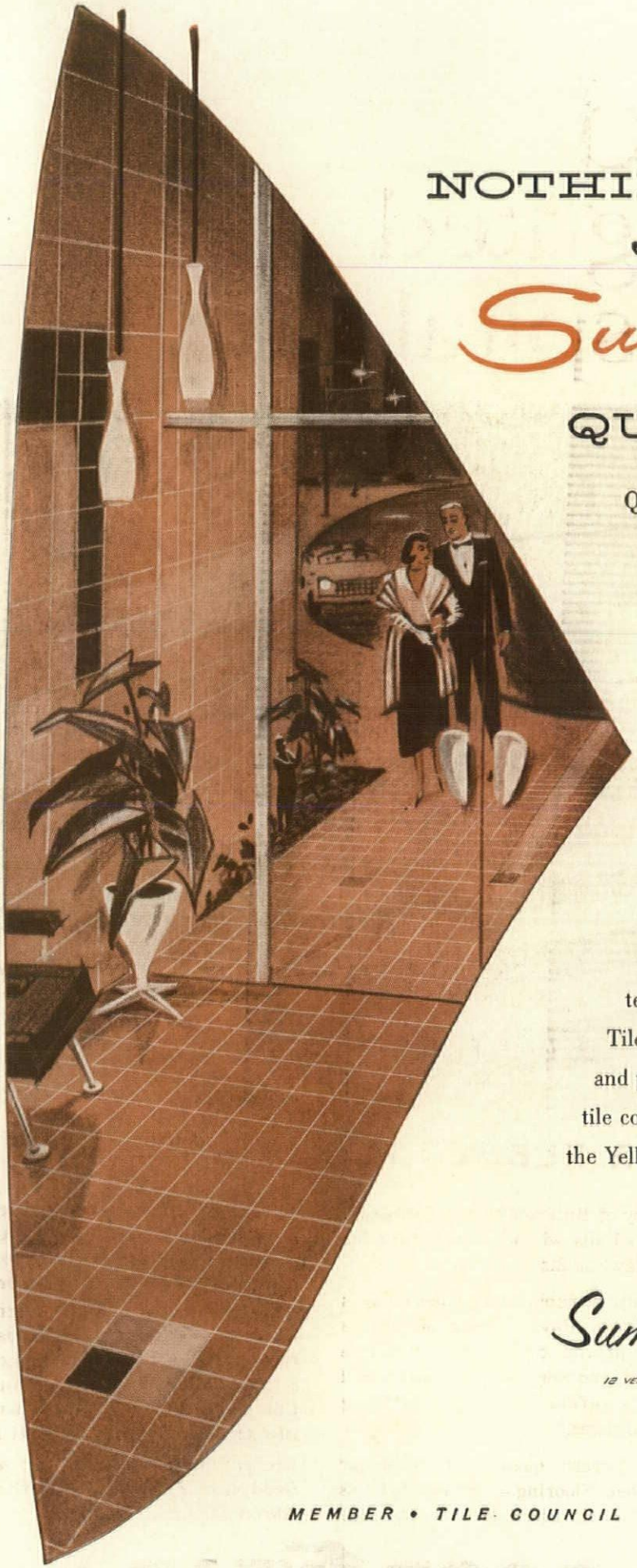
ARCHITECTURAL RECORD

7 *July 1959*

Belluschi Churches: Building Types Study

Jewett Arts Center at Wellesley by Paul Rudolph

Recreation Facilities



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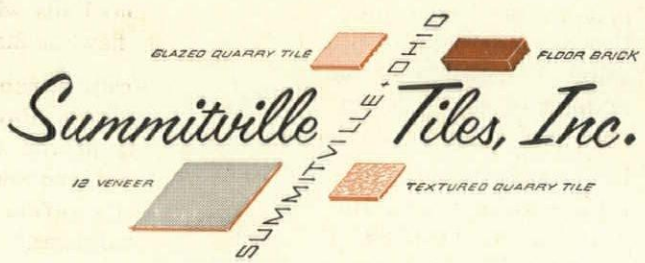

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ARCHITECTURAL RECORD (Vol. 126, No. 1, July 1959) is published monthly, except May 1959 when semi-monthly, by F. W. Dodge Corporation, 10 Ferry Street, Concord, N. H. **Editorial and executive offices: 119 West 40th Street, New York 18, New York**
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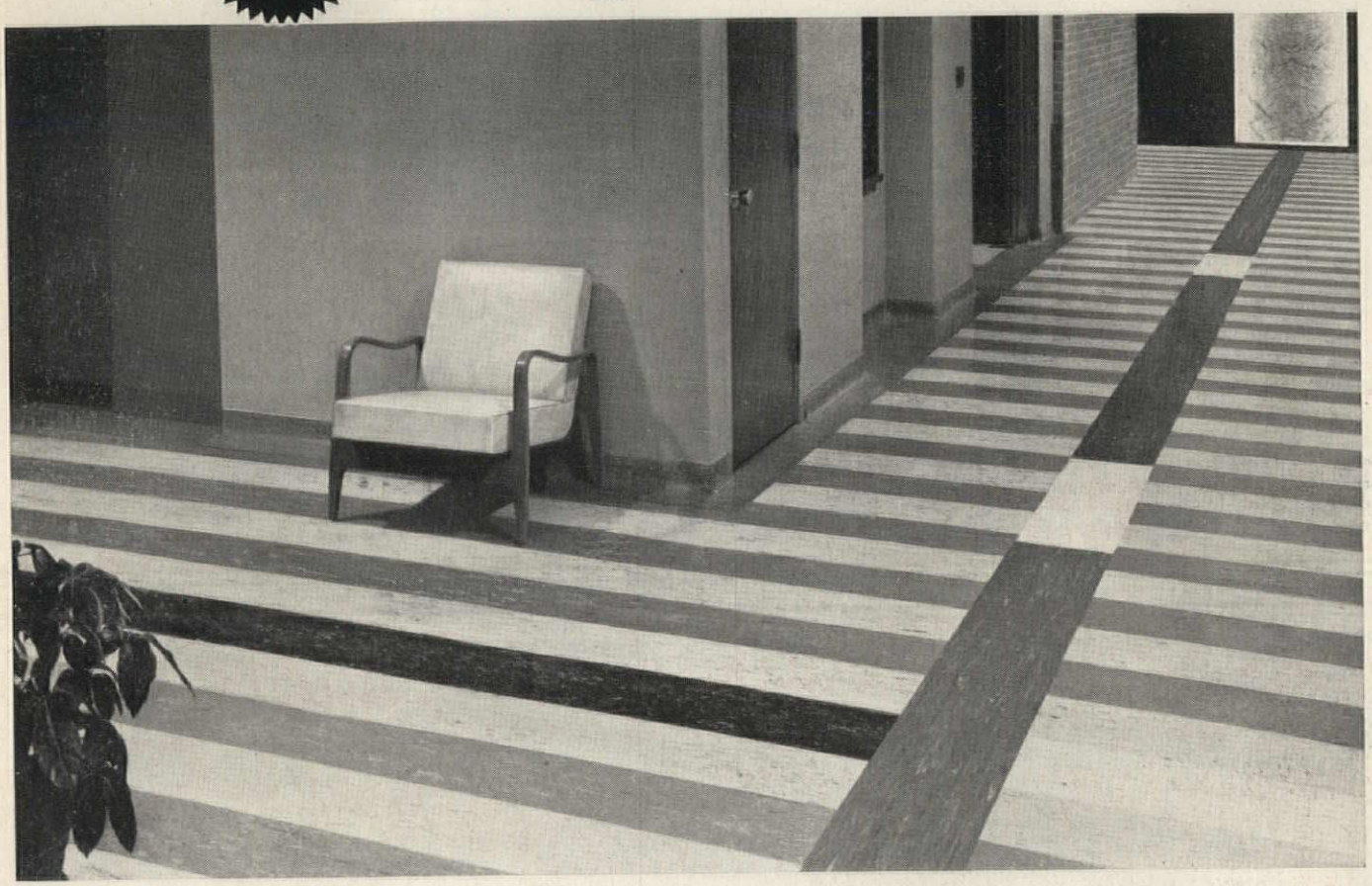

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Honors are due to the Sioux Falls architectural firm of Harold Spitznagel & Associates, Inc., who designed the wing—to the firm's interior designer Leonard Payne, who created this brilliant new concept in hospital flooring—and to Cleo Garry of Builders Supply Company, Sioux Falls, who was responsible for its flawless installation.

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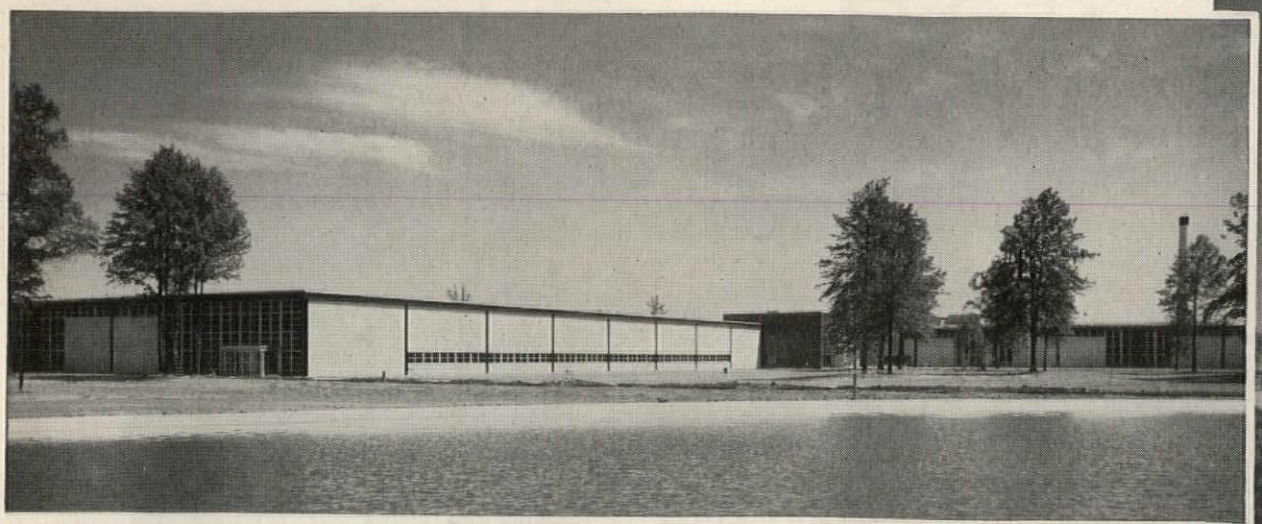

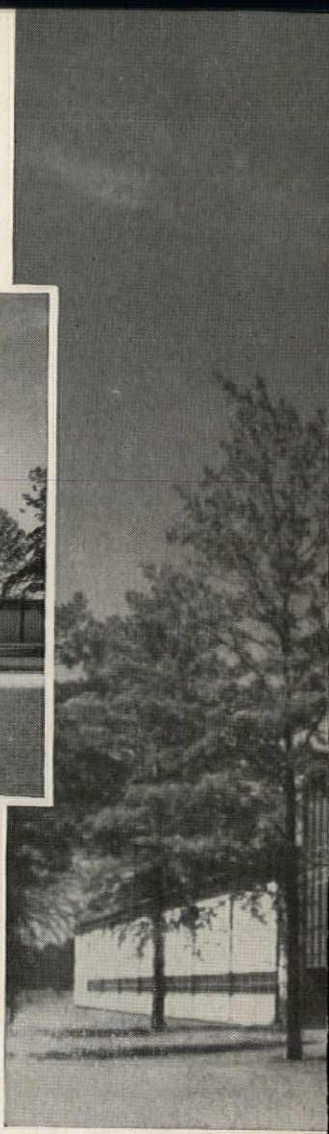

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■ "By ditching conventional concepts, Johnson & Johnson has proved that factories can be functional and beautiful." This was the comment of *Factory* magazine in selecting the Eastern Surgical Dressings Plant, North Brunswick, N. J., as one of the "Top Ten Plants of 1958."

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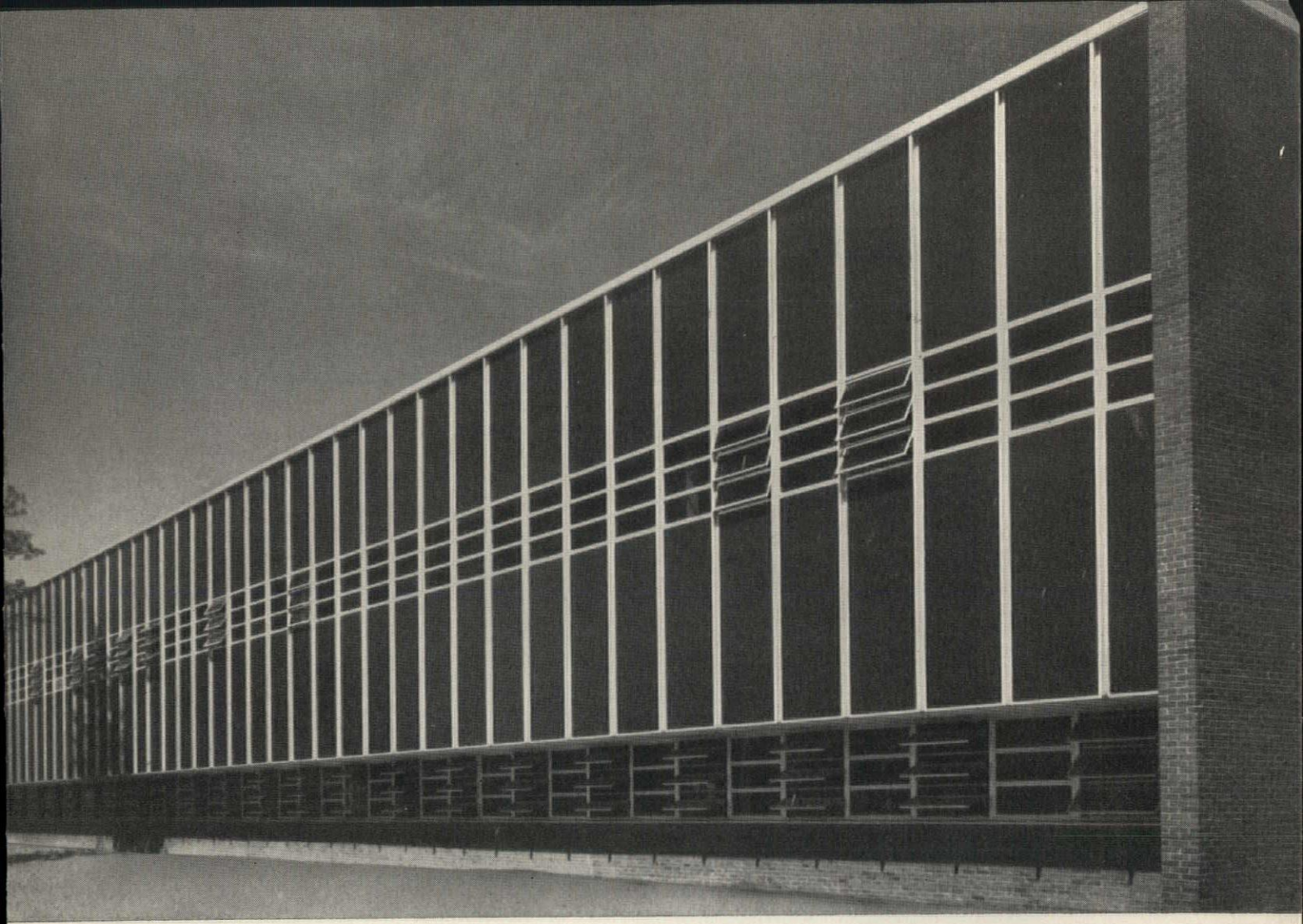

vide heavy-duty vertical transportation service. This modern elevator for modern buildings requires no overhead machinery penthouse or heavy supporting sidewalls.

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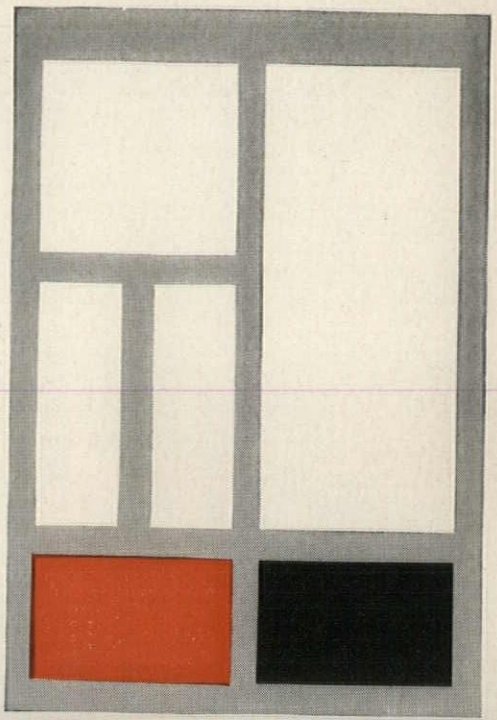

Articulate architecture

in a park-like setting . . .

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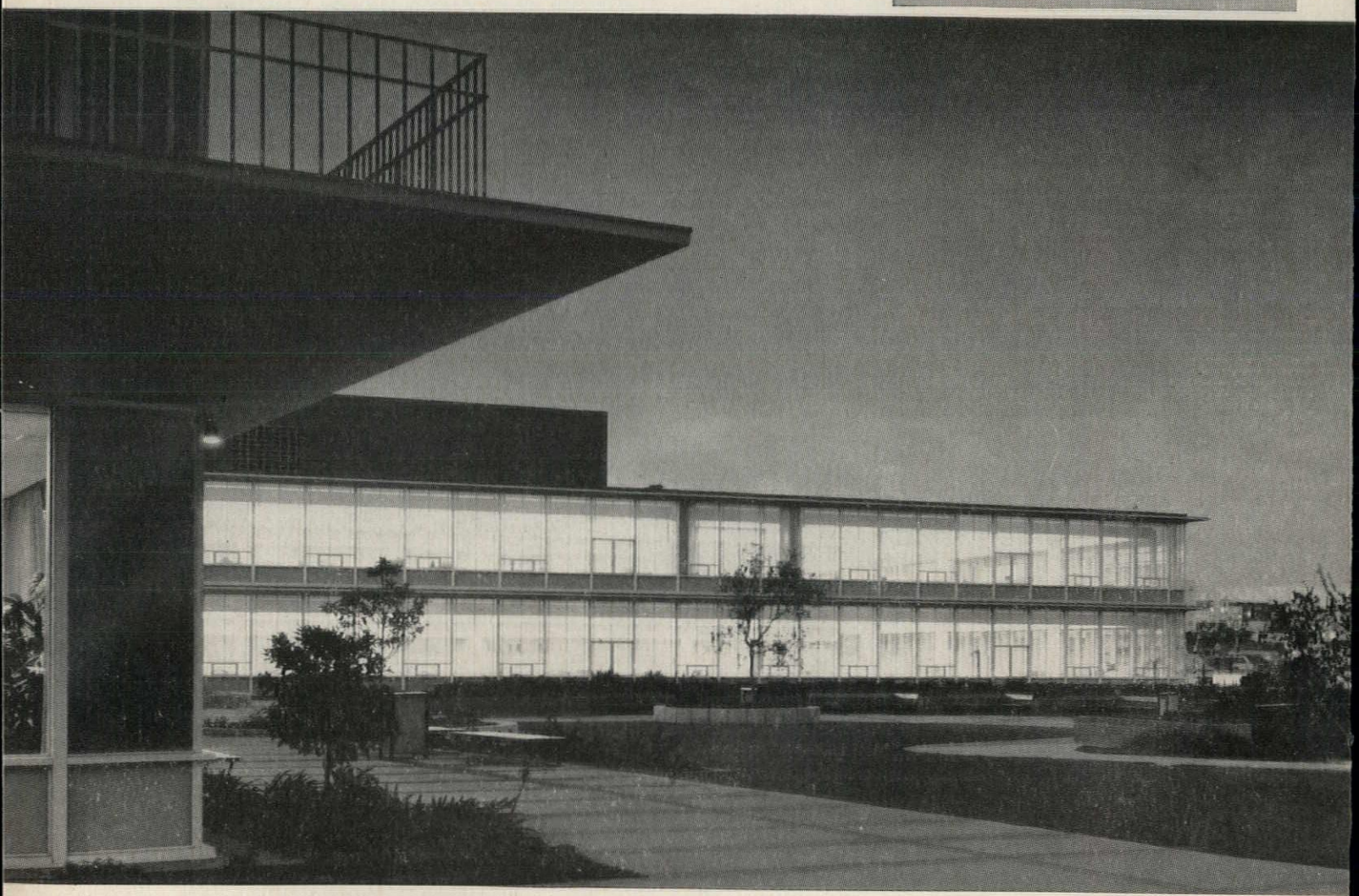

New Home Office Building, Firemen's Fund Insurance Company, Edward B. Page, A.I.A.

Combining beauty with function, Edward B. Page, architect, and R. Rolleston West, mechanical engineer, specified Wrought Iron Pipe for the new glass-encased Firemen's Fund Building in San Francisco. The functional aspects of Wrought Iron Pipe — corrosion resistance, ductility, mechanical strength — are at work here in air conditioning, steam condensate, underground gas and steam lines and downspouts.

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ARCHITECTURAL RECORD

July 1959

Cover:

The Church of the Redeemer, Baltimore, Md. Pietro Belluschi and Rogers, Taliaferro and Lamb, Associated Architects. Stained glass window by Gyorgy Kepes. Joseph W. Molitor, photo.

ARCHITECTURAL RECORD
July 1959
Vol. 126 No. 1

ARCHITECTURAL RECORD
(combined with
AMERICAN ARCHITECT and
ARCHITECTURE)
is published monthly,
except May 1959
when semi-monthly,
by F. W. Dodge Corporation,
10 Ferry Street,
Concord, New Hampshire.
Editorial and executive offices:
119 West 40th Street,
New York 18, New York.
Western editorial office,
2877 Shasta Road,
Berkeley 8, California.

Coming in the Record

BUILDING TYPES STUDY: SCHOOLS

There probably is no building type in which the contribution of architects to the solution of the total problem has been more significant: and RECORD *studies over the years have reflected this high level of achievement. In next month's study an article by Dr. Harold B. Gores, President of the Ford Foundation's Education Facilities Laboratories, summarizes some emerging educational directions which he believes offer new challenges to architectural ingenuity in the school design field. The examples will show some early responses to them.*

DESIGNING FOR BUSINESS

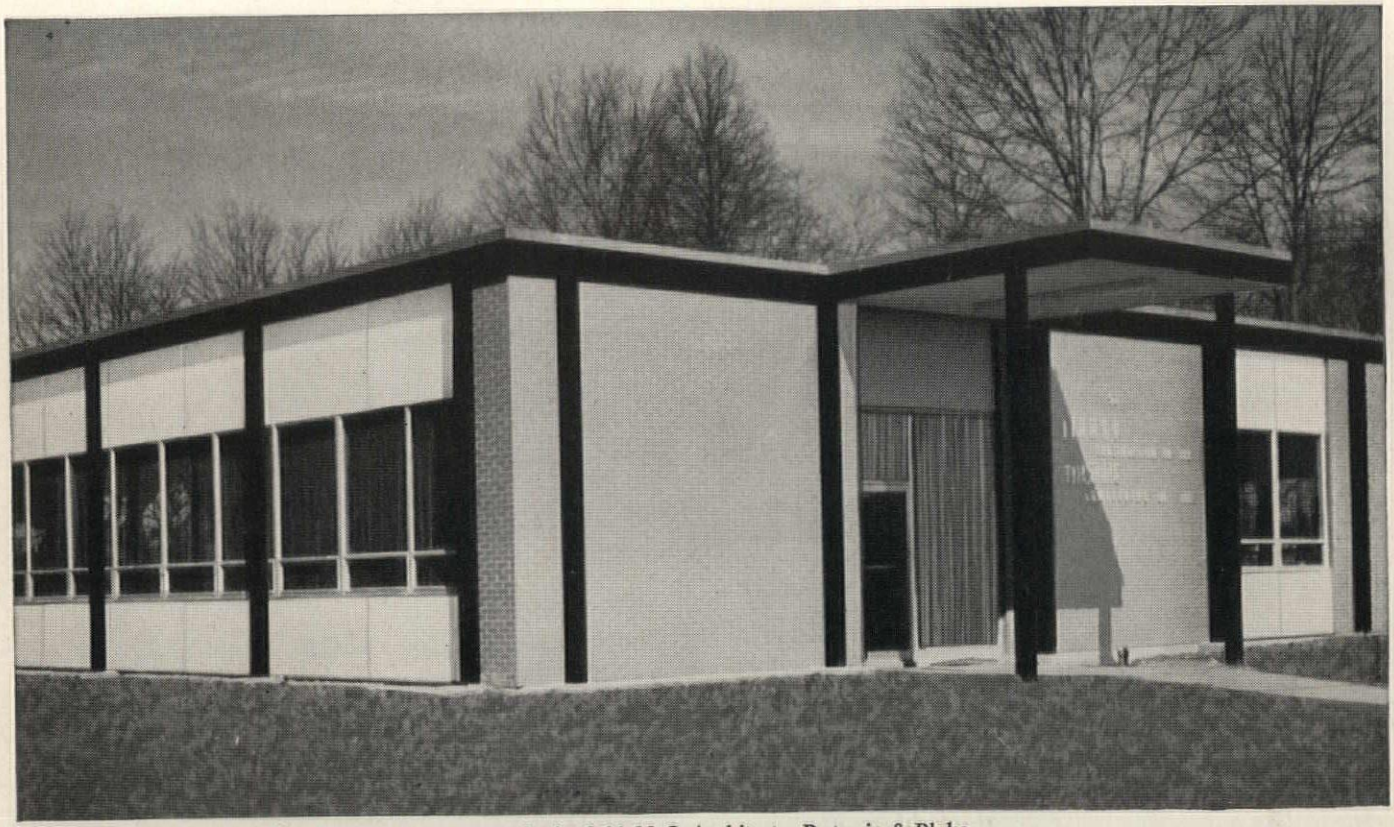
Articles on two recently completed projects for commerce will suggest something of the range of current problems and opportunities in this field. A handsome new administrative headquarters in The Netherlands by Marcel Breuer: prestige architecture in a sylvan setting. Half a world away, Southland Center in Texas: a great business complex for the heart of a city (by Welton Becket and Associates for Southland Life Insurance Company and Sheraton): a new kind of response to some very familiar problems.

OTHER F. W. DODGE SERVICES: Dodge Reports—Dodge Construction Statistics—Sweet's Catalog Services—Dodge Books—Dodge Mailing Service—The Modern Hospital—The Nation's Schools—College and University Business—Hospital Purchasing File—Chicago Construction News—Daily Pacific Builder—The Daily Journal (Denver)—Real East Record & Builders Guide.

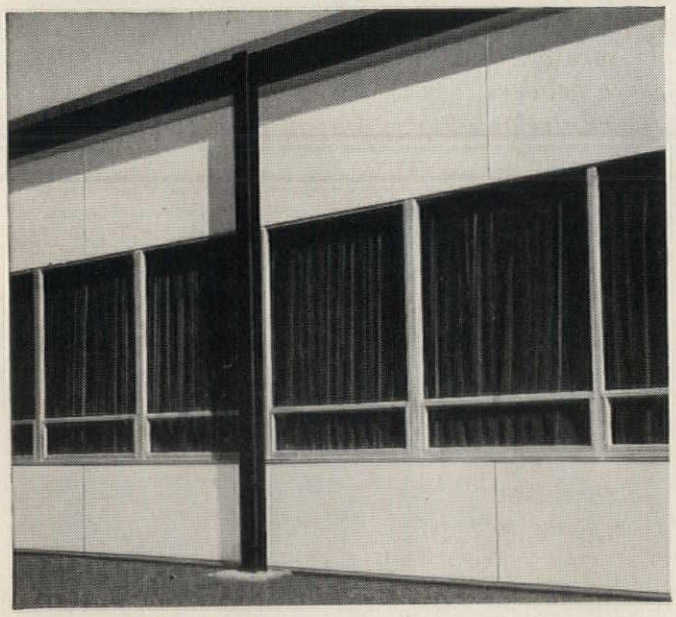
Members of Audit Bureau of Circulations and Associated Business Publications. ARCHITECTURAL RECORD is indexed in Art Index, Industrial Arts Index and Engineering Index.

Every effort will be made to return material submitted for possible publication (if accompanied by stamped, addressed envelope), but the editors and the corporation will not be responsible for loss or damage.

Subscription prices: Published monthly except May 1959 when semimonthly. U. S., U. S. Possessions and Canada: $5.50 per year; other Western Hemisphere countries, to those who by title are architects and engineers, $9.00 per year. Single copy price except Mid-May 1959 issue $2.00; Mid-May 1959 issue $2.95. Beyond Western Hemisphere, to those who by title are architects and engineers, $9.00 per year for 12 monthly issues not including Mid-May 1959 issue. Subscriptions from all others outside U. S., U. S. Possessions and Canada for 12 monthly issues, not including Mid-May issue, $24.00 per year. Change of address: subscribers are requested to furnish both the old and new address, sending if possible stencil impression from magazine wrapper and to include city delivery zone number, where such is used, for the new address. Allow four weeks for change.



OFFICE BUILDING of Murray Construction Co., Inc., Springfield, N. J. Architects: Rotwein & Blake.



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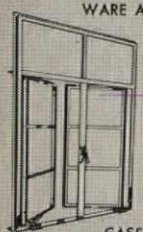
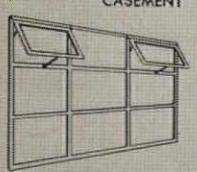


CASEMENT



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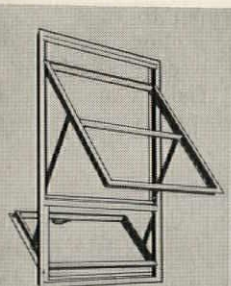
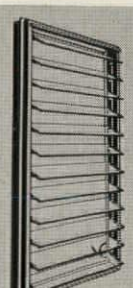


PROJECTED

INTEGRAL CURTAIN WALL UNIT



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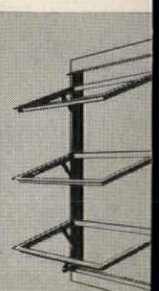

WARECO

Image of an Architect
Edward Larrabee Barnes of New York last month received the 1959 Prize in Architecture (Arnold W. Brunner Memorial) of the American Academy of Arts and Letters and the National Institute of Arts and Letters. The prize of $1000 is given each year to a younger architect whose work is judged to be developing significant directions. This year's jury consisted of Henry Shepley, Pietro Belluschi and Eero Saarinen. Presenting the prize to Mr. Barnes at the annual joint ceremonial of the Academy and the Institute, Mr. Shepley called him "a young man of promise" and commented: "Although Mr. Barnes has plenty of imagination he does not choose or need to invent new or exciting forms. At his touch ordinary, everyday architecture becomes fresh and exciting." The formal citation, read for the jury by Mr. Shepley, remarked on Mr. Barnes' "rare gift of imparting quality to his designs through his unerring taste and discrimination so that his work possesses an exciting rightness of form down to its smallest detail." In his statement of acceptance, Mr. Barnes had this to say: "Architects today are working in an interesting climate. We owe a tremendous debt to the pioneers of modern architecture. But in contrast to the first half of this century, which was a period of revolt and change in every field from painting to economics, this is a time of consolidation. Today we tend to elaborate or decorate or refine. Sometimes we lose ourselves in a specialty such as structural experimentation or pure esthetics. The modern world is indeed a baffling one, and perhaps it is inevitable that architects should withdraw to specialize on single aspects of their work. However, our profession by definition is constructive. The architect cannot satirize his era or escape from it. We are obliged to seek out the meaning of our day and deal with it. Physics, as we were taught it, has completely changed. Socialism, as a democratic dream, has faded. The age of space is upon us. The architect cannot retreat to a precious world of design. Our work must grow and move ahead, and we must express in space the best potential of our time."

Is Reconstruction Preservation?
Architects are naturally and generally on the side of preservation of architecturally significant buildings—and too often find themselves on the losing side. In one current victory, some may ask: when reconstruction is virtually rebuilding, is it preservation still?—or is it merely copying? Bernard Maybeck's Palace of Fine Arts, built for the 1915 Panama-Pacific Exposition, is to be restored, thanks to a $2 million donation from San Francisco lumberman Walter S. Johnson, and a similar grant from the state. Mr. Johnson was president of a campaign to raise private funds to match the promised state funds, and was apparently meeting with small success. Then, he said, "I decided to do something about it personally. I've seen many of the world's most beautiful structures—including the Taj Mahal—but this one tops them all and it should be saved by the world's most beautiful city."

Books Wanted
An appeal has arrived from the Mahatma Ghandi Memorial College, via a friend in Wisconsin: "Surplus, hard-cover books that have to do with medicine, engineering, architecture, etc., are sorely needed by Mahatma Ghandi Memorial College. Students are very poor and cannot afford to buy textbooks essential to their studies. If you have any such books lying about, inscribe your name on the inside cover, add a friendly word to the prospective reader—then mail to: Mahatma-Ghandi Memorial College, Udipi, Mysore State, India."

Client Wanted
Gio Ponti, whose Milan skyscraper for Pirelli has received a great measure of international attention, says that he should now love to design a skyscraper for New York. He is looking for a client who wants something "jamais encore realisé, mais pas folie." Bold, sensible, French-speaking prospective builders, note.

Anti-Uglies
Student demonstrations, as far as can be judged from lack of newspaper coverage, seem to be out of fashion. Aside from sundry American expressions of youthful high spirits, there has not, to our knowledge, been a full-scale demonstration of student protest since students at the Sorbonne objected to their inadequate classroom facilities last fall. For those people, if there are any, who may have been losing their faith in the student as a vocal and uninhibited militant on the side of right, hope comes from London. There students at the Royal College of Art have formed a group styled "The Anti-Uglies." Purpose: to demonstrate against buildings considered unworthy of England and of the 20th Century. Demonstrations are quiet, orderly and, in fact, funereal: a cortege accompanies a black coffin (British architecture) to the "ugly" building at the time of its dedication or some other auspicious occasion. Some grown-ups in London, one senses, look back rather wistfully to the days when they were allowed such irreverent directness themselves.

Design and Status
Home is more than just a place to hang one's hat, and more than the place where one's heart is, if Vance Packard, author of the currently best-selling *The Status Seekers*, is correct in saying that the home is now the nation's leading "status symbol." Mr. Packard's observation is that the automobile ("too easily obtainable") has been edged out of the position it has occupied since the end of the war. His study has shown that in the middle and lower classes (lower income and lower education), the design is not as important a status factor as the "casual but costly touches" (e.g., gold plated bathroom fittings), air conditioning, television aerials and other examples of what an earlier social observer termed "conspicuous consumption." In the upper classes, however, the preferred domestic architecture is traditional, "indicating that the owner has ties that go back into American history." As for modern design, Mr. Packard writes: "If the upper-class person does have to endure newness, he would like it to be ultra-modern. People in the lower classes are frightened by modernity."

CANADIAN ARCHITECTS CHALLENGED TO MEET COMPETITION WITH LEADERSHIP

The 212 Canadian architects who convened at Windsor, Ont., May 27-30 for the 52nd annual assembly of the Royal Architectural Institute of Canada were very much concerned with the same problem that confronts their U.S. colleagues: the role and status of the architect in today's world. They devoted the assembly's only seminar to a group of eight round table discussions on current professional problems from education to the package deal, and they approved a history-making inquiry by a formal R.A.I.C. commission into the design and development of Canadian suburbs: an inquiry it is hoped will reveal avenues to greater participation by the architect in the design of mass housing and in environmental planning.

Call to Responsibility

The recurring theme in the round table discussions, in which the entire assembly participated, was the need for development of the highest level of professional competence if the architect is to meet the challenge and the opportunity of the problems he faces today.

The suburban growth inquiry, to be conducted in a series of hearings in all the provincial capitals, will culminate in a report "comprising recommendations to the architectural profession, all governments and the building industry, aimed at achieving a significant improvement in the quality of the suburban environment." The inquiry will be conducted by a commission of three R.A.I.C. members (named after the conclusion of the assembly)—C. E. Pratt of Vancouver, John C. Parkin of Toronto and Peter Dobush of Montreal.

Detroit Tour Featured

The official theme of the Assembly was "Architecture Beyond Our Borders" and one whole day was devoted to an architectural tour of nearby Detroit, with stops at Yamasaki's McGregor Memorial Conference Building for Wayne University, American Concrete Institute headquarters and Reynolds Metals Company headquarters, Saarinen's General Motors Technical Center and Smith, Hinchman and Grylls' Eastland Center. At lunch in the Northwood Inn, Minoru Yamasaki was the speaker. He urged serenity and delight as the qualities most essential to a valid architectural expression today. "Modern dictators like Hitler and Mussolini were insistent on showing their absolute authority in buildings," Mr. Yamasaki observed. "The Soviets are obviously following a like pattern. Thus it is important that those of us who pride ourselves on democracy, who believe in cooperation and warmth in humanity, gentility as a virtue instead of brutality, must express our beliefs in the physical terms of our architecture. Then not only would we symbolize our philosophy but we would have this friendly and peaceful environment to help us develop further these qualities in which we so fervently believe."

Payette Continues as President

Maurice Payette of Montreal was re-elected president of the R.A.I.C. Other officers elected were: Harland Steele of Toronto, vice president; Dr. F. Bruce Brown of Toronto, honorary treasurer; John Lovatt Davies of Vancouver, honorary secretary. The new Executive Committee of the R.A.I.C. Council also includes: Neil Stewart of Fredericton, N. B.; Randolph C. Betts of Montreal; D. E. Kertland of Toronto; Alvin Prack of Hamilton; George Masson of Windsor; and Howard Bouey of Edmonton.

Thirteen new Fellows were installed in an elaborate and colorful ceremony held as a convocation of the College of Fellows. The new Fellows are: Cecil Nat Blankstein, Paul George Brassard, Edward Cecil Strong Cox, John Lovatt Davies, Robert F. Horwood, Lorne E. Marshall, John B. Parkin, Charles E. Pratt, John C. Webster, George E. Wilson, Gordon K. Wynn.

Lay Advice: Communicate!

In his address at the dinner which concluded the Assembly, Hon. Robert Winters, now president of Rio Timco Mining (Canada) Ltd. and formerly Minister of Public Works, questioned whether the work of Canadian architects receives the public recognition it deserves and urged that architects make a greater effort to communicate with the public. "The modesty of your profession," Mr. Winters said, "has prevented you from doing the public relations work that characterizes some of the other professions. When a politician sponsors a program, he must explain to the public what he has in mind and the reasons which motivate him. When an engineer designs a bridge, it quickly becomes a matter of public knowledge as to why it was a cantilever rather than a suspension, and all the other myriads of facts about it. But when architects design a unique building, we laymen believe more could be done to explain why certain features have been adopted. The proposed City Hall in Toronto, for example, is unique and imaginative. The concept of the whole project is most commendable. The competition-winning design has become a conversation piece such as few developments have, but I do not recall that the public has been informed as to the reasons for the particular choice of concept of form, why certain walls are to be curved and others not, why some should have windows and others be blank, and so forth. I qualify this by adding that if the explanations have been given publicly they have not sunk home, and this would seem to emphasize the belief that you have a responsibility to yourselves to explain your work more than you do."

Leadership Role Urged

The call to professional leadership and responsible public relations was sounded again in the remarks of John Noble Richards, president of the American Institute of Architects, who received an honorary corresponding membership in the R.A.I.C. at the dinner. Urban redevelopment, he said, is the greatest challenge to the architect today: "It is essentially a matter of design. A challenge to the architect and his leadership in the community, and that means that the architect must become the leader and coordinator of the entire team of specialists needed to put up a complex building today—and that, in turn, requires two things: high professional competence and good public relations. Both should be among the foremost aims of our two organizations. And both are, also, the means to meet successfully the challenges we face. Professional competence and good public relations have in some of our communities elevated the architect into a position of undisputed leadership in city planning and urban renewal. Increased professional competence and improved public relations are beginning to bring about a greater public awareness of good design."

Other honors and awards presented at the dinner brought an honorary corresponding membership (*in absentia*) to Basil Spence, president of the Royal Institute of British Architects; honorary membership (also *in absentia*) to Stewart Bates, president of the Central Mortgage and Housing Corporation; and the R.A.I.C.'s Allied Arts Medal to Alexander Scott Carter of Toronto, "distinguished designer and artist in the field of architectural decoration and heraldic ornament."

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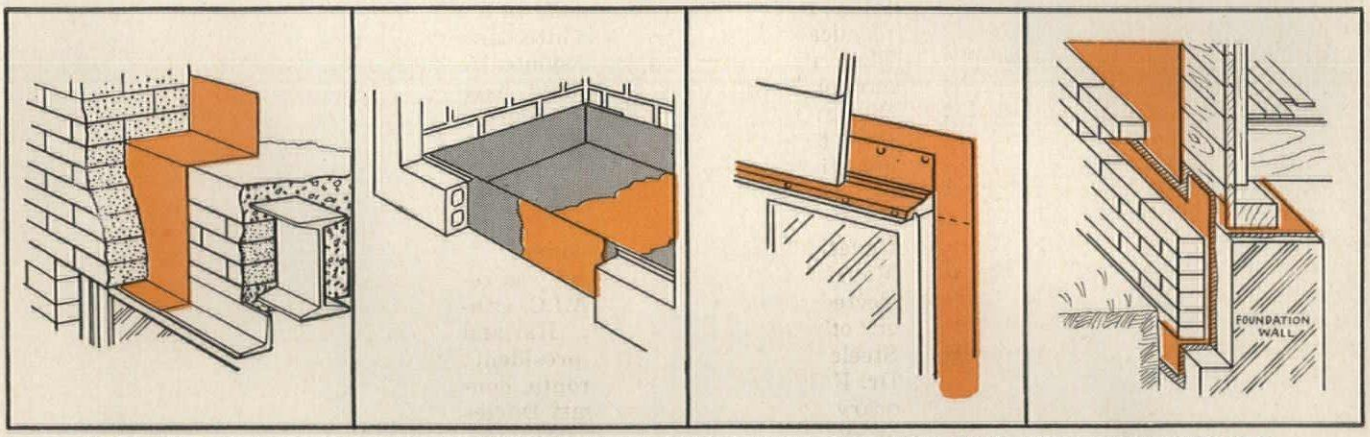

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YAMASAKI DESIGNS TALL OFFICE BUILDING WITH PRECAST CONCRETE SKIN

The Michigan Consolidated Gas Company building will be a new office skyscraper in Detroit. Minoru Yamasaki—Smith, Hinchman, Grylls, Associated Architects and Engineers,. is the combination of firms responsible for the $20-million structure. Mr. Yamasaki conceived the design, and Smith, Hinchman & Grylls are the engineers.

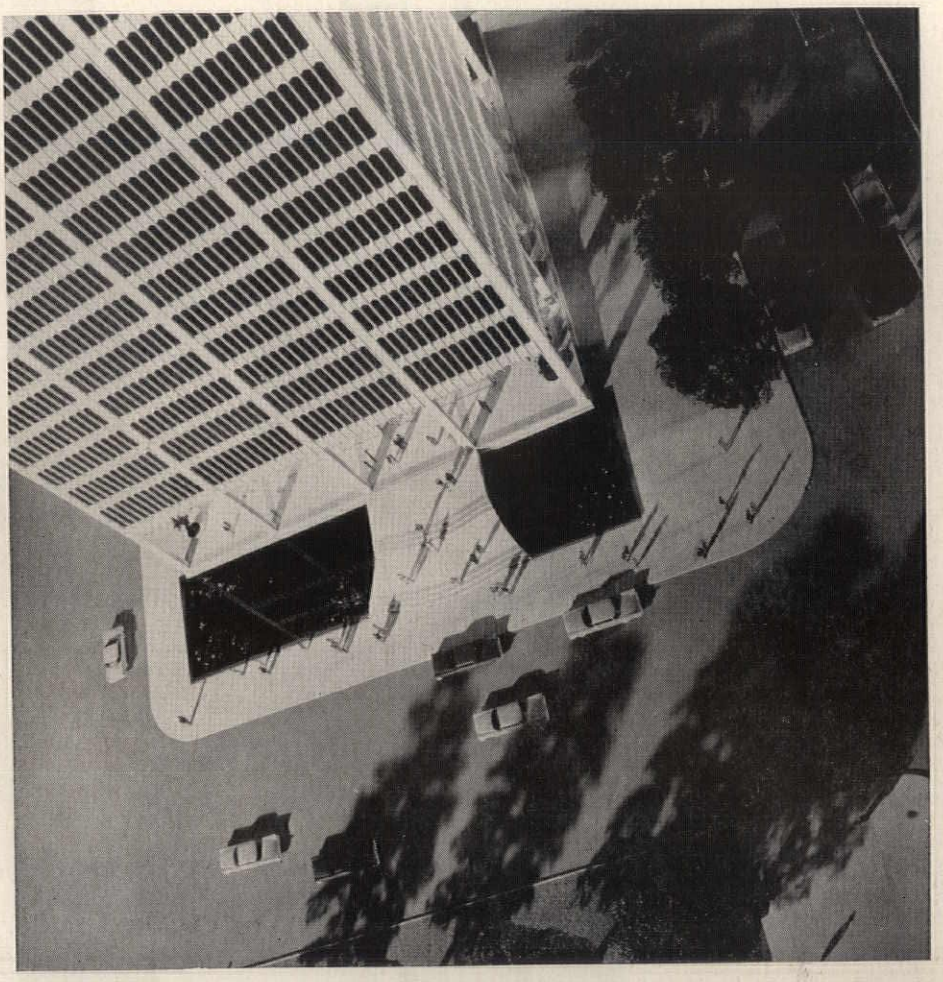
The steel-framed building, shown in model photographs, is clad in white precast quartz or marble aggregate units finished to resemble honed terrazzo. Each unit is one story high and contains six windows. The 4800 windows, shaped like elongated hexagons, are 28 in. wide and 9 ft high; they are in stainless steel frames, recessed 8 in. from the exterior wall.

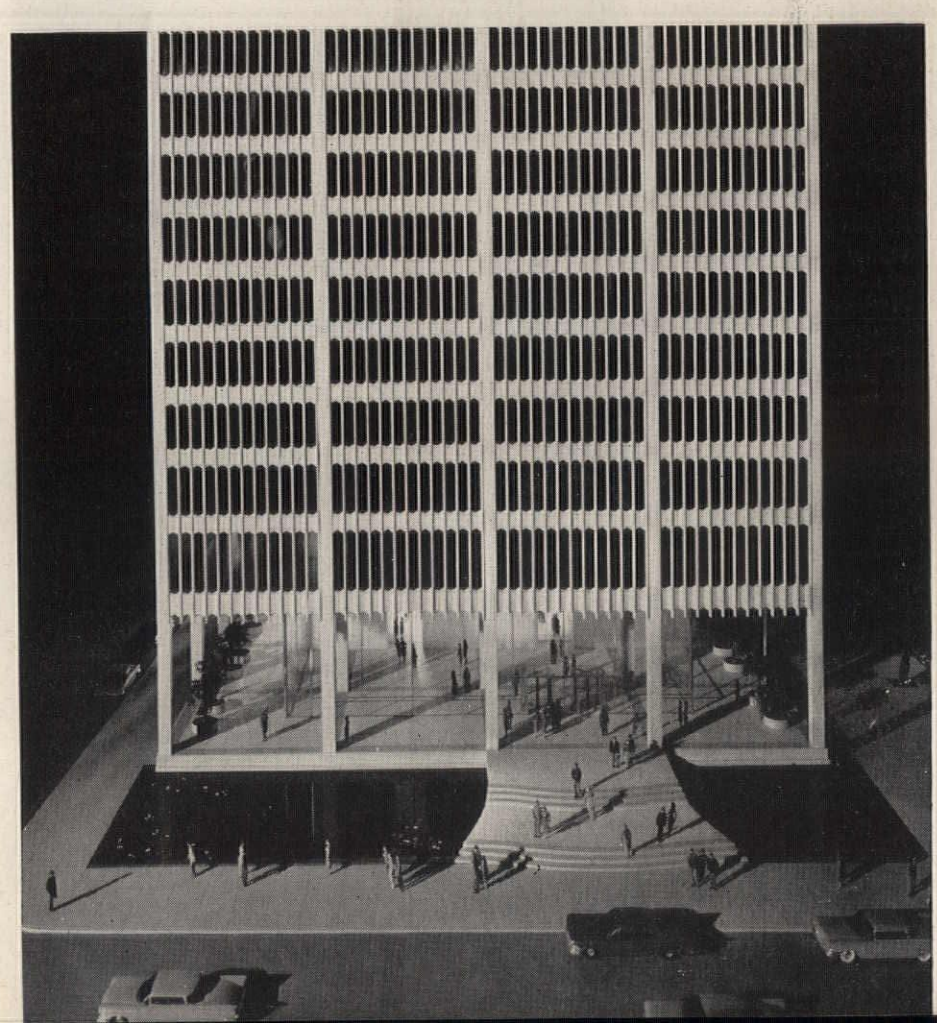
Divisions between windows, 5 in. wide, are continued from below the lobby ceiling through the concrete grille around the two top mechanical and service floors to end as spires above the roof. Similarly, the four-story penthouse is emphasized by vertical columns that culminate in spires. The four bays on each side are separated by supporting columns, 2 ft wide.

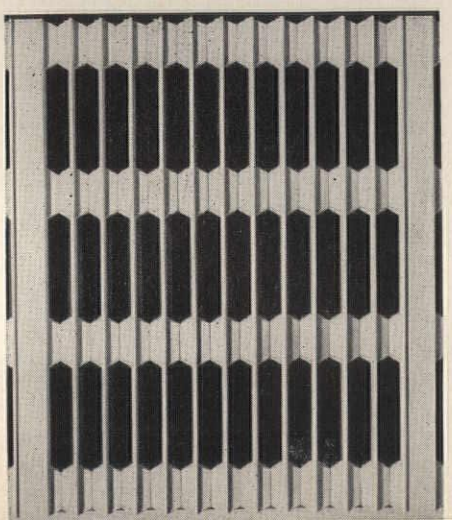
The typical ceiling-to-floor dimension of 3 ft is made possible by using a "waffle" design integrating mechanical equipment and luminous ceilings. Ducts for hot and cold air are placed slightly above floor level along the outside walls.

The 430-ft structure has a 28-story main shaft, plus the four-story penthouse, which contains heating and cooling equipment. The building is square, 124 ft on a side; gross area is 450,000 sq ft (of which 50,000 sq ft are mechanical and parking areas).

The building is sited on its own block in the Detroit Civic Center, overlooking a park and the river. The main entrance is set off by a bridged reflecting pool. Construction is expected to start next spring, with completion scheduled for mid-1962.







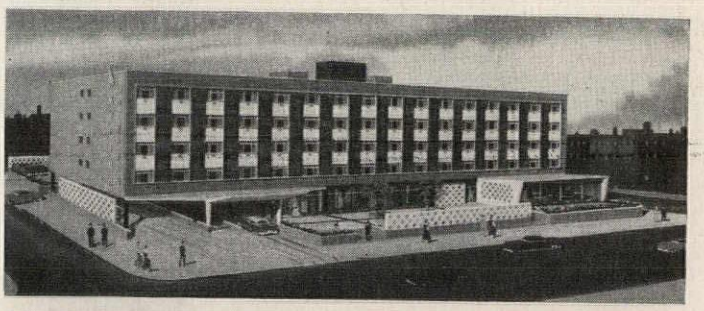
Baltazar Korab photos

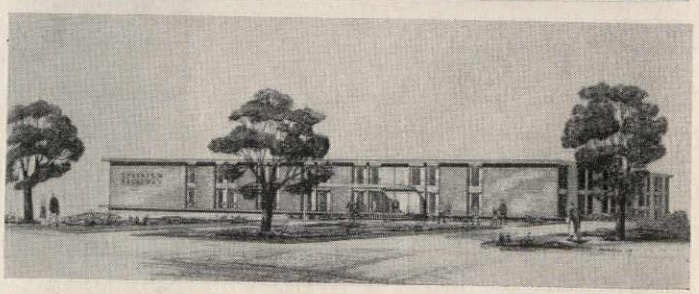
New York City's first motel is the Skyline Motor Inn, scheduled for completion next month. The $1.5-million building has five stories and 130 rooms, with parking space for each (100 cars in the garage, 30 more behind the motel). The block-long structure, at Tenth Avenue and 49th Street, contains 25,000 sq ft. The exterior is white, gray, and black glazed brick, with the same colors, plus orange and gold, inside. Guests drive into the main lobby to register. A restaurant, bar, and coffee shop are included. Leo Stillman, architect; Weinberger, Freeman, Leichtman & Quinn, structural engineers; Diesel Construction Corp., general contractor

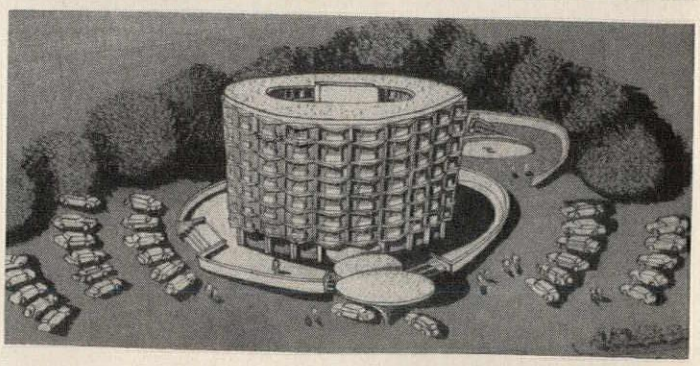
Construction started last month on the Sheraton Baltimore Inn in that city's Broadway Redevelopment Project near the Johns Hopkins Hospital. The three-story hotel, with main entrance at the intermediate level, is to serve both the hospital and the public. There are 150 guest rooms, many of them facing on a landscaped court, and parking for about 160 cars. Basic construction is wall bearing, with precast plank flooring system and brick, aluminum, and glass exterior. Cochran, Stephenson & Wing, architects; Van Rensselaer P. Saxe, structural engineer; Henry Adams, Inc., mechanical engineers; Morros Bros., Inc., general contractor

Believed to be the first circular hotel in the United States, La Ronde, in Philadelphia, is a nine-story concrete and glass cylinder, 150 ft in diam. Cost of the structure, on which construction is to start in September, is about $3.5 million. The owners are Ephraim J. Frankel and Richard I. Rubin. There are 210 rooms, each outside with private bath. A year-round garden occupies the center of the circle, and parking for about 500 cars is provided. Copper-tinted glass for exterior windows and triangular concrete projections above them are used for sun control. Circular concrete entrance canopies shelter guests coming directly from their cars to the main lobby. The lobby floor includes a restaurant, bar, 500-seat banquet hall, and three meeting rooms. A terraced dining patio adjoins a swimming pool. Thalheimer & Weitz, architects

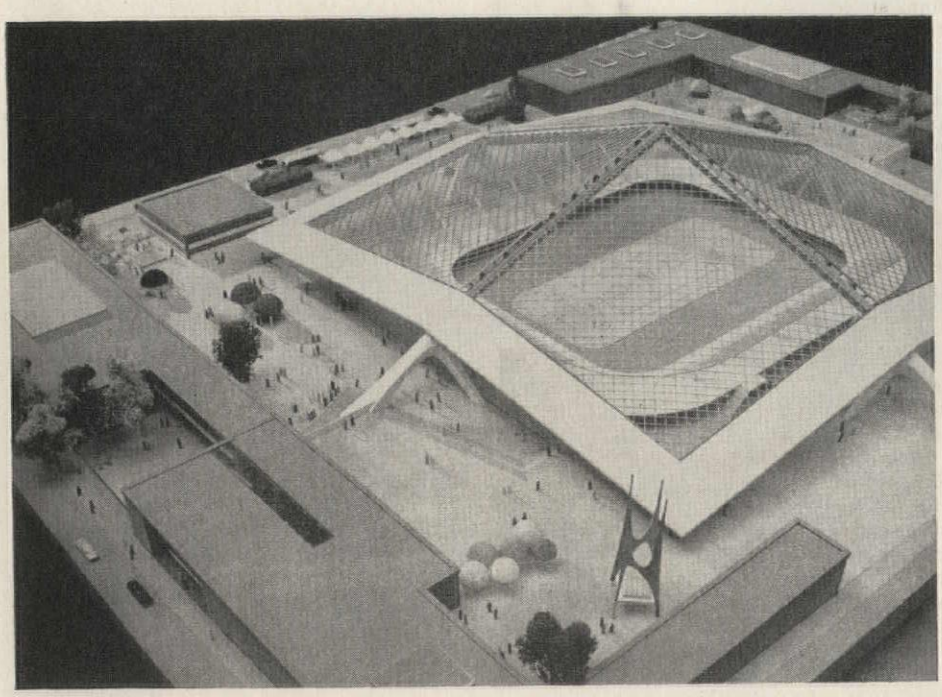
Edward D. Stone is the architect of the Gallery of Modern Art, the new museum commissioned by Huntington Hartford for a site on New York's Columbus Circle. Construction will start in the fall on the nine-story structure; total cost is estimated at $2 million. The photograph above shows how the building will look at its site, with its northern façade slightly curved in "recognition" of Columbus Circle; two of the dimensions are 75 ft, the others, 100 ft and 41 ft. Four floors contain galleries, with intermediate lounge floors. A 150-seat basement auditorium and a top-floor restaurant are included. The reinforced concrete structure has a skin of white Vermont marble. Severud-Elstad-Krueger-Assocs., structural engineers; Peter Bruder, mechanical engineer; William L. Crow Construction Co., general contractor







Construction of the Century 21 Exposition in Seattle is to start in November. Paul Thiry, F.A.I.A., chief architect, was unanimously chosen by the Seattle Civic Center Advisory Commission and the World Fair Commission, the two groups governing the international fair. The exposition, to be held during 1961-62, will occupy a site that will ultimately become Seattle's new civic center. Mr. Thiry's design for the three-acre Coliseum of Nations, to be built by the State of Washington, was recently made public; the site and the building are shown on this page. *Above:* The aerial photograph shows the 74-acre site in relation to Seattle's central business district. 1. Model of the Coliseum of Nations (State of Washington Building). Existing buildings: 2. Civic Auditorium; 3. Ice Arena; 4. High School Stadium; 5. National Guard Armory; 6. Shrine Nile Temple. 7. Location of the Federal Science Pavilion, recommended by President Eisenhower to Congress as the Federal theme exhibit of the exposition. The cost of the Coliseum is estimated at more than $3.8 million, including an adjacent heating-plant building. During the exposition, it will house international science and commercial exhibits. Plans call for its purchase later by the City of Seattle and its conversion into a sports and convention center seating up to 18,000. The design takes into account both immediate and ultimate uses



Above: The model of the Coliseum of Nations. *Left:* The model without its roofing, showing one of the possible future arrangements of the building as a sports arena and also giving a clearer view of the 29,700 ft of stressed steel cables supporting 115,600 sq ft of anodized aluminum roof panels; the panels are exposed on both exterior and interior. The building covers 160,000 sq ft, with 129,000 sq ft enclosed in glass walls as unobstructed space; the clear span is 360 ft. The roof is supported by steel compression trusses springing from sculptured tripedal concrete abutments at the middle of each side, intersecting 110 ft above the floor at center. Each truss contains a walkway for servicing and for access to a radio-TV platform at the apex. The steel cables, laced from the trusses on 8-ft centers, are held taut in a hyperbolic paraboloid form by the trusses and prestressed concrete hollow edge beam that contains air-circulating units and piping. Additional buildings (shown in schematic form) will house more exhibit space and restaurant and lounge facilities. Peter H. Hostmark & Associates are structural engineers on the Coliseum

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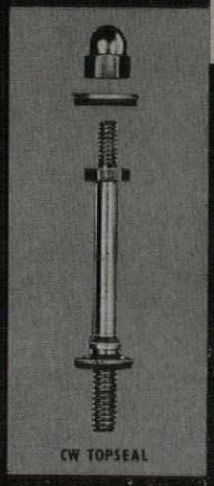

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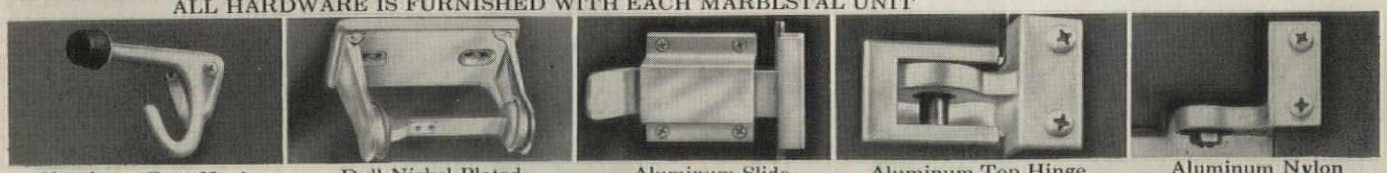

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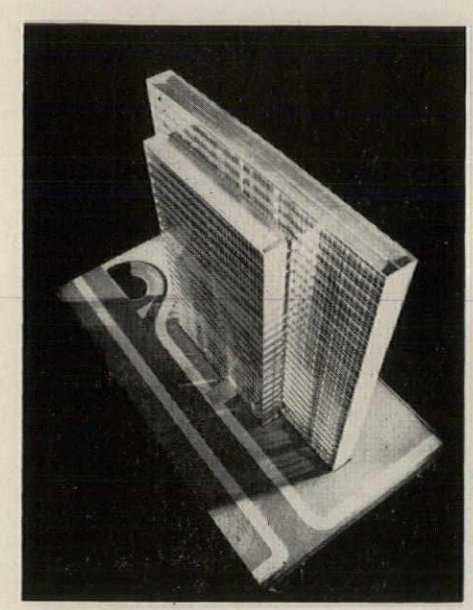
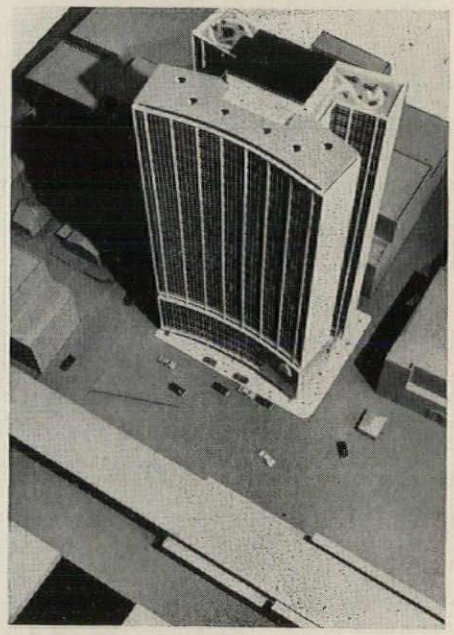
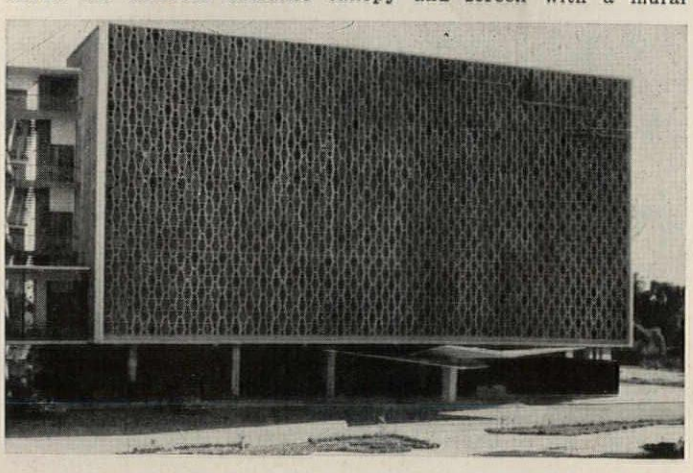


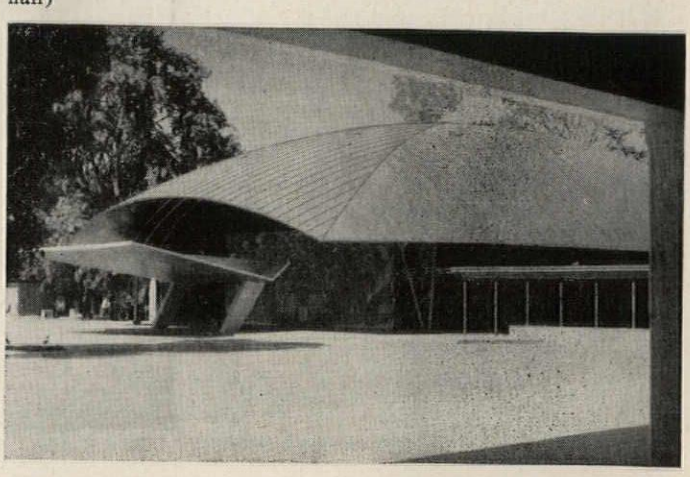
Below: Under contruction now and due to be completed in 1961 in Australia's tallest building. The 370-ft, 26-story structure is being built for the Australian Mutual Provident Society, a life insurance company which will house its head office and New South Wales branch in the building. The site is in Sydney, on the harbor. Total floor area, including basement and sub-basement: about 11½ acres. The building has an all-welded steel frame with I-section fabricated columns and rolled-section beams; the core is concrete. Some walls are 11-in. cavity brick with marble or tile facing, others are curtain walls with double glazing. Flooring is steel-cell deck with 2½-in. concrete topping and steel header ducts feeding utility cables to the cells. Two floors are designed for spread loads of more than 800 tons of computing machinery. There are 11 elevators and two air conditioning systems. Peddle, Thorp & Walker, architects

Two skyscrapers in Düsseldorf. *Above:* The West German city's tallest is the 26-story headquarters of the Phoenix-Rheinrohr A. G., steel and pipe producers. The 312-ft structure is shown in model form, left, and in a close-up of the erection of the curtain wall, right. The building has a steel frame, except for the reinforced concrete basements and underground garage; the skin is anodized aluminum and compound glass. Total cost is about $8 million. The design is the result of a competition. Helmut Hentrich and Hubert Petschnigg, architects. *Right:* The 300-ft administration building of the Mannesmann A. G., also steel producers, is on the bank of the Rhine River (in background). The steel-frame structure has 45 round 6-in.-diam columns supported 28 ft above ground by a steel box girder which transmits the load to 12 socketed stanchions of tubular steel. The curtain wall is anodized aluminum with fixed glazing; wall panels are enameled in white and blue. Paul Schneider-Esleben and Herbert Knothe, architects



Below: Two of the buildings of the College of Engineering of the University of Rangoon in Burma are shown. The library-administration building, left, is a five-story structure of reinforced concrete with a grill made of precast hexagonal concrete units; the larger openings are glazed with colored glass, the smaller ones are unglazed for cross-ventilation. The ground-floor wall is black granite. The assembly hall, right, has a "turtle-shell" roof of laminated Burma teak, 150 ft by 90 ft maximum width. The photo also shows the concrete entrance canopy and screen with a mural painted by a Burmese artist. For these and other buildings, local materials were used wherever possible, including brick, timber, stone, sand. The college is composed of two interlocked courtyards, the outer one consisting of the two buildings shown and the mechanical engineering block; teaching elements are grouped round the inner courtyard. The tropical sun suggested the use of brilliant colors along with heavily shadowed areas. Raglan Squire & Partners, architects (Ove Arup & Partners, consulting engineers for assembly hall)





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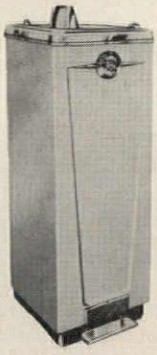
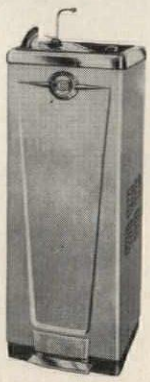
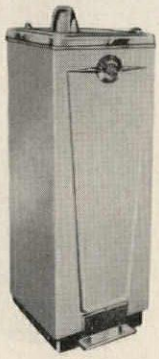


Water-Cooled Models for extra-heavy duty locations and high traffic demands.



Hot and Cold Models for quick coffee-breaks and cold refreshment right on the job.



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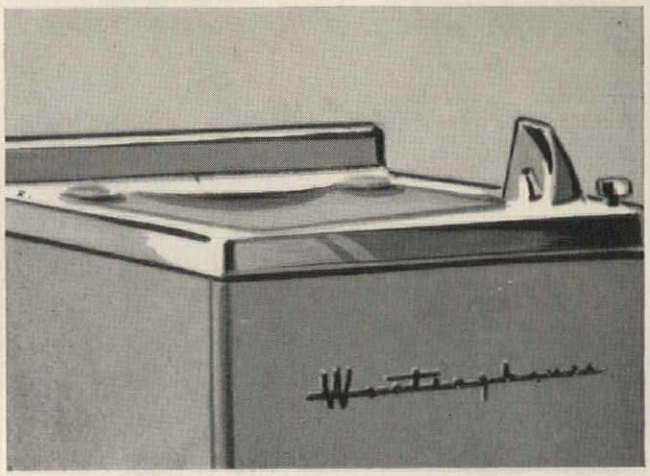

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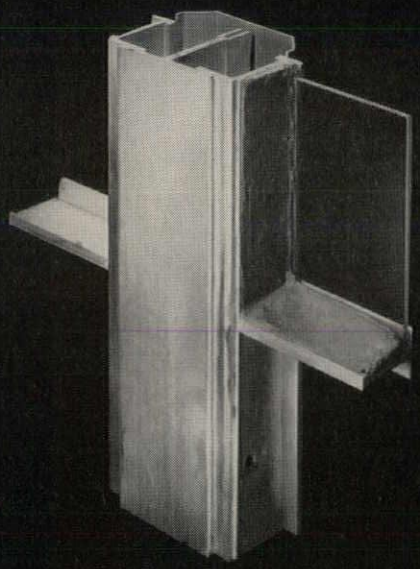

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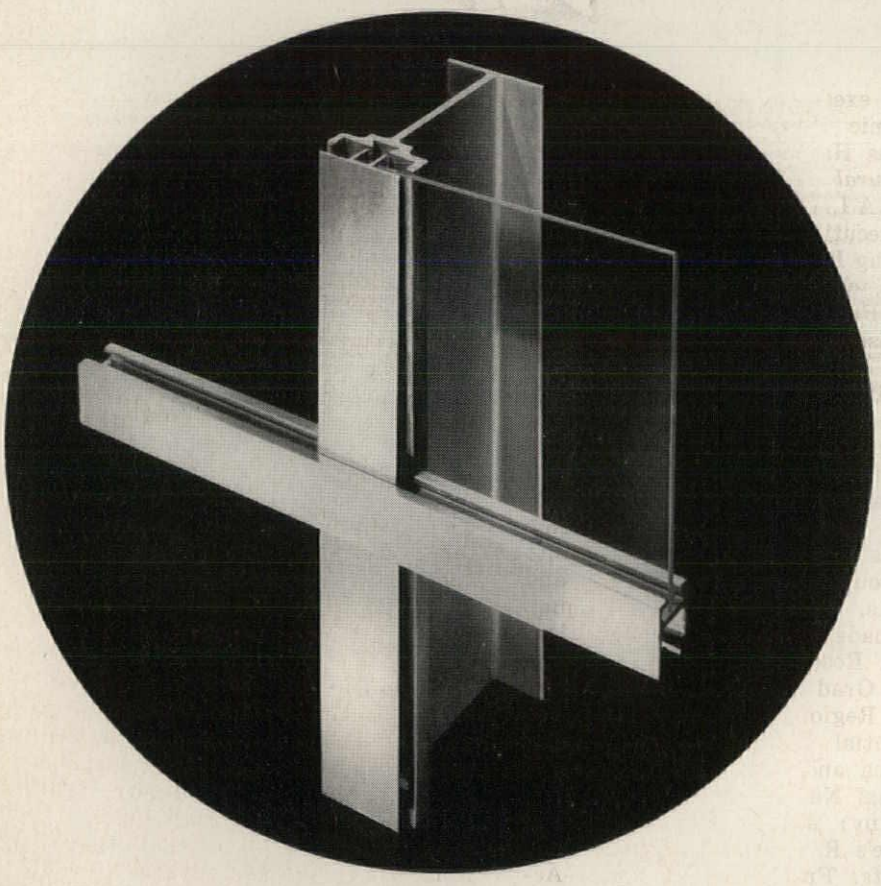

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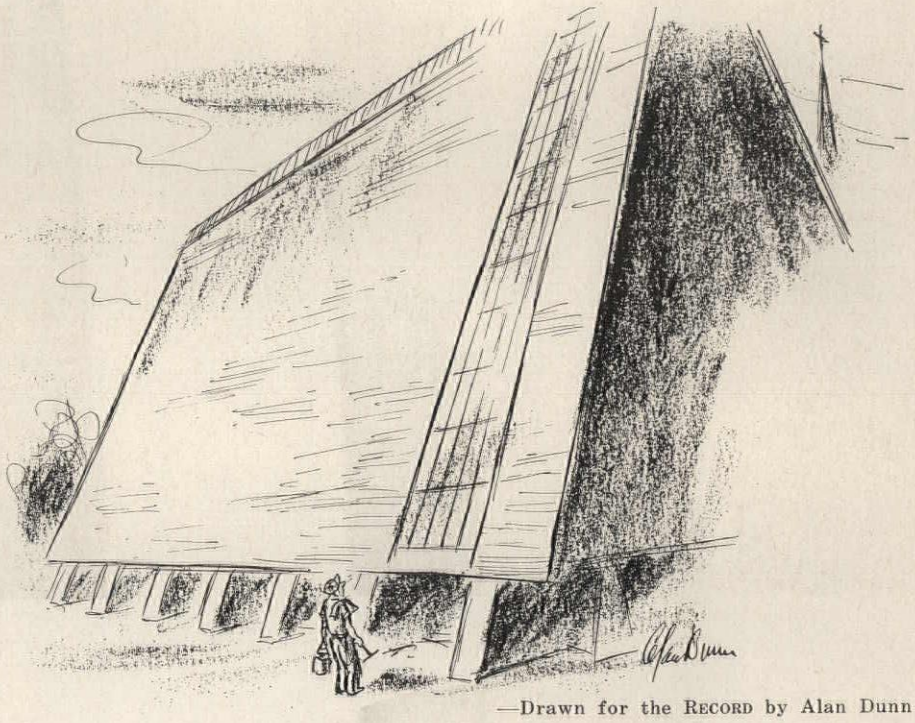
Meetings and Miscellany



—Drawn for the RECORD by Alan Dunn

1960 A.I.A. Convention Plans

Preliminary plans for the 1960 national convention of the American Institute of Architects were announced last month as the A.I.A. was holding its 1959 convention. The 1960 meeting will be in San Francisco. The theme will be: "Expanding Horizons." Donn Emmons is general chairman of the convention committee. John Lyon Reid is chairman of the professional program committee. Dates are April 19-22.

Highlights of the program, as described in the June bulletin of the Northern California Chapter, include a keynote speech on "Expanding Horizons of Man" and four morning sessions on "Political and Economic Horizons," "Sociological Horizons," "Technological Horizons," and "Philosophical Horizons." At each session a panel of three architects will explore the relationship of its subject to the practice of architecture.

New Jersey Architects Meet

The 59th annual convention of the New Jersey Society of Architects and the New Jersey Chapter, A.I.A., broke all previous attendance records with a total registration of 935, including 309 architects. The meeting was held at the Hotel Berkeley-Carteret in Asbury Park, June 11-13.

"Planning is Architecture" was the convention theme and the subject of all three seminars. Panelists were: Rudolf Frankel, professor of architecture, Miami University, (moderator); Charles K. Agle, A.I.A., A.I.P.; Charles A. Blessing, A.I.A., director, Detroit City Plan Commission; Paul Busse, executive secretary, Newark Economic Development Committee; Douglas Haskell, A.I.A., editor, *Architectural Forum;* Arthur C. Holden, F.A.I.A.; Henry van Loon, former executive director, Pennsylvania Planning Board; and Wilhelm V. von Moltke, chief, Land Planning Division, Philadelphia City Planning Commission.

The consensus of the panel was that city planning is primarily the architect's responsibility, or, as Mr. Agle put it at the first seminar, "planning is architecture on a slightly expanded scale."

The Architectural Exhibition Awards this year were divided into two groups, completed buildings and projects. Seven awards, all equal, were made: *Completed:* Milton Klein —Saul Rosen Residence, Paterson; Frank Grad & Sons—both Southern N. J. Regional Office Building for Prudential Insurance Company of America and Washington Office of National Newark & Essex Banking Company; Arthur Rigolo—St. Augustine's R. C. Church, Union City. *Projects:* Frank Grad & Sons—Accounting Office and Data Processing Center for Atlantic City Electric Company; Arthur Rigolo—Clifton Senior High School; Litwack, Bottelli, Convery, Epple, Glucksman, Shteir, Lehman—Penn Plaza Urban Renewal Project, Newark. Jurors were Louis I. Kahn (chairman), Caleb Hornbostel, and Sidney Katz.

The following officers were elected to serve in the same capacity for both Society and Chapter: Frederick A. Elsasser, president; John Scachetti, first vice president; Adolph P. Scrimenti, second vice president; Howard L. McMurray, treasurer; Arthur E. Rigolo, secretary.

—*Florence A. van Wyck*

Soviet Exhibit in New York

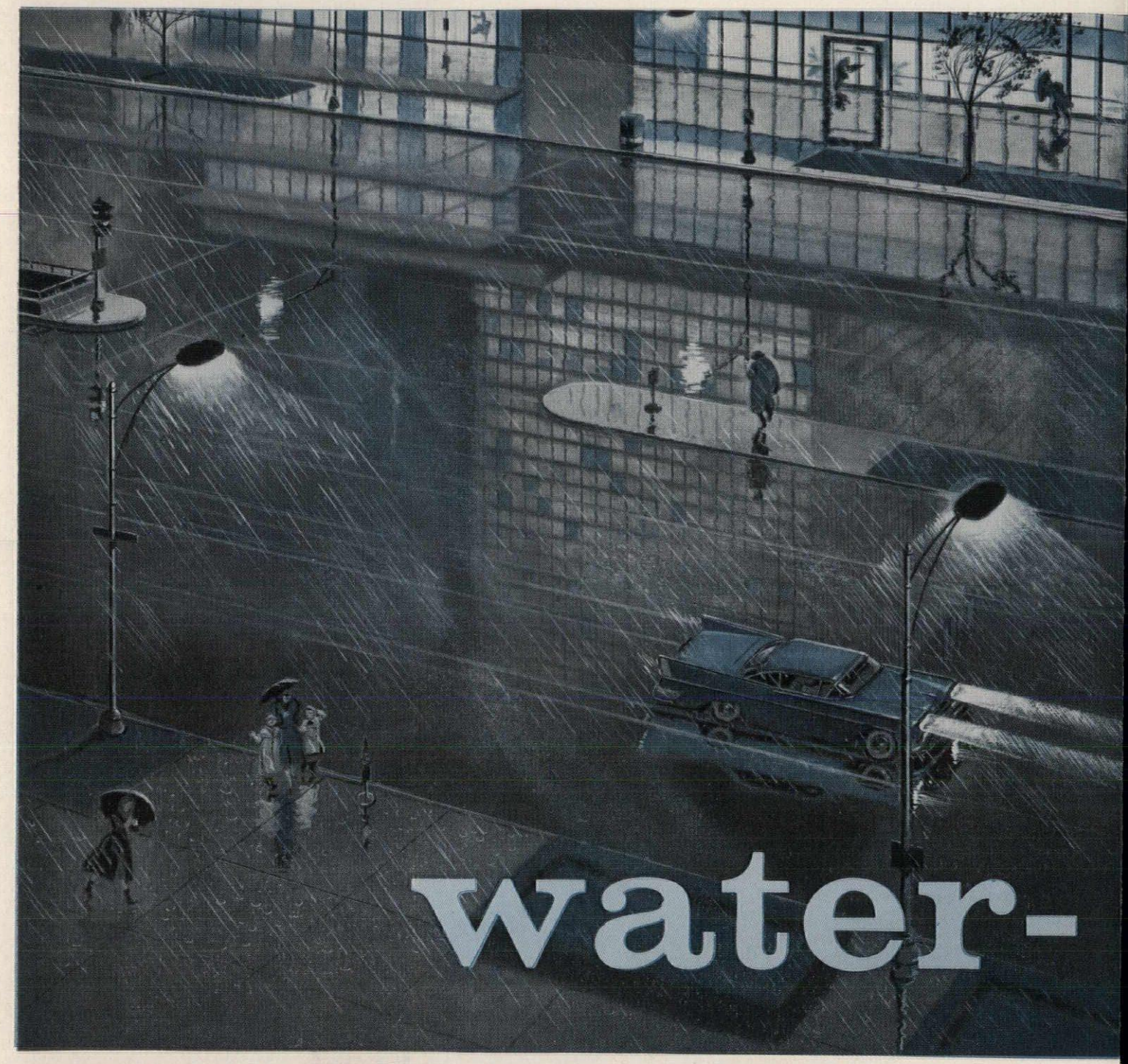
The Soviet Exhibition in New York opened at the Coliseum on June 30; it will run through August 10. (Concurrently, the American National Exhibition in Moscow is on view; AR, April '59, p. 10. The exhibits were organized under an exchange agreement between the two nations.)

The Soviet Exhibition contains 12 main sections: industry and agriculture; science and technology; radio and electronics; atomic energy in the service of man; optics; transportation; public education; public health; sports; construction; culture; public welfare. The many exhibits include models of housing projects and buildings and a full-scale small apartment. There are also working models of machinery, full-scale models of the sputniks, etc.

Chief designer of the exhibition is Konstantin I. Rozhdestvensky, who also has been chief designer of many other Soviet exhibitions, including those at the Brussels Fair last year and the New York World's Fair in 1939.

AR House Exhibit in New York

"Ten Houses of Today," a photographic exhibit, will be on view through August 15 at the Design Center for Interiors, 415 E. 53rd St., New York (the showing opened June 19). The exhibit, originated by the



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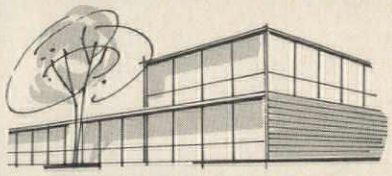

Design Character: equal thin-line faces on vertical and horizontal grid members. Flat appearance with minimum shadows.

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Sealing and Glazing: dry gaskets or mastic type.

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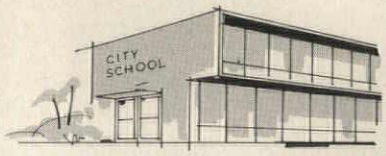
Pre-assembled wall units designed for wall areas up to 4' x 13' without added anchorage. Light horizontals and three vertical mullion depths of 2¾", 3½", and 4½". Flexible for wall units of low cost or small span per unit.



Design Character: dominant verticals of several optional depths. Wall units may be of either standard or optional designs.

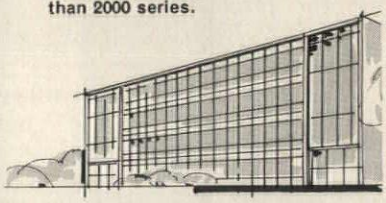
Sash Types: casement, projected-in, projected-out, top hinged.

Sealing and Glazing: dry gaskets or mastic type.

SERIES 3000 *a system for low rise buildings.*

Pre-assembled wall and door units designed for areas up to 4' x 16' without added anchorage.

Heavier horizontals and three vertical mullion depths of 3½", 4½", and 6" give design boldness and greater flexibility of vertical span than 2000 series.



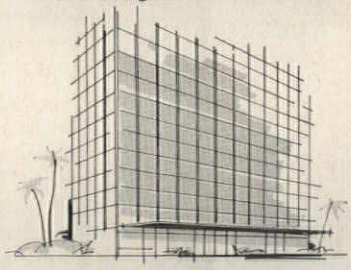
Design Character: dominant verticals in wide range of either standard or optional designs.

Sash Types: casement, projected-in, projected-out, top hinged, center pivoted.

Sealing and Glazing: dry gaskets or mastic type.

SERIES 4000 *a system for high rise buildings*

Pre-assembled wall units designed principally for multi-story use. Mullion profile and glass line is variable to conform to architectural design.



Design Character: dominant verticals or two-way grid as desired. Units assembled to order using standard details and basic shapes but with a choice of profiles.

Sash Types: center pivoted, top hinged, projected-in, projected-out, casement.

Panels: any type

Glass: any type

Sealing and Glazing: dry gaskets or mastic type.

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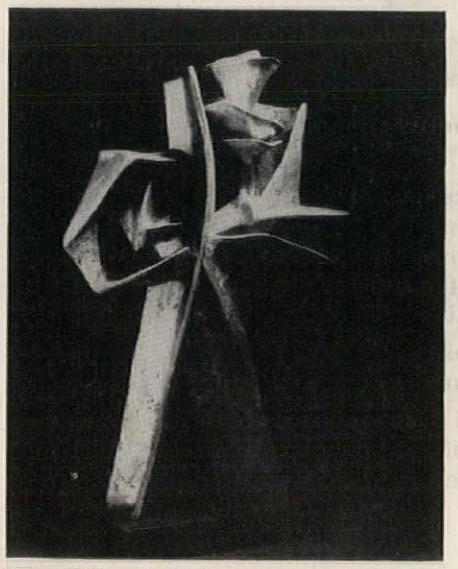
Virginia Museum of Fine Arts, presents ten of the houses published in the 1956 issue of ARCHITECTURAL RECORD's special annual, *Record Houses*. The American Federation of Arts Circulates the exhibit.

Boston Architectural Awards

Exhibited during the recent Eighth Boston Arts Festival were the 11 winners of the Architectural Competition. The contest, intended to publicize "outstanding examples" of New England architecture, was conducted in cooperation with the New England Regional Council, A.I.A., Massachusetts State Association of Architects, and Boston Society of Architects. The jurors were James M. Fitch, associate professor of architecture, Columbia University; Morris Ketchum Jr., F.A.I.A.; Douglas W. Orr, F.A.I.A.

The Festival Award went to The Architects Collaborative for the William F. Pollard Junior High School, Needham, Mass. (AR, April '59). Receiving Special Mentions were George W. W. Brewster for the Maynard Ford Residence, Fitchburg, Mass., and Ronald Gourley for the Memorial Union Building, University of New Hampshire, Durham.

The following Awards of Merit were made: The Architects Collaborative—Carl Murchison Residence, Provincetown, Mass.; Carleton Granbery and Perkins & Will—New Foote School, New Haven; Krokyn & Kroykn—353 Marlborough St., Boston; Doak Martin—Craft Center, Worcester, Mass.; Nichols & Butterfield—Frederick U. Conard High School, West Hartford, Conn.; Isidor Richmond & Carney Goldberg—Recreation Building for Camp Kingswood, Brighton, Maine; Smith & Sellew—Bancroft School, Worcester; Bayard Underwood—Modular Steel Frame House of Bayard Underwood, Concord, Mass.



"Herald," cast aluminum sculpture by Seymour Lipton, created as the emblem of the 1959 R. S. Reynolds Memorial Award (AR, June '59, p. 10)

Kimball Named to Head Academy

Richard A. Kimball, A.I.A., has been appointed director of the American Academy in Rome. He will assume the post January 1, 1960, when the resignation of Laurance P. Roberts takes effect. Mr. Kimball has been with the New York firm of Gugler & Kimball since 1944.

Papers on Welding Invited

The American Welding Society invites the submission of papers on welding or related subjects for presentation at its 41st Annual Meeting and Welding Exposition at Los Angeles, April 25-29, 1960. Structures is one of the appropriate topics listed. Application forms may be had from the Society, Dept. P, 33 W. 39th St., New York 18. Abstracts (500-1000 words, preferably accompanied by the complete manuscript) must reach A.W.S. by August 15.

Consultation Service Announced

The American Psychiatric Association has announced "The Architectural Service," which is described as "a new consultation service for the planning, designing, and equipping of psychiatric facilities." The announcement lists architectural and engineering firms as among those to whom the service is available. Details are available from Mathew Ross, M.D., Medical Director, at the Association, 1700-18th St., N.W., Washington 9.

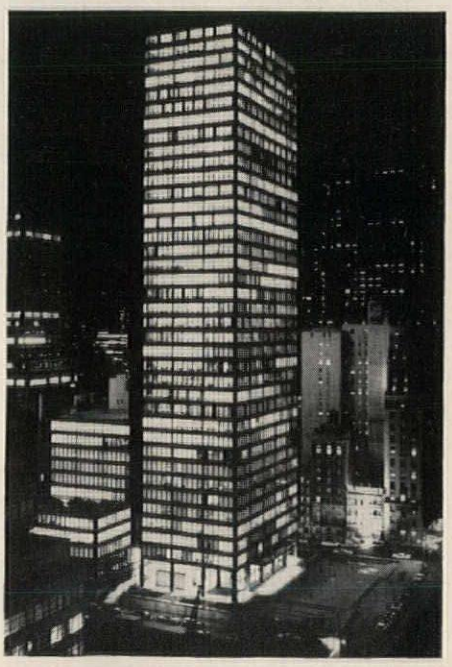
Seagram Photo Contest Winners

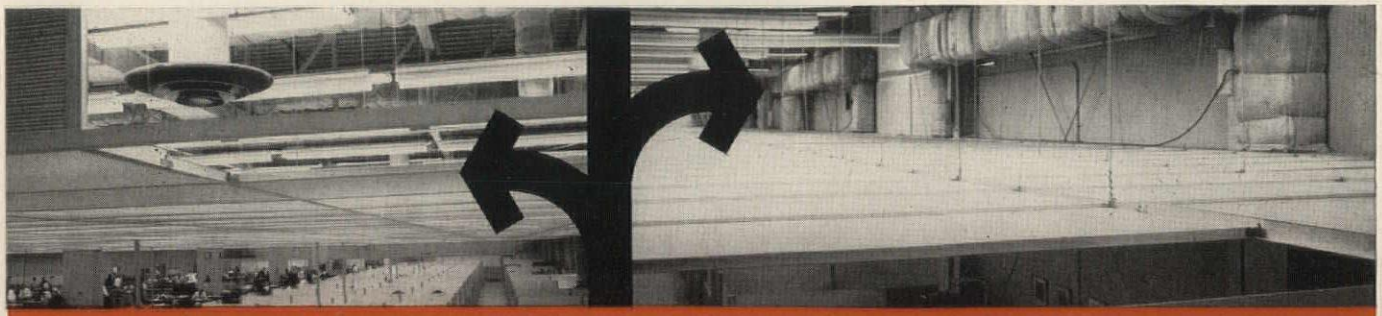
The names of winners of the photography contest of the Seagram Building were recently announced by Chase Brass & Copper Company, sponsor of the contest. Photographs were judged on their success in showing the use of bronze for the building's exterior. Judges were: Jacob Deschin, photography editor, *The New York Times;* Ada Louise Huxtable, architectural critic; Cranston Jones, associate editor for art and architecture, *Time* magazine.

In the black-and-white category, Arthur Irons Jr. won the $300 first prize with the photograph shown on this page (SP Nikon, 35 mm, with wide-angle lens; Plus X, 4 secs at F/8; 8:30 p.m. from roof of building at Park and 55th). Harold Siegel and R. L. Klais were second and third. In the color category, Rodney M. Morgan won first and third prizes, and Lars R. Beckman took second.

Ludwig Mies van der Rohe, left, receives the Royal Gold Medal for Architecture, 1959, from Basil Spence, president of the R.I.B.A.

Above: This design by Seymour Rutkin, New York architect, won one of four top prizes in the 1959 Mars Outstanding Design Contest, sponsored by J. S. Staedtler, Inc., Hackensack N. J. The office building is supported by an arch. *Below:* First-prize winner in the black-and-white category in Chase Brass & Copper's Seagram Building photo contest. The photographer is Arthur Irons Jr. (see story, this page)





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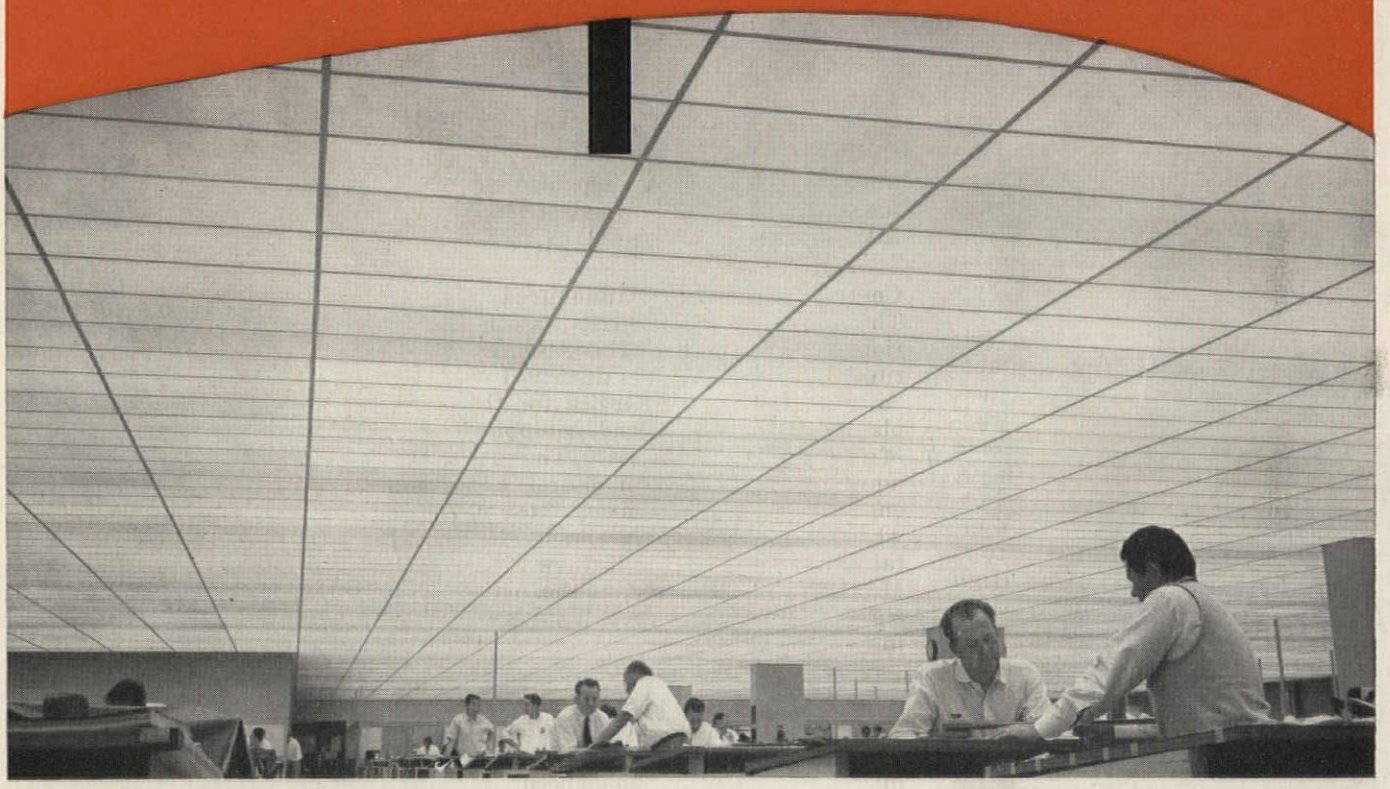

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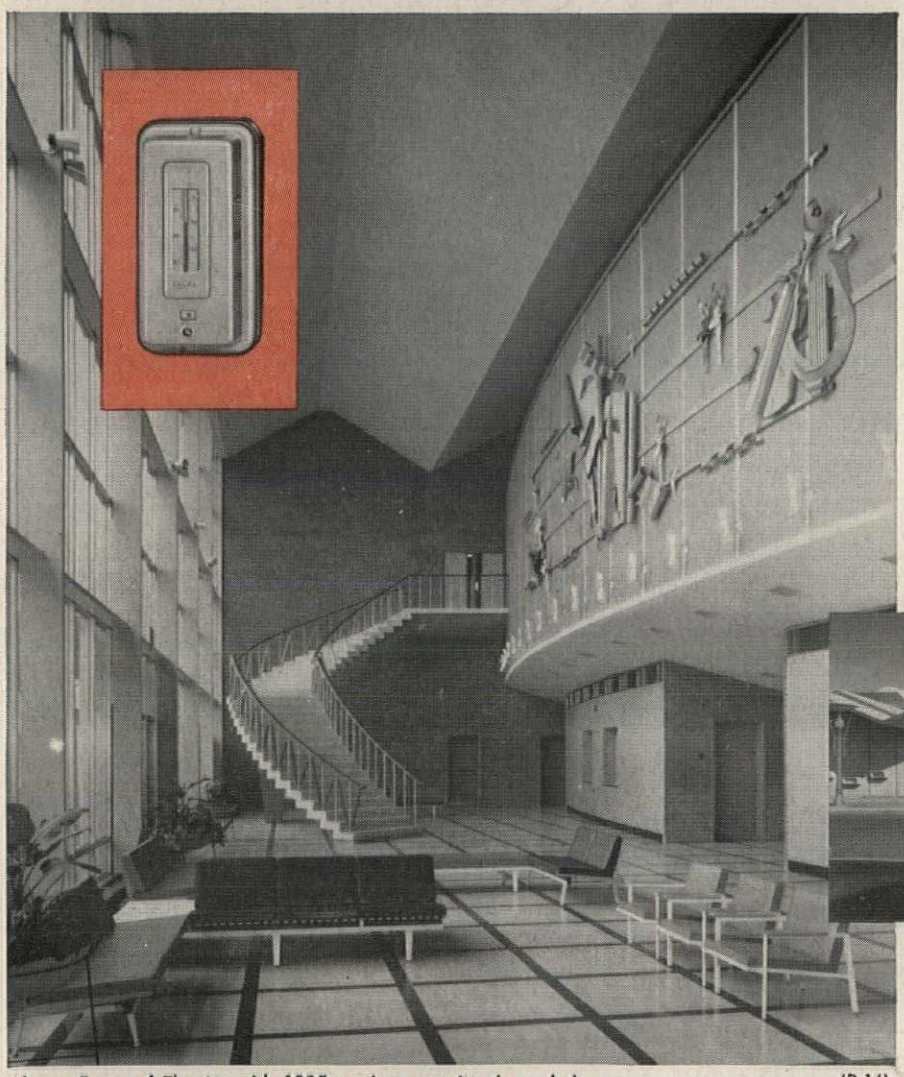

Above: Foyer of Theatre with 1325 seating capacity shown below. (D-14)

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Below: Exterior view of Exhibit Hall area.

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THE WADE PAGE

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WASTE LINE ABOVE FLOOR		Minimum	Recommended
Single	Exposed Flush Valve	11 (In Inches)	15
Back-to-Back	Exposed Flush Valves	14	19
Single	Concealed Flush Valve with Valve Access Door	17	17
Single	Concealed Flush Valve with Pipe Space Access	24	30
Back-to-Back	Concealed Flush Valves with Valve Access Doors	27	27
Back-to-Back	Concealed Flush Valves with Pipe Space Access	30	36

WASTE LINE BELOW FLOOR			
Single	Exposed Flush Valve	7	8
Back-to-Back	Exposed Flush Valves	8	11
Single	Concealed Flush Valve with Valve Access Door	12	12
Single	Concealed Flush Valve with Pipe Space Access	24	30
Back-to-Back	Concealed Flush Valves with Valve Access Doors	19	19
Back-to-Back	Concealed Flush Valves with Pipe Space Access	30	36

FLOOR-MOUNTED WATER CLOSETS

Single	Exposed Flush Valve 4" Stack	Assuming Piping Behind Wall	7
Single	Exposed Flush Valve 2" Stack		5
Back-to-Back	Exposed Flush Valve 4" Stack		10
Back-to-Back	Exposed Flush Valve 2" Stack		8
Single	Concealed Flush Valve with Pipe Space Access	24	30
Back-to-Back	Concealed Flush Valve with Pipe Space Access	30	36

			Recommended
Single	Concealed Flush Valve with Valve Access Door		8" with 1" Wall (add 1" for each added 1" wall thickness)
Back-to-Back	Concealed Flush Valve with Valve Access Doors		16" with 1" Wall (add 1" for each added 1" wall thickness)

CARRIER-SUPPORTED LAVATORIES

Single or Back-to-Back	Exposed Arms	0" Pipe Space if piping within 6" Wall 4" Pipe Space with Wall of ⅝" or more
Single or Back-to-Back	Concealed Arms	0" Pipe Space if piping within 6" Wall 4" Pipe Space with Wall of 1" or more

WALL-SUPPORTED LAVATORIES

Single	4	6
Back-to-Back	8	8

CARRIER-SUPPORTED URINALS

Single	Exposed Flush Valve	8	8
Single	Concealed Flush Valve with Pipe Space Access	24	30
Single	Concealed Flush Valve with Valve Access Door		Recommended 8" with 1" Wall (add 1" for each added 1" Wall thickness)

FLOOR MOUNTED URINALS

Single	Exposed Flush Valve, 4" Stack		7
Single	Exposed Flush Valve, 2" Stack		5
Single	Concealed Flush Valve with Pipe Space Access	24	30
Single	Concealed Flush Valve with Valve Access Door		Recommended 8" with 1" Wall (add 1" for each added 1" Wall thickness)

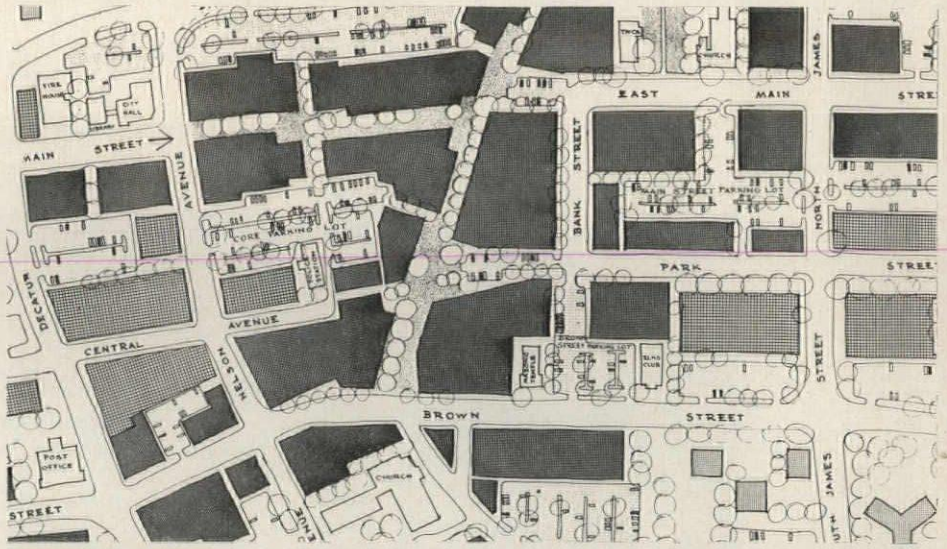
Verify Pipe Space With Your Mechanical Engineer If Absolute Minimum Is Required

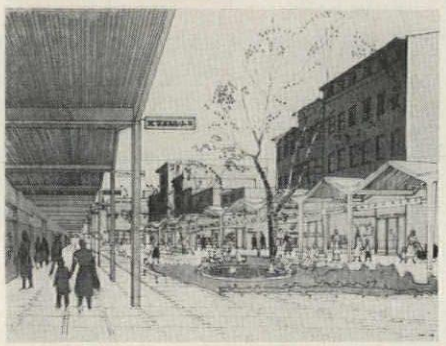
Shopping Malls Featured in Town Improvement Plans

Plans for the rejuvenation of the central business districts of three New York metropolitan-area communities have been made public. The places are the cities of Peekskill and Glen Cove and the village of Mount Kisco; all are in New York State. The plans were prepared, after two-year studies, by Raymond & May Associates, planning and urban renewal consultants of Pleasantville, N. Y., under the direction of David A. Ornstein, associate partner. Norman Klein, A.I.A, was architectural consultant on all three.

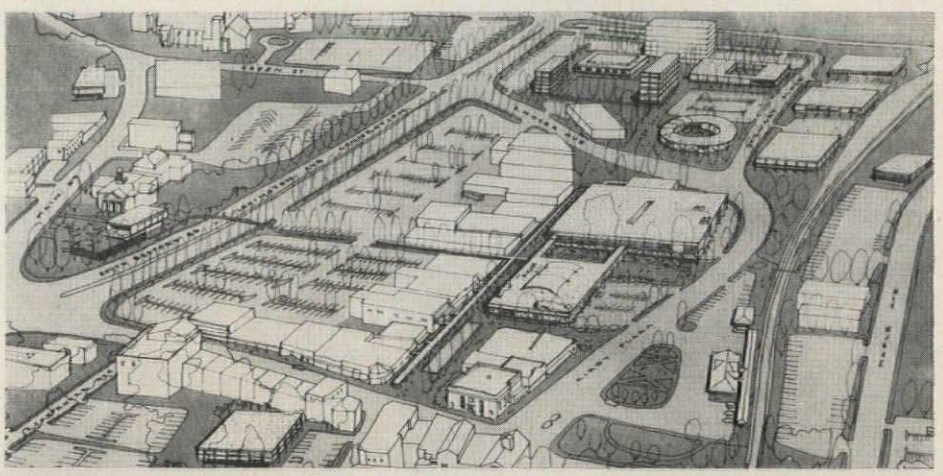
In general, the transformation of each business district into a shopping mall, closed to vehicular traffic, is proposed. In each case, a number of parking lots would be provided by realigning existing streets and razing deteriorating dwellings. New neighborhood park-playgrounds and peripheral traffic loops are also in the long-range plans.

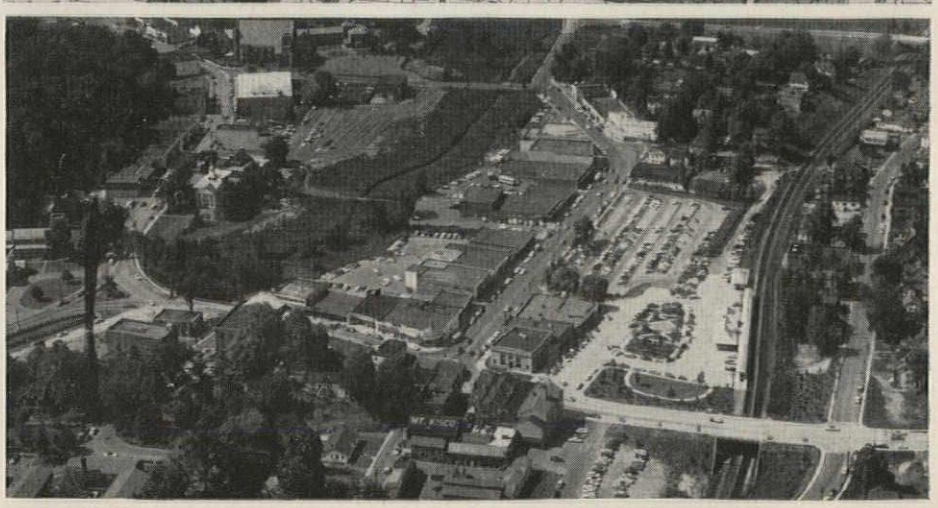
For Peekskill and Glen Cove, the cost of planning was shared: 25 per cent by the city, 25 per cent by the state, and 50 per cent by the Federal government through an Urban Planning Grant from the HHFA, under the provisions of Section 701 of the Housing Act of 1954.

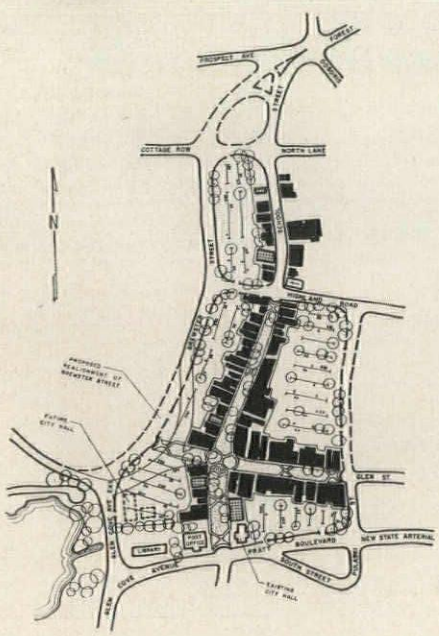




Peekskill: Top: proposed ultimate development of central business district. Arrow at upper left indicates location of views, above, of Main Street, as proposed and existing







Glen Cove: Above: Proposed development of central business district. Solid areas: existing commercial buildings; cross-hatched areas: proposed new commercial buildings; other areas: public parking lots. The shopping mall would be the two long areas crossing at center. *Mount Kisco:* Right: Perspective sketch of proposed ultimate development of central business district and aerial photograph from the same viewpoint of the area as it is now

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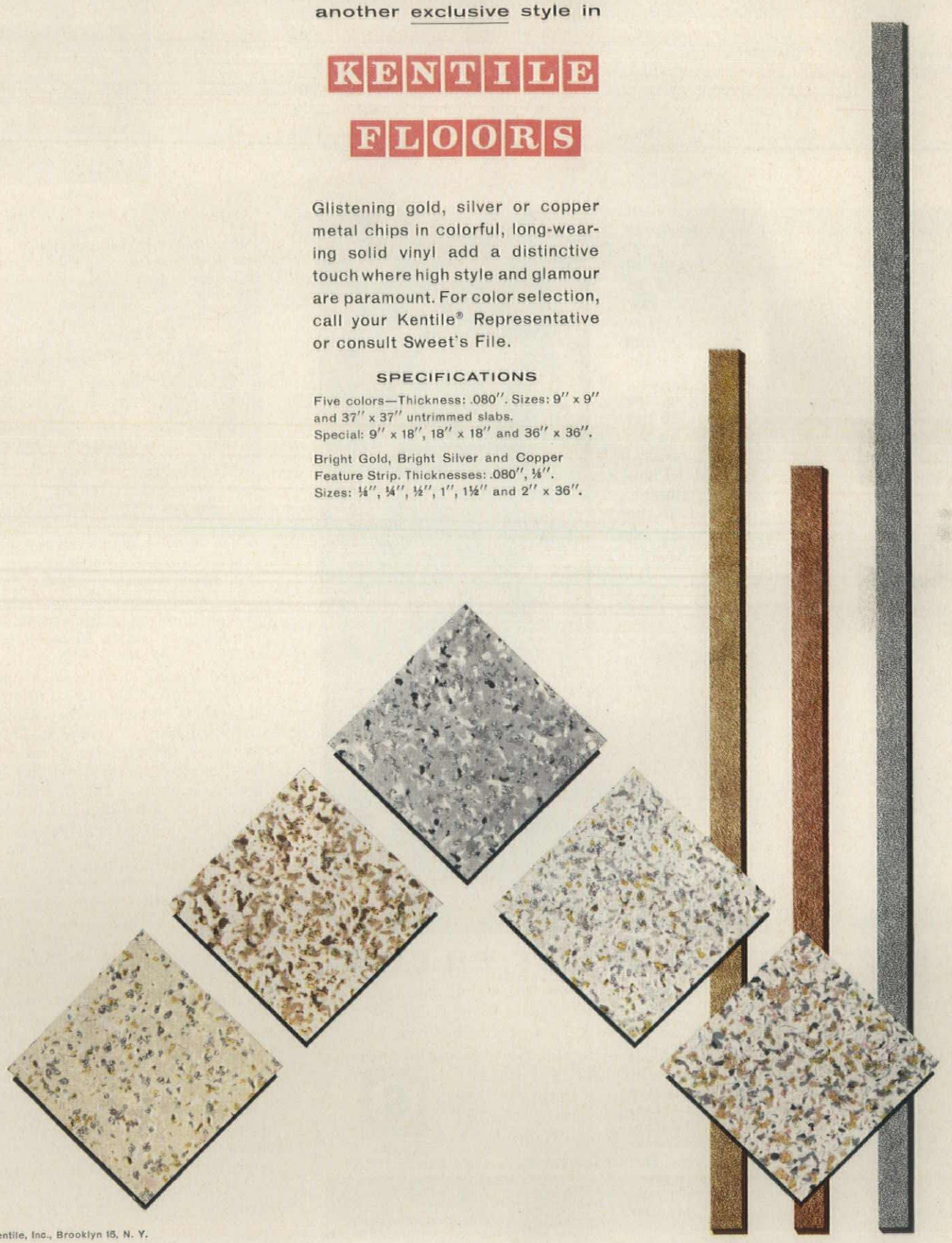

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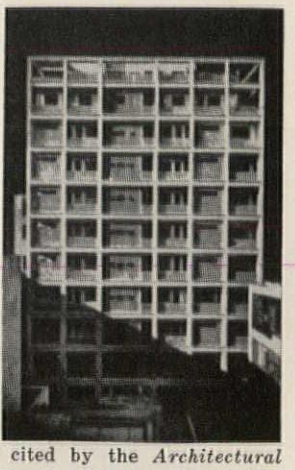
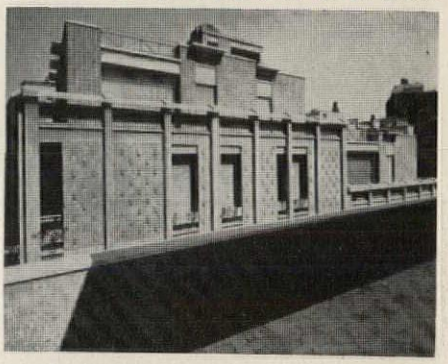
Periodical Report

ARCHITECTURAL REVIEW, May 1959 (Great Britain). With something of the bitterness which characterizes the cruelly disillusioned, Reyner Banham came down hard on the post-war architecture of Milan and Turin in an article titled "Neoliberty: The Italian Retreat from Modern Architecture." "Neoliberty" is a term of Italian coinage applied to a current sympathy, if not a revival, of the Italian Art Nouveau movement, *lo Stile Liberty*.

Mr. Banham freely admitted that the degree of English disillusionment with Italian architecture is in direct proportion to English, as opposed to Italian, hopes for it. "Without realizing what we were doing, we built up a mythical architecture that we would like to see in our own countries, an architecture of social responsibility and of formal architectonic purity. . . . The evidence of the eyes often contradicted the myth. Nevertheless, our hopes continued to reside in Milan, in the *Triennale*, in *QT8*, in the *Compasso d'Oro*, in *Communitá*, in *Domus* and, even more, in *Casabella Continuità*, Persico's famous magazine of the 30's revived under Rogers's editorship. But when *Casabella* began to publish, with manifest editorial approval, buildings which went far beyond Vagnetti's in historicist eclecticism, when the BBPR partnership staged for the London Furniture Exhibition of 1958 an Italian section that seemed to be little more than a hymn of praise to Milanese *borghese* taste at its queasiest and most cowardly, and when, finally, the Italian exhibit at the Brussels Exhibition was seen, then confusion followed hard on disillusion. But, behind our own private reactions there remain the buildings that produced them, and the attitude that even other Italians, like Bruno Zevi, clearly regard as wrong-headed and misguided."

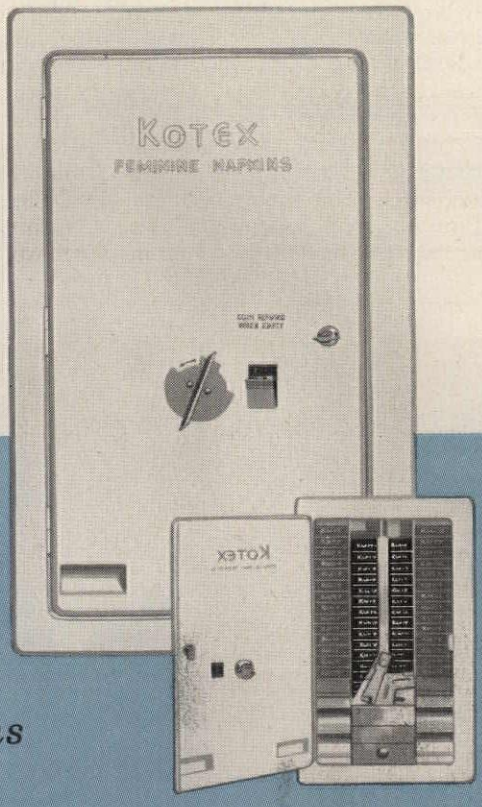




Two buildings cited by the *Architectural Review* as illustrative of the Italian "retreat": both are by the firm Figini and Pollini, the one above completed in 1949, the other last year, and both are in Milan

Recognizing that Neoliberty is in part an answer to the Italian public's desires, that it is possibly a reflection of a wide-spread search among architects for an alternative to the "style" of the Bauhaus, and that in Italy, where until after the war modern architecture had little chance to develop as a "total discipline," Art Nouveau continues to have an appeal—Mr. Banham felt that Art Nouveau is hardly the answer. It preceded, to start with, the mechanical revolution, as it preceded

continued on page 40



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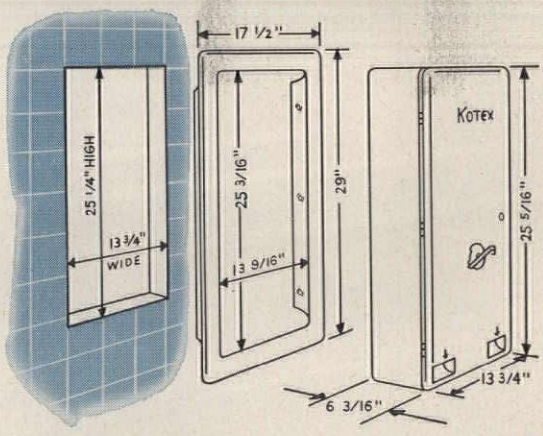

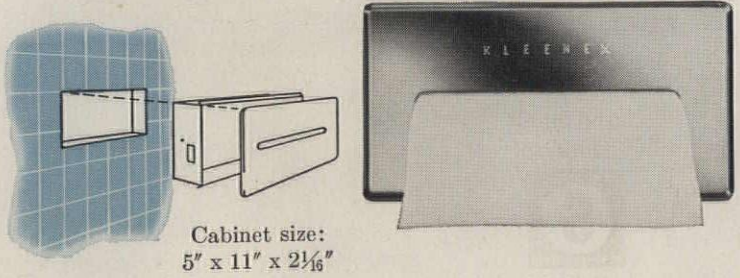

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80¢ - 95¢	**$1.00 and over**	**$1.00 and over**
"Futuresq" Vinyl Corlon .070" Cork Tile 3/16" Rubber Tile 1/8" "Tessera" Vinyl Corlon .090" Linotile 1/8" Custom Corlon Tile 3/32"	"Imperial" Custom Corlon Tile 3/32" Custom Corlon Tile 1/8" Cork Tile 5/16"	Rubber Tile 3/16" Custom Vinyl Cork Tile 1/8" Opalesq Vinyl Tile 1/8"

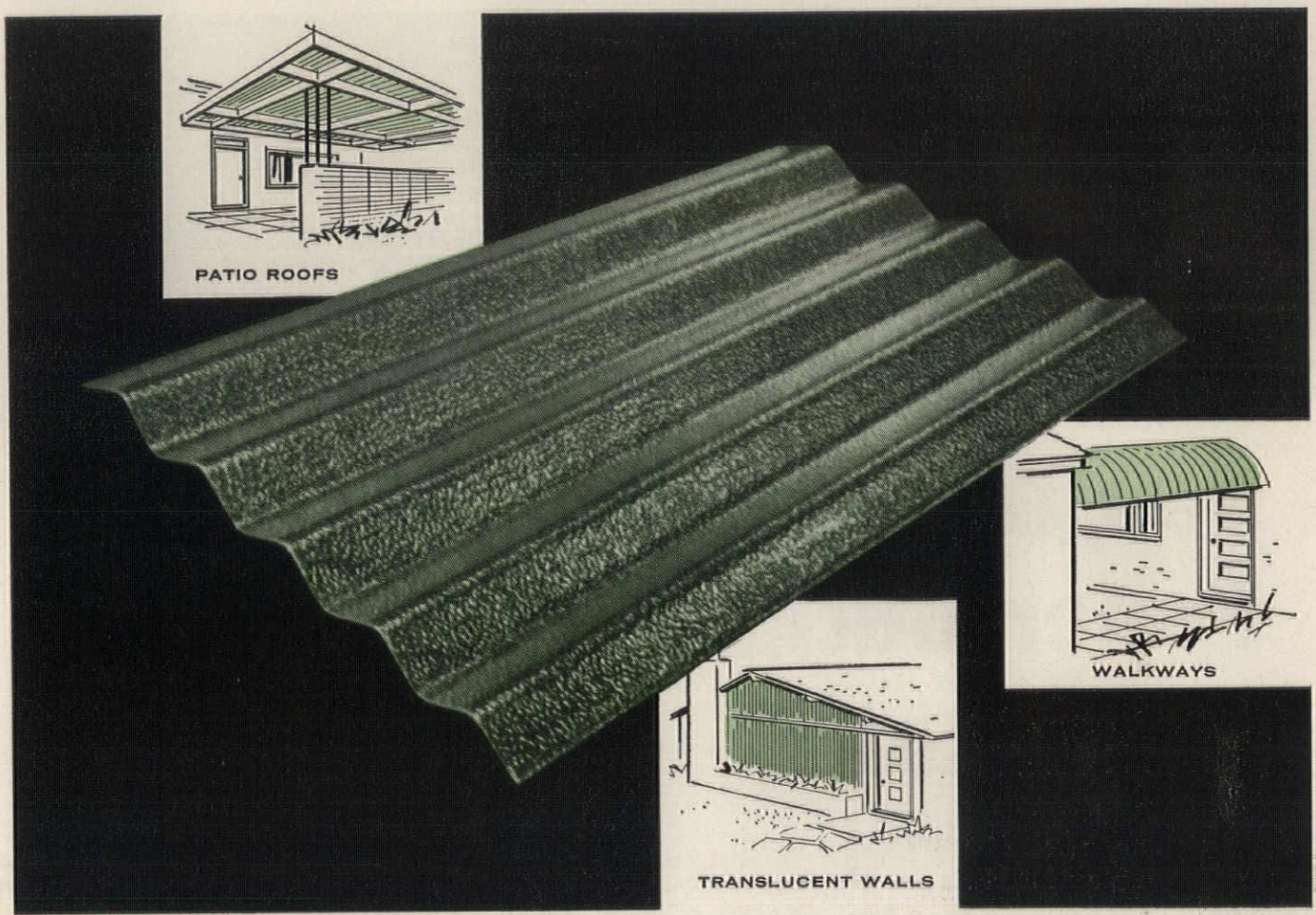
all the landmarks of the early modern movement, and was, in short, "not the first of the new styles, but the last of the old." An attempt to recapture "the good old days" through Liberty Style, old or new, is, he concluded, "even by the standards of Milan and Turin, infantile regression."

