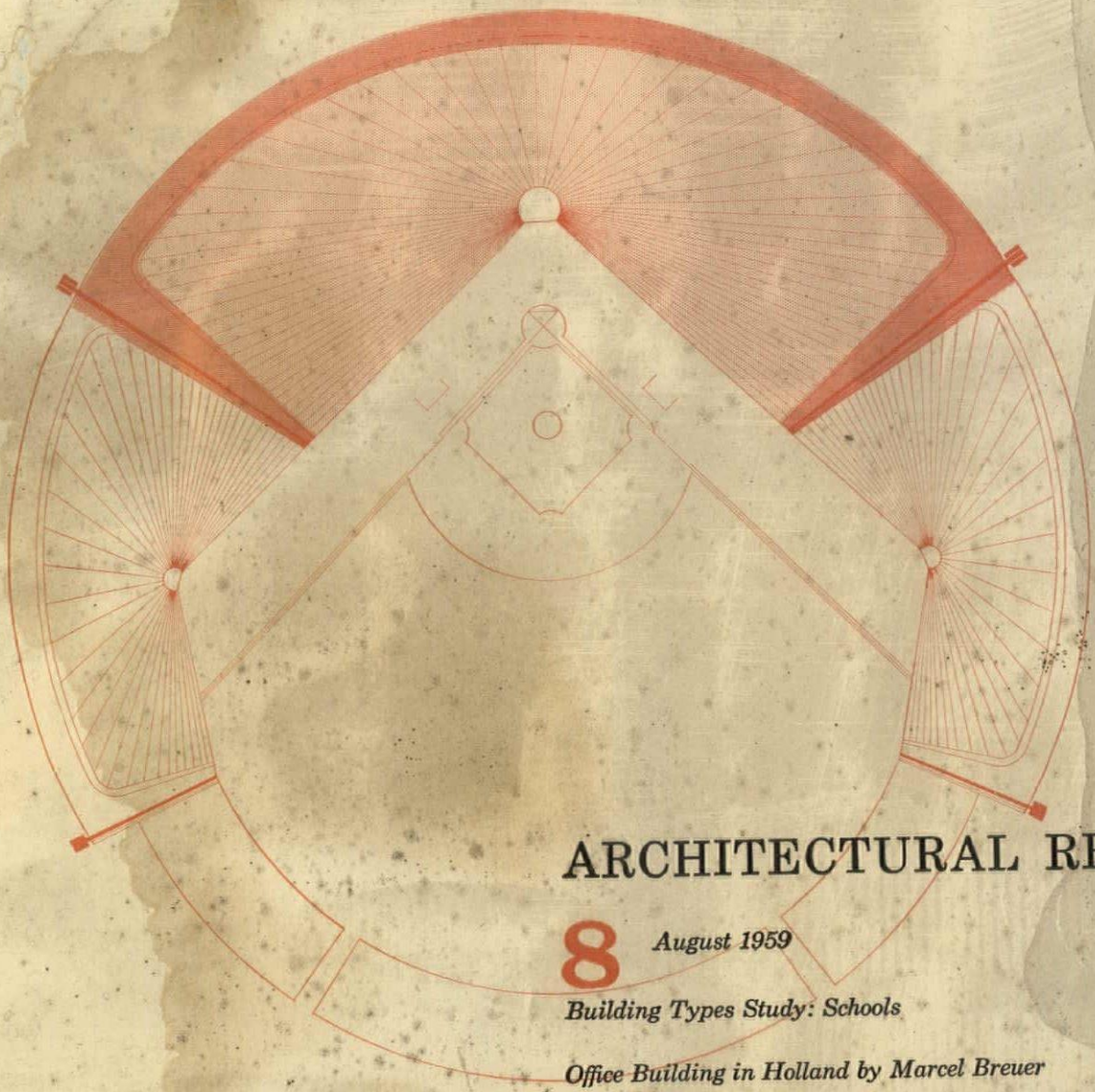


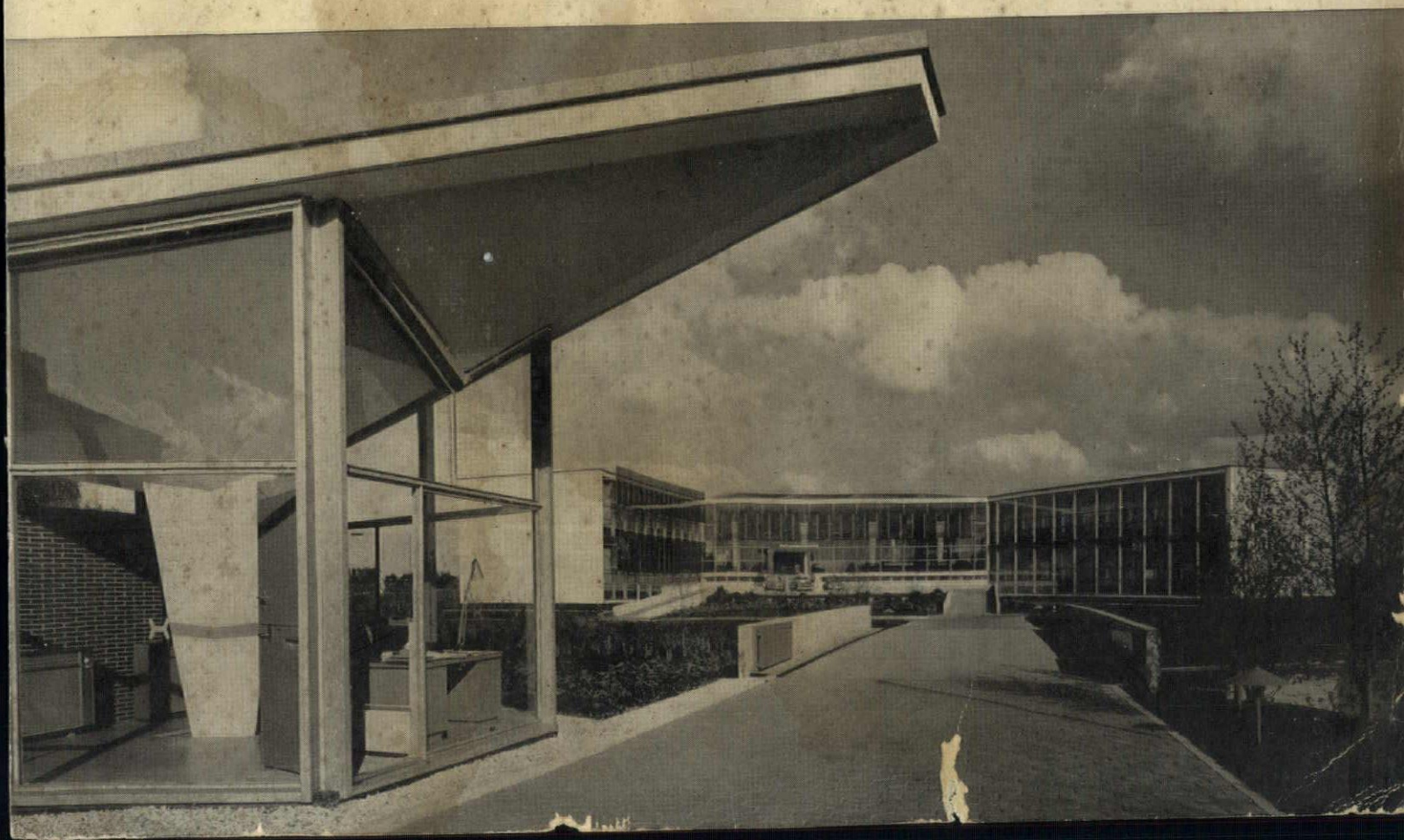
ARCHITECTURAL RECORD

8 *August 1959*

Building Types Study: Schools

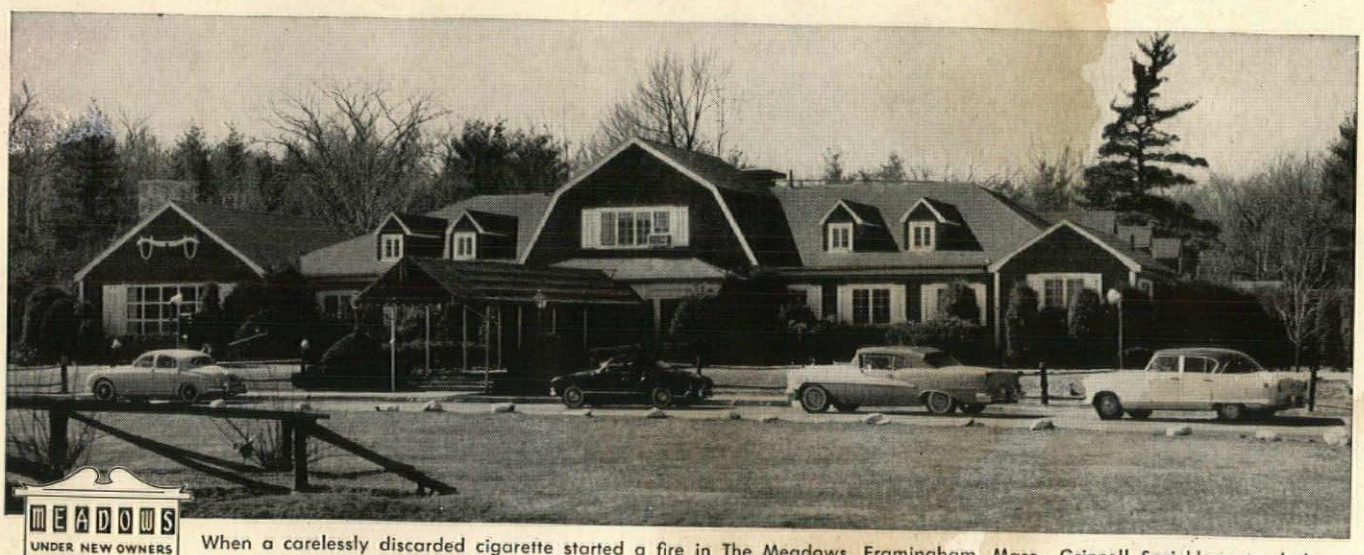
Office Building in Holland by Marcel Breuer

Prestressed Cable Roofs



Two restaurants caught fire
One was Grinnell Sprinklered!

This frame building housing The Black Kettle Restaurant didn't stand a chance when fire started during the night. The structure was well involved by flames before anyone was even aware of the blaze. Loss: one building; one business; $30,000!



When a carelessly discarded cigarette started a fire in The Meadows, Framingham, Mass., Grinnell Sprinklers stood the building in good stead. One sprinkler head detected and doused the blaze quickly, before serious damage could occur.

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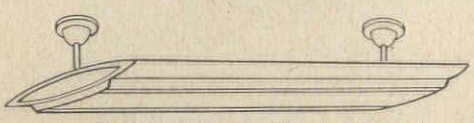
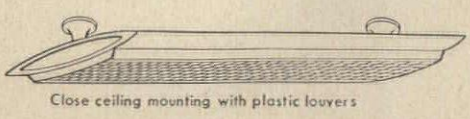
To fully appreciate the CLASSIC, you must see it for yourself. Photographs and sketches cannot show the true beauty of this new series. Send today for full information. At the same time ask to have the CLASSIC demonstrated in your own office. Once you've seen it, you'll agree that this Sylvania fixture is truly a triumph of fixture design.



Pendant mounting with diffused plastic panel



Close ceiling mounting with plastic louvers

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RESULT: All needs met efficiently and economically.

CONCLUSION: Why not specify Granco products on *your* next job? Granco has a floor or roof system for every type of framing, offers you more flexibility than competitive systems. Fast "one source" delivery. No delays. Jobs move faster. Owners occupy sooner.

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Taller section at left is new addition.

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Chas. S. Chase, **Associate Architect**

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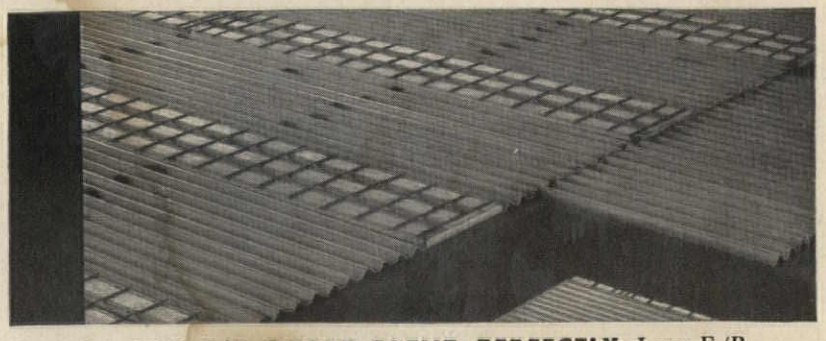

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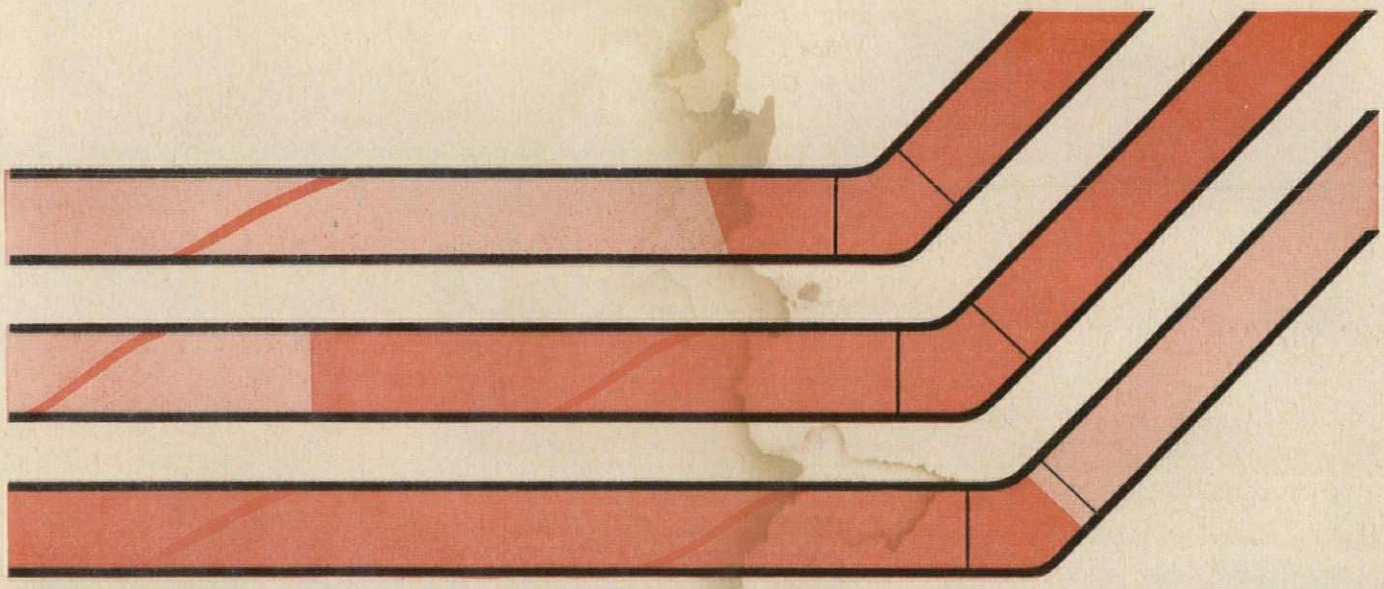

STEAM CONDENSATE CORROSION: the cause, the effect, and a suggested safeguard

4-D represents the most significant development in the history of wrought iron metallurgy. It was achieved by substantially increasing the deoxidation of the base metal, slightly increasing the phosphorous content and using a more siliceous iron silicate. Result is increased corrosion resistance, improved mechanical and physical properties.

Write for new 4-D Wrought Iron literature and our special report, The Use of Wrought Iron in Steam Condensate Lines. A. M. Byers Company, Clark Building, Pittsburgh 22, Pa.

WHAT CAUSES STEAM CONDENSATE—Steam, losing its heat, turns to moisture as temperature drops below saturation level. This condensate is distilled water, greedy for gases. Any gas in the steam is readily absorbed into this condensate as it cools. The condensate becomes violently corrosive to ordinary piping materials, depending upon the percentage of free CO_2 plus O_2 in the steam.

EFFECT OF STEAM CONDENSATE ON PIPE—Carbon dioxide is the primary cause of return line corrosion. Like oxygen, carbon dioxide is present in all raw waters and may enter the boiler with the feed water. Most of the carbon dioxide found in the steam cycle results from decomposition of the bicarbonate or carbonate content of the boiler feed water. Build-up of insoluble products of corrosion—particularly in smaller lines—may plug the pipe and render it useless. Corrosion may cause grooving, channeling, pitting, completely penetrating the pipe wall.

A PIPING MATERIAL THAT COMBATS IT—New 4-D Wrought Iron is a two-component metal consisting of high purity iron and iron silicate fibers. There are over 250,000 non-rusting glasslike fibers to every cross-sectional square inch. The purity of the iron itself, plus the protection of the iron silicate fibers are a mighty formidable deterrent to steam condensate corrosion and its deleterious effects.

BYERS 4-D WROUGHT IRON

ARCHITECTURAL RECORD

August 1959

Cover:

Top: Proposed canopy for grandstand of baseball diamond. Helge Westermann, Architect. Dr. Lev Zetlin, Engineer.
Bottom: Van Leer Office Building, Amstelveen, Holland. Marcel Breuer, Architect. Jan Versnel, photo.

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Coming in the Record

BUILDING TYPES STUDY: COLLEGE BUILDINGS

With college enrollments booming, and no end in sight, design for the campus—and of the campus—is offering more opportunities for architects all the time. The September study will offer an analysis of prospects by Dr. George Cline Smith, F. W. Dodge Corporation vice president and economist; an article on the college administrator, the architect and campus planning by William Wilson Wurster; and a full complement of significant examples of a wide variety of projects.

NEW CONCEPTS OF PRISONS

The contemporary penological philosophy which sees prisons as instruments of rehabilitation rather than of punishment is beginning to suggest some important principles for the design of prisons. A major feature in the RECORD *will present discussions of some of these in articles by James Bennett, director of the Federal Bureau of Prisons, and architect Nathaniel Curtis Jr., along with three projects which apply them.*

DESIGNED IN AND FOR PRECAST CONCRETE

An article on the structural design of Louis Kahn's Medical Research Laboratory for the University of Pennsylvania—a design dictated very largely by complex mechanical considerations and using precast prestressed concrete as ONLY p.p.c. could be used.

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.

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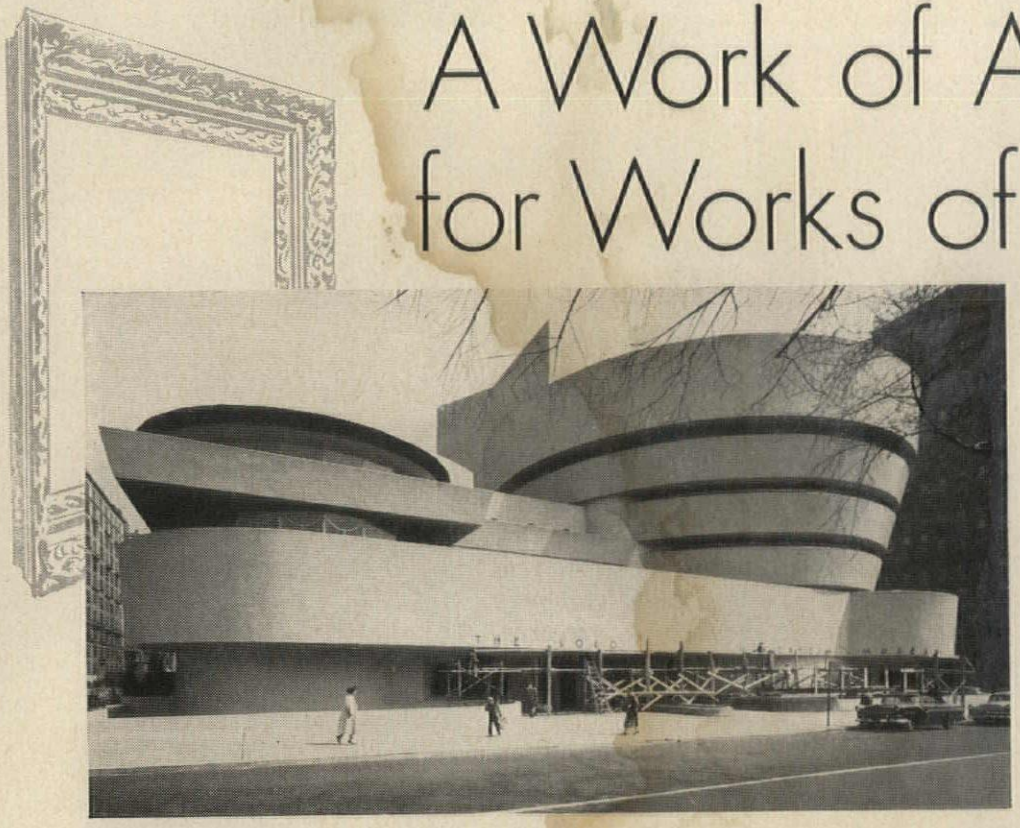
A Work of Art for Works of Art...



Guggenheim Museum Reflects Superb Craftsmanship in Concrete

● To anyone who appreciates fine craftsmanship in concrete, one fact stands out about Frank Lloyd Wright's Guggenheim Museum in New York: it is a genuine work of structural art which demanded exceptional precision, patience, and perseverance by the contractor. Only great dedication could have solved the many problems that arose during construction, to bring the project to a successful conclusion.

By way of example, here are a few of the complex structural problems:

Item: 8,000 cu. yd. of 3500 psi reinforced lightweight concrete, placed without expansion joints in temperatures as high as 100°F.

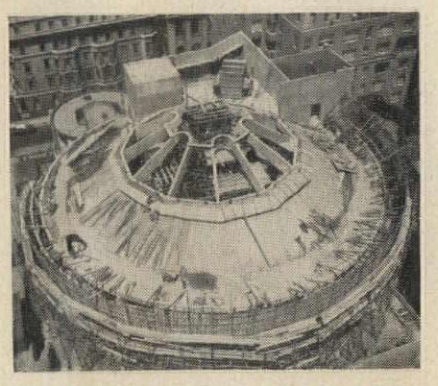
Item: A ½-mile cantilevered concrete ramp that spirals on itself five times at about 3% grade, without columns and with constantly changing inside and outside radii.

Item: A turning, rising, sloping outer wall, formed against plywood sheets angled and twisted into position.

Item: A precast concrete parapet with geometric figures, sprayed with lead, zinc and copper to obtain a bronze patina.

The list of structural innovations is almost endless, and extends to intricate concreting for planting areas and fountains, utility cores and pipe spaces, massive arches and cantilevered balconies. Utter precision in formwork and concreting resulted in smooth surfaces, true curves and sharp corners that are worthy of the greatness of the project, its contents, and its architect.

Lone Star is proud to have supplied all of the portland cement required for this significant structure—a dramatic example of the beauty and limitless versatility of modern concrete in the hands of imaginative designers and skilled, resourceful builders.



Curved roof beams for double glass dome were cast in place 90 feet above ground level.

THE SOLOMON R. GUGGENHEIM MUSEUM
New York, N. Y

Architect:
FRANK LLOYD WRIGHT

General Contractor.
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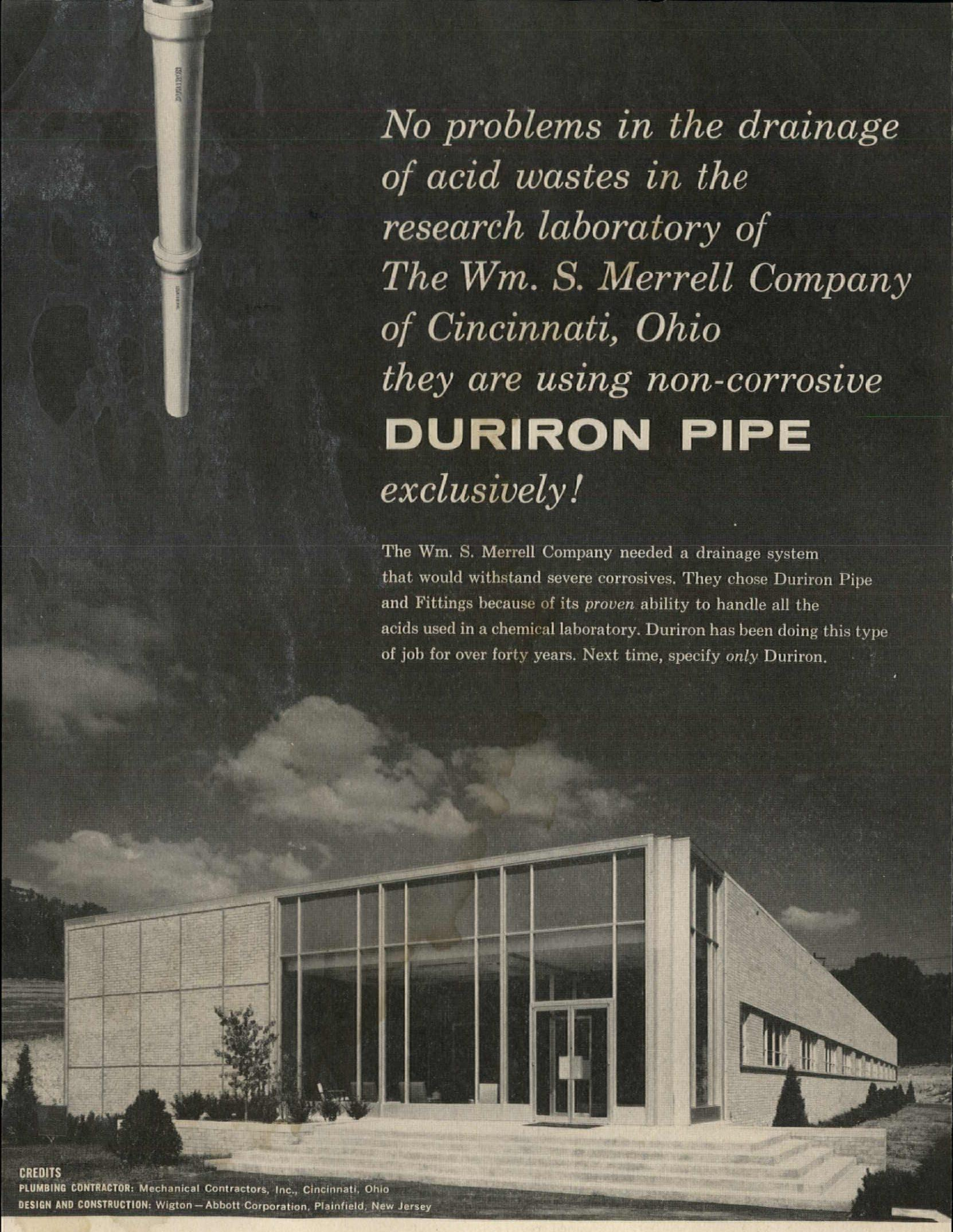

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Walter Gropius receives the Gold Medal from A.I.A. President John Noble Richards in impressive ceremonies at Delgado Museum, where . . .

. . . advancement of the new Fellows (AR, May 1959, page 25) also took place.

Gulf States Regional Director John Pritchard of Tunica, Miss., gives the official welcome at the jam-packed opening session, while Edward D. Stone of New York (right) waits to make keynote address on convention theme: "Design." A.I.A. Secretary Edward L. Wilson of Fort Worth is at left.

Below: in convention's most memorable session, moderator Philip Johnson of New York looking amiably wicked (as he was), with pensive panel members (left to right) Minoru Yamasaki of Detroit, William Pereira of Los Angeles and Charles E. Pratt (R.A.I.C.) of Vancouver. Subject: "Individual Theories of Design."

Below: solemn final speaker Dean Samuel T. Hurst, School of Architecture and the Arts, Alabama Polytechnic Institute, warns his colleagues that "no profession can be justified by the exceptional performance of its ablest men," calls for "a higher level of performance by a great many more architects producing projects which become progressively more distinguishable as useful art." He got a standing ovation when he finished.

NEW ORLEANS AND A PROGRAM FOCUSED ON DESIGN MAKE A HIT OF A.I.A.'S 91ST ANNUAL NATIONAL CONVENTION

A program which consisted largely of architects talking about architecture and which eliminated all the traditional social events except the President's Reception seemed to make a smash hit of the 91st annual convention of the American Institute of Architects, June 22-26 at the Hotel Roosevelt in New Orleans. To everybody's surprise, it was a *big* convention—a total registration of 2285, or a couple of hundred more than Cleveland last year and nearly 500 more than Los Angeles in 1956 (the Centennial Convention in Washington in 1957 hit an all-time high of 4200). The weather could only be described as HOT, but—thanks in part to universal airconditioning indoors—this did not seem to limit anybody's enjoyment of New Orleans. A highly hospitable host chapter and its hard-working Ladies Auxiliary, which was entirely responsible for all the tours and host chapter social events, opened the door wide: in spite of "no official social events" there probably never was a convention at which there was more socializing.

The News: Nobody Dissenting

As for the business sessions of the convention, it seems likely they have never been conducted more smoothly or with less indication of restiveness (or, indeed, interest) on the part of the membership.

John Noble Richards of Toledo was elected to his second year as president, Philip Will Jr. of Chicago to his second as first vice president and Henry L. Wright of Los Angeles to his second as second vice president, all without contest. In the two contested offices, J. Roy Carroll Jr. of Philadelphia was elected secretary over the incumbent, Edward L. Wilson of Fort Worth; and Roy Kastendieck of Gary, Ind., the incumbent, was returned as treasurer over Robert Little of Miami, Clyde C. Pearson of Montgomery, Ala., and Gerson T. Hirsch of Pleasantville, N. Y. New regional directors, as nominated by their districts and elected at the convention, are: Gulf States—Clinton E. Brush III of Nashville; Great Lakes—Linn Smith of Detroit; Northwest—Harry C. Weller of Pullman, Wash.; and South Atlantic—Arthur G. Odell Jr. of Charlotte, N. C. Clinton Gamble of Fort Lauderdale, who has been South Atlantic regional director since 1957, continues on the Board as regional director from Florida, which attained regional status as of this year's convention.

Design: Everybody Assenting

Official theme of the convention was "Design," and from the very first session the response made it plain that this is a subject architects like to hear architects talk about. Some 1200 people, a third of whom had to stand, jammed the opening session for the keynote address by Edward D. Stone of New York.

They heard Mr. Stone urge architects to be the "catalysts and leaders" in a "20th century Renaissance" of public understanding and support of environmental beauty as a valid national objective. "To create this environment of beauty for generations to come," Mr. Stone declared, "is rightfully the destiny of the architect." Not only is there an enormous job of public education to be accomplished before this is achievable, Mr. Stone asserted, but there is need for basic changes in the attitudes and practice of architects—especially a broader grasp of and participation in the larger problems of environment: city development, the whole problem of shelter, the future of highways. He also advocated relaxing existing professional regulations: "All of the state issuances of licenses should be abandoned. It is ridiculous that an architect from one state should have difficulty practicing in another. A national license is the only answer."

Whither Architecture?

Mr. Stone's appraisal of the function of the architect and the destiny of design was only the first of many. Of the three major panel discussions on the design theme, by all odds the most provocative had the topic "Individual Theories of Design." As the discussion developed, under the lively and contentious direction of Chairman Philip Johnson, the real subject was "Where do we go from here?" As Mr. Johnson remarked (sparing Mies and himself no less than anybody else), "Modern architecture is just about over—Seagram's is probably the last." The panel members—William L. Pereira, Minoru Yamasaki and (from Vancouver) Charles E. Pratt—had no pat answers, though they clearly shared one conviction expressed by Mr. Johnson: "Problem-solving is no substitute for the lonely and agonizing process of creation." But what is the creative role of the architect? Mr. Pereira warned that "self-expression is in architecture an ingredient that must be used sparingly and with great discretion. In this respect the archi-

tect is an interpretive as well as a creative artist: his primary duty is to express not only himself but the image of his client through the agency of his own taste and talent and knowledge. . . . The more he concerns himself with interpreting the needs of his client the more genuine his artistic accomplishment is likely to be." Mr. Pratt stressed the importance of sociology and history in developing the creative mind: "The curiosity for sociology, the ability to dissect it, to see, to question and understand what is happening in our time is the *great* tool for the artist. The jig for this tool is an old-fashioned one—history." Yamasaki, once more espousing an architecture of "serenity and delight," expressed perhaps the most revealing conviction when he said that the old discipline of eclecticism had limited the architect less than the new discipline of technology; i.e., the tyranny of stock pieces is greater than the tyranny of the orders. In the developing vocabulary of precast concrete, "the architect again takes charge." The challenge, Yamasaki said, is: "Are our artistic abilities great enough to produce the better environment we all want for all mankind?"

Whither Society?

From Walter Gropius, this year's recipient of the A.I.A.'s highest honor, the Gold Medal, there came another kind of comment: "In the recent past we have concerned ourselves more with defining ever newer *means* than with defining *ends* and we have now amassed such a tremendous arsenal of techniques that their bristling display has nearly robbed us of our sense of balance. . . . What ingredient is missing in our way of life without which we cannot hope to emerge from visual chaos? The answer has thrust itself upon us for a long time now, but we are still far from a general recognition of the fact that a society such as ours, which has conferred equal privileges upon everybody, must acknowledge its duty to raise the general level of responsiveness to spiritual and esthetic values by education. . . . We have to discover the hard way that neither conformity within the group—which leads to tyranny by the majority—nor willful extravagance of the individual can create a climate which favors the development of initiative and imagination, but that it is the moral responsibility carried by each individual independently within the group which provides the basis of the goal of a democratic culture—i.e., unity in diversity. We stand at a moment in history that calls for a bold, imaginative interpretation of the democratic idea. Our generation is presented with a similar challenge as were the founders of our Western culture, the Greeks, when they deliberately buried the treasures and temples of their former existence under the triumphant symbol of their newly found freedom: the Acropolis. Or, as Thornton Wilder has put it beautifully: 'Culture under a democracy has its dangers, but also its hopes and promises. Here a new and tremendous theme opens up which will have to be penetrated by thought, investigated and expressed, the theme: Man with head unbowed. Democracy has the new task to create new myths, new metaphors, new images to show forth the state of new dignity which man has entered upon.' Only when a social or spiritual goal has become thus clearly identified in the mind of a society does it become the inner substance of its works of art and architecture."

Calling All Architects

The commentary of the closing speaker, Dean Samuel T. Hurst of the School of Architecture and the Arts of Alabama Polytechnic Institute, was explicitly directed, "not toward the exceptional, recognized, published architecture of today, or the forward echelon of designers it represents, but rather to the ordinary, undistinguished, unrecognized and unpublished work which constitutes the bulk of our practice and largely shapes the new face of our land. . . ." In this area, Dean Hurst suggested, there has been a "retreat from greatness" defined as the architect's "failure to grow in relation to the job to be done. Our willingness to claim new prerogatives has exceeded our willingness to prepare for them. We have had to assume new areas of responsibility before we were ready to discharge them. We have in short been too busy to be educated, too wise to need research, too arty to admit the engineer to our inner sanctum as a creative equal, too intuitive to submit to a systematic design procedure and too good at selling to feel it necessary to improve our product." This retreat can become advance, Dean Hurst asserted, if only enough architects will respect the disciplines which are as essential as freedom to creative design. "Creativity is not slave to whimsy," he declared, "instead it is the concerted response to intuition and experience, sensory, emotional and intellectual, disciplined by purpose, guided by intellect and justified by use. A systematic design procedure can exist, not guaranteeing our common genius, but increas-

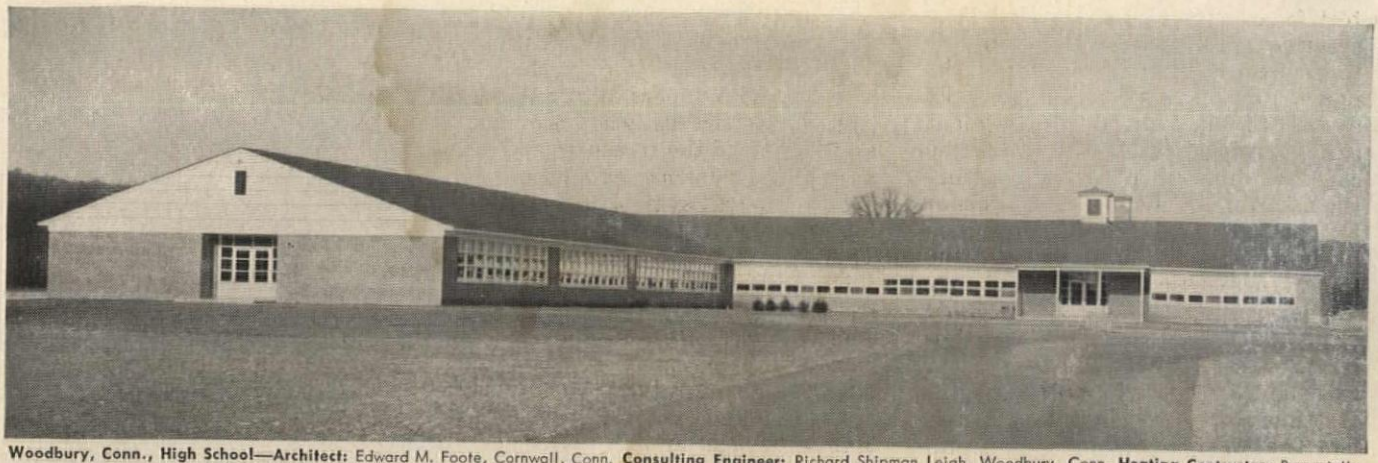
text continued on page 302
more pictures on pages 12-13

Outside the formal sessions, conventioneers drank endless cups of coffee in the Hospitality Room—as above, Henry Wright of Los Angeles, Richard Bennett of Chicago, Eugene Mackey of St. Louis and Mrs. Bennett; as, below, Deans Kenneth Sargeant of Syracuse (left) and Arthur Gallion of Southern California (right) and Kenneth Wischmeyer of St. Louis . . .

. . . or in the Roosevelt's Sazerac Bar—as, here, Ed Stone, having coffee with Clay Shaw, managing director of New Orleans International Trade Mart, and friends. (Sazeracs and Ramos gin fizzes, it should be added, were more conventional departures from standard bar refreshment here.)

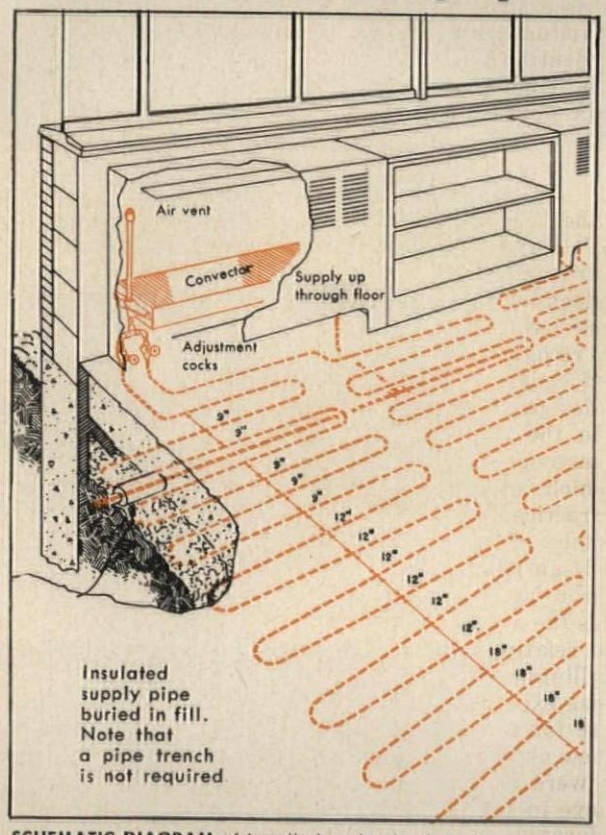
And in the innumerable hospitable rooms of friends the post-session confabs sprouted—above, RECORD Editor Emerson Goble with Yama and Mr. and Mrs. Charles E. Pratt of Vancouver; below, Mr. Pratt, Yama, Paul Kirk of Seattle and Philip Johnson

So the work of the convention got done, with some help from impromptu brainstorming sessions of VIPs like (below, clockwise) South Atlantic (now Florida) Regional Director Clinton Gamble, Administrative Secretary J. Winfield Rankin, President John Noble Richards, Executive Director Edmund R. Purves, Secretary Edward Wilson, Texas Regional Director Max Brooks, First Vice President Philip Will Jr. and Second Vice President Henry L. Wright



Woodbury, Conn., High School—Architect: Edward M. Foote, Cornwall, Conn. **Consulting Engineer:** Richard Shipman Leigh, Woodbury, Conn. **Heating Contractor:** Romaniello Bros., Waterbury, Conn. **General Contractor:** F. Buzzi & Sons, Torrington, Conn.

Here's a heating system that's really cutting fuel costs



SCHEMATIC DIAGRAM of installation showing how the return line of the convector is connected to Anaconda Panel Grids.

INSTALLING the Anaconda Pre-formed Panel Grids. Note that the grids can be easily extended to variable c-c spacing to meet design requirements. See the tube spacing in diagram above—9" c-c near outside wall to 18" c-c near inside wall.

Anaconda Pre-formed Panel Grids in the floor serve as highly effective heating elements and as return lines for convectors.

Mr. Richard S. Leigh, consulting engineer, designed the combination convector and radiant heating system diagramed at the left and a recent installation was in the Woodbury, Connecticut, High School for which he specified the time-saving PG's® (Anaconda Panel Grids).

Mr. Leigh reports that the Woodbury School has an annual fuel bill of about $1000 for heating 27,000 sq. ft. floor area. Similar schools, employing other heating methods, are spending 50% more for heating an equivalent area.

IDEAL FOR SCHOOLS, HOSPITALS, OFFICES. "This combination of convector and radiant heating," continues Mr. Leigh, "is economical to install, comparing favorably with competitive 'economy' type systems. A curtain of warm air at the windows prevents cold drafts and uncomfortable temperatures at the outer walls. The copper tube floor coils provide uniform warmth throughout the room. Individual room zoning is inexpensive. Such comfort cannot be obtained by any other method of heating at so low a cost."

FOR INFORMATION on Anaconda Panel Grids, the ready-to-install copper tube coils for radiant heating in floors and ceilings, and details about this combination convector-radiant heating system, write: Building Products Service, The American Brass Company, Waterbury 20, Connecticut.

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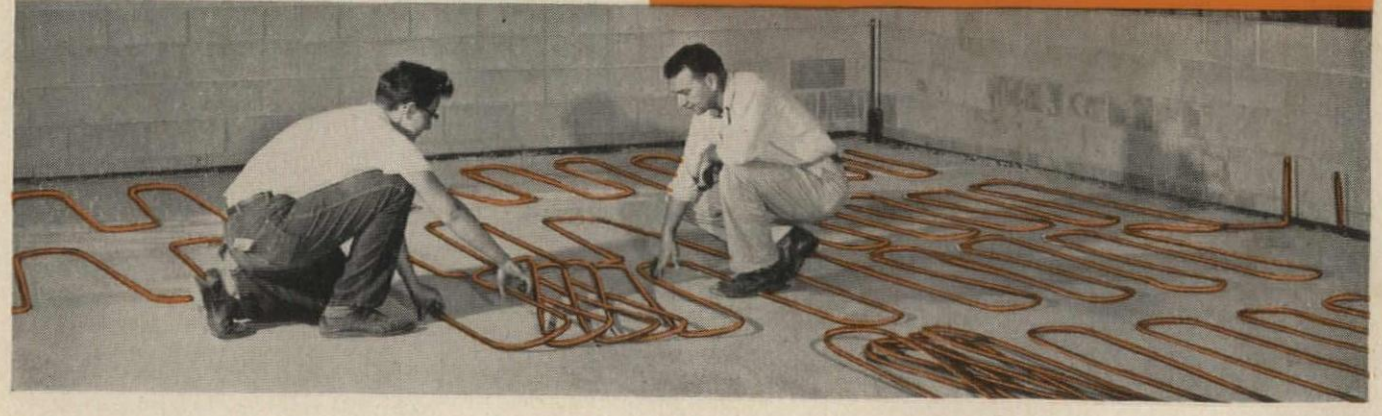


A.I.A. Convention

continued from page 10

CONVENTION CANDIDS

Photos (pages 9, 10, 12, 13): Leon Trice Photography, Emerson Goble, Daniel J. Howe, Jr.

Walter Taylor, A.I.A. education and research head, with Dean Henry Kamphoefner, North Carolina State and Esmond Shaw, architecture head at Cooper Union.

. . . William Wright with father Henry L. Wright, A.I.A.'s 2nd v.p., Mrs. Philip Creer, Mrs. Wright, architecture director Philip Creer, University of Texas, Mrs. Kenneth

Wischmeyer of St. Louis and Mr. Wischmeyer. . . . Karl Kamrath of Houston, James Wares of Chicago and H. B. McEldowney, U. of Ill. Chicago Undergrad Div.

Mr. and Mrs. Robert Anshen of San Francisco with Edwin B. Morris Jr., until July 1 asistant to the A.I.A.'s executive director. . . . Miss Marion Manley of Coconut Grove,

Fla., RECORD editor Emerson Goble, A.I.A. Memo editor Polly Shackleton, and Mrs. Goble. . . . Arthur Davis and Fred Wagner of New Orleans. . . . Northwest A.I.A.

regional directors Donald J. Stewart of Portland (old) and Henry C. Weller, Pullman, Wash., (new) and Central States regional director I. Lloyd Roark, Mission, Kan.

Mr. and Mrs. Harris Armstrong of St. Louis. . . . Ken Hedrich of Hedrich-Blessing, Chicago, gets the A.I.A.'s Fine Arts Medal (for architectural photography) from Pres-

ident Richards. . . . Robert Elkington of St. Louis and the new Great Lakes regional director, Linn Smith of Birmingham, Mich. . . . Mr. and Mrs. Wendell Spackman of San

Francisco (second and third from left) and Paul Thiry of Seattle. . . . Albert Coleman of Houston and Philip Will Jr. of Chicago, first vice president of the A.I.A.

Visitor Carlos Contreras of Mexico City, Max Brooks, Texas regional director, and Mrs. Brooks, and Mr. and Mrs. John Stewart of Lubbock, Tex. . . . Miss Marion

Manley and Sam Kruse of Miami with Dudley Hunt Jr., of the RECORD. . . . Mrs. Walter Rooney of New York (formerly of New Orleans), Mrs. Sidney Folse Jr. of New

Orleans, Walter Rooney (recently transferred to New York from New Orleans by Curtis and Davis), Mrs. Wayne Stoffle of New Orleans, Mr. Folse.

Wolf von Eckhardt of the A.I.A. staff, with Gulf States regional director John Pritchard and Mrs. Pritchard of Tunica, Miss. . . . Howard Barringer (second from left), a

director and former president of the F. W. Dodge Corp., with Mrs. Barringer (far left), Mrs. George Cline Smith and Dr. Smith, F. W. Dodge vice president and econ-

omist. . . . Walter G. Doell Jr., Nathaniel Curtis Jr. and Sidney Folse Jr., all of New Orleans. . . . Victor Lundy of Sarasota gets Award of Merit




George Danforth, I.I.T.'s new architecture head, Frederic H. Porter, Western Mountain regional director and Herbert Swinburne of Philadelphia. . . . I. M. Pei receiving his First Honor Award (one of five given). . . . RECORD editors Herbert L. Smith Jr., Emerson Goble and Dudley Hunt Jr. with Ulrich Franzen (second from right) . . . . Another First Honor Award —this one to Charles Colbert of New Orleans; A.I.A. Administrative secretary J. Winfield Rankin looks on




Mr. and Mrs. Charles Goodman of Washington, D. C., with (center) Polly Shackleton of the A.I.A. staff. . . . Dean Olindo Grossi of Pratt Institute, Giorgio Cavaglieri and Mr. and Mrs. Gillett Lefferts Jr. of New York. . . . A.I.A. Past President Glenn Stanton of Portland, Ore., and Mrs. Emerson Goble of New York. . . . Cyrus E. Silling of Charleston, W. Va., with A.I.A. Past President Leon Chatelain and Mrs. Chatelain of Washington, D. C. in the convention registration room




Editor Emerson Goble of the RECORD and A.I.A. President John Richards. . . . Paul Rudolph, Yale architecture head, and Richard Neutra of Los Angeles. . . . Architectural students Alexei Vergun of M.I.T., George Peenstra of Tulane, Paul J. Ricciuti of Kent State (national student A.I.A. past president), William F. Oliver of Georgia Tech, Prof. Walter F. Bogner of Harvard, and Nettie Bacle of Tulane. . . . David R. Williams of Dallas and Mrs. Robert Cutler of New York

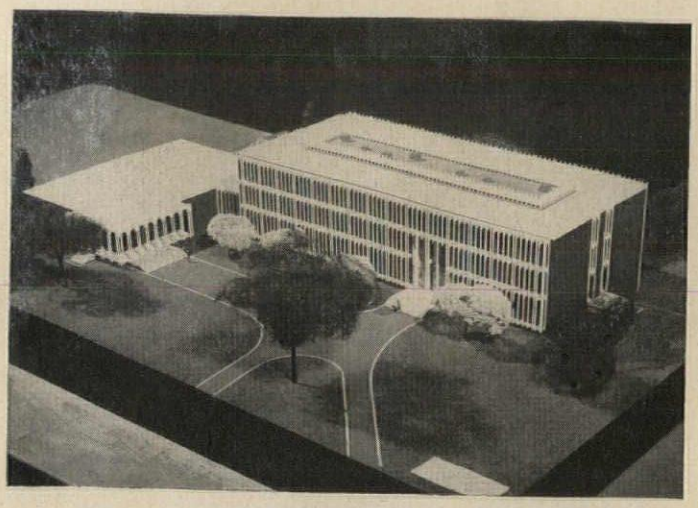



Executive Director Robbins Elliott of the Royal Architectural Institute of Canada and Mr. and Mrs. Samuel Wilson of New Orleans. . . . Herbert L. Smith Jr. of the RECORD and Ralph Rapson, head of the School of Architecture at Minnesota. . . . James W. Elmore, Director of Architecture, Arizona State, Philip Stitt, *Arizona Architect* editor, Bradley P. Kidder of Santa Fe, and Mrs. Elmore. . . . Bancel LaFarge, New York Chapter president, with Mr. and Mrs. Matthew W. Del Gaudio of N. Y.



