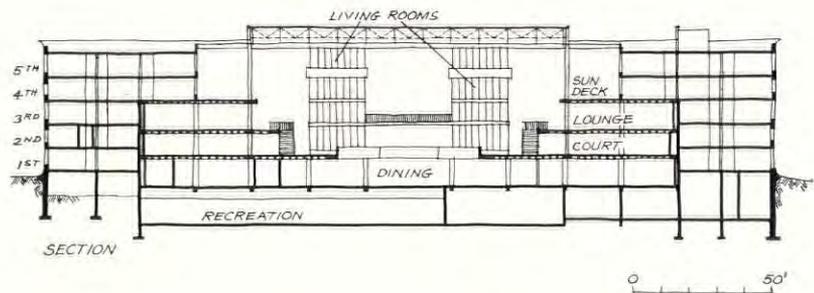
Engineers: Ammann & Whitney (structural); Jaros, Baum & Bolles (mechanical). Lighting consultant: Stanley McCandless. Contractor: Joseph R. Farrell, Inc.

Typical bedroom houses two girls.



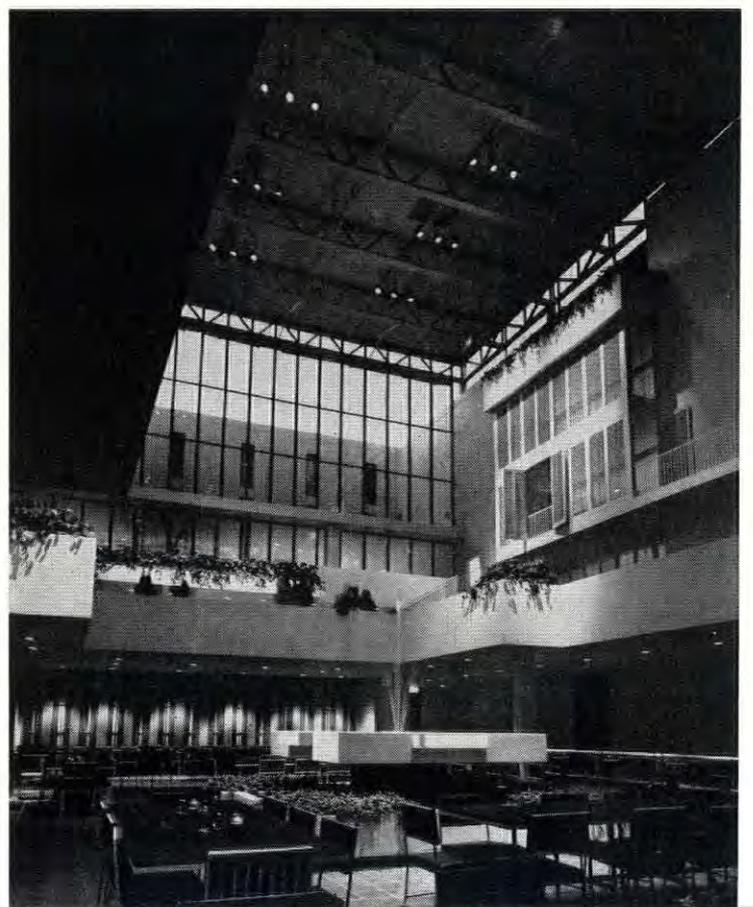
PHOTOS: LA WRENCE S. WILLIAMS, INC.

Bridge leads to second-floor entry. Window pattern avoids monotony.



THIRD FLOOR PLAN

All bedrooms in court plan face outward; all social areas face inward.



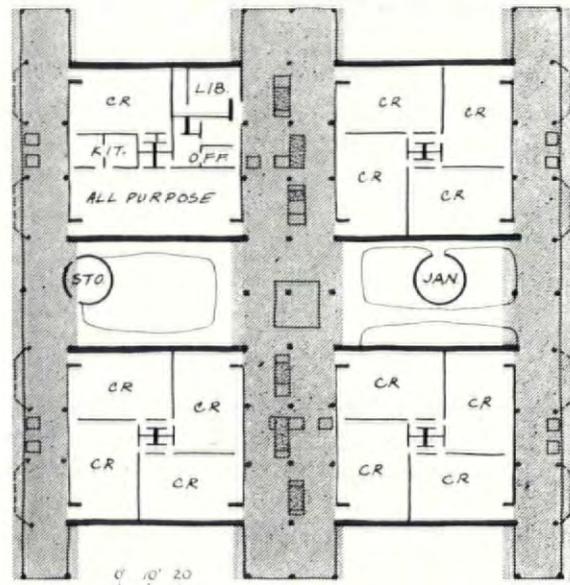
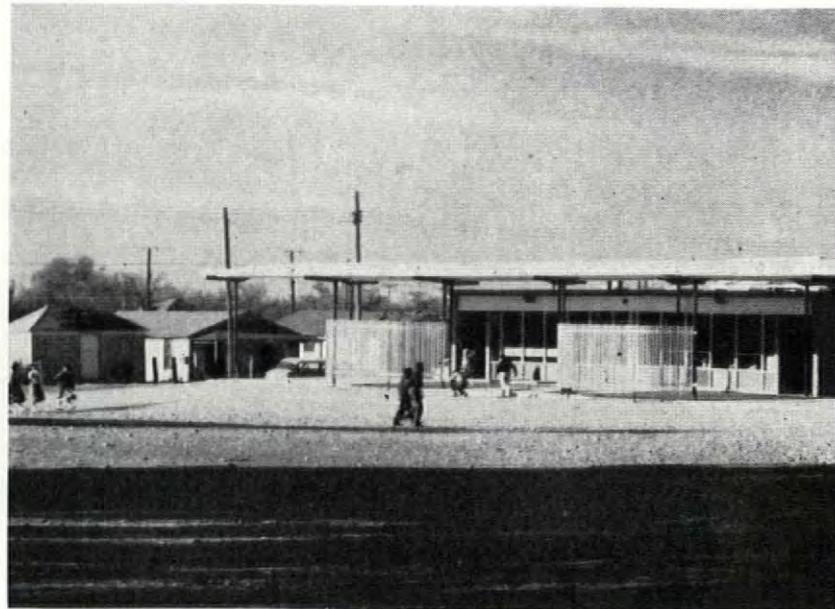
Four-part school

When Architects Caudill, Rowlett & Scott were commissioned to plan three schools in hot, dusty, and treeless Laredo, Tex., they invented a four-classroom cluster (promptly labeled "quadruplex") which helped solve the tough environmental problems, and achieved economy too. To keep down heat, each classroom is equipped with an individual evaporative cooling unit. To keep out dust, the classrooms are mechanically ventilated from the center of the cluster. To obtain shade, large areas of outdoor space are covered with plastic roofing (which cuts light transmission to 20 per cent).

The quadruplex design made possible individual toilet rooms plus a utility sink and work area at the center of the rectangular classroom system. Over these interior spaces are plastic skylights, installed to keep daylight levels uniform.

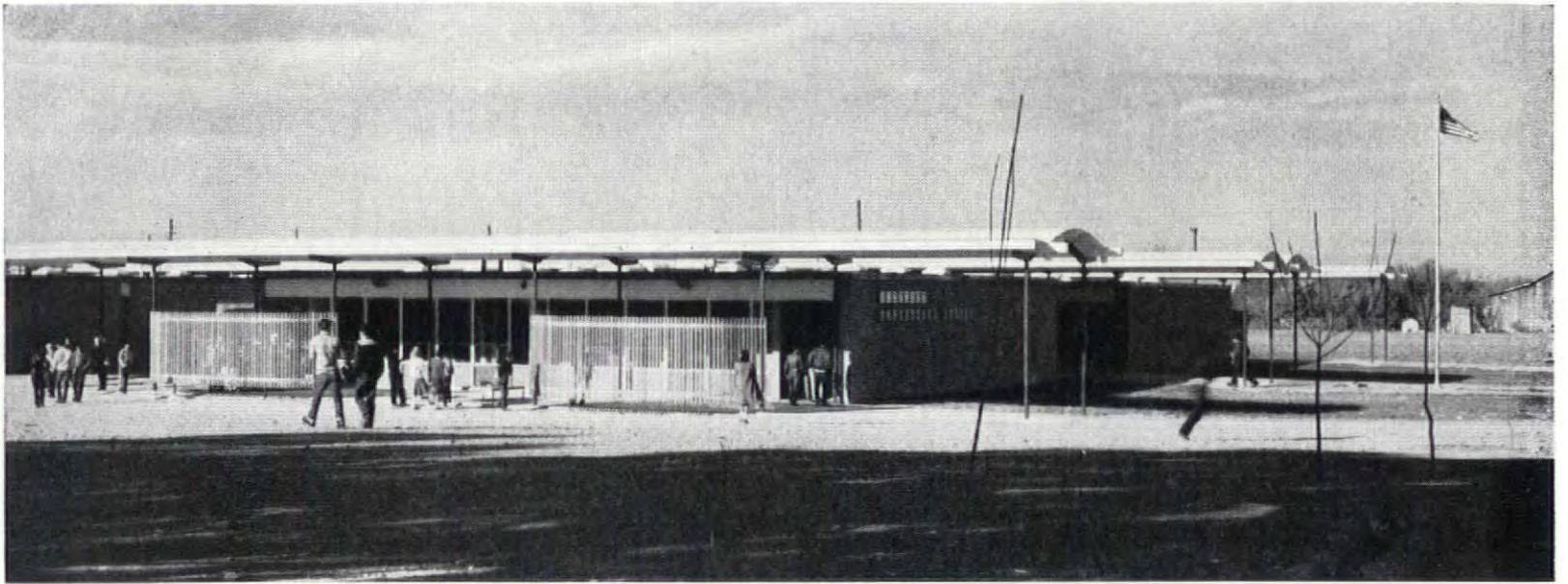
At the 5-acre Montrose site, the quadruplex units are arranged in fours, to form wide covered areas and open courts between the clusters. Along the outside the covered passages are occasionally sheltered further by wood slat fences. Inside, covered areas are wide enough to form a multipurpose area, outdoors but still sheltered and sun protected. In one of the four classroom clusters, a partition is omitted to gain a double-size all-purpose classroom, and further partitioning of another classroom gains a library and office.

Cost of the school (which has 16,500 square feet of outdoor roofed space rated at 50 per cent) was \$8.48 per square foot, or \$193,086, including architect's fees. Associate architect: A. A. Leyendecker. General contractor: Harold Hendricks Contracting Co.

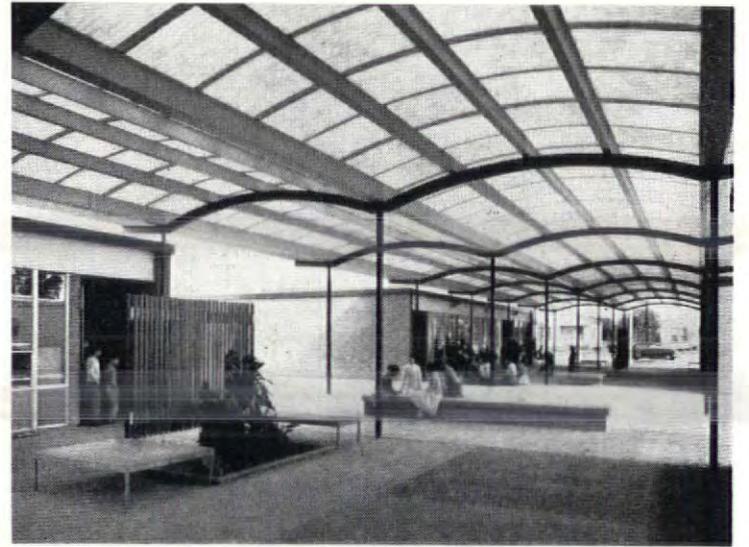
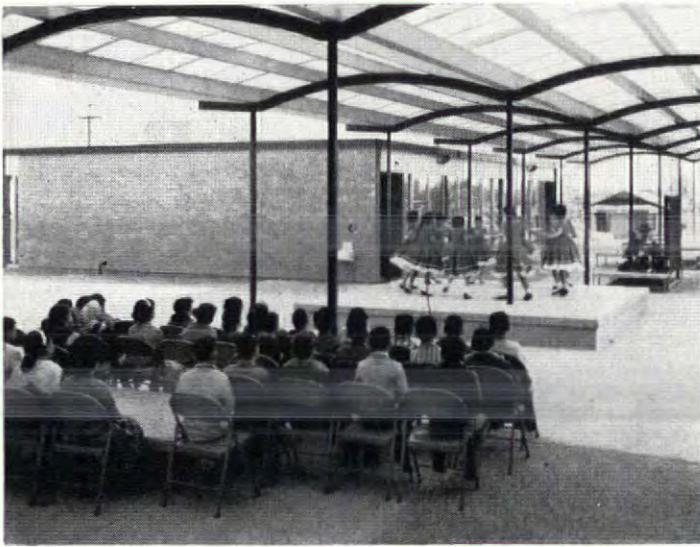


Plastic roofed outdoor passages protect windows from Texas glare.





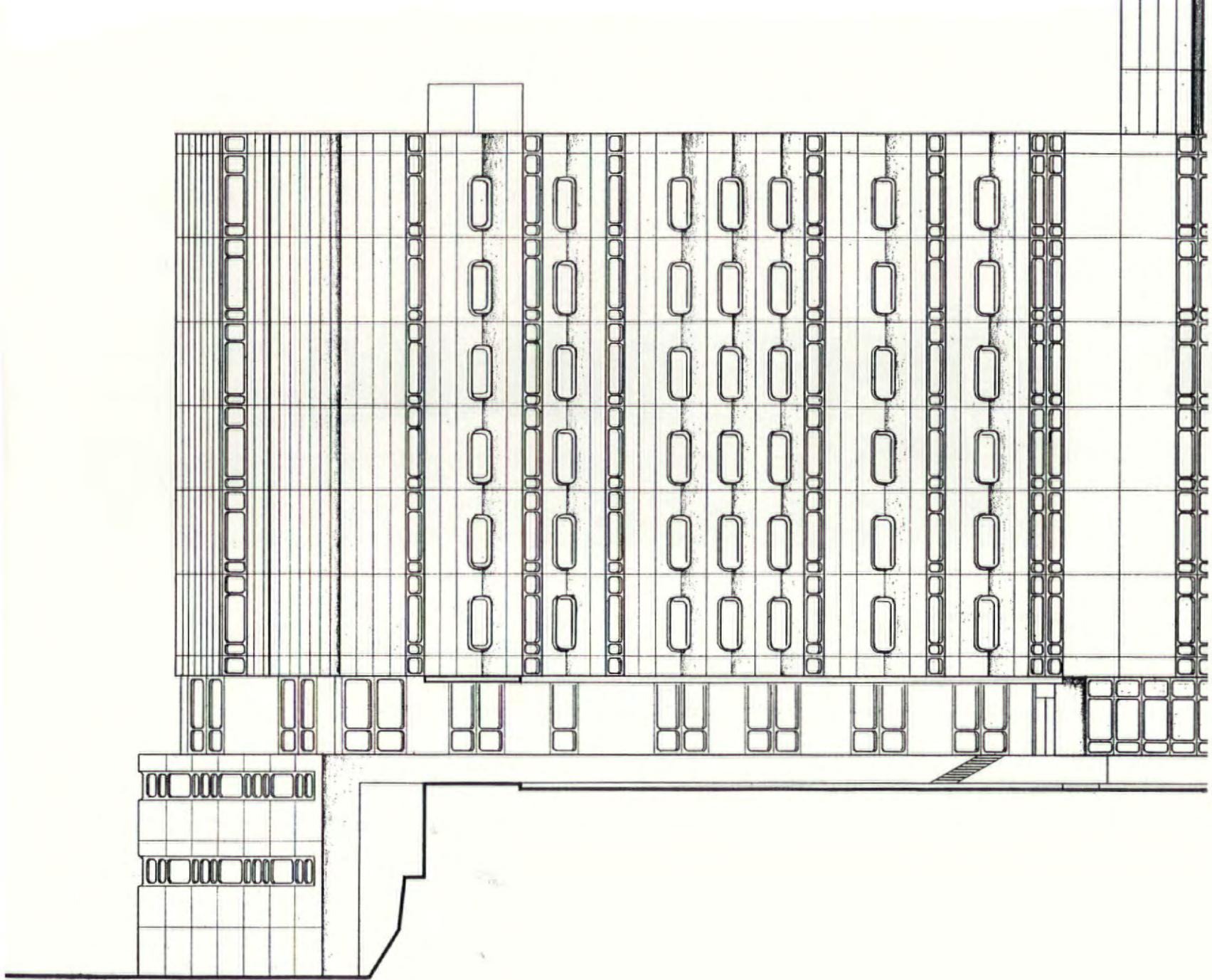
Simple, repetitive structure of light steel makes for economy and effective design as well.



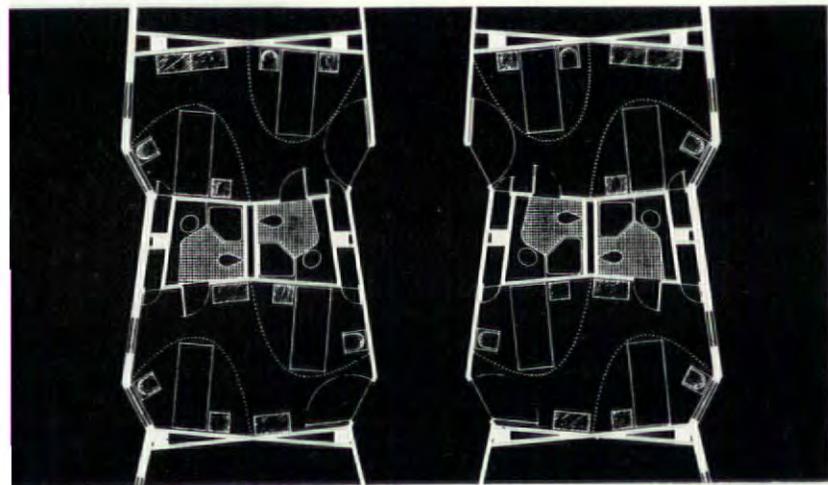
Between the classrooms are covered spaces for teaching (above) and open spaces for play (below).



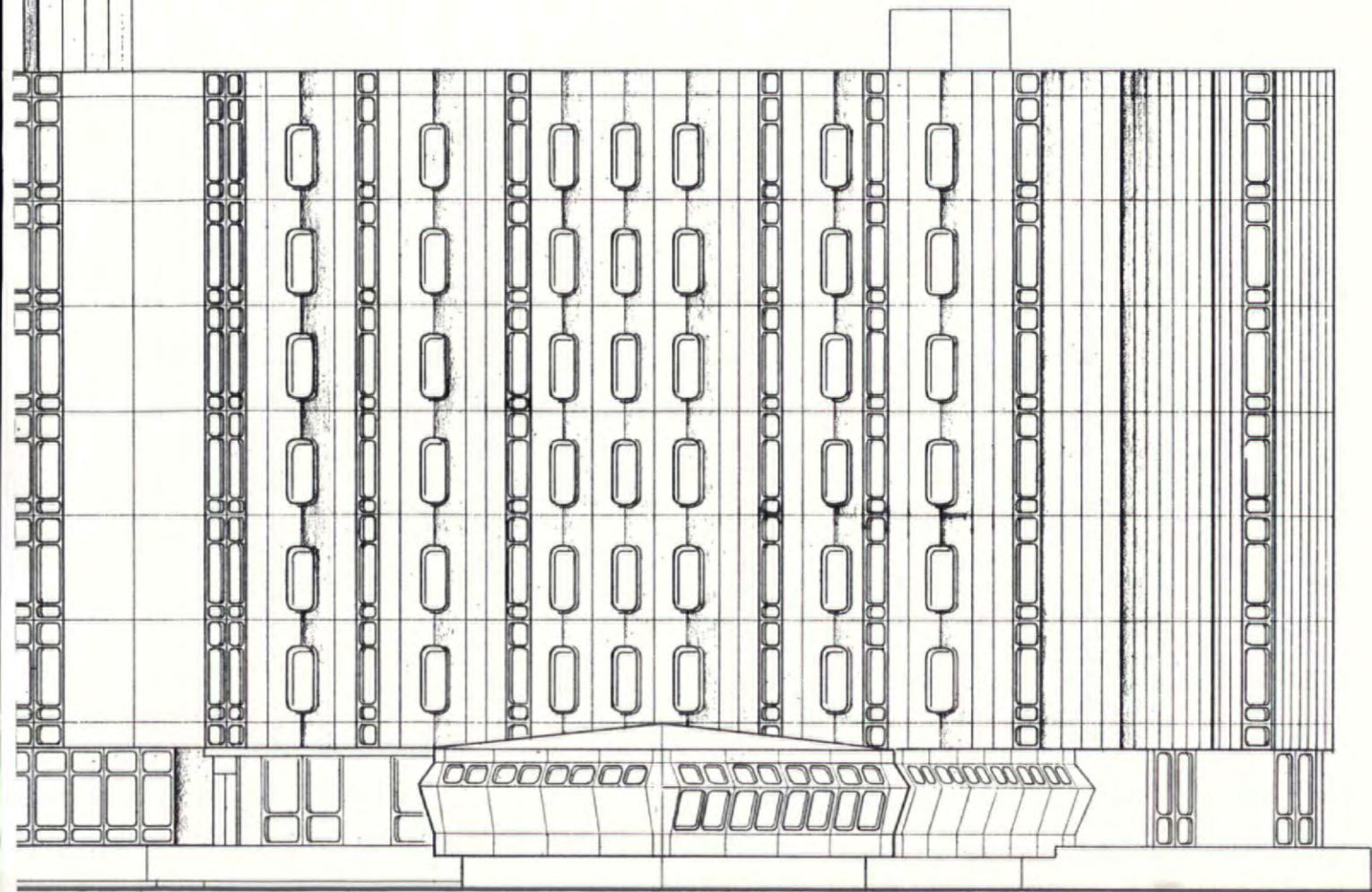
PHOTOS: ROLAND CRATHEAM



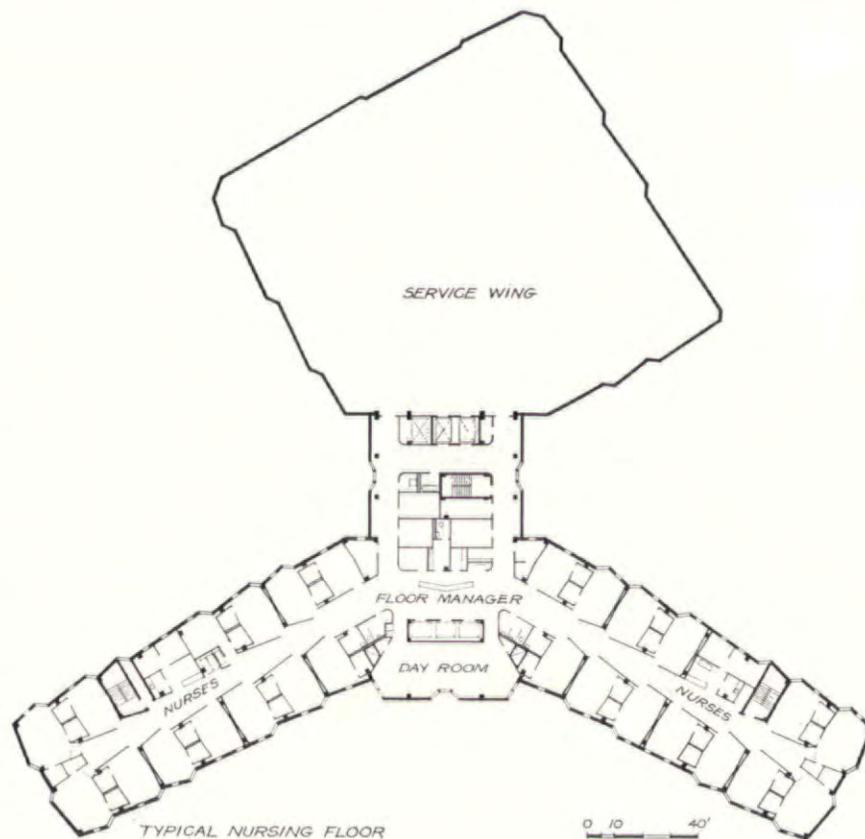
New angle in hospital planning



The novel exterior of New York's proposed Yeshiva University Hospital (above) is no mere sculptural whimsy, but the outgrowth of bold and highly functional innovations in hospital design. Instead of lining their Y-shaped plan with conventional rooms along a strip corridor, Architects Frederick Kiesler and Armand Bartos have devised an eight-sided room and a corridor of varying width (plan, left). For patients, this means relief from the usual four-walled box, the relative privacy of being on opposite walls without obstructing traffic, two window exposures, and an outside view even when the other fellow has his cubicle curtain drawn. The angled doors allow easier supervision and entry from the hospital's central core, prevent patients seeing each other directly across the corridor, and allow beds to be



wheeled in and out quickly without blocking the hall. Visually and acoustically, the varying corridor is an improvement over the usual "bowling alley," and at its wide points (12 feet) permits people to converse and beds or carts to be parked temporarily without getting in the way. (Good placement of nurses' stations and service areas also yield a high score on traffic efficiency). Floor space added over a straight-walled plan is negligible, amounting to some \$28,000 out of a total budget of \$9 million. Architect Kiesler has also carried the "continuity" of his interiors outside: the porthole shape of windows lends both a freshness of design and structural strength to slim frames precast into the concrete wall panels. Hospital consultants: John G. Steinle & Associates. Structural engineers: Strobel & Rongved.



Fallout shelters at once

BY DAVID ALLISON

Community shelters, not individual shelters, can mean life, not death, for 60 million people.

The American public is largely indifferent to a national program of fallout shelters, because of a dangerous folklore which sees no point in preparing for atomic attack. Such public indifference is weak and suicidal.

The false belief is that nuclear war, because it would bring the end of all civilization, makes it unthinkable for any great power to launch an atomic attack which would expose the launcher himself to total destruction. Unfortunately atomic-age man has proved that he is not always a rational creature. Consequently the Office of Civil and Defense Mobilization is trying almost desperately to reach all building professionals. It points out that the Soviet Union is rapidly getting shelters everywhere, leaving no discretion to individuals in the matter, while the U.S. is lagging, because the question whether to survive or not is left to voluntary action.

Now and then other highly qualified voices urge quick action:

► Nuclear Scientist Edward Teller pleads for a multibillion dollar shelter program.

► Nobel Scientist Willard F. Libby, a former Atomic Energy Commissioner, calls it "plain insane" not to maintain a fallout shelter program.

The experts are not advocating the construction of shelters to protect against a blast from an atomic or hydrogen bomb. The magnitude of such explosions is simply too great to protect against; not even a zillion-dollar program could provide sufficient protection. To be sure, key governmental operations and retaliatory forces must be protected at all costs. But measures far less radical can protect millions against the deadly radioactive fallout which begins to descend from the sky about 30 minutes after the explosion, blanketing thousands of square miles for several days or weeks.

In his book, *On Thermonuclear War*, recently published by Princeton University Press, Herman Kahn, senior staff physicist of the RAND Corp. and consultant to both the Atomic Energy Commission and the OCDM, says that

advance preparations could make a difference between 20 million and 80 million casualties. He urges a civil defense program that would include:

► Identification of existing buildings that could serve as emergency fallout shelters.

► Wide distribution of inexpensive radiation meters.

► Training of civil defense teams.

► Research on shelter designs and on methods of counteracting radiation and its effects.

This first-step program could be undertaken for \$500 million, or less than one per cent of the current federal budget. At present, federal expenditures for civil defense amount to only one-tenth of Kahn's recommended sum. About 50 research contracts are currently active under the Office of Civil and Defense Mobilization. These were drawn during the Eisenhower Administration and amount to approximately \$5 million.

Nearly three years ago, FORUM set down the three requisites for a sensible fallout shelter program: "The first is an honest, open, fact-filled educational program" (FORUM, Apr. 1958). "The second is a thorough operations research study of shelter standards and resources. And the third is involvement on a high professional and school level of architects and engineers who must now take into account a new design element—atomic radiation and fallout—growing with every atomic explosion and certain to become as permanent an element in building design as wind, weather, and sanitation." Since that time, the federal government has announced a "National Policy on Shelters"—in May 1958—and bits of all three requisites have been fulfilled, though we still are many dangerous years from the establishment of a working program.