KENCHIKU BUNKA, May 1959 (Japan). Concern over what this magazine has called "The Image of the Architect" seems not to be confined to this country, nor even to the Occident. *Kenchiku Bunka*, celebrating, rather belatedly, its 150th issue, devoted several of its pages to a survey of current architectural practice. Answers to the questionnaires ("What is the architect's dream of 20 years hence? What is the professional nature of an architect? What is the most important problem in the architectural world today?") were unfortunately not translated into English. A look at some of the individual articles contributed to the survey, however, reveals some of the specific problems dogging the profession in Japan. "Noburu Kawazoe indicates the low position the architect has in society and writes what should be done to keep architects from being pushed around by clients in designing buildings. Through a factual report by Yuichiro Kojiro, we are shown how the architect is confusing the cities by his works. Toshiya Yada also presents here his article, 'Stop Confusing the Cities or Take the Consequences.' [The last article] is an anonymous colloquium where the back scene of the architects' world is bared. Behind-the-scene activities and manipulations being used in obtaining commissions are indicated in an appeal towards architects to take firmer and clearer personal standings."

THE ARCHITECTS' JOURNAL, March 26, 1959 (Great Britain). Ian Nairn, who combines—surely uniquely—the abilities of both an architectural critic and an aviator, took to the air recently in the company of one of the *Journal's* staff photographers, W. J. Tooney. Between them, they produced a series of aerial photographs, and discovered that a view of architecture from a low-flying plane can be very enlightening. "The main advantages are immediate apprehension of relationship of parts to whole in a complex building, relationship of building to surrounding services where the two are indivisible, a shatteringly candid revelation of the fifth elevation (the roof) and usually two of the other four—the 'back and sides'; in fact, complete honesty and freedom from trick photography—and immediate description of landscape treatment or lack of it." The undertaking was enjoyable, too; Mr. Nairn's advice to architects—"Get airborne: you'll find it's fun."

THE JAPAN ARCHITECT, May 1959 (Japan). (The international edition of the magazine *Shinkenchiku*, in English.) An estimate of the population of Tokyo puts it at 8,450,000, and the city now has, according to *The Japan Architect*, "suburbs large enough to have suburbs of their own." The alarming and continuing expansion of the city, and the general failure of the satellite towns to draw off population from the city proper, has led at least three architects to ponder what might be done with all that unused space in Tokyo Bay. A plan introduced last year by the Japanese Housing Corporation proposed to fill in the northern half of the bay, a move which would increase the area of the city another time and a half. A counter-proposal came from architect Masato Otaka, who suggested that con-

continued on page 44



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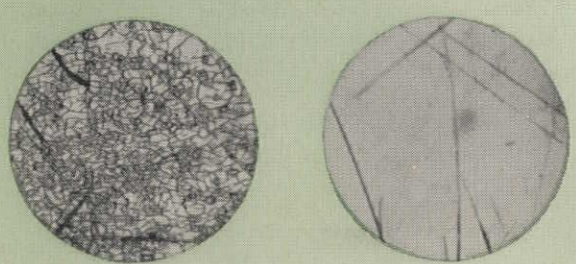

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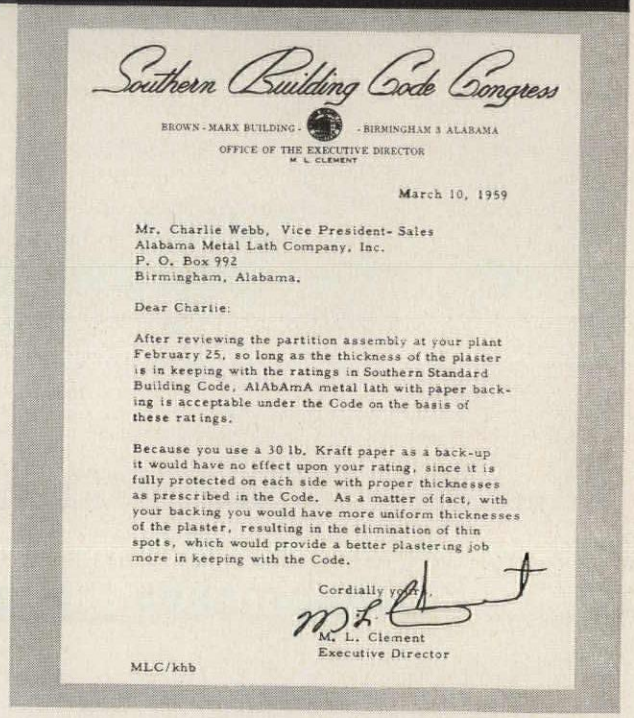

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March 10, 1959

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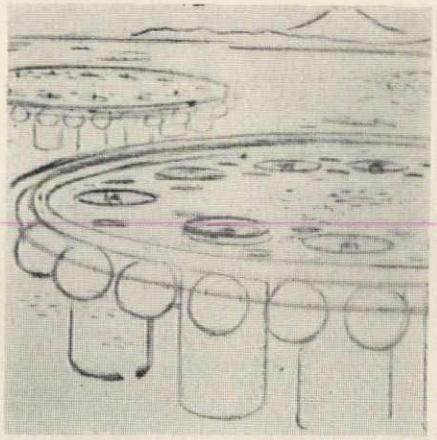

crete piles, supporting concrete islands, be sunk around the perimeter of the bay, thus saving the expense of earth work. Still another plan for concrete islands comes from Kiyonori Kikutake, whose structure (see above) would consist of concrete rings floated on the surface, subsequently filled in with concrete poured "on the water"; apartment towers would be sunk through the island to the floor of the bay (and would provide residents with an underwater view). The magazine contented itself with reporting these ideas, and observing that "the very real problems at hand are not likely to be solved without paying considerably more attention to technological realities."

CASABELLA, March 1959 (Italy). From China via Margarete Shütte-Lihotzky through *Casabella* to the United States, which is having great troubles getting any news of its own from Red China, comes a report on building since 1950. Here, at top, a pavilion for the University Center at Peiping, and below, the Department of Public Works, also at Peiping.

more news on page 48

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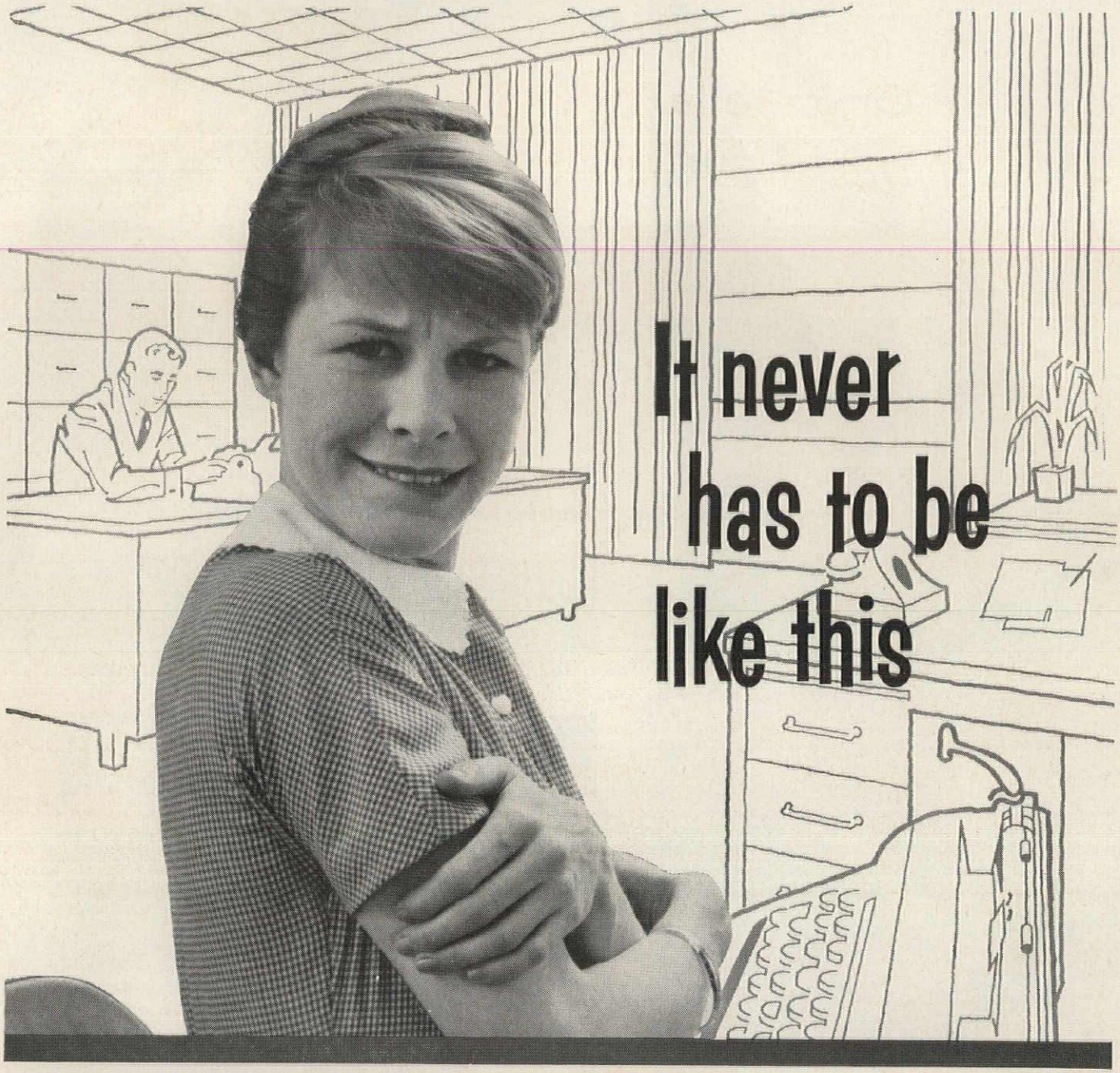

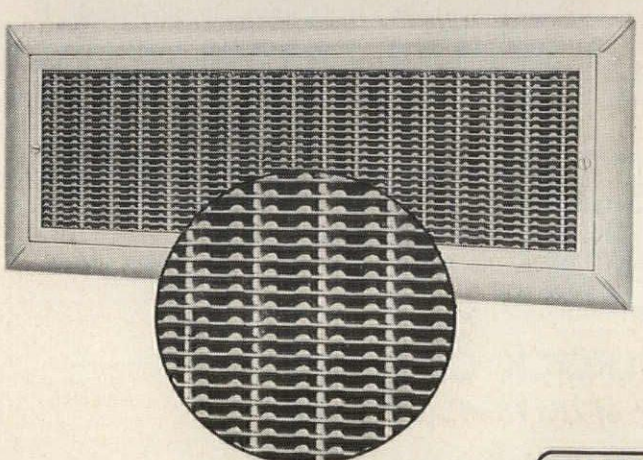

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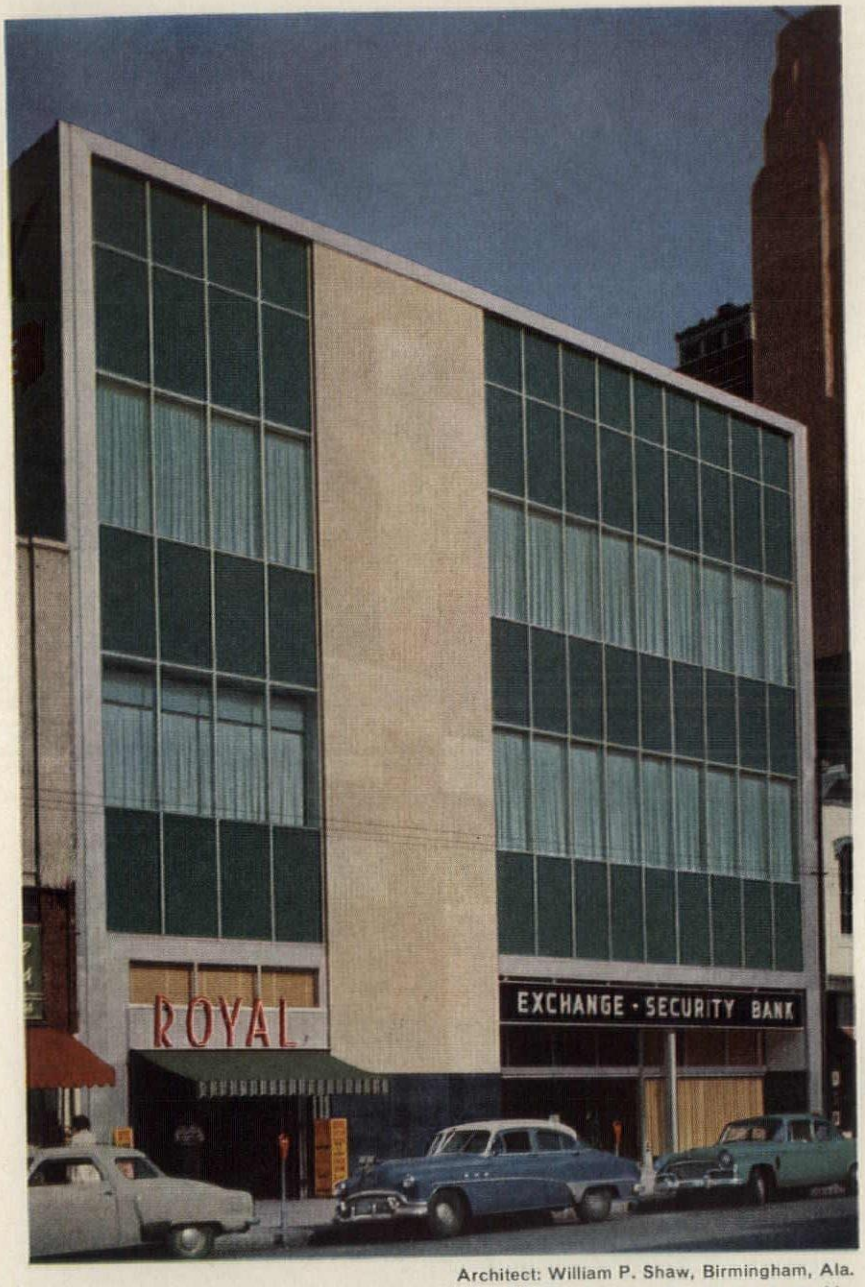

Architect: William P. Shaw, Birmingham, Ala.
Contractor: Hallmark Construction Co., Birmingham, Ala.
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A Washington Report by Ernest Mickel

NEW AND GROWING CONSTRUCTION FIELD: MISSILE AND ROCKET INSTALLATIONS

A look today at the construction potential in the missiles and rockets field has to be tempered by the realization that new decisions in the fast-moving space age environment come swiftly and that the amount of design and construction business contained in projected plans will rise or fall with the impact of technological developments.

An immediate appraisal of some of the certain outlays for missile base construction is worthwhile, however, as an indicator of the substantial amount of activity in this field that lies ahead for architects and engineers.

Putting aside for the moment the big argument that rages in Washington over the missile gap, there is important general agreement that the base construction program will grow steadily for an indefinite period. There are tangible signs of its magnitude.

By June 30, the Air Force had committed $900 million for the construction of test, training, and other phases of the ballistic missiles program. Its request for launching site construction funds for fiscal 1960—the current period, just underway—was $343 million. It has been estimated that the facilities themselves consume about 80 per cent of the dollars spent.

Changes Ahead

Launching sites for the Titan, if they are hardened—put underground—cost in the neighborhood of $40 million each. The Atlas missile installations cost about the same, and there is a lesser price tag on the Minuteman site. Concentration right now is on the Titan and Atlas program with the Minuteman development lagging behind it.

All this has considerable significance for the interested architect and engineer. ICBM construction is underway at 11 Air Force base locations; many sites, according to the present plans, will be "hardened," calling for the newer concept in heavy construction.

This "new era," by the way, has a striking illustration of construction method in the work at Lowry Air Force Base, Denver. There, the contractor, Morrison-Knudsen, has decided to excavate a huge bowl-shaped area, construct the "silos" required for the Titans—nine of them—then backfill. This departs radically from the earlier concept of excavating separate shafts for the individual containers.

Lowry will become the first fully operational installation. Each of two complexes there will house nine of the launching silos.

An understanding of the work involved can be gained from one official's description. It was said that burying the launchers in a hardened site is equivalent to the task of submerging a 10-story building.

The cylindrical vaults each are 163 ft deep and 40 ft in diam. They have a dome configuration. A separate 73 by 27 ft storage area will be provided for each of the complexes.

Additional construction at these sites calls for a large control center, a powerhouse, fuel locations, antenna and equipment areas, plus housing for personnel. Incidentals take in roads, fencing, security items, etc.

Two large firms have been handling design of the Titan bases and are doing the plans for the Minuteman locations that will follow. These are Ralph M. Parsons Co. and Daniel, Mann, Johnson & Mendenhall.

Regardless of the outcome of Washington arguments on the missile gap, and as to whether or not appropriated funds are being spent wisely on defense, billions of dollars will continue to pour into this aspect of the nation's defenses in the years ahead, and large segments of them will go for design and construction of ever-changing facilities. Involved in the current arguments are such questions as changing the defense "mix," hardening or not hardening certain existing and new launching locations, and the extent to which bases for launching the deadly weapons should be dispersed or located near existing cities or towns.

$1.6 Billion in ICBM Contracts

The volume of new contracts planned for the three ICBM types, Titan, Atlas, and Minuteman, was said to approximate $1.6 billion in total.

Regardless of the mix changes or other foreseen factors, the effort is going to continue to drain off large quantities of basic building materials from the civilian programs—and in increasing volume.

The Army Corps of Engineers, agents in the building of these sites, has reported material requirements for six missile launching and service structures 103 by 133 ft, two operations buildings 73 by 78 ft, and a guidance structure 212 by 75 ft. This is an above-ground facility for the Atlas, being constructed as one of four, each located 18 miles from Cheyenne, Wyo., in a radius around that city. This type of installation, being aboveground, requires unusually heavy construction.

For One Unit, 128,000 Tons

The Corps said that the largest of these so-called annexes, one of the four ringing Cheyenne, is consuming materials in the following amounts: reinforcing steel, 1950 tons; mechanical steel items, 8000 tons; structural steel, 1100 tons; cement, 6300 tons; aggregate, 37,000 tons; concrete blocks and prestressed members, 4300 tons; miscellaneous wire, nails, lumber, and other items, 1200 tons; road aggregate, 66,000 tons, and asphalt, 800 tons.

This all adds up to something over 128,000 tons for one unit of a four-unit complex at one location.

Prestressed concrete panels spanning 36.5 ft are being used in one of the buildings for its roof system and part of the floor.

Bechtel Corp., Stearns and Rogers, Holmes and Narver, and Black and Beatch hold the A and E contract for the Atlas sites.

For the first time, defense authorities report, facility design is keeping pace with weapons development. In fact, it might in some cases be ahead.

The present administration policy is to place the Titans underground and later on to rely heavily on the less expensive hard fuel-propelled Minuteman. The Atlas, for the most part, would be above ground.

The first of four of 10 Atlas squadrons is being planned for above-ground installations. Radar and antenna guidance systems must be exposed. But the plans call for more and more of the Atlas sites to be hardened, placed beneath the surface.

Fluid and flexible, however, describe the high-level approach to these problems of retaliation, and the design for construction is changing as research and Russia's actions dictate.

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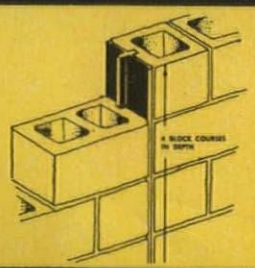

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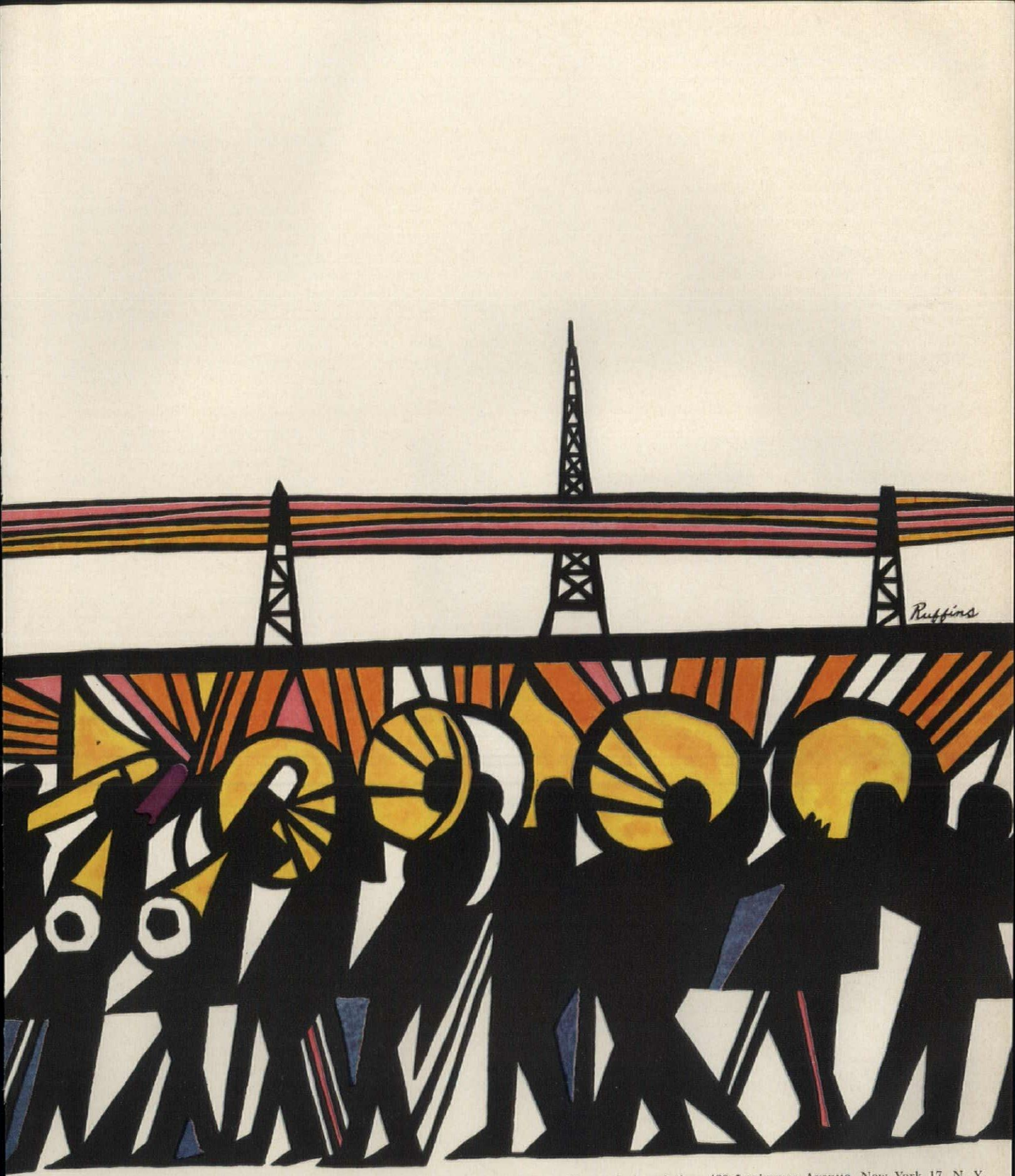


Washington Topics *by Ernest Mickel*

Bureau of Public Roads Wants Cities To Plan for Highways

The Bureau of Public Roads was prepared to go the limit in encouraging cities to formulate comprehensive transportation planning policies.

So vital has this become to the overall construction of the nation's Interstate Highway System that one Bureau group supported withholding Federal assistance for urban road construction from those cities who failed to develop such a plan for their intra-city highways.

There was some doubt that the highway law would permit this extreme measure, and last month BPR was determined to get out a memorandum to State Highway Departments indicating its intention to make the Federal funds available to cities without comprehensive road plans only with the greatest reluctance.

This, it was felt, would spur municipalities to a new round of activity in the transportation planning field.

U. S. Chamber Prepares to Help

The U. S. Chamber of Commerce noted this "great concern" by highway officials over the lack of factual information and comprehensive transportation planning in many of the populated centers. It urged its local Chambers to aid city officials in preparing a plan embracing a balanced program providing adequate facilities for automobiles, trucks, buses, taxis and transit.

Such an approach, it said, should include considerations for long-range programs setting forth improvement priorities. Land use should be recognized as well as the economic, social and cultural development of the city. Such action, the Chamber continued, may be the key to early completion of Federal-aid routes in cities.

Considerable importance attaches to the city planning because such a large amount of the overall Interstate Highway building will be in the city centers.

The Automotive Safety Foundation, in its recent report, "Attacking the Urban Transportation Crisis," takes note of this—

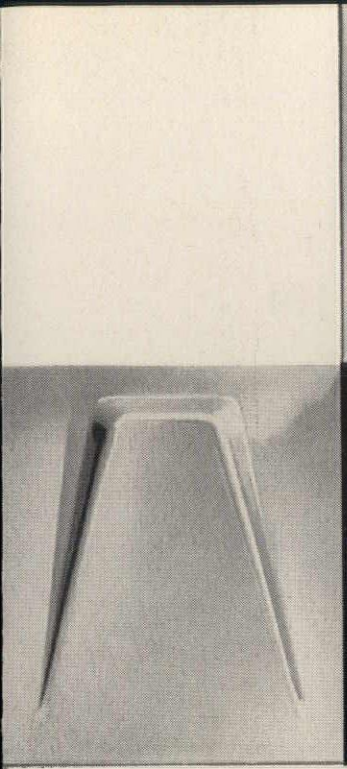
"Consider that more than half of all expenditures for the National System of Interstate and Defense Highways alone will be in urban areas. These will be supplemented by funds for other Federal-aid roads located within metropolitan areas. Thus it becomes apparent that D-Day has arrived in urban highway construction."

Getting Data on City Needs

For two decades the BPR and the state highway departments have conducted joint planning surveys to develop information on highway systems under state jurisdictions. Thus the needs, now and in the future, are pretty well known for rural highways. This is not the case, however, for city areas. No such information is available to them.

One result of this situation has been formation of the National Committee on Urban Transportation. In this, six national groups combined their energies in 1954, but the move has recently come to life in the preparation of a manual on methods and procedures cities can use to undertake a complete fact-gathering program for evaluating its deficiencies and projecting its needs. This adds up to the formulation of a transportation policy which BPR would like to see as a prerequisite for the approval of Federal funds at a 90 per cent of cost level for the building of Interstate routes within city limits.

continued on page 326



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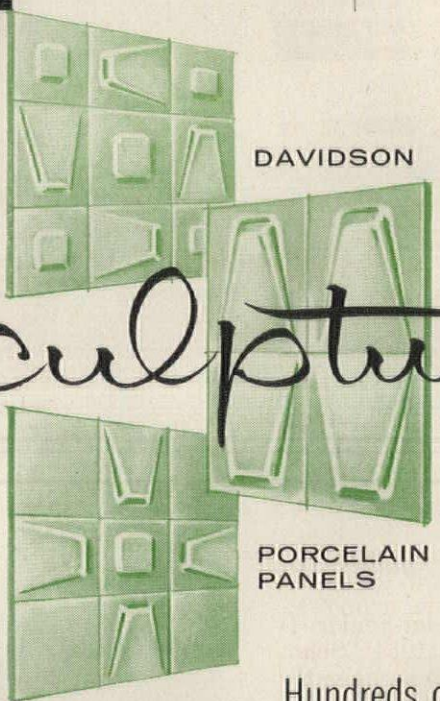

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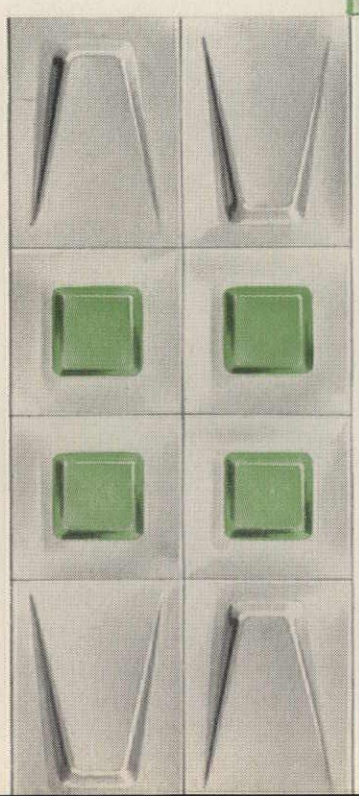

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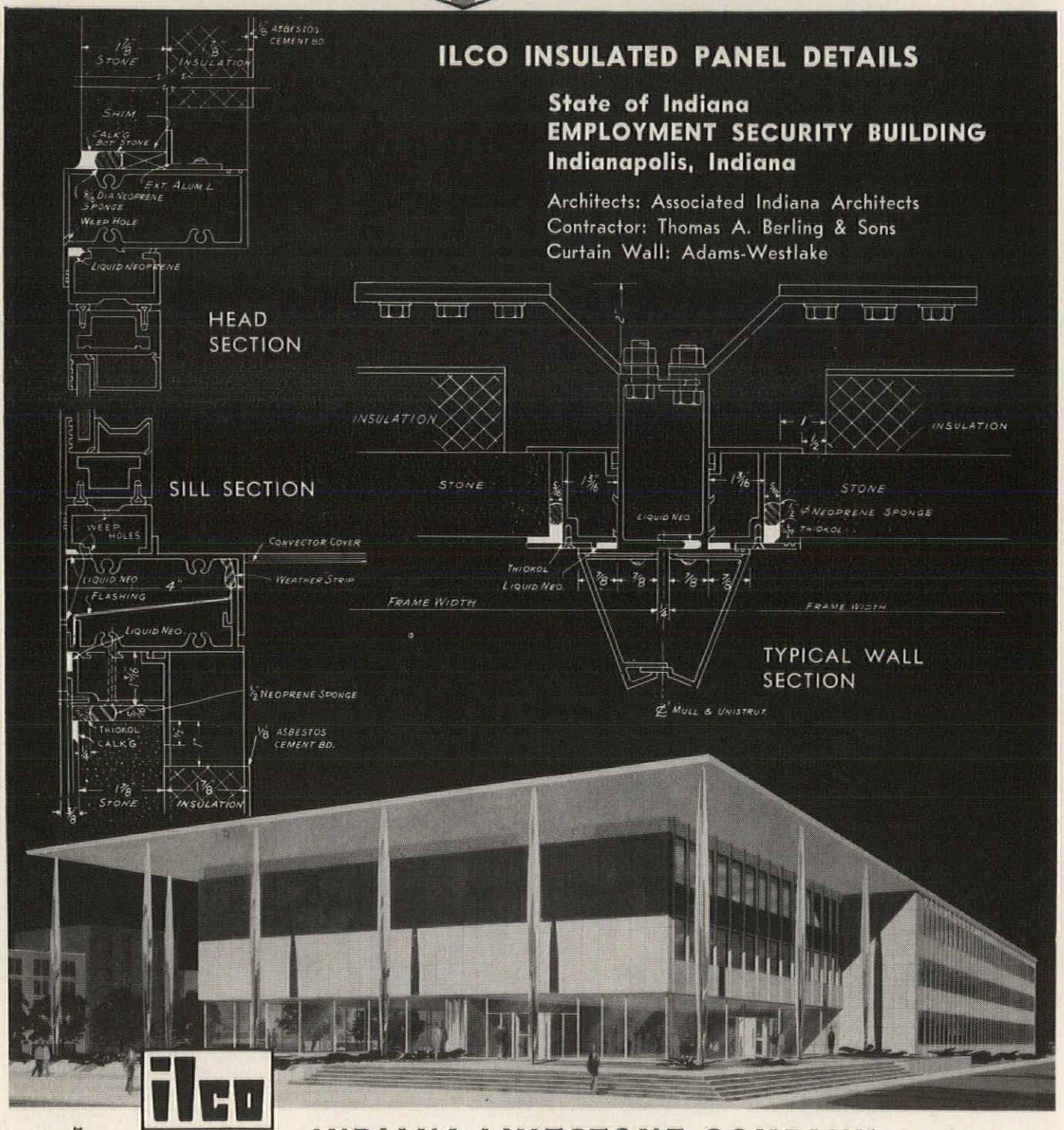

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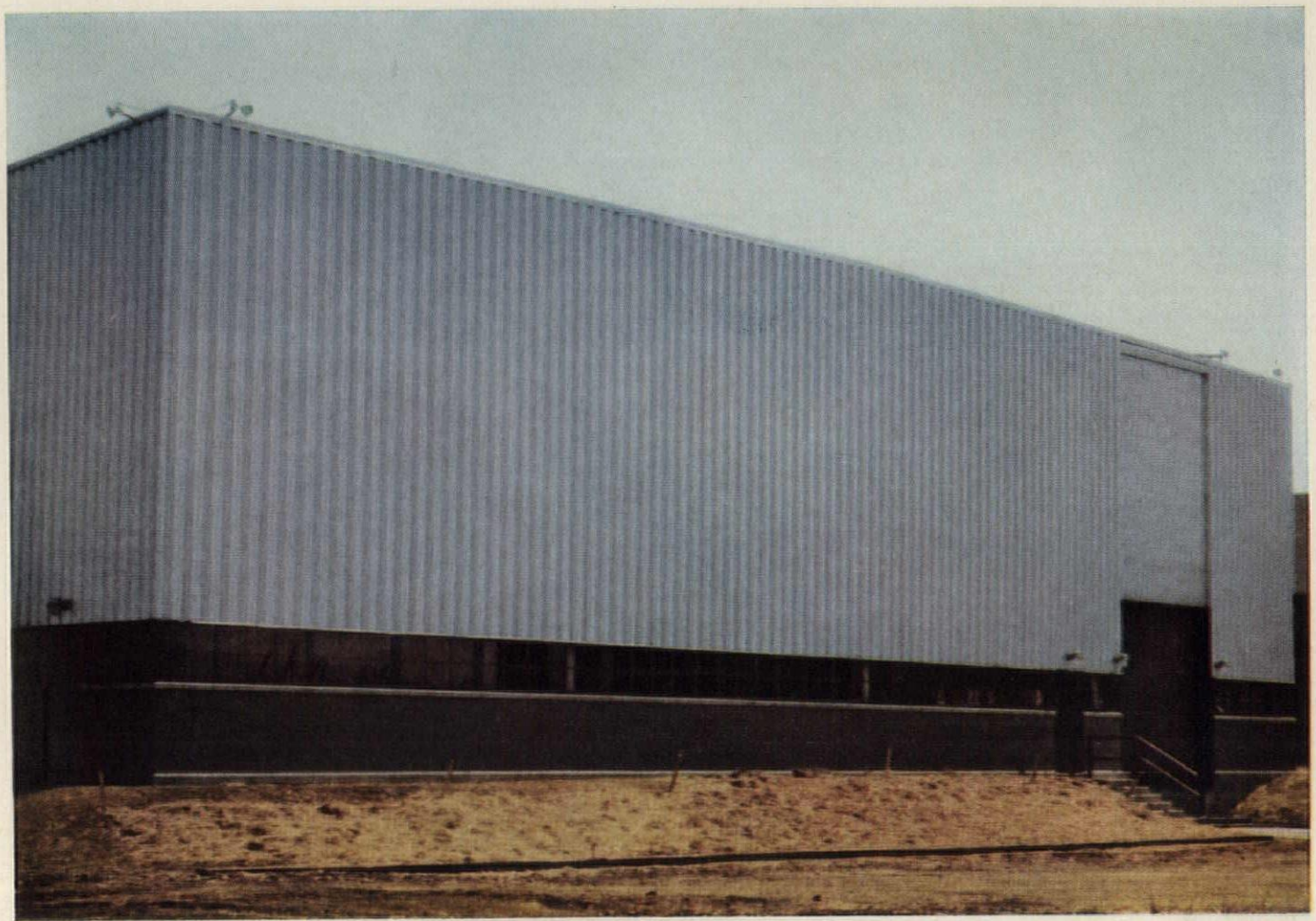
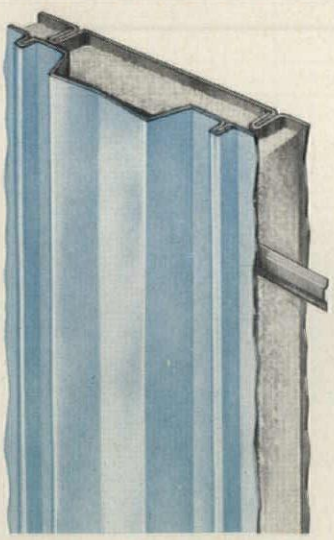
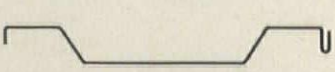


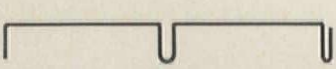
Architects-Engineers, Dalton-Dalton Associates, Cleveland, O. • Builders, Cunningham-Limp Company, Detroit, Mich.



Shadowall



Contourwall



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Presented by Clyde Shute, Director of Statistical Policy, Construction News Div., F. W. Dodge Corp., from data compiled by E. H. Boeckh & Assoc. Inc.

Labor and Materials: U.S. average 1926-1929=100

NEW YORK

PERIOD	RESIDENTIAL Brick	RESIDENTIAL Frame	APTS., HOTELS, OFFICE BLDGS. Brick and Concrete	COMMERCIAL AND FACTORY BLDGS. Brick and Concrete	COMMERCIAL AND FACTORY BLDGS. Brick and Steel
1930	127.0	126.7	124.1	128.0	123.6
1935	93.8	91.3	104.7	108.5	105.5
1939	123.5	122.4	130.7	133.4	130.1
1947	219.3	222.0	207.6	207.5	203.8
1948	250.1	251.6	239.4	242.2	235.6
1949	243.7	240.8	242.8	246.6	240.0
1950	256.2	254.5	249.5	251.5	248.0
1951	273.2	271.3	263.7	274.9	271.8
1952	278.2	274.8	271.9	265.2	262.2
1953	281.3	277.2	281.0	286.0	282.0
1954	285.0	278.2	293.0	300.6	295.4
1955	293.1	286.0	300.0	308.3	302.4
1956	310.8	302.2	320.1	328.6	324.5
1957	318.5	308.3	333.1	345.2	339.8
1958	328.0	315.1	348.6	365.4	357.3
February 1959	338.2	323.0	362.4	383.1	368.9
March 1959	339.4	324.9	363.1	383.2	369.6
April 1959	340.7	326.3	364.6	385.3	371.2
	% increase over 1939				
April 1959	175.9	166.6	178.9	188.8	185.3

ATLANTA

PERIOD	RESIDENTIAL Brick	RESIDENTIAL Frame	APTS., HOTELS, OFFICE BLDGS. Brick and Concrete	COMMERCIAL AND FACTORY BLDGS. Brick and Concrete	COMMERCIAL AND FACTORY BLDGS. Brick and Steel
1930	82.1	80.9	84.5	86.1	83.6
1935	72.3	67.9	84.0	87.1	85.1
1939	86.3	83.1	95.1	97.4	94.7
1947	180.4	184.0	158.1	157.1	158.0
1948	199.2	202.5	178.8	178.8	178.8
1949	189.3	189.9	180.6	180.8	177.5
1950	194.3	196.2	185.4	183.7	185.0
1951	212.8	214.6	204.2	202.8	205.0
1952	218.8	221.0	212.8	210.1	214.3
1953	223.0	224.6	221.3	221.8	223.0
1954	219.6	219.1	233.5	225.2	225.4
1955	225.3	225.1	229.0	231.5	231.8
1956	237.2	235.7	241.7	244.4	246.4
1957	241.2	239.0	248.7	252.1	254.7
1958	243.9	239.8	255.7	261.9	262.0
February 1959	248.9	244.8	261.8	268.4	268.5
March 1959	249.1	245.0	262.0	268.5	268.7
April 1959	249.9	246.0	262.9	269.5	271.0
	% increase over 1939				
April 1959	189.6	196.0	176.4	176.7	186.2

ST. LOUIS

PERIOD	RESIDENTIAL Brick	RESIDENTIAL Frame	APTS., HOTELS, OFFICE BLDGS. Brick and Concrete	COMMERCIAL AND FACTORY BLDGS. Brick and Concrete	COMMERCIAL AND FACTORY BLDGS. Brick and Steel
1930	108.9	108.3	112.4	115.3	111.3
1935	95.1	90.1	104.1	108.3	105.4
1939	110.2	107.0	118.7	119.8	119.0
1947	202.4	203.8	183.9	184.2	184.0
1948	227.9	231.2	207.7	210.0	208.1
1949	221.4	220.7	212.8	215.7	213.6
1950	232.8	230.7	221.9	225.3	222.8
1951	252.0	248.3	238.5	240.9	239.0
1952	259.1	253.2	249.7	255.0	249.6
1953	263.4	256.4	259.0	267.0	259.2
1954	266.6	260.2	263.7	273.3	266.2
1955	273.3	266.5	272.2	281.3	276.5
1956	288.7	280.3	287.9	299.2	293.3
1957	292.0	283.4	295.2	307.1	302.9
1958	297.0	287.9	304.9	318.4	313.8
February 1959	302.2	294.0	310.7	324.6	318.7
March 1959	302.2	294.0	310.7	324.6	318.7
April 1959	303.4	295.2	311.8	325.8	321.0
	% increase over 1939				
April 1959	175.3	175.9	162.7	171.9	169.7

SAN FRANCISCO

PERIOD	RESIDENTIAL Brick	RESIDENTIAL Frame	APTS., HOTELS, OFFICE BLDGS. Brick and Concrete	COMMERCIAL AND FACTORY BLDGS. Brick and Concrete	COMMERCIAL AND FACTORY BLDGS. Brick and Steel
1930	90.8	86.8	100.6	104.9	100.4
1935	89.5	84.5	96.4	103.7	99.7
1939	105.6	99.3	117.4	121.9	116.5
1947	193.1	191.6	183.7	186.8	186.9
1948	218.9	216.6	208.3	214.7	211.1
1949	213.0	207.1	214.0	219.8	216.1
1950	227.0	223.1	222.4	224.5	222.6
1951	245.2	240.4	239.6	243.1	243.1
1952	250.2	245.0	245.6	248.7	249.6
1953	255.2	257.2	256.6	261.0	259.7
1954	257.4	249.2	264.1	272.5	267.2
1955	268.0	259.0	275.0	284.4	279.6
1956	279.0	270.0	288.9	298.6	295.8
1957	286.3	274.4	302.9	315.2	310.7
1958	289.8	274.9	311.5	326.7	320.8
February 1959	295.0	280.3	317.7	332.4	326.3
March 1959	295.0	280.3	317.7	332.4	326.3
April 1959	296.2	281.6	318.9	334.2	326.9
	% increase over 1939				
April 1959	180.5	183.6	171.6	174.1	180.6

Cost comparisons, as percentage differences, for any particular type of construction, are possible between localities, or periods of time within the same city, by dividing the difference between the two index numbers by one of them; i.e.:

index for city A = 110
index for city B = 95
(both indexes must be for the same type of construction).

Then: costs in A are approximately 16 per cent higher than in B.

$$\frac{110-95}{95} = 0.158$$

Conversely: costs in B are approximately 14 per cent lower than in A.

$$\frac{110-95}{110} = 0.136$$

Cost comparisons cannot be made between different types of construction because the index numbers for each type relate to a different U. S. average for 1926-29.

Material prices and wage rates used in the current indexes make no allowance for payments in excess of published list prices, thus indexes reflect minimum costs and not necessarily actual costs.

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1" x 2" bronze tubes	1" x 1/8" bronze flats
3/4" x 3/8" keyholed bronze channel	

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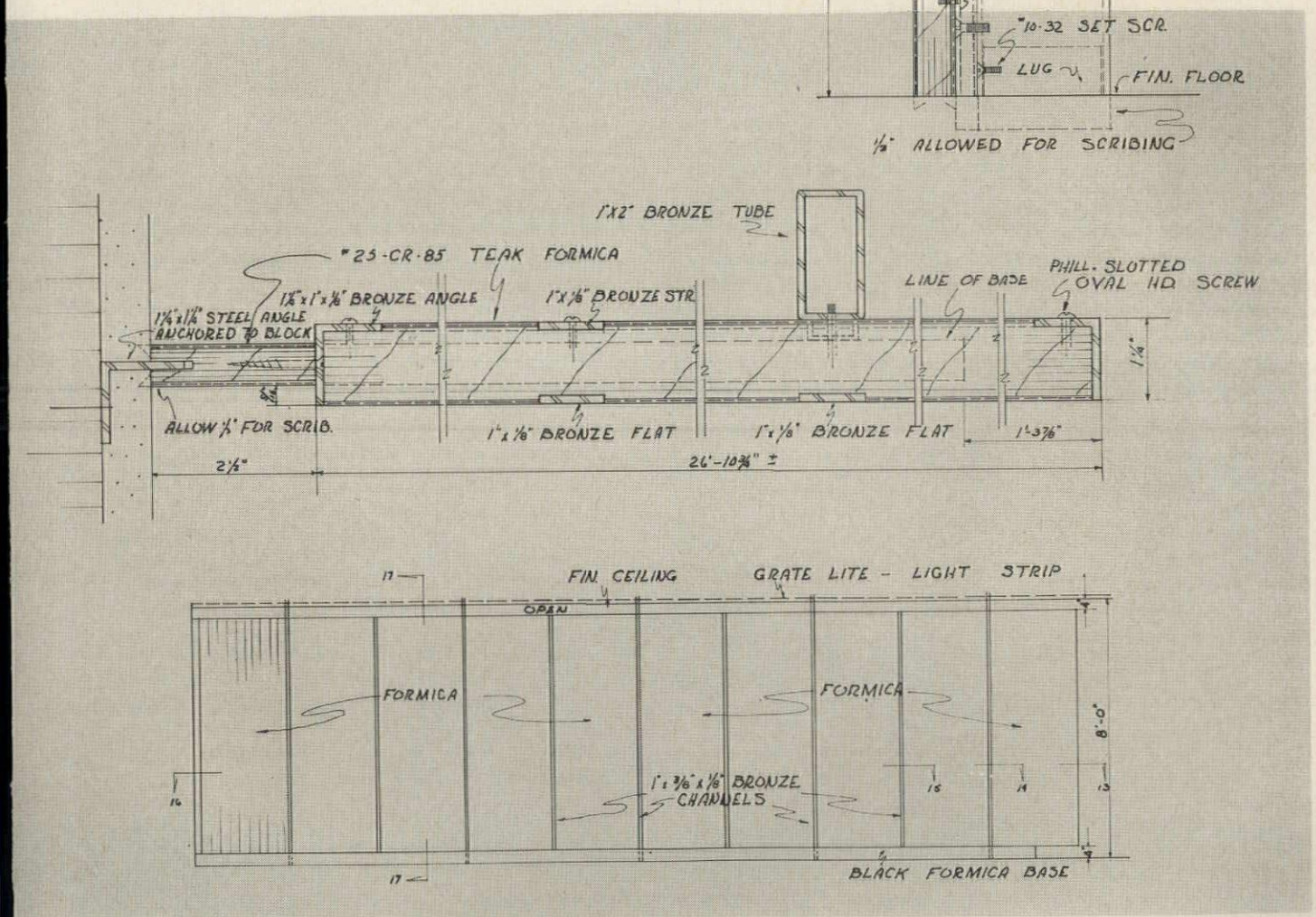
1/2" plywood was two face veneered with black Formica to form 4" base. Supporting bronze tubes were erected floor to ceiling and base attached to channel extensions keyholed over screw heads in base.

Formica slabs rest vertically on base and bolt to tubes every 8 ft. Bronze flats cover seams every 4 ft.



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Required Reading

Recent American Architecture Through English Eyes

ARCHITECTURE USA. *By Ian McCallum, A.R.I.B.A. Reinhold Publishing Corp., 430 Park Ave., New York 22. 216 pp., illus. $13.50.*

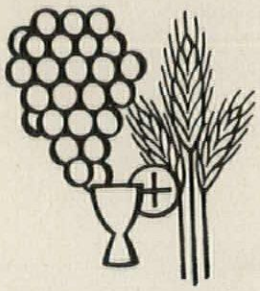
BY HENRY-RUSSELL HITCHCOCK

Ian McCallum, as an editor of *Architectural Review* and a recurrent visitor to our shores—Pacific as well as Atlantic—has accumulated a very considerable fund of knowledge about our postwar architecture, a knowledge of which two numbers of the *Review* devoted entirely to this country in the last decade have made everyone aware. His book (although its title might suggest something rather broader in coverage) is essentially a presentation of work by American architects during the highly productive years since the author's first American visit in 1949. For the benefit of non-American readers he has also provided a rather generously illustrated 20-page summary of the earlier American architectural story from Richardson on, as also (rather

anachronistically) a treatment of Louis Sullivan parallel to that given the other architects—all, including Wright, alive and active when his book was prepared.

For Americans the interest of the book lies in the selection and presentation of the 31 architects (other than Wright) from Mies, the eldest, to Thornton Ladd, the youngest, that occupy the greater part of the book. Curiously enough, the American publishers, in a "Note to American Readers," are rather critical of the inclusions and exclusions in this group. Certainly in the postwar years the influence of Mies has been both more specific and more widespread than that of Wright; and few of the architects whose admirations are listed fail to mention his name, however un-Miesian their latest works may seem to be. Moreover, far more Harvard-trained architects are included than architects associated with Yale. The complaint of an "undue preoccupation with Mies and Yale" seems, therefore, rather unjust. As to the particular architects whom Mr. McCallum has reputedly neglected, in the cases of Lescaze, Raymond, DeMars, and Abramovitz the exclusion is only partial, since they are referred to (and the work of several even illustrated) in the general introduc-

continued on page 346

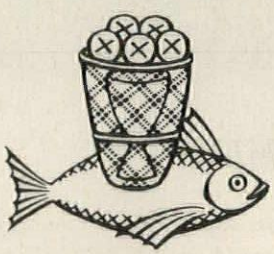


Gothic Buildings, Religious Symbolism Illustrated

GOTHIC EUROPE. *Edited by Harald Busch and Bernd Lohse. Commentary by Helmut Domke. Translated by P. Gorge. Macmillan Co., 60 Fifth Ave., New York 11. 224 pp., illus. $8.50.*

SYMBOLISM IN LITURGICAL ART. *By LeRoy H. Appleton and Stephen Bridges. Charles Scribner's Sons, 597 Fifth Ave., New York 17. 120 pp., illus. $3.50.*

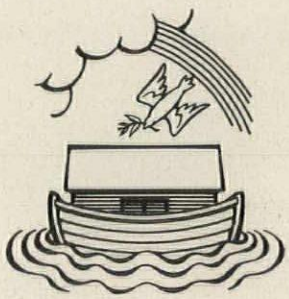
Gothic Europe is a magnificent collection of 200 photographs of religious and secular buildings, arranged chronologically, from the late Ro-



manesque to the beginnings of the Renaissance. Each of them is identified in an accompanying caption, and Helmut Domke has furnished a short separate section of competent analysis. The coverage is unusually complete: England, Ireland, France, Belgium, Holland, Germany, Denmark, Norway, Sweden, Italy, Spain, Portugal, and even Poland and Czechoslovakia—all are represented. Most of the familiar churches, castles, and town halls are shown, but less well-known types are also exemplified (the Cistercian church of Altenberg, the Catalan cathedral of Palma de Mallorca, hall churches such as the Wiesenkirche at Soest and the church of St. George at Dinkelsbühl, and the castles of the Teutonic Order at Marienburg and Marienwerder, for example). This great scope and the uniformly high quality of its photographs make *Gothic Europe* an indispensable addition to the architect's library as well as a delight to the layman interested in Gothic art.

Religious symbolism plays an important part in Gothic and other art forms, but the subject often seems forbiddingly complex to the non-specialist. The appearance of *Symbolism in Liturgical Art* is therefore especially welcome. Beautifully designed, this book presents 134 Christian symbols (see examples on this page) and explains them clearly and briefly. It is highly recommended.

—ARTHUR FISHER



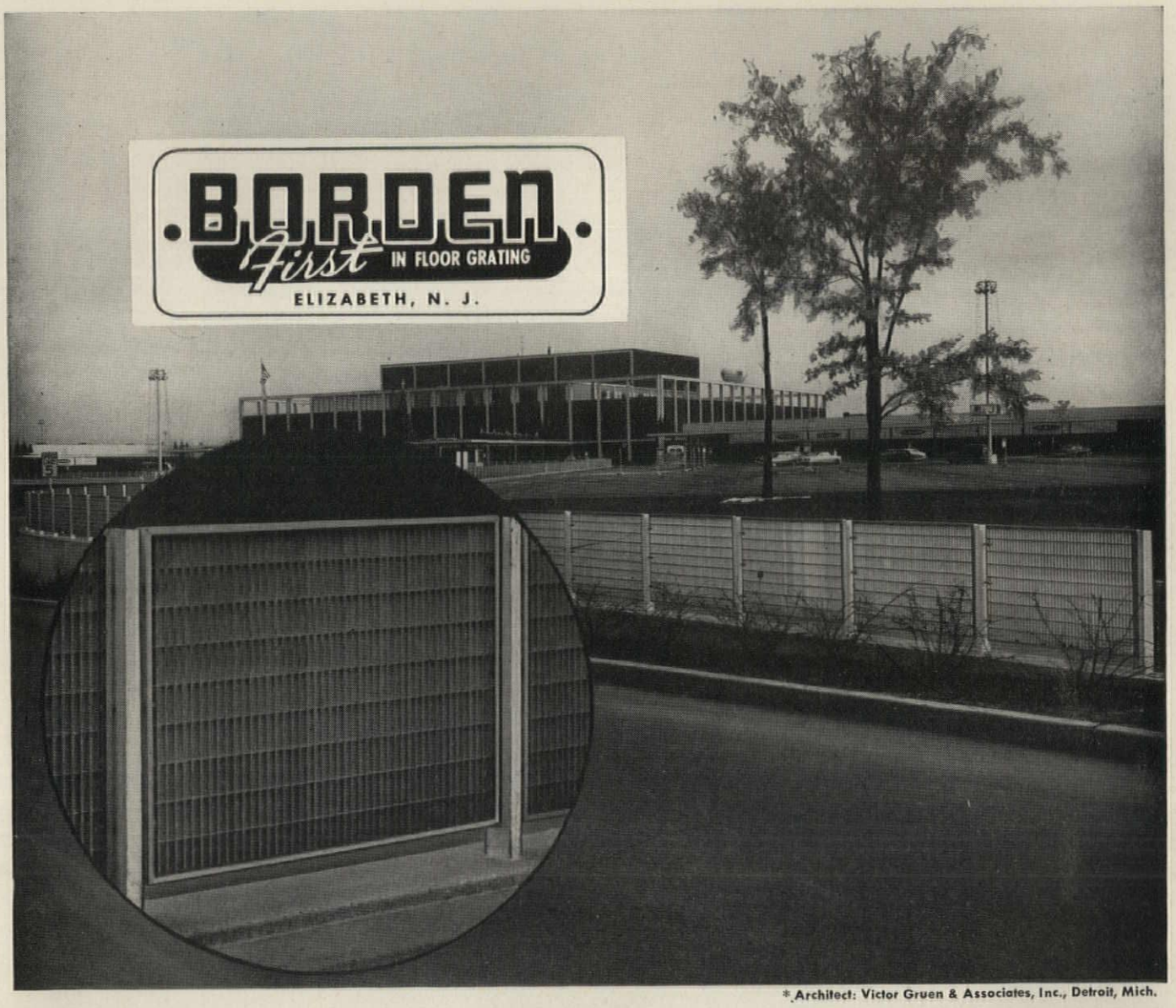
Pre-Revolutionary Forts

DRUMS IN THE FOREST: DECISION AT THE FORKS AND DEFENSE IN THE WILDERNESS. *By Alfred Procter James and Charles Morse Stotz, F.A.I.A. Historical Society of Western Pennsylvania, 4338 Bigelow Blvd., Pittsburgh 13. 227 pp., illus. $3.50.*

Drums in the Forest is a combination of two works: it is the last two thirds of the book which should make exciting reading for many architects. Mr. Stotz is an architect whose special interest has long been pre-Revolutionary fortifications in America. He writes here about the art of fortification as it was practiced on this continent, with special attention to the five forts built in the 18th cen-

continued on page 63

All illustrations on this page are from *Symbolism in Liturgical Art*. Banner-bearing lamb (the Resurrection); grapes with wheat (the Holy Eucharist); fish with basket of bread and glass of wine; Noah's Ark; St. Peter



*Architect: Victor Gruen & Associates, Inc., Detroit, Mich.

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THE MODERN STYLE IS ....

Required Reading

Forts . . . *cont. from page 60*

tury at the forks of the Ohio, and he describes the forms and techniques used in defensive constructions of palisaded wood, earth, masonry.

Defensive works are capable of arousing in architects the same excitement that ocean liners and airplanes do, or that automobiles used to, when Le Corbusier was first pamphleteering. The spectacle of a design that develops directly, with apparent inevitability, from a set of well-understood needs is a satisfying one. In the 20th century it is a spectacle likely to be summoned up mostly from thin, light structures designed to move through space, and architecture has often seemed by comparison a heavy-footed thing. In times like these, when bulldozers are tearing up the land in extravagant and ill-considered ways, it becomes a particular pleasure to consider the spare but powerful structures that resulted from the efficient movement of large quantities of earth (66,000 cu yds at Fort Pitt) into forms developed with economy from a well-understood need. Mr. Stotz illustrates his points with his own handsome drawings.

The opening chapters, contributed by Dr. James, are devoted to a discussion of the French and Indian War and its effects on the settlement of western Pennsylvania. The war and the settlement both were apparently a grubby business, short on romance, and the tale gains from the straight telling. Still, it is likely to be most interesting to readers with a special interest in the area.

—CHARLES W. MOORE

Milanese Architecture

NUOVE ARCHITETTURE A MILANO. *By Robert Aloi. Text in Italian and English. Ulrico Hoepli, Milan. 378 pp., illus. 9000 lire.*

Virtually all the significant buildings erected in Milan in the last five years, including many that have attracted attention all over the world, have now been compiled in a single volume of almost definitive scope. There are 426 photographs in black and white, 56 in color, and 475 drawings, including site plans showing the street location of every building illustrated. There are a short description of each design (in English as well as Italian) and indexes by architect and by building. There are also two introductory articles on the history of Milanese architecture and planning (though in Italian only). All in all, this is a useful and interesting book, and practically indispensable for an architect planning a trip to Milan.

—J. B.

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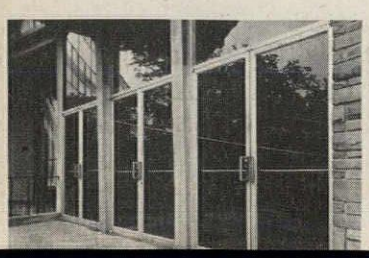
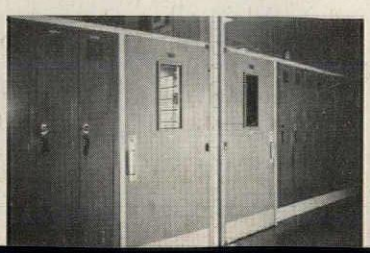
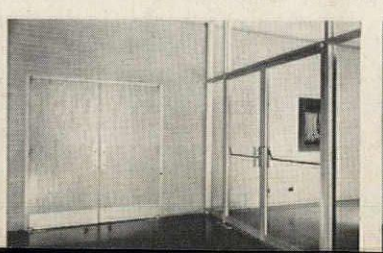
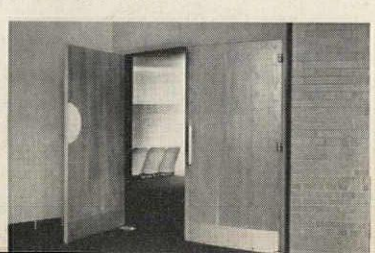

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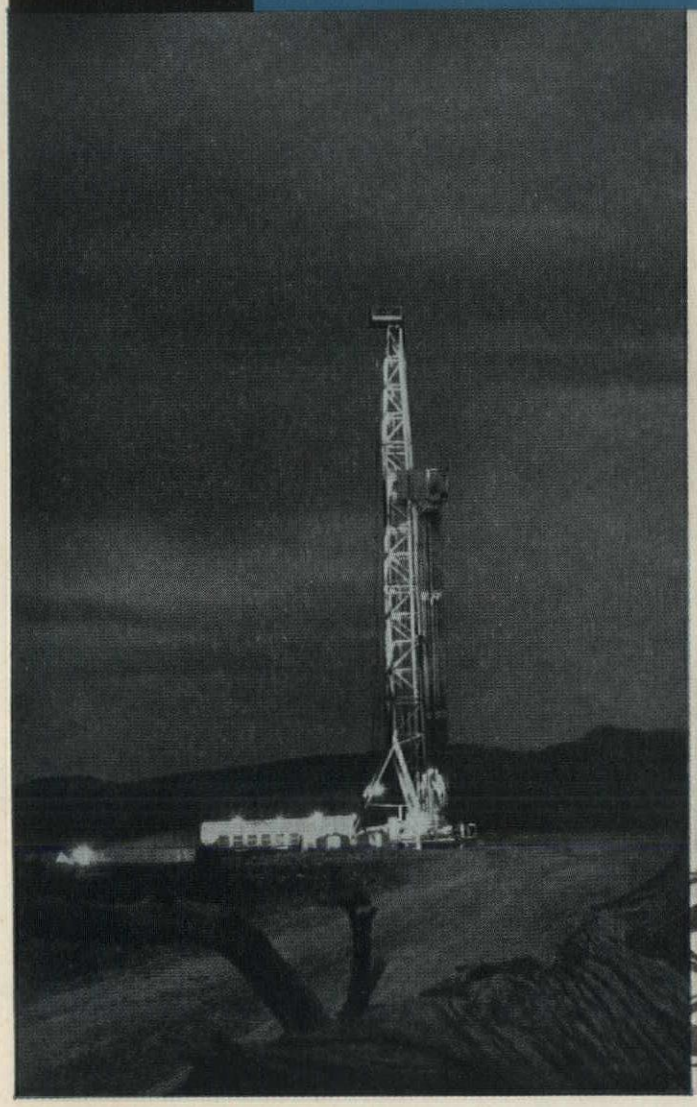

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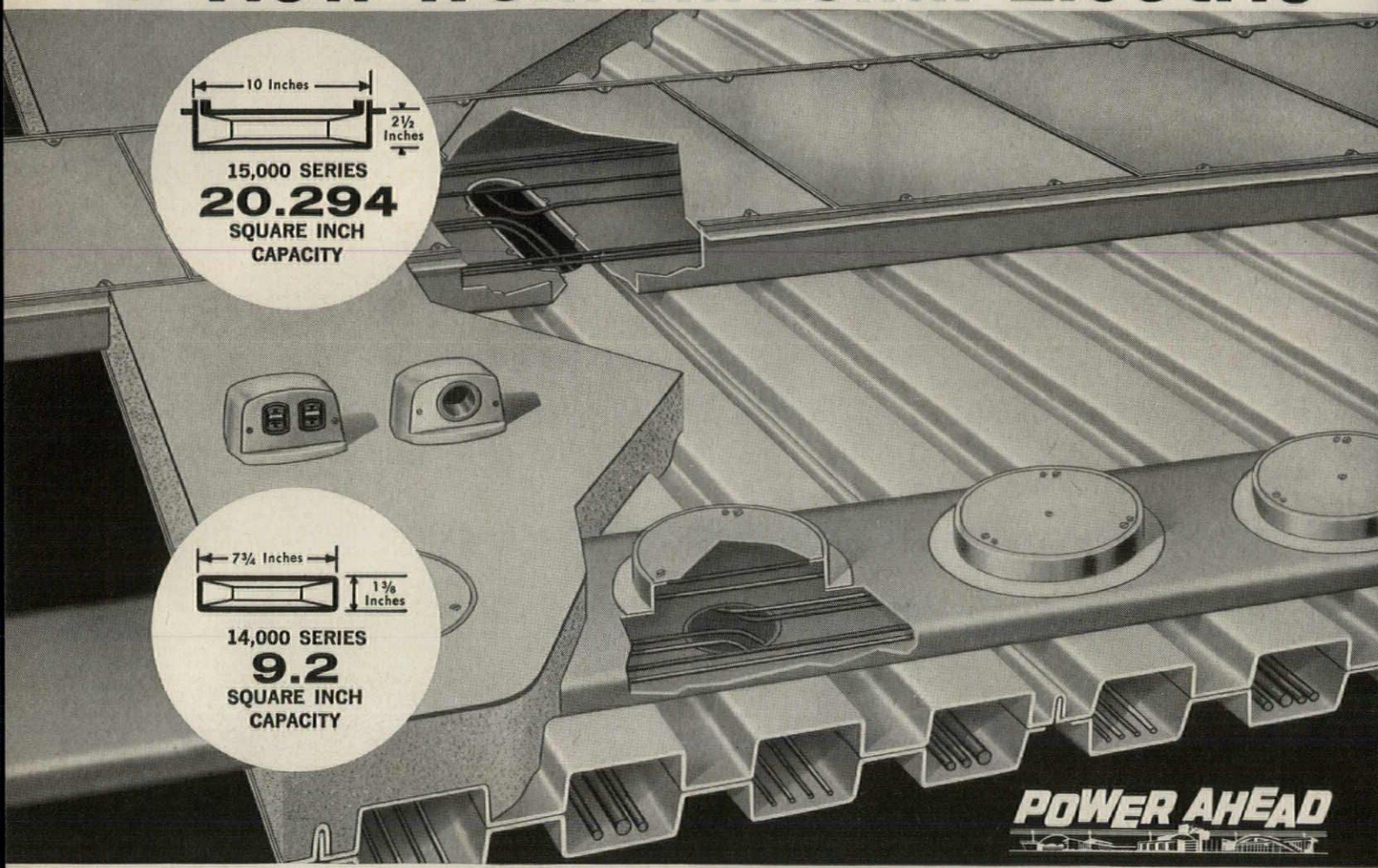

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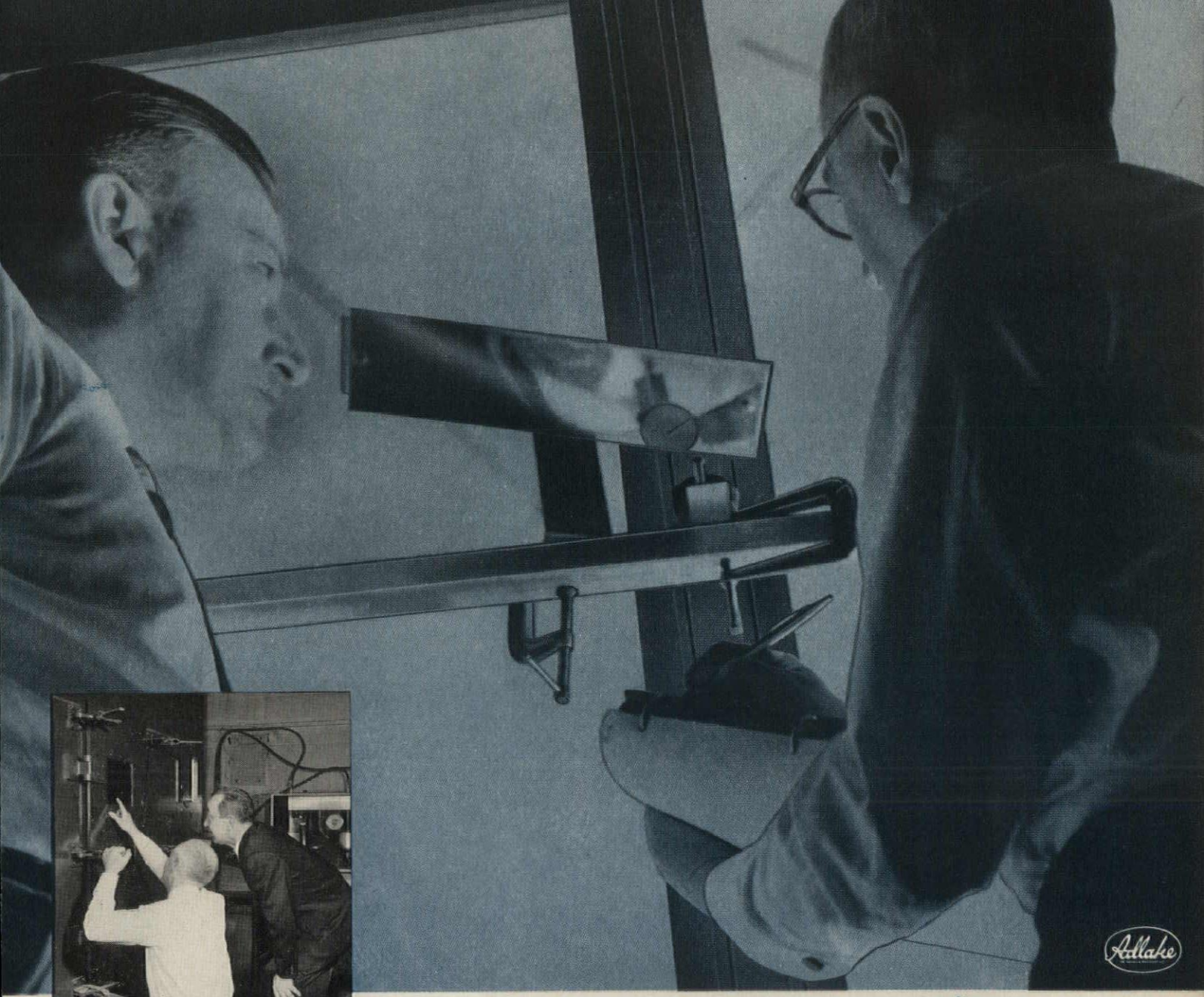

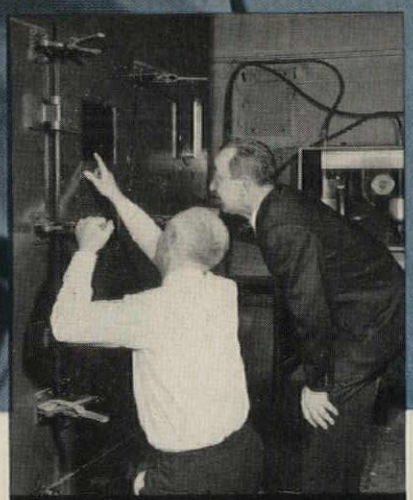

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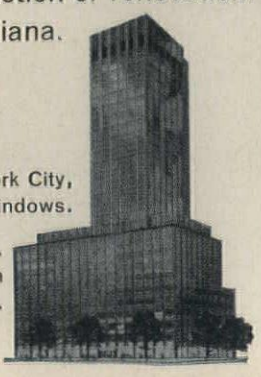

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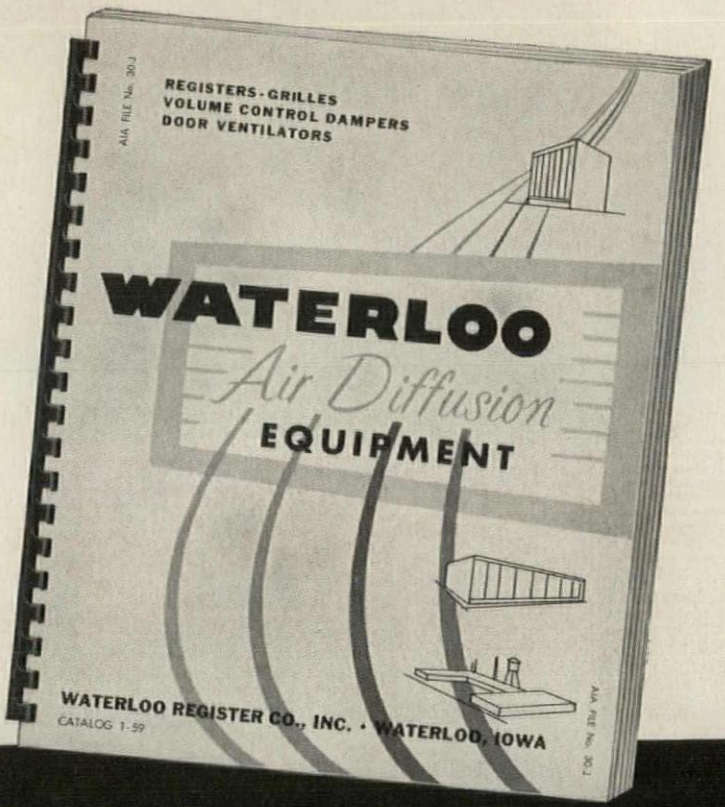

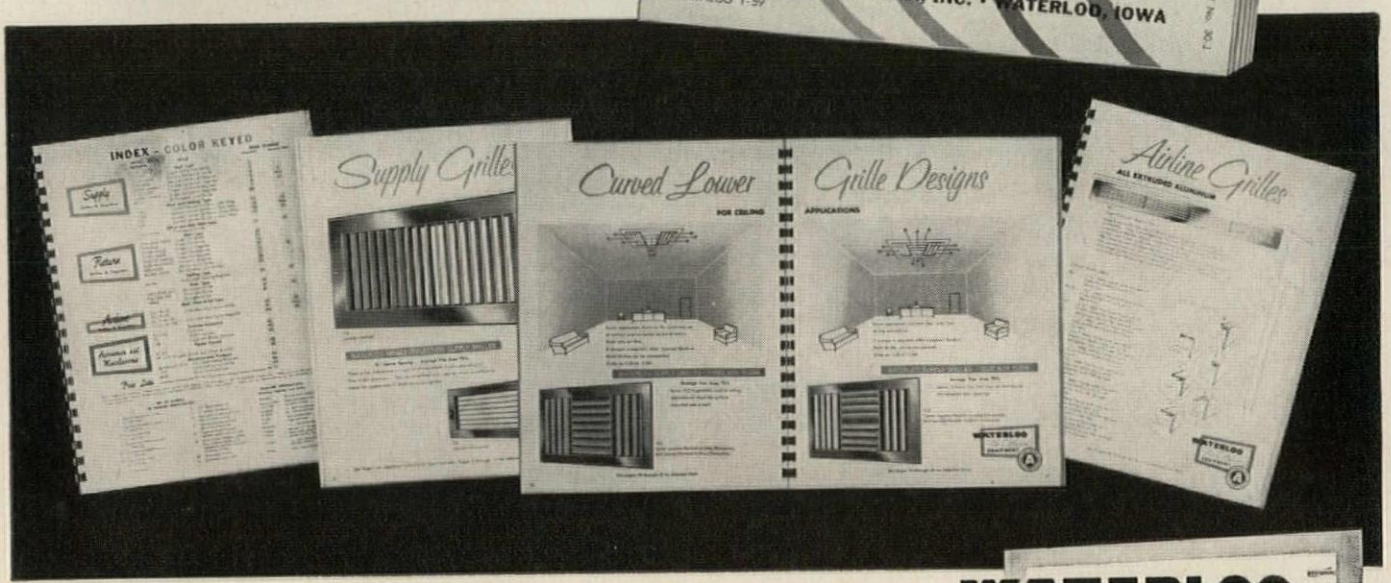

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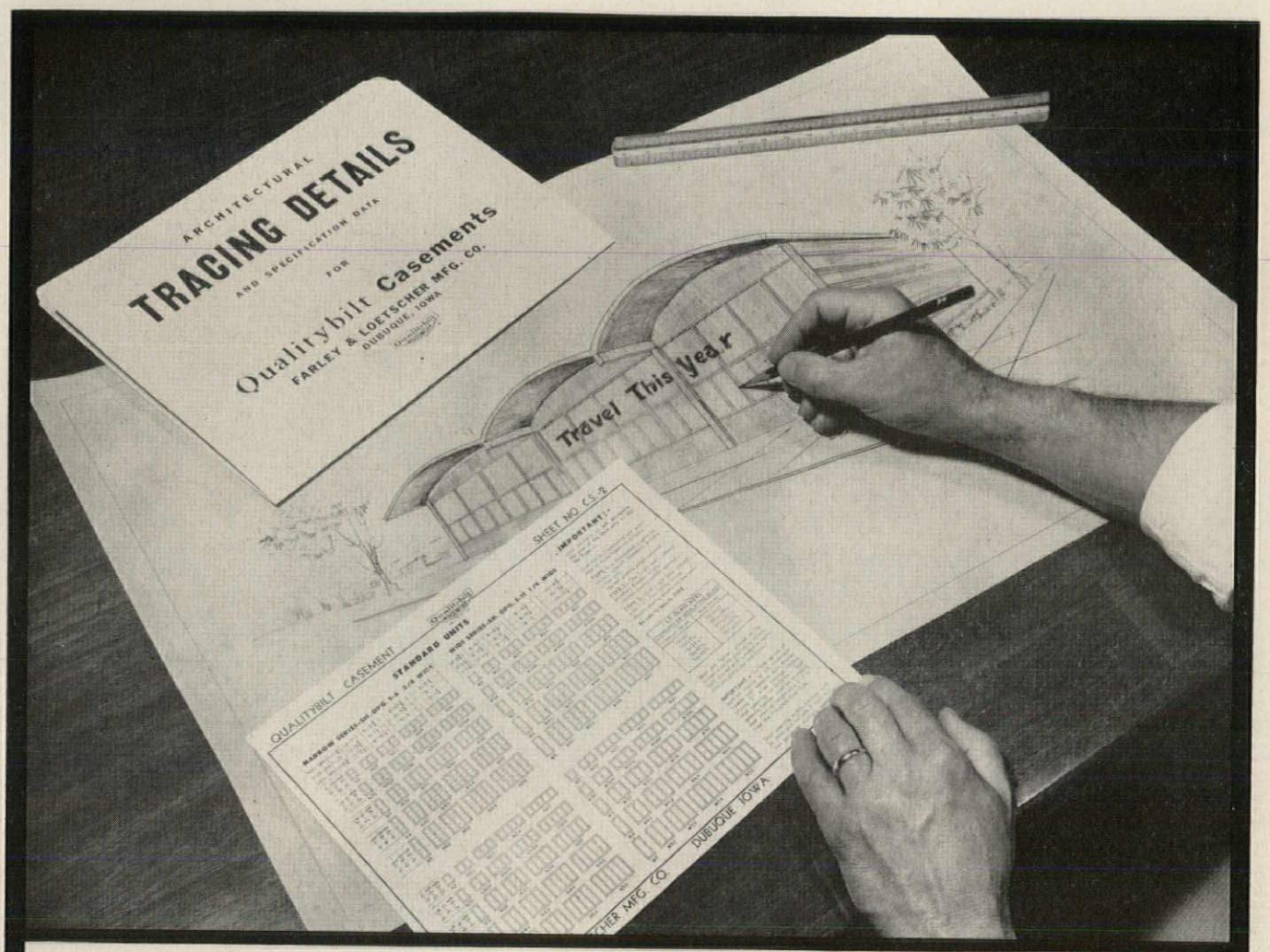

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When an installing electrical contractor experiences an excessive number of inoperative in-warranty ADVANCE ballasts, the installation should be checked, to the best of the contractor's ability, in accordance with the ADVANCE FLB Service Warranty Manual. If it is found the ballast difficulties are not caused by external conditions, contact the nearest ADVANCE representative or the Marketing Division of Advance Transformer Co., 2950 North Western Avenue, Chicago 18, Illinois.

Should an Advance Transformer Co. engineering analysis reveal the inoperative ballasts fall within the provisions of this program, an ADVANCE FLB Service Warranty Authorization Form will be supplied. This form must be filled out and sent to the Marketing Division of Advance Transformer Co. for approval.

When the authorization form is approved, it will be returned and new ballasts for replacement will be shipped directly to the job location without charge. After the new ballasts have been installed, the inoperative ballasts must be returned directly to Advance Transformer Co. for complete analysis and final approval.

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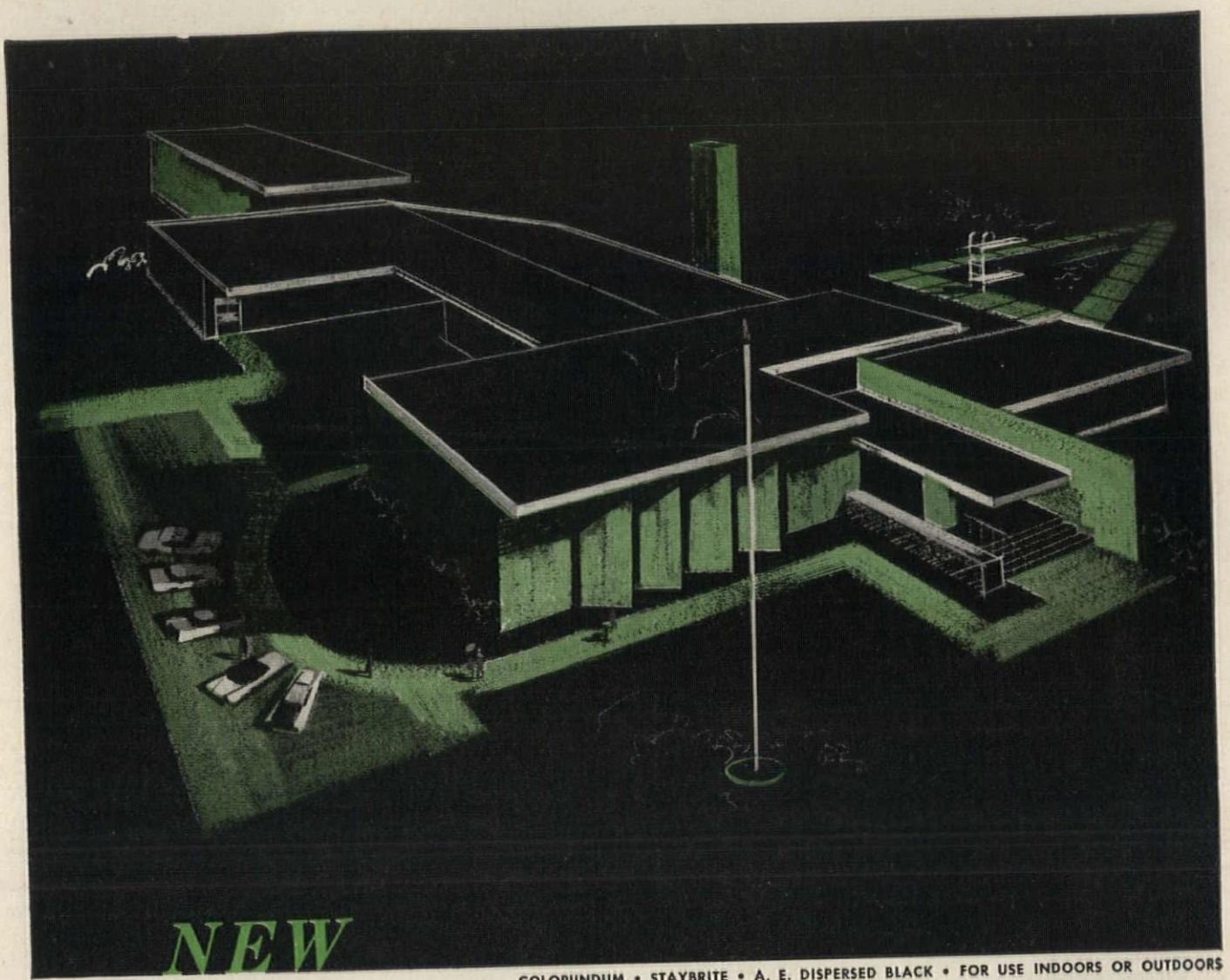

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Specify Horn Staybrite integral color to enhance the beauty of all concrete and mortar surfaces.

Both are available in a wide range of decorative colors.

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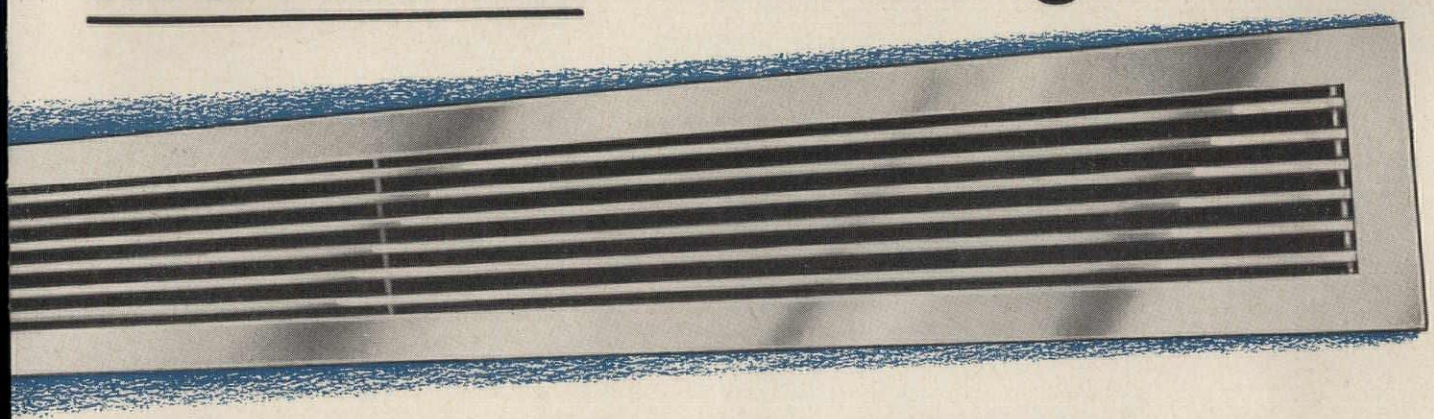

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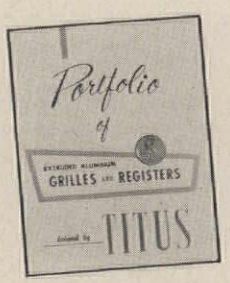

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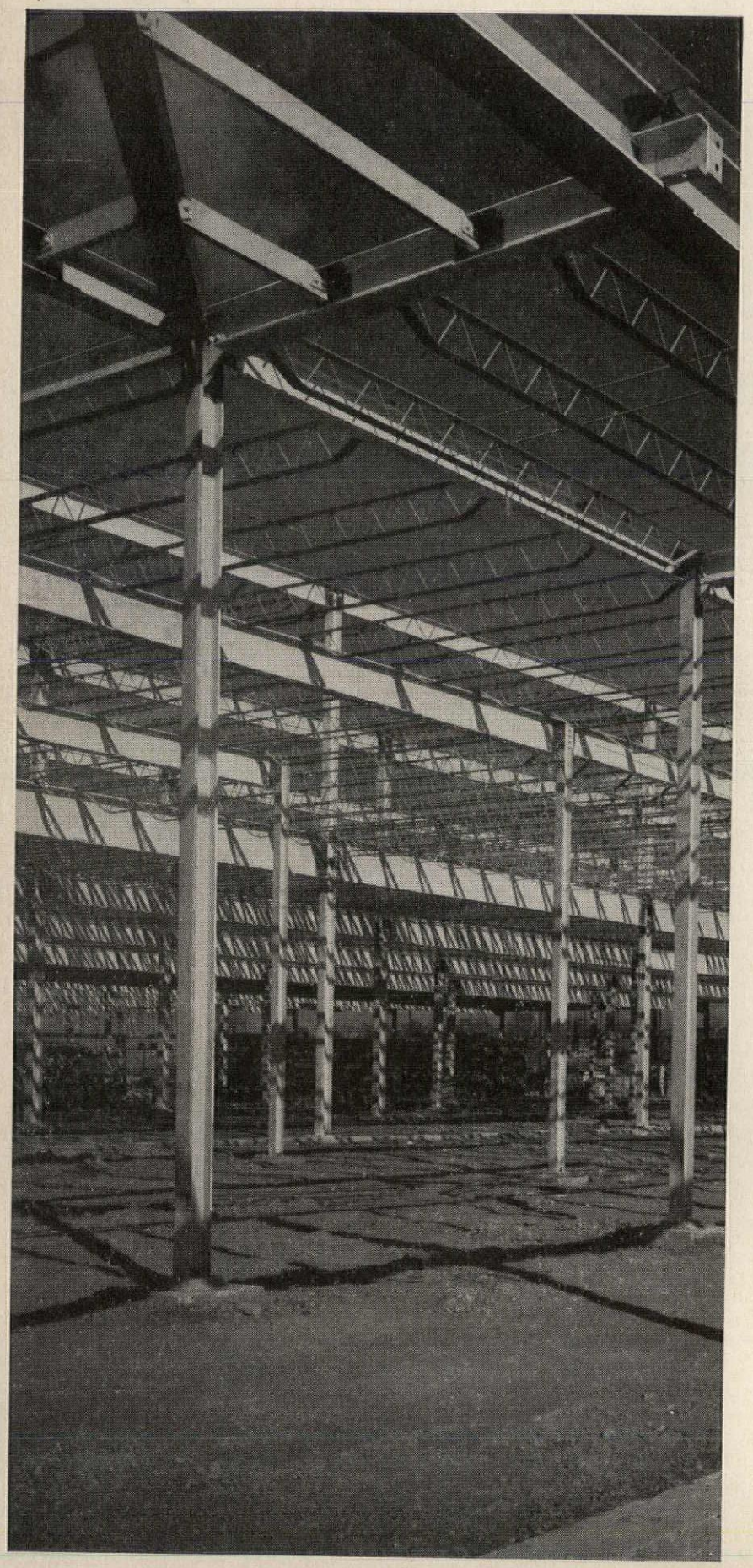

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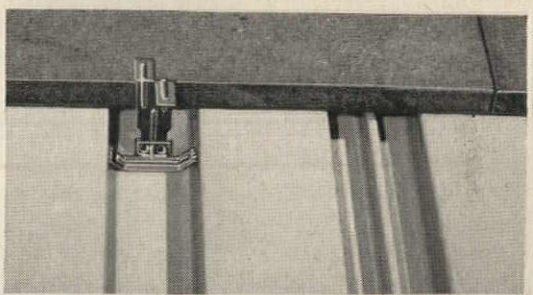
See Sweet's, section 2f/INL — or write for catalog 240.



You can get Class 1 fire ratings for roofs over Milcor deck, by using Milcor's new non-piercing insulation clip that eliminates asphalt coating.

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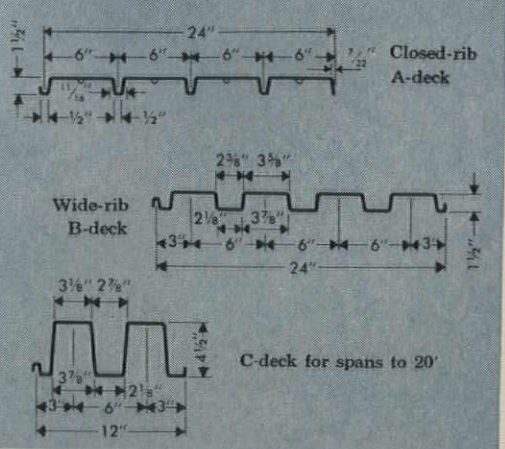

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RD-21

CARRIER AGAIN MAKES HEADLINES WITH A

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Puts both heating and cooling outdoors. Occupies no valuable floor space. Uses only a minimum of ductwork. Permits uncluttered ceilings. Saves hours of design time.

Here's the latest advance in heating and cooling for one-story buildings—the new Carrier 48B Air-Cooled Weathermaker*. Designed for roof-top installation, it provides your clients with the benefits of year-round air conditioning without the cost of extensive ductwork, without cluttering up ceilings and without tying up one inch of floor space. What's more, its simplified construction saves you hours of design time!

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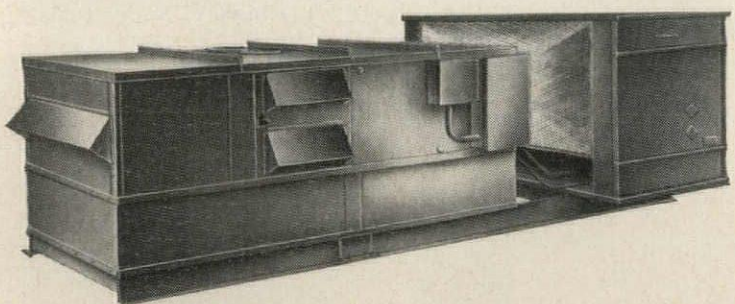
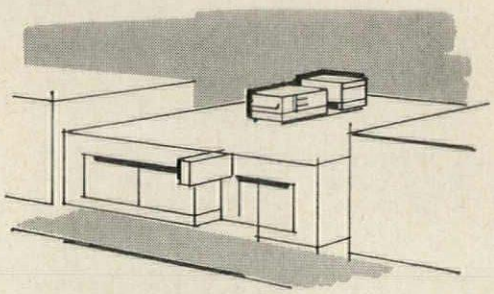
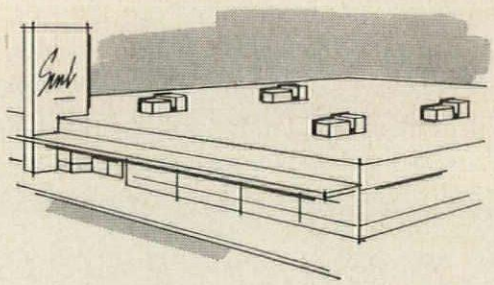


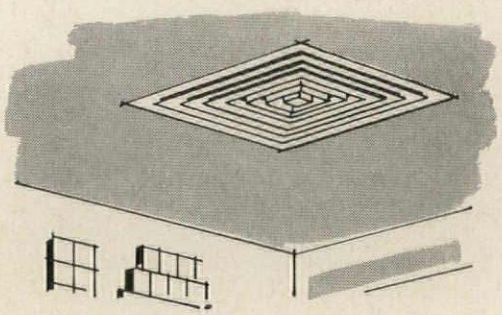
Basically the 48B is a one-piece unit, but rigging and handling are simplified by shipping the unit in two sections (base unit and fan section). It also installs with a single supply and return air duct, so only one duct passage must be cut through the roof. Installation is further simplified with only a single electrical power connection.



A single unit will both heat and cool a small store or plant



Larger buildings require two or more units to heat and cool



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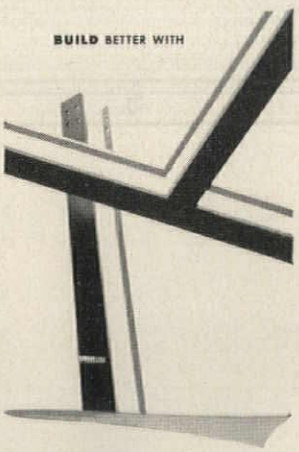

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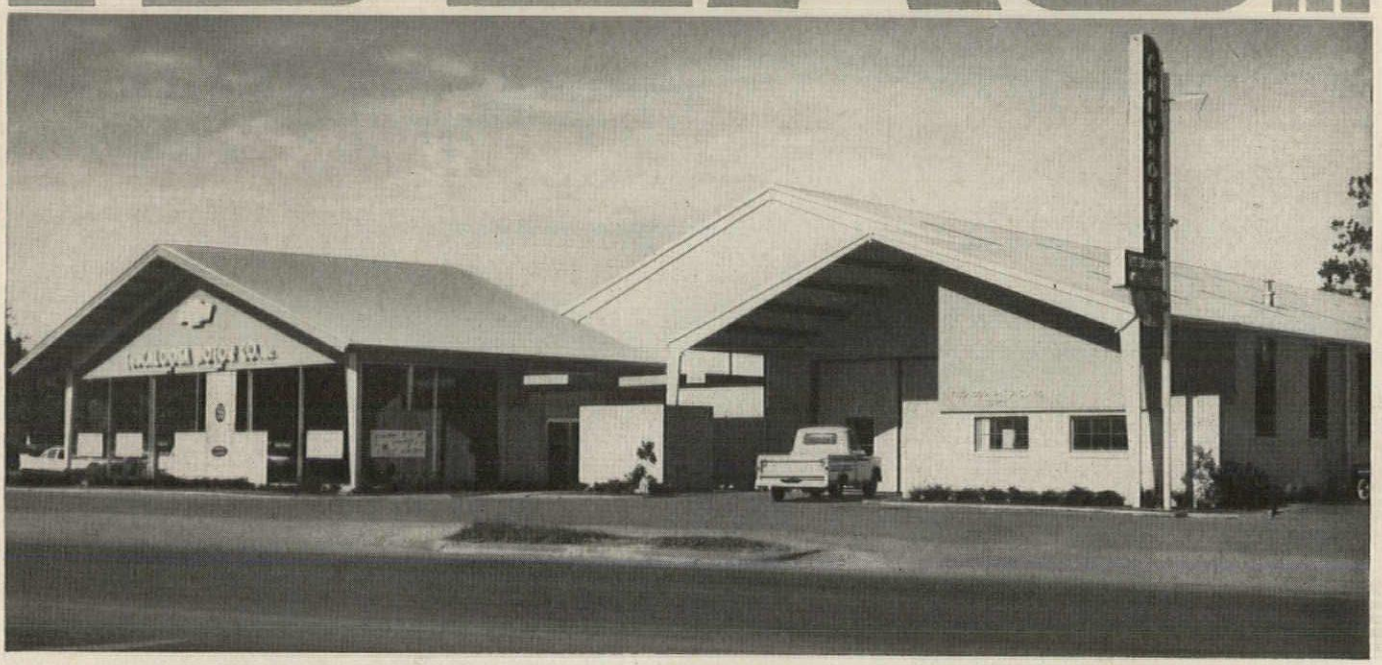

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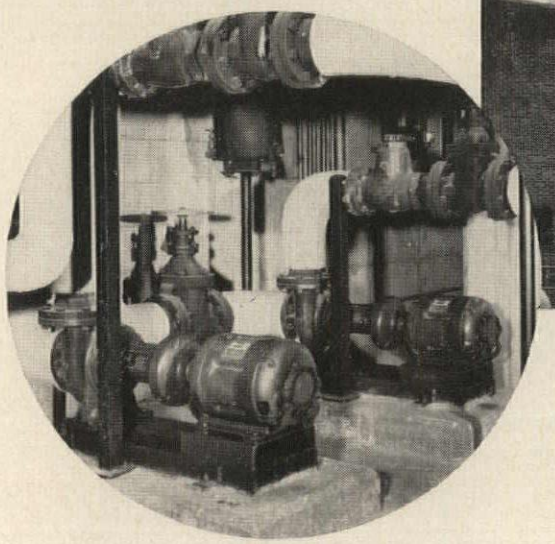
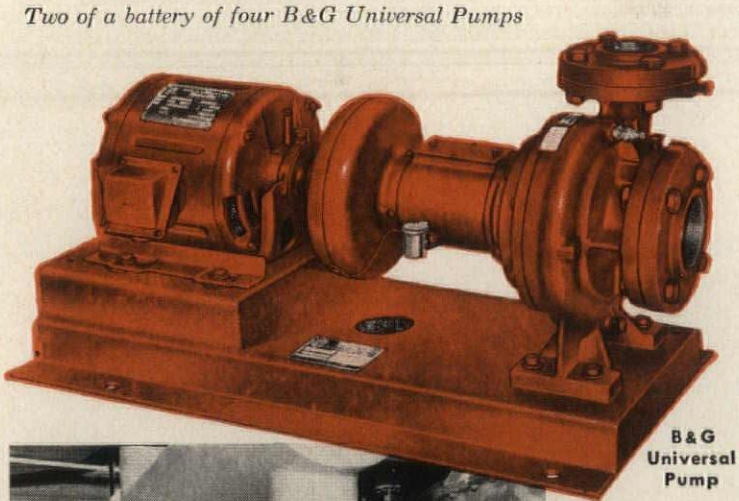
Architect: Young, Richardson & Carlton
Engineer: Bouillon, Griffith and Christofferson
General Contractor: John H. Sellen Construction Co.
Mechanical Contractor: L. G. Massart Co.

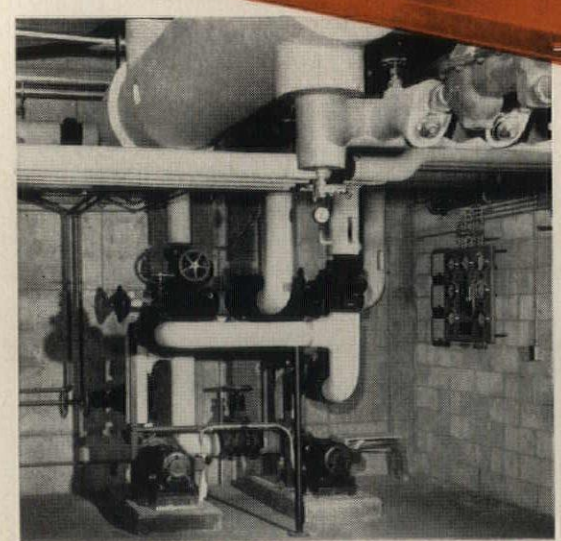


Two of a battery of four B&G Universal Pumps

B&G UNIVERSAL PUMPS SELECTED FOR DORMITORIES WHERE QUIET IS ESSENTIAL



B&G Universal Pump



Remaining two B&G Universals; above them is a B&G Type "SU" Heat Exchanger.

In buildings where students both study and sleep, *quiet* is needed to derive the greatest benefit from both. That is why B&G Universal Pumps are often selected by mechanical engineers for college dormitories where they circulate forced hot water heating systems without vibration or noise which could be created by improperly selected pumps.

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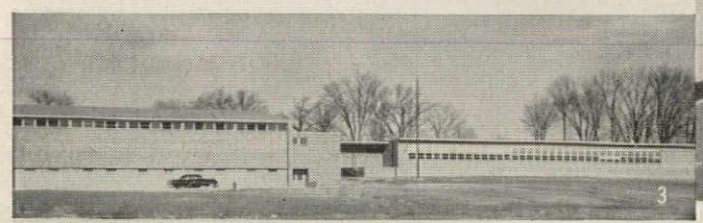

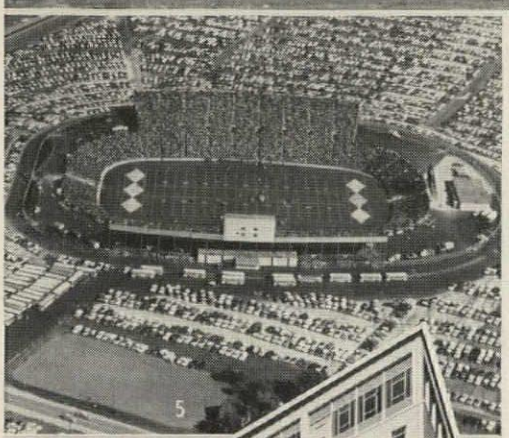

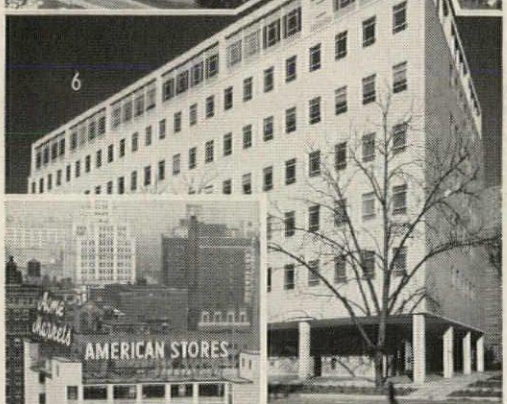

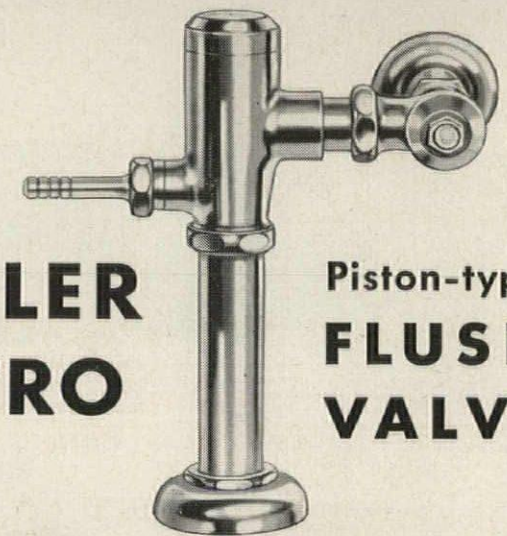

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Architect:
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series 5212 for multi-level structures

engineered to slash erection time

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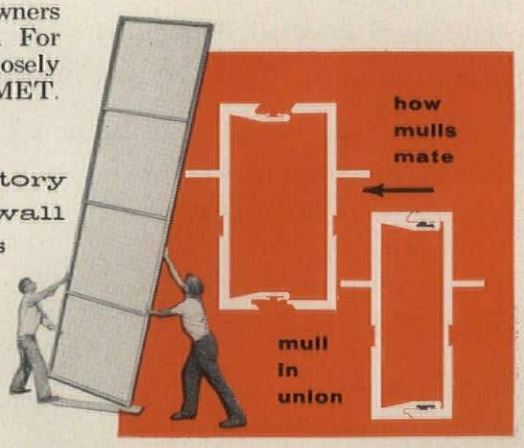
Once the large, vertical mulls are hung from each story of the building . . . lite sections and wall panels can be stacked one atop the other. Units are small enough that two men can easily handle and install them . . . working from the inside in most cases . . . saving the time and cost of erecting scaffolding.

series 6442-43 for 1 story or multi-story gridwall structures

Cheshire Kyger Elementary School
Gallia County, Ohio
Architect:
Lagedrost & Walter



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Available with mating vertical mulls, 4½" or 6" deep for a varying of shadow lines, the large interlocking grids of this series can quickly be erected by two men. Mortise and tenon joints are connected with bolts, carefully concealed by the glass race. Special expansion joints are employed at the proper intervals.

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Flintkote's new 60-page catalog, in the roofing section ($\frac{8A}{FL}$) of Sweet's Industrial Construction File and in Sweet's Architectural File, covers, in detail, information on Flintkote Built-up Roofing specifications. Data includes (a) preliminary specifications common to all hot, cold and Flintglas built-up roofing specifications (b) selector guide based on deck type and (c) materials list and application specifications. If you don't have Sweet's Files—write us for a copy of our Built-Up Roofing Catalog. The Flintkote Company, 30 Rockefeller Plaza, New York 20, N. Y.

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Southern New England Telephone Co.
General Office Bldg., New Haven, Conn.
Architect: Douglas Orr
Contractor: Edwin Moss & Son, Inc.

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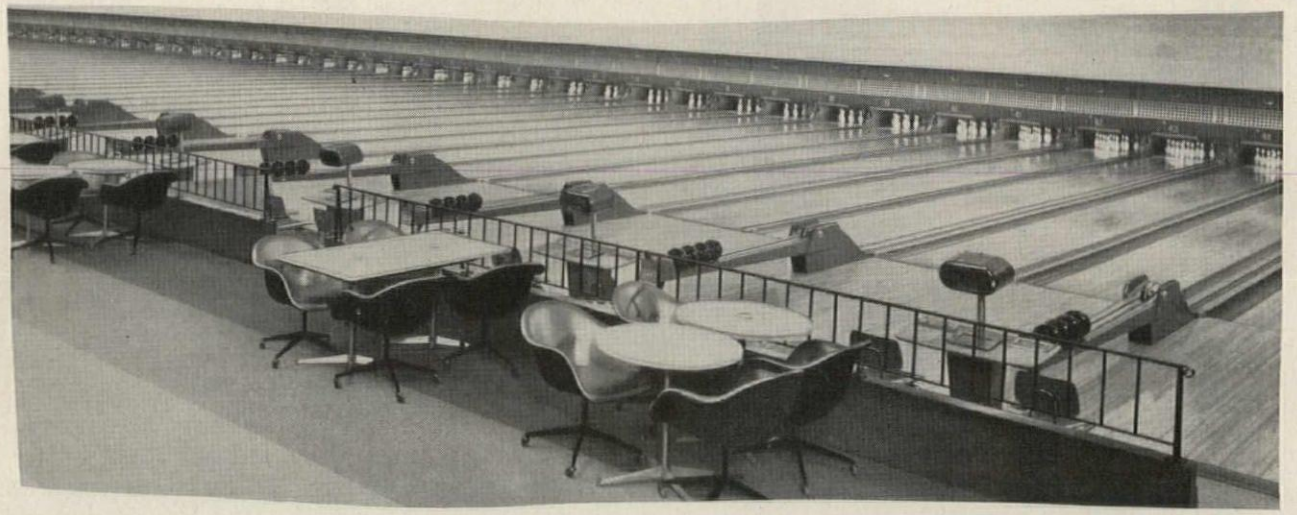
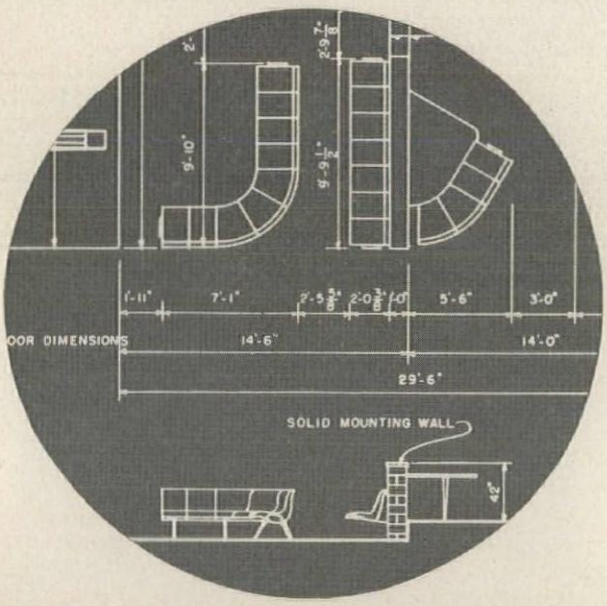
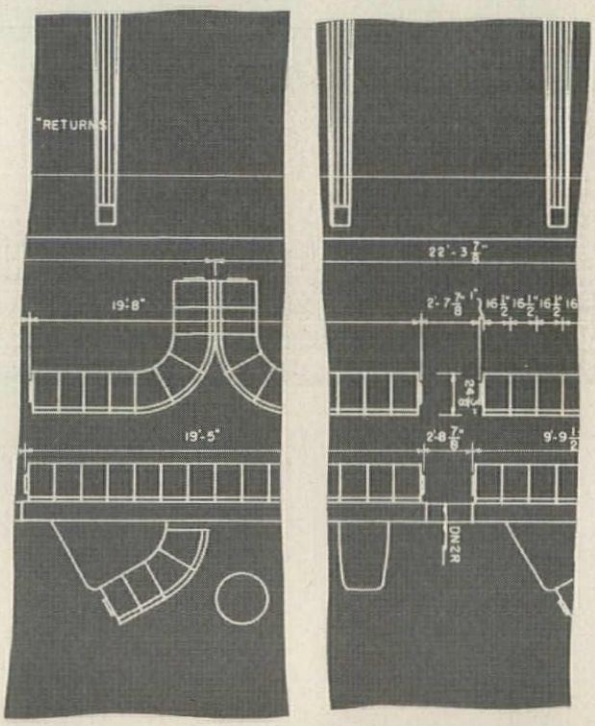


Interior of Cloverleaf Bowling Center, Independence, Ohio

Brunswick's Architectural Research supplies full details on every aspect of bowling-recreation center design.





The smart new look for America's leisure time: the new Cloverleaf Bowling Center exemplifies it. Its architect made use of Brunswick's automatic pinsetters and equipment, and of Brunswick's Architectural Research service for functional design ideas as well.

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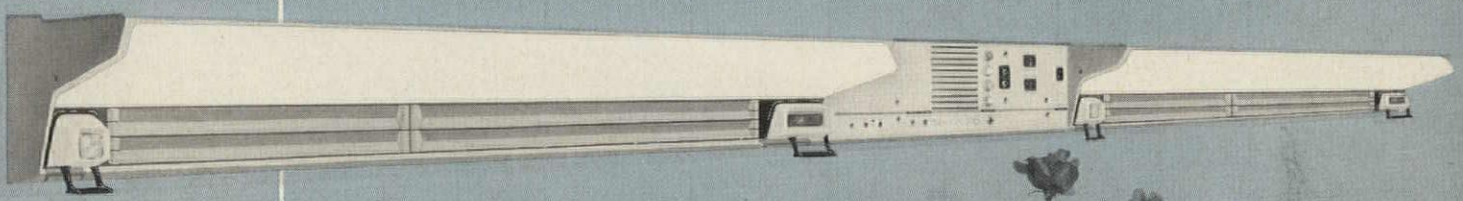

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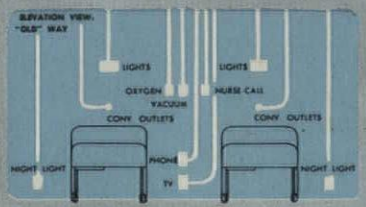

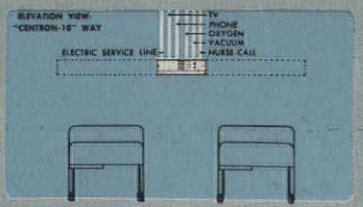

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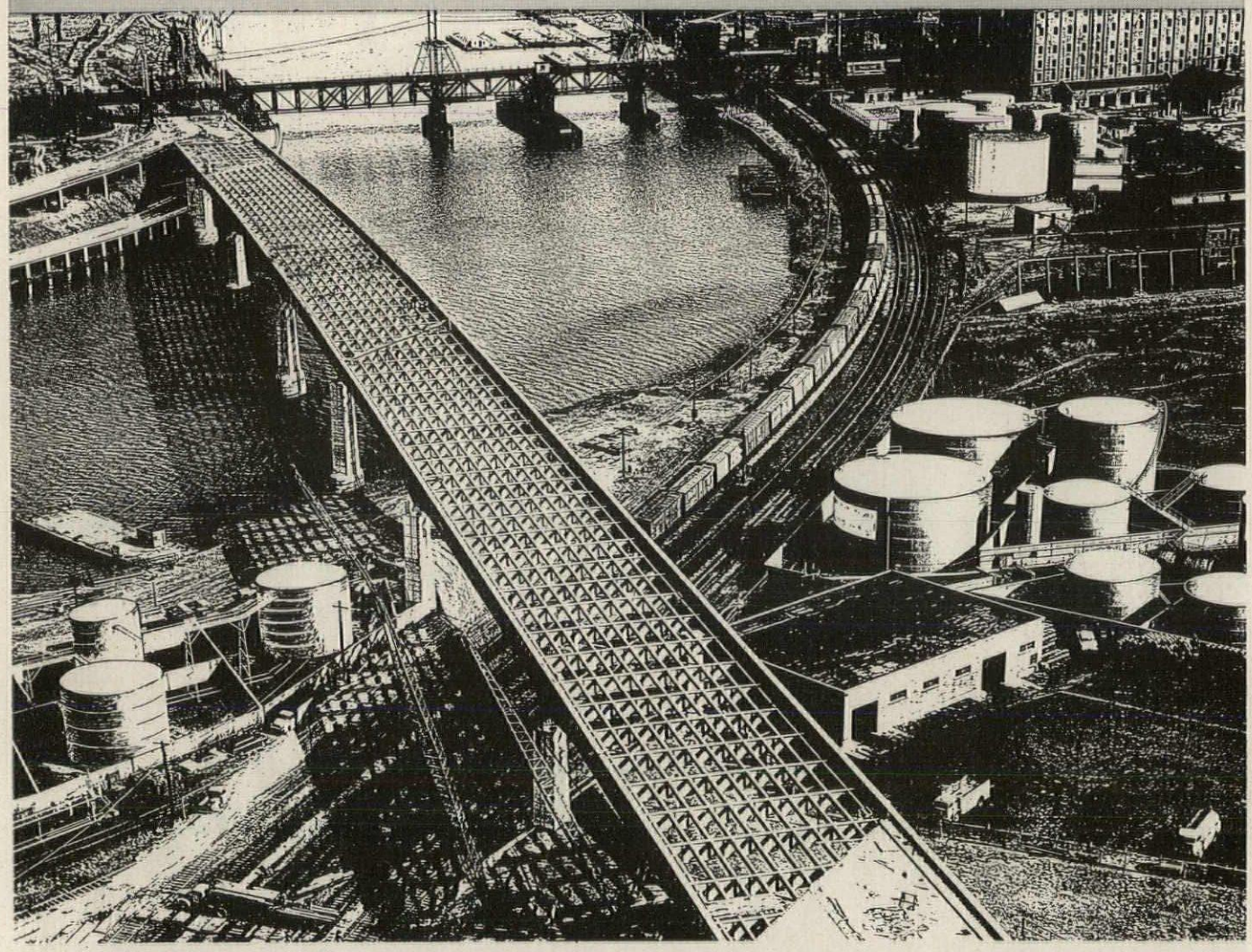

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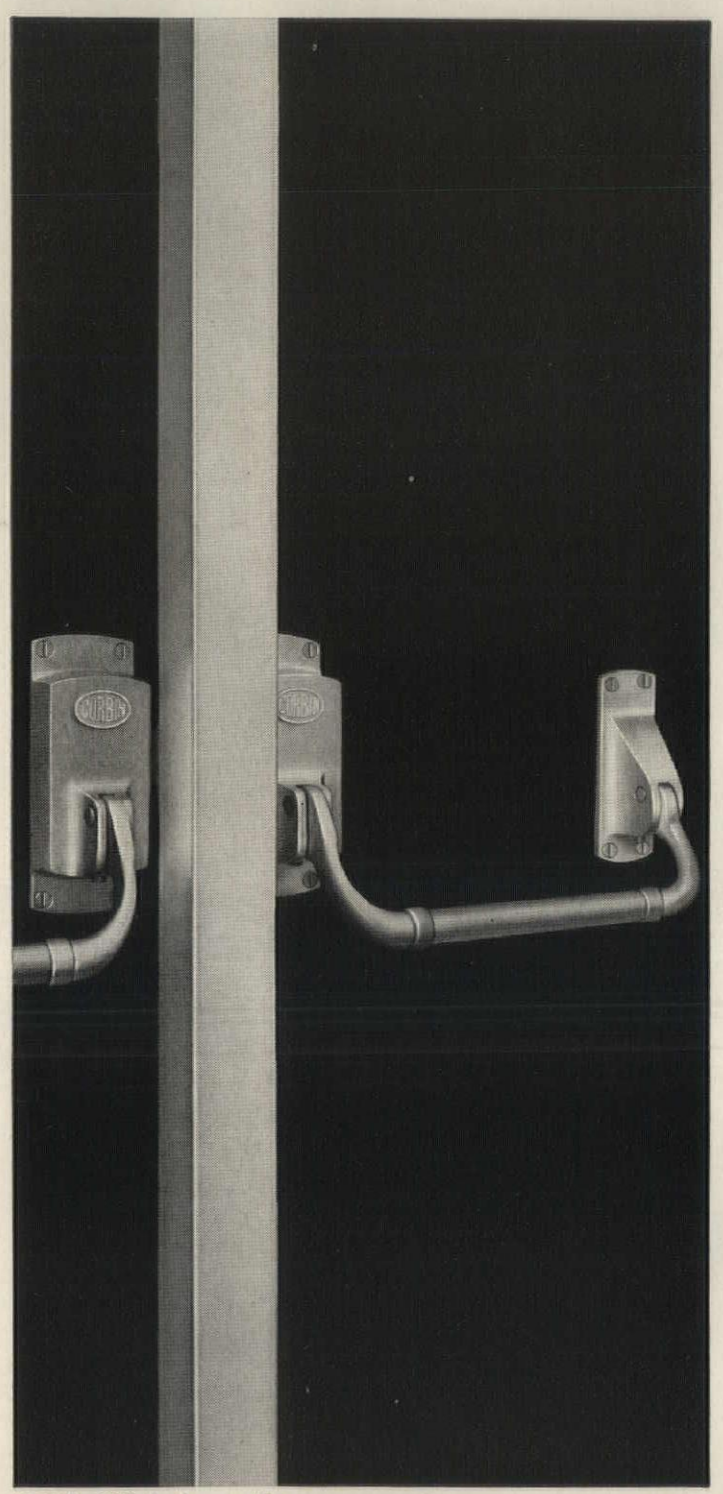

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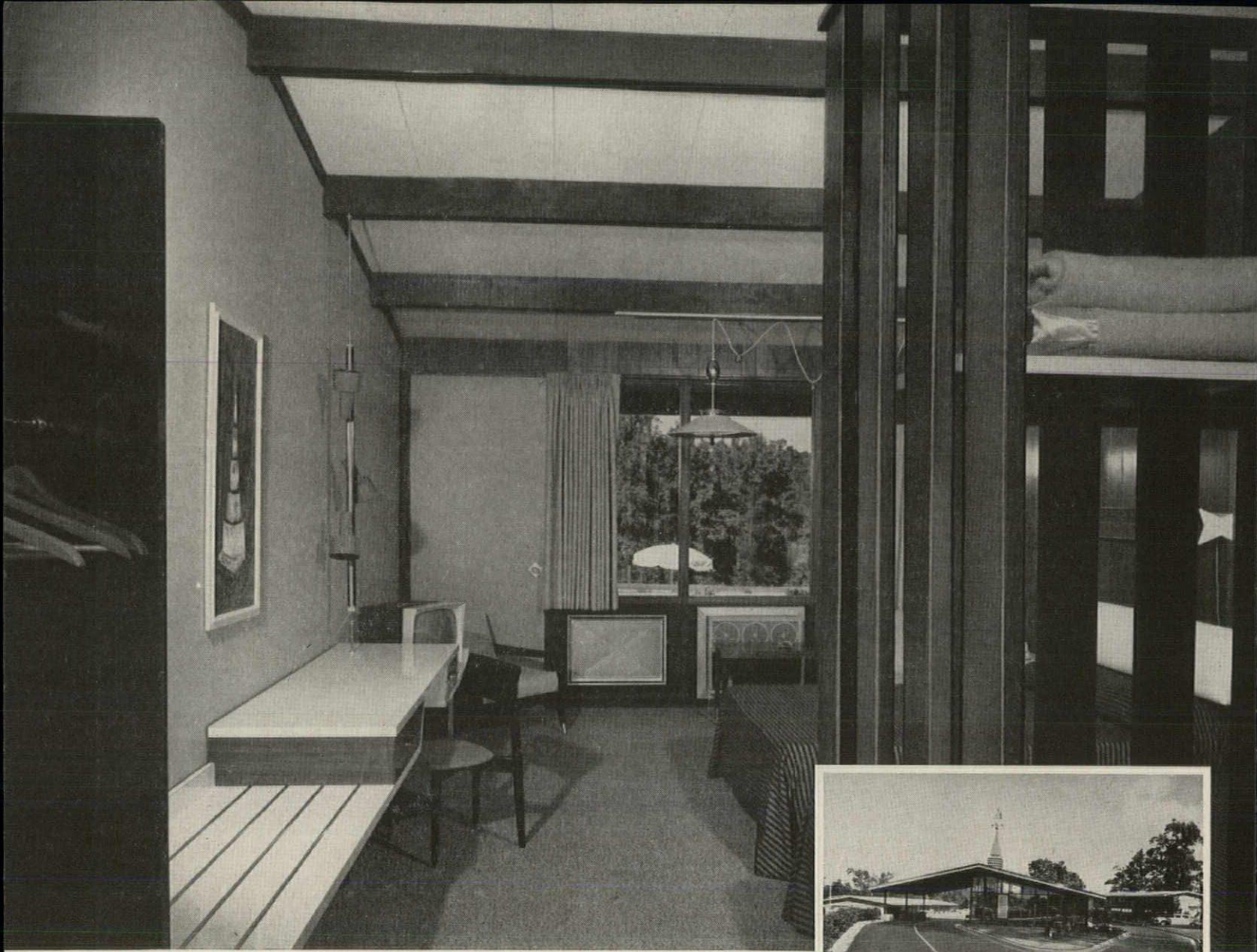

Howard Johnson Motor Lodge, Northside Drive & U.S. Highway 41, Atlanta, Ga., Consulting Architect: Richard H. Pretz, A.I.A., Atlanta. Painting Contractor: C. F. McGouirk, Atlanta.