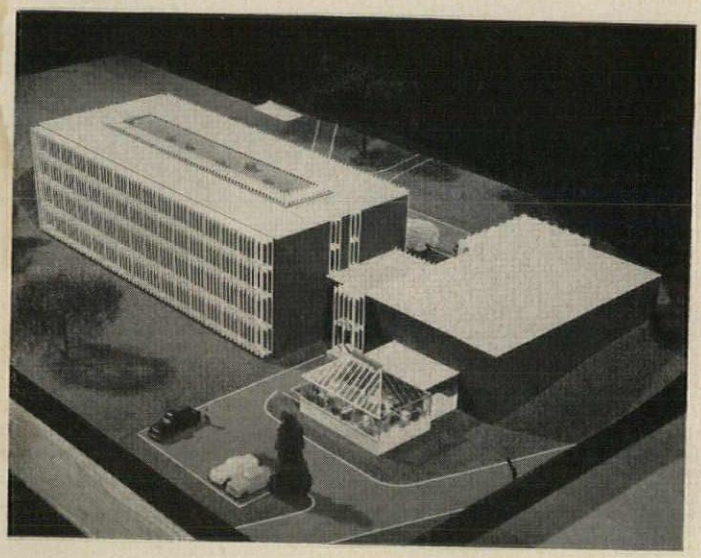

Charles Haines (Voorhees Walker Smith Smith & Haines) and Michael Radoslovich of New York. . . . Maurice Sullivan of Houston, Mrs. Morgan Yost of Chicago, Elliott L. Whittaker, director of the school of architecture and landscape architecture of Ohio State, Mr. Yost and Louis L. Southerland of Austin. . . . Robert Little of Miami with Emerson Goble of the RECORD. . . . Prof. Walter Bogner of Harvard with James W. Hunter of Boulder, Colo., and William Heinzman, also of Boulder

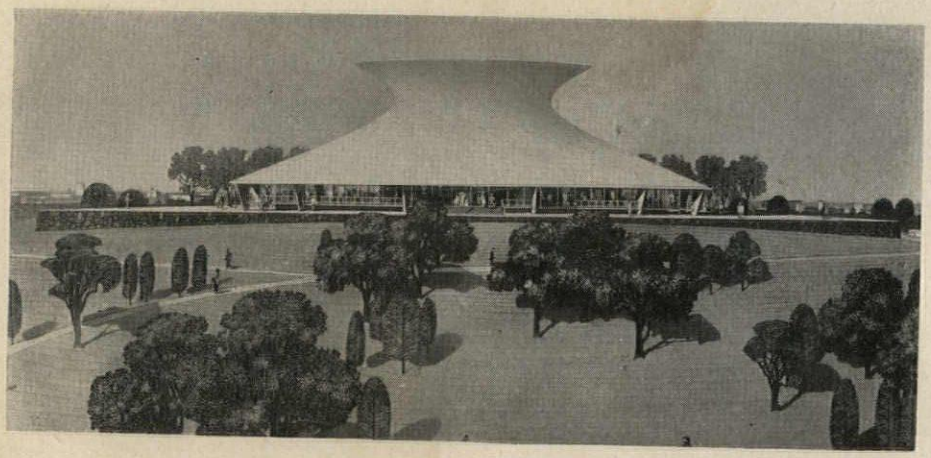
Buildings in the News



Left and below: Front and back views of a model of the Olin Hall of Science, designed for Carleton College, Northfield, Minn., by Minoru Yamasaki. Construction is to start soon on the $1.5-million three-story structure which measures 166 by 66 ft. Mr. Yamasaki was, last fall, named consulting architect for Carleton's planned $10-million building program. Olin Hall is the first of his designs to be accepted; others, to follow as funds become available, will be a women's gymnasium, men's gymnasium extension, two new dormitories for 124 women and 144 men, a music and drama center, enlarging of the chapel, conversion of a present science building to administration. Olin Hall, devoted to biology and physics, is of red brick with a two-story all-glass entry and a cantilevered prestressed concrete grille covering the north and south sides. An adjoining one-story wing contains two lecture halls seating 254 and 77, both accessible by a separate entrance. A botany greenhouse is next to the wing. In the main building, each floor has a central corridor, giving all classrooms and laboratories north or south light. The ground floor includes botany and zoology laboratories and controlled-temperature rooms; on the first and second floors are laboratories and classrooms; the top floor contains, among other facilities, faculty offices and research laboratories

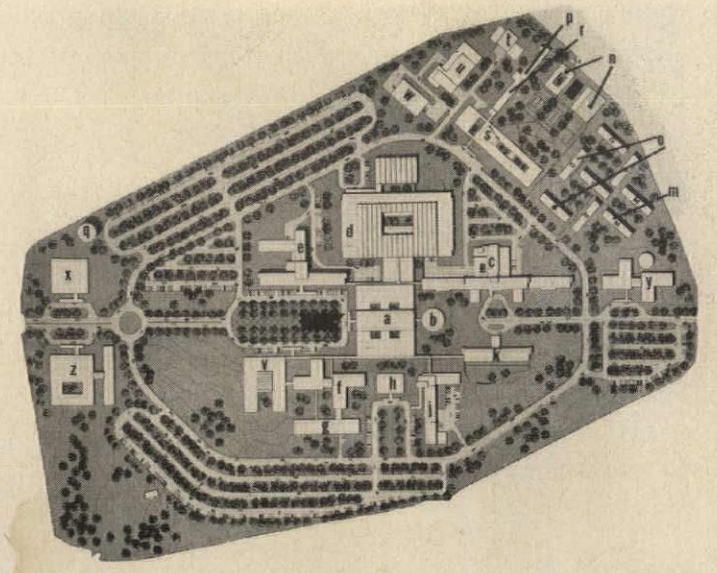
Below: To be located in St. Louis' largest park, this planetarium is to be built by the city with proceeds from a $1-million bond issue. The concrete shell structure (4 in. thick except at top and bottom rims) is a hyperboloid of one sheet. The form is generated by a straight line revolving around a vertical axis which it does not intersect and to which it maintains a fixed relation. The lower end describes a circle which forms the plan outline; the upper end describes a smaller circle. The structure thus developed, a hyperbola in silhouette, is raised above the ground on columns spaced equally around the base perimeter. A diaphragm roof slab at the waist of the hyperbola forms an observation deck, 45 ft from the ground. Within is the planetarium itself: a circular auditorium seating 450, enclosed in an aluminum dome on which projection devices throw images of the constellations as they appear at any given time or place. Surrounding the planetarium is the glass-walled exhibit area for both permanent and temporary exhibits relating to astronomy, space travel, and astrophysics. The observation deck is reached by a spiral ramp around the exterior of the planetarium dome. A below-grade level contains offices, service areas, and three classrooms. Hellmuth, Obata & Kassabaum, architects



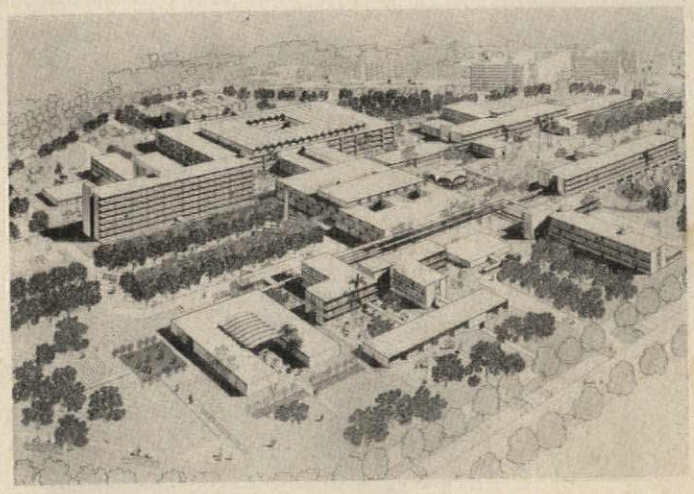


Right: Construction began recently on the 22-story, 353,000-sq-ft Tishman Building in Los Angeles. The structure is the first all-rental office building to be constructed in downtown Los Angeles since World War II. The steel-framed building has a glass-enclosed base, 20 ft high, with white marble and square granite columns. The tower is faced in Italian blue glass mosaic tile divided vertically by extruded aluminum fins. The lower floors have about 20,500 sq ft each, the tower floors, about 16,600 sq ft each. The top floor is a 10,000-sq-ft penthouse with a 20-ft terrace on all sides. Other features are: zoned air conditioning system, acoustical ceilings, flush fluorescent lighting, eight automatic elevators, and an eight-story parking garage for tenants in an adjacent structure. Victor Gruen & Associates and Daniel, Mann, Johnson & Mendenhall, architects; Tishman Realty & Construction Co., Inc., general contractor

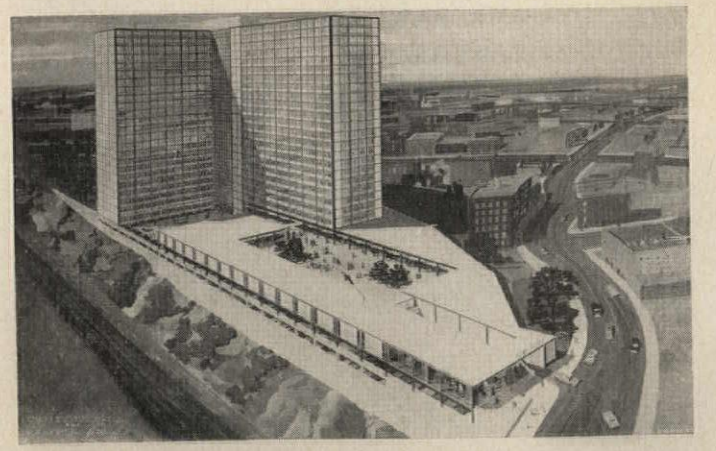
Right and below: The Puerto Rico Medical Center is to occupy a 140-acre site on the outskirts of San Juan, within three miles of the University of Puerto Rico. The estimated construction cost is $34 million (total cost, including fees, equipment, etc.: about $42 million); Federal, Commonwealth, and private funds are to be used. Isadore & Zachary Rosenfield are master plan architects. Individual buildings have been or are being designed by the Rosenfield firm alone (seven buildings), by that firm with Joaquin Rodriguez Benitez (four), by Mr. Benitez alone (four), and by York & Sawyer and O'Kelly & Mendez (one). The Center is believed to exhibit an unusual degree of integration in its plan, achieved partially because each institution agreed to waive site choice and accept pooled facilities, etc. This integration is expected to result in increased efficiency in services and in economies both in construction and operation. Key: *a:* Central Building; *b:* Central cafeteria; *c:* District hospital; *d:* Medical sciences; *e:* Municipal hospital; *f:* Industrial hospital; *g:* Nursing home; *h:* Bio-medical research and training (A.E.C.); *j:* Martinez Oncologic Hospital; *k:* Pediatrics; *m:* Medical students' dormitories; *n:* Gymnasium, pool; *o:* Medical students' apartments; *p:* Student nurses' dormitory; *q:* Water tower; *r:* Graduate nurses' dormitory; *s:* School of nursing; *t:* Power plant; *u:* Central laundry; *v:* Rehabilitation center and school for training rehabilitation technicians; *w:* Garage and warehouse; *x:* Health center (for local population);

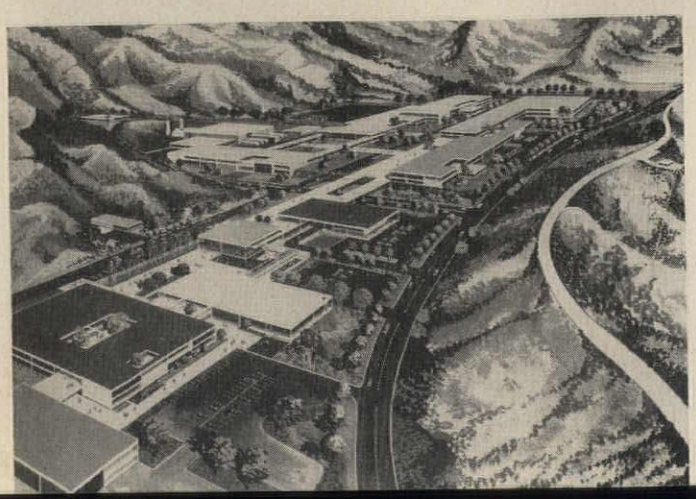


y: Long-term diseases hospital; *z:* Comprehensive community rehabilitation center



Below left: A $7.5-million development in the heart of Jersey City, N. J., is now under construction. Bowl Plaza, as it is called because of its site in a three-acre depression, includes twin 23-story apartment buildings and a one-story shopping center with 70,000 sq ft. There is also a three-level underground parking garage. The shopping center faces a court. Charles Shilowitz and Raymond & Rado, architects. *Below:* St. Bernard's Catholic Church, recently completed in Dallas, has a light-weight concrete structural frame; precast concrete units form the roof and floor slab. The Stations of the Cross, in a continuous design in mosaic and colored plaster, are the major decorative note. The high altar is a marble table capped by a baldachino of two concrete bents and a curved trapezoidal canopy finished in gold leaf. Grayson Gill, Inc., architects; Irving D. Porter, consulting architect; Bock Construction Co., general contractor





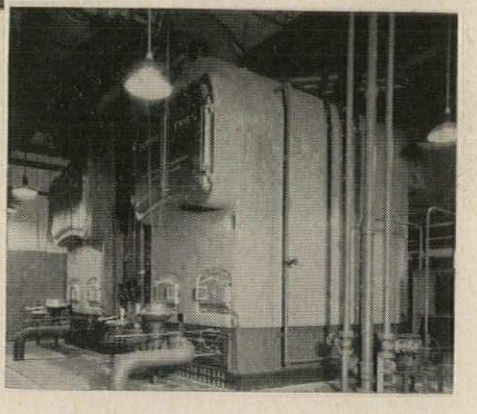
Left: The Lockheed California Division Research Center will ultimately occupy a 200-acre site in the San Gabriel foothills near Saugus, Calif. Construction started recently on the first unit, 75 acres, consisting of offices and laboratories, facilities for the development of aircraft and missile systems, and service facilities. The initial buildings are all designed on a 48-ft module, with movable partitions and high bays for conversion and flexible expansion. Concrete, glass, and metal siding are the predominant materials; the exterior treatment of each building is intended to reflect its use. Pavilions link many of the buildings; there are also plazas and malls. In the course of later additions, it is planned to use surrounding canyons by stabilizing the walls with gunnite, putting a slab over the canyon floor, and spanning the resulting cave with a roof containing utilities. William L. Pereira & Associates, architects

Architect: Kenneth Franzheim and Associates, Houston

General Contractor: W. S. Bellows Construction Corporation, Houston

Engineer: Dale S. Cooper and Associates, Houston

Heating and Air Conditioning: Barber, Inc., Houston



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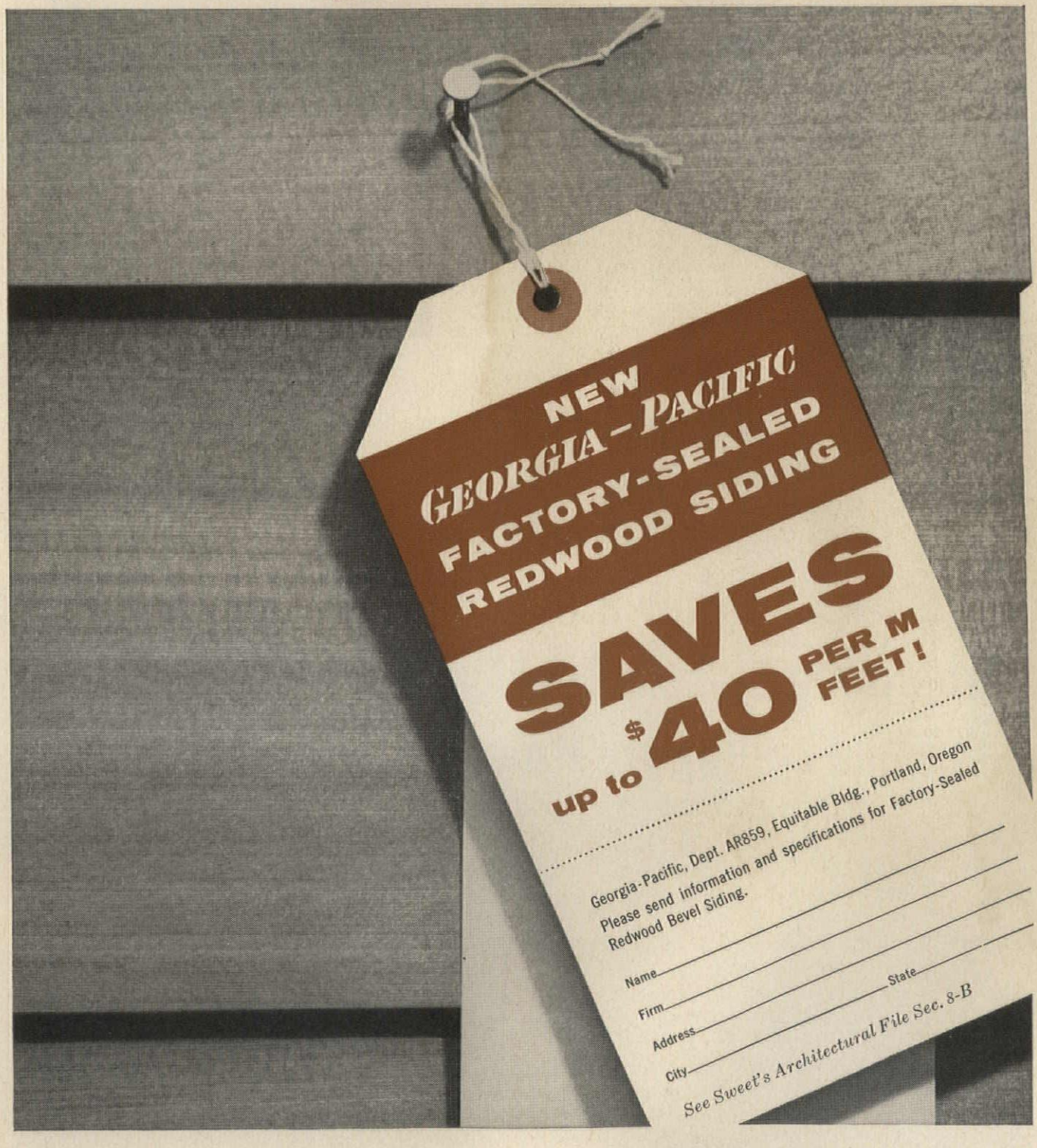

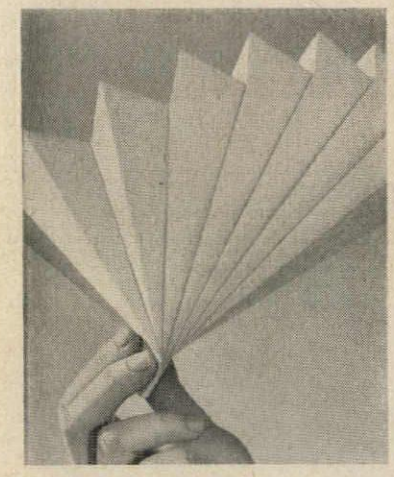

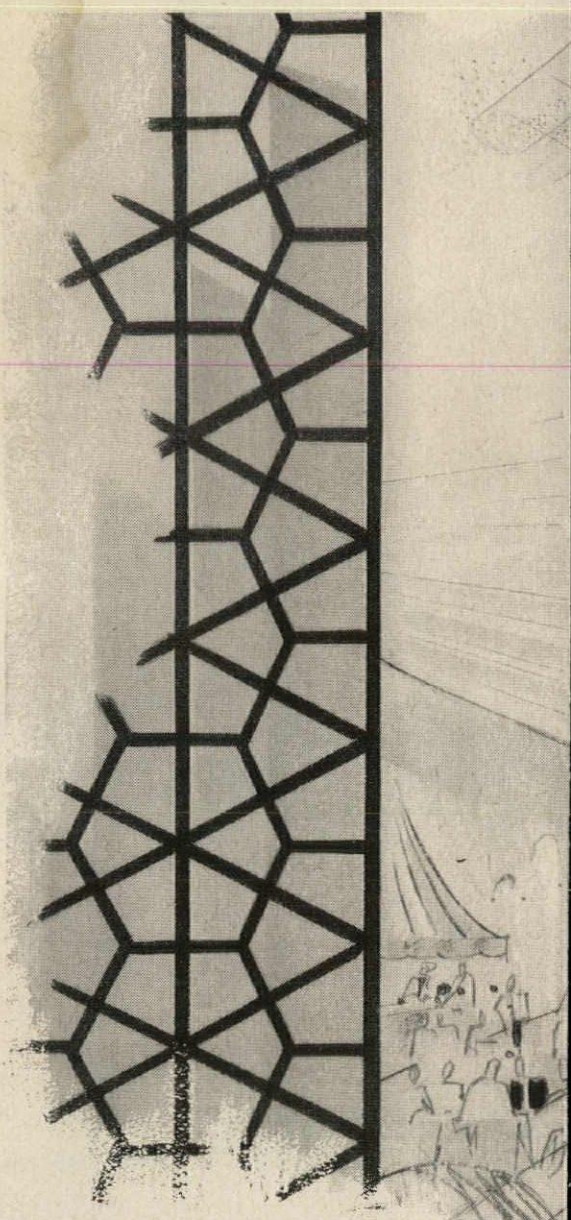

How a folded piece of paper and Armstrong Classic Cushiontone helped inspire a unique ceiling treatment

by Welton Becket, F.A.I.A.

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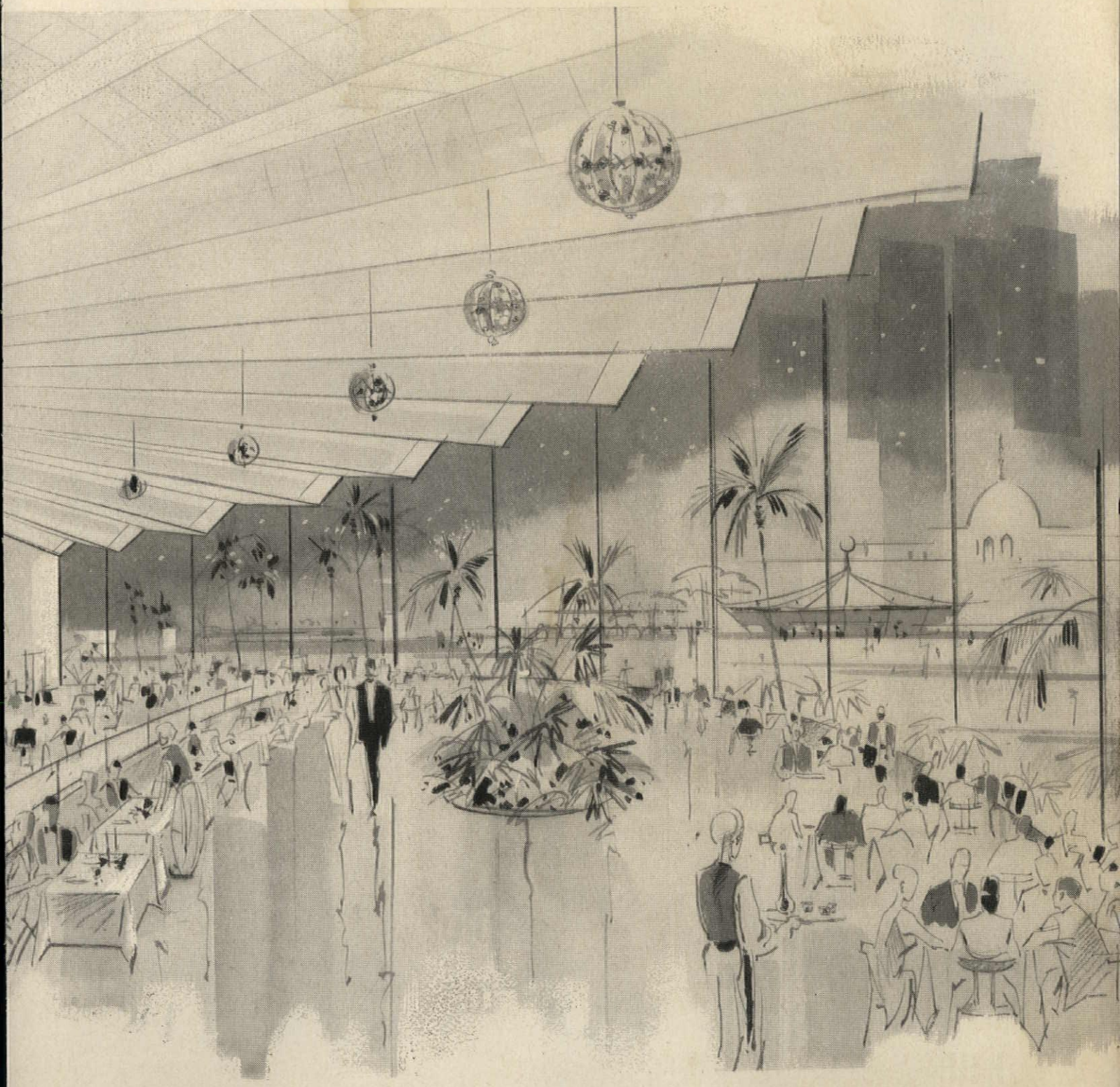
"Armstrong Classic Cushiontone works in harmony with perforated geometric screens and rich oriental hues to give the entire restaurant an exotic Arabian Nights atmosphere."



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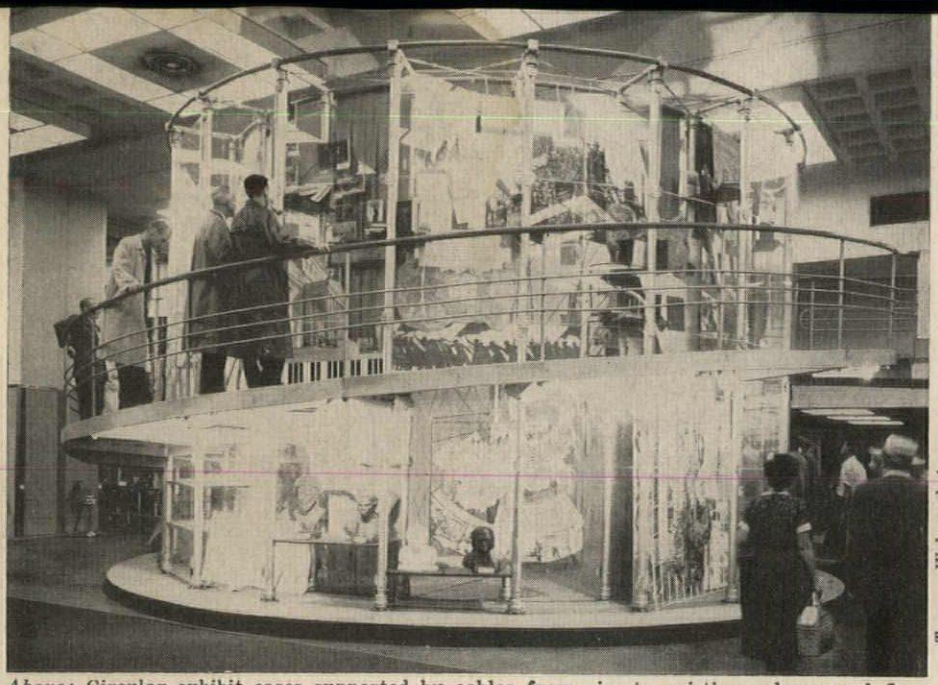


Tommy Weber photos

Above: Circular exhibit cases supported by cables from rim to existing column and floor within. Visitors, walking up the spiral ramp, see history, literature, anthropology, and archeology exhibits. *Left:* From the monuments exhibit: model of a 15th-century church

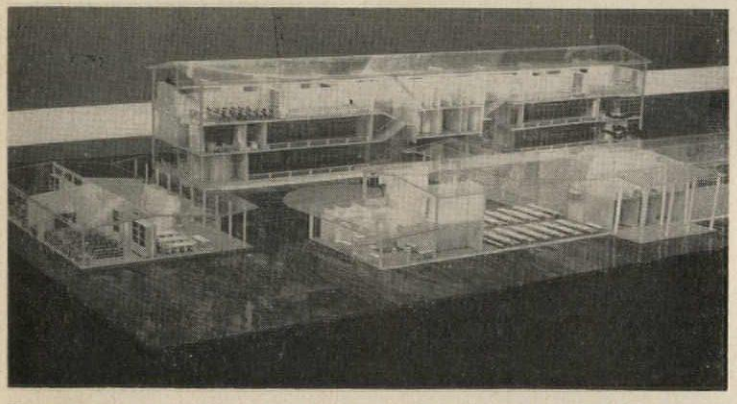
FIRST SOVIET EXHIBITION IN UNITED STATES SINCE 1939 OPENS IN NEW YORK

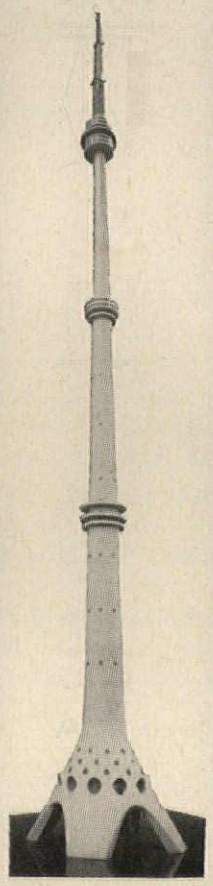
The Soviet Exhibition of Science, Technology and Culture opened in New York on June 30 and is to run through August 10. (Meanwhile, the American National Exhibition in Moscow was to go on view on July 25; AR, April '59, p. 10. The exhibits were organized under an exchange agreement between the two nations.)

The Soviet Exhibition, the first Russian exposition in this country since the one at the New York World's Fair 20 years ago, occupies about 161,000 sq ft on two floors of the Coliseum. The exposition was arranged by the Soviet Chamber of Commerce, with the participation of industries, organizations, and government departments. A. N. Manzhulo is general director; the chief designer of the exhibition is Konstantin I. Rozhdestvensky (who also was chief designer of, among others, the Soviet exhibits at the Brussels Fair last year and the 1939 New York Fair).

The exhibition is divided into 12 areas: industry, agriculture, science and technology, radio and electronics, atoms for peace, optics, public education, public health, sports, construction, culture, public welfare. The exhibits range in size and type from a 60-ft-high aluminum shell representing the universe (see cut, this page) to jars of caviar and a frozen example of its source, a 10-ft sturgeon.

In general, models of all kinds and photographic panels are the main display techniques used. The models include not only buildings and sections of cities, but also entire factories, machinery, stage sets, and, of course, the sputniks. The circular exhibit with its spiral ramp, however (see cut, this page), shows the use of a different display concept. Full-size exhibits include a three-room apartment, farm equipment, and automobiles.

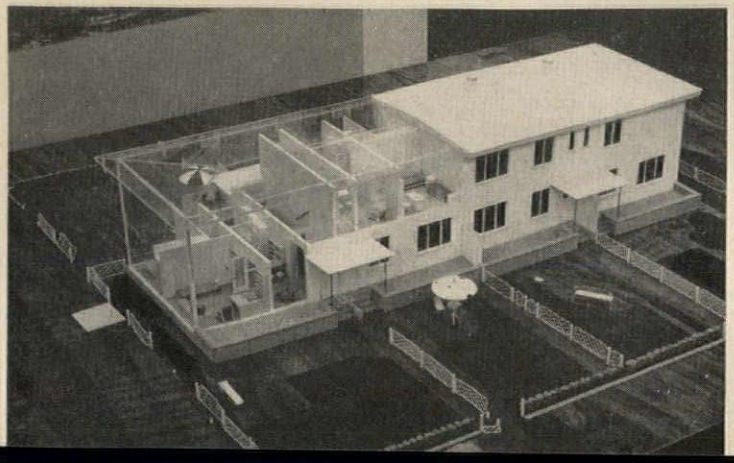


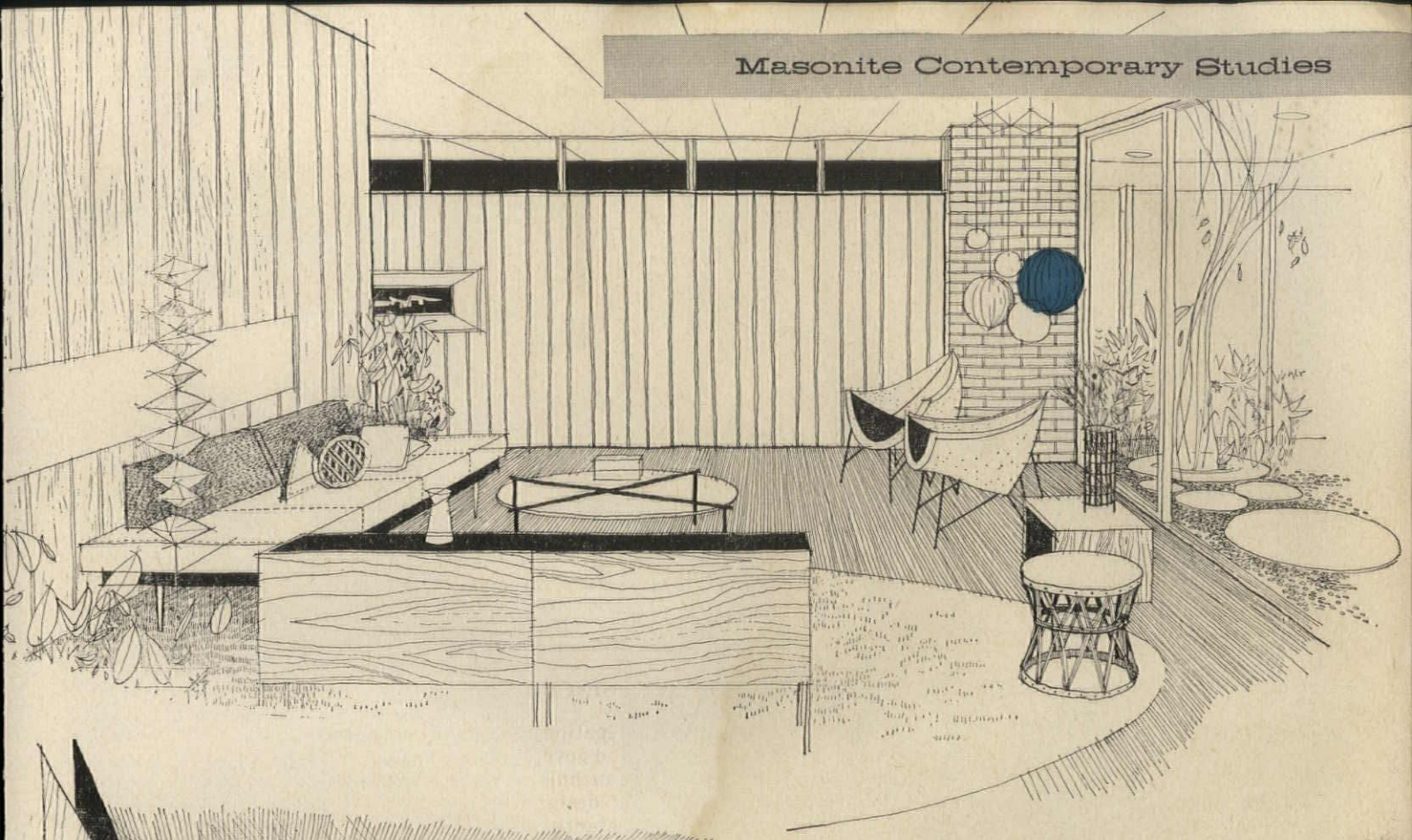


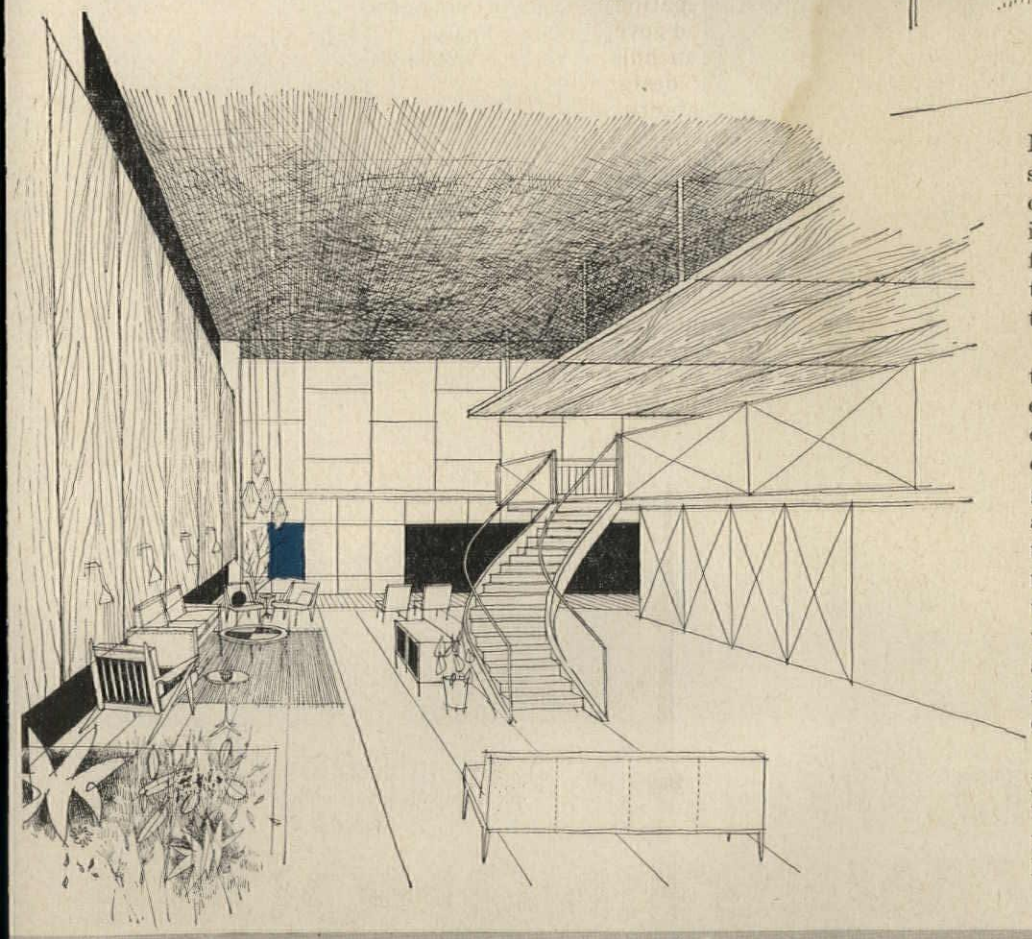
Above: Theme exhibit: space exploration

Below: Transparent model of control tower of airport to be built near Moscow

From the construction exhibits: *Above:* Transparent model of a school for 1000 pupils. *Below:* Partially transparent model of an apartment house with separate yards for tenants. *Right:* Model of a projected new television tower in Moscow







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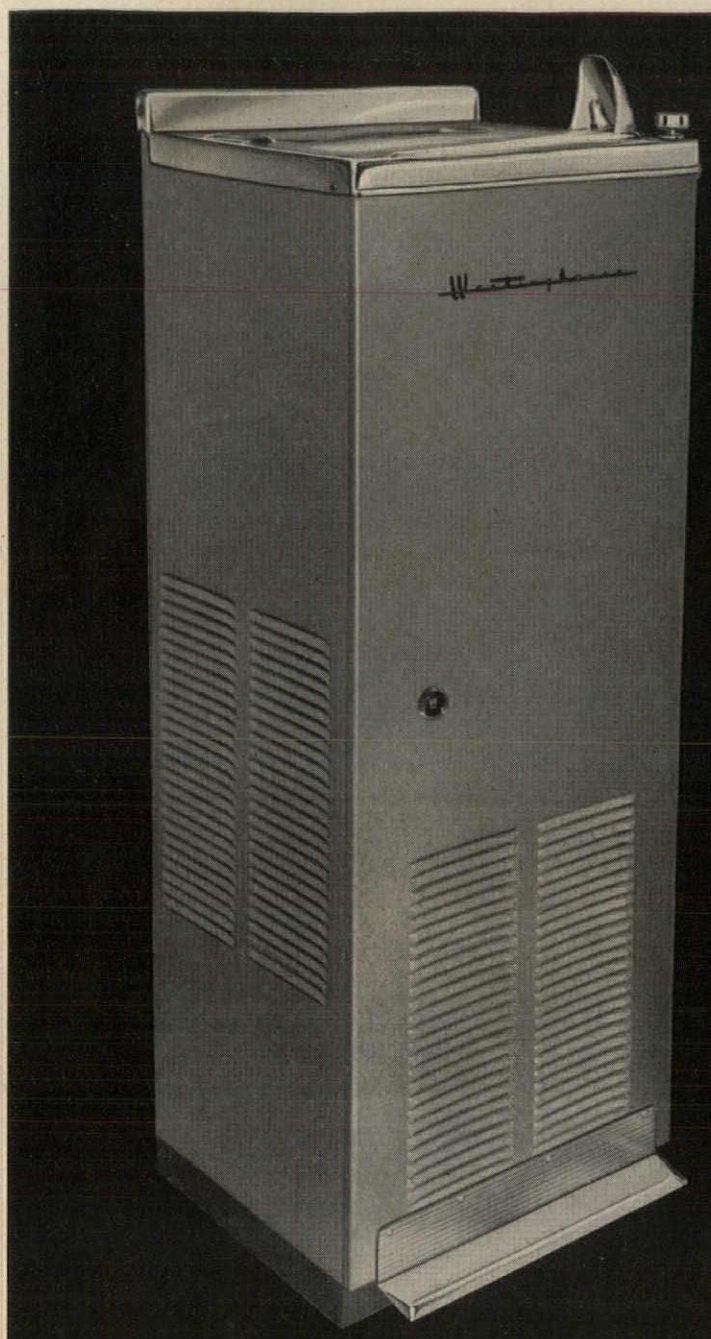

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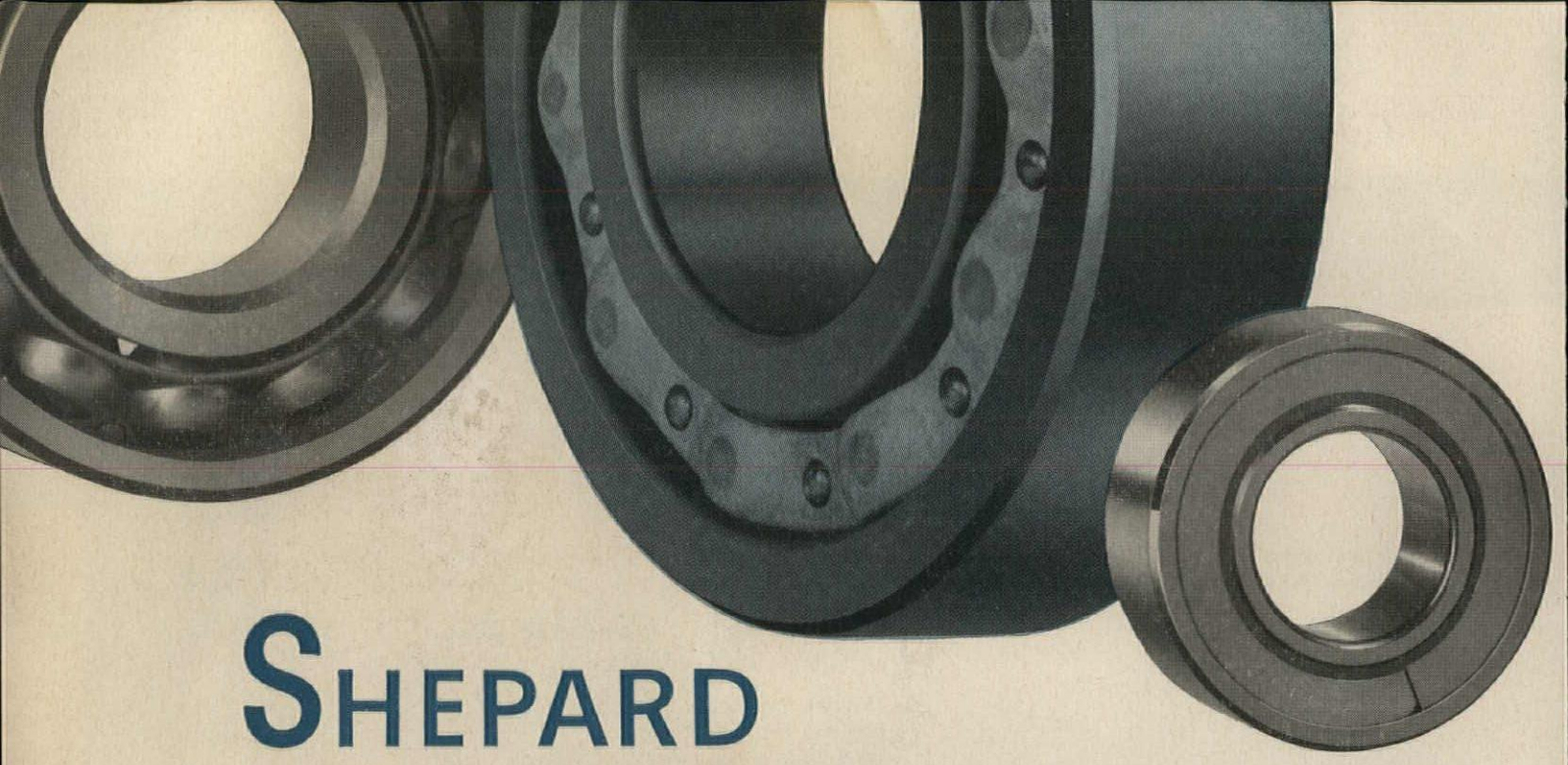

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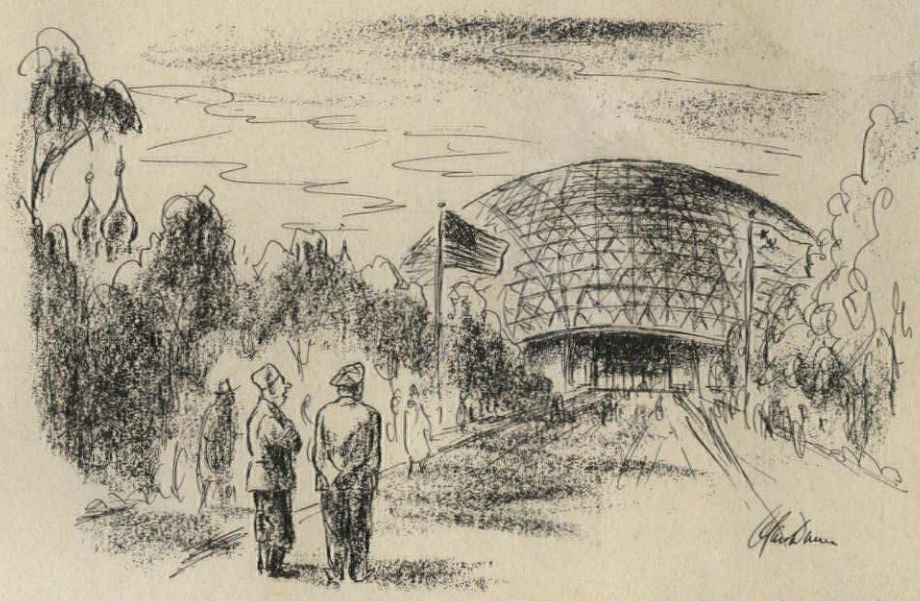
Meetings and Miscellany



—drawn for the RECORD *by Alan Dunn*

"When are *we* going to invent *that?*"

International Competition Open
Middle East Technical University, Ankara, Turkey, announces a single-stage international competition open to all graduate architects. The subject is "an important group in the first complex of buildings to be built for the University" at its new campus. The winning architect will receive the commission; other participants may be awarded commissions for later buildings or groups. The University hopes to find architects willing to form a lasting relationship with the program and the University. There will be a first prize (40,000 Turkish lira—about $4500), second and third prizes, and five honorable mentions. Entries must be postmarked by October 7, 1959. Program and other information from: Middle East Technical University, Campus Development Office, Mudafaa Cad. Nr. 18, Vekaletler, Ankara.

St. Louis Architects' Week
The mayor of St. Louis designated a week in May as "Architects' Week" by proclamation. Among the events arranged by the St. Louis Chapter of the A.I.A.: the chapter mailed out 2500 copies of *Progress through Architecture*, a brochure showing work of chapter members and explaining the profession to laymen; a tour of architects' homes and offices was held; there was an architectural book exhibit. Considerable newspaper publicity about architects and architect-client relationships resulted.

Authors' Queries
Norval White and Elliot Willensky, New York architects, are compiling a directory to contemporary architecture in the five boroughs of New York City that will include illustrations and all credits and dates. Publication is planned for spring, 1960. The authors believe they have fairly comprehensive lists of appropriate buildings, but, in an effort to insure complete coverage, they would like to hear from or of architects outside New York who have designed buildings in the city. Mr. White's address is 50 W. 56th St., New York 19.

From a recent issue of *The New York Times Book Review:* "For a biography of Stanford White (1853-1906), American architect, I would be grateful for any correspondence, photographs, memorabilia, etc., pertinent to Mr. White, his clients, and his friends. Aline B. Saarinen, Bloomfield Hills, Mich."

N.I.A.E. Prize-Winners Listed
The National Institute for Architectural Education announces the following winners of this year's student design competitions: "Regional Educational Radio and Television Production Center" (advanced)—Emerson prize of $100 to A. S. Prokos of the Catholic University of America. "A Small Midtown Shopping Mall" (intermediate)—Tile Council of America scholarships of $500 each to J. S. Daley and M. E. Gerardy, both of Oklahoma State University. "Design Exercise Using a 20-Foot Cube" (elementary)—ARCHITECTURAL RECORD first, second, and third prizes of $50, $25, and $25 to J. S. Blink, Z. Grigalis, and D. P. Brors, all of the University of Illinois. There were entries from 184 students representing 13 schools of architecture.

Architectural Tours Coming Up
An air tour of housing in Europe, sponsored by the National Housing Conference and the Cooperative League of the U. S. A.; August 29-September 20. Cost: $951. Information from: N. Sidney Nyhus, American Travel Association, 1612 K St., N. W., Washington 6.

The Fourth Annual Architects' Tour of Japan, led by Kenneth M. Nishimoto, A.I.A.; October 13-November 5. Cost: $1678. Information from: Mr. Nishimoto, 263 S. Los Robles Ave., Pasadena, Calif.

Architectural tour of Europe by air, sponsored by the French branch, International Union of Architects, in association with Air France and McGinniss Travel Service; October 17-November 16. Cost: $1730. Information from: McGinniss Travel Service, 160 Central Park South, New York, or any Air France office.

Brunner Applications Invited
The annual Arnold W. Brunner Scholarship has been increased from $2400 to $3000 for 1960. The award is made for advanced study in some special field which will contribute to the practice, teaching, or knowledge of architecture. Active American architects with advanced professional backgrounds are eligible. Applications are due by November 15; blanks may be obtained from Gillet Lefferts Jr., secretary, New York Chapter, A.I.A., 115 E. 40th St., New York 16.

A.S.H.R.A.E. Formed
The American Society of Heating, Refrigerating and Air-Conditioning Engineers is the name of the organi-

For the plaster plaques and wall panels of this high school auditorium in Niles Township, Illinois, RED TOP* Cement Plaster and USG® Metal Lath were used.