Probably one of the most important lessons learned in the past years is that people, if left to their own motivations for self-protection, will do nothing: public opinion studies show that less than 10 per cent of the population will build shelters or take other preparatory



measures against threatened disaster. Thus, such authorities as Charles E. Fritz, of the NAS-NRC Disaster Research Group, says that we "must stop thinking of American society as if it were simply a collection of individuals or families who are individually responsible for the defense of the homeland. The realistic unit of administration and management in a nuclear attack is the nation as a whole, and every facet of our preparation for such an attack should reflect a basic recognition of this reality."

The OCDM believes that family shelters are an important part of the national program and that their construction should be encouraged. But others say that emphasis should be placed on the community shelter: the school, neighborhood theater, other places of public use. Says Fritz, whose field is psychiatry: "In my judgment, the concept of the individual family shelter should be eliminated completely, except in those isolated areas where large group shelters are not feasible." His reasons include these:

- ▶ Widespread feelings of isolation, abandonment, and consequent demoralization are more likely to develop when there are millions of small, scattered shelter units.

- ▶ People have stronger feelings of security and support in large groups.

- ▶ The larger the group, the greater the spread of skills needed for shelter management and survival in the post-attack environment.

- ▶ The larger the unit of management, the easier the problems of shelter planning and administration and the less the cost per person.

- ▶ The fewer the shelters, the easier the task of communication among them and the greater the possibility of achieving order in solving problems of emergency relief and rehabilitation.

- ▶ The act of planning, building, and equipping neighborhood shelters emphasizes the need for mutually cooperative behavior.

The stable core

What are other considerations to be made in the planning, design, and operation of shelters? One of the most important, related to the community shelter concept, is that shelters should be located and built to include combina-

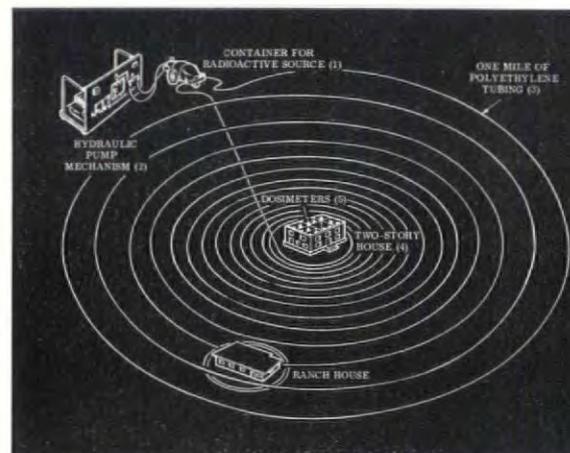
tions of social groups with supplementing skills, thus to establish as closely as possible a total, self-sufficient community. And related to this, the community shelter should not be populated by hasty, accidental groupings of anonymous individuals. To be sure, some occupants of every shelter will be adventitious, but these people should be integrated around a stable core of people whose skills are established and who have been trained to work together; this stable core may provide the critical difference in determining whether a group can survive under adverse conditions.

Flexibility of design should be the keynote of all shelter construction: an unchangeable design should be avoided at all costs, because the shelterees should be able to remake their shelter environment in accordance with changing needs at different periods of occupancy. Further, the community shelter should be more than a place for "waiting it out." The psychologists say that people in shelters must look to the future, and the more realistic the fit between shelter activity and the future needs of society, the greater is the likelihood of channeling people's anxiety into socially useful form. Says Fritz: "Insofar as possible, shelters should be combined with productive facilities, such as factories and workshops, so that the period of shelter stay can be used in the active manufacture of goods needed in the postattack period."

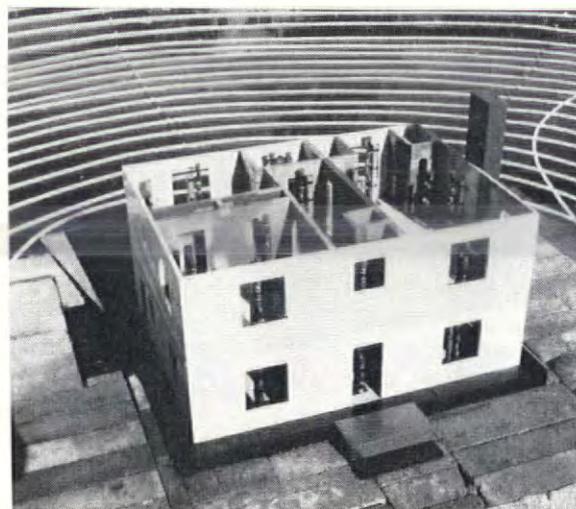
Design standards

The Office of Civil and Defense Mobilization has two key objectives: 1) to give architects and engineers methods of evaluating the fallout shelter possibilities in existing structures; 2) give designers the needed procedures for modifying existing structures or preliminary designs of new structures, to improve their worth as shelters. Since 1956, OCDM and the Department of Defense have worked with the National Bureau of Standards, the AEC, and the National Academy of Sciences in developing and testing procedures for shelter design. These are included in a booklet issued last year by OCDM: *Fallout Shelter Surveys: Guide for Architects and Engineers*.

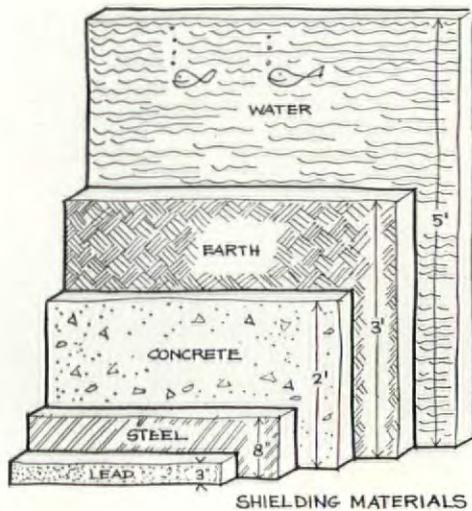
Design standards suggested in the guide are not meant to replace the pro-



Checking fallout protection: scientists at Technical Operations, Inc. simulate and evaluate radioactive fallout with a source of radioactive cobalt in the plastic hose. The cobalt is pumped round and round through the system, and detectors within the structure (below) measure degree of radioactivity at various points. This is part of fallout research program of OCDM.



PHOTOS: GILBERT STUDIO



Shielding against fallout: the five materials (above) can reduce radiation to 1/5,000th of outside intensity. Thus, a 3-inch-thick lead container is as effective as 8 inches of steel or 2 feet of concrete.

professional judgment required in individual cases, but "it is important to keep in mind that survival is the paramount issue and that comfort is secondary." Thus, sound peacetime engineering practices may be unrealistic in designing fallout protection. For example, OCDM says that local codes and zoning regulations may actually call for overdesign. "In such cases," OCDM recommends, "exceptions to the local regulations should be sought."

How does the designer go about evaluating the fallout-protection capability of a structure, either planned or

in existence? The first step requires that he recognize the primary aim of a fallout shelter: to provide a shield against gamma radiation. The penetrating power of gamma rays depends on the kind of barrier between the radiation and the shelter's interior; the sketches, left, illustrate the shielding power of various materials. Further, fallout's radioactivity decreases quickly with time: for example, three hours after a blast, an area which measures 50 units per hour (the unit of measurement is called a roentgen) will measure only 5 units 18 hours later. These facts, along with an observation of a structure, must be weighed in making shielding calculations; the OCDM guide includes step-by-step procedures to be followed.

How does the designer acquire the necessary knowledge? In most instances, he will have to do it on his own initiative, just as with technological advances that continually modify design standards. But along with this, the schools of architecture and engineering should be teaching the fundamentals of shelter design. Pennsylvania State University's College of Engineering and Architecture established such a program a year ago, consisting of a defense shelter research program and graduate degree courses and short summer courses relating to the planning, design, and analysis of shelters. Other universities are being ap-

proached by OCDM. Thus, in the future more architect-engineer firms will be capable of handling shelter programs.

The architect and his community

A further reason for the architect and engineer to know the physical requirements of a shelter program relates to their community responsibility: As the OCDM guide states, the planning of a local shelter program is the responsibility of the community's chief executive, but a professional architect or engineer should direct the details of the actual survey which leads up to establishing a program of construction.

In this survey, a preliminary analysis is made of the various building types in the area. The professional designer is likely the best-equipped person in the community to make such analyses, which note all factors having an effect on the structures' worth as shelters, as well as analysis of "critical" structures, such as electric power stations and waterworks, to determine whether or not they will be operable in a war emergency. Special attention must be given also to public structures, such as schools, hospitals, and government buildings; usually these are strategically located with respect to population distribution and, thus, may be potentially good shelters.

The school shelter

The school is one of the logical locations for a community shelter. To emphasize the school's potential role in a shelter program, OCDM has sponsored a school shelter research program, working with architects and engineers of Eberle M. Smith and educational consultants of Engelhardt, Engelhardt, Leggett & Cornell. Prototype school shelters such as those shown in the sketches are products of this program. Say the architects: "Shelters in schools provide one of the best opportunities for protection of large numbers of people." However, the attempt to combine the ideal school and the ideal shelter creates a number of problems: the most conspicuous one is that presented by the necessity of surrounding educational spaces with sufficient mass to give radiation protection. Generally, this protection requires walls and ceil-

THE SIX CATEGORIES OF FALLOUT SHELTERS

CATEGORY	PROTECTION FACTOR*	EXAMPLES
A	1,000 or more	Subbasements of multistory buildings.** Mines, tunnels, etc.
B	250 to 1,000	Heavy masonry residences, basements (without exposed walls) of multistory buildings. Central areas of upper floors (excluding top three floors) of high-rise buildings** with heavy floors and exterior walls.
C	50 to 250	Central areas of basements (with partially exposed walls) of multistory buildings. Central areas of upper floors (excluding top floor) of multistory buildings with heavy floors and exterior walls.
D	10 to 50	Basements (without exposed walls) of small buildings: one or two story. Central areas of upper floors (excluding top floor) of multistory buildings with light floors and exterior walls.
E	2 to 10	Basements (partially exposed) of small buildings: one or two story. Central areas on ground floors in small buildings with heavy masonry walls.
F	2 or less	Above ground areas of light residence structures.

*Protection factor is the relative reduction in radiation that would be received in a protected location, compared to the amount received in an exposed location.
**Multistory means three to ten stories. High-rise building means greater than ten stories.

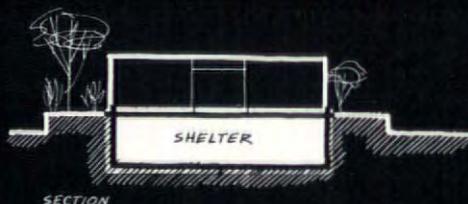
ings of 2-foot thickness of concrete. One of the outstanding advantages of the school shelter is economy; for a relatively small expense, as shown in these examples, a normal-use space can be adaptable to emergency needs. The cost per occupant of the basement shelter (above, right) is \$66; of the above-grade shelter, \$127, excluding equipment.

So long as the public is apathetic to the need for shelters, there will be strong moral demand upon architects and engineers to lead in the establishment of local survival programs. Somehow, the public must be alerted to the danger; but without daring to wait for public approval, the program must move forward. Both goals must be attained with the aid of the architects and engineers: the construction of prototype shelters throughout the country, as called for by OCDM*, offers a great opportunity to educate the public to the program's vital meaning. It may be that the designers will have to contribute to this cause without fee, because of the indifference of the public and, consequently, a lack of public funds to implement the program's early stages. Probably there has never been a time in history when the need for architects and engineers has been so critical (and so unrealized on the public's part): they must be willing to contribute to the community need; more important, they must show the community why it is necessary that shelters be built. In other words, it is not enough that the designer of the sixties be a creative member of society; he must begin to function as a leader and shaper of opinion as well.

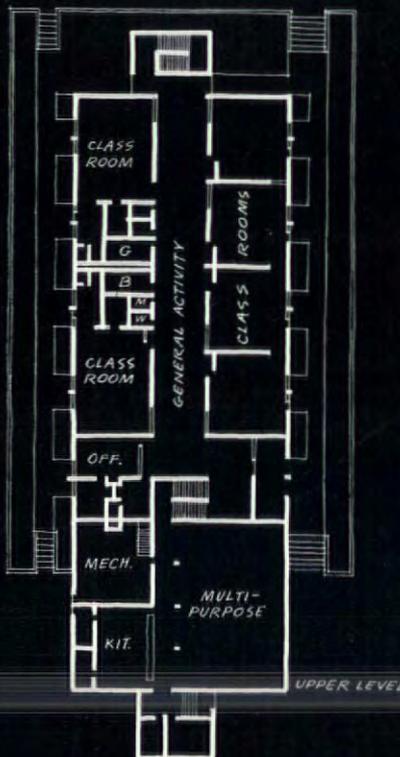
*Regional offices of OCDM are located in Harvard, Mass.; Olney, Md.; Thomasville, Ga.; Battle Creek, Mich.; Denton, Tex.; Denver, Col.; Santa Rosa, Calif.; Everett, Wash.

School shelters: the basement shelter space in the building plan (right, above) can hold 500 people in an emergency, giving 14.7 square feet to each. Normally it serves six classrooms around a general utility core. Inexpensive protection is afforded by the surrounding earth.

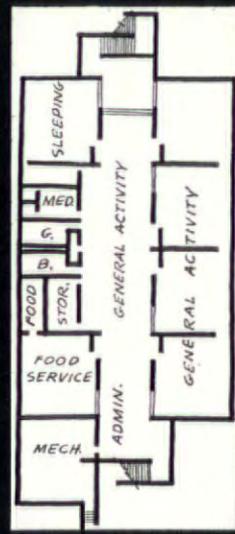
The above-ground shelter (right, below) serves 500 also, in an area confined to a multi-purpose room and its auxiliary spaces, all grouped at the center of the plan. All shelter areas are enclosed in 2 inches of concrete or an equivalent material.



SECTION



UPPER LEVEL

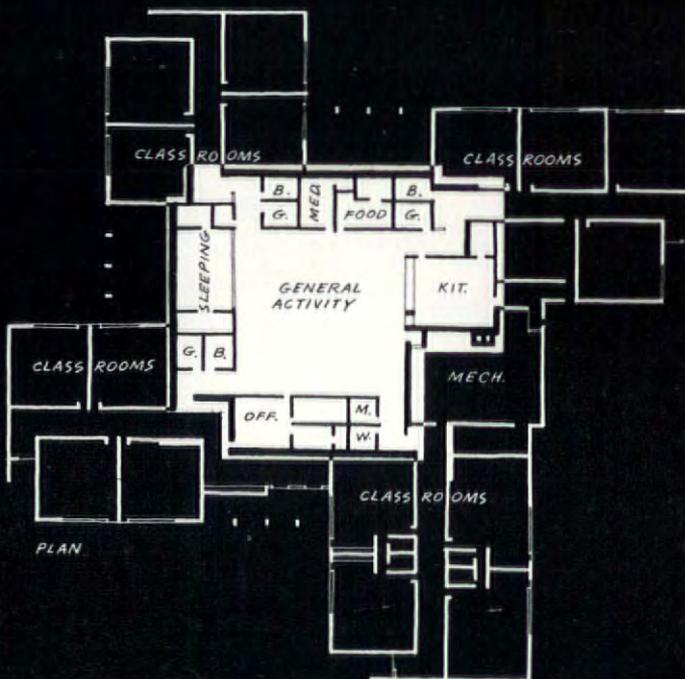


BASEMENT LEVEL

SCHOOL WITH BASEMENT SHELTER



SECTION

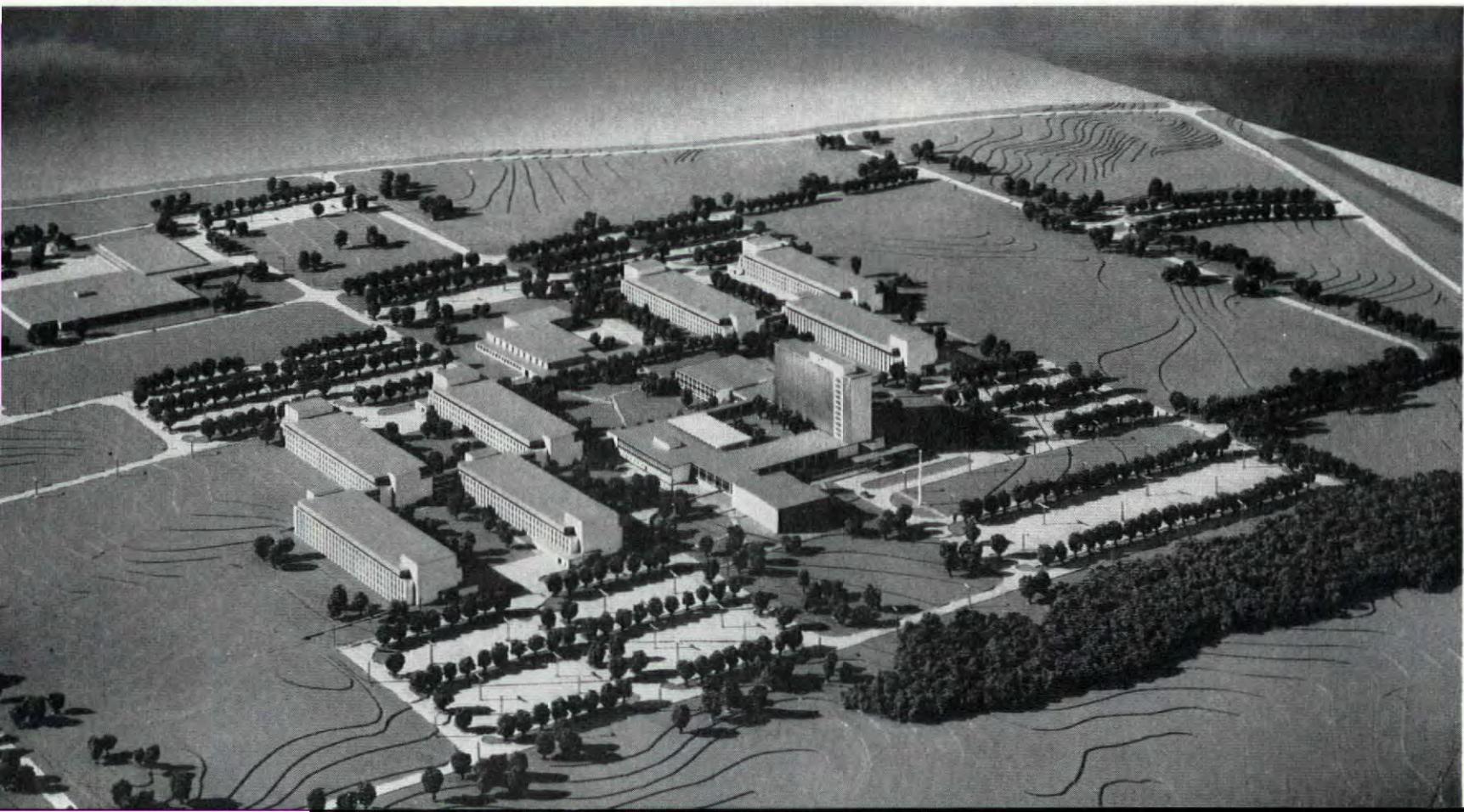


PLAN

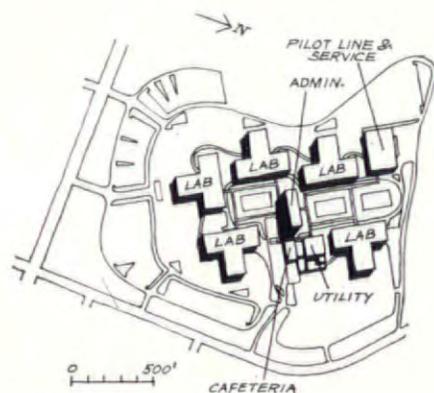
SCHOOL WITH GROUND LEVEL SHELTER



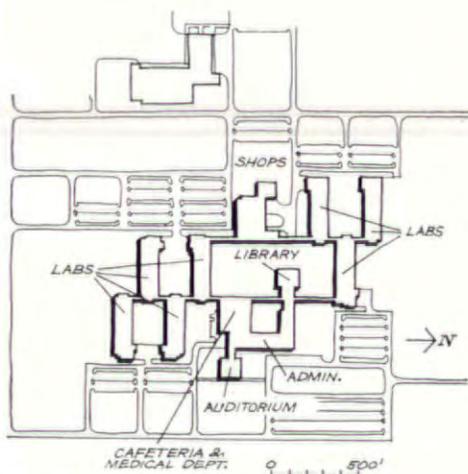
© LOUIS CHEKMAN



Building for science



Laboratory complex for Thompson Ramo-Wooldridge, at Canoga Park, Calif., designed by Albert C. Martin, will enclose $\frac{1}{4}$ million square feet—most of it in the five T-shaped research and development buildings. Entire center is heated and cooled from a central source: the square building near the pools; the pools are an integral part of the air conditioning.



Building module: the giant laboratory for the National Bureau of Standards will eventually enclose more square feet (2,250,000) than New York's Empire State building. Architects Voorhees Walker Smith Smith & Haines applied a "modular building" idea to the project: the seven laboratory buildings are identical. Later on, seven more may be added as the Bureau's activities expand. Thus far, Congress has appropriated \$23.5 million. The site for NBS' new facility will be in Montgomery County, Md.

The research and development laboratory presents today's architects with a mighty challenge: to retain the spirit of creativity within a big building.

BY DAVID ALLISON

The most pressing question in science and architecture today is: how can creativity be multiplied? How can today's laboratory of 5,000 scientists be 100 times as productive as yesterday's laboratory of 500—or yesterday's individual inventor? After all, the electric light was invented in a back-yard shed, the law of gravity was first observed under an apple tree, and the theory of relativity was developed in a Swiss garret.

The fantastic expansion of research and development activity in the U. S.—from \$200 million per year in the mid-thirties to more than \$12 billion per year today, an increase of 62 times—presents the architect with a whole new field of activity. The large architectural firm today is likely to have four or five research and development centers in design at one time, where in the past, when the research people were quartered in a little building in back of the factory, it was often unlikely that an architect would be consulted at all.

Along with this new field of design goes a challenge as bold as architecture has ever had: to demonstrate that the creativity of those who are surrounded by good architecture will be enhanced by it. But what is "good" architecture, in terms of a research and development center? FORUM put this question to the architects who are doing much of the important work in this new field and to some of their clients who manage the burgeoning new laboratories.

Many architects used the word "flexibility" in their replies, meaning that they strive in their designs to provide space and utilities which can be adapted to day-to-day changes in the scientists' research and year-to-year changes in

the company's plant requirements.

Another word frequently used in the answers was "compactness," meaning that the individual laboratory rooms are arranged in close proximity to one another to stimulate interchange among scientists. This is exemplified in the new research centers for International Business Machines by Eero Saarinen, and for Union Carbide, by Skidmore, Owings & Merrill (page 135).

If there is a word to describe the research and development center of the sixties, the word is "bigness." The large center of today is much larger than the largest centers of the pre-World War II years. The National Bureau of Standards' center, for example, which will be built in Montgomery County, Md., from designs by Voorhees Walker Smith Smith & Haines, will have 2.3 million gross square feet of enclosed space when the entire building program is completed. This is more than twice the size of the largest laboratory of yesterday, the Bell Telephone Laboratories' plant at Murray Hill, N.J., designed by the same firm, which enclosed just over 1 million square feet when it was completed in 1949. (The gross floor area of the new Bureau of Standards' center will exceed the rentable square footage of the Empire State building).

Bigness versus effectiveness

But how is bigness made compatible with effectiveness? Is the creativity of the scientists diminished when he is placed with hundreds of others in a "factory for ideas"? It probably is, unless wise planning can restore some of his feeling of individuality.

In the case of the Bureau of Standards' center, the architects will try to preserve the scientist's individuality by placing him in a laboratory building of moderate size: about 70,000 square feet. Seven of these general-purpose labs are now planned and space will be available for seven more as needed (see site plan, left).

This same philosophy is applied in the research and development center for Thompson Ramo-Wooldridge, Inc.,

top, page 130), at Canoga Park, Calif., designed by Albert C. Martin and Associates. It is a smaller center, eventually to have 757,000 square feet of enclosed space, and will consist of five T-shaped research and development buildings, each with 124,500 square feet, plus administrative and other supplementary facilities totaling 135,000 square feet.

These factors which distinguish today's laboratory — the stress on flexibility, compactness, large size, and the attempt to preserve individuality—are consistent with a change now taking place in science management. Christopher E. Barthel Jr., chairman of physics research at Armour Research Foundation, puts it this way: "The early approach to the management of scientists and engineers consisted primarily of applying general management principles to the growing research and development effort. . . . This was not successful. . . . Today, management must develop its policies to maintain the dignity and productivity of the individual."

Architect William L. Pereira, noting this change in science management from the viewpoint of the designer, believes that "the research and development center of ten years ago was born out of speculation and expediency, fostered by understandable industrial clumsiness. Research was still basically industry's captive. It was a need, not a necessity." But in the past ten years, says Pereira, research itself has become an industry: "Leadership of astonishing clarity and ability emerged from among the eggheads, and it is they who determine the character of today's research and development center."

The flexible laboratory

Expansion and radical modification are the only predictable qualities in today's laboratory buildings. Probably in no other field of building is there such consciousness of the need for maximum flexibility. Flexibility, Architect Charles Haines says, is "the greatest retardment to obsolescence, and obsolescence starts at the moment the design is approved." To a degree, this is due to the influence of the defense and outer space programs on the total research effort:

about two-thirds of all research funds —\$8 billion last year—come from the federal government. It is the nature of such research to undergo sudden expansions, cutbacks, and cancellations. Moreover, it is the nature of all research to change. Thus, the modern laboratory, whether for missiles or medicine, must be adaptable to a wide variety of projects.

Eero Saarinen's office, for example, finds that a fifth of the partitions in the typical laboratory are likely to be shifted once every year. Maximum partition flexibility is therefore a standard requirement in almost every new laboratory. This means more than simply the ability to move a partition, for if a research building does not provide the scientist with a usable vertical work surface, its true flexibility is limited. "Scientists consider walls as vertical working surfaces and want to be able to hammer nails in their partitions," says Architect Herbert Swinburne. "A science laboratory is a loft space in which you do things you don't know you're going to do."