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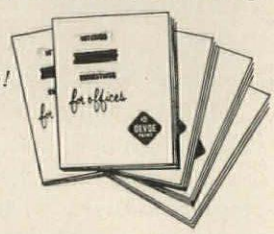

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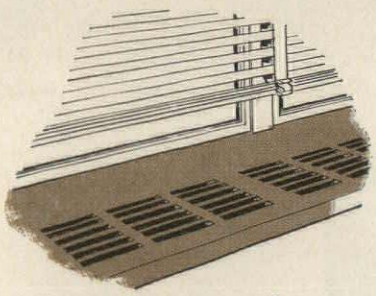

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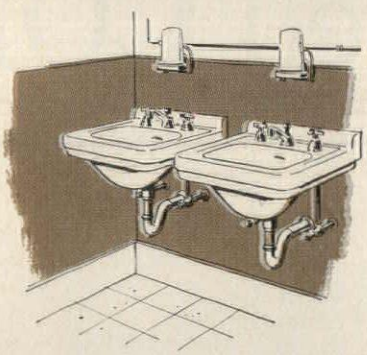

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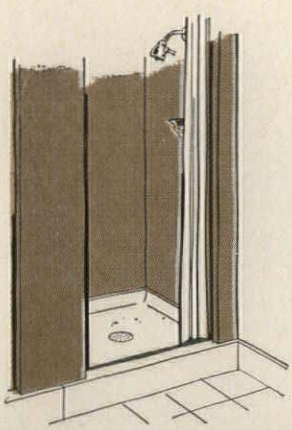

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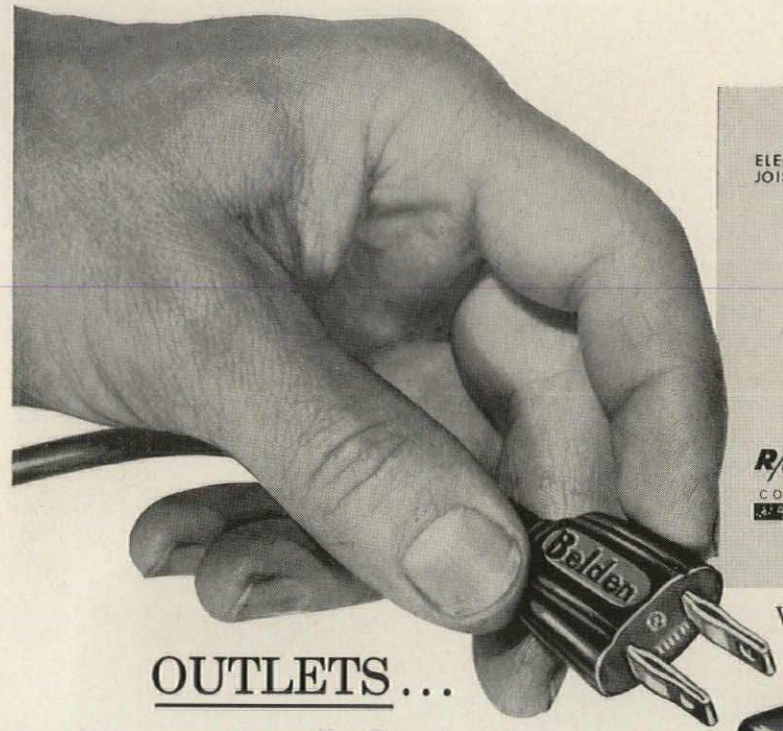

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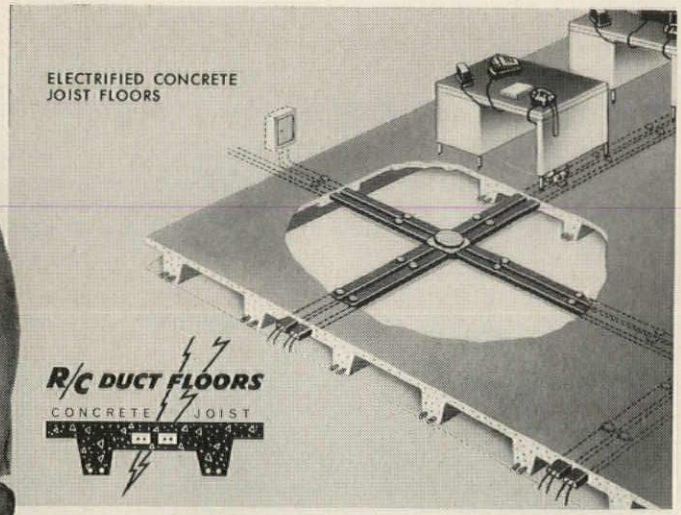

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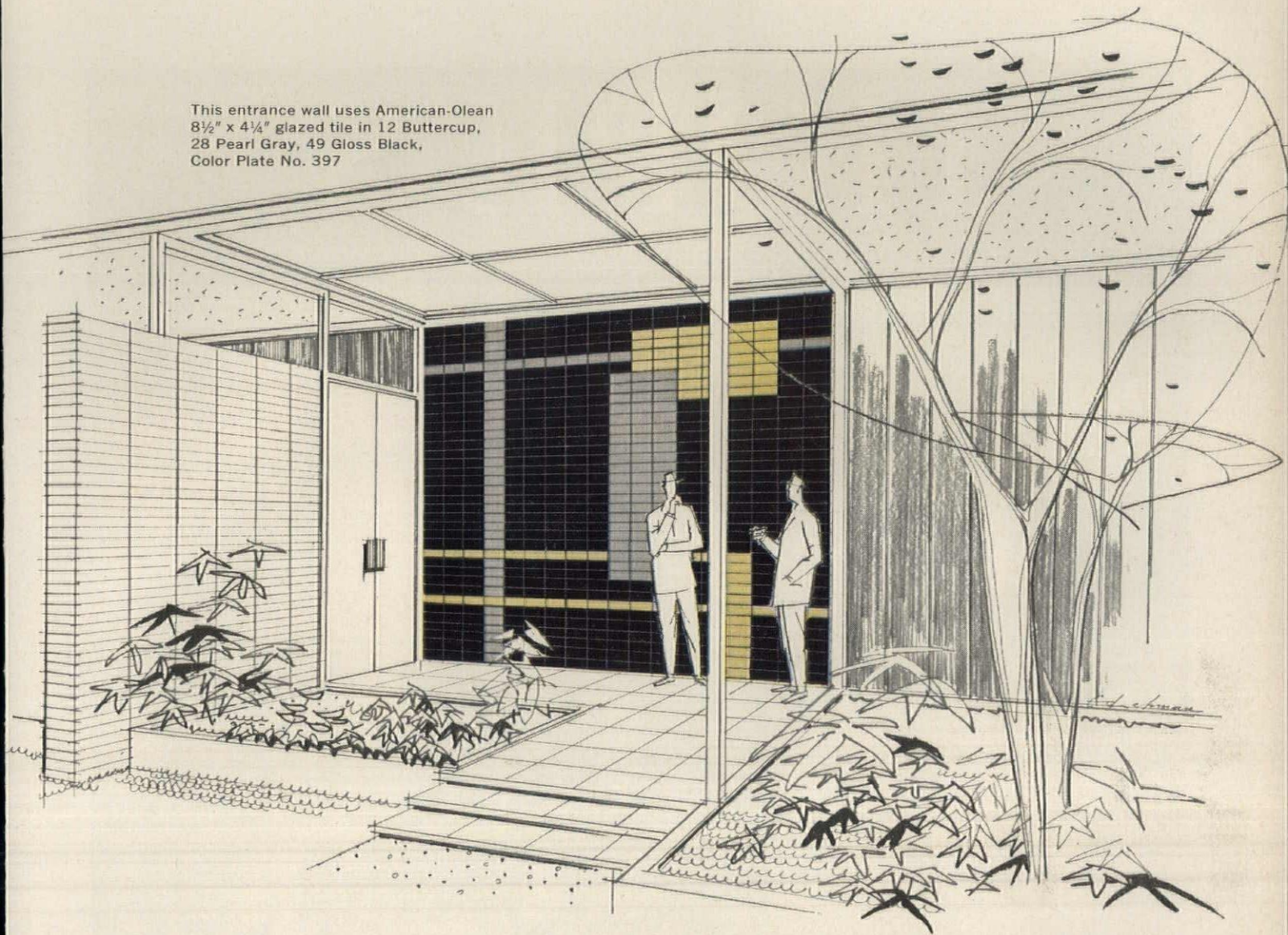
***Saratoga Building, New Orleans, La.** Architects: Herbert A. Benson and George J. Riehl † Structural Engineers: A. W. Thompson and Associates † General Contractors: R. P. Farnsworth & Company, Inc.†

† New Orleans, La.



This entrance wall uses American-Olean 8½" x 4¼" glazed tile in 12 Buttercup, 28 Pearl Gray, 49 Gloss Black, Color Plate No. 397

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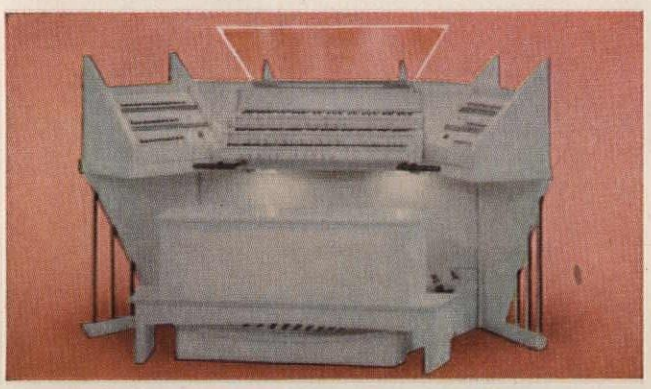

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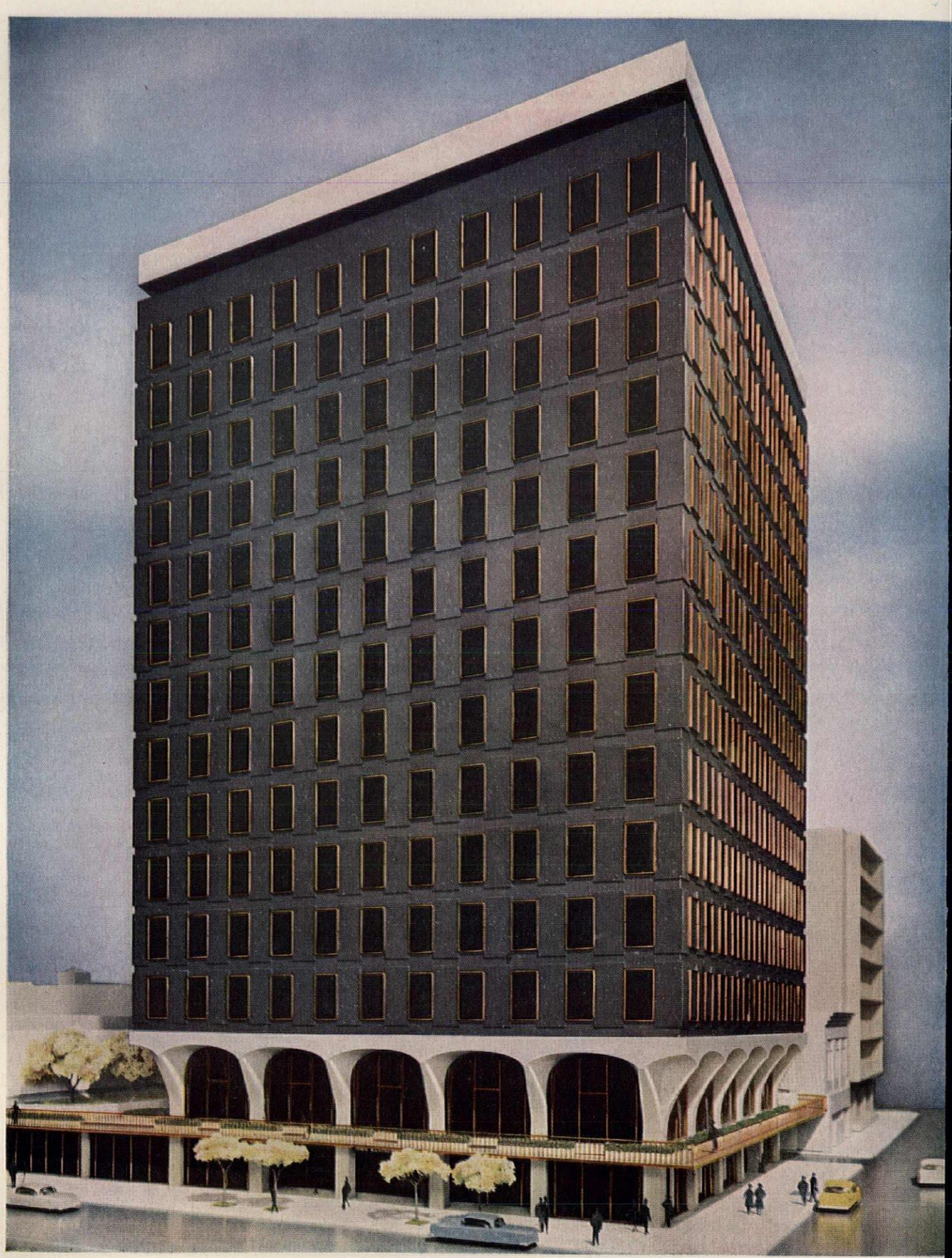

NEW BRONZE BEAUTY BY THE GOLDEN GATE

New San Francisco Western Home Office of John Hancock Life features functional use of Chase® Architectural Bronze

The John Hancock Mutual Life Insurance Company wanted a new warmth, beauty and elegance in their Western Home Office building. They turned to the beauty of bronze.

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Bronze has other important uses. An all-bronze railing encircles two sides of the building at the second floor. Window flashings are Chase copper. When this new 15-story building is occupied in the fall, the functional use of Chase bronze will add new beauty and distinction to the downtown skyline in San Francisco.

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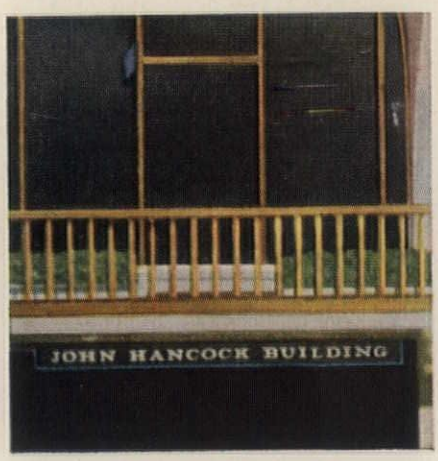
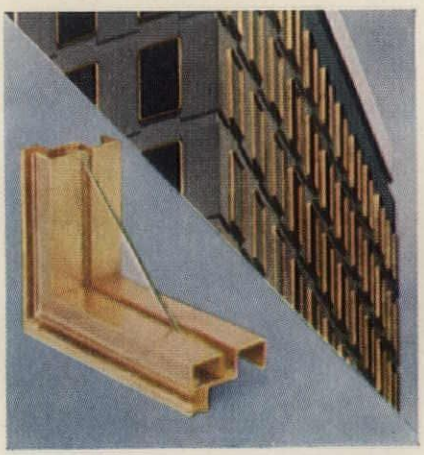
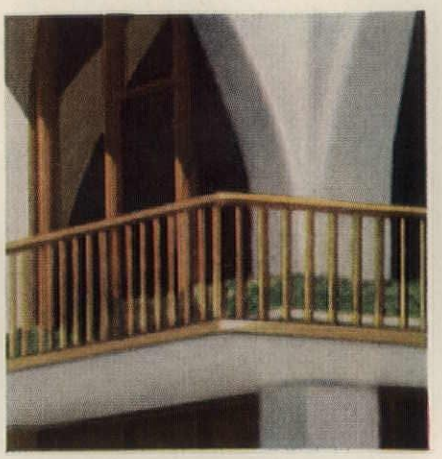


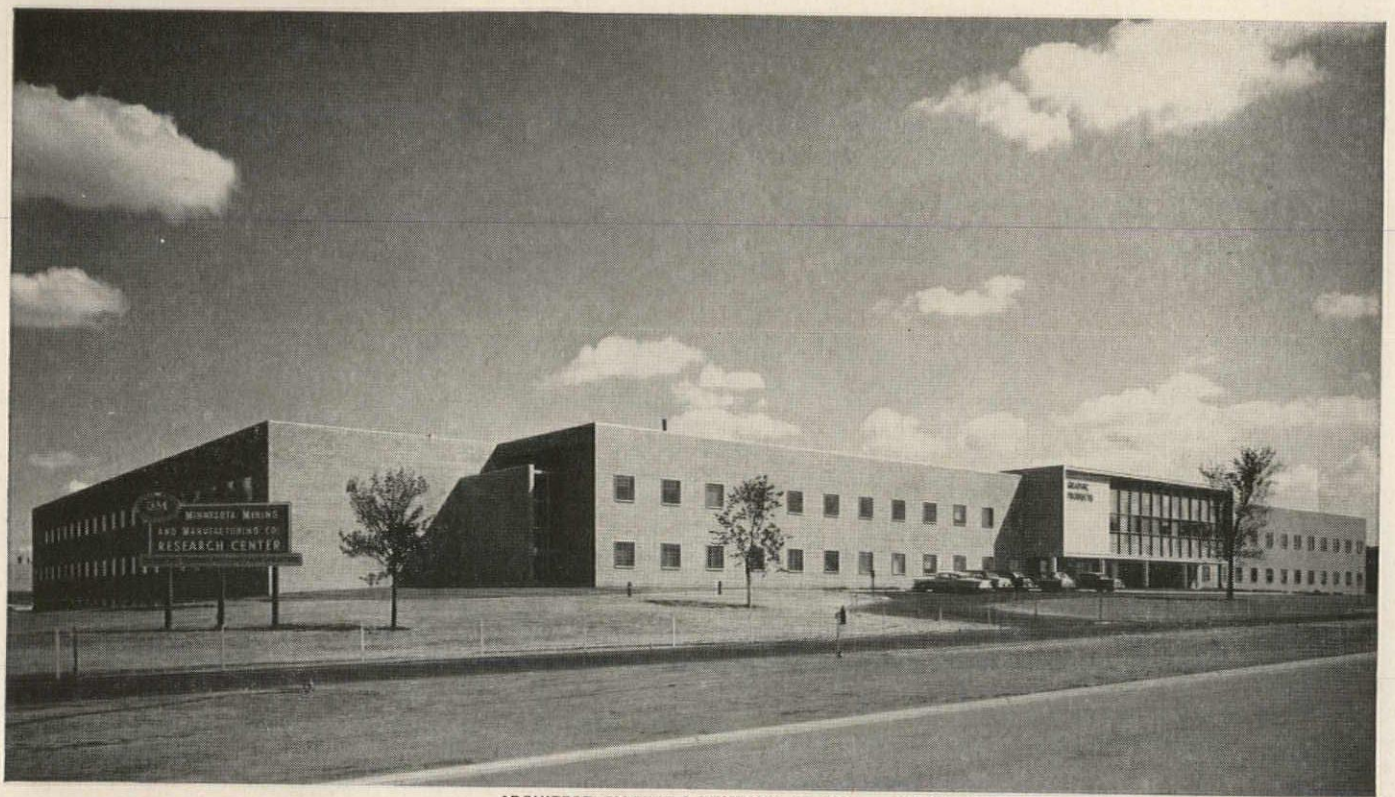
WINDOWS and exterior doors on all floors of the new Hancock building feature the use of Chase Architectural Bronze Shapes, made to tolerances of thousandths of an inch. Bronze adds warmth, beauty and elegance to the building.



BALCONY around two sides of building has a beautiful bronze railing made of Chase Architectural Bronze. This feature adds beauty to the new building now under construction at California and Battery Streets in San Francisco.



A continuing series of distinguished schools, churches, hospitals, office buildings and industrial structures using NORTON DOOR CLOSERS



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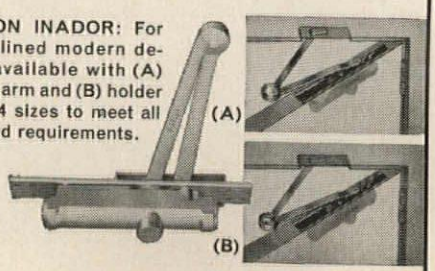

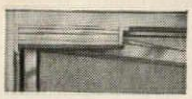

NORTON 750: New corner design with concealed arms, for all types of doors, particularly narrow-rail doors.

NORTON SURFACE-TYPE: For all installations where concealment is not essential.

NORTON 703-N Compact surface-mounted type... 1½ inch projection.

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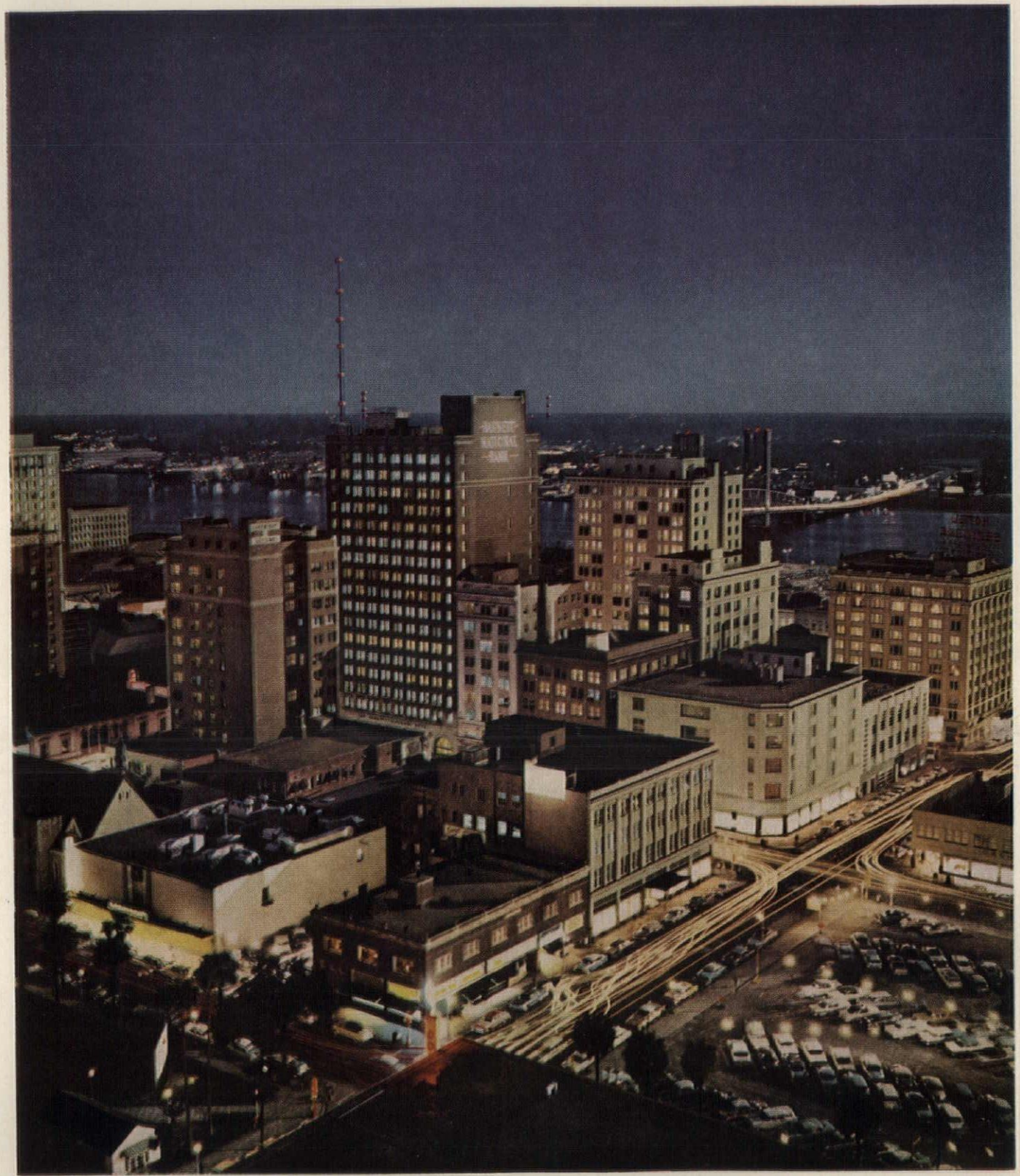

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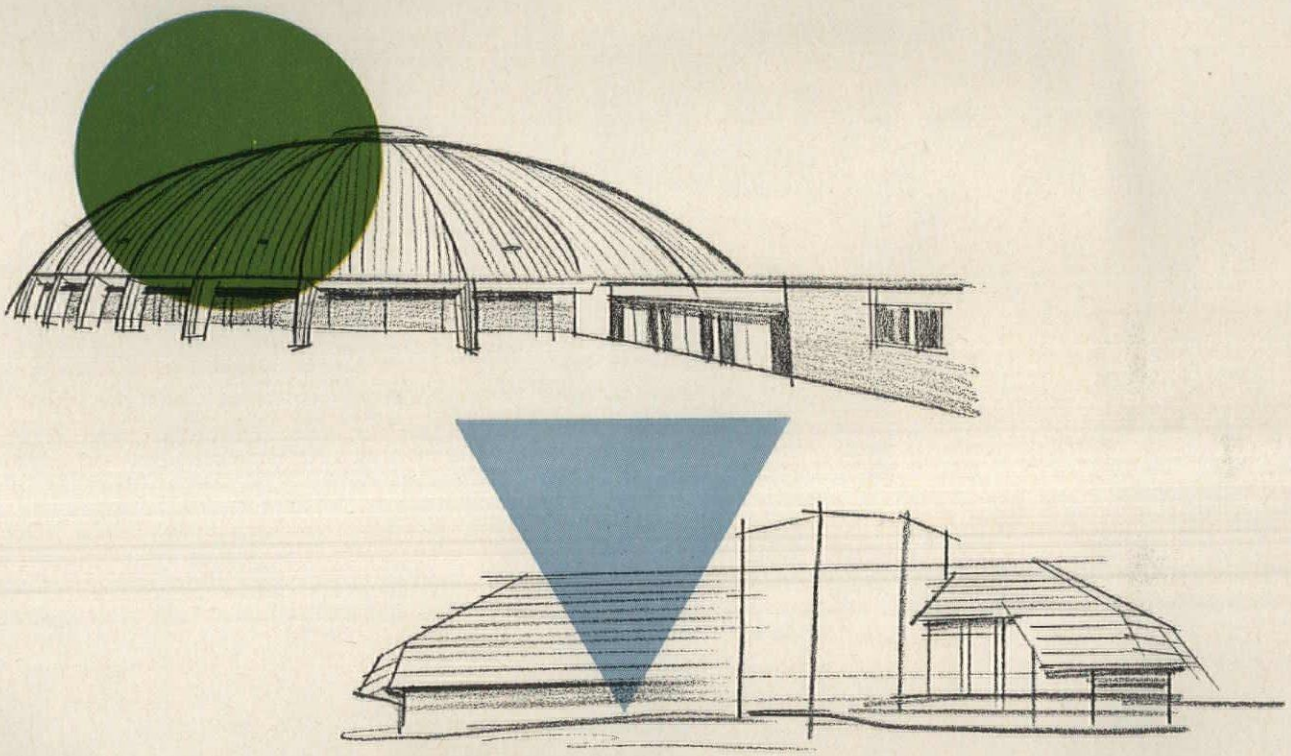

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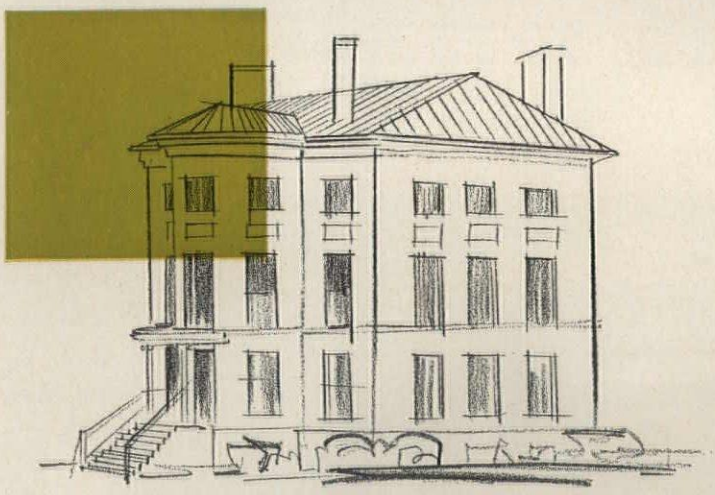

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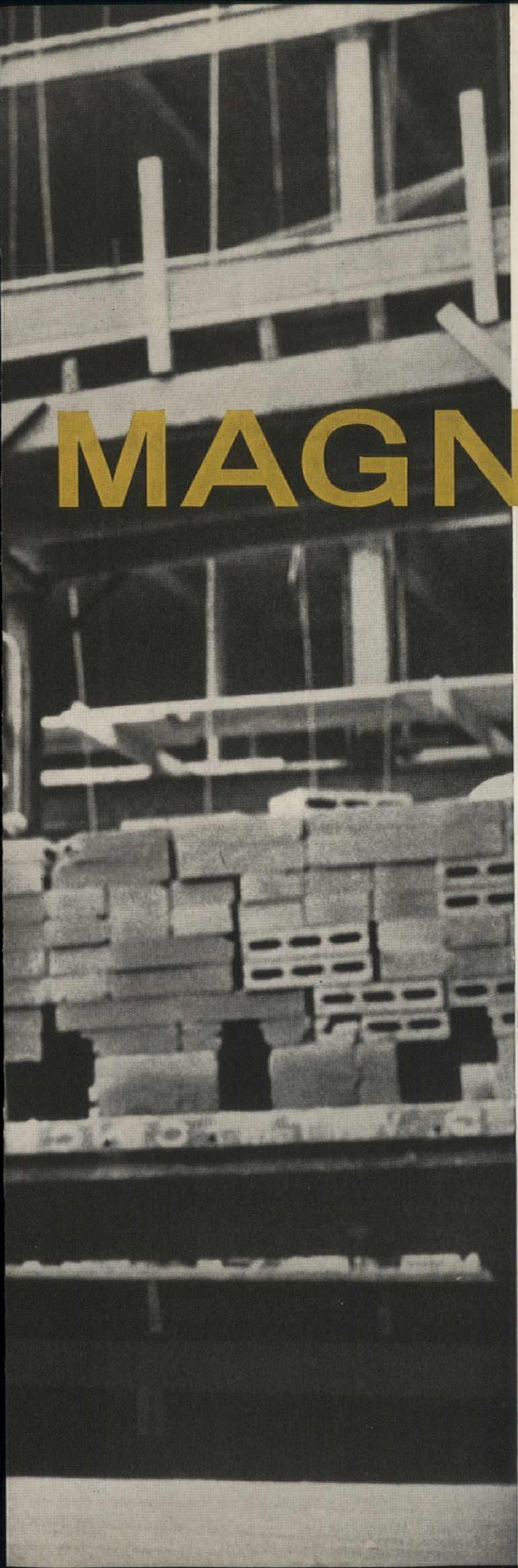

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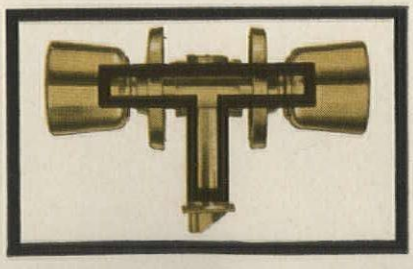

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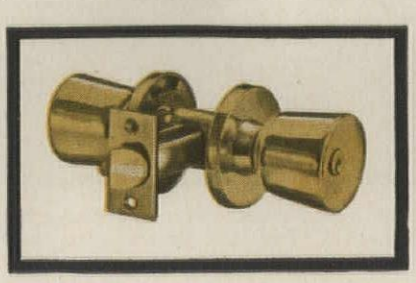

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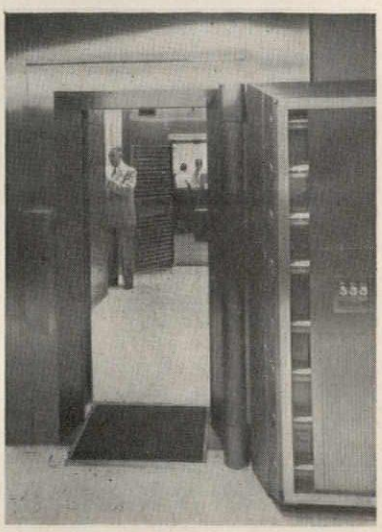
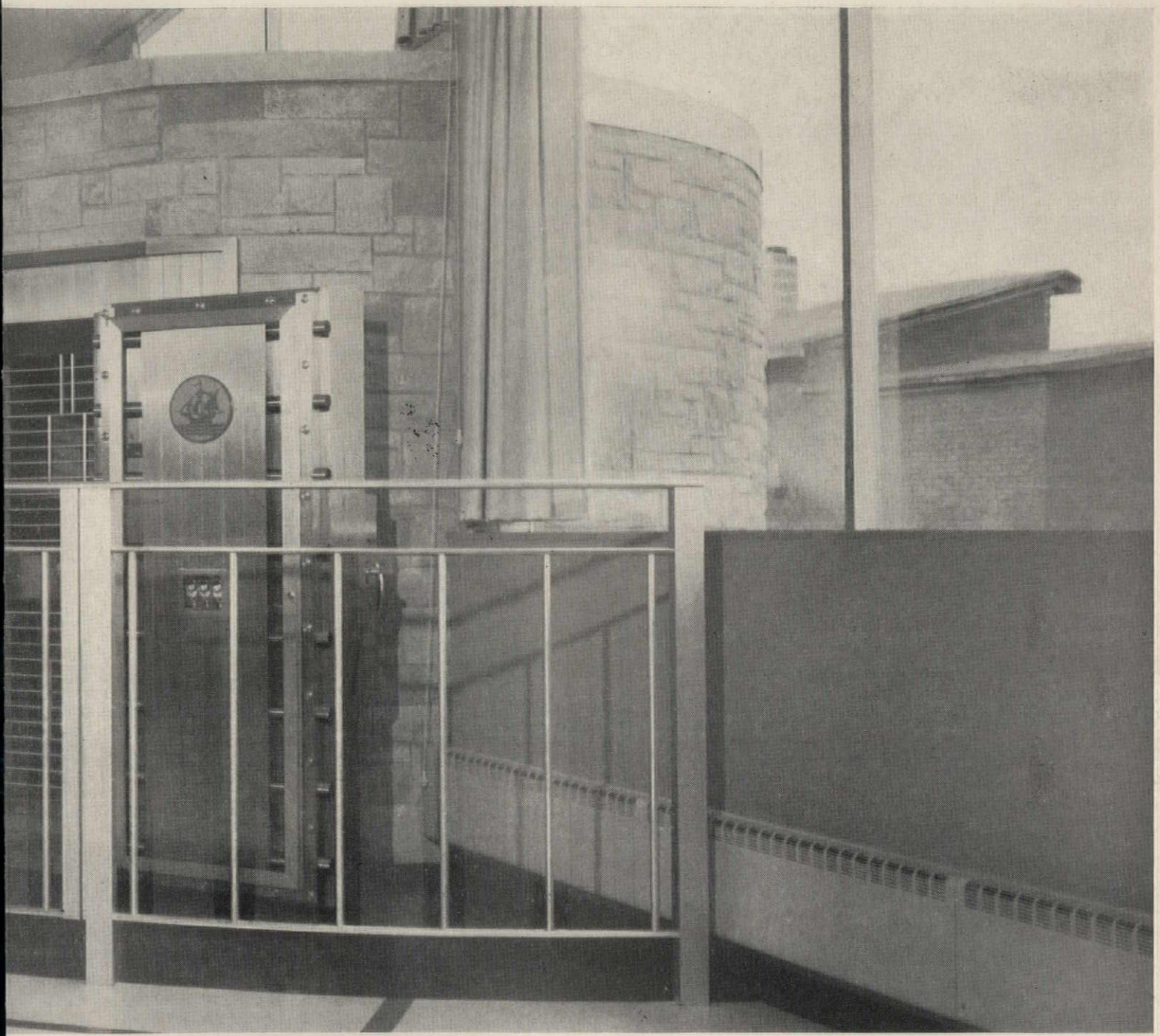
How Mosler banking equipment makes problem designs workable



▲ **Architecturally workable.** Cramped for space indoors, architect Milton Millstein of Buffalo went *outside* to give Marine Trust Company of Western New York extra room *inside*. By using space that wasn't there, a full-size vault was constructed in half the space normally required. The vault is the center of attention in the banking area. It is steel lined and protected by Mosler's magnificent Century-7 door, framed with stainless steel architrave.

◀ **Customer workable.** Edwin Kraus, Milwaukee architect, eliminated the problem of customer "vault phobia" with a "see through–walk through" design incorporating two Mosler Century-10 doors. Now, customers at Racine's First National Bank and Trust Company enter the first door, watch as their safe deposit box is removed, take it through the second door to the coupon room... and reverse the procedure on the way out. The extra door also provides ventilation without compromising the vault's security.



◀ **Employee workable.** For the Bank of Bethesda, Maryland's new Westwood Branch, architect John Henry Sullivan, Jr., specified Mosler's "New Picture Window." This is the first drive-in window ever designed with both customer and *teller* in mind. Note the skirt is full length, extends all the way to the ground. This innovation gives the teller plenty of knee space, with lots of room left over for modular, under-counter accommodations. Other all-new features include a constant, High Fidelity intercom system, side skirts that adjust from 8 to 14 inches for easy installation in walls of varying thicknesses.

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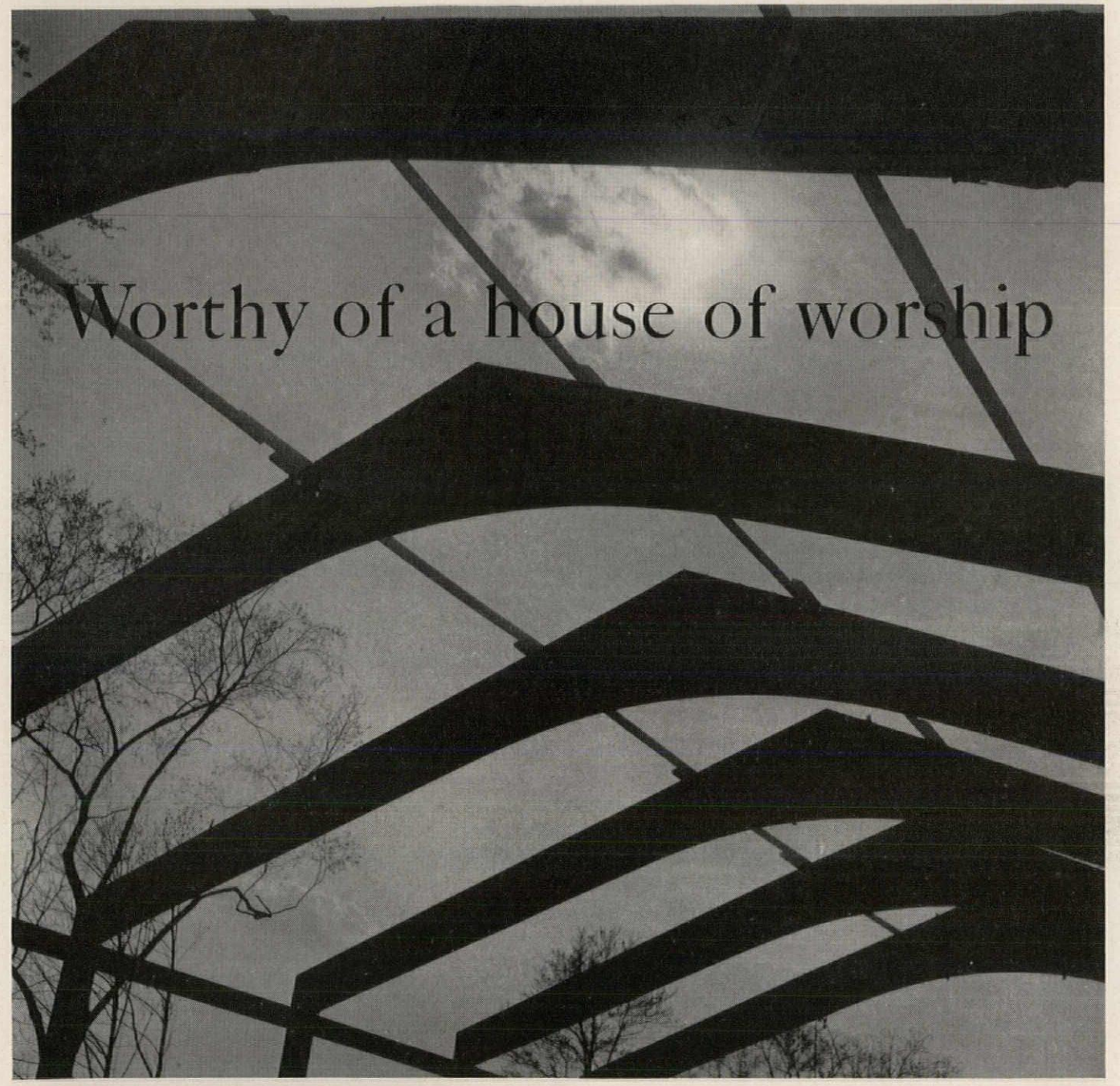

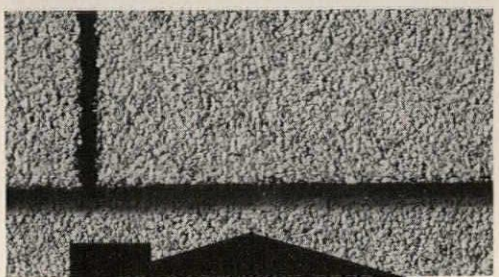

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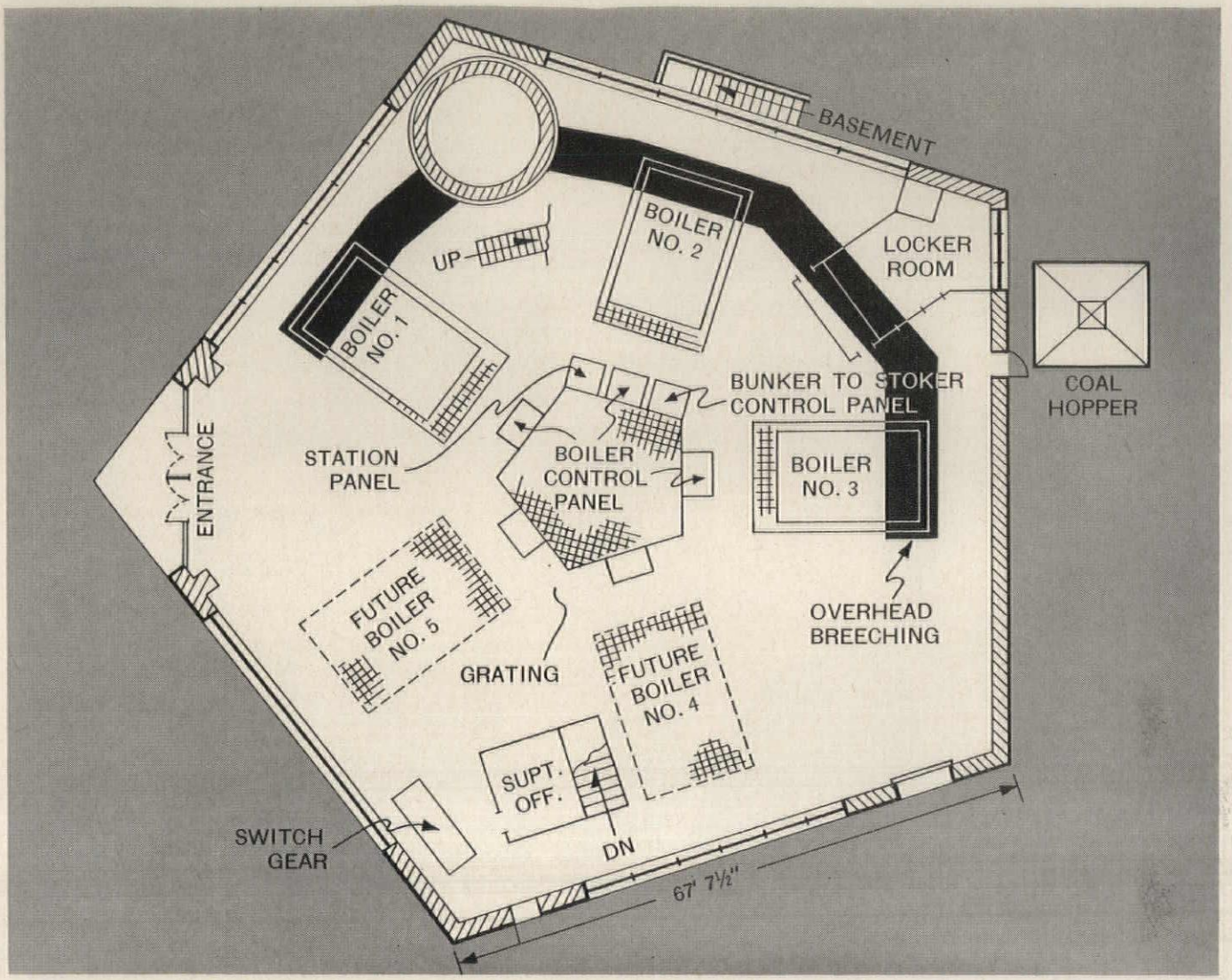

Hospital cures fuel ills with "little Pentagon"

Richmond State Hospital burns coal for economy and availability in modern pentagonal power plant

After a power system failure at the Richmond State Hospital, Richmond, Ind., the administration conducted an engineering survey of its steam-generating operation. Over-age equipment indicated the need for entirely new facilities. The shape of the boiler room site prompted the unconventional pentagonal installation for best possible adaptation of space to present and future needs. *Economy* and *availability* dictated the choice of coal as the fuel. Today a new power plant—designed by Fleck, Quebe and Reid, Indianapolis, with F. B. Morse, of Purdue University—burns coal in a completely modern, automatic operation. The outstanding features of this compact installation are its high combustion efficiency, minimum manpower requirement and continuing ease of maintenance.

Consult an engineering firm

If you are remodeling or building new heating or power facilities, it will pay you to consult a qualified engineering firm. Such concerns—familiar with the latest in fuel costs and equipment—can effect great savings for you in efficiency and economy of fuel.

Coal is lowest cost fuel

Today, *when the annual cost of fuel often equals the original cost of the boilers,* you should know that bituminous coal is the lowest cost fuel in most industrial areas. And modern coal-burning equipment gives you 15% to 50% *more* steam per dollar, while automatic operation trims labor costs and eliminates smoke problems. What's more, tremendous coal reserves and mechanized mining procedures assure you a constantly plentiful supply of coal at stable prices.

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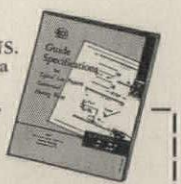

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"Schools framed with structural steel make a lot of sense to an engineer. Steel is strong. Its behavior under stress is predictable; you can calculate its ability to support loads precisely, and in advance. There's no guesswork. Steel is stable and uniform, too. It remains in its original form. You always know what you're getting. In combination with other non-combustible materials, steel-framed schools greatly reduce fire hazards."

Their reasons differ, but they all agree . .

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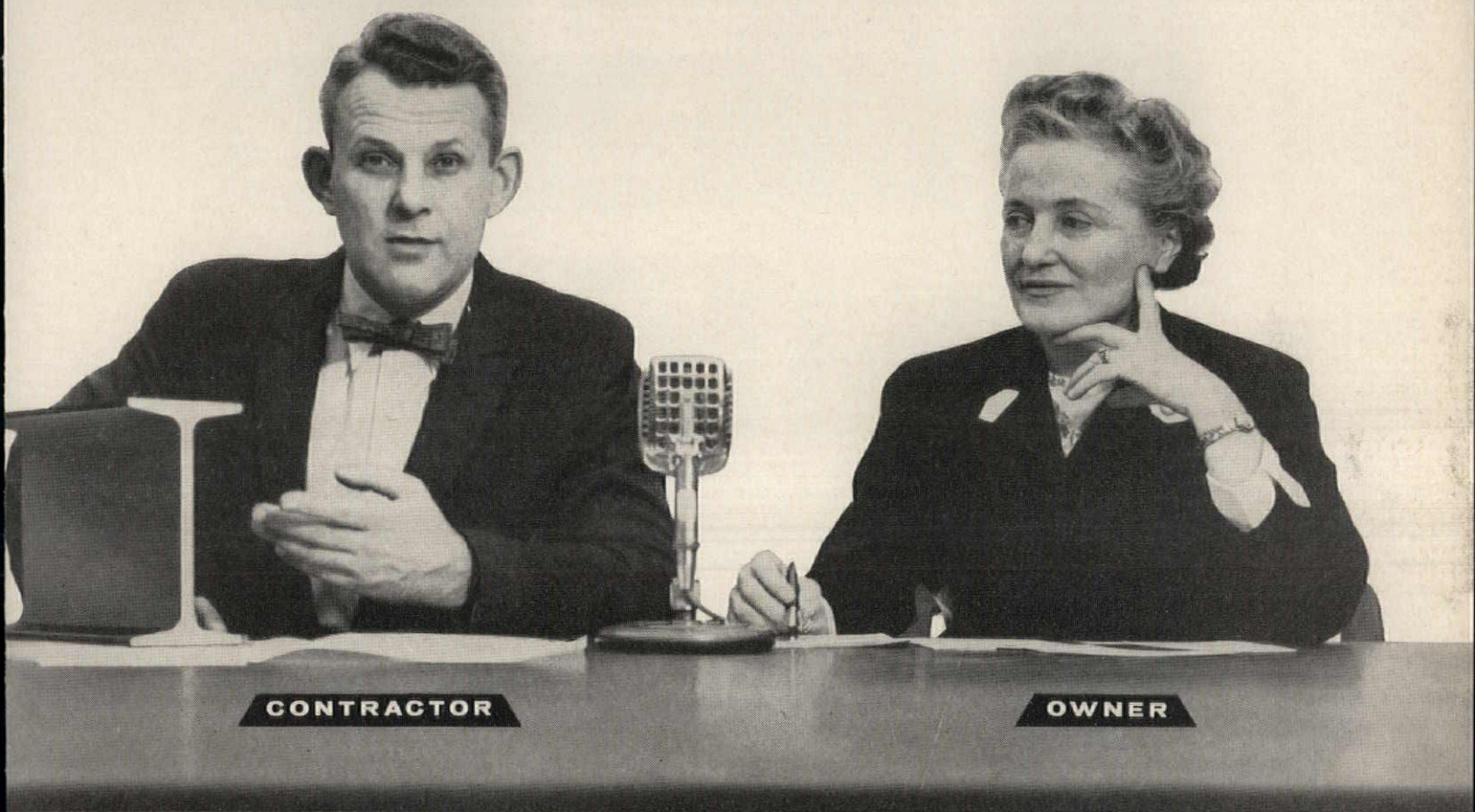

STEEL FRAMING MAKES SENSE

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

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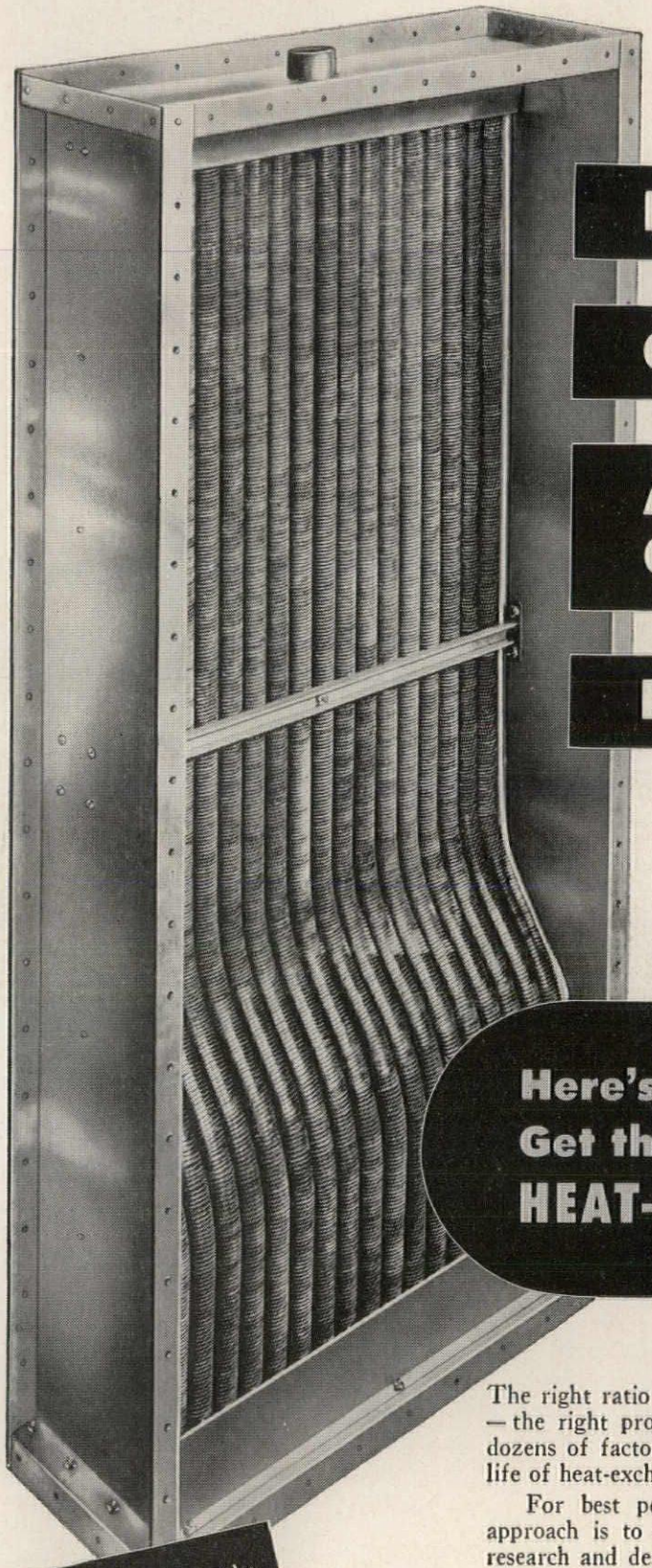

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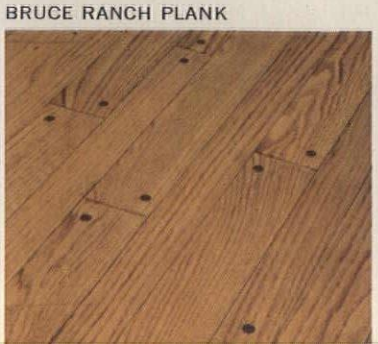

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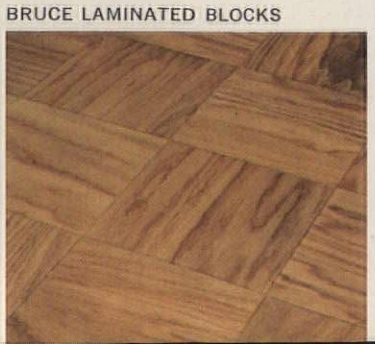

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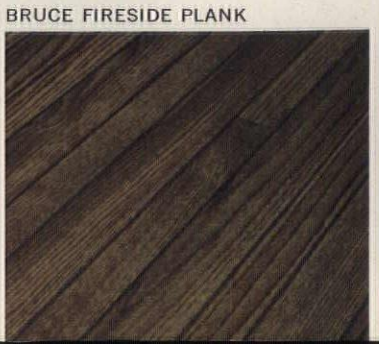

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You can now specify windows of sturdy, lasting stainless steel—at a cost much lower than you may think. Reason? Manufacturers now *roll-form* windows from Allegheny Stainless and pass the fabrication economies on to you.

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Include Allegheny Stainless in your design-thinking now. Learn how you can get the quality of stainless steel windows for much less than you think. For additional facts, and manufacturers' names, write to *Allegheny Ludlum Steel Corporation, Oliver Bldg., Pittsburgh 22, Pa. Dept. R-19.*

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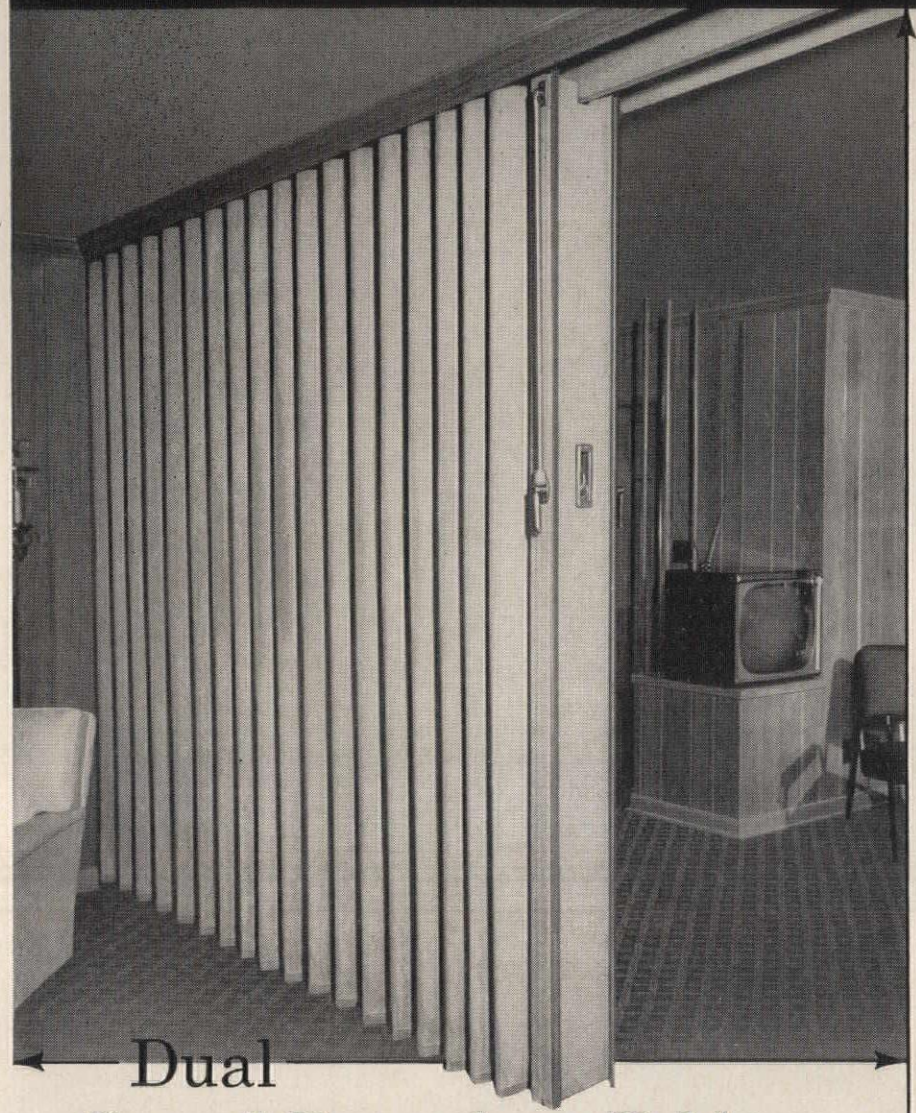

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In many situations, it's just as important to be able to separate sound as it is space. That's why the new Dual Sound-Retardant FOLDOOR Partition is such a sensible choice for all double-use facilities. It marks the first time that the convenience and beauty of the fabric-covered folding door are available in a general purpose, maximum sound-retardant partition that operates from overhead tracks only.

In Canada: FOLDOOR of CANADA, Montreal 26, Quebec

Photo above from Biltmore Hotel Courts Nashville, Tennessee

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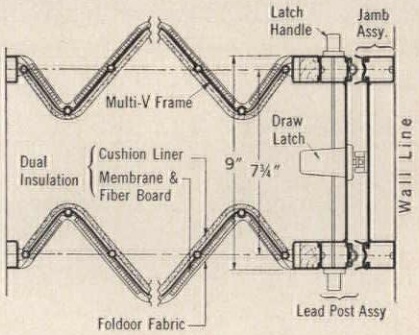
NEW FABRIC-COVERED FOLDING PARTITION RETARDS SOUND AS WELL AS A 3" GYPSUM WALL!



This new structural design plus special insulation minimizes sound transmission.

Look at the advantages that only the new sound-retardant FOLDOOR offers:

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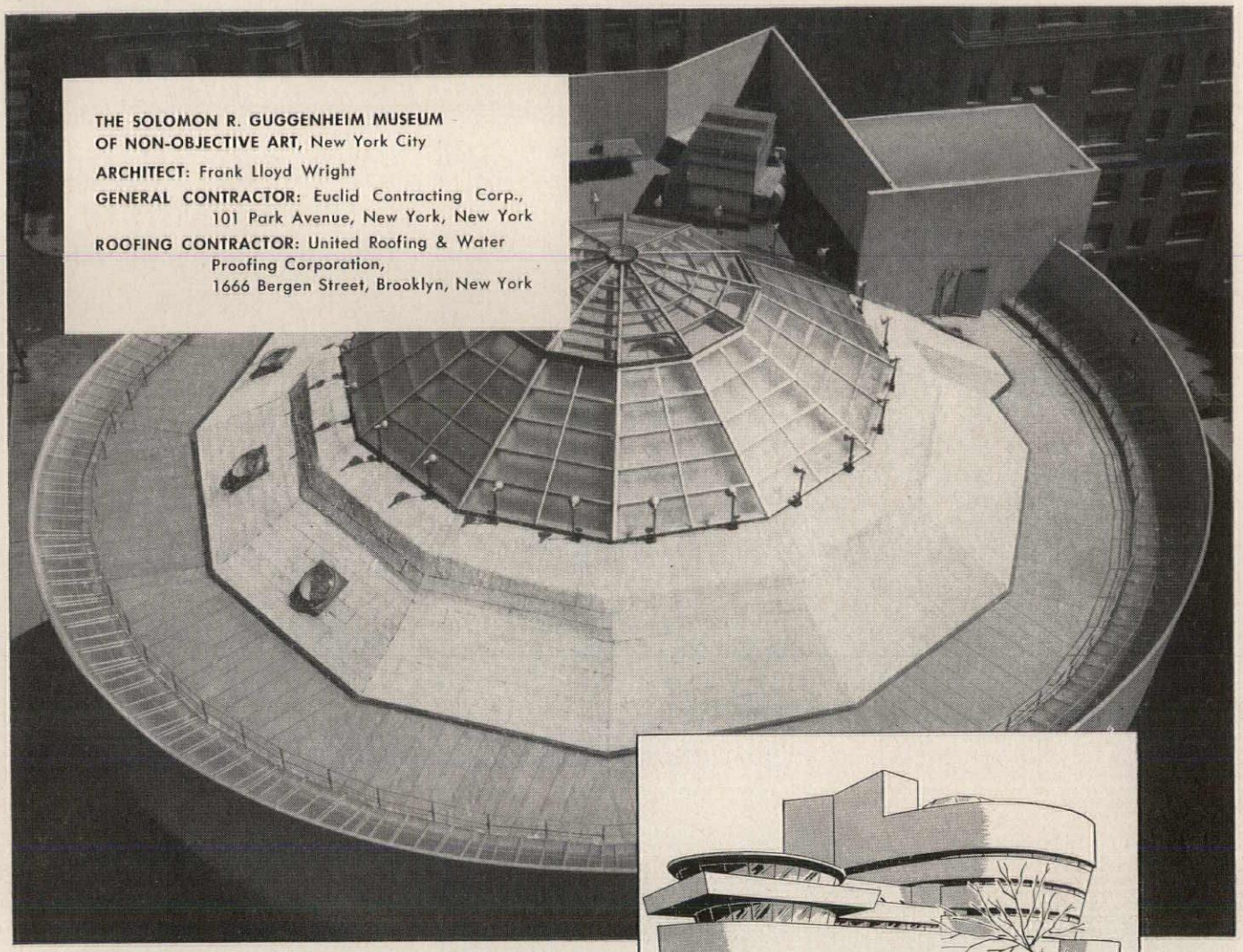
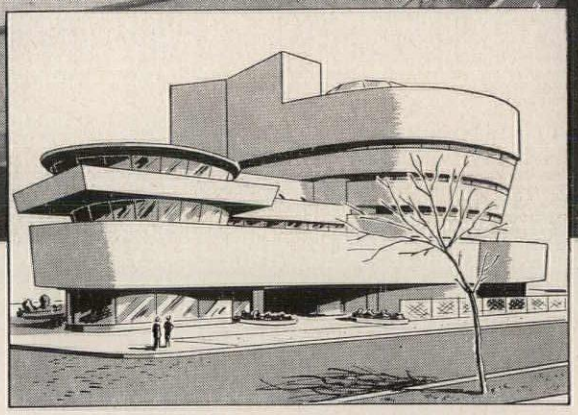


THE SOLOMON R. GUGGENHEIM MUSEUM OF NON-OBJECTIVE ART, New York City

ARCHITECT: Frank Lloyd Wright

GENERAL CONTRACTOR: Euclid Contracting Corp., 101 Park Avenue, New York, New York

ROOFING CONTRACTOR: United Roofing & Water Proofing Corporation, 1666 Bergen Street, Brooklyn, New York



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Job-Engineered Ruberoid Built-Up Roofing

The beautiful, new Solomon R. Guggenheim Museum of Non-Objective Art is symbolic of a unique spirit in architecture, Frank Lloyd Wright, and a great New York philanthropic foundation.

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ASPHALT AND ASBESTOS BUILDING MATERIALS

". . . . the profound meaning of all church building is just this: to find beyond all preliminary tasks, the absolute task and to introduce in incorrupted works the primal process itself, God's sacred maintaining of the world. Like the mystic who seeks the way to that innermost cell where God lives in the midst of the world, so the cathedral builder seeks to do God's true work, to render the process of all processes. Here in purity God's work should 'be done.'" RUDOLPH SCHWARZ

BUILDING TYPES STUDY 272

PIETRO BELLUSCHI

Pietro Belluschi knows how to build churches. Very few architects do. It is not enough to say that Belluschi has a "knack," a "touch," a "fine Italian hand" if you will, but it is generous and good to marvel at a talent that can make a true church. Admiration leads one to ponder more precisely the nature of Belluschi's gifts, to trace in the insistent geometry of his structures the sources of influence upon him, and to seek in his writings evidence of the profound understanding that controls his beautifully ordered churches. One finds an aesthetic of humility, simplicity and discipline. A warm feeling for the people of the congregation strengthens his ability to give form to their aspiration. There is no hint of subjective isolation, or unrelated self expression; Belluschi's discipline and objectivity are complete, his involvement absolute.

On the pages that follow are drawings for a chapel and monastery currently under construction, a recently completed synagogue, two versions of a projected church, and a recently completed church. This new work offers further evidence of the power of Belluschi's talent, backed by the vigor of his conviction.

Church and Monastery for Portsmouth Priory

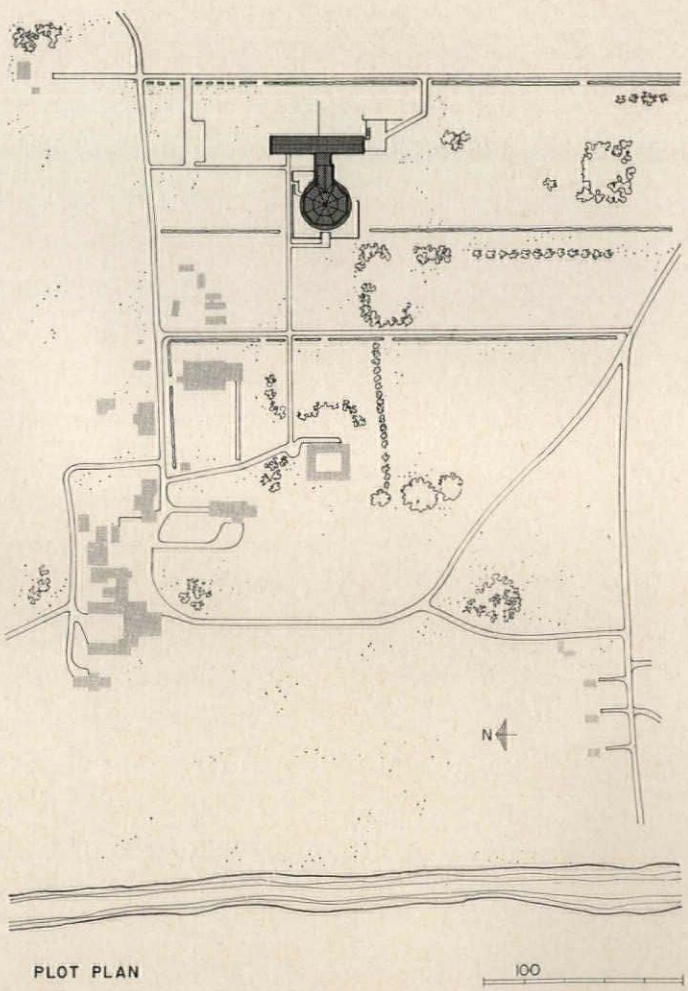
"And now that most of the battles against dogmas have been won, I hope they [architects] may also gain a certain amount of tolerance for all the human symbols and forms of the past, because people need them and live by them to a greater extent than is realized, because they furnish a feeling of continuity which gives them faith in their evolution."
BELLUSCHI

LOCATION: *Portsmouth, Rhode Island*
ASSOCIATED ARCHITECTS: *Pietro Belluschi, Anderson Beckwith and Haible*
STRUCTURAL ENGINEERS: *Severud-Elstad-Krueger Associates*
MECHANICAL ENGINEERS: *Delbrook Engineering Co.*
ELECTRICAL ENGINEER: *Edwin P. Mahard*
ACOUSTICAL CONSULTANTS: *Bolt, Beranek and Newman*
SANITARY ENGINEERS: *Camp, Dresser and McKee*
CONTRACTOR: *E. Turgeon Co.*

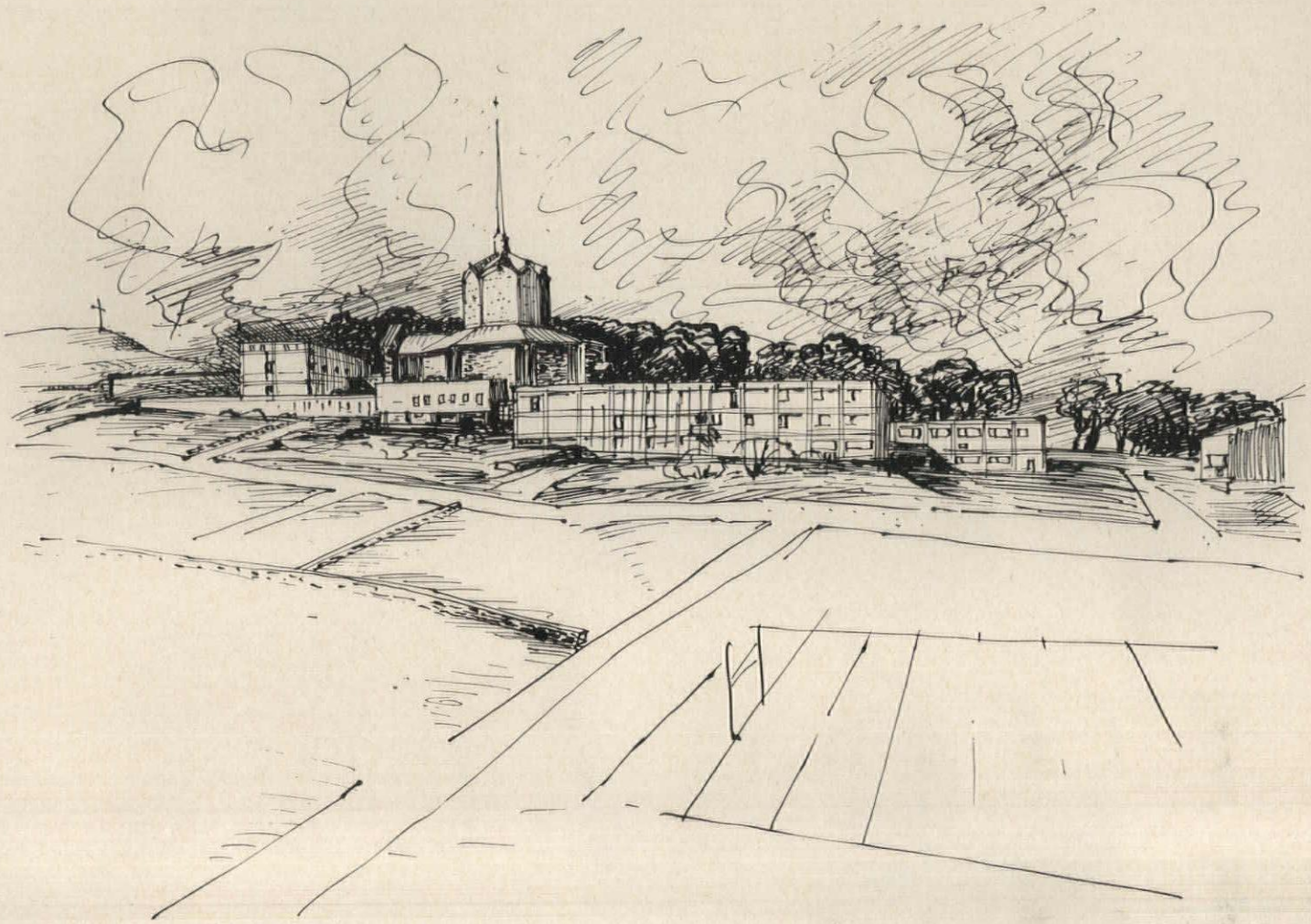
A cross on a hill, and a church set almost as high above a cluster of humble buildings to command the landscape . . . these forms, a part of memory, are lovingly evoked by Belluschi in his sketch of the church site, made from a point beyond the playing fields at Portsmouth Priory. Church and monastery are being added to a farm of small hills and limited pastures which overlooks Narragansett Bay. Members of the Order of St. Benedict conduct a boys preparatory school there as well as a sheep and dairy farm, but the existing buildings with one notable exception are either modest farm structures or are built in harmony with them. The new building is composed in elements which are refined and small in scale to bring it into a proper relationship with the intimate landscape which surrounds it.

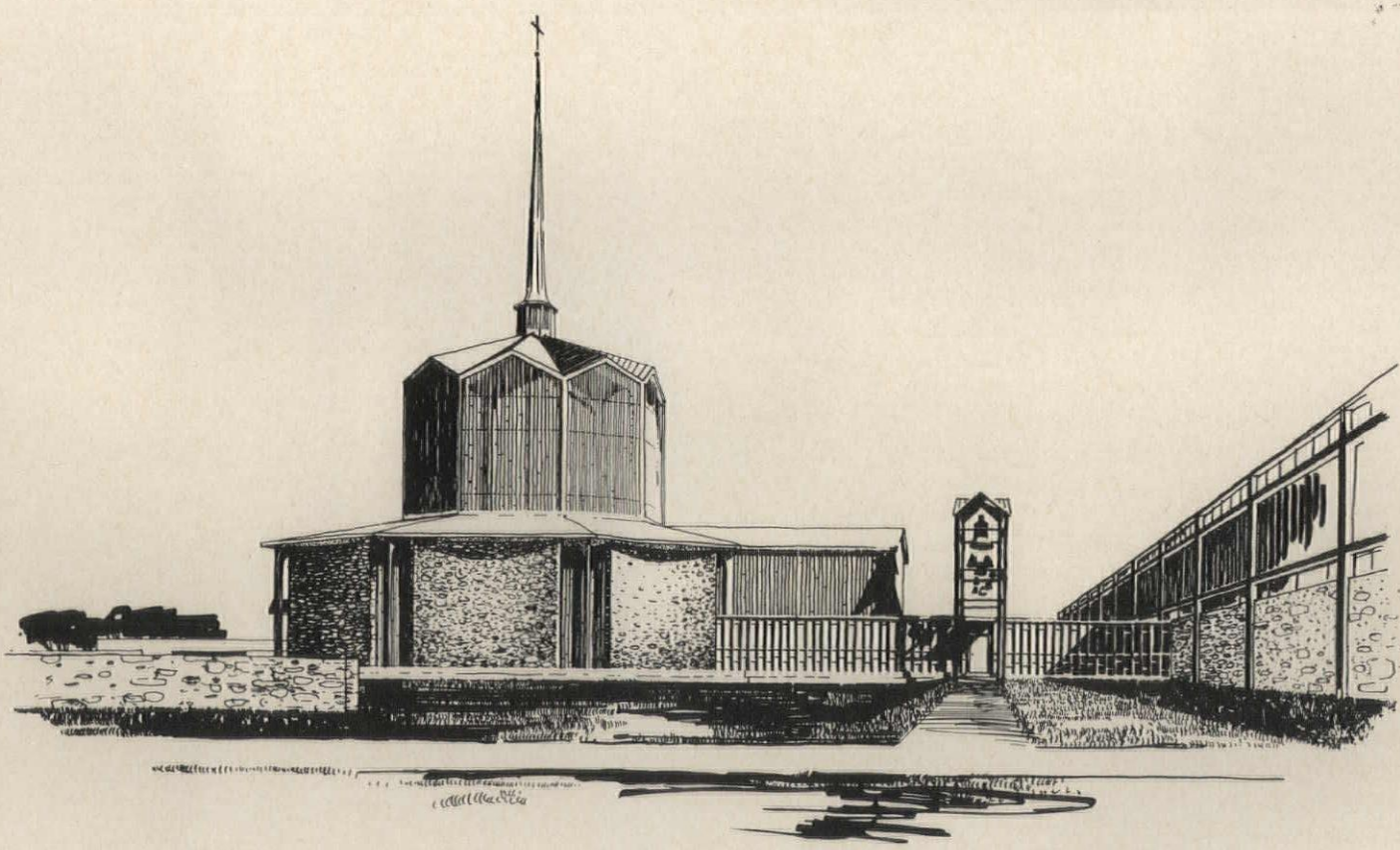
The church is raised on a stone platform to make the nave floor approximately the same height as the main floor of the monastery and high enough to provide a view from the church door, across the roof of a low structure on axis in the middle distance, to the waters of the bay.

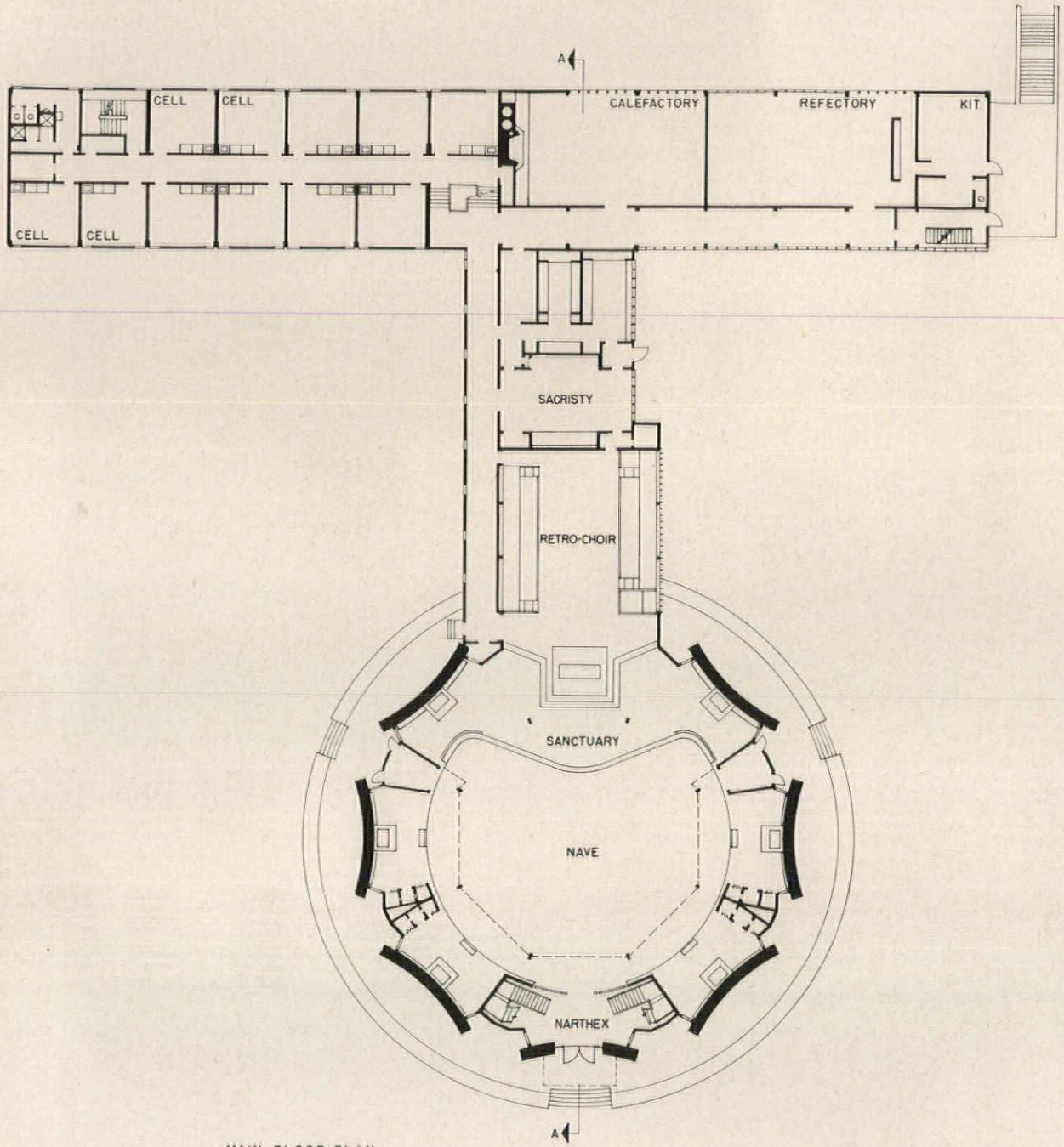
Octagonal in plan, the basic elements of the church including the nave and its great ceiling, the altar and gallery, are ordered in much the same manner as those of San Vitale in Ravenna which is also based upon an octagon.



PLOT PLAN

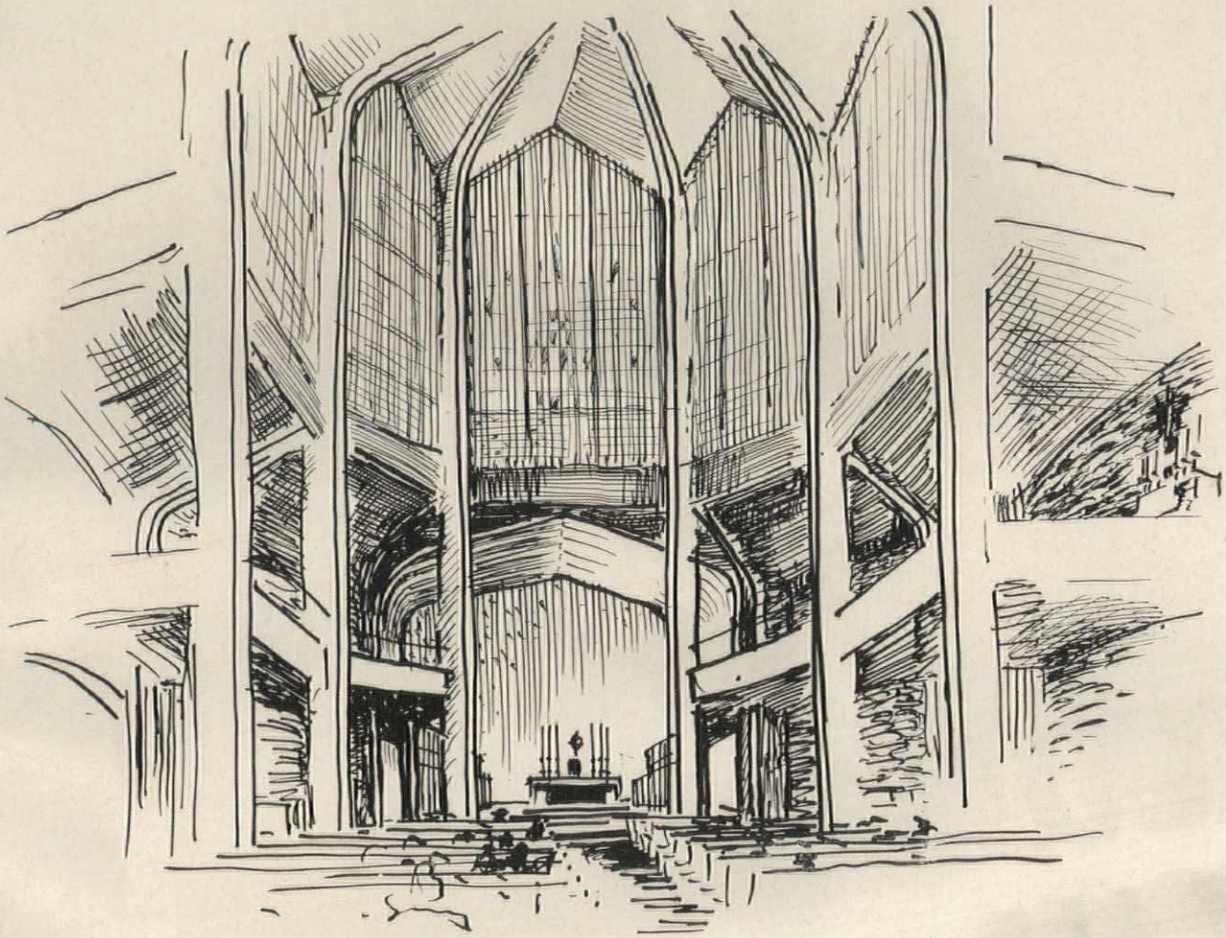


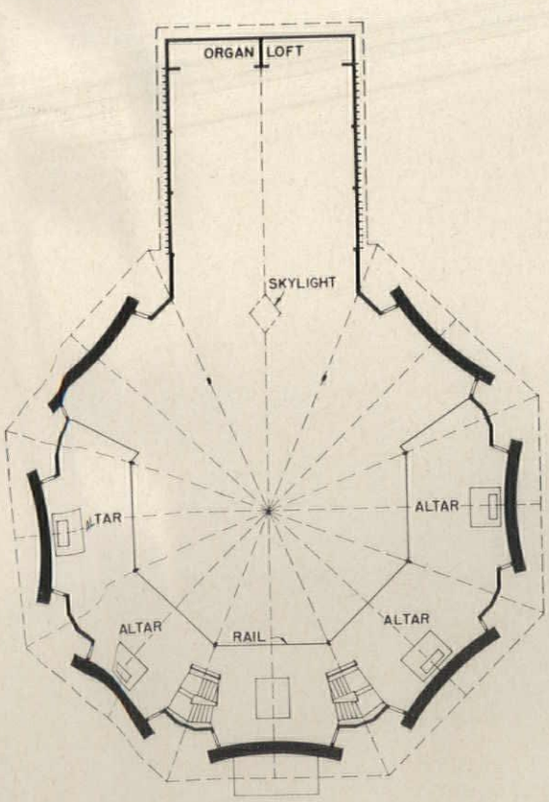




MAIN FLOOR PLAN

The chief function of the new church is to provide a place for each monk to say daily Mass, and for the Benedictines as a group to chant or sing their offices which they must do seven times a day. A secondary purpose is to provide a suitable place for students and visitors to worship. This is expressed clearly in the plan. A retro-choir has been placed beyond the main altar providing easy access from the sacristy and monastery and separateness and semi-privacy for the monks as a group. Small altars for the individual celebration of Mass will be located in each of the empty segments of the octagon on both the nave and gallery floors. Some altars are partially enclosed by the walls of confessionals and entrances. The main altar will dominate, however, and will be lit by a diamond-shaped skylight of clear glass. Perspective is by Belluschi





PLAN OF GALLERY

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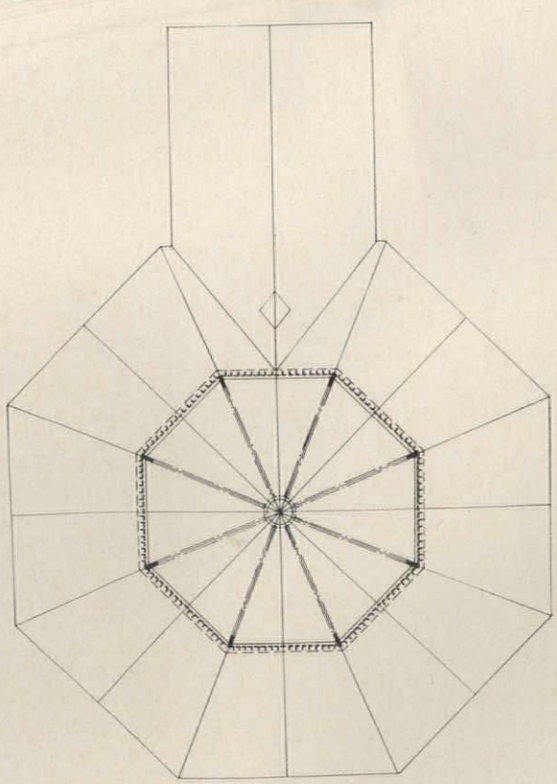

PLAN OF TOWER

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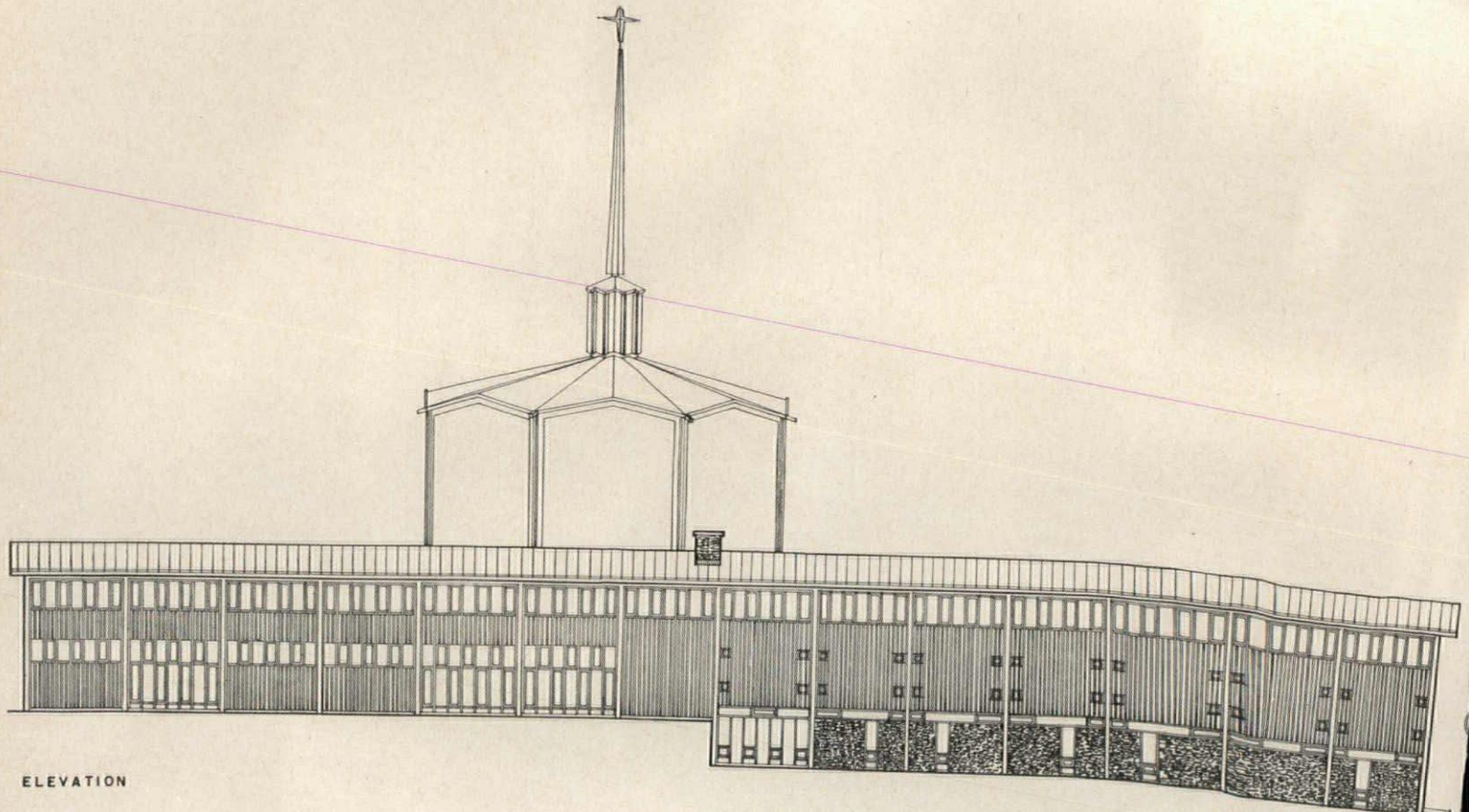

ELEVATION

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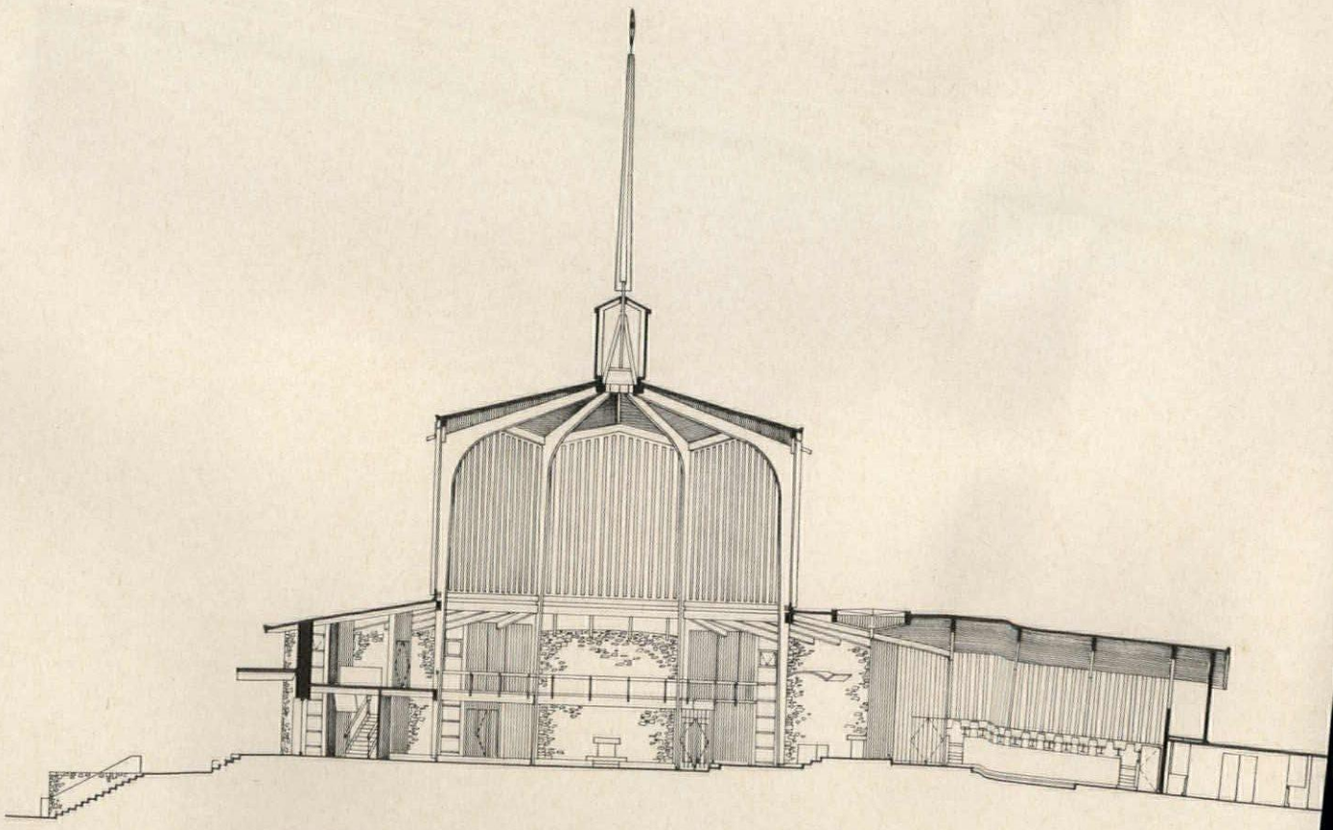

SECTION A-A

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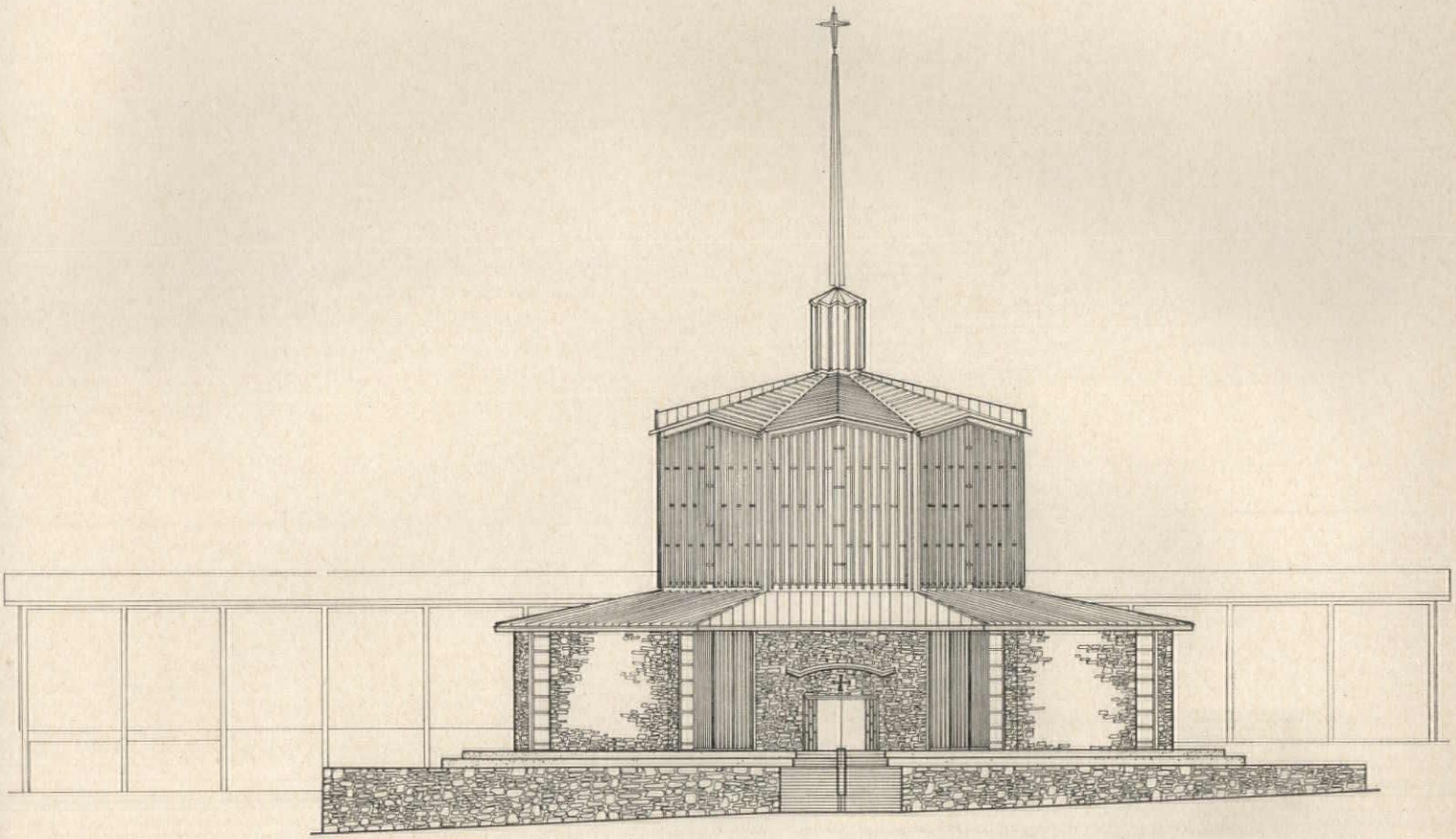

ELEVATION

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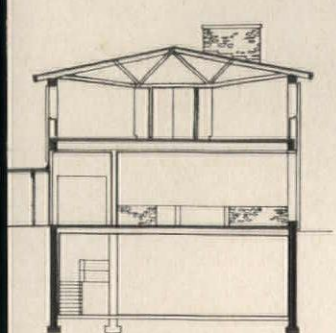
The center of the nave will be lit by the sky through the colored glass of the lantern which begins where the laminated hardwood arches meet and ends in spire and cross. A local fieldstone typical of Rhode Island and identical to that which could be quarried on the farm, a kind of incomplete slate which splits in horizontal layers, will be used where stone is indicated. Wooden members will be of redwood finished with creosote, and will be expected to shed the driving slanted rains of the region. The nave floor will be of concrete covered with brick. Roofs will be of copper



Synagogue for Temple Adath Israel

LOCATION: *Merion, Pennsylvania*

ASSOCIATED ARCHITECTS: *Pietro Belluschi, Charles Frederick Wise*

STRUCTURAL ENGINEERS: *Severud-Elstad-Krueger Associates*

MECHANICAL ENGINEER: *Jack P. Hartmann*

ACOUSTICAL CONSULTANTS: *Bolt, Beranek and Newman*

LANDSCAPE ARCHITECT: *Sasaki, Walker and Associates, Inc.*

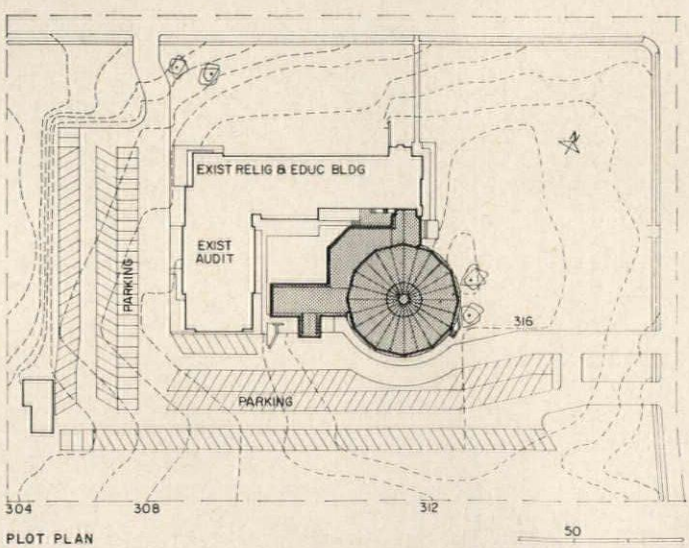
SCULPTOR: *George Kratina*

STAINED GLASS WINDOW CONTRACTOR: *Willett Stained Glass Co.*

CONTRACTOR: *Fleming Company*

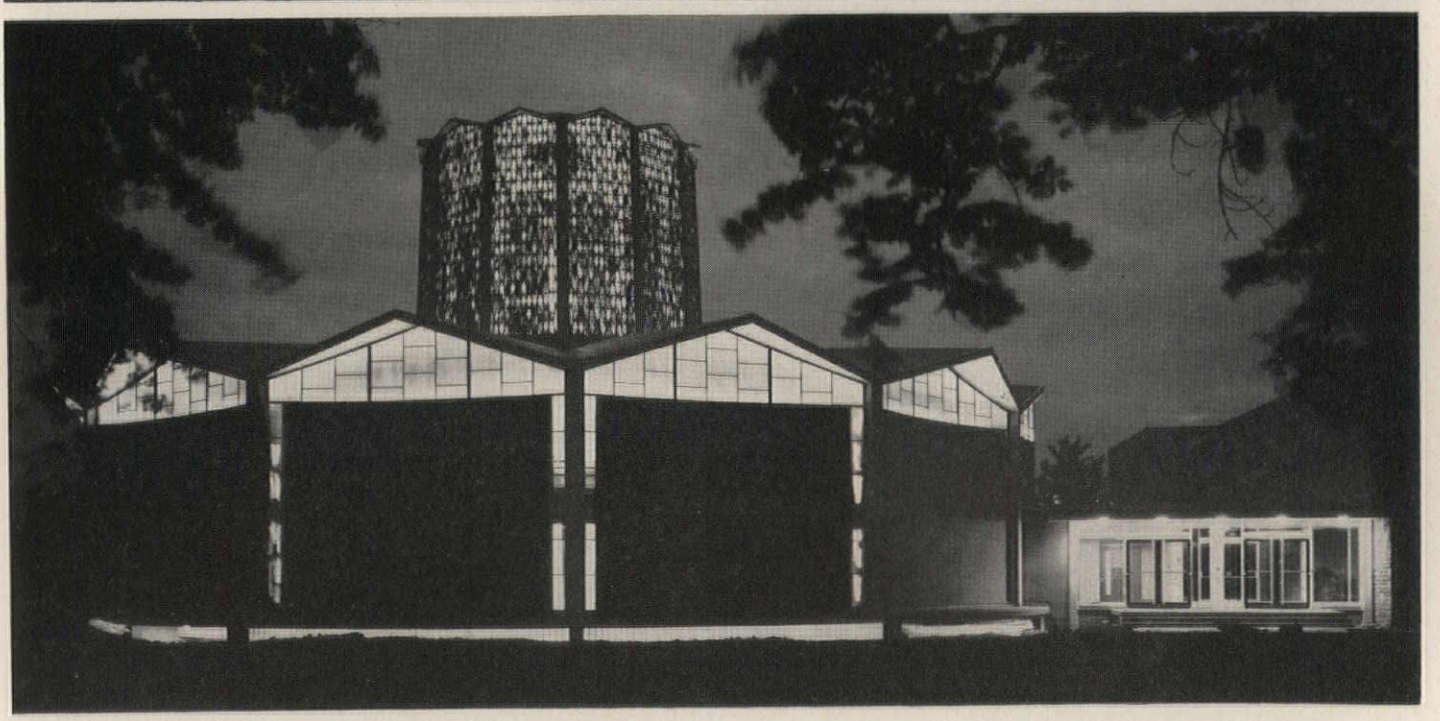
"Architectural forms which are not born of logic, study and deep understanding of the peculiar problem at hand, but come out of preconceived aesthetic theories will always be in danger of becoming artificial, tricky, or just fashionable." BELLUSCHI

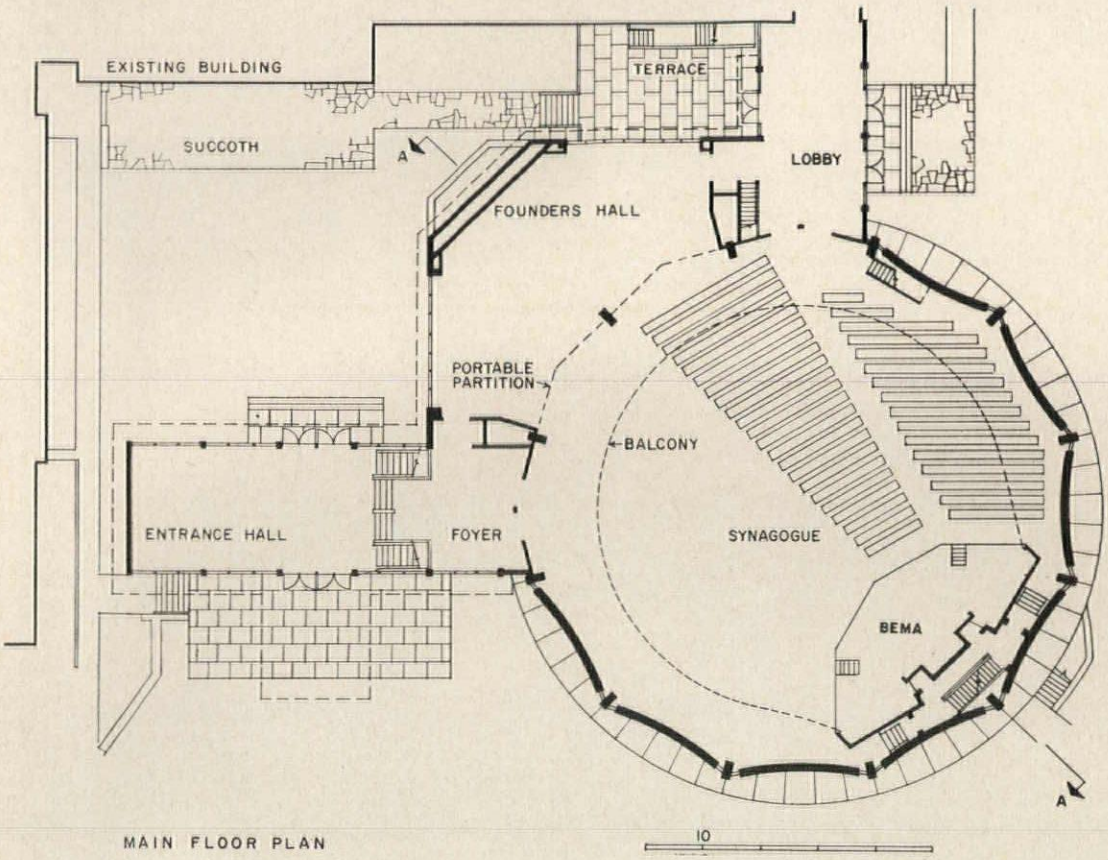
This recently completed synagogue is first of all a good solution to a problem of site. An already existing religious and educational building was so placed on the plot that it made expansion in any direction difficult, especially if there was to be ample room for parking. The architects' answer was to place the new element within the projecting arms of the older structure partially concealing it, and to design a compact circular form that wouldn't take up too much room, saving a generous area for parking and landscaping and providing an interior court. The synagogue with its circular form, hypalon roof and cupola clearly disassociates itself from the practical structures it adjoins and announces its spiritual purpose.