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Progressive Care Study

A preliminary study of the architectural requirements of Progressive Patient Care has been prepared by the Division of Hospital and Medical Facilities, Public Health Service, Washington 25. The study, which is available on request, includes floor plans and details about the five elements of such care.

R.I.B.A. Considers Efficiency

A Report by Jeffrey Ellis Aronin, A.I.A., M.R.A.I.C., A.R.I.B.A.

"Efficiency and the Architect" was the theme of the 1959 Conference of the Royal Institute of British Architects held in Cardiff, Wales, from June 10 to 13. Did architects think they were efficient? The tone of the conference seemed to suggest that they did not believe so.

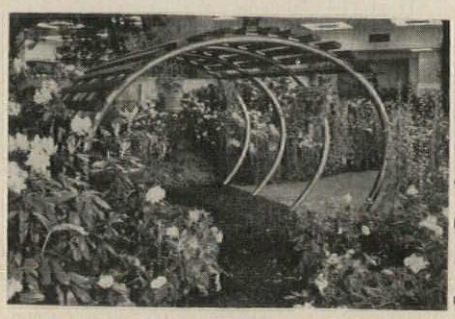
The manner by which their efficiency could be gauged and increased, however, was a matter for debate. The scope of thought ranged from the necessity for new office forms and check lists to package deals and the selection of capable and attractive secretaries. Indeed, female non-technical help inspired a number of comments. A "well-designed façade to an architect," said Peter Durham, "should be a woman secretary with an attractive appearance, commendable vital statistics, and competent ability. She should accompany the principal wherever he goes and should know more about a job than many of the architects in the office." It is foolish to cut down on the non-technical help, he asserted. It is a tragedy of our times that the higher up the ladder one gets the less time the principals have for doing architecture. "If you take along your secretary in your car on your visits to various jobs you can dictate eight pages of specifications in 40 miles."

As in the United States, the "package-dealer" problem was shown much attention. Many architects thought that the package-dealer was probably more efficient in his operations as "he could do a cheaper job." But Sir Thomas Bennett, in one of the most eloquent, spontaneous speeches of the conference, opposed the London County Council's experiments that brought in building contractors in the design of blocks of flats. "A contractor knows nothing about preparing an imaginative building design. He was entirely out of his element. The method was utter nonsense. His advice is usually wrong." Continued Sir Thomas: "I became more and more convinced that the only man who can direct the building owner, whether a public authority, the individual, the large company or the nationalized industry, is the architect. He is the only man who can have a comprehensive view to direct the contract with efficiency if he is efficiently trained." Another architect pointed out that package-built structures actually cost the owner 9 to 10 per cent more than he would expect to pay by using ordinary methods where the architect enjoyed his traditional freedom.

The Conference opened on the evening of June 10, when at the City Hall, Cardiff, a reception for members and guests was tendered by the South Wales Institute of Architects. Your correspondent missed most of this, not having arrived until it was almost over! Having suffered the ordeals of a 5½-hour jet flight from New York to London and a six-hour road and rail journey through congested Britain he had taken a five-minute nap from 5 to 11 p.m.!

On Thursday morning, June 11, Basil Spence, president of the R.I.B.A. and designer of the new Coventry Cathedral, opened the conference and the Lord Mayor of Cardiff, a lady, extended a welcome to the participants. Following that the main conference papers were read; that is, they were printed and distributed to the conference members and commentaries were voiced by the authors and others. A. G. Sheppard Fidler, R.I.B.A. vice president and Birmingham's City Architect, in the conference keynote, said: "The practice of architecture has changed radically to meet the vastly changed circumstances of world economics and progress in science and technology. It will be true to say that now it is a social service, very much of and for the people rather than an art catering for an aristocratic minority. The community makes new and exacting demands on the architectural profession—measuring our success in terms of efficiency rather than esthetics. There is a real danger that the good architect, unless he is also the efficient architect, will fail to leave his mark on the contemporary scene."

Alick Low noted that the architect's efficiency is not ordinarily appreciated by the client. "There is still not the degree of confidence given to the architect that there is in other professions. On the other hand, we are constantly being told to be more firm with our client and to make him understand that he cannot dictate the architectural style and that changes of mind are expensive." Continuing on other aspects he said: "We cannot administer the job properly and produce good architecture unless we control the various organizations which make up the design team. . . . The most important effect of the private architect's loss of responsibility is the growth of the official architect's office and the offices attached to large industrial undertakings. . . . Until we recognize the scope of our responsibility it will be difficult to decide what we are going to be efficient about."



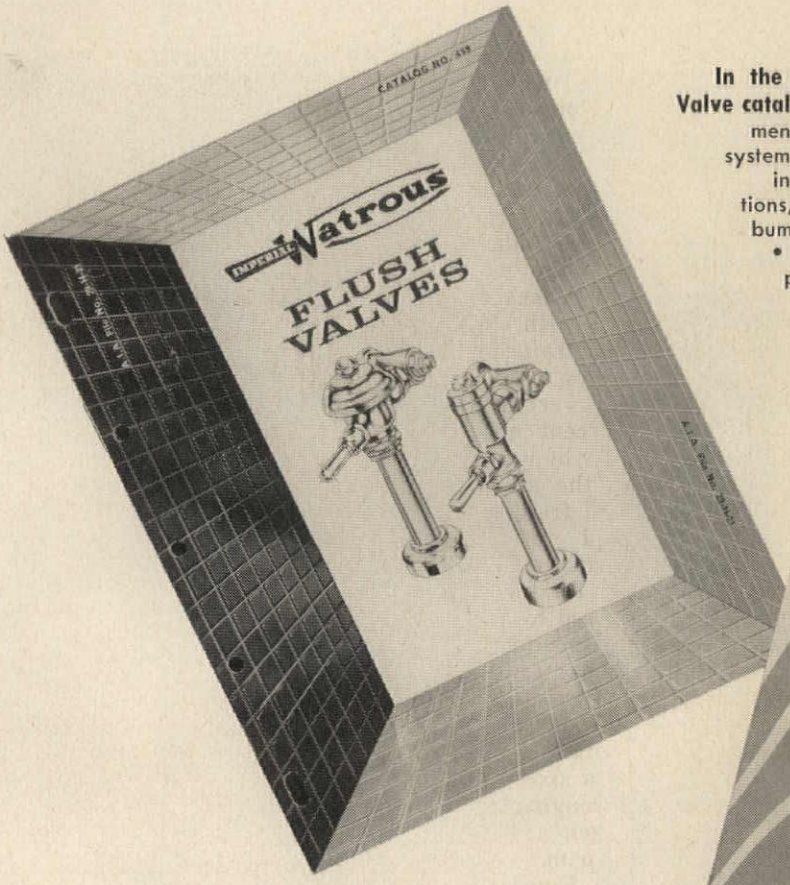
Courtesy Popular Gardening

This garden house, designed by landscape architect James Fanning, was part of Brookside Nurseries' display at the International Flower Show, held in New York earlier this year. Mr. Fanning also was the designer of the over-all layout of the show. The "lath house," as its creator calls it, is constructed of standard 3-in. diam plastic piping and redwood 2 by 4's. The piping was painted dark bronze in this case, but could be left in its original black. It was stretched out, filled with a cement-perlite mixture, then bent to shape; the hardened mixture gave rigidity. The 2 by 4's were then bolted to the piping. Materials for this pilot model cost $265; for permanent construction outdoors concrete footings would also be necessary

At 12 o'clock, those conferees particularly interested in the debate participated in a study group which set the course of discussion for Friday morning. In the afternoon there was a garden party at St. Fagan's Castle. Although rain is a traditional partner of British events of this sort, the sun shone quite brilliantly and afforded a pleasant environment for the bees that had the knack of alighting upon the Welsh cake—a sort of scone with raisins—that one was trying to eat.

In the evening the Lord Mayor of Cardiff gave the kind of reception that only the British seem to know how to give. In the magnificent City Hall, that has attained worldwide note, the ladies looked so magnificent flowing up and down the grand staircases. This civic center was con-

continued on page 63



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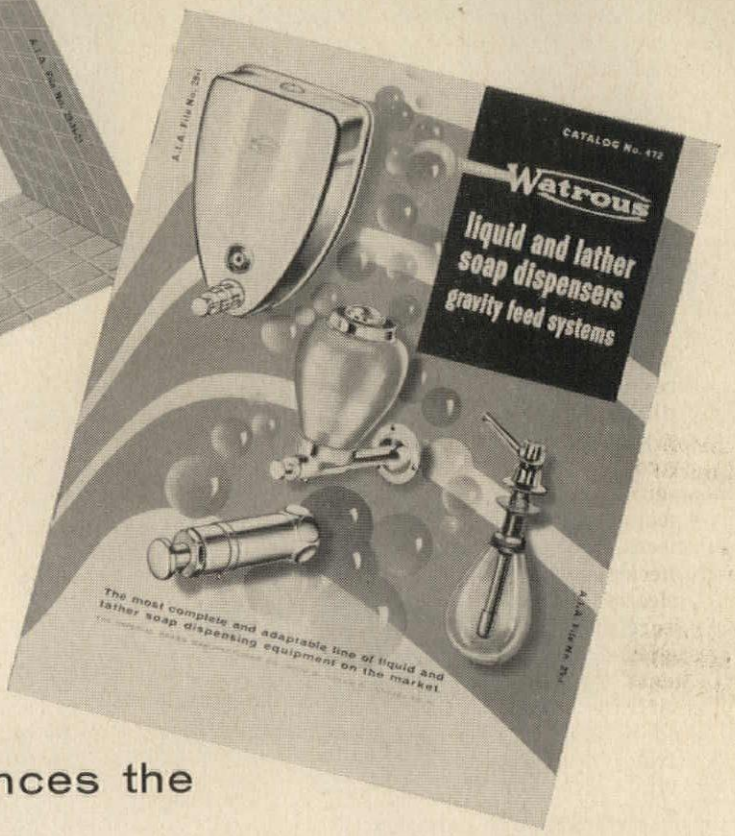

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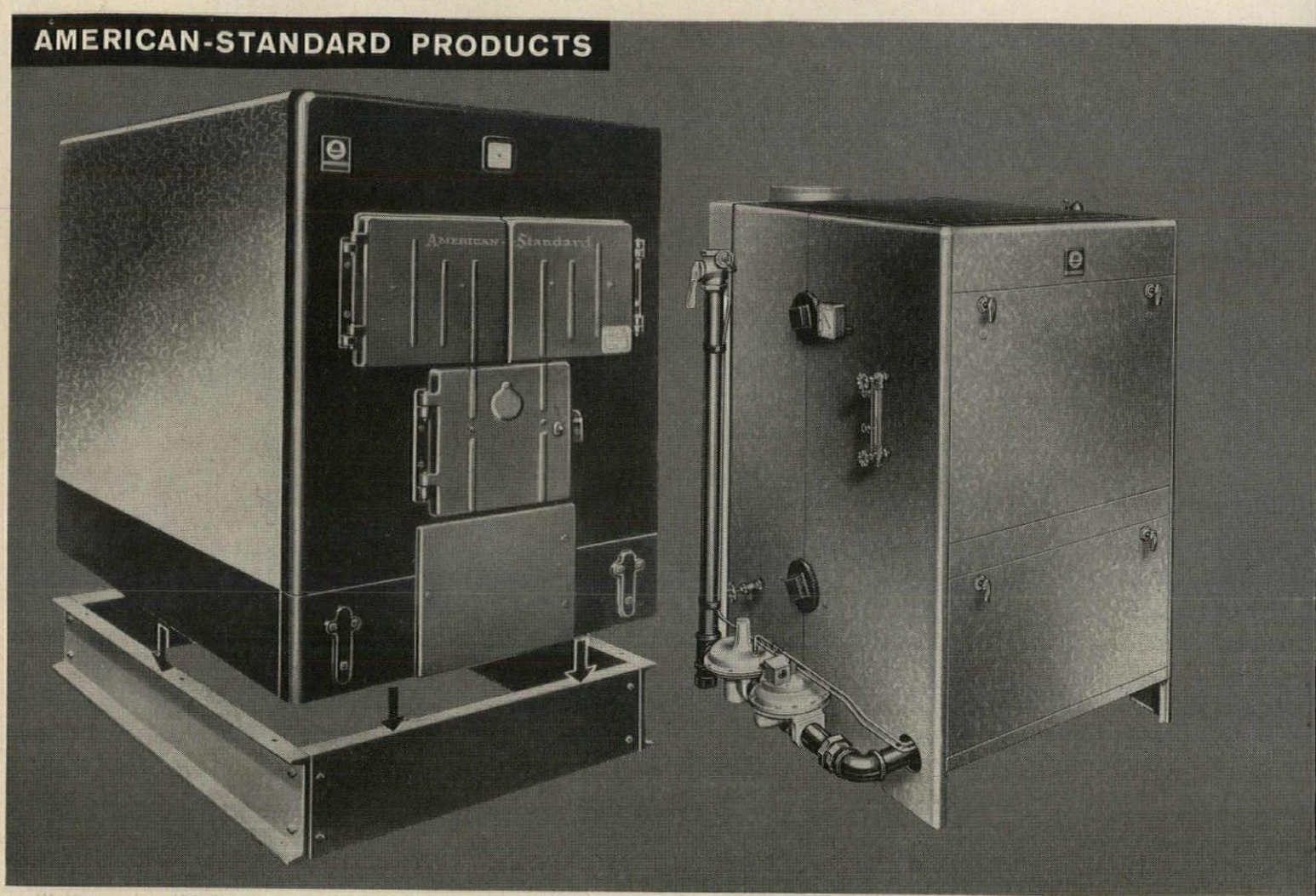
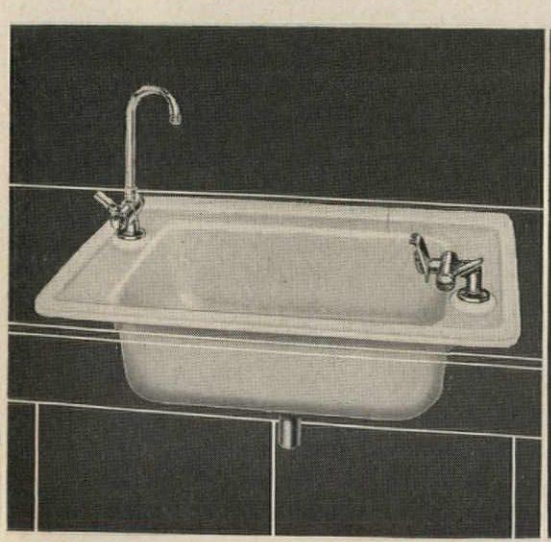
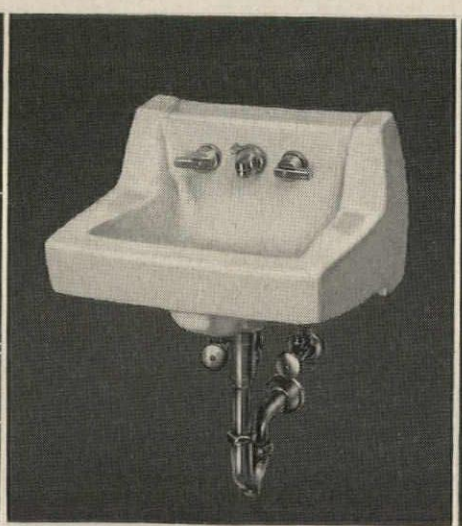


High-capacity oil boiler: The A-7 is also available for coal. Unique new design of internal circulation gives fast, smooth steaming. Optional pedestal base eliminates expense of special base or pit. Forge Red and black steel jacket. Easily installed in batteries.

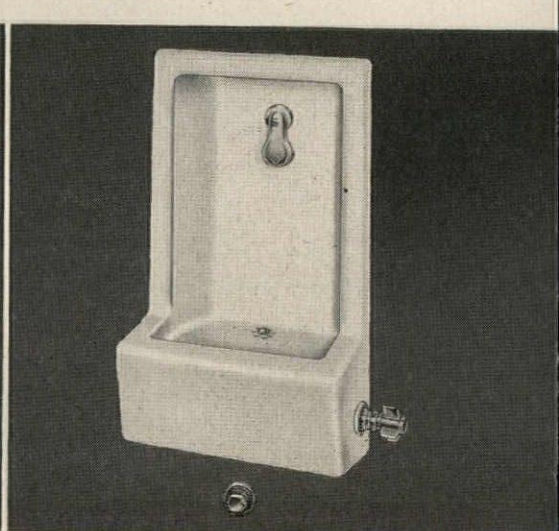
Compact gas-fired boiler: The G-6 requires minimum headroom—just 65", even for the largest capacity model. Enclosed in a Forge Red steel jacket, G-6 presents a clean appearance. It is ideal for installation in batteries and approved by the A.G.A. for all gases.



Combination drinking fountain-receptor: Ideal for laboratories, home-economics rooms, lower grades. Ledgeworth provides anti-squirt bubbler and self-closing glass filler. Latter has gooseneck with stream regulator. Acid-resisting enamel on cast iron.



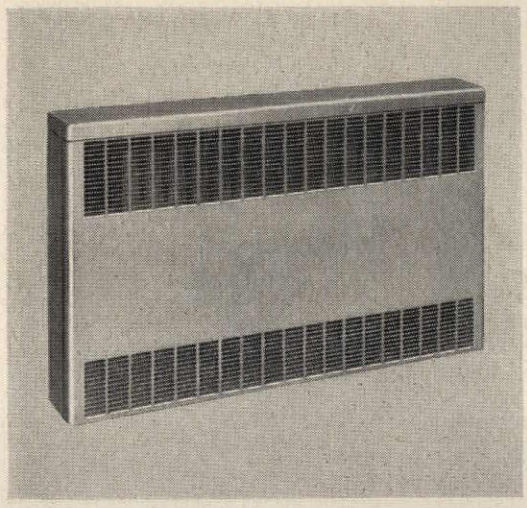
Extra-sturdy lavatory: The Firmledge is built to withstand wear and tear of school washrooms. Integral china bracket provides extra support to hold unexpected weights, eliminates extra supports. Made of vitreous china.



Cuspidor: The Seredor for locker rooms and gymnasiums has a sanitary flushing water spreader, self-closing valve and handy cleanout extension below. Easy-cleaning vitreous china.

For low maintenance costs and long dependable service, specify this new heating and plumbing equipment for

SCHOOLS



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NEW SCHOOL PLANNING GUIDE, Plumbing Fixtures for Educational Facilities, is now available directly from the publisher. This guide to type, location and number of fixtures for each school grade can be obtained by sending $2 to: School Planning Laboratory, School of Education, Stanford Univ., Stanford, Calif.

Fresh Approaches to Problems Of Aging Sought at Meeting

"Designs for Retirement" was the theme of the University of Michigan's 12th Annual Conference on Aging, held in June. About 1000 people attended. On the conference program were specialists in all relevant fields, including more than 20 architects. The five main sub-conferences were devoted to retirement financing, retirement health, retirement housing, preparation for retirement, and uses of retirement. There were also an architectural awards program and a "slide tour" of U. S. housing for the elderly. The conference was sponsored by several divisions of the University of Michigan (including the College of Architecture and Design) in cooperation with a number of Federal, state, and private agencies (including the American Institute of Architects and Michigan Society of Architects).

One point that was reiterated is that aging and aged persons should not be treated as a group: about the only things they have in common are the facts that they have attained a certain age (a rather arbitrary 65 in this country) and that they are subject to progressively increasing physical disabilities. There was also, of course, agreement on the now well-known fact that the number of persons over 65 in this country has greatly increased in recent years, in both absolute and relative terms, and that the increase will continue.

Psychological Needs Cited

A deep concern with the social and psychological needs and desires of the elderly was evident, as well as concern about the gaps in our knowledge. For instance, Glenn H. Beyer, professor of housing and design and director of the Housing Research Center, Cornell University, listed some of the latter: needed are more detailed data on the present housing and economic situation of the elderly, on what living arrangements they would prefer if they knew about all possible types, on their daily living patterns. "We especially need some facts about their leisure activities and about their attitudes toward socialization, on the one hand, and privacy on the other. If the phrase 'form follows function' is considered at all appropriate, and not merely a cliché, with the result that better kinds of housing accommodations are to be built for these families, then we must know about these things."

August Heckscher, director, The Twentieth Century Fund, was one of those who presented thoughtful papers on the basic psychological, subjective aspects of aging and retirement. Warning that the tendency to think of older people as a group because they can be studied as a group should be resisted, he also cautioned against the tendency to assume that outward manifestations of leisure activities necessarily indicate inner desires.

As was only proper, the conference participants included articulate elderly people. One was Mary C. Van Tuyl, retired clinical psychologist now living at Presbyterian Village, Detroit. She made three main points: the differences between older people are more important than their similarities; the situation of the elderly should be portrayed "in a less lugubrious fashion, with much less emphasis on dependency and inadequacy and on the perplexity of society to provide roles and activities to make and keep them happy"; though health and economics are certainly problems faced by the elderly, the third usually coupled with them, loneliness, "should be stated in re-

continued on page 36

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verse, because the problem is not the loneliness . . . but rather, the lack of resources for meaningful satisfactions. . . . In other words, richness of resources of satisfaction in early and middle life is quite likely to be the basic reservoir for satisfactions in later life."

More specifically, Robert J. Havighurst, professor of education, University of Chicago, presented "some general principles which seem to govern the transition to retirement in the case of people who make this transition successfully": they decrease energy expenditure; they revise their activities, spending more time in non-work roles; they spend more time in playing, in service to others, and in gaining new experiences and enjoyment; they spend more time in contemplation.

Housing for the Elderly

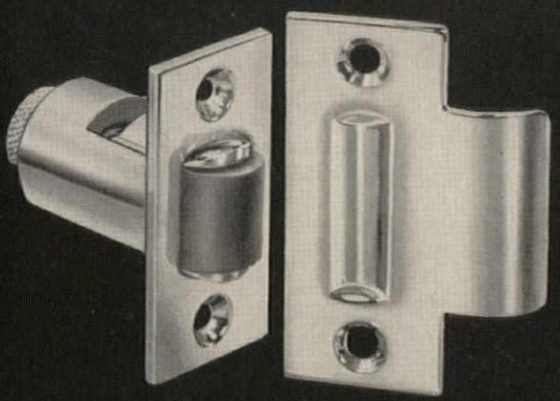
Consideration of housing itself ranged from the speculative to the immediately practical. Walter K. Vivrett, associate professor of architecture, University of Minnesota, after considering the pros and cons of various types of locations, concluded: "What we need is planning which will assure that any and all residential areas not too remote from shopping centers will be proper community settings for housing for the elderly." Robert W. Kleemeier, professor of psychology, Washington University, remarked that in designing such housing the architect and site planner should bear in mind that within the physical old man there is an ego looking out which is still much the same in personality as the character the old man had back in his formative years; it still seeks an interesting and active world, in spite of the aging of the body that contains it. Bo Boustedt, Swedish architect, described housing of the aged in his country; one point he made was that a home for the aged should not include hospital care. "The result will be a bad institution instead of a home and also a bad and insufficiently equipped hospital."

E. Everett Ashley III, chief, Housing Economics Branch, Housing and Home Finance Agency, reiterated some specific design criteria: "To be suited for the elderly, a dwelling unit must incorporate the following features: provide complete dwelling facilities, including a bathroom on one floor, with that floor reached by few, if any steps; absence or elimination of all thresholds and other tripping hazards; installation of non-slip surfaces in hallways, bathrooms, and kitchens to minimize the dangers of falling; installation of handrails by all steps and inclines; presence of adequate handgrips, capable of supporting a heavy person, by all bathtubs and toilets; adequate illumination of all steps and other potentially hazardous areas; installation, where climatic conditions require it, of fully automatic central heat.

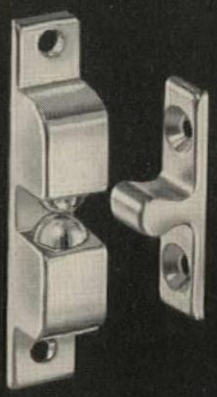
"Other features which should be present are: availability of at least one bedroom and avoidance of any layout which contemplates continued use of the living room for sleeping purposes; presence of doors wide enough to facilitate moving about the dwelling in a wheel chair; installation of windows that can be easily operated and cleaned; a bathroom large enough and suitably designed to permit its use by a wheel chair patient. Desirable, although not always practical to obtain is: provision of bells with buttons in bathroom and bedroom, sounding either in an adjacent dwelling unit or at some point where someone is on duty most of the time; orientation of floor plan and design of win-

continued on page 40

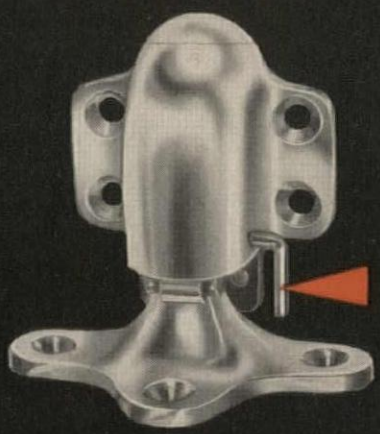
NEW ADDITIONS TO THE GJ FAMILY OF BUILDERS' HARDWARE SPECIALTIES



GJ 32 . GJ 33
Roller latches designed to fit cylindrical lock cut-out in metal doors. Made non-template or to template.



GJ 23S . GJ 24S
Three-way cabinet latches. Low-priced to meet limited budgets. 2" long and 1-9/16" long bodies in tumbled finish bronze or chrome.



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GJ 555 . SECURITY
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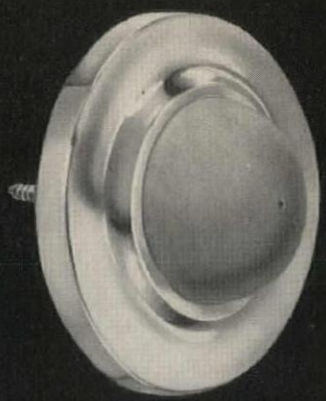

GJ WB 50
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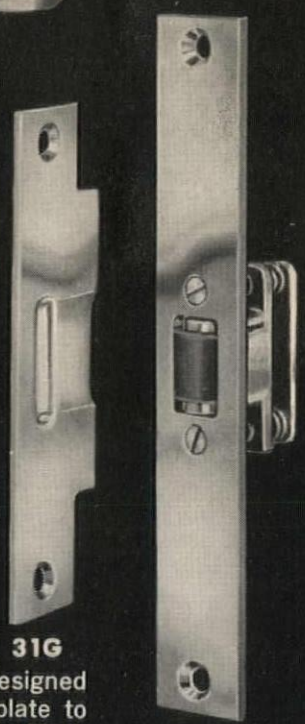

GJ 30G . GJ 31G
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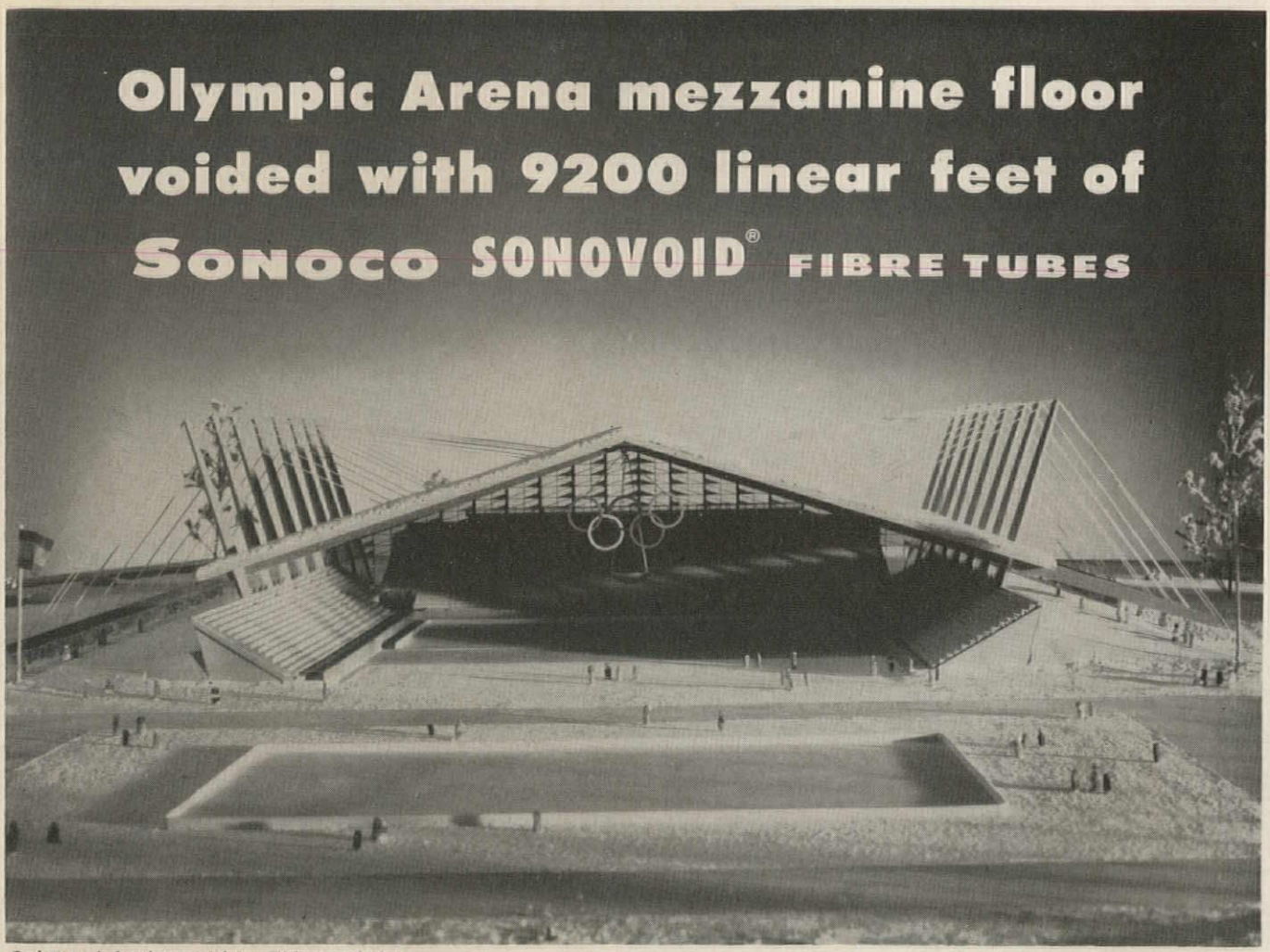
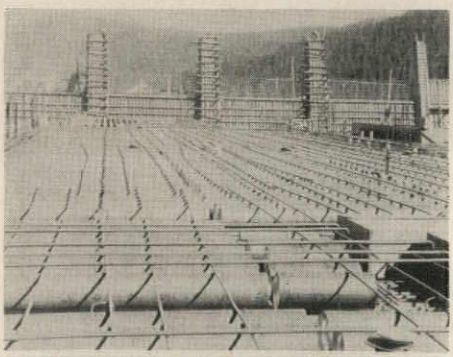
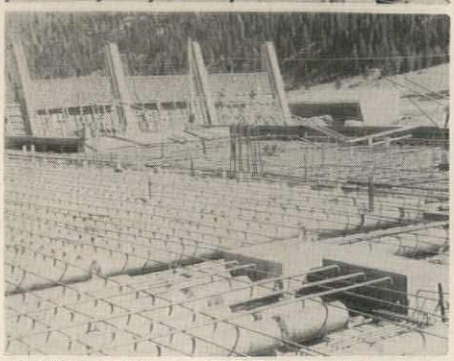


Corlett and Spackman, A.I.A.; Kitchen and Hunt, A.I.A.; Architects Associated . . . H. J. Brunnier, Structural Engineer . . . Diversified Builders, Inc., General Contractors . . . Owner: United States Government.





OLYMPIC ARENA . . . 1960 Olympic Winter Games . . . Squaw Valley, California

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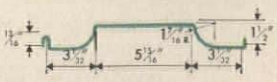

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WP-6

dows to permit good penetration of sunlight into living room, especially during winter months.

"In addition to satisfactory design, a dwelling for an older person must be properly located. To be satisfactory from the point of view of location, the accommodations should be: near adequate public transportation; adjacent to everyday shopping facilities; convenient to adequate medical and hospital facilities; free from major traffic hazards; away from sources of excessive noise, malodorous fumes, or smog; close to facilities for recreation; in a neighborhood free from serious urban blight or slums; in familiar surroundings near the occupant's usual circle of friends."

Winners of Awards

In the architectural competition, which drew more than 50 entries, 11 exhibits were cited as outstanding. The judges were: E. Everett Ashley III; Bo Boustedt, architect, Boustedt & Heineman, Sweden; Robert C. Metcalf, assistant professor of architecture, and William Muschenheim, professor of architecture, both University of Michigan; Edna E. Nicholson, executive director, Central Services for the Chronically Ill, Institute of Medicine, Chicago.

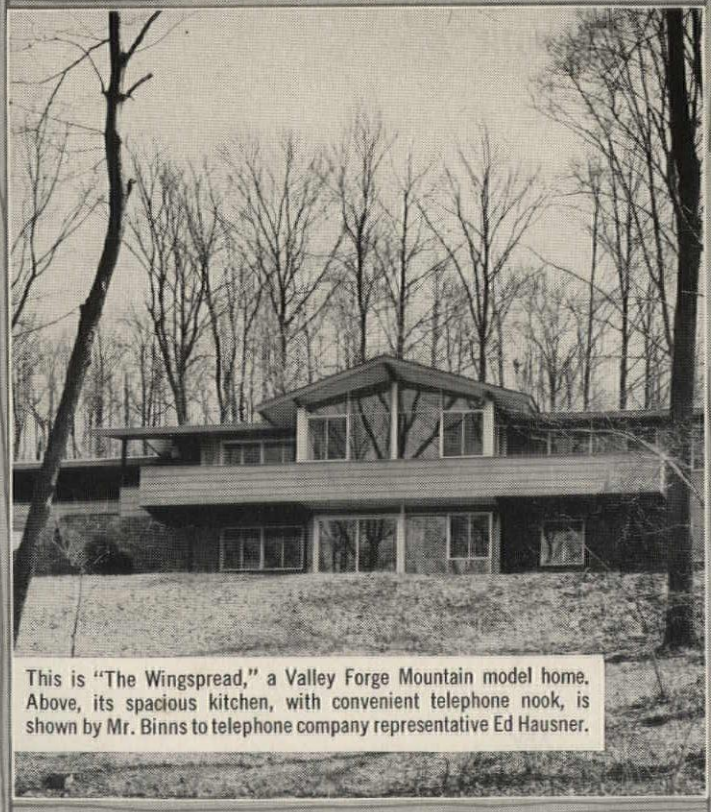
The winners were: *Row housing:* Munger, Munger & Associates—Gideon Spieker Terrace, Toledo; William Hoskins Brown—Fitchburg, Mass., Housing. *High-rise apartments:* Thorshov & Cerny—Lyndale Home, Minneapolis; Lowenberg & Lowenberg—Public Housing for the Elderly, Chicago. *Institutional housing:* University of Illinois School of Architecture ("best student work")—Residential Center for the Elderly; Smith, Hinchman & Grylls—St. Ann's Mead Episcopal Home for the Aged and Presbyterian Village, Long Island, N. Y.; Edward Mahlum—Norse Home, Seattle. *Nursing homes:* J. Wesley Olds—Hawley Nursing Home; Begrow & Brown—McWilliams Nursing Home, Sarasota, and Clinton Convalescent Center, Detroit.

One of the basic conclusions of the conference might well be given in the words of Philip M. Hauser, chairman, department of sociology, University of Chicago: "We have in a major way suceeeded in adding years to life; we are still only scratching the surface of the task of adding life to years."

more news on page 44

"We telephone plan our homes as carefully as we plan for electrical wiring"

—SAYS DAVID S. BINNS,
EXECUTIVE VICE PRESIDENT,
BINNS VALLEY FORGE HOMES, INC.,
VALLEY FORGE, PA.



This is "The Wingspread," a Valley Forge Mountain model home. Above, its spacious kitchen, with convenient telephone nook, is shown by Mr. Binns to telephone company representative Ed Hausner.

Thirty minutes west of Philadelphia lies Valley Forge Mountain, a gracious community of custom-built residences priced $30,000 and up. These homes offer a complete line of modern conveniences.

Telephone planning is one of them. Each Valley Forge Mountain home has built-in, concealed wiring for 5 or more telephone outlets.

"People expect to find telephone planning in a quality home," says builder David Binns. "Our aim is to design and build completely *modern* homes—and planning for complete telephone flexibility is a necessary part of that concept. We telephone plan our homes as carefully as we plan for electrical wiring and other modern conveniences."

* * *

Your local Telephone Business Office will gladly help you with telephone planning for your homes. For details on home telephone installations, see Sweet's Light Construction File, 8i/Be. For commercial installations, Sweet's Architectural File, 32a/Be.

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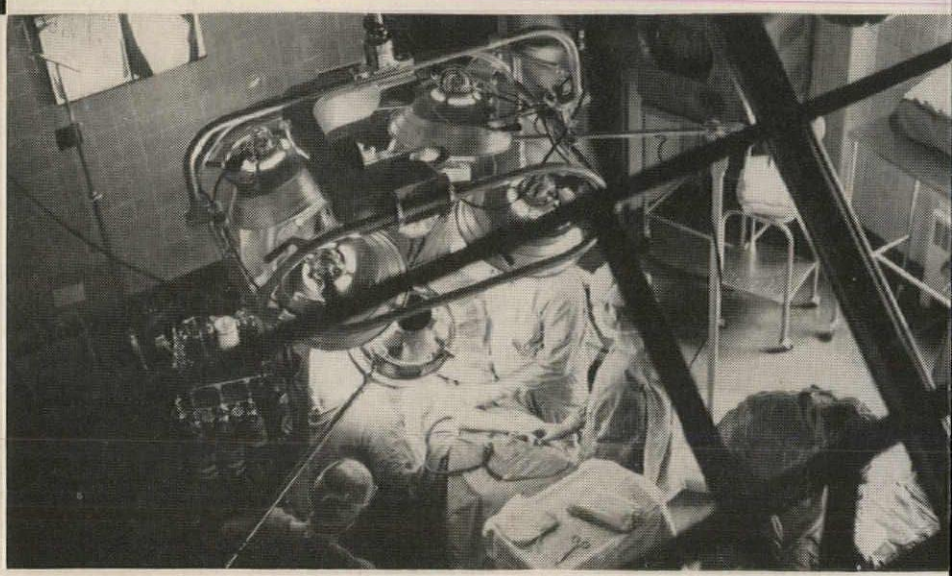

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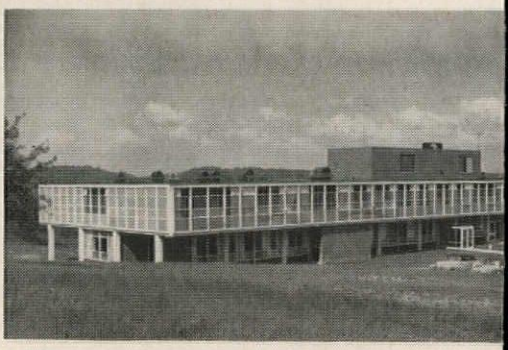

Miners Memorial Hospital, Wise, Virginia . . . 60 beds. A Cat D326 Electric Set supplies standby power for operating room, delivery room, boiler room equipment, heat convectors, lighting, fire alarm, oxygen tents, suction pumps. Cat Electric Set permits *all* activities to go on as usual, even if power failure were to last for days.

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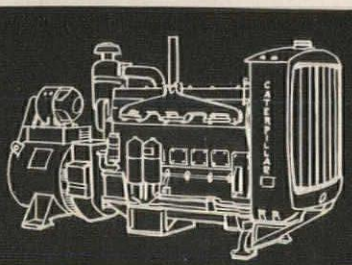
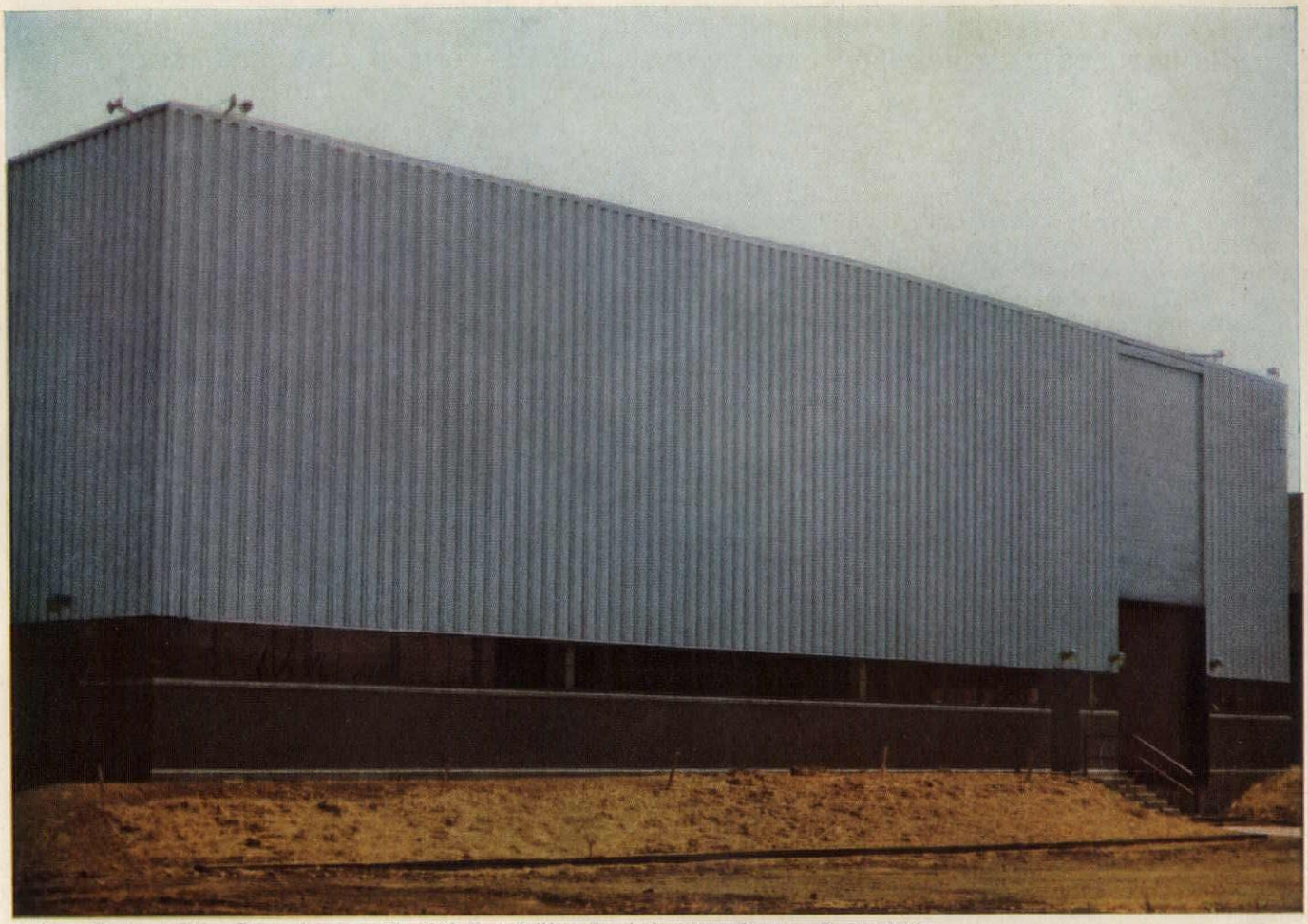
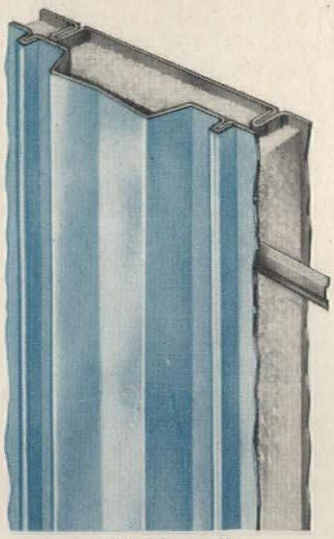
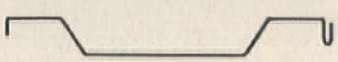




Architects-Engineers, Dalton-Dalton Associates, Cleveland, O. • Builders, Cunningham-Limp Company, Detroit, Mich.



Shadowall



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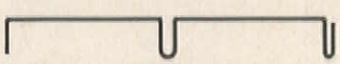

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A Washington Report by Ernest Mickel

"FAMILY HOUSING CONFERENCE" SUCCEEDS WOMEN'S HOUSING CONGRESS IN THIS YEAR'S VERSION

Husbands as well as wives are invited to the 1959 Family Conference on Housing at the National Housing Center in Washington, D. C., September 16 and 17. This is the latest version of the now-familiar Women's Housing Congress.

The idea of inviting home owners to Washington to advise on what they want in a house originated with the Housing and Home Finance Agency several years ago. The first Women's Housing Congress was sponsored by HHFA in 1956 and out of this initial government-inspired meeting has grown an industry conviction that a relatively small number of home owners and potential home buyers can indeed, give valuable advice to builders and to the producers of housing materials and services.

After experience with two privately sponsored conferences, in 1957 and 1958. builders and manufacturers are determined to continue the annual affairs, not so much for their influence on product lines as for their contributions in the area of market approach.

With the ladies expressing freely their likes and dislikes on every aspect of home ownership from lot orientation to cleaning ease, the sponsoring bodies report they have learned much of value about the wife's attitude. This year they will be adding the husband's view.

N. A. H. B. Joins Sponsors

Co-sponsors of the conference are the National Association of Home Builders and the Women's Housing Congress, Inc. The latter includes the National Plumbing Contractors Association, the Plumbing Fixture Manufacturers Association, the Better Heating-Cooling Council, Portland Cement Association, Structural Clay Products Institute, National Lumber Manufacturers Association, National Bureau for Lathing and Plastering, and the Copper and Brass Research Association.

The American Institute of Architects was asked to join the Congress but declined. It will not be one of the co-sponsors this year but A.I.A. staff personnel may be invited as observers, a conference spokesman said.

There has been some architectural participation in past conferences, though never sponsorship participation. HHFA attempted to have an architect at each of its discussion tables at the first session in 1956. Many participated and joined in the considerations. There were two architects at the 1957 meeting, sitting in as observers.

The National Association of Home Builders' Research Institute, which is active in planning the program and carrying N.A.H.B.'s responsibilities, will have a representative at each of the tables at this year's conference and some of these will be architects.

An Approach to Diversity?

Furthermore, an architect, Joseph Orendorff, special assistant to the HHFA Administrator, Norman P. Mason, is adviser to the Women's Housing Congress. In that capacity he voiced the opinion that it is vitally important that industry continue to listen to intelligently expressed views regarding housing and housing products. It's a way of finding the common denominator in housing wants, he said, adding,

"I believe there is a growing awareness in all producing elements of the housing industry that the vast mass of families is growing tired of the same uniform products. The producers are recognizing that they must seek to learn the needs and wants of people and that they must manufacture more nearly in line with these."

Basic in the congress and conference idea is a recognition that people now have higher incomes and can be (and are) more selective in what they choose. More selectivity is being shown by lower and lower income groups. Trying to satisfy these "felt needs" of people was described by Mr. Orendorff as the "revolutionary concept" behind these annual meetings.

Between 75 and 90 delegates are expected at the September sessions. This is a relatively small number to express the mass opinion of America's home owners and home seekers. But the sponsors are counting on the opinions expressed by these few to reflect in substantial measure general attitudes across the land. As the 103 women delegates to the first Housing Congress pointed out, the homemakers of America hold their own housing conferences every day—at the clothes line, over the coffee cup, in the shopping center.

The congress as it now is established, permits company groups as well as trade associations to participate. Aluminum producers, for example, will be represented this year, not through a trade organization but through cooperative company effort.

"We are not trying to sell anybody anything," one spokesman said. "We merely want to find out how much today's home owners and potential home owners know about the real nature of the products we offer in the market. When we have learned that, we can do a better job of meeting their needs."

Delegates are selected by the local chapters of the N.A.H.B. These chapters pay travel expenses, the congress picking up the tab for expenses here during the meetings. The N.A.H.B. will furnish the meeting quarters—the National Housing Center.

As of this writing, 46 local N.A.H.B. chapters were planning to send the husband and wife delegates for the 1959 conference. The program format will follow those of previous years, the delegates separating into round table groups and sitting at the same tables, arranged on a regional basis, for all sessions during the two days.

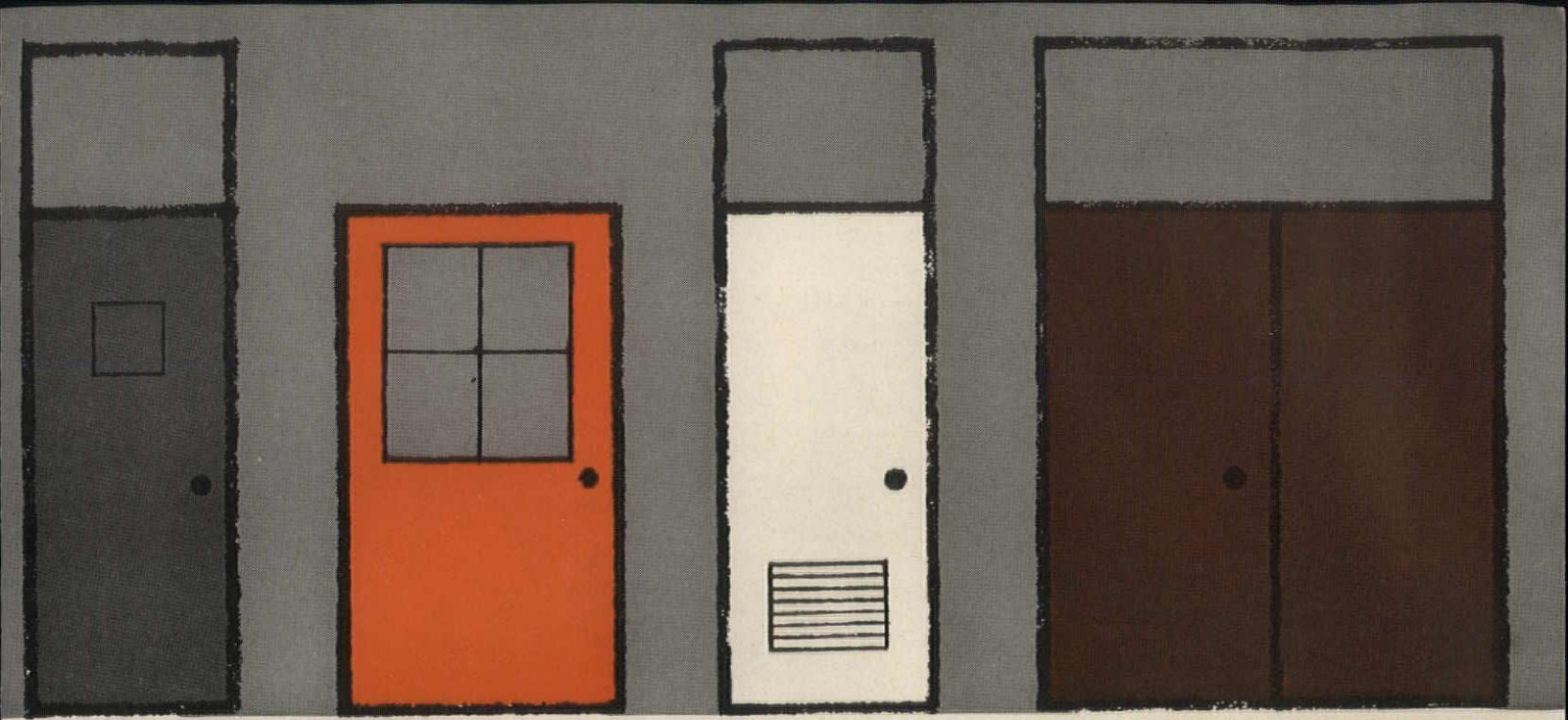
Sponsor Queries Planned

Each sponsor is allowed one half-hour discussion time in which to present his questions. These questions are thoroughly screened by both the Congress and N.A.H.B. before the transcripts are presented.