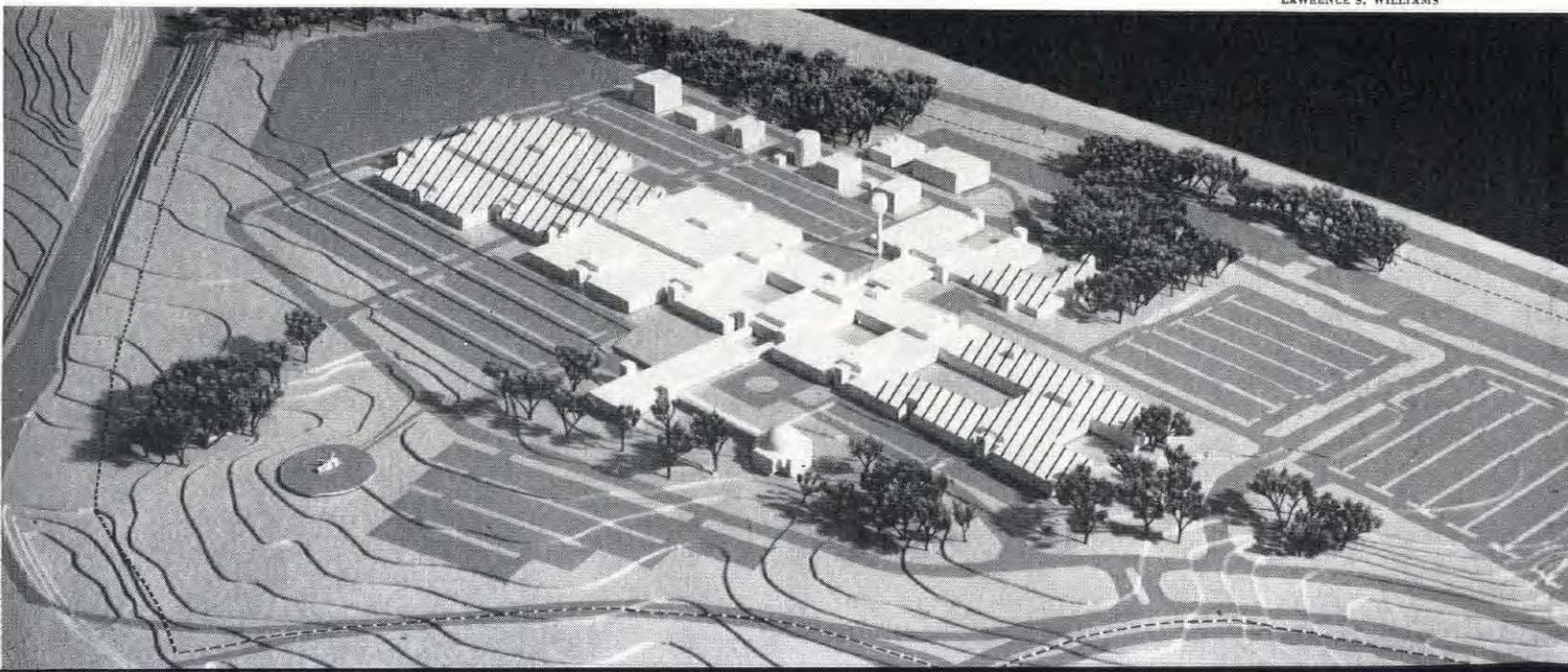
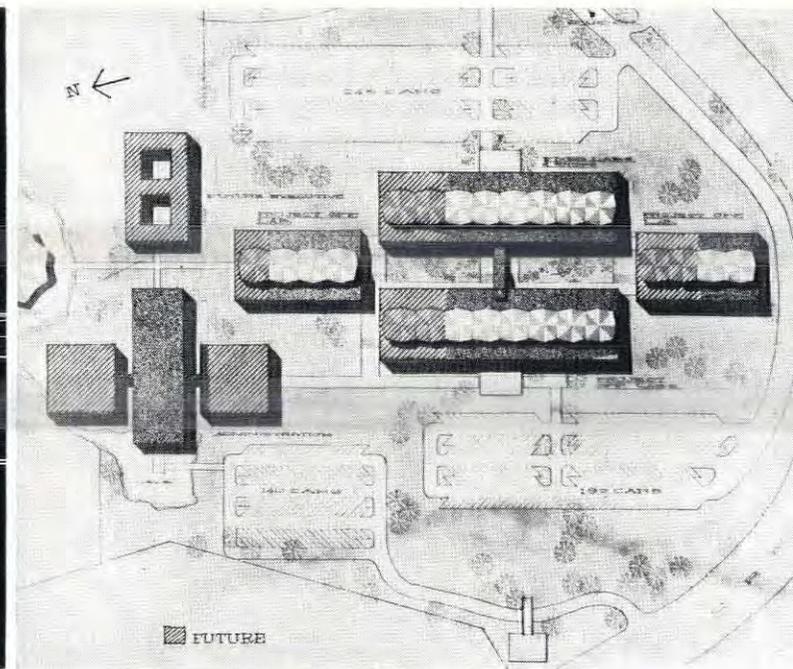
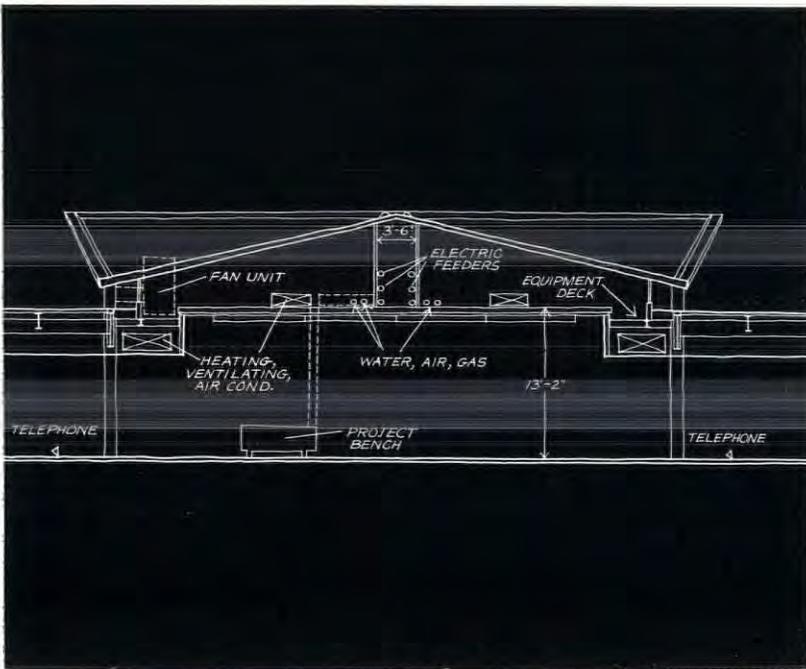
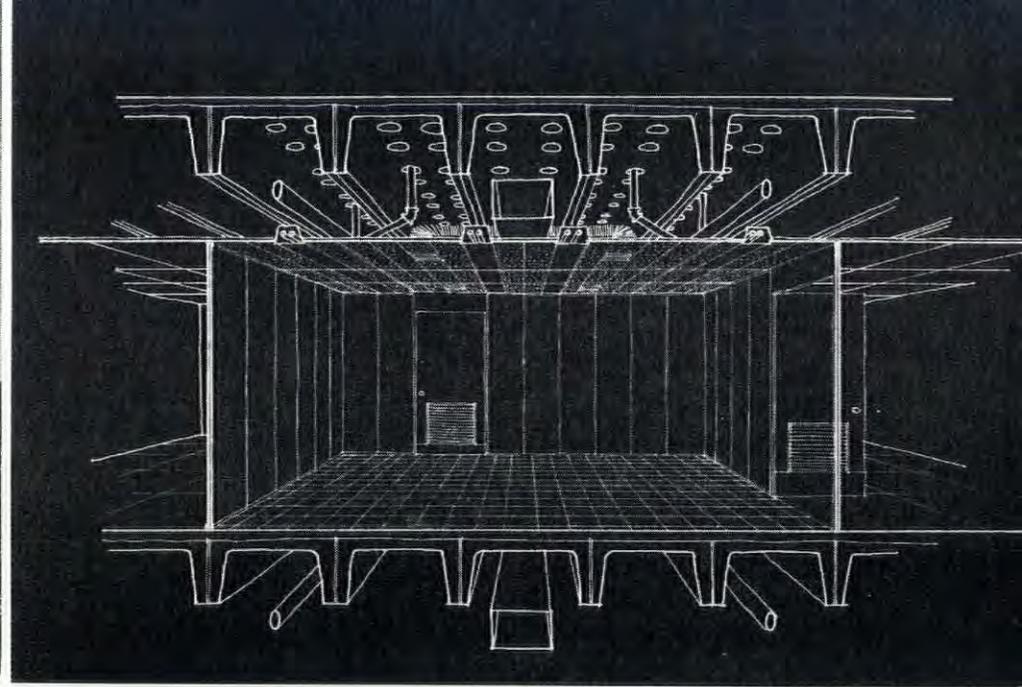
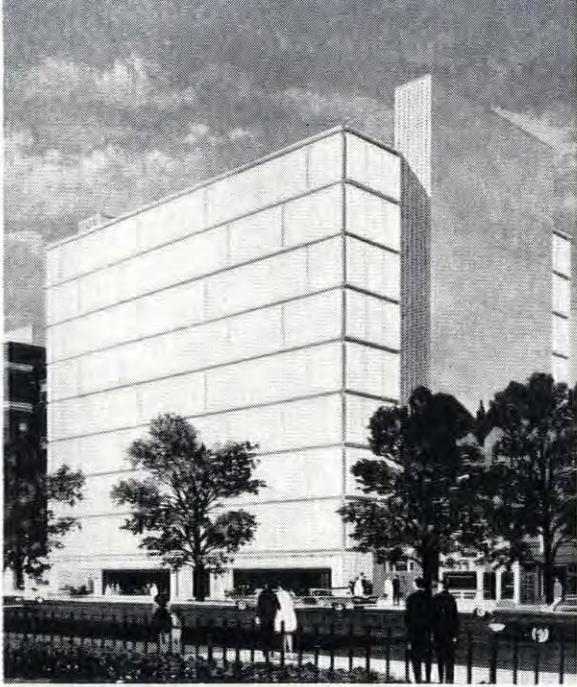
Temple University's Medical Research building, now being designed by Nolen & Swinburne, is one of the most interesting cases of the "loft space" principle applied to laboratory design. In this nine-story building, with 7,700 net square feet of research area on each floor, it will be possible to make any change in any space without disturbing any other space. As shown in the sketch (page 133), each building floor is constructed of a precast-prestressed concrete grid with knockout holes spaced 2 feet on center. All utility lines are run through 4-foot spaces between the ceilings and floors, then up into the laboratories through the knockout holes in the floors, or down through the ceiling.

With the exception of the drainage system, every element in the Temple laboratory is flexibly designed. Thus, virtually all equipment in the laboratory can be placed where it will be most convenient for the scientist. As his needs change, utility feeds can be shifted accordingly. The architects developed this system, says Swinburne, because the scientist should be able to design and rearrange his own space:

Windowless lab for medical research at Temple University, designed by Nolen & Swinburne, strives for maximum flexibility: the design concept enables scientists to change any room to any size in multiples of 4 feet, up to 44 feet. Precast prestressed concrete floors will have 9-inch round openings placed on 2-foot centers to provide flexibility of service connections for gas, compressed air, water, power, etc.; there will be 17,000 such openings in the 120,000 square foot space. The building will cost \$4 million.

Aerial tunnel in the Nortronics Research & Development Center, at Palos Verdes Peninsula, Calif., designed by Charles Luckman Associates, will allow expansion at the ends of the laboratory buildings. All utilities are carried in the overhead "tunnel" for maximum flexibility of service and accessibility (see sketch). First phase of the program, to cost \$4 million, will enclose 120,000 square feet, including two office-laboratory buildings of 30,000 square feet each, expandable to 40,000 square feet, and two smaller units—10,000 and 15,000 square feet—which are expandable to 20,000 square feet.

Special floors in General Electric's space technology laboratory, at Valley Forge, Pa., designed by Vincent G. Kling, permit change of sections of the laboratory from one-story to two-story spaces (or vice versa). The first phase of building will enclose 330,000 square feet of space; the second phase, 270,000 square feet, total cost of about \$14 million. Some 3,000 scientists and technicians will use the facility when it is fully expanded. Virtually all commutation will be via auto: the 130-acre site is adjacent to Pennsylvania Turnpike.



LAWRENCE S. WILLIAMS

"Research is a messy business. The building should not be allowed to get in the way." He extends this principle both to the laboratory partitions, made of 2¾-inch-thick gypsum board, to which shelving can be easily attached and which are relatively lightweight and movable, and to the ceiling system, which consists of movable ventilating, lighting, and acoustical units.

In many horizontal laboratory plans, the utility lines are run under the floors, then fed up into the laboratory spaces. But because of the increasing demand for flexibility, some architects are seeking other means of distributing utilities. In the new Nortronics laboratory at Palos Verdes Peninsula, Calif., for example, Charles Luckman Associates will place all utilities in an overhead duct (page 133), which will provide "maximum flexibility of service." This utility duct will carry water, compressed air, vacuum systems, gases, and electrical services. Being exposed, at the highest point above the laboratory floor, all services will be accessible for the laboratory's changing demands.

Each of the buildings in the Nortronics center will be 100 feet wide, with a 30-foot band of office space adjacent to the exterior glass walls. The laboratory space will run through the center of the building, in a long, 40-foot-wide section, with each lab module having ready access to the utility duct. As the floor plan indicates, expansion of these buildings will be possible at both ends, and utility duct will extend as the facility grows.

Horizontal as well as vertical flexibility will be provided in the new Space Technology Center which Vincent G. Kling is designing for General Electric, at Valley Forge, Pa. This laboratory building can be doubled in size by the addition of a new, identical block (photo, page 133), and space within the laboratory can be adapted either for two-story or high-headroom single-story use by means of a specially flexible flooring system which can be easily installed or removed in accordance with the changing demands of the scientists. The system consists of steel columns and beams which carry a steel deck flooring with cement fill. If required, an entire second floor can be constructed

in the laboratory building. (Second-floor windows are provided in the original construction.) On the other hand, if less than an entire new floor is required, a mezzanine floor can be built, leaving the interior space with a 28-foot headroom.

The precision of science

There was once a romantic belief—never disproved—that the ideal environment for science creativity was the individual laboratory. If, somehow, every scientist could have a work place where he wanted it, independent of others, then science creativity would thrive.

Unfortunately, such a dream, if ever practical, is not practical today, and the popular belief among both architect and science clients favors the laboratory of functional precision. The buildings on these pages are examples: they are buildings in which vistas have been discarded in favor of the controlled environment. An important reason for this is cited by Skidmore, Owings & Merrill's Robert W. Cutler: "One of the most significant developments in laboratory design is the narrow limit now required in temperature control. There is more air conditioning; it is more expensive, and more equipment is required to produce more air changes per square foot. Certain rooms, for example, must have very narrow limits of temperature change in order to preserve valuable experiments."

In some instances, this means windowless laboratory space, as in the Union Carbide research center at Eastview, N. Y. (above, right), and the I.B.M. laboratory at Yorktown Heights, N. Y. (right). In both buildings, a windowed corridor surrounds the laboratory space, providing the scientists with access to the outdoors, but at points some distance from their work areas.

The desirability of windowless laboratory space is based on several circumstances: 1) much scientific investigation must be conducted under conditions of darkness and minute temperature control; 2) modern lighting and air-conditioning equipment is such that an interior laboratory can be made as environmentally satisfactory as a windowed laboratory; 3) functional flex-

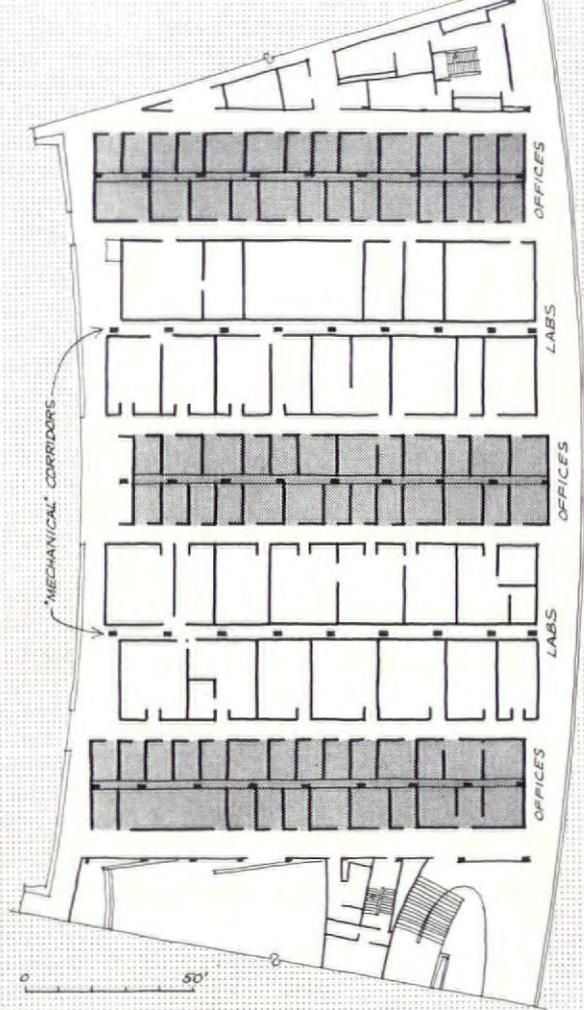
ibility requires that laboratory space be adaptable for all laboratory tasks.

The fact that air conditioning now makes interior space livable logically leads to the bulk-building plans shown here. This does not suggest that most future laboratory buildings will be planned this way. It does indicate, however, that scientists and architects will be able to consider such a scheme and adopt it if it meets the specific requirements of the laboratory's research activities.

In fact, this was true in the case of the Saarinen laboratory for I. B. M. In the early days of planning, some four years ago, I. B. M. had favored a campus plan with several separate research buildings. Coincidentally, Saarinen was designing a new laboratory for Bell Telephone, at Holmdel, N. J. Comprehensive studies were made of the merits of various plans—including both campus and compact types—and from these had concluded that a bulk building would stimulate more interchange among Bell Labs' scientists. The logic of this conclusion impressed those at I. B. M., and the campus plan was dropped in favor of the compact plan.

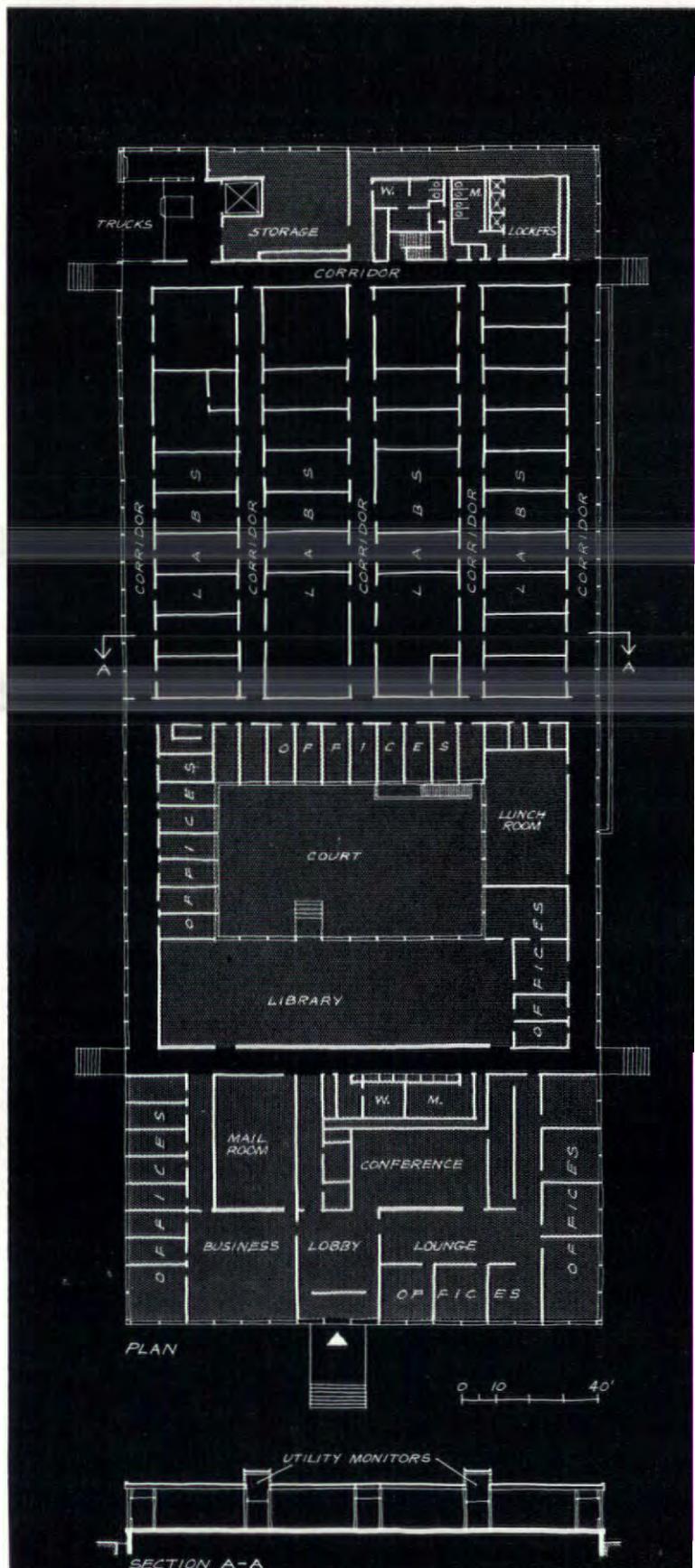
The scientist as a client

Many architects volunteer that the scientist is invariably more receptive to new ideas than the usual building client, and an experience like Saarinen's with I. B. M. is not uncommon. As William L. Pereira says, after immediate experience with nine such research and development centers: "In my whole career I've never seen such a breed of clients who so quickly recognize a contribution and who seldom, if ever, become a problem." He points out, however, that the science client is not always the easiest to work with: "The architect who goes into this field must be prepared to work very hard. He must contribute huge amounts of his time, and be on every job. The architect who pretends to be a scientist is dead. But all of our work has been influenced tremendously by our contacts with the men in research and development. They are conditioned to failure, but out of each failure they hope some day to achieve success."



Outside corridor of IBM's new lab at Yorktown Heights, N. Y., designed by Eero Saarinen, makes this, in effect, a "windowless" laboratory: all labs and offices are interior spaces, as seen in the sketch (above). Improvements in air conditioning have made possible the creation of such windowless spaces; according to most studies, scientists generally prefer no windows, because outside light can interfere with certain research activities. The curved, three-story building contains 450,000 square feet of space, with labs taking 150,000; public areas, including auditorium and library, 110,000; offices, 100,000; service areas, 90,000.

Mechanical corridor: laboratory for Union Carbide at Eastview, N. Y. also has interior lab spaces, as shown in the sketch (right), although the offices and public areas face onto a courtyard. The lab spaces are placed along a "mechanical" corridor, from which all services can be piped. Architects Skidmore, Owings & Merrill designed the mechanical corridor so that the scientists could themselves tap whatever services might be needed in their experiments. Such "do-it-yourself" arrangement, say the architects, is desirable because scientists want to be able to perform these jobs themselves without having to wait for maintenance men.



Technical briefs

The microbe fighters

The control of hospital-acquired infections, a matter of increasing concern to medical scientists, is gaining attention as a problem in hospital design. In a report to the Building Research Institute's division of engineering and industrial research, three bacteriologists of the University of Minnesota urge that future building design and construction "reduce the potential hazards of these bacteria." Say the scientists, V. William Greene, R. G. Bond, and G. S. Michaelsen: "The ultimate solution to hospital cross-infection cannot be accomplished solely by medical and nursing personnel, but will also require the serious consideration of engineers, hospital designers, and builders."

One of the difficulties in controlling these micro-organisms is their size: the smallest viruses can pass through the most effective air filters. Thus, the primary means of control does not involve filtration exclusively, but also the control of hospital activities through design and planning.

The report concludes: "We hope that air-flow design will in the future take cognizance of the septic air streams that can result from haphazard or ill-considered planning. Perhaps someone will work up the ideal air-purification system. . . . Perhaps the doctors and nurses, bacteriologists, engineers, architects, and builders will join forces to re-emphasize what Florence Nightingale said a hundred years ago: 'The hospital should do the sick no harm.'"

Heating with light

During the past year, much attention has focused on the new lighting levels recommended by the Illuminating Engineering Society. Although there has been opposition to the recommendations—"Do we really need two or three times as much light in our buildings?"—few informed people any longer doubt that levels are going to move up.

One interesting result of this increase in lighting is becoming evident: a building's lighting system can also

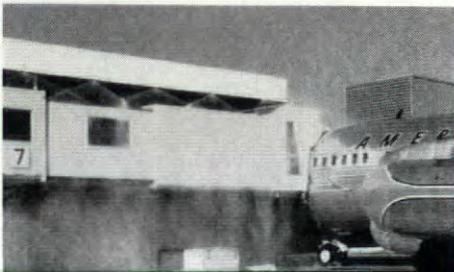
serve as its daytime heating system. The Georgia Power Co. building, in Atlanta, is one of the first examples. When a lighting level averaging 100 foot-candles (instead of the usual 40) was specified for this 22-story building, it became apparent that the heat generated by lighting would be slightly more than the required design temperature: 10 degrees above 0 Fahrenheit. Thus, the lighting could carry the daytime heating load, supplemented by 87 kilowatts of resistance heating per floor for nighttime operation.

To be sure, the higher lighting level added greatly to the building's total cost (an increase of \$500,000, or about 7 per cent). Most of the difference was in air-conditioning costs: at 40 foot-candles of illumination, the building would have required 850 tons of air conditioning; to provide for 100 foot-candles, cooling tonnage had to be increased by 24 per cent, to 1,050 tons.

On cold winter days, when both heating and cooling are needed at the same time and on the same floor, the building uses a specially designed "hot and cold" mixing box system of heat distribution which carries excess heat from the interior offices to cooler perimeter areas. In summer it collects and exhausts the heat to the outside.

Water spray for jet safety

Consulting Engineers Jaros, Baum & Bolles have designed a water curtain spray system to protect deplaning jet passengers from fire at American Airlines' new terminal building at Idlewild. One of the design features of the building is an enclosed telescoping bridge, suspended some 21 feet above the parking apron, which links the planes with the terminal. If fire should break out during fueling operations, passengers will be able to exit safely as the water curtain is discharged from spray nozzles above and below the loading bridge (see photo). Six upper spray nozzles drench the steel panels along the length of the loading bridge.



Other nozzles beneath the bridge spray water down onto the concrete apron and wash away burning fuel. Each of eight loading bridges at the terminal is equipped with the spray system.

Hot wires in concrete

The service center and warehouse for Northern States Power Co., in Minot, N. D., is testing an unusual new idea in electric heating: the reinforcing wire fabric in the building's concrete floor slab is used as an electric heating element. The system, to be tested under normal building conditions, will require about 300,000 kilowatt-hours each year, or a heating bill of \$4,500 for over 105,000 cubic feet of space. (The building encloses 6,500 square feet.)

For the architect, James V. DeLoi, the use of concrete reinforcement for heating made it unnecessary to provide a large furnace room. For the owner of the building, the dual use of welded wire fabric represents a saving in material: a more conventional radiant heating system would require metal tubing for circulation of hot water, or special electric resistance cables.

The major problem in designing the grid system was how to make dual use of the wire as both an electrical conductor and reinforcement. To be effective as reinforcement in the strips of slab, wire fabric had to be overlapped; on the other hand, to maintain a proper flow of current, these overlapping wire strip fabrics had to be electrically separate. Thus, strips of cement asbestos board were placed between lengths of wire fabric; insulating tape was wrapped around this "sandwich" of wire and insulation, tying the wires securely in place. Seen from above, these overlapping wires look like the elements from an immense toaster.

A system of thermostats, four embedded in the floor slab itself, will control the heating system, actually switching the transformers off and on; outdoor thermostats will forecast temperature changes and demands. Time clocks will work in conjunction with the thermostats so that preset schedules can be arranged to take advantage of off-peak heat storage.

CLEAN AIR BY AAF in Seattle's newest skyscraper

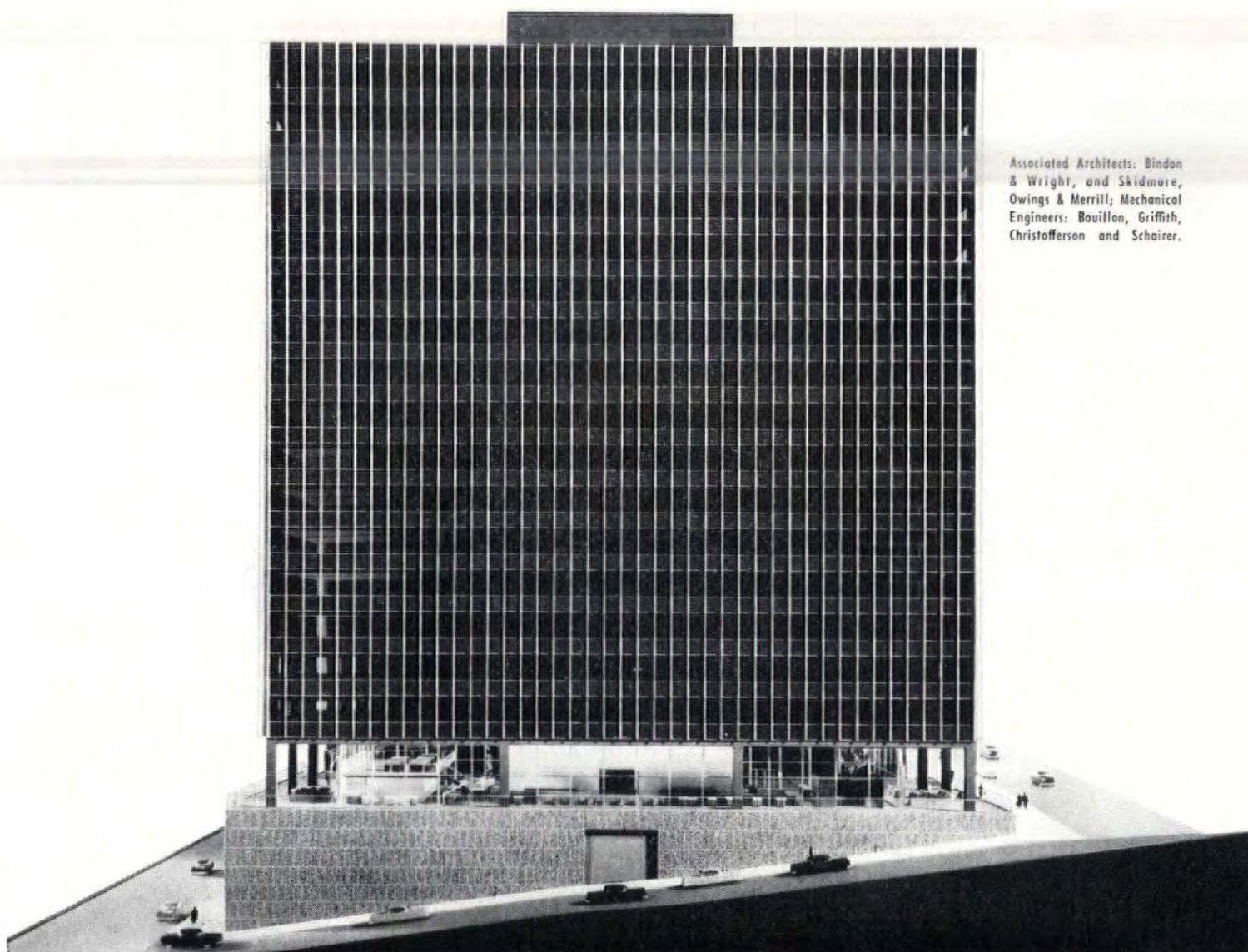
Roll-O-Matic filters selected for impressive new structure

Newest member of the Seattle skyline is the 21-story, glass-and-aluminum Norton Building. Nothing was spared in the effort to make this the most modern, most pleasant office building in the Pacific Northwest.