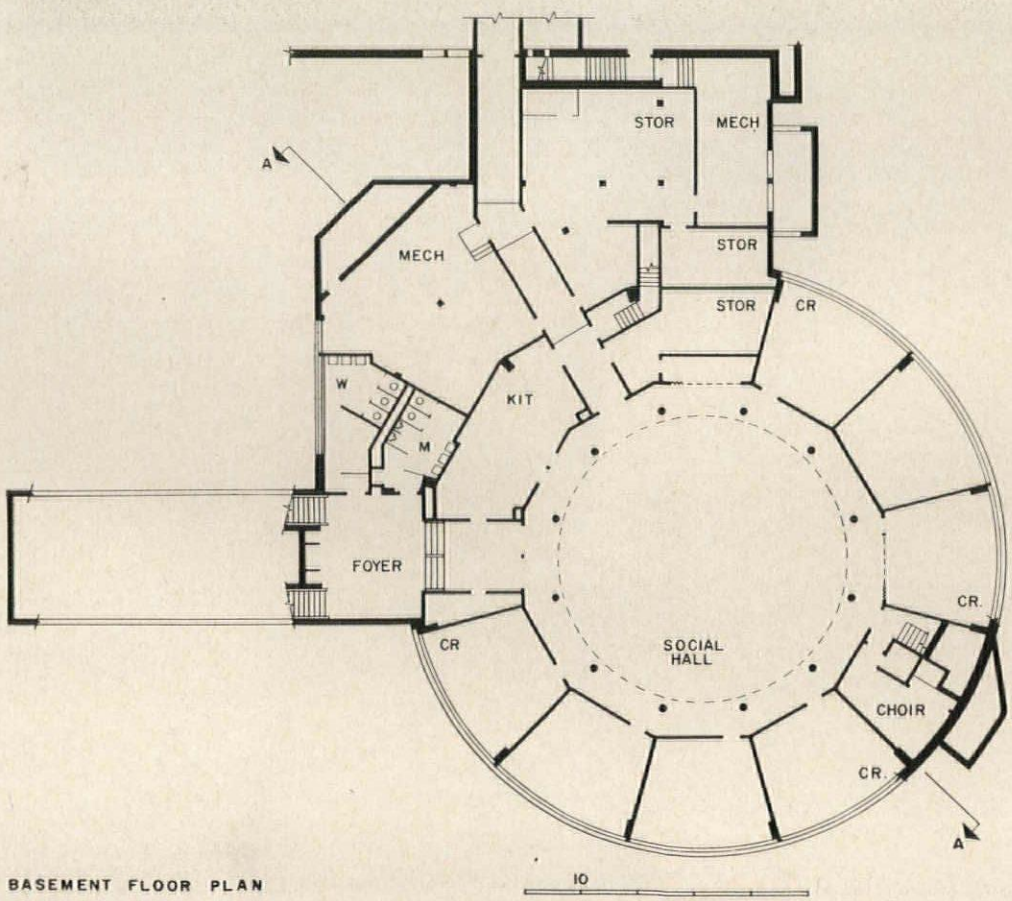
PLOT PLAN

Joseph W. Molitor



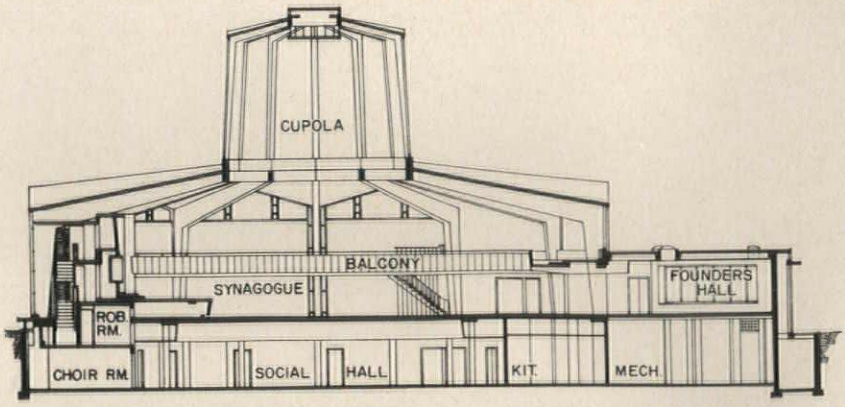


MAIN FLOOR PLAN



BASEMENT FLOOR PLAN

Synagogue for Temple Adath Israel



SECTION A-A

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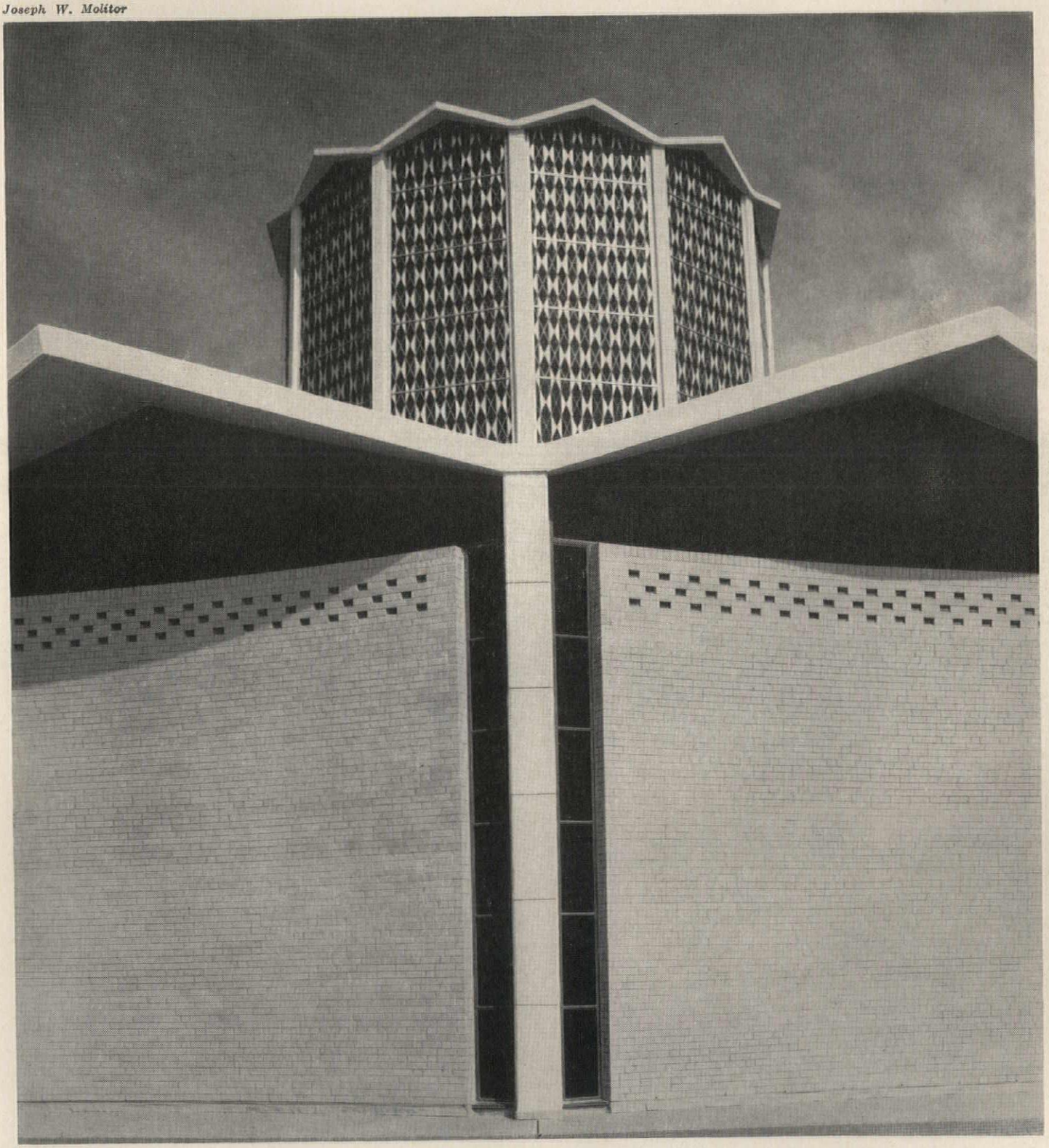
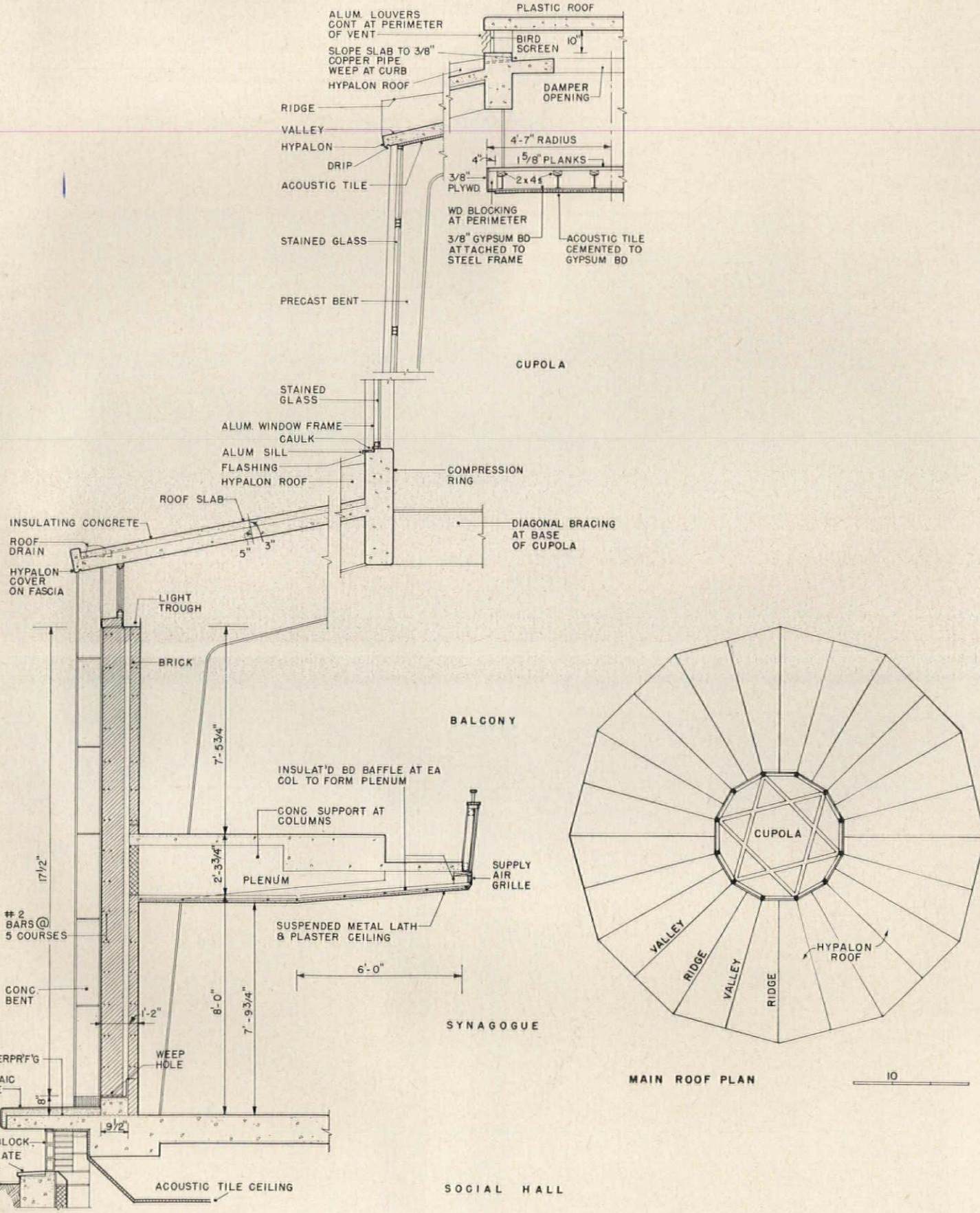
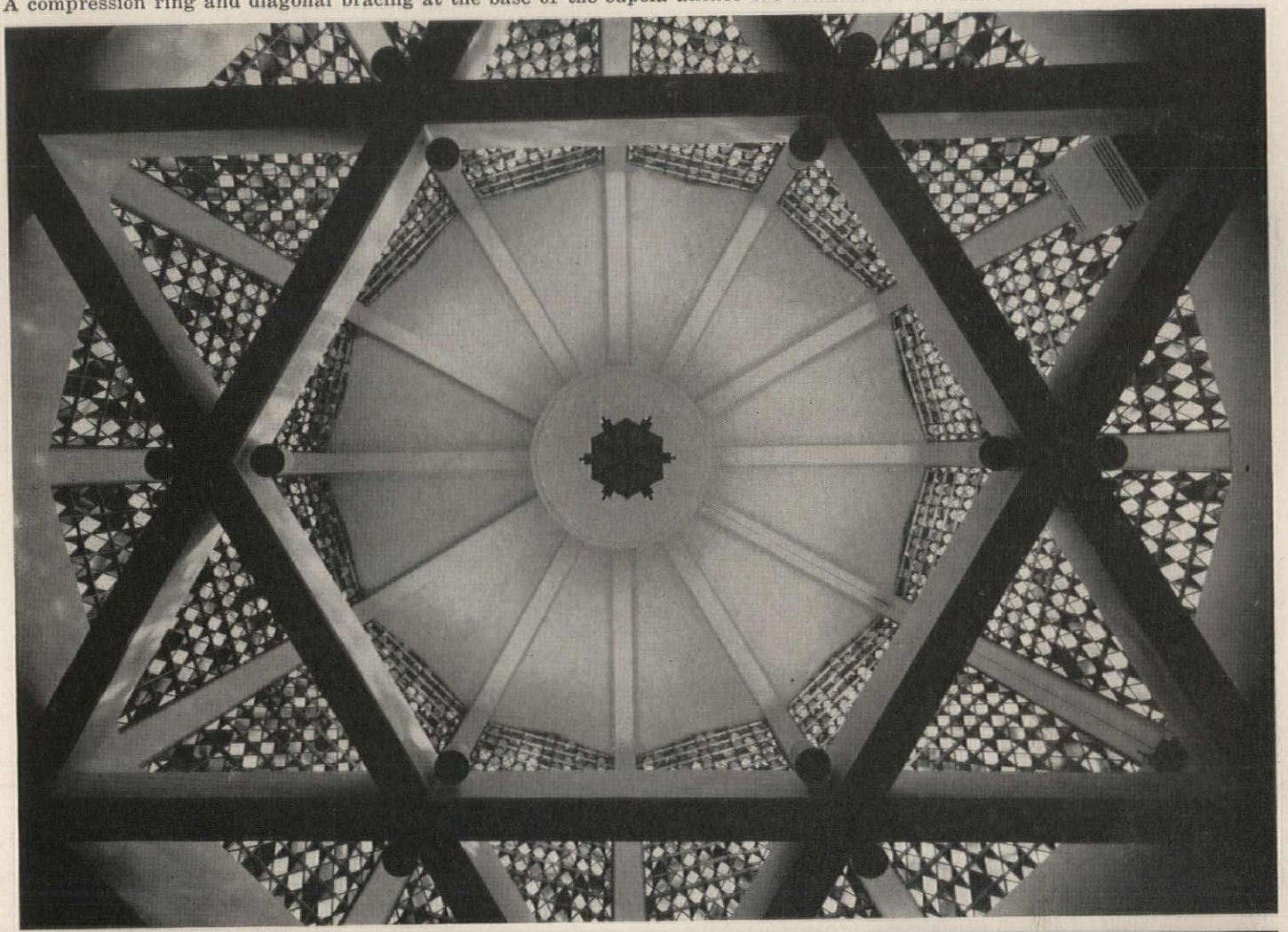
Joseph W. Molitor

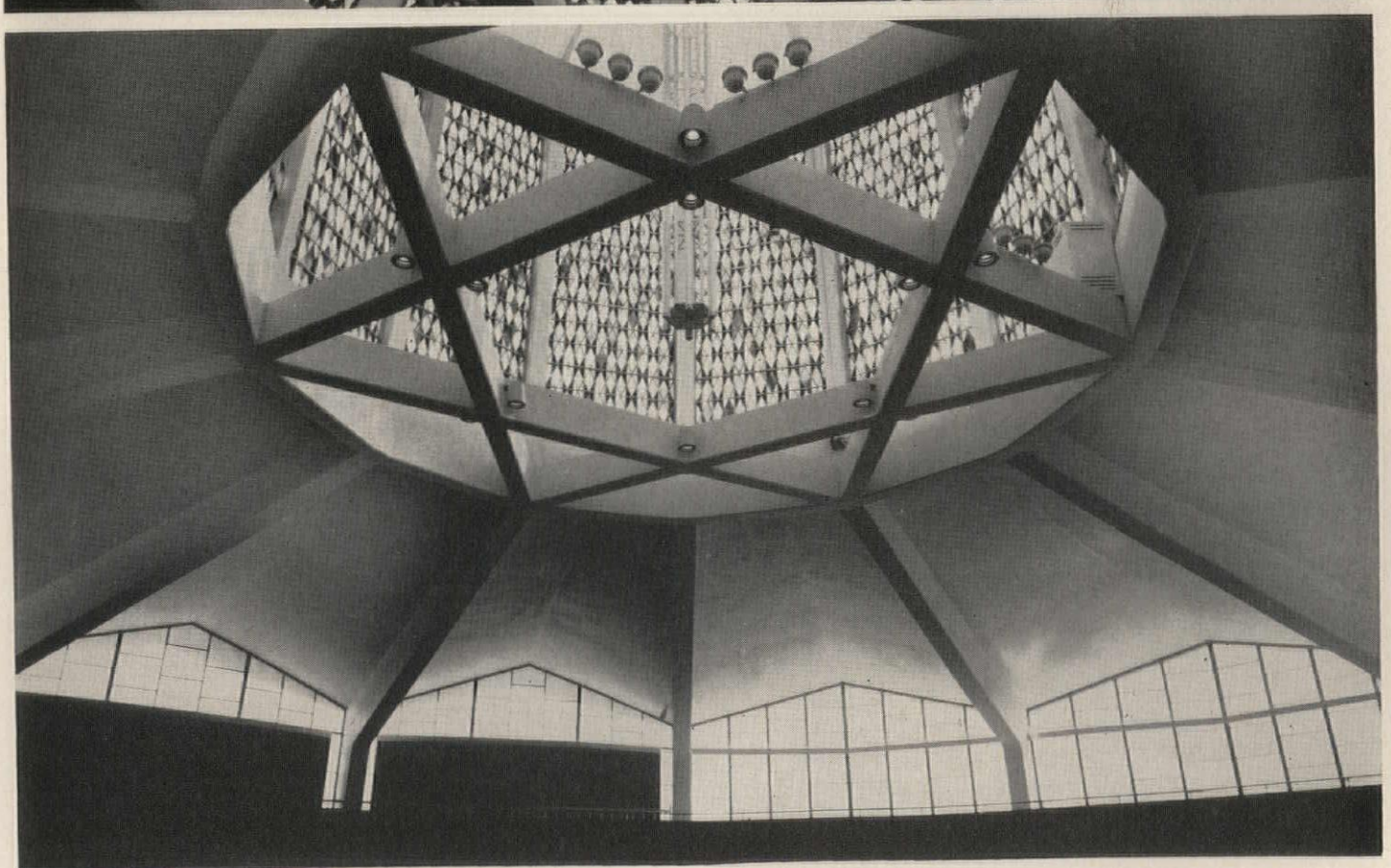


Synagogue for Temple Adath Israel



A compression ring and diagonal bracing at the base of the cupola anchor the reinforced concrete bents



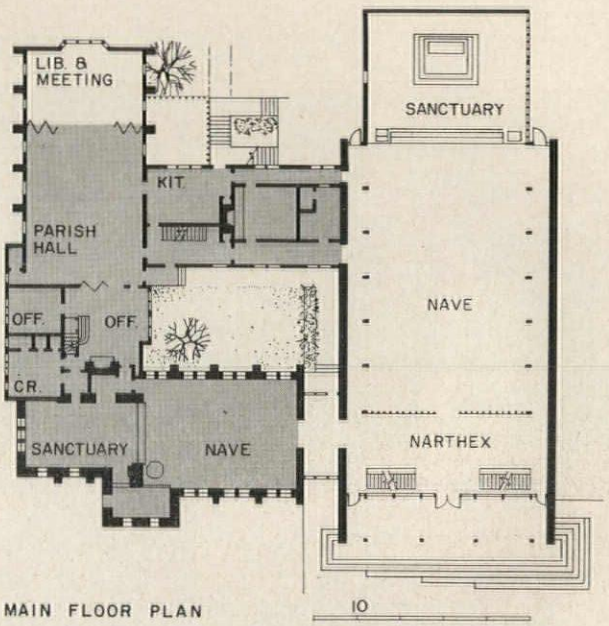


Joseph W. Molitor

Trinity Episcopal Church Scheme No. 1

LOCATION: *Concord, Massachusetts*

ASSOCIATED ARCHITECTS: *Pietro Belluschi, Anderson Beckwith and Haible*

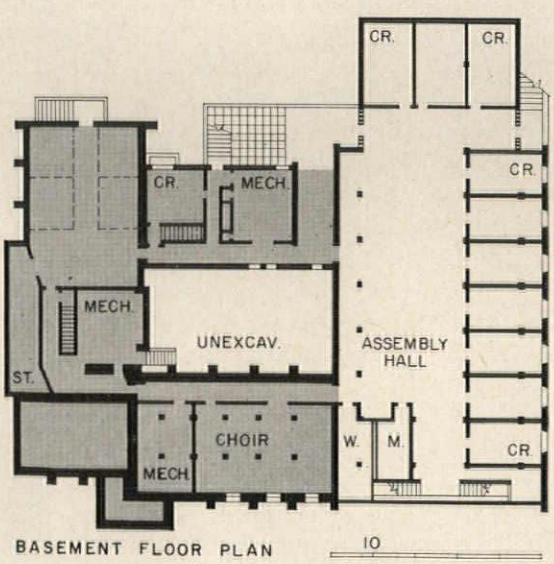


MAIN FLOOR PLAN 10

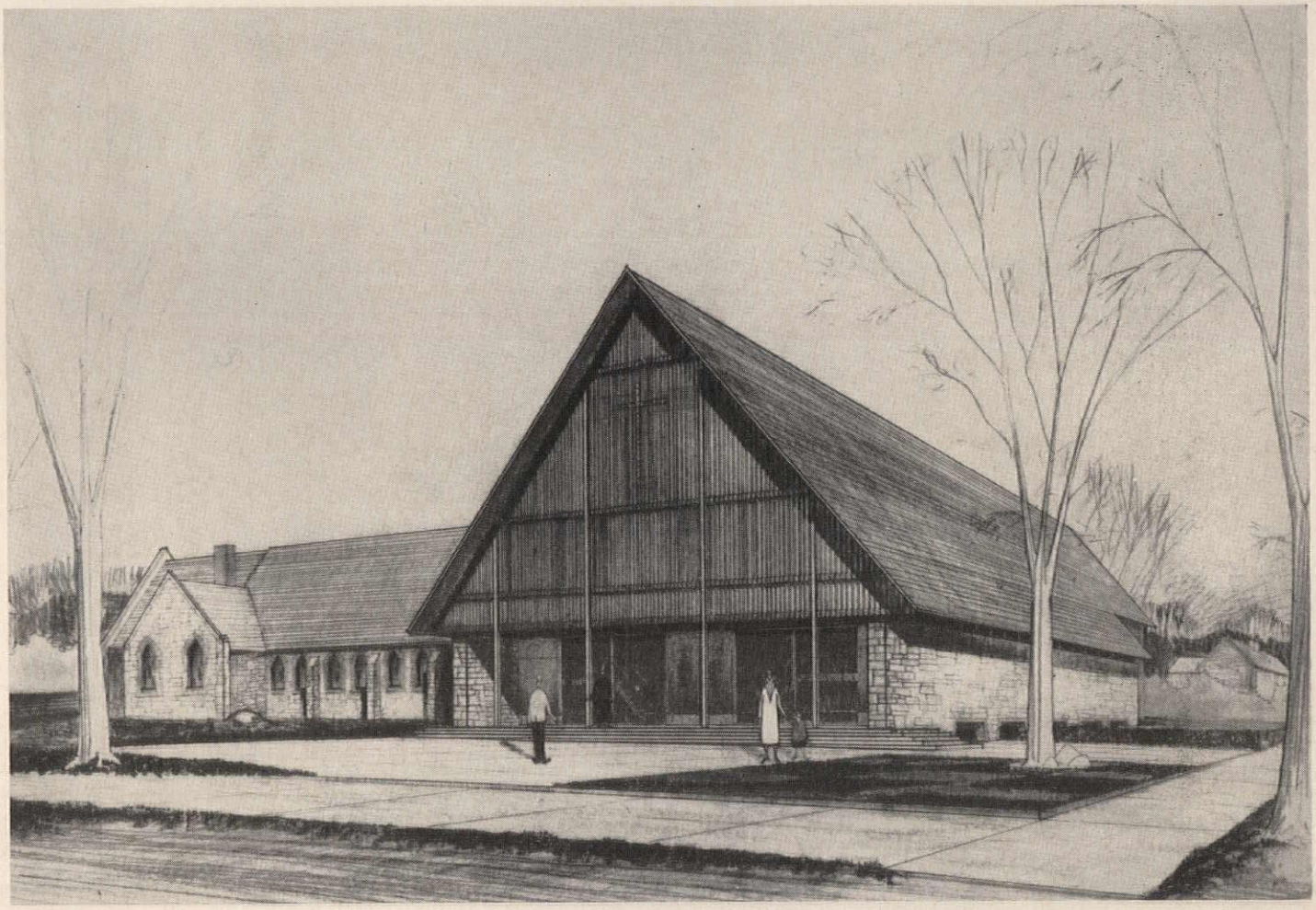
"The materials used are humble ones, and the details very simple, chosen more to convey the idea of purpose than that of richness, and to prove that architecture is an intrinsic art and not an arbitrary dress to be applied at the designer's changing whim."

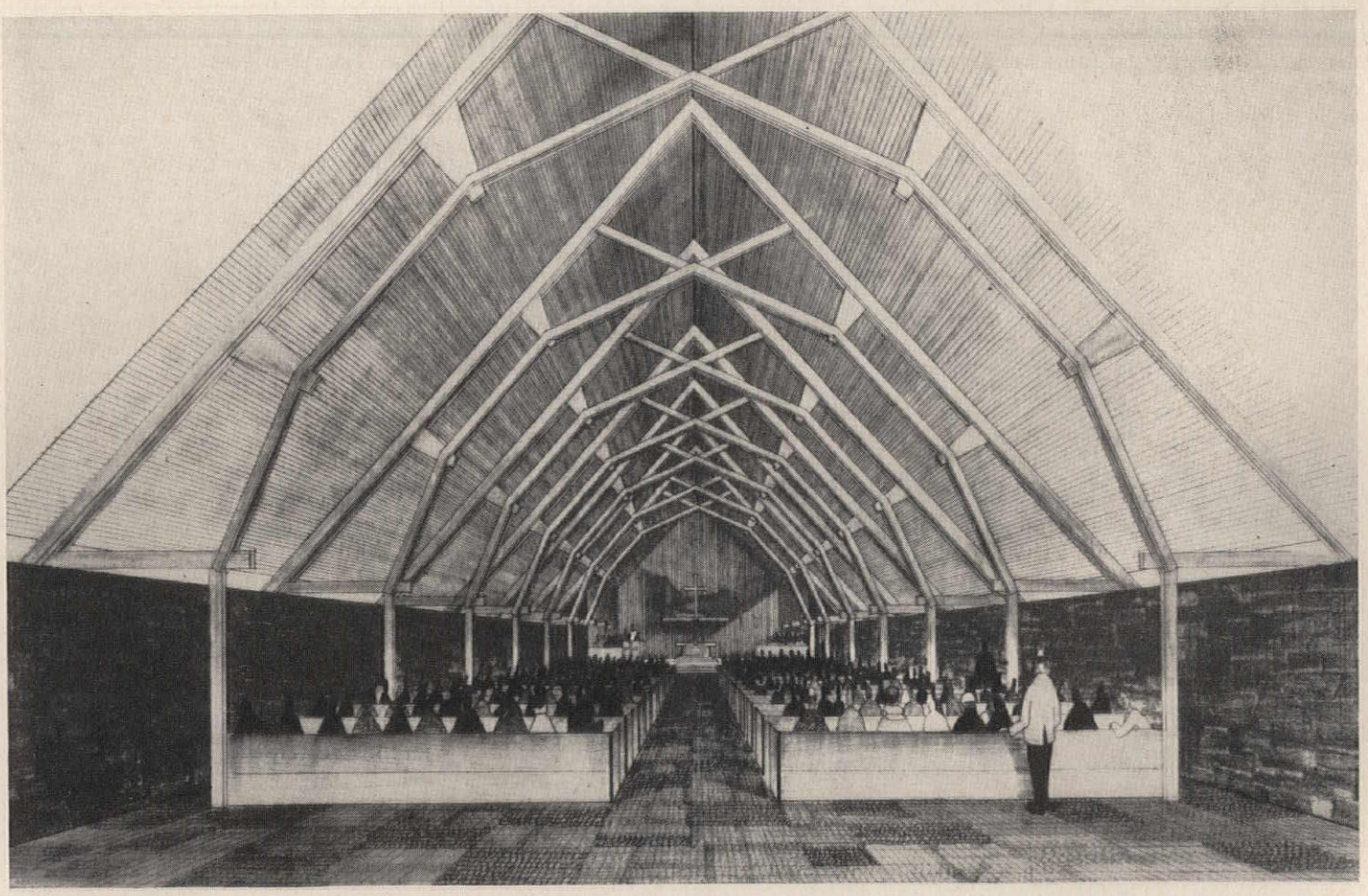
BELLUSCHI

This preliminary church design and the one on the following two pages are two separate and distinctive solutions to the challenge of adding a larger church structure to the same existing small church, while keeping at least a portion of the older nave intact to be used as a chapel for smaller services. (A completed church by Belluschi presenting the same basic problem on a more complex level is shown on pages 164-170.) In this study, the slope of the existing roof is repeated in the new church and the eave line is held constant. The stone of the older structure is introduced in the new. As in much of Belluschi's work the Japanese influence is evident here, as well as the familiar influence of the Oregon barns, and this kind of detailing and use of materials seems to complement unpretentious structures.



BASEMENT FLOOR PLAN 10

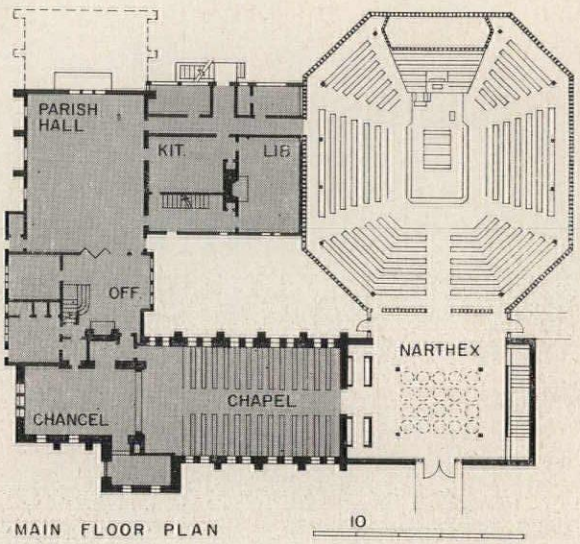




Trinity Episcopal Church Scheme No. 2

LOCATION: *Concord, Massachusetts*

ASSOCIATED ARCHITECTS: *Pietro Belluschi, Anderson Beckwith and Haible*

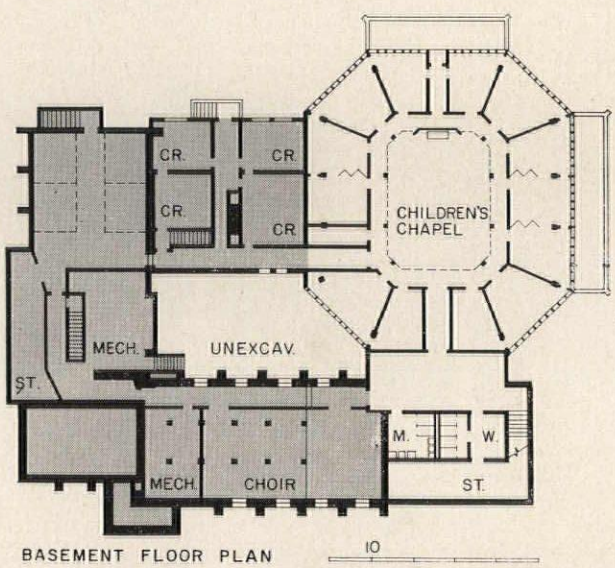


MAIN FLOOR PLAN

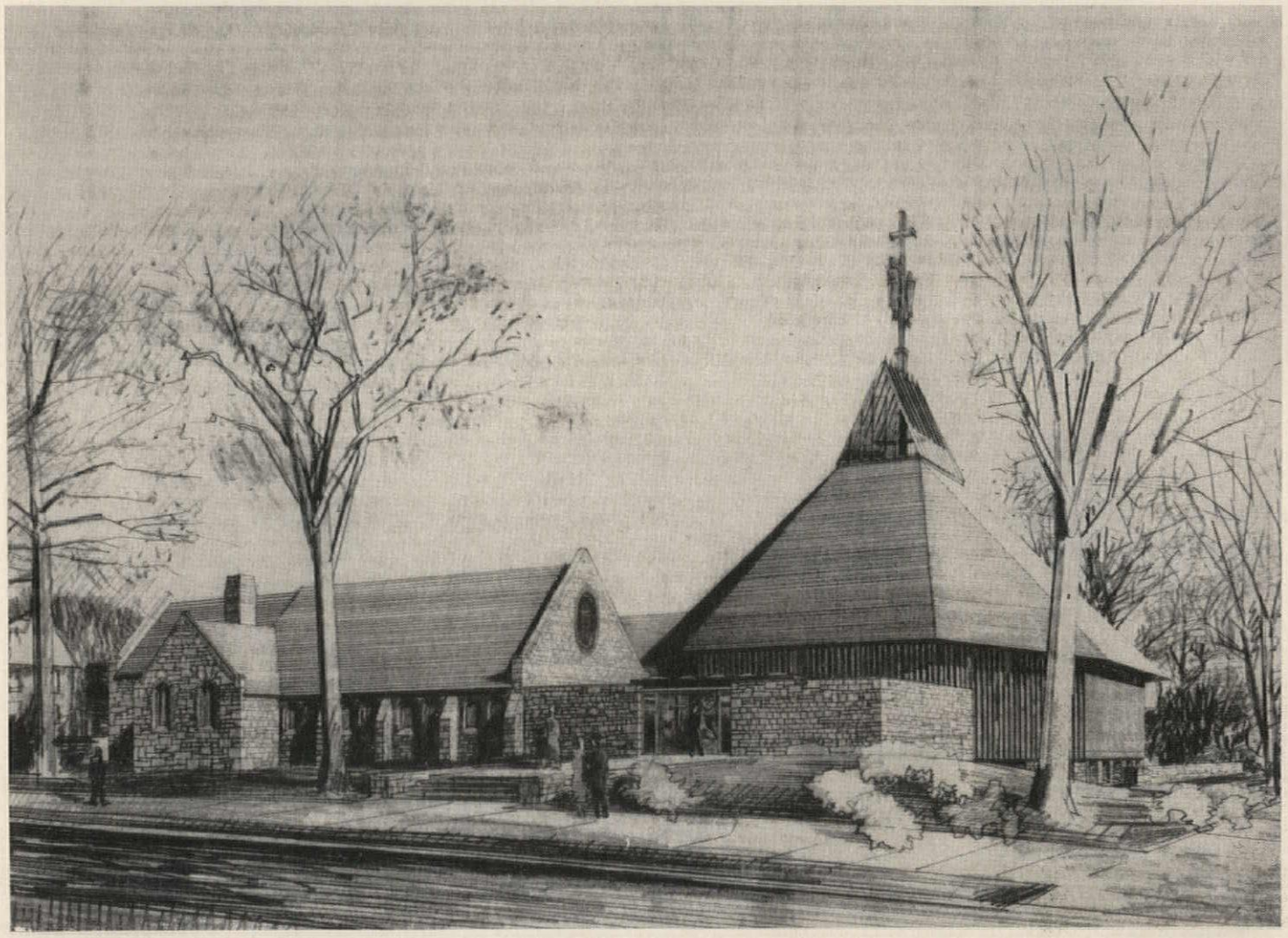
"Our immediate task, it seems to me, is to show our concern for the emotional needs of our clients and to show them that we are not reluctant nor unable to impart richness to the background of their lives, or to provide the kind of emotional fullness which played such an important role in the great periods of the past."
BELLUSCHI

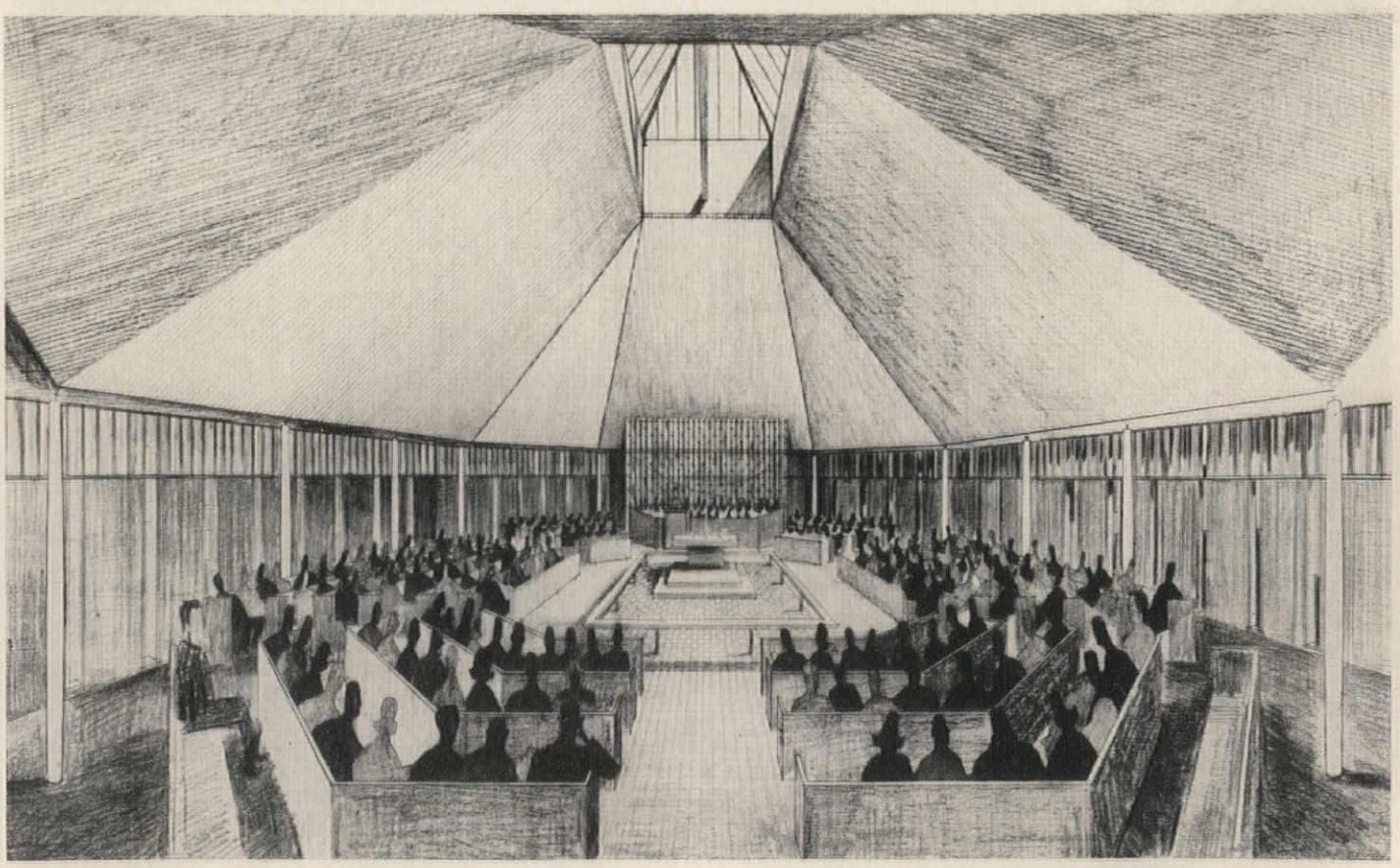
This scheme, unlike the one on the preceding page, keeps the entire form of the existing church intact, with its gable visible above the low narthex roof. It also illustrates a different liturgical approach. The octagonal plan with chancel in the center expresses an attitude toward symbol which is gaining strength with Episcopalian congregations. They feel that since the church congregation is the family of God, the symbols of worship (altar, pulpit and lectern) belong in the center of the family. They believe that this arrangement induces a stronger sense of participation in the service than is possible in plans with the chancel beyond the nave.

The octagonal scheme lends itself to an interesting arrangement at basement level where classrooms open onto a small children's chapel.



BASEMENT FLOOR PLAN





The Church of the Redeemer

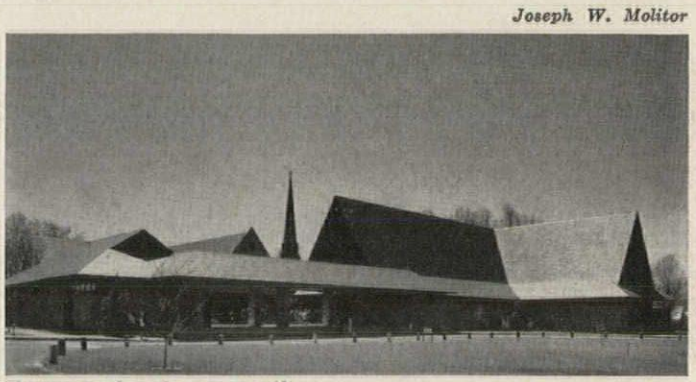
"The thoughtful architect will appraise the spirit which moved other ages, so that he may himself recapture such spirit, not by imitating, but by truly understanding it . . ." BELLUSCHI

LOCATION: *Baltimore, Maryland*
ASSOCIATED ARCHITECTS: *Pietro Belluschi, Rogers, Taliaferro and Lamb*
MECHANICAL ENGINEERS: *Henry Adams, Inc.*
LANDSCAPE ARCHITECT: *Bruce E. Baetjer*
CONTRACTOR: *Consolidated Engineering Co., Inc.*

Belluschi and his architectural collaborators have added a large church structure to a country chapel one hundred years old which was no longer adequate for a congregation which had grown to 2000 communicants, but which would continue to be used for weddings and smaller services. A parish hall and an extended transept to augment the chapel had been built several years ago by other architects. Fortunately this secondary element possesses a certain harmony with the original church, at least in its pitched slate roof and the color of its stone.

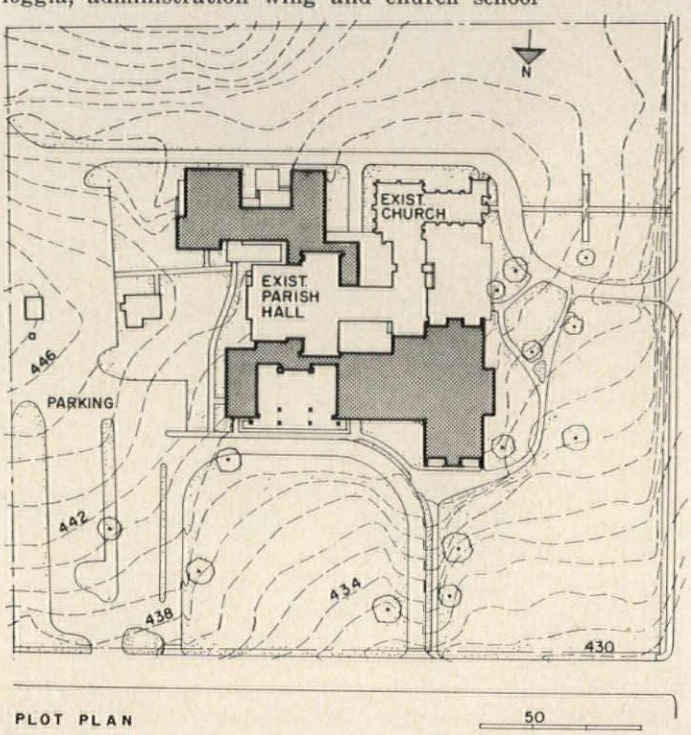
The spire of the old chapel had always dominated the site and was to remain a fitting exterior climax to the composition of buildings. The architects thoughtfully avoided introducing a strong vertical element in the new structure. The slate roof of the new building slopes rapidly to a narrow continuous wooden screen above a low stone wall. This gives the impression that the building hugs the earth. The stone in the new church had been quarried from the same source as the stone in the chapel, and was taken from the walls of the rectory which was demolished to make way for the addition. Roof angles and heights are nearly the same. In the gables of the new building the structural arch is exposed to repeat the wood arching in the gables of the chapel. The entrance of the old chapel is on the west facing the important street, while the main entrance of the new church is on the east facing a court which is entered by a loggia on the north. This not only places the main entrance of the church near an area available for parking, but it skillfully avoids the creation of another competing entrance from the major street. A secondary entrance to the new church on the west is placed in a courtyard formed by the old chapel, its extended transept and a wooden fence. By such careful means the new structure is kept in formal harmony with the old.

Joseph W. Molitor

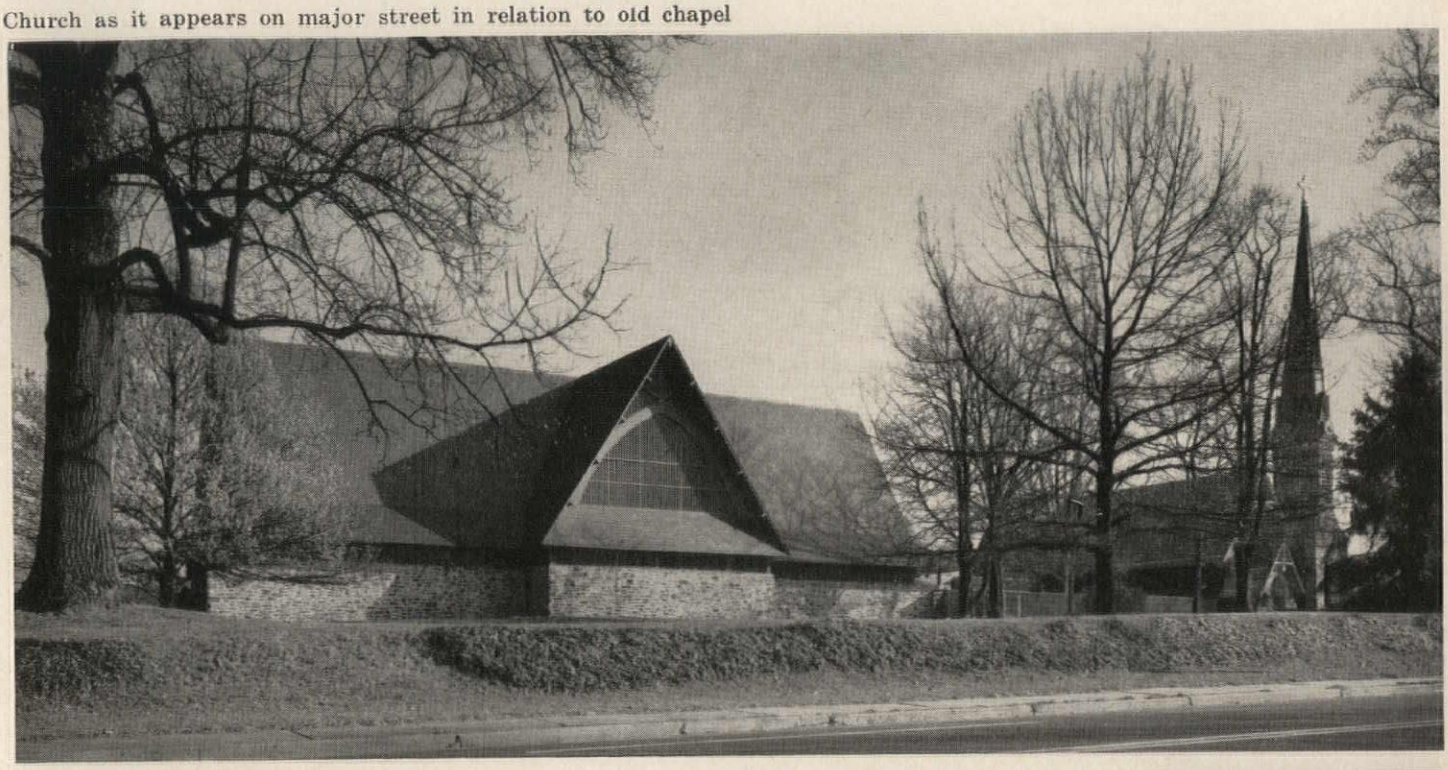


Entrance loggia on north

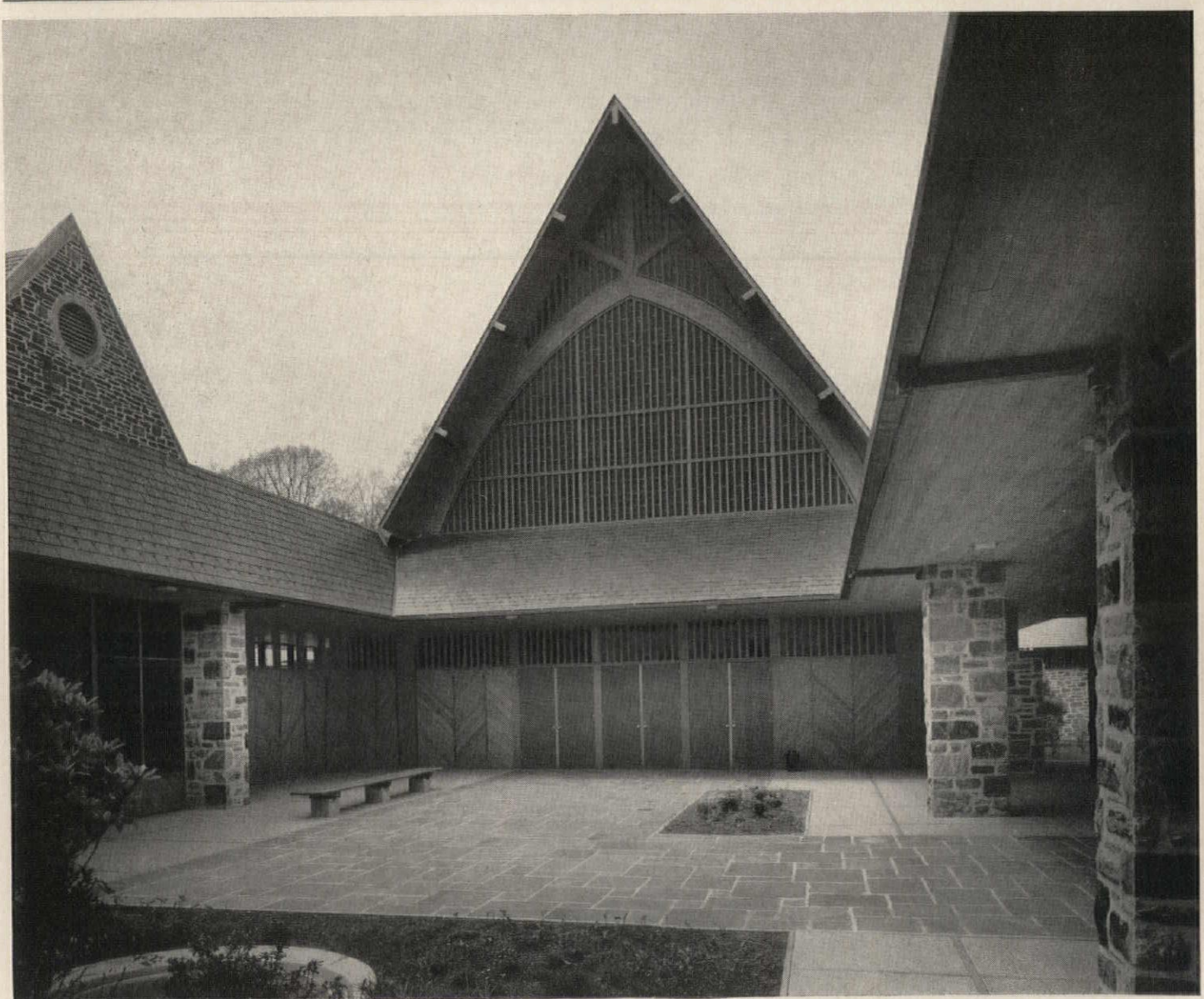
Shaded areas show the new work which includes church, loggia, administration wing and church school



Church as it appears on major street in relation to old chapel



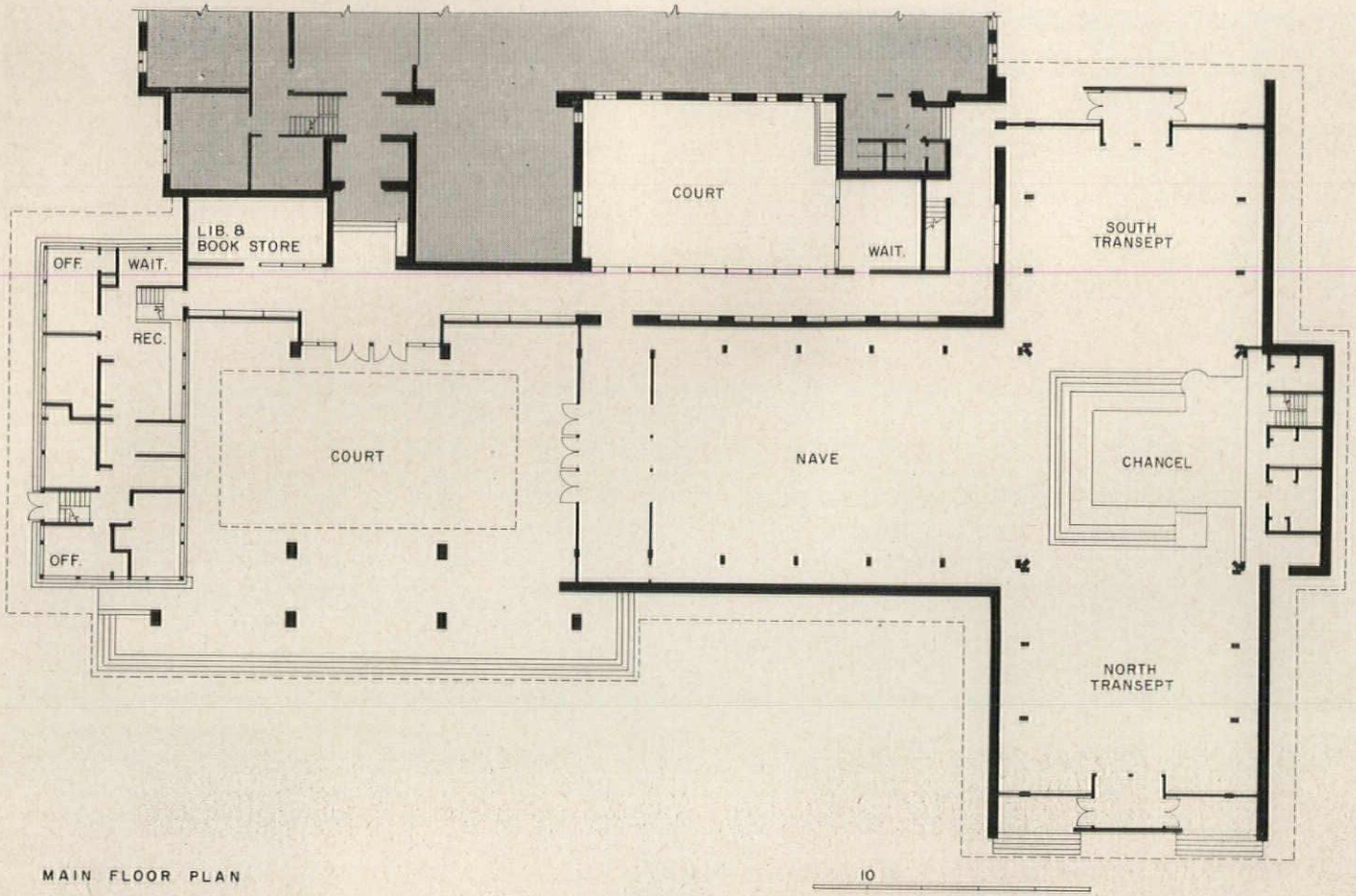
M. E. Warren



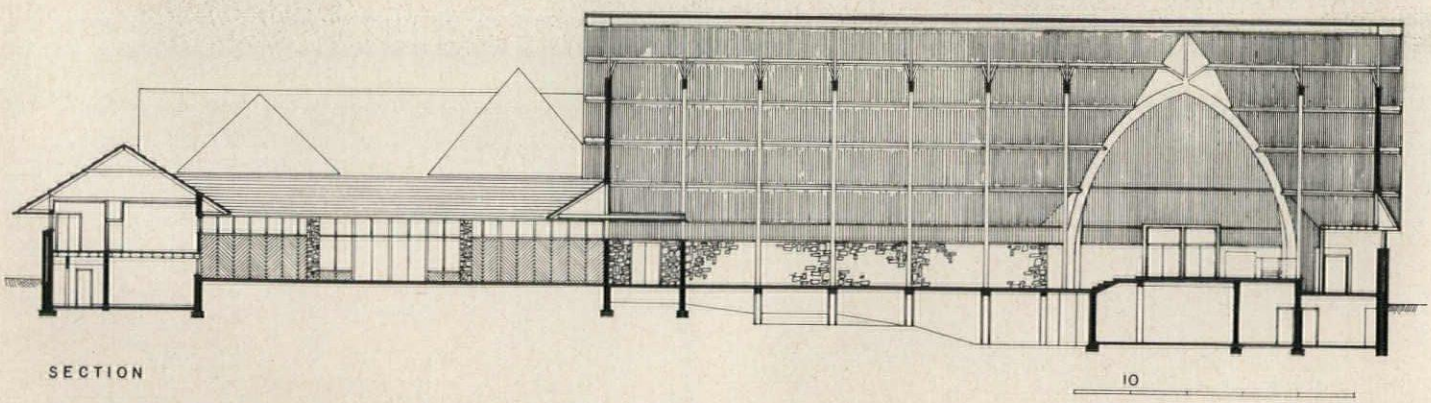
Joseph W. Molitor

Main entrance facing east

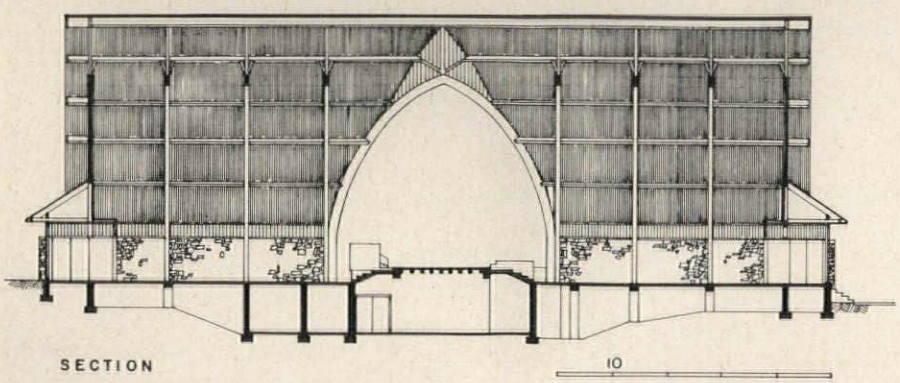
The Church of the Redeemer



MAIN FLOOR PLAN



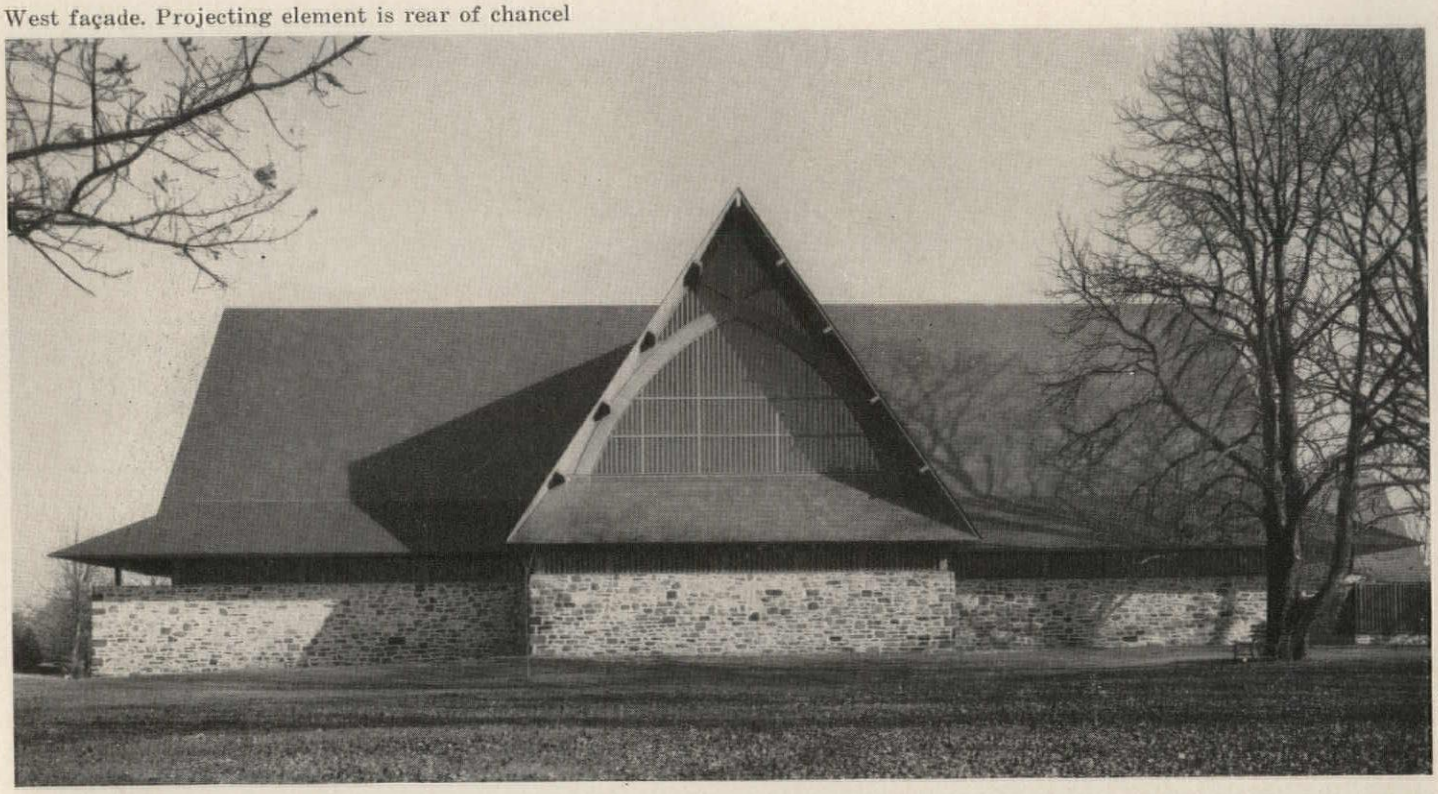
SECTION



SECTION

The chancel is placed forward into the main body of the church and becomes a three sided platform. In the Episcopalian tradition sacramental worship—the altar—is considered as important as preaching and the reading of the scriptures—pulpit and lectern. The dual emphasis shared by God's Word and the Sacrament is clearly expressed in the plan. The altar takes its place in the midst of the worshipping congregation; pulpit and lectern occupy positions on either side at the rear corners of the chancel. The church seats 800 including a choir of 40 in the front pews of the north transept

West façade. Projecting element is rear of chancel



M. E. Warren

Joseph W. Molitor

Secondary entrance on the west

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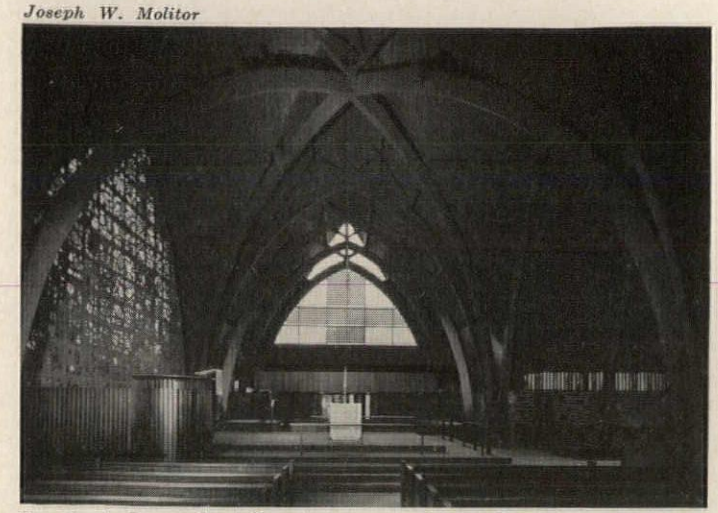
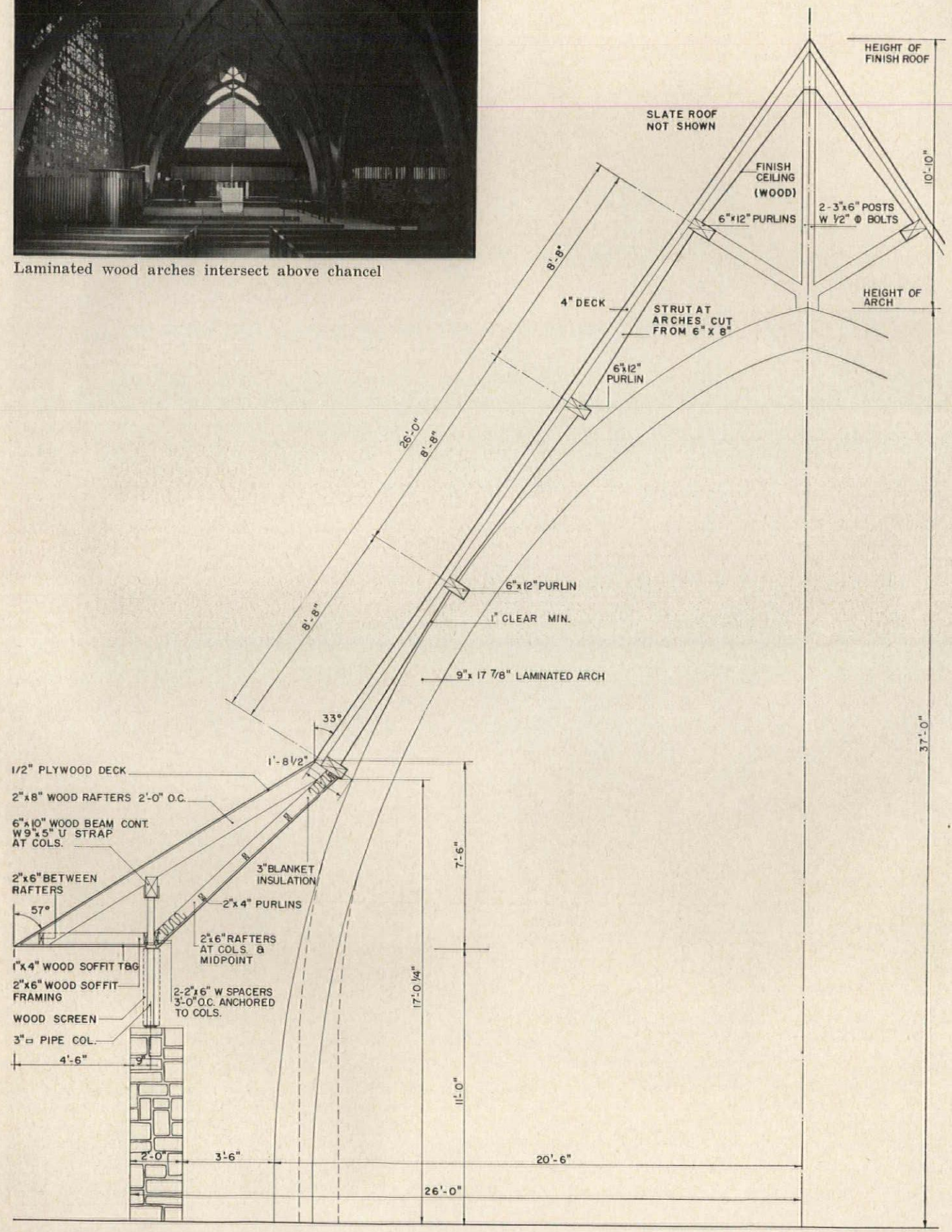


Laminated wood arches intersect above chancel

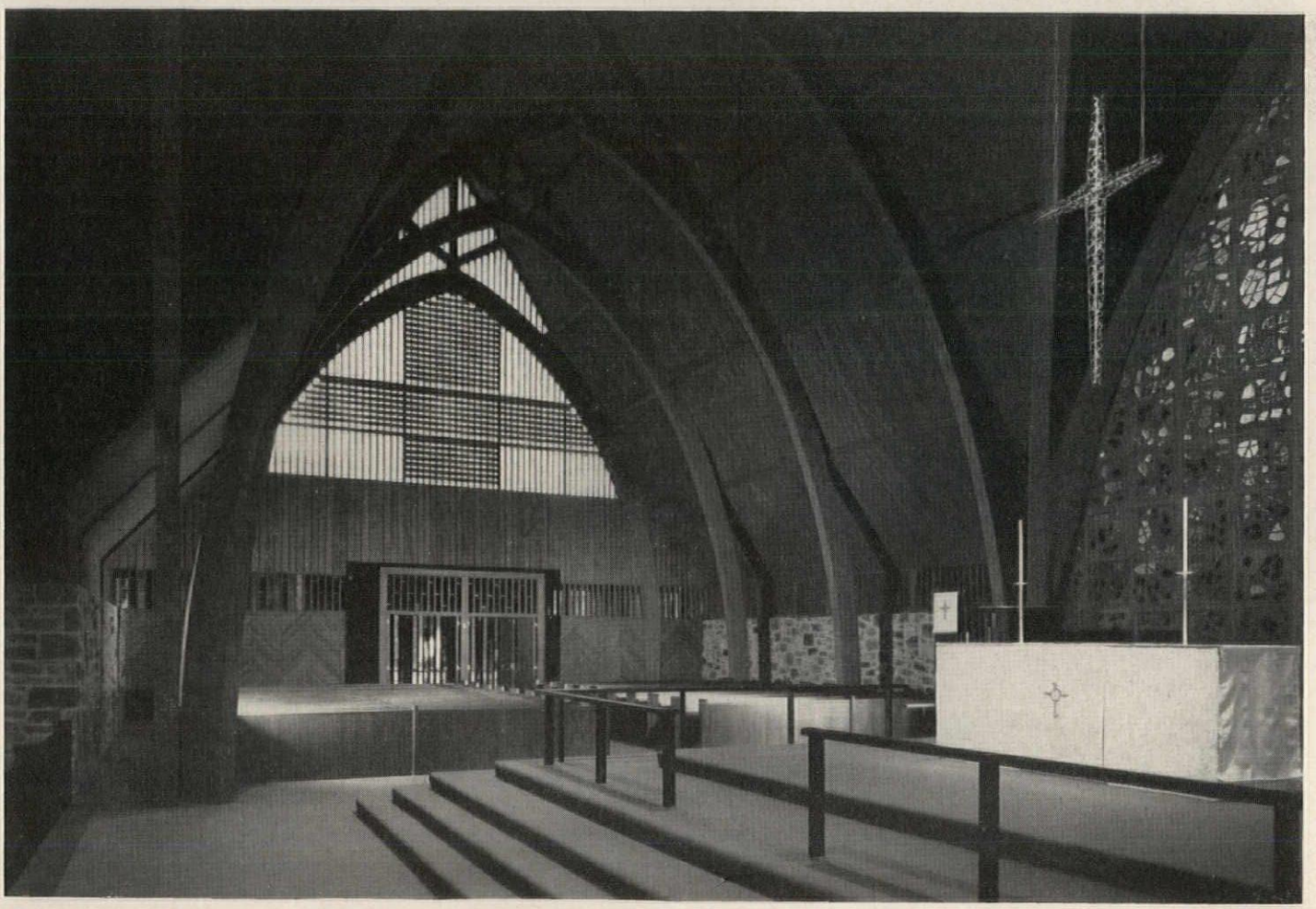


Small pieces of colored glass, embedded in heavy concrete form the chancel window designed by Gyorgy Kepes

Joseph W. Molitor

Joseph W. Molitor

Pulpit, lectern, sedilia, altar rail and candlesticks were designed by the architects. Altar cross was designed and executed by Ronald Hayes Pearson



THE ARCHITECT AND SOCIETY

by Robert E. Alexander, F.A.I.A.

The image of "the architect" changes with the times and traditions. More to the point: it can be changed by conscious effort. The author points to a need for the architectural profession to develop the ideal image, even though the selected role might be difficult of fulfillment. But architects should choose the image and plant it firmly both within and without the profession, so that architecture will attract the kind of men who, with proper training, can bring it to reality.

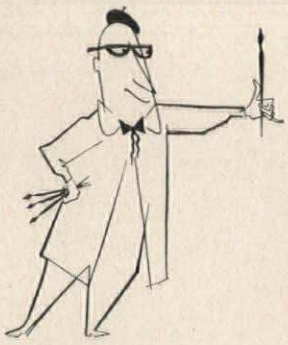
Mental Picture Changes

300 YEARS AGO—
Master Builder

150 YEARS AGO—
Avocation of Rich Gentlemen

100 YEARS AGO—
The Professional Man

Who originated this concept?



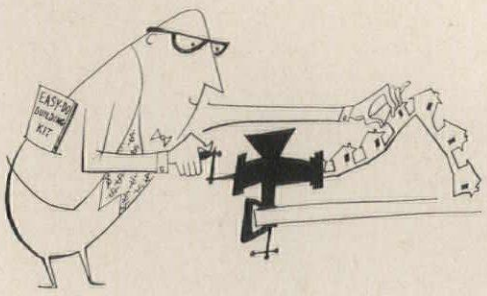
Artiste

50 YEARS AGO—
The Artiste with Beret and Flowing Tie

Perhaps promoted by architects for security to develop uniqueness, aloofness, mystery

20 YEARS AGO—
The Architect-Engineer
The Practical Businessman

Promoted by architects as reaction to "impractical artiste" and ornament-applier . . . . Note official definitions in 1940 civil service and armed services personnel manuals, etc. . . . . Leads to direct competition with engineers . . . . or to the question: "Why not get a real engineer?"



Architect-Engineer and Practical Businessman

ALWAYS ONE HEARS:
"The Architect of the Peace Conference"
"The Architect of the Marshall Plan," *or even*
"The Architect of the Universe"

The unconscious aspiration of the people, emerging through the common language, may contain more truth than poetry. Connotation is dignified, complimentary, even lofty.
Herein may lie a clue to the concept of the "Architect" of the future.
Is any of these pictures true? What is the real self of the architect? What might he become?

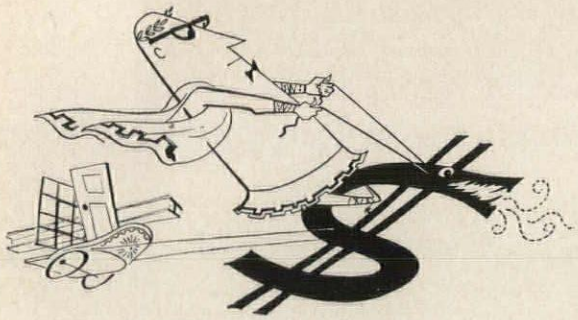
Image of Architect Carried by Public Determines:

WHO THEY ARE
(Raw material out of which architects are made)

Does image attract most imaginative, creative, courageous, eloquent, vigorous, able youth of the nation to profession?

WHAT THEY DO
(Work architects are called on to perform)

Does image identify architect with any problem of order, analysis, synthesis, integration, harmony, coordination, planning, creative thought?



Systems Engineer of Design

FOR WHOM THEY DO IT
(Their clients)

Does image attract every potential client who contemplates planning or building?

Does mayor or public think at once of architects when confronted with knotty problem of disorder requiring putting the pieces together into a harmonious whole?

HOW THEY DO IT
(Weight, value and influence of architects' advice)

Does image induce confidence, reliance, gratitude, pleasure, security, excitement, inspiration, when architect is thought of or engaged?

WHAT THEY GET OUT OF IT
(Value in satisfaction and money society places on services)

Does image picture architect as one of the most necessary, important, satisfying, public-interested, indispensable members of society?

Image of Architect Carried by Public Is Influenced By:

INDIVIDUAL ARCHITECT
His words—what he professes to do
His deeds—how he performs
His spirit—attitude of service
His self—integrity, devotion, reliability

THE INSTITUTE
Policies in public interest or self interest
Appearance before public bodies
Public statements of members and officers
Position on legislation
Action in emergencies
Picture of architect carried and promoted

Creative Coordinator

COMMUNICATIONS MEDIA
Novels depicting architects: *Fountainhead*, *Blandings*
Movies depicting architects
Television depicting architects and their work

Magazines depicting architects, their writings and work
Newspapers depicting architects or their quotations and work
Lectures by architects

CONSCIOUS PUBLIC RELATIONS PROGRAM

Image of Architect Carried by Public Today is:

THE IMPRACTICAL ARTISTE AND ORNAMENT APPLIER

This still persists

"We don't need an architect for such a straight-forward building."
"Now let's get an architect to draw a pretty picture."
"What is it going to look like?"
"He has good ideas but God knows what it will cost."
"He's a luxury."

THE ARCHITECT-ENGINEER AND PRACTICAL BUSINESSMAN

The architects' own creation

"They are architects but *they're practical."*
"This is just a site engineering problem — why not get real engineers?"
"He can turn the work out on time and control costs, but every building looks like a shoe factory."

Environment Shaper

ROARK: "THE FOUNTAINHEAD"

"He won't follow instructions."
"You'll never get what you want — it'll be a monument to the architect."
"Wait until he gets off the job and we'll fix it up to live in."
"He doesn't know the meaning of compromise."

"BLANDINGS"

"A nice guy, but what a bumbling fool."
"Don't ever get mixed up with an architect — you'll never know where you stand."

Image of Architect Carried by Public Can Be Changed By:

DRAFTING AND ADOPTING, *INSPIRING* DECLARATION OF VISION, DESTINY AND MISSION OF ARCHITECTS

How can a public relations firm improve picture in public mind without such policy direction?

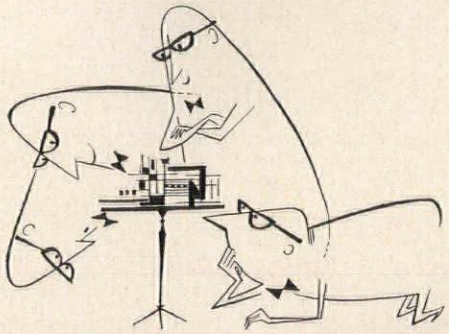
BACKING WORDS WITH DEEDS

Education of profession and performance—slow but sure in direction.

PUTTING DECLARATION AND EXAMPLES OF DEEDS BEFORE EVERY PROSPECTIVE COLLEGE STUDENT AND HIS PARENTS

Main reliance for change on architect of future.
Object: attraction of cream of youth of nation.

Sketches by Sol Ehrlich



Analyst and Synthesizer

MOULDING EDUCATION TO SUIT DECLARATION

Newly stated picture of architect may lead to great variety of method—human material most important.

USING EVERY MEDIUM OF COMMUNICATION TO PUT THE WORDS AND DEEDS BEFORE THE PUBLIC

Creating a new concept or image or mental picture of "architects."

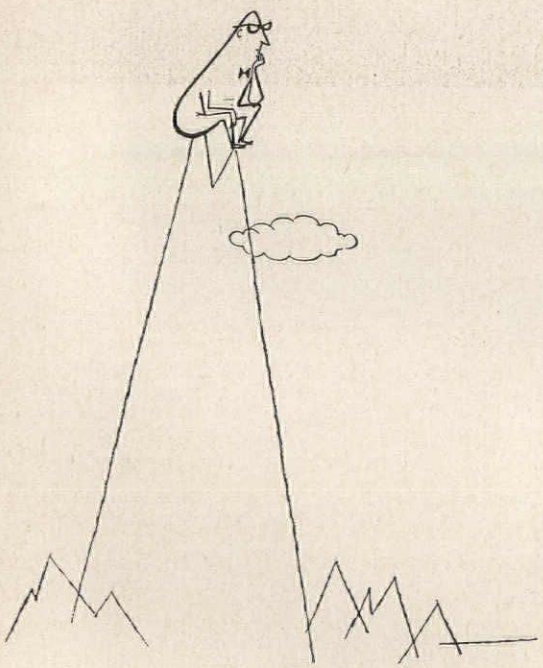
Image of Architect Carried by Public Could Be:

THE CREATIVE COORDINATOR

Who else is trained specifically to study a puzzle and put the pieces together—to control the end result of the whole design?
Who else is trained in program formation and in dreaming the dreams of what could be—not what is?

THE SYSTEMS ENGINEER OF DESIGN

As the complexity of modern science now demands a systems engineer to control and piece together the many specialties into a functioning entity, the complexity of modern construction and planning require overall organization, integration and control.
The architect could be thought of as this expert.
One of the disciplines for which he would be responsible is cost control.



The Visionary

THE ENVIRONMENT SHAPER

As the doctor is now developing the concept of treating the "whole man," the architect is concerned with the whole environment of man.
He can be the ecologist of man's surroundings.
The public could come to think of architects whenever their environment is threatened or is to be modified.
What other profession is concerned, trained and qualified?

THE ANALYST AND SYNTHESIZER

What other profession is trained specifically to analyze general objectives, aims, needs and requirements, assemble them into component, related parts, and develop them into an integrated, harmonious, homogeneous whole?
This training need not be directed and used solely for building or city design, but generally.

THE PROFESSION OF CREATIVE THOUGHT AND IMAGERY

Who else will raise the vision of the people above squalor of accidental development?
Who else is trained to imagine what is not there but could be?
Who else will change the values of the people by picturing more desirable goals—things worth living for?
Who else is trained specifically to draft a harmonious plan?
The architect may well be "of the peace."

All photographs by Joseph W. Molitor

NEW ARCHITECTURE IN AN OLD SETTING

The Jewett Arts Center
Wellesley College

Paul Rudolph, Architect

Anderson, Beckwith & Haible
Associate Architects

Goldberg, LeMessurier & Associates
Structural Engineers

Stressenger, Adams, Maguire & Reidy
Mechanical & Electrical Engineers

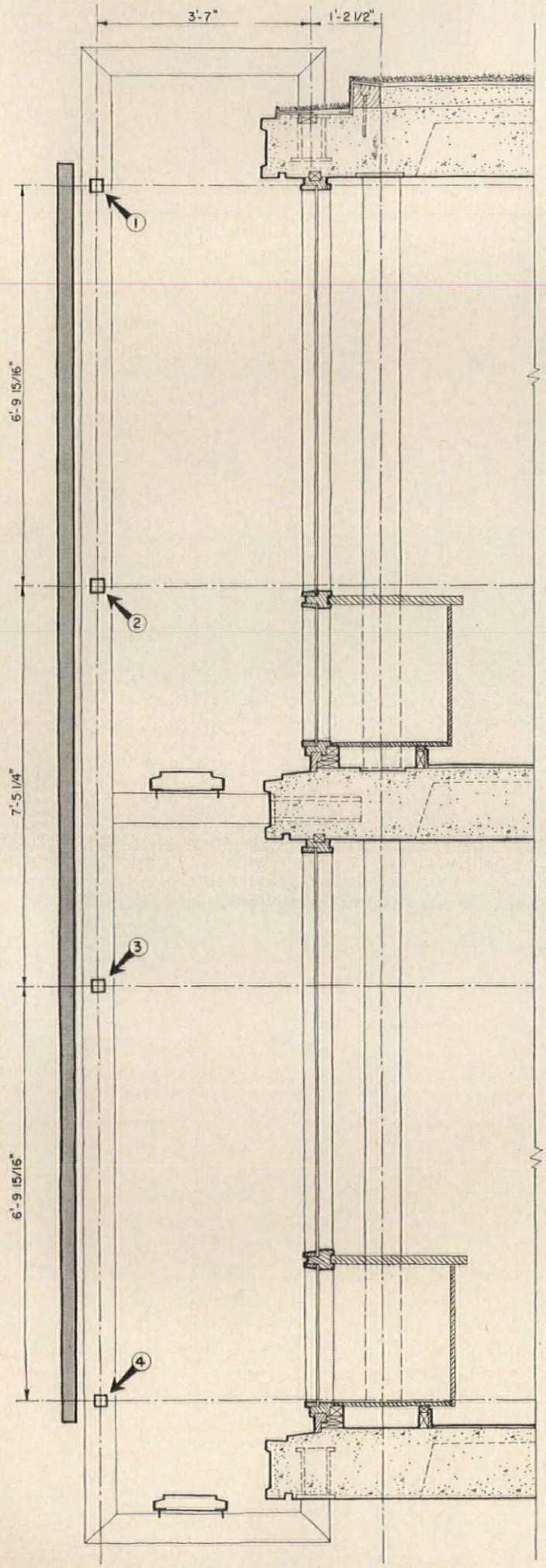
Bolt, Beranek & Newman
Acoustical Consultants

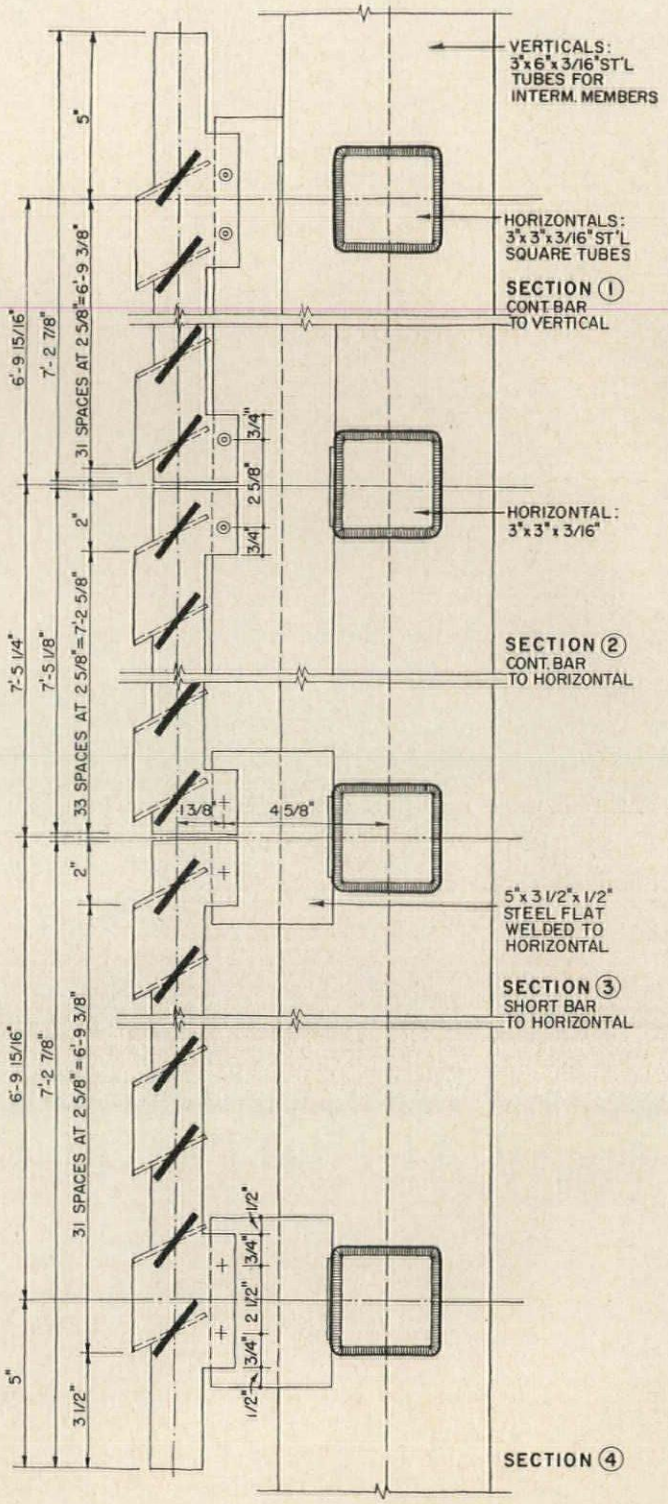
George A. Fuller Company
General Contractors

In tackling this arts center, architect Rudolph faced a design problem common to most college work today; that of creating a new building to fit sympathetically into a *mise en scène* of architectural eclecticism—Collegiate Gothic here. Of course the new building had to meet the utilitarian needs of the program within today's level of technology, and its visual stimulus had to be matched by a visual integrity that can come only from a fitting sense of rightness within a particular environment. These considerations had to be balanced judiciously against the temptation to the visual escapism all about. As built, the center provides an ingenious, tasteful fusion of seeming incompatibles.

In February, 1957, the late John Knox Shear wrote—prophetically—in ARCHITECTURAL RECORD, "perhaps . . . the architecture of Paul Rudolph suggests its greatest strength . . . *(when)* it addresses the tension inherent in our attraction to the new and the equal pull to the known. It deals with the

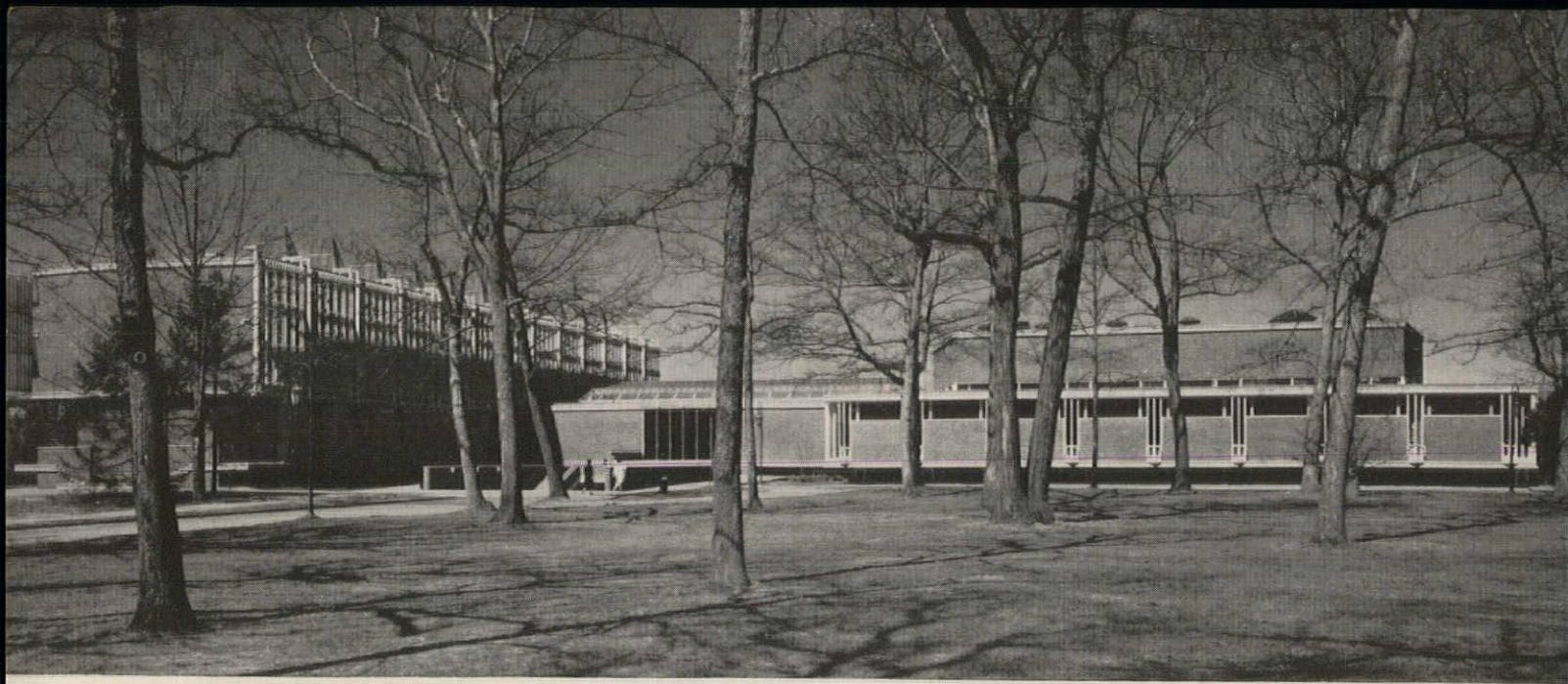
(continued on page 178)

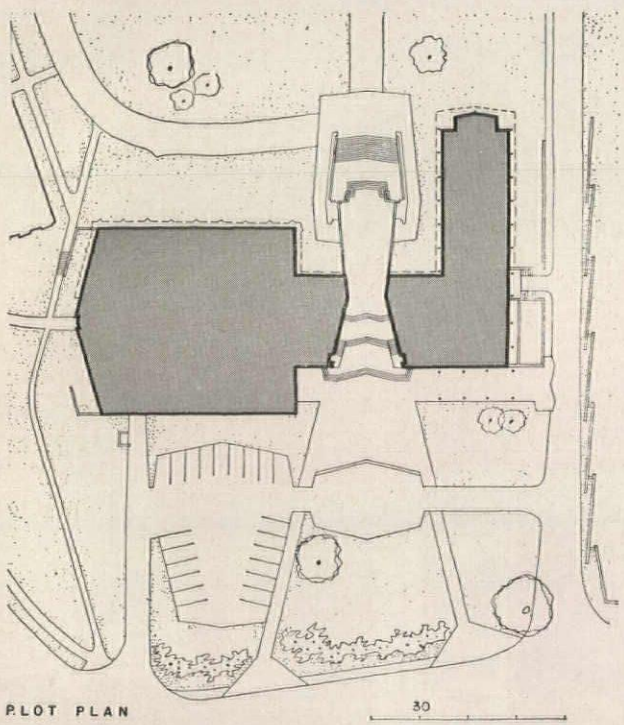




Wellesley Arts Center

The steel sunscreen is painted to match the limestone of the existing buildings. The panels—suspended 3½ ft clear of the building—follow the basic 15-ft module of the new and old mullions. The 1- by ⅛-vanes are tilted nearly 60 degrees to the horizontal; are set on 2½-in. working centers; and held rigid by 3½ by ½ continuous vertical stiffener bars. The basic frames are of 3 by 6 tubes; have 3 by 3 tubular struts. Angle frames enclose and support the precast concrete catwalks





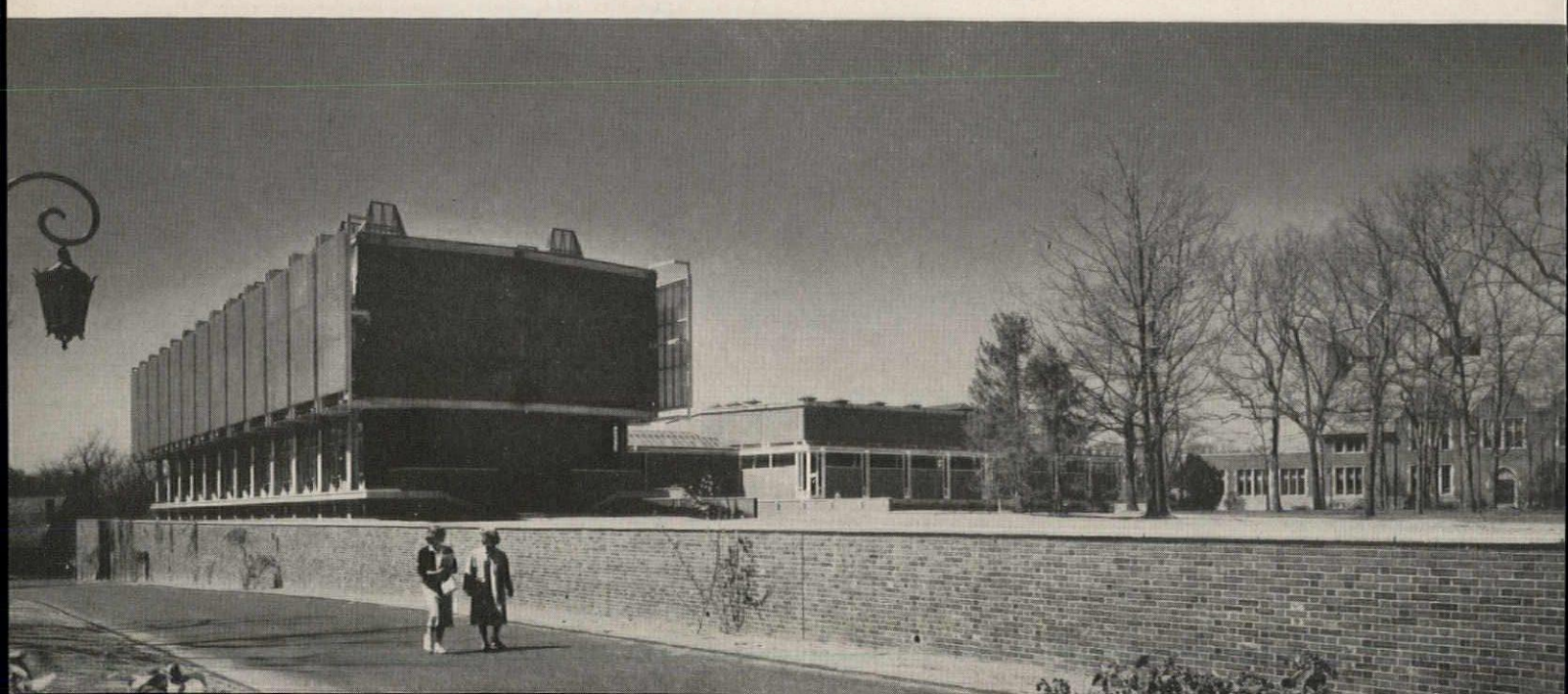
PLOT PLAN

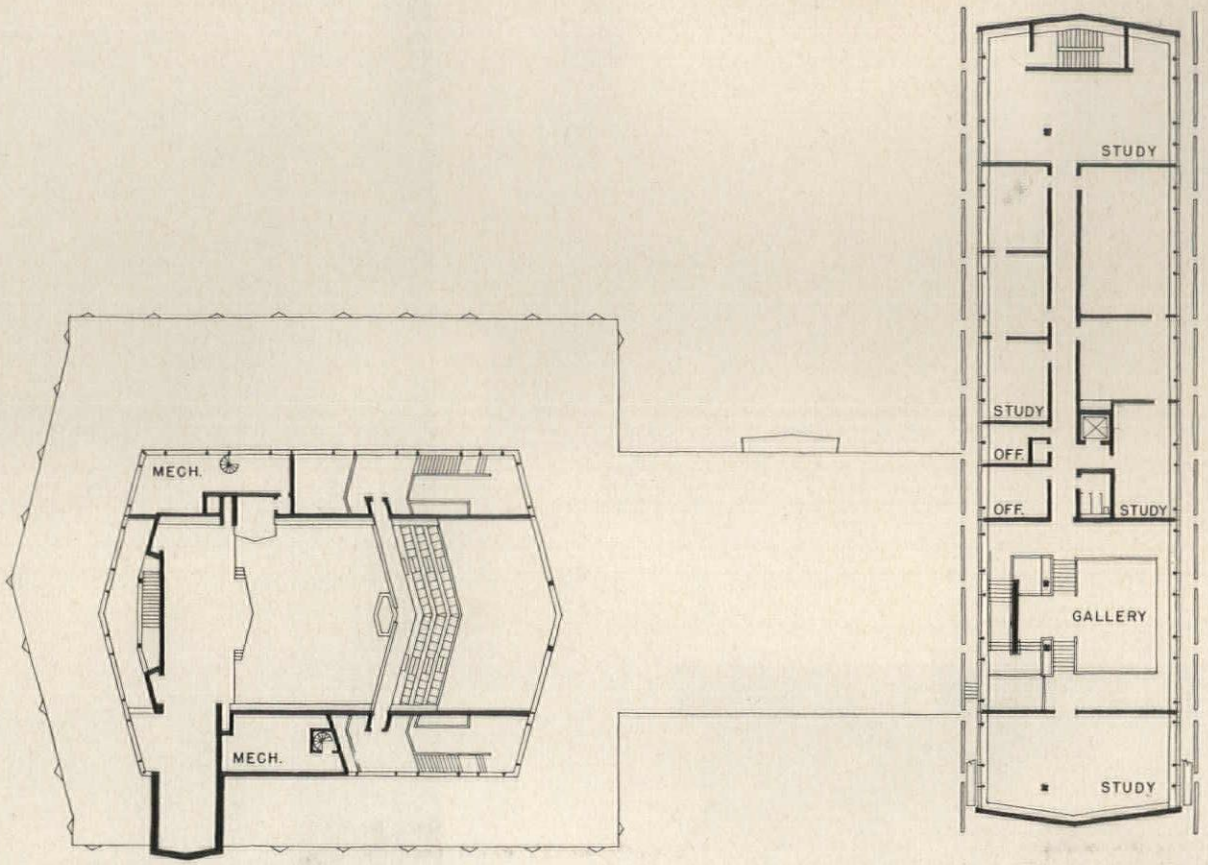
30

Wellesley Arts Center

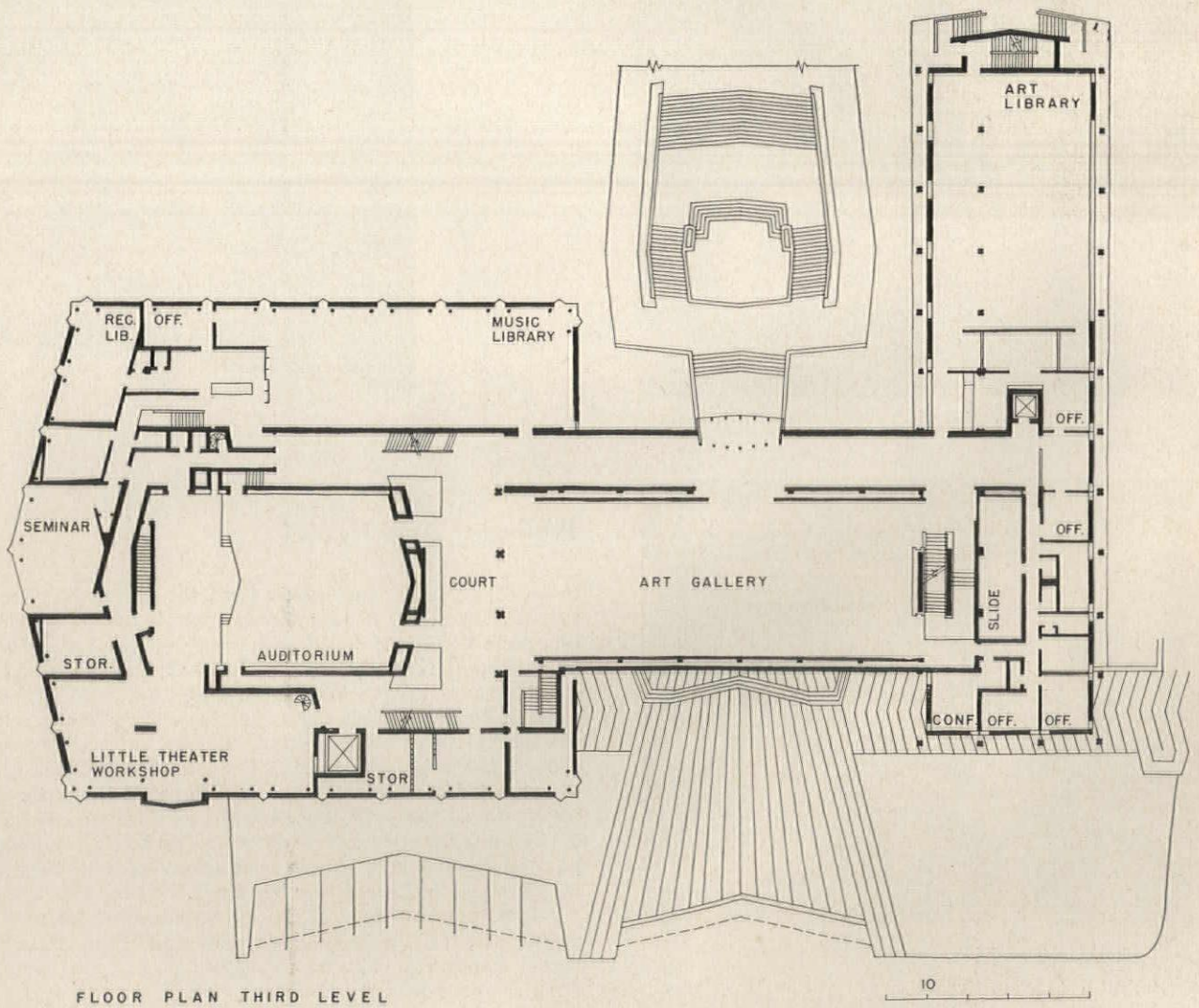
new and is not bizarre. It deals with the old and is not banal. It promises a provocative resolution of both the new and the known."

Three main elements comprise the building. The low, music-drama unit consists of two stories of listening, practice, library, and office spaces wrapped about a central auditorium. The higher visual-arts unit contains work rooms, library, offices, and laboratories. These two units are disposed on the brow of a hill to complete an irregular quadrangle of academic and administrative structures that ring the crest. The third unit—a top-lighted exhibition gallery —links the music and art elements and bridges an open, elaborated stair within a central swale. Thus the entire building becomes, in effect, a gateway leading to the building cluster on the hilltop above.

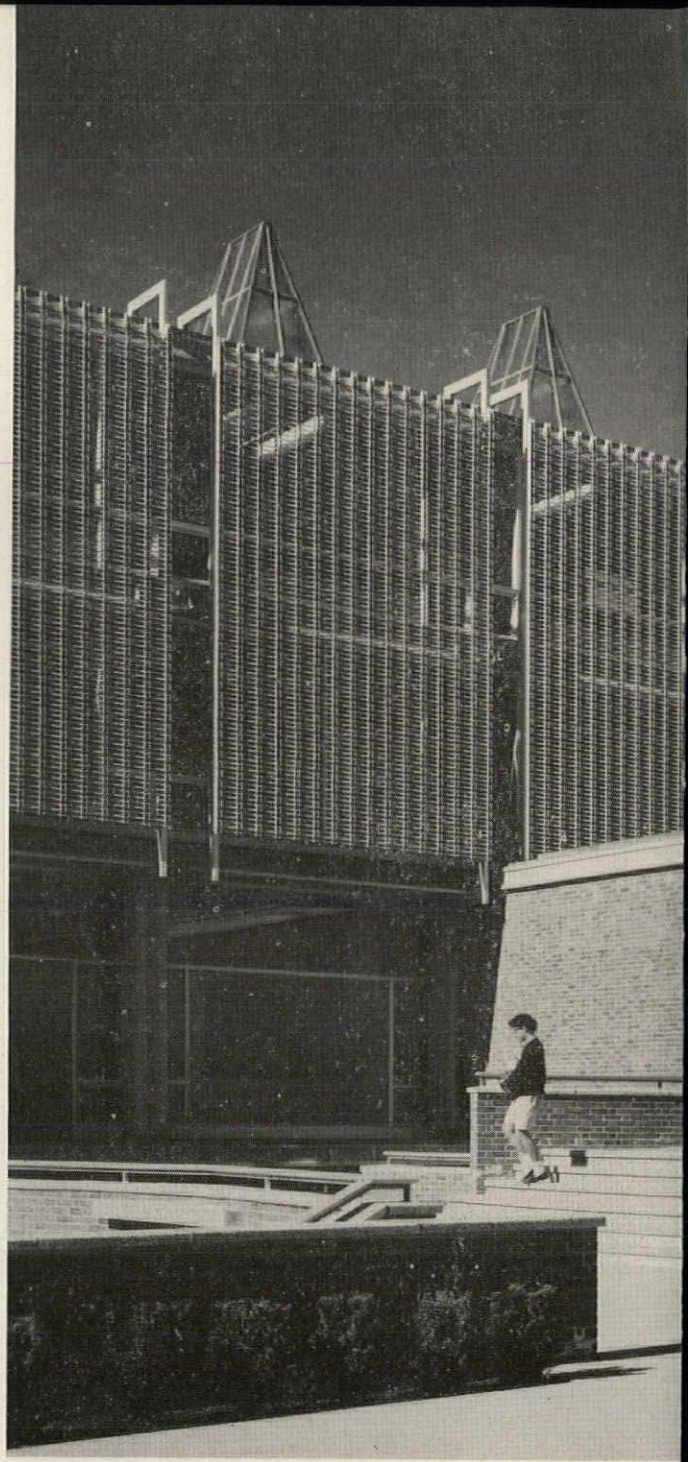


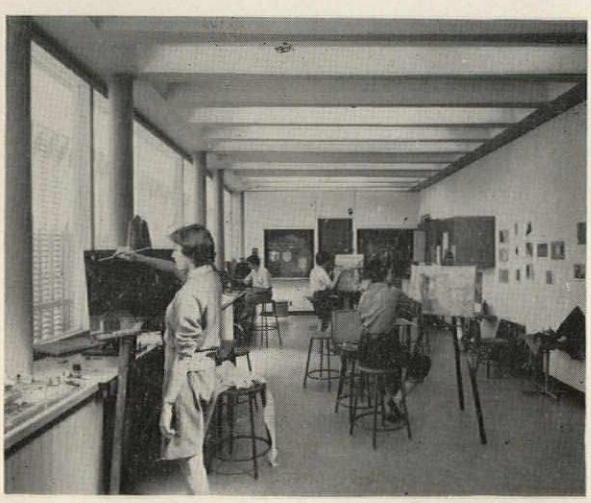


FLOOR PLAN FOURTH LEVEL



FLOOR PLAN THIRD LEVEL

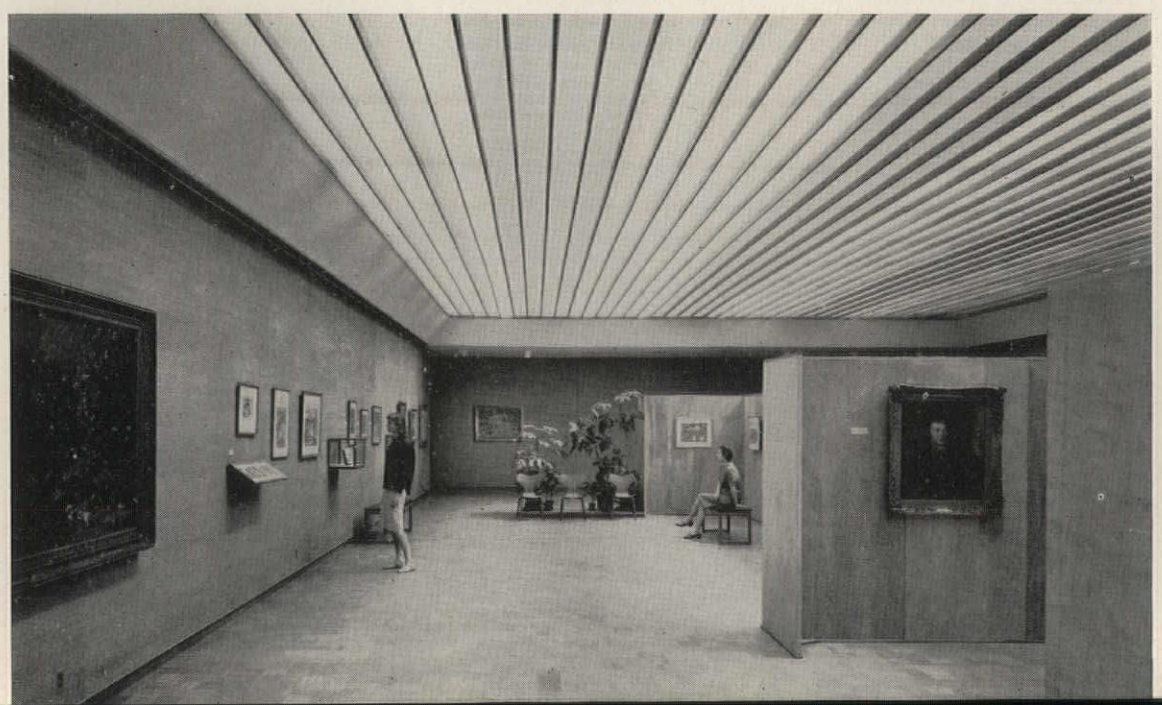


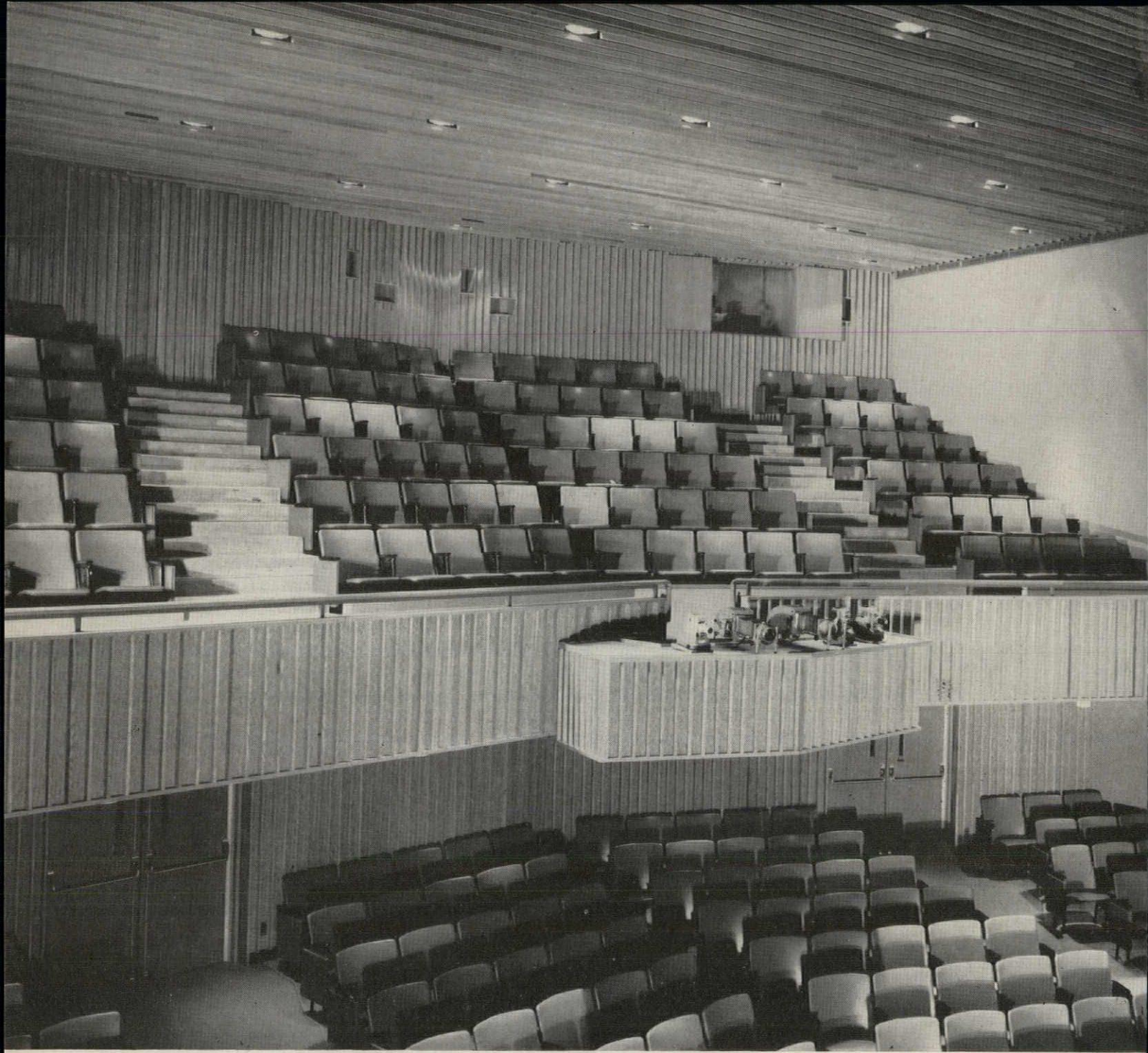


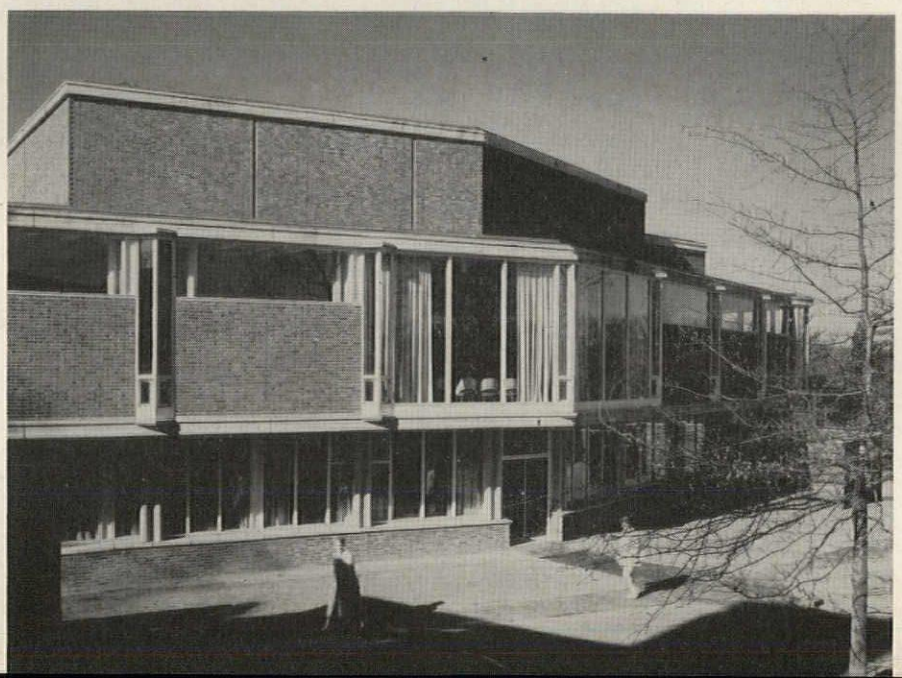
Wellesley Arts Center

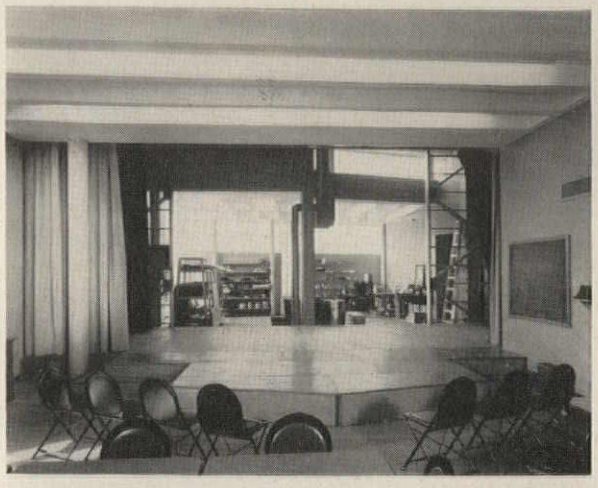
Several governing tenets grew from the search for visual integration with the older buildings, which are red brick and limestone Collegiate Gothic. Harmony of *scale* was fostered by consistent repetition of the old 15-ft plan module; by the duplication of various vertical sizes and horizontal lines; and by new cluster columns of concrete, vividly reminiscent of existing piers in configuration, texture, and color. As for *shapes*, the prism-like skylights create a sky-profile akin to the serrated dormer pattern, and also recall the basic Gothic motif; as do the prow-like, sharply vertical windows of the music unit. Exterior *colors*—provided by brick, concrete, and painted metal—were chosen with great care so they would match those in the existing buildings.

At left are two views of the art building; at lower right a photograph of the top-lighted gallery-exhibit unit, which serves as common entrance to the center, and also as a foyer for the music-drama auditorium (see pages 182 and 183)





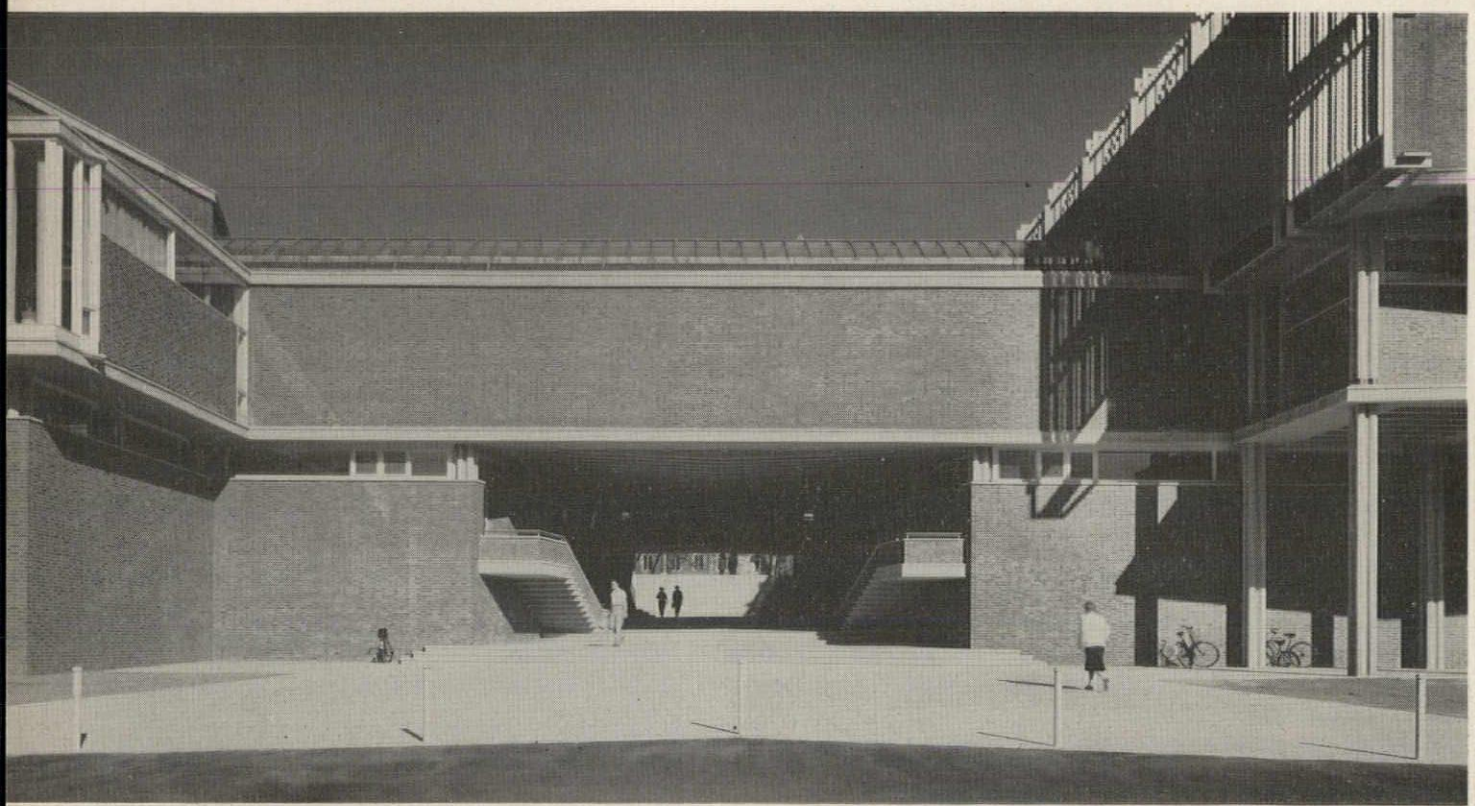




Wellesley Arts Center

The music-drama building houses a music library, a record library, drama rehearsal room, theater workshop, combination seminar-green room, listening rooms, practice rooms, classrooms, and offices. These spaces, occupying two levels, are wrapped around the central auditorium, which serves variously as lecture hall, concert hall, cinema, and theater.

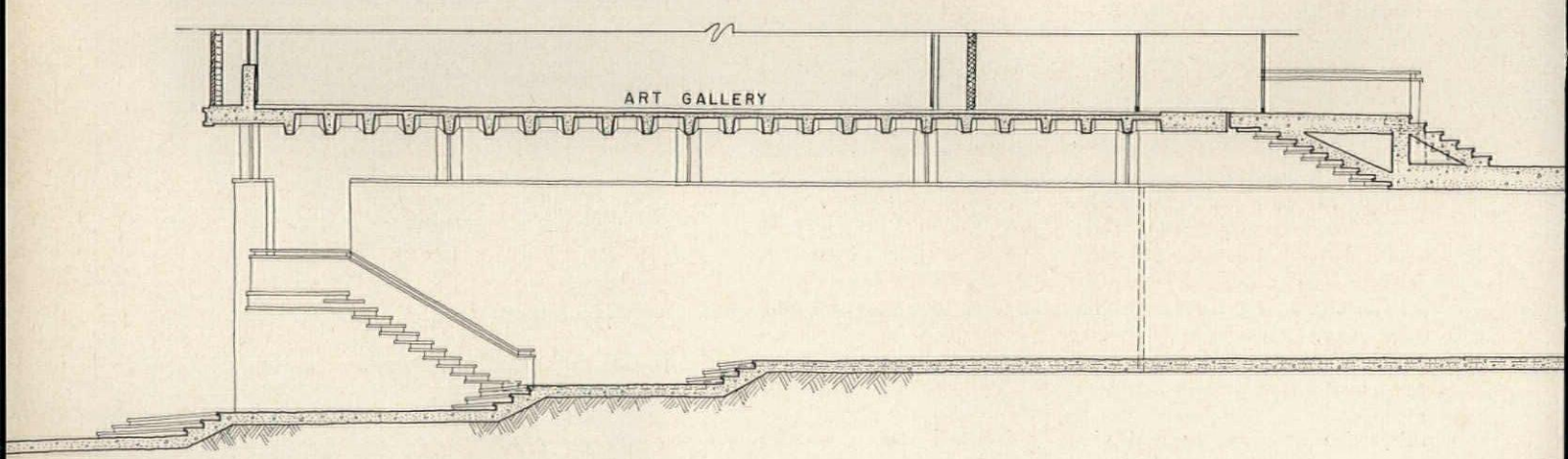
An interesting feature of the auditorium area is the rolling stage wagon, shown in the three photos at right. Normally, it occupies the space between stage shop and rehearsal room, where it is used for drama rehearsal, scene setting, and lighting study. The wagon is, however, a complete unit with an overhead structure for lighting, scene elements, and masking pieces; and has its own front curtain, cyclorama, and switchboard. When a play is ready to go before an audience, the otherwise acoustically and visually isolated wagon can be rolled into position on the auditorium stage by three students, who open the soundproof doors and push!