Each table will seat about 10 delegates, one moderator, two industry experts, and a reporter from the industry having that particular session. All sessions will be open.

General subjects to be covered by the congress sponsors include plumbing, plumbing fixtures, heating, interior wall finishes, exterior building materials, air conditioning, outdoor living, wood uses and aluminum uses. Aspects of housing other than those related directly to appliance and mechanical installations and specific material applications will be included in the N.A.H.B. presentations, it was said.

The home builders have sent to each of their 325 local chapters suggestions for conducting local conferences modeled after the national meetings. Half a dozen of these were held with some success last year.



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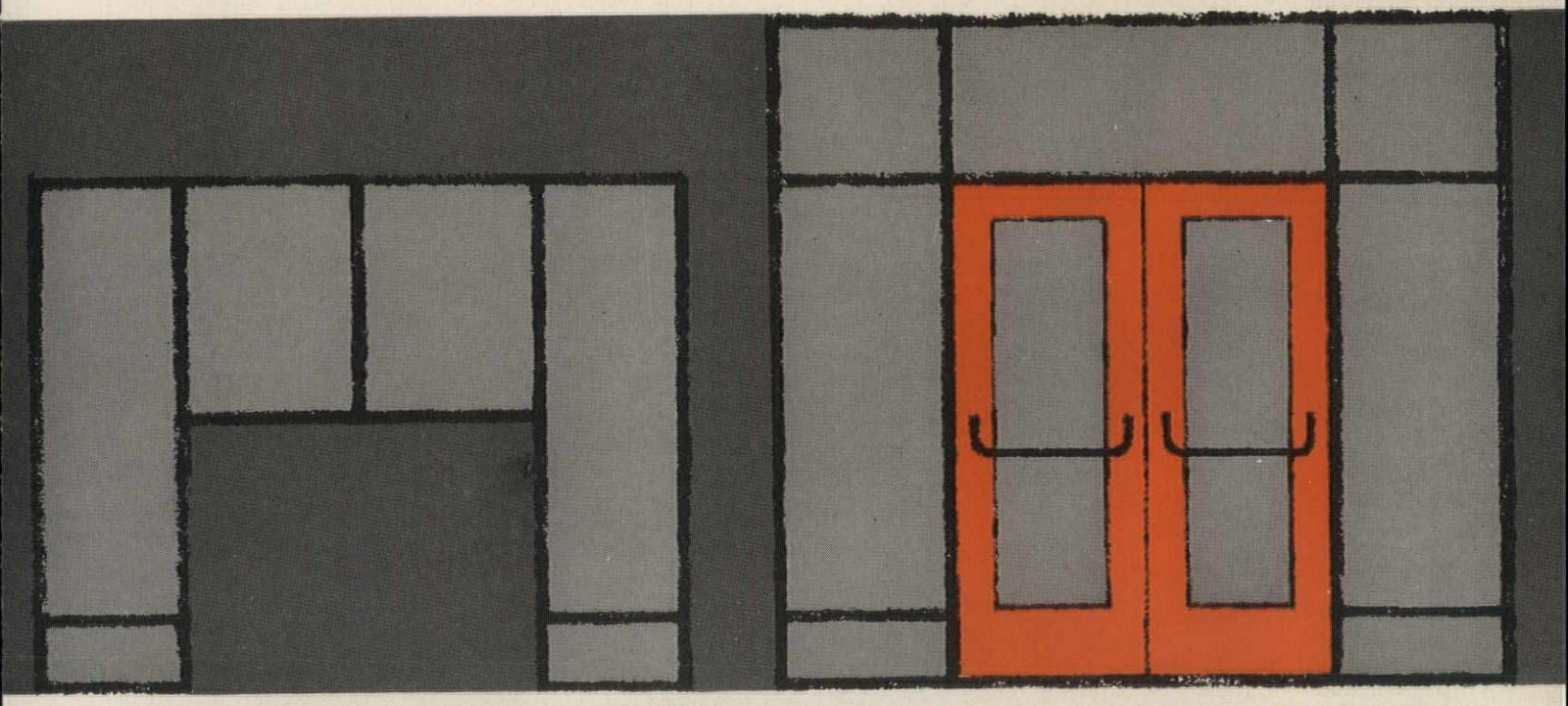

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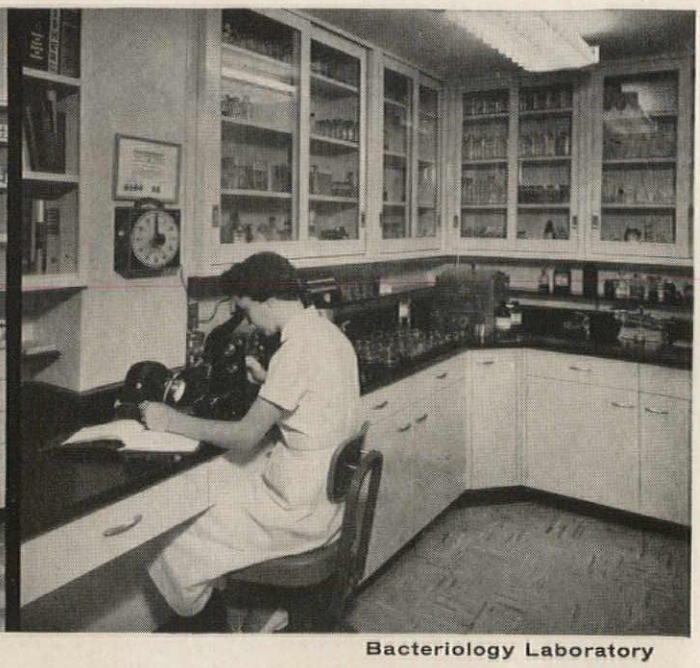

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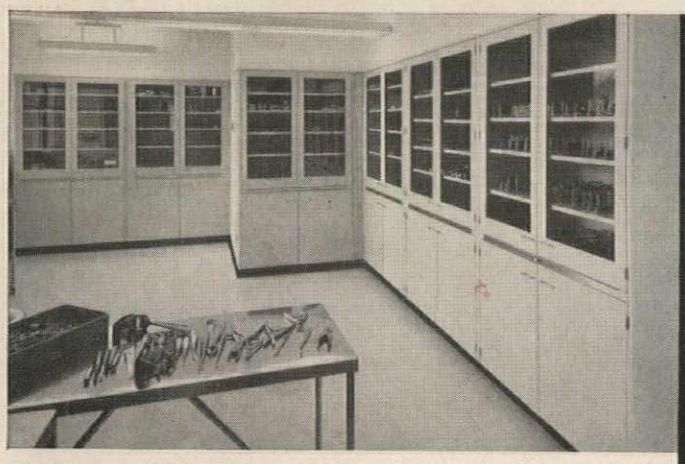

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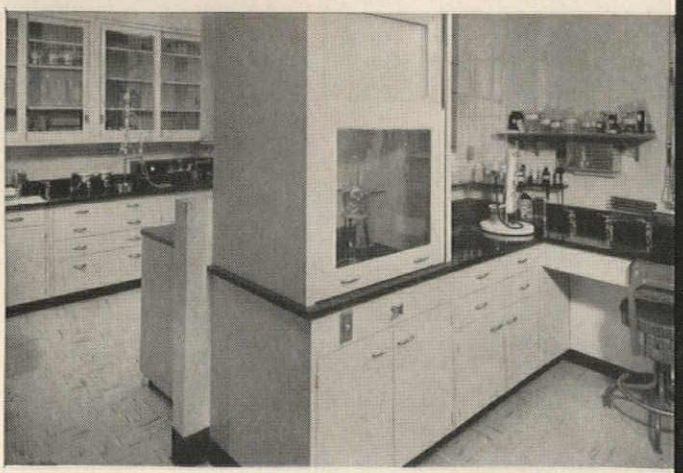

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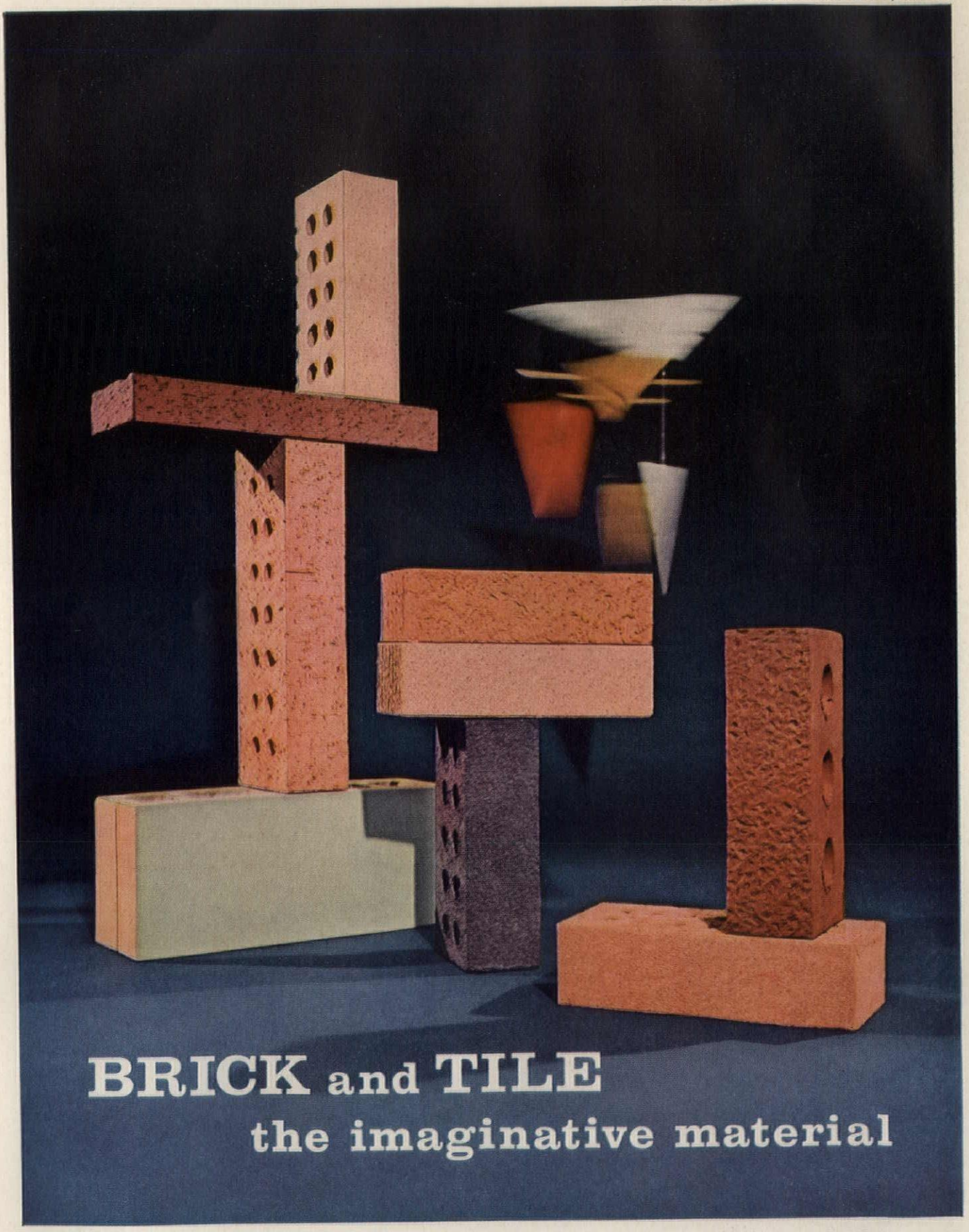

STRUCTURAL CLAY PRODUCTS INSTITUTE • 1520 18TH STREET N. W., WASHINGTON 6, D. C.

$50 Billion Construction Year Seen from Latest U. S. Tally

The mid-year Federal government report on construction activity left no doubt that 1959 was establishing itself as the 12 months in which total new work put in place in this country would soar over the $50 billion mark.

The Bureau of Labor Statistics and the Construction Industry Division of the Department of Commerce reported jointly that as of July 1 spending for new construction was at a seasonally adjusted annual rate of $55.1 billion. The actual outlay last year was $49.1 billion. Both July this year and the first six months of 1959 set new records; $5 billion was reported as the July expenditure, $24.9 billion for the first six months. Both were up 15 per cent from year-ago figures.

Residential construction contributed heavily to the gains during the first half of this year. Labor and Commerce said private outlays for new construction reached $17.5 billion, mainly because of a 32 per cent expansion in residential building over the first six months of 1958. Despite the increase shown, the May-to-June housing volume was less than seasonal, the government said, while most types of private nonresidential building expanded more than usual.

Public construction expenditures for the first six months of this year were reported at $7.4 billion, 14 per cent above the same period of 1958. This resulted mainly from new work on highways, housing and military construction.

The mid-year statement from the two Federal departments carried a notice to the effect that responsibility for collecting and compiling all statistics on housing and construction activity was being shifted to the Bureau of the Census in the Department of Commerce. This was the final report in the series issued jointly by BLS and Commerce. The Census Bureau will pick up on the series, however, and continue the publication on construction activity.

President Calls Housing Bill Extravagant and Inflationary

The President's veto of the omnibus housing bill left a lot of question marks on Capitol Hill and in industry circles. It was agreed that this turn-down of housing legislation was the most significant veto of Mr. Eisenhower's administration and under the political overtones was a state of immediate confusion within operating programs affected.

Authority for the Public Housing Administration to make contracts with local housing authorities had expired June 30, as had legal sanction for the Federal Housing Administration to increase its important loan insurance authority on regular housing programs.

Safe for another three months was the authority for FHA to approve private home improvement loans under Title I of the housing act. This does not expire until September 30.

In returning the legislation to Congress, the President was critical of the price tag the omnibus legislation carried, although Congress had tried to bring the total figure down to where he would accept it. Disagreeing with legislators over the actual obligations carried in the bill, the White House said its overall cost would run up to $2.2 billion as minimum. Hill Democrats were saying the measure called for no more than $1375 million. The Administration had proposed an expenditure of no more than $810 million.

The urban renewal aspects of the

continued on page 286

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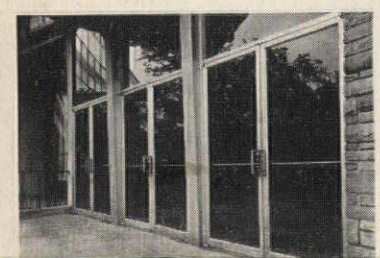

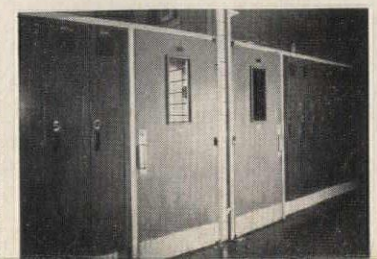

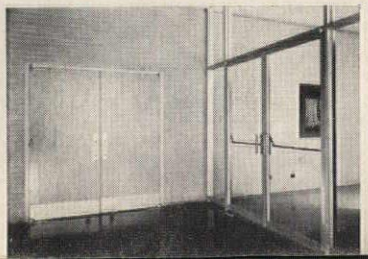

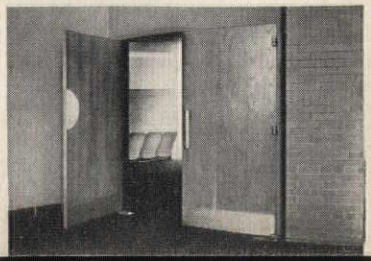

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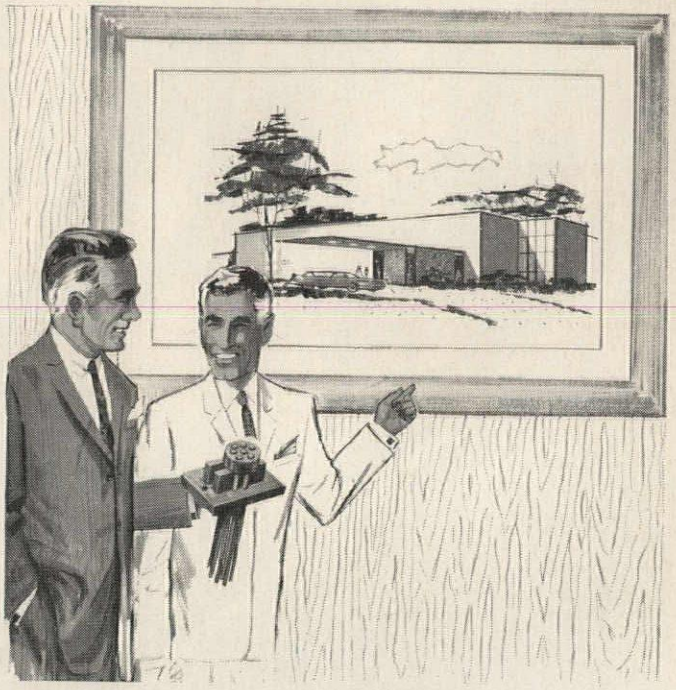

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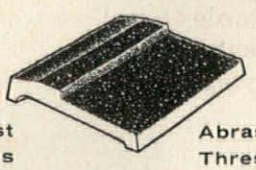
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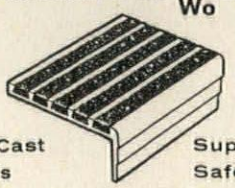
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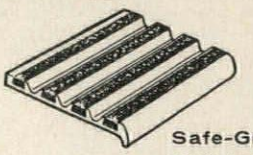
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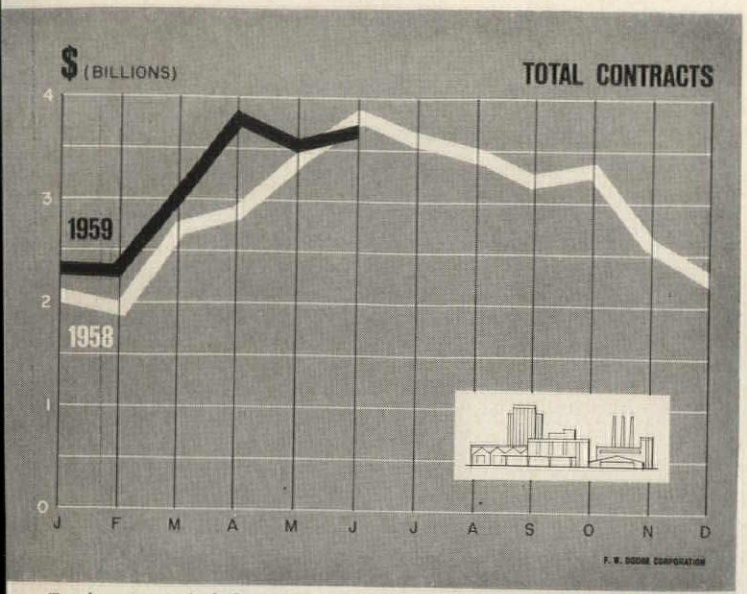
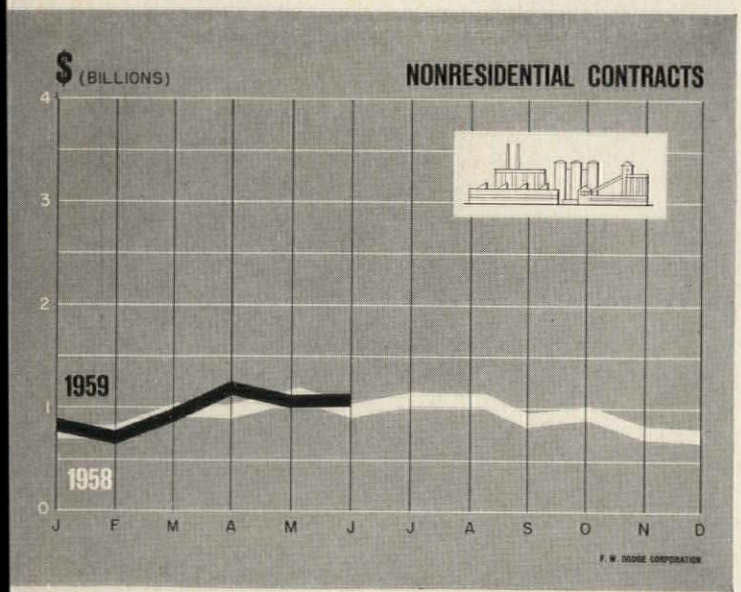
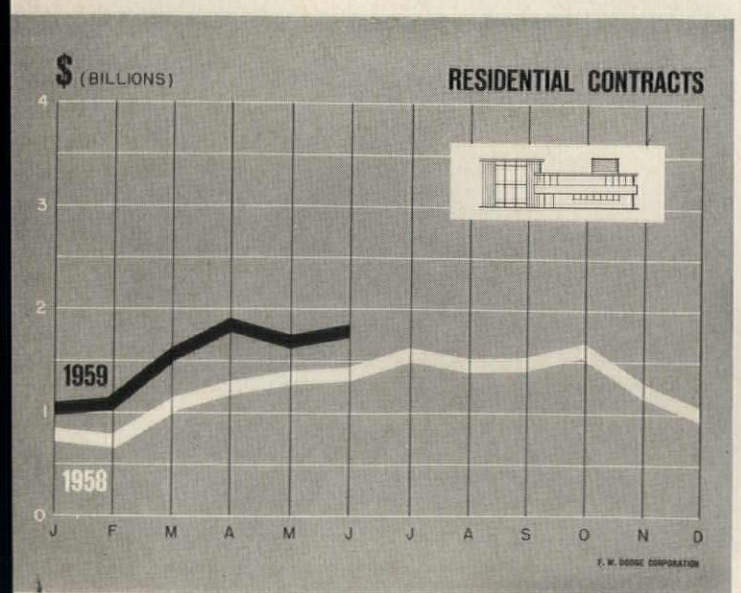
Representatives in all principal cities

Current Trends in Construction



Total contracts include residential, nonresidential, heavy engineering contracts





THE BIG QUESTION in the construction outlook remains unanswered: "What will happen to housing legislation?" As we pointed out last month, predicting what Congress will do is one of the more hazardous fields of forecasting. Some legislation, at least, is buttoned up; the increased rate on VA-insured mortgages has become law. For the rest, it seems that a much stripped down version of the big housing bill will eventually be passed and signed by the President. Most analysts still expect that the effects of rapidly tightening money will begin to dampen home building activity, and that the rate of new housing starts will fall during the second half of 1959.

OF SOME IMPORTANCE to architects is this fact: Tight money has had little or no effect on conventionally financed housing starts. Since 1950, virtually all the ups and downs in starts have occurred in the FHA and VA sectors, and a graph of the government-insured starts looks like a roller coaster. But the non-insured starts have kept on at a steady pace. The reason is simple: rates on conventional mortgages are free to compete in the money markets, while the more or less rigid rates on the insured mortgages make them seem unattractive in periods of rising interest rates.

ADDED INSURANCE that the building boom will continue comes from the June figures on construction contracts, as compiled by Dodge Construction Statistics. The Dodge Index (total contracts, seasonally adjusted) rose to 288 in June. This brings it back close to the all-time peak reached in April of 1959. Total contracts were $3,659,000,000, down 4 per cent from the corresponding month of last year; but this is a very good showing when we take into account the fact that June 1958 was the biggest month in history for contracts. Even more interesting is this: non-residential building in June was up 8 per cent from a year ago, and residential building was up 29 per cent; the decline in the total was entirely the result of a sharp drop in heavy engineering.

AN ECONOMIST should take a non-partisan position on many things, including matters of design in architecture. But we couldn't help noticing an interesting phenomenon the other day. Driving through the country, we came to a clearing in the woods where the trend toward simplicity of design and the trend toward the return of elegance seemed to have crashed head-on. There was a starkly simple contemporary house, with boldly flaring roof lines, whose simplicity had been countered (presumably by the owner) with the darnedest collection of gimcracks and gewgaws, ranging from bird cages to Japanese lanterns. To complete the picture, the porch and yard were strewn with toys and garden tools. A friend who was with us reflected on the scene a moment and said, "You know, I think they're trying to recapture that old tenement look!"

GEORGE CLINE SMITH
Vice President and Economist
F. W. Dodge Corporation

1 *Who leads in architect and engineer* **CIRCULATION?**

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Architectural Forum	14,411	5,087	19,498

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5 *Who's ahead in* **ADVERTISING?**

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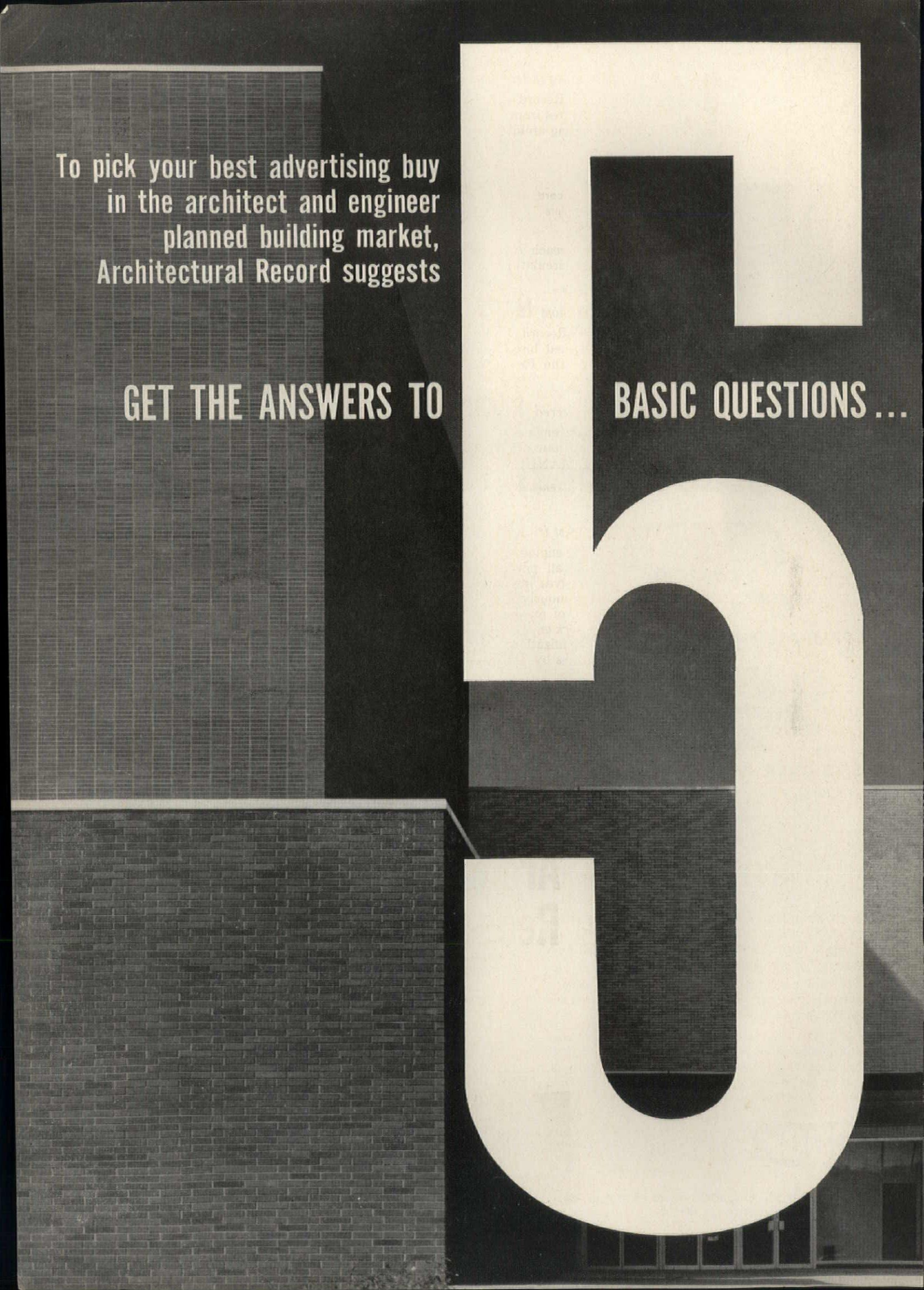

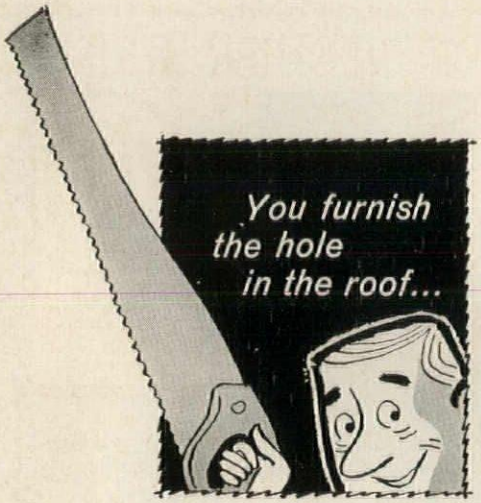

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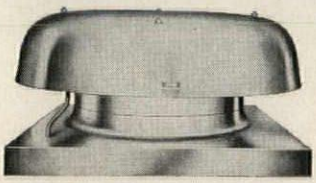

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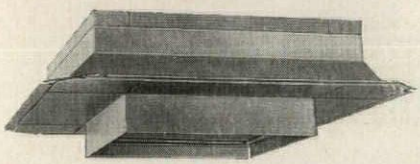
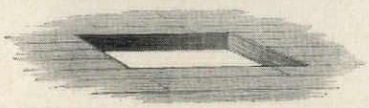


FITS OVER PREFABRICATED CURB



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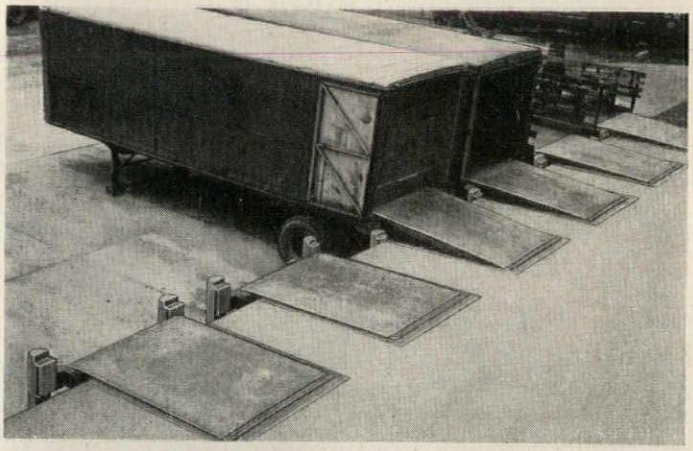

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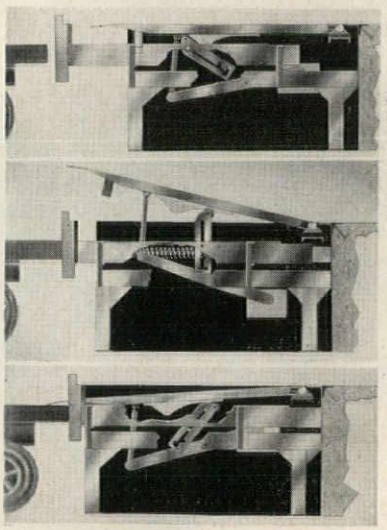
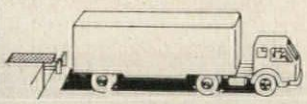
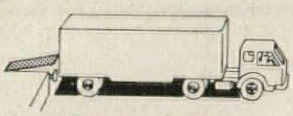
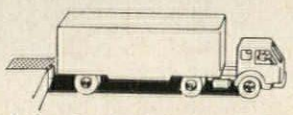




Truck approaches dock ...



raises ramp platform ...



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continued from page 306

HANDBOOK OF INDUSTRIAL LOSS PREVENTION: RECOMMENDED PRACTICES FOR THE PROTECTION OF PROPERTY AGAINST DAMAGE BY FIRE, EXPLOSION, LIGHTNING, WIND, EARTHQUAKE. *By the staff of the Factory Mutual Engineering Division. McGraw-Hill Book Co., 330 W. 42nd St., New York 36. 864 pp., illus. $20.*

SIMPLIFIED PROBLEMS IN STRENGTH OF MATERIALS AND STRUCTURAL DESIGN. *By Ephraim Viertels. Arco Publishing Co., 480 Lexington Ave., New York 17. 636 pp., illus. $5.*

BUILDING CONSTRUCTION ESTIMATING. *By George H. Cooper. McGraw-Hill Book Co., 330 W. 42nd St., New York 36. 398 pp., illus. (2nd ed.). $7.50.*

CIVIL ENGINEERING HANDBOOK. *Edited by Leonard Church Urquhart. McGraw-Hill Book Co., 330 W. 42nd St., New York 36. 1174 pp., illus. (4th rev. ed.). $17.50.*

STREAMLINED SPECIFICATIONS STANDARDS: MECHANICAL AND ELECTRICAL. *By Louis Axelbank and Ben John Small. Reinhold Publishing Corp., 430 Park Ave., New York 22. 494 pp. $5.95 (new reduced price).*

The Geography of Gangland

THE SHOOK-UP GENERATION. *By Harrison E. Salisbury. Harper & Bros., 49 E. 33rd St., New York 16. 244 pp. $3.95.*

Mr. Salisbury's report on that small but frighteningly antisocial portion of the younger generation which is making so many headlines these days is an outgrowth of the series which he wrote for The *New York Times*, excerpts of which were quoted in the RECORD's issue of July 1958. It is likely to interest architects primarily in their role as citizens. But, if Mr. Salisbury is right, architects and city planners have a *professional* opportunity, as many do not, to chip away at at least one corner of the problem —housing. Descriptions of the "old slums" are scarcely more depressing than those of public housing (the "new ghettos") or of the suburbs.

In his concluding chapter, Mr. Salisbury writes: "The architectural design and concept of many low-rent housing projects has fallen as low as the social concept. Why should we build 20-story barracks, devoid of human facilities, barren of stores and service establishments, naked of beauty? . . . Housing projects can be made bastions of social order. . . . This requires social imagination, a sense of responsibility, a desire for a healthy community and a feeling for people which transcends vicious political bureaucracy."

—GRACE M. ANDERSON

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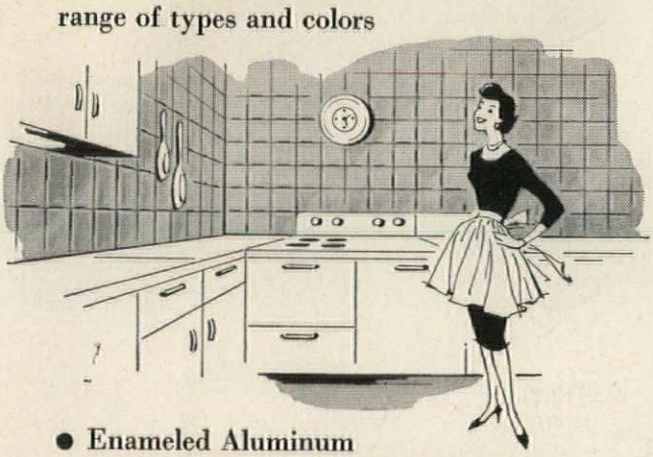

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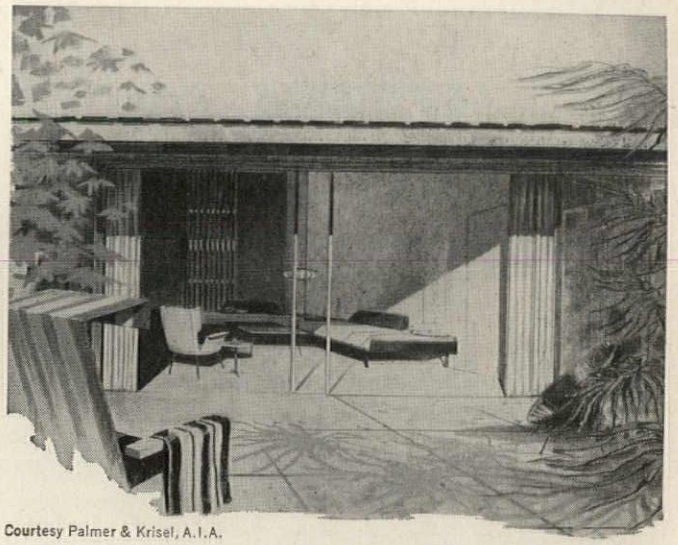

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Required Reading

continued from page 60

orative air cooling and humidification, and snow melting. Chapters have been edited and expanded to include new outdoor winter design temperatures based on probability of occurrence of various temperatures; new steam pipe sizing charts; a revised table on gauges and construction of air ducts including low-, medium-, and high-pressure ducts; revised information and illustrations for unit ventilators and their application; and a re-written chapter on automatic control. There is much other new information, also.

WINTER AIR CONDITIONING. *By Seichi Konzo, J. Raymond Carroll, Harlan D. Bareither. Industrial Press, 93 Worth St., New York 13. 630 pp., illus. $8.*

This book is a companion volume to *Summer Air Conditioning* by the same authors.

RESIDENTIAL AND COMMERCIAL AIR CONDITIONING: SIZING, INSTALLATION, SERVICING. *By Charles H. Burkhardt. McGraw-Hill Book Co., 330 W. 42nd St., New York 36. 324 pp., illus. $9.*

DESIGN OF AIR CONDITIONING SYSTEMS. *By F. W. Hutchinson. Industrial Press, 93 Worth St., New York 13. 336 pp., illus. $7.*

Aspects of Construction

PHILOSOPHY OF STRUCTURES. *By Eduardo Torroja. English version by J. J. and Milos Polivka. University of California Press, Berkeley 4. 366 pp., illus. $12.50.*

Torroja discusses and explains the principles of advanced structural design in this handsome, well-illustrated book. It makes an interesting companion volume to Torroja's more specific analysis of some of his major projects, published as *The Structures of Eduardo Torroja* by Dodge (AR, August, '58, p. 60).

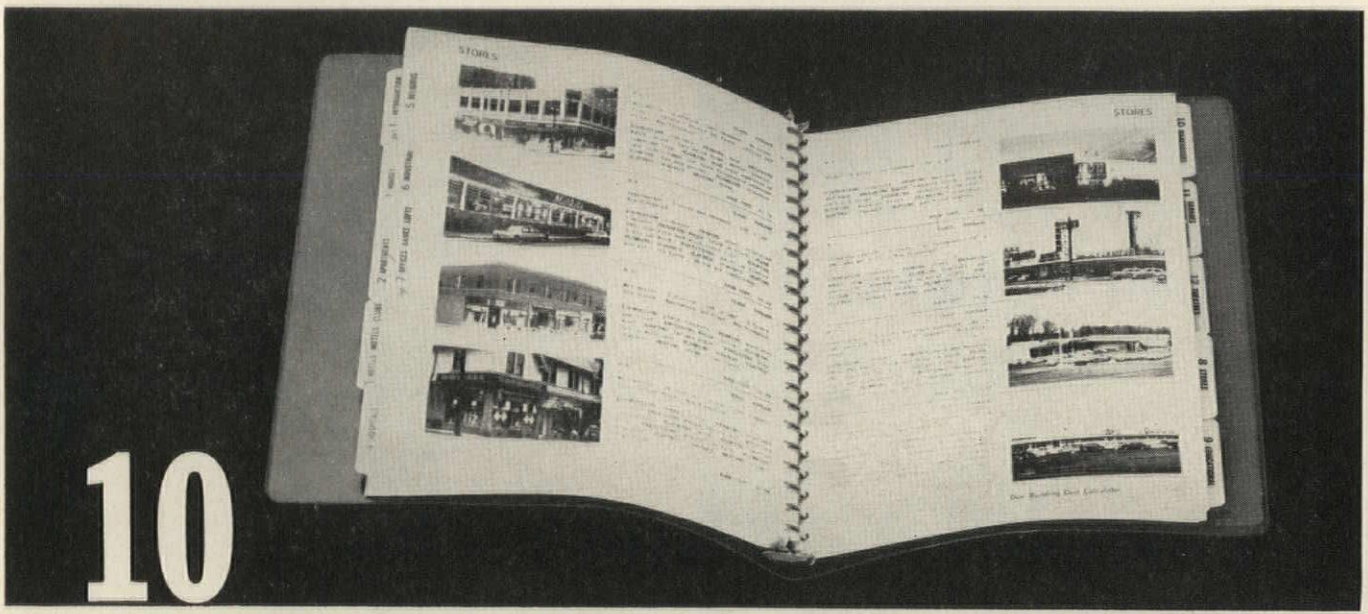
COMPOSITE CONSTRUCTION IN STEEL AND CONCRETE: FOR BRIDGES AND BUILDINGS. *By Ivan M. Viest, R. S. Fountain, R. C. Singleton. McGraw-Hill Book Co., 330 W. 42nd St., New York 36. 192 pp., illus. $7.50.*

TIMBER ENGINEERING DESIGN HANDBOOK. *By R. G. Pearson, N. H. Kloot, J. D. Boyd. Melbourne University Press and Cambridge University Press, 32 E. 57th St., New York 22. 248 pp., illus. $6.*

ELECTRICAL SAFETY. *By H. W. Swann. Philosophical Library, 15 E. 40th St., New York 16. 292 pp., illus. $15.*

ROOFING: ESTIMATING, APPLYING, REPAIRING. *By James McCawley. Shelter Publications, 180 N. Wacker Dr., Chicago 6. 426 pp., illus. $10.*

continued on page 310



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A.I.A. Convention

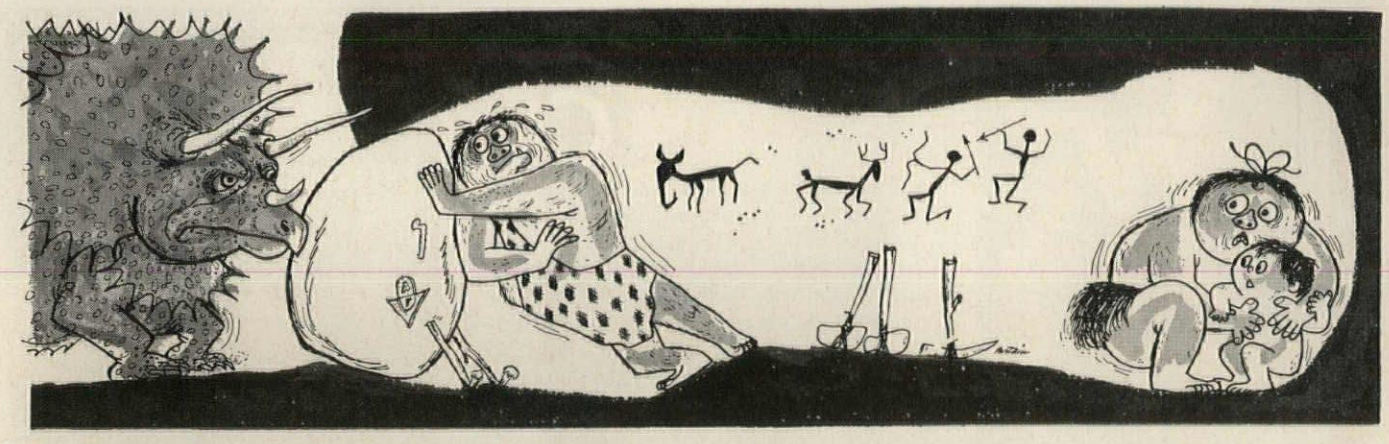
continued from page 10

ing the chance for good work by ordinary men. Such a procedure has four stages: you may rename them, subdivide them or rearrange them, but essentially they are adequate to the design process. These are Interpretation, Ideation, Comprehensive Analysis and finally Dynamic Synthesis."

This Year's Honors

Investiture of new Fellows (AR, May 1959, page 25) and presentation of the Gold Medal, traditionally part of the program of the annual dinner, which was not held this year, took place in a special 6 p.m. ceremony at the Delgado Museum. Other honors, most of them in other years presented at an awards luncheon, were this year presented at one of the business sessions at the Roosevelt. In addition to the Honor Awards for Current Architecture (see May 1959, pages 10-13), and the Gold Medal, awards were given as follows: Fine Arts Medal—Kenneth Hedrich, photographer; Allied Professions Medal—Robert Moses; Edward C. Kemper Award for Service to the Institute—Bradley P. Kidder, A.I.A.; Citation of an Organization—General Services Administration; Citation of Honor—Kansas City Chapter, A.I.A.; Honorary Memberships—Henry R. Luce, R. Buckminster Fuller, Joseph H. Ehlers, and Major General John S. Brasdon. At the same session, the International Association of Blue Print and Allied Industries Achievement Award was presented to the Institute's executive director, Edmund R. Purves, and the R. S. Reynolds Memorial Award (see June 1959, pages 9-10) to Yuncken, Freeman Brothers, Griffiths and Simpson and Barry B. Patten of Melbourne, Australia.

Eight companies received awards for displays in the products exhibit jointly sponsored by the A.I.A. and the Producers' Council. For the effective manner in which their products were displayed: Universal Rundle Corp., New Castle, Pa.; Arcadia Metal Products, Fullerton, Cal.; Timber Structures Inc., Portland, Ore.; and Haws Drinking Faucet Co., Berkeley. For outstanding attractiveness of booth display—Nutone Inc., Cincinnati; American-Oleon Tile Co., Lansdale, Pa.; Rilco Laminated Products Inc., St. Paul; Cupples Products Corp., St. Louis.



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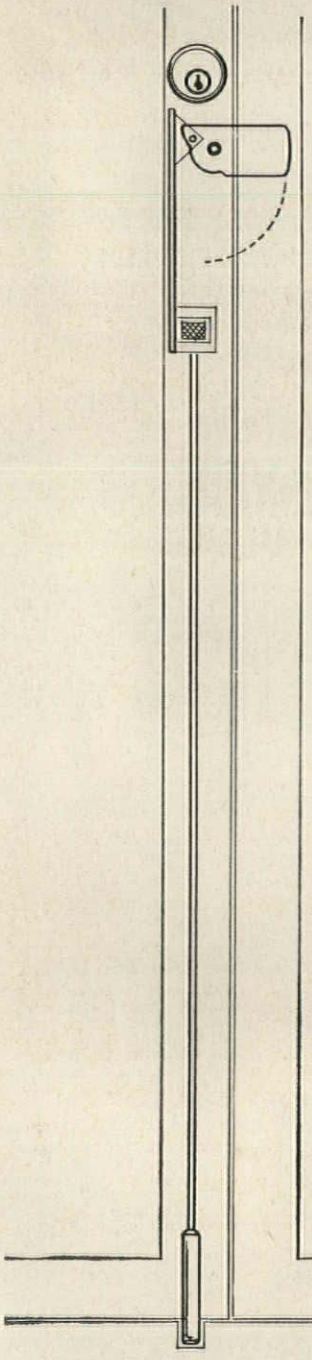

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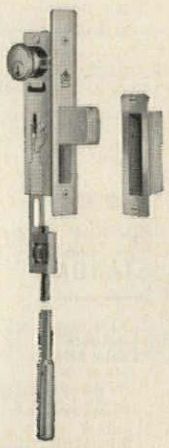

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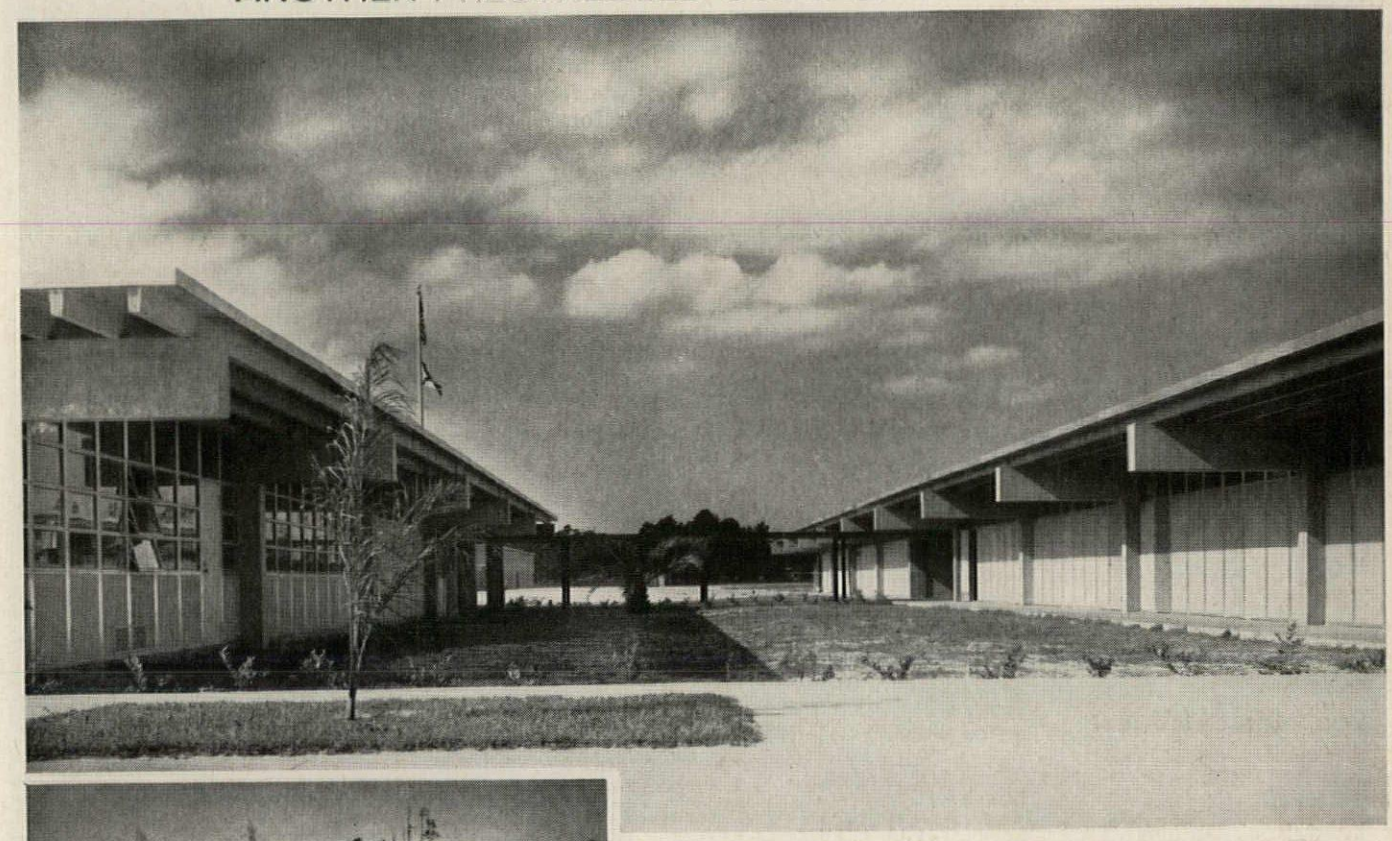

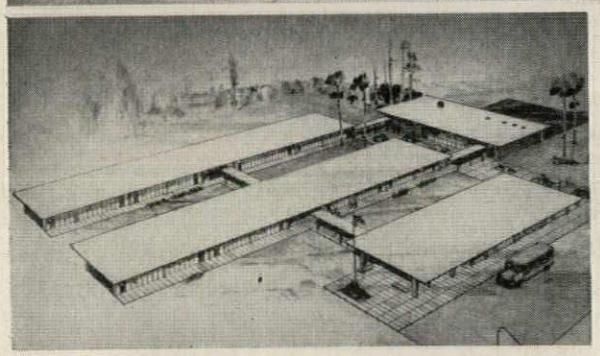

Normandy Elementary School, Jacksonville, Florida. *Architects:* George Ryad Fisher, A.I.A. and Harry E. Burns, Jr., A.I.A. *Contractors for 4 schools:* 1) McMaines Construction Co., Jacksonville. 2) East Coast Construction Co., Jacksonville. 3) Bay Construction Co., Norfolk, Va. 4) Wm. S. Smith Construction Co., Jacksonville. *Prestressed Concrete Fabricator:* Capitol Concrete Co., Prestress Div., Jacksonville.