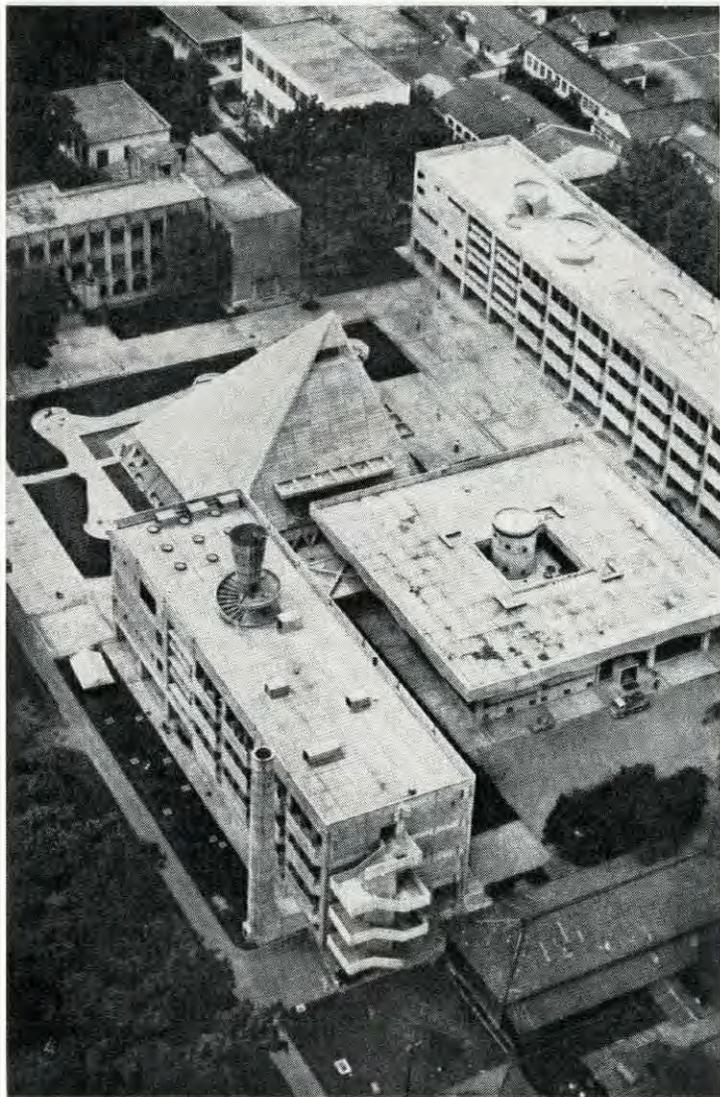
Throughout this expansive building, the air is filtered for dust-free cleanliness. To make sure they got the air-cleaning efficiency they needed plus the maintenance characteristics they wanted, the builders turned to AAF—the one company that makes *all kinds* of filters.

From the complete AAF line, they selected the Roll-O-Matic. These filters are completely automatic, need no attention other than annual replacement of the media roll — an operation as simple as changing the film in a camera. For more product information, call your local AAF representative or write direct for Roll-O-Matic Bulletin 248. Address Mr. Robert Moore, American Air Filter Company, Inc., 427 Central Avenue, Louisville, Kentucky.

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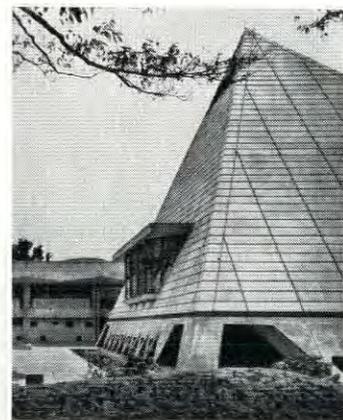
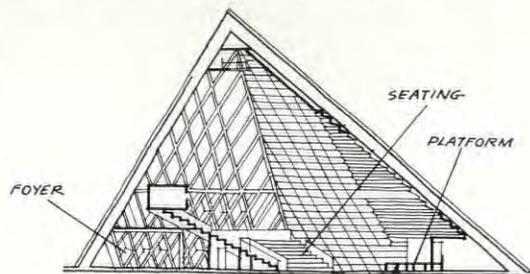
Associated Architects: Bindon & Wright, and Skidmore, Owings & Merrill; Mechanical Engineers: Bouillon, Griffith, Christofferson and Schairer.



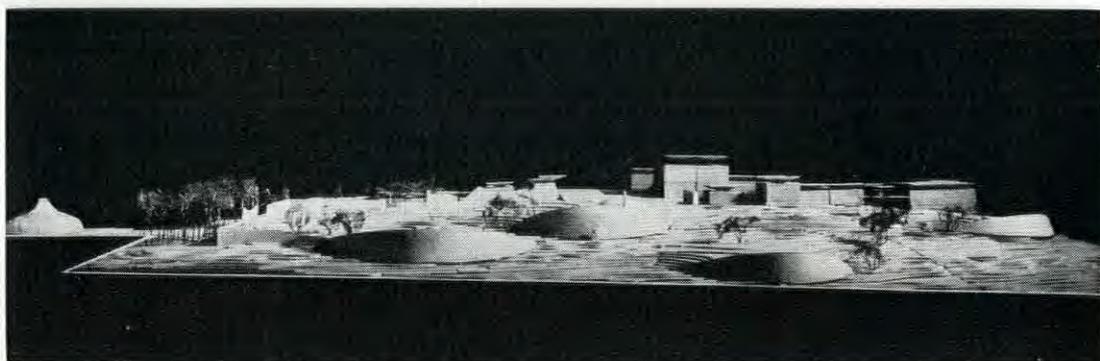
JAPANESE ECCENTRICITY

A new building group has been added to the Peers University School in Tokyo that is one of the most striking experiments in academic court design found anywhere. The court is formed by four concrete structures: a two-story administration block flanked by two four-story classroom buildings, and a lecture hall shaped like an eccentric pyramid. Critics report

that the lecture hall is an illogical shape for an auditorium (see section, below), and has some acoustical and lighting shortcomings. But the main point made by Architect Kunio Maekawa is that a building of this shape in a small court (bottom photos) loses bulk as it rises, giving the sensation of a more generous, light-filled open space.



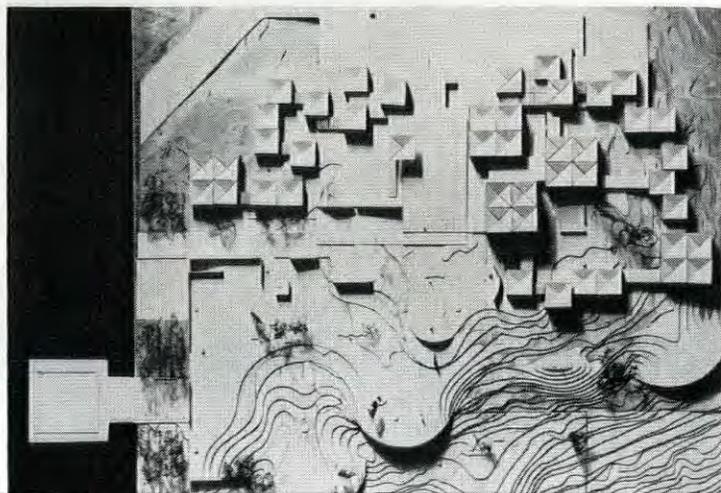
PHOTOS: COURTESY "JAPAN ARCHITECT"



ISRAELI CULTURE

The Israel National Museum of art and archaeology is now under construction on a 40-acre hilltop site (above, right) in a rapidly expanding part of Jerusalem. The museum, designed by Architects Mansfeld & Gad, consists of a series of inverted hyperbolic-paraboloid pavilions (above) which are grouped around courts and which give great flexibility to

the expanding institution. Extending downhill from the museum is the Billy Rose sculpture garden designed by Isamu Noguchi. The curvilinear quality of Noguchi's terraces complements the tight organization of the museum. Neighboring the twin project (at far left in photo, right) is the dome Frederick Kiesler has designed to house the Dead Sea Scrolls.



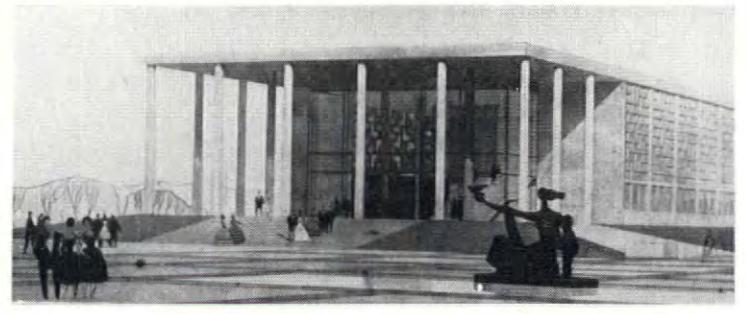


ALEXANDER GEORGE

SWEDISH SHOPPING

Sweden has the highest ratio of cars to humans (1:7) of any country in Europe, and thus craves shopping centers. One of the most recent centers has been built in Farsta. Its main feature is the arcaded department store of the Nordiska

Kompaniet (photo, above) for which U. S. Architects Ketchum & Sharp were the consulting architects. The three-level store's checkerboard exterior pattern results from alternating polished and unpolished granite slabs.



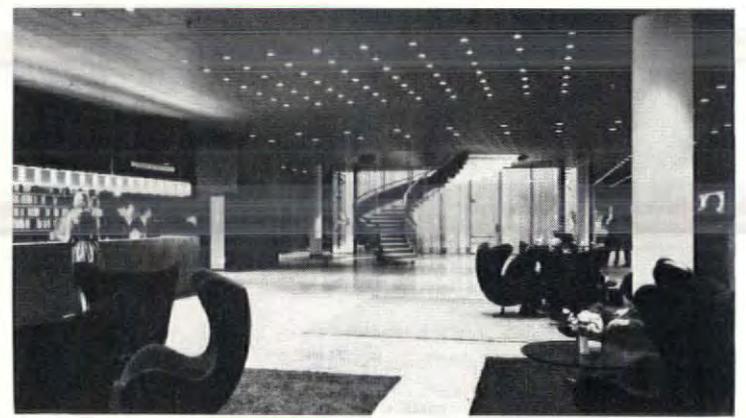
RUSSIAN MARRIAGE

In 1961 Moscow will build its first "wedding palace," a concrete and glass structure with an unproletarian portico and grandiose staircases. The wedding party arrives, climbs up to the main hall registration desk, ascends again to the cere-

monial hall, climbs back down a flight and a half to the banquet rooms, thence up again to the main hall, and down into the street. Thus architecture prepares them for the ups and downs of married life in the Soviet Union.



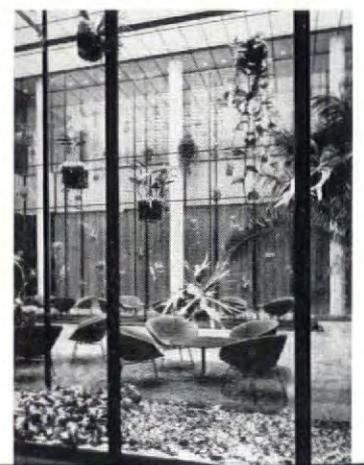
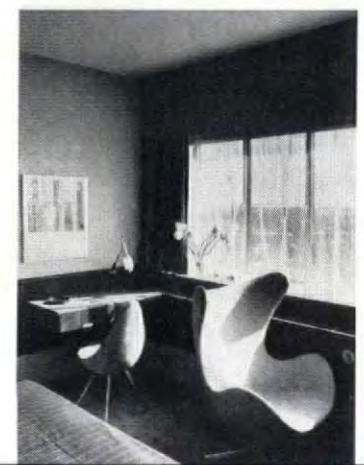
PHOTOS: STREUWING



DANISH NEUTRALITY

It was Architect Arne Jacobsen's thought that by making the glass and aluminum façade of his building for the Scandinavian Airlines System in Copenhagen as icily neutral as possible, the building would not obtrude upon the nearby Tivoli gardens. Nevertheless, the 22-story hotel and its two-story base, a rail and air terminal, are quite visible (photo,

left). Within, the hotel departs from neutrality with warm colors (particularly in the winter garden, photo below) and with bold designs (such as the elegant lobby staircase, photo above). Each of the hotel's 275 air-conditioned rooms has at least three windows, one of which is operable; desks and tables are hung from a wainscot (photo below, left).



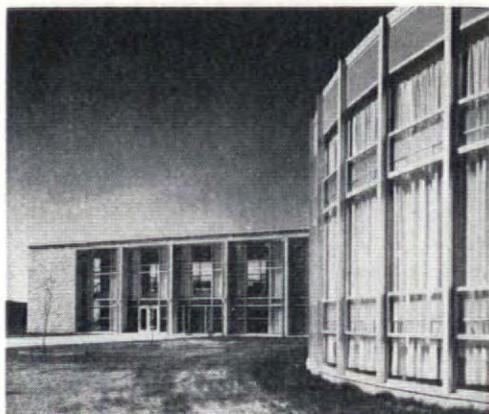
NOW—EVEN THE ELJER TRADEMARK IS NEW—to match the **NEWEST** line of bathroom fixtures in the industry. The staff of famous designer Dave Chapman went all out — put fresh, imaginative ideas in every fixture, every fitting. Sparked-up styling. Beautiful pastel colors. Bathroom planning with real sales appeal. You can't miss when you specify Eljer. So look for this new symbol of excellence in distinctively modern fixtures and fittings of unmatched quality and unique value. Eljer Co., Three Gateway Center, Pittsburgh 22, Pa.



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*AWMA Aluminum Window Specifications—1960



(Top) Marmion Military Academy, North Aurora, Ill.
Architects: Belli & Belli

(Lower) Denver-Chicago Truck Terminal, Denver, Colo.
Architects: Toll & Milan

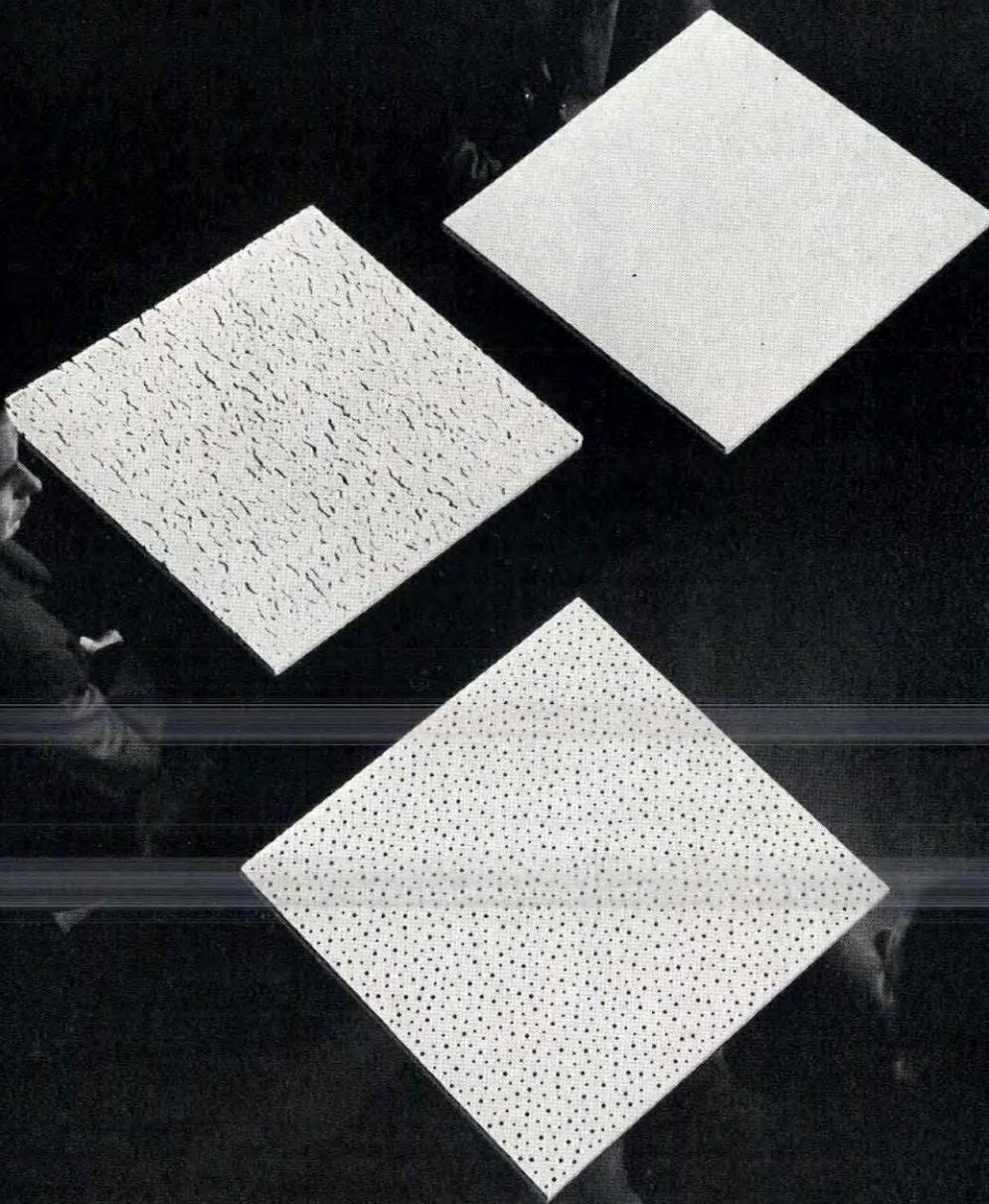


I.B.M. Office Building, Dallas, Texas
Architects: Harwood K. Smith & Partners

MEMBERS: Adams Engineering Co., Inc., Ojus, Fla.; Albritton Engineering Corp., Bryan, Texas; American Duralite Corp., Loudon, Tenn.; American Metal Window Co., Shreveport, La.; Arnold Altex Aluminum Co., Miami, Fla.; The William Bayley Co., Springfield, Ohio; Capitol Products Corp., Mechanicsburg, Pa.; Ceco Steel Products Corp., Chicago, Ill.; Crossly Window Corp., Miami, Fla.; Fenestra Inc., Detroit, Mich.; Michael Flynn Mfg. Co., Philadelphia, Pa.; Kesko Products, Bristol, Ind.; Mayfair Industries, Inc., Lafayette, La.; Miami Window Corp., Miami, Fla.; Porterfield Industries, Inc., Miami, Fla.; Reynolds Metals Co., Richmond, Va.; Rogers Industries Inc., Detroit, Mich.; The F. C. Russell Co., Columbiana, Ohio; Stanley Building Specialties, North Miami, Fla.; Truscon Div., Republic Steel Corp., Youngstown, Ohio; Valley Metal Products Co., Plainwell, Mich.; Windalume Corp., Kenil, N. J.; Wisco Inc., Detroit, Mich.

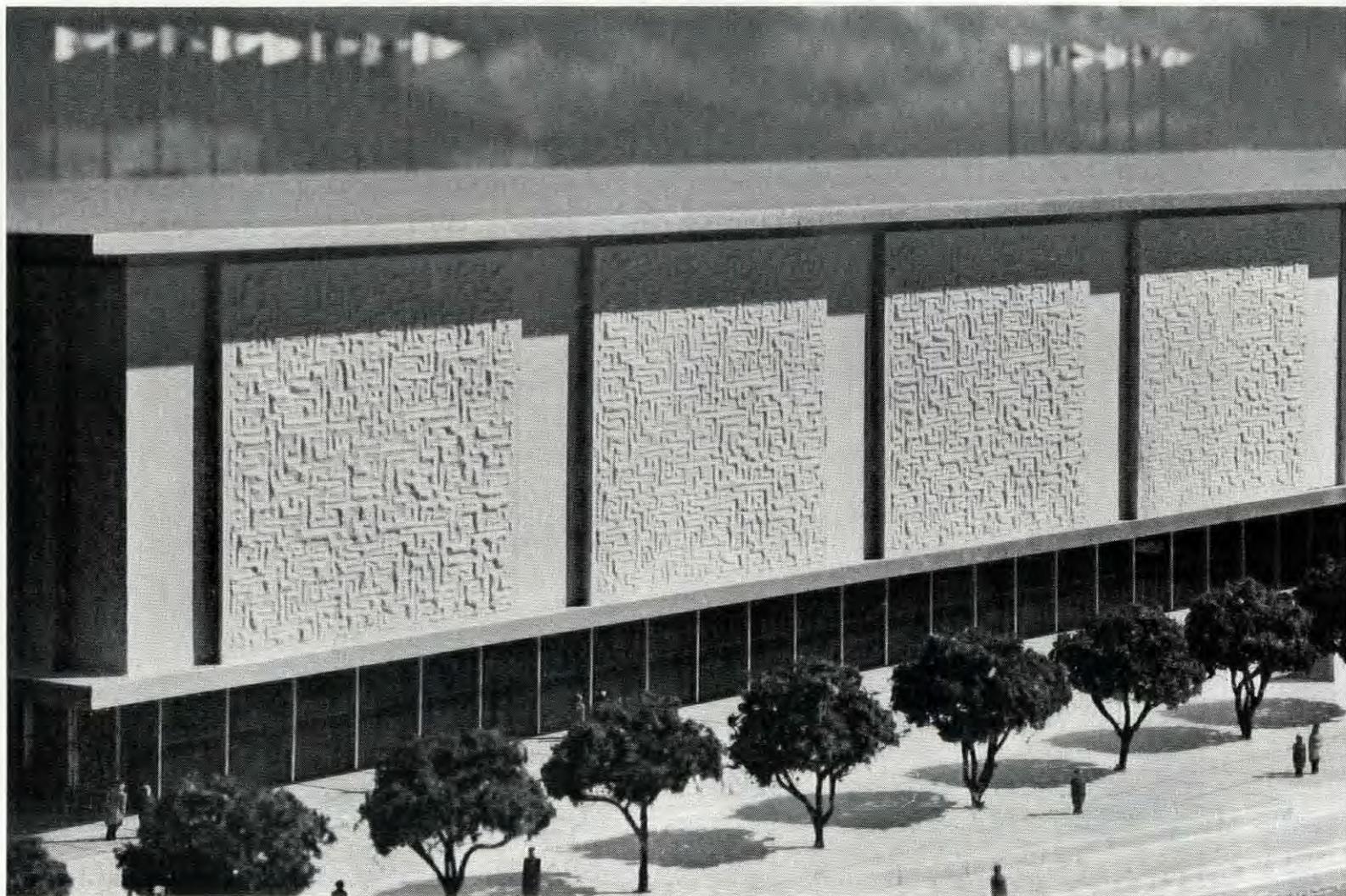
Panel discussion :

Before Acoustiroc, a fissured mineral wool acoustical panel was a risky specification. None of the available materials was strong enough to be used in spans over 12" without danger of sagging or warping. That's why you don't see many of them around. But things have changed recently. The new felted structure of Gold Bond Acoustiroc makes



2' x 2' panels and tiles strong enough to support their own weight without sagging when installed under normally dry conditions. Now you can put Acoustiroc tiles or panels in any ceiling suspension. Ask your Gold Bond® Representative, or write Dept. AF-21, National Gypsum Company, Buffalo 13, N.Y.





Steel Fabric reinforces sculptured precast concrete panels

Chicago's new Convention and Exposition Center gives you a lot to marvel at. For one thing, you could put Wrigley Field, Comiskey Park and Yankee Stadium under its roof. For another, it is spectacularly beautiful from any angle.

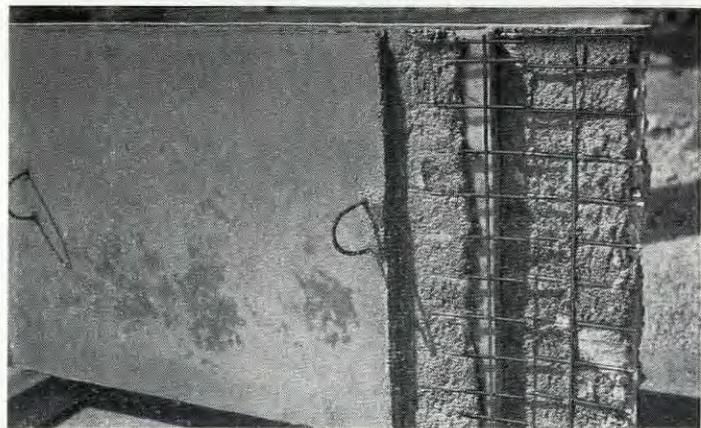
But only architects, engineers and contractors will fully appreciate how some of the ingenious structural and architectural effects were achieved. So, look closely at the photographs and don't forget the unusual sculptured panels are of precast concrete reinforced with USS American Welded Wire Fabric.

USS American Welded Wire Fabric was also used for

concrete reinforcement of the pan-type floor construction. The floor is designed for 400 psi live loads with columns at 60-ft. centers. The joists are 14" deep with the top 4½" slab reinforced with welded wire fabric sheets. Welded wire fabric reinforcement was also used in the construction of the ground floor slabs, terrazzo floors and gypsum roof decks.

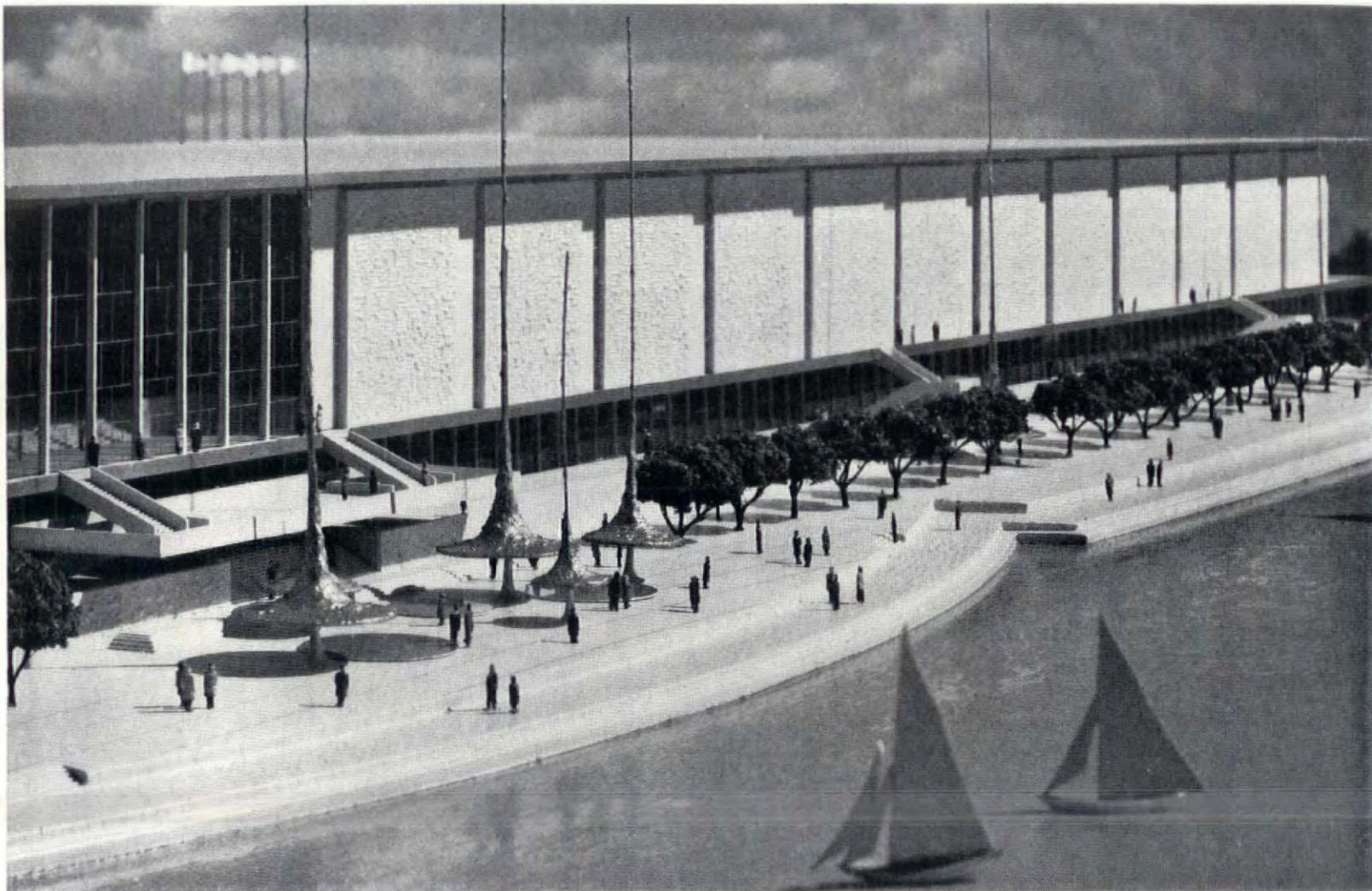
USS American Welded Wire Fabric is readily available in a variety of styles, sizes, lengths, widths and finishes—in wire gauges from 7/0 to 16 and with longitudinal or transverse intervals of 2" to 16".