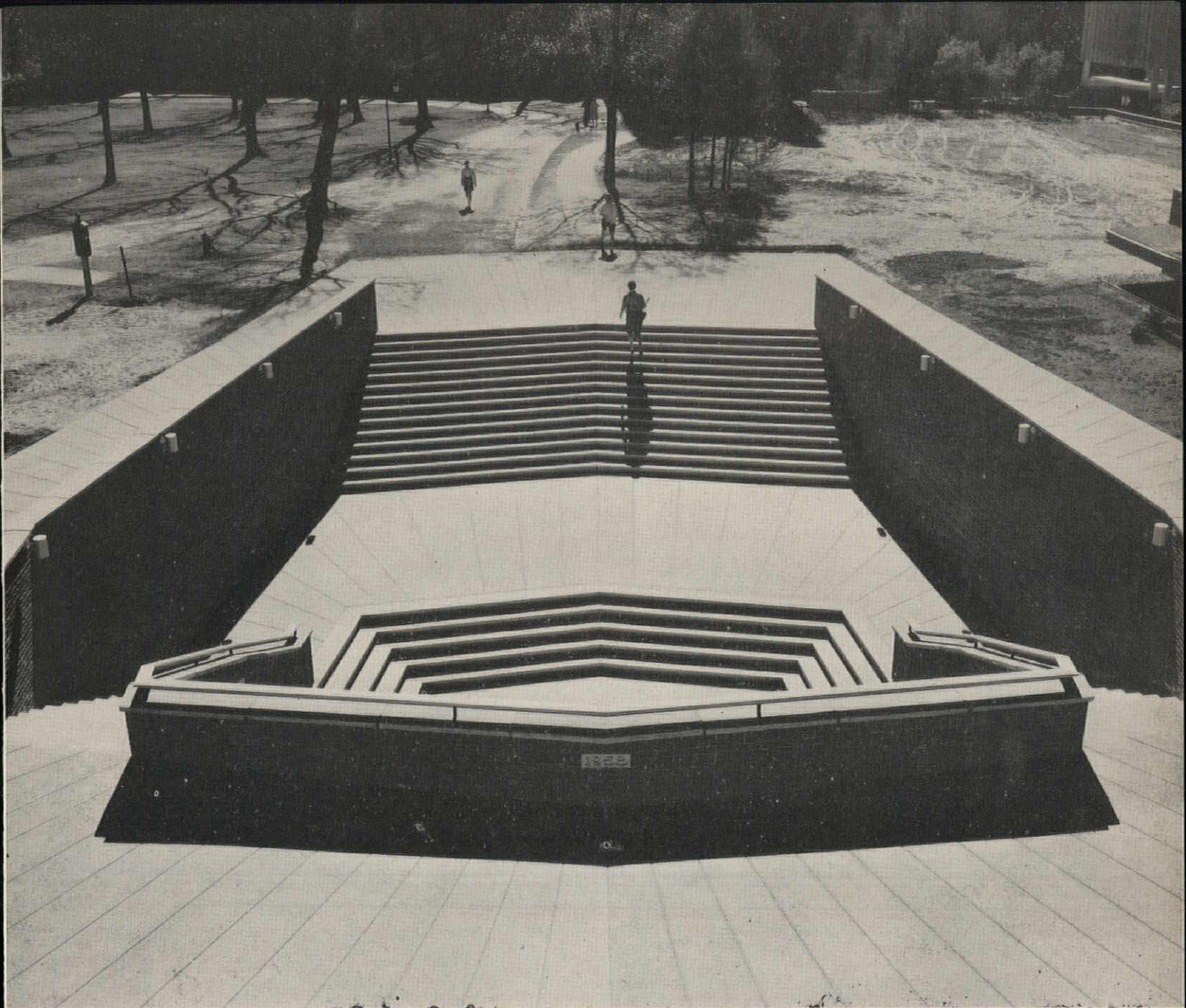


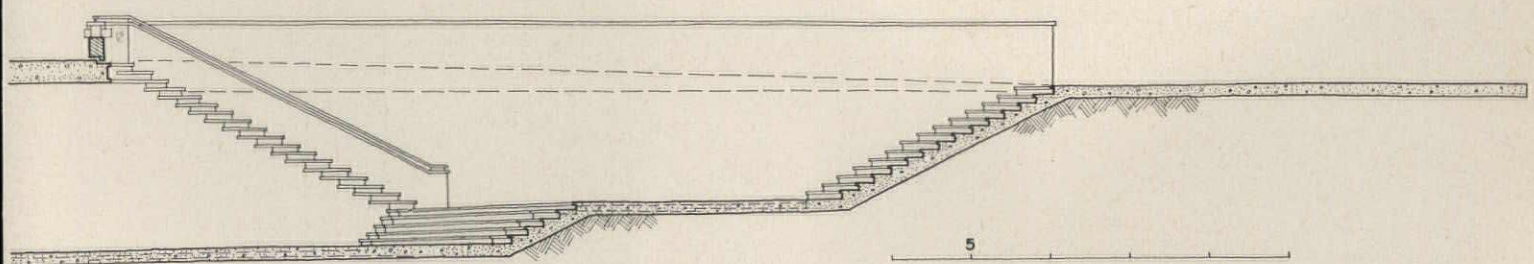
Wellesley Arts Center

The gateway quality of the building stems from an elaborate system of stairs which pierce it and focus on a hilltop tower. The stairs lead to the upper level from a parking area to the west by rising gradually beneath the bridge-like, skylighted exhibition gallery, and their easy line of travel serves to emphasize the pedestrian quality of the higher plaza.

The hilltop cluster of buildings forms an irregular, loosely enclosed—but coherent—quadrangle, which is pulled into unity by the uplift of the tower (page 186). The principal academic and administrative units of the 1700-student college make up the group of structures that circumscribe the flat, landscaped crest of Norumbega Hill



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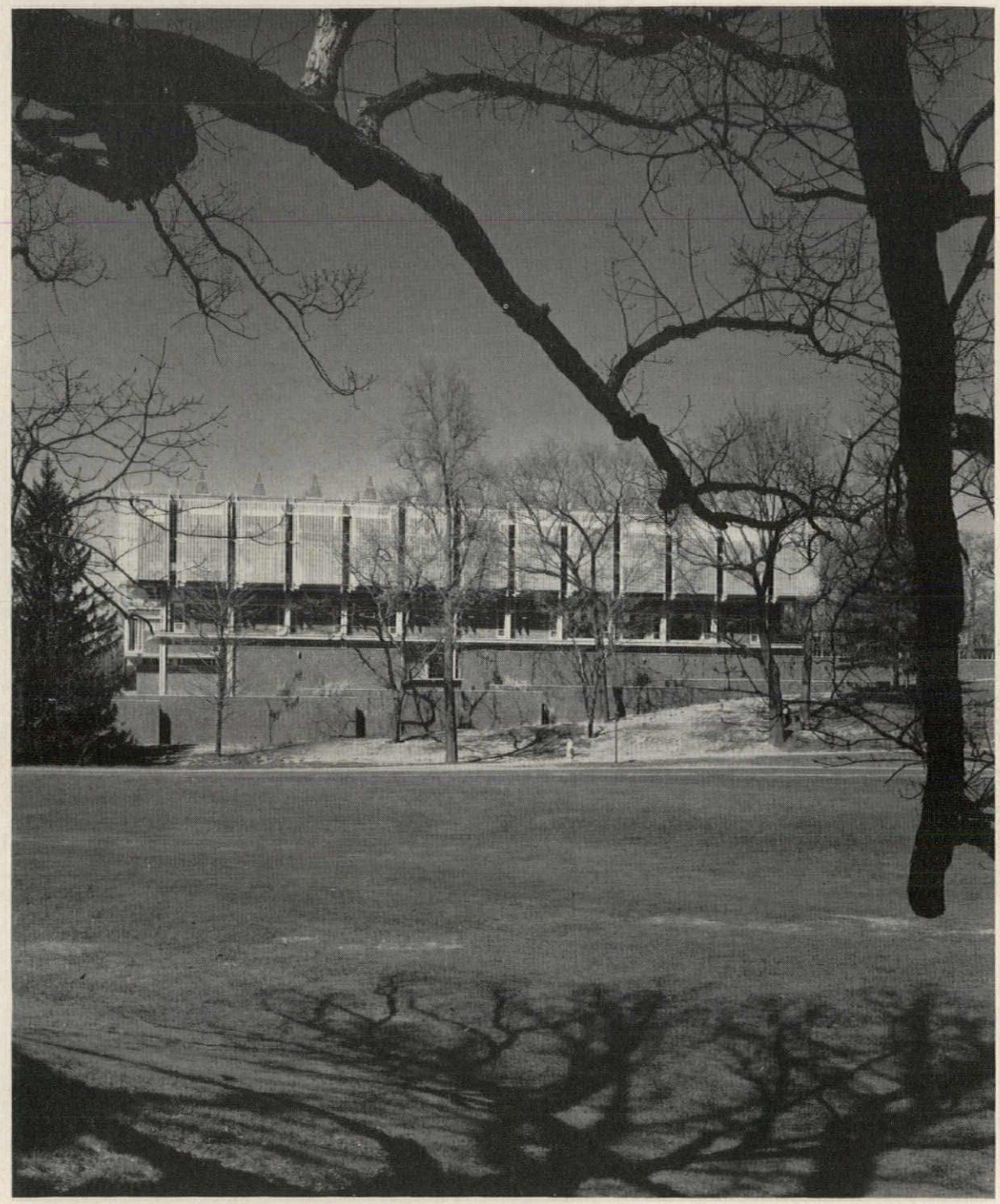


Wellesley Arts Center

ATOMIC ENERGY RESEARCH CENTER RISÖ, DENMARK

Devoted to Peaceful Use of the Atom:
The Research Establishment of the
Danish Atomic Energy Commission

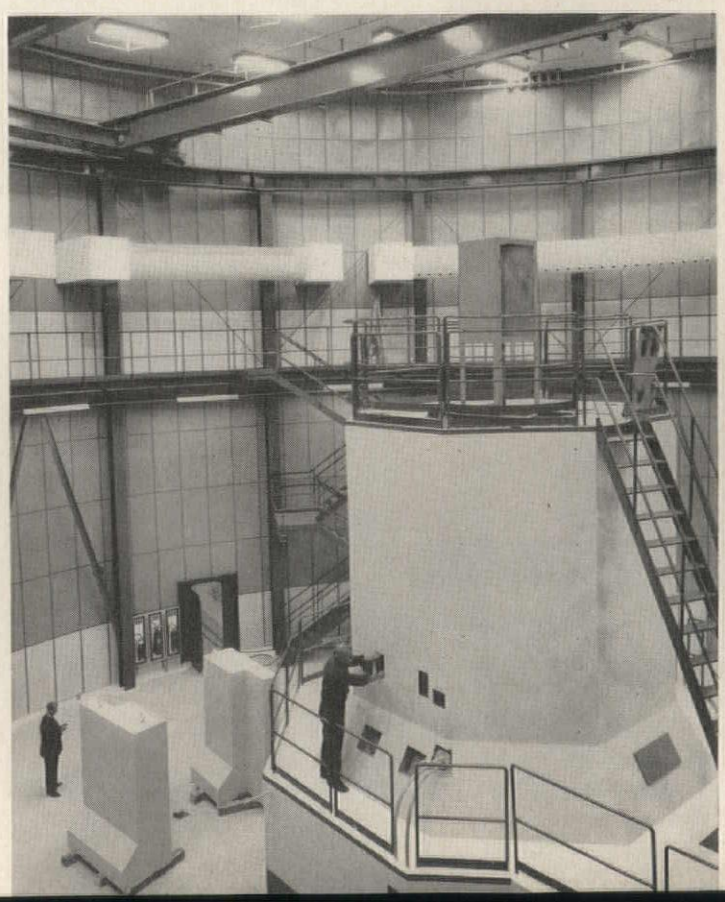
Preben Hansen, Architect

Paul Niepoort, Associate Architect

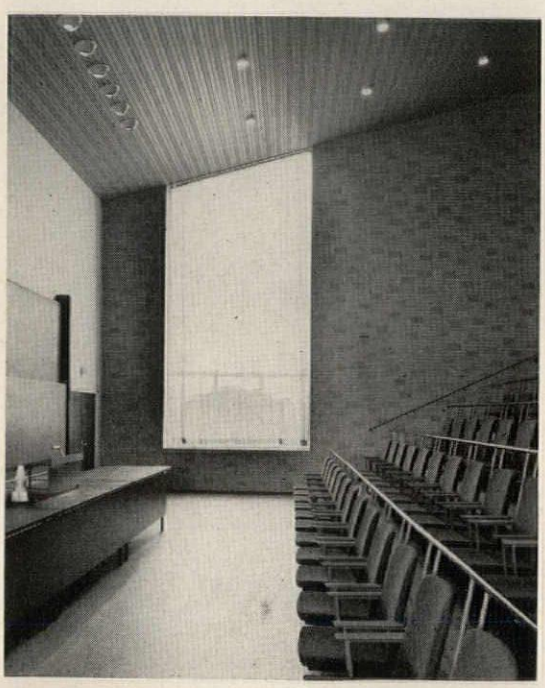
Steensen & Varming, Civil Engineers

Morgens Balslev, Electrical Engineer

C. Th. Sorensen, Landscape Architect



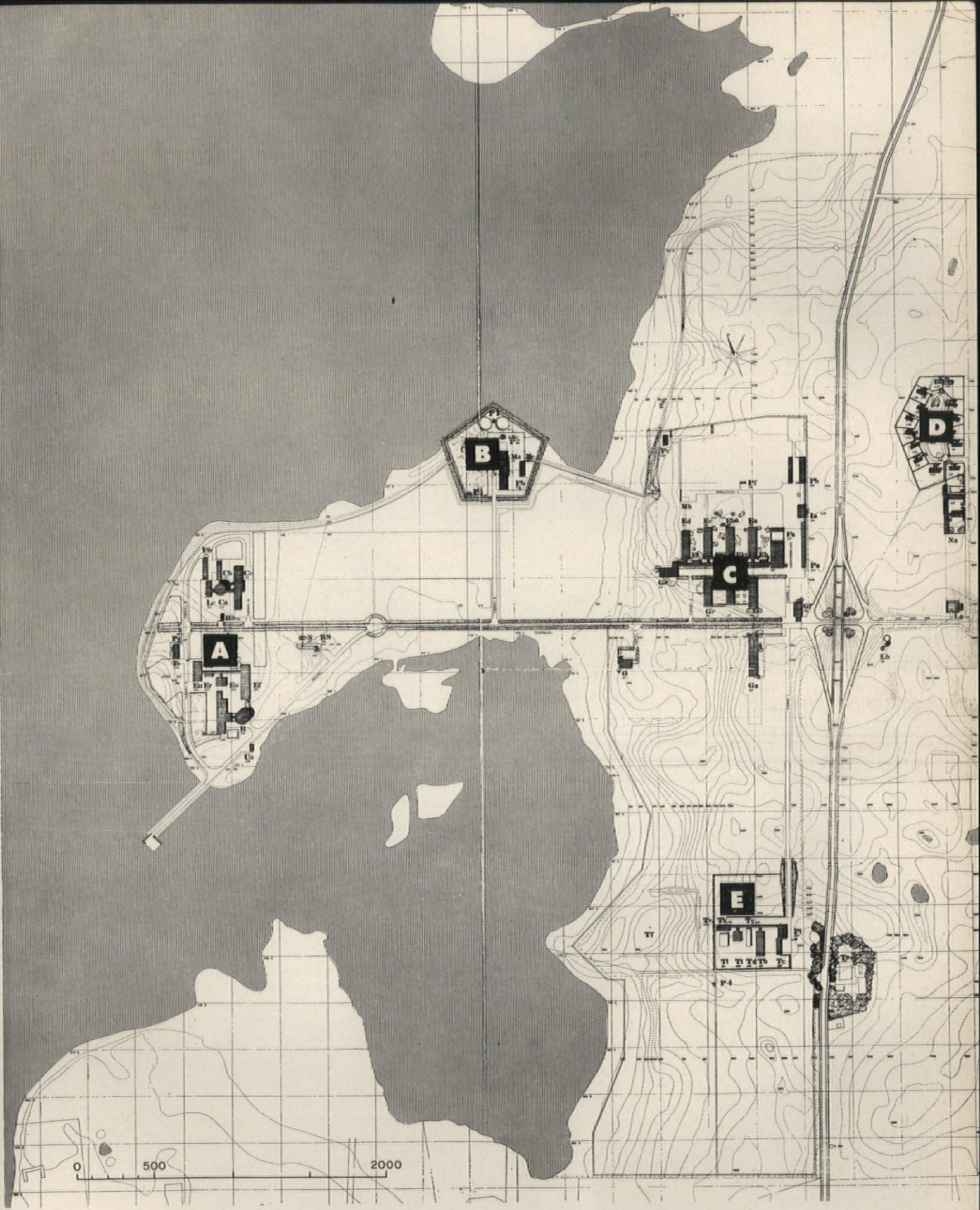
The extremely refined treatment of interiors in the research center is apparent in the view above of the public area in the administration building and that of the lecture hall, below. Standard modules and a simple, precast concrete frame, combined with carefully detailed brick, glass, and similar readily available materials were used in all buildings



This complex of buildings devoted to research into peaceful uses of atomic energy possesses an architectural quality seldom found in large industrial building developments regardless of their location or type. It is extremely pleasant to discover such an orderly, craftsmanlike, well-scaled example devoted to our most advanced science. Of the center, Frederick Gutheim recently remarked, "The project stands with such buildings as the Olivetti plant in the new architecture of postwar Europe, and like them expresses the growing appreciation of much that is best in the recent architecture of the United States."

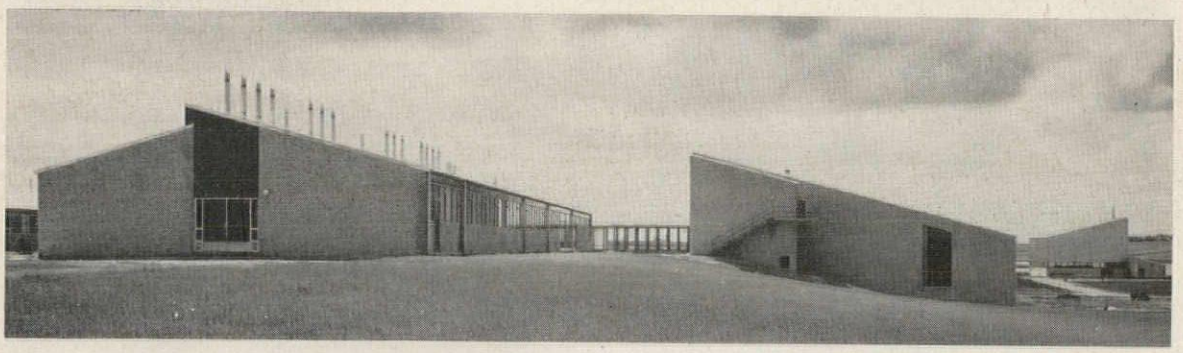
In addition to the research activities carried on here in such fields as agriculture, food processing, preservation, and related fields, the center serves important functions in the training of reactor operators and other technicians. It has rapidly found wide acceptance as a conference center for cooperative efforts of Scandinavian, American, and British atomic scientists. The overall planning of the facilities was primarily the result of the needs for segregation of various activities and provisions for maximum expansion and flexibility of use.

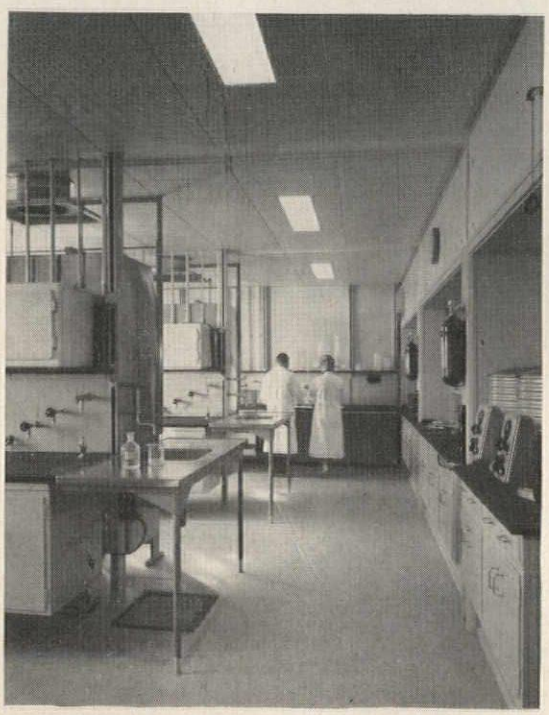
Of the final results at Risö, Mr. Gutheim says, "These laboratories show that humanistic values are wholly compatible with the most advanced technology. In them, our hopes for peaceful and constructive uses of nuclear energy have been given architectural expression."



A. Reactor buildings and radio-activity laboratories
B. Decontamination, waste disposal, propane facilities
C. General laboratories, lecture hall, library, etc.
D. Staff residential quarters and hostel for visitors
E. Agricultural laboratories, greenhouse, farm buildings

All photos: Strüwing Reklamefoto





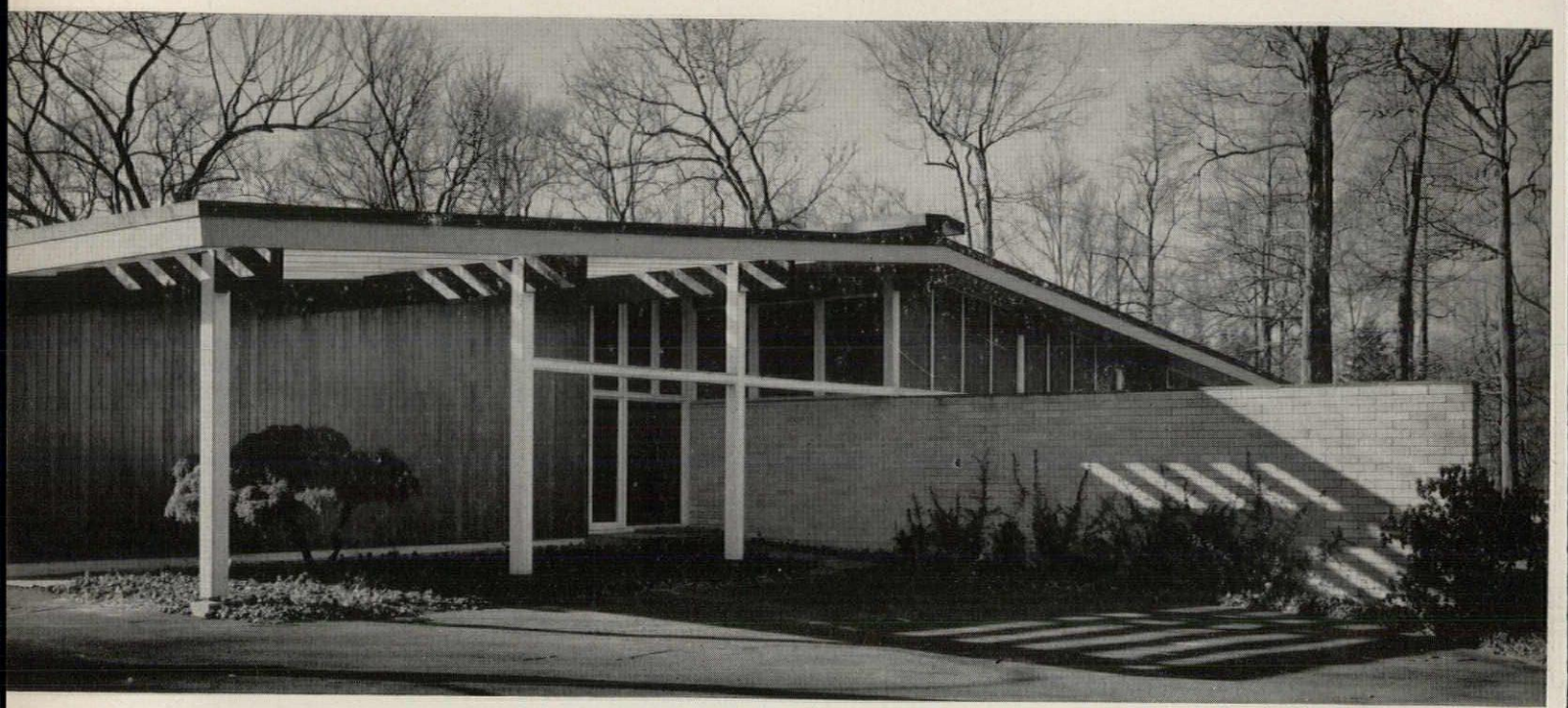
This atomic research center was established and built as a direct result of a proposal for international co-operative effort initiated by the United States. Agreements were reached between the Danish government, and those of the United Kingdom, United States, and other Scandinavian countries in 1955. The land was purchased by early 1956, design begun in March, and construction started in July of that year, thus establishing something of a record for architectural work in Europe. The ultimate cost of buildings and equipment will approach $15 million. Top: the main group of laboratories, work shop, lecture hall, library, and canteen are located around an open court. The major work of the center other than activities involving radio-active materials is done in this group of buildings. Shown are the health physics laboratory, library, and canteen on the left, the lecture hall in the background, and the workshop on the right. Center: the chemistry laboratory and lecture hall with connecting covered walkway. Left: view of laboratory interior

A House With Space *and* Privacy

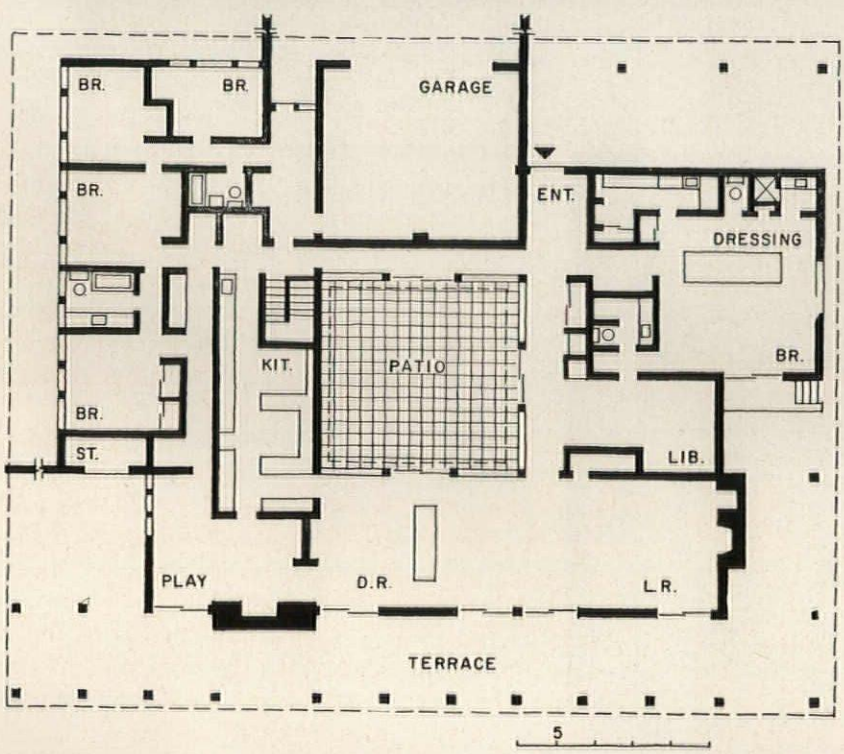
Residence of
Mr. and Mrs. Anthony Reinach
Scarsdale, New York
Kramer & Kramer, Architects
Charles Middeleer,
Landscape Architect
Emily Malino, Interior Designer
Algot Anderson Co., Contractor
Muzzillo & Tizian,
Mechanical Engineers

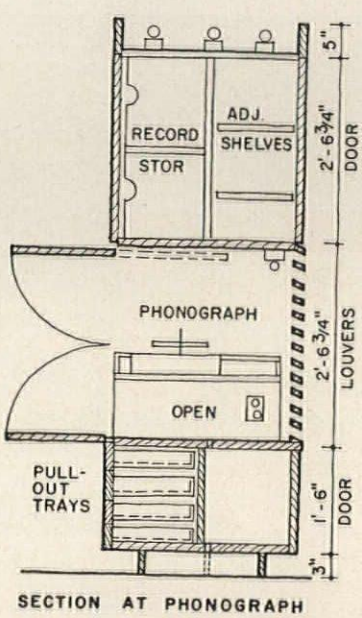
Joseph W. Molitor photos

A House With Space *and* Privacy

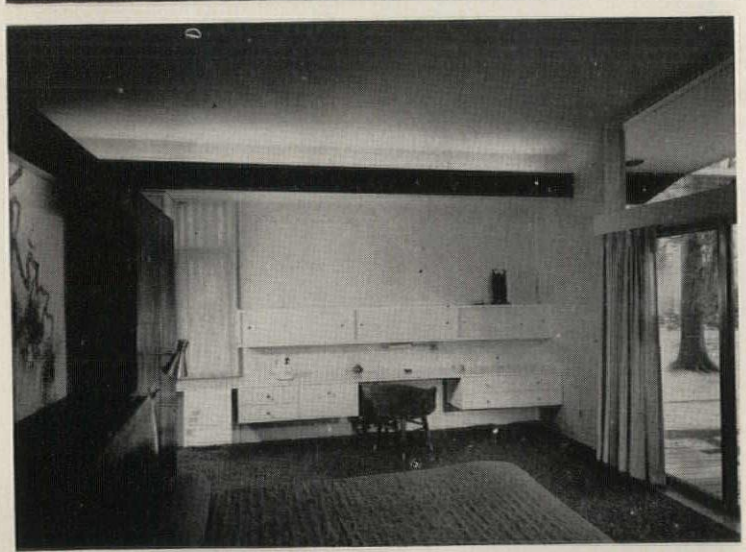


Joseph W. Molitor





SECTION AT PHONOGRAPH

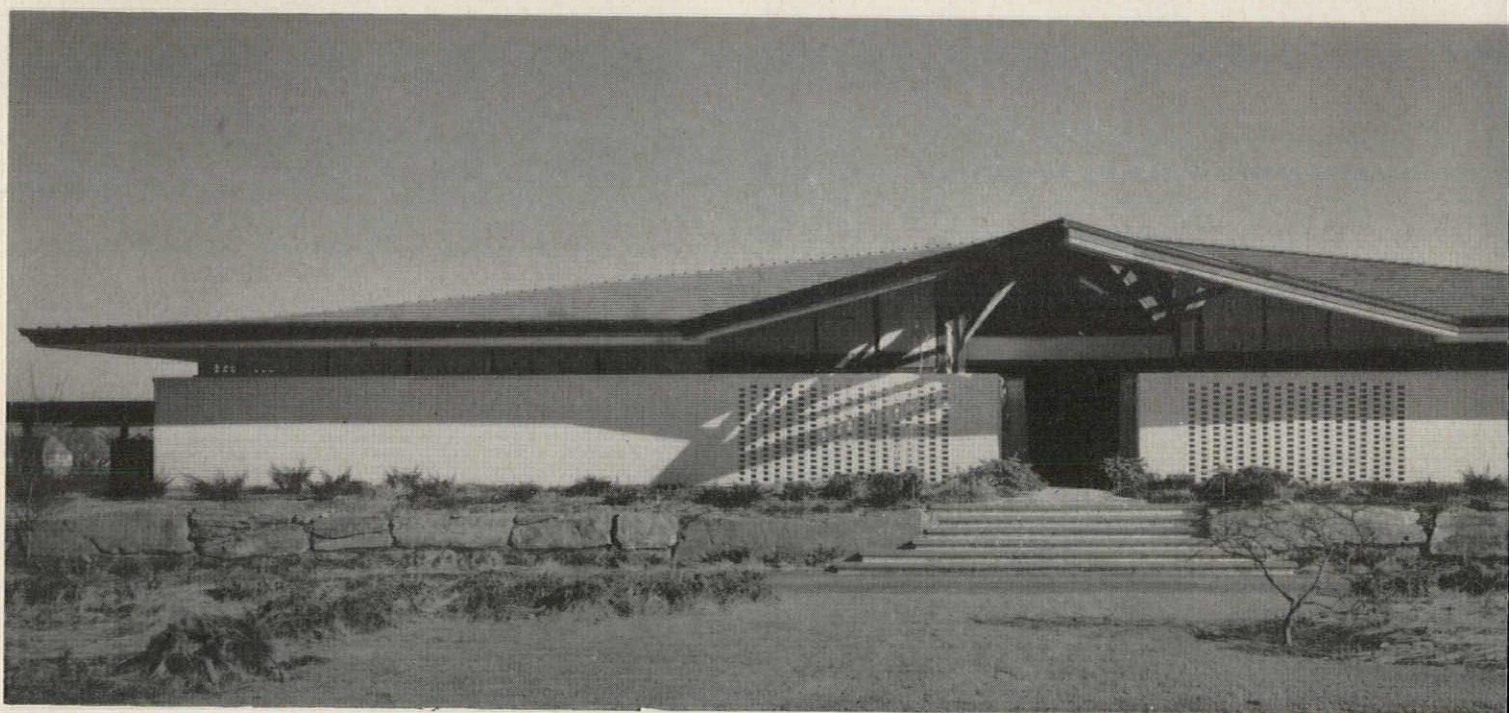


Extremely fine craftsmanship and careful detailing are a highlight of this house. Most rooms are well equipped with storage and equipment cabinets of walnut or rosewood. The structure of the house is wood and steel frame, with exterior walls of concrete block and cypress. Interiors are plaster board and wood paneling. The entire house is air conditioned

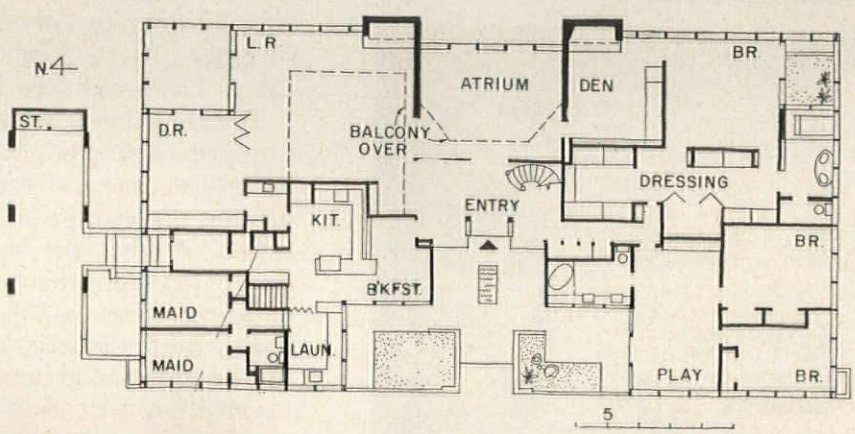
The architects sum up this house as a "rejection of togetherness." Many-roomed and spacious, the house does provide a remarkable amount of privacy, convenience, and separation of activities for the family it was designed for: parents, two children, a nurse and a maid. With these objectives in view, the bedrooms for the children and the parents were placed deliberately on opposite sides of the house. The service rooms adjoin the children's wing for convenience in supervision and feeding; living areas and a library are close by the master bedroom suite. A playroom, with adjoining play porch, forms a common meeting ground for adults and children. For entertaining, an enormous space can be opened together: living room, library, dining room, playroom, play porch and long porch.

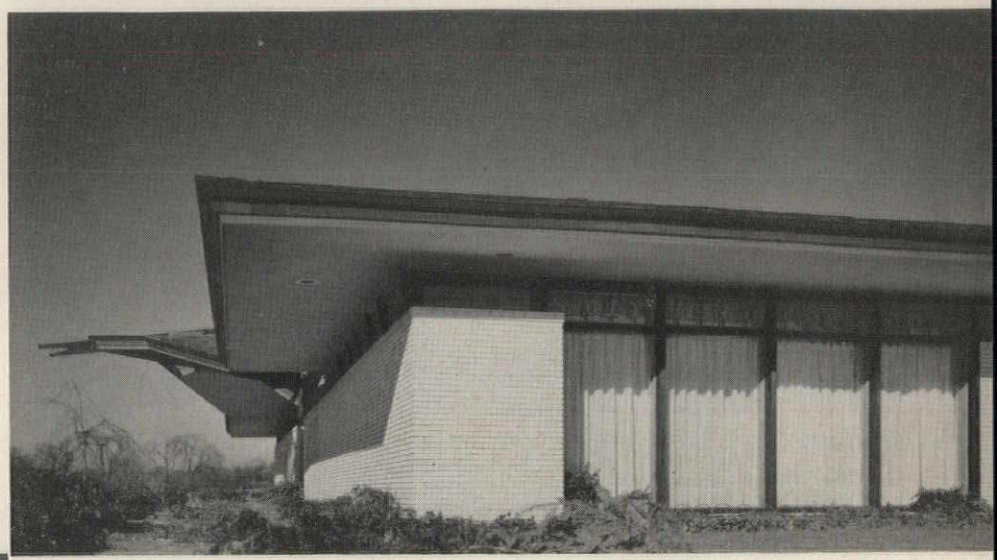
The house has a world of contrast in it. Some rooms are closed and quiet, others are extremely bright and open. The entry is very special in this respect. On driving directly up to the door, one has little indication of what the house is like inside—there are no windows to give any glimpse of the interior. Upon entering, there is the great surprise of the courtyard, and the lengthy vista through the living areas to the porch and gardens beyond, all making an "arrival" a very pleasant one.

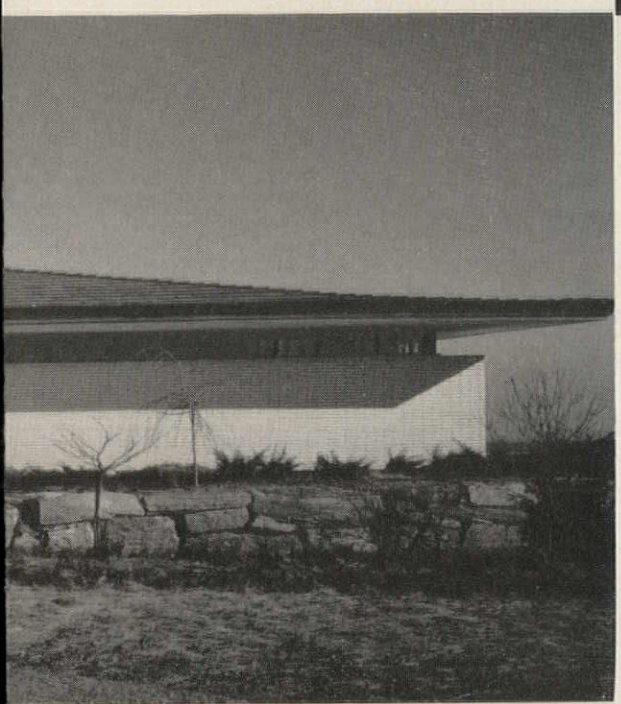
Roof Drama Marks Seaside House



Joseph W. Molitor







Residence for Mr. and Mrs. Melvyn Kaufman
Mamaroneck, New York
Roy S. Johnson, Architect
T. Lewis Buser, Structural Engineer
Melvyn Kaufman, Contractor
John Laury, Interior Designer

The soaring roof forms a highly individual, and somewhat spectacular landmark on its level seaside plot. Basically a simple hipped shape, with wide overhangs, the roof gains its singular quality from two open-work "prows" which accent the entrance and a two-story atrium at the rear. To help offset the massiveness of such a roof spread, it is separated from the exterior walls around the entire periphery by a narrow window strip, covered by a simple fret-work grille.

Areas in the house are carefully zoned, with a suite for the children, one for the parents, and living and service areas. Perhaps the most impressive sequence of interior spaces is the band from the entrance through the atrium. As the house is set on a raised podium for protection from over-high tides, a short flight of steps leads to a walled-in court with a pool, through a low-ceilinged entry, to the high-ceilinged atrium with its wide view of Long Island Sound. A balcony overlooking the atrium is over the low-ceilinged entrance hall.

Joseph W. Molitor

Roof Drama Marks Seaside House

The atrium of the house (above and bottom, left) will be given an indoor-outdoor atmosphere by tropical plants, and the staggered wall fountain. The stair up to the balcony (below) is extremely handsome and well finished. Foundations of the house are concrete block, the frame is wood, and exterior walls are brick veneer. Most interiors are plastered. The roof is surfaced with wood shingles. The house has two warm air furnaces, two air conditioners for living and sleeping areas. The entrance court and the atrium are floored with quarry tile. Living area floors are oak, baths are tile, and service areas are vinyl tile

HUMAN NEEDS IN URBAN SOCIETY

*by Karl Menninger**

If a psychiatrist were to be interviewed by a group of architects and builders, they might ask him some such question as this: "There are many of us engaged in the sciences and arts involved in planning and building houses, schools, factories, subdivisions and cities. Our aim in the long view is the more complete fulfillment of human needs insofar as these depend upon physical structures. For our guidance we must depend upon the experience of previous failures, failures which we can analyze and try to make provision against in the ever-opening future. In this way, we believe, we create more and more stately mansions and more and more comfortable human colonies.

"The failures from which we have learned least are the human failures, the individual citizens who, for all our diligent planning and provision, nevertheless fall sick, turn back from their goals and even attack the very community which has given them life. About such failures we expect psychiatrists to have something to say to us, because psychiatrists see these failures. Of course lawyers see them too, and clergymen and general physicians. But psychiatrists see more of them than anyone, especially of those whose behavior suggests a deep frustration of human needs and purposes. Some of the lacks in these damaged lives may reflect an omission or an error in the planning and building of human habitations. What can you, a psychiatrist, tell us that will help us to know how to plan and build better for people?"

This is not the kind of question which psychiatrists ordinarily must answer. In practice, we are usually faced with an immediate problem of damage done. Frustrations have become unbearable: disappointments, temptations and aggressions have overwhelmed control. Reactions have occurred which necessitate special maneuvers by the doctor, from consolation to hospitalization or even incarceration. This is our daily practice. In theory, a few research projects have been developed which engage the cooperation of sociologists, but psychiatry for the most part concentrates upon the individual's capacity to make the best of his situation, whatever it may be.

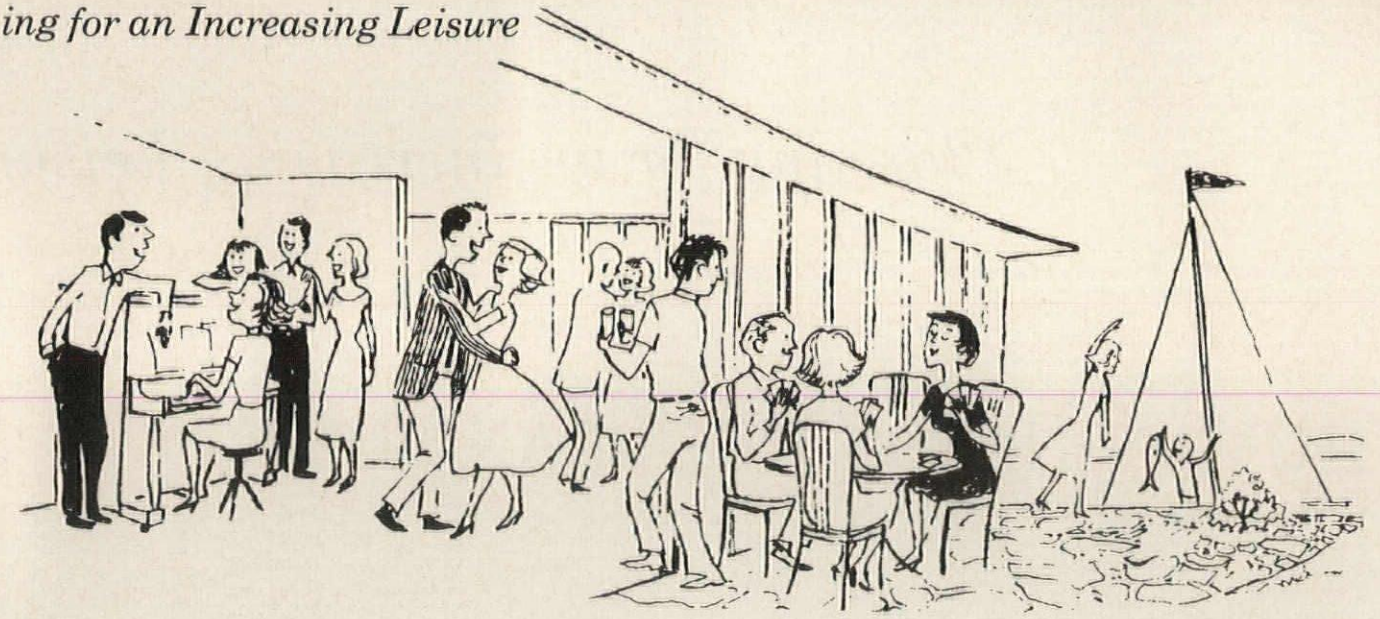
We have made some progress away from the ancient notion that behavior programs are inherited along with the family silver and Grandmother Wright's asthma. We are not quite in agreement with the Russian psychiatrists for whom it is an axiom that nothing is inherited, but we no longer use heredity as a whipping boy or an alibi. Nor do we go along with the Russians in dispensing with individual responsibility, picturesquely and improperly labelled "free will." But most psychiatrists throughout the world would probably concur that much human maladjustment—or let us just say crime and illness—is directly related to social structures, social pathology, and social improvidences. I am using the word social here in a sense which includes the work of architects, engineers and builders.

Human Needs: Biological and Psychological

In speaking of human needs generally, I would divide them into biological needs such as the need for air and preferably unpolluted air; for food and preferably fresh and not too expensive food; for water—and need I say unpolluted water and easily available water; for temperature control; for sleep undisturbed by noise, alarms, movement and the like; for bathing; for clothes storing (I am including this as a biological need); for exercise of various kinds; for excretory convenience and privacy. For all of these I know architects try to provide.

To these more classical biological needs I would add the psychological needs. Of these the most important are for maintaining contacts of different degrees of intensity and intermittency with other human beings, i.e., very intimate (as in the family), moderately intimate (as with friends) and less intimate (as with acquaintances of different groupings). There is also a need to have some privacy and retreat from all of these.

*Dr Menninger is chief of staff of the Menninger Foundation in Topeka, Kansas. He is the author of "The Human Mind," "Man Against Himself," "Love Against Hate" and many other books and papers. This paper is based on an address given at the National Construction Industry Conference, December 1, 1958, in Chicago.



The long childhood in the human species requires special provisions for the proper nurture, protection and training of the baby, little child, older child and teenager. These may be considered psychological needs considering our state of cultural development. They require certain places in the home, places in the neighborhood to play and to go to school and, ideally, a place in the neighborhood to do some kind of work.

Still another psychological need is for the maintenance of contact with non-human nature. The simplest way, perhaps, is through pets, which every child should have if he wants them, and let's hope he does. Add the somewhat artificial but pleasant provisions in an accessible and properly maintained park—trees, flowers, shrubs, lawns, lakes and streams. In my opinion we must add to this a proximity to larger non-urban areas of farm or wilderness or near-wilderness as essential to the mental health of both child and adult.

The final extension of this reach into the universe is represented by the need for some kind of relation to whatever—to all the whatevers—that are considered divine. I mean the need for a place to worship.

Freud Called Them "Drives"

In his famous book entitled *What Men Live By,* Dr. Richard Cabot proposed that our essential needs, other than biological ones, were for work, play, love and worship. Without realizing it he was saying about what Freud put into more scientific language. Freud spoke of drives rather than of needs, classifying them into the creative, constructive, positive drives; the negative destructive, hurtful impulses; and the combinations of these two. The combinations may be slanted toward greater or less constructiveness and social usefulness. Thus if sabotage be construed as sheer destructiveness, the same energy may be combined with some admixture of constructive impulses and guidance to appear in various forms of aggressive play—football, for example.

Sometimes the fusion is less successful; the aggressive drive is modified but the combination still leans toward the destructive side—dangerous speeding, for example, which is perhaps a *little* better than outright manslaughter. I also consider hunting an example of this, because I don't like hunting or trapping and other forms of killing for pleasure. But many people condone these who do not approve of, let us say, bullfighting (in this country), or dog racing. These are too undisguisedly cruel, aggressive and destructive.

Everyone agrees, however, that there are some forms of the fusion of the instinctive impulses which are free from any criticism—innocent play of various kinds, camping, dancing, singing, painting, playing music, and, indeed, most kinds of work. Work, too, is disguised and neutralized aggression.

Control Is a Part of Living

I have led you into a point of view which may pique your curiosity or arouse your interest, because it is not, I think, a part of the usual considerations of architects and city planners. It is a piece of theory which—I hasten to add—some of my colleagues still reject (although I think they will come to it, if I may speak most arrogantly!). I refer to my proposition that destructiveness is intrinsic in us, and has to be controlled, guided and provided for constantly, incessantly, forever. Life consists, indeed, in effecting and maintaining this control. At first glance this may seem to exculpate society, including architects and city planners, from any responsibility for the juvenile delinquency, divorce, crime and mental illness of the community, requiring them to think only of provision for the failures.

But not so. The control of destructiveness is an internal, individual process, true; but it is influenced and facilitated (or the reverse) by social attitudes and structures. The environment and the individual are both involved in the adjustment process; both have needs—some of them mutual needs, i.e., which only the other can gratify. To a considerable extent each man makes his own outer environment, the environment with which he is constantly engaging in a running transaction called life. His constructive-

Drawings by Tom McArthur

ness finds its opportunities, his destructiveness its targets—or its proper control and deflection.

Cities: Mirrors of a Duality

Our cities as they are, good and bad, our villages and hamlets (ugly as most of them are), our beautiful homes and our unsightly slums all mirror man's instinctual duality and emotional ambiguity. We cannot blink the essential aggressiveness, destructiveness and disorderliness which the human being seems impelled to express, but we may not overlook the evidence of constant battle against these, and the slow extension of more order, more creativity, more beauty. The ugliness of human habitations on the roadside, the dreary areas in the city, the devastation of the soil, the greedy destruction of the forests, the murderous butchery of the wild life—all are evidences of the predaceousness of the human species. But correspondingly, a neat little farm, a continuously yielding forest, a terraced hillside, a gracious home, an ample park, an inspiring church building, an ingeniously planned suburb or office building or automobile or library or hospital or school—all these bespeak and spell out man's constructive gifts and their ceaseless battle against the enemy within.

It is pleasant thus to think of the structures man builds in which to live as reflections of the laws of beauty within him, and we should fully indulge ourselves in this pleasure. But we should also always remember that disorder and cruelty and meanness and ugliness are also projections of tendencies, not of a few villains, but of mankind. This fact, I think, the architect and builder and city planner *must* take into consideration.

"How?" You Will Ask Pertinently

If it were merely a matter of human needs and drives about which I have told you a little, and mechanical facilities, parks, pavements and shopping centers, I am sure we could get together quickly and evolve a perfect architecture and a perfect city planning. But we have to deal with three other factors.

More People, Older People, More Leisure

One of these is that medical and surgical development, especially public health measures, have effected a change in the average span of life such that we now have a larger percentage of older people whose usefulness has somewhat diminished but whose human value may be greater than ever. They require somewhat different housing facilities, neighborhood opportunities and general planning than do the younger segments of the population. They are increasing.

In the second place, a number of factors which I shall not try to analyze have resulted in the rapid increase in world population. Adequate measures of birth control seem slow to develop or to be accepted in the places where they are most needed. Food producers are fewer, even though their efficiency has increased. Available arable land is approaching the marginal limit.

One final thing: Work, which has always been the most useful device for harnessing the aggressive impulses of human beings, is progressively diminishing. No one works as hard as he used to. No one works as long hours as he used to. The development of automation suggests the likelihood of still a greater reduction. Consequently, there is an increasing amount of leisure available, at least to most American citizens. This leisure can be occupied, theoretically, in five ways:

1. In some kind of creative activity which is not considered work.

2. In various definitely self-restorative or self-cultivating activities such as reading, contemplating and so forth.

3. In active recreation which affords some sublimation of aggressive tendencies.

4. In dawdling, loafing, sleeping and passive recreation—considered by some people to be restorative.

5. In various forms of more or less overt aggressiveness—the mischief that Satan still finds for idle hands to do.

Design for Better Leisure Time Use

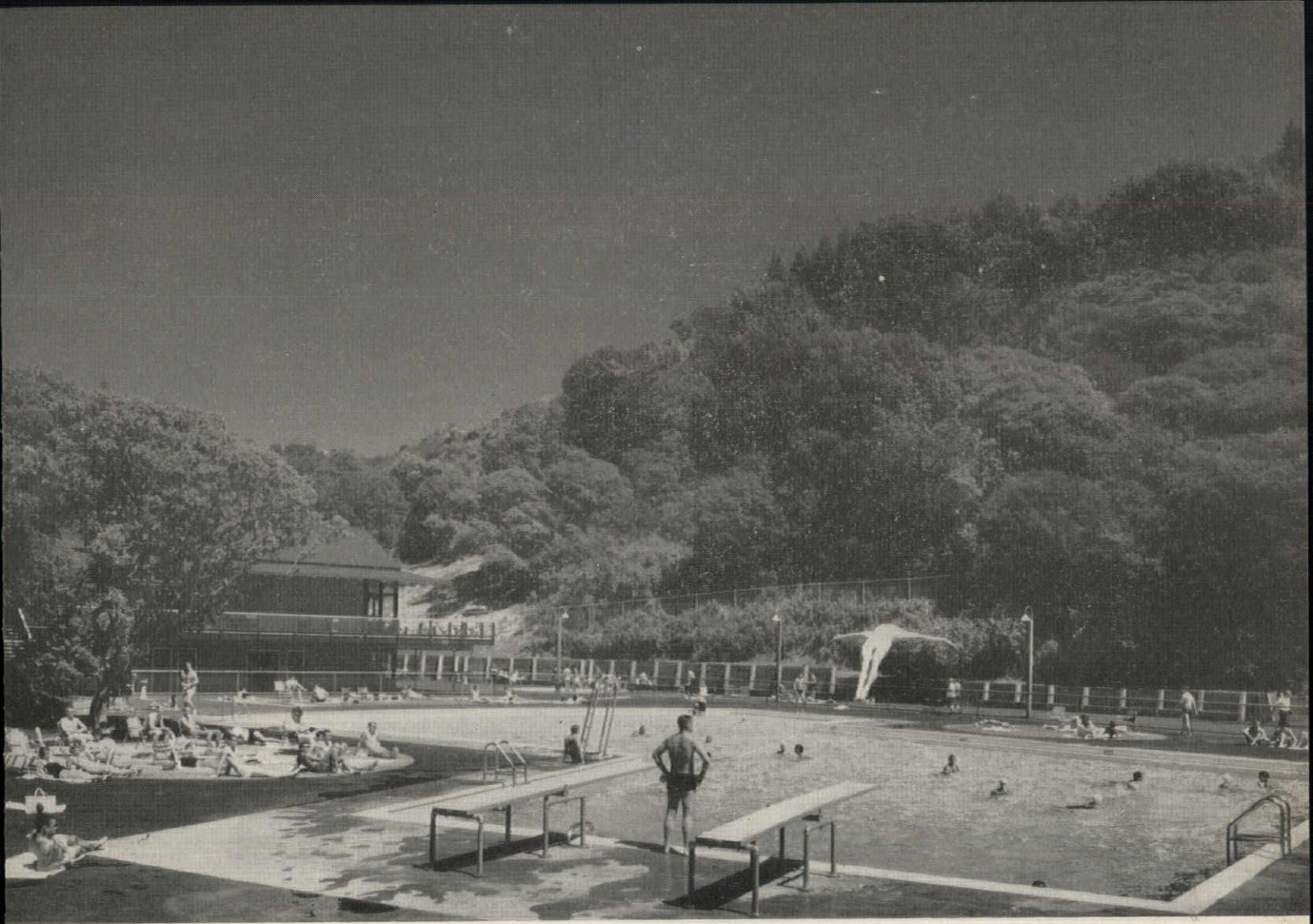
Now we have a perfect right to set up our own value systems for this list, and even within some of the topics there will be still further subdivisions and value system hierarchies. My own value system, based on many observations of human derailments, would be to put at the top of these activities those which are most individually or socially constructive. And my point now is this: We know that the more constructive and socially useful the form of energy direction selected for excess leisure time, the more difficult it is to sustain it and the more help is required. Constructive and creative endeavors need encouragement, example, direction, facilitation. Perhaps this is the most important thing I have to say to architects and the building field. The aggressive needs of mankind need to be provided for, and they need to be provided for now more than ever, because there are more people, there are more old people, there is less work and there is more leisure. Most people don't know what to do with their leisure—or, rather, they don't do with their leisure what it would be best for them and for society for them to do with at least some of that leisure. And a part of this failure is a lack of vision on the part of their predecessors. They didn't see that we would need ten times as many national parks as we have. They waited until now to establish wilderness areas such as Senator Neuberger's and Senator Murray's wonderful bill provides for. They failed to give us one tenth the area of city parks that we need. They forgot that privacy was just as important as social contact for each individual.

Why should country clubs be an extravagant privilege of the prosperous? Why shouldn't everyone in the community, who wants to, belong to a country club? Of course, I should hope that they would become something besides golf clubs and eating places, valuable as these two functions are. Why shouldn't everyone in the community have a restorational recreational group membership also? Why should a relatively few people be permitted to kill off the wild life we all like to see? If people must knock down something, why not more bowling alleys and shooting galleries?

To some extent structure determines custom, as well as custom structure. Why did the Northern Italians suddenly begin to paint in the Renaissance? Why did the Germans suddenly begin to compose music in the 18th century? Who knows what devices and facilities and opportunities spread these things? As Gardner Murphy beautifully and bravely says: "Sandlot baseball, sidewalk hopscotch, and radio mysteries can all give something to the growth of boy and girl; but it is not clear that they necessarily give more to the fulfillment of human nature than many other satisfactions which cover the face of the earth and which have, as a matter of fact, grown like mushrooms when once encouraged . . ." Let me repeat that—*"When once encouraged"!* What would happen if everyone in the community had easy access to a place in which to paint? What if the community would have the courage to believe that it could prevent more crime with youth centers than with jails? What if a city—any city—was to spend one tenth as much on its recreational program as it spends on its police system? Indeed, what if policemen were suddenly to be transformed into guides of public recreation?

I know what you will say: "We are helpless in the face of television. Professional sports have taken away opportunities for athletic play. The parks are ruined by vandals. The community won't support concerts."

And you would be quite right, of course. But these very discouragements are the evidences of a need for something better. And a part of that something better will depend upon the vision of the men who plan the places in which we live and sleep and go to school and shop and work and play. It would be presumptuous, indeed, for me to attempt to give you a specific vision. I can only suggest that you accept the theory of human drives and needs that I have offered, hoping from it that you will be confirmed in a conviction that more provision must be made for the best use of an increasing surplus of leisure time.



Ernest Braun photos

CANYON RECREATION AREA FOR UNIVERSITY

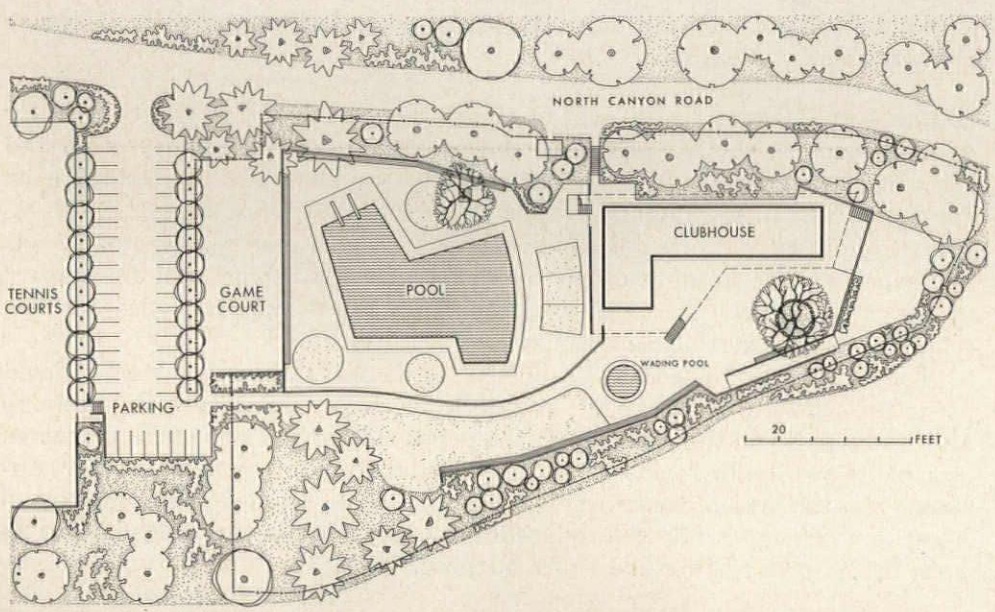
Strawberry Canyon Recreational Area, University of California, Berkeley, Calif. Wurster, Bernardi & Emmons, Architects; William B. Gilbert, Structural Engineer; Daniel Yanow, Mechanical Engineer; Ben Lezin, Electrical Engineer; Woodward, Clyde, Sherard and Associates, foundation engineers; Midstate Construction Co., Contractor

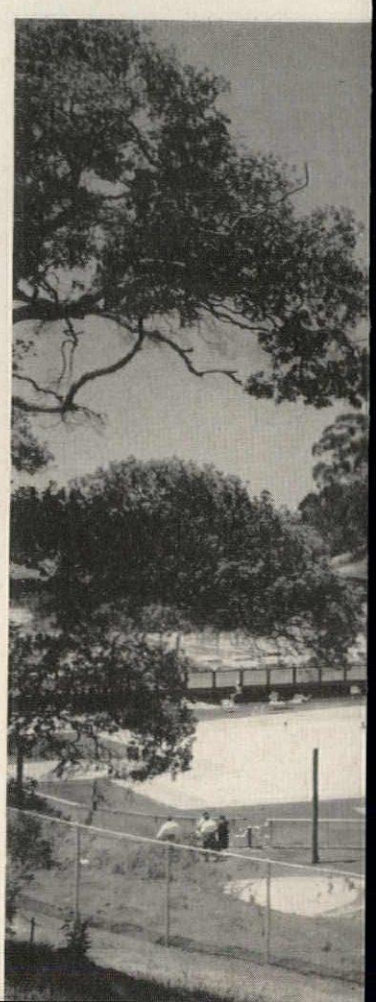
Situated in a canyon to the east of the Berkeley campus of the University of California is this recreational and social center for faculty staff and students, an unusual but important facility because of the reduced area for recreation on the campus proper which resulted from expanding classroom buildings. With its pool and clubhouse, tennis courts and other fields for active sports in addition to wooded trails for hiking and for nature study, Strawberry Canyon Recreation Area offers opportunities for unusually varied leisure-time activity.

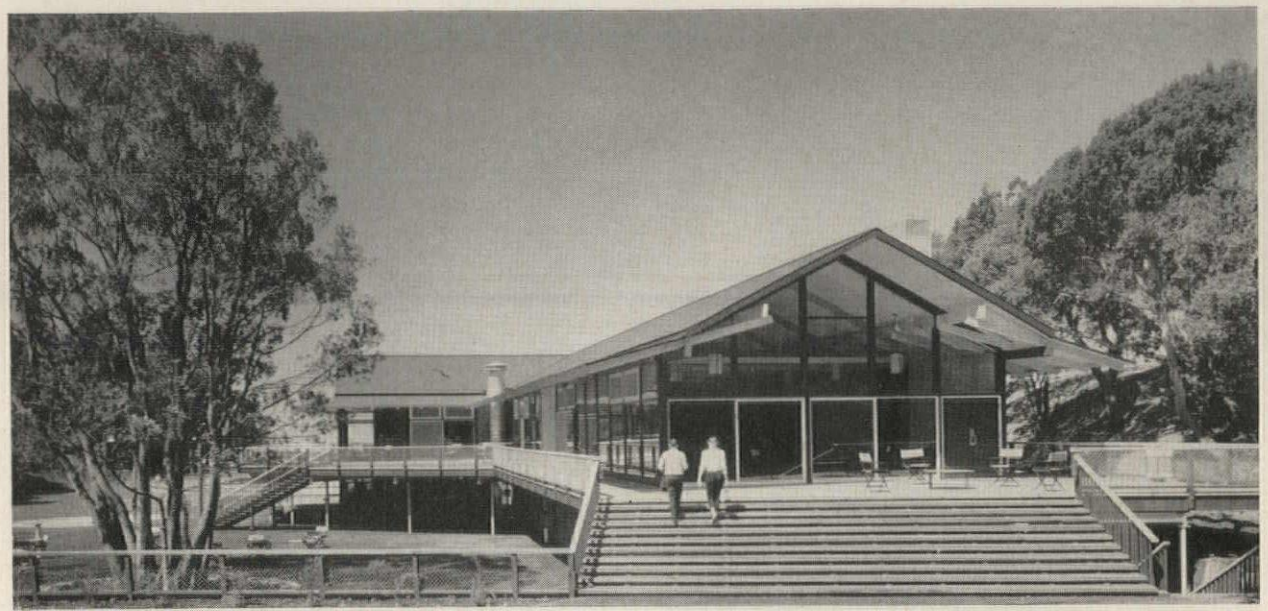
The Walter and Elise Haas Clubhouse, a two-story wood- and steel-framed structure whose wide verandah and deck overlook Lucie Stern Pool on one side and a patio on the other, is on the north side of the site and so receives sun in its two main rooms all day. Its delightful, informal character, enhanced by the low-pitched roof with its separately-framed seven-foot overhang and the integrally-colored reddish plaster walls, fit the building to both the natural setting and to its purpose.

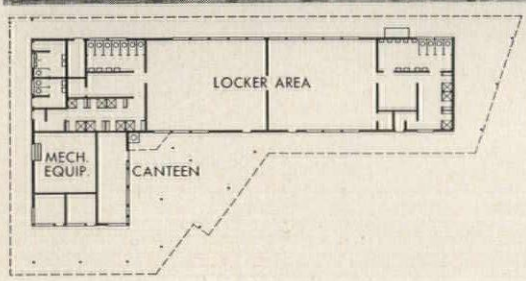
Strawberry Canyon

Canyon site for Recreation Area is one of great natural beauty, with heavily wooded slopes on south, typical California sunburnt hills with occasional small oak trees on north. Landscape and site planning take advantage of this, preserving as many trees and shrubs as possible. Concrete-surfaced veranda and wide deck, used both for sunning and for group entertaining, are supported on steel columns and beams. Snack bar, locker and shower room are on lower level. Further development of site will include additional playing fields and courts to supplement present student athletic program and for recreational use

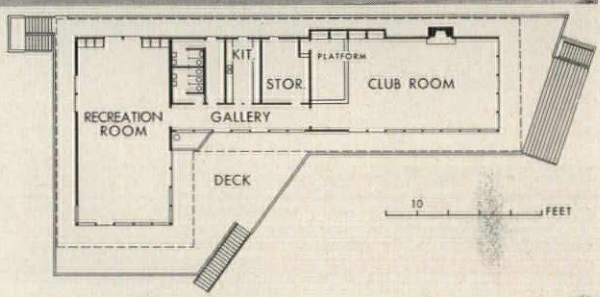




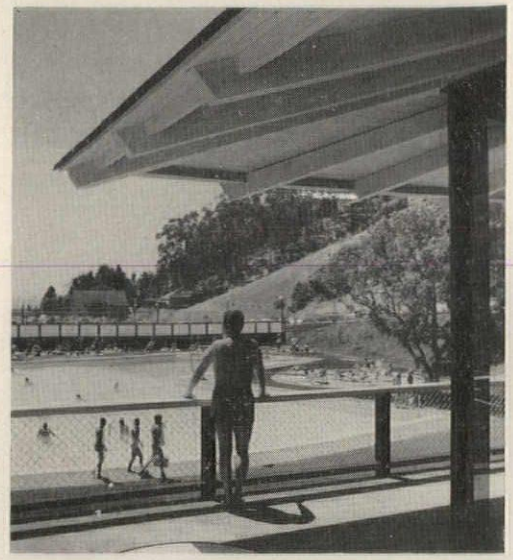




LOWER FLOOR

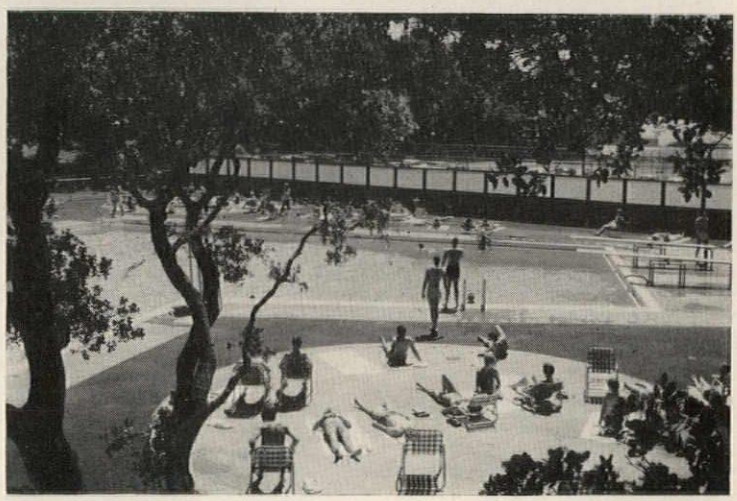


MAIN FLOOR



Strawberry Canyon

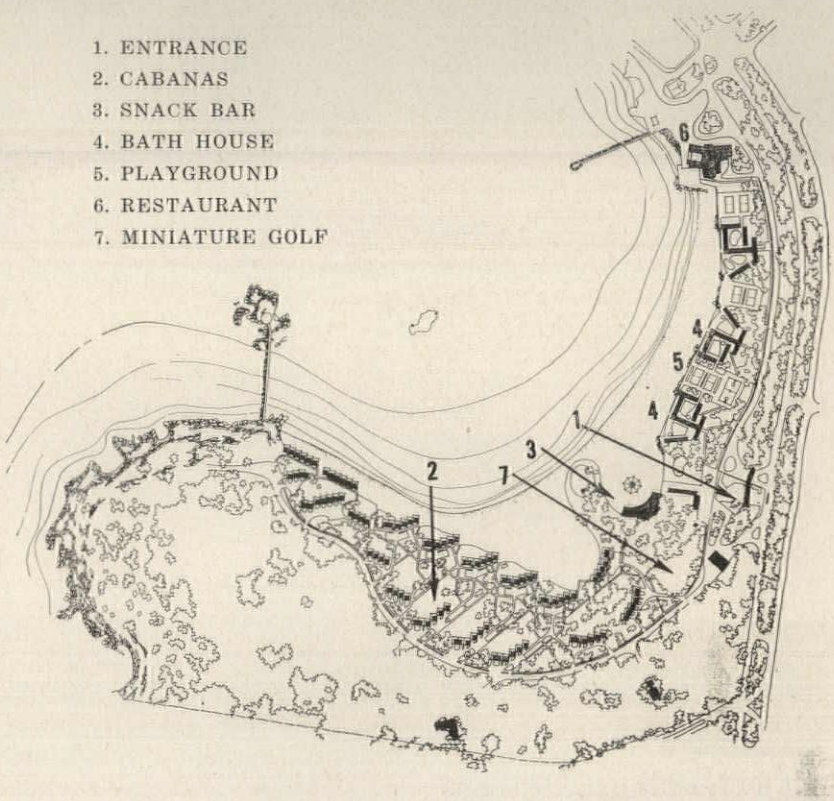
Framing for roof overhang fans out at corners and is exposed on both interior and exterior, making handsome but simple ceiling pattern. Modified Z-shaped pool joins shallow and deep sections in one pool to provide for all degrees of swimming ability. Pool is supported on caissons extending through site's loose fill. Children's wading pool is outside fence enclosing pool. Sunning spots of concrete are set in asphalt paving around pool. For additional lounging, benches are built into retaining wall around area

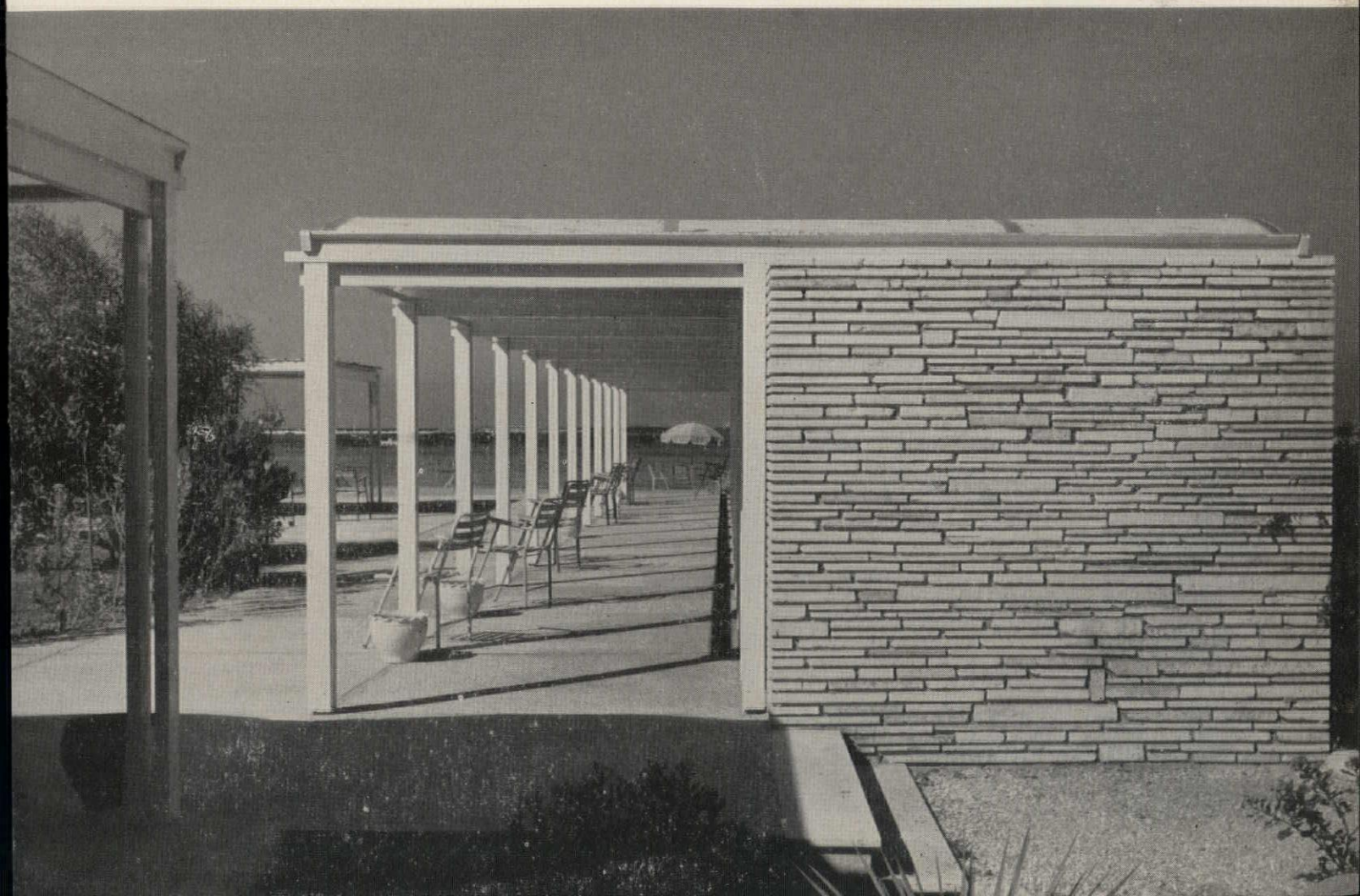


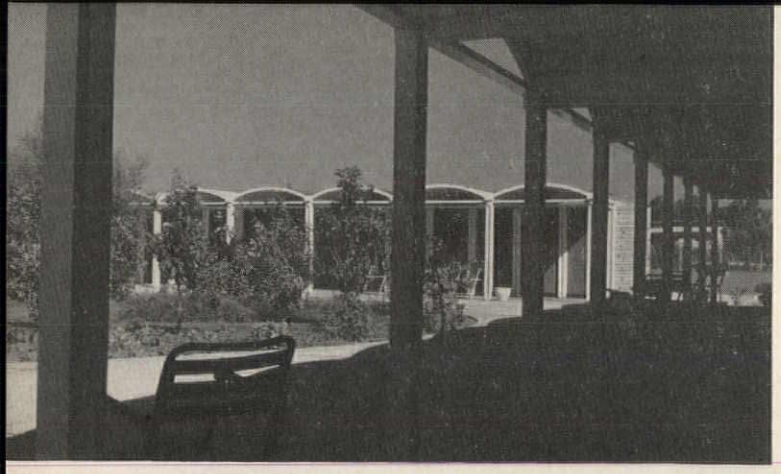
BEACH RESORT NEAR ATHENS, GREECE

Glyfada Lido Beach, near Athens, Greece. P. Sakellarios, P. Vassiliadis, E. Vourekas, Architects

The reconstruction of the Glyfada Lido, completely destroyed during World War II, has already provided luxurious bathing facilities and will, when completed, include also a hotel and 20 furnished bungalows. Notable for its architectural solution, site planning and landscaping as well as for the type and variety of recreational opportunities it affords, Glyfada Lido (beach resort) has become a landmark in contemporary Greek architecture. Particularly significant to younger architects—but also to some of their elders—are its space concepts, freedom from earlier Bauhaus influences and use of light frame construction.

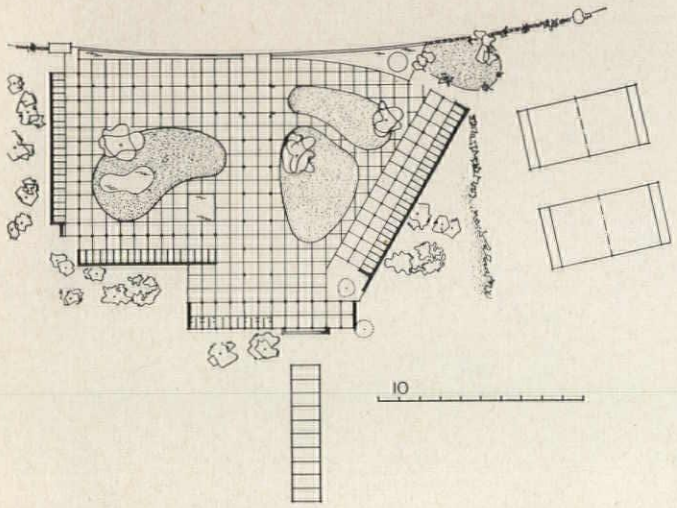


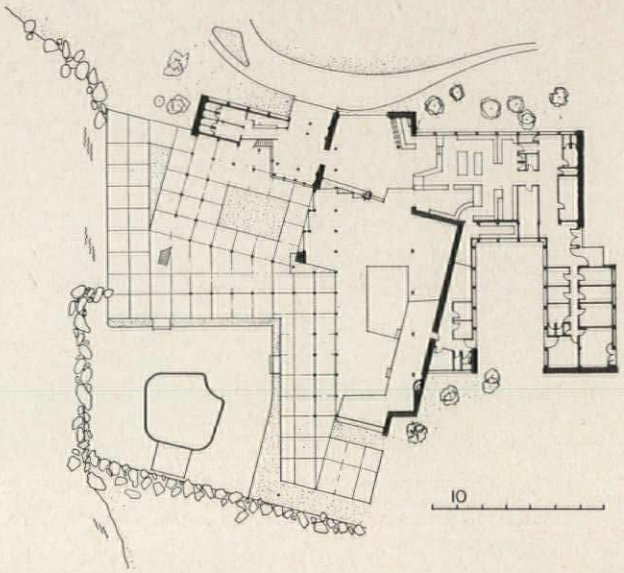




BATH HOUSE

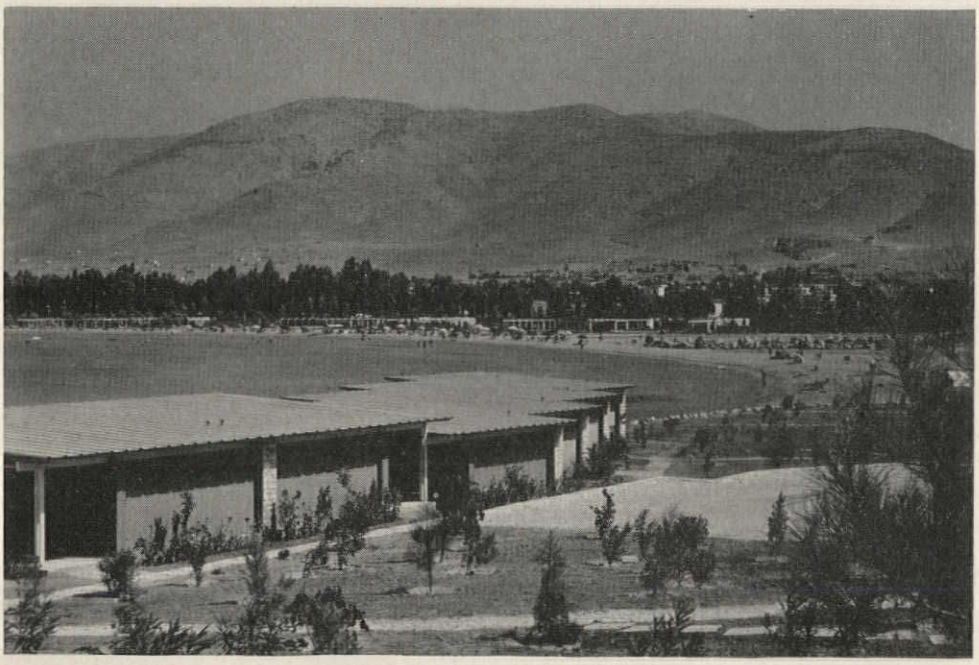
RESTAURANT

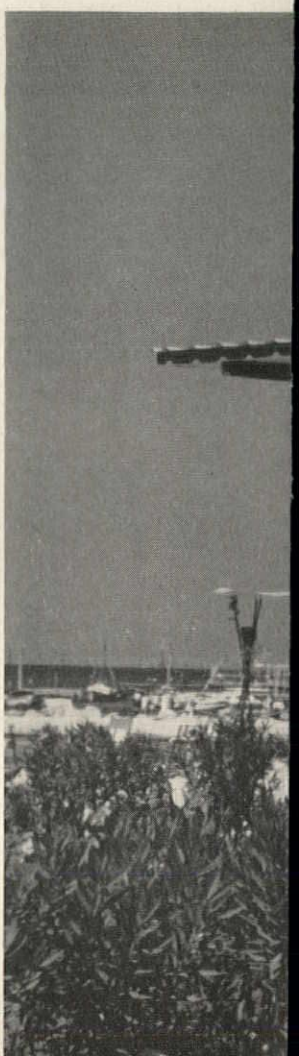




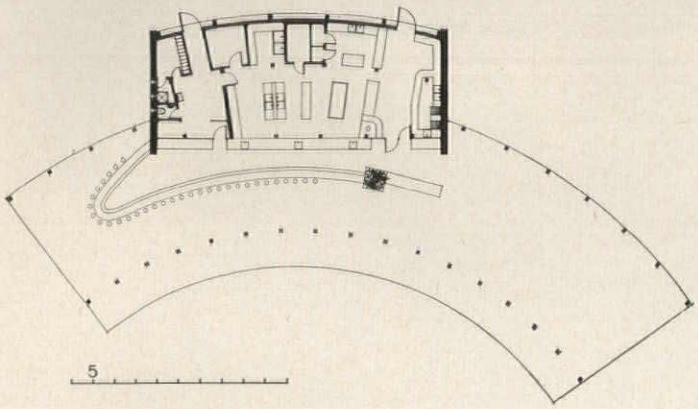
Glyfada Lido near Athens

Delicately articulated light wood members, an unusual structural approach in Greece, are of Swedish fir, unpainted and left to weather in the salt air. Much of buildings' charm and gaiety is due to this light structure and pavilion-like character appropriate to Lido's function; but bath houses, of masonry construction with vaulted roofs, add classic serenity which contrasts with and at same time reinforces holiday atmosphere of other buildings. Glyfada is nearest beach to city of Athens

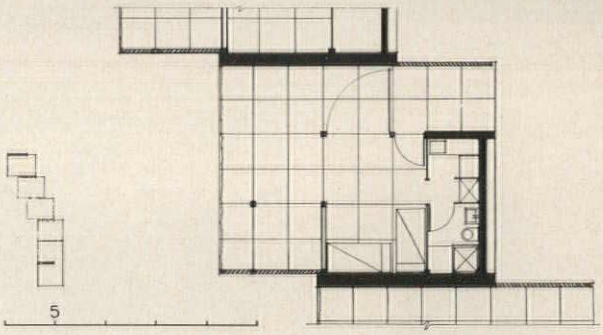




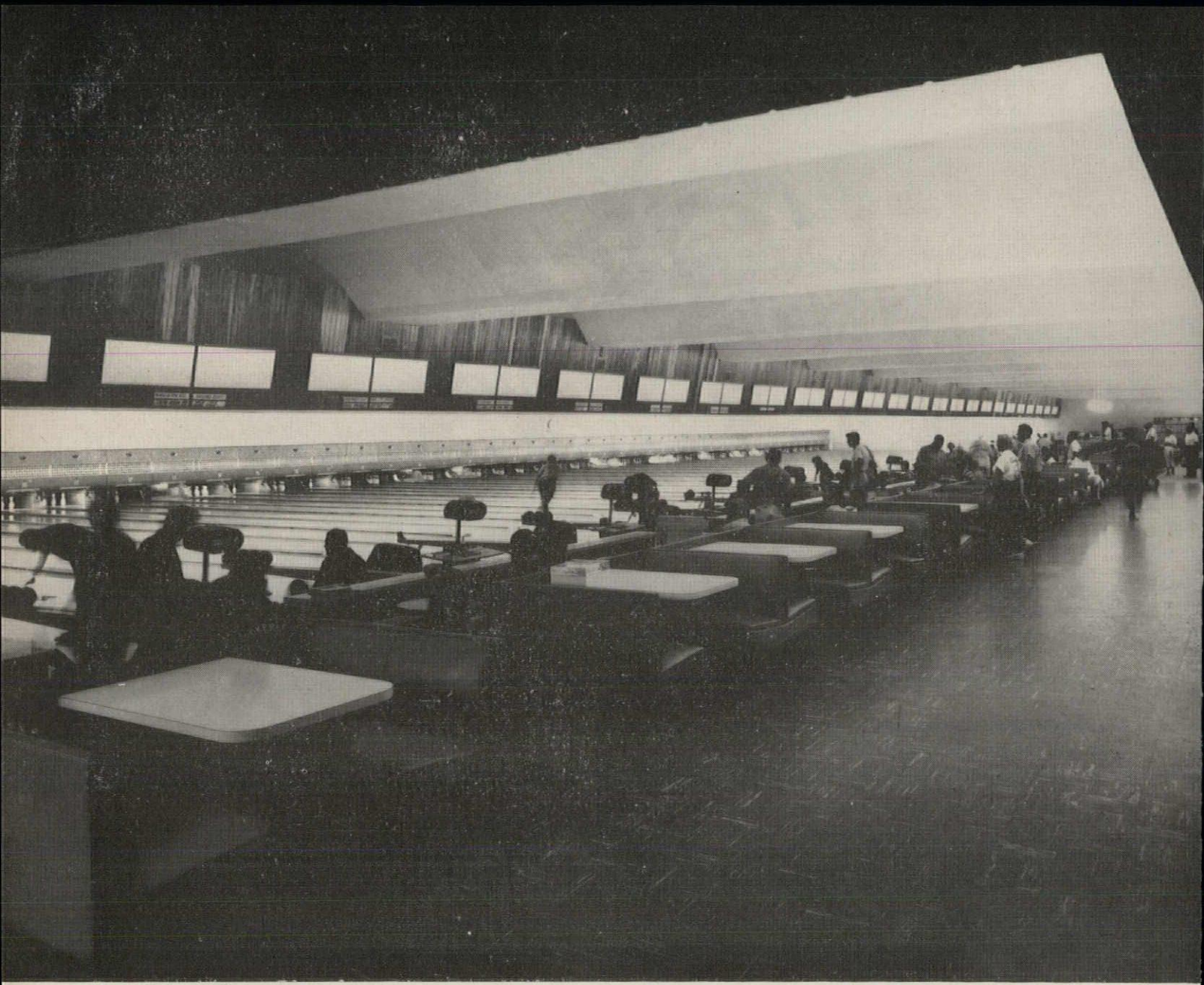
SNACK BAR



CABANAS

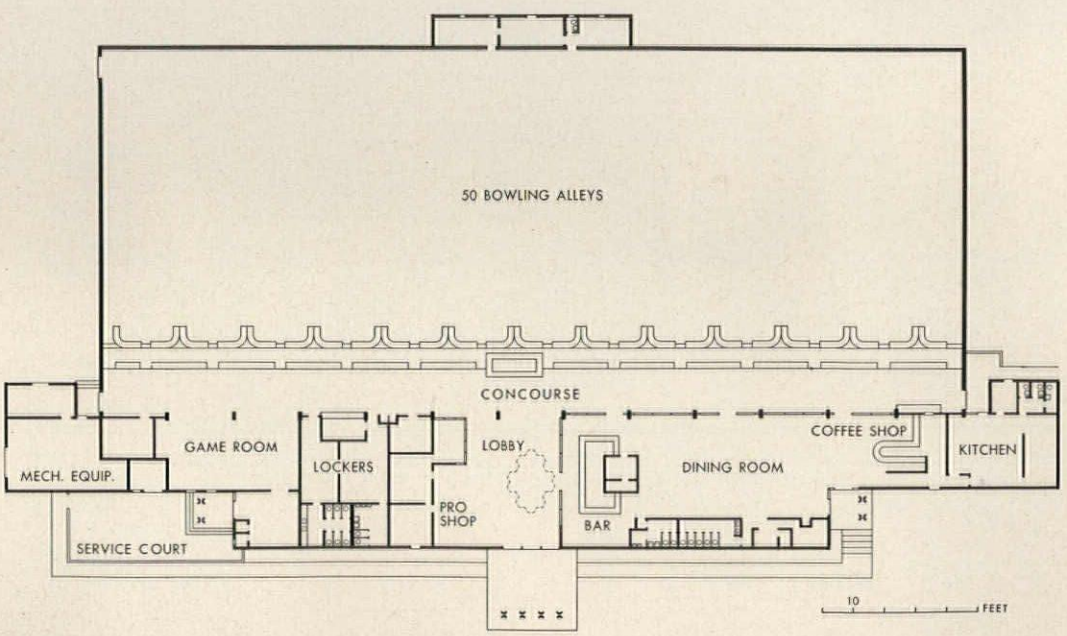


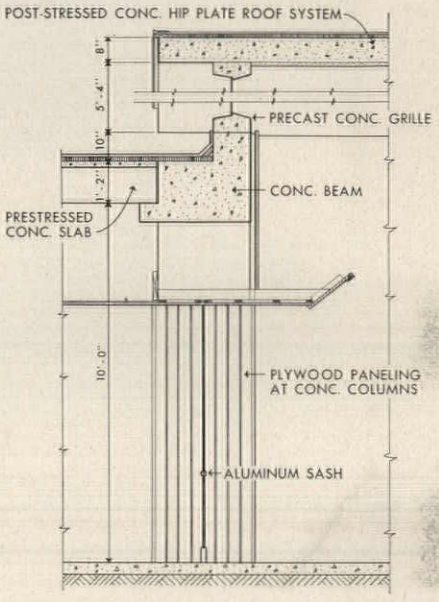
Planning for an Increasing Leisure



Photos © Ezra Stoller

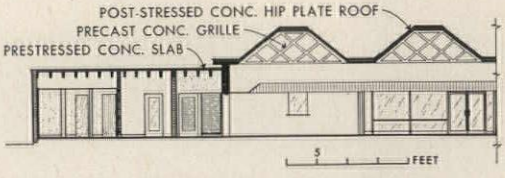
CLEAR SPAN ROOF SYSTEM FOR BOWLING CENTER

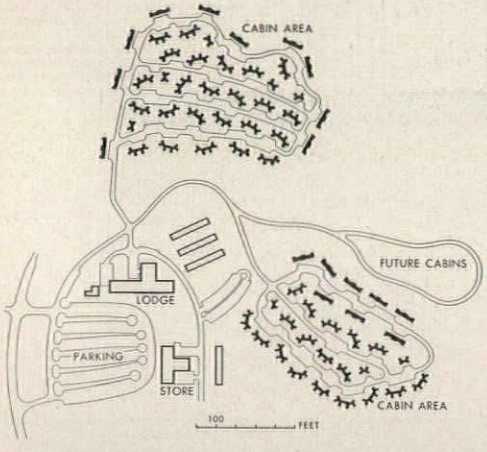




Cloverleaf Lanes, Miami, Florida. Alfred Browning Parker, Architect; Dignum and Associates, Consulting Engineers; John B. Orr, Inc., General Contractor

Although the 50 bowling lanes housed in this building are its principal reason for being, they are only a part of the public leisure-time facilities it offers. Also provided are several dining rooms, a cocktail lounge, billiard room, game room and a nursery for child care. Particularly interesting is the post-stressed concrete hip plate roof system, devised to roof, without intermediate supports, the entire space for the bowling lanes —120 ft across by 290 ft long—and expressive of the building's function. The roof over the restaurant and office area is of prestressed precast concrete sections.

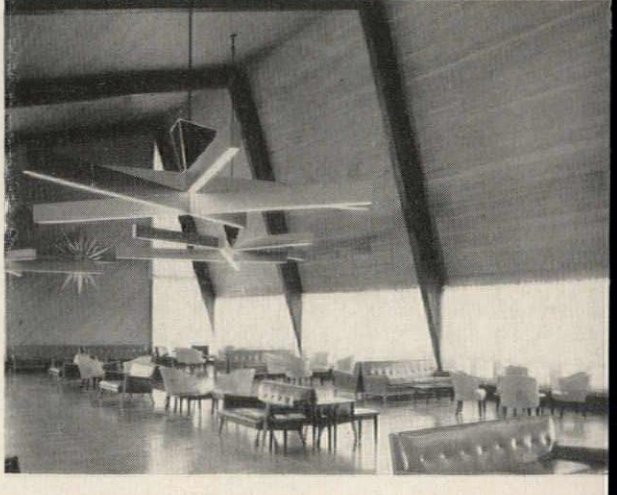




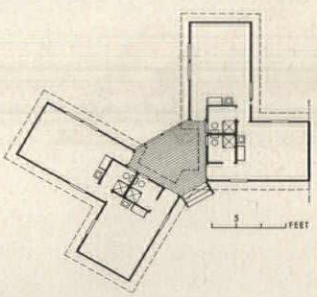
VISITORS' CENTER FOR

Canyon Village, Yellowstone National Park, Wyoming. Welton Becket and Associates, Architects and Engineers; Robinson and Giddings, Structural Engineers; Edward Hill, Jr., Mechanical Engineer; McNeil Construction Company, General Contractors

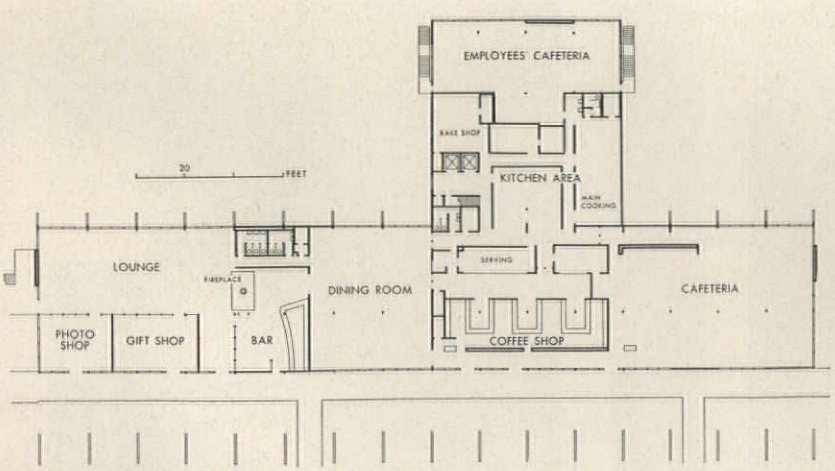
In a separate category from buildings designed to provide the actual facilities for recreational activity are buildings such as the National Park Service's visitors' centers which act as adjuncts to activity. The new visitors' center at Yellowstone National Park, located near the Grand Canyon of the Yellowstone River, replaces older buildings which had encroached on the



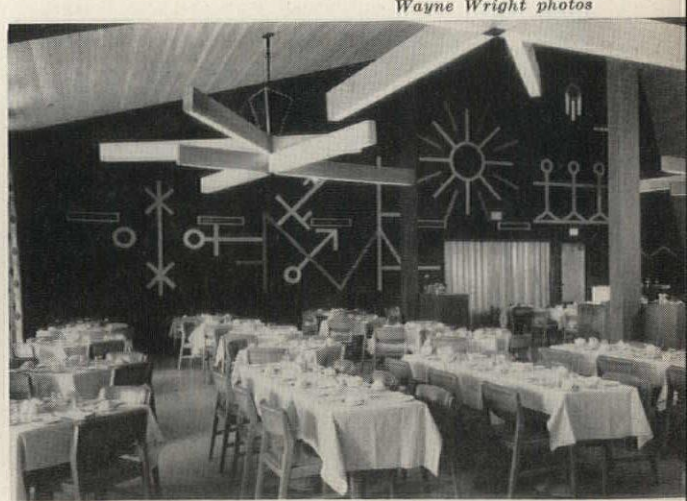
NATIONAL PARK VACATIONERS



canyon's rim as the park's visitors increased in number. The new buildings provide such needed accommodations as the lodge with its shops, lounge and various restaurant facilities (with a capacity of 5000 persons per day), and cabins for overnight or longer sojourns. Since lodge site slopes down from parking area, its lower level, containing service areas and living quarters for employes, receives daylight on three sides. Cabins are arranged in groups of six and eight units.



Wayne Wright photos



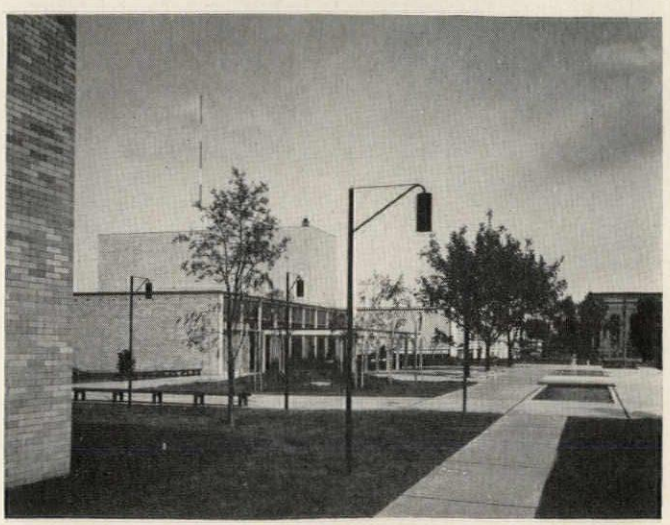
Planning for an Increasing Leisure

Morley Baer photos

LANDSCAPED FOR PUBLIC USE

Washington Water Power Company Office Building, Spokane, Wash. Kenneth W. Brooks and Bruce M. Walker, Architects; Ebasco Services, Facilities Planning; Lawrence Halprin, Landscape Architect; Johnson-Busboom-Rauh, Contractor

Both employes and public enjoy the park-like setting of this large office building whose 28-acre site on the banks of the Spokane River includes a baseball diamond, paved terrace with pools and fountains, and a small lake (which also acts as reservoir for the grounds' sprinkler system). Trees and lawns, with benches for sitting, and paved walks all contribute to the non-commercial, non-industrial environment.



Architectural Engineering

For More Concrete Research

The preceding decade has seen a striking change in the way reinforced concrete is used in U.S. buildings. And the future promises a great deal more if research keeps up at its current heady pace. We are at the crest of a wave of applied research stemming from earlier basic studies, and this will yield expanded and improved applications of shells and prestressed concrete; lighter and more graceful structures designed by the ultimate strength method; extended potentials of precast concrete (through greater attention to factory methods and more efficient connection details); and a more rational approach to safety (load) factors of columns and beams. This crest can roll on until the early 1960's, says Eivind Hognestad, Manager of the Structural Development Section, Portland Cement Association, but we must turn to basic research again if the trend is to continue. Writing in the *Journal of the Structural Division* of ASCE for May, Hognestad cites three possible mileposts for the future: (1) a high-strength concrete which will expand in the solid state to prestress its own reinforcement; (2) space structures which go beyond the modest beginning to date to bring forth unusual combinations of shells, box sections and three-dimensional frames; (3) cellular concrete, light as cork, which would combine durability and insulation in a single skin structure of tremendous span, made up of small factory-produced units.

Miscellany

Anent the Chicago School Fire: To vivify the hazards of unenclosed stairwells for the Philadelphia board of education, the fire department released smoke bombs in a demonstration, and in two minutes corridors were choked off. This was so convincing to school officials that by September they will have 68 schools with unenclosed stairwells fully protected.

We Knew it Would Happen: A Florida manufacturer is now furnishing nine stock sizes of hyperbolic paraboloid umbrellas from 8 by 10 ft to 100 by 100 ft almost on a moment's notice. The h.p.'s don't come ready-made, however, but are built at the site in stock forms.

A Manual of Practice for Consulting Engineers is expected to be available next year. A 50-page first draft which covered steps in performance of services, ethics, recommended fees, standards for office overhead, and employe relations was reviewed at the Consulting Engineers Council annual meeting in New York recently. The final version is expected to be five times the size of the draft.

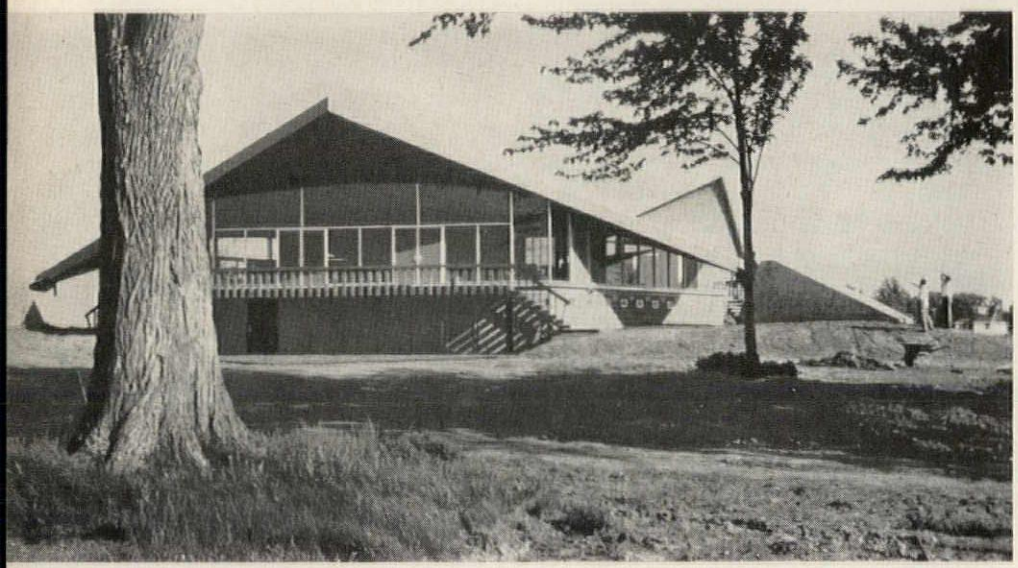
The Chill is Gone: Those raw, foggy nights in San Francisco will not bother baseball buffs in the new stadium for the Giants. The precast concrete seats will have radiant heating beneath them. 35,000 feet of wrought iron pipe will be spaced on 18- to 48-in. centers in a combination grid and coil-type system.

Wash-and-Wear Wood: Scientists at Battelle Memorial Institute think that perhaps the chemistry that produces "wash-and-wear" qualities in your summer suits may give a clue to making wood dimensionally stable, without adding much to weight or cost.

This Month's AE Section

STOCK LUMBER BUILDS BUDGET SHELLS

The wares of the local lumber yard can, it seems, produce forms more plastic than those usually associated with wood construction. On these pages are offered in evidence two hyperbolic paraboloids and one stressed skin star—all low in cost, all easy to build, all wood·



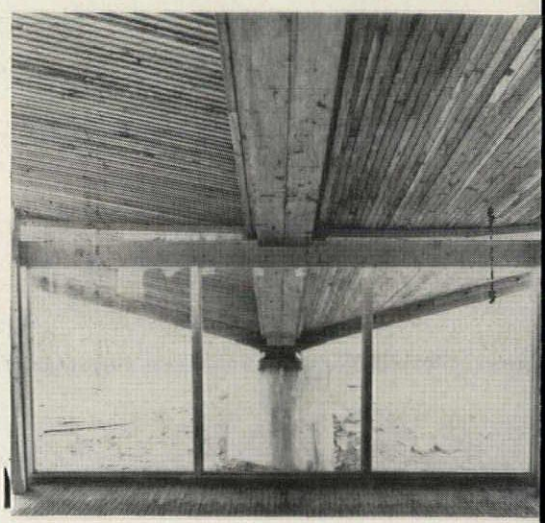
Two-story Massena Country Club is roofed by three hyperbolic paraboloids aranged in a hexagon and supported on concrete piers. Lower walls are masonry; upper walls glass with brightly colored aluminum panels. Sharp definition of each level helps to establish scale

MASSENA COUNTRY CLUB
Massena, New York

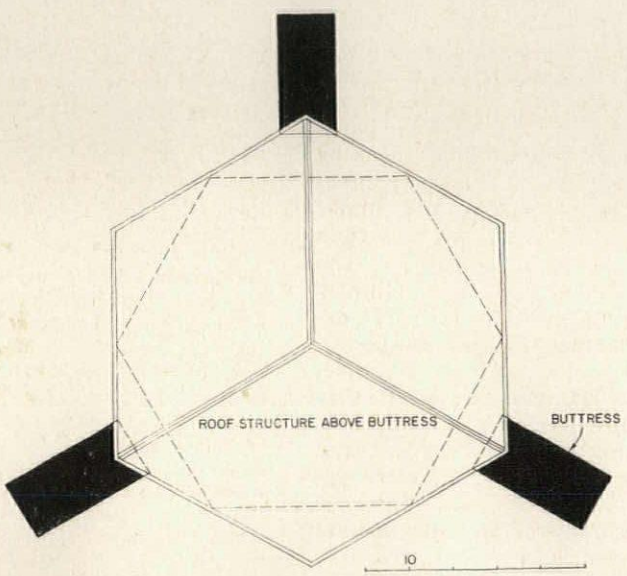
Associated Architects: Victor Prus; Norval White

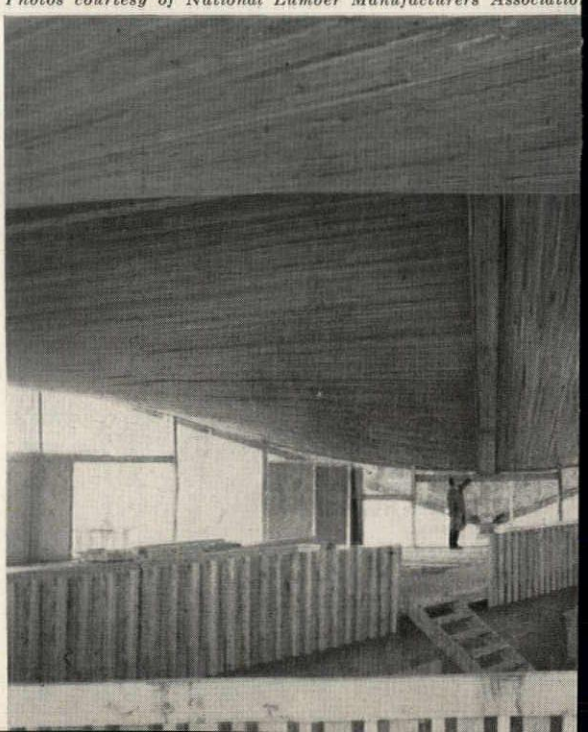
Consulting Engineers: Robert P. Levien (Structural); Sidney Barbanel (Mechanical)

Although the Messrs. Prus and White admit that geometry is a favorite subject, the hyperbolic paraboloidal roof over the Massena Coun-



Photos courtesy of National Lumber Manufacturers Associatio





try Club is no structural tour de force—unless building hyperbolic paraboloids with two by four's and without scaffolding can be so considered. The tour de force, if any, lies in the cost figures. An exact per-square-foot price for the roof is difficult to sift from the general contract, but all parties concerned agree that it cost substantially less than a similar span built by conventional methods.

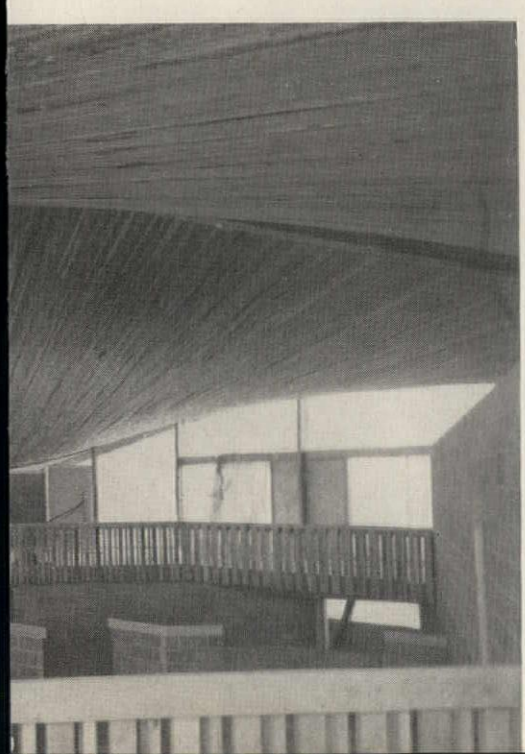
The initial choice of the hyperbolic paraboloidal roof stemmed primarily from two factors. The site, surrounded on all sides by the golf course, called for a centric building that would capitalize on the view; the members of the club, serious golfers all, called for a simple, informal nineteenth hole that would house such necessary facilities as locker rooms and a bar. (A kitchen was later added to their program.) So the architects emerged from their preliminary studies with a pavilion-like structure roofed by three hyperbolic paraboloids arranged in a scalloped hexagon. This choice was confirmed when they hit on a method by which the roof could be formed with almost do-it-yourself simplicity by local carpenters using stock lumber.

According to White, the use of two by four's for the warped surfaces of the hyperbolic paraboloids was "obvious"—although it has not, to his knowledge, been done before. Wood, a native material, was appropriate to the site. Two by four's were cheap and readily available. But more important, the long, thin strips of lumber could be laid so that they themselves conformed to the basic straight line geometry of the hyperbolic paraboloid, forming the warped surfaces directly rather than by the usual procedure of fitting a wood membrane over an elaborate—and costly—scaffold.

The roof framing began with the erection of the laminated edge beams, each 19 in. deep, 7½ in. wide and some 53 ft long. The three pairs of edge beams along the inner edges of the adjacent "saddles" of course formed a stable tripod, meeting the ground via welded shoe connections attached to heavy concrete piers, and rising to a 30 ft peak at the apex. The outer edge beams, however, were supported on a scaffolding until they were stabilized by temporary cables stretching from the center peak to the high points along the perimeter.

The membrane was then formed by simply stacking the 2 by 4's on edge, parallel to one of the outer edge beams in each "saddle," and gluing them together with an epoxy resin. (Nails were used only to clamp the members together while the glue set.) Since the lumber came from the yard in standard short lengths, it was glued end-to-end as well as lengthwise across the span. The members at the ends of each row were also glued and bolted to the edge beams.

Because the "sides" of each panel slope in opposite directions, the 2 by 4's rotate enough to reduce the effective membrane depth to just under three inches—half an inch less than the actual depth of the lumber. The same rotation produces a slightly serrated surface, which was left exposed on the interior. On the exterior, the roof was covered with a protective compound consisting of tiny flecks of aluminum foil suspended in a base of highly-refined asphalt and non-drying oils. Two coats were applied, the first directly onto the roof and the second over an intermediate layer of cotton cloth.



This one-story addition to the Henry Strub house in suburban Montreal, Canada, was designed by Victor Prus to provide general living quarters for a large family so that the adjacent two-story house could be converted to a "dormitory." Its roof was built in substantially the same way as the one for the Massena Country Club, with intersecting hyperbolic paraboloids made up of short strips of stock lumber. However, there is one unique difference. Since 2-by 3-in. members, the smallest size practical, gave a membrane depth greater than the short spans required, some of them could be left out of every other row. This was done in the three panels over the living room and the resulting lacy pattern emphasized by covering this section of the roof with a translucent polyester glass fiber resin instead of the opaque roofing used elsewhere

Stock Lumber Builds Budget Shells

Prefabricated segments of stressed skin plywood are bolted together on the site to form a fanciful four-pointed star that is also strong, lightweight—and economical

CHILDREN'S THEATRE
Arroyo Viejo Recreation Center
Oakland, California

Architect: Irwin Luckman

Consulting Engineer: Allen McKay, Berkeley Plywood Company

The bilaterally symmetrical star that roofs this children's theater is the result of architect Luckman's attempt to devise a form that would appeal to pintsize theater-goers without being representational. (Tudor castles, he feels, are appropriate for knights and ladies—but not for children.)

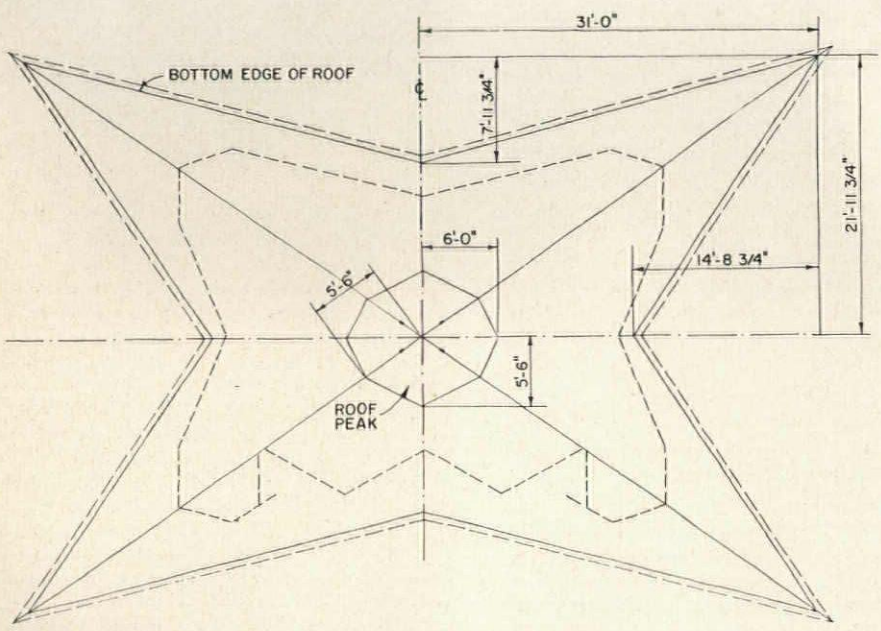
It is also the result of the application of one of the newer techniques of wood fabrication: stressed skin construction. The most obvious advantage of a roof built along the lines of an airplane wing is that the hollow sections can be shop fabricated, thus eliminating scaffolding and other costly impedimenta of building in place. But, equally important, stressed skin construction is also a relatively simple way of producing complex shapes with maximum strength and minimum weight.

In this case, minimum weight was of more than ordinary importance because the theater was built on the site of an existing amphitheater which featured, among other things, a running creek where the stage should be. The use of a lightweight structural system greatly simplified the problem of building the theater across the 16½ ft gap without reinforcing the existing retaining walls.

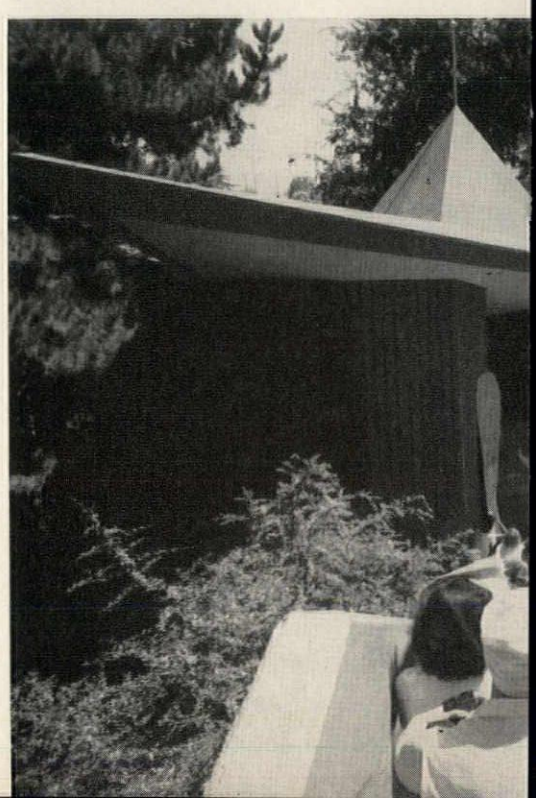
The eight roof sections, each pair of which forms one point of the star, were framed of 2 by 3's and 2 by 4's with plywood gussets. Three-eighths inch fir plywood was also used to panel the top and the underside. After the sections had been assembled at the Berkeley Plywood Company's local plant, they were set up on the ground and temporarily bolted together for final fitting. The roof was then trimmed and disassembled into four double sections, each measuring about 22 by 38 ft and weighing close to a ton. These were moved to the site with the help of a police escort and flat bed trucks.

There they were hoisted onto eight 3½ in. o.d. steel pipe columns—four at the inner hub of the star and four midway out beneath the bottom ridges of the double V'd roof. Bolted together, the sections formed a rigid, lightweight, four-winged structure which was topped with a plywood cupola "for fun." The building was then enclosed by freestanding, redwood-paneled stud walls. At the corners, the walls also serve as shear panels, reinforced by a plywood diaphragm under the siding.

So that its lines would not be marred by ridges of built-up felt roofing, the top of the star was covered with glass cloth embedded in an asphalt emulsion. The underside was painted with textured paint.



ROOF PLAN



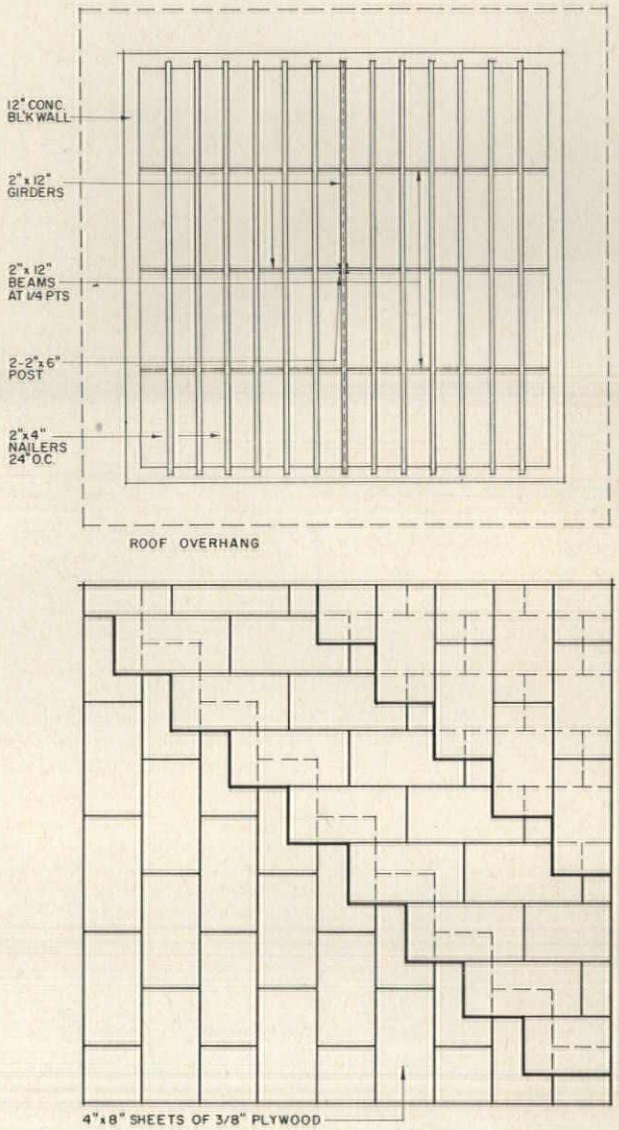
A LUMBER STOREHOUSE
New Hope, Pennsylvania

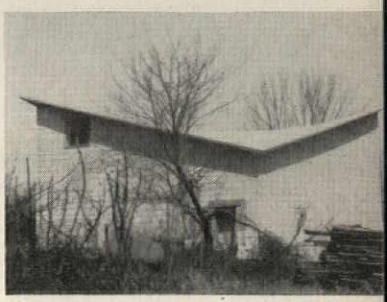
Designer: George Nakashima
Consulting Engineer: Paul Wiedlinger

A storage shed would seem an unlikely candidate for architectural innovation, but this one became the guinea pig for (another) new method of constructing a hyperbolic paraboloid; this time of three layers of ⅜ in. plywood laid over two by four nailers. Designer-owner Nakashima calls the system "perhaps the easiest and cheapest way to roof a clear span of this size (31 ft square) or bigger."