New Prestressed Concrete Florida Elementary School Wins Design Award

Low completed cost prompts School Board to build 3 additional schools of same design

The greatest single requirement for the Duval County elementary school was economy of construction. In close order came fireproofness and ease and economy of maintenance.

The structure is approximately 35,360 sq ft in area and contains some 39,000 sq ft of prestressed Double T roof slabs. Over-all, the school represents about 300,000 cu ft at the contract price of $297,000; the cost per sq ft being $8.40. That's the cost benefit... there are others.

At the Sarasota regional conference of the American Institute of Architects in 1958, only one school was recognized for an award among various types of buildings from four states. This was the school.

Further, the $8.40 cost per sq ft, together with the fireproof and maintenance-free character of the building, *so pleased the School Board that it has seen fit to build it, with slight modifications, on three additional sites.*

You see how the success of prestressed concrete repeats itself? This local acceptance of prestressed concrete is being duplicated throughout the nation. Not only in schools, but in office buildings, garages, warehouses, motels, bridges, piers, factories and transportation terminals.

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and will convert it into a laboratory to carry out the new program.

Planned on a modest scale for the first year, the research effort will expand as the early results indicate proper direction and scope. N.A.H.B. emphasized that it would not test the relative merits of individual building materials but deal rather with new building methods and assemblies as well as untried combinations.

Just about everything in a house, from the standpoint of structure, will be tested and results analyzed. The Institute feels that as more is known about structural engineering including properties of assembly and construction methods, significant if not substantial savings in cost could be effected.

The home builders' research section is being expanded to take on the new project. Ralph J. Johnson is Institute director.

House Group Hears Review of Military Standards Program

The Department of Defense program of uniform standards and criteria guiding the construction for each of the services was described to Congress by F. S. Bryant, assistant secretary for properties and installations. He summarized the program for members of a House appropriations subcommittee.

Detailed review procedures applicable to all stages of the complex design involved in military hospitals have been developed, he said, in coordination with the Bureau of the Budget. These are being applied in the control of the military hospital program now.

He related several other program accomplishments, among them the standard procedure developed for reviewing projects involving protective construction. This establishes criteria covering the costly elements of this type of work: justifiable level of protection, tolerable damage criteria for personnel and equipment, space utilization, and structural requirements.

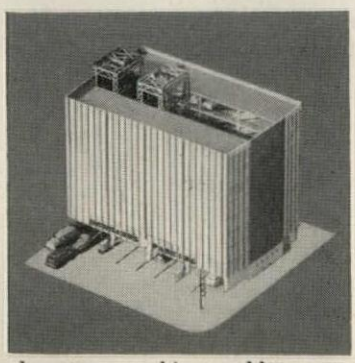
Mr. Bryant told as well of substantial progress he said the office was making in extending uniform practices and effecting economies in construction of airfield pavements. This runs to the design of paving and the selection of pavement types. Bidding practices are being standardized, he noted, to encourage competitive bidding on a greater proportion of airfield pavement areas.

A rather thorough system of site inspection also has been instituted.

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.

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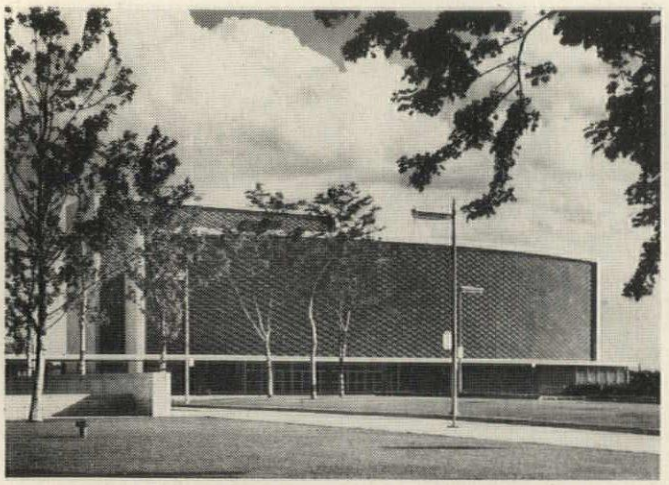

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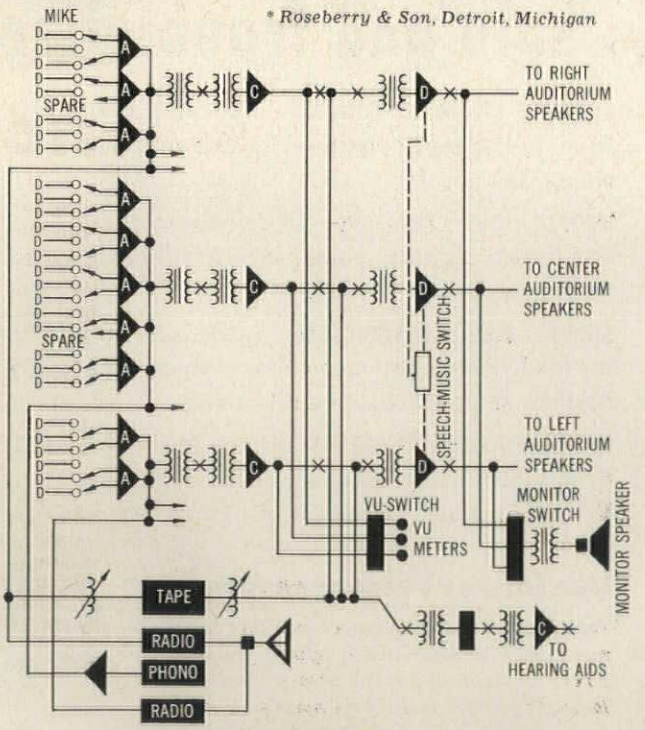
* *Roseberry & Son, Detroit, Michigan*



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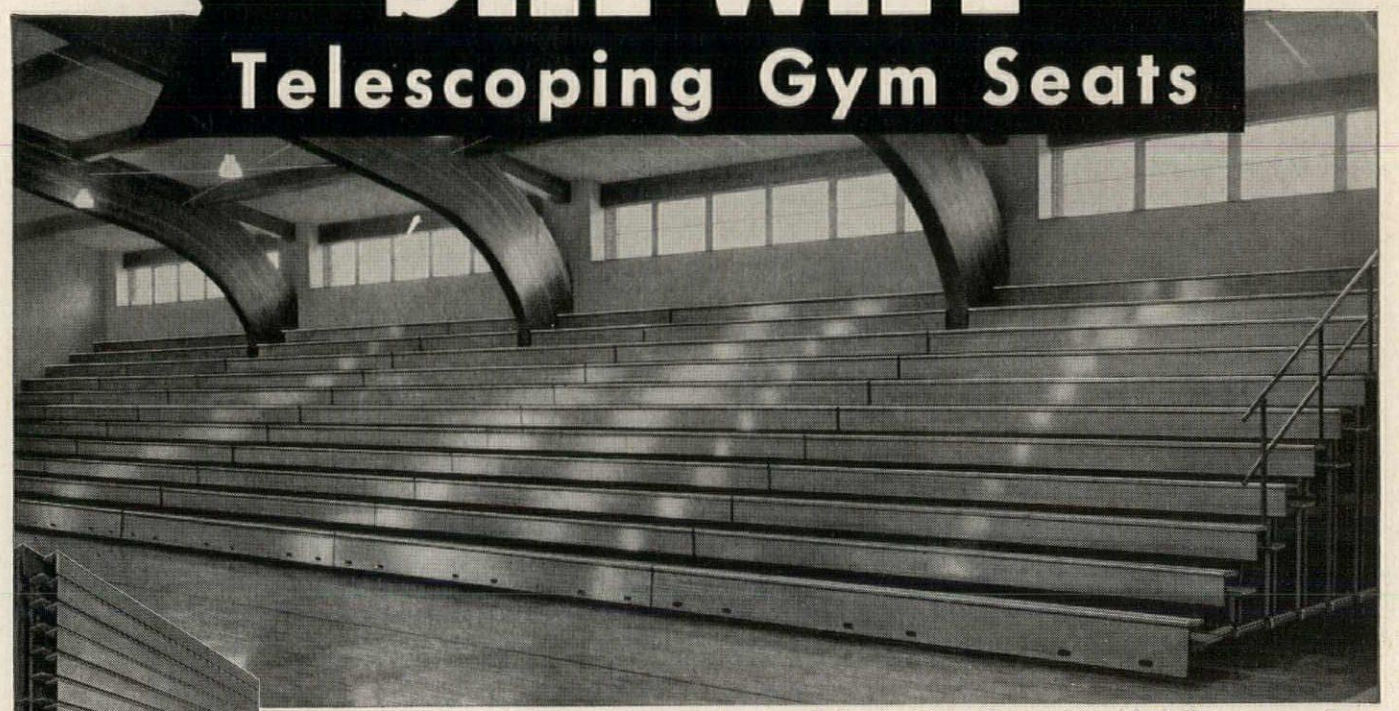
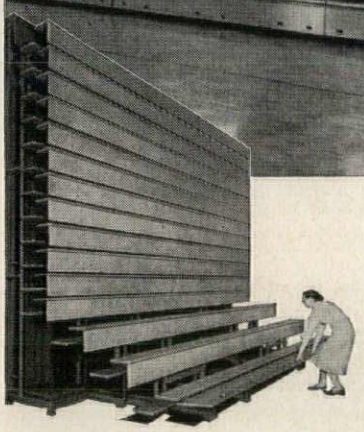


Safway gym seats harmonize with the finest surroundings.



. . . handsome as fine furniture, yet sturdy, safe and trouble-free

YOU'LL really be proud of the appearance of your Safway gym seats . . . proud as you are of the superior vision, comfort and safety they provide for your spectators.

Extended or closed, the all-steel supporting structure is concealed under beautifully finished wood seat boards, foot boards and risers. The handsome natural grain shows through clear varnish, tinted to the rich, warm tone of Golden Oak.

When not in use, Safway gym seats telescope back into a self-contained "cabinet." Riser boards then line up vertically like fine wood panelling to give your gymnasium a clean, finished appearance.

You also benefit through important mechanical advantages built into Safway gym seats:

ALL WOOD IS SPECIALLY FINISHED

Seat, foot and riser boards are laminated Douglas Fir, selected to virtually eliminate cracking or splintering. Boards are carefully sanded and eased on all sides, with corners rounded. There are no sharp projections. Hand holds in the front riser board are smoothly rounded.

For fine appearance and durability, boards are treated with Safway's high quality base sealer and finished in clear Golden Oak varnish. The finish is rich but scuff-resistant . . . lustrous but not slippery . . . easy to keep clean. It will harmonize with the finest surroundings.

COMPLETE SPECTATOR COMFORT — Excellent sight lines from every seat. Extra-wide seat and foot boards; ample foot and leg room.

SMOOTH, EASY OPERATION—Safway telescoping principle eliminates binding, minimizes friction. No costly power equipment needed.

STRONG, RIGID CONSTRUCTION—Steel, not wood, carries the load. 8 steel columns under each section row, with horizontal and vertical steel bracing.

SIMPLE, EFFICIENT DESIGN—3 automatic locking devices; 8 self-lubricating wheels under each section row. Extra-long wheel carriages. Minimum of moving parts.

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phase from $61.1 million to $38.5 million. Another of the proposals defeated in the Senate would have reduced Federal grants in the Hill-Burton hospital construction program from $211.2 million to $101.2 million; and a third would have dropped the Federal grants for construction of water and sewage treatment plants from $45 million to $20 million. The Senators went a step farther than the House on Hill-Burton appropriations, increasing the 1960 allotments from the $143.7 million House-approved figure to $211.2 million after an explanation of the "compelling need" for more hospital construction voiced by Sen. Lister Hill (D-Ala.). He said the larger amount, already authorized under the hospital construction act, would provide for the construction of some 30,550 hospital and nursing home beds.

This appropriations measure, as it went to conference, also contained $30 million for the building of health research facilities.

TECO Plans to Close Lab After 16 Years of Operation

The Timber Engineering Company, research affiliate of the National Lumber Manufacturers Association, announced it would close its Washington, D. C., testing laboratory this fall after present contracts had expired. For 16 years the laboratory operation has offered commercial testing on an exclusive basis to clients whose contract payments carried expenses of the enterprise for much of the time.

It has been decided, however, that findings from the laboratory's work, being on an exclusive basis for clients, have not been given sufficiently wide distribution in the industry.

New thinking in research and wood promotion activities is part of a 10-year program now being considered by lumber interests. N.L.M.A. said that changes in the research market had become increasingly apparent in the last several years.

Only the Washington phase of the laboratory will be discontinued, TECO efforts being directed to "other phases of technical work."

William H. Scheick, vice president of the company, continues in charge of technical activities and will be responsible for reorienting the research program. He said last month it had not been decided what direction this reorientation would take.

TECO's engineering and products sales activities definitely will be continued under Ralph H. Gloss, vice president, the announcement stated.

N.L.M.A.'s annual meeting in Washington in November will assess the move and receive new recommendations on research as part of the industry's 10-year future plans.

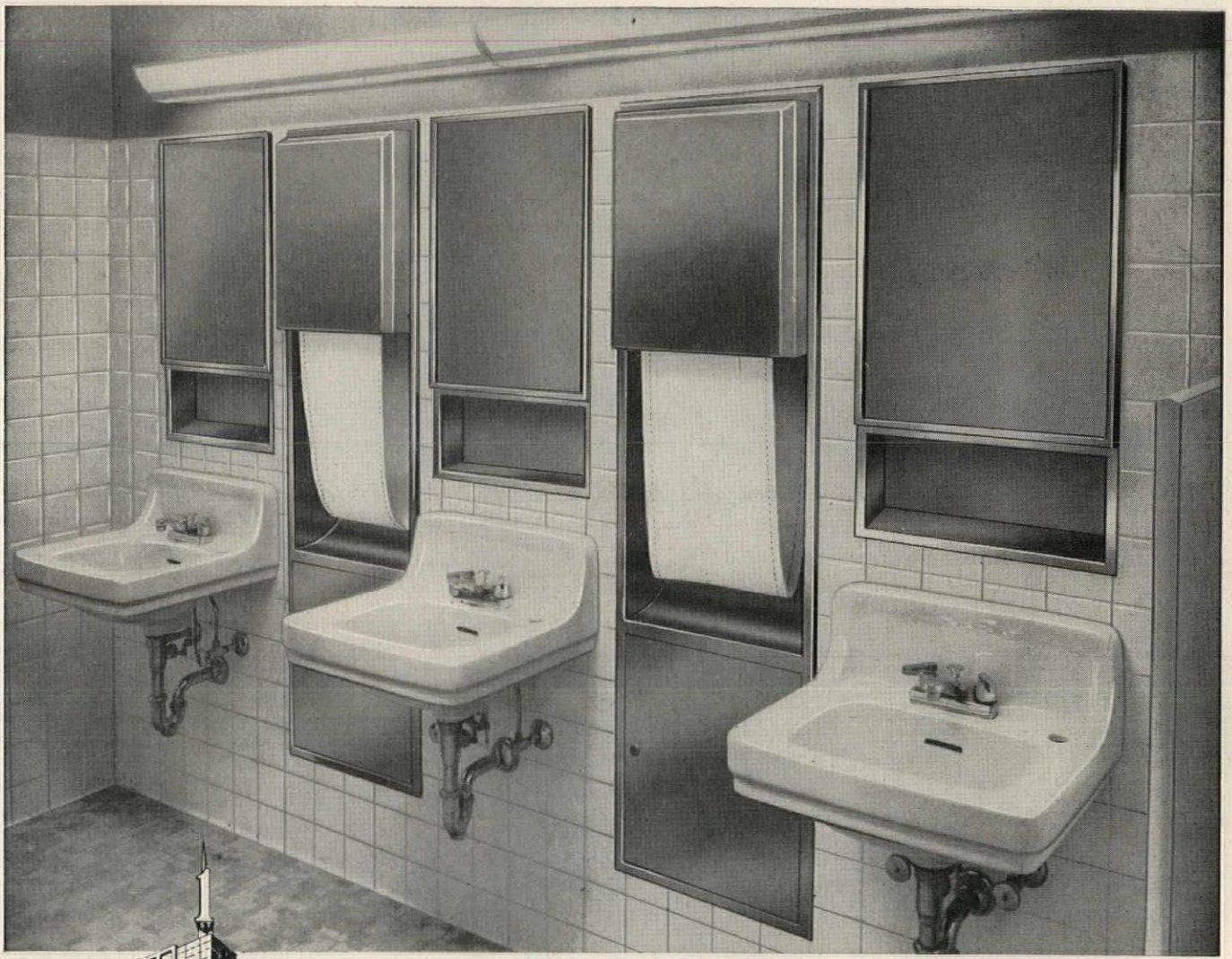
Mortimore B. Doyle, TECO president and board chairman, and executive secretary of the lumber manufacturers' group, noted that the thinking of the lumber producer had undergone radical changes over recent years. There is a new conviction, he said, that research must be directed toward new and better uses of wood and away from the concept of basic experimentation.

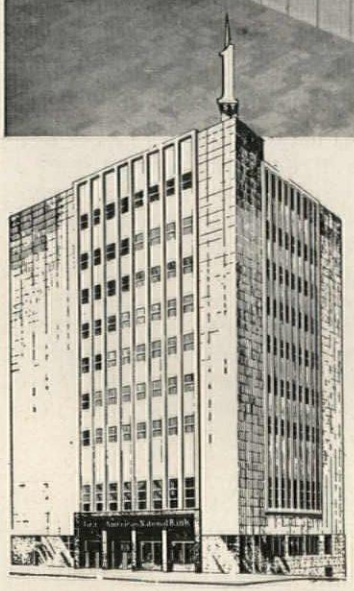
New Effort in Research Launched by N.A.H.B.

The National Association of Home Builders' Research Institute has launched a new program it says is designed to meet an unfilled need for research and testing of methods and assembly in residential construction. The N.A.H.B. contracted to lease a building in Washington

continued on page 298

functional beauty and "linen" luxury with Continuous Cotton Towels





← New First American National Bank Building, Duluth, Minn. Architect Thomas J. Shefchik, A.I.A., Duluth. Contractor: Fowler-Veranth Construction Company and Klippen-Holm Company, Duluth.

↑ Recessed continuous towel cabinets with base storage units. End clutter of waste receptacles. Integrate with the modern design of the wash room. (This installation serviced by: American Linen Supply Company, Duluth.)

You provide the finest in hand drying facilities AND MORE when you specify continuous towel cabinets.

Low cost installation and service by a linen supplier . . . Reduced maintenance and janitorial costs . . . Elimination of litter, storage and disposal problems . . . Limits fire hazard and plumbing repairs.

Add to this, the fact that you do not obligate the owner to any particular service, *even* when you specify recessed cabinets like the ones pictured above. (Recesses are designed to accept any of a wide variety of cabinets.)

So, why not make sure your clients get the best? Specify the luxury and quality of cotton toweling . . . include continuous towel cabinets in your design.

✶ Send for this free Planning-for-Cloth kit

Illustrated, includes specifications for recessed unit and continuous cloth towel cabinets. ***Write****—to Linen Supply Association on your letterhead.*

Linen Supply Association of America
and National Cotton Council • 22 West Monroe Street, Chicago, Ill.

ENGINEERED!

for weeks-faster warehouse construction!
for less overall cost per square foot!
for labor-saving efficiency!

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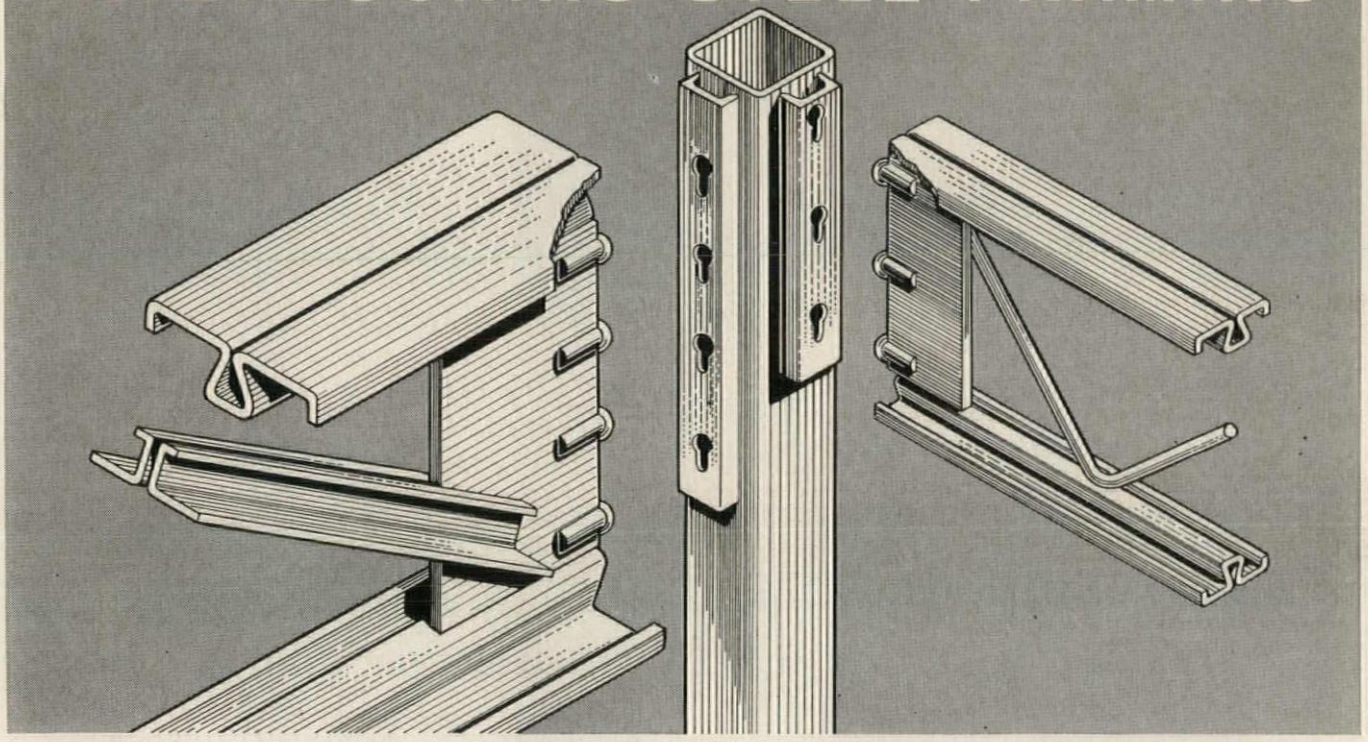
INTERLOCKING STEEL FRAMING



Meets all requirements of warehouse designers, builders, owners

Macomber standardized framing plans save time and steel. Macomber one-source supply keys to your structural schedule. Macomber engineered flexibility adapts to design variables, collateral materials and future expansion. Rigid V-LOK connections permit frame erection, ready for decking and interior finishing, weeks ahead of ordinary methods. Lower your next warehouse investment with V-LOK.

For the complete, money-saving V-LOK story . . . SEND FOR MANUAL

MACOMBER

CANTON 1, OHIO

joint group under the two organizations. This body was headed by Dr. Virgil M. Hancher, president of the State University of Iowa at Iowa City; but on July 4 he was succeeded by Benjamin C. Willis, general superintendent of schools for Chicago.

The report was particularly pointed in its reference to education's competitive position with Federal aid programs that offer states lucrative benefits, especially the highway program.

A state dollar allotted to the general support of schools brings no added benefit from outside, it noted. But the same dollar, if spent on the interstate system of highways, will bring nine Federal dollars for every state dollar. This, said the Commission, is an effective way to promote highway construction, but it places the schools at a serious disadvantage in the competition for state funds.

The report saw no hope of reversing the Federal advantage in an expanding economy. In a quarter of a century of generally rising net national product, it pointed out, the Federal government has outrun state and local governments by more than an eleven-to-one ratio in achieving new revenue from new product. On this point, the Commission said the trend is unlikely to be reversed as long as the economy continues to expand, for the performance of the Federal government as a tax-collecting agency has merely reflected the inherent superiority of its position.

Three possibilities were outlined with comments on each:

1. Continuation of the present condition with school finance based at local and state levels which now supply around 96 per cent of public school funds. Report comment: "(This) choice cannot be accepted as sound public policy. The national interest requires that the public schools achieve ever higher quality in the face of grave national problems."

2. Drastic reform of the tax structure at all levels so as to permit a massive increase in the state and local share of total governmental revenues. Comment: ". . . Difficult and perhaps impossible to achieve, and there is little probability of its being pursued with sufficient vigor to meet needs."

3. A transfer to the Federal government of responsibility for a significant share of the support of the public schools. Comment: "In view of the importance of education to the future of the nation and the difficult situation in which the schools find themselves, there is compelling reason for considering the third choice."

The Commission's estimates are based on actual expenditures in the last school year and take no account of mounting school enrollments or of current shortages of classrooms and other facilities.

Congress Resists Proposed Cuts In School and Hospital Aid

Congress held fast last month against attempts to cut drastically the program of Federal aid for school districts located in Federally impacted areas, those locations where an influx of military or civilian government workers had placed an unusually heavy drain on operations and physical facilities.

The $4 billion fiscal 1960 appropriations measure for the Department of Health, Education, and Welfare went to a conference committee after the Senate had turned down a number of proposed amendments (offered by Minority Leader Dirksen, R-Ill.) one of which would have trimmed the school construction

continued on page 294

The Sightron is an important feature in this classroom.

LIGHTOLIER uses diffuser of EVENGLO® polystyrene to spread glare-filtered light evenly in all directions

Lightolier's handsome fixture, the Sightron, combines simplicity of design with glare-free illumination. It is designed to complement the architectural values of contemporary interiors. Lightolier uses EVENGLO in a variety of commercial applications. The Sightron is but one example!

Long an acknowledged leader in the field of fluorescent lighting fixtures, Lightolier specifies EVENGLO polystyrene because it can be molded or extruded into practically any size, shape or color. Moreover, EVENGLO polystyrene aids in the reduction of direct or reflected glare; permits uniform diffusion without shadows, and has 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-89, Pittsburgh 19, Pennsylvania.

Offices in Principal Cities • In Canada: Dominion Anilines and Chemicals Ltd., Toronto, Ontario

KOPPERS PLASTICS

KOPPERS

Contractor: Knowlton Construction Co. • Architect: L. F. Karlsberger • Associate Architects: McClellan and Gallogly

This new hospital will capture the sun

. . . and it features Architectural Metals by North American

A 400-bed hospital, designed in the shape of a cross to bring sunshine into every patient room at some time during the day, is now under construction in downtown Columbus, Ohio.

North American Aviation—the fast-rising name in architectural metals—is fabricating and erecting the curtain walls which will add lasting beauty to the Grant Hospital's functional design.

About 34,000 square feet of North American aluminum curtain wall will be used to sheathe the exterior. The curtain wall portion will consist of aluminum extruded mullions combined with aluminum windows and insulated porcelain panels fabricated to the mullions.

This nine-story Ohio hospital is one of the many new "landmark" buildings featuring North American Curtain Wall. Others include the 18-story America Fore Loyalty Insurance Group building, in Brooklyn, N.Y., the $10-million United Air Lines terminal building at New York International Airport, and the new College of Arts and Sciences building at Ohio State University.

Whether it's a simple one-story structure or a towering skyscraper, North American Architectural Metals give the architect full esthetic freedom of design...and give the owner a modern structure that is economical, easy to erect, and enduring. For complete information about North American's design and engineering service, please write to: Architectural Metals Division, North American Aviation, Inc., Columbus 16, Ohio.

ARCHITECTURAL METALS

THE COLUMBUS DIVISION OF NORTH AMERICAN AVIATION, INC.

Columbus, Ohio

Congress-White House argument were of special interest to architects because of the city redevelopment involved. The veto message termed excessive the bill's attempt to authorize $900 million for urban renewal purposes in two years. The President said he was willing to have urban renewal grant authorization replenished but wanted the local share of cost increased.

On two other counts, the President was specific in expressing his disapproval—housing the aged and college loans. His message stated, "A new program of direct Federal lending is authorized for elderly persons when needs in this area can be adequately met by private funds invested under the protection of Federal insurance. The college housing loan program would be continued with increased authorizations at interest rates below the cost of money to the Treasury and a new program for college classrooms and related academic facilities at the same subsidy interest rates would be started."

President Eisenhower held the bill to be inflationary, extravagant, excessive and substituting Federal spending for private investment.

He told Congress he wanted:

1. Extension of the FHA authority for insuring loans with the removal of any dollar amount. This was almost exhausted at mid-year.
2. Extension at least through the 1960 fiscal year of FHA authority to insure Title I home improvement loans. This expires September 30.
3. Extension for another year of the FHA program for insuring loans on Capehart military housing which expired June 30.
4. Continuation of the voluntary home mortgage credit program which was to expire July 31.
5. New authorizations for urban renewal grants, the local share of cost to be increased, and continuation of the college housing loan program on somewhat the same basis as heretofore.
6. An increase in the statutory interest rate ceilings governing mortgages insured under FHA's regular rental housing and cooperative housing programs.

Legislation along these lines, his message said, would help to make private housing funds available for investment in housing and related construction, would promote effective use of state and local resources in housing and urban renewal activities, and would allow the Federal government to play its role "in a truly constructive and non-inflationary manner."

Expanded U. S. Aid to Schools Asked in New Report

The National Education Association and the American Association of School Administrators have issued another report urging greatly expanded Federal assistance in the field of public school education.

The traditional expectation that each state can and will adequately finance its own system of education is no longer realistic, this report argues, asserting that the expanded community, the mobility of the population, the economic interdependence of the states, all make necessary a fundamental change in the concept that every state should shoulder alone the financing of its schools.

The N.E.A. and A.A.S.A. placed at $8 billion the annual need for catching up in a good educational program in this country. The 1958-1959 actual expenditure was around $10 billion for all public school educational purposes, it was said.

The report is the product of the Educational Policies Commission, a

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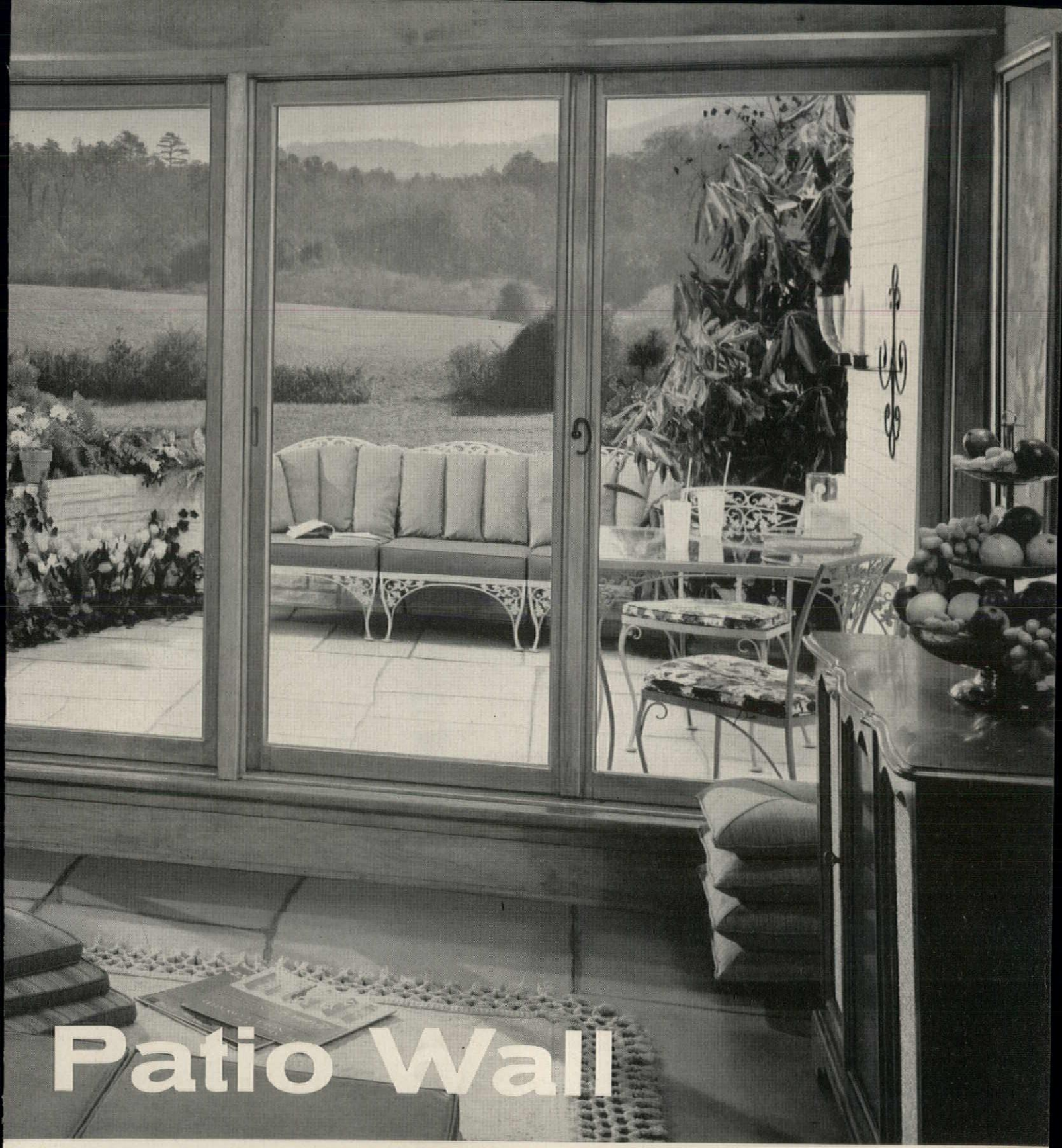

● **Baseboard convenience!** You can detail heating and electrical outlets under windows. Baseboard also protects against rain or piled up snow. Gives floor level insulation and comfort. Eliminates floor level breakage of glass.

● **Natural beauty!** Fashioned in wood, new Andersen Patio Wall adds character, depth of shadow line . . . natural warmth and beauty instead of a blank metal look. Sash and frames can be easily painted or stained to blend perfectly with interior. They can't rust, pit, corrode. Andersen Penta-treating protects permanently against rot, termites, decay.

For complete information on New Andersen Patio Wall see your Sweet's File, phone your lumber and millwork dealer, or write for Detail Catalog or Tracing Detail File to: Andersen Corporation, Bayport, Minnesota.

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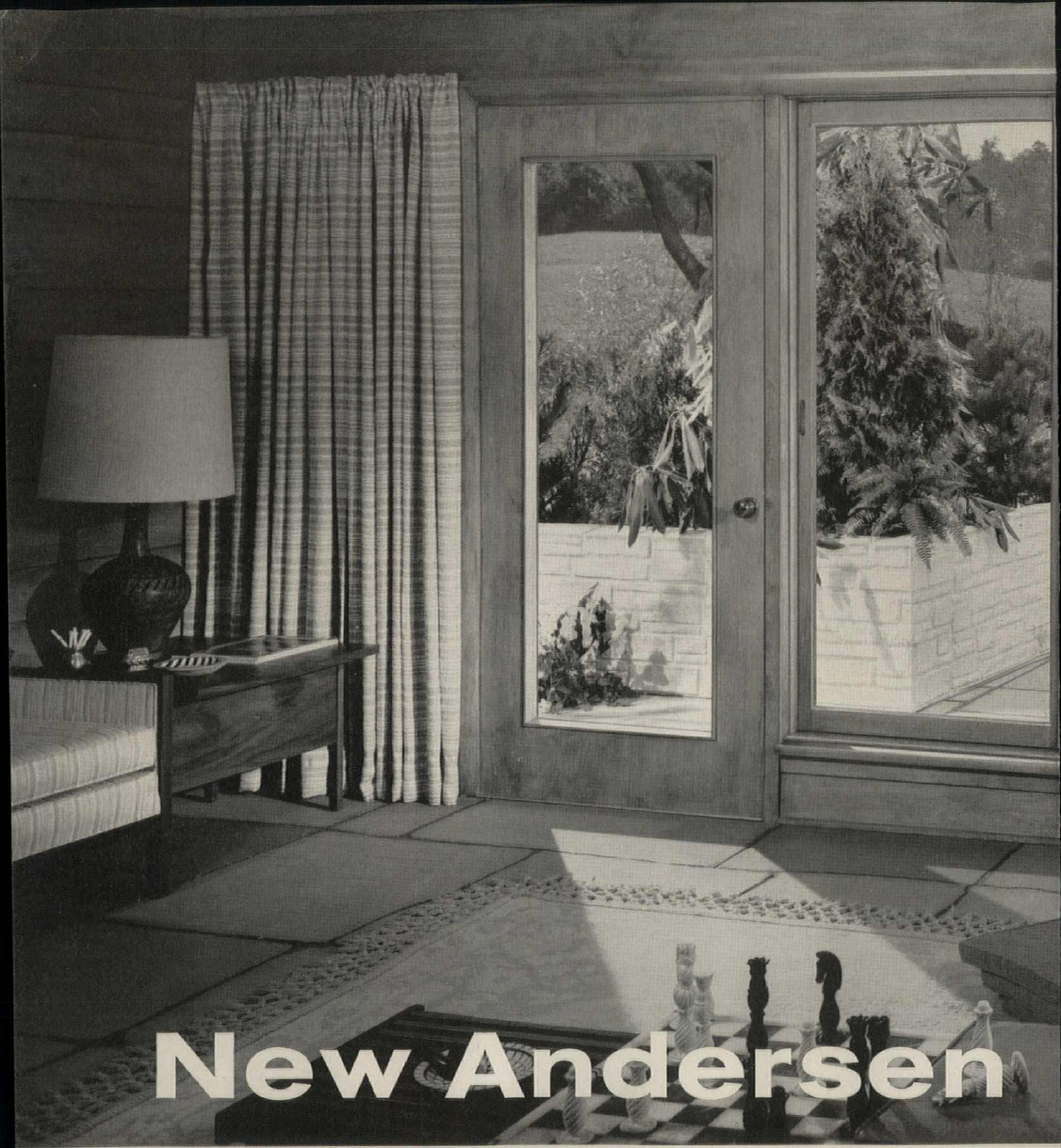
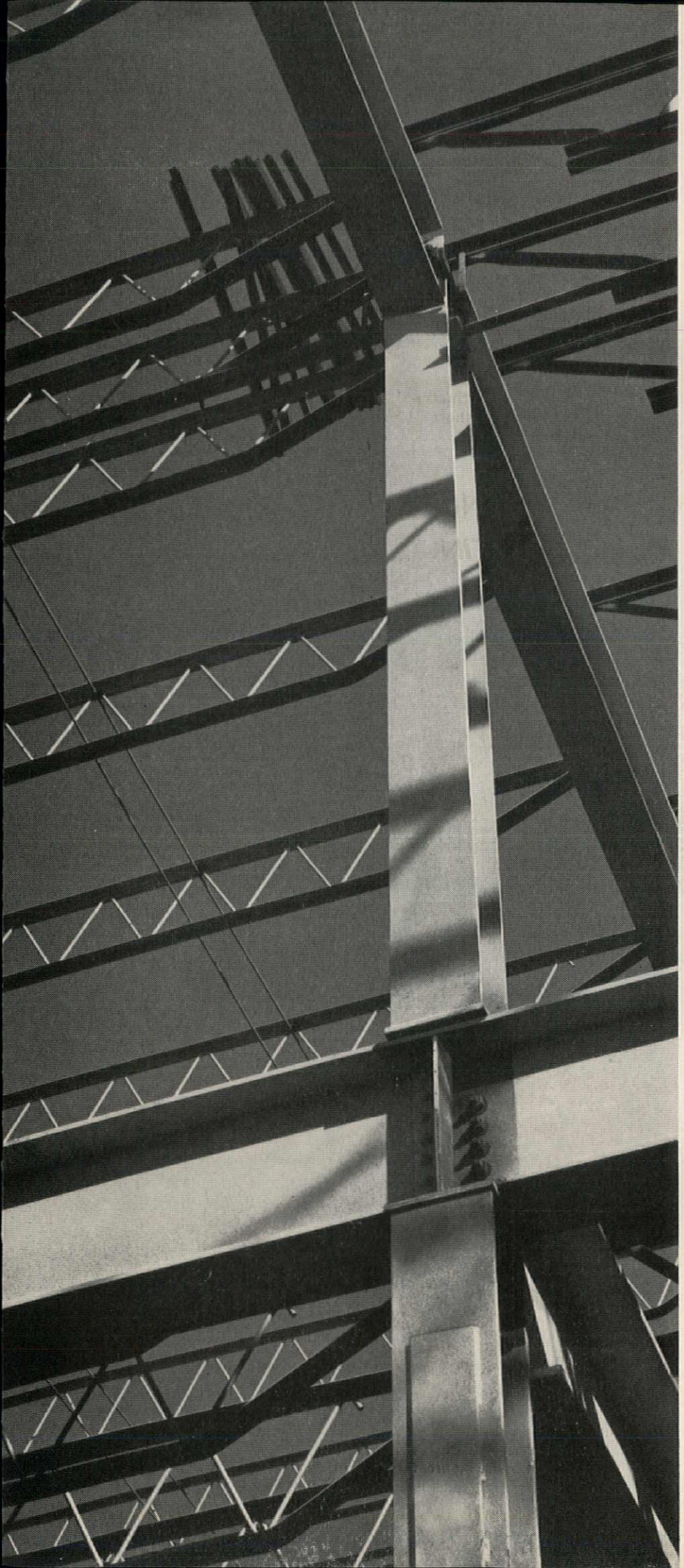


Adds striking natural beauty; more trouble-free, weathertight than metal sliding door units

Here's a wonderful, new WINDOWALL. The new Andersen Patio Wall consists of two handsome Andersen Gliding Windows plus matching door. It provides the ultimate in indoor-outdoor living. It simplifies and solves many fenestration problems. It costs *less* than metal sliding doors of acceptable quality.

• Trouble-free, weathertight! Andersen up-off-the-floor design and use of wood, plastics, steel and aluminum where each is best assures lifetime, trouble-free operation. Andersen Gliders open easily, close in the same plane. Lock pressure-tight to seal out drafts, rain, dirt, dust. Wood sash and frames provide natural insulation of wood—up to 1800 times more effective than metal sash and frames in stopping conduction of heat, cold.

• Hinged—not sliding—door! Practical. Convenient. No floor level tracks to become damaged or collect dirt and water. Safer, more secure, less breakage with no glass at floor line. Added protection against infiltration of rain, dust.



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and they are light . . .

so they're easy to install

. . . and they're strong!

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USS AmBridge Steel Joists—standard and longspan—provide strong, lightweight and economical construction suitable for most any type of floor, roof and ceiling. Their underslung, open-web design provides for maximum headroom and accommodates the passage of pipes, ducts and conduits in any direction. Their ease and simplicity of erection cuts installation time. And once erected and bridged, they immediately furnish a safe working platform for other trades.

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Art and Architecture Festival Attracts New Haven Public

The citizens of New Haven, Connecticut, staged their second annual Festival of Arts, June 23-29, on the New Haven Green.

The Festival, organized, planned, and executed by enthusiastic merchants, professionals, executives, and laborers under the direction of Emerson L. Munson, general chairman, and Edgar Tullock, executive director, was open to all artists of Connecticut.

There were ten tents, one Fuller Geodesic Dome, and one band shell to house exhibitions of architects, painters, teen-age artists, sculptors, authors, and photographers, as well as an exhibition of vanishing New Haven architecture.

The "Connecticut Architecture Since 1948" exhibition epitomized the spirit of the Festival of Arts. Local architects thought a geodesic dome more fitting than a tent to house the architecture show. Synergetics, Inc., of Raleigh, N. C., supplied the dome. A New Haven trucking company with a route passing near Raleigh delivered it to the Green where the architects with the aid of equipment and volunteers from the local telephone company erected it.

A jury of three—Serge I. Chermayeff, professor of architecture at Harvard, Charles Magruder, managing editor, *Progressive Architecture*, and Henry-Russell Hitchcock, chairman of the department of art at Smith—selected the following for the exhibition:

Breuer House, *Marcel Breuer, architect*, New Canaan, Conn.; Landis Gores Residence, *Landis Gores, architect*, New Canaan, Conn.; The New Foote School, *Carleton Granbery and Perkins and Will, architects*, New Haven, Conn.; First Presbyterian Church, *Harrison & Abramovitz, architects*, Stamford, Conn.; Warner House, *John Johansen, architect*, New Canaan, Conn.; Schlumberger Administration Building, *Philip C. Johnson, architect*, Ridgefield, Conn.

Also Johnson House, *Philip C. Johnson*, architect, New Canaan, Conn.; Boissonnas House, *Philip C. Johnson*, architect, New Canaan; New Preston Elementary School, *Nichols & Butterfield, architects*, New Preston, Conn.; Noyes House, *Eliot Noyes, architect*, New Canaan, Conn.; Art Gallery and Design Center, *Douglas Orr-Louis I. Kahn, associated architects*, Yale University, New Haven, Conn.; William B. Greeley Memorial Laboratory for the School of Forestry, *Paul Rudolph, architect*, Yale University, New Haven, Conn.; David S. Ingalls Hockey Rink, *Eero Saarinen and Associates-Douglas Orr, associated architects*, Yale University, New Haven, Conn.; Office Building, *Sherwood, Mills & Smith, architects*, Mutual Insurance Co., Hartford, Conn.; Office Building, *Skidmore, Owings & Merrill, architects*, Conn. General Life Insurance Co., Bloomfield; Foss Hill Dormitories, *Charles H. Warner, Jr.-Brown, Lawford & Forbes, associated architects*, Wesleyan University, Middletown, Conn.; Reyward House, *Frank Lloyd Wright, architect*, New Canaan, Conn.

The jury awarded the 1959 Award Certificate for Architectural Design to Philip C. Johnson for the Schlumberger Administration Building.

For many of the 75,000 spectators this was the first introduction to contemporary architecture. The majority took an enthusiastic and intelligent view of both the "Connecticut Architecture Since 1948" exhibition and the exhibition of "vanishing architecture," a superb display of architectural monuments New Haven has already lost and some others the art historians consider worth preserving. —*Marjorie Blake Noyes*

more news on page 286

pletely satisfied," says John D. Grigg, President. "Our 25-ton gas unit produces 10,000 cubic feet of cool air per minute. And you can't beat it for economy. It requires practically no maintenance. Since it uses the same boiler, it makes use of our heating facilities on a year-'round savings basis."

Gas absorptive cooling can put your heating plant on a year-'round economical basis too. For specific information, call your local gas company, or write to the Arkla Air Conditioning Corporation, General Sales Office, 812 Main Street, Little Rock, Ark. *American Gas Association.*

GAS OPERATED ARKLA-SERVEL
ABSORPTION-TYPE WATER CHILLER

- lowest operating costs
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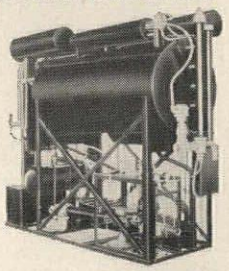
- long dependable service
- packaged construction
- compact size
- easy installation



Now we're cooling with **GAS**

A 22-foot wall of sheer glass... yet it's always cool inside! – thanks to **GAS**-operated Arkla-Servel air conditioning

The strikingly modern Hillside Church is one of four completely air-conditioned buildings in Rose Hills, Southern California's beautiful memorial park. Because of the liberal use of glass walls, and the desire for one central system, the air conditioning installation presented unique problems.

After a careful study, the Arkla-Servel gas absorptive cooling system was chosen. "And we're com-

Neoprene sealed curtain walls can keep even a hurricane out of new IBM Building!

Moynahan Bronze Co., which supplied the curtain walls for IBM's Detroit office, takes every possible precaution to design weather *out* of its buildings. But that's not enough for this leader in curtain wall construction. At Moynahan, they test their curtain walls too — under the most difficult possible conditions.