Rear view of a section of one of the precast reinforced concrete sculptured panels showing American Welded Wire Fabric, style 4 x 4-5/5.



This is front view of same section. Each 50 ft. high x 15 to 20 ft. wide panel consists of eleven of these sections in a vertical position.





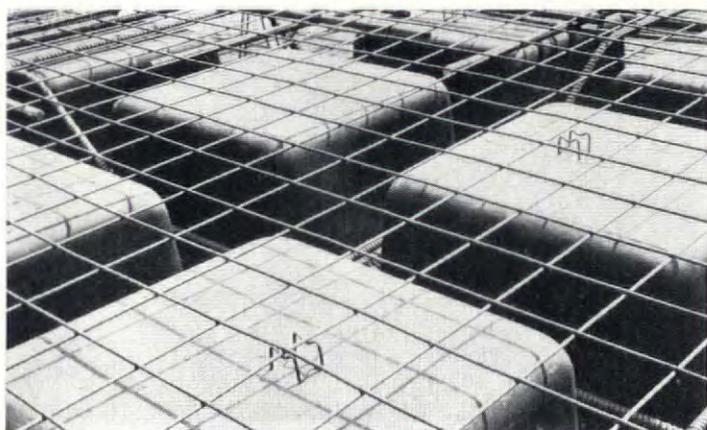
in Chicago's McCormick Place Lakefront Exposition Center—

For more information on the advantages and applications of USS American Welded Wire Fabric, get in touch with our nearest Sales Office or write American Steel & Wire, Dept. 1105, 614 Superior Ave., N. W., Cleveland 13, Ohio.

USS and American are registered trademarks

Credits: Chicago's McCormick Place Lakefront Exposition Center—23rd Street and the Lakefront. *Chief Architect:* Alfred Shaw. *Consultants:* Carl A. Metz, John Dolio, Edward D. Stone, John Root, Victor Hofer. *General Contractor:* Gust K. Newberg Con-

The cast-in-place pan-type reinforced concrete floor is designed for a live load of 400 psi.



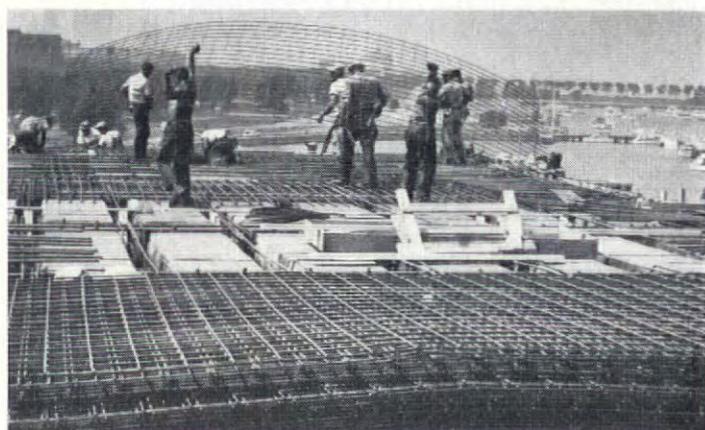
struction Co. *Welded Wire Fabric Distributor:* Joseph T. Ryerson & Son, Inc., *Posttensioning Wire Tendons:* Joseph T. Ryerson & Son, Inc. *Precast Wall Panels:* American-Marietta Co., Concrete Products Division.

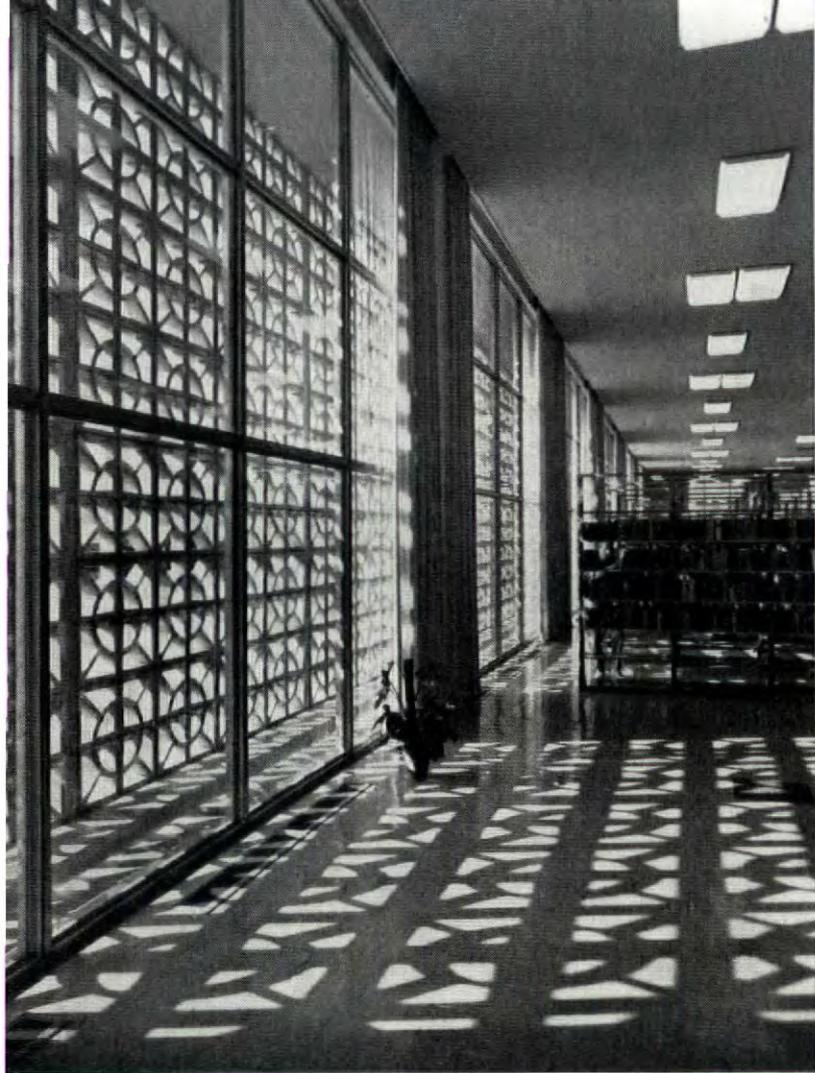


**American Steel & Wire
Division of
United States Steel**

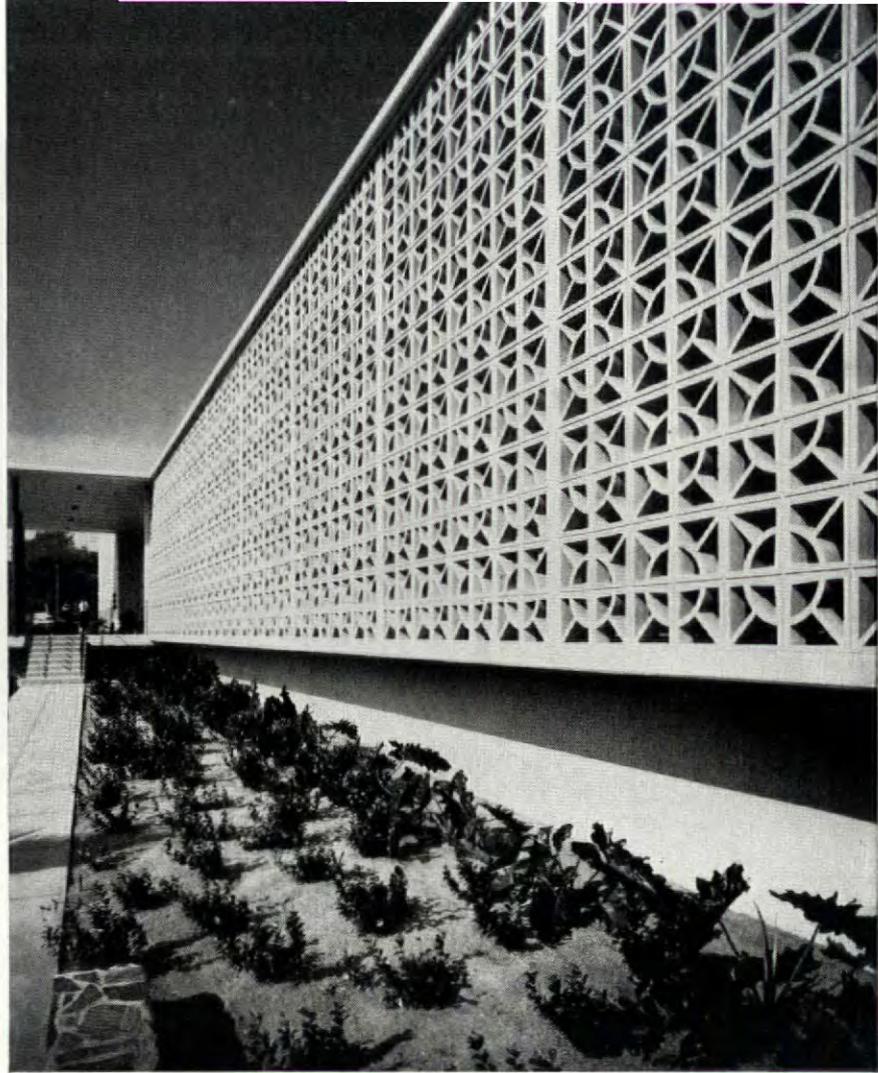
Columbia-Geneva Steel Division, San Francisco, Pacific Coast Distributors
Tennessee Coal & Iron Division, Fairfield, Ala., Southern Distributors
United States Steel Export Company, Distributors Abroad

The large sheets of USS American Welded Wire Fabric, style 6 x 6—2/2 used to reinforce the 4½" thick concrete slabs are easily handled by two men.





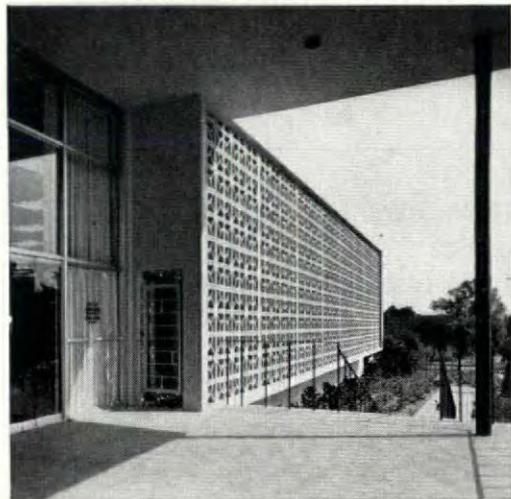
The solar screen softens bright sunlight to subdued serenity, just right for reading.



Exterior eloquence with practical purpose keynotes the horizontal sweep of the library.

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from the wonderful new world of **BLOCK**

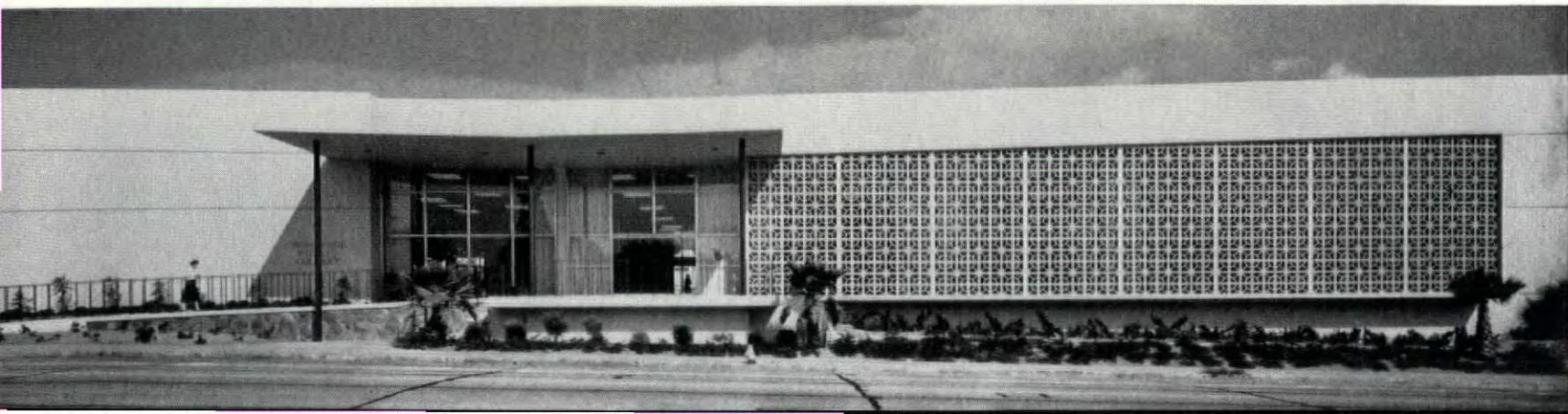


THE new face of concrete masonry can add mood and dimension to any structure. In this library, the solar screen of concrete block adds an accent of beauty to the handsome lines of the building, and diffuses the sunlight into soft patterns of interest in the interior. Your local NCMA member can bring you up to date on solar screens of concrete block. See him soon.



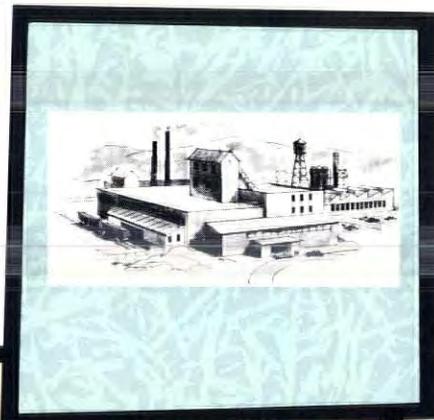
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Whittier Public Library, Whittier, California. William Harrison, Architect.



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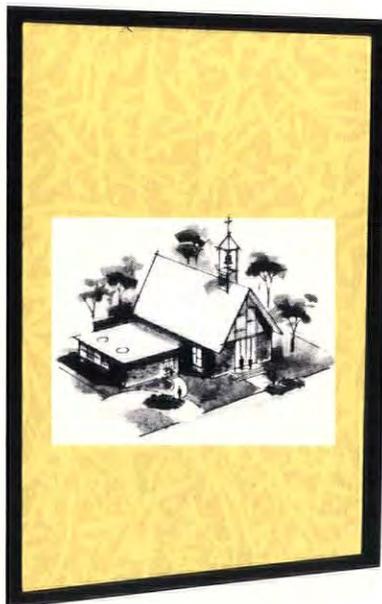
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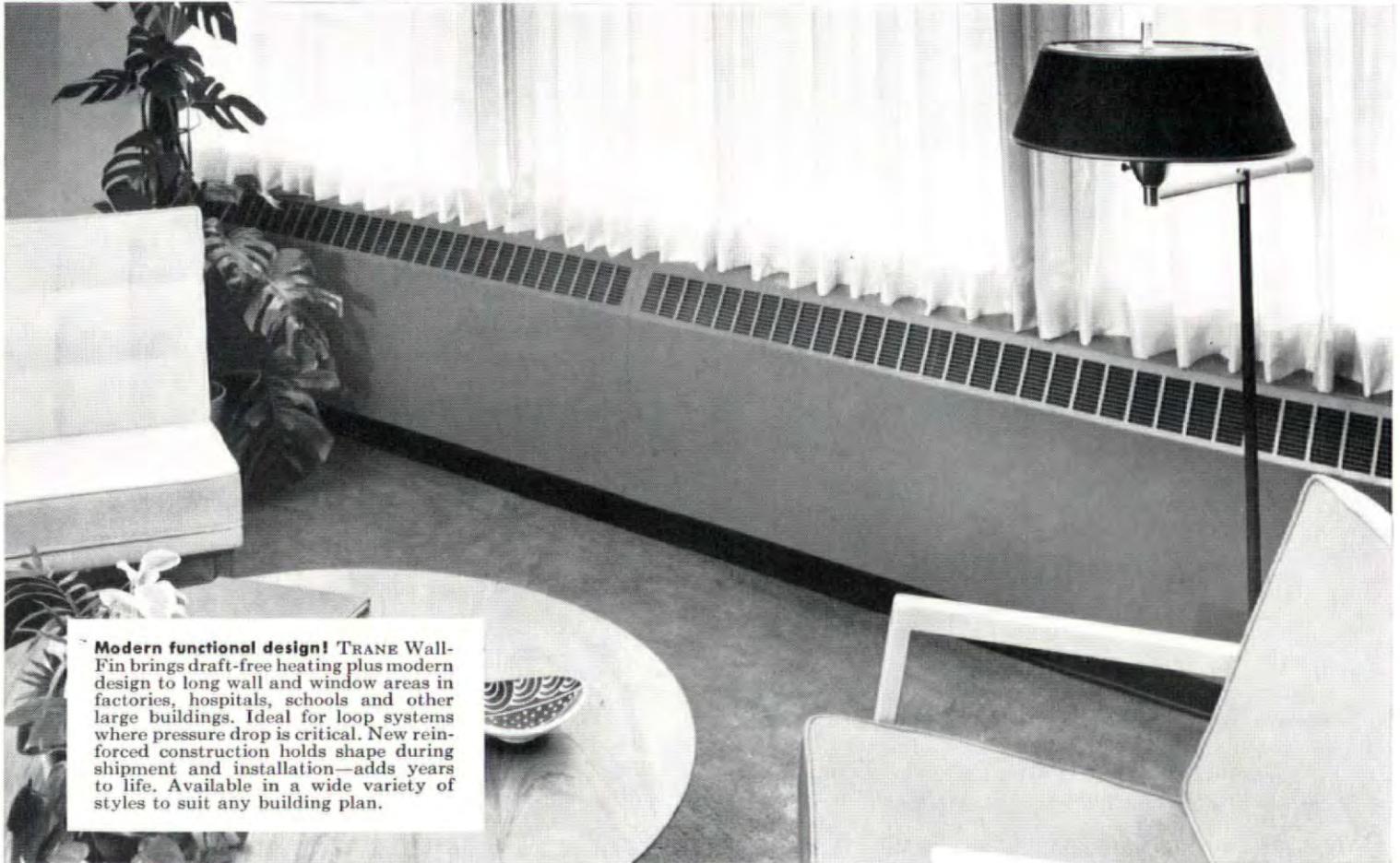
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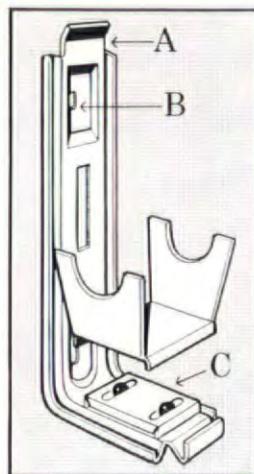
fect alignment and trim appearance on every job.

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View of the modern Ivanhoe Elementary School in Gary, Indiana, showing its walls of Natco Uniwall. The buff colored vertical walls show Uniwall's exterior rugg-tex finish. The light green panels under windows show a unique use of Uniwall's interior face installed in reverse. Architect: Jos. P. Martin & Assoc.

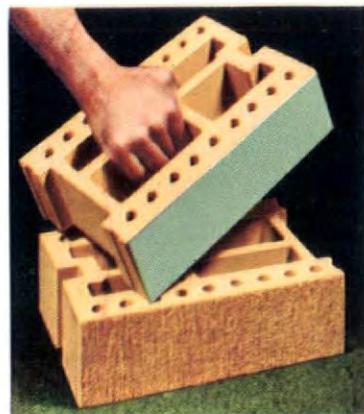
**Inside and outside walls of this modern school
were built with one unit in one operation
... with "double-duty" Natco Uniwall**

The Ivanhoe Elementary School in Gary, Indiana, is one of the forerunners of a new and functional type of building construction. Its walls are completely built of Natco Uniwall.

Uniwall is a single structural clay tile unit with two faces. Its *exterior* face has an unglazed rugg-tex finish that gives the appearance of high-quality brick. Its *interior* face has a durable ceramic glazed finish and is available in a variety of attractive colors.

"Laying up" both inside and outside walls in a single operation not only saves time, but also saves labor costs . . . when compared with other building methods.

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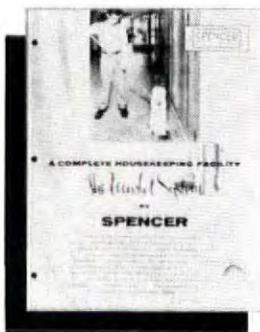


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The **SPENCER**
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Michigan State University's College of Education Building was completed in December, 1958. Construction cost, \$18.52 per sq. ft. Windows are

glazed with *Thermopane*[®] insulating glass with Heat Absorbing Plate in the outer pane. Architects: Ralph R. Calder & Associates, Detroit, Mich.

College enrollment explosion is creating a new style of architecture

In 1945, Michigan State University had an enrollment of 5,622 students. Today, 21,000. By 1965, the prediction is 30,000. The only fitting description for such growth is *explosion*.

As students continue to seek admission, the problem is: how can the University put up new buildings, almost overnight, that will still be functional and up to date for years to come?

We decided to travel to East Lansing, Michigan, to find out.

Ralph R. Calder, AIA, of Detroit, who designed the new buildings shown in these pages, and the University's supervising architect, Donald Ross, met us. We toured the buildings and asked questions.

The new buildings, like the curricula and teaching methods here, reflect



THE QUALITY MARK
TO LOOK FOR



Library at Michigan State is the fifth largest university library in the nation (in terms of floor space). Capacity: 1,000,000 volumes. Cost: \$13.10 per sq. ft. Completed December, 1956.

the changes since the college was founded in 1855. They provide an up-to-date environment for learning.

Question: How long have you been designing buildings for Michigan State, Mr. Calder?

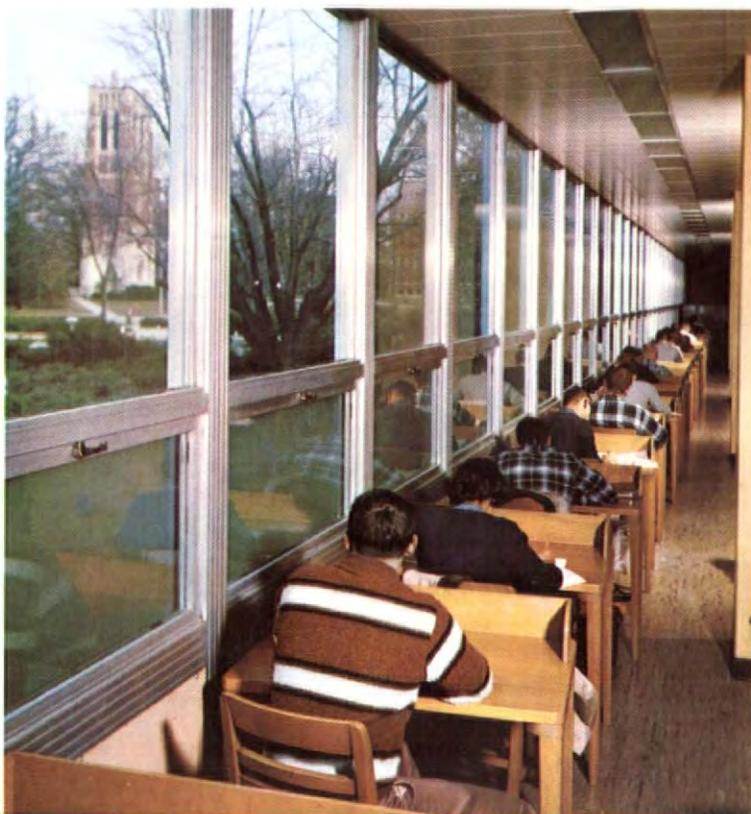
Mr. Calder: It has been my privilege for a number of years to have planned with President John A. Hannah buildings which reflect his vision for growth and academic achievement.

Question: Why did you break away from the traditional style of architecture seen in so many buildings here?

Mr. Calder: We are establishing new traditions here—traditions which will reflect for tomorrow the philosophy of this University.

Question: And how have you accomplished this?

Mr. Calder: The new tradition is one of efficiency—which means efficiency of space—maximum utilization of the physical plant. Technological development in materials and fabrication has advanced this goal; for example, the use of modular construction with insulated glass and spandrels packed with efficient insulating materials.



Donald Ross, supervising architect; and Ralph R. Calder, AIA.

Students are comfortable at desks next to *Thermopane* windows in the University Library.



Student Services Building, completed in July, 1958, cost \$18.75 per sq. ft. Windows in this building are also glazed with *Thermopane* for heating and (proposed) air-conditioning economies.

Question: Can you be more specific about the use of insulating glass?

Mr. Ross: We wanted large areas of glass because we like an "open world" feeling. We have one of the most attractively landscaped campuses in the country—plantings of more than 3,200 different species of trees, vines and shrubs—naturally we want to enjoy them even when we're inside the buildings. Daylight is free, so why not make use of it to help light our interiors?

With all that glass, we figured insulating glass would pay for itself over the years. It cuts down heat loss through windows in winter, lightens the load on our central heating plant, and reduces heat gain in summer. We hope eventually to air condition these buildings. They're designed for it.

Mr. Calder: I might add that we get more utilization of floor space with insulating glass. In the Library, for example, you'll see students at desks right next to the windows.

They're comfortable there because double glazing reduces downdrafts.

Question: How do you control sky glare?

Mr. Ross: We have drapes in the Library and Venetian blinds in the other new buildings. And the outer pane in the double glazing (in south and west elevations) is heat absorbing glass. It not only helps reduce sky glare, but makes the insulating glass even more efficient.

Question: Does all this glass impair the use of visual aids?

Mr. Ross: Not at all. In fact, all new classrooms are equipped for use of visual aids and closed-circuit television. Blinds and drapes are sufficient to subdue the daylight.

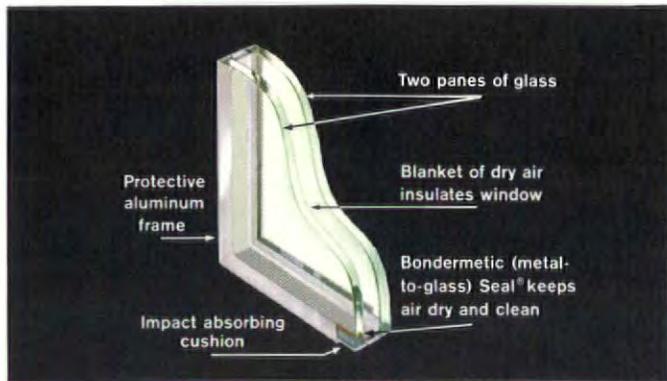
Question: How do the students and faculty like the new buildings?

Mr. Calder: Their enthusiastic use of the buildings demonstrates this.



Windows in lounge in Student Services Building overlook older university buildings and a beautifully landscaped campus and gardens.





THERMOPANE®—For maximum comfort and for heating and air-conditioning economy, use *Thermopane* insulating glass in windows. Heat loss is cut in half, compared to single glazing. Drafts near windows are reduced. Outside noises are muffled. *Thermopane* is available with either a metal-to-glass *Bondermetic Seal®* and enclosed in an edge-protecting aluminum frame, or with a glass seal. *GlasSeal® Thermopane* is ideal for preglazed sash.