The twelve-inch concrete block walls that enclose the shed also support the hyperbolic paraboloid, with an 8-ft rise on each side following the reverse twist of the roof. The triangular gaps in the stepped block walls are filled in with reinforced concrete "beams," warped to follow the contour of the roof. When capped with a 3- by 8-in. plate, these beams provided a smooth slope to which the membrane could be attached.

The membrane itself was formed over a scaffold of 2- by 12-in. girders that divided the building into quadrants, with beams at the quarter points in one direction only. This framework was supported on a post in the center and on simple props at the walls. (Since it carried only its own weight after the roof was in place, it was taken down as easily as it was put up—by simply knocking out the center support.)

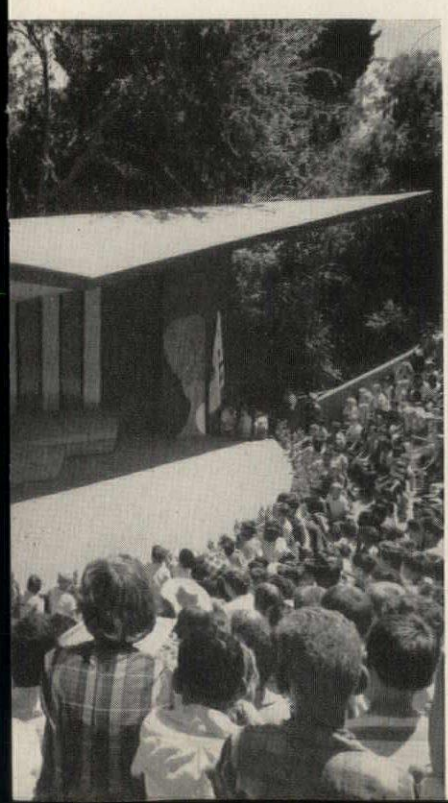


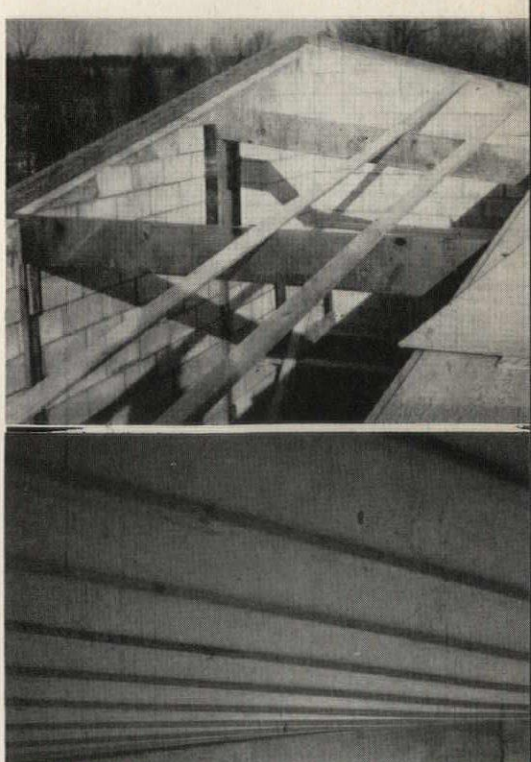


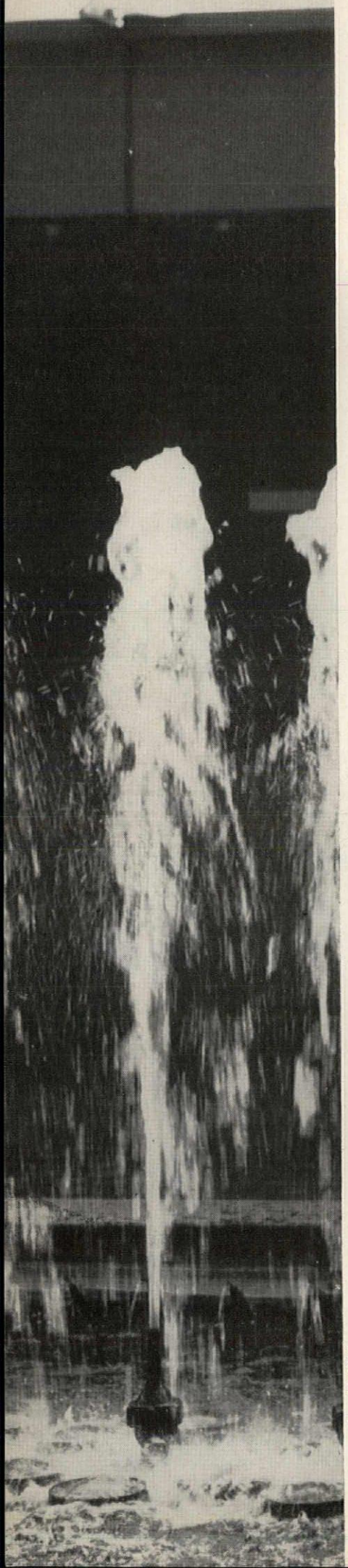
The extremely thin (1⅛ in.) hyperbolic paraboloidal roof on the storage shed shown above is notable for its economy and ease of construction. Made up of three layers of plywood joined in a continuous membrane, it was formed over the minimal scaffolding diagrammed at left. The roof is nailed to a plate along the tops of the sloping walls, which serve as both supports and edge beams. Since the block walls were designed for shear, with mesh reinforcing laid in every other course and vertical rods grouted in at the corners, no tie rods were necessary. The finished membrane was topped with a 20 year built-up roof with white chips and aluminum flashing

Over it went the 2- by 4-in. nailers, laid flat on 2-ft centers perpendicular to the beams, and the three layers of plywood. The first layer was laid parallel to the nailers; the second in the opposite direction, with all joints broken; and the third in the same direction as the first—again with all joints broken. Each successive layer was screw nailed to the two by four's and to the plate along the top of the walls with 8d galvanized nails on three-inch centers; and, in addition, the joints in the second and third layers were screwed to the sheets of plywood immediately below.

The extreme rigidity of the thin (1⅛ in. thick) roof is attributed to this method of overlapping and joining the layers of plywood so that they form, in effect, a continuous membrane. To maintain a straight roof line, the membrane was stiffened with a 2- by 3-in. strip nailed under its edge where they overhang some 18 in. from the walls.







Photos: Ronald Binks

ENGINEERING OF LIGHTED

By ROBERT E. FAUCETT

Senior Application Engineer
Outdoor Lighting Department
General Electric Company

Still water acts as a mirror and will reflect clear images of lighted objects. When churned into spray and foam, water is an excellent diffuse reflector and will absorb incident light and will appear to change color to match that of the light.

A single jet may be made attractive by installing directly beneath it, in a suitable water-tight enclosure, a narrow beam of light projecting along the stream.

In the case of more complex displays, the effects which may be obtained by varying water flow, number of in-service jets, and colors of light are unlimited.

The fascinating interplay of changing water and color effects produces an eye-catching and extremely enjoyable display at almost any location. Because of their wide appeal, illuminated fountains are finding new and ever-increasing applications in shopping centers, hotels, industrial plants, airports, etc.

While there are articles on the general architectural design of fountains there seem to be no treatises on engineering aspects of the proper light color balances, and hydraulics involved to produce the desired result.

The same fundamentals of lighting and hydraulic design are applicable in all fountains regardless of the general pool appearance, sculpture or ornamental treatment. The color, light distribution, placement and final aiming of the floodlights must, of course, be selected with care to produce the desired result.

FLOODLIGHTS

Attempts have been made to illuminate sprays and jets of water from floodlights operating in air as well as under water. Although the initial investment is usually less, the results are generally less desirable if the lighting units are located in air projecting their light onto the surface of the water element. The reasons are:

1. With floodlights in air, remote from the fountain, spray, fog, and turbulent water tend to reflect the major portion of the incident light back toward the direction from which it is received. An observer should then be behind the projector for best effects. With underwater floodlights, light follows streams of water in a "capillary" fashion so that the entire stream appears self-luminous.
2. As in any floodlighting application, the lighting units should have maximum concealment. Underwater is best location.
3. If observers view the fountain from positions diametrically opposite from the floodlight location, they then view the light sources directly as well as reflections from the pool surface. This limits the total viewing areas to those places where the sources and reflections cannot be seen. Any observer position is possible with underwater lights.
4. The electric branch circuits must be longer to feed all floodlights, than when the units are closer together as would be the case if they are submerged. This increases wiring labor costs and line losses.
5. Lower wattage lamps must be used if floodlight units are operated in air. Submerged operation provides greater heat dissipation, thereby permitting higher wattage lamps to be used. This is a tremendous advantage, especially when colored door glasses are used.

When wide area water effects are to be lighted such as water curtains, sprays and jet rings, then wider beam spread floodlights should be used. Narrow beams are needed to adequately illuminate high projected streams. The same basic rules are applied here in the selection of beam spreads as are advocated for any floodlighting design.

The cascade formed by water spilling over the lip from an inner basin can also be effectively lighted by installing colored lamps under the lip. The lip should be designed so as to churn the curtain of water thereby making it turbulent and diffuse in appearance. If incandescent or other relatively small sources are used, their spacing around the basin should not exceed their distance back from the waterfall. For maximum uniformity in apparent brightness, fluorescent strips are recommended in this application. Regardless of what lamps are chosen they should be mounted in waterproof sockets so as to minimize maintenance.

FOUNTAINS

For fountains to perform as visualized, certain fundamentals of hydraulics and lighting must be observed. First, the water should have enough force and volume to produce the desired result. Effective lighting calls for attention to light distribution, color balance and floodlight placement. To illustrate these principles, an example is given on the following pages and in Time-Saver Standards. Several case histories will follow in later issues.

LAMPS

Either soft or hard glass can be used in floodlighting equipment. Hard glass lamps are recommended where they are likely to be exposed to water or moisture (a potential cause of breakage). Also, in enclosures where very high temperatures prevail, hard glass will tend to blister less. Therefore, it is generally recommended that hard glass lamps be used in floodlights associated with the lighting of a fountain.

COLOR FOR FOUNTAINS

It is well known that color may be obtained by passing white light through a glass, plastic or gelatin filter. The transmittance of filters usually falls within the following ranges when used with incandescent lamps:

1. Amber 40—60%
2. Red 15—20%
3. Green 5—10%
4. Blue 3— 5%

The table below indicates the factors by which incandescent filament lamp wattage must be increased when it is desired to provide equal illumination in white and color. Relatively less colored light than white light is needed for equal decorative effect or impact. The second line of this table gives factors by which clear-bulb incandescent lamp wattage must be multiplied in order to achieve decorative effect or impact in color equal to that obtained with a given wattage of white light.

To compensate for the absorption of various color filters, multiply white lamp wattage by following factors:

	Amber	Red	Green	Blue
Equal Illumination	2	6	15	25
Equal Effect	1.5	2	4	6

White and amber light must be used with extreme caution if they are to be used in combination with each other or other colors. White and amber have a tendency to wash out other colors and unless the installation is of sufficient magnitude to allow for additional color selections, including red, blue and green, they had best be avoided. However, if no changing colors are required then either white alone or amber alone makes an extremely attractive display.

If a medium sized fountain, say with 12 underwater floodlights (each with 400 watts maximum rating, is required to have color change then the following color combination might be suggested:

a. 3 blue wide beam
400 w floodlamp
b. 3 green wide beam
250 w floodlamp
c. 3 red wide beam
250 w floodlamp
d. 1 blue narrow beam
400 w floodlamp
e. 1 green narrow beam
250 w floodlamp
f. 1 red narrow beam
250 w floodlamp

Three narrow beam units are specified here in anticipation of there being a high projected stream of water to be lighted.

The total connected load here is:

a. blue 1600 watts
b. green 1000 watts
3. red 1000 watts

It is noted here that the ratio of

Fountains above and across page: Roosevelt Field Shopping Center, I. M. Pei and Associates, Architect; Syska and Hennessy, Consulting Engineer

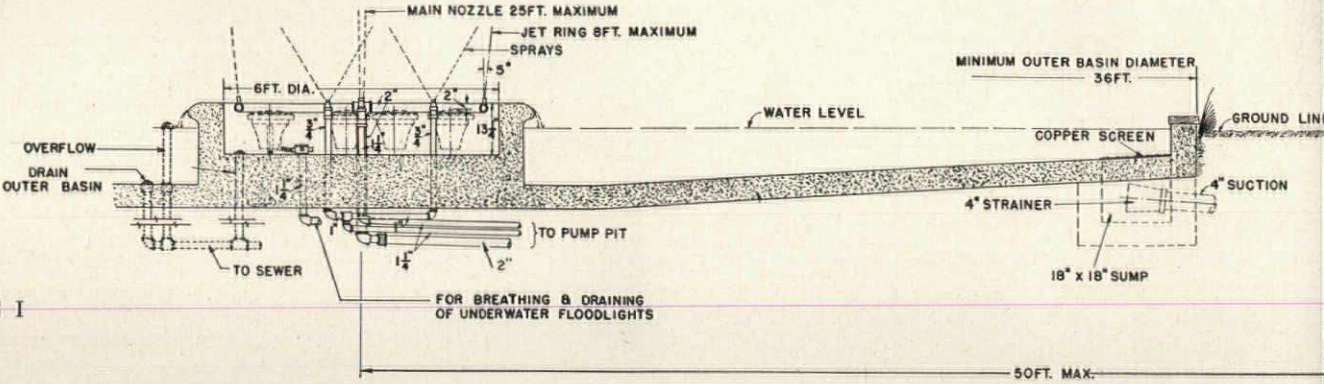
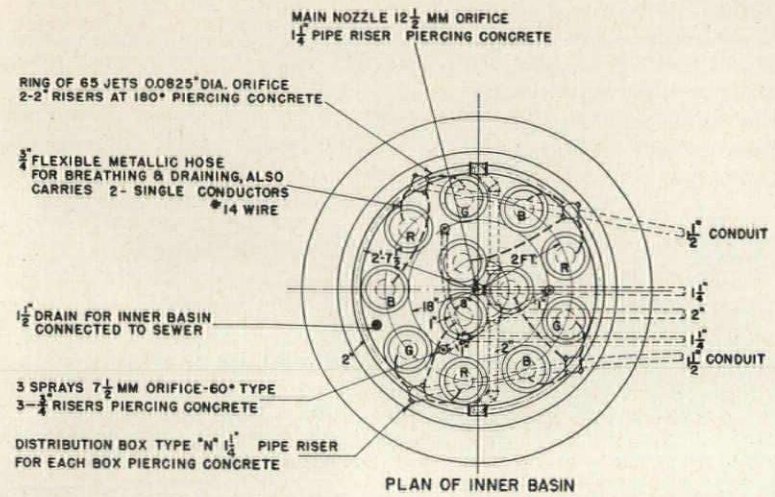


FIGURE I



Outer ring of floodlights: 3 Blue 400 w; 3 Green 250 w; 3 red 250 w
Inner floodlights: 1 Blue 400 w; 1 Green 250 w; 1 Red 250 w

blue watts to green watts practically agrees with the table. However, the red watts is greater than required. This has been done for practical reasons. The maximum size allowable lamp (400 watts) is being utilized in the blue floodlights. The smallest floodlighting lamp listed as standard in manufacturers' catalogues is the 250 watt size. Of course, smaller wattage lamps of a different type could be used in the red floodlights; however, standardization is recommended wherever possible for ease of maintenance and stocking purposes.

HYDRAULIC CONSIDERATIONS

Let us assume that the problem is to design a 12-projector fountain with three water effects such as is shown in Figure 2. These effects are to be (a) a center nozzle projecting approximately 25 ft high, (b) a ring of 65 small jets forming a "sheath of wheat," (c) three sprays and (d) various combinations of the foregoing.

Each of the water effects is to be controlled by some automatic programmer which operates either a solenoid valve or motor-driven device which turns the water on and off.

The device chosen to operate the control valves should be capable of operating for several years with little maintenance in a humid atmosphere such as is often found in pump vaults. Also, it is extremely important that the mechanism which operates the valves act in a uniformly smooth manner so as to prevent water hammer. (See appendix)

DETERMINING PUMP AND MOTOR SIZE

In order to determine pump and motor capacity required, it is necessary to determine total water flow, pressure required and all friction losses.

If we have sufficient pressure-head (PH) to provide the highest projection height then we have all the pressure that is required to provide all other water effects (assuming that the highest water projection comes from the largest diameter nozzle).

Consider the fountain design shown in Figure 1. This includes water effects of Figure 2. These water effects are produced from a 12½ mm center nozzle, three 7½ mm center spray nozzles, and a 65-jet "sheath of wheat."

By extrapolating from the graph in the Time-Saver Standards, page 227, it can be seen that the pressure-head required to project a stream from a 12½ mm fire nozzle 25 ft straight up is approximately 16.6 psi or requires a PH of approximately 38.2 ft (psi x 2.31 = head of water in feet). It is justifiable to round off this 38.2 ft of PH to 40 ft giving a small safety factor. This means that if we have sufficient pressure at the pump to overcome all friction and other losses and still have 40 ft of head at the main nozzle, we would then have adequate pressure at all other smaller nozzles to project water to lower heights.

In order to determine total head (TH) to be developed by the pump it will be necessary to calculate what is known as total dynamic head (TDH).

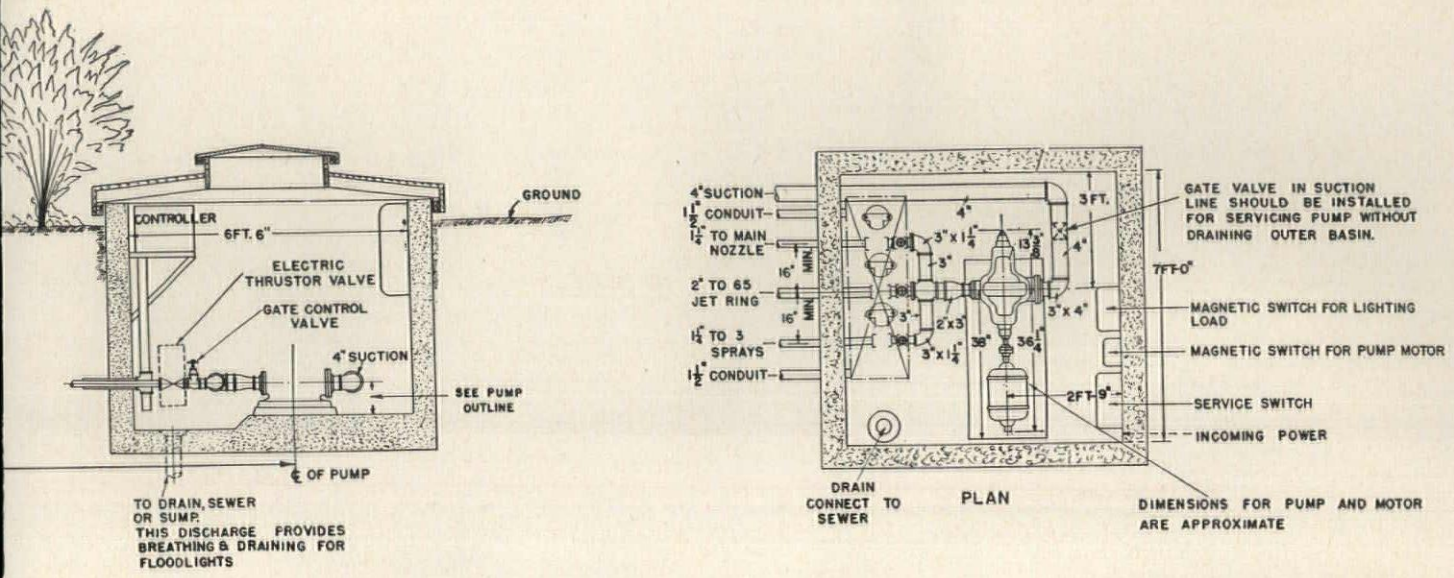
TDH consists of the following elements: (a) elevation or static head, (b) friction losses in pipe, fittings, valves, etc., (c) velocity head.

The elevation or static head is the net difference in elevation between the free level of the water to be pumped and the highest elevation to which the water must be pumped before being discharged from the nozzle, as measured from the center line of the pump. In the case of Figure 1 we have approximately 3½ ft of head on the suction side of the pump (this assists the pump). But note that we have approximately 4½ ft of elevation from the pump to the nozzles. Therefore, the net elevation or static head is approximately 1 ft. The head required to be produced by the pump would have to be larger by this amount.

The friction losses in the pipe are determined by the size and length of the pipe as well as rate of flow of water.

Before actually determining friction losses in the pipe itself it is convenient to convert all fittings, valves, etc., into equivalent lengths of pipe. Then, by adding this equivalent length of pipe to the actual length of pipe, and knowing the rate of flow of water the loss of head in feet due to friction can be determined by referring to standard friction tables.

Let us calculate the friction losses in the piping which feeds the main



nozzle (Figure 1). Tracing the water feed from the suction line we have successively:

a. strainer
b. 32 ft of 4-in. suction line
c. 4-in. manual gate valve
d. 4-in. by 3-in. reducing elbow entrance loss (equivalent to 4-in. elbow plus a 4-in. to 3-in. reducer)
e. pump
f. 2-in. by 3-in. enlarger coupling discharge loss
g. 3-in. tee (effectively)
h. 3-in. elbow
i. 3-in. by 1¼-in. reducer
j. 1¼-in. manual gate valve
k. 1¼-in. thruster operated gate valve
l. 50 ft. of 1¼-in. pipe
m. 1¼-in. elbow
n. 3 ft of 1¼-in. pipe
o. 12½ mm nozzle

It can be shown that the equivalent lengths of pipe for these 4-, 3-, 2- and 1¼-in. fittings total 82.9 ft, 5.2 ft, 3.5 ft, and 58.8 ft, respectively.

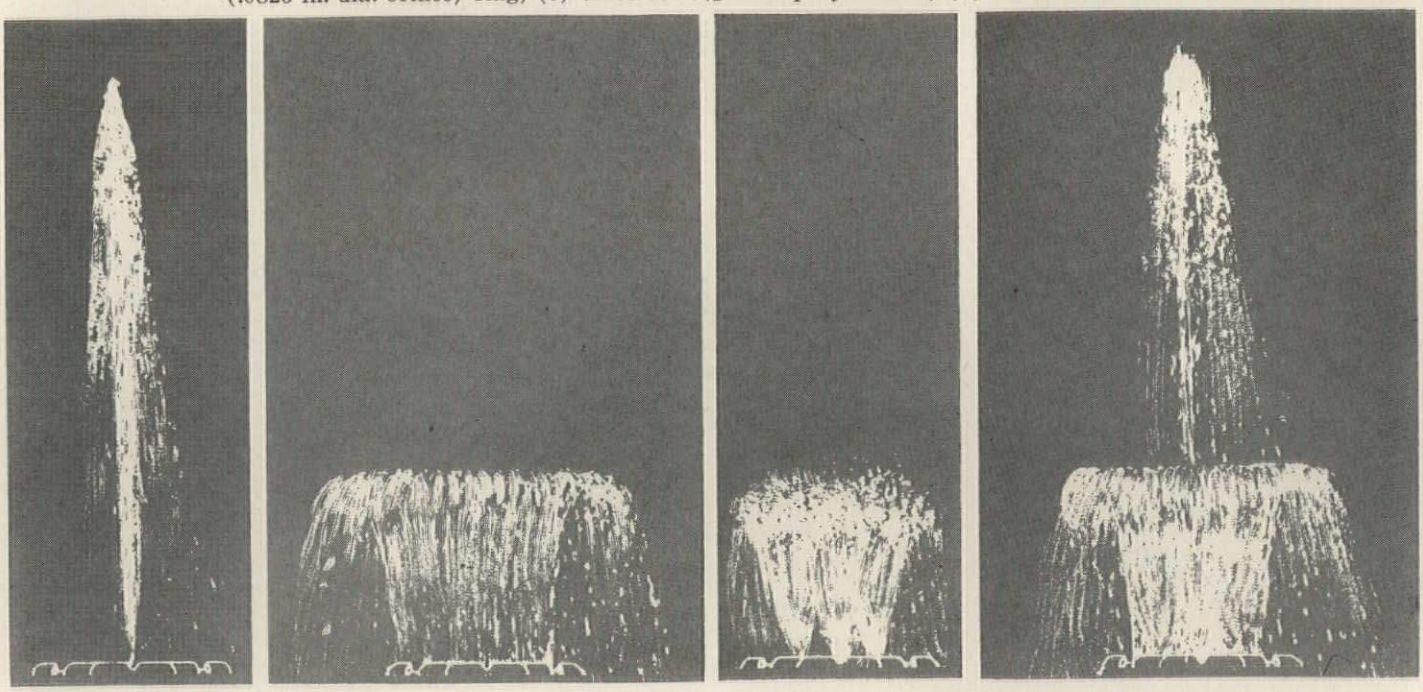
Note that the entire water flow for all the fountain passes through the elements (a) and (f), inclusive. Only the water for the main nozzle passes from (g) through (o). Therefore, after we have determined water flow through each of the elements we are in a position to determine total friction losses.

First find the rate of flow of water from the main nozzle (12½ mm = ½ in., approx.). It has already been determined that $H_1 = 40$ ft if projection height is to be 25 ft. From a standard discharge table (see Time-Saver Standards, page 229) Q = 31.2 gpm. As nozzles are in service for years the inner surfaces deteriorate slightly thereby reducing efficiency. Therefore, let us add approximately 10 per cent Q for an initial design level of 34 gpm.

Unfortunately there are no convenient theoretical discharge tables applicable to all spray nozzles and it becomes necessary to determine these design criteria by actual measurement or reliance upon the manufacturers for data. The flow from the three 60° (7½ mm) nozzles can be found from the graph in Time-Saver Standards, page 227. In order to produce a projection height of 8 ft, 15 psi or 34.65 ft of head will be required. From the graph it is seen that there will be a discharge of approximately 7.2 gpm from each nozzle or a total of 3 by 7.2 = 21.6 gpm. Again, as a factor of safety and to take into account the deterioration of the inner nozzle surfaces and resultant reduced efficiency for a period of years, let us round-off this calculated discharge to an initial design of 24 gpm.

In a similar manner we can determine the pressure required and dis-

FIGURE 2: Water effects for fountain at top of page: (a) 12½ mm center jet, (b) 65-jet (.0825 in. dia. orifice) ring, (c) three 60° 7½ mm spray nozzles, (d) combination of all



charge rate for the 0.0825 in. orifice, 65-jet ring to project a "sheath of wheat" 8 ft high. Generally, the inner surface imperfections of these very small jets are quite significant compared with the size of the orifices, especially as they become partially clogged. Also, since considerably more pressure is available than is needed for 8 ft projection (as indicated by the graph in Time-Saver Standards, p. 229), it would be wise to calculate the discharge at twice the pressure actually needed. It is always better to have extra pump capacity because the projection height can be cut down by a gate valve, but it never can be increased beyond the capacity of the pump. For the .0825 in. jets, then, let us assume that the pressure is twice 15.71 or a head of 31.32 ft. From the table in Time-Saver Standards, page 229, the discharge from each jet is 0.845 or 55 gpm total.

In summary, the total capacity of the pump should provide for:

1—12½ mm main nozzle	34 gpm
3—7½ mm spray nozzles	24 gpm
65—jet "sheath of wheat"	55 gpm
TOTAL Q	113 gpm

Therefore, for initial design purposes let us assume a total Q pump requirement of 120 gpm.

We are now in a position to calculate the total friction loss in terms of feet of head.

All valves, pipes and fittings have been translated into equivalent pipe size and length by reference to standard tables.

The total head loss due to friction in the main nozzle circuit can be shown to equal 20.3 ft. In like manner, the total losses in the "sheath of wheat" and spray nozzle circuits are 7.2 ft and 13 ft, respectively making a total friction loss of 40.5 ft of head.

Only the *velocity head* remains to be calculated to determine the total dynamic head (TDH). This value is generally so small in fountains that it can be neglected. However, it is usually wise to check this either by the following equation or by reference to standard velocity head tables available in hydraulic handbooks.

Equation for velocity head:

$h = V^2/2g$

Where: h = velocity head in feet

V = velocity of the water through the pipe in ft/sec.

g = acceleration due to gravity = 32.2 ft/sec/sec.

The TDH can now be determined by adding (a) the elevation or static head, (b) friction losses and (c) the velocity head. TDH is thus equal to 1+40.5+0 = 41.5 ft.

Now by adding the pressure head (PH) of 40 ft, which is required to project the stream from the main nozzle 25 ft high, we have a total head (TH) of 40 + 41.5 = 81.5 ft, required from the pump.

The horsepower (hp) required to operate the pump can be calculated by the following:

$$hp = \frac{(Q)\ (TH)\ (\text{spec. gravity of liquid})}{33{,}000/(\text{weight of one gal. liquid})} \times \frac{1}{\text{eff.}}$$

Where:

Q = total capacity of pump in gpm

TH = TDH (as previously defined) plus pressure head (PH)

Specific gravity of water = 1.00 (at 60 F)

33,000 = number of foot-pounds in a horsepower

Weight of one gallon of water = 8.33 pounds

Eff. = efficiency of pump

Rewriting this equation for our specific purpose we get:

$$HP = \frac{Q\ (PH + TDH)}{3960\ \text{eff)}}$$

Now, we know everything in the equation except the efficiency of the pump. A single stage, double suction, 1750 rpm centrifugal pump is commonly recommended for fountains such as this. In this example the motor size required to drive the pump would be 3.96 hp.

Standard motors are available in the 3 and 5 hp sizes. It would be unwise to overload a 3 hp motor 32 per cent; therefore, a 5 hp motor should be specified here. The combination motor and pump could be specified as:

Right hand, single stage, double suction centrifugal pump; complete with 5 hp, 3 phase, 60 cycle, 208 volt motor (ball bearing). Pump to deliver 120 gpm at 81.5 ft. TH at 1750 rpm, motor and pump mounted on a common base.

Design of Basin. For uniform appearance of the cascade formed by water spilling over the lip of the inner basin (Fig. 1), care should be taken in constructing the lip. It is very important that the top surfaces of this inner basin be level so that the depth of the cascade will be essentially uniform completely around the circumference. A non-uniform flow of water will also result if the diameter of this inner basin is made too large or the volume of water is too small. If there is insufficient water for the size of the basin the water will break up—being too great in some places and inadequate in others.

The actual depth of the water flowing over the cascade can be determined from the top right graph of Time-Saver Standards, p. 229.

Note that for practical purposes the circumference of the inner basin can be assumed to be the length of a rectangular weir. The basin has a diameter of 6 ft or a circumference of about 18.8 ft. The total water flow is approximately 120 gpm, but remember that all of this will not fall back into the inner basin due to windage, evaporation and natural over-shooting of sprays and jet-rings. Let us assume that only 80 gpm is caught by the basin. This means that there will be a flow of 80/18.8 or 4¼ gpm/ft over the cascade lip. The depth of this water as it passes over the lip is only 0.20 inches. This emphasizes the necessity of having the surface of this inner basin level.

One trick that has been successfully accomplished in an effort to help equalize the depth of the water spilling over the cascade is to form horizontal shallow troughs on the surfaces of the cascade face where water passes. These corrugations produce, in effect, a multitude of miniature dams which cause the water to distribute itself more uniformly around the cascade lip. This also produces some turbulence on the surface of the cascading curtain, making it appear more uniform whether transilluminated from underneath the lip or front-lighted by other projecting equipment.

CIRCUITRY AND CONTROLS

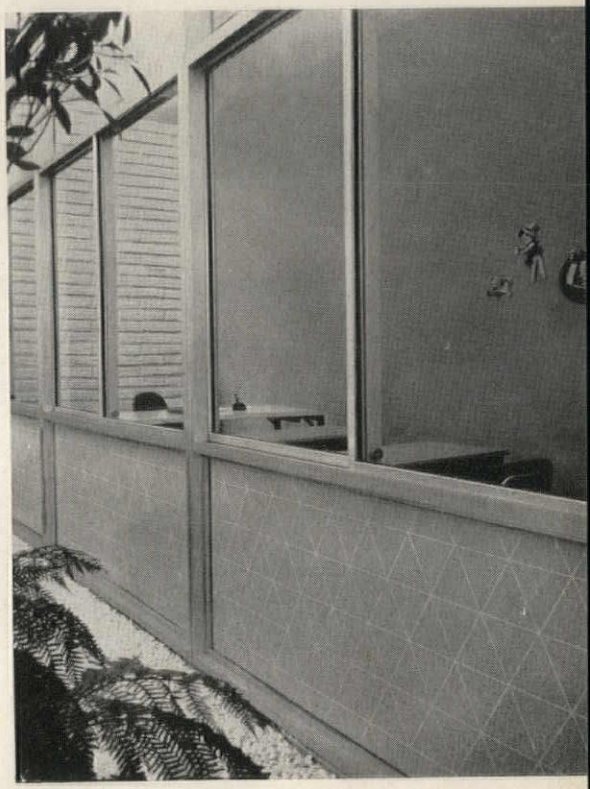
The total number, type, color and wattage size of floodlights have now been determined as well as the pump and motor specifications. Control of the fountain comprises a motor starting switch and a power contactor which energizes the floodlights. The power is applied to the floodlights and thruster-operated gate valves through a programmed sequence controller. This controller consists simply of a series of cams mounted on a common shaft driven by a small synchronous motor. Each cam operates a pair of contacts which in turn make and break the water and light circuits. The timing can be arranged so that individual colors of light, combinations of two and then all three colors (red, blue and green) can be made to match each of the various water effects. Some designers have used an individual motor of the non-synchronous type to drive the water effects and light circuit cams independently. This results in seemingly never-

continued on page 274

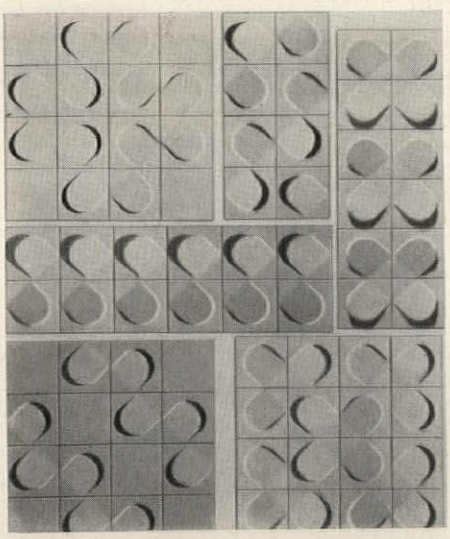
CUSTOM WINDOW WALL AT PREFAB PRICES

The *Arcadia Wall*, a new window wall system which provides aluminum framing for floor-to-ceiling units made up of spandrels, transoms, and vented and fixed openings, combines the design flexibility of a custom product with the price advantages of a standard line. The flexibility of design lies in the possible variations in the size and, to a lesser degree, the configuration of the units; in the choice of sliding or fixed glass panels, or both; and in the selection of the spandrel material. (Since the spandrel and transom frames will receive panels up to 2½ in. thick, virtually any material may be used.) However, in spite of the fact that each unit is assembled to order, the use of standard sections and factory fabrication methods keeps costs relatively low. And since the units are shipped completely assembled and ready for installation, on-site labor is also held to a minimum. *Arcadia Metal Products, 801 S. Acacia Ave., Fullerton, Calif.*

Above: Detail of *Arcadia Wall* shows trim lines of aluminum framing members. Removable threshold and special locking mechanism (upper right in photo) permit authorized persons to control operation of window. Right: Typical window wall combines ceramic tile spandrels, clear glass transoms, double sliding vents in units measuring 6 ft wide by 10 ft high. All units are custom fabricated, come completely assembled and ready to install with a minimum of on-site labor



'DISTINGUISHED DESIGNS' IN SCULPTURED CERAMIC TILE

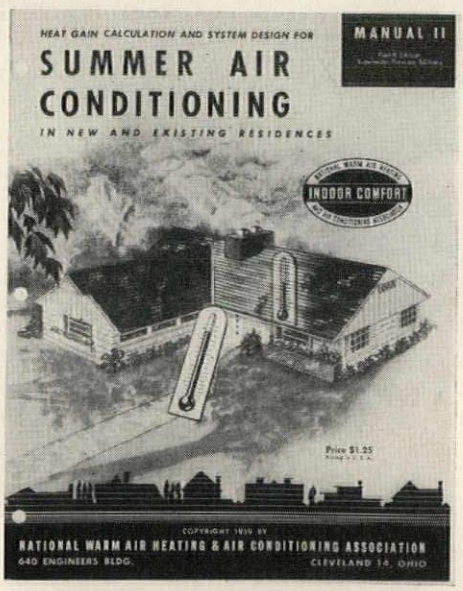


The latest additions to Pomona Tile's "Distinguished Designer Series," three new sculptured tiles designed by George Nelson, feature a simplicity and versatility of design that makes it possible for them to be combined in a virtually unlimited range of patterns. At far left, for example, are shown only six of the many designs possible with the "Athena" concave and convex tiles. "Laurel Leaf," the third of Nelson's designs is shown at left in a living area wall installation. All three patterns will be available in a wide selection of colors and glazes, in standard 4¼-by 4¼-in. squares with matching trim. *Pomona Tile Mfg. Co., 629 North La Brea, Los Angeles, Calif.*

TRIM ELECTRIC HEATER COMBINES RADIATION, CONVECTION

One of the more attractive electric heating units developed to date is a slim (2¾-in.-deep) radiator-convector designed by the Chicago industrial design firm of Painter, Teague and Petertil. A resistance type unit faced with oak, mahogany, beige-tone or pearlized gray phenolic laminate mounted in a finned aluminum frame, the heater is usually mounted singly under a window. The available range of panel sizes and wattages is sufficient to meet most heating requirements, but if necessary the units may be combined in continuous strips. They may also be mounted on the ceiling. Half of the heat produced is radiated directly into the room; the other half is distributed in the form of convection currents. Temperature is controlled by individual room thermostats with a range of 55 to 85 degrees F. *Sun-Tron Corp., 7435 West Wilson Ave., Chicago 13, Ill.*

more products on page 236



HEAT GAIN CALCULATION AND SYSTEM DESIGN for Summer Air Conditioning in New and Existing Residences, Manual 11, presents a practical, simplified method of designing and installing all types of central summer air conditioning systems. Sections on basic design considerations, the determination of heat gain (Btuh), and the selection of equipment are supplemented by comprehensive tabular data and sample calculations. 56 pp. $1.25. *National Warm Air Heating and Air Conditioning Association, 640 Engineers Bldg., Cleveland 14, Ohio*

Operation Uplight
Sixteen-page booklet on industrial lighting gives fixture cost comparisons, cost of lighting per square foot and numerous installation photos. *Day-Brite Lighting, Inc., 6260 N. Broadway, St. Louis 15, Mo.**

Ceramic Tile Portfolio
"Idea-Starter" portfolio contains full-color room illustrations that show ceramic tile installations, and line drawing designs that show the flexibility in the use of color with ceramic mosaics. *United States Ceramic Tile Co., 217 Fourth St., N. E., Canton 2, Ohio*

Aluminum Building Products
File folder on aluminum products for commercial, industrial and institutional buildings contains separate brochures on commercial acoustical systems, corrugated roofing and siding, field-assembled insulated wall system, roof deck, ribbed embossed siding, and V-beam roofing and siding. Information given in the brochures includes uses, advantages, erection methods, specifications and accessories. *Reynolds Metals Co., Dept. PRD-8, Richmond 18, Va.**

Export Construction Materials
Pocket-size catalog, published in English and Spanish, lists construction materials suitable for building abroad. *Dept. W, Allied Chemical International, 40 Rector St., New York 6, N. Y.**

Liquid Level and Flow Control
Special Applications of McDonnell Products, Bulletin ERS-A, gives full engineering information, complete with schematic drawings, on how to provide operating and safety controls for a wide variety of jobs involving liquid level and liquid flow. 24 pp., *McDonnell & Miller, Inc., 3500 N. Spaulding Ave., Chicago 18, Ill.**

Rolling Doors and Partitions
(A.I.A. 16-D) Bulletin No. 901 describes complete line of rolling service doors, *Servire* fire doors, rolling grilles, counter doors and side coiling partitions. Selection charts, specifications, detail drawings and installation photos are included. 16 pp. *The Cookson Co., 1525 Cortland Ave., San Francisco, 10, Calif.**

How to Insulate Your Way
. . . to Lower Cost Air Conditioning discusses use of new insulating materials and techniques for cutting air conditioning tonnage requirements and reducing operating costs. *Reflectal Corp., 200 S. Michigan Ave., Chicago 4, Ill.**

Chalkboard and Tackboards
Catalog No. C-20 describes and illustrates the Rowles line of sheet chalkboard and tackboard, aluminum trim and accessories. Architectural specifications and installation details are included. 12 pp. *E. W. A. Rowles Co., 104 N. Hickory St., Arlington Heights, Ill.**

Prestressed Concrete Tees
Catalog sheets on four standard-sized *Leap* tees include tables of loading and information on physical properties as well as a detailed sketch of each member. *Leap Associates, P. O. Box 1053, Lakeland, Fla.**

Masterplate Concrete Floors
Installation photos, diagrams and detailed information cover use of *Masterplate* "iron clad" concrete floors. Bulletin MP-4d, 24 pp. *The Master Builders Co., Cleveland 3, Ohio**

Drive-In Planning
Gives floor plans of ten typical drive-in and/or counter service restaurants with cost, dimensional data, customer capacity and projected income for each. *The Bastian-Blessing Co., 4201 W. Peterson Ave., Chicago 46, Ill.**

Induced Draft Fans
Bulletin L 3 describes advantages of induced draft fans, with dimensional drawings, installation diagrams, rating charts and specifications. 16 pp. *Lehigh Fan & Blower Div., Fuller Co., Catasauqua, Pa.*

University Product Catalog
Describes and illustrates complete line of commercial-industrial loudspeakers, systems and accessories, including high fidelity speakers and enclosures suitable for commercial installations. 8 pp. *University Loudspeakers, Inc., 80 S. Kensico Ave., White Plains, N. Y.**

New Dimensions in Ceiling Design
Discusses use of *Insulite* roof deck for residences and commercial buildings. Beam size tables and construction details are included. 20 pp. *Insulite, 500 Investors Bldg., Minneapolis 2, Minn.**

The Facts About School Furniture
. . . Today discusses role of seating units in providing a proper classroom environment; appraises basic seating designs, construction, materials and relative costs. *American Seating Co., Grand Rapids 2, Mich.*
**Additional product information in Sweet's Architectural File, 1959*

more literature on page 262

ASE desks

make work a pleasure...efficiency a habit..

and keep their good looks for years

You and your clients can be proud of this furniture for a long, long time. Proud of its looks and, equally important, proud of its fine quality, careful attention to detail, and correct design that helps lighten work. The smooth work tops stay smooth . . . desk drawers operate easily, quietly. The rounded, smoothly finished corners on desks and chairs leave nothing to snag a nylon or scratch a shoe. And the lustrous finish, Bonderite protected, will hold its color and gloss for years with a minimum of attention.

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ALL-STEEL EQUIPMENT Inc., Aurora, Illinois

Desks • Chairs • L-units • Credenzas • Tables
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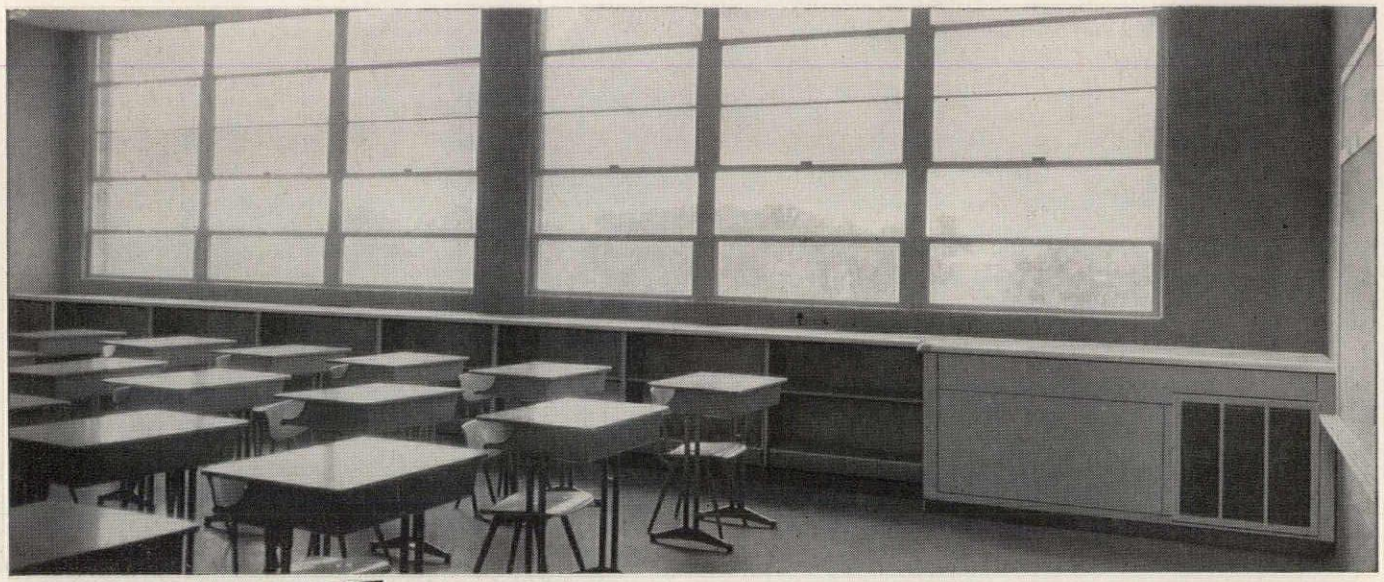
Norman Classroom-Packaged System

HEATS AND VENTILATES
with TRIPLE Economy



MARY G. HOGSETT SCHOOL
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Building Gross Area: **17,000 Square Feet**

Total Building Cost: **$10.54 per Square Foot**

Heating and Ventilating Cost: **.876 per Square Foot**

ARCHITECT: Merriwether, Marye & Associates
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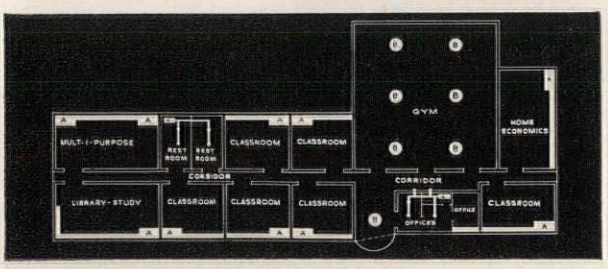
FITS ANY PLAN



Versatile Norman Schoolroom Heating and Ventilating Systems answer the needs of classrooms large or small. 85,000 or 100,000 BTU/hr inputs are available. Util-i-Duct Bookshelf Sections add work surface and storage space; then Wall-i-Duct Sections save room space.

ECONOMY OF INSTALLATION

Pre-wired, partially assembled Norman Heating and Ventilating Systems are quickly installed room by room. In new schools, like the Mary G. Hogsett school, Norman Systems eliminate expensive boiler rooms, chimneys and tunnels. The $0.876 figure is typical of the low installation costs being realized across the nation. Norman economy grows with the school . . . individual classroom systems are added as required without costly revamping of central system.

ECONOMY OF OPERATION

Norman Schoolroom Heating and Ventilating System:

- Maintains uniform temperature without wasting fuel
- Supplies heat only when needed . . . ventilates automatically
- Each classroom's comfort needs are answered accurately, independently of other rooms.

ECONOMY OF MAINTENANCE

Long trouble-free service is assured by sturdy construction, finest materials and latest A.G.A. approved controls — standard to the industry.

Norman®
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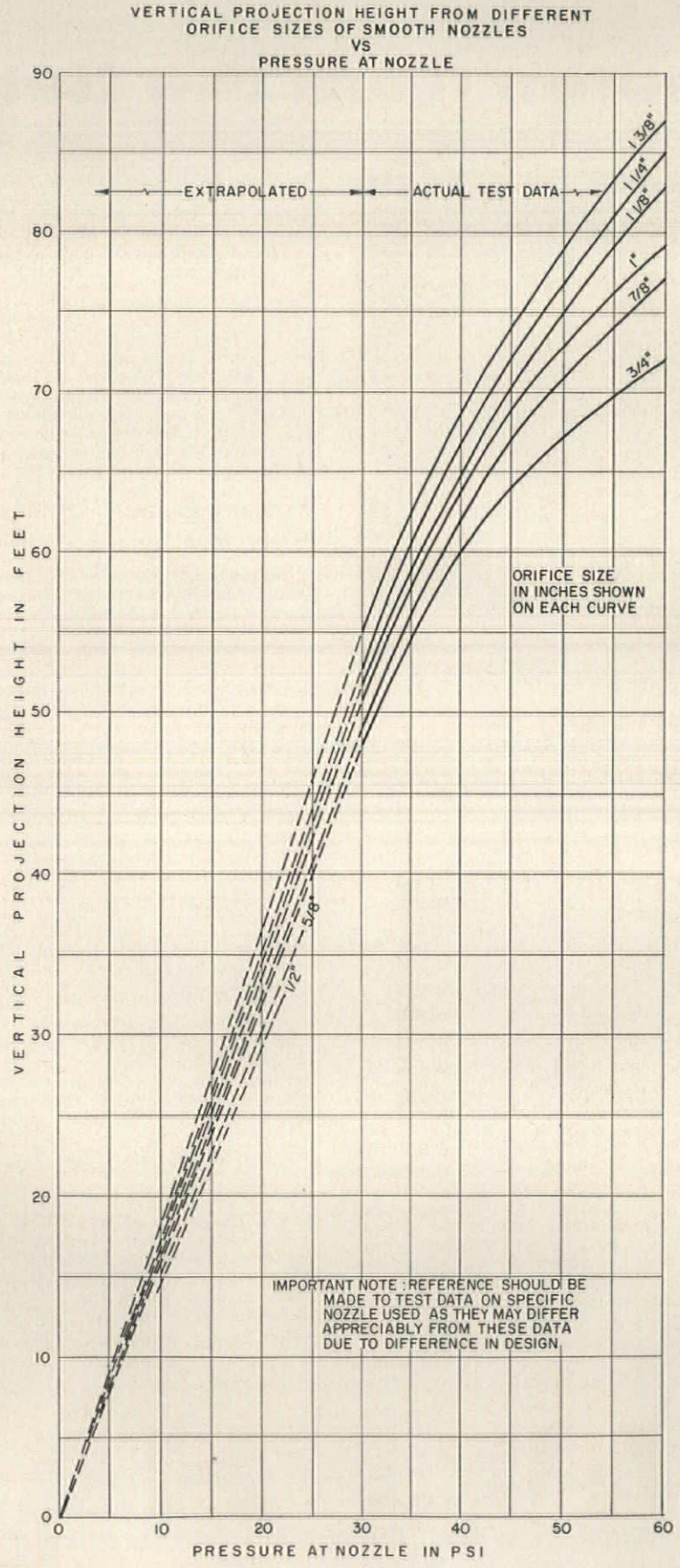
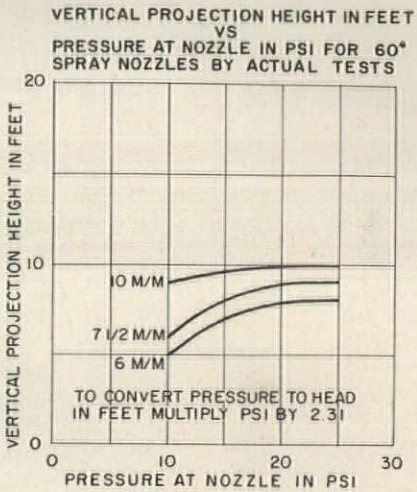
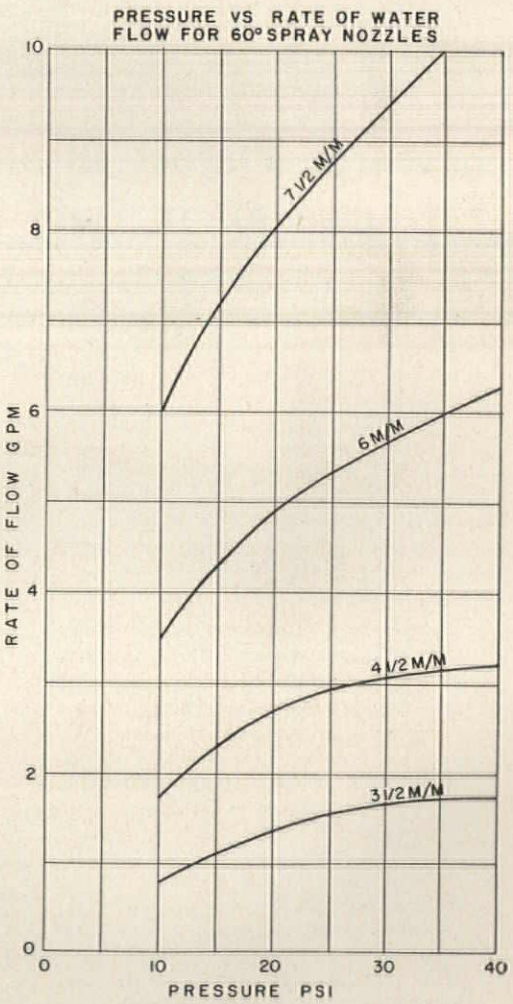
See Sweet's Arch. File 30h/No, American Sch. and Univ. Annual C-1/No

ENGINEERING OF LIGHTED FOUNTAINS: 1—Nozzle Data

By Robert E. Faucett, Outdoor Lighting Department, General Electric Company





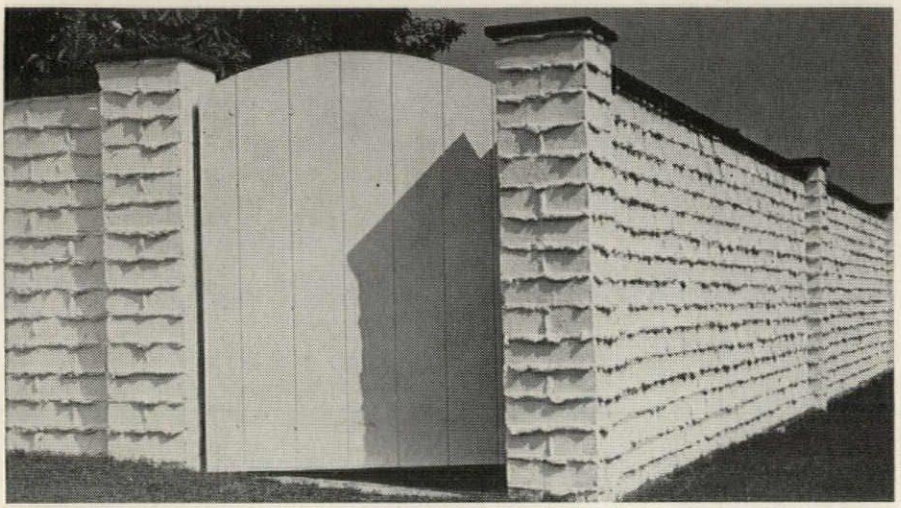


NOTE 1—Graph *(left)* plotted from *Table of Effective Fire Streams* by Goulds Pumps, Inc.

ALPHA

BETTER CONSTRUCTION THROUGH BETTER USE OF CEMENTS

news and notes from the field



"the mortar makes the wall . . ."

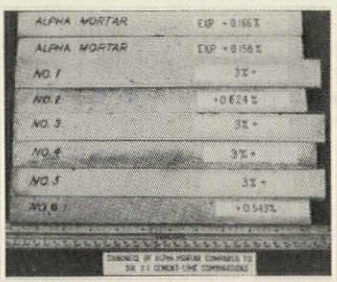
Research Project Discloses Importance of Entrained Air in Field Mortars

Masonry mortar must contain entrained air if it is to withstand attacks of freezing and thawing. This fact has been confirmed by a research program at Lafayette College in Easton, Pennsylvania. This project has been in progress for the past two years and has covered research on the durability of mortars containing lime and cement—and mortars containing masonry cement. Eight different brands of lime and several brands of masonry cement were used.

Among the important findings to be disclosed by the final report of this research are the following:

1. Thirteen percent or more entrained air will successfully resist the damaging effects of freezing and thawing.
2. *All* mortar specimens made with masonry cements withstood well over 100 cycles of freezing and thawing with no sign of damage. And two were subjected to over 300 cycles with no sign of failure! In no case did a 1:1:6 lime-cement mortar last more than 30 cycles without the addition of an air entraining agent.
3. This investigation also proved that moisture causes expansion of cement-lime mortars containing unsound lime. This type of expansion in walls can cause serious structural problems.

Expansion Cracks Traced to Unsound Lime in Cement-Lime Mortar



Six bars of lime-cement mixture and two of masonry cement cured in high pressure steam autoclave.

In a test conducted for quick determination of expansion, lime "suitable for mortar" was purchased from building supply dealers in several areas. Each of the various brands was mixed with Portland Cement in 1:1 proportions and autoclaved as required for masonry cement. The photo above shows the significant results.

Note: For maximum safety, masonry cements are carefully controlled under ASTM C-91. Under the provisions of this specification, bars made of masonry cement are cured for several hours in a high pressure steam autoclave. Expansion of the bars during this test is limited to 1%, thus assuring soundness in masonry cements. Lime-cement mixtures are not so controlled by specifications.

Cement-lime mixtures that expand in excess of the 1% limit present a danger of expansion cracking. In the test above, lime used in bars Nos. 1, 3, 4 and 5 gave expansions in excess of 3%—*beyond* the limit of the comparator used for measurement. Bars 2 and 6 met the maximum expansion limit of 1% required for masonry cements, but both expanded about three times as much as the Alpha Mortar Cement bars.

Masonry Cement for Maximum Yield, Maximum Economy

Yield is the key factor in determining the relative economy of mortar mixes. Masonry cement mixes—in addition to providing better durability, stability, less shrinkage and requiring less water—also provide greater yield than equivalent proportions of cement-lime mortars. The results of an actual field test, shown below, prove this conclusively:

	1:1:6 Mix Cement-Lime	*1:3 Mix Masonry Cement*
Lime*, 1 cu. ft.	40 lb.	
Type I Cement (1 cu. ft.)	94 lb.	
Sand, dry**	480 lb.	480 lb.
Masonry Cement, 2 bags		140 lb.
Total Water	120 lb.	96 lb.
Batch Weight	734 lb.	716 lb.
Wt./Cu. Ft. by test	129.2 lb.	120.5 lb.
Yield	5.68 cu. ft.	5.94 cu. ft.

*Rated at 40 lbs./cu. ft. according to ASTM C-270

**80 lbs. of dry sand in one cubic foot of damp sand according to ASTM C-270. (One cu. ft. of damp sand weighs approximately 85 lbs.)

In the above test *100* batches of 1:1:6 cement-lime mortar would be required to complete a job calling for 566 cu. ft. of mortar. Only 95½ batches of masonry cement—a saving of 4½ batches—would be needed to meet the same requirement.

Alpha Waterproofed Mortar Cement

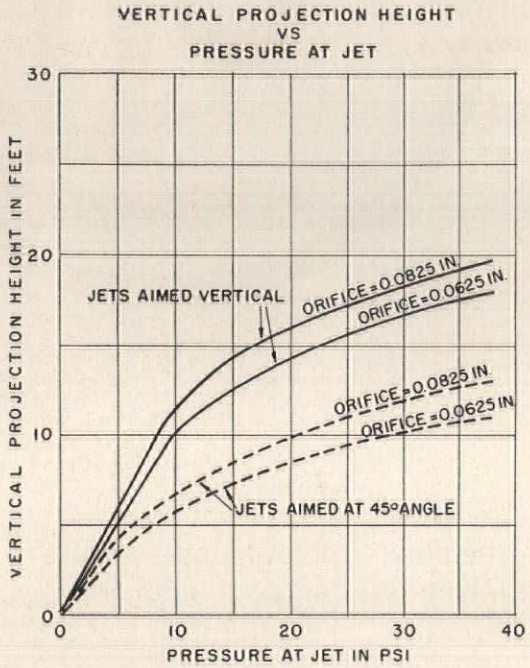
Good design, good workmanship and Alpha Mortar Cement have *always* been capable of producing watertight joints. Alpha *Waterproofed* Mortar Cement gives you an added safety factor in building sound, attractive masonry jobs.

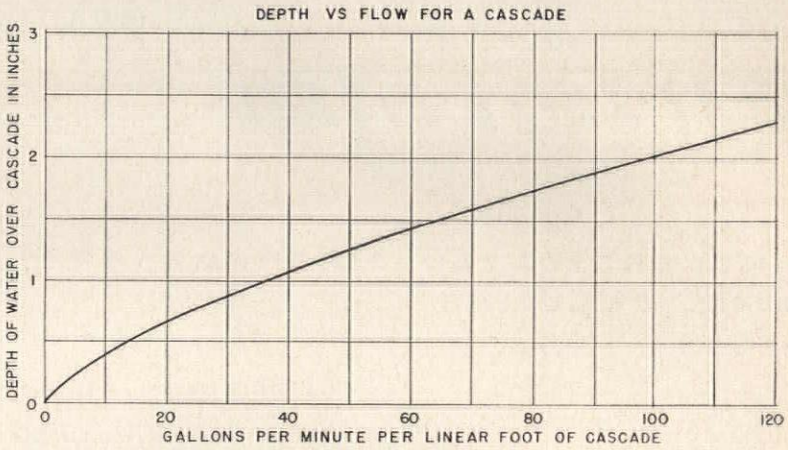
Call in your Alpha Representative for practical advice on mortar techniques or problems.

ALPHA
PORTLAND CEMENT COMPANY
Alpha Building, Easton, Pa.

ENGINEERING OF LIGHTED FOUNTAINS: 2—Nozzle Data

By Robert E. Faucett, Outdoor Lighting Department, General Electric Company





THEORETICAL DISCHARGE OF NOZZLES IN U. S. GALLONS PER MINUTE

HEAD		VELOCITY OF DISCHARGE FEET/SEC	DIAMETER OF NOZZLE IN INCHES												
LBS.	FEET		1/16	1/8	3/16	1/4	3/8	1/2	5/8	3/4	7/8	1	1 1/8	1 1/4	1 3/8
10	23.1	38.60	0.37	1.48	3.32	5.91	13.3	23.6	36.9	53.1	72.4	94.5	120	148	179
15	34.6	47.25	0.45	1.81	4.06	7.24	16.3	28.9	45.2	65.0	88.5	116.0	147	181	219
20	46.2	54.55	0.52	2.09	4.69	8.35	18.8	33.4	52.2	75.1	102.0	134.0	169	209	253
25	57.7	61.00	0.58	2.34	5.25	9.34	21.0	37.3	58.3	84.0	114.0	149.0	189	234	283
30	69.3	66.85	0.64	2.56	5.75	10.20	23.0	40.9	63.9	92.0	125.0	164.0	207	256	309
35	80.8	72.20	0.69	2.77	6.21	11.10	24.8	44.2	69.0	99.5	135.0	177.0	224	277	334
40	92.4	77.20	0.74	2.96	6.64	11.80	26.6	47.3	73.8	106.0	145.0	189.0	239	269	357
45	103.9	81.80	0.78	3.13	7.03	12.50	28.2	50.1	78.2	113.0	153.0	200.0	253	313	379
50	115.5	86.25	0.83	3.30	7.41	13.20	29.7	52.8	82.5	119.0	162.0	211.0	267	330	399
55	127.0	90.40	0.87	3.46	7.77	13.80	31.1	55.3	86.4	125.0	169.0	221.0	280	346	418
60	138.6	94.50	0.90	3.62	8.12	14.50	32.5	57.8	90.4	130.0	177.0	231.0	293	362	438
65	150.1	98.30	0.94	3.77	8.45	15.10	33.8	60.2	94.0	136.0	184.0	241.0	305	376	455
70	161.7	102.10	0.98	3.91	8.78	15.70	35.2	62.5	97.7	141.0	191.0	250.0	317	391	473
75	173.2	105.70	1.01	4.05	9.08	16.20	36.4	64.7	101.0	146.0	198.0	259.0	327	404	489
80	184.8	109.00	1.05	4.18	9.39	16.70	37.6	66.8	104.0	150.0	205.0	267.0	338	418	505
85	196.3	112.50	1.08	4.31	9.67	17.30	38.8	68.9	108.0	155.0	211.0	276.0	349	431	521
90	207.9	115.80	1.11	4.43	9.95	17.70	39.9	70.8	111.0	160.0	217.0	284.0	359	443	536
95	219.4	119.00	1.14	4.56	10.20	18.20	41.0	72.8	114.0	164.0	223.0	292.0	369	456	551

NOTE: The actual quantities will vary from these figures, the amount of variation depending upon the shape of the nozzle and size of pipe at the point where the pressure is determined. With smooth taper nozzles the actual discharge is about 94% of the figures given in the tables.

Announcing!

THE ONLY ONE

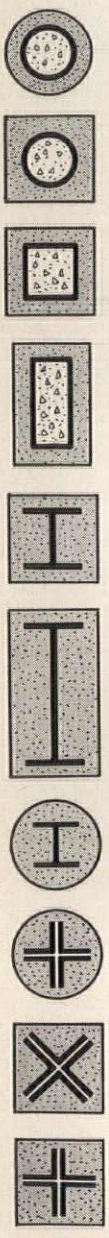
UL® APPROVED

FIRE-TROL

FOR MAXIMUM SAFETY . . . .

PREFABRICATED FIREPROOFED STEEL COLUMNS . . .

RATED . . . LABELED



"FIRE-TROL" is the only prefabricated, fireproofed steel column manufactured under the supervision of Underwriters' Laboratories, Inc. U/L labeled—your guarantee of quality and dependability.

Official fire-retardant classification of 1, 2, 3 and 4 hours. 10 types of load bearing columns are now being manufactured—consisting of round, square and rectangular concrete filled columns as well as H and wide flange beam columns encased in round, square and rectangular outer steel jackets.

The new "Fire-Trol" column is completely prefabricated in the shop and shipped to job-site ready for immediate erection. It eliminates field labor for fireproofing on the job, reduces weather delay and cuts over-all completion time. This means a reduction in job-site labor costs. In addition, use of this prefabricated, fireproofed steel column will substantially reduce insurance costs.

"Fire-Trol" columns meets building code requirements of all major cities. For security, safety, and permanence, specify the new standard in columns—"FIRE-TROL."

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TERMITE SHIELDS FOR HOUSES: 4

Prepared by Copper & Brass Research Association

PART 1—PART 3 appeared in May issue

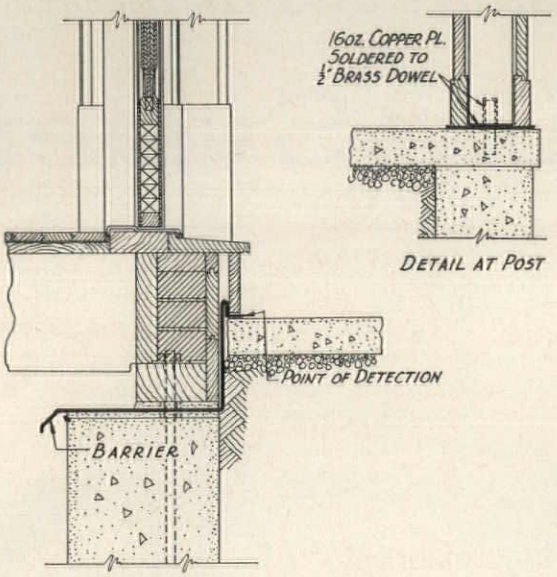

FIGURE 7

DOOR SILL *Figure 7* shows another combination shield applied under a door sill adjoining a concrete (or brick) porch. A deflector type is used on the outside because of ease of inspection, while the inner one is a true barrier type. Note that the shield is bent up behind the kickboard to form a water stop. The detail at the upper right illustrates a deflector shield inserted under a wood post resting on a concrete (or brick) porch.

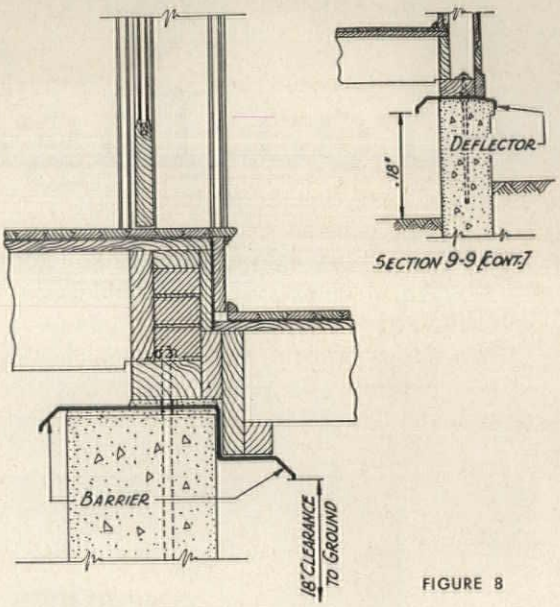

FIGURE 8

PORCHES *Figure 8* shows shielding applied at a house wall adjoining a porch of wood construction. A barrier shield is necessary throughout, particularly as the area under the porch is rarely easy to inspect. This area should also be well ventilated. The detail at the upper right shows a shield at the outside of the porch. When exposed, a deflector shield can be employed as illustrated, otherwise a barrier type should be used.

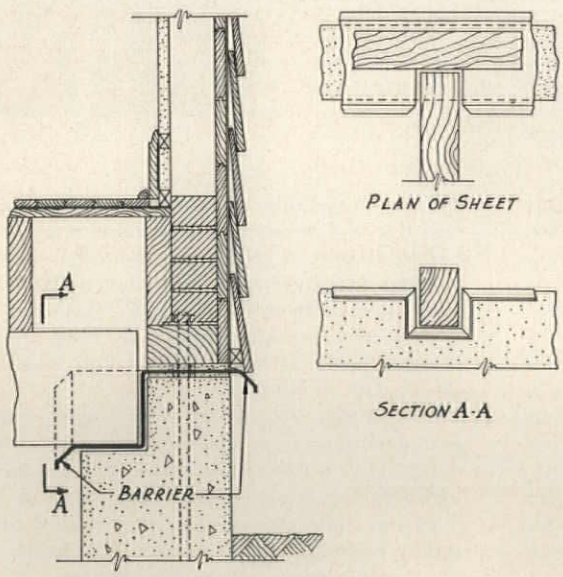

FIGURE 9

CELLAR BEAM POCKETS *Figure 9* shows a barrier shield installed at a cellar beam pocket. In this application the shield must be cut, fitted and soldered to meet the dimensional specifications of the beam, thickness of wall, etc. If a bolt is inserted through the termite shield, extreme care must be taken to assure an absolutely tight joint.

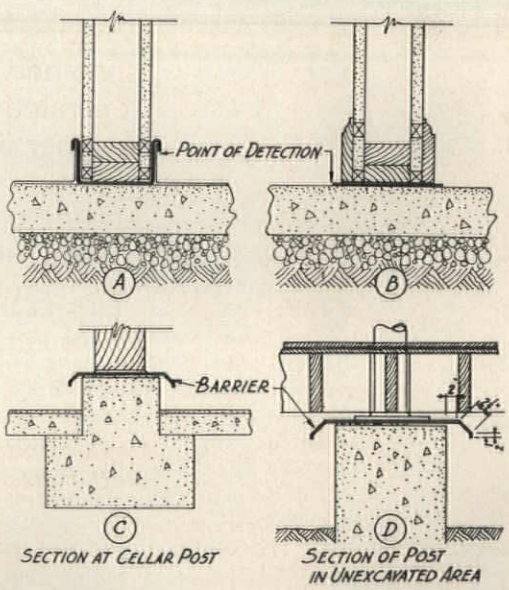

FIGURE 10

PARTITIONS *Figure 10* shows shield details for cellar partitions and other miscellaneous areas. A and B illustrate methods of deflector shield installations between a cellar floor and a cellar partition. Similar applications can be made between a partition and a cellar side wall. Inspection for shelter tubes should be made regularly.

The barrier shield shown in detail C protects the cellar post. Detail D is self-explanatory.

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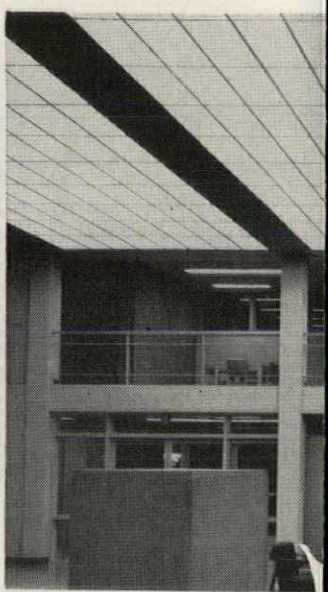
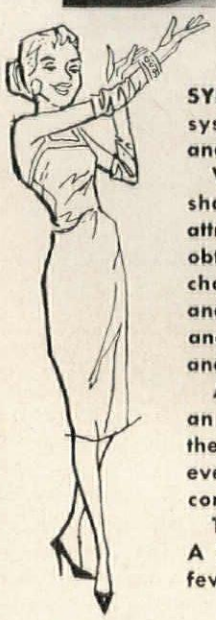
Before you specify lighting again, take another look at the decided advantages of Area Illumination. See how it can add to and help your overall planning.

As a design element, today's completely or partially-luminous ceilings offer possibilities limited only by the designer's aims. Area Lighting can make the ceiling surface an integral part of your entire scheme, both esthetically and in space planning through partition coordination.

From a lighting viewpoint Area Lighting stands alone. No other present-day lighting method provides such comfortable, shadow-free and glare-free illumination regardless of lighting level.





SYLVA-LUME—This extremely versatile, modular system features an extruded aluminum grid work and offers unlimited flexibility and design freedom.

Vinyl plastic panels are provided in deep or shallow style—plain or patterned—in a choice of attractive colors. Single or double panels can be obtained. Optional acoustic baffles, also with a choice of colors, provide effective sound control and add another design element for delineation and emphasis. Perimeter panels give interesting and attractive border treatment.

All of these design factors can be utilized for an endless variety of ceiling patterns . . . allowing the addition of a distinctive personal touch to every installation from a relatively few catalogued components.

The standard Sylva-Lume module is 3' x 3'. A 2' x 2' module is also available with only a few limitations in variety.

SYLVA-CELL—This Sylvania modular system utilizes a 2' x 4' module and features a continuous pattern of cells. A choice of two attractive louvers is offered—polystyrene plastic or white painted aluminum, both with 45° x 45° shielding. Each ceiling offers excellent efficiency and shielding together with an even, widespread distribution of diffused illumination.

Sylva-Cell's simple, inverted-T grid work of extruded aluminum has extreme versatility for complete or partially-luminous ceilings. The louvered pattern can be used from wall to wall. Or, if desired, the interspersing of standard opaque ceiling materials makes a change in appearance, yet uses the same suspension system.

With Sylvania's minimum number of precision-made parts, installation is simple and fast. The open pattern of cells results in extremely minor problems of maintenance.

Go modern...with a Sylvania Lighting System!

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At Sylvania continual progress has been made in Area Illumination since providing the first catalogued lighting system over ten years ago. As shown below, Sylvania now offers 3 distinct and different Area Lighting Systems. All 3 systems use standard components and each one provides top-quality, efficient illumination together with smooth, uncluttered appearance.

These systems have been developed and perfected to give the designer almost unlimited freedom of expression. Color and patterns can now provide exciting vitality to routine ceiling areas.

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The next time, when you want lighting that is truly outstanding, look to Area Illumination . . . and think first of Sylvania where you have a choice of three Area Lighting Systems.

SYLVANIA LIGHTING PRODUCTS
A Division of SYLVANIA ELECTRIC PRODUCTS INC.
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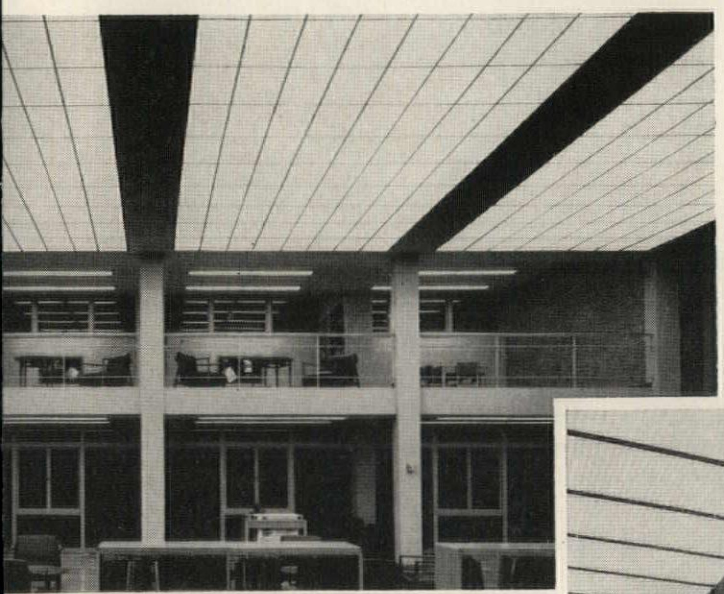

SYLVAN-AIRE—Sylvania's established area lighting system, featuring 3' wide rows of corrugated vinyl plastic, offers a most economical method of obtaining area illumination.

Sylvan-Aire offers two versatile suspension methods . . . Uni-Space and Vari-Space . . . making installation simple for any desired footcandle level. This system is easily adjusted for installation of air conditioning components, for spotlights, to fit around columns and other obstructions, or for partition planning.

Acoustic baffles are available, too, as optional equipment. When ordered, acoustic baffles are supplied pre-assembled to the support channels thus requiring no additional installation time.

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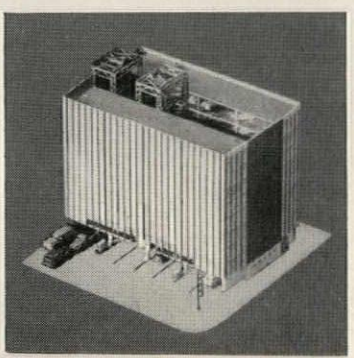
FILE-A-WAY: a parking lot 10 stories high

FIREPROOFED BY SPRAYED "LIMPET" ASBESTOS

Bohman's File-A-Way Parking, 4th & Yamhill Sts., Portland, Oregon. Owner-Operator: L. Bohman, Portland. Architect: Edmundson and Kochendoerfer, Portland. Structural Engineer: R. Evan Kennedy, Portland. General Contractor: A. V. Petersen Co., Portland. Insulating Contractor: Acoustical & Fireproofing Co., Portland and Seattle.



In Portland, Oregon, they've come up with the newest, most modern solution to the downtown parking problems currently plaguing the nation's cities.

It's File-A-Way's system for mechanically parking cars. Here, through push-button control, a car is mounted on a shuttle lift, transported vertically and horizontally as many as ten stories high by elevator, and parked in a pre-determined position —without the attendant ever leaving his post on the elevator. Cars are parked without damage. Valuables can be locked in the car in safety.

Bringing this exciting concept in downtown parking to reality called for modern concepts in design and materials. For example, fireproofing beams and columns with a 1½" coating of SPRAYED "LIMPET" ASBESTOS reduced building costs three ways. Its light weight reduced steel costs. It reduced loss in wastage because it faithfully follows the contours of the surface. Materials costs shrank because only a 1½" coating was necessary. It lowered installation costs and time because one man applies SPRAYED "LIMPET" ASBESTOS with a spray gun in all kinds of weather where temperature is above 40° F.

You can reduce weight, cut fireproofing costs, and application time on practically every type of structure with SPRAYED "LIMPET" ASBESTOS. For more information on this remarkable fireproofing material, write to us today.

Retards fire for four hours • Weighs only one pound or less per square foot per inch thick • Adheres with strength of over one hundred pounds per square foot • No holes, seams, or cracks to reduce fireproofing efficiency • Fireproofs structural steel, and all building materials • For floors, ducts, beams, and all structural elements • Approved by Underwriters' Laboratories

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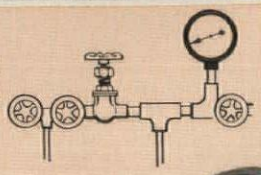
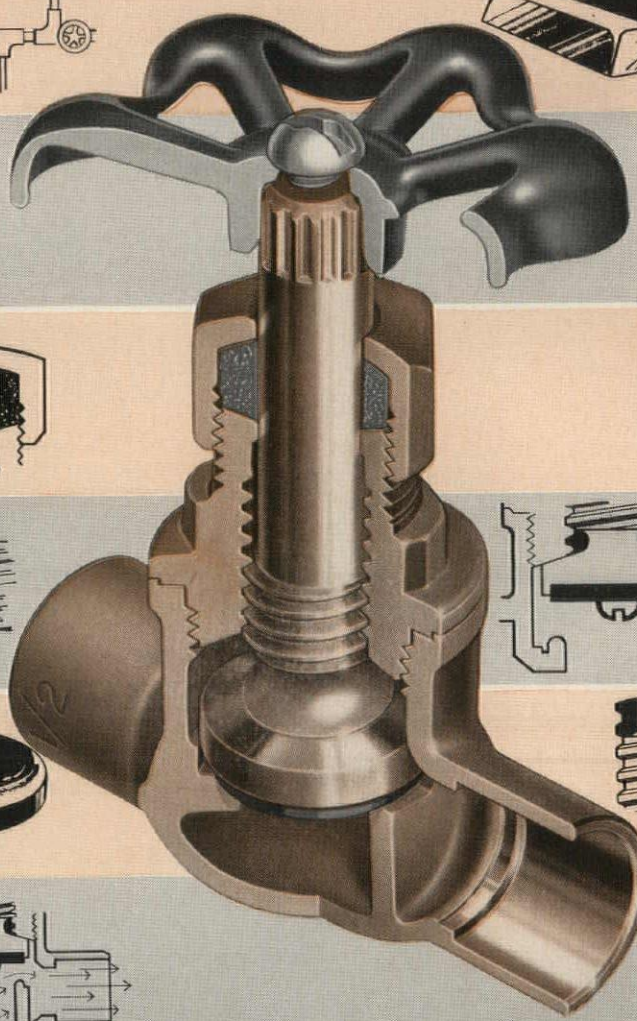


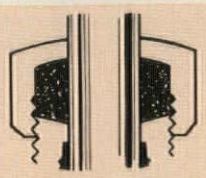
All brass parts are 85-5-5-5% red brass, the most corrosive-resistant brass alloy known.

Stem is full ⅜" in diameter . . . equal in strength to specification valves.

Handwheel screw is stainless steel for easy removal.

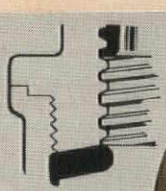


Packing chamber is big for positive sealing, long wear in constant use.

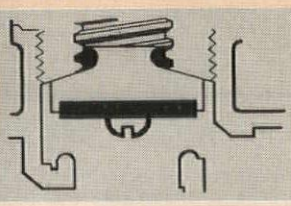


19 splines, instead of milled 4-point square, provide full holding power around complete circumference of stem.

Precision machining eliminates need for bonnet gasket . . . a feature found only on pressure-rated valves.



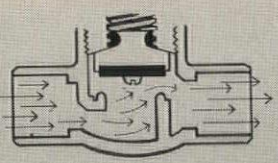
Back seating feature permits re-packing under pressure . . . without leaking.



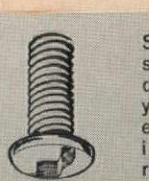
Buna-N, the most versatile disc known, is impervious to oil, gas or water. Provides more shut-offs per dollar.

Double lead threads open valve in 1½ turns . . . 60° stub thread adds strength, longer useful life.

Full flow design, original with NIBCO, delivers complete capacity of piping.



Stainless steel screw retains disc securely, yet removes easily because it is corrosive resistant.



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A valve for every application . . . and bonnets and stems are interchangeable.

NIBCO

New valve catalog is available from Nibco wholesalers —or write

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Elkhart,
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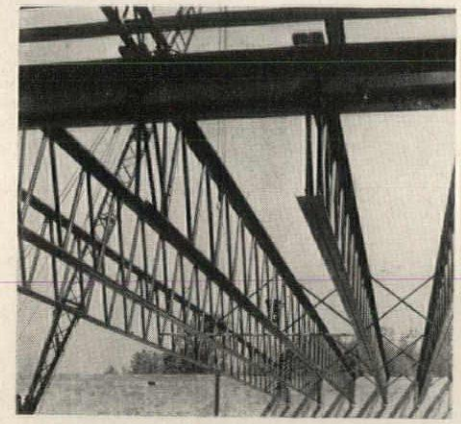
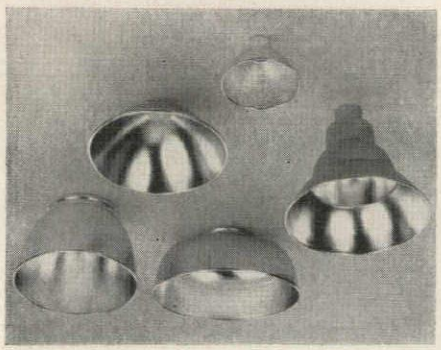
continued from page 223

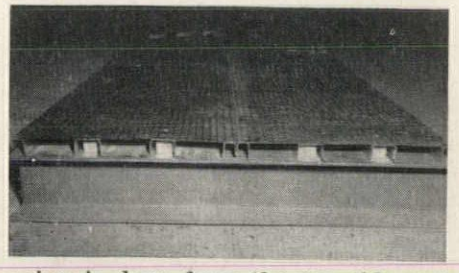


High-Capacity Open-Web Members
A new high in load-carrying capacity per pound of steel is available in open-web floor and roof framing members for spans to 120 ft. The cold-rollformed chords of the new *Allspan* framing members have a guaranteed minimum yield strength of 47,000 psi, permitting a design stress 25 per cent higher than that of conventional open-web structural framing, with a minimum safety factor 12 per cent greater than that provided by other types of framing currently used. All members have nailable top and bottom chords. *Macomber Inc., Canton, Ohio*



Diffuse-Finished Reflectors
Kingston-Alux reflectors use a new textured aluminum finish that combines a high reflectance factor (88 per cent) with uniform, glare-free light distribution. According to the manufacturer, the distribution pattern can be changed by varying the degree of texture, without changing the reflector contour. The finish also offers effective light dispersion without the use of diffusing lenses, which tend to absorb light and store up lamp heat. However, if lenses are used, the diffuse finished reflectors tend to give a more uniform spread of light over the lens surface. *Kingston Industries Corp., 256 East 49th St., New York 17, N. Y.*

Safety Plate Industrial Floor
A new safety plate flooring product, "CP" checker plate steel floor deck, is said to cost substantially less than standard reinforced checker plate floors for similar spans. Made up of a heavy steel safety plate with a raised square or diamond pattern, stitch welded to fluted panels that resemble cellular floor deck, it comes in lengths up to 20 ft and a standard width of 18 in. The deck may be attached to the supporting steel with Nelson Studs for removable floors, or permanently welded to two 12 gauge rib anchors. Tack welding at the interlocking side joints prevents separation from deflection. Since all fastening is done from the top side and no scaffolding is required, erection is simple and rapid. *Bowman Steel Corp., P. O. Box 2129, Pittsburgh 30, Pa.* *more products on page 242*



Eero Saarinen and Associates, *Architects*

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CONCORDIA SENIOR COLLEGE, FORT WAYNE, INDIANA

LCN CLOSERS, INC., PRINCETON, ILLINOIS

Construction Details on Opposite Page

TAKE A CLOSE LOOK AT THE SPECS

SPECIFICATIONS

"All treated lumber or timber specified herein shall be impregnated with OSMOSALTS® in a closed cylinder by vacuum-pressure process, full cell method, in strict accordance with the current Federal Specifications and recommended practices of the American Wood Preservers' Association."

"Retention of dry salts shall be .35 pounds per cubic foot of wood for moderate service conditions (exposure to weather but not in constant contact with ground or water) and .55 pounds per cubic foot of wood for severe service conditions (in constant contact with ground or water)."

"Where it is found necessary to frame OSMOSE treated lumber on the job, two coats of a 1-1 mixture of OSMOSALTS and water shall be brushed on the framed surfaces." When specifying treated lumber, refer to Federal Specifications TT-W-569 for composition and the latest revision of TT-W-571d for application.

For further information on treated wood, OSMOSE field representatives are ready to assist you in specifications. Write for our new brochure on the **revolutionary discovery FLAMEPROOFING OSMOSE – PFR.**

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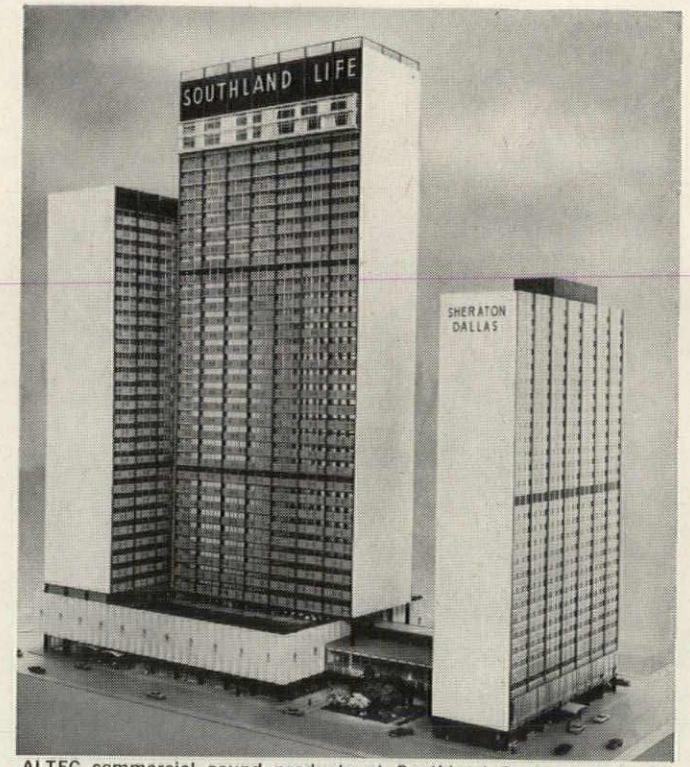

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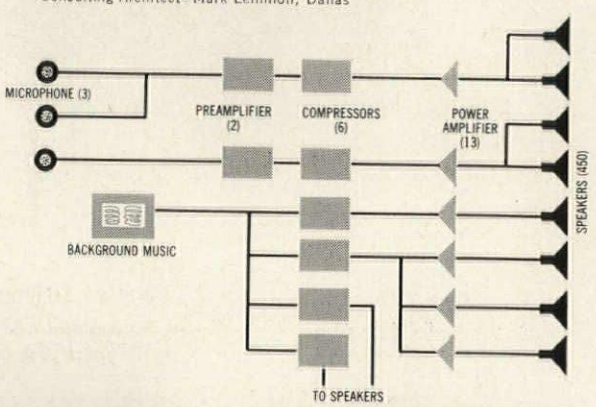
*Carver Sound Equipment Co., Dallas, Texas
Architects and Engineers—Welton Becket, FAIA and Associates, Los Angeles
Consulting Architect—Mark Lemmon, Dallas



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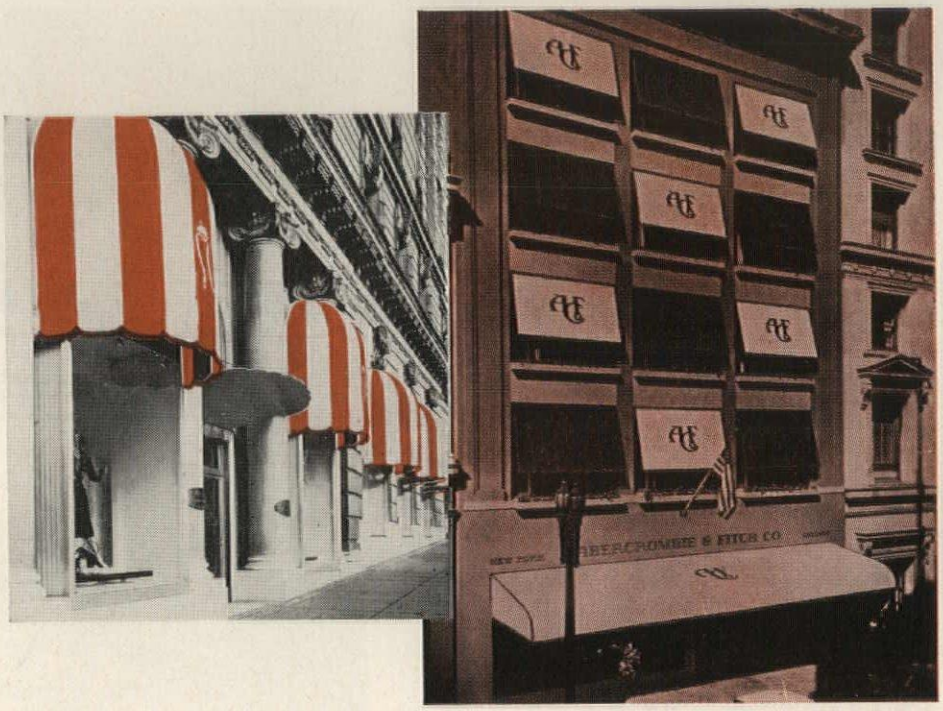

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In the wide range of canvas colors, new acrylic paints and vinyl coatings now are adding a richness, color fastness, and durability to the fabric never before possible. Your local canvas products manufacturer will be glad to discuss these features with you and talk over the many design possibilities of canvas . . . for show or for shade.

See our catalog 19e/Ca in Sweet's Architectural catalog
or write for a free copy. It contains original and practical ideas plus helpful information for specifying canvas.

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To assure superior on-the-job final finishing of all your doors...

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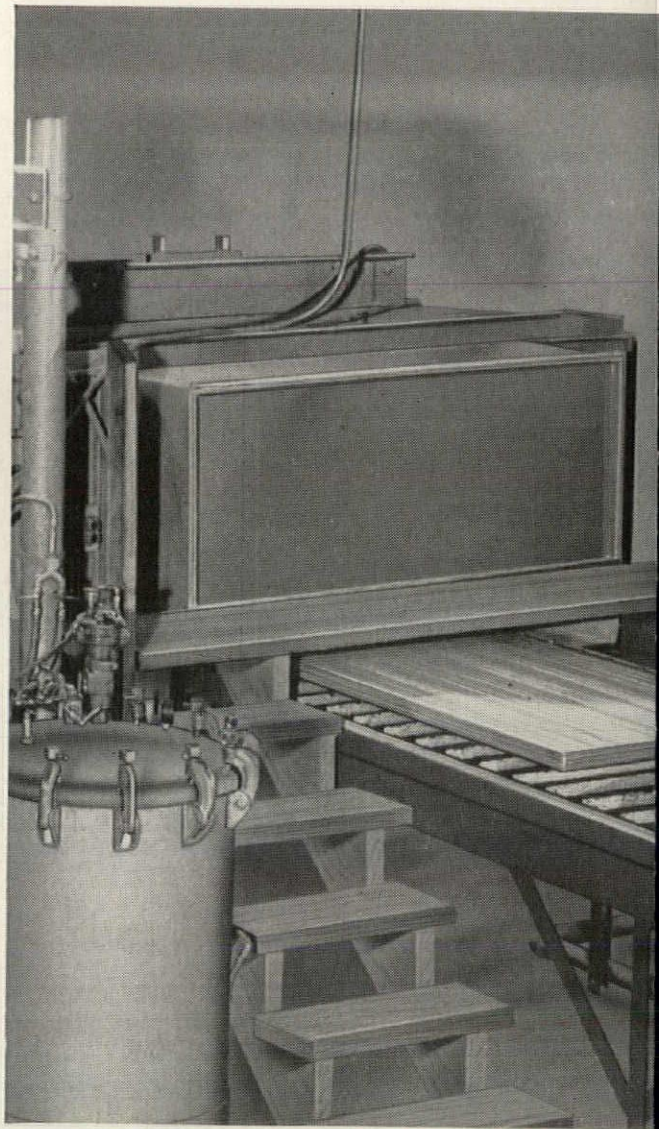


IT'S THE LATEST RODDIS DOOR SERVICE FOR ARCHITECTS AND BUILDERS. A NEW "AUTOMATED" TECHNIQUE NOW MAKES POSSIBLE UNIFORM, PERFECT FIRST-COAT ON EVERY DOOR... MEANS FACTORY-TO-INSTALLATION PROTECTION... FINER END RESULTS.

The building expert will readily see the important quality, cost-saving and other advantages of having doors primed and sealed at the factory.

Roddis' new production line system means doors are always sealed under ideal conditions. The entire operation is automatically controlled. Special Roddis synthetic resin sealer is applied in an unvarying film depth to all surfaces and edges. The result is a *prime and seal* finish with perfect uniformity of coverage, unmatched smoothness.

Roddis *prime and seal* locks in wood beauty, shuts out dirt, fingerprints, disfiguring stains, and troublesome moisture during transportation and installation. Final finishing of doors on the job is made practically foolproof.

Specifying *prime and seal* on Roddis Doors costs very little extra—and this is more than offset on the job by savings in time and labor alone. Add to this your confidence that the final finishing will give the clean, lustrous, beautiful job you want.

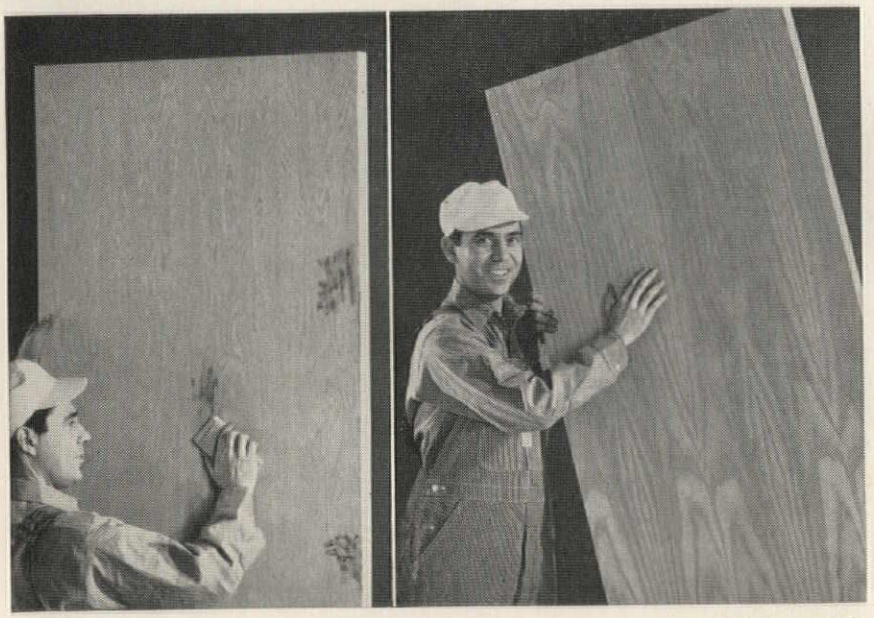
You can also specify
complete custom pre-finishing
from prime and seal to final finish coat!

Doors professionally and beautifully pre-finished in color tones to match any of the 9 woods in the famous Roddis line of pre-finished Craftwall wood paneling . . . or to your color sample for those "special effect" doors you may be planning.

New prime-and-seal production line for Roddis Doors. Double sanded, dust-free, doors go into machine—the rest is automatic. Special synthetic resin sealer is accurately applied, dried to an insoluble film. A light sanding . . . doors emerge perfectly sealed and protected, satin smooth, ready for final finishing on the job.

No more "starved" door faces, from uneven penetration of final finish, with Roddis *prime and seal.* Automatic application-control assures uniform undercoating for lustrous final finishes. Factory sealing helps prevent moisture discolorations and "blue stain" on oak doors.

Doors clients will admire! Even Roddis Doors, known for quality, can *look* only as good as their finish. Factory *prime and seal* helps even skilled tradesmen do better finishing quickly—produce unblemished, beautiful doors you'll okay with pride.



What a difference prime-and-seal makes! Raw, unprotected door at left shows smudges, fingerprints, scuffs, so often inflicted during transportation and handling by tradesmen. Cleaning and re-sanding on the job take time to do properly. Door at right, Roddis *primed and sealed,* is unmarred, clean, dry . . . perfect for final finishing.

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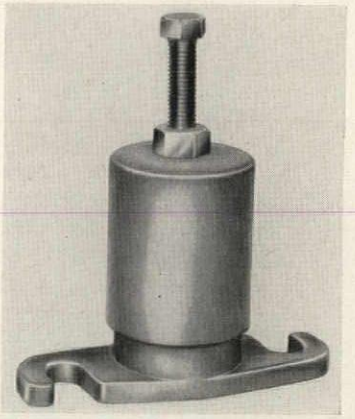
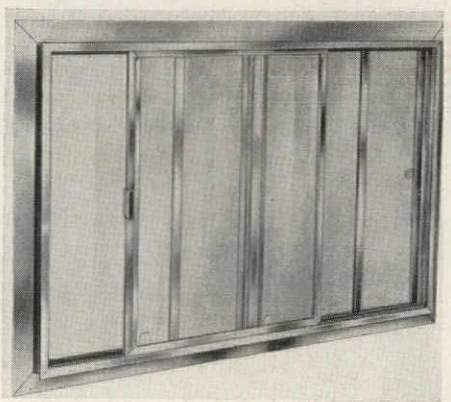
Product Reports



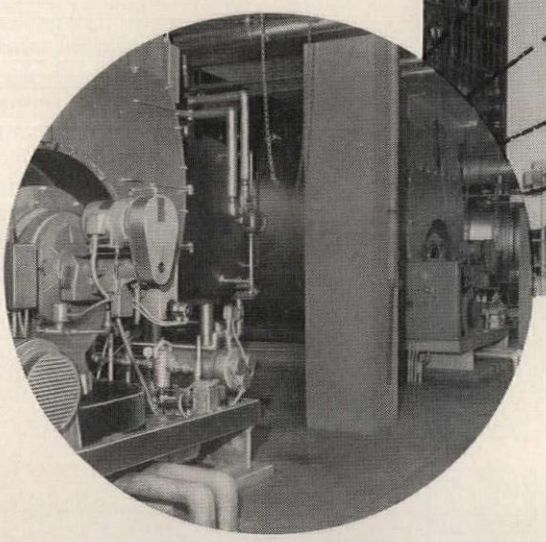
Sound Isolating Machinery Mount
A new machinery mounting, Type LR, has been developed particularly for applications where both noise and vibration must be controlled—for example, in installing heavy air conditioning equipment. The mounting uses steel springs as the vibration- and shock-absorbing medium, but also features a rubber housing that prevents the transmission of structure-borne high-frequency disturbance and noise. It is designed to carry loads of up to 1400 lb per isolator. *The Korfund Co., Inc., 48-08A 32nd Place, Long Island City, N. Y.*



Four-Track Sliding Window
A new four-track sliding window cuts installation costs by including storm and screen tracks in a single frame. All panels are inserted from the inside without tools, and cannot be removed from the outside; the screen panel can be used individually or with the storm sash. Available in a complete range of sizes which includes "picture window" combinations, the four-track slider can be applied equally readily to brick, masonry or frame construction. Both prime window and storm sash have full vinyl weatherstripping to assure noise-free, air-tight fit. *Building Products Dept., Capitol Products Corp., Mechanicsburg, Pa.*

more products on page 248

Where the *steam* comes from



...for Mutual Benefit Life's fine new buildings in Newark, N. J.

Complete firing system in one package. Every factor that affects firing efficiency is engineered into the unit at the factory. The unit includes: (1) Single or dual-fuel burner, with complete fuel handling systems. (2) Forced draft air supply. (3) Enclosed control panel, with instruments mounted, factory wired and tested, and with signal lights and gauges that afford a complete reading at a glance. In the oil-gas units, fuels can be switched automatically, or with the simple flick of a switch.

Fire low cost residual oils

The heavy residual fuel oils (No. 5 and 6) have higher heat value than light heating oils, yet cost less per gallon.

The Iron Fireman boiler-burner units shown here fire these sluggish oils with complete dependability. They protect against fuel emergencies because they can fire *any* grade of oil, light or heavy.

Gas or oil—switch fuels instantly

Dual-fuel models fire either gas or oil, and can be switched either by manual or automatic controls. In some areas gas rates are substantially less for customers whose steam plants switch automatically from gas to oil firing when outdoor temperature falls below a certain level, relieving the load on main gas lines when demand is highest.

Fires all types of boilers

Iron Fireman residual oil firing (with or without gas) is available in complete boiler-burner units ready for service connections, or as a package firing system that can be applied to any type of boiler.

Send coupon for further information

IRON FIREMAN®

AUTOMATIC FIRING EQUIPMENT

FOR OIL - GAS - COAL

IRON FIREMAN MANUFACTURING COMPANY
3144 West 106th Street, Cleveland 11, Ohio
(In Canada, 80 Ward Street, Toronto, Ontario)

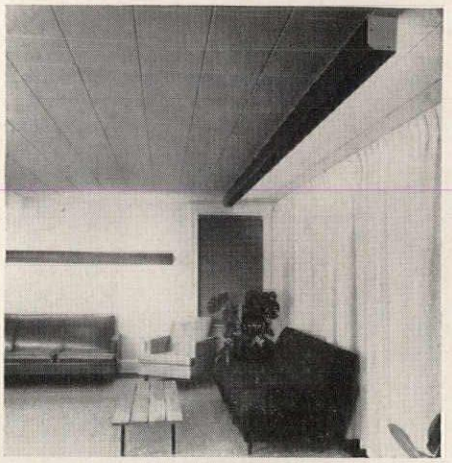
Please send information on Iron Fireman forced draft firing for oil, gas or oil-gas combination.

Name_____

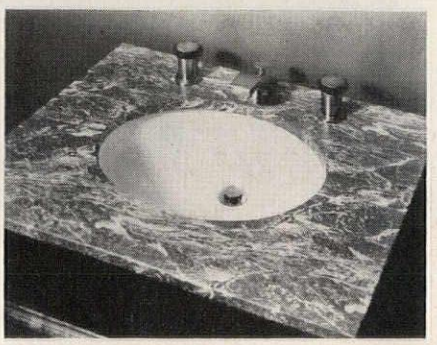
Address_____

City_____ State_____

Product Reports

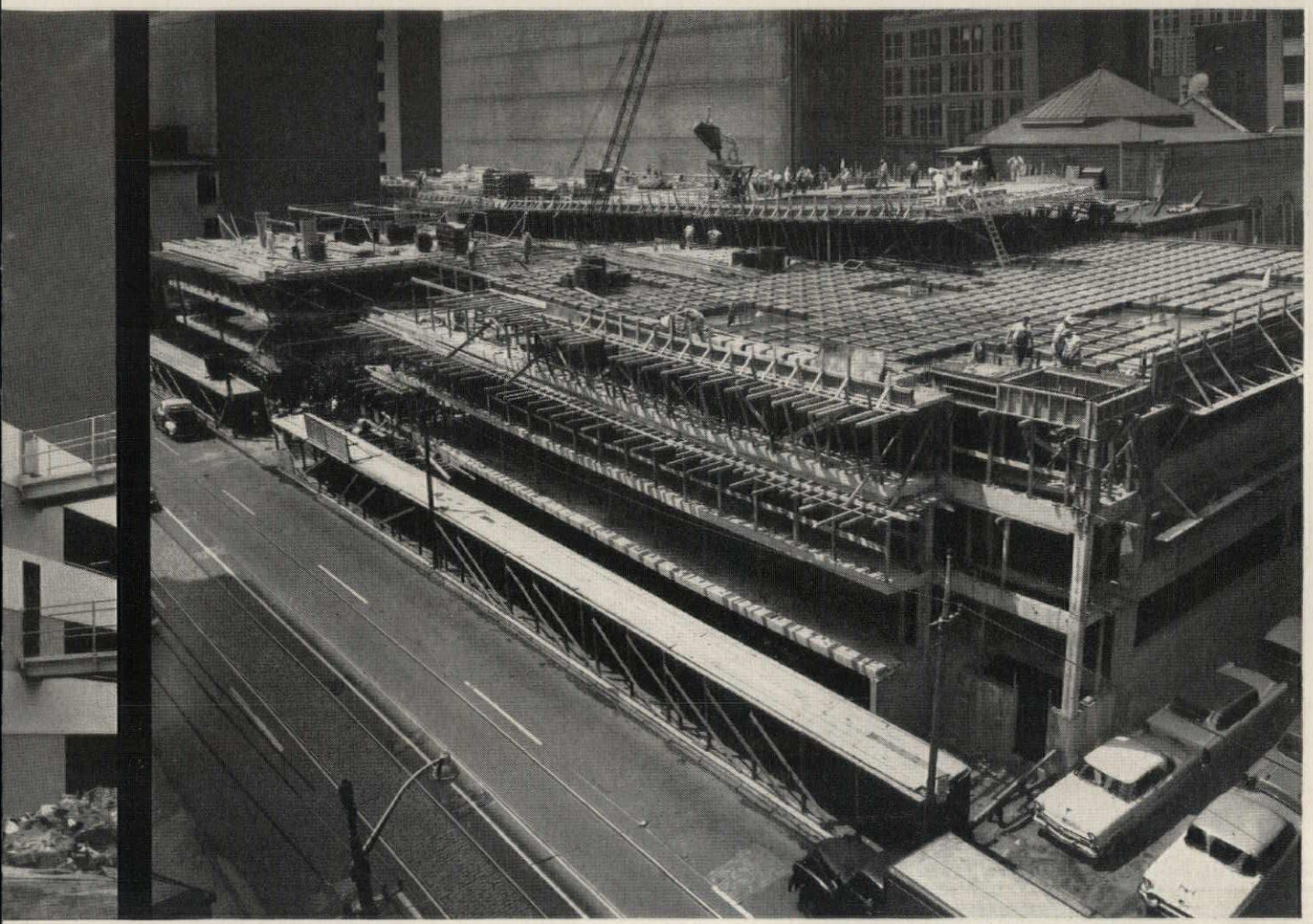


Prefinished Structural Lighting
The versatile new *Modulume* line of prefinished structural lighting is composed of both individual fixtures for specific lighting jobs and units which can be combined to produce fitted installations around corners and to any length. Designed to mount over fluorescent strips, the natural-finished curved wood shields come in a variety of profiles, each of which produces a specific, pre-determined distribution of light. Thus an integrated "custom" lighting scheme can be obtained with low-cost, catalog fixtures. A similar *Modulume* line is available in luminous plastic. *Lam Inc., 404 Main St., Wakefield, Mass.*

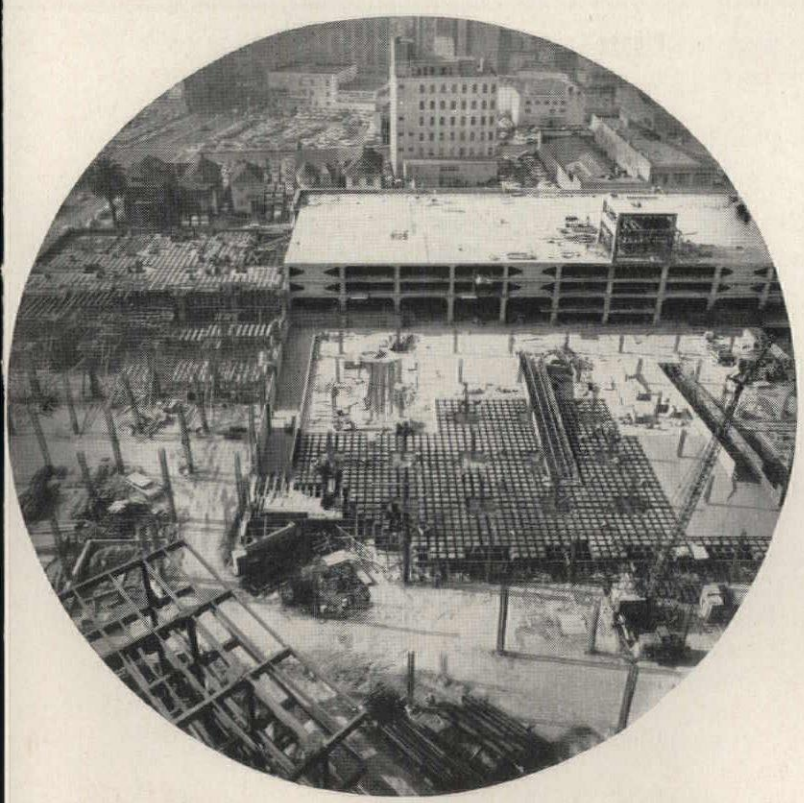


Oval Drop-In Lavatory
The *Ovalyn,* a new oval-shaped vitreous china basin, has been designed to meet the demand for drop-in lavatories for custom bathroom installations. The standard-size rear drain outlet has been placed as close as possible to the rear wall so that standard deck-mounted lavatory fittings can be used; the overflow is placed at the front of the basin to maintain the fixture's clean lines. The bowl is 5½ in. deep, with inside dimensions of 17 by 14 or 19 by 15 inches. It comes in white and eight colors. *American Standard Plumbing & Heating Div., 40 West 40th St., New York 18, N. Y.*

more products on page 254



Site "Y" parking facility, Pittsburgh Parking Authority, Pittsburgh, Pa. Structural Engineer: Leland W. Cook. Contractor: Graziano Construction Co.

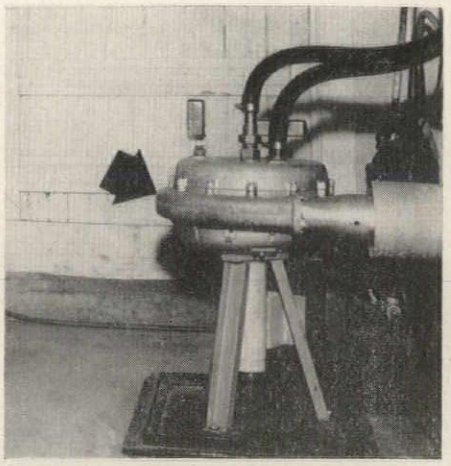


Kaiser Garage and Shops Building, Oakland, California. Architect: Welton Becket and Associates. Structural Engineer: Murray Erick Associates. Contractor: Robert E. McKee, Inc.

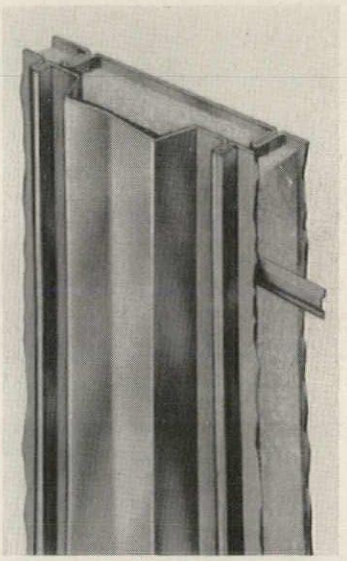
Ceco's one-piece Steeldomes in position, ready for reinforcing steel. Easily erected and removed, Steeldomes speed construction. There is no excessive clean-up expense because forms fit tight, leave no unsightly residue.

Compact, Fast Responding "Boiler" A new type of package "boiler," only one-sixth the size of an equivalent conventional unit, can deliver continuous quantities of 100-psig steam within fifteen seconds, starting with cold tap water. The design of the *Turb-O-Heat* generator is based on a fin-and-tube heat exchanger section rotating at high speed (3600 rpm) within the casing. The centrifugal force on the fluid in the tubes promotes a rapid flow through the tubes, resulting in a high rate of heat transfer—over 300,000 Btuh. It also causes vapor disengagement at the liquid surface rather than at the tube wall, thus preventing scale build-up and fouling of tubes. Since the generator acts as a pump on both the liquid in the tube and the hot gases in the shell, exhaust gas speeds are much higher than usual, and smaller vents can be used than would normally be required.

Because of its compact size (20 in. in diameter, 30 in. high), the generator, either oil- or gas-fired, is expected to find application where space is at a premium as well as



where fast response is important. In addition to fluid heating, it may be adapted for cooling, vapor generation, or condensation. *Turb-O-Heat, Inc., 1133 East 35th St., Brooklyn 10, N. Y.*



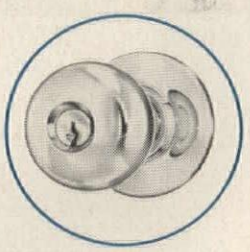
Epoxy-Coated Formed Metal Panels A continuous paint line for coiled sheet steel and aluminum, said to be the building industry's first, is currently turning out sheet metal coated with a baked-on epoxy finish in thicknesses from .0001 to .0025 in. Since the permanent flexibility of the coating permits later forming without peeling, chipping or marking, the assembly-line paint job results in lower production costs—and ultimately in a lower priced product. The pre-painted formed panels are marketed for field assembly as insulated curtain walls, or are factory assembled into insulated curtain wall panels with interior and exterior painted surfaces. Eight opaque colors and four transparent colors (the latter for shiny metals) are currently available in corrugated square-rib and V-beam sheets in lengths up to 60 ft. *Elwin G. Smith & Co., Inc., Pittsburgh 2, Pa.*

more products on page 258

Fresno Community Hospital Addition—

QUALITY IN EVERY DETAIL

SCHLAGE LOCKS THROUGHOUT



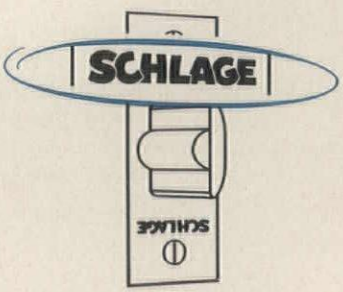
KNOB DESIGN: Plymouth
CHASSIS: Heavy-duty stainless steel

PAINSTAKING attention to the requirements of the staff and the well-being of the patients has made the 200-bed addition to the Fresno Community Hospital a showplace in its field.

Such refinements as wall-to-wall carpeting in public rooms and corridors; television, radio and telephone for each room; oxygen piping into each room and individual air-conditioning control for each room add to the efficiency and comfort of this modern hospital. The natural lock choice was Schlage, with its corrosion-resistant, stainless-steel trim so necessary to resist the strong cleaning solutions used in hospitals.

Schlage has a complete line of locks with features engineered for hospitals. Schlage designs fit the structural and artistic requirements of your hospital specifications. Schlage Lock Company ... San Francisco ... New York ... Vancouver, B.C.

AMERICA'S MOST DISTINGUISHED LOCK BRAND



Now! You can use Armstrong Acoustical Fire-Guard for a wide range of time-design requirements

And new Acoustical Fire-Guard allows you to cut down on building costs without sacrificing rated fire protection

New Armstrong Acoustical Fire-Guard offers the advantages of an acoustical tile ceiling *and* rated fire protection at a lower cost than that of comparable competitive methods. You can now specify Acoustical Fire-Guard for a wide range of time-design requirements in incombustible construction. In areas where building codes are most rigid —and three- or four-hour floor-ceiling assemblies are required—specify the Armstrong Acoustical Fire-Guard ceiling system with a *four-hour* time-design rating. Where building codes require only a one- or two-hour rating, it will be more economical to specify the *two-hour*-rated Acoustical Fire-Guard system.

Here's why Armstrong Acoustical Fire-Guard ceilings are more economical

They eliminate the need for costly intermediate fire protection. Previously, it was necessary to (1) utilize reinforced concrete construction, or (2) spray steel structural members with an insulating material, or (3) suspend a lath and plaster fire stop to which the acoustical ceiling could be applied.

Saves construction time

Armstrong Acoustical Fire-Guard is installed by a completely dry method. There are no costly delays of the kind that can occur because of "wet" operations. No extra moisture is introduced into the building to delay finishing operations.