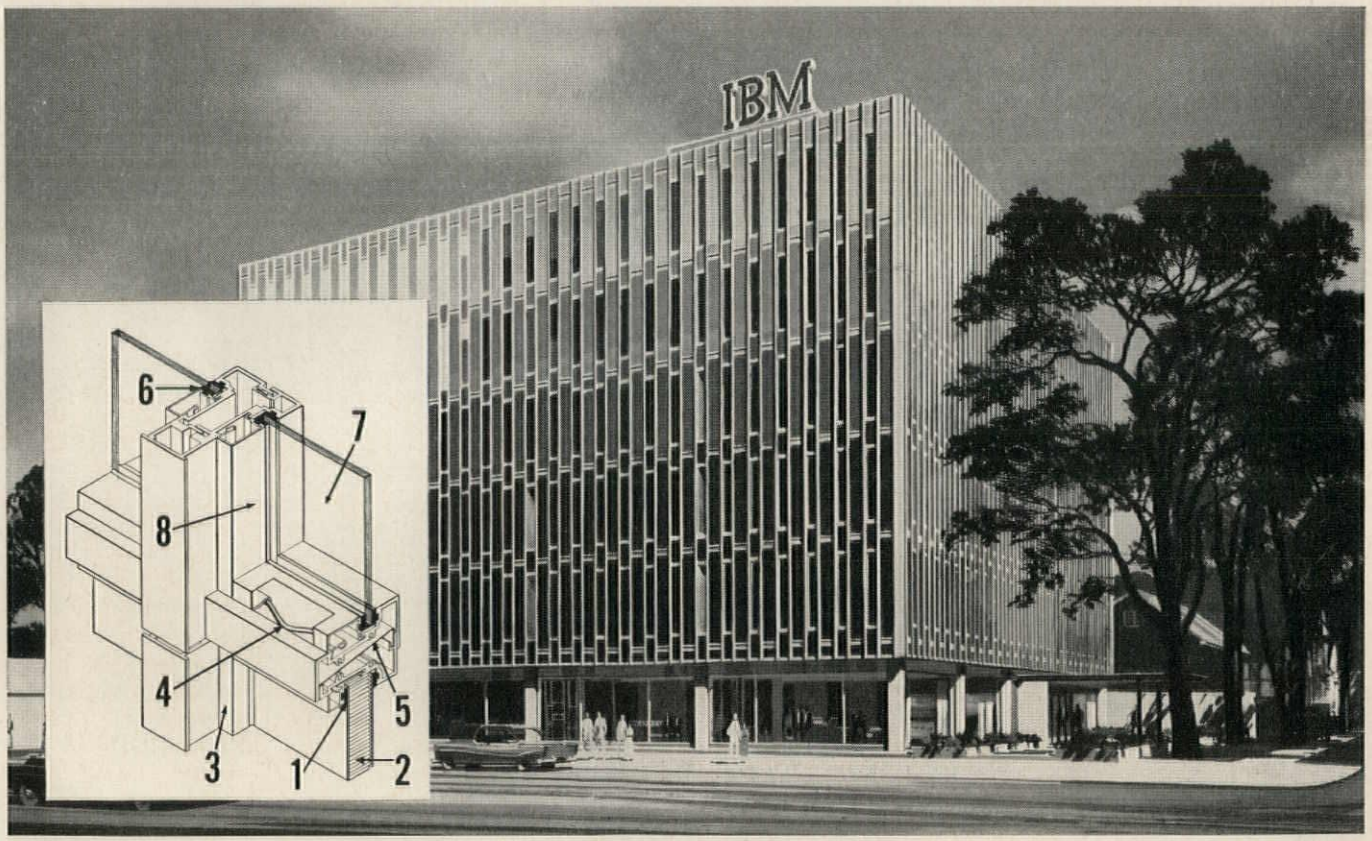
They actually check their designs by subjecting sample curtain walls to water-laden winds of much more than hurricane force (130 miles per hour). Their product has passed every test.

Neoprene compression seals are responsible for much of the weather-tightness characteristics of Moynahan designs. Neoprene has an outstanding combination of properties that resist the service conditions that cause other sealing materials to lose a weather-tight seal. Properly compounded neoprene will not stiffen at –40° F., will not soften at 200° F. It resists compression set and doesn't crack when exposed to sunlight, ozone and chemicals, such as those used to clean windows.

Neoprene's weatherability has been proven for over 20 years in many installations throughout industry. Life predictions for properly designed, quality neoprene gaskets are up to 50 years, if not longer.

Neoprene gaskets are easy to install in any weather—save up to 50% on installed cost of panel seals compared to other preformed sealing materials. Specify neoprene seals in *your* curtain walls. For more information on neoprene gaskets, write for a list of suppliers, or ask for our booklet, "Neoprene Gaskets for Curtain Walls." E. I. du Pont de Nemours & Co. (Inc.), Elastomer Chemicals Dept. AR-8, Wilmington 98, Delaware.

1. Neoprene Panel Gasket **2.** Paper Honeycomb with Perlite Filling **3.** Spring Actuated Panel Stop **4.** Stainless Steel Spring
5. .020 Continuous Aluminum Flashing **6.** Neoprene Glass Gasket **7.** Plate Glass **8.** Spring Actuated Glass Stop



GET MORE FACTS ABOUT NEOPRENE—Visit Du Pont Booth No. 35 at the AIA Show

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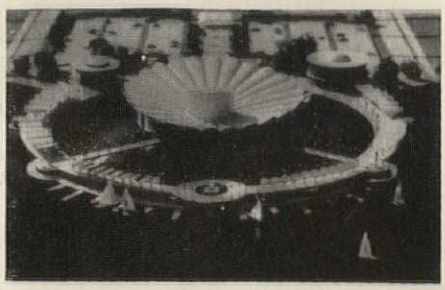

Canada's Pilkington Award Goes to Jazz Center

Winner of the latest annual Pilkington Glass Traveling Scholarship was Gene Kinoshita, a graduate of the University of British Columbia, for this proposed Jazz Center for Vancouver. The Canadian award, sponsored by Pilkington Glass, Ltd., provides as a first prize $2500 plus partial expenses for travel and research in Britain and Europe.

In the Jazz Center, shown in model form, Mr. Kinoshita says he was trying to create the proper environment for jazz and bring it up to a cultural level it has never before achieved. The center would have two auditoriums, one above and one below water, in the central building and a third auditorium on the circular promenade. Cocktail and dining lounges and seafood restaurants would also be on the promenade. The main auditorium would seat 1000, the others, 300 each. The circular buildings at left and right front would provide facilities for administration and the teaching of jazz music. The jury described the center as a "mammoth undertaking, well presented," and added that "this building would be a wonderful acquisition for the city of Vancouver."

The jury members, composed of architects nominated by the five Canadian architectural schools and a chairman representing the Pilkington company, were: Peter Tillman, chairman; R. Cripps, McGill University; P. O. Trepanier, L'Ecole des Beaux Arts; F. Nobbs, University of Toronto; L. E. Shore, University of Manitoba; D. Horne, University of British Columbia.

Donald Matsuba, University of British Columbia, won second prize for a civic library for Edmonton. Nobuo Kubota, University of Toronto, won third prize for a Buddhist temple for Toronto.

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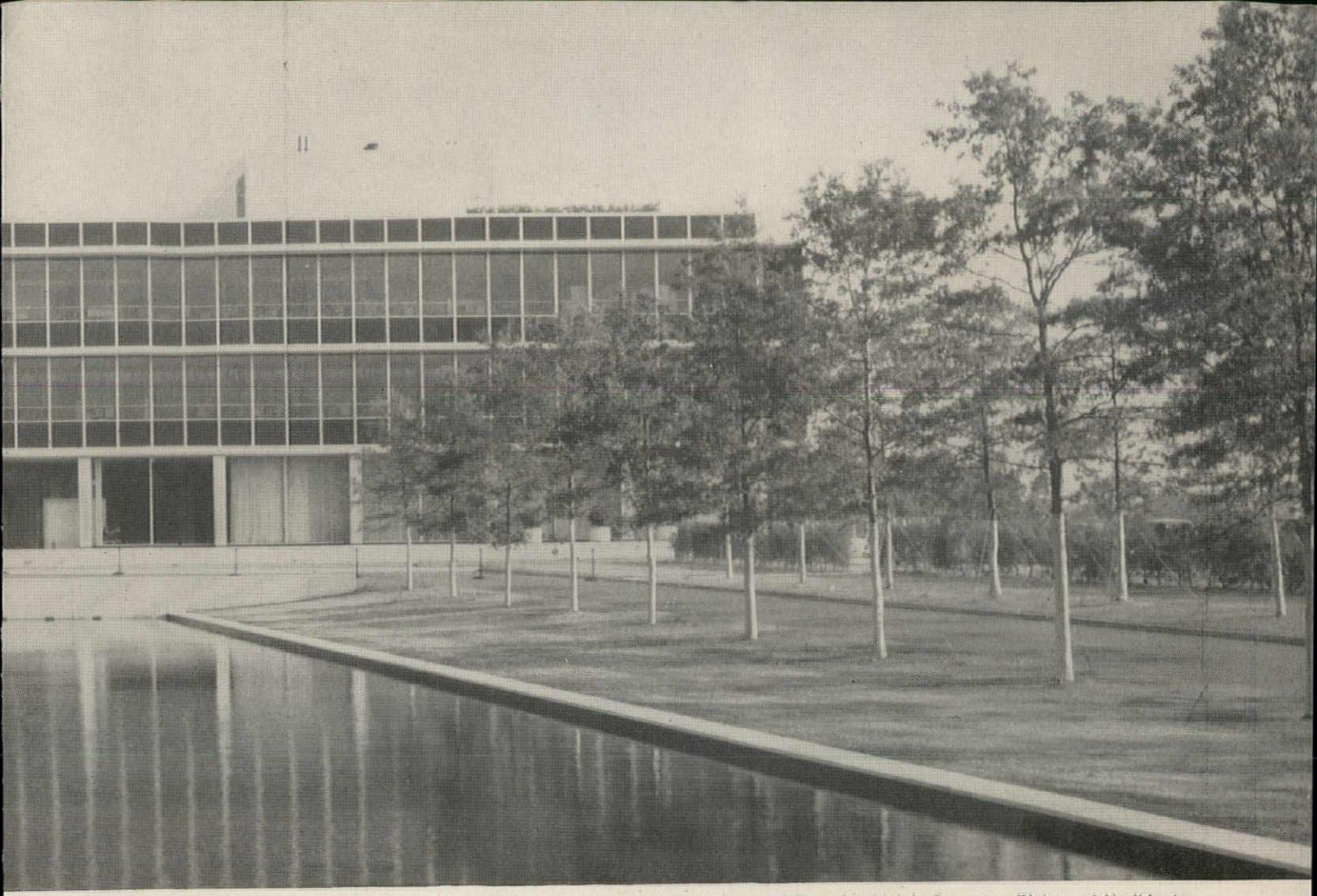


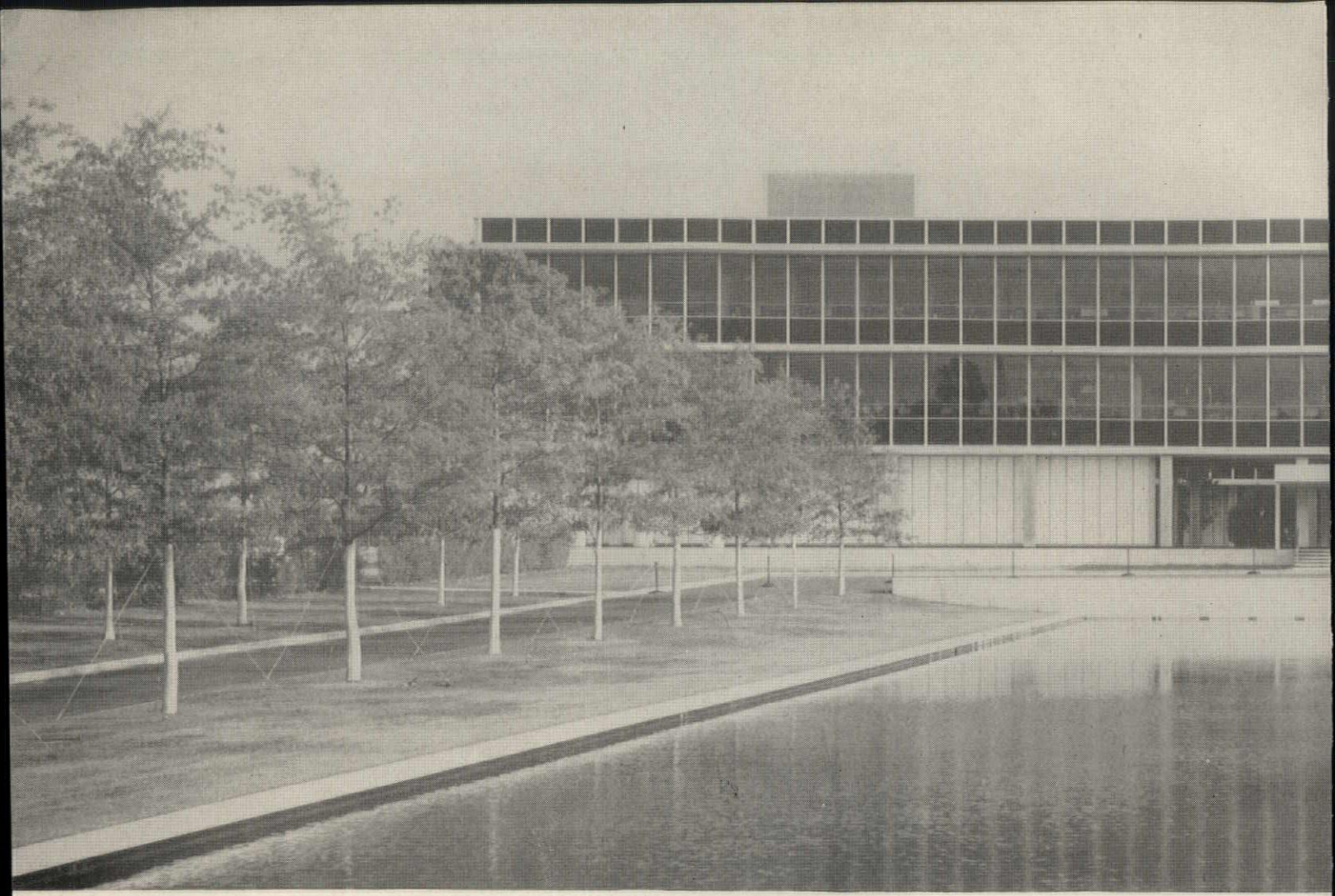
Here is the new home of Reynolds Metals Company, Richmond, Va. It is dramatically placed at the end of a reflecting pool bordered by willow oaks. The classic beauty of the building is enhanced by this unusual setting. Architect: Skidmore, Owings & Merrill; Consulting Engineer: Ebasco Services, Inc.

Unique all-aluminum folding grids in 100 sq. ft. units cut installation time 8,000 man hours . . . provided wall-to-wall illumination with low brightness quality

Installing a lighting system so flexible it can adapt to any internal building change without relocation is quite a feat. But when that is accomplished at important savings it calls for exceptional engineering ingenuity. That's what Curtis Visioneers achieved with a special custom-made aluminum folding grid system at Reynolds Metals Company, Richmond, Va. The unique folding "packages" made it possible to install 100 sq. ft. of lighting at one time. Result: a saving to Reynolds of an estimated 8,000 man hours, or approximately $50,000. A wall-to-wall ceiling of light was created with a beautiful satiny aluminum lighting tone of low brightness quality. Over-all ceiling illumination solved the problem of how to obtain stationary lighting for a 100,000 sq. ft. area, even though wall partitions would be moved in the future. Write today for the name and address of the representative in the principal city nearest you. Curtis-AllBrite Lighting, Inc. Chicago, 6135 W. 65th St./South San Francisco, 352 Shaw Road.

CURTIS All-Brite

Large office areas are as effectively illuminated as small areas with a high degree of visual comfort assured. In this special Curtis grid installation, aluminum materials were used throughout. Maintenance features of the system include ease of relamping, ready access to wiring, simple replacement of ballasts.



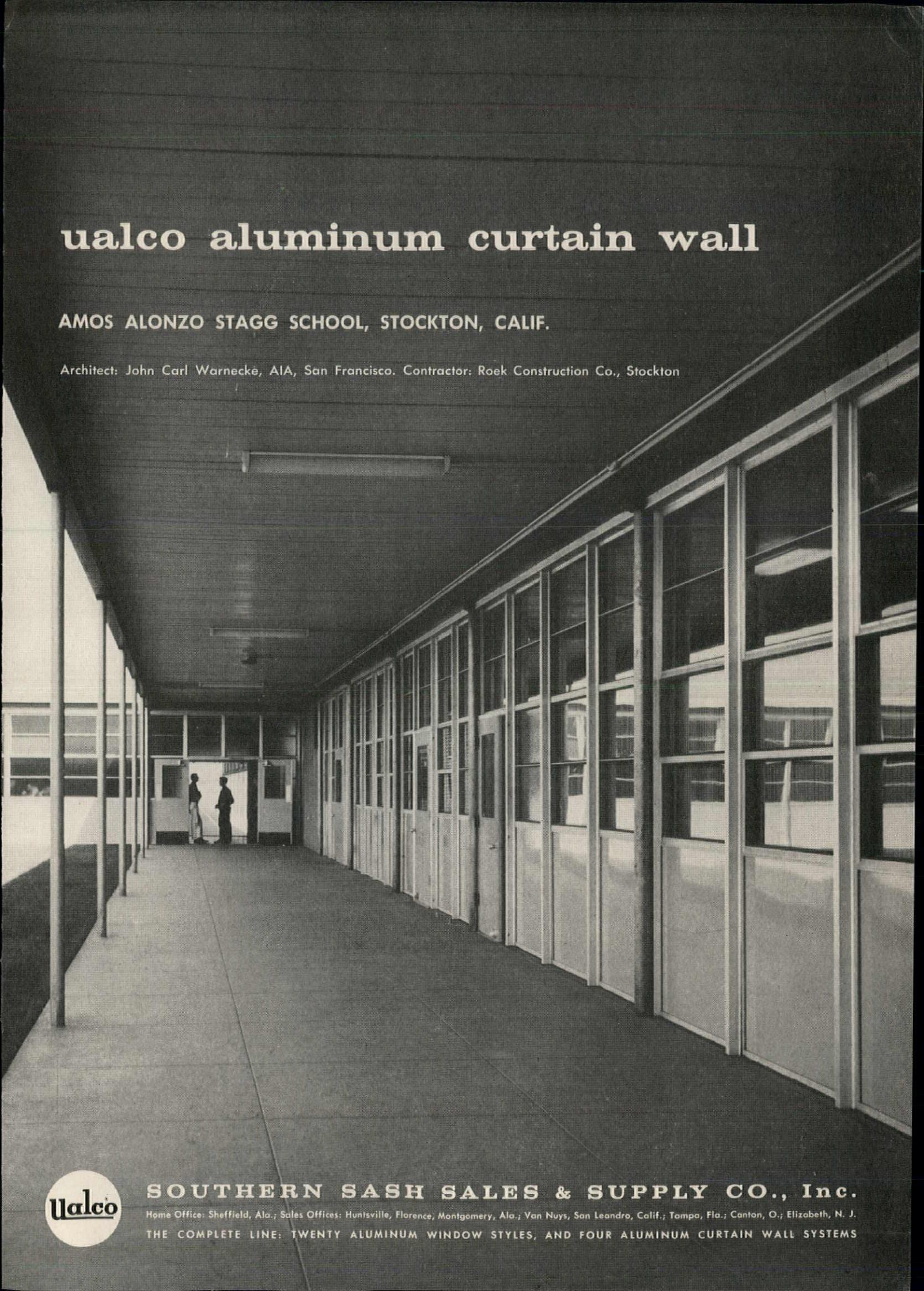
Maximum flexibility in space utilization is achieved at Reynolds through partitions that easily can be moved to expand or decrease area sizes. This can be accomplished without making costly changes in the lighting system. The Curtis wall-to-wall ceiling of light provides 80 ft. candles of maintained illumination. Attractive Hexcel Honeylite aluminum diffusers complement the inviting decor.

How a special Curtis Lighting system saved Reynolds Metals $50,000...

ualco aluminum curtain wall

AMOS ALONZO STAGG SCHOOL, STOCKTON, CALIF.

Architect: John Carl Warnecke, AIA, San Francisco. Contractor: Roek Construction Co., Stockton



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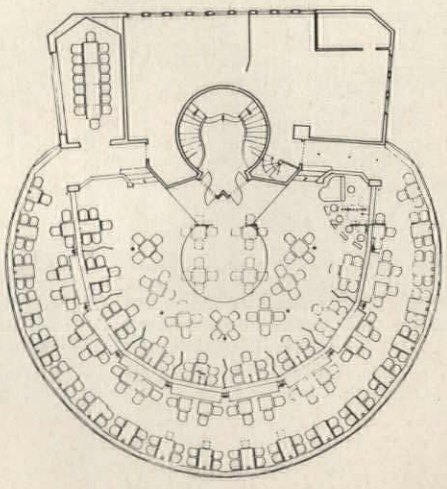
The Record Reports

Circular Restaurant in Germany Built over Riverbank Fort

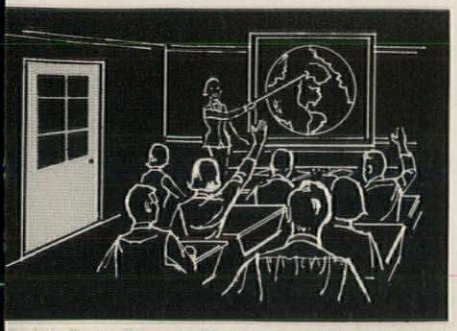
This circular restaurant, on the bank of the Rhine at Cologne, Germany, has a 19th-century fortress as its foundation. The architect is Wilhelm Riphahn. (The new restaurant replaces a similar one, destroyed during World War II, that Dr. Riphahn built in 1924.)

The building, constructed of concrete reinforced with steel, is about 87 ft wide on its longest dimension across the main floor. This floor, with its cantilevered rim, surmounts three lower levels, integrated with the fortress. A cobblestone embankment flanks the building.



The main floor (see plan) seats 226 at 63 tables (including the table for 16 in the small private dining room at upper left). The central circle is a dance platform where four tables can be put when it is not needed for dancing. The orchestra area is at upper right. The large circle between the dance platform and the exterior wall marks the division between the upper area of tables and the outer area, which is dropped about two ft. The extreme vertical dimension at the rim is a little over 13 ft.

more news on page 278



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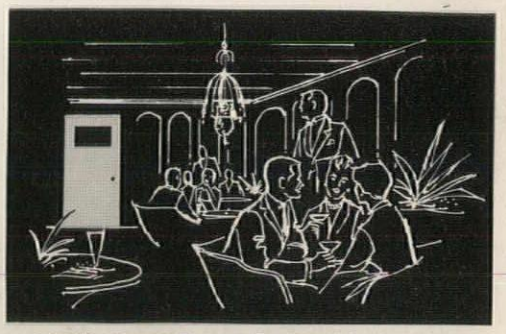

Plastic-Faced Doors. Designed for hard wear, easy maintenance. In restaurants, offices, schools, public buildings. Choice of many colors and patterns. Mar-proof.

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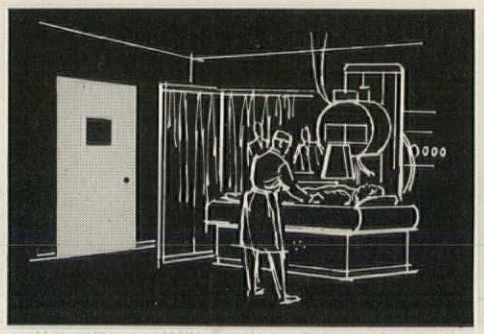
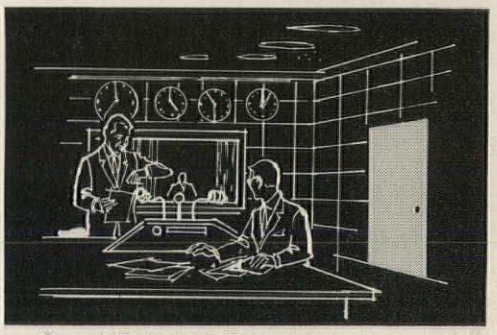
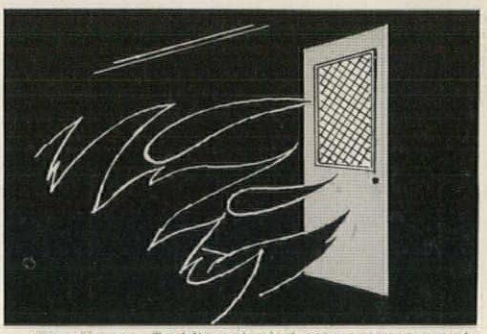


X-ray Doors. With continuous sheet of protective lead midway between divided core. Combine vital protection, outstanding beauty. For hospitals, medical and dental offices.



Sound-Retardant Doors. For offices, music rooms, radio and TV studios, sound stages—anywhere passage of sound needs control. Available veneered to match regular Roddis doors.

Institutional Doors. For hospitals, offices, schools, churches. Built for special hardware . . . closures, kick plates, panic bars. Laminated frames add strength. Economy priced.



Fire Doors. Roddis patented core assures equal strength in all directions, extra weight gives outstanding fire resistance, high sound resistance. B-label, 1 hour; C-label, ¾ hour.

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You gain important on-the-job cost-savings—assure beauty—when you specify factory "*prime and seal*" for your Roddis Doors.

This service makes possible a uniform, perfect first coat on every door. Dirt, moisture and stains are locked out during transportation and storage. Final finishing is faster, more foolproof.

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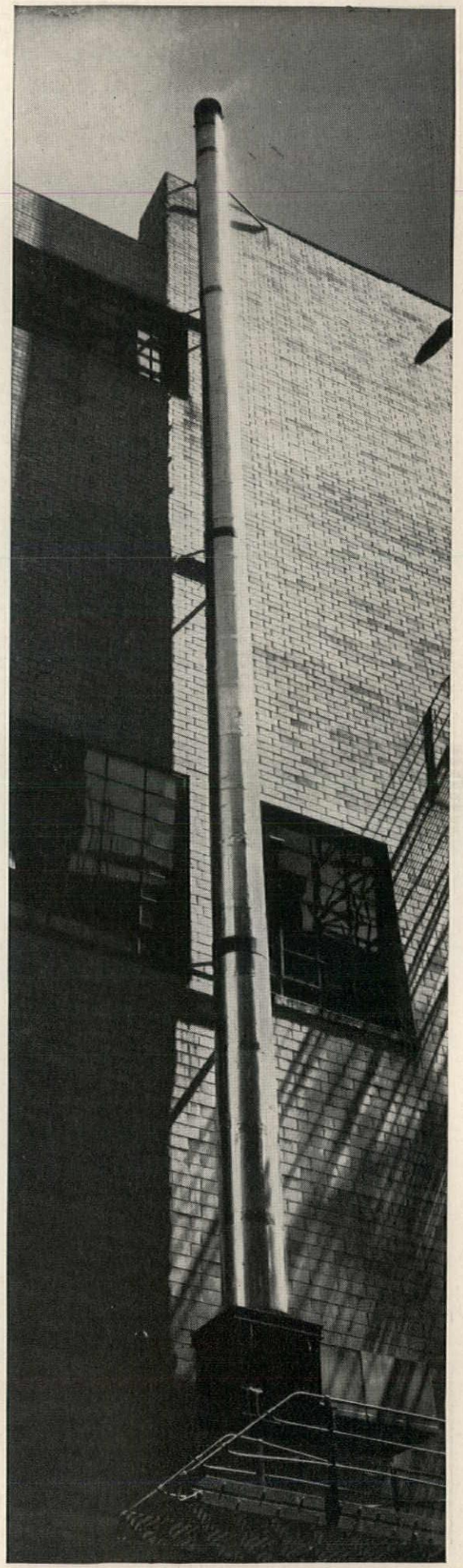


The Record Reports

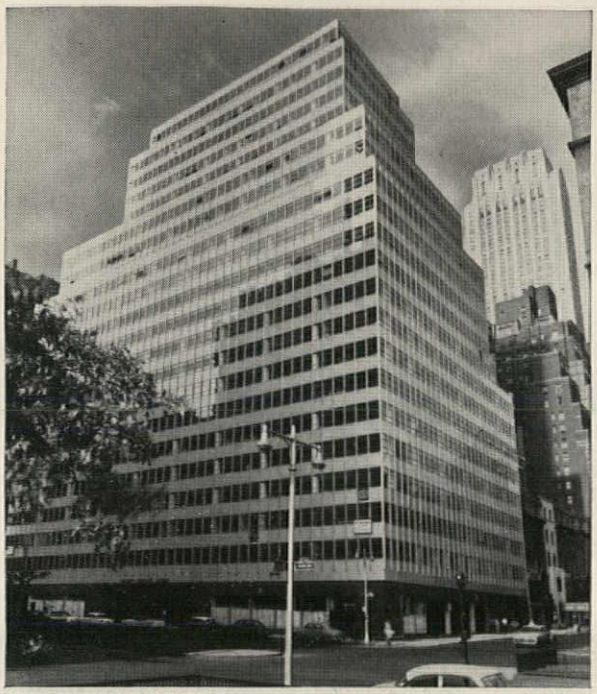
Shop for Display of Glass Features Glass Fountain

The Steuben Glass shop was recently opened on the street floor of 717 Fifth Avenue, New York (AR, May '59, p. 14). Designer of the shop was John Monteith Gates, A.I.A., vice president of Steuben Glass and director of design of Corning Glass Works. The shop consists of an entrance, rotunda, three selling areas, and an exhibition gallery.

Top: A crystal fountain in the rotunda, 7 ft high, was designed by George Thompson. *Above:* Exhibition gallery for the display of engraved glass. *Below:* One of 31 new collectors' pieces shown, "Tree of Life" is 14 in. high; glass design by Donald Pollard, engraving design by Jacob Landau

more news on page 274

Typical examples of modern buildings designed with LUPTON aluminum curtain-walls and windows



NEW YORK CITY: LUPTON supplied and installed Type "H" fabricated aluminum curtain-walls for this building at 300 Park Avenue. Mullions are aluminum tube with expansion joints at alternate floors. Non-insulated spandrels of opaque structural glass were used. Architect: Emery Roth & Sons.

North. South. East. West. All over America, architects are designing modern buildings with LUPTON aluminum curtain-walls and windows. And no wonder! LUPTON has 75 years' manufacturing experience and a reputation for reliability . . . for delivering parts on-time and as specified. And, whether you're designing a school, hospital, municipal building, or other, LUPTON construction offers you significant advantages like these: design freedom, lasting modern beauty, low cost installation and maintenance, and single-source responsibility.

Investigate all the important advantages of LUPTON construction. See SWEET'S (Sections 3 and 17) for the Michael Flynn Aluminum Curtain-Wall and Window catalogs, and write for further specific information. Inquire about LUPTON Comfort-Conditioning*—the new curtain-wall system that cools, heats, and ventilates. Ask for the new LUPTON brochure showing its application in modern motels. A call to the nearest LUPTON representative (see the Yellow Pages under "Windows—Metal") will bring fast action without obligation.

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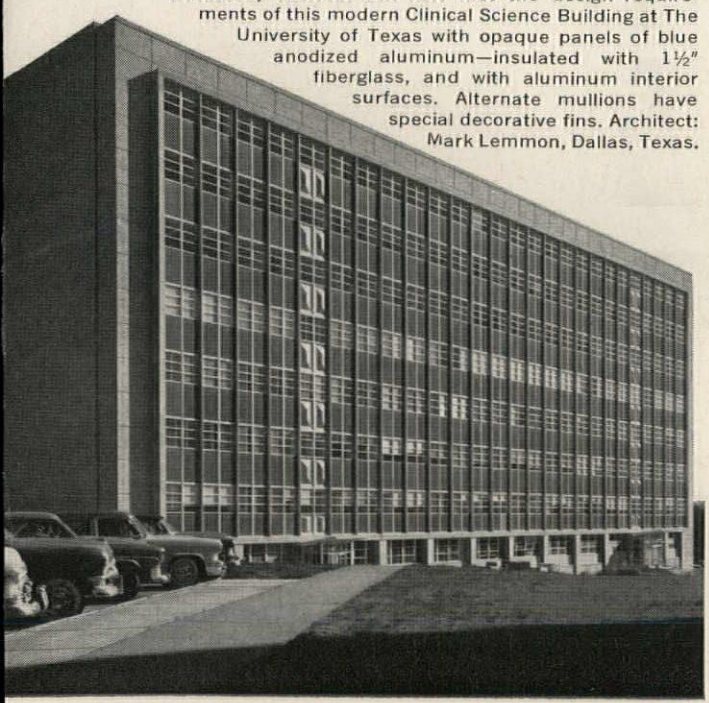
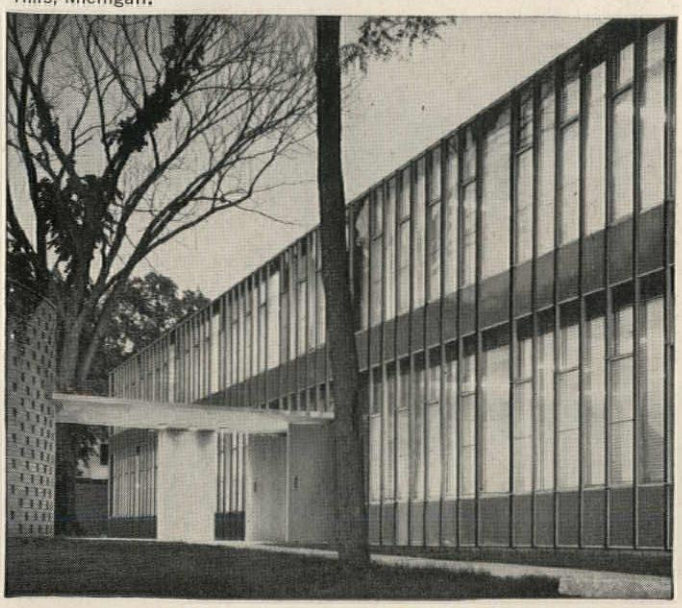
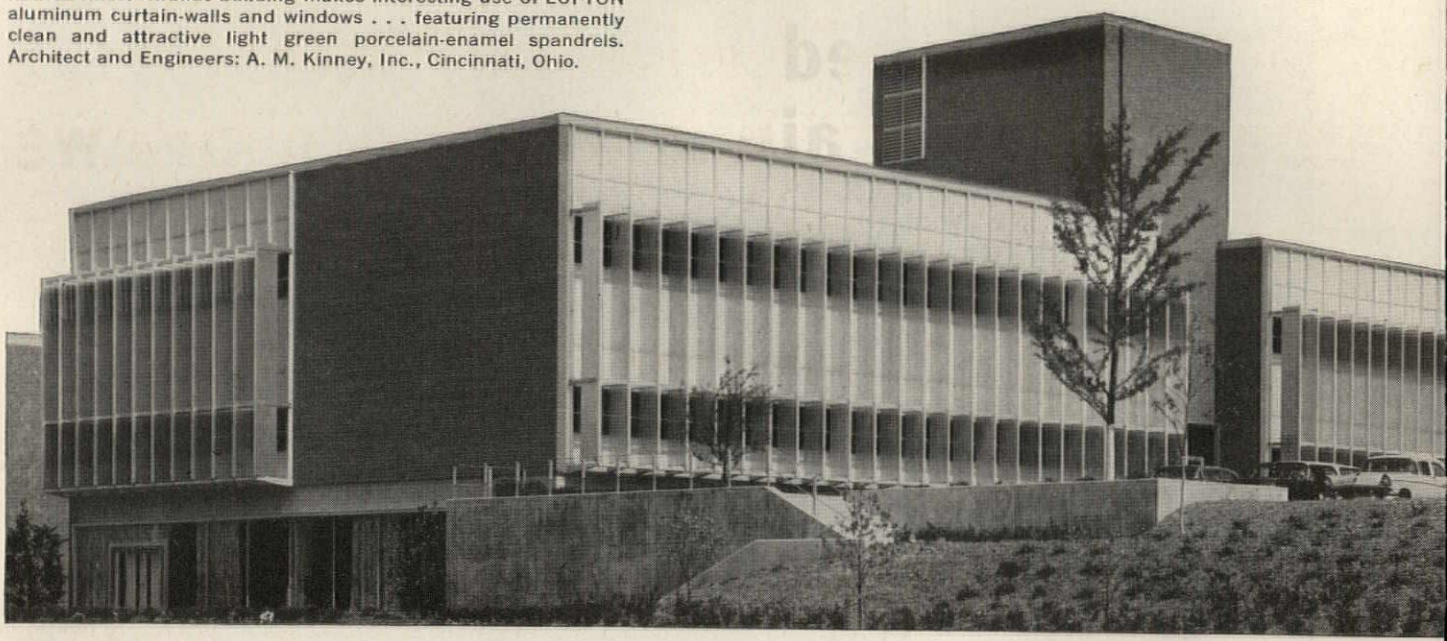
DALLAS, TEXAS: LUPTON met the design requirements of this modern Clinical Science Building at The University of Texas with opaque panels of blue anodized aluminum—insulated with 1½" fiberglass, and with aluminum interior surfaces. Alternate mullions have special decorative fins. Architect: Mark Lemmon, Dallas, Texas.



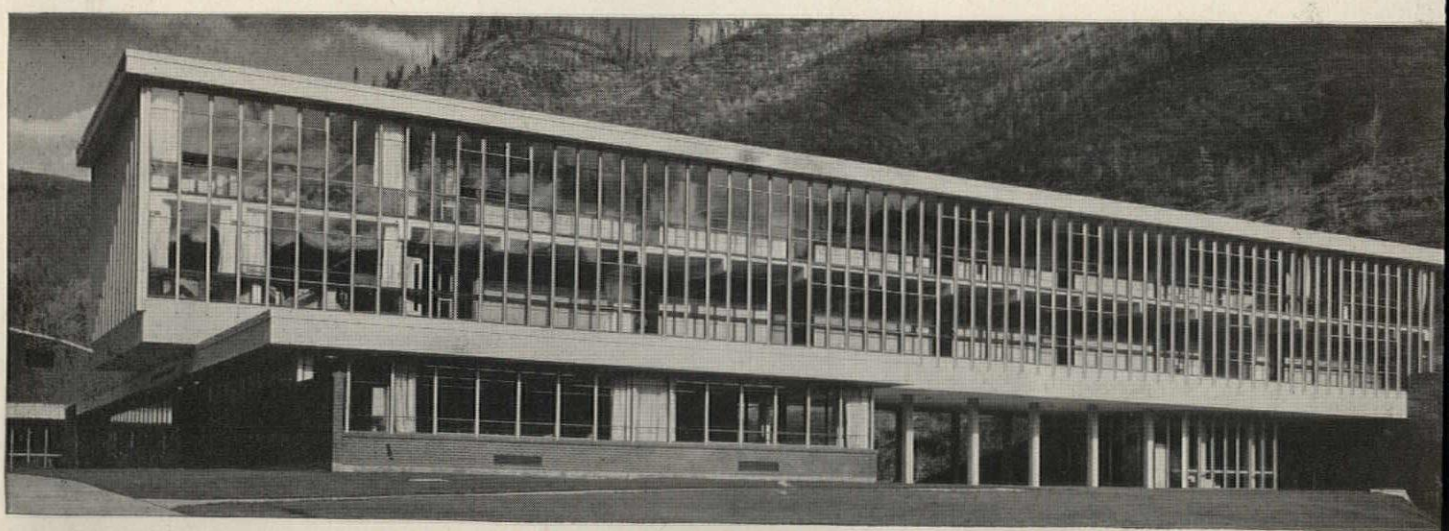
DES MOINES, IOWA: The striking beauty of the Memorial Chapel and Charles Medbury Hall, College of the Bible, Drake University, exemplifies the variety of design easily achieved with LUPTON construction. LUPTON Master Casements alternate with fixed glass in LUPTON Type "H" curtain-wall units. Architects: Eero Saarinen & Associates, Bloomfield Hills, Michigan.

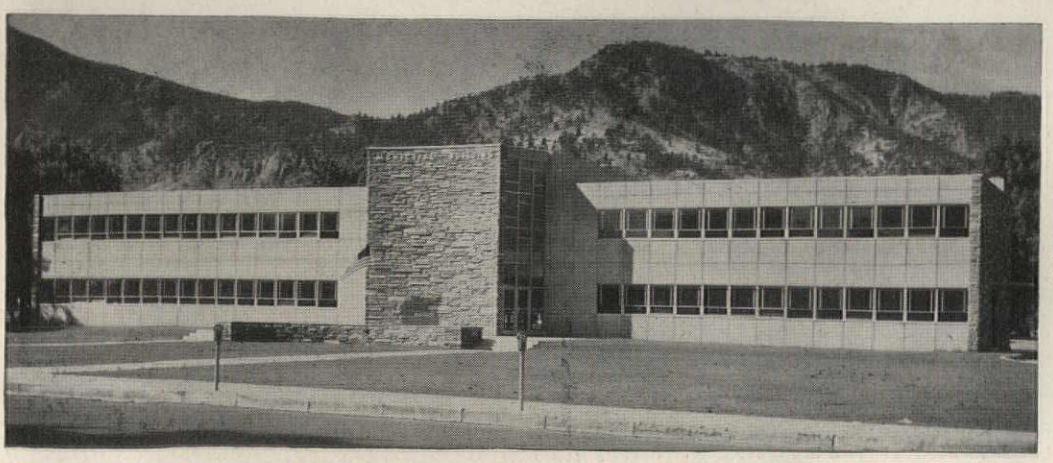


LITITZ, PA.: Voted one of America's top 10 plants of 1957, this new Lambert-Hudnut building makes interesting use of LUPTON aluminum curtain-walls and windows . . . featuring permanently clean and attractive light green porcelain-enamel spandrels. Architect and Engineers: A. M. Kinney, Inc., Cincinnati, Ohio.

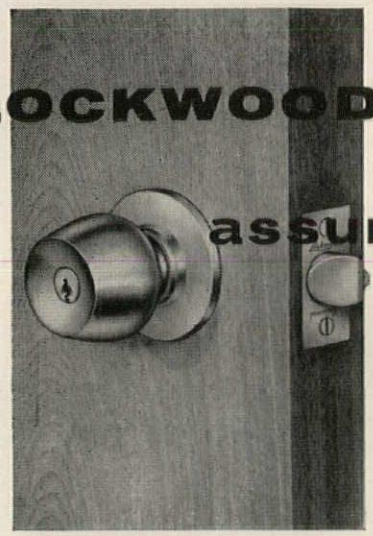


KELLOGG, IDAHO: Extreme climatic conditions (wind and dust storms; smoke from a nearby smelter; a wide variance in atmospheric temperatures) made the selection of precisely-engineered weather-tight LUPTON metal windows unusually important at Kellogg High School. Ruggedness and simplicity characterize construction with these tight-fitting steel architectural projected windows. Architects: Culler, Gale, Martell & Norrie, Spokane, Wash.; Perkins & Will, Chicago, Ill. Photograph: Hendrick-Blessing.



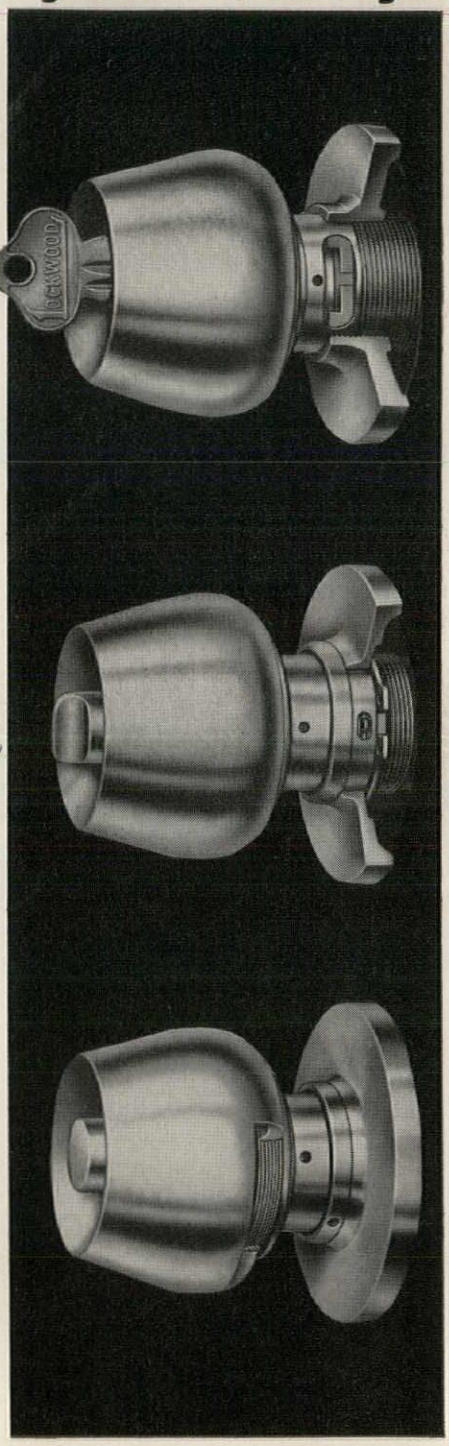


BOULDER, COLORADO: 115 aluminum "Master" projected windows were installed on this handsome municipal building. These windows are attractive, yet functional, and require a minimum of maintenance. Architect. James M. Hunter, Boulder, Colorado.



LOCKWOOD hidden features

assure year-after-year satisfaction



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Lockwood's precision bearing makes "knob-wobble" an impossibility. The knob shank rides smoothly in the counterbored housing cap. Both parts are brass forgings.

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See our condensed catalog 18eLO in Sweet's Architectural File, or write for a reprint.

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The Record Reports

Better Public Housing, More For Middle Income Sought

Changes recently advocated in multi-family housing are intended to result —if they are adopted—in new kinds of public housing and more middle-income housing. A conference was held in New York City to air ways to improve public low-income housing. A few weeks later, New York State proposals to facilitate the building of more private middle-income housing were released.

The city conference, sponsored by the Citizens' Housing and Planning Council of New York, gathered a panel to discuss a memorandum drawn up by Elizabeth Wood, consultant to the Council. The panel members were: Robert Merton, former director of the Bureau of Applied Social Research at Columbia University; Anthony F. C. Wallace, senior research associate in anthropology, Eastern Pennsylvania Psychiatric Institute; Rhoda Metraux, American Museum of Natural History.

The purpose of the conference was to explore ways in which public housing projects might be improved to serve "human needs." The discussion concentrated on the problems of families with children. In general, panelists and other speakers agreed that apartments over six stories are not desirable for this group. Economic and other obstacles to low-rise public housing were, however, brought out. For instance, Frederick G. Frost, New York architect, said that designers have succeeded pretty well so far in providing light and air for many people in a small space. But, he continued, they have not given enough thought to the relationships between buildings, use of courts, etc. He added that even after clients have been persuaded of the value of such new ideas, the money must be found. Architect Arthur C. Holden said, "We can design better than we are allowed to."

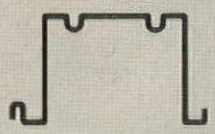
The New York State proposals were contained in a report submitted to Governor Rockefeller by his Task Force on Middle-Income Housing, headed by Otto L. Nelson Jr., vice president in charge of housing of the New York Life Insurance Company. A series of steps designed to attract private investors to build housing to rent for $17-$29 a room was recommended. The steps, which include loans, guarantees, and other incentives, would require legislative action and, in one case, a constitutional amendment.

more news on page 270

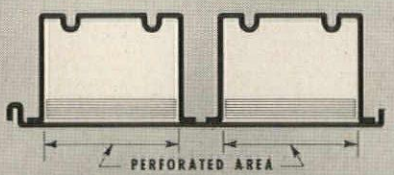
and Acoustical Ceiling Combined at Michigan State University!

Acoustically Treated Cellular Deck Sections Present an Attractive Ceiling with Recessed Lighting

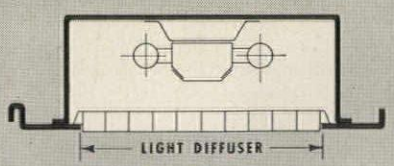
MAHON
Long Span
M-DECK SECTIONS



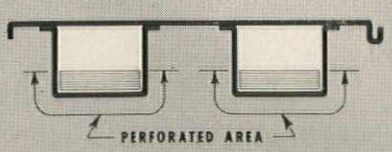
SECTION M1-OB
OPEN BEAM DEPTH 3", 4½", 6" or 7½"



SECTION M2SR (Acoustical)
CEL-BEAM DEPTH 1½", 3", 4½", 6 or 7½"



SECTION M1T (Troffer)
DEPTH 6" or 7½"



SECTION M2 (Acoustical)
CEL-BEAM DEPTH 1½", 3", 4½", 6 or 7½"

At Left: Cross Section of Long Span M-Deck Combined Roof-Ceiling with Troffer Lighting.

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

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Entrance Foyer of Men's Intramural Building, Michigan State University, Lansing, Mich. The building houses Classrooms, Swimming Pool, and other Sports and Conditioning Facilities. 89,200 Sq. Ft. of Mahon Acoustical M-Deck was used in the construction of the Combined Roof-Ceiling. Mahon also Fabricated and Erected 830 Tons of Structural Steel for this project. Lewis J. Sarvis, Architect. Granger Brothers Inc., Gen. Contrs.

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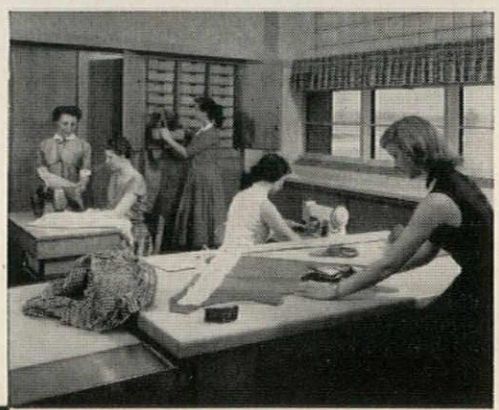

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The Record Reports

Inter-American Discussion Of Architecture Held

The First Inter-American Architectural Symposium was held between participants in Toledo and Bogota, Colombia, several months ago. Proceedings in the two cities were heard in both by a radio-telephone hook-up; English and Spanish, simultaneously translated, were used. The Owens-Corning Fiberglas Corporation sponsored the program.

The purpose of the symposium was "to probe and explore the similarities and differences in architectural philosophy, expression, and aspiration within the Americas," according to Leonard J. Currie, who was the moderator at Toledo.

John Noble Richards, president of the American Institute of Architects, introduced the program from Toledo. The panelists there were: Alvaro Ortega, Colombian architect and visiting critic at Harvard; Ieoh Ming Pei, New York architect; Carl Koch, assistant professor of architecture at M.I.T. and visiting critic at Yale. Panelists speaking from Bogota were: Marcel Breuer, New York architect; Pablo Lanzetta, dean of the School of Architecture of the National University of Bogota; Julio C. Volante, professor of architecture at the Central University, Caracas.

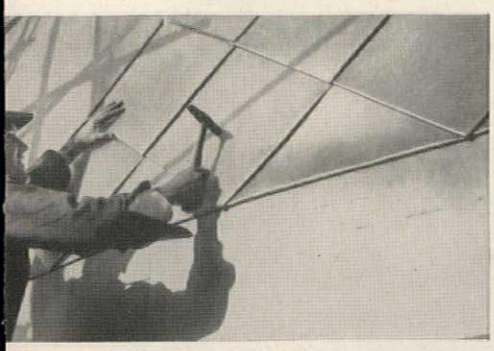
There was quite general agreement that a new kind of regional expression is emerging from the impact of modern technology on architecture; the differences were in detail or in semantics. There was, for example, no reason to believe any of the panelists would have disagreed with Señor Volante's summary of his view: "Modern regionalism must be understood in a more spiritual way, more human with respect to the traditions to which people conform, so that architecture is at the service of man. . . . I think the best way to maintain regionalism is to avoid the standardization which displaces the human factor. And for this, the architect must integrate himself with local industry in order that both may express a pure and beautiful type of architecture."