TUF-FLEX®—Tempered plate glass is 3 to 5 times tougher than regular plate glass of the same thickness. Yet it's as clear as any fine plate glass. If maximum resistance is reached, *Tuf-flex* disintegrates into relatively harmless, rock-salt-size particles.

Recommended for gymnasiums, entrance doors and sidelights, areas facing playgrounds . . . any area where students and missiles are in rapid motion.



THREE KINDS OF PLATE GLASS—To achieve clear vision from inside and a richer appearance on the outside, use twin-ground *Parallel-O-Plate®* Glass in windows. For control of sun heat and glare, use *Parallel-O-Grey®* or Heat Absorbing Plate. *Parallel-O-Grey* is neutral grey in color. Heat Absorbing Plate is pale bluish-green. Both effectively reduce transmission of sun heat to keep interiors cooler, but *Parallel-O-Grey* is more effective in reducing glare.



MIRROPANE®—Wherever it is desirable to observe people without their knowledge, *Mirropane*, the "see-thru" mirror, is the answer. On the brighter side it's a mirror that reflects objects in the room. From the darkened observation room, it's a window you can see through, but you won't be seen. *Mirropane* can now be made of *Parallel-O-Grey* to provide "see-thru" vision with light differentials as low as 3 to 1 between rooms.



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For information on these L·O·F products, refer to *Sweet's Architectural File 26-A*, or call your L·O·F Distributor or Dealer (listed under "Glass" in the Yellow Pages). Or write to Libbey Owens-Ford Glass Co., 811 Madison Ave., Toledo 1, Ohio.

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Gaudi . . . cafés . . . America



ANTONI GAUDI. By James Johnson Sweeney and Josep Lluís Sert. Published by Frederick A. Praeger, Inc., 64 University Place, New York 3, N. Y. 192 pp. 9" x 11¼". Illus. \$15.

This beautiful book on the works of Antoni Gaudi the fantastic, Catalan architect and sculptor who worked largely in Barcelona and died there in 1926, was begun by Messrs. Sweeney and Sert more than a dozen years ago. Unhappily for them, the book appears just after the publication of Professor George R. Collins' excellent volume on the same subject; however, despite the brilliance and thoroughness of Collins' book, the present publication is in a class all by itself.

James Johnson Sweeney, the former director of the Guggenheim Museum, and Josep Lluís Sert (the spelling is Catalan, in honor of Sert's fellow-national, Gaudi), the dean of the Graduate School of Design at Harvard, are quite possibly the two men best qualified to discuss Gaudi's importance: Sweeney, because he is one of the two or three outstanding historians of modern art in the world today; Sert, because he is both of Spanish origin and in close sympathy with the work of Le Corbusier, who seems to have benefited most from Gaudi's *Art Nouveau* experiments. So this book is a remarkable achievement—the most exhaustive record possible of Gaudi's work, placed into the perspective of the entire modern movement. The volume is illustrated with wonderful photographs in black and white and brilliant color more true to life than the color in Professor Collins' book. The book was designed by another architect—Joseph Zalewski—and has a cover by the Spanish artist, Joan Miró.

The only possible criticism of this book is that it has a clearly partisan point of view—which is really no criticism at all. Mr. Sweeney and Dean Sert are both personally involved in various aspects of modern art, and their selection of details from

Gaudi's incredibly rich work often seems intended to prove that Gaudi was the forerunner of almost everything that is being done in painting, sculpture, architecture, and concrete engineering today. By taking just the right picture of just the right detail, one can, indeed, "prove" that Gaudi anticipated Jackson Pollock (which is not as unlikely as it sounds, for Pollock was influenced by Arshile Gorky who, in turn, was influenced by Miró, and so on). One can also "prove" a close affinity with Lipchitz, Brancusi, Nervi, and, of course, Le Corbusier. Indeed after reading Messrs. Sweeney and Sert one is led to conclude that just about all of surrealism originated with Gaudi, plus certain Latin branches of the cubist movement. This may not be entirely accurate, but it is certainly a tribute to the persuasive enthusiasm of the authors—and a tribute to their prolific subject.

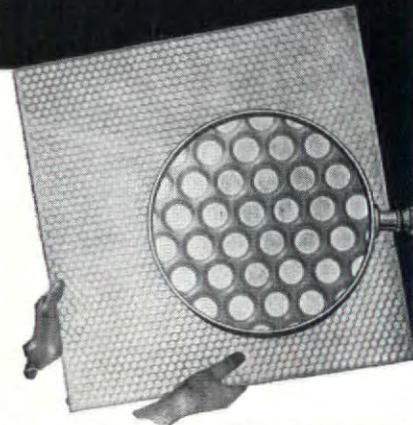
Incidentally, although Gaudi belonged to the *Art Nouveau* "world of form," his forms had none of the arbitrariness of some of those by Guimard; and the authors make one of their most valuable contributions in pointing out how carefully and how originally Gaudi analyzed his structures in engineering terms. Indeed, among the most fascinating illustrations are the photographs of wire models made by Gaudi to determine the natural direction of forces in complex structures such as the Güell Colony Chapel (see photos, above and below). These structures, with their oddly tilted columns and buttresses, seem quite mad to the layman who expects his columns to be vertical; but to today's advanced engineers, these structural experiments are a striking revelation.

continued on page 157



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a **NEW** product for the **ARCHITECT**



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Nominal Sizes — 2' x 2' x ½"
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As lighting specialists we developed Circlgrid to meet building lighting codes—it will not support combustion and is safely applied under sprinklers. Circlgrid is thermo-formed from two sheets of vinyl and fused electronically to a center vinyl membrane for structural strength and rigidity—yet weighs only 3½ oz./sq. ft. Many leading lighting equipment manufacturers are licensed to sell and distribute Circlgrid in USA, Canada and other countries.

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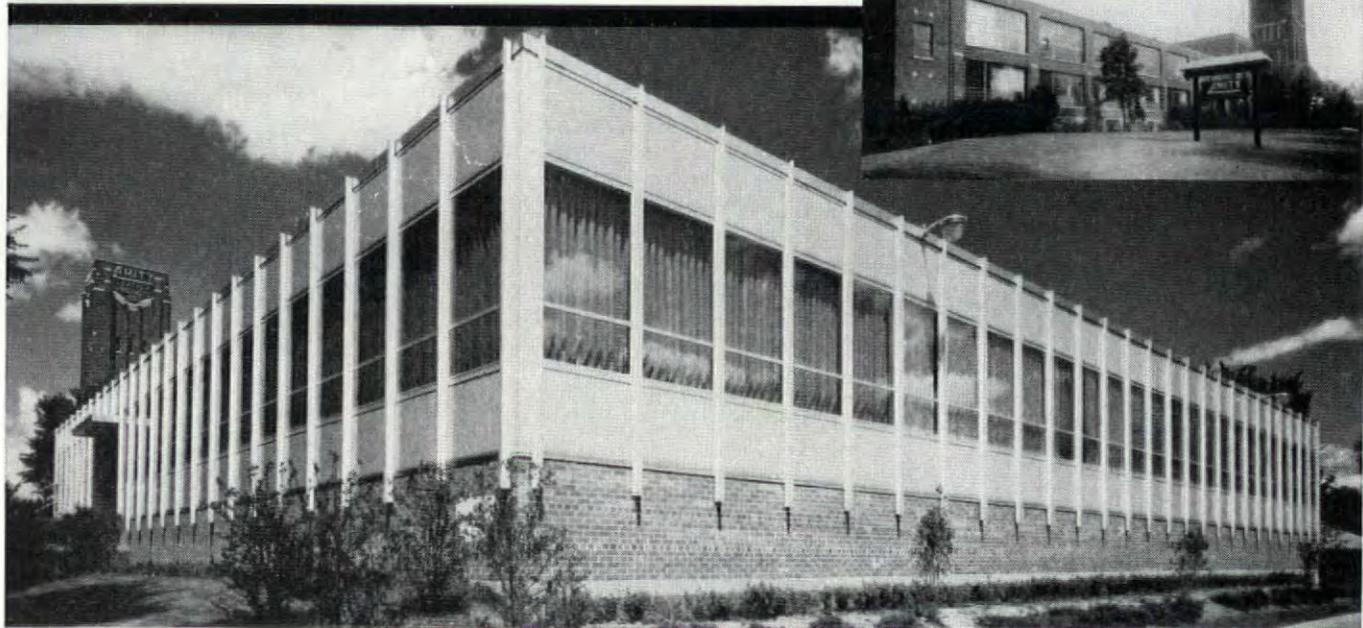


Write for sample and technical data.

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"Examination of the current good condition of our original Bayley installation proved that it had been a very wise selection. Freedom from window maintenance through the years convinced us that we wanted Bayley to supply the Curtain-Wall units for our new office building, providing they could meet our design requirements.

"Our new building is evidence of the final outcome. We at Amity are delighted with the appearance, function and service rendered on the Bayley Curtain-Wall of our new office building.

"Thank you for your fine cooperation. From our experience, we will be happy to recommend Bayley anytime."

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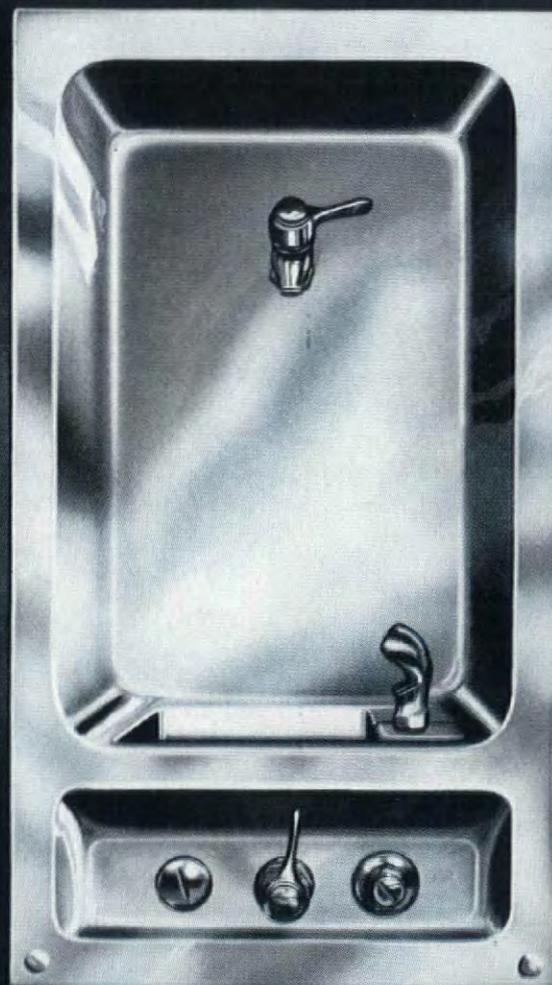
INTERIORS BOOK OF RESTAURANTS. By William Wilson Atkin and Joan Adler. Published by the Whitney Library of Design, 18 E. 50th St., New York 22, N.Y. 215 pp. 9" x 12". Illus. \$15.

Since the opening of Paris' Tour d'Argent in 1582, the restaurant game has probably provided more fun for the customers, more outlets for designers, and more headaches for management than most forms of human activity. Today restaurants are the fourth largest industry in the U. S., with something over 230,000 of them, in all shapes and sizes, soothing or insulting the public palate. Every year some 20,000 new ones are started; one-third go bust in the first year, and 80 per cent have closed down or passed into other hands by the end of five.

In view of the above, restaurateurs and architects, as well as common everyday gourmets, are advised to read this book. One third of it is devoted to sound and sometimes witty advice on choice of site, customer potential, leases, staff, services, signs, landscaping, parking, expansion, architect-client relations, bars, banquettes, acoustics, lighting, kitchens, washrooms. The balance is a portfolio of examples here and abroad drawn from the pages of *Interiors* magazine over the past few years. Economically, they range from the Peter Pan Snack Shop to the \$4 million Four Seasons in New York; geographically, from the Motel on the Mountain on the New York Thruway to a couple of under-sea schemes for viewing tropical fish while-U-dine; stylistically from Clark's Crabapple and the Jippa-Jappa Bar to the Palace, Copley-Plaza, and Cafe Louis XIV.

ARCHITECTURE IN AMERICA. By Wayne Andrews. Published by Atheneum Publishers. 162 E. 38th St., New York, N.Y. 179 pp. 8 1/2" x 11 1/2". Illus. \$15.

A pictorial supplement to his earlier *Architecture, Ambition, and Americans* this new book by Photographer-Historian Wayne Andrews attempts to cover the whole range of American building from the Franciscan Mission of San Estevan in New Mexico (c. 1642) to Saarinen's Yale Hockey Rink. As Andrews himself says, like most surveys it is biased and far from definitive. Of the 179 pages (containing 257 photographs), scarcely 50 are devoted to the twentieth century. Half of these are of Frank Lloyd Wright's work, which occupies more space than any other. The last 25 pages are a rather sketchy and sometimes oddly arbitrary glance at 18 more recent leaders of the modern movement. The real value of the book lies in its fine and sensitive coverage of the older masters with whom Andrews seems more at home, from unknown and known architects of Colonial and Federal times to the delightful excesses of the Romantic Age, and the glorious creations of H. H. Richardson, Richard Morris Hunt, and McKim, Mead & White. END



The gleaming beauty of stainless steel provides the modern touch

Stainless Steel, the modern metal of the sixties, is used in this smartly-styled recess fountain by Halsey Taylor.

It is highly favored for installations in foyers, corridors and offices, providing the lifetime beauty and service of stainless steel and the dependability and health-safety of Halsey Taylor design.

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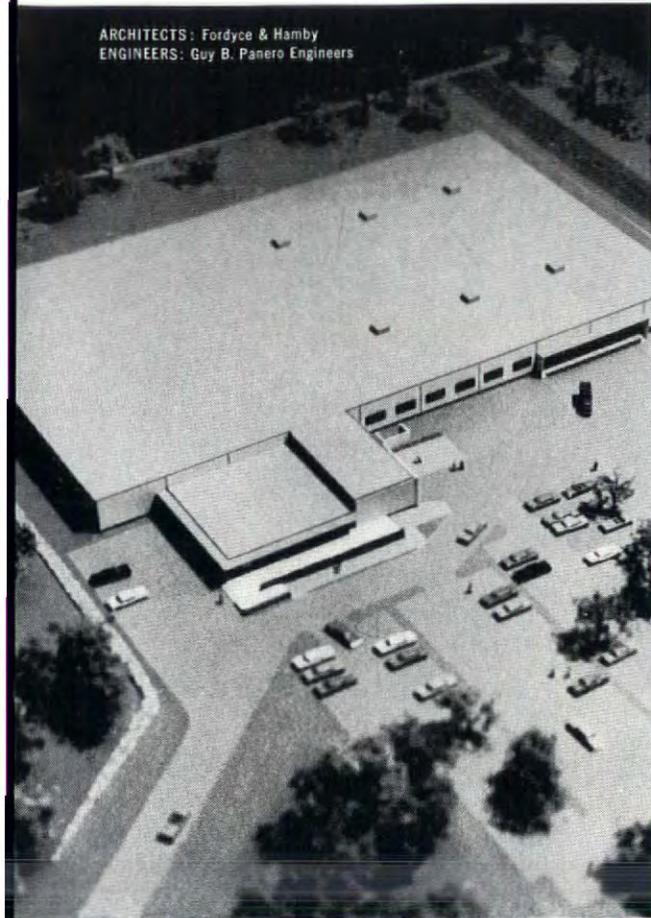
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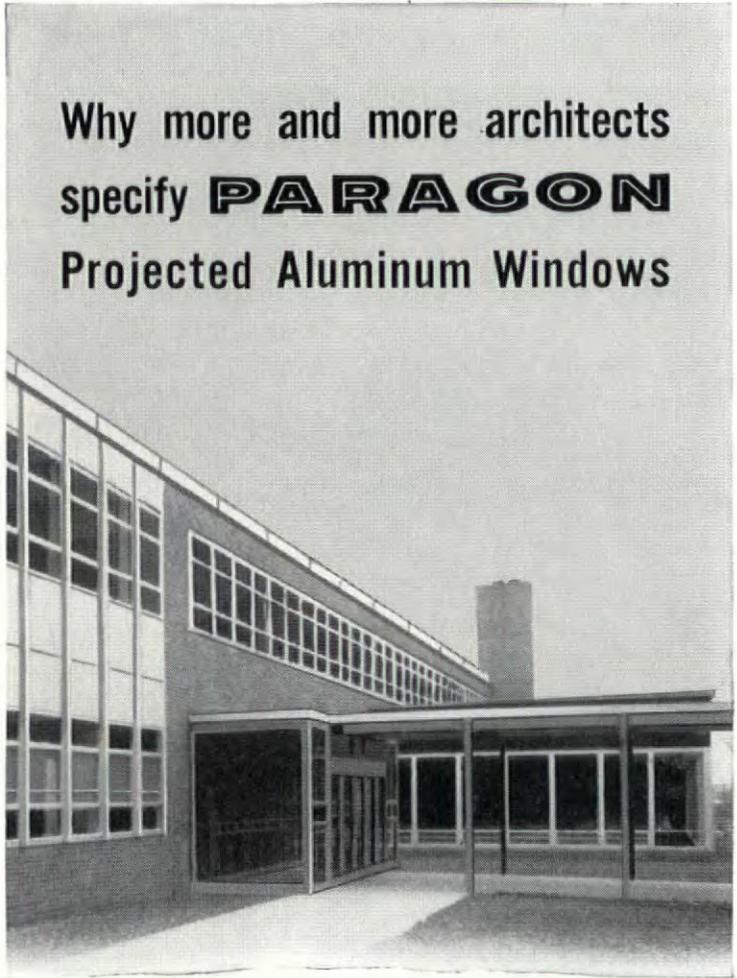
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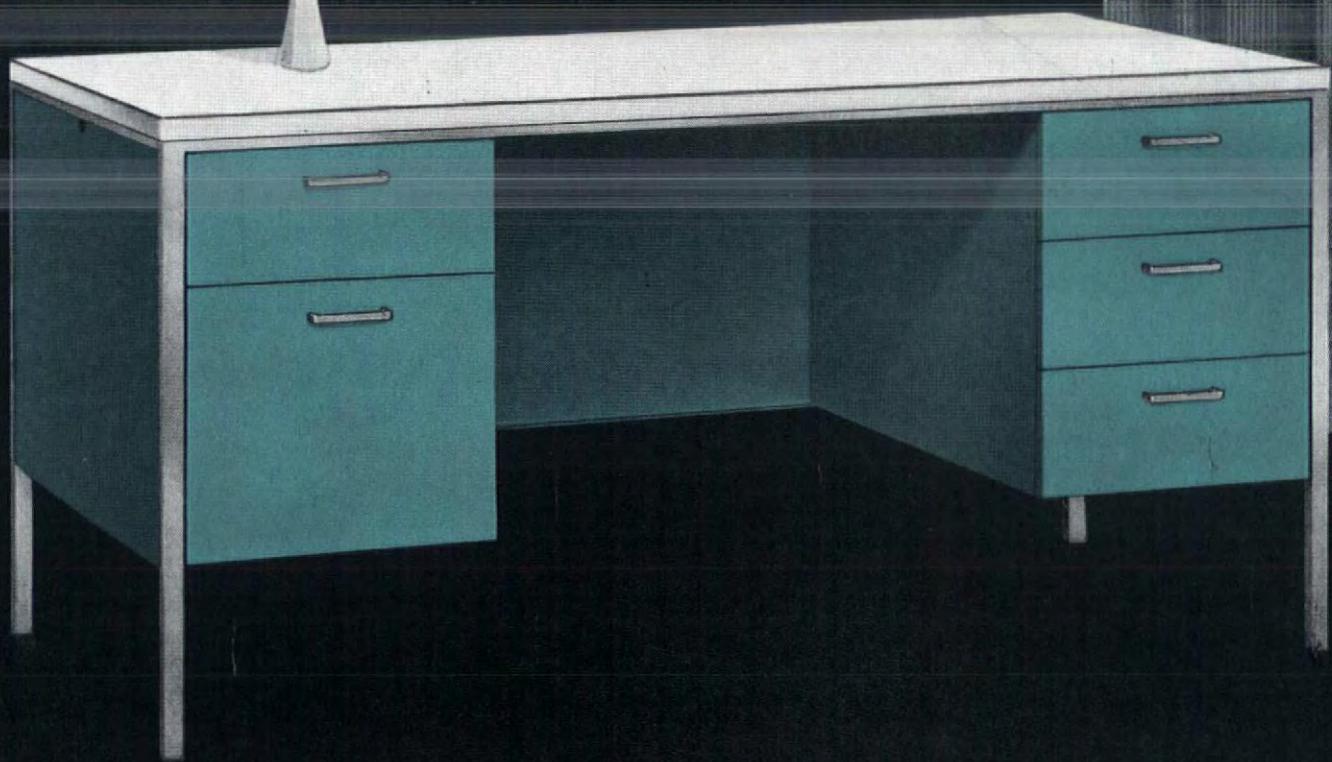
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A NEW BUSINESS IN OLD BUILDINGS

continued from page 81

oped means for staying abreast of the modernization market and that plumbing's share of the pie would be large. But William E. Kramer, Secretary of the Plumbing Fixture Manufacturers Assn. admits; "We estimate that a maximum of 15 per cent of our output goes into all types of remodeling. Modernization constitutes probably the single biggest potential market for plumbing fixtures and equipment in existence today. In my opinion, the main reason why this remains a potential market rather than an actual market is that our industry has done very little to stimulate it." And Kramer's view of rebuilding sounds much like that of other product producers. They tend to share an optimistic outlook, but an uncertain idea of how to proceed, and a frank ignorance of precisely where their products are used.

As for contractors, their opinion of the rebuilding business is equally ambitious. Kenneth Kleinsorge of the National Acoustical Contractors' Assn. states: "Whatever our members' percentages in the remodeling field are, they are not enough. I would say that if a contractor's volume is more than 25 to 33 per cent for replacement or remodeling work, he would be a most unusual contractor. Today so much effort is placed on new building that contractors have lost sight of the modernization market. I do think the day will come—and it has already arrived for some—that in order to survive this

fast-paced, low-bid, competitive-bargaining type of business, they will have to seek an increased volume in the modernization market."

And if the suppliers and contractors of the rebuilding business are now coming to a realization of the steps that must be taken to meet the challenge of rebuilding U.S.A., the lenders are not far behind. An active courtship by bankers of the residential (and mostly FHA-endowed) segment of the business has already begun. The increased volume of rebuilding coupled with a decreased demand for business-property mortgage loans indicates that many nonresidential rebuilders have been able to get the money they need. Moreover, if the decreased demand and the large supply of capital currently available both continue, they are likely to force interest rates even further down in the next few months.

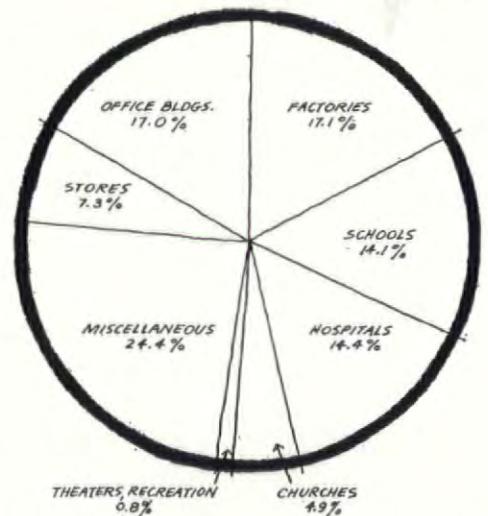
Bankers are aware, however, that this relaxed situation may change with the economic winds. Nevertheless, more must be done to give rebuilding its requisite dollars. Comments Vice President J. Andrew Painter of The First National City Bank of New York: "Considering the general need for maintenance and modernization of millions of our homes throughout the country, I continue to be concerned at the relatively low figure (\$3 billion) for outstandings on loans for repairs and modernization."

Too many building owners themselves

view the rebuilding business as something of a bargain basement. And, as is the fate of bargain hunters everywhere, they normally get as little as they pay. Indeed, one of the common practices of large building owners is to treat every opportunity as if it were a maintenance problem, to call in the same contractors to recommend the same stock answers and materials, and thereby to forego any possible long-term savings that a more truly professional approach could yield. The result is that many a rebuilding job accomplishes nothing more than making the structure appear not only dated but also dull and violently out of keeping with its neighbors, old and new.

The rebuilding business, then, needs many things before it can grow into its large future. It needs to make far greater use of available architectural talents, it needs more techniques and products that are peculiarly suited to the specific needs of rebuilding, and it needs sales and merchandising imagination. Perhaps what is needed most of all, however, is for the awakening giant to acquire an awareness of its own young strength, integrity, and dignity.

END



Share of nonresidential rebuilding ascribed to eight different building categories in the years 1950-1959 is pictured in the pie chart above. Boston, New York, Cleveland, Detroit, and St. Louis are the cities whose permit activity supplied the data.

Rebuilding's current pattern, based on permit figures from the same five cities in the first nine months of 1960, is reported in the table at left. The great variety of activity is partially explained by the disruptive effect one large rebuilding—or new building—may have in such a short-term sample.

REBUILDING IN FIVE CITIES

Permit valuations in thousands—first nine months of 1960

	New York	Boston	Cleveland	Detroit	St. Louis
REBUILDING—total	\$96,476	\$17,283	\$23,629	\$24,900	\$7,608
Nonresidential—total	\$68,172	\$15,052	\$19,754	\$21,108	\$5,975
Stores	6,397	762	1,615	421	854
Office buildings	10,441	9,238	2,084	2,258	704
Factories	12,478	2,526	4,325	3,611	1,778
Schools	14,585	610	3,290	1,837	59
Hospitals	8,478	746	1,945	3,733	116
Churches	3,239	321	614	1,419	262
Amusement, theaters & recreation	217	283	1	16	604
Miscellaneous	12,337	567	5,876	7,813	1,599
Residential—total	\$28,299	\$ 2,230	\$ 3,875	\$ 3,792	\$ 1,633
NEW BUILDING—total	\$778,685	\$69,871	\$42,827	\$27,750	\$27,894
Nonresidential	328,846	43,248	28,160	11,116	20,723
Residential	449,839	26,623	14,667	16,634	7,171
TOTAL—NEW & REBUILDING	\$875,160	\$87,154	\$66,456	\$52,646	\$35,502
Rebuilding as per cent of total	11.0%	19.8%	35.6%	47.2%	21.4%
Nonresidential rebuilding as per cent of total rebuilding	70.7%	91.3%	83.6%	84.8%	78.5%

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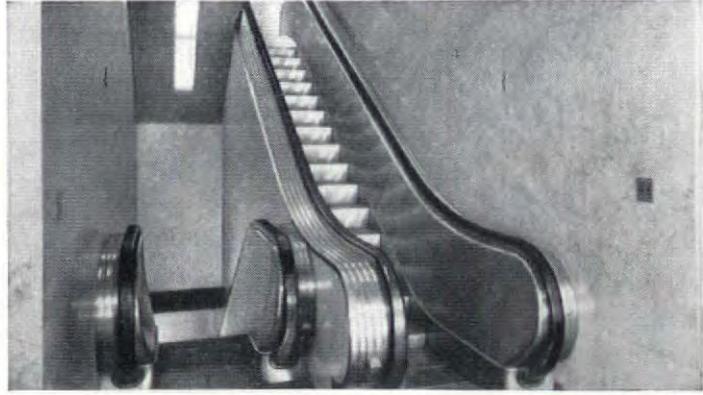
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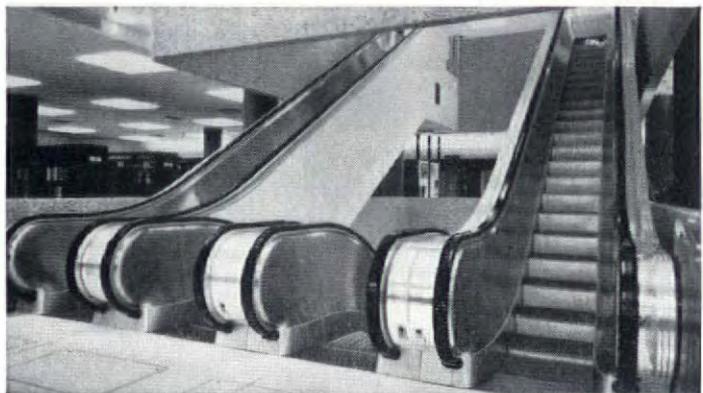


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REDEVELOPMENT CORPORATIONS

continued from page 103

ing private developers. This section provides for federal mortgage insurance for 40-year, 100 per cent mortgages for relocation housing by non-profit organizations. ACTION-Housing gets no profit as sponsor of the 209-unit moderate-rental project, either from its operation or from its possible resale. The corporation is also backing a 1,400-unit low-rental development called East Hills, about 6 miles east of the Golden Triangle. It bought the 130-acre tract and resold it to a Pittsburgh developer, but it will retain a voice in the planning of the project.