Here's what Underwriters' Laboratories, Inc., reported

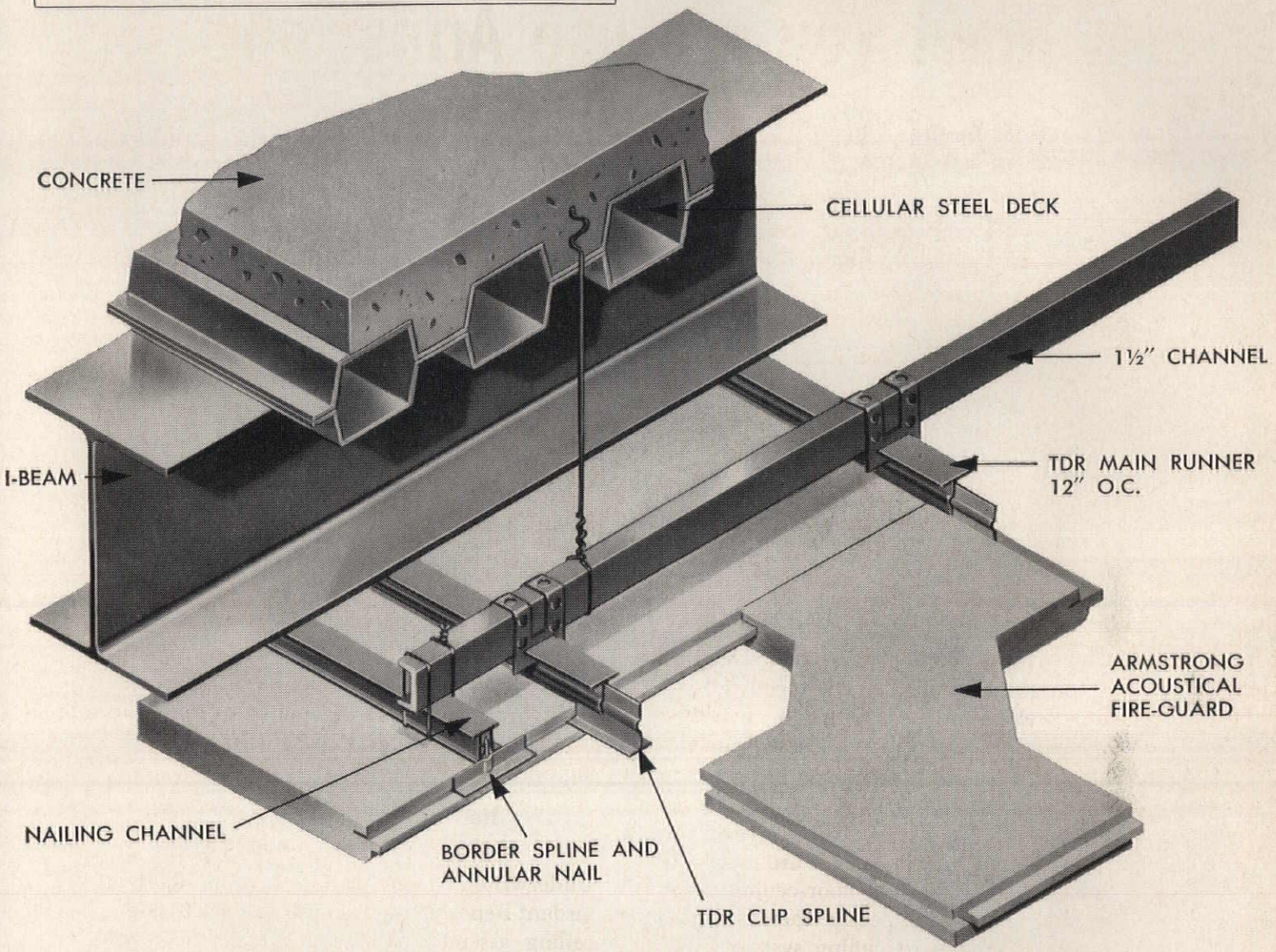
Underwriters' Laboratories, Inc., in its Retardant Report #4177-2, stated that the floor-ceiling assembly utilizing ¾" Acoustical Fire-Guard had been tested and given a *four-hour* rating. Report #4177-3 stated that the floor-ceiling assembly utilizing ⅝" Acoustical Fire-Guard had been tested and given a *two-hour* rating.

Acoustically efficient

The noise-reduction coefficient for both the ¾" and ⅝" Acoustical Fire-Guard ceilings is .70 (A.M.A. rating). This acoustical efficiency is built in at the factory.

For more information and specific cost data, consult your Armstrong Acoustical Contractor. Or, call your Armstrong representative or write to Armstrong Cork Company, 4207 Rock Street, Lancaster, Pennsylvania.

THE FOUR-HOUR-RATED ASSEMBLY



A partial list of buildings for which Armstrong Acoustical Fire-Guard has been chosen

Robin-Mickle Junior High School
Lincoln, Nebraska
Unthank & Unthank, Architects

Roxborough High School
Philadelphia, Pennsylvania
Heacock & Platt, Architects

Aged Women's and Aged Men's Home
Towson, Maryland
The Office of James R. Edmunds, Jr., Architect

Westbrook Junior High School
Omaha, Nebraska
Leo A. Daly Co., Architects

St. Marks Methodist Church
Raleigh, North Carolina
William Moore Weber, Architect

St. Joseph's Seminary Dormitory
Adrian, Michigan
Barry & Kay (Chicago), Architects

Cherry Hill Inn
Delaware Township, New Jersey
George M. Ewing Co., Architects

St. Louis Hills Medical Building
St. Louis, Missouri
Robert Graham, Architect

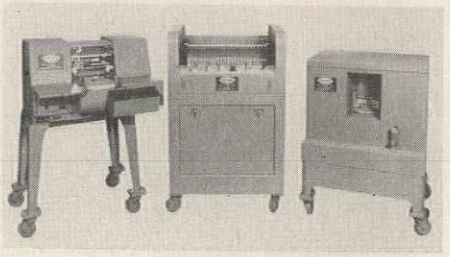
Immaculate Conception Parish School
Corsicana, Texas
Harper & Kemp (Dallas), Architects

Most Holy Rosary School
Syracuse, New York
Pederson, Hueber & Hares, Architect

Armstrong ACOUSTICAL CEILINGS

Product Reports

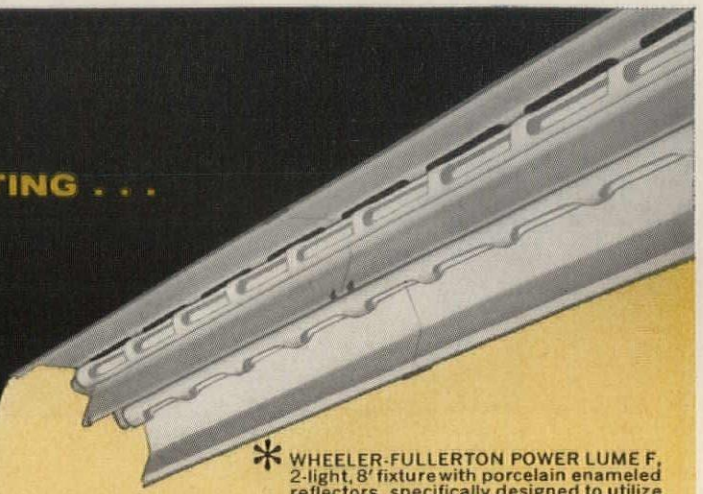
Textured Laminated Plastic
A third dimension—texture—has been added to G-E's *Textolite* laminated plastic surfacing. The warmer finish is said to produce a more realistic appearance in wood grain patterns and to eliminate objectionable glare from table and desk tops and the like. It also has improved wearability and does not show fingerprints or smudges as readily as do the smooth-finished plastics. The *Textured Textolite* surfacing comes in selected colors and patterns, including solids, mists and grains in standard sheet sizes. *General Electric Co., Laminated Products Dept., Coshocton, Ohio*



Theatrical Lighting Control System
Punch, a new automatic preset system for control of stage lighting, is said to be the first which can control an infinite number of presets instead of the ten previously possible. It consists of three electrically-operated units: a manual control console, a card punching machine, and a card reading machine. During rehearsal, lighting values for any desired number of scenes are set manually and the proper circuits punched into cards, which are placed in sequence in a hopper. As the show progresses, these cue cards are automatically fed into the read-out machine, and consecutive cues read into two sets of electric translators. Manual operation of the master control lever allows the operator to fade quickly or slowly from one preset to the next. As each circuit comes in, the card that set it is ejected and replaced by another so that all the circuits in a show can be controlled by simply switching the master lever back and forth from one set of translators to the other. Since there is no limit to the number of cards that can be used, and since it takes only half a second to feed and read a card into the translator, scenes could conceivably be changed at the rate of 120 per minute. All commonly-used types of dimmers can be adapted to this preset system; and, by using the proper auxiliaries, cross connecting, positioning and color can also be preset. *Century Lighting, Inc., 521 West 43rd St., New York, N. Y.*

WHEELER-FULLERTON* LIGHTING . . .

FABRICATES A NEW DEAL FOR STEEL!



* WHEELER-FULLERTON POWER LUME F, 2-light, 8′ fixture with porcelain enameled reflectors, specifically designed to utilize fully the extra illuminating power of Power Groove lamps. 14° shielding.

Machine area, Vincennes Steel, equipped with 53 W-F #E8536-DIF two-lamp 8″ Power-Lume units. Mounting ht. 15′ on sides, 17′ in center.

Large work areas call for maximum effectiveness in light distribution. Wheeler-Fullerton fixtures are engineered specifically to achieve just this result as in the extensive fabricating area at Vincennes Steel Division of Industrial Enterprises, Inc., Vincennes, Ind.

Wheeler-Fullerton fixtures provide vital extras in more comfortable seeing, long life and ease of maintenance. Diffuser apertures allow for cooler operation and provide an upward component of light to relieve brightness contrast.

To solve your problems in lighting installation write for complete information about Wheeler-Fullerton fixtures engineered for the job at hand.

WF

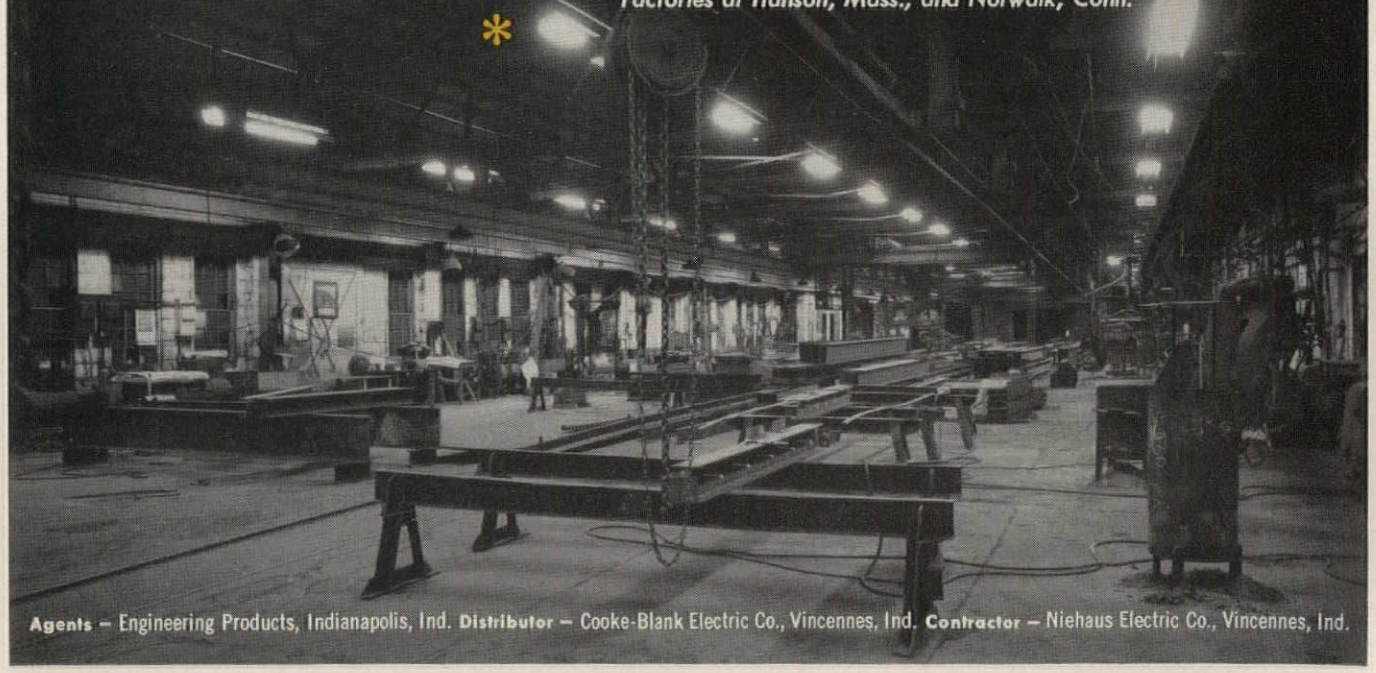
WHEELER • FULLERTON

Lighting Division · Franklin Research Corp.

275 CONGRESS STREET, BOSTON 10, MASS.

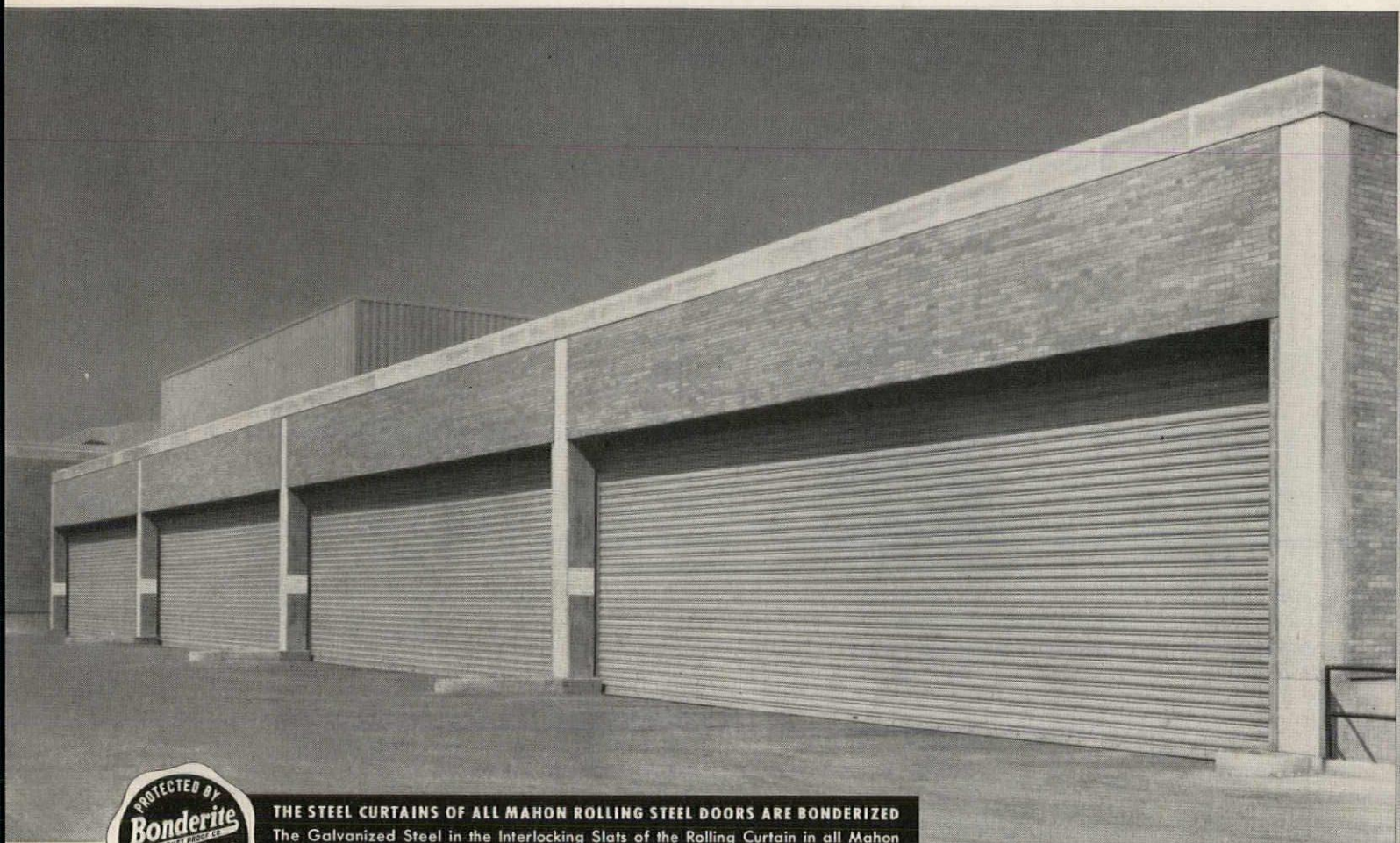
Factories at Hanson, Mass., and Norwalk, Conn.

*



Agents – Engineering Products, Indianapolis, Ind. **Distributor** – Cooke-Blank Electric Co., Vincennes, Ind. **Contractor** – Niehaus Electric Co., Vincennes, Ind.

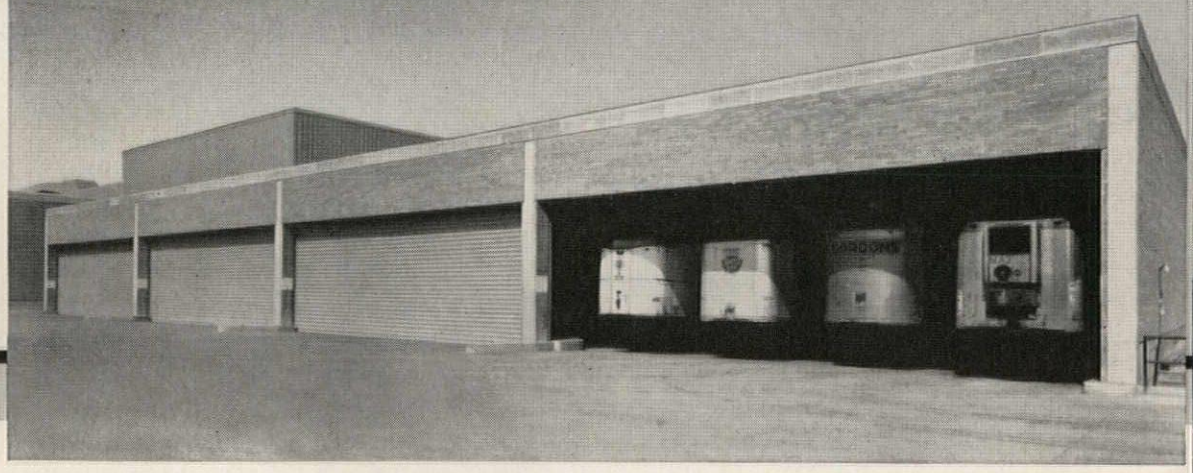
Mahon ROLLING DOORS



PROTECTED BY Bonderite PARKER RUST PROOF CO. QUALITY CORROSION RESISTANT

THE STEEL CURTAINS OF ALL MAHON ROLLING STEEL DOORS ARE BONDERIZED

The Galvanized Steel in the Interlocking Slats of the Rolling Curtain in all Mahon Rolling Steel Doors is Chemically Cleaned, Bonderized, and Dip Coated with Rust-Inhibiting Synthetic Enamel which is baked on at 350° F. prior to roll-forming.



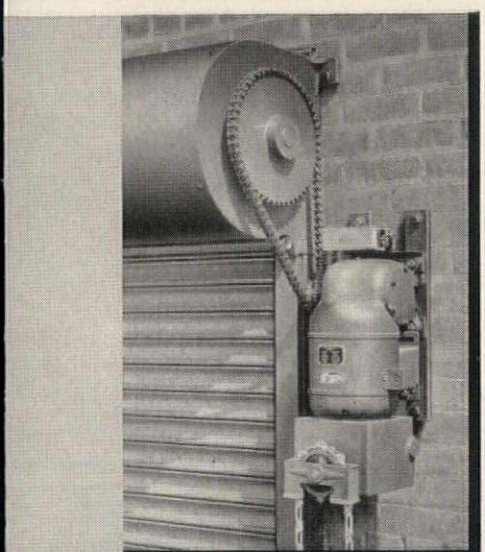
Illustrated here are Four Mahon Power Operated Rolling Steel Doors installed in Openings 48'-5" x 15'-6" in a new, enclosed loading dock in the plant of Mars, Inc., Chicago, Illinois, producers of the famous Mars Candy Bars and numerous other confections. The Roll-Up Curtains of these Doors are constructed with 6" Jumbo Slats which were Roll-Formed from Bonderized, Enamel Coated Galvanized Steel.

Walter J. Olson & Co., Gen. Contr.

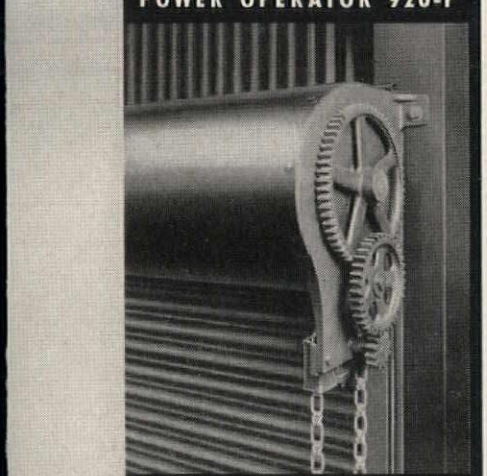
Serving the Construction Industry Through Fabrication of Structural Steel, Steel Plate Components, and Building Products

Meet Unusual Requirements in Wide, Loading-Dock Openings!

In Operation, the Fast, Vertical Roll-up Action Saves Valuable Time and Space — No Overhead Tracks to Restrict Headroom



MAHON STANDARD POWER OPERATOR 920-P



MAHON CHAIN-GEAR OPERATOR

MANUALLY, MECHANICALLY, or POWER OPERATED DOORS
STANDARD and UNDERWRITERS' LABELED TYPES

☆ OTHER MAHON BUILDING PRODUCTS and SERVICES:

- Insulated Metal Curtain Walls
- Underwriters' Rated Metalclad Fire Walls
- M-Floors (Electrified Cellular Steel Sub-Floors)
- Long Span M-Decks (Cellular or Open Beam)
- Steel Roof Deck
- Permanent Concrete Floor Forms
- Acoustical and Troffer Forms
- Acoustical Metal Walls and Partitions
- Acoustical Metal Ceilings
- Structural Steel—Fabrication and Erection
- Steel Plate Components—Riveted or Welded

☆ *For INFORMATION See SWEET'S FILES or Write for Catalogues*

THE R. C. MAHON COMPANY • Detroit 34, Michigan
Sales-Engineering Offices in Detroit, New York, Chicago and Los Angeles
Representatives in all Principal Cities

of Steel and Aluminum

MAHON

Office Literature

continued from page 224

Color Planning with Ceramic Tile
Twenty-eight full color photographs illustrate suggested color schemes for ceramic tile installations in bathrooms and other rooms. Bulletin 450, 16 pp. *American-Olean Tile Co., 1000 Cannon Ave., Lansdale, Pa.**

Lighting Control System
Includes photographs and dimensional drawings of the components of the *Mark II* lighting control system; operational data; and a diagram of a typical installation. Bulletin EPD 5426-1, 8 pp. *Vickers Inc., Electric Products Div., 1815 Locust St., St. Louis 3, Mo.*

Western Red Cedar Lumber
. . . *Grades and Uses* (A.I.A. 19-A-1) describes and illustrates the various grades of Western red cedar lumber and their recommended use for bevel siding, finish, flooring and decking, boards and dimension lumber. 36 pp. *West Coast Lumbermen's Assn., 1410 S.W. Morrison St., Portland 5, Ore.**

Boiardi Tile
(A.I.A. 23-E) Illustrates available patterns and typical installations of Boiardi tile, a compressed concrete molded block with a ground and polished wearing surface of decorative aggregate. 4 pp. *Boiardi Tile Mfg. Corp. of Wisconsin, 722 N. Jefferson St., Milwaukee 2, Wis.*

Ceramic Products Manual
Ring binder contains up-to-date literature, price lists and technical specifications on the *Romany-Spartan* line of ceramic tile. Code No. RS-217, $2. *United States Ceramic Tile Co., 217 Fourth St. N.E., Canton 2, Ohio**

Wind Pressures in Various Areas
. . . *of the United States*, by G. N. Brekke, National Bureau of Standards Building Materials and Structures Report 152, contains a step-by-step description of procedures used to develop a design wind pressure map for the United States, and a table showing the increase in wind pressure with increase in height above ground for the various pressure areas on the map. Both are intended to serve as practical guides in the writing of building codes and the designing of structures. 8 pp. 15¢. *Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.*

**Additional product information in Sweet's Architectural File, 1959*

more literature on page 270

Bethlehem Steel Pipe works easily, installs fast. Beth-Co-Weld is furnished, black or galvanized, in sizes from ½ to 4 in., nominal, and in uniform 21-ft lengths, ± 1-in., and in random or cut lengths. We produce larger diameters as Electric Resistance-Weld Steel Pipe.

BETH-CO-WELD in BOSTON

Long-Term Steel Pipe Service for New Travelers Insurance Building

THE Travelers people practice what they preach. Their new 16-story office building is well protected against fire by a network of sprinkler and fire lines. But this is their *real* insurance: the lines are fabricated from Beth-Co-Weld and Bethlehem Electric Resistance-Weld Steel Pipe.

Vent and drain lines, too, are steel pipe made by Bethlehem—some galvanized and furnished in extra-long 23-ft, 2-in. lengths which, cut in half, run the full 11-ft, 7-in. story height. Travelers found true economy in Bethlehem Steel Pipe.

In any building, durable, low-cost steel pipe is a sound choice. On your next job, use Beth-Co-Weld and Bethlehem Electric Resistance-Weld—Steel Pipe at its best.

BETHLEHEM STEEL COMPANY
BETHLEHEM, PA.

Export Distributor:
Bethlehem Steel Export Corporation

Architect: Kahn & Jacobs, New York. *General Contractor:* George A. Fuller, Boston. *Plumbing Contractor:* Crane Plumbing and Heating Co., Cambridge, Mass. *Pipe Jobber:* Charles D. Sheehy, Inc., South Boston.

BETHLEHEM STEEL

RUBBER and VINYL SEALS

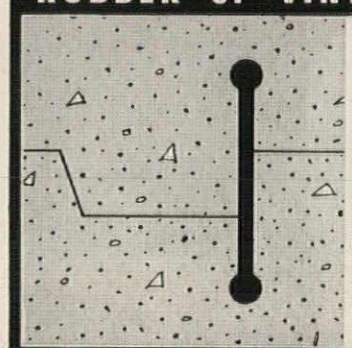
FOR MASONRY JOINTS

Water Seals for cast-in-place construction joints between concrete footings and walls, walls and floor slab, wall section and wall section, and floor slab and floor slab.

Sealing Gaskets for use between sill and coping stones, brick and stone wall panels, masonry wall panels and structural steel members.

Sealing strips for control joints in block constructed walls . . . watertight seals with an inherent, permanent liveliness for use in Michigan and Besser Control Joints.

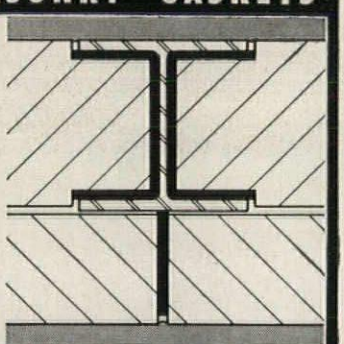
RUBBER or VINYL WATERSTOPS



Williams Waterstops are made from Natural Rubber Stock and designed for maximum effectiveness in any type of cast-in-place construction joint. They will bend around corners, and will not crack or tear from shear action. Tensile Test: 3990 lbs., Elongation Test: 650%. Available in rolls up to 80 feet in length. Field splicing is simple. Williams Waterstops can also be furnished in Vinyl or Neoprene for industrial uses where resistance to oil and other injurious wastes is desirable.

EVERLASTIC MASONRY GASKETS

Everlastic Masonry Gaskets are a readily compressible, nonabsorbent Elastomer impervious to water and inert to heat, cold and acids. In masonry joints they permit linear expansion in summer heat, and seal joints against moisture which causes frost damage in winter. Everlastic Gaskets are furnished die-cut to specifications and coated with pressure sensitive adhesive . . . they should be used between sill and coping stones, brick or stone wall panels, and masonry and structural steel members.



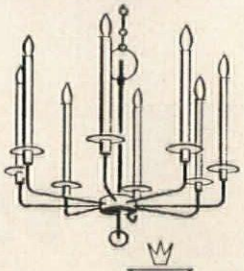
WEATHERTITE for CONTROL JOINTS

Weathertite is a specially shaped, nonporous, expanded Polyvinyl Chloride strip which provides multiple, continuous contact surfaces when compressed, and thereby produces the positive pressure contact essential for an effective watertight seal in standard control joints in block constructed walls. Weathertite is available in two types to meet all requirements. Type "R" is made especially for use in Michigan Control Joints; Type "RB" is made especially for use in Besser Control Joints.

See Sweet's Files, or Write for Information.

WILLIAMS
EQUIPMENT and SUPPLY CO.
456 W. Eight Mile Rd., Hazel Park, Michigan

These select showrooms offer you



Enchanté

lighting fixture originals by **THOMAS**

ALABAMA

Mobile
Clower Electric Supply Co.

ARIZONA

Phoenix
Lighting Associates, Inc.

CALIFORNIA

Bakersfield
Fabulous Electric Supply

Los Angeles
Allied Lighting Products

Sacramento
Superior Sales Co.

CONNECTICUT

Hartford
The Sticklor Elec. Sup. Co.

New Haven
C. S. Mersick Co.

Norwich
Higgins Electric Supply Co.

FLORIDA

Clearwater
Morley Electric Supply Co.

Cocoa
Ace Electric Supply Co.

Ft. Lauderdale
American Lighting Co., Inc.

Jacksonville
Ace Electric Supply Co.
Jax Electric Supply Co.

Miami
Farrey's Lighting—Div. of Farrey's Whlse. Hdwe. Co.

Pensacola
Cesco, Inc.

Pompano Beach
American Lighting Co., Inc.

St. Petersburg
Morley Electric Supply Co.

GEORGIA

Atlanta
Electrical Wholesalers, Inc.
Noland Company, Inc.

Columbus
P & W Electric

Macon
Lowe Electric Co.

ILLINOIS

Aurora
Electric Supply Corp.

Chicago Heights
Helsel-Jepperson Electrical

Chicago
Illuminating Electric Co.
Majestic Electric Supply Co.
Standard Elec. Supply Corp.

Crystal Lake
Northern Ill. Elec. Sup. Co.

Forest Park
Bonny Electric Supply Co.

Mattoon
Mattoon Elec. Supply Co.

Peoria
Kiefer Electrical Supply Co.

INDIANA

Anderson
Peerless Electric Supply Co.

Ft. Wayne
The Mossman-Yarnelle Co.

Hammond
Tri-City Electric Service Co.

Indianapolis
Peerless Electric Supply Co.

IOWA

Burlington
Crescent Electric Supply Co.

Sioux City
Warren Electric Company

KANSAS

Kansas City
W. T. Foley Elec. Supply Co.

KENTUCKY

Hopkinsville
Cayce Mill Supply

Louisville
Henry J. Rueff Co., Inc.
Hoffman Lighting

Paducah
Ohio Valley Supply Co.

LOUISIANA

Baton Rouge
Baton Rouge Elec. Supply
Graybar Electric Co.

New Orleans
Nu-Lite, Inc.

Shreveport
Electric Supply Co., Inc.
Interstate Elec. of Shreveport

MAINE

Portland
Holmes Electric Supply

MARYLAND

Baltimore
Commerce Distributors, Inc.

MASSACHUSETTS

Boston
Gem Electric Supply Corp.

Cambridge
Edmar Electric Supply Co.

Fall River
J. O. Neill Supply Co.

Salem
DeLande's Supply Co., Inc.

Springfield
Eastern Electric Supply

MICHIGAN

Kalamazoo
L. R. Klose Electric Co.

Roseville
Ray's Elec.: De Steiger, Inc.

Saginaw
Morley Bros. Whlse. Elec.

MINNESOTA

Mankato
So. Minnesota Supply Co.

Minneapolis
Northland Elec. Supply Co.

Rochester
S. M. Supply Co.

MISSISSIPPI

Jackson
Cabell Electric Co.

MISSOURI

St. Louis
Western Extralite Corp. of St. Louis

Springfield
Harry Cooper Supply Co.

NEBRASKA

Lincoln
Lincoln Electric Supply Co.

NEW MEXICO

Albuquerque
Electric Supply Co.

NEW JERSEY

Atlantic City
Maegin Electric Supply Co

Bridgeton
M & G Electrical Supplies

Camden
Flynn's Camden Electric Supply Co.

Phillipsburg
Leidy Electric Co.

Trenton
Griffith Electric Supply Co.

NEW YORK

Middletown
Great Electric Sales

New Rochelle
Max Goldman, Inc.

Niagara Falls
Hysen Supply, Inc.

Rochester
Rowe Electric Supply Co.

NORTH CAROLINA

Wilson
Electric Supply Co. of Wilson, N. C.

OHIO

Akron
The Hardware & Supply Co.

Alliance
Robertson Supply Co.

Columbus
McCleery Carpenter Electric Co.

Dayton
John Becker Company
Stanley Electric Supply Co

Lima
State Electric Supply Corp

Youngstown
Storm Electric, Inc.

OREGON

Eugene
Tillman & Booth, Inc.

Portland
Baker-Barkon Company

PENNSYLVANIA

Harrisburg
Schaedler Bros. Inc.

Johnstown
Swank's

Kingston
Anthracite Elec. Supply Co

Meadville
Warehouse Elec. Supply Co

Reading
Yale Electric

Scranton
Lewis & Reif, Inc.

York
York Electrical Supply

RHODE ISLAND

Newport
J. T. O'Connell, Inc.

SOUTH CAROLINA

Columbia
Noland Company, Inc.

TEXAS

Amarillo
Nunn Electric Supply Corp

UTAH

Salt Lake City
Graybar Electric Company

WASHINGTON

Spokane
Inland Electric Co., Inc.

Seattle
Brennan Supply Co.

WEST VIRGINIA

Charleston
Capitol Light Company

Huntington
State Electric Supply Co.

Wheeling
Electrical Cont. Supply Co

WISCONSIN

Beloit
Lappin Electric Co. of Beloit, Inc.

Green Bay
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An exclusive line of lighting masterpieces to excite your imagination! Created by outstanding European and American designers. Crafted with Old World care from exquisite imported glass, sparkling metals, and woods of rare beauty. Let this distinguished line of decorative pendants, pull-downs, chandeliers, clusters, wall brackets help you carry out your creative ideas to enchanting perfection.

A BROAD SELECTION FOR THE MOST DISCRIMINATING—E-8560 and matching wall bracket E-8562 shown. One of the many exciting designs, contemporary and traditional, which make the complete Enchante line a gold mine of designing and decorating opportunities for you. On display at showrooms listed on opposite page.

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Executive Office:
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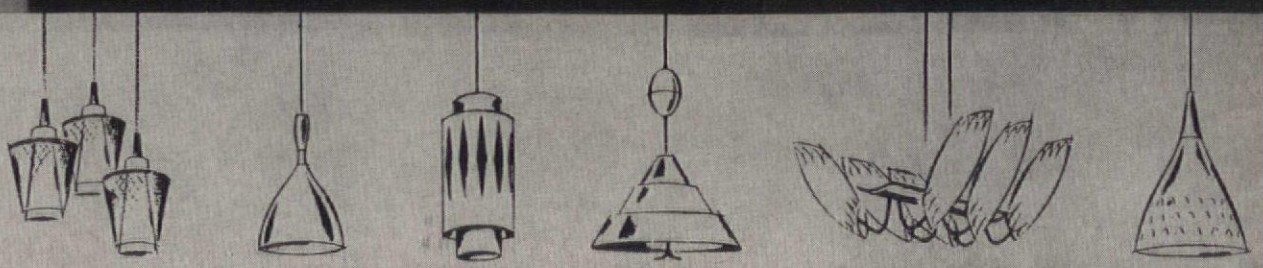
Distributed on a selective basis... crafted on a selective scale. Your note on a professional letterhead will put you in touch with an Enchante representative. Photographic portfolio of entire line available now.



Industrial and Motor Controls
Illustrates and describes B/W magnetic contactors, starters and reversing contactors, together with diagrams of enclosures and dimensions. 12 pp. *B/W Controller Corp., 2211 East Maple Rd., Birmingham, Mich.*

Air Purification Equipment
Twelve-page Bulletin 108A on *Dorex* activated carbon air purification equipment (C Cells and H Canisters) provides data on equipment selection, installation and application. *Connor Engineering Corp., Danbury, Conn.**

Telephone Planning
. . . for Modern Commercial Buildings contains a step-by-step review of the provisions that must be made in the early stages of construction in order to assure flexible, adequate facilities for telephone communications systems. 22 pp. *American Telephone and Telegraph Co., Room 510-C, 195 Broadway, New York 7, N.Y.**

Aluminum Store Fronts
. . . and Entrances is a two-part catalog and installation guide, the first twenty-four pages of which give complete product information and specifications for *Amarlite* aluminum entrances. A second section, 16 pages, gives similar information on store fronts. *American Art Metals Co., 433 Highland Ave., Atlanta, Ga.**

Clean-Line Aluminum Rail System
(A.I.A. 14-D-4) contains details of component parts and standard combinations of *Clean-Line* railing. *Architectural Art Mfg. Co., 3239 N. Hillside, Wichita 14, Kan.**

All Purpose Shelving
(A.I.A. 14-G) Illustrates and gives sizes, weights and prices of components in the *Erecta-Shelf* line of steel shelving for industrial and commercial use. 4 pp. *Metropolitan Wire Goods Corp., North Washington St. and George Ave., Wilkes-Barre, Pa.*

Roof Decks of Lightweight Concrete
(A.I.A. 4-K) Describes lightweight aggregate concrete slabs and planks for all types of roof and floor deck systems, with specification details, data charts and installation drawings. 12 pp. *Federal Cement Tile Co., 33 W. Jackson Blvd., Chicago 4, Ill.*

Sico Equipment for Schools
. . . and Institutions details line of portable folding tables for multi-use spaces. 16 pp. *Sico Mfg. Co., Inc., Dept. KP, 5215 Eden Ave. S., Minneapolis 24, Minn.*

Furniture for Community Living
Catalogs complete line of storage units, stacking furniture (chairs, tables and cots), tables and desks designed for use in schools and institutions. 24 pp. *School Interiors, Inc., 5 University Place, New York 3, N. Y.*

Hospital Casework
(A.I.A. 35-K) Eighty-two page catalog and planning book shows specialized furniture and equipment, floor plans and elevations for laboratories, pharmacies, operating rooms, nurseries, patient and utility rooms, offices and suites. *Technical Furniture, Inc., 3006 West Front St., Statesville, N. C.*

Kem Tech Furniture
(A.I.A. 35-E) Describes and illustrates *Kem Tech* line of stock laboratory furniture and equipment, and gives eight science room plans with equipment lists, and mechanical service roughing-in details for each item shown. 28 pp. *Kewaunee Mfg. Co., 5046 S. Center St., Adrian, Mich.*

**Additional product information in Sweet's Architectural File, 1959*

LOCKWOOD "LOOK-ALIKES"

serve ALL your lock requirements

Lockwood provides a wide range of selectivity in types and grades of locks — with matching trim.

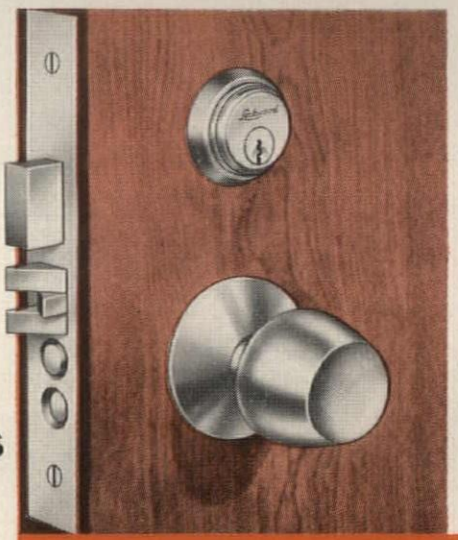
Where maximum security is desired — exterior doors, for example — heavy duty mortise locks with husky deadbolts can be specified.

Entrances to offices, suites and various other interior doors can be equipped with heavy duty cylindrical locks.

Closet doors and some doors in service areas may be adequately equipped with standard duty cylindrical locks.

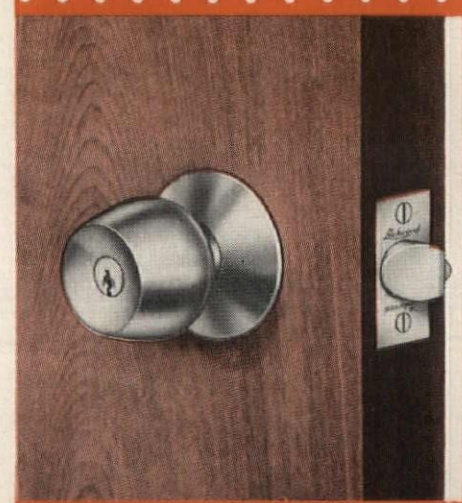
An ever increasing number of architects are specifying Lockwood to ensure a high standard of quality plus the advantages of this wide range of selectivity.

See Lockwood Catalog 18E-LO in Sweet's Architectural File or a copy will be sent promptly on request.



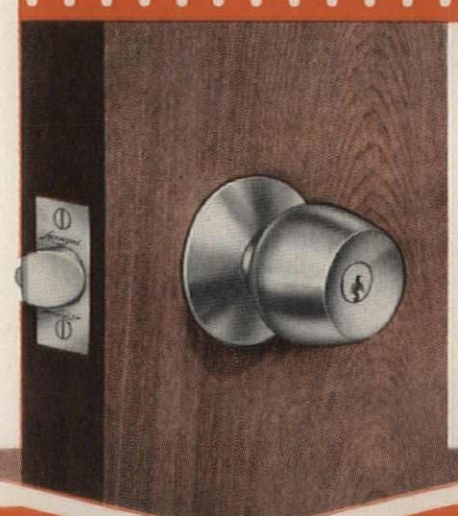
ZEPHYR — heavy duty mortise lockset

"B5100" Series mortise locks are available in a full range of functions and finishes. Made to standardized dimensions they are interchangeable in the same mortise. They feature anti-friction latch bolts and armored fronts.



AUBURN — heavy duty cylindrical lockset

"H" Series cylindrical locks are available in a full range of functions and finishes and with standardized dimensions. They feature a heavy forged brass structural chassis which assures rigid alignment after installation, smooth operation and long trouble-free performance.



AMHERST — standard duty cylindrical

"S" Series cylindrical locksets are available in a full range of functions and finishes. They can be furnished to interchange in the same mortise as "H" Series heavy duty locks, when so specified. Features are full ½" throw latch, screw-on type roses, long knob bearings eliminate "knob wobble".

LOCKWOOD

LOCKWOOD HARDWARE MANUFACTURING COMPANY, FITCHBURG, MASSACHUSETTS

There is no substitute for safety, and Polished Misco (wired) affords proven protection for youngsters in the new Walt Disney Elementary School, at Tullytown, Pennsylvania.

Architect: John Carver,
2112 Spruce St., Philadelphia, Pennsylvania

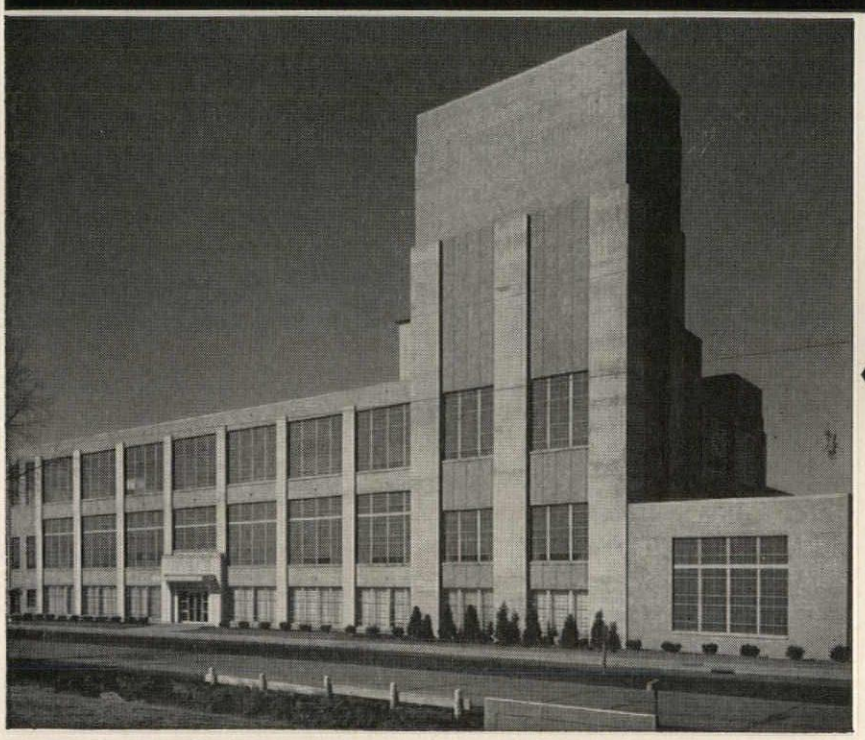
Heat absorption provided by 38,750 sq. of Mississippi Coolite glass make patients more comfortable in the John J. Kane, Allegheny County Institution District (Hospital for the Indigent Sick).

Associate Architects: Button & McLean—Mitchell & Ritchey, Pittsburgh, Pennsylvania
General Contractor: Sherry Richards Company, Chicago, Illinois
Glazing: United Plate Glass Company, Pittsburgh, Pennsylvania

At the Philadelphia International Airport, modern vistas are created by 10,000 sq. ft. of 60" wide lights of Polished Misco (wired glass).

Architect: Carrol, Grisdale and Van Allen, Philadelphia, Pennsylvania
Glazing: Pittsburgh Plate Glass Company

ROLLED GLASS . . . .



New factory of American Chicle Company, Rockford, Ill. where 14,000 sq. ft. of Coolite Wire glass, Glare Reduced, combines heat absorption with protection.

Architect: William Higginson & Sons,
New York, N. Y.
General Contractor: Sjostrom & Sons, Inc.,
Rockford, Illinois
Glazing: National Mirror Works, Rockford, Illinois

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The versatility of Rolled Glass provides architects with a practical solution to a variety of daylighting problems. Glass for daylight control, glass that absorbs heat, glass that decorates and glass that protects—they're all available in translucent light diffusing patterns, plain or wired (the latter for obscurity or clear vision) to meet every requirement. For utility, beauty, and economy unmatched by any other glazing medium, specify Mississippi Glass. Write today for free catalog. Address Dept. 7.

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MANUFACTURER OF ROLLED, FIGURED AND WIRED GLASS

FOUNTAINS

continued from page 222

ending combinations to provide maximum variety in the color and water display.

The floodlight sequence controller could, of course, take on many more complex forms. For example, the controller might also vary the intensity of each color by changing voltage on the lamps.

PUMP VAULT

The dimensions of the pump vault should be more than just adequate to house all controls. A maintenance man should be able to move around easily without being cramped for space.

From the standpoint of economics and hydraulic considerations the pump vault should be placed near the pool proper. The entrance to the vault should be concealed by bushes, shrubs or other suitable means.

It is well known that electrical controls and other gear should be operated in an atmosphere relatively free from humidity. Therefore, the pump vault should be well ventilated and also be equipped with a sump pump so as to prevent damage in the event of any major leaks. The installation of heaters in the vault has been successful in reducing the relative humidity.

If it is contemplated to locate a pump vault on a sloping hillside at the fountain site, a self-priming pump should be used. If a non-self-priming pump is used it must be located at an elevation which will permit the suction line to initially flood the pump or else manual priming will be required each time the pump motor is energized.

SIZE AND LOCATION

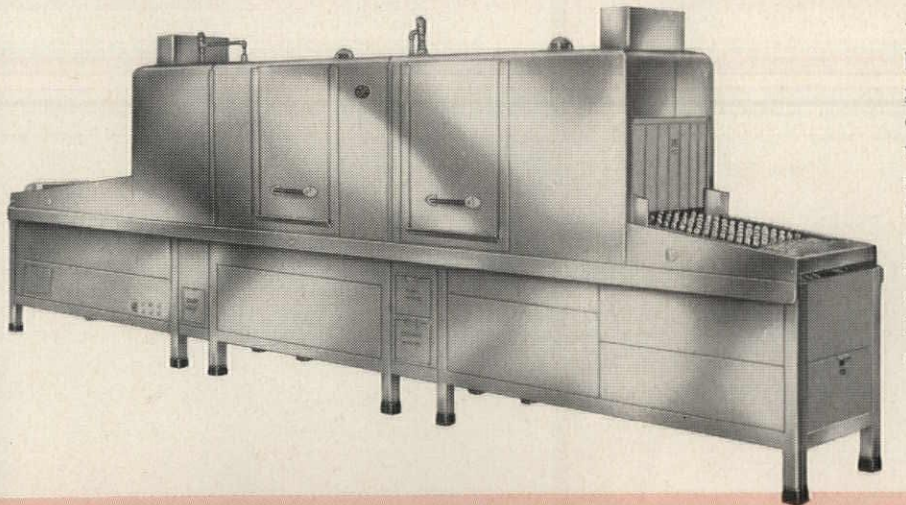
As a practical point the radius of the outer pool should not be less than the maximum water projection height. In extremely windy locations it may be desirable to increase the radius to two times the maximum water projection, so as to not continually wet the landscape and/or spectators.

The actual location of a fountain is best selected where there is a minimum of ambient light, especially when colored light is to be used. Any environmental light tends to wash out the relatively low brightness produced by underwater colored floodlighting either by reducing its contrast with the surroundings or by adapting the spectator's eyes to a higher level of brightness.

continued on page 282

one thing in common...

...their tableware was washed by a Hobart Flight-Type dishwasher...standard for volume operations



Whether in a restaurant, hotel...cafeteria in an office building, school or industry, they do have one thing in common! They eat every day, and agree with you on clean tableware. Hobart dishwashers are the unparalleled answer. "Unequaled speed, thoroughness and efficiency" skims over the Hobart flight-type dishwasher story much too fast. For here is every dishwashing service you need built into one amazingly fast machine (many models)—custom-designed to cut costs in volume food operations. Fully automatic, it delivers the lowest possible operating cost, with traditional Hobart dependability.

If your plans are for less than large volume operations, be sure to see the complete line of more than 50 Hobart dishwashers—one is exactly right for every specification.

Hobart Flight-Type Dishwashers

Completely automatic power-water-scrapping, power washing and rinsing, with human supervision reduced to a minimum. Dishes are continuously racked in conveyor between resilient, stainless steel—"flight links"—tipped with nylon which protects chinaware against markings. Stainless steel side links, rollers, tie rods. Famed Hobart combination jet-powered and revolving wash system insures thorough sanitation. Flight-type sizes range from 12 to 26 ft. long, with conveyor speeds from 5 to 12 ft. per minute. Dozens of other exclusive features make it the most advanced dishwasher made.

Hobart MACHINES

The World's Oldest and Largest Manufacturer of Food, Bakery, Kitchen and Dishwashing Machines

The Hobart Manufacturing Co., Dept. HAF, Troy, Ohio

Please send me more information on: ☐ The Hobart flight-type dishwasher, ☐ the complete dishwasher line. ☐ I would like the name of my nearest Hobart dealer.

Firm name.....

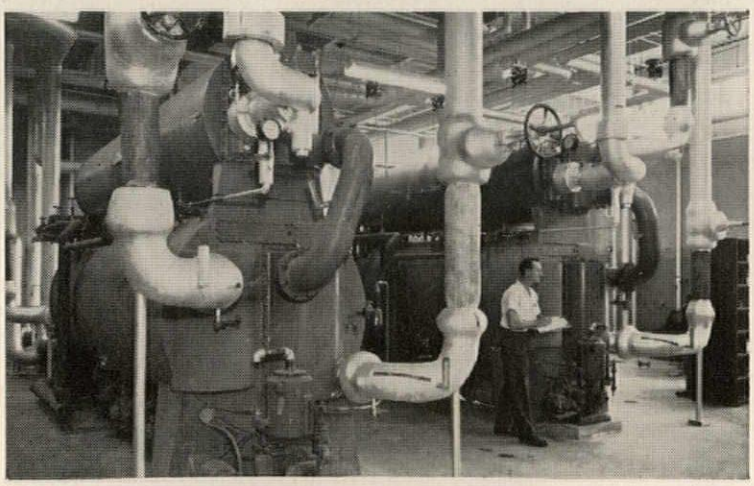
My name.....

Address.....

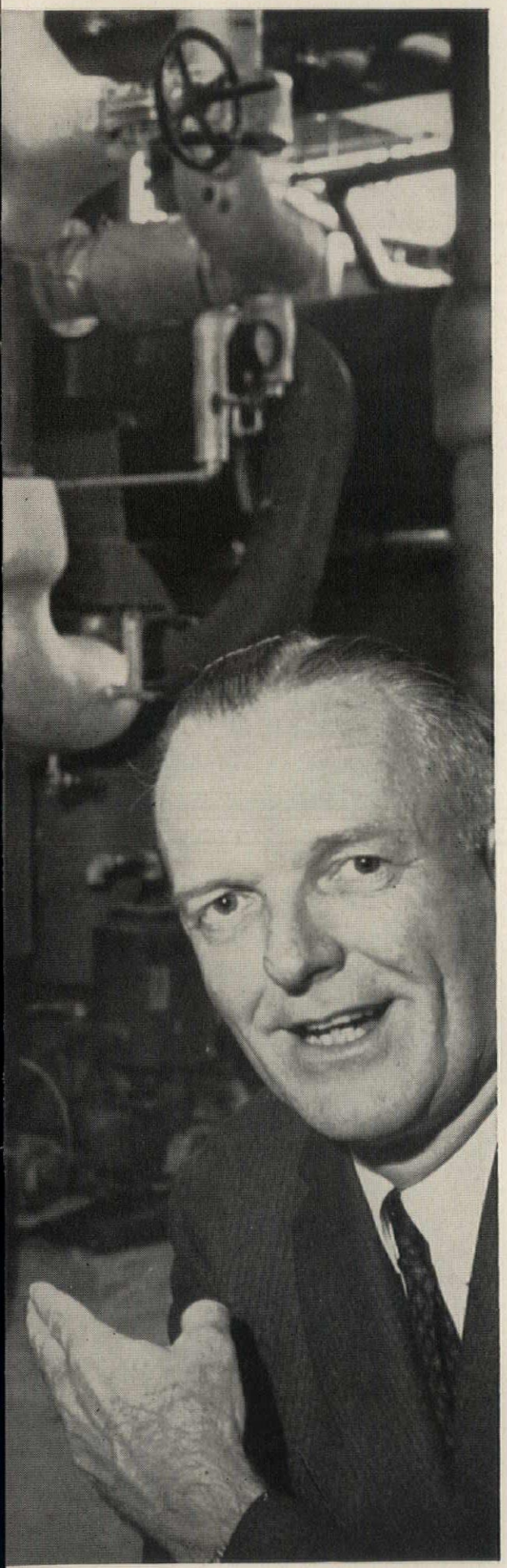
City.....*Zone*....*State*.....

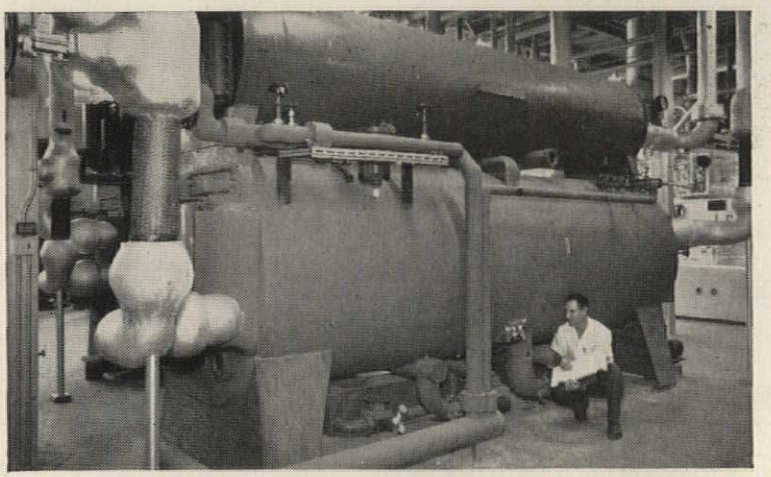
NO SUMMERTIME SLUMP With gas as the boiler fuel and York machines, the switch to summer cooling was no problem. Operating costs are low, too, thanks to Gas.

LATEST IN COOLING Gas operated York machines feature the use of tap water as refrigerant and lithium bromide as absorbent, one of the most efficient, practical refrigeration cycles developed so far. Machines start and stop automatically.



THE UTMOST IN FLEXIBILITY The units are cross-connected so that each operates independently if necessary.





MAINTENANCE COSTS TO DATE—ZERO! The Allen Company uses two York machines—a 230-ton unit serving 45,000 sq. ft. of office and cafeteria space, a 170-ton unit for process water cooling. Three small pumps and motors are the only moving parts in the entire system.

"with **YORK GAS** *air conditioning our boilers keep us cool all summer"*

"With our boilers sized for a winter load, we were naturally oversized for the summer months. But York's gas-operated Lithium Bromide absorption water chillers permit us to make efficient use of part of this steam capacity to cool," says Mr. M. J. Mather, President of the Allen Manufacturing Company, makers of hex-socket screws.

The York Lithium Bromide system eliminates the need for huge compressors found in other types of cooling equipment . . . which brings down the original cost considerably. And with gas the boiler fuel, you make year-round use of an otherwise wasted source of power *at rock bottom costs.* In addition, York machines are noiseless, lightweight, compact—easy to install and readily adaptable to almost any plant layout.

Find out how your present heating system can pay off for you all year 'round with gas-operated York automatic water chilling units. Call your local gas company or write to the York Corporation, Subsidiary of Borg-Warner Corporation, York, Pennsylvania. *American Gas Association.*

Why the new Corning Glass building is weather-sealed with neoprene gaskets

Three major reasons prompted the architects to specify neoprene for Corning Glass Works' New York City office:

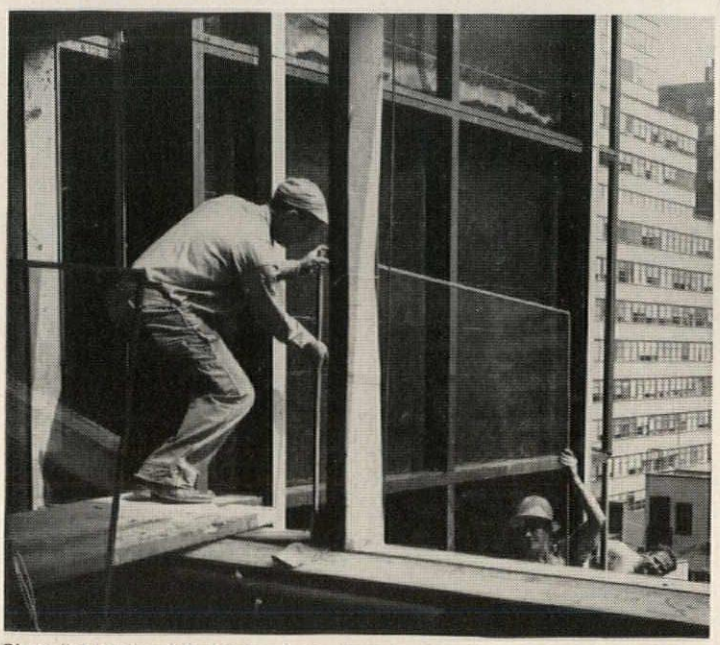
First: Because neoprene maintains a lasting seal . . . keeps its elasticity . . . doesn't soften in hot weather or stiffen in cold weather. Too, neoprene remains an effective seal under wind load or movement from expansion or contraction. It resists compression set and weather cracking.

Second: Because neoprene, for over 20 years, has proved maintenance-free in other industries. Predictions are that properly designed and manufactured neoprene gaskets will last 50 or more years.

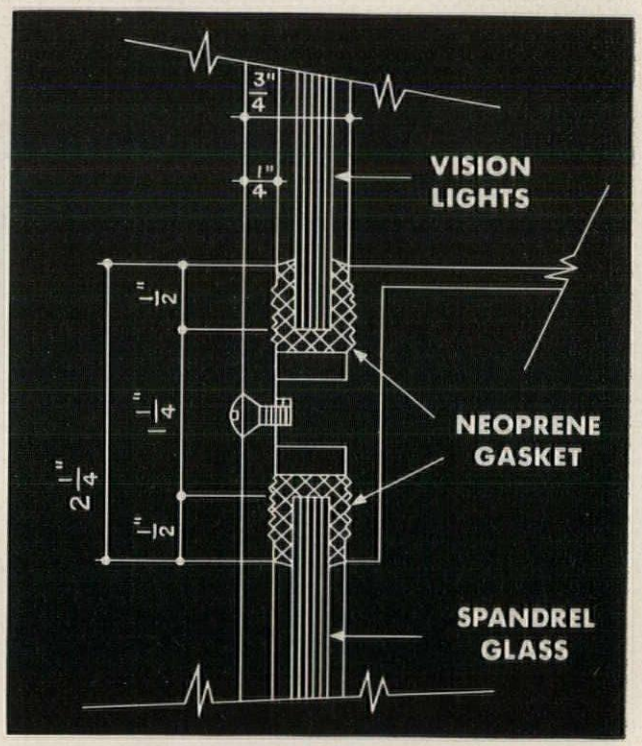
Third: Because neoprene pre-formed gaskets permit on-site economies . . . requiring no special cleaning . . . no specialized skills. Simple, quick to install.

For our new booklet, "Neoprene Gaskets for Curtain Walls," and/or names of suppliers, write: E. I. du Pont de Nemours & Co. (Inc.), Elastomer Chemicals Department AR-7, Wilmington 98, Delaware.

Neoprene gasket with molded corners and U-shaped cross section is quickly installed on the site.



Glass light being lifted into place. Neoprene gasketed edges make lights easier, safer to handle.



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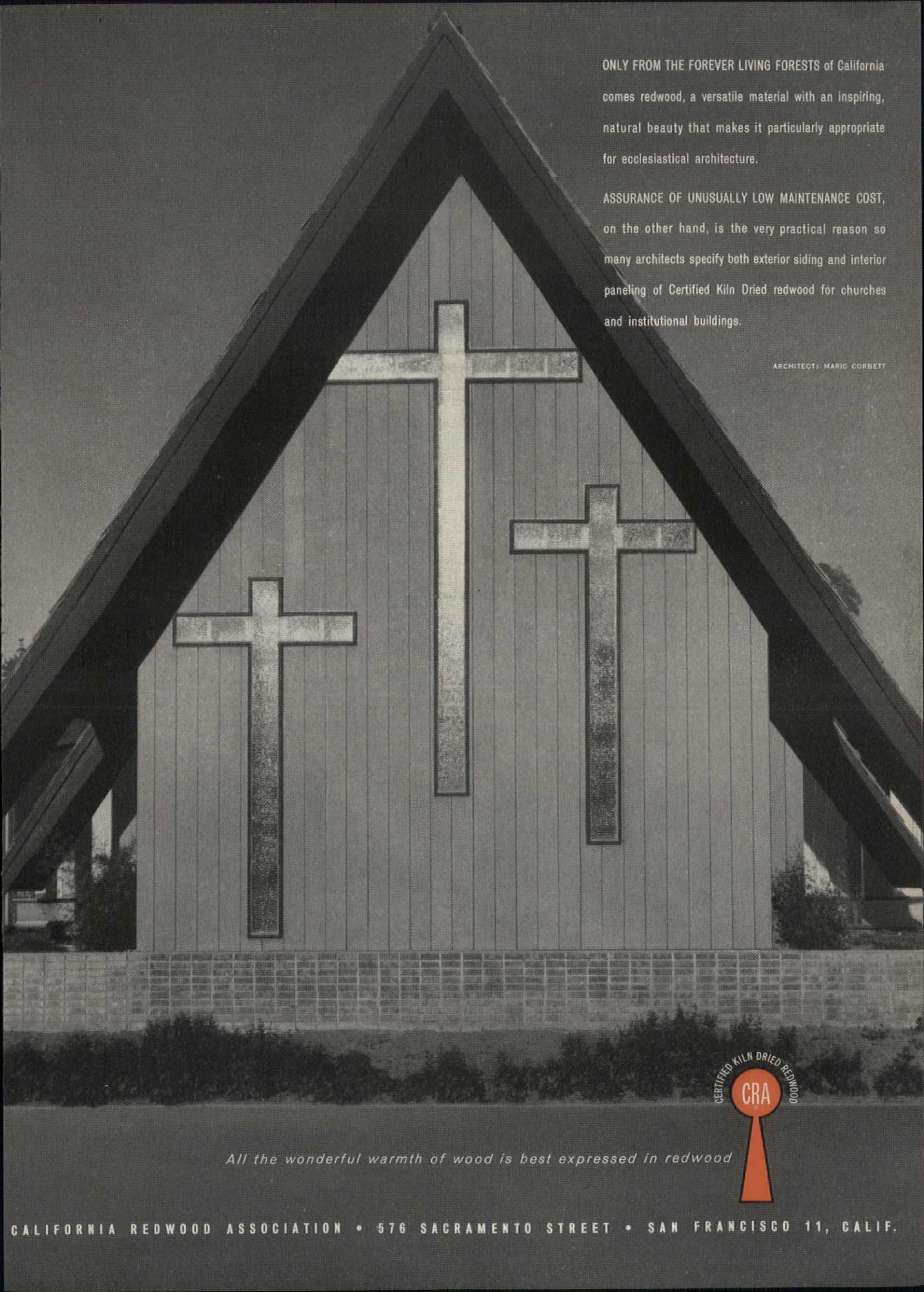

ONLY FROM THE FOREVER LIVING FORESTS of California comes redwood, a versatile material with an inspiring, natural beauty that makes it particularly appropriate for ecclesiastical architecture.

ASSURANCE OF UNUSUALLY LOW MAINTENANCE COST, on the other hand, is the very practical reason so many architects specify both exterior siding and interior paneling of Certified Kiln Dried redwood for churches and institutional buildings.

ARCHITECT: MARIC CORBETT

CERTIFIED KILN DRIED REDWOOD

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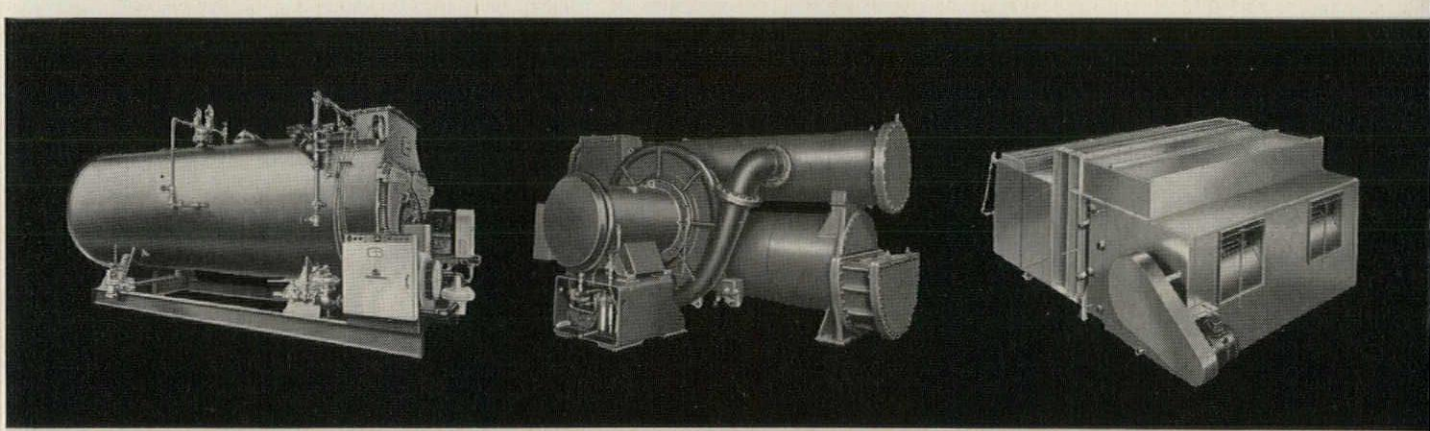

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Central-station air-conditioning units for public buildings, industrial plants.

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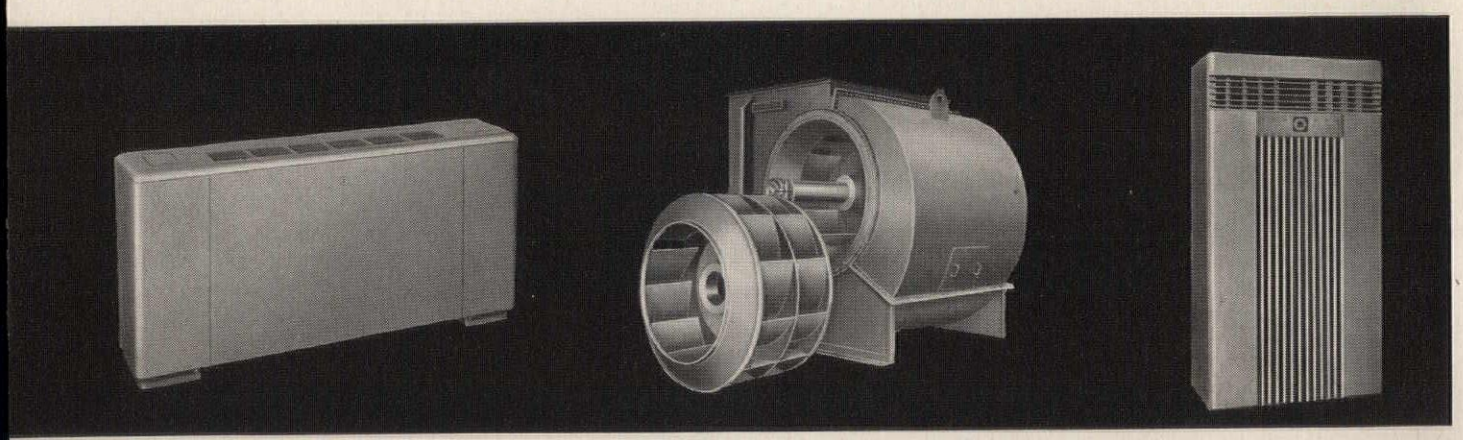
HERE'S WHY: You get *one-source responsibility* for quality and performance in equipment designed, engineered, and manufactured to work together. Combining three American-Standard* divisions—American Blower, Ross Heat Exchanger, Kewanee Boiler—the new Industrial Division encompasses the six major fields of air conditioning, heating, ventilating, heat transfer, dust collection, and fluid drives. Contact our nearest office. American-Standard Industrial Division, Detroit 32, Michigan. In Canada: American-Standard Products (Canada) Limited, Toronto, Ontario.



Fancoil units for cooling and heating individual rooms in multi-room structures.

Heavy-duty centrifugal fans for high pressure air conditioning or ventilating needs.

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FOUNTAINS

APPENDIX

Water Hammer. This may occur when the water flow undergoes a sudden change in velocity. Kinetic energy is converted into a dynamic pressure wave which is capable of producing a terrific impact in rebounding back and forth in the piping.

Generally, it has been found that solenoid operated valves should have some time delay in their action so that the water flow is not turned off or on abruptly. If each water effect is allowed to build up and die down gradually, water hammer is minimized. The most successful device for this operation has been found to be a thruster operated gate valve. This consists of a hydraulic cylinder and piston, the pressure for which is supplied by a small totally enclosed vertical motor and centrifugal impeller protruding down into a reservoir of oil.

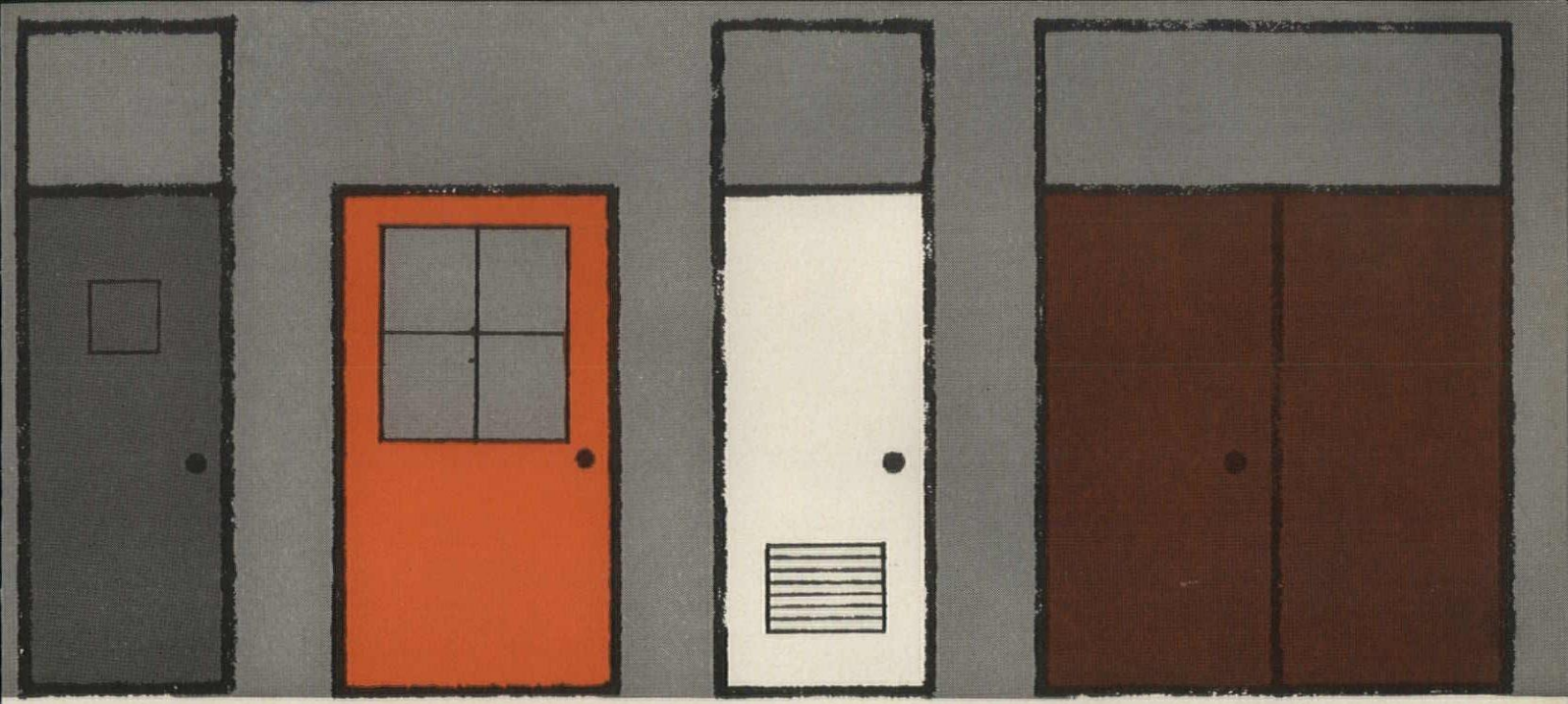
If the discharge line is long and/or the velocity of discharge is great, there results a large inertia due to the mass of water being accelerated or decelerated. This inertia can become sufficiently large to cause excessive water hammer even when this smooth acting thruster is employed, if the valve action is too fast.

If it is impractical to increase line size and thereby reduce discharge velocity (such as an existing installation), then water hammer can frequently be eliminated by installing an adjustable stop-screw on the mechanism so as to prevent the valve from completely closing. This stop-screw is adjusted so that there is water flow from the nozzles even in the off-position. The adjustment should be such that just enough leakage occurs so as to provide adequate hydraulic cushion to prevent water hammer. The resultant leakage will sometimes permit water to be projected up from the nozzles a few inches during the off-position of the cycle. This is seldom found to be objectionable in practice because of the relatively large scale of the fountain itself.

If the adjustable stop-screw technique fails to prevent water hammer then it will be necessary to install some type of air chamber or surge suppressor.

It is possible to predict the need for an air chamber in the design stages of electric fountains. In general, water hammer will occur when the total surge pressure exceeds twice the value of the static pressure in the pipe when the fluid is at rest.

continued on page 288



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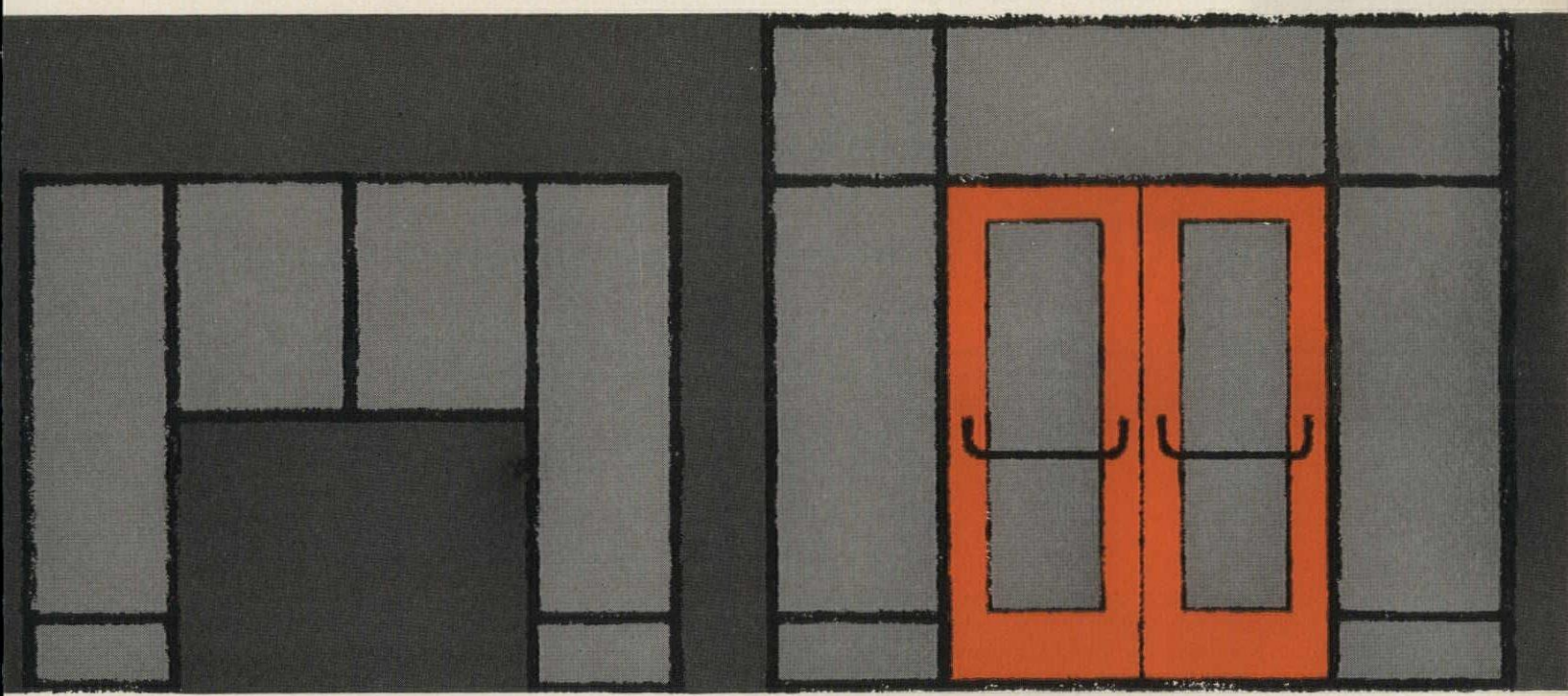

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Other Aetna products: Aetnawall Metal Office Partitioning; Aetna Custom Hollow Metal Doors and Frames.
*Order Aetnapak with or without hardware — doors and frames, doors separately, frames separately.

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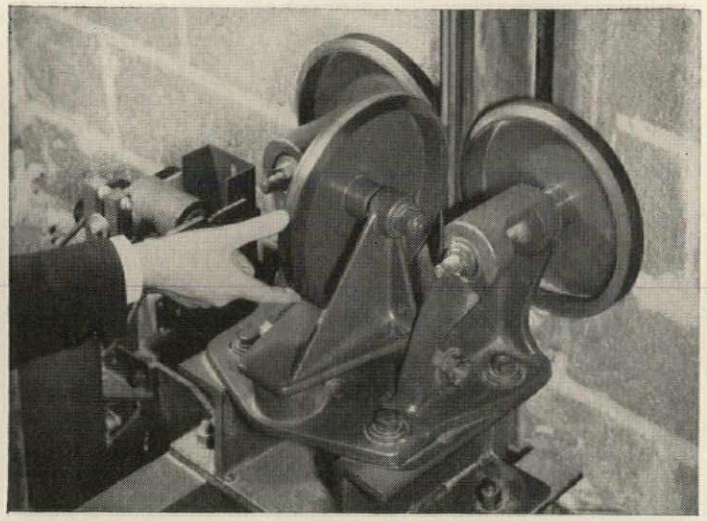
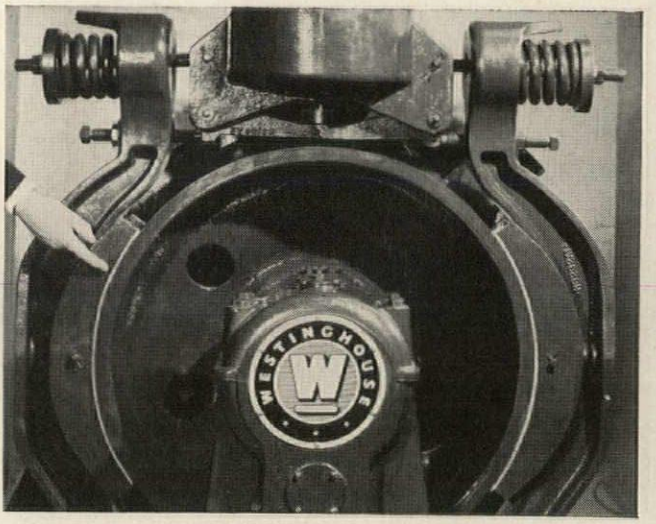


ROLLING ON RUBBER . . . Quiet elevators just don't *happen*—they're planned that way. You'll see how a Westinghouse Operatorless Elevator cushion-rides on rolling rubber, trapping vibration and noise. You'll see the cars operate on clean, *dry rails*—like an express train on rubber wheels.



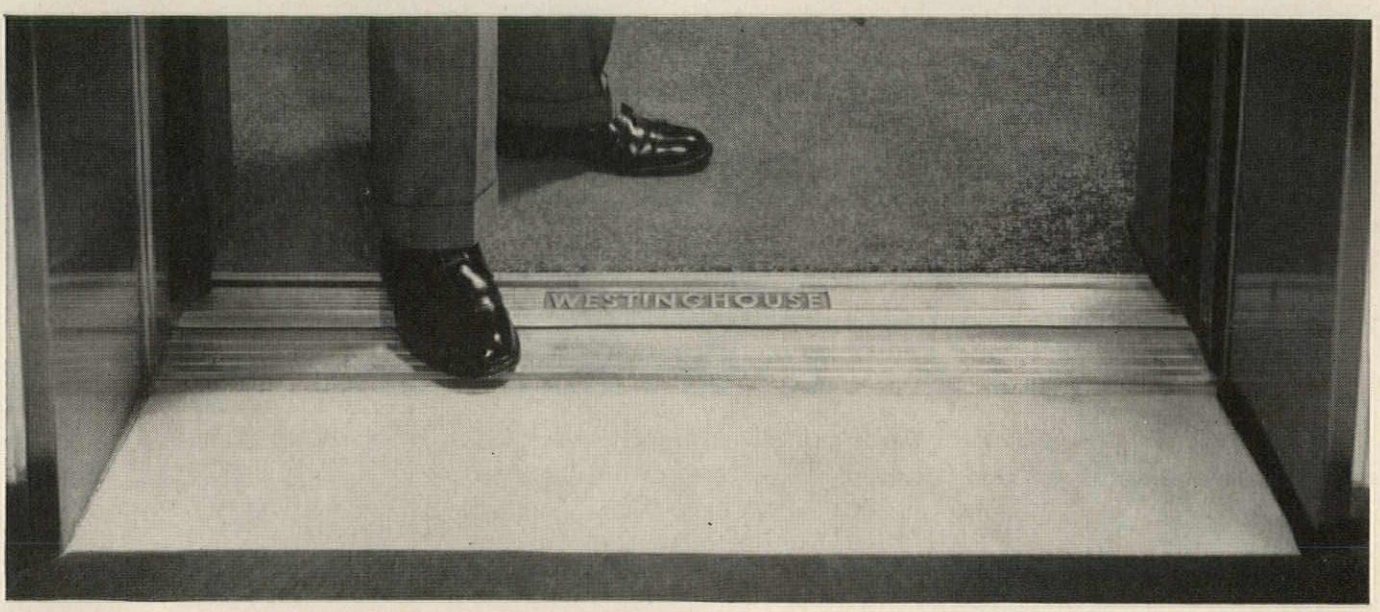
APPLYING THE BRAKE . . . No "brakes" are used to stop a Westinghouse Operatorless Elevator. Stops are made dynamically. A brake is applied only to hold the car at floor level *after* it stops. You'll see how this is done.

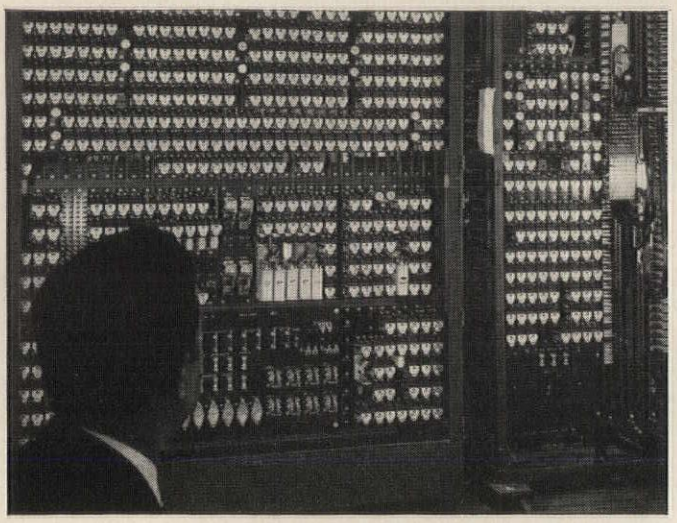
WESTINGHOUSE INVITES YOU TO EXPERIENCE THE

"30-Minute PRE-INVESTMENT Eye-Opener"

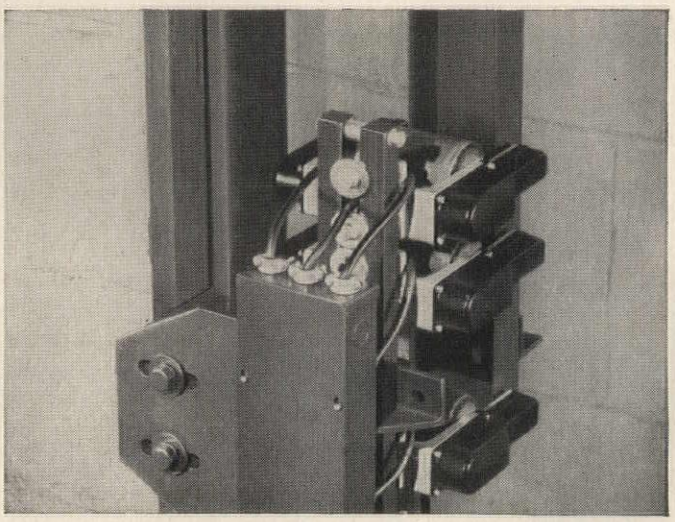
Judge for yourself the benefits of Westinghouse Operatorless Elevators during this Behind-the-Scenes Demonstration

ON THE LEVEL . . . Why does a Westinghouse Elevator always glide to a perfect landing—softly, *without releveling?* The secret is hidden in a compact control worth its weight in gold—but you'll see it as "standard equipment" on the elevator system. Rototrol is its name and it's a Westinghouse exclusive.





THE BRAIN ROOM . . . Here's a truly "inside" view of modern elevator engineering. Your trip to the penthouse will reveal an array of computers, selectors and shuntless relays which comprise an electronic "brain" that makes decisions every second. It supervises and directs elevator movement, knows exactly what passenger traffic demands are—and dispatches elevators where they're needed, when they're needed. It's all done instantly . . . automatically. Don't miss it!



A MATTER OF INDUCTION . . . The "sinking stomach" feeling is something you'll never experience in a Westinghouse Operatorless Elevator. One of many devices built into the system that precludes such discomfort is this inductor on the elevator which controls slowdown and stop smoothly . . . accurately . . . quietly.

Westinghouse extends this special invitation to executives who are responsible for planning a *new* building or *modernizing* an existing one. In just 30 minutes, we can demonstrate technical advancements in modern elevatoring that will result in the efficient operation of your building, with complete tenant satisfaction, now and for the years to come.

Historically, the entire Westinghouse organization is electrically-oriented. Because of this, Westinghouse has brought to the elevator industry new control techniques which have produced elevator systems of outstanding excellence. Westinghouse would appreciate the opportunity to show you this dramatic "eye-opener." Make arrangements to see the "30-Minute Pre-Investment Eye-Opener" by calling the Westinghouse Elevator Division sales office in your city—or write on your letterhead to: R. H. Wagner, General Manager, Westinghouse Elevator Division, 150 Pacific Avenue, Jersey City 4, N. J.

Typical preview highlights from the "30-Minute Pre-Investment" demonstration are shown.

WESTINGHOUSE ELEVATORS AND ELECTRIC STAIRWAYS

YOU CAN BE SURE...IF IT'S Westinghouse

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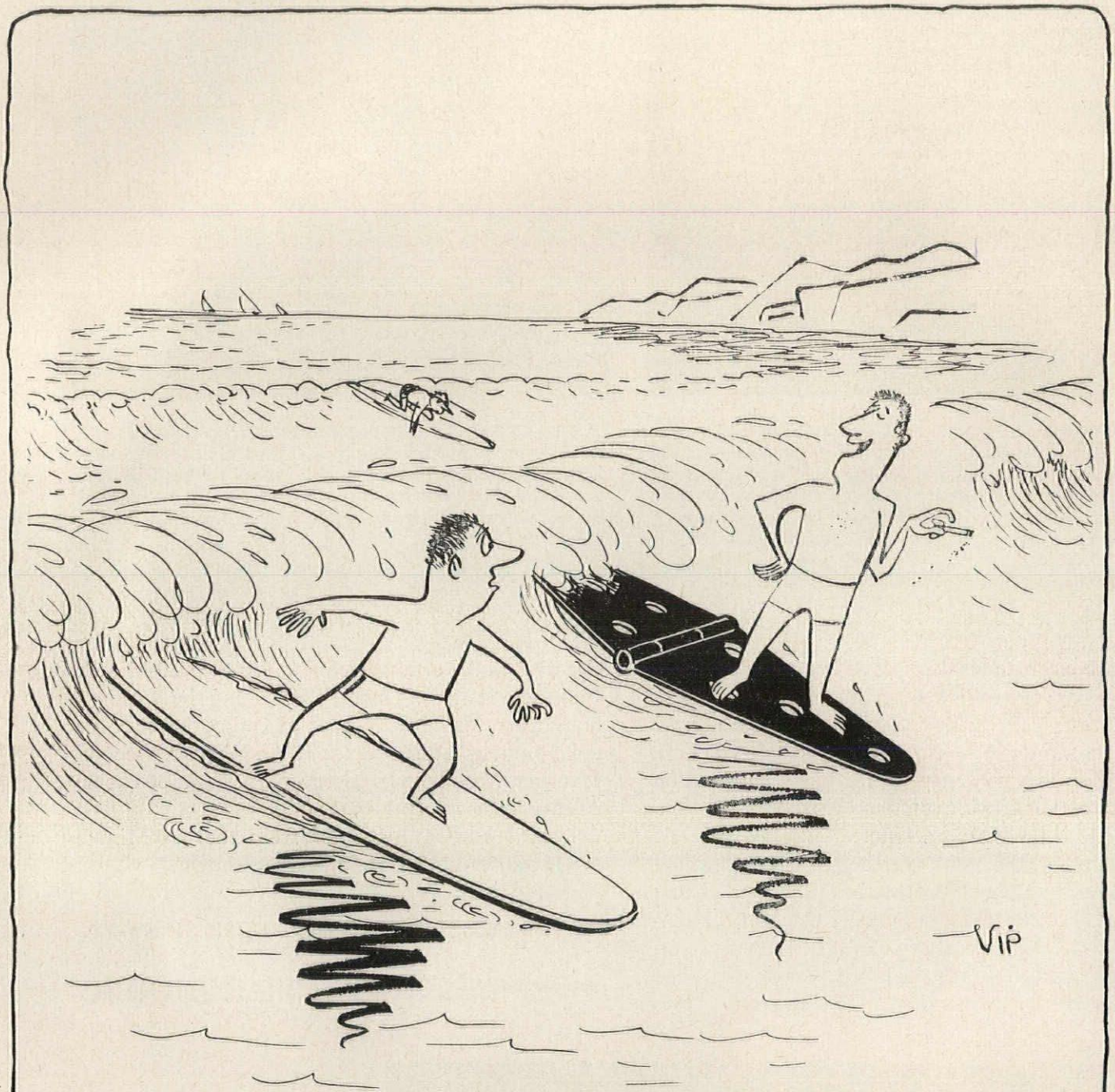
James M. Ryan, President
University Properties, Inc.

"The '30-Minute Pre-Investment Eye-Opener' is something I'll remember for a long time. One thing I learned is that you certainly can't take elevator systems for granted. The demonstration I saw, prior to our selection of the elevators for the Washington Building in Seattle, gave me a greater insight into Westinghouse advanced engineering skill. It's easy to understand why Westinghouse wants building executives to see and test their product."



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Concrete block has really "come out of the cellar." No longer used only for foundation walls or back-up, concrete block is out in the open . . . to add beauty, style and individuality in masonry construction. New shapes . . . new sizes . . . new textures . . . are now available for structural and decorative masonry walls, indoors and out.

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the glass that reduces glare and heat without sacrificing vision

The distinctive Lustragray "look" is one that you'll see in the windows and doors of more and more of the new and finer office buildings being erected today.

Lustragray is springing into favor for more reasons than just its high luster, neutral shade, and attractive appearance. Greater working comfort and increased efficiency are the Lustragray benefits that office building occupants can both see and feel.

Eliminating harsh contrasts in brightness levels minimizes eyestrain. Lustragray's glare control does this. Reducing solar heat minimizes fatigue. Lustragray's heat control is responsible. Even with all these advantages, Lustragray is economical.

Consult your phone directory now for your nearest AMERICAN distributor or glazier. Our catalog is in Sweet's. Or write our Architectural Promotion Dept.

Above — *Lustragray glass gives a solid, skin wall effect to the exterior — affording privacy.* **Right** — *From the interior, the gray glass provides "clear-glass," non-glare vision.*

WSW 7615-A

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AMERICAN-SAINT GOBAIN BLUE RIDGE GLASS

CORPORATION

General Offices: FARMERS BANK BUILDING • PITTSBURGH 22, PA.

AMERICAN-SAINT GOBAIN CORPORATION is a merger of the former American Window Glass Company, Pittsburgh, Pa., and the former Blue Ridge Glass Corporation, Kingsport, Tenn. (which was a wholly-owned subsidiary of Saint-Gobain of Paris, France). American Window Glass Division plants are located in Arnold, Jeannette, Ellwood City, Pa.; Okmulgee, Okla. Blue Ridge Glass Division plant is located in Kingsport, Tenn.

American Lustragray

glare reducing glass

is made by the makers of America's best clear sheet glass

The Record Reports

On the Calendar

July

26-30 Annual Conference, American Institute of Planners—Hotel Olympic, Seattle

August

24-27 Annual Convention, American Hospital Association—Coliseum and Hotel Statler, New York

September

7-11 National Technical Conference, Illuminating Engineering Society—Fairmont and Mark Hopkins Hotels, San Francisco

20-25 14th Annual Instrument-Automation Conference and Exhibit (International), sponsored by Instrument Society of America—International Amphitheater, Chicago

21-25 International Congress of the International Council for Building Research, Studies, and Documentation—Rotterdam, Holland

22-24 Third Industrial Nuclear Technology Conference, co-sponsored by Armour Research Foundation and *Nucleonics* magazine, with cooperation of U. S. Atomic Energy Commission—Morrison Hotel, Chicago

24-26 Annual Meeting, Porcelain Enamel Institute—The Greenbrier, White Sulphur Springs, W. Va.

28ff National Power Conference, co-sponsored by American Society of Mechanical Engineers and American Institute of Electrical Engineers; through Oct. 1 — Muehlebach Hotel, Kansas City

28ff 41st National Recreation Congress, co-sponsored by American Recreation Society and National Recreation Association, and Fourth Institute on Recreation Administration (29-30); through Oct. 2—Morrison Hotel, Chicago

30ff Annual Convention, Producers' Council; through Oct. 2—St. Louis

Office Notes

Offices Opened

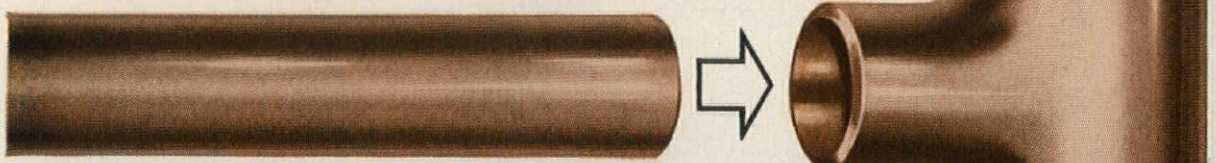
Olof Dahlstrand has opened an office for the practice of architecture at Fifth and Junipero, Carmel, Calif.

Ian Grad Associates, Consulting Engineers, is the name of a new firm formed by Ian Grad and Aaron Zich-

continued on page 300

Streamline® WROT COPPER SOLDER-TYPE FITTINGS

ALWAYS FIT THE TUBE...



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As the originator of the solder-type fitting . . . the Mueller Brass Co. has perfected the design and production techniques so necessary to produce consistently uniform and dimensionally accurate wrot copper fittings that fit right on every job.

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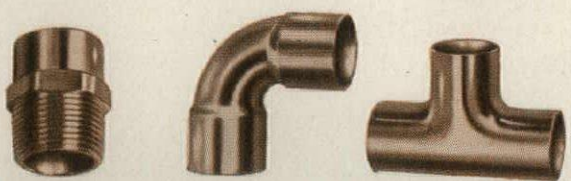
Streamline wrot copper fittings are the wise choice for all plumbing, heating, refrigeration and air conditioning systems because of their dependability, ease of installation and long, trouble-free life.

It pays to use the best . . . Specify Streamline wrot copper fittings.



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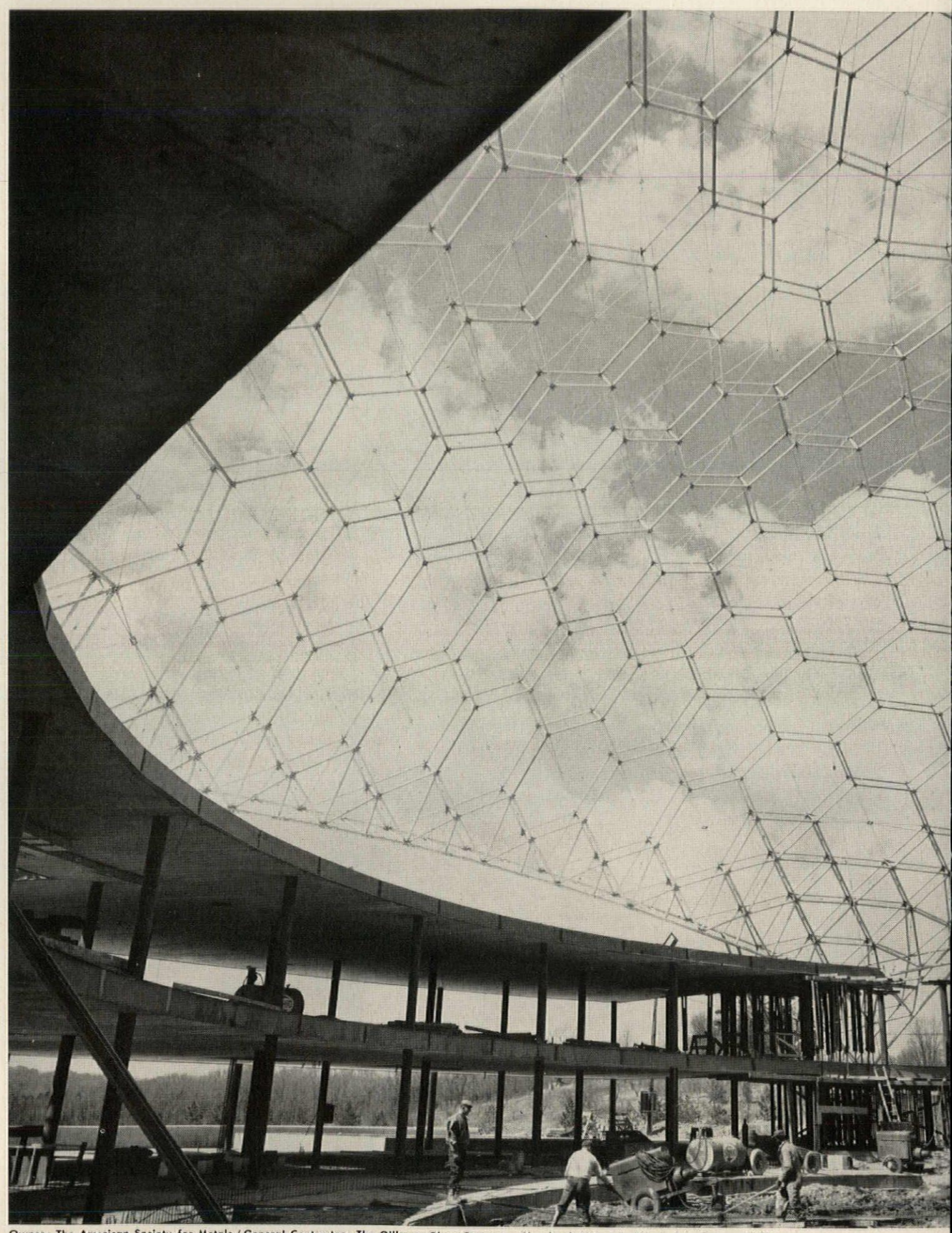
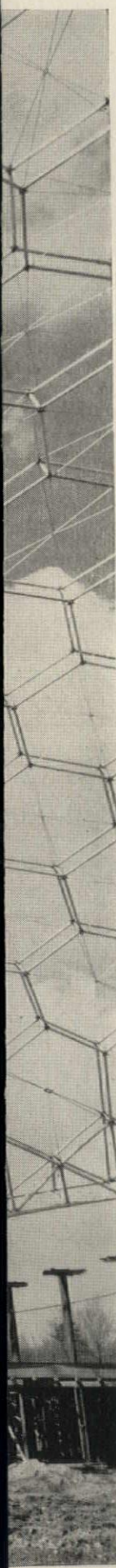
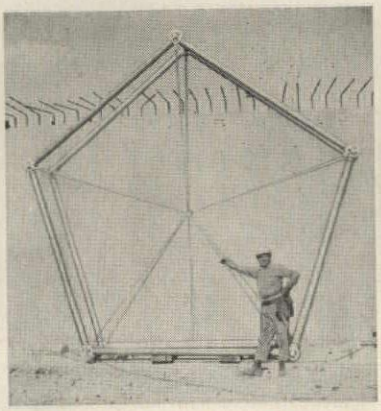


Owner: The American Society for Metals / General Contractor: The Gillmore-Olson Company, Cleveland, Ohio / Architect: John Terence Kelly, Cleveland, Ohio / Dome Design: Synergetics, Inc., Raleigh, North Carolina / Aluminum Materials: Kaiser Aluminum & Chemical Sales, Inc.





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BOLD NEW WAY TO SPAN BIG SPACE

The geodesic dome uses only a fraction as much material as conventional methods to enclose a given cubic area — yet it has greater resistance to hurricane winds and other natural forces.

Here is a practical, low-cost way to build a structure that requires light weight, high strength, and a wide open space without a single obstruction: a soaring roof to cover both concourses and terminals of a jet-age air-travel center . . . an all-weather sports stadium . . . a covered mall for a modern shopping center.

North American's Columbus Division is experienced in the fabricating and erecting of geodesic domes. Its Architectural Metals engineers have just completed a gigantic dome for the American Society for Metals' headquarters near Cleveland. It is 103 feet high and 277 feet in diameter, and is made of aluminum pentagon and hexagon sections.

For complete information on Geodesic Domes — or on any other architectural metals applications, including Curtain Wall — please contact: North American Aviation, Inc., Columbus, Ohio.

PASSENGER TERMINALS. Spacious, soaring beauty of the geodesic dome is in tune with the jet age.

SHOPPING CENTERS. Sheltered by dome, shoppers stroll through open-air bazaar all year long.

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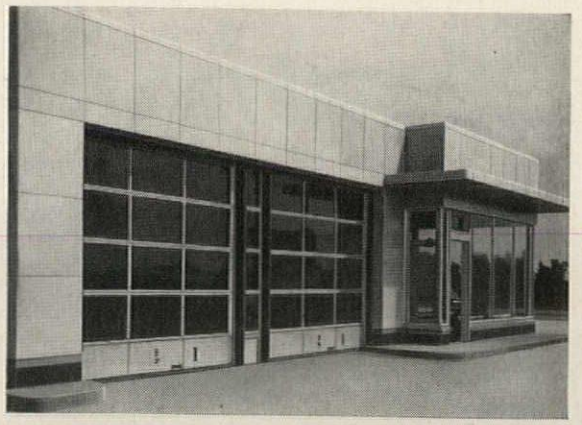
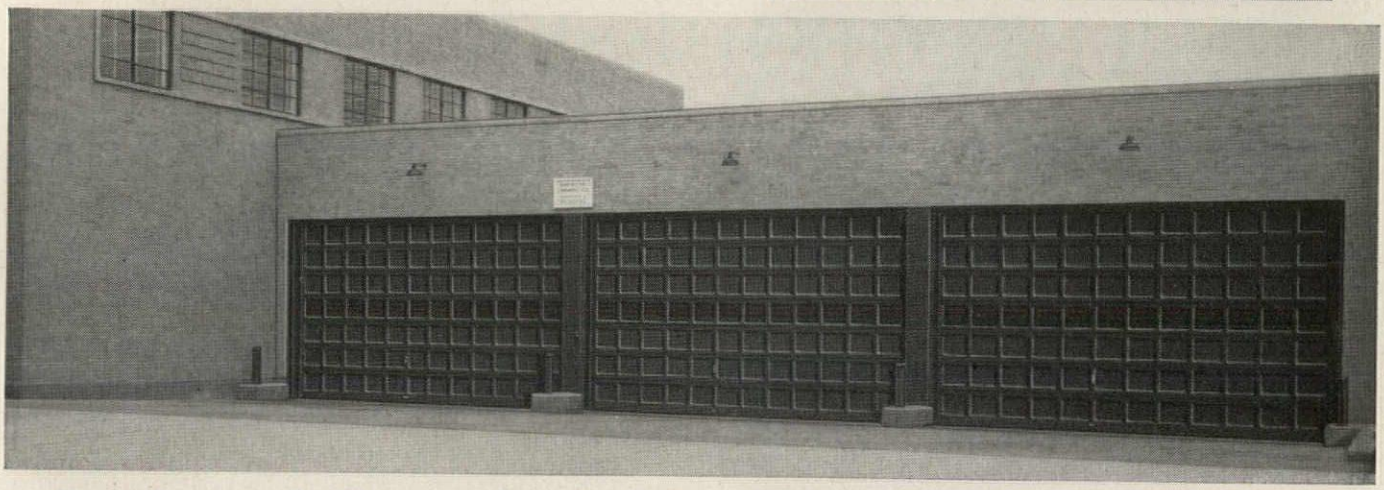
EASY OPERATION
LONG LIFE





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The qualities you look for in overhead doors for commercial and industrial applications are built into every Ro-Way door.

Good looks, for example. The quiet good looks of simple styling that blends gracefully with architectural design.

Easy operation, too—that comes from sound and skilled engineering of all working parts. Specially designed track and hinges, heavy duty ball bearings, and springs tension-balanced to the weight of the door assure responsive performance day in and day out.

And extra long life—because Ro-Way doors are built with cabinet-maker skill for lasting service. Hardware is heavy gauge roll-galvanized steel. Muntins, rails and stiles are precision squared for precision fit. Mortise and tenon joints are both steel pinned and glued for maximum strength. All sections are rabbeted to make weather-tight joints.

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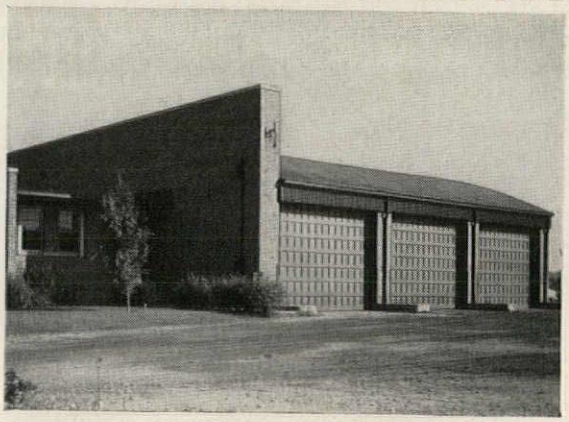

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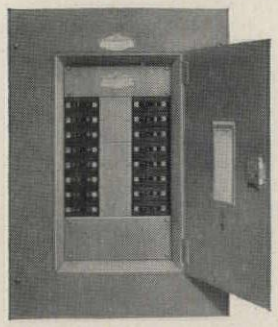
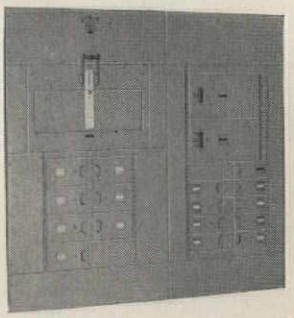


"E" Frame Circuit Breaker Panelboard for heating circuits.



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The Record Reports

erman at 114 E. 32nd St., New York 16. Both formerly were with Fred S. Dubin Associates.

John F. Mullins, Architect, has reopened his office at 1807 Silverside Rd., Wilmington 3, Del.

Palmer and Schoettley Associates, Architects, is the name of a firm formed by the joining of the offices of C. William Palmer, F.A.I.A., and Fred J. Schoettley, A.I.A., at 409 Griswold St., Detroit 26.

Ralls-Hamill-Becker, Architects, is the name of a firm formed by F. Gene Ralls, Desmond P. Hamill, and Ernest N. Becker at 15225 Farmington Rd., Livonia, Mich.

Lester Wertheimer, Architect, has opened an office at 451 N. La Cienega, Los Angeles 48.

Firm Changes

Welton Becket, F.A.I.A., and Associates announces the appointment of Kent Attridge as director in charge of the firm's New York office at 116 E. 55th St.

A. Epstein and Sons, Inc., Engineers, announces that Sol Merel has been promoted from senior structural engineer to chief structural engineer and that Richard E. Spencer has been appointed a project engineer. Address: 2011 W. Pershing Rd., Chicago.

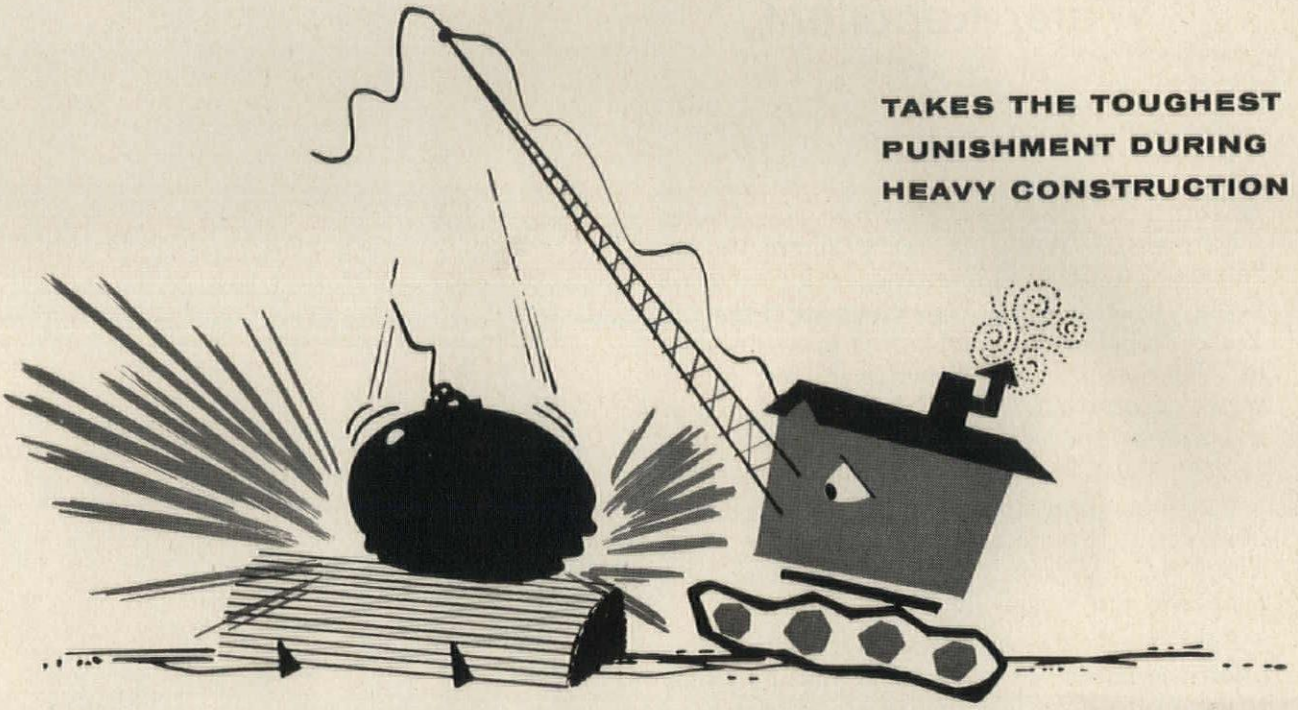
Grellinger & Rose announces its incorporation and change of name to Grellinger-Rose Associates, Inc., Architects. The members are A. E. Grellinger, Francis J. Rose, Austin A. Fraser, all A.I.A., Paul J. Klumb Jr., Robert J. Rappl, Gene G. Jurenec, and George A. D. Schuett. Address: 757 N. Broadway, Milwaukee 2.

Izumi, Arnott and Sugiyama, Architects and Engineers, of Regina, Sask., announces the opening of an office at 465 First Ave. North, Saskatoon, with C. R. W. MacPhail as resident engineer.

Albert Kahn Associated Architects and Engineers, Inc., announces the election of V. C. Wagner, a vice president, as a new member of the board of directors. Re-elected incumbent directors are George H. Miehls (chairman and treasurer), Sol King (president), Sheldon Marston (executive vice president), G. K. Scrymgeour (vice president and secretary), and R. E. Linton and G. S. Whittaker (vice presidents). Address: 345 New Center Bldg., Detroit 2.

Kiely, Fletcher and Associates is now the name of the firm formerly known as D. J. Kiely Jr. and Associates. Paul W. Fletcher has been made a partner. Address: 276 Washington St., Providence 3.

continued on page 308



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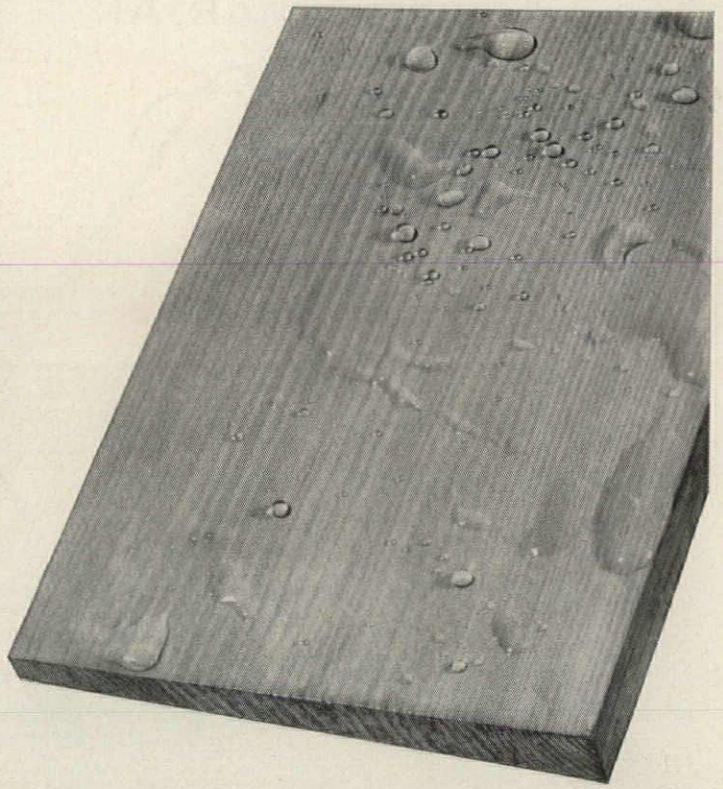

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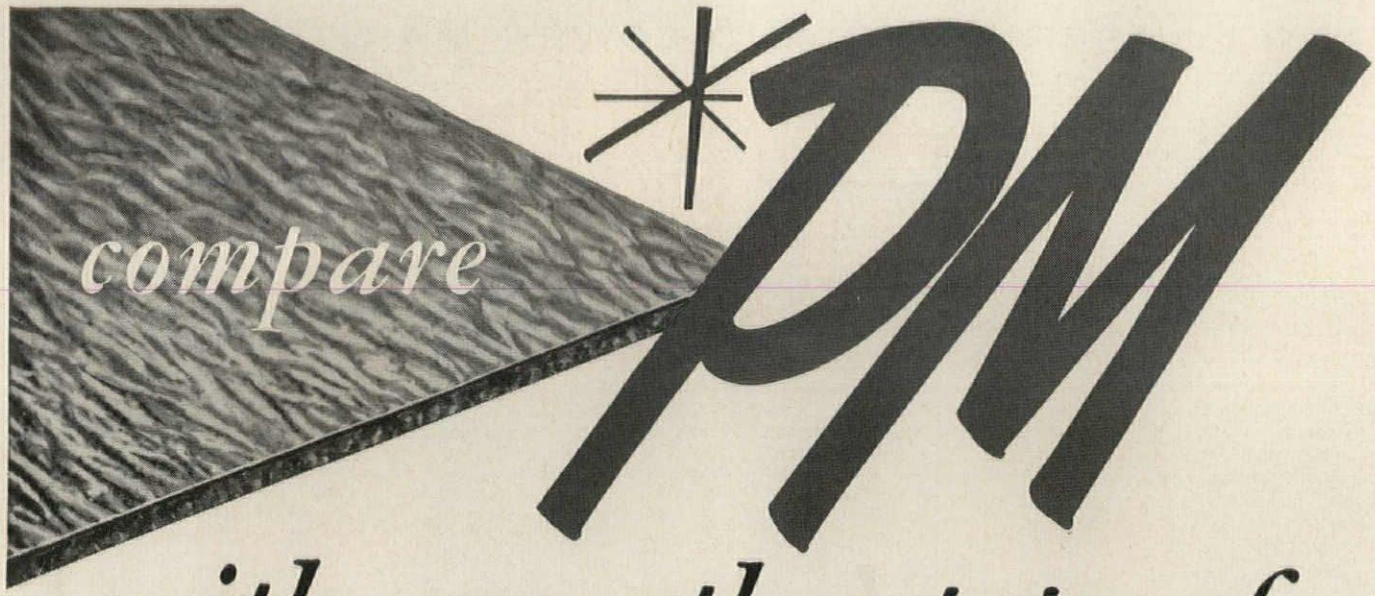

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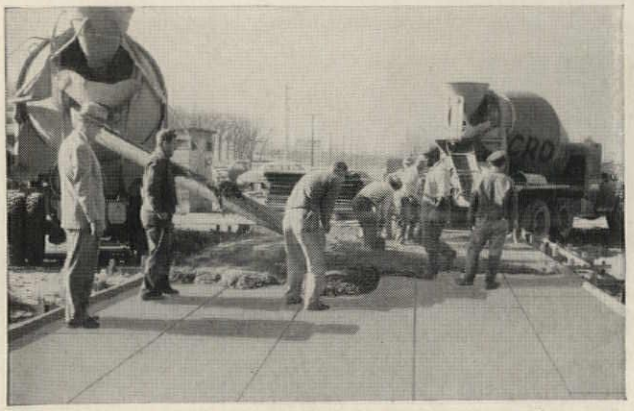
COMPARE the permeance ratings . . . for on this point alone, "PREMOULDED MEMBRANE" stands head and shoulders above all other, so called, vapor barriers on the market. In fact, as you will see by the chart below "PREMOULDED MEMBRANE" is over 16 times more impermeable then the next ranking material.