The group in Toledo (left to right): Tyler Stewart Rogers, technical consultant, Owens-Corning Fiberglas Corp.; Harold Boeschenstein, president of Owens-Corning; Carl Koch; Leonard J. Currie; Alvaro Ortega; Ieoh Ming Pei; John Noble Richards

more news on page 266

GEORGIA STATE CAPITOL DOME has been rebuilt with Monel roofing. Monel alloy was specified for ease of installation, corrosion-resistance and low maintenance . . . *for a roof as permanent as the building.*

Why Georgia is roofing its most important building with Monel...



Specially designed 18-inch Monel "shingles" roof capitol's ceramic dome. For unyielding grip, "shingles" are attached with Monel Anchorfast* nails. Monel* nickel-copper alloy resists corrosion and wear over the years, endures for the life of a building† with minimum maintenance.

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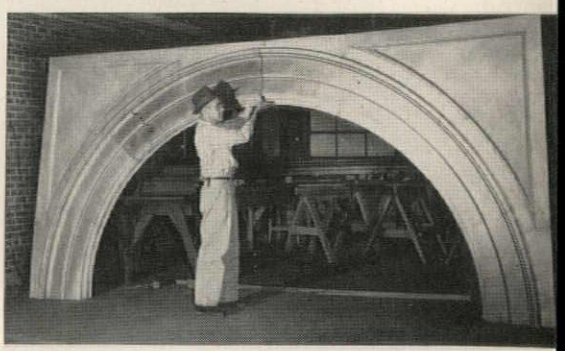
Detailed cornices, downspouts and gutters like these are easily fabricated** in Monel alloy. In addition, Monel alloy has a coefficient of expansion almost identical with concrete. It works *with* adjacent masonry, resists buckling . . . virtually eliminates destructive cracking and leakage.

†Architect, A. Thomas Bradbury & Associates, Atlanta, Georgia



Welded clerestory window mouldings are made of eight pre-formed Monel sections. Monel alloy welds easily, solders readily. Write for case history information on Monel roofing. Ask for booklet, 148-B.

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22-25 Annual Meeting, American Society of Industrial Designers—Grove Park Inn, Asheville, N. C.

Office Notes

Offices Opened

Stephen M. Bednar has opened an office for the practice of architecture at 103 N. Gilpin St., Punxsutawney, Pa.

C. Melvin Frank, A.I.A., announces the formation of a partnership to practice architecture with Curtis N. Lindberg, A.I.A., and Jack M. Maki under the name Frank, Lindberg & Maki at 1650 W. Fifth Ave., Columbus 12, Ohio.

Robert P. Guarino and Leon A. Schute announce the formation of a partnership for the practice of engineering and architecture with offices at 332 S. Wrenn St., High Point, N. C., and 305 State Commercial Bank Bldg., Thomasville, N. C.

Thompson McCleary and Calvin McCormick announce the formation of a partnership under the name of McCleary & McCormick, Architects, A.I.A., at 3270 Sul Ross Ave., Houston 6.

Firm Changes

The Benham Engineering Company, consulting engineers of Oklahoma City and Muskogee, Okla., announces that Michel K. Antarakis, engineer, and Billy E. Tindell, architect, have joined the staff.

Lewis S. Goodfriend & Associates, consulting engineers in acoustics, announces the appointment of Paul B. Ostergaard as senior engineer. Address: 1 The Crescent, Montclair, N. J.

The Office of Alfred Easton Poor announces that Robert H. McKay, A.I.A., has become a partner. The other partners are Alfred Easton Poor, F.A.I.A., and Albert Homer Swanke, A.I.A. Also, George E. Merkel has become an associate. Address: 400 Park Ave., New York 22.

The firm of Smith, Tarapata & MacMahon has been dissolved. Linn Smith & Associates continues practice in Birmingham, Mich. Peter Tarapata, A.I.A., and Charles MacMahon, A.I.A., announce the formation of Tarapata-MacMahon, Architects, at 1591 Woodward Ave., Bloomfield Hills, Mich.

The Valley Engineering Company, Glenside Ave., Glenside, Pa., announces that M. Bukowitz has joined the staff as chief project engineer.

Corrections

The RECORD regrets an error in the listing of the architects of WVIP Radio Station, Mt. Kisco, N. Y., published in the May issue, pages 211-212. The architectural credit lines should have read: Edward Larrabee Barnes and Howard Battin, Architects.

The RECORD also regrets that the interior perspective of the Church for Portsmouth Priory on page 151 of the July issue was attributed in error (on page 150) to Pietro Belluschi. The perspective was done by Lawrence B. Anderson of Anderson, Beckwith & Haible, who were associated with Mr. Belluschi in the design of the project.

The name of one member of the new Executive Committee of the Royal Architectural Institute of Canada was omitted from the list given on page 10 of the July issue. He is Gerard Venne of Quebec.

more news on page 262

another case history of

ARCHITECT SPECIFIED MAINTENANCE

"...After 2 years, these HILLYARD-TREATED FLOORS look *newer than ever!*"

Specified for initial treatment, recommended and used for follow-up maintenance, Hillyard specialized treatments have preserved the "like-new" condition of the floors in this beautiful modern building. Times has served only to deepen the lustre, brighten the colors. *"These floors have actually improved in appearance!"*

Professional Building, Rockford, Ill.
Architect: Marshall T. Munz

SEE OUR CATALOG IN SWEET'S ARCHITECTURAL FILE OR WRITE FOR COPY

Ask the Hillyard "Maintaineer®" for an expert's opinion on floor usage problems, and the treatment of choice after installation. He'll gladly serve as your "Job Captain". No charge; he's *"On Your Staff, Not Your Payroll"*.

WRITE FOR FREE AIA FILES

Product information, draft specifications, material for your recommendations on follow-up maintenance. One for each type of flooring.

FLOOR HILLYARD TREATMENTS

ST. JOSEPH, MO.
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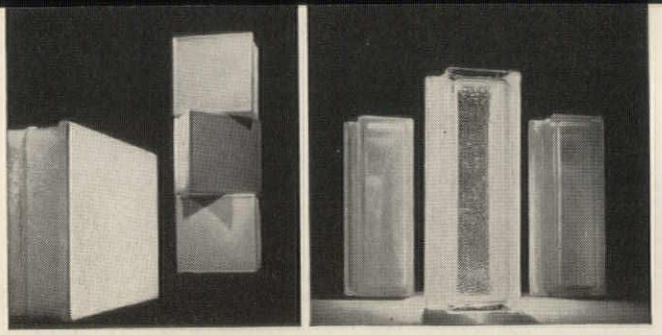
Branches and Warehouses in Principal Cities



example:

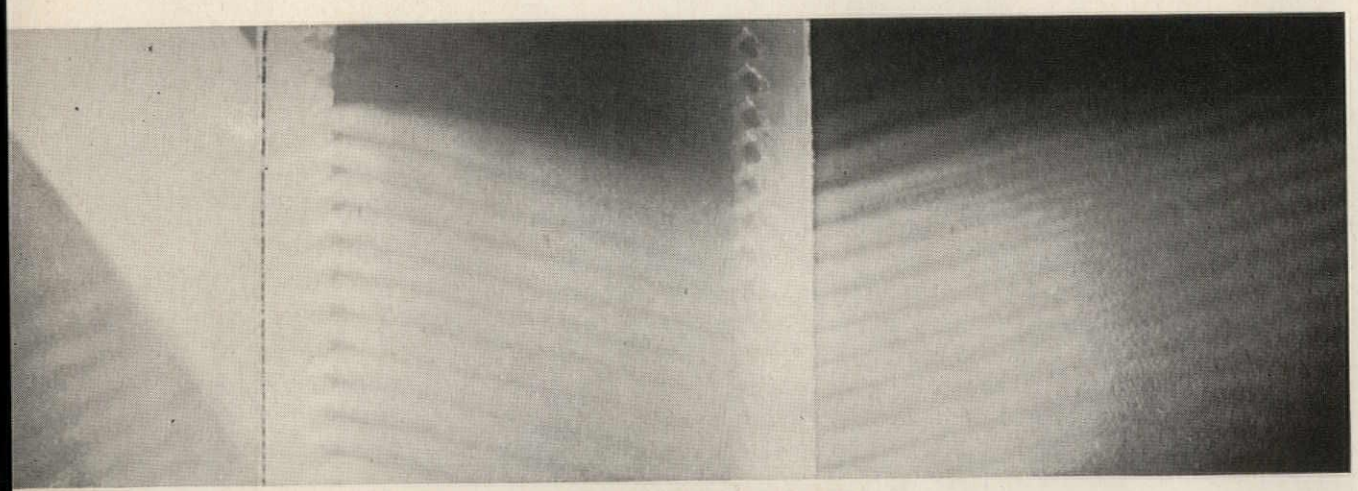
PC GLASS BLOCKS, carefully planned product development blends form and function to enlarge the architect's design authority.

The PC Glass Block story is founded on the function you see illustrated below: the ability to transform harsh beams of light into soft, diffused illumination. Passing the light through layers of pressed prismatic glass, separated by dead air, adds the function of insulation equal to 12 inches of masonry.

But, to give the architect true authority over design, variety of form must be added to function. To this end, Pittsburgh Corning product development has added constantly to the architectural design capacity of PC Glass Blocks. New textures and patterns have been developed . . . and now two major additions to the PC Glass Block line. First, the 4 x 12—an entirely new dimension in glass block design. And second, 12 architectural face colors now available on architect's specifications.

Here then is the PC Glass Block trend—continuing product development to blend form and function in a manner to make possible such outstanding architectural designs as you'll find described on the first page of this advertisement.

(To be continued)



YOU CAN LEARN MORE

PITTSBURGH CORNING CORPORATION
Dept. B-89, One Gateway Center, Pittsburgh 22, Pa.

Please send me descriptive literature on the building products checked below.

- ☐ FOAMGLAS Roof Insulation
- ☐ FOAMGLAS Low Temperature Insulation
- ☐ FOAMGLAS Insulation for Piping and Equipment
- ☐ FOAMGLAS STAY-DRY Pipe Insulation
- ☐ PC GLASS BLOCKS
- ☐ The PC 4 x 12 Block
- ☐ PC Color Glass Blocks
- ☐ FOAMSIL®, the Acid-proof Insulating Refractory

Name_____

Company_____ Title_____

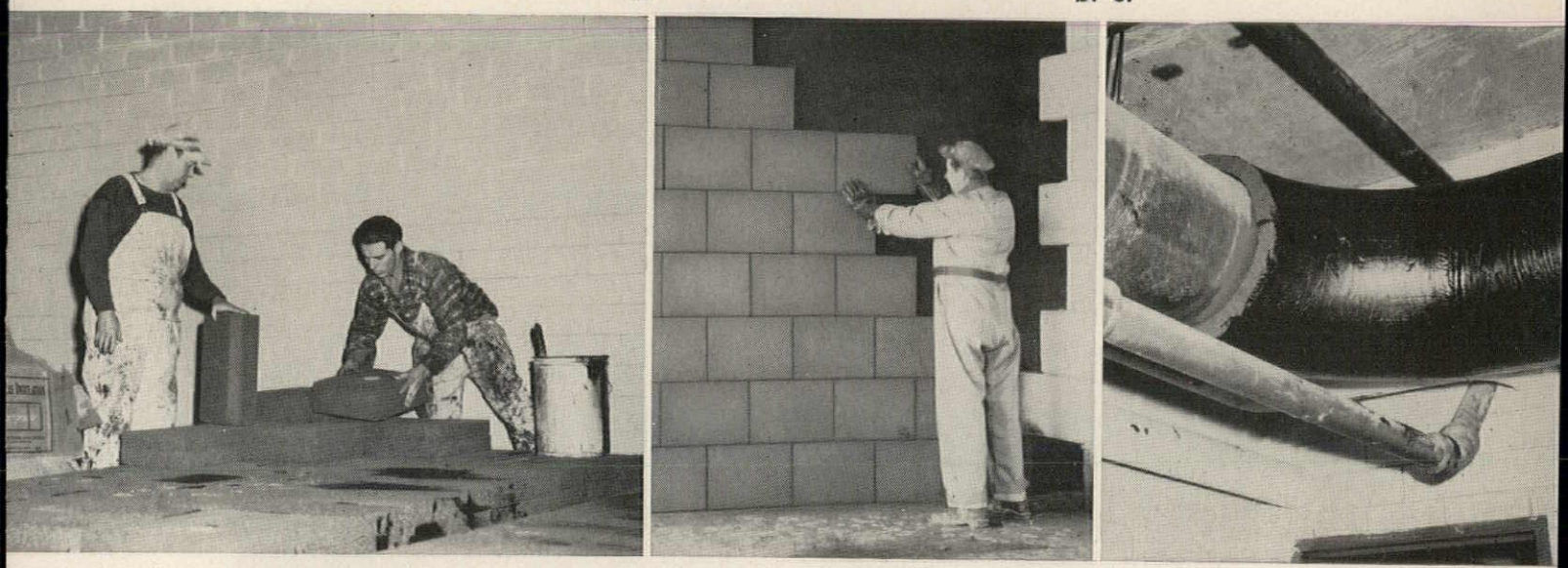
Address_____

City_____ Zone_____ State_____

PITTSBURGH PC CORNING

a. Cold storage rooms are insulated with varying thicknesses of FOAMGLAS—walls, ceilings and beneath wearing floors.
b. 2" FOAMGLAS insulates all exterior walls.
c. Over 10,000 lineal feet of FOAMGLAS insulate building service piping varying up to 14" I.P.S.

a. b. c.



example:

FOAMGLAS®, the one insulation able to provide equally outstanding service on roof, walls, cold storage rooms and piping in this building.

You'll find few buildings in which a single insulation does as many jobs as FOAMGLAS does—and does well—in the Imperial Oil Ltd. Building in Toronto. Find another, and the chances are the insulation is FOAMGLAS. Why? No other insulation combines so many benefits in one material.

Consider insulating effectiveness. It remains constant only if the insulation is impervious to moisture. And the sealed glass cells of FOAMGLAS can never absorb either liquids or vapor. Result? Little or no insulation maintenance or replacement. Strength? FOAMGLAS is completely rigid—with compressive strength of 7 tons per sq. ft. (average ultimate). And it's incombustible . . . dimensionally stable . . . acid-proof. Installation? Fast, easy on cost thanks to the light weight and the smooth cutting and fitting FOAMGLAS affords.

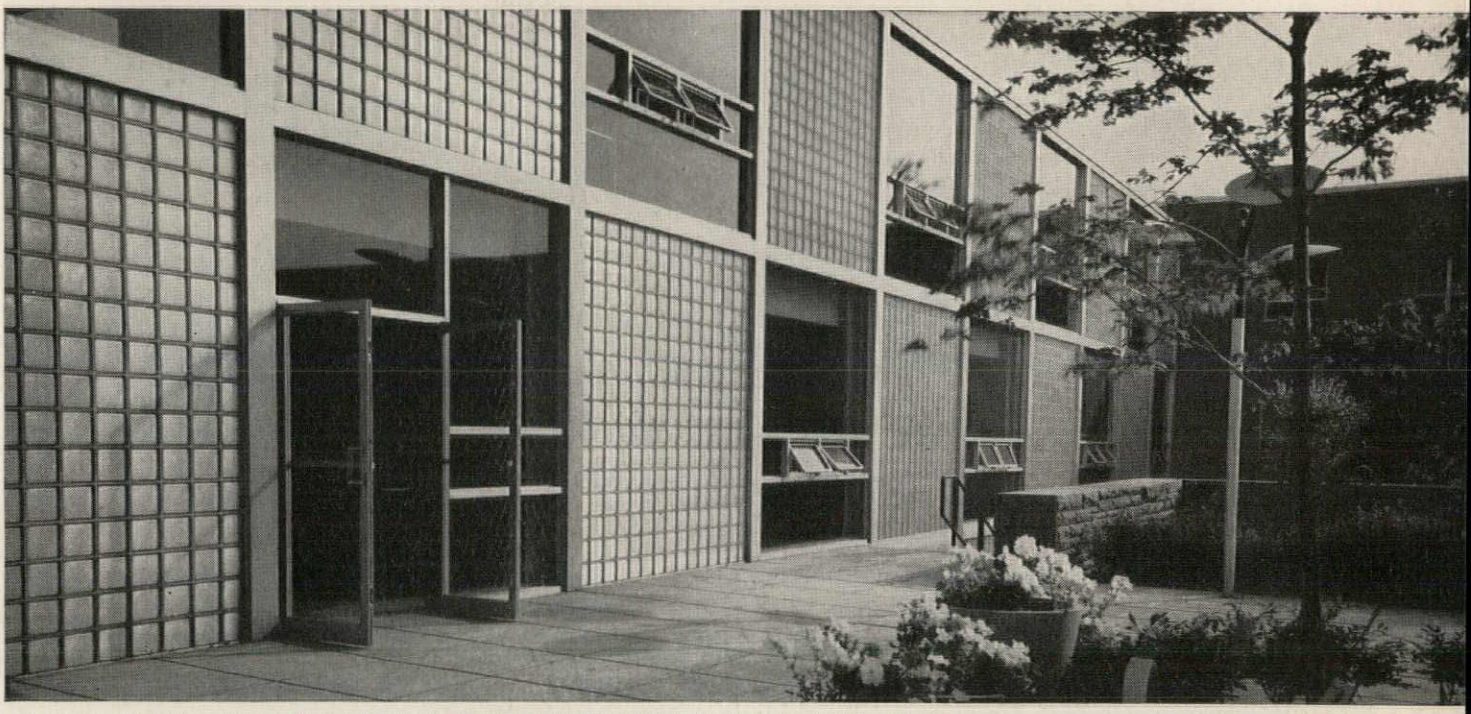
Add it all up and you can see why FOAMGLAS proved the logical choice—not only for roof and exterior wall insulation—but to insulate cold storage rooms and service piping, too, for Imperial Oil. These same good reasons should make FOAMGLAS the insulation choice for any or all of the insulation needs of *your* next building.

(*Continued*)

PITTSBURGH CORNING

Office Building: Imperial Oil, Ltd., Toronto, Ontario, Canada.
Architects: Mathers & Haldenby, Toronto, Ontario.
Insulation: FOAMGLAS—for roof, exterior walls, service piping and cold storage rooms.

See why Pittsburgh Corning Products make the things you build cost less, last longer, look better



John J. Kane Hospital, Pittsburgh, Pa. Architects: Button & McLean—Mitchell & Ritchey, Pittsburgh, Pa.

example:

PC Glass Block curtain wall in a core building. Considerations of psychological security, plus exterior interest and harmony dictated major curtain wall use of PC Glass Blocks in this core building . . . the connecting link between units of the new John J. Kane Hospital in Pittsburgh. Set at regular intervals along corridors in the building, the Glass Block panels create a feeling of solidity and protection for the patients moving through.

The alternate areas of functional Glass Blocks and plate glass set up an interplay of voids and solids to increase the interest level of the environment. And the Glass Blocks' texture, substance and non-institutional appearance add measurably to the visual appeal of the design. All this while the Glass Block panels admit soft, diffused daylight—reduce glare and heat.

Good designs like this grow out of materials which give the architect true authority over his designs. And the final page of this advertisement describes the Pittsburgh Corning product development program which blends form and function to give the architect just such design authority. (*Continued*)

PITTSBURGH PC CORNING

On the Calendar

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

13-16 National Planning Conference, sponsored by Community Planning Association of Canada—Sheraton Mount Royal Hotel, Montreal

14-18 Fourth Annual Midwest Work Course on Plant Layout and Facilities Planning—University of Kansas Extension Center, Kansas City

20-24 61st Annual Conference and Exhibit, American Institute of Park Executives and American Association of Zoological Parks and Aquariums—Benjamin Franklin Hotel, Philadelphia

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

24-25 Third Annual National Executive Marketing Conference on Homebuilding, sponsored by National Housing Center—St. Louis

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

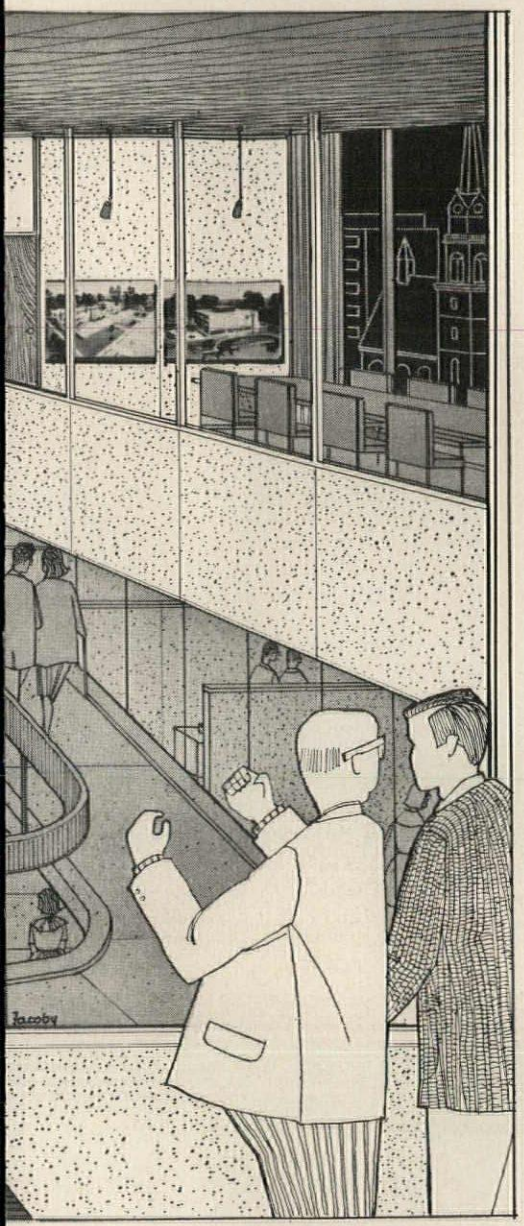
October

5-30 Seminar on Urban Planning, conducted by Inter-American Housing and Planning Center of the Organization of American States—Bogota, Colombia

7-14 First Pacific Rim Conference, sponsored by California Council, A.I.A. (and including the annual convention of the Council, the California Regional Convention, and the Women's Architectural League Conference)—Hawaiian Village Hotel, Honolulu

19-22 National Convention (third of three in 1959), American Society of Civil Engineers—Washington

continued on page 260



In this office two types of J-M Movable Walls are used—Imperial and Class A

J-M Imperial Movable Walls—asbestos panels attached to slotted steel studs provide great versatility. These walls can be carried to heights of 20′ and higher. Thickness can vary from 3⅞" upward to suit unusual designs or out-of-the-ordinary service lines.

J-M Class A Movable Walls—prefabricated panels with a non-combustible core, asbestos-faced on both sides. Panels are erected independently and are completely interchangeable with panels of the same dimension. The walls are 1¾" thick and provide concealed wireways.

J-M Sanacoustic® units make up the acoustical ceilings, and J-M Terraflex® Vinyl Tile covers the floors.

Walls that grow with you

This project shows a real estate office requiring specialized space divisions and provision for the future.

The happy answer:

JOHNS-MANVILLE MOVABLE WALLS

This is the proposal given an architectural designer:

A large real estate firm has rented two floors in a new contemporary office building. There are to be executive offices, for president and vice presidents—also different-size conference rooms and interviewing rooms for representatives. An interesting "must" is provision for attractive display of large architectural models, photographs and renderings.

Walls are to be movable to provide for growth and expansion. They are to have glass areas to provide good visibility for the models and renderings.

To meet these varied requirements, the designer planned the offices around an open two-floor vertical space surrounded by a ramp. As for space division, he turned to a natural solution—J-M Movable Walls.

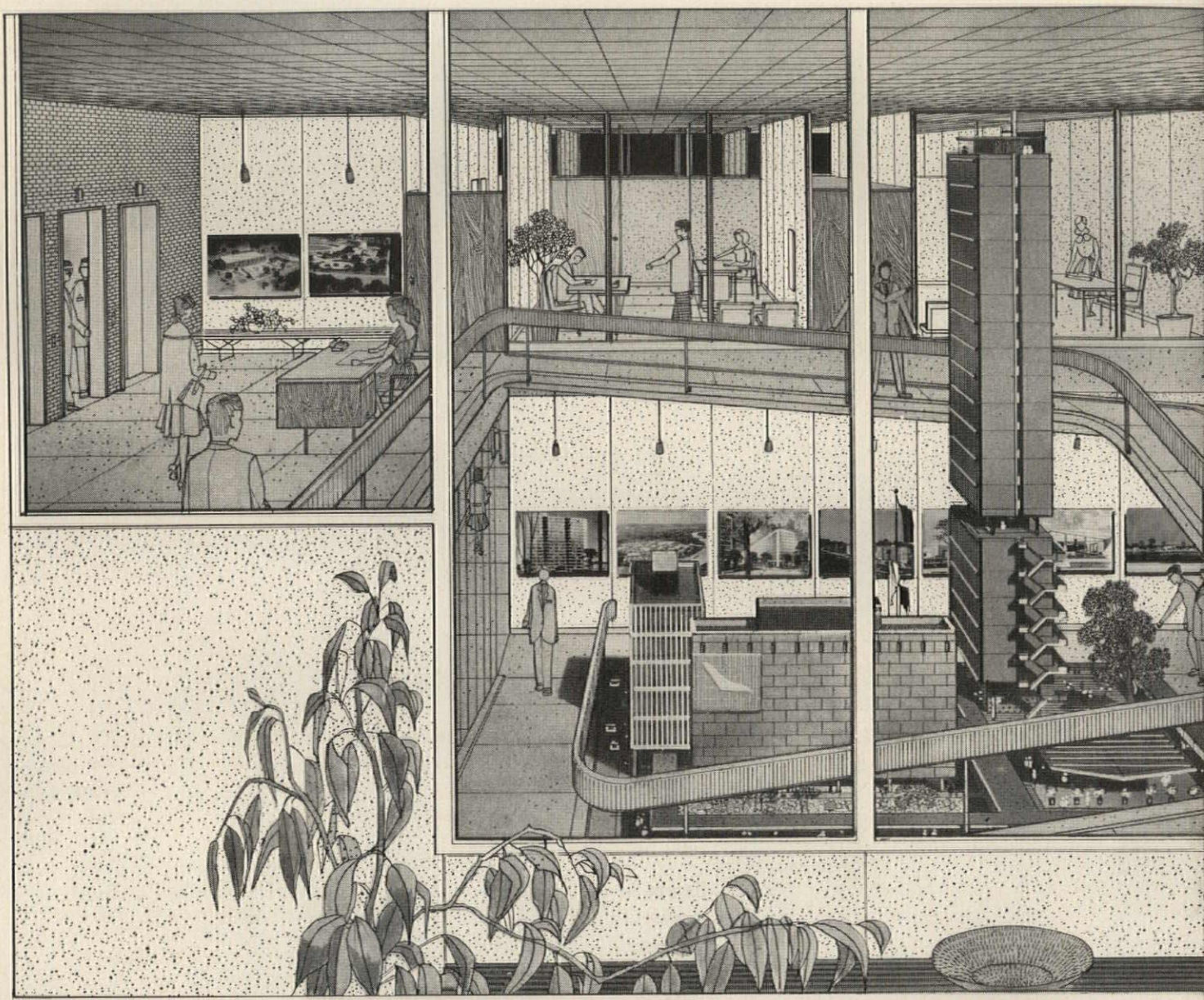
These walls come in modular units and are offered in several types. All can be used together, are erected easily, and can be readily relocated as needs change. Units are furnished with a stippled finish or they can be veneered in many ways. Also, they can be redecorated easily whenever a new look is desired.

J-M Movable Walls are supplied and installed complete with all items such as doors, hardware, trim and glass by trained J-M construction crews.

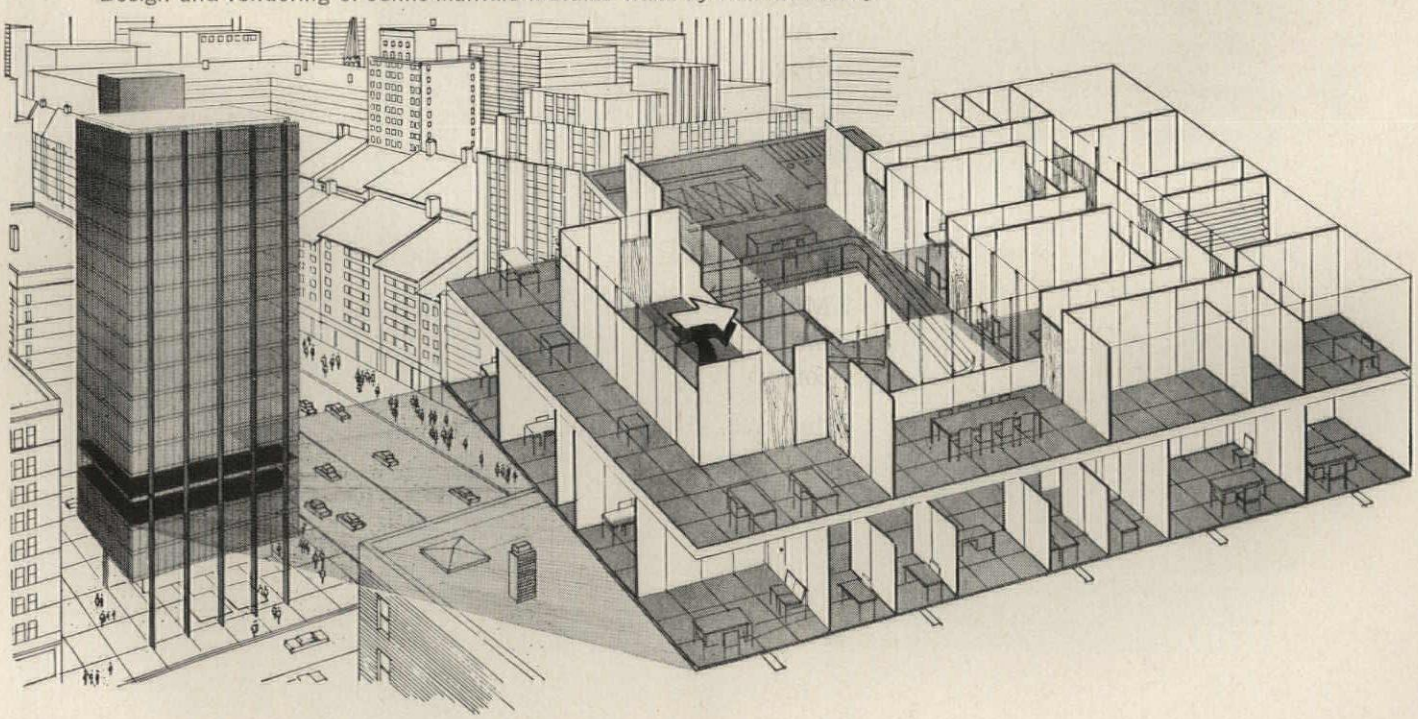
For illustrated brochure, write to Johns-Manville, Box 158, New York 17, N.Y. In Canada, Port Credit, Ontario.

JOHNS-MANVILLE

JOHNS-MANVILLE JM PRODUCTS



Design and rendering of Johns-Manville Movable Walls by Helmut Jacoby



Office Literature

Packaged Firetube Boiler Ratings
Discusses five general recommendations covering the sizing of boiler equipment for heating installations. $1. *American Boiler & Affiliated Industries, Room 2502, 15 Park Row, New York 38, N. Y.*

Chemical and Physical Properties
. . . *Of Nopcofoam* provides basic data on both polyester and polyether types of *Nopcofoam* flexible urethanes. *Plastics Div., Nopco Chemical Co., 175 Schuyler Ave., North Arlington, N. J.*

Products for Concrete and Masonry
(A.I.A. 3-B-4, 3-B-7) Provides detailed information on the characteristics and uses of a complete line of products for concrete and masonry construction and building maintenance, including concrete surface treatments, concrete integral mixtures, and waterproofing and dampproofing compounds. *Tretol, Inc., 6531 West 63rd St., Chicago 38, Ill.*

Design-Technics Ceramics
Catalogs a cross-section of *Design-Technics'* varied ceramic products, with detailed information on the sculptured ceramic wall surfacings. 20 pp. *Dept. AC, Design-Technics, 4 East 52nd St., New York 16, N. Y.*

The Dustfoe Space Filter
Describes performance, construction and installation details of the new *Dustfoe* space filter. Bulletin No. 1505-6, 8 pp. *Mine Safety Appliances Co., 201 N. Braddock Ave., Philadelphia 8, Pa.*

Kure-N-Seal
(A.I.A. 3-B-1, 25-B-26) Contains application and test data on *Kure-N-Seal*, a compound for curing, sealing and dustproofing newly-poured concrete surfaces in one operation. Bulletin BP 1071, 4 pp. *L. Sonneborn Sons, Inc., Building Products Div., Dept. K, 404 Fourth Ave., New York 16, N. Y.**

Mn Wrought Iron
(A.I.A. 15-D) Eight-page booklet on *Mn* Wrought Iron, a specialty alloy wrought iron containing approximately one per cent manganese, contains charts showing this new metal's improved impact resistance at sub-zero temperatures. Data on corrosion, working properties, availability and applications are also included. *A. M. Byers Co., Box 1076, Pittsburgh 30, Pa.**

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

Slabform Saves Time and Money

Rigid Bethlehem Slabform sheets hold deflections to a minimum under wet concrete and save up to 20 per cent of the concrete required when flexible types of centering are used.

Slabform can be used with lightweight insulating concrete roof fills at support spacings much greater than the economical use of flexible centerings will permit.

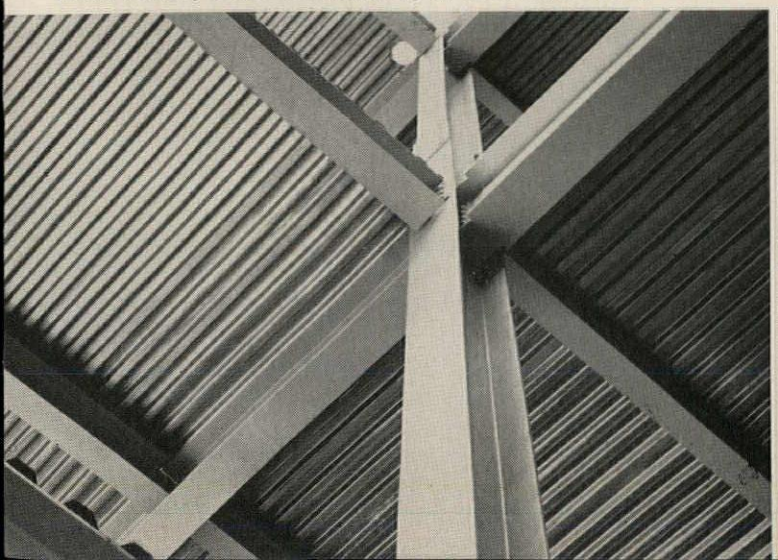
The nearest Bethlehem sales office will be glad to supply you with full details on Bethlehem Slabform. Design load capacities, suggested specifications and other data appear in our catalog in Sweet's Architectural File.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

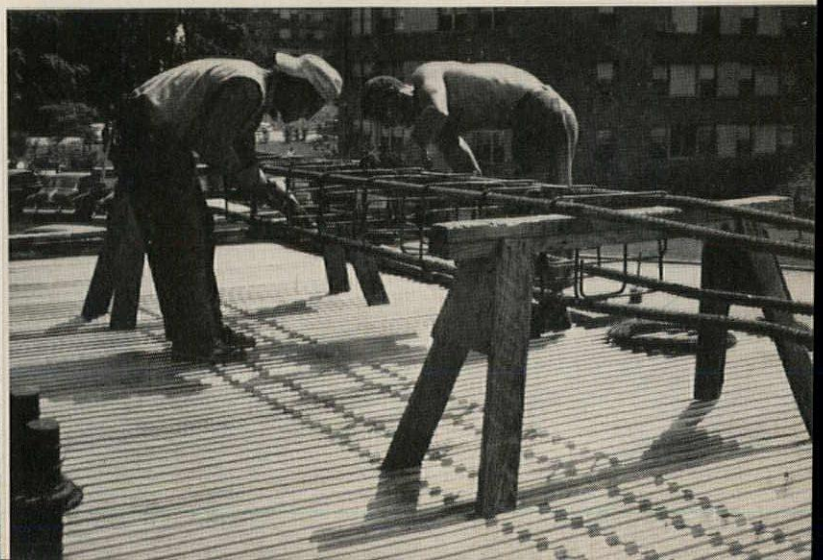
Export Distributor: Bethlehem Steel Export Corporation

BETHLEHEM STEEL

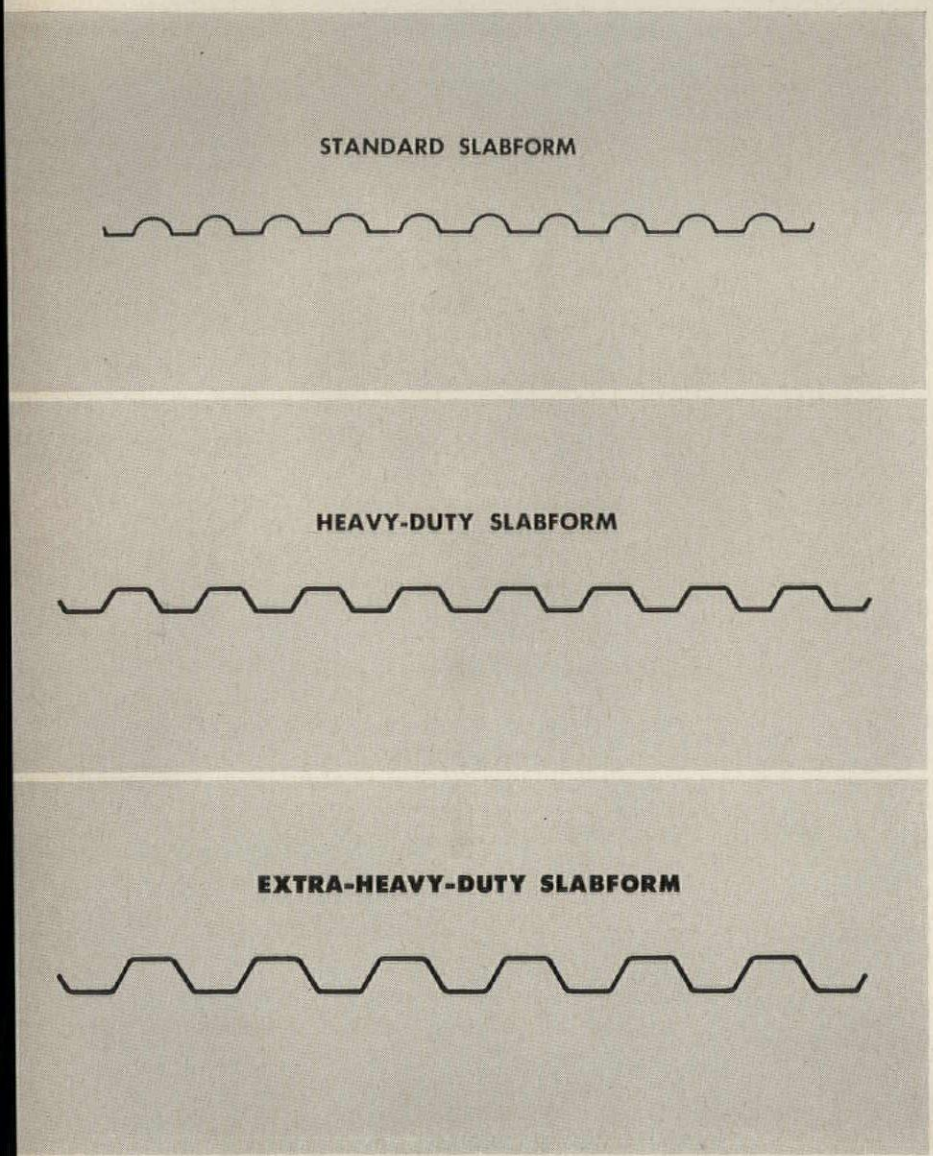
Because of the rigidity of Slabform sheets, the slab can be poured and finished in only one operation. Its appearance from below, after installation, is neat and clean.



Slabform is placed easily and quickly. When placed, it provides a solid, safe working platform for all trades. Slabform readily withstands normal construction abuse.



Faster, More Economical Concrete Slabs with Bethlehem Slabform



Bethlehem Slabform is a high-strength steel centering which speeds the pouring of concrete floor and roof slabs. It requires no blocking or bracing and, compared to flexible-type centerings, it saves concrete. The result: more economical concrete construction.

Three Weights Available

Slabform is furnished uncoated for structural cast-in-place slabs, or continuously galvanized for use as a permanent structural member for lightweight insulating concrete roof slabs or as an exposed form.

Made from steel having a yield point of about 90,000 psi, Slabform is made in three weights: Standard Slabform for spans normally up to 3 ft; Heavy-Duty Slabform for spans up to 5 ft; and Extra Heavy-Duty Slabform for spans up to 7 ft. The table below gives the physical properties.

Properties Per Foot of Width			
	Thickness In.	Moment of Inertia—In.^{4}	Section Modulus In.^{3}
Standard	0.0156	0.012	0.0333
Heavy-Duty	0.021	0.039	0.080
Extra Heavy-Duty	0.024	0.101	0.136

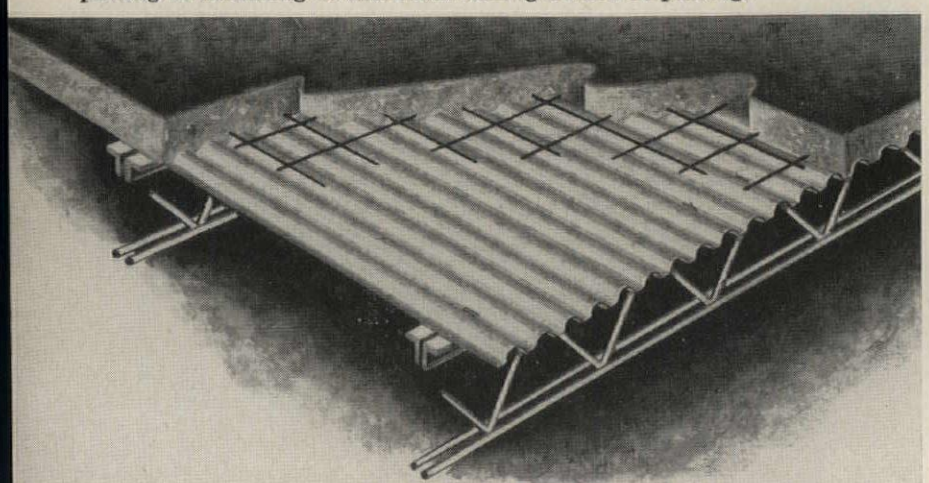
NOTE: Properties are computed in accordance with requirements of A.I.S.I. "Light Gage Cold-Formed Steel Design Manual."

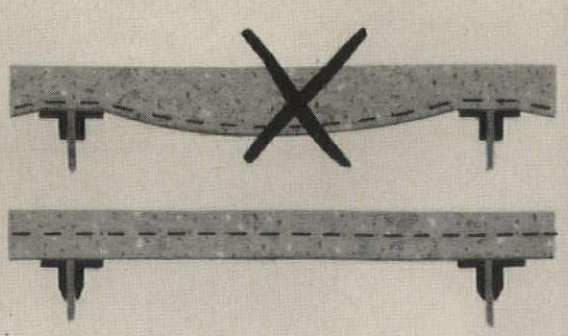
Shipping weights per square based on cover or laying widths:

Slabform Section	Black	Galvanized
Standard	79 lb	87 lb
Heavy-Duty	115 lb	126 lb
Extra Heavy-Duty	138 lb	150 lb

Slabform provides lateral restraint for supporting members and stiffens the complete assembly when it is in place and properly attached. No wooden blocking or bracing is required because there is no lateral pulling or straining of members during Slabform placing.

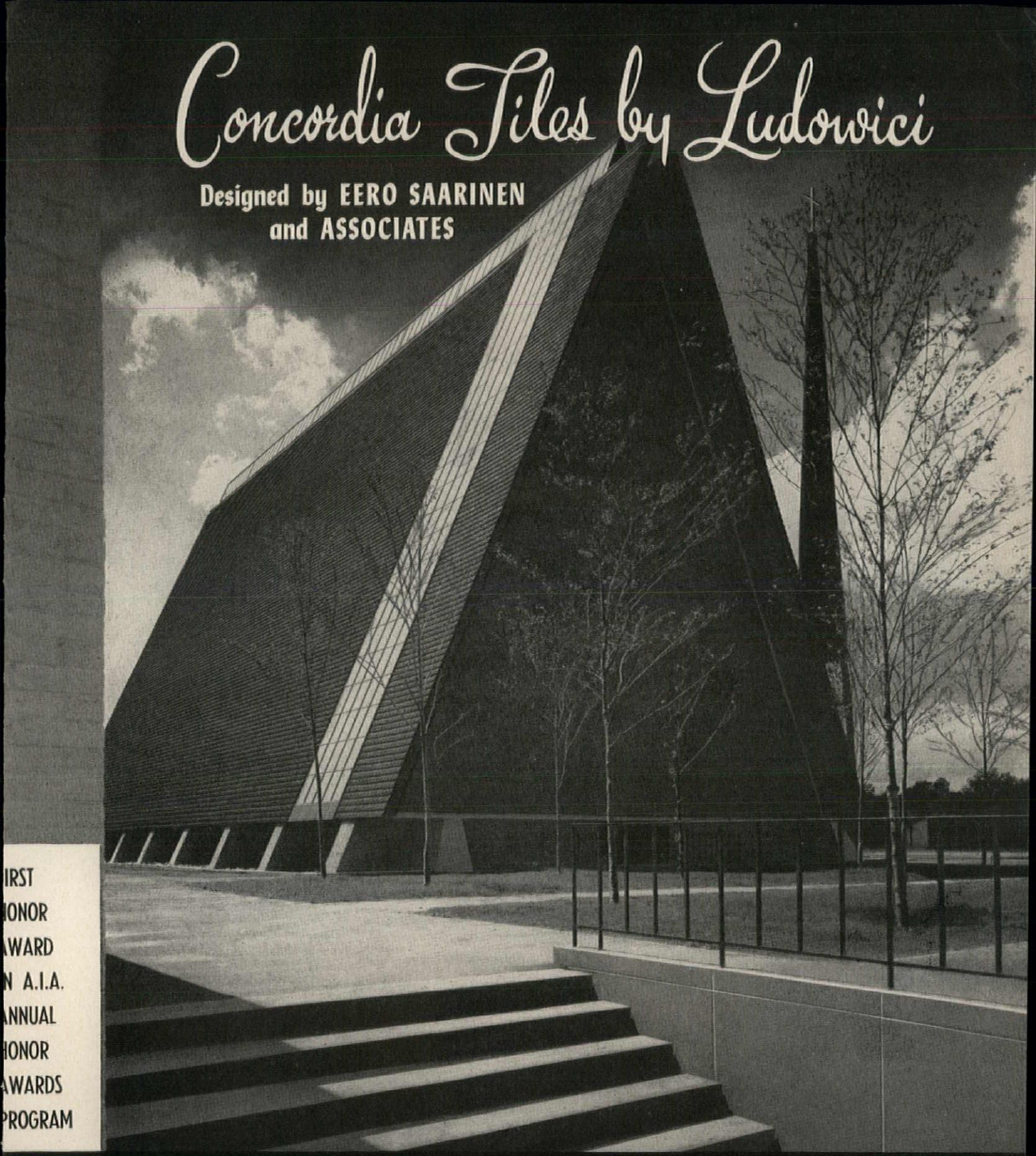
The solid form helps retain the moisture needed for continuing hydration of concrete during the curing period, resulting in greater concrete strength. Rigid Slabform holds deflections to a minimum, saving up to 20 pct in concrete.





Concordia Tiles by Ludowici

Designed by EERO SAARINEN and ASSOCIATES



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PROGRAM

Ludowici-Celadon Company was selected to produce the ceramic roofing tiles, designed by Eero Saarinen & Associates, which were so important in the full development of the architectural character of Concordia Senior College.

For over 65 years we have been assisting architects and engineers in producing roofing tiles for their specially designed work.

In addition, we offer standard patterns in a wide range of colors of roofing tile in both the Interlocking and Flat Shingle types for contemporary and traditional designs.

Branch Offices and Sales Representatives available in all Metropolitan Areas

Other Products—**QUARRY TILES** and NAILON* **Facing Brick**

LUDOWICI-CELADON COMPANY · 75 East Wacker Drive · Chicago 1, Ill.