ACTION-Housing's financing is handled by the Pittsburgh Development Fund, which is its principal offshoot. The fund has \$1.5 million for a revolving loan system similar to that in Cleveland. The East Hills project will use up about half of this amount. About \$350,000 was initially contributed by three Mellon foundations to the fund, and the rest of its capital has come from contributions from private business.

Far east of Pittsburgh, in Philadelphia, private business has been supporting city redevelopment, but in a somewhat different fashion. Unlike ACTION-Housing, which has been operating throughout the whole of Allegheny County, and, in fact, devoting some of its efforts to the promotion of county-wide planning, the two Philadelphia groups sponsored by business have been formed to deal with city housing problems in specific areas of the city. One, the Old Philadelphia Development Corp., concentrates on an area embracing the older section of the city east of city hall and including much of the central business district. The other, less than two years old, is the West Philadelphia Corp., working in a wide area of the western part of the city.

The Old Philadelphia Development Corp. has devoted its efforts to rebuilding and rehabilitating housing in the older sections of the city, particularly in the Society Hill urban renewal area. With a \$100,000 annual budget, the four-year-old nonprofit corporation has 41 backers from the downtown business community. John P. Robin, executive vice president, and one time head of Pittsburgh's Redevelopment Authority as well as Secretary of Commerce for Pennsylvania, sees many advan-

tages in concentrating private efforts on a smaller area of the city. The corporation has helped the city in selecting redevelopers for several area projects, and is now working on parking as well as housing problems.

The West Philadelphia Corp. is nonprofit and was formed by two universities (Pennsylvania, Drexel) and two medical schools, to maintain West Philadelphia as a great "educational, medical research, and cultural concentration." Proving the fiscal strength of these institutions, and indicating the potential source of such strength to augment other private redevelopment efforts, the corporation is sponsoring construction of a \$20 million high-rise research and development building.

Industrial redevelopment

In another major effort, Philadelphia business three years ago created the Philadelphia Industrial Development Corp. This corporation, like those in many cities, was formed by the Chamber of Commerce, in conjunction with the city itself. Basically, the development corporation serves as the city's agent for all industrial redevelopment, buying and selling land for that purpose, and recruiting new industry or convincing present city industry not to move. Under a court ruling, the corporation can sell tax-exempt bonds and sell or lease land in its own name. As a seller of city-owned land for new industry, it has actually made some profit, although this is not its purpose. Last October, PIDC announced plans to sell \$2.5 million in bonds to provide money for loans to industries that wish to stay in Philadelphia but are unable to relocate. The terms are made extremely attractive, in the effort to stem further outward industrial migration. Last December, PIDC made one of its biggest and most significant deals when it arranged to build a \$2.5 million research center for the Franklin Institute. For this, it will buy land from the city redevelopment agency, and lease it back to the institute.

The early experience of redevelopment corporations has already demonstrated in clear-cut fashion what private business can accomplish in the redevelopment of cities. The seed money they have sown represents capital in-

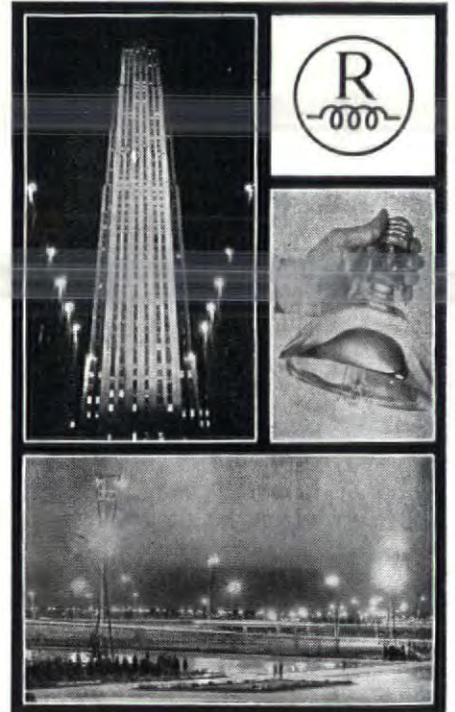
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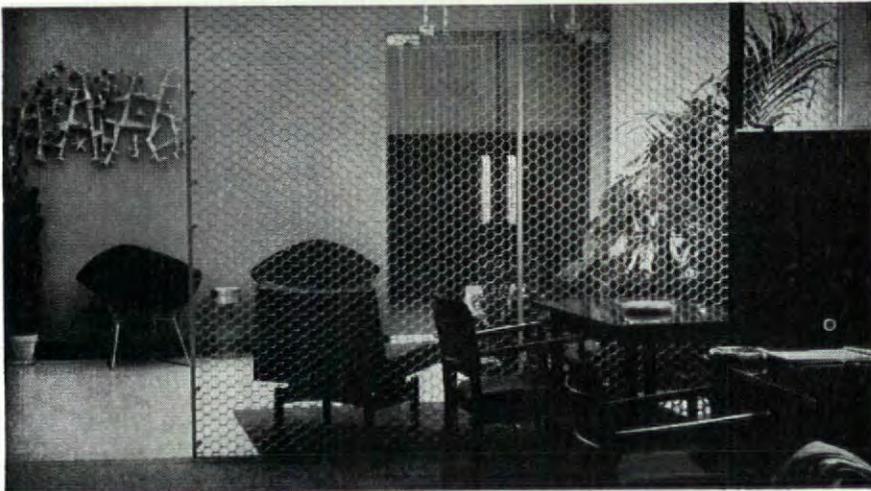


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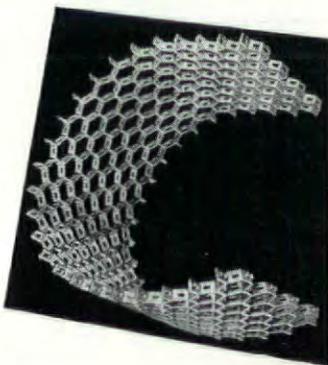
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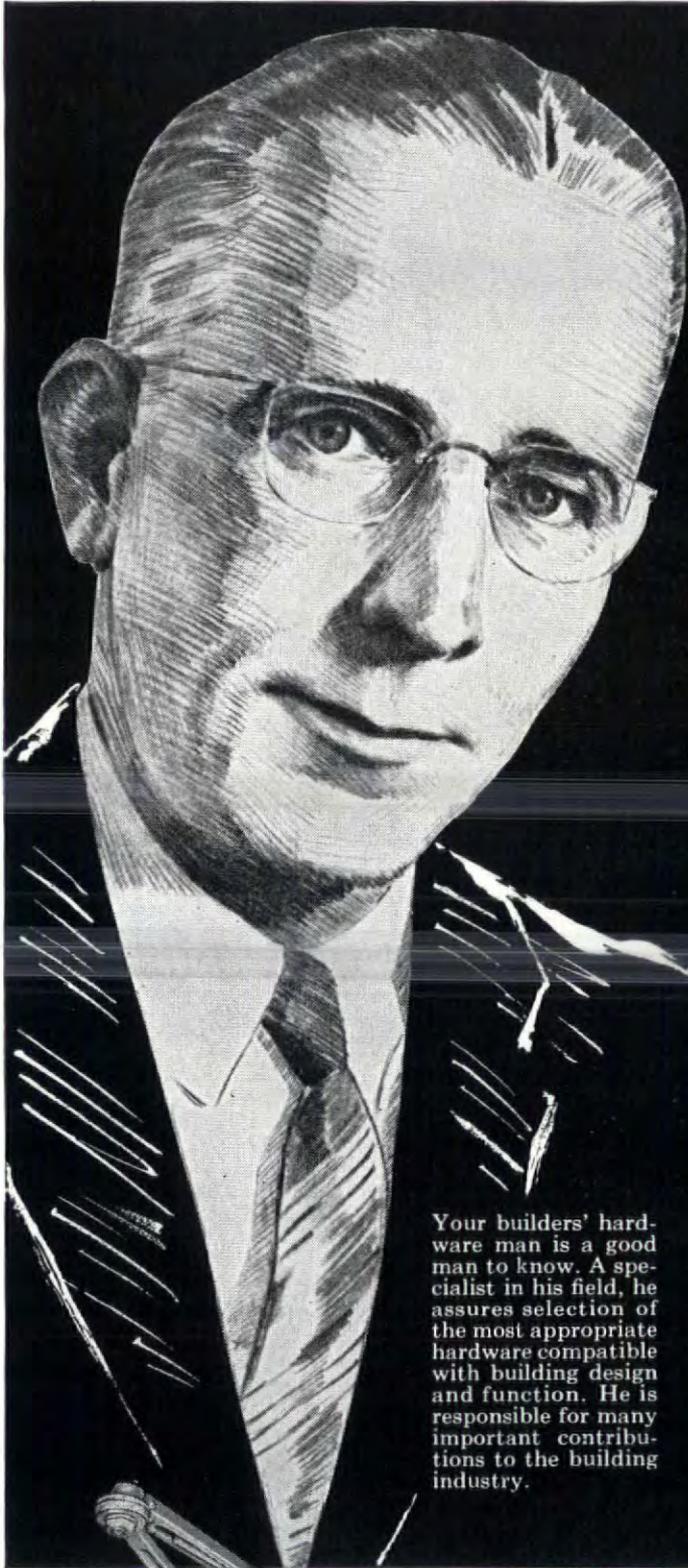
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vestment of the most efficient sort, and the returns are readily demonstrable in terms of the actual new investments generated, and in the over-all vigor of the city eventually renewed. But, while the efforts of private capital so far are encouraging, no one pretends they are enough. There has, for instance, been too little of the sort of area-wide planning that is being done in Indiana by the Purdue-Calumet Development Foundation, which is conducting planning studies and promoting redevelopment with the help of a \$1.2 million revolving loan fund. So far, there has been too little labor support, such as that of the United Autoworkers in sparking creation of Detroit's Citizens Redevelopment Corp. in 1953 with a \$10,000 contribution. Following this lead, the automobile manufacturers helped raise the kitty to \$450,000, the corporation began buying land and since has sold it for the vital Lafayette Park project (FORUM, May '60).

And business still has a long way to go not only in simply writing checks for city redevelopment, but also in providing the leadership that gets things done. As a planner was overheard to say at a recent conference, one president of a billion-dollar corporation is worth a whole roomful of planners when it comes to getting action. As David Rockefeller said in a speech on the responsibility of businessmen in urban renewal: "An essential part of a successful program is the investment of time we must make as citizens."

Thomas F. Patton, president of Republic Steel Corp. and leading figure in the creation and guidance of the Cleveland Development Foundation, has underscored the importance of business participation. "The foundation's work in slum clearance taught Cleveland businessmen many things... It showed us that businessmen can get off the sidelines and start urban redevelopment wheels spinning in a manner that probably no other group in the community could duplicate." And why should business get the wheels spinning? Patton has the answer for that, too: "In the final analysis, the important thing for the businessman to remember is that there is fundamentally no difference between the value of keeping a business efficient and productive and maintaining a city that way." **END**

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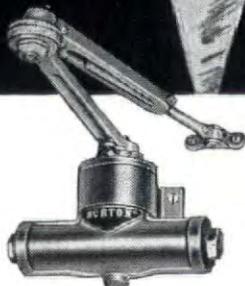
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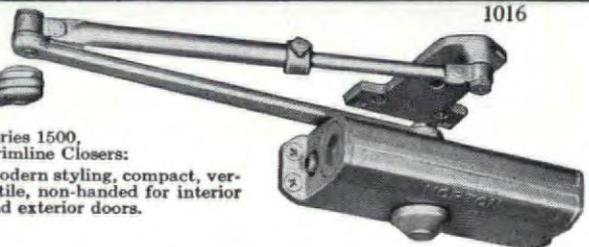


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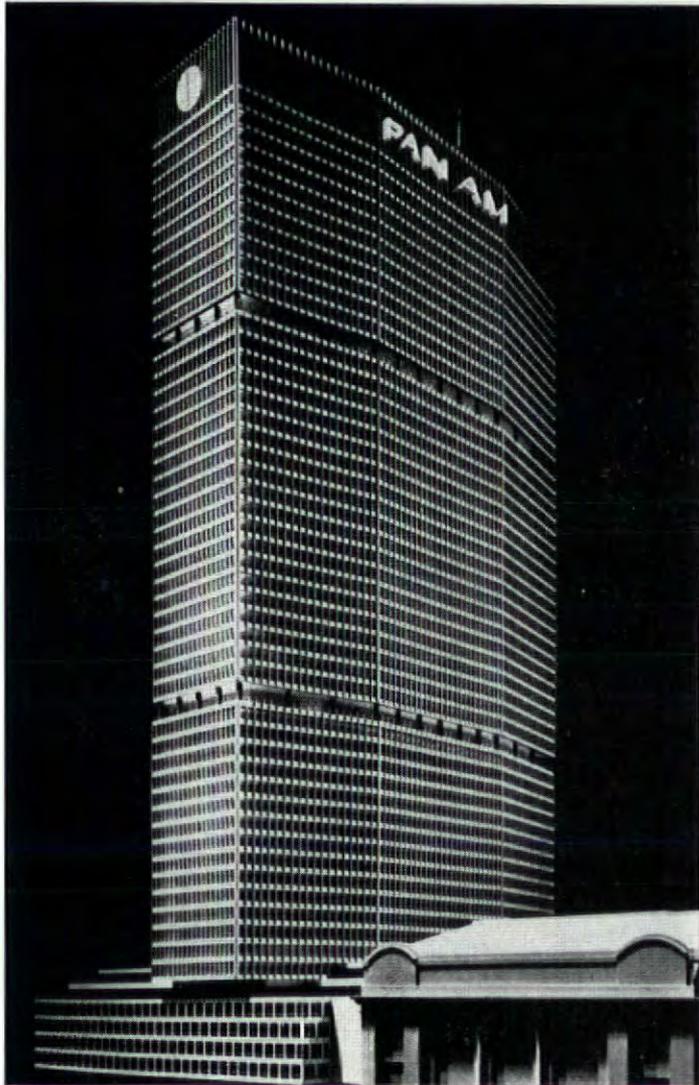
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Cities . . . roofs . . . lots

TWO-SHIFT CITY

An eloquent jeremiad against Manhattan's economic foolishness and a plea for longer-range thinking was delivered by Architect Bertrand Goldberg addressing the Chicago Real Estate Board.

I am overwhelmed by the lack of sensitivity among the planners in New York in their reshaping of Park Avenue. These glass curtain walls are for me the eyes of the blind. Apartment buildings are being torn down and replaced by offices. Briefly, this is the real estate man's answer to need for additional income. Space, which as apartments, is returning \$3 a square foot, is being replaced by space, which as offices, is returning \$8 a square foot—very simple arithmetic improvement.

In addition to the rebuilding of Park Avenue as an office area, a plan is very actively being developed to rebuild Grand Central Station with a new population of 25,000 office workers.

There is obviously enough money in New York to provide the fantastic burden of service facilities for this new and highly concentrated daytime population.

But there is another factor which will have to enter this planning: a 24-hour-day population is being replaced by a seven-hour per day population for a period of only a five-day week.

There is a pressure constantly being exerted to reduce our working week, and the 30-hour week is not too far from our present economic concepts. We therefore have to look at this expensive machine—Park Avenue—headed by the Grand Central Station, being developed for usage only 30 hours per week. Can our economy stand this kind of specialized development?

The growth of leisure time results in two by-products: one we are most familiar with—this is the increased amount of time which we have to devote to leisure activities—but the second is the idle standby time of office and factory facilities, and idle along with them will be the service facilities: streets, sewers, water, gas, a police force, a fire department, phone and electricity, and all the things that combine into what we call our urban services. Twenty years from now, it is conceivable that Park Avenue during half the week will look like Wall Street on Sunday.

The climax of New York City planning will be to put all offices in Park Avenue, all houses in Connecticut, all factories in Newark, without relationship to the intensified usage of our capital investment in these facilities.

Can any community be so rich as to pay for its central city based on a use of 30 to 35 hours per week?

As we become more aware of this

strange separation, as we become more aware of the terrible tax burdens and costs of the specialization, I wonder if our philosophy of zoning will require each person who builds an office building, or a factory, to build at the same time a certain number of accommodations for people. The automobile is so much a part of our lives—both working and nonworking—that we think nothing of zoning laws which say that we shall have one automobile space for each unit of office space. Why not require by zoning law one new housing unit for each new unit of office space? Our economy and our tax structure demand the two-shift central city.

BACK TO THE DRAFTING BOARD

If modern architecture is to continue following scientific theory, the profession must brace itself. "The Scientific American," in an article by James Marston Fitch and Daniel P. Branch, has determined that primitive builders were on the right track.

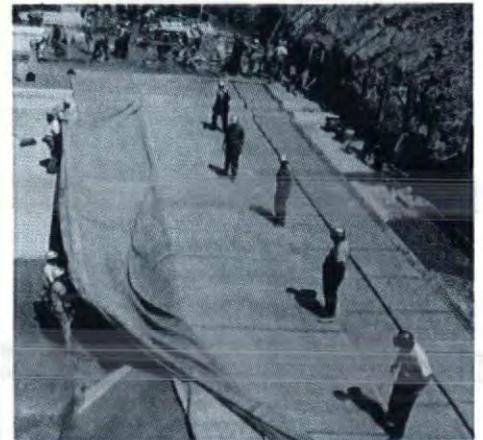
Western science may be able to measure with great accuracy the environmental forces with which architecture deals. But Western technology—especially modern American technology—too often responds with the mass production of a handful of quite clumsy stereotypes. This is obvious, for example, in the thermal-control features of our architecture. In the house or the skyscraper, generally speaking, we employ one type of wall and one type of roof. The thermal characteristics of these membranes will be roughly suitable to a thermal regime such as that of Detroit. Yet we duplicate them indiscriminately across the country, in climates that mimic those of Scotland, the Sahara, the Russian steppes, and the subtropics of Central America. The basic inefficiency of this process is masked by the relative cheapness of fuels and the relative efficiency of the equipment used to heat, cool, and ventilate our buildings. But the social waste of energy and material remains.

Contemporary U. S. architecture would be greatly enriched, esthetically as well as operationally, by a sober analysis of its primitive traditions. Nor would it be stretching things to include in these traditions the simple but excellent architecture of the early white settlers who, in many respects, were culturally closer to primitive man than to twentieth-century man. The pre-industrial architects of Colonial and early nineteenth-century America produced designs of wonderful fitness: the snug, well-oriented houses of New England, the cool and breezy plantation houses

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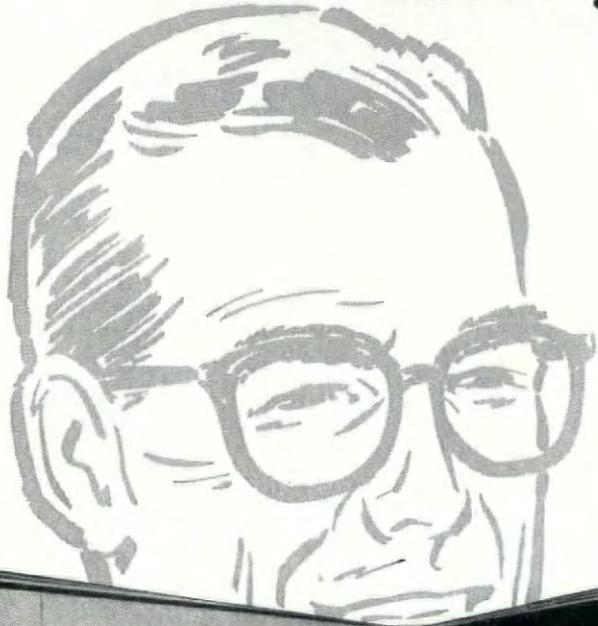
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of the deep south, the thick-walled patio-centered haciendas of the Spanish southwest. All these designs should be studied for the usefulness of their concepts, and not merely be copied for antiquarian reasons.

URBAN LAND REFORM

In looking at the slow renewal of U. S. cities, land economists have wondered what can be done beyond exercising powers of eminent domain. Columbia Professor Ernest M. Fisher spoke to the point in a recent article for the "Stanford Research Institute Journal."

The process of adjusting land-use patterns is slow. It invariably proceeds slower than its causes. The most important impediments to rapid adjustment are the permanence of physical structures and installations and the rigidities of the law relating to real estate.

The capital invested in improvements and installations per square foot of land mitigates against rapid change. No major change can take place in the land-use pattern without destroying and replacing the capital invested in existing facilities. Tax laws and housing codes and their enforcement (or lack of enforcement) tend to perpetuate the status quo. Certainly they do not accelerate the rate of demolition of existing structures that have largely outlived their usefulness.

This fixity of investment is strongly supported by legal concepts and traditions, most of which originated in a rural or agrarian society. These concepts and traditions are poorly adapted to many situations arising in a highly concentrated, swiftly changing metropolitan environment. The legal protections of real property in the hands of its owners, appropriate to an agricultural and feudalistic society, are in many cases awkward and out of phase with the conditions of urban living.

Consider, for instance, the division of land in central cities into small parcels. This subdividing plan may have been appropriate for settlement in the early history of the area. But not now. The parceling out of small lots and the rigid legal rules that preserve this plan make it almost impossible to assemble an area large enough to accommodate structures adapted to the activities characteristic of the highly specialized urban economy. It is even harder and very costly to accumulate the open space needed to make intense density functional.

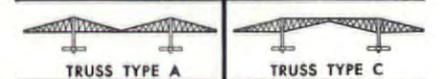
Eminent domain presently is the only means of reassembling this fragmented space. But eminent domain can be used only when the assembled area is to be used for a "public purpose." Traditional private enterprise is often barred from effective action because it cannot use the power of eminent domain to acquire sites of suffi-

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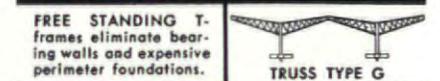
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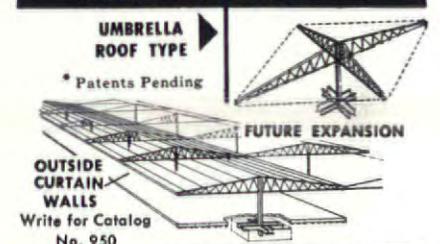
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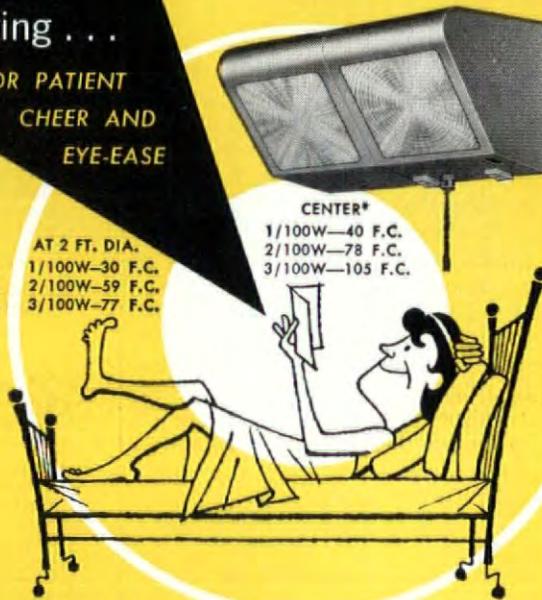
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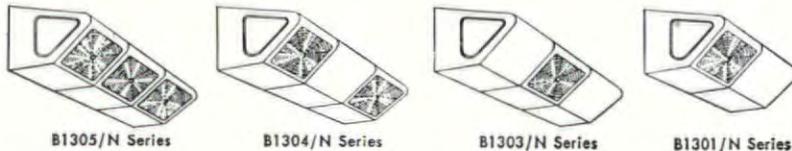
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cient size to assure successful operation. A principal advantage of urban renewal and redevelopment programs is that they make it possible to use this power in blighted areas to assemble sites appropriate in size to the uses that might compete for them. But the use of this power has been deterred by legal precedents and doctrines surrounding the proceedings and by the problems of determining how "fair compensation" shall be fixed. In many cases, the award allowed for blighted or slum properties is so large that owners are happy to be "bailed out." Moreover, it has been difficult in many instances to find new uses appropriate to the areas cleared.

Much study is needed to develop new techniques for the reassembly of strategic land in the public interest by both public and private means. If some forms of subsidy are required, we should determine the kinds, who should pay, and why. If current owners should be progressively penalized, through increasing taxation, for example, for continued use of strategic land for purposes other than the highest and best use in the public interest, these techniques need to be worked out and placed on a firm legal basis.

ZONING IN SPACE

In a paper written for the Central Mortgage and Housing Corp. of Canada, Housing Expert J. Marshall Miller recently proposed that concepts of zoning be radically changed and be based not on land density but on three-dimensional space.

The traditional concept of density is out-of-date much the same as are many of the traditional concepts of land-use, zoning, and related elements of land development.

Residential livability is a quality which exists mainly on the inside of dwellings, not on the outside. Most aspects of livability can be achieved irrespective of the density per acre. Low building coverage in itself, is no great virtue.

Human beings live in a three-dimensional environment. As people move from place to place during their daily activities, this space takes on a fourth dimension. Thus in attempting to propose "livable density standards," we are dealing with people and their activities in space. If this human environment (consisting primarily of space and equipment essential to human activities) provides a pleasant, attractive, comfortable, efficient, and altogether wholesome environment, the space need not be large or at any given elevation above ground level. Modern technology has made it possible for man to create more easily a wholesome, comfortable, and livable interior environment. As technology advances, we may anticipate that man will have even greater possibilities to control and improve his environment. We may therefore expect that any space standards deemed applicable today will be subject to change in the years ahead.