MATERIAL	WATER VAPOR TRANSMISSION (in *perms)	
	LOW	HIGH
Sealtight "PREMOULDED MEMBRANE"	.0066	.0066
Polyethylene Film (.004 in. thick)	.097	.108
55-pound roll roofing	.030	.081
Duplex paper (coated both sides—reflectors material, reinforced)	.304	.347

*PERMS—grains per square foot per hour per inch of mercury difference in vapor pressure at standard test condition.



COMPARE the strength . . . "PREMOULDED MEMBRANE" is strong enough to maintain its permeance rating after it has been subjected to the pouring of aggregate, trundling of wheelbarrows and installation foot traffic. Resists rupturing and tearing. How many other materials will perform like this under the above circumstances?

COMPARE the ease and speed of providing a permanent installation . . . "PM" may be laid directly over the tamped grade or fill . . . joints are then efficiently sealed with Sealtight Catalytic (non-setting) Asphalt, thereby providing a monolithic vapor seal with mechanically sealed joints, that will expand and contract with the concrete slab above, without breaking the bond.

vapor seal on the market!

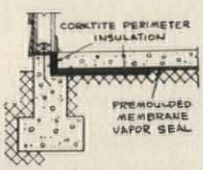
COMPARE before you specify or install your next vapor seal . . . don't risk your reputation by using an inferior "so called" vapor barrier. "PM," the industry's only true, impermeable vapor seal, is actually the most economical vapor seal on the market when you consider the reduced maintenance and redecorating costs realized through the complete elimination of moisture migration into the structure. When specifying or installing your next vapor seal be sure it meets these Sealtight standards of quality: permeance rating of only .0066 grains per square foot . . . resistant to rot, mold and termites . . . strong enough to resist tearing and puncturing . . . expandable . . . quickly, easily and permanently installed—only "PREMOULDED MEMBRANE" meets them all.

We sincerely advise and invite your comparison of "PM" against all other vapor barrier products . . . we're sure that once you do you will also agree that there's only one true, impermeable vapor seal on the market . . . Sealtight "PREMOULDED MEMBRANE."

*Premoulded Membrane TRADE MARK . . . *the industry's only TRUE, impermeable vapor seal*

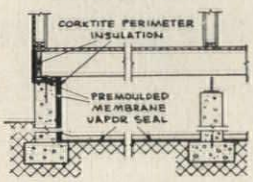
ideal for all types of construction

SLAB-ON-GRADE



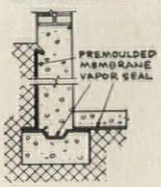
Installation of "PREMOULDED MEMBRANE" completely isolates slab from any moisture originating in the site and Sealtight Corktite perimeter insulation effectively insulates edge of the slab, thereby eliminating heat loss through the slab perimeter.

CRAWL-SPACE



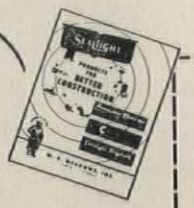
The proper installation of "PREMOULDED MEMBRANE" and Corktite removes all danger of moisture migration, condensation and oxidation of metal installations in the crawl-space area . . . eliminates need for ventilation.

BASEMENT



"PREMOULDED MEMBRANE" properly applied to the exterior of the basement walls as well as beneath the floor slab insures a warm, dry, liveable basement. Prevents any movement of vapor or capillary movement of free water.

WRITE TODAY
for complete information including our Design Manual and series of "TECH-TIPS."



W. R. MEADOWS, INC. DEPT. 4

Gentlemen:

Please send, without obligation:

- ☐ "DESIGN PRACTICES" Manual
- ☐ "TECH-TIP" Series
- ☐ Have representative call.

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TITLE_____

FIRM_____

ADDRESS_____

CITY_____ STATE_____

SEALTIGHT®

W. R. MEADOWS, INC.

4 KIMBALL STREET • ELGIN, ILLINOIS

BRIXMENT MORTAR

Has Better Water-Retention

Place a dab of Brixment mortar and a dab of ordinary cement-and-lime mortar on a brick. Wait a minute, then feel each mortar.

The one that stays plastic longer will be the one having the highest water-retention. Feel the difference with Brixment mortar!

—AND HIGH WATER-RETENTION IS ESSENTIAL TO WELL-BONDED, WATERTIGHT MASONRY

Water-retaining capacity is the ability of a mortar to retain its moisture, and hence its plasticity, when spread out on porous brick.

High water-retaining capacity is of *great importance* in mortar. If the mortar does not have high water-retaining capacity, it is too quickly sucked dry by the brick; the mortar stiffens too soon, the brick cannot be properly bedded, and a good bond cannot be obtained.

Brixment mortar has high water-retaining capacity. It strongly resists the sucking action of the brick. Brixment mortar therefore requires less tempering, stays smooth and plastic longer when spread out on the wall. *This permits a more thorough bedding of the brick, and a more complete contact between the brick and the mortar.* The result is a better bond, and hence a stronger and more water-tight wall.

LOUISVILLE CEMENT COMPANY, LOUISVILLE 2, KENTUCKY

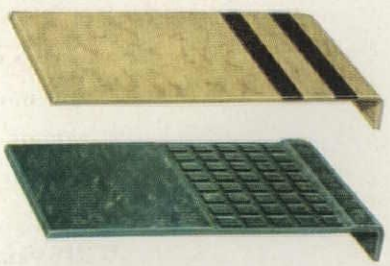
Cement Manufacturers Since 1830

B. F. Goodrich Corinthian vinyl tile, molded rubber cove baseboards and corners.

Rubber stair treads: Beautiful way to safer stairways!

The striking entrance hall and stairway illustrated above show how B. F. Goodrich molded rubber stair treads can add color and excitement to interiors. And these tough, attractive treads are equally practical in churches, hospitals, schools, offices, homes—for that matter, any interior stairway where an economical, comfortable and permanent tread is required. It has these other advantages, too: fire-resistant, clear-through colors, absorbs traffic noises, easy to keep sparkling clean with an occasional damp mopping.

Simple installation on smooth, dry interior steps. Safety-strip, safety-design, or plain surface in a choice of widths, lengths, and nosing depths. In 9 popular colors. For further information, see Sweet's or contact the B. F. Goodrich Company, Flooring Products, Watertown 72, Mass. Dept. AR7.



B.F.Goodrich ***flooring products***

The Record Reports

Charles Luckman Associates, New York and Los Angeles, announces that Andrew Fischer Jr. has been retained to fill the new post of director of construction activities.

The partnership of Buckles and Macklin has been dissolved. Charles Macklin, architect and structural engineer, is continuing to practice at 124 N. Fifth St., Springfield, Ill.

William L. Pereira & Associates, Los Angeles, announces that Charles D. Kratka, industrial and interior designer, has joined the firm.

John Carl Warnecke, Architect, announces the selection of Carl Arras, Robert Hart, and Neill Smith as associates. Address: 111 New Montgomery St., San Francisco 5.

New Addresses

Martin Lovett, Consulting Structural Engineer, 101 Park Ave., New York 17.

Trelle A. Morrow, Architect, 1331 Fourth Ave., Prince George, B. C.

Harold Ship, M.R.A.I.C., 5135 Western Ave., Montreal 28, Quebec.

Corrections

Melbourne, site of the Shell Headquarters Building shown on page 168 of the April RECORD, is in the State of Victoria, not New South Wales. Buchanan, Laird & Buchan and Skidmore, Owings & Merrill, San Francisco, are associated architects on the building.

The RECORD regrets that information supplied in connection with the publication of Executive House on pages 215-218 of the May issue did not include the name of Morris Lapidus as designer of the interiors. The architects were Milton M. Schwartz & Associates.

The RECORD also regrets that the drawing on page 217 in the story on Executive House shows a window that was not ultimately used in the actual building; another type of window made by the same company was used. Also, no credit was received for the aerial photograph at the bottom of page 215. The photographer in the case of that one photograph was Al Grossman.

The RECORD also regrets that the source of the drawing at the bottom of page 196, May issue, was incorrectly given. The drawing is actually from *Italian Gardens of the Renaissance* by J. C. Shepherd, A.R.I.B.A., and G. A. Jellicoe (Charles Scribner's Sons, New York, 1925).

more news on page 314

ualco aluminum curtain wall

OSBORN LAND COMPANY BUILDING, PHOENIX, ARIZONA

Architect: Lloyd Peyton Ware, AIA, Phoenix. Contractor: Kitchell-Phillips Contractors, Inc.

Ualco

SOUTHERN SASH SALES & SUPPLY CO., Inc.

Sheffield, Huntsville, & Montgomery, Ala.; Van Nuys & San Leandro, Calif.; Tampa, Fla.; Canton, O.; Elizabeth, N. J.

THE COMPLETE LINE: TWENTY ALUMINUM WINDOW STYLES, AND FOUR ALUMINUM CURTAIN WALL SYSTEMS

A MODERN CONCEPT FOR
Heating, Ventilating and Cooling of Schools

By F. J. KURTH, Vice President
in Charge of Engineering, Anemostat Corporation of America

Educational efficiency

The Anemostat Dual Duct High Velocity System provides a controlled and healthy environment in accordance with the highest standards of comfort and is therefore conducive to more vigorous activity in the classrooms. It is a modern heating and ventilating system, carefully researched and new in concept, and is economical to install and operate. It is an effective heating and ventilating system, which later can be readily adapted to air conditioning by the addition of a central-station type refrigeration system.

Because large sums of money must be spent for new schools, it is important to study all factors which will improve educational efficiency. Though well constructed and equipped, many new schools are not provided with modern heating, ventilating or cooling systems which furnish comfort during all seasons of the year. Experience has shown that a proper climatic condition will improve student and teacher efficiency to the extent of a cumulative gain of approximately twenty percent.

System design

First the volume of air required for a classroom must be determined. In most communities this is regulated by local codes on a cubic foot per pupil basis.

Although requirements vary in different localities from ten to thirty cubic feet of fresh air per minute, there are other factors which must be considered: for ventilation purposes, when cooling is not used, a large volume of air will, of course, do a better job than a small volume; however, the introduction of from 1000 to 1200 cubic feet of air per minute is adequate. If air conditioning is installed, the engineer may specify air temperature differentials of 30° or more between the supply air in the cold duct and the room temperature—Anemostat Air Diffusers will diffuse air at high temperature differentials without draft.

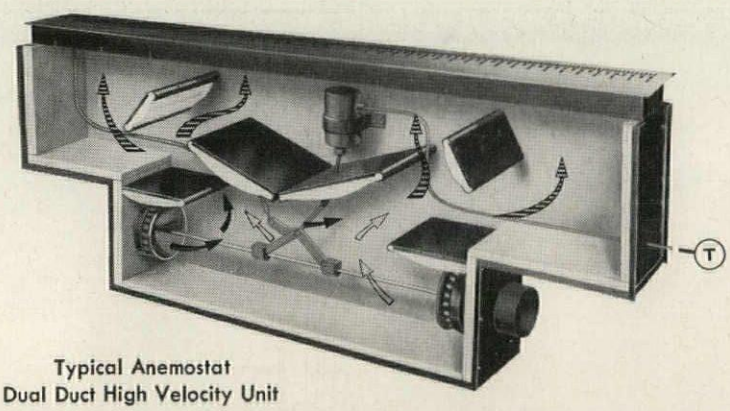
Location and type of units

The location of the units in the classroom is determined by the climate of the community in which the school is located and the construction of the school with particular reference to glass areas. When winters are severe the *under the window type units* must be used and two units per classroom should be installed as shown on the layout. The return air can be moved through corridors, ducts in corridors or exhaust plenums in the corridor ceilings.

In schools in mild climates or in colder climates where double glazing is used, the *sidewall units* will do an excellent job of year-round heating, ventilating and cooling. Two units providing from 500 to 600 CFM each per classroom are recommended. The return air can be returned to the fan through corridors, corridor ducts or plenums.

When two units are installed in a classroom, both are controlled by one

The Basic Principle of Anemostat School Units



Typical Anemostat
Dual Duct High Velocity Unit

The illustration shows a high velocity unit designed for a dual duct system for either heating and ventilating or complete air conditioning. To maintain ideal conditions, air is evenly and draftlessly diffused at high velocity throughout the classroom at controlled temperature; one duct carries cold air from the outside of the building, or cold air cooled by coils and mechanical refrigeration, the second duct carries warm air, which consists of a mixture of fresh and recirculated air heated by hot water or steam coils from heating boilers or by hot air furnaces. The thermostat in the classroom opens the hot air valve and closes the cold air valve, or vice versa depending on the room temperature requirements.

thermostat which should be located on an inside wall.

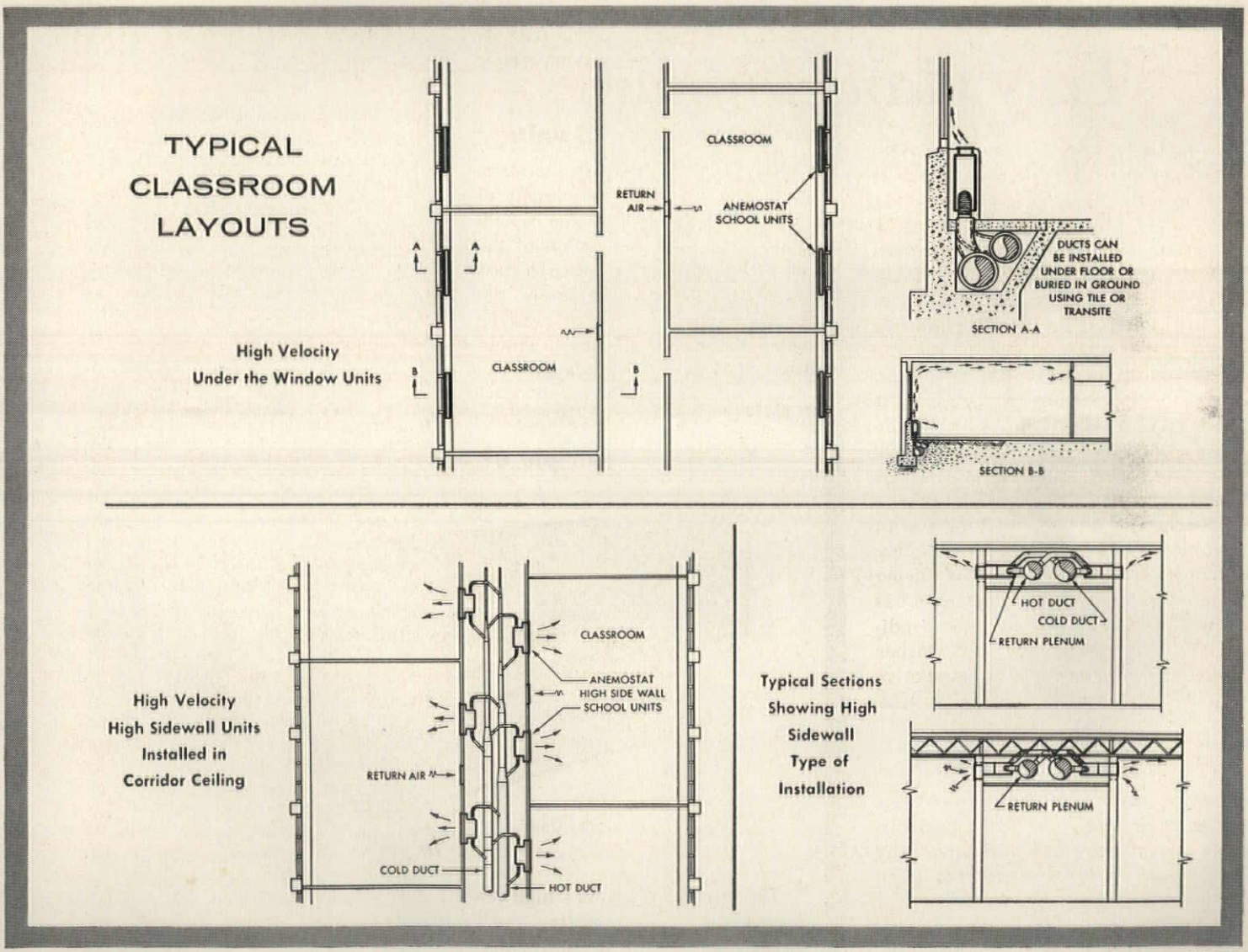
Ducts

The ducts can be installed in various ways depending on the type of structure: beneath the floor, on classroom or corridor ceilings, in roof spaces or on top of the roof. If tile or transite pipe is used the ducts can actually be buried in the ground. Because no water or steam is used, the ducts can be run in practically any space, as corrosion or trapping is not a problem.

Equipment room

For reasons of economy, the fan room or rooms should be so located as to keep the duct runs as short as possible. However, there is no problem in running ducts long distances; dual duct systems in commercial buildings often have duct-runs of over 500 feet. The fans are usually of the Class II type and can be either the forward or backward curve type. Consideration should be given to fans of the air-foil type, which are designed for quiet operation at high pressures.

Mechanical or electrostatic filters are generally used in high class commercial buildings and should also be considered for schools. Clean, filtered air properly diffused at controlled temperature is the answer to health and comfort in classrooms.

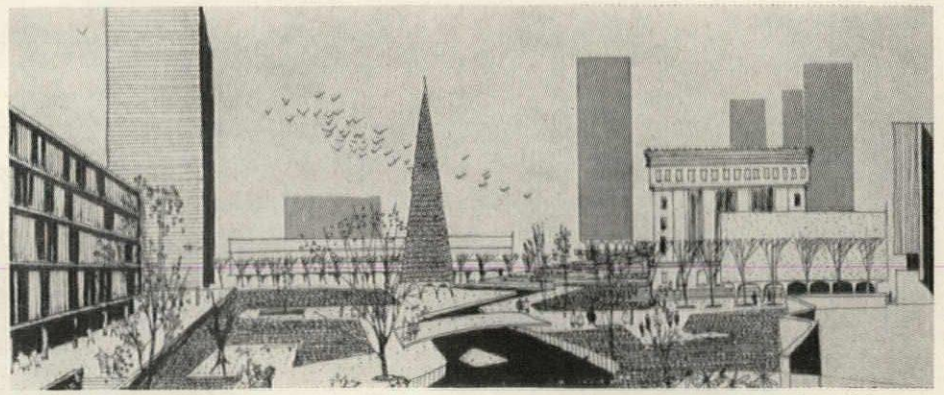


AC-1362

Volunteer Architects' Group Plans Detroit Improvements

The work of a group of 35 architect volunteers on a project which has been described by the director of the Detroit City Plan Commission as "an event of great significance" received special publication in the March *Monthly Bulletin* of the Michigan Society of Architects.

The group, known as the Architects' Urban Design Collaborative, offered two years ago to prepare studies for redevelopment of Detroit's 800-acre Central Business District. Louis G. Redstone is chairman of A.U.D.C., which was organized under the auspices of the Detroit Chapter, A.I.A.



One of many perspectives and models produced, this one (by the Office of Eberle M. Smith Associates, Inc., represented by Edward Hammarskjold and Charles W. Scurlock) gives a possible view south from Gratiot Avenue

Charles A. Blessing, A.I.A., the director of the City Plan Commission, writing in the special issue, recognizes that "there should be none better qualified than the architect to explore the three-dimensional concept of the city of the future."

Mr. Blessing concludes his article by stating, "The challenge of creative urban design is the greatest challenge before the design professions in America today. The American Institute of Architects might make no greater contribution to the future of America than by sponsoring the establishment in every local chapter of the national Institute of a collaborative urban design group to work with all other interested groups, official planning commissions, and local governments in developing urban design concepts which may largely determine the quality of the urban environment in America for generations to come."

Seven individual teams of architects, working on seven specific areas, have made the studies. All preliminary schemes, however, were presented to the entire membership of A.U.D.C. for discussion and criticism. An executive committee of seven members set up a general program and coordinated studies by teams. The City of Detroit made available to the group the Old City Hall.

The resulting proposals are the product of intensive studies in many areas, including: traffic, parking, and mass transportation; the optimum environment for each major kind of activity (civic, educational, shopping and commercial, etc.); the need for replacement of obsolete buildings along with the integration of certain existing buildings.

more news on page 320

BUILDING SIZE affects savings possible with General Electric 480Y/-277-volt equipment. Where feeders exceed 200 feet, G-E 480-v system serves load with 50% less copper than 208-volt installation.

Building or Modernizing?

Be sure your plans include power distribution equipment engineered to handle tomorrow's heavier electrical loads

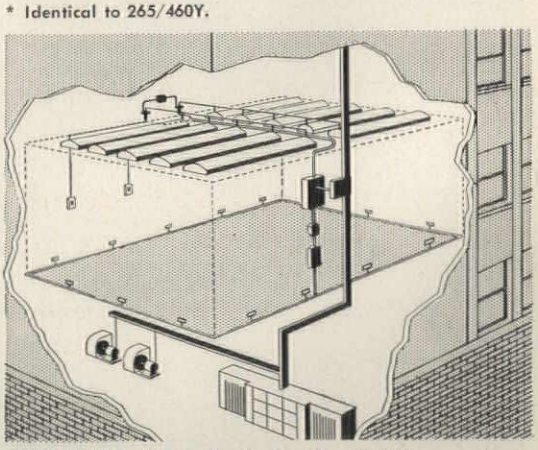
With the increased use of air conditioning, business machines, electronic equipment and higher-level area illumination, building services (and tenants) may suffer unless your power distribution system can satisfy growing load demands with stable power. Building or modernizing, you can solve this problem by specifying General Electric 480Y/277-volt* power distribution equipment. Here are two good reasons why—

SAVINGS TO $30/KVA are possible with a G-E 480-volt system because it requires less copper and fewer components than conventional 208-volt installations. General Electric substations, for example, use standardized, packaged components . . . preassembled to save space and reduce installation time and costs.

COMPLETE G-E ENGINEERING SERVICES, available right from early planning stages, can help you and your consultants work out the 480Y/277-volt system arrangement best suited to your present and anticipated power needs. Result: sizable first-cost dollar savings and expansible, efficient system performance.

FOR MORE INFORMATION on General Electric 480Y/277-volt power distribution equipment, contact your nearest G-E Apparatus Sales Office or write for Bulletin GEA-6851. General Electric Co., Section 680-16, Schenectady 5, N. Y.

* Identical to 265/460Y.



CUTAWAY shows basic loads—lighting, motors, general service—supplied by G-E 480Y/277-v equipment with fewer feeders, components than 208-volt system. Result: savings in space, equipment costs.

Progress Is Our Most Important Product

GENERAL ELECTRIC

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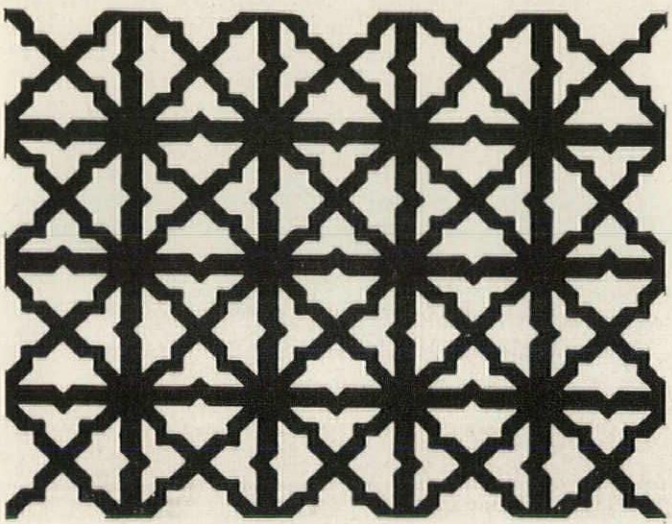
architectural grilles
more than 100 other patterns
to choose from!



Of the more than 100 designs in Hendrick Architectural Grilles, many are obtainable only from Hendrick. All combine the functional and the decorative with low installation costs – lower than for most architectural materials. All are of the highest quality: they always lie flat . . . never bend or warp . . . provide plenty of open space for passage of air.

All Hendrick Grilles are available in a wide range of dimensions, with varying numbers and sizes of perforations. **The Hendrick Catalog contains full information on every design. Write for it today – and see how Hendrick Grilles can help make *your* design shine!**

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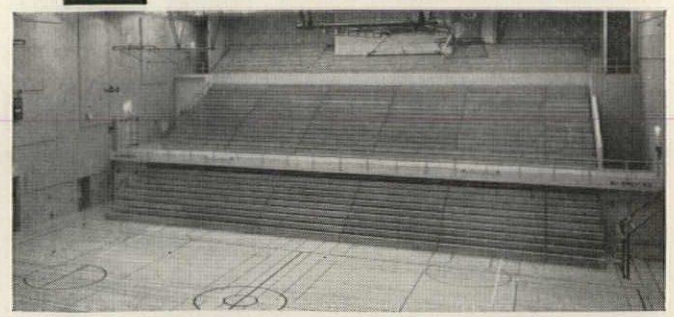
The only gym seats that provide ALL THE TOP FEATURES

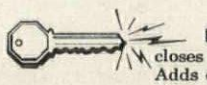


MEDART

TELESCOPIC GYM SEATS

- Vertical fronts prevent accidents, permit recessing
- Four vertical uprights per row put load on floor, not wall—distribute weight evenly
- Interlocked uprights insure straight-line trackage, make operation easier
- Toughest, abrasion-resistant seat finish known
- More leg and foot room—greater visibility

Write for catalog



POWER OPERATION Key-operated. Opens and closes entire banks of seats in seconds, safely, quietly. Adds only a fraction to seat cost.

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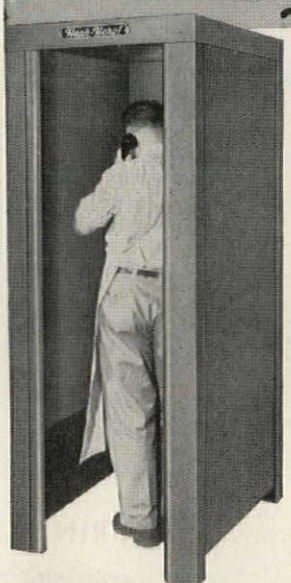
3540 DeKalb St. • St. Louis 18, Mo.

Only the Acousti-Booth is *Quiet*



BURGESS-MANNING "Hear-Here" Acousti-Booth

Talk and hear on the telephone—in *Effective Quiet*. "HEAR-HERE" Telephone Booths are acoustically corrected to eliminate interfering noises from the shop, office machines, passing trains and other traffic. You feel like you are stepping into another world when you step into a "HEAR-HERE" Acousti-Booth.

And notice!
- **No Doors** — always fresh air
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There's a model for every type of location.

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Frank Delle Cesse, Utica, N. Y.
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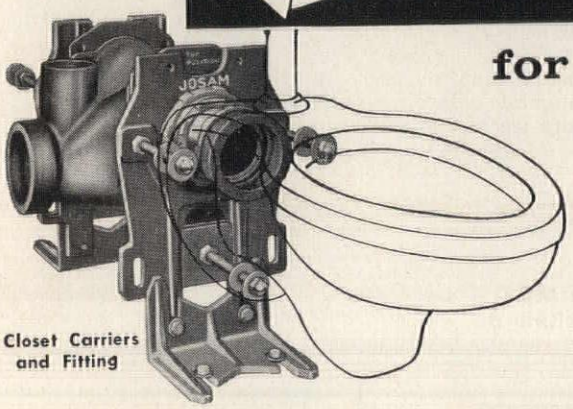
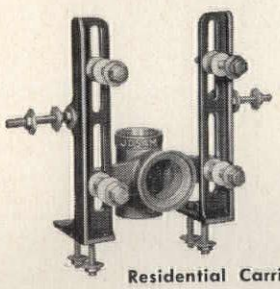
modern buildings with modern restrooms ... need modern

Josam® UNITRON® CARRIERS and CLOSET FITTINGS for WALL-HUNG FIXTURES

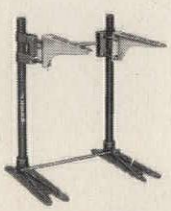


Closet Carriers and Fitting

Josam Unitron Carriers accelerate the trend to off-the-floor fixtures by offering the most advanced carriers and closet fittings in the field today. Josam Unitron Carriers have special features of construction that save installation time . . . save valuable space . . . and meet all wall-hung fixture requirements with a minimum number of basic units. Get the facts on why Josam Unitron Carriers are "best by every comparison test." Send coupon below for Manual FD-2, the most up-to-date selection guide available.



Residential Carrier



Sink Carrier

Urinal Carrier

There's a Josam UNITRON Carrier to Fit Any Condition

STANDARD TYPES

Josam Standard Unitron Closet Carriers offer such features as reversible body to permit installation with any make of blow-out or syphon jet closet bowl or women's urinal; an adjustable closet connection and reversible foot provide wide adjustability both horizontally and vertically; and a common vent on double fittings for more economical, more effective venting.

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Limited space in many cases makes it impractical to use wall-hung closets because of the space requirements of the carrier. Now with Josam Unitron "Close" Carriers this problem is eliminated through ultra-compact design which permits installation of carrier and closet fitting as an integral unit.

Make your selection from a complete line of Josam UNITRON Carriers and Fittings for Closets, Urinals, Lavatories, Sinks, Slabs and Hospital Fixtures; also for Residential Closets.

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SALT SPRAY TEST parallels coastal area atmospheric conditions of saline exposure.

WEATHEROMETER TEST duplicates the field condition of exposure to strong sunlight.

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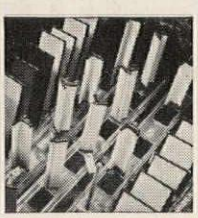

HUMIDITY TEST parallels field conditions of humidity inside and outside of windows.

ALKALI TEST duplicates field conditions of rain dripping off mortar, plaster, etc.

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TRUSCON'S sensational finish for steel windows

Forget field painting problems. Truscon's SUPERCOAT is a factory-applied finish for steel windows that eliminates all field painting. Practically eliminates maintenance painting, too.

SUPERCOAT is a two-coat baked enamel that was originally developed for home water-using appliances in which corrosion must be avoided. This superbly smooth, hard and glossy finish has been improved by Republic's research laboratories to further withstand exterior exposure.

SUPERCOAT has been thoroughly laboratory tested for weather, atmosphere, time, and abuse. It has successfully met every challenge.

As a result of the development of SUPERCOAT, there is no need to sacrifice strength and solidity in window sections simply to avoid field painting or difficult maintenance painting.

Specify SUPERCOAT on all types of Truscon Steel Windows for institutional, commercial, industrial, and office building applications. Standard color is light gray. Also available in attractive colors.

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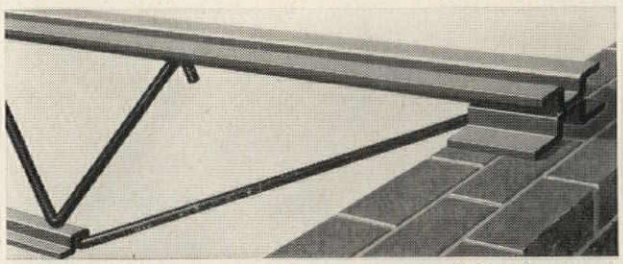
Truscon's SUPERCOAT finish can be specified in the design and construction of steel windows for beautiful apartment buildings such as the Prairie Shores Apartment #1, Chicago, Illinois, illustrated at the left.

Architect: Loebel, Schlossman & Bennett
Contractor: Sumner Sollitt Construction Company
Product: Truscon Series 138 Double-Hung Steel Windows with SUPERCOAT



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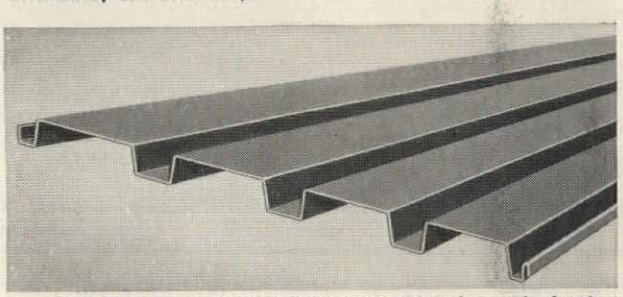

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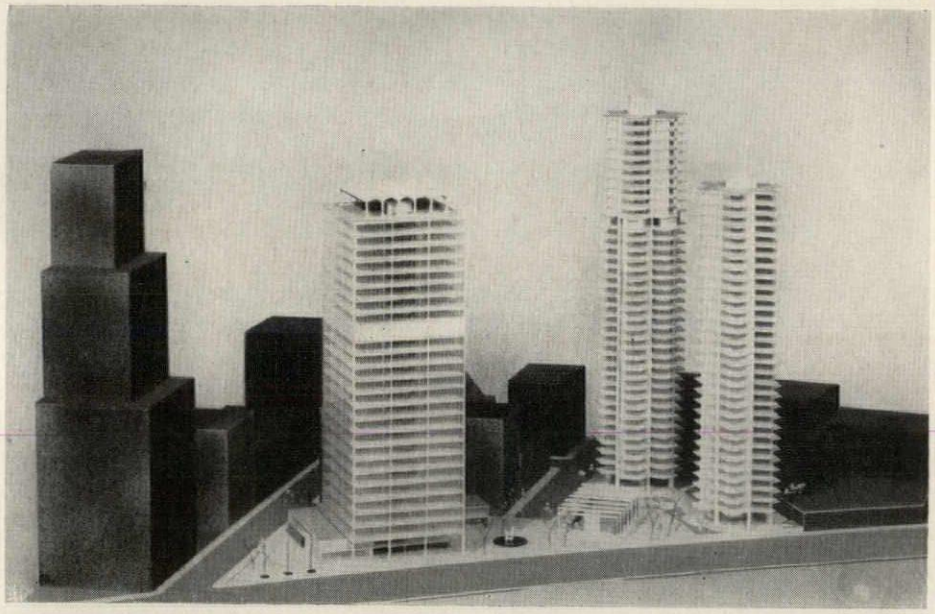
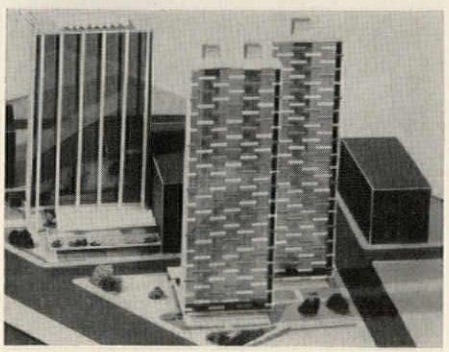


A.I.A. Chapter Uses Contest To Promote Civic Design

The 30th annual architectural competition sponsored by the Brooklyn Chapter of the American Institute of Architects was devoted this year to a not completely hypothetical problem. The subject was: "Office and Luxury Apartment Buildings for the Brooklyn Civic Center." Actually, New York City had already commissioned a study of the economic feasibility of putting up such buildings on specific sites in conjunction with the existing Brooklyn Civic Center Improvement Program. There is a good chance the structures will be built.

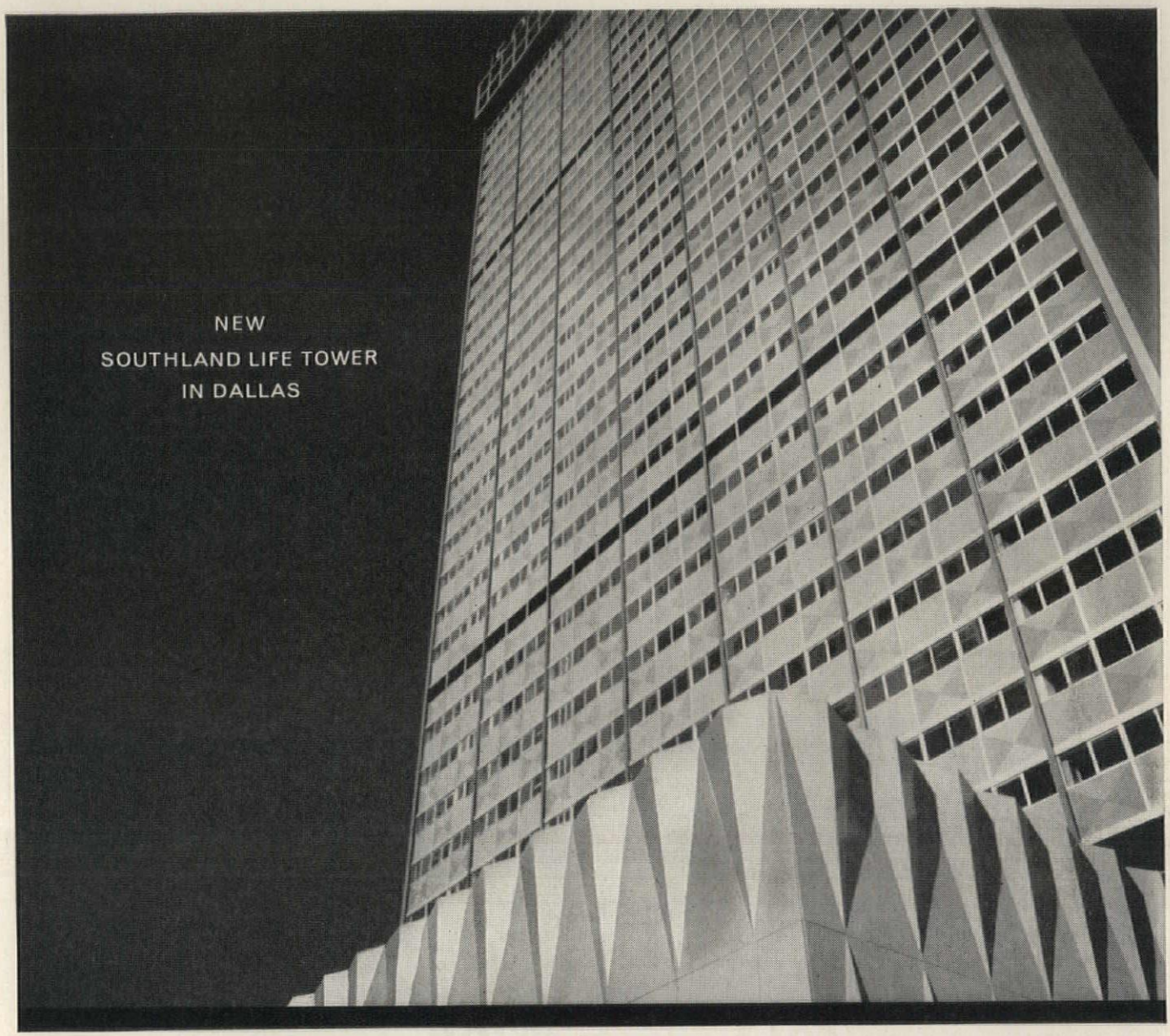
I. Donald Weston, chairman of the competition and of the jury, explained that the subject was therefore chosen in the hope that the competition would "serve to focus attention on the fact that buildings designed in good taste can and should be built on these sites."

The competition was open to undergraduate students at Brooklyn's Pratt Institute and to Brooklyn residents studying elsewhere. Besides Mr. Weston, the jury included members of the chapter and architects Robert Carson, B. Sumner Gruzen, William Ballard, and Edwin Ashley Salmon. The program specified an office building including 275,000 sq ft of office area and an optional number of luxury apartment buildings.



Models show the three top winners, all by Pratt students. *Top:* first: George Large and John Barbiere. *Upper:* second: William Plyer and Samuel De Santo. *Above:* third: Jacob Huff and Don Murray

more news on page 326



Curtain walls of precast concrete achieve dramatic interplay of light, color and texture

The unbroken whiteness of the end wall is in striking contrast to bright, blue-green spandrel panels of the sidewalls. And on the broad base wall below, light and shadow form bold patterns across the sculptured facing. 42 stories, and the tallest office building in the West, the Southland Life Tower is part of a $35,000,000 project in downtown Dallas, Texas.

It's all done with concrete panels. For the end walls and base, exposed quartz aggregate and white portland cement give surface roughness and brilliance. The smooth-faced spandrels are ceramic tile cast in concrete. The total effect is one more example of the unlimited design possibilities in today's new forms of concrete.

Architects and Engineers: Welton Becket, FAIA, and Associates, Los Angeles and Dallas. Consulting Architect: Mark Lemmon, AIA, Dallas, Texas. Structural Engineers: Murray Erick Associates, Los Angeles.

FOR STRUCTURES... MODERN **concrete**

PORTLAND CEMENT ASSOCIATION

A national organization to improve and extend the uses of concrete

Office of United Engineers & Constructors Inc. Philadelphia, Pa.; Molder: Majestic Molded Products, Bronx, New York

EVENGLO® polystyrene side panels and grid shields provide Ainsworth Spacegrid fixtures with a high level of illumination

Today, more than ever, lighting companies are using plastics to develop quality lighting fixtures—fixtures that are attractively designed and reasonably priced. Ainsworth Lighting, Inc., Long Island City, N. Y., is one of these companies! Ainsworth—a prestige name in commercial lighting fixtures.

In this particular fixture, with side panels and grid shields molded in one piece from EVENGLO polystyrene, Ainsworth found it possible to produce 104 footcandles of diffused light in this drafting room.

EVENGLO can be readily molded or extruded into practically any size, shape, or color. Moreover, EVENGLO polystyrene side panels and louvers aid in the reduction of direct or reflected glare; permit uniform diffusion without shadows, and have the ability to create a pleasing effect in all types of commercial establishments.

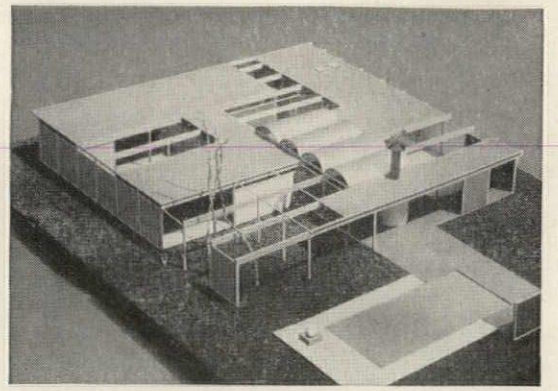
For more information on EVENGLO polystyrene, or for a list of lighting manufacturers currently using EVENGLO in fluorescent fixtures, write to Koppers Company, Inc., Plastics Division, Dept. AR-79, Pittsburgh 19, Pennsylvania.

Offices in Principal Cities • In Canada: Dominion Anilines and Chemicals Ltd., Toronto, Ontario

KOPPERS PLASTICS

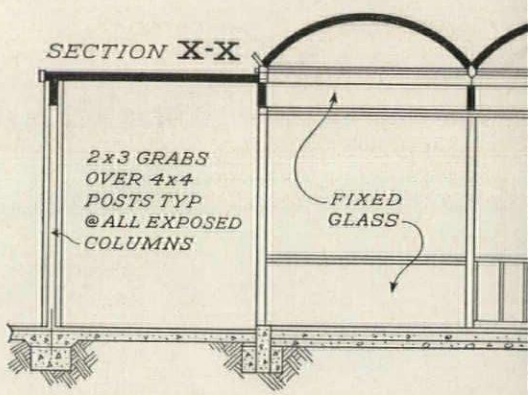
KOPPERS

new approaches to structural design with fir plywood



Clean, light lines of this striking residence show how new plywood structural elements can be used to help wood construction meet the requirements of contemporary design.

Case Study House demonstrates imaginative handling of



ARTS & ARCHITECTURE Case House Study No. 20

OWNER: Saul Bass, Whittier, California

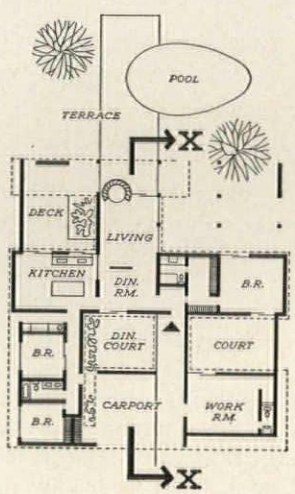
ARCHITECTS: Buff, Straub and Hensman Los Angeles, California

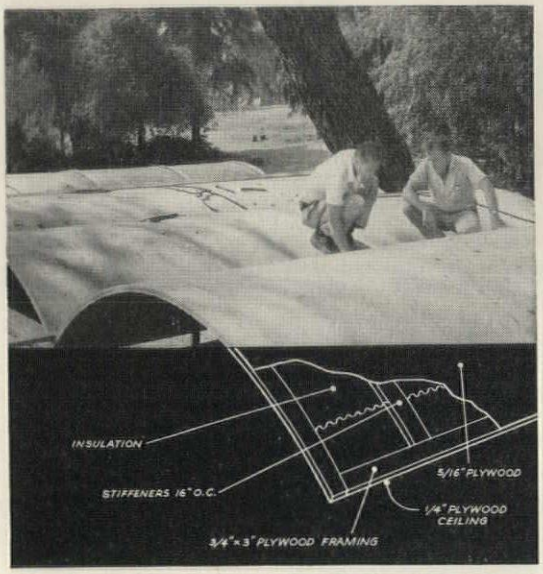
COMPONENTS: Fabricated and erected by Berkeley Plywood Company

THIS SOPHISTICATED ROOF SYSTEM employs lightweight, shop-fabricated plywood components that present traditionally acceptable wood construction in a fresh context.

The architects report these new plywood structural elements—box beams, barrel vaults and flat stressed skin panels—make sense from a standpoint of cost as well as design. For the loads and spans involved, they say there is no cheaper—or better—way to do the job.

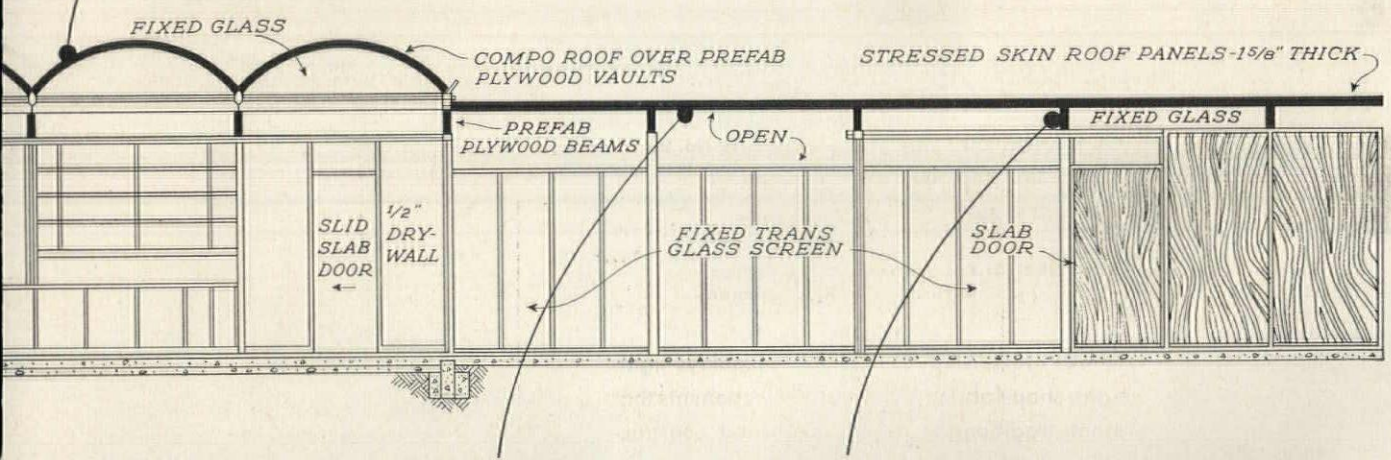
The basic structure is post and beam. Installed cost of the plywood box beams was $2 a foot, using premium overlaid plywood for the finest painting surface. The flat roof panels cost 40c per square foot in place; the barrel vaults 75c. Both were made in 2′ and 4′ widths, 8′ and 12′ lengths, combining roof deck, finish ceiling and insulation in one easily handled component.



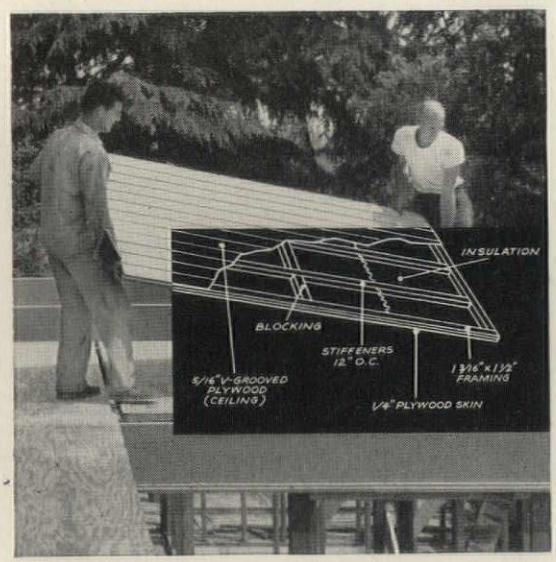


CURVED PANELS over living areas have same basic construction as flat panels. Underside serves as finish ceiling.

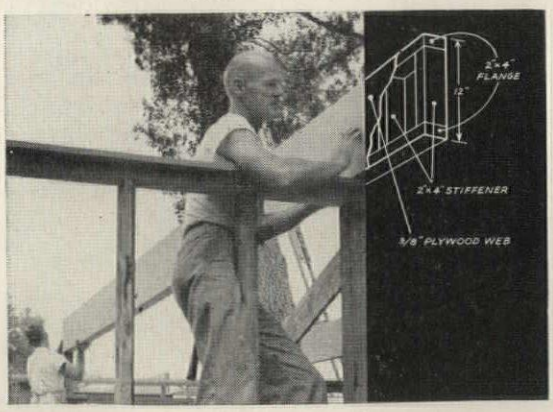
fir plywood components



FLAT STRESSED SKIN PANELS have 5/16" upper, 1/4" lower plywood skins with lumber edge frames and stiffeners.



PLYWOOD BOX BEAMS are light, easily handled, span 16' on 8' centers. Fir plywood skins are nail-glued to 2 x 4s.



Washington Topics

continued from page 52

The six committee members: International City Managers' Association, American Municipal Association, American Public Works Association, the American Society of Planning Officials, Municipal Finance Officers' Association, and the National Institute of Municipal Law Officers. BPR joined the group early and in 1956 the National Association of County Officials and the Canadian Federation of Mayors and Municipalities affiliated.

First Manuals Available

The first complete work of the committee is a basic guide book and a series of procedural manuals. (These can be purchased from the Public Administration Service, 1313 East 60th St., Chicago 37.)

The guide describes in simple, direct style how a program of city planning can be organized and what studies should be carried out, what sequence should be used to accomplish the work.

About 140 cities have indicated interest and plan to carry forward the committee program in the near future.

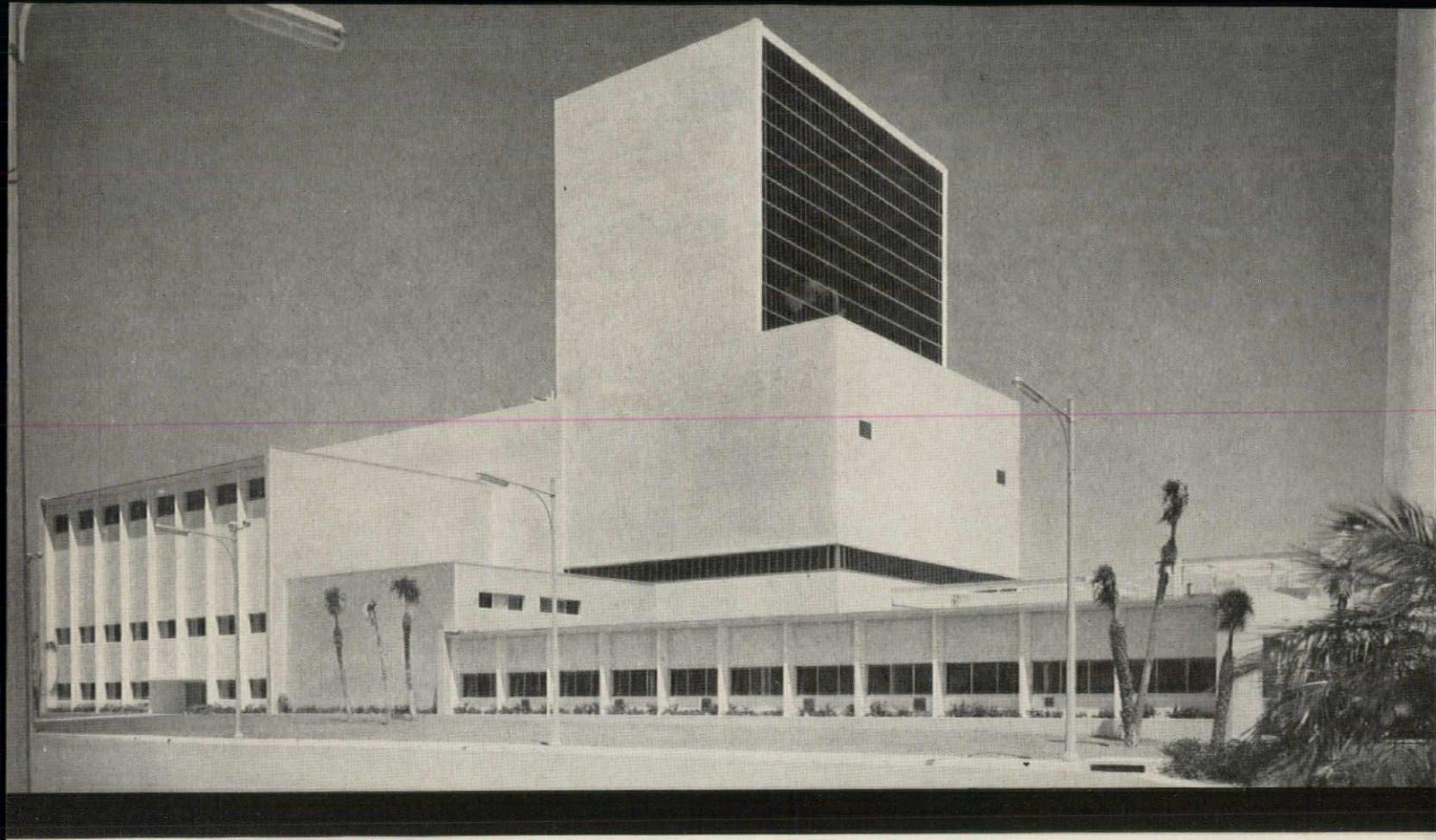
These are the study areas covered in the plan: (1) transportation administration; (2) laws and ordinances; (3) financial records and reports; (4) appraisal of the level of traffic service, including parking, travel time, volume counting, capacity, inventory of traffic control devices and accident records; (5) inventory of the physical street system; (6) origin-destination and land use survey; (7) appraisal of the level of transit service, including routes and coverage, passenger load data, travel time, transit speeds and delays and passenger riding habits; (8) standards for street facilities and services, and (9) standards for transit facilities and services.

There are six simple stages in this program for cities: organizing for the job, getting the facts, analyzing the data, developing the plan, adopting the plan, and carrying out the plan.

City officials themselves are said to be in a receptive mood for some sort of a mandate on the approval of Federal funds for highway building within their municipalities. They believe this would help them to force faster considerations of routes and other program necessities.

What ultimately will come out of the new drive for city transportation planning, however, probably will be

continued on page 332



Florida Power Corporation, Paul L. Bartow Plant, Weedon Island, St. Petersburg, Florida. Architect: Black & Veatch, Kansas City, Mo.

How new projects benefit by

Central High School, Phoenix, Arizona. Architect: John Sing Tang, Phoenix.

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Fenestra Aluminum windows and curtain wall at Homestead School heighten the architectural effect while lowering building and maintenance costs. Quality is assured by Fenestra standards of engineering and manufacturing. The Man from Fenestra has a complete range of window styles and sizes in aluminum or steel . . . Call him.

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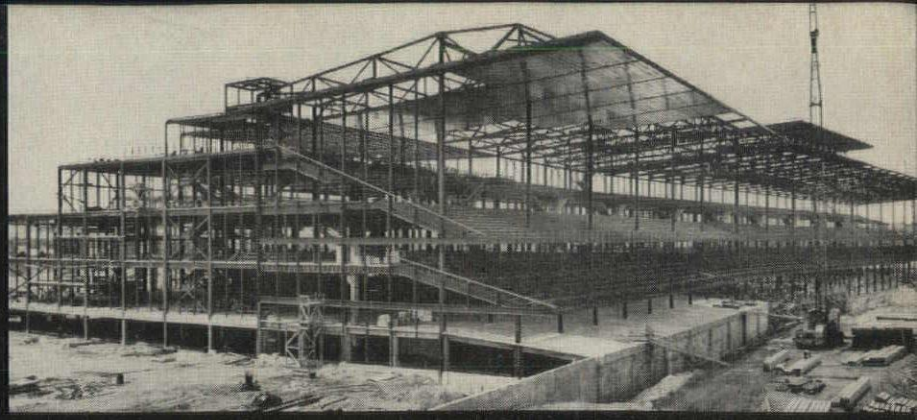
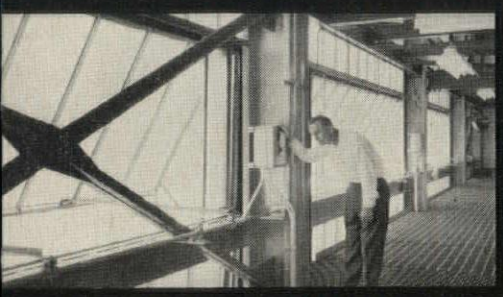
In spite of the avaricious salt-air atmosphere, these sturdy steel windows will need no maintenance painting, because FENLITE hot-dip galvanizing (an exclusive process)alloy-bonds a lifetime zinc surface to the steel of the windows.



Aqueduct Raceway, Queens, N. Y.
Architect: Stone & Webster, Boston, Mass.



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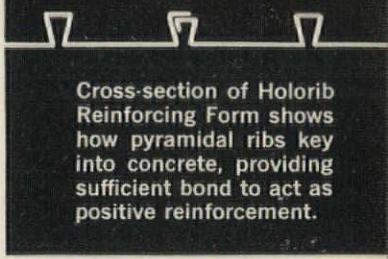

Cross-section of Holorib Reinforcing Form shows how pyramidal ribs key into concrete, providing sufficient bond to act as positive reinforcement.

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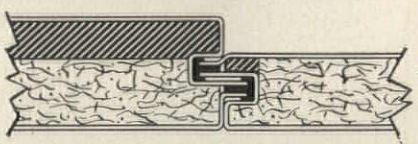
Cross-section, single Monopanl.



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Washington Topics

a campaign of persuasion looking toward cooperation between city and state officials and the creation of a new atmosphere of urgency.

The Bureau has developed the attitude that cities should look at their own problems first, then relate these to the transportation problems of the surrounding suburban areas, the county, and then to the state where they finally get into the Federal domain.

Said one Bureau spokesman: "We long have had the conviction that we must do all we can to tie in city transportation planning with overall city and area planning." But the immediate need seems to be the stimulation of attack on the transport problem.

There are not many "up to date" city transportation plans in existence, the Bureau said. The BPR memorandum to state departments, it is hoped, will prove to be the spur to the creation of more of these.

Ban on Civil Works Starts Called "Breathing Spell"

The Budget Bureau again has explained the Administration's stand on a no-new-start policy in the field of civil works construction. Director Elmer B. Staats told the annual meeting of the National Rivers and Harbors Congress in Washington, D. C., that the policy represents a "breathing spell" in the initiation of new projects—public building construction as well as pure civil works.

He emphasized that fiscal 1960 expenditures on flood control, navigation, irrigation, and similar activities of the Corps of Engineers and the Bureau of Reclamation will amount to approximately $1.1 billion. This is an all-time high.

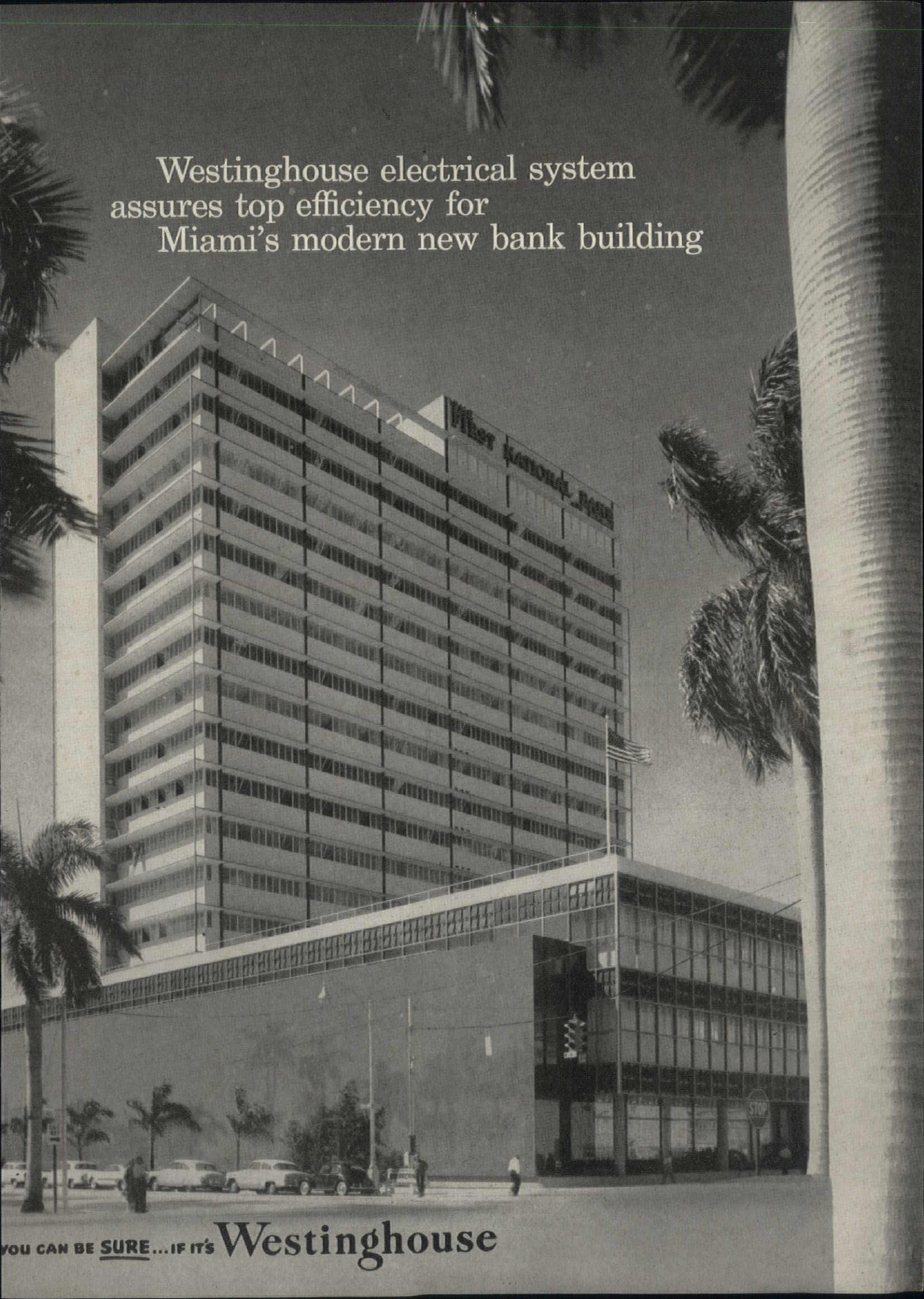
"What is more," Mr. Staats continued, "in the years after 1960, it will take $5 billion to complete going projects." Later years will require larger sums.

Threat to Economy Seen If Highway Funds Are Denied

It was pretty generally agreed last month that if Congress permitted the Interstate Highway construction program to languish for lack of new funding, the negative impact on the program itself would spill over into the general economy. Unless Congress acted, the slowdown in highway building and all the industry it stimulates would be felt most keenly during fiscal years 1961 and 1962.

The House Public Works Committee, in earlier studies and testimony,

continued on page 340


Westinghouse electrical system
assures top efficiency for
Miami's modern new bank building
YOU CAN BE SURE...IF IT'S Westinghouse

Cover photo: Newest face on the downtown Miami skyline is the 18-story First National Bank Building —Florida's largest and Miami's oldest bank. The office tower, served by five Westinghouse high-rise elevators, offers more than 10,000 square feet of rentable area per floor.

Over-all view of the new bank lobby. Contrasts in lighting levels and in functional colors are used here to delineate areas. Traffic flow is well defined through use of a modern metal sculptured screen.

J-94122-2

Herbert H. Johnson, Weed-Johnson Assoc., Architects and Engineers, points out advantages of a bus duct vertical-rise electrical system, the electrical backbone of this new bank and office building, to Edward Clarke, Project Manager for Rooney-Turner, General Contractors; Charles W. Butsch, Westinghouse Construction Specialist, and Ralph W. Crum, President of The First National Bank of Miami.

Tenant comfort, efficiency and future expansion assured by preplanned electrical system

Downtown Miami's skyline has been impressively changed with the completion of the new First National Bank Building. Located on famous Biscayne Boulevard, the new building furnishes complete quarters for the bank's facilities, plus 13 floors of rental area. This is the third new building occupied by the bank in their 56 years of growth. It was needed to meet the latest demands for space and services.

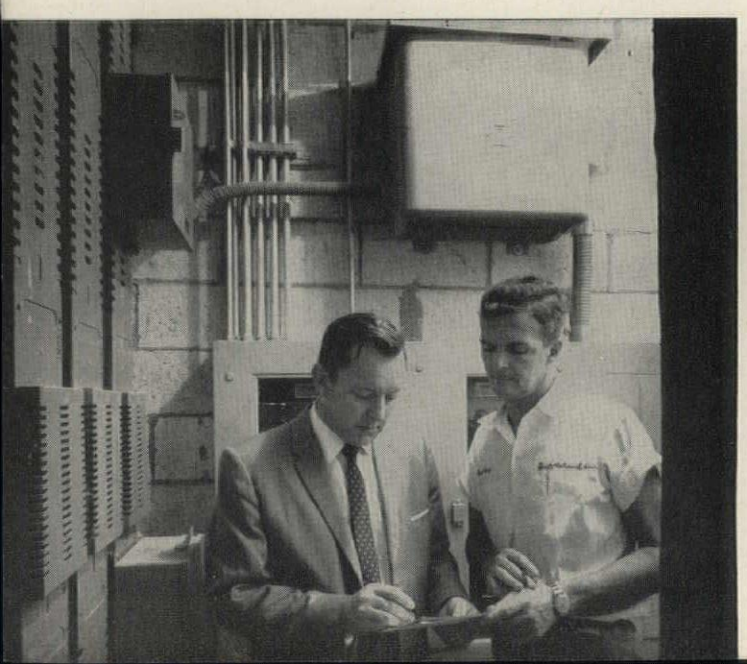
Careful study of the bank's operations, its plans for growth and expansion, and needs of satisfied tenants established design criteria of the building. Complete and adequate electrical service now and for the future was carefully considered. The need for a coordinated, preplanned electrical distribution system was readily apparent.

The use of Westinghouse distribution equipment throughout the building was a result of unanimous agreement between owner and architect-engineer. They both welcomed the opportunity to work with the Westinghouse construction specialist in careful preplanning of all phases of the electrical installation.

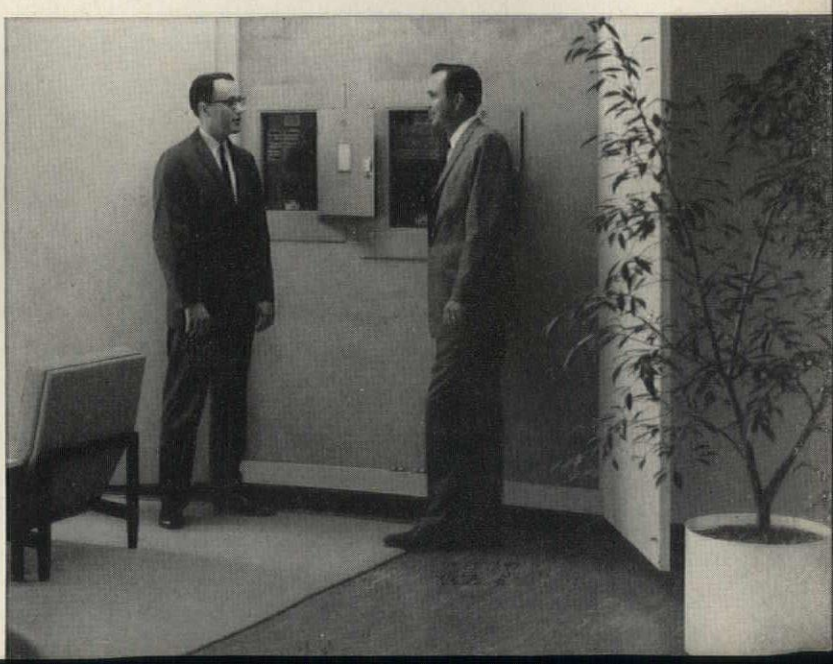
A Westinghouse distribution system was specified, with three parallel runs of Westinghouse bus duct distributing 277/480 volts in a vertical-rise design. On each floor, in electrical closets, Westinghouse quiet, dry-type transformers step down distribution voltage to utilization load of 120/208 volts. (*contd.*)

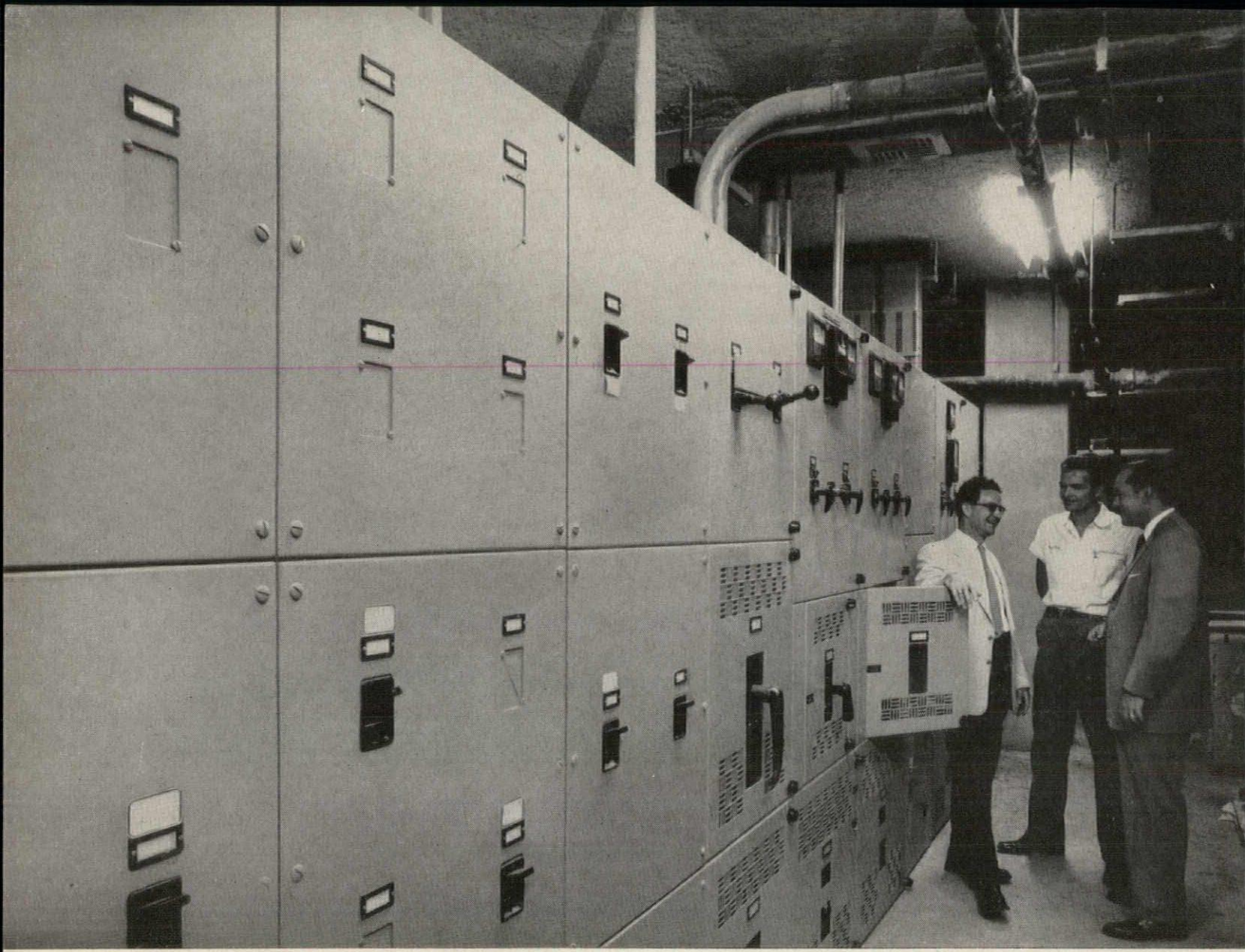
J-94122-3

Charles Butsch and William Bausch, bank's Electrical Supervisor, in typical electrical closet found on each floor, showing three runs of Westinghouse 600-amp Life-Line® busway that distributes 277/480 volts throughout building. Here, Westinghouse quiet, space-saving, wall-mounted dry-type transformers step down voltage for distribution and utilization by Westinghouse NLAB and NH1B panelboards shown below.



Herbert Johnson (right) shows Charles C. Gaines, bank staff member, Westinghouse lighting panelboards completely concealed behind hinged wall in bank employes' beautiful new cafeteria. The employes' cafeteria, located on the second floor, includes complete meal service, as well as areas for relaxation, recreation and reading.





Glenn Eaton, Florida Power & Light Co. power salesman, discusses the advantages of extra capacity built into Westinghouse building-type switchboard with William Bausch and Charles Butsch. Blank sections in foreground and spare circuit breakers have been allowed for future expansion.

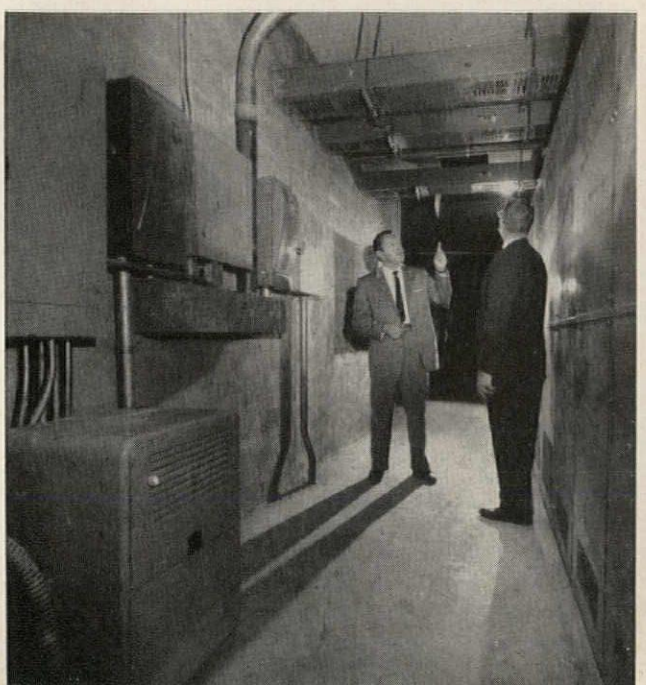
Electrical system preplanned for tenant comfort, efficiency and expansion (*contd.*)

This concept affords maximum efficiency in high-rise electrical distribution and utilization, readily adaptable for future expansion.

A Westinghouse construction specialist can be of service in your planning. Call the Westinghouse sales office near you, or write Westinghouse Electric Corporation, Box 868, Pittsburgh 30, Pennsylvania.

Owner: The First National Bank of Miami, Miami, Fla.
Architect-Engineer: Weed-Johnson Assoc., Miami, Fla.
Consulting Engineer: Norman J. Dignum & Assoc., Miami, Fla.
General Contractor: Rooney-Turner (Frank J. Rooney, Inc., Miami, Fla., and Turner Construction Co., New York, N. Y.)
Electrical Contractor: L. K. Comstock Co., Inc., Miami, Fla.
Westinghouse Distributor: Westinghouse Electric Supply Co., Miami, Fla.

Charles Butsch explains Westinghouse bus duct advantages to prospective tenant. Low-impedance bus duct carries incoming power to Westinghouse switchboard. Quiet, dependable Westinghouse DT-3 dry-type transformer (foreground) steps down voltage to utilization load. Main disconnect safety switches are Type CAF, 100- and 200-Amp.



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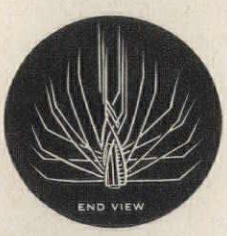

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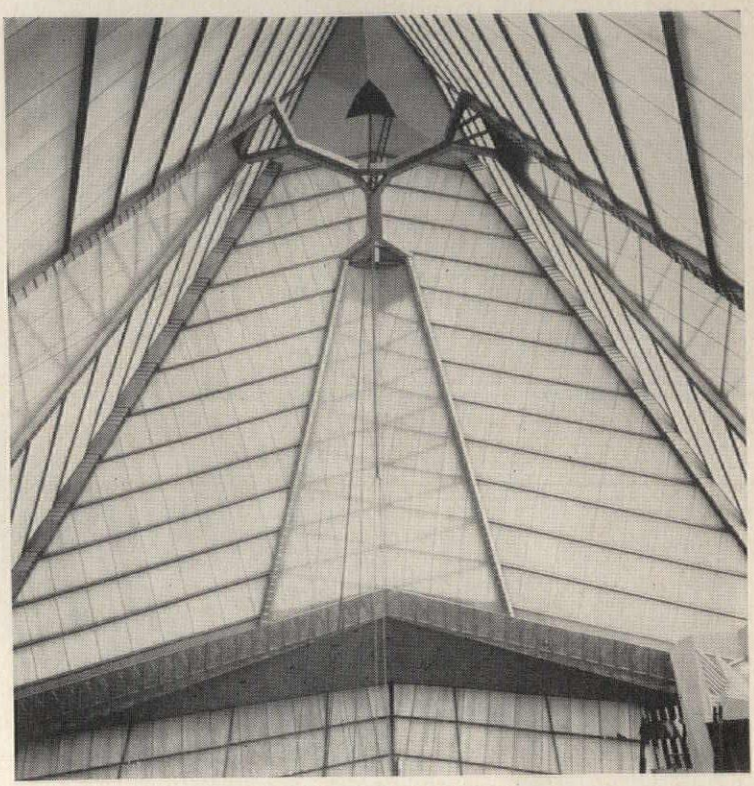

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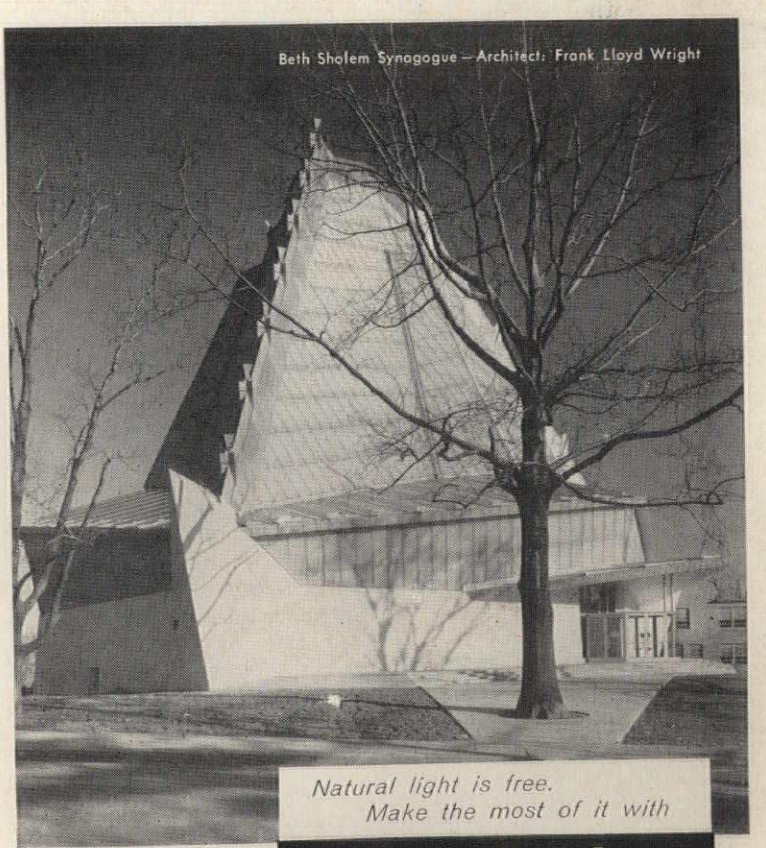

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*A report on rigid steel conduit**

Rigid steel conduit offers found in any type of conduit: physical damage to

For more than 50 years, architects, builders, engineers and electrical contractors have protected electrical systems by running wires through steel raceways.

So well known and so certain is this protection that the National Electrical Code includes the use of rigid steel pipe conduit for all applications and locations, both inside and out, and *specifically* requires it in particularly hazardous locations with explosive atmospheres.

The planning of an electrical system. There are several basic steps in the planning of an electrical system; the most important of these being: safety, capacity, voltage regulation, accessibility and flexibility.

The designer himself should have but one objective: *to give the owner an electrical system that operates economically and performs efficiently.*

The original raceway wiring system. The first consideration in any wiring plan? *Safety!* Engineers and architects know from experience that open circuits, short circuits and induced circuits are bound to develop in wiring systems in any one of the following ways: faulty wiring, lightning, sudden shock and overloading.

To combat these hazards, engineers and architects have always turned to the original raceway wiring system—rigid steel pipe conduit. Here are some of the reasons why:

Rigid steel conduit contains the damage; prevents it from spreading to the plant, home, garage or office.

Rigid steel conduit provides a grounded metallic system; induced currents are drained off without danger.

Rigid steel conduit has strength and cannot be damaged by moving objects; objects that might break conductors, or the insulation of wires that are left unprotected or semi-protected.

Despite the expert knowledge and intelligent planning of the designer, rewiring is quite often necessary before a building becomes obsolete. In this case, the existence of rigid steel conduit simplifies the rewiring problem and contributes much to cost reduction.

The economy of rigid steel conduit. Rigid steel conduit offers a permanent system that will outlast most buildings and provide the capacity for expansion and replacement of conductors when new wiring is needed to meet increasing loads.

In addition, the cost of replacing old circuits with new and larger wires through the existing rigid steel conduit is but a fraction of the cost of new work.

There are, of course, many ways to estimate savings. For instance, financial set-backs resulting from interrupted service could well exceed the initial cost of a safe, dependable rigid steel conduit wiring system.

Then, too, with fire hazards reduced, losses due to

* *From National Tube, America's leading steel pipe manufacturer supplying America's foremost conduit manufacturers.*

the greatest single advantage

permanent protection against

circuit conductors

property damage and production are greatly minimized. In the over-all planning of a wiring system, these costs must be weighed. And, certainly they are. That is why architects and electrical engineers, in their own interests and in the interests of their clients, specify rigid steel conduit as a protective investment.

The adaptability of rigid steel conduit. "*If I had to tear out this system in the next few months . . .*"

The engineer, contractor or architect who guarantees his work experiences this thought every time he designs or installs an electrical system.

It is also one of the reasons why rigid steel conduit has always been a standard of the electrical industry. The quality of this product is time-tested, proven and familiar to everyone who designs and installs electrical distribution systems.

This is primary because circuits can be serviced so easily. A rigid steel conduit permits electrical circuits to be changed and repaired; to grow as the need grows with an absolute minimum of expense.

The removal of defective wires and rewiring with sound ones is merely a matter of pulling out and feeding in. And, the smooth interior or rigid steel conduit makes it even easier to *fish* for wires and cable. *In brief: property does not have to be damaged and there is no time lost in rewiring.*

The ease of installing rigid steel conduit. Rigid steel conduit is easy to install, because it is compatible with all building materials, adaptable to all construction, fits anywhere and expands easily.

Rigid steel conduit is made to A.S.A. Specifications C.80.1 and 2, and is furnished with threaded couplings, elbows and nipples, as well as a full line of standard fittings, outlet boxes and accessories. And, it is available in sizes ½ to 6 inches.

Rigid steel conduit is easy to bend, cut and thread.

It can be installed indoors and outdoors, in dry or wet locations, exposed or concealed, in any hazardous location and under all types of atmospheric conditions.

Rigid steel conduit has great impact resistance; it can be handled roughly in installation and shipment, because it is not easily damaged. Actually, the contractor needs few tools to put in a permanent, safe and economical rigid steel conduit wiring system.

Electricity is a powerful force. And, electrical wiring must be protected to eliminate danger to life and property. For more than half a century, rigid steel conduit has given that protection.

You may obtain additional copies of this report by writing to National Tube Division, United States Steel, 525 William Penn Place, Pittsburgh 30, Pa.—*America's leading steel pipe manufacturer supplying America's foremost conduit manufacturers.* *USS is a registered trademark*

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Washington Topics

concluded that the direct economic loss to highway users could run to $6 billion. Best estimate of the apparent loss in wages from such a slowdown would be $2.5 billion, it was said.

As for the highway industry itself, the American Road Builders Association said highway contractors were operating at 62 per cent of capacity. Thus, a cutback would bring bankruptcies and accumulation of large quantities of used equipment. Companies manufacturing exclusively equipment used in road construction would be particularly hard hit since most of them have increased their plant capacities in anticipation of the 13-year effort.

FHA's New Standards Get Criticism in Congress

The Federal Housing Administration's new minimum property standards came under severe criticism in Congress.

Rep. Joel T. Broyhill (R-Va.), large-scale home builder operating near the nation's capital, held a copy of the revised requirements in his hand as he addressed the House on the omnibus measure for 1959.

These standards were being ignored in some measure by many builders, he complained, and were too complex despite the three-year effort to simplify the score of separate documents which guided the MPR program. One of his complaints: he said the White House itself would not qualify under the nailing provisions of the standards and doubted that any of the homes owned by members of the House would stand the test of the new MPS's.

Rep. Albert Rains (D-Ala.) promised Mr. Broyhill that the former's housing subcommittee of the House Banking and Currency group would take up the matter at a later date.

Preserving Shoreline Areas

The Department of the Interior submitted new legislation to Congress proposing preservation for public use of certain remaining undeveloped shoreline areas of the United States. The plan called for employment of six civilian landscape architects the first year of five for which employment and expenditure estimates were given. No engineers were listed for the first year, three each were proposed for the other four years. Total cost of the proposed program for the first five years of operation, including land acquisition, would be something over $15 million, Interior estimated.

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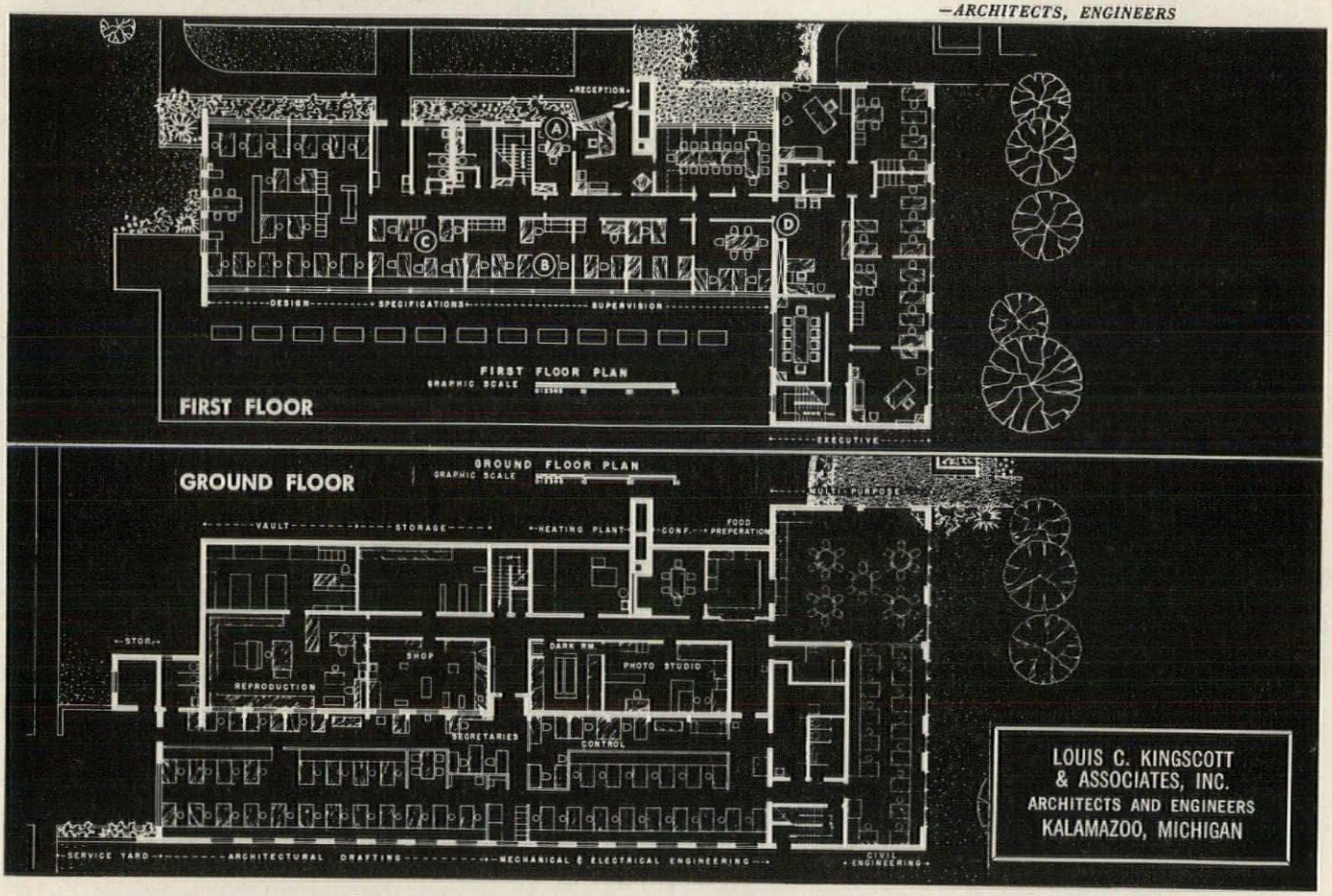

Architects are often their own clients. Here is an outstanding example—by Kingscott & Associates, whose offices are shown above in plan. This handsome, functional structure is characterized by superb site utilization . . . flexibility and expandability . . . a unique alliance of efficiency and the amenities.

Callers who have travelled far to put in an appearance at this large, busy office in Kalamazoo — and local visitors as well — appreciate this firm's recognition of the service Dodge Reports perform. By providing information on work progress to a Dodge Reporter, Mr. Kingscott and his associates save time for themselves and for vendors and contractors. Salemen who are kept up-to-date by Dodge Reports can *time* their calls . . . and so are more likely to make a real contribution. Clients, too, can be served with greater dispatch thanks to the efficient ways this Dodge service is used by Mr. Kingscott's staff.

As evidence:

A. The switchboard is unoccupied with random, repetitive calls — lines are clear for work-in-progress communication.

B. Traffic schedules show earlier completion dates — because Dodge-alerted subs, dealers and distributors are prompt in offering and delivering services and wares.

C. Estimate files contain figures lower than they could have been without the sales short-cut that Dodge Reports afford manufacturers, contractors, etc.

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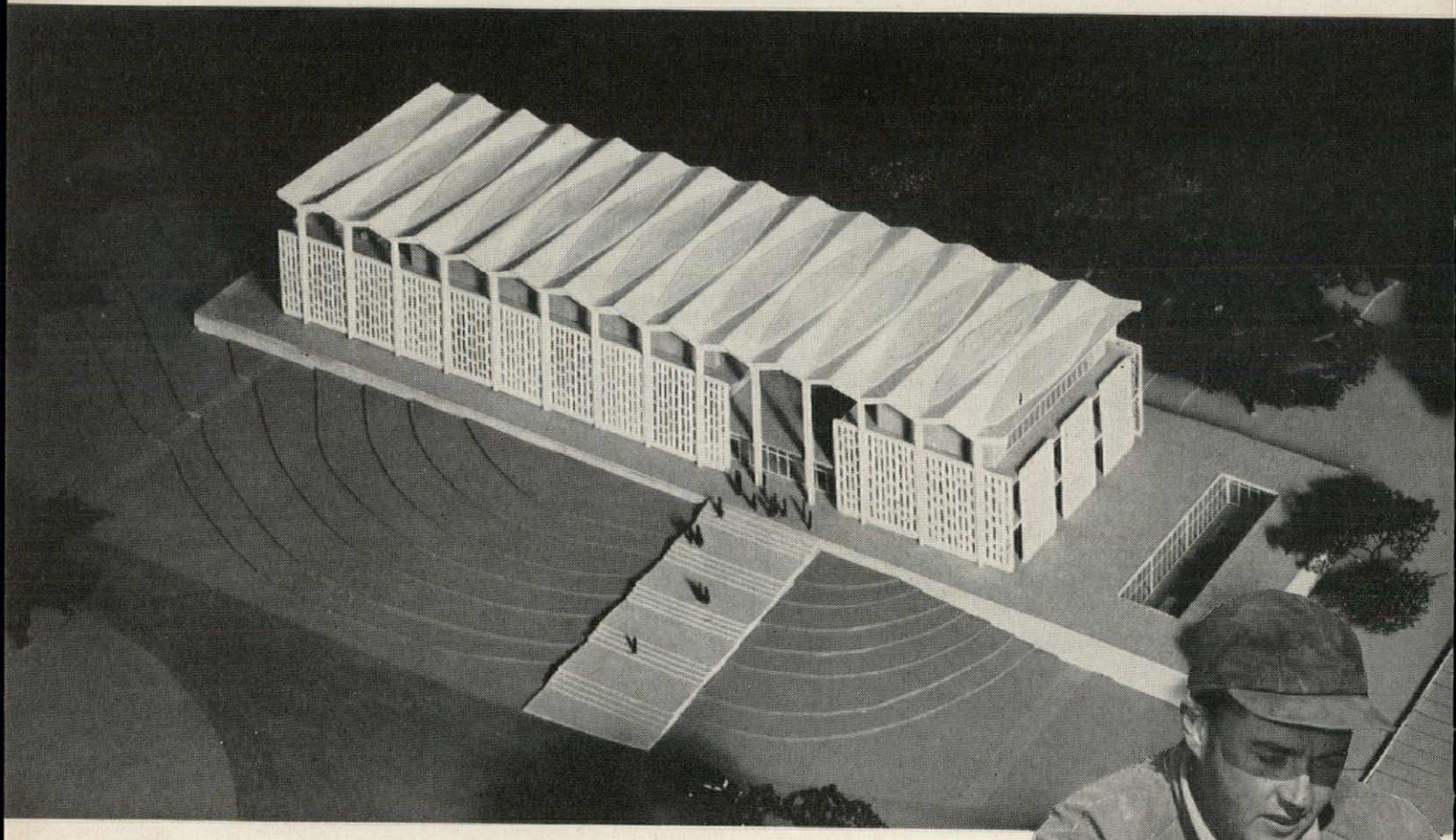
The first unit of the new Memphis Academy of Arts rises majestically in the city's Overton Park. This impressive structure will be the pride of Memphis residents for generations.

KEYWALL masonry reinforcement is protecting the beauty of this Fine Arts Center. It's adding greater crack resistance and increased strength to outside and partition



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walls, as well as the retaining wall at the base.

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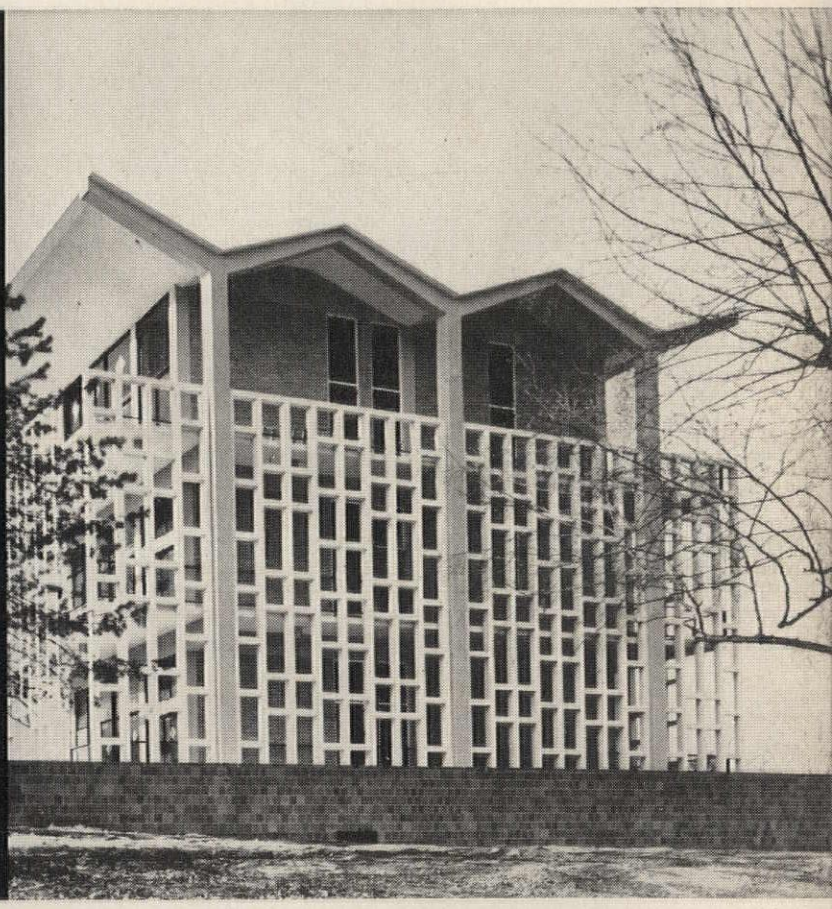
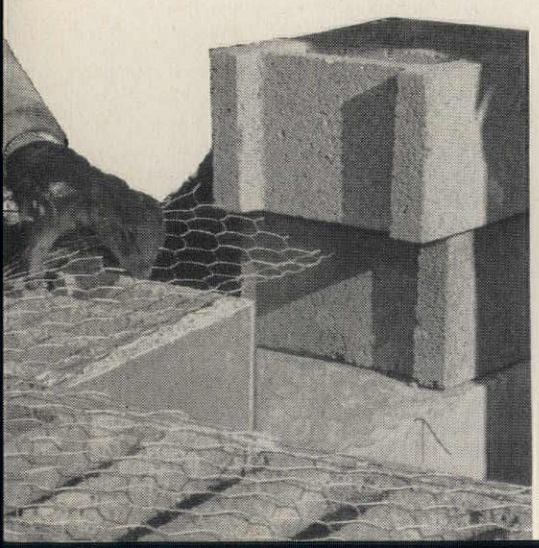
Masons find KEYWALL easy to handle and store. It unrolls in place on the wall, it cuts easily, and it's easy to lap without adding thickness to mortar joints. Full embedment and a strong bond are always assured.

Why not use KEYWALL masonry joint reinforcement on your next job? You'll find it gives the low-cost, effective reinforcement you've been looking for.

The winning design in the Million Dollar Fine Arts Center architectural competition, Memphis, Tennessee. When completed, this building will have facilities for an art academy, a theatre and a concert hall. Mann and Harrover, Architects; Allen and Hoshall, Mechanical Engineers; John C. Brough, Structural Engineer; Whitsitt Construction Co., Inc., General Contractor; Memphis.



KEYWALL masonry joint reinforcement is made for the following wall thicknesses: 4", 6", 8", 10" and 12".



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Required Reading

McCallum . . . *cont. from page 60*

tion. Of the remaining score mentioned in the "Note" as deserving inclusion, this reviewer has never heard of half a dozen and would certainly concur with Mr. McCallum, moreover, in the exclusion of another half dozen. At the same time, of course, the reviewer could suggest the possible inclusion of quite a few architects, some in Texas, some in the San Francisco Bay area, and some in Minneapolis, whose work he happens to know at first hand, as Mr. McCallum probably does not. The point is that in a continent-wide survey there is little question about which are the figures of established national reputation, but beyond them one's judgment of which are the more promising architects among those whose reputations are so far largely regional depends a good deal on one's own travels in the last few years and even on one's personal contacts in various parts of the country, particularly if they are visited only once and in a hurry.

Mr. McCallum's biographical sketches of his chosen architects are especially interesting for the full information they provide on their subjects' professional training and on their admirations and enthusiasms, if too often lacking in dates for specific buildings. Some may feel that with so much executed work of quality available too many of the illustrations are of projects. But the inclusion of projects—quite a few realized by this time, incidentally—offers a slight projection of the story into the future and helps to reveal how the climate of architectural aspiration has been changing in the last few years for many men of rather varied backgrounds.

One may regret also that the text offers no profound or striking conclusions. But essentially this is a work of high-grade reporting, not a treatise on American architecture, and valuable because of the author's relative objectivity that allows, and indeed forces, the reader to arrive at his own tentative conclusions. To this reviewer, at least, it seems that the picture of the present architectural scene, so crowded with the "trees" that each month's magazines offer us, becomes more clearly recognizable as a "wood" thanks to this book. Unlike many picture books of current architecture, it shapes as well as adds to the available material for judgment; yet it does so with such editorial skill that it never seems tendentious or unjust, even if the coverage is necessarily incomplete.

Architect: Edward L. Varney—Associates ,Phoenix, Arizona.

The ageless beauty of glass

The design of the Motorola Western Military Electronics Center, Phoenix, Arizona, shows how attractive industrial plants can be made through imagination and the application of modern techniques. This building's symmetry of form is relieved of the feeling of massiveness by the cantilevered construction and the colorful glass panels.

To blunt the effects of the Arizona sun, heat-absorbing SOLEX® Plate Glass has been installed in the windows. SOLEX softens the harsh glare of direct sunlight and makes the interior light relaxing and comfortable. Above and below the SOLEX windows are panels of Romany blue SPANDRELITE® —*Pittsburgh's* glass in color. Glass panels are framed and supported by gold anodized PITTCO® 82-X Metal. TUBELITE® Doors and Frames, with

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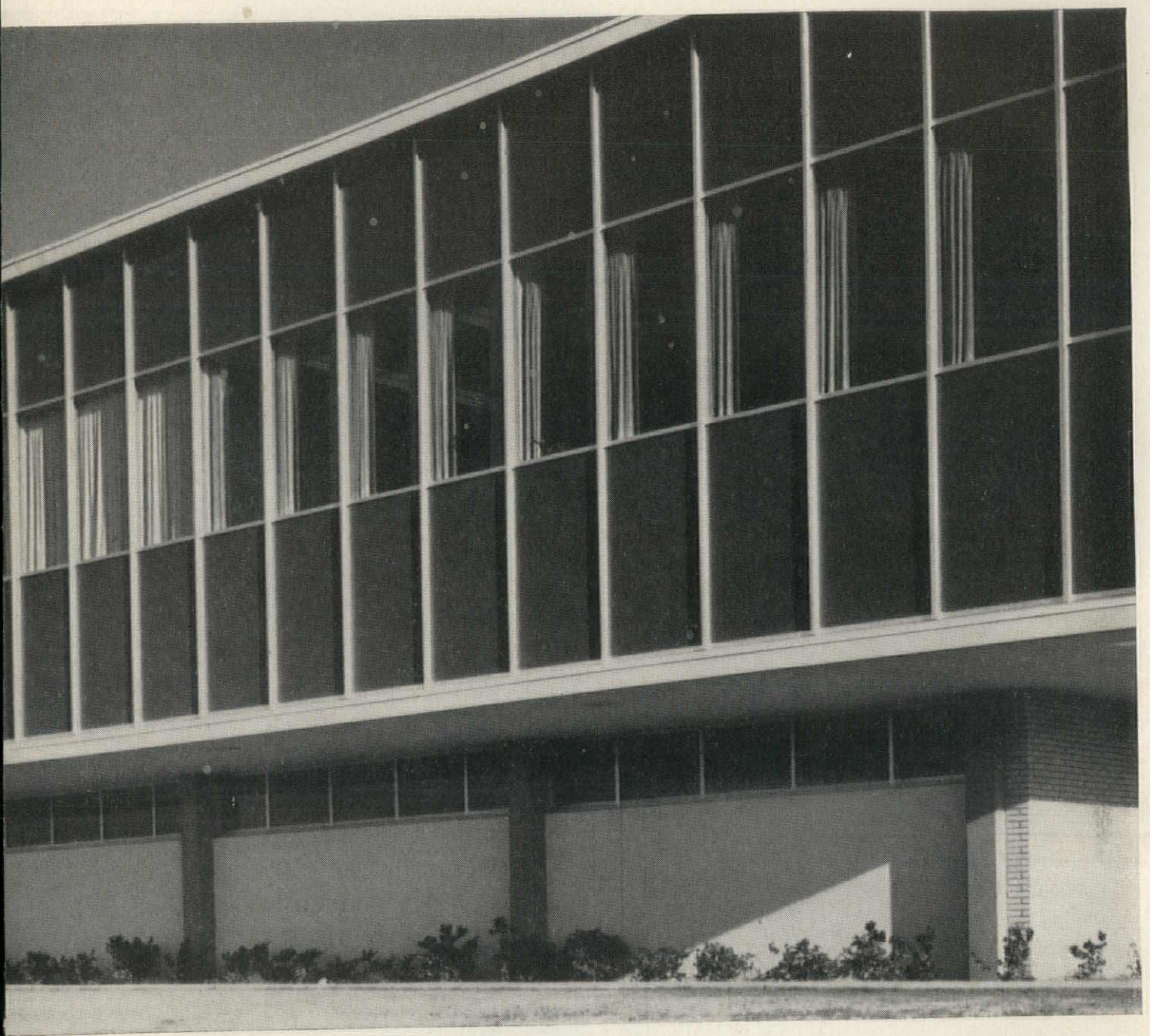

Contractor: T. G. K. Construction Co., Inc., Phoenix, Arizona.

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all metal gold anodized, carry out the simplicity of design. The appealing beauty of the glass is permanent, for neither time nor the elements will affect it.

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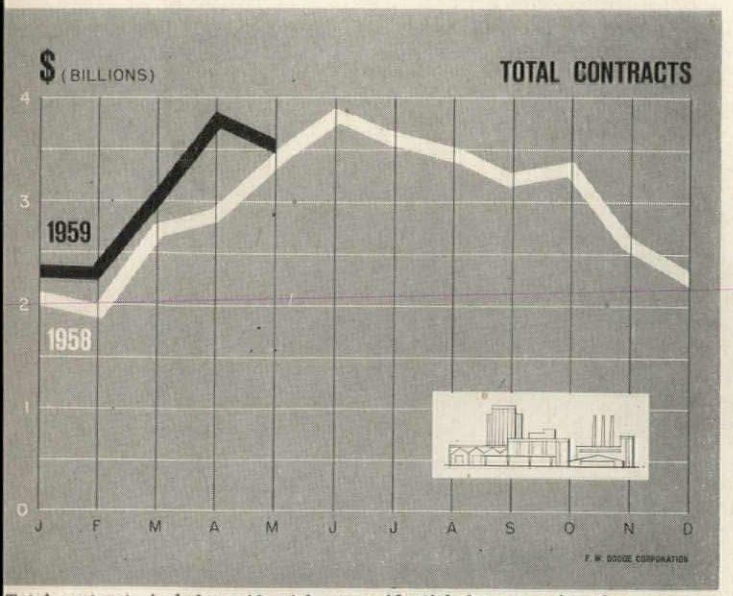
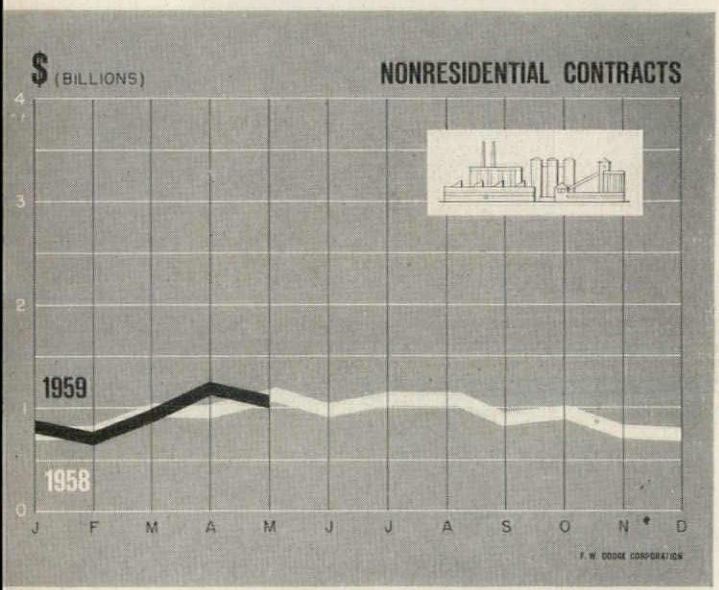
Current Trends in Construction

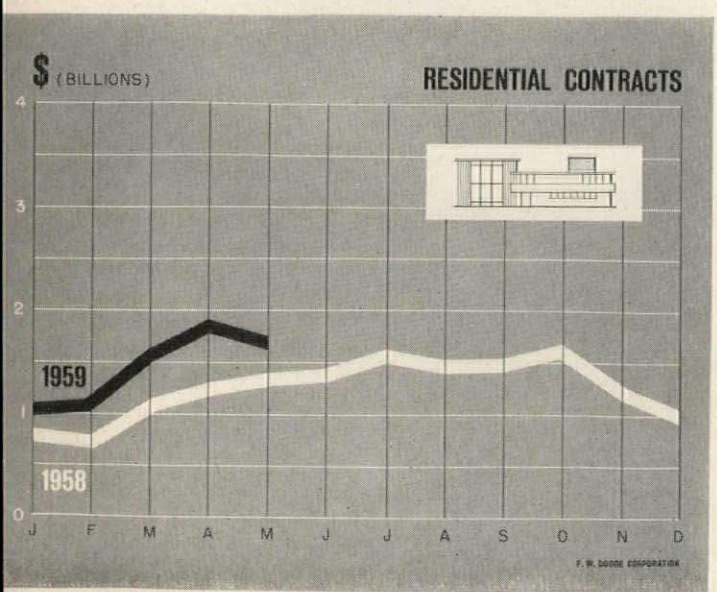


Total contracts include residential, nonresidential, heavy engineering contracts

CHURCH BOOM: This year is well on its way toward setting a new all-time record for religious buildings. The Dodge contract figures for this category indicate that the total for 1959 will be well over $800 million, far ahead of anything recorded in earlier years. Not all this amount will be for churches, as such; other parish buildings and church schools are included in the total. It is not our province to assess the spiritual reasons behind this boom, but we can say that we predicted it some years back in an analysis of the economic factors affecting church building, written for ARCHITECTURAL RECORD. The reasons were simple: church membership growing faster than total population; church incomes moving upward; and a period of under-building in which church congregations began bursting the seams of their buildings. We don't know, incidentally, if the two are connected, but it is interesting to note that as church building has increased this year, contracts for jails and penitentiaries have been declining.



CONSTRUCTION IN GENERAL has been proceeding very satisfactorily this year, with total contracts in the first four months running a whopping 22 per cent ahead of the same period last year. The new Dodge index of construction contracts, seasonally adjusted, was first released for April, and perhaps by way of celebration, reached its highest point in that month. The index, which has as its base of 100 the standard 1947-49 period, climbed to 299 in April. The May index was down a bit, but was still well up in the stratosphere as indexes go. Sparking the 1959 building prosperity are stores, factories, hospitals, churches, social and recreational buildings, housing, and utilities. Highway contracts are about even with last year, although actual construction work being done on the roads is increasing. Of the major categories, only offices and schools are down, and this appears to be a temporary condition.



OUR POLITICAL ECONOMY is replete with perils for the forecaster. Consider the frequent question asked of a construction economist this spring: what is the outlook for housing in 1959? The answer depended heavily on Congressional action, and went like this: Congress may pass a liberal bill, a moderate bill, or no bill at all. If they pass a liberal bill, the President may veto it. If he vetoes it, Congress may repass it over the veto, or pass a new moderate bill, or pass no bill at all. Therefore the outlook for housing is ebullient, middling, or fair. And that's the way is still stands at this writing, although by the time you read this, the suspense may be over.

GEORGE CLINE SMITH
Vice President and Economist
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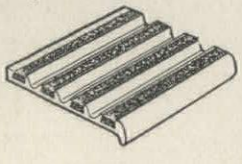

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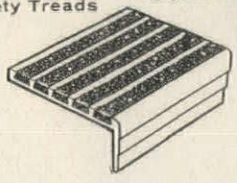

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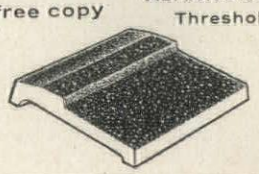

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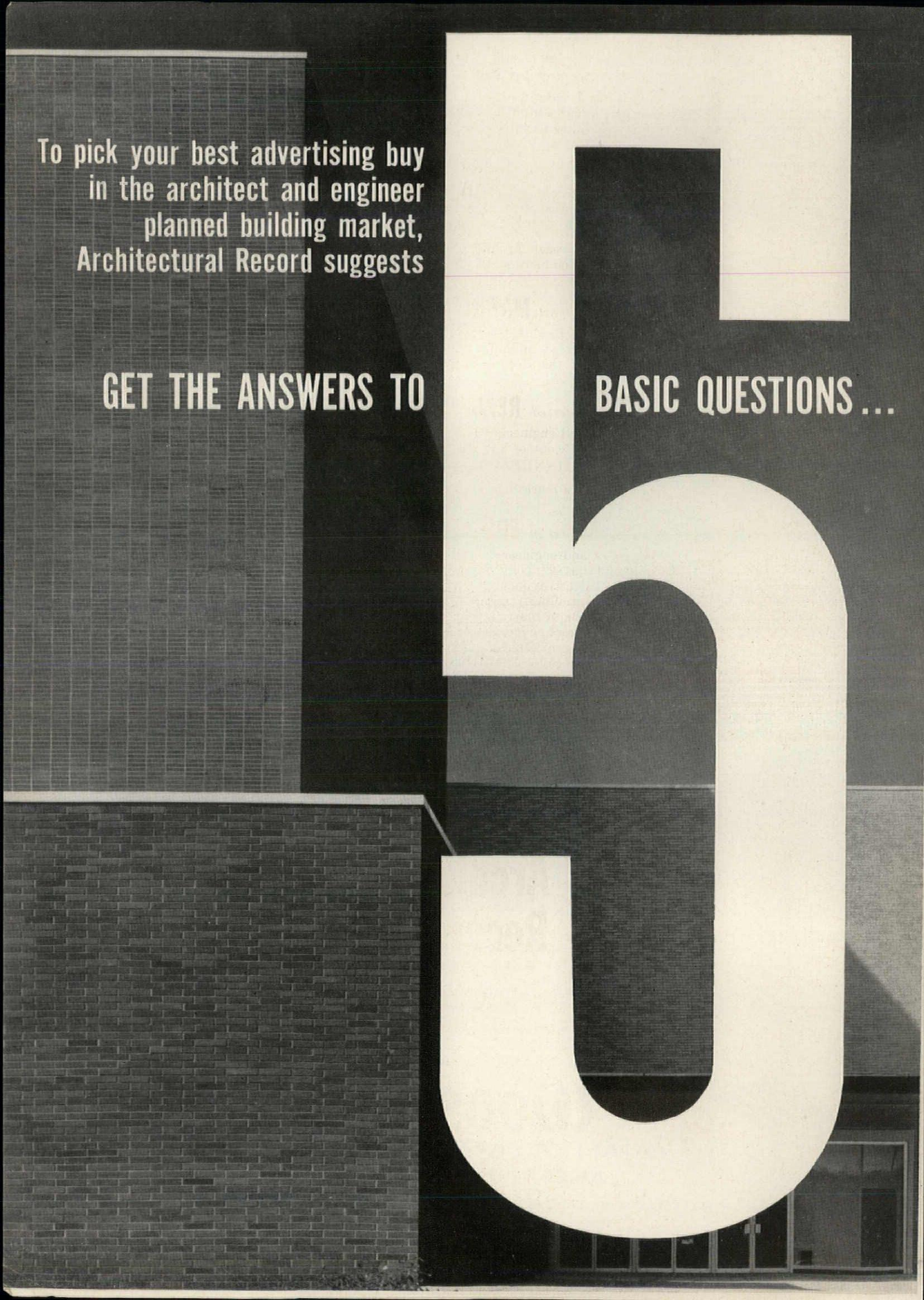
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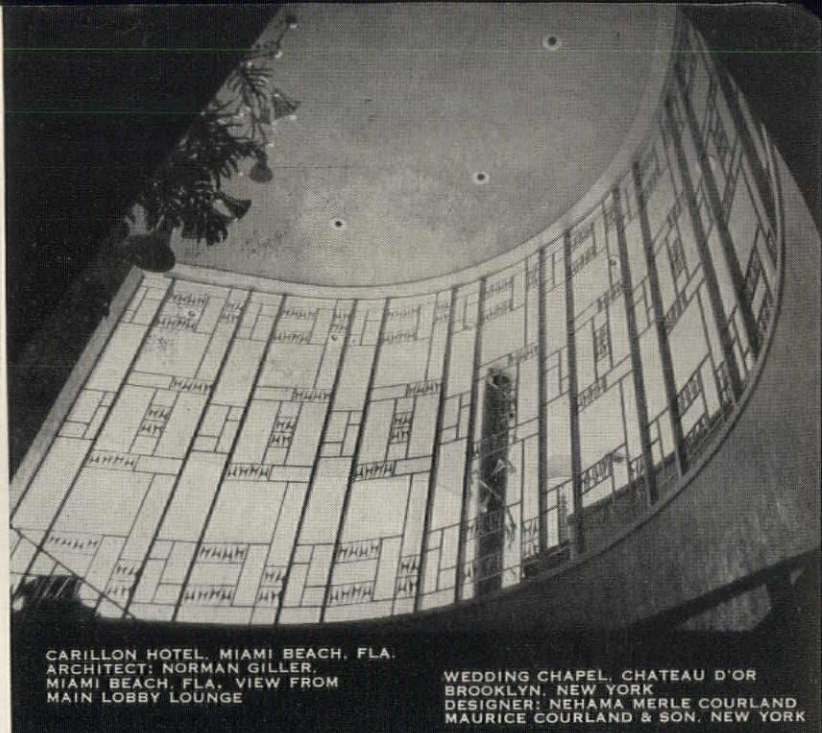

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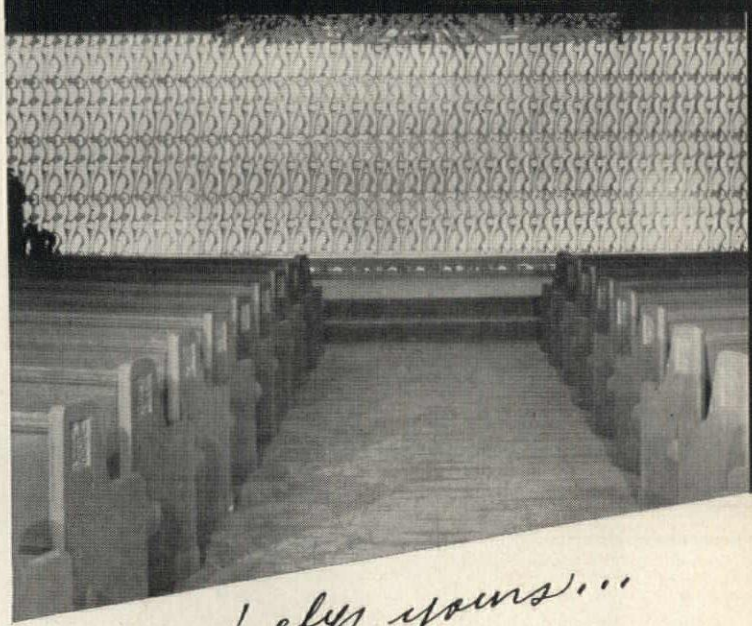

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Beauty and character of new church owe much to

PRECAST CONCRETE

This church exemplifies the adaptability and beauty of modern precast concrete construction. Precast units serve both structurally and decoratively, and include 28 arches of varying sizes, 2 spire grills, 4 ornamental grills, and 42 precast window frames and sills. The largest arch is 32′ high.

Architects-Engineers: T. Norman Mansell, Philadelphia, Pa.
Scott B. Arnold Assoc., Miami, Fla.
Contractor: Thompson-Polizzi Construction Co., Coral Gables, Fla.
Precast Units Supplied by: Lewis Manufacturing Co., Miami, Fla.

Soaring arches, ornamental grills, window frames and sills—all precast concrete—lend enduring beauty and character to the new St. Peters Lutheran Church, Miami, Fla.

In precasting this wide variety of concrete units, Lewis Manufacturing Company used Lehigh Early Strength Cement for maximum production efficiency and economy.

"Our entire operation," writes Mr. Lewis, "has always been geared to the use of Lehigh Early Strength Cement and live steam curing. This fast production method enables us to give our customers better service, at lower cost."

This is typical of the advantages of Lehigh Early Strength Cement in modern concrete construction.

Lehigh Portland Cement Company
ALLENTOWN, PA.

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