Office Literature

continued from page 190

Grade-Aid Classroom Equipment
(A.I.A. 29-H-6, 35-B-4) Includes complete descriptions, detailed illustrations and specifications on the entire line of *Grade-Aid* steel classroom equipment. 6 pp. *Grade-Aid Corp., 46 Bridge St., Nashua, N. H.*

Automatic Coal Heating Equipment
Describes and gives full specifications and roughing-in dimensions for nineteen models of coal stokers with capacities from 15 to 630 pounds per hour. 16 pp. *Worley Equipment, Inc., 2301 Knox Ave., Chicago 39, Ill.*

Venetian Blind Brochure
Illustrates, via photos and sketches, decorative treatments possible with *Eastern's Star* horizontal and vertical venetian blinds. 16 pp. *Eastern Products Corp., 1601 Wicomico St., Baltimore 30, Md.**

Pool Catalog and Data Book
Contains illustrations, diagrams and descriptions of a complete line of pool equipment, supplies and chemicals. Of special interest are residential and commercial pool layouts which show all necessary equipment installations. 48 pp. *Modern Swimming Pool Co., 1 Holland Ave., White Plains, N. Y.*

Deming Commercial Pumps
Catalogs complete line of commercial water systems and utility pumps. Catalog C-59. *The Deming Co., Salem, Ohio*

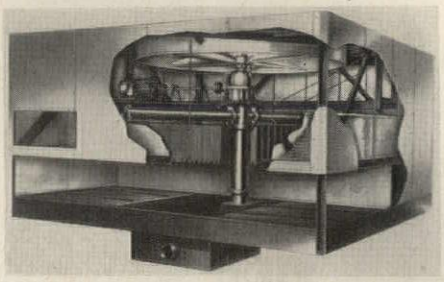
Thinlite Curtain Wall
Illustrations of fired-on ceramic colors and varied-size combinations of *Thinline* units are supplemented by detail drawings, technical data and specifications. 12 pp. *Kimble Glass Co., Owens-Illinois Bldg., Toledo, Ohio*

Wall-to-Wall Convectors
Contains complete descriptive, performance, dimension and specification data on *Perma-Trim* continuous convectors. Bulletin 259-A, 12 pp. *Modine Mfg. Co., Racine, Wis.*

Chalkboards and Cork Bulletins
Four-color catalog illustrates and gives detailed selection information on complete line of chalkboards and cork bulletin boards for classroom use. *Claridge Equipment Co., 4608 West 20th St., Chicago 50, Ill.*
**Additional product information in Sweet's Architectural File*

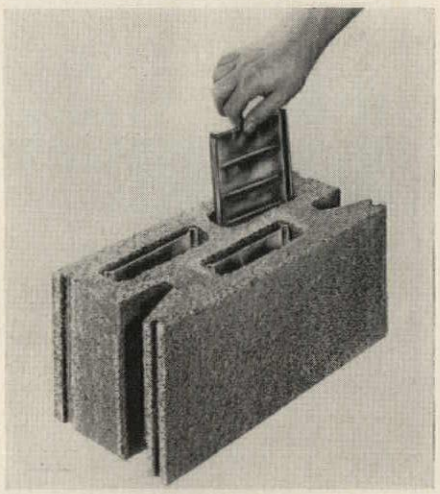
more literature on page 250

Product Reports

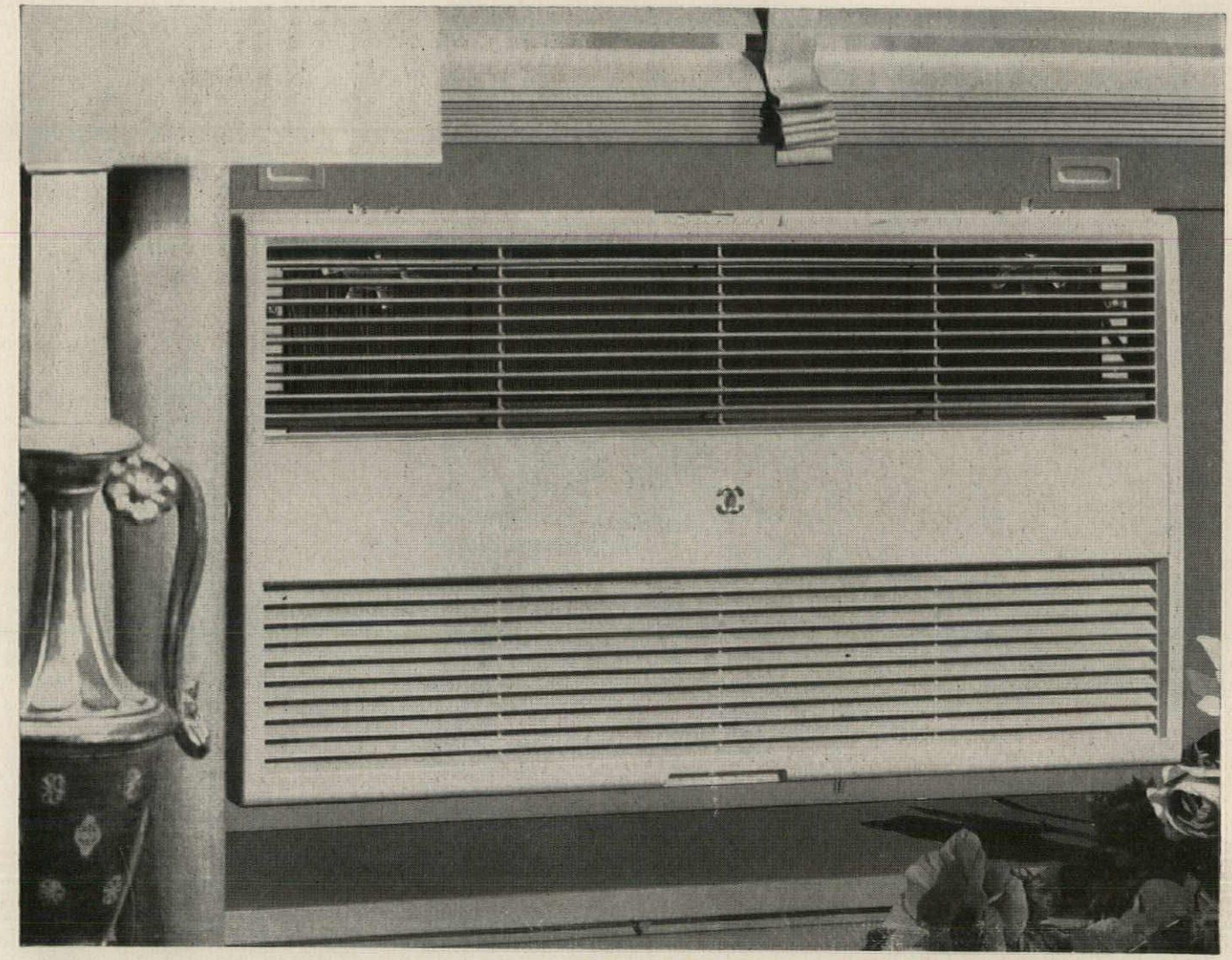


Small, High-Capacity Cooling Tower
A new large-capacity cooling tower is said to be smaller and to weigh far less than conventional units of similar capacity: operating weight of some models has been reduced by 60 per cent; floor area requirements and height by 25 per cent. This size reduction is credited to a new "fill" material used in an 18-in. thick layer inside the tower. Since the fill allows water to evaporate, it transfers heat more effectively than the "egg crate" grid now commonly employed, but it takes only one-fourth the space.

The tower is available in nine sizes between 170 and 500 tons cooling capacity. *Carrier Corp., Syracuse, N. Y.*



Insulated Concrete Blocks
Thermoflector concrete blocks, new triple-walled masonry units with staggered air cells and sealed-in aluminum foil insulators, make it possible for masonry walls to be built and insulated in the same operation, thus substantially reducing wall costs. Moreover, since their design provides effective insulation against heat loss by all three methods—radiation, conduction and convection—they also cut heating and cooling costs. The same design gives a high degree of resistance to moisture, surface condensation and sound. The blocks are made in all the units available in standard concrete blocks, and require no special handling or finishing. *Thermoflector Associates, Inc., North Sioux City, S. D.*



Carrier puts the chill on fuel costs...with coal

Air conditioner manufacturer uses coal for low-cost steam

An unusual team—the heating ability of coal and the cooling facility of air conditioning equipment! Yet Carrier Corporation, Syracuse, N.Y., found this combination profitable when expansion plans required additional capacity in its steam plant. After engineering surveys, Carrier decided to continue burning coal for economy of operation. Today modern power equipment supplies steam *economically* for heating, air conditioning and processing. Original fuel costs plus automatic operation within the power plant hold over-all steam costs to a minimum. As a result, overhead expenses—of continuing concern to industry management—are also kept at a lower level.

Consult an engineering firm

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

Coal is lowest cost fuel

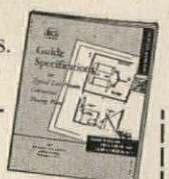
Today, *when the annual cost of fuel often equals the original cost of the boilers,* you should know that bituminous coal is the lowest-cost fuel in most industrial areas. And modern coal-burning equipment gives you 15% to 50% *more* steam per dollar, while automatic operation trims labor costs and eliminates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

BITUMINOUS COAL INSTITUTE

Dept. AR-08, Southern Building, Washington 5, D. C.

SEE OUR LISTING IN SWEET'S

SEND COUPON FOR NEW BCI PUBLICATIONS. Guide Specifications, with complete equipment criteria and boiler room plans:



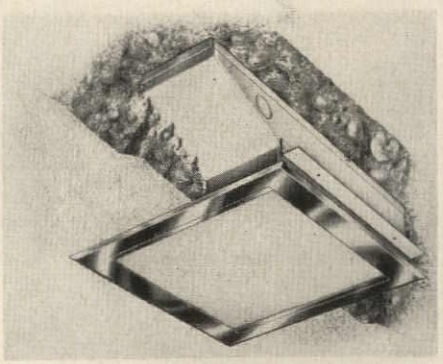
BITUMINOUS COAL INSTITUTE AR-08
Southern Building, Washington 5, D. C.
Gentlemen: Please send me:

☐ GS-1 (low-pressure heating plant, screw-type underfeed stoker); ☐ GS-2 (high-pressure heating and/or process plant, ram-type underfeed stoker); ☐ GS-3 (automatic package boiler for heating and process plants). ☐ Case histories on larger plants.

Name_____
Title_____
Company_____
Address_____
City_____ Zone_____ State_____

Product Reports

Outdoor Lighting Fixtures
Seven new units have been added to Lightolier's *Lytescape* line of outdoor lighting fixtures. One is a tripod of three lights at different heights with caps of red, blue and yellow. Two new garden lights have black and white striped shades with red caps. (One is 71 in. high and has a deep conical shade; the other, 23 in. high, has a widespread shade.) The 18-in. high path light shown above has a black hood and white perforated grille. The other three units, finished in garden green, are mushroom units: a one-light unit, a double light on a single stem, and a low-level unit with a 45 degree adjustable cap. *Lightolier, Inc., Jersey City, N. J.*



Pre-Wired Lighting Fixtures
A new series of U/L approved, shallow recessed lighting fixtures designed especially for use in concrete pour construction come equipped with a pre-wired compartment integral with the housing, thus eliminating on-the-job adaptation of fixtures designed for standard wood frame construction. Wiring within the units may be done before or after pouring. The fixtures are available in two frame types, a variety of round and square glass and lens, and either 100 or 150 watt sizes. *Prescolite Mfg. Co., 2229 Fourth St., Berkeley, Calif.*

more products on page 244

NO TARRING OR SPECIAL EXTERIOR PREPARATION NEEDED ON STEEL CONDUIT

this is one of the 10 reasons why

STEEL

CONDUIT IS BETTER

1 Greater inherent and structural strength
2 No special exterior preparation needed for concrete installations
3 Takes toughest punishments during construction
4 Uses standard tools and accessories
5 Easier to fish with a tape
6 Compatible with all building materials
7 Great resistance to corrosion and alkali reaction
8 Greater protection of conductors after installation
9 Immediate delivery from distributors and mills

10 Proven for more than a half a century in millions of installations

CLAYTON MARK, pioneer in electrical conduit since 1910, specializes in producing steel conduit that meets all building specifications. Our facilities, engineering and production know-how guarantee quality products accepted as "The Contractors' Favorites" in the industry—Electrictube, Hotkote, Galvakote and Enamelkote.

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Clayton Mark & Company
1900 Dempster Street, Evanston, Illinois
Please send me your booklet
"Why Steel Conduit Is Better"

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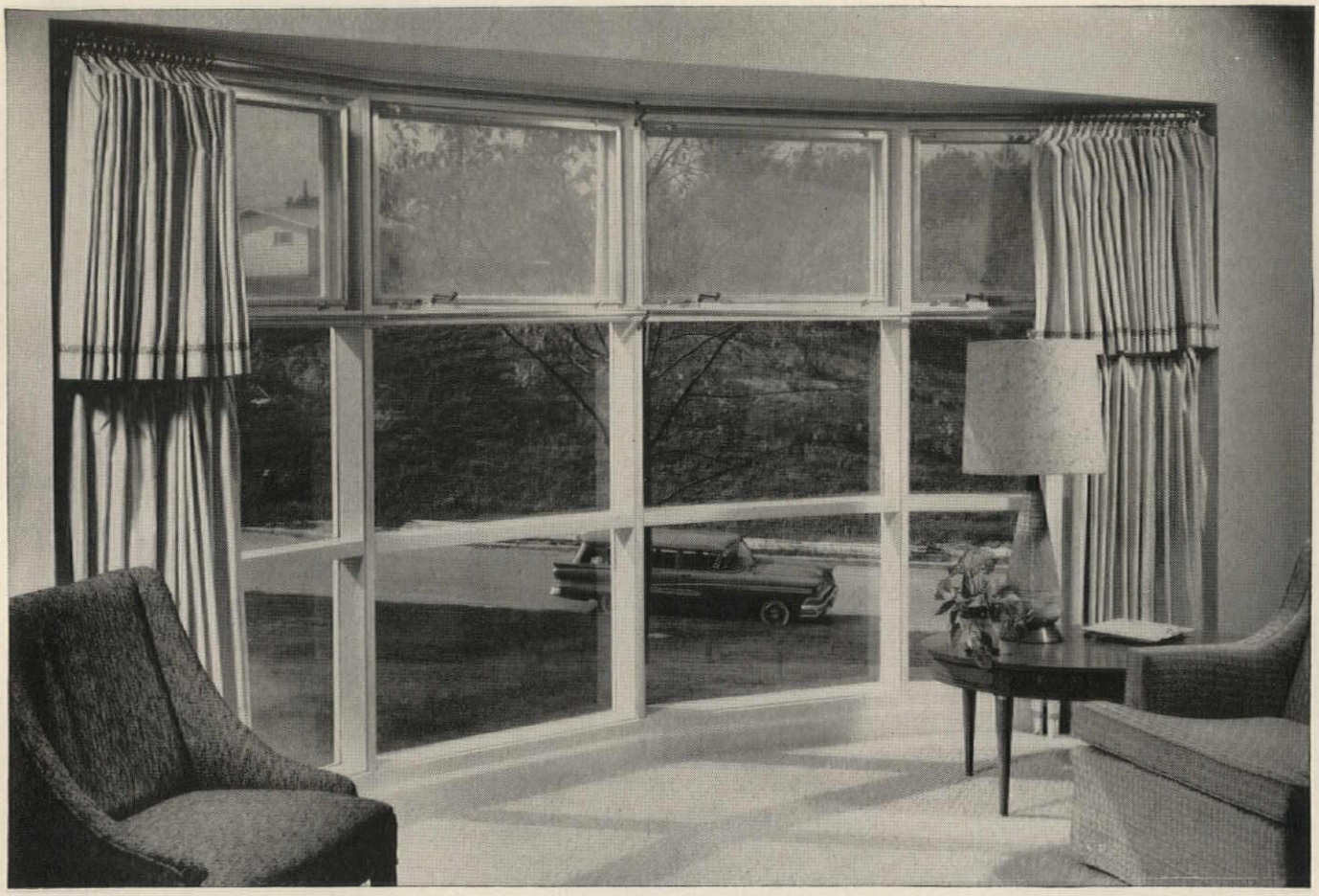


Now bow windows, too, come glazed with GlasSeal® *Thermopane*®

Home-buyer appeal for your houses can be enhanced with attractive bow windows that blend with traditional or contemporary architecture. They add a gracious touch to rooms, make them appear larger.

Best news of all is that these windows are available pre-glazed with *GlasSeal Thermopane* insulating glass—as are awning, hopper, casement, double hung and other popular types of operative sash.

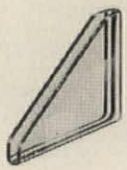
It means now, easier than ever before, you can furnish people what they want —even in a low-cost home. Solid comfort in winter and summer! A home economical to heat and cool! And no storm sash to fuss with! And, starting Aug. 3, 1959, the *Thermopane* trade-mark will be delicately, but plainly, inscribed on the glass so people will know they're getting the best.

Lighter weight! *GlasSeal Thermopane* units made with *single strength* sheet glass are up to 25% lighter than units made with *double strength* sheet glass. Windows are easier to operate, and the load on casement hinges is reduced. The insulating value is equal to that of double strength glass with the same air space.

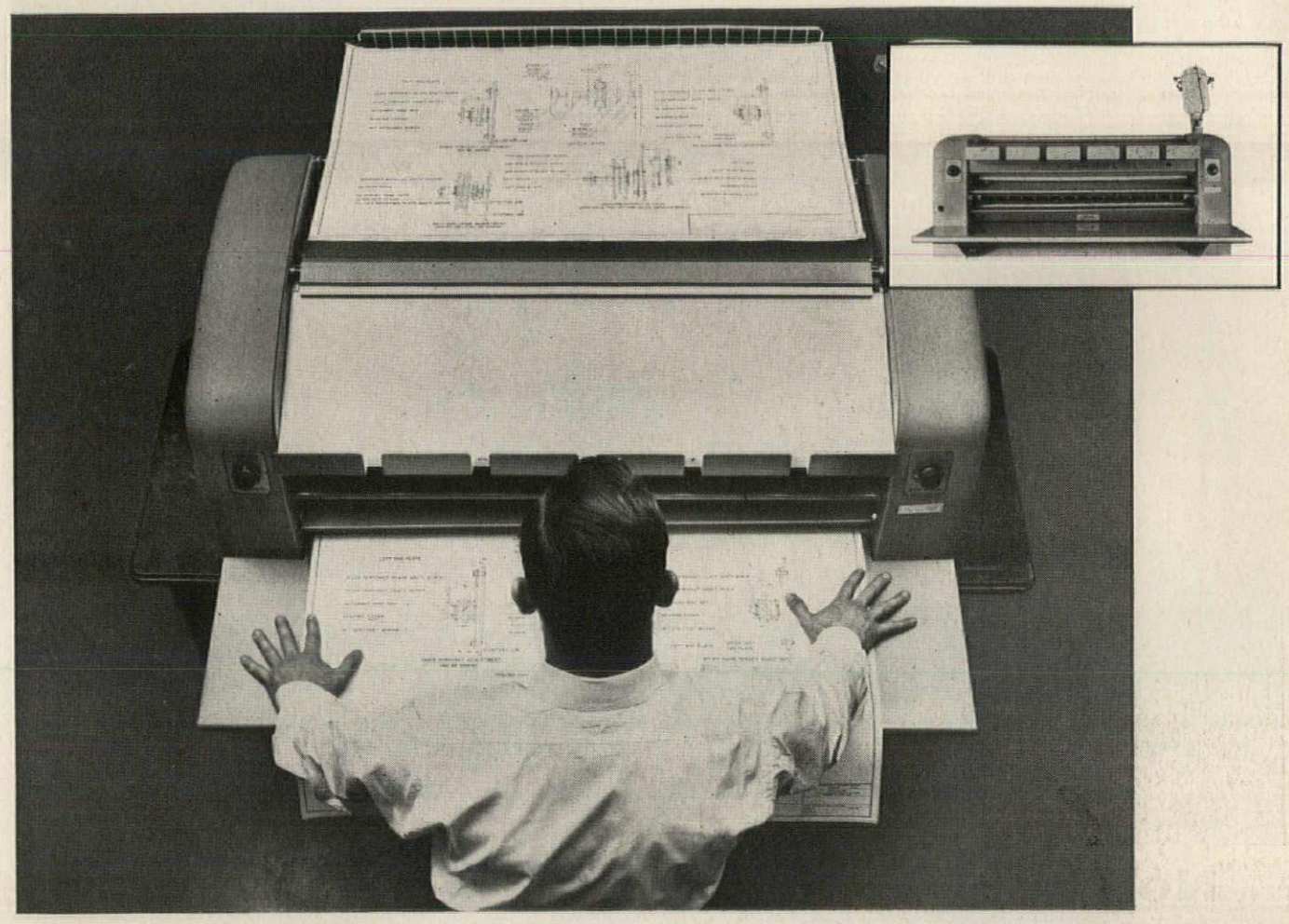
For additional information, call your L·O·F Distributor or Dealer (listed under "Glass" in the Yellow Pages), or write to Libbey·Owens·Ford Glass Company, 608 Madison Avenue, Toledo 3, Ohio.

L·O·F GLASS

Thermopane
INSULATING GLASS



Made in the U.S.A. by LIBBEY • OWENS • FORD only • TOLEDO 3, OHIO



Announcing . . .
Ozalid's new 30-inch

STREAMLINER 100

Now you can have a compact table-top whiteprinter with "big machine" features at a slim-budget price. And you can enjoy the convenience of on-the-spot printmaking round the clock. Make all the prints you need, inexpensively and without delay. There's no make-ready or cleanup . . . anyone can learn to use the 100 in minutes. Check these important features:

- Makes prints up to 30" wide by any length
- Front and rear print stacking
- Simple dry-developing system
- Easy turn-on, turn-off controls
- Smooth-running electronic drive with speeds up to 14 fpm
- Hook-on tracing receiving tray (optional at extra cost)

And the versatile Streamliner 100 handles the whole range of Ozalid sensitized materials . . . lets you turn out gum-backed labels, photographs, cloth maps, or color transparencies!

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OZALID

Division of General Aniline & Film Corporation
In Canada: Hughes-Owens Co., Ltd., Montreal

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Please send me free descriptive brochure on the new Streamliner 100.

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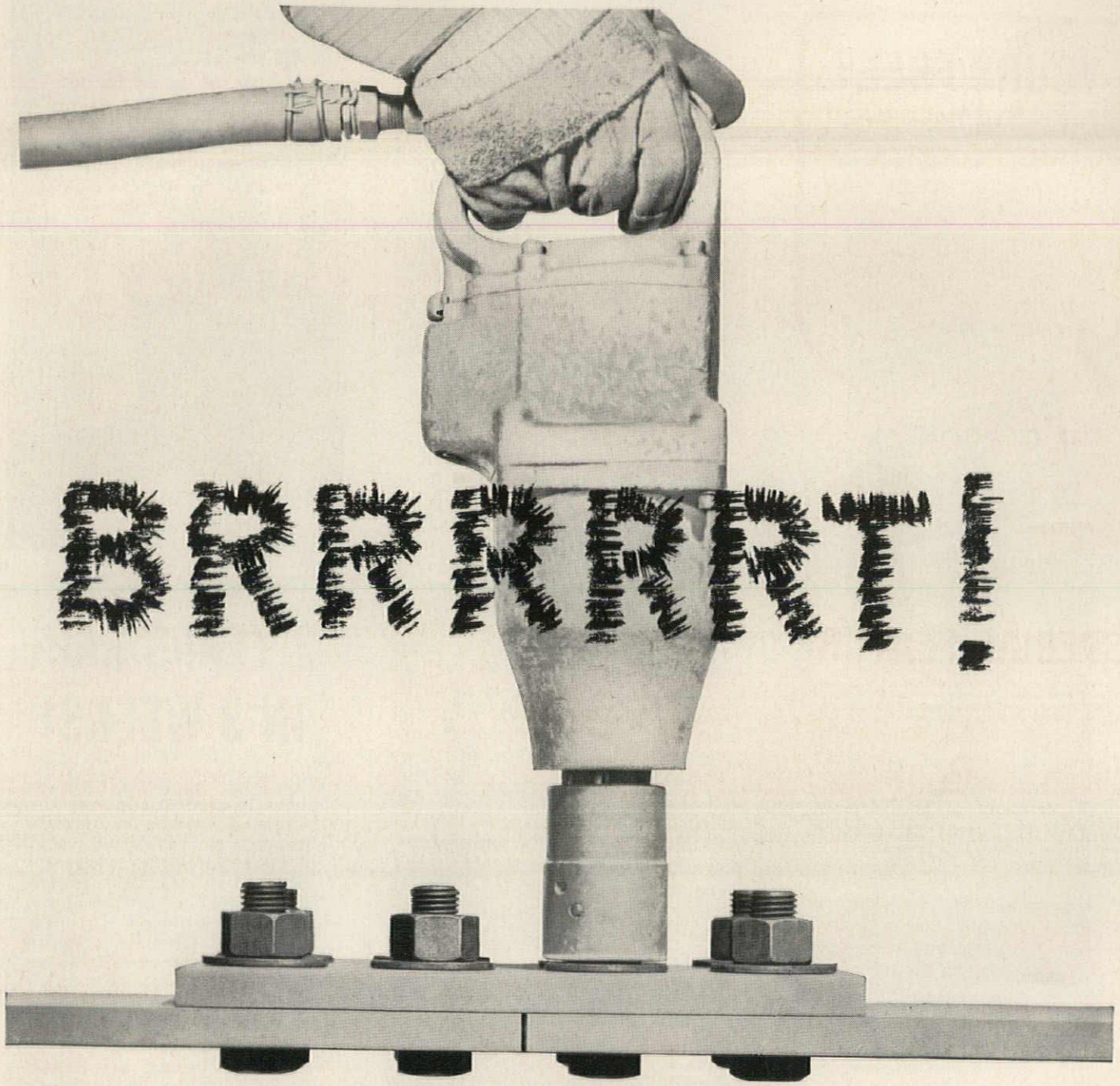
Product Reports

Plastic Coating for Concrete Roofs
A liquid plastic in ready-to-use form is said to have many advantages over conventional tar or asphalt felt built-up roofing for concrete and cementitious roof decks. The plastics form seamless, multi-layer coatings without buckles, seam gaps, blisters or wrinkles; accidentally damaged areas are easily located and simply repaired; and color selection is almost limitless. The coatings can be rapidly and economically applied with manual or pressure feed rollers or with high pressure spraying equipment. Bond is positive. In addition, the incorporation of metallic (copper or aluminum) or opaque color pigments is said to improve weather resistance and relieve high vapor pressures to prevent blistering or peeling of the otherwise vapor-tight plastic film. *Permalume Div., Grems Mfg. Co., Klamath Falls, Ore.*

Easily-Installed Submersible Pump
The *Rapidayton*, a new water pump with capacities up to 2400 gallons per hour and pressures up to 80 lb, meets water requirements for homes beyond the reach of city water mains. Adaptable to both shallow and deep wells, this two-wire model is easily installed by connecting it to the discharge pipe and lowering it into the well until it is below the lowest drawdown point. A water-tight electric cable which leads from the pump to the surface of the well is then connected to a motor overload protection box, and the fittings connected to a pressure tank. Since the pump operates completely submerged, hermetically sealed in oil, it takes no space in the home, makes no noise, needs no priming, requires no maintenance. *Tait Mfg. Co., 500 Webster St., Dayton 1, Ohio*

Fire-Retardant Dispersions
Snuff-Flame water dispersions are said to impart fire-retardancy to any type of coating or product when added to a finished product or incorporated in a formulation. They are compatible with all paints including polyvinyl acetate, acrylic, alkyd, butadiene-styrene, neoprene, varnish, asphalt and so forth, and may also be used as a prime coat for cellulose fiber board or new wood. In the latter case, flame spread ratings of 25 ft have been measured by the "tunnel test" method for one coat systems at 100 to 150 sq ft per gallon coverage. *Flame Control Products Co., 18 West 40th Street Way, Kansas City, Mo.*

more products on page 238

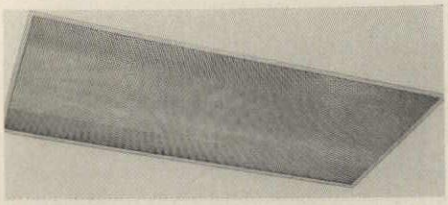


It takes just seconds to tighten a high-strength bolt with an air wrench

And that's why architects and engineers specify high-strength bolting when they want steel to go up fast. It's speedy, and it's *sure*. Every joint is tight—*permanently!* Safe, too, since there's no fire hazard, or danger of injury from tossed rivets. And because it's far less noisy than riveting, bolting is especially welcome in hospital and school zones. Bethlehem supplies a full size range to meet every construction need . . . and the requirements of ASTM Specification A-325. Plan to use Bethlehem High-Strength Bolts on your next job.

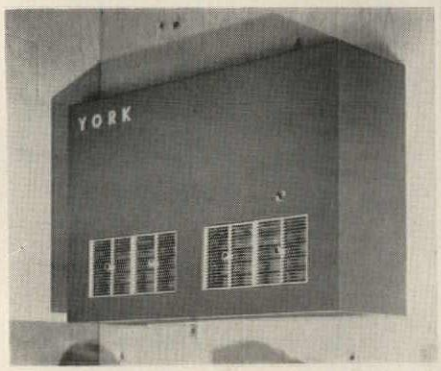
BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.
Export Distributor: Bethlehem Steel Export Corporation

BETHLEHEM STEEL



Flat Prismatic Lens Panel
Clear, one-piece flat plastic lens panels designed for use as covers for shallow or recessed 2 by 2 and 2 by 4 ft fluorescent luminaires employ a series of concave prisms that control brightness in the normal sight angles while increasing the light on the working plane. Fabricated from a light-stabilized polystyrene, the *Optikube* lens panels are approximately one third the weight of glass, have a high impact strength and excellent dimensional stability. *Westinghouse Electric Corp., Lighting Div., 1216 West 58th St., Cleveland, Ohio*

Residential Heat Pump
The York residential heat pump, a miniature version of the company's larger commercial units, is a self-contained, air-to-air unit designed to provide both hot and cold water for use in air conditioning systems. It consists of two basic elements: the compressor unit, which can be installed in attic, carport, garage, or through the wall in utility rooms or closets; and an outdoor air unit. A two-stage cooling operation gives continuous effective control of humidity during summer cooling. In addition, single stage cooling may be used if the cooling load is relatively light, or both stages can be operated simultaneously to cope with exceptionally heavy loads. The unit also



features an automatic electric defrosting system that removes frost from the outside coil during the heating season, without reversing the cycle. *York Div., Borg-Warner Corp., York, Pa.*

Self-Extinguishing Insulation
A new self-extinguishing polystyrene "bead" and board is said to meet most state and municipal codes and ordinances relating to a material's fire retardant qualities. Made from expandable polystyrene beads welded together into a homogeneous, light-weight mass, *Uni-Crest* can be manufactured in densities of from 1 to 20 lb per cu ft. Its low heat transfer rate and extremely low moisture absorption (less than 2 per cent) make it particularly suitable for plaster base and perimeter insulation. It comes in molded slab, block or sheet form in lengths up to 12 ft, widths up to 4 ft and thicknesses up to 8 in. *United Cork Companies, 50 Central Ave., Kearny, N. J.*

more products on page 236

ARCHITECT: DONALD F. HAINES, AIA

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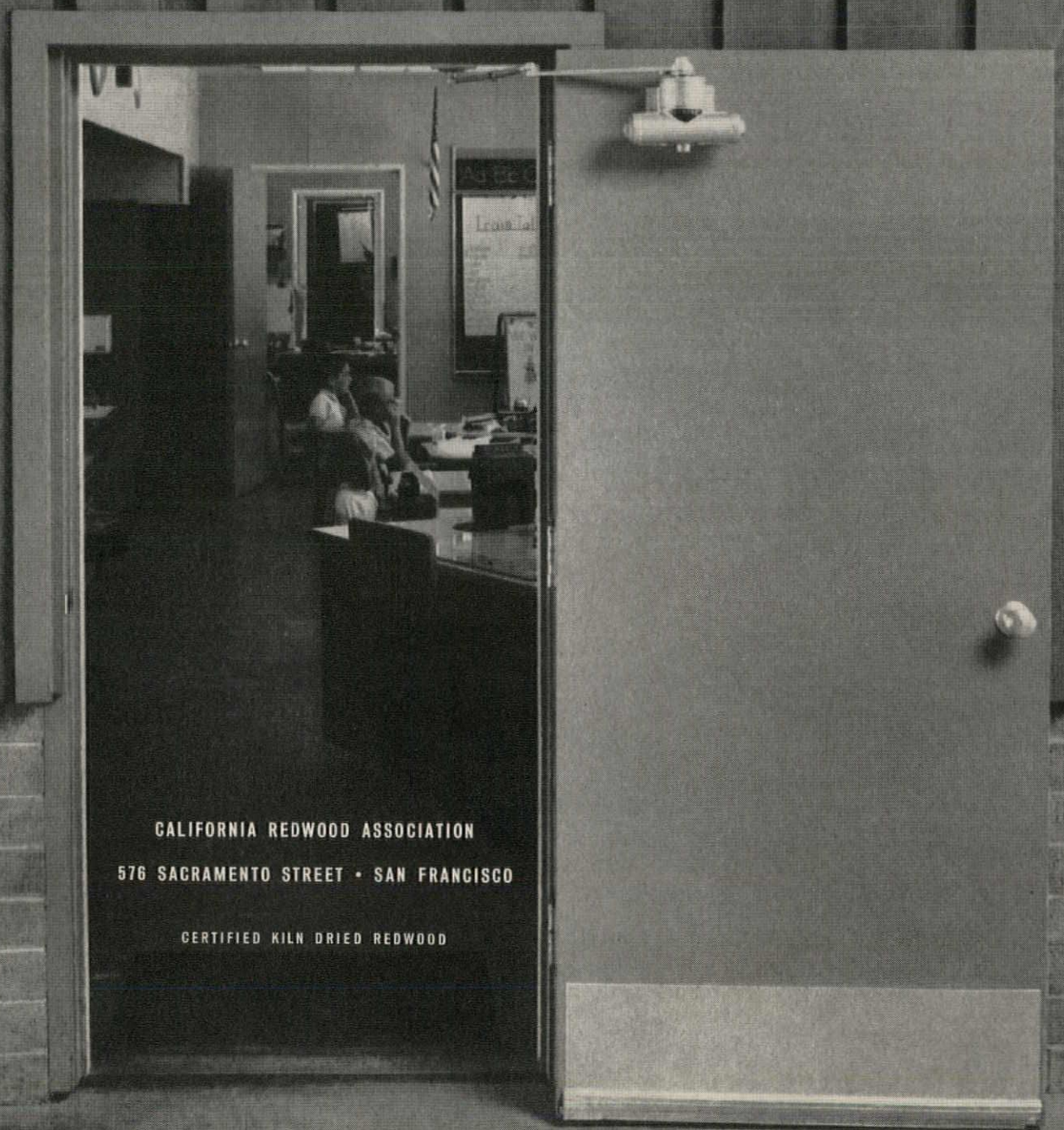
All the wonderful warmth of wood is best expressed in redwood

THE DECISION TO SPECIFY REDWOOD FOR SCHOOL BUILDINGS is based on very practical as well as esthetic considerations. Economy-minded school boards are well aware that Certified Kiln Dried Redwood provides exceptional resistance to weather, decay and even fire...know that it can be easily maintained at minimum cost. Furthermore, the natural beauty of redwood's color and texture lends itself to the clean statements that are characteristic of contemporary school architecture.



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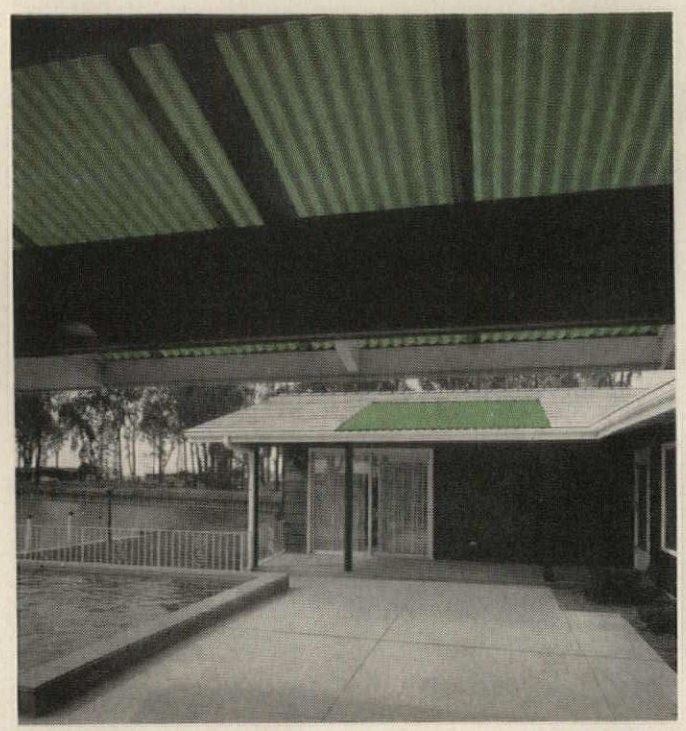

Structoglas Roof Sections let soft, tinted sunlight in to this handsome contemporary home — contrast pleasantly with natural redwood construction. These shatterproof fiberglass panels are press-molded of acrylic polyester resin. Never need painting, outlast a hundred hailstorms. When you want light without breakage and beauty without maintenance, always specify Structoglas. Write for detailed literature and specs.

Sandusky Development Company, Sandusky, Ohio – Architect: William Gabriel

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VICRTEX DESIGN

the vinyl fabric wallcovering that looks like stippled paint... and lasts a building-time

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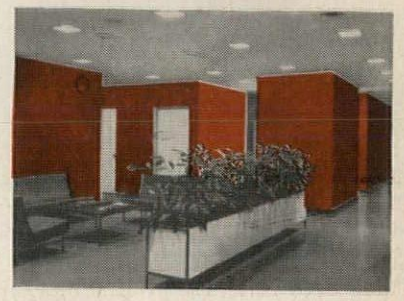
STIP-L-TEX



VICRTEX VEF STIP-L-TEX gives walls a fine, pinpoint finish that duplicates perfectly the stippled painting of craftsmen . . . the beautiful even finish previously achieved only through multiple coats. It has a beautiful flat mat finish . . . without sheen, shine or seam showing. Easily washable, it will never show abrasion, marks, digs, scuffs, the yellowing or fading of time.

For • general offices where nicks, scratches, marks, etc., start the day they move in • corridors where constant rubbing, bumping and heavy traffic take their toll • partitions (metal or otherwise).

Like all VICRTEX VEF wallcovering fabrics, STIP-L-TEX can be hung on any smooth surface—wood, metal, glass, plaster, even *bare* structural black or untaped wallboard.

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NEW DUNHAM-BUSH 'CHC'

COOLING HEATING CONDITIONER

'CHC'

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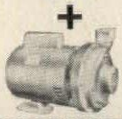

CENTRIFUGAL PUMP

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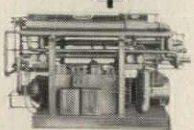

'PC'

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(WHERE WATER USAGE IS LIMITED)

Where there's a need, there's a Dunham-Bush product!

The new "CHC" Cooling-Heating Conditioner continues the Dunham-Bush pattern of product progress providing "one-source-one responsibility" for all your air conditioning, heating, refrigeration and heat transfer needs.

"CHC" is a compact fan coil unit for mounting between-the-studs of a wall structure, designed to meet the smaller space and capacity requirements of motels, hotels, apartments and residences. Together with Heat-X Package Water Chillers, Dunham-Bush Pumps, and Water Savers, all the necessary equipment to meet complete specifications are provided.

Dunham-Bush "CHC" units are available in two basic sizes—Model CHC-150 and CHC-300. The standard unit is basically designed for free standing use readily adaptable for semi-recessed applications. Each standard unit can be wall mounted, fully exposed or semi-recessed, as required for "off the floor" installations. Matching trim pieces are available for finishing purposes on semi-recessed applications.

Other available features include fresh air wall boxes to meet ventilation requirements calling for the introduction of fresh air up to 20% of the rated CFM: rear discharge sections and grilles to permit discharge of up to 50% of the rated CFM to adjacent rooms where the standard unit is installed on a common interior partition.

Keep up-to-date on the latest! Write for complete "CHC" specifications or call your Dunham-Bush sales engineer.

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AIR CONDITIONING • REFRIGERATION • HEATING • HEAT TRANSFER

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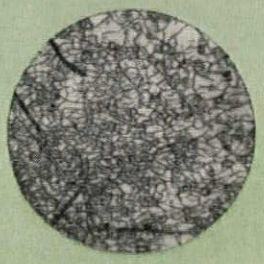
Look for the label that assures WEATHER-RESISTANCE

When you see this label on a glass-fiber reinforced panel, you can stop worrying about how the panel will look after years of outdoor exposure. The label certifies that the panel is made with PARAPLEX P-444 acrylic-polyester resin, and means that the panel will show practically no discoloration or fiber evidence even after years of exterior use. The photomicrographs below show the difference, after 36 months, between test panels made with PARAPLEX P-444 and those made with conventional light-stabilized polyester resin.

Only panels made with PARAPLEX P-444, the Rohm & Haas acrylic-polyester resin, can bear this identification label. We will be glad to send you the names of manufacturers who use PARAPLEX P-444.

36-MONTH FLORIDA EXPOSURE TEST



Conventional light-stabilized resin

PARAPLEX P-444

Chemicals for Industry

ROHM & HAAS COMPANY

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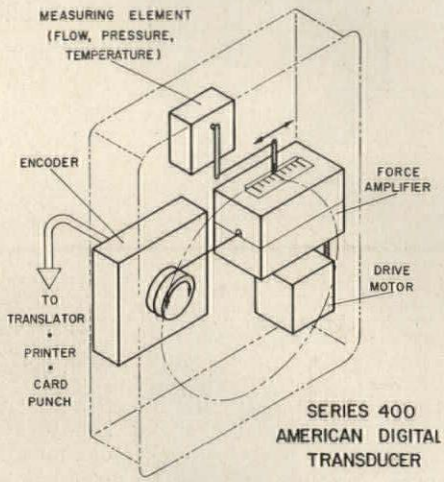
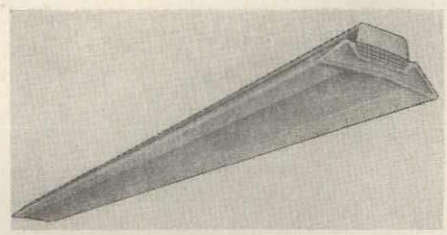
PARAPLEX P-444

Product Reports

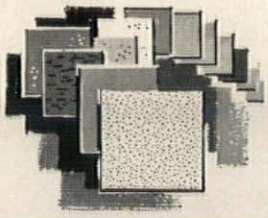


Meter for Power Plant Variables
The new Series 400 *American* digital transducer measures air conditioning and heating power plant variables and provides digital encoding for remote readings of flow, liquid level, pressure or temperature. Thus operating costs of a central air conditioning system can be accurately broken down among the various tenants in a multiple occupancy building. The primary measuring element is connected to a mechanical amplifier which positions the shaft of an encoder (analog to digital converter). The encoder in turn may be connected to a translator or other equipment for readout, printout, data handling or control. *Mechanical Components Dept., American Meter Co., Inc., P. O. Box 306, Garland, Tex.*



Economical Fluorescent Fixture
The *Fairview* series of fluorescent fixtures for surface or suspension mounting offers the comfort and quality of completely enclosed fixtures at a cost little more than that of exposed lamp units. Available in both 4- and 8-ft models for rapid start and slimline lamps, the fixture has a one-piece, prismatic plastic enclosure with translucent side diffusers to permit uplighting. It is said to be easy to install and maintain, and to be particularly suitable for low ceiling applications. *Day-Brite Lighting, Inc., 6260 N. Broadway, St. Louis 15, Mo.*

more products on page 228



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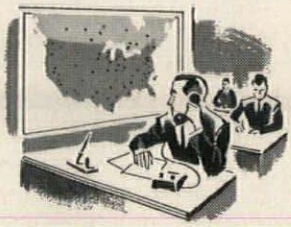
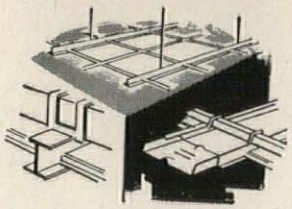
More products to choose from, the newest in designs, and manufacturing quality backed by 34 years of job-proved performance.



2. FRANCHISED DISTRIBUTORS

Your Acousti-Celotex Distributor is a member of the world's largest acoustical organization . . . your assurance of engineering skill, dependable service.



3. INSTALLATION VERSATILITY

With the widest variety of installation methods as well as products, your Acousti-Celotex Distributor can more effectively meet the design needs of every job.

4. SOUND CONDITIONING ANALYSIS

Expert recommendations on materials and installation needed to reduce noise levels; prevent noise spread; improve hearing conditions.

5. TRAINED PERSONNEL

Distributor representatives are thoroughly trained by Celotex engineers . . . continually kept up-to-date on latest developments in acoustics and construction.

6. JOB CRAFTSMANSHIP

"The best crews on the scaffold," proud of their fine reputation, working with the products they know so well . . . Acousti-Celotex materials.

QUALITY "PLUSSES"

7. CEILING ENGINEERING

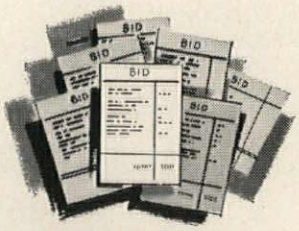
The best in construction planning assistance, from the organization that installs more ceilings of all types than any other in the world.

8. ADVANCE INSPECTION

Pre-checking of all job conditions insures proper permanent installation and guards against future troubles.

9. JOB SUPERVISION

Progress of every job repeatedly checked by your distributor's experienced job supervisors – insuring that high Acousti-Celotex standards are maintained.



10. COMPETITIVE PRICES

You get all these quality plusses without paying more . . . greater value in products, engineering skill and job dependability, without extra cost!

ACOUSTI-CELOTEX SOUND CONDITIONING

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Products to meet every problem...every building code

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TEXTURE-TONE*: New dramatically textured incombustible mineral fiber tile by Celotex . . . creates beautiful monolithic ceiling effect.

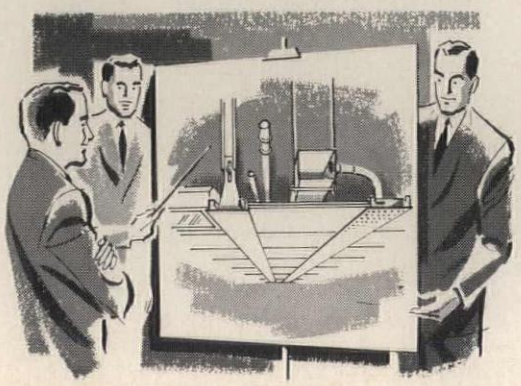
Product Design Leadership...one of the

ACOUSTI-CELOTEX

Leadership in product design is one of the "differences" you get with Acousti-Celotex . . . protective differences that are your assurance of immediate and continuing satisfaction . . . differences worth discovering because you care about costs and results . . . worth demanding because you share the Celotex ideals of skill and service.

The difference can be summed up in one proud phrase: "Acousti-Celotex, world's most experienced sound-conditioning organization." Or it can be detailed, as we have done here under the title: "Quality Plusses." The result, for you, is the same: the unequalled assurance that comes of identification with Leadership.

You can give your work (and your client) the benefit of this Protective Difference by firm specification of Acousti-Celotex. No project is too big, no job too small. Your Acousti-Celotex distributor will welcome your call, or write the Celotex Corporation direct.



Ceiling Consultation Service

Your Acousti-Celotex Distributor offers valuable assistance to you and your staff in planning ceilings that take advantage of new design and function opportunities.

Because he is a member of the world's largest acoustical organization, you get the benefits of experience and technical knowledge resulting from installations in all types of buildings, in all sections of the country. We invite you to take advantage of this Service on your next project, large or small, at the planning stage.

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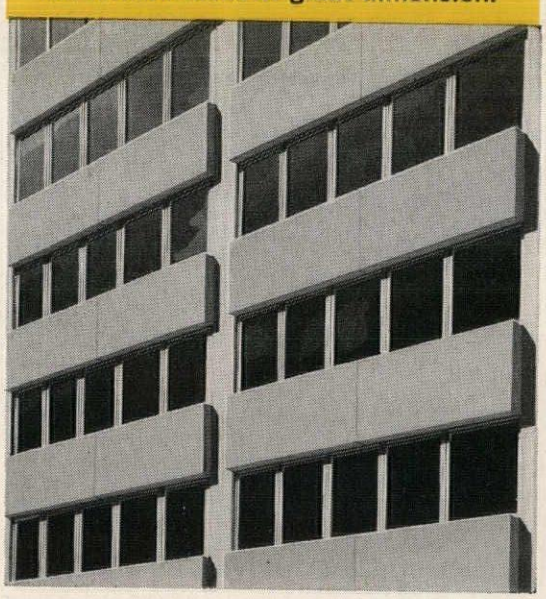
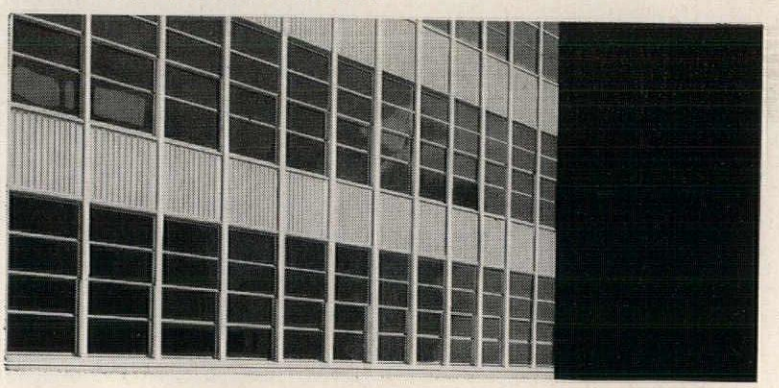
CURTAIN WALL...
as you like it

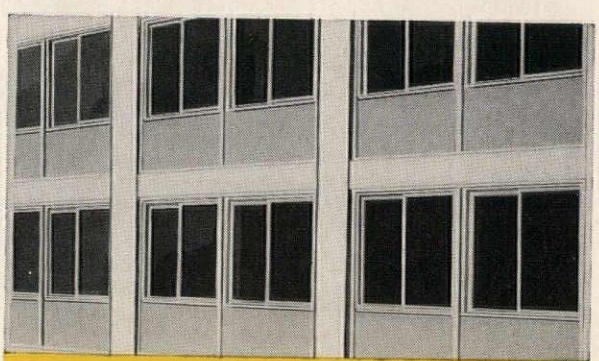
ALBRO custom curtain wall—in aluminum, bronze and stainless steel—gives the architect a complete range of systems to meet his every design requirement. From engineering to installation, ALBRO assumes total responsibility for the quality and performance of all architectural fabrications leaving its plant. This policy has stood for ALBRO's 30-years-plus of metal engineering know-how.

SERIES 100 . . . FOR SPEEDY ENCLOSURE OF MEDIUM AND HIGH-RISE STRUCTURES. Large flat panels, integrally stiffened by an exclusive process, have blemish-free surfaces of great dimension.



SERIES 200 . . . PROVIDING EFFECTIVE TREATMENTS FOR MULTI-STORY BUILDINGS. ALBRO's light commercial grid offers many curtain wall design combinations from an extensive range of mullions, panels and windows.





SERIES 300 . . . FOR DESIGN VERSATILITY WITH LOW-RISE BUILDINGS. ALBRO's structural aluminum grid system fits within the building framework and accepts all panel materials and window types.

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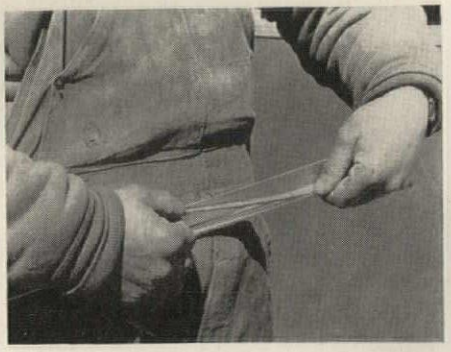
Write for our curtain wall, window, and architectural metalwork catalogs, or see them in Sweet's

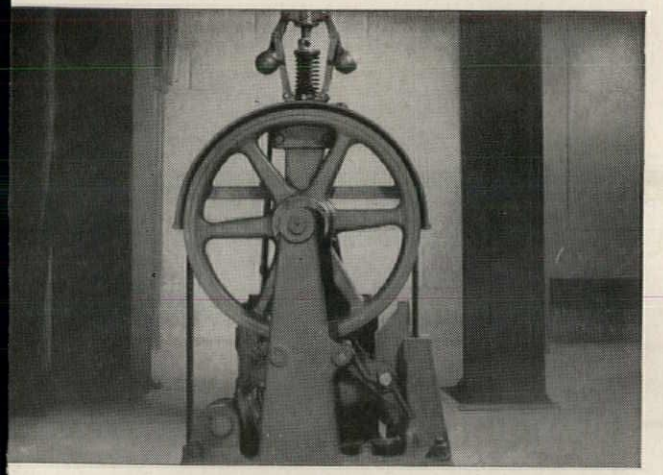
Product Reports