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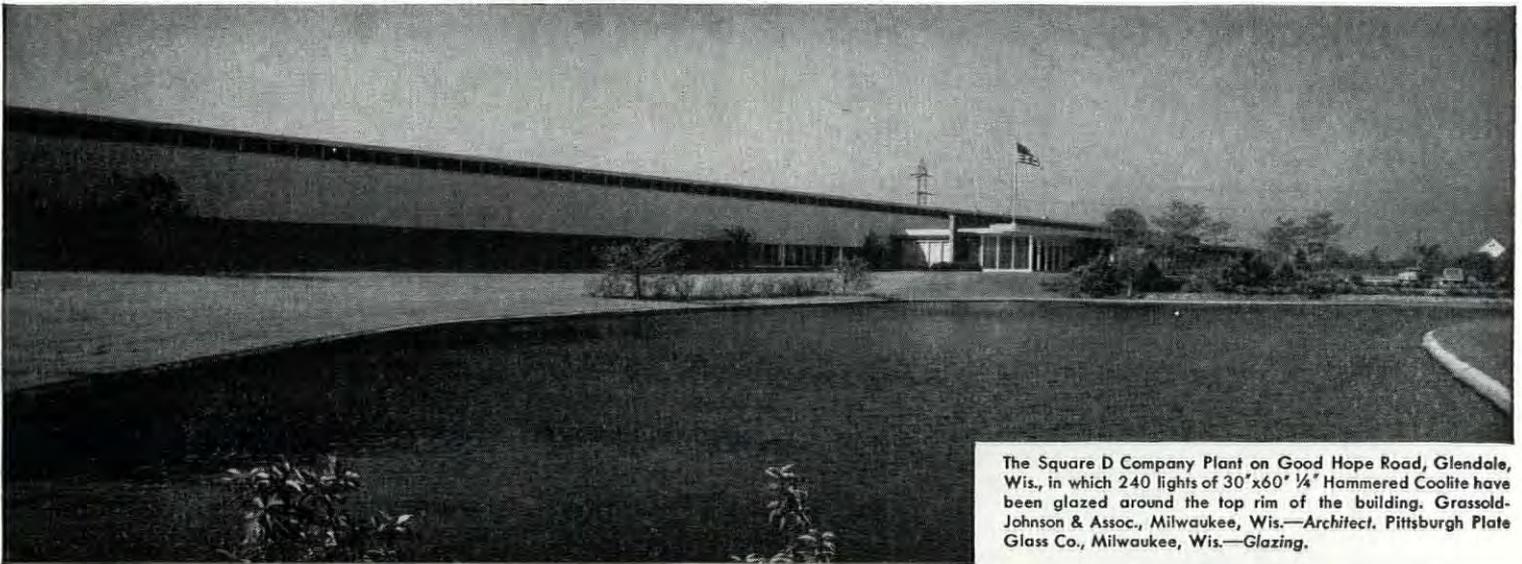
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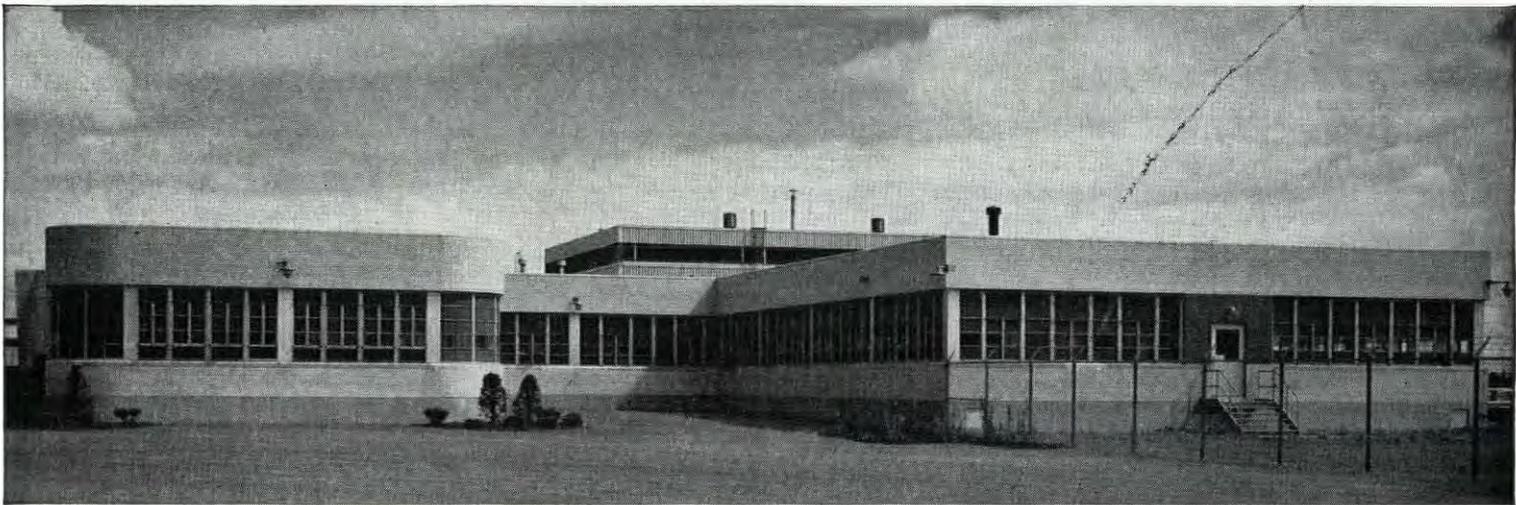
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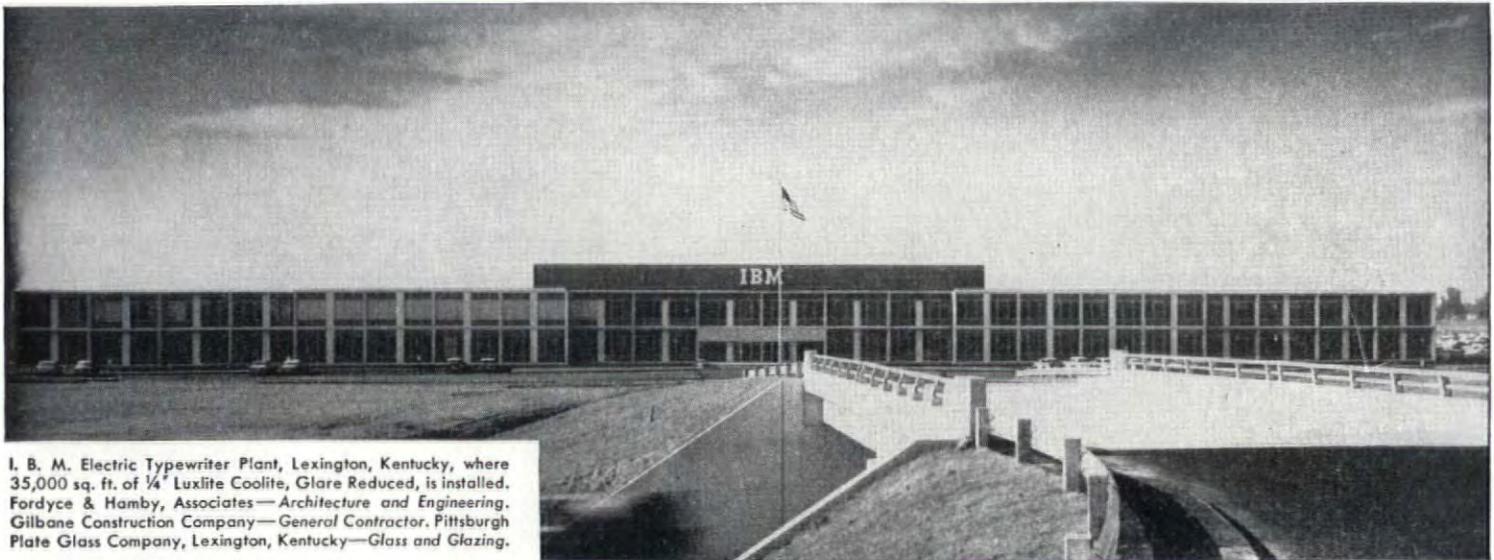
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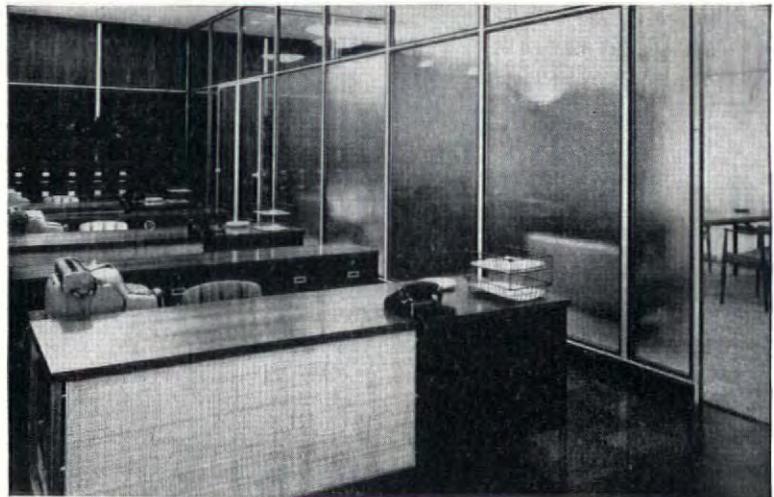
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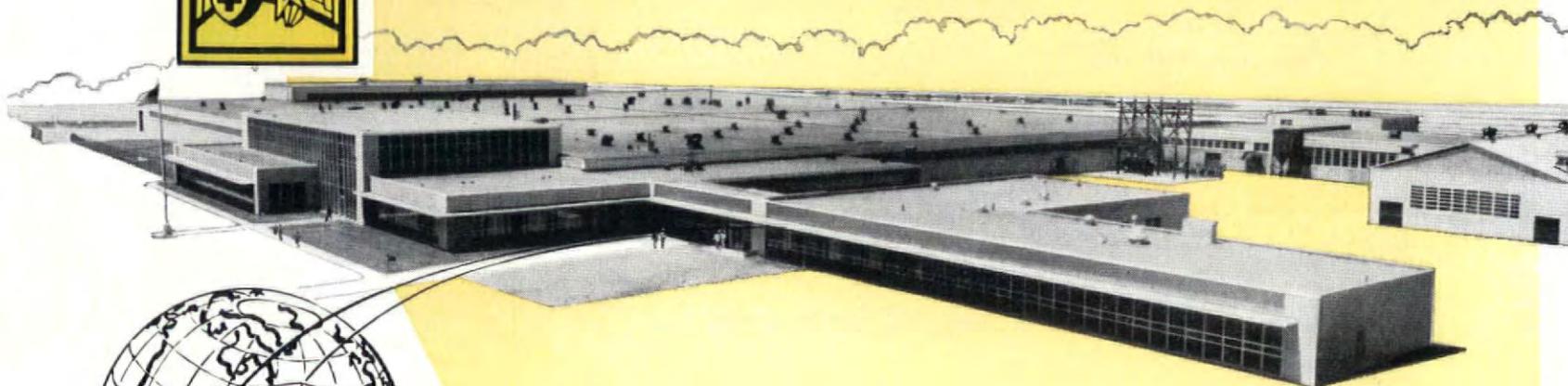
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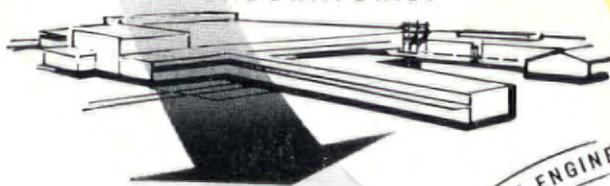
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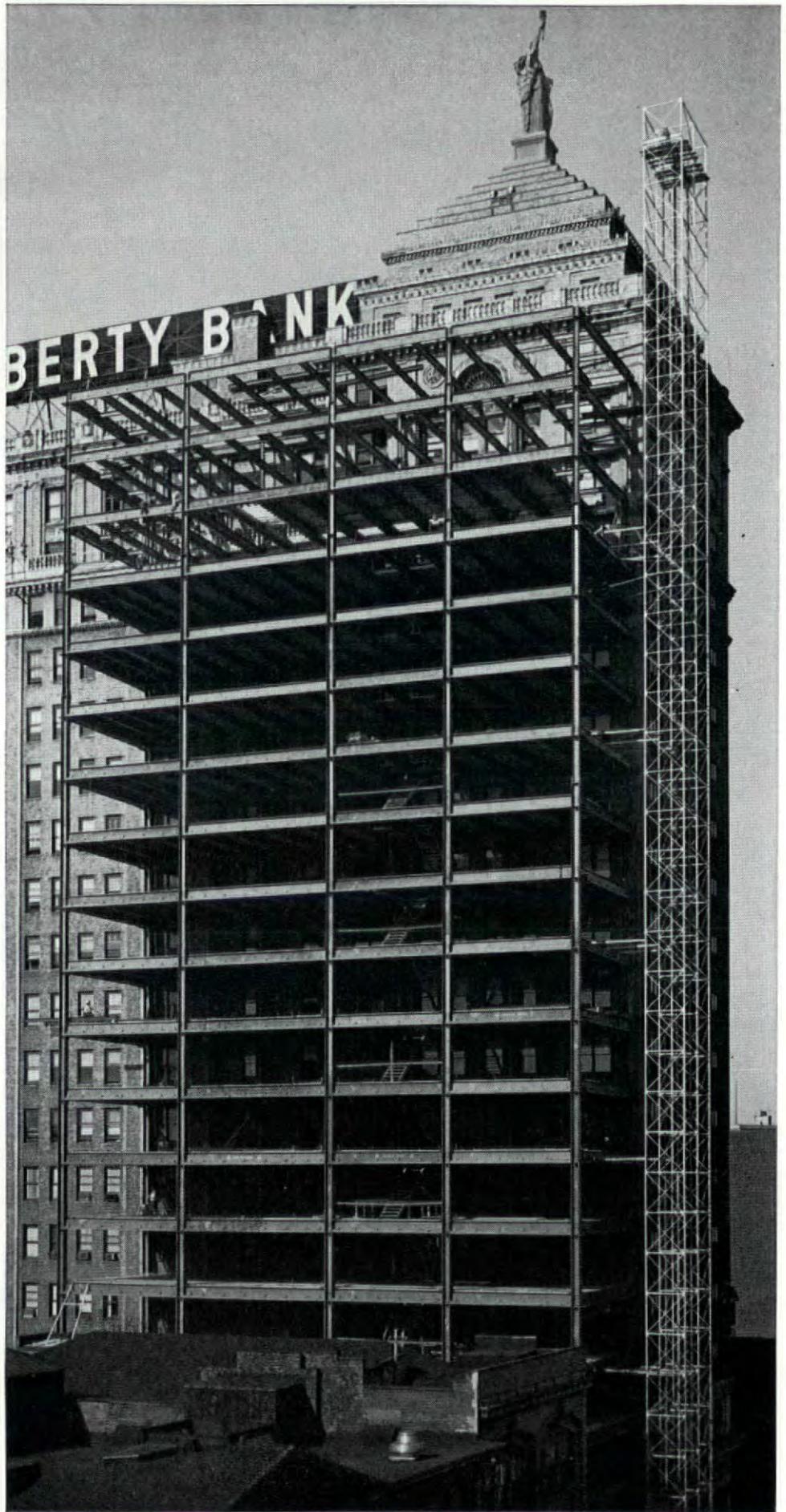
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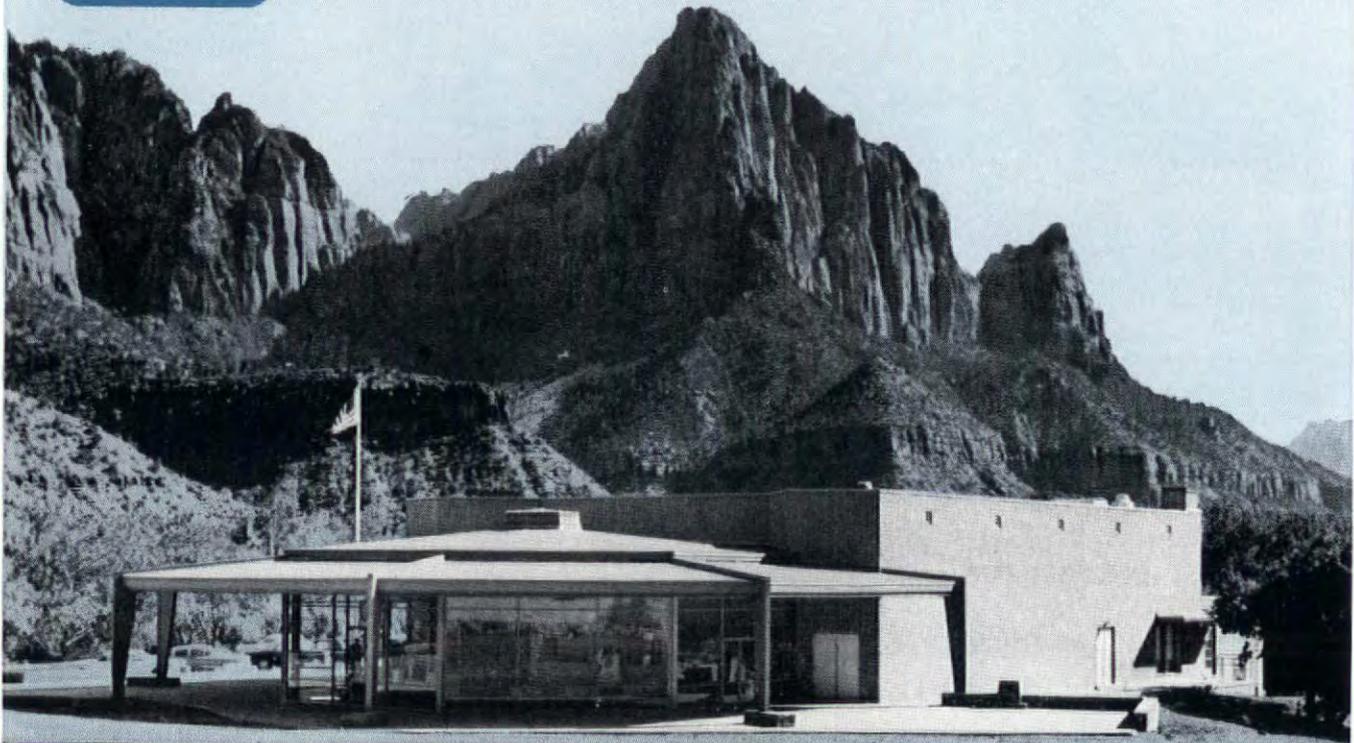
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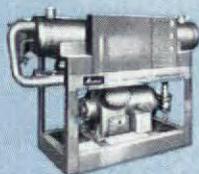
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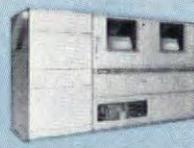
Packaged Chillers
1½ - 250 tons



Remote Room Conditioners
200-600 cfm



Cooling Towers
3-120 tons



Packaged Air Conditioners
3-60 tons



Evaporative Condensers
10-110 tons



Air Handlers
665-47,000 cfm

INDIFFERENT LIBRARY

Forum:

The new Rare Book and Manuscript Library at Yale by S.O.M. in your November issue promises to be a handsome piece of exotic building. It's only a pity that it should be in New Haven, since it shows almost complete indifference to site and seems to embody a feeling that plazas can solve all site problems.

JOHN MACGREGOR
Chandler Cudlipp Associates, Inc.
Interior designers
New York City

TOTTERING TOWER

Forum:

I congratulate you on your critical view of the Blue Cross/Blue Shield building in Boston by Paul Rudolph (FORUM, Dec. '60). This building is a perfect example of the absurd designing which is taking place in every city. Its tremendous bulk soars to great heights, supported by a few slim columns.

FORUM is doing an excellent job in pointing out the faults of the leading architects of the nation, and with this criticism architecture will progress.

JOHN VOORHEES
Oklahoma City

DOUBTFUL CENTER

Forum:

I was certainly pleased to see your splendid coverage of Hartford's Downtown Renewal Program (FORUM, Dec. '60).

If only Constitution Plaza would end up a river-front Rockefeller Center! But I am not at all certain that this will happen. In fact, you understate when you point out that "the attempt to maintain architectural unity there will be interesting to watch."

GEORGE KOSTRITSKY
Planner
Baltimore, Md.

PROVOCATIVE BOOK

Forum:

I have just finished your book, *Building USA*, and I must tell you that it is the most provoking book I have ever read dealing with this subject. It should

get the widest distribution.

As it is written, it would be very feasible to make it a TV serial. It should not be hard to find sponsors for such a program, since you show all the "money" people in the right light—only the architects are the ones who do not fare very well, but still you were completely right in your analysis.

In my humble opinion you missed one point, which should have been discussed, and that is the education of architects. Our education is completely contrary to every thought expressed in your book. We are creating designers, but no architects or so-called "master builders."

MARTIN GUTTMAN
Architect
Camden, N. J.

Forum:

Apparently this book has been in print for about three years, but for some reason we had not previously been aware of it. It is a work of extraordinary excellence, and we feel that it should be read and reread by everyone in the building industry, and as many members of the general public as possible. Your book states well and fairly the responsibility of each group and the ideals to which it should aspire for the advancement of "well-building" and its ultimate benefit to our nation.

It has occurred to us that we may help in the dissemination of this information, which we consider so vital, by purchasing additional copies and giving them to the various contractors, real estate brokers, clients, and others with whom we come into contact in our practice, encouraging these people to read and discuss the relationships you have so ably explained, in the hope that through better understanding our community may experience better architecture.

RALPH T. ROWLAND
Architect
Rowland & Griswold
Hamden, Conn.

• *Building U.S.A.*, by the editors of FORUM, was published by McGraw-Hill (330 W. 42nd St., N. Y., N. Y.) in 1957. A few copies are available at \$3.95 per copy.—ED.

SUBURBAN TAXES

Forum:

In your January 1961 story on industry in the suburbs, you stated that Park Ridge has a tax rate of \$63 per \$1,000 of assessed valuation, and that taxes in Park Ridge are higher than in either Wilmette or Winnetka. . . . Our municipal tax rate is only \$5.98 per \$1,000 valuation and our total tax rate for all units of government, including schools, county, etc., is \$48.10 per \$1,000 valuation.

CHARLES B. HETRICK
Assistant city manager
City of Park Ridge, Ill.

• FORUM's figure of \$63 per \$1,000 valuation was inaccurate. The article throughout was referring to total tax rates, for all services, and on that basis, Park Ridge's \$48.10 rate is higher than either Wilmette's or Winnetka's.

—ED.

GAME FOR ARCHITECTS

Forum:

After reading "Toying with architecture" in your December issue, I thought it proper to send you this picture of the favorite party game of architects. I know it is because I've played Blockhead with architects in Pittsburgh and Chicago.

The architectural students at Carnegie Tech have reproduced the game in colossal size for parties outdoors and indoors at the



ROBERT FURBY

Theta Xi fraternity house (photo). This game comes equipped with a ladder to build the structures some 12 to 15 feet high.

GEORGE B. MOTHERAL
Pittsburgh

AFTER THE UPLIFT

Forum:

I have just returned from a visit to Cranbrook Academy, near Detroit, designed 35 years ago by Eliel Saarinen. It was misting and cold. I walked slowly and saw and felt again the meticulous attention to detail, the enormous subtleties, the intensely human scale. Faulkner states that the purpose of the artist is "to uplift man's heart"; Marya Mannes that "love feeds on enclosure"; Mr. Saarinen understood both. My heart was certainly uplifted—and the intricate little courts with their surprises, the way your feet are led by your eyes, the continual transitions provide an unexcelled emotional experience.

I had hoped it might be compulsory for all of us architects to visit Cranbrook, but what use would it really be? I still feel like a barbarian when confronted with it. And my architectural brethren in the great majority are equally vulgar. I hoped that Cranbrook would be the little leaven but it is not. It is surrounded by residences that are pure cornball which merge hopelessly into degenerate materialism. An even greater depressant is the official exaltation by the A.I.A. of the current asinities of some members. The innocent among us know their innocence, and the guilty their guilt, with the exception of those who have no conception of their inadequacies. The bottom of the barrel must surely be when the spoils go to the insensitive, the banal, the architectural prostitute selected by clients with the same characteristics. The blind lead the blind, and they both fall in the ditch.

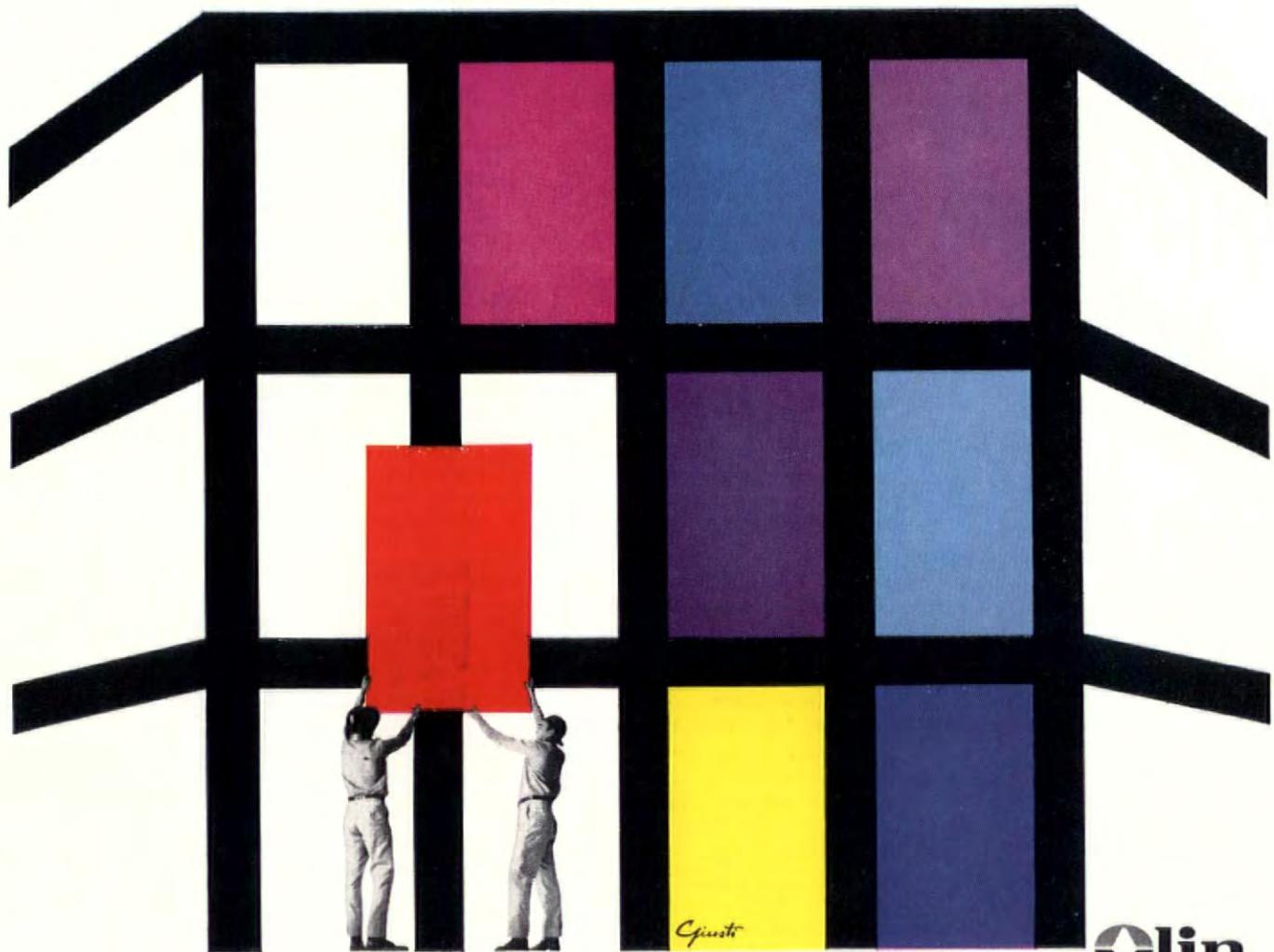
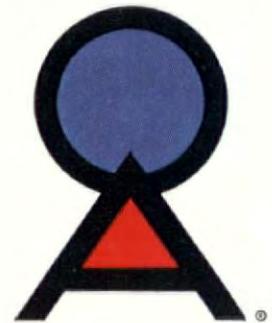
Perhaps absolution is in Tennyson: "The old order changeth, yielding place to new; and God fulfills Himself in many ways. . . ."

WILLIAM A. GANSTER
Architect
Ganster & Hennighausen
Waukegan, Ill.

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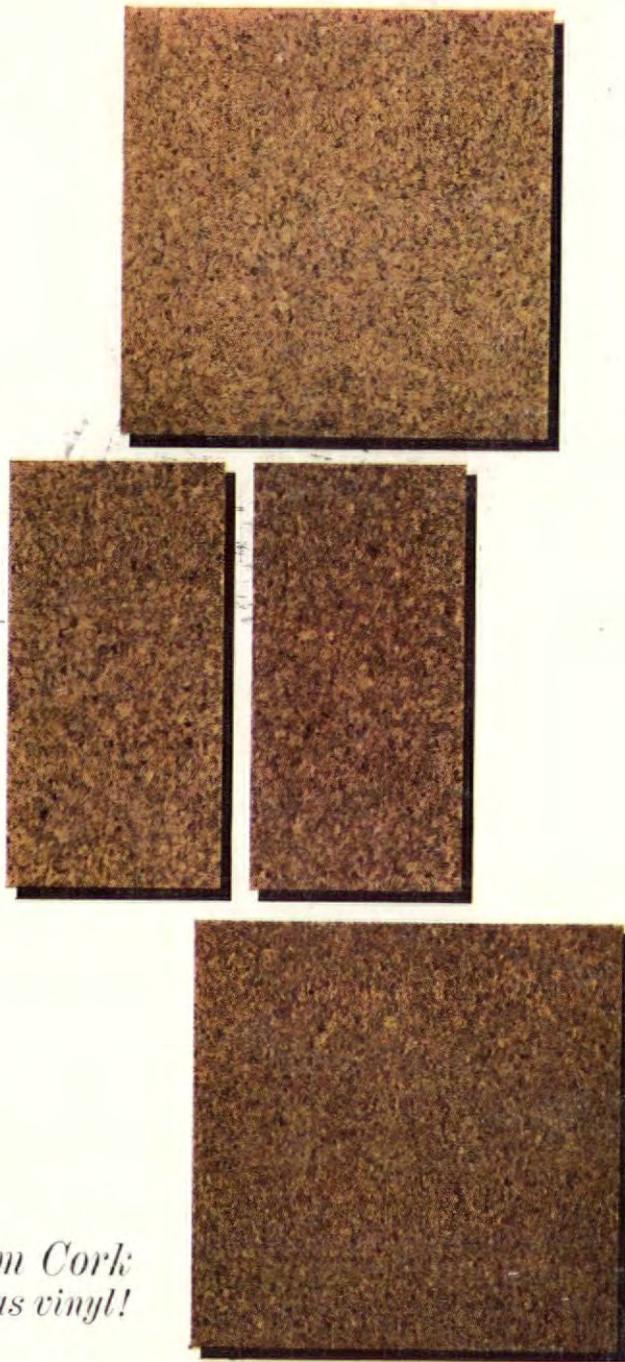
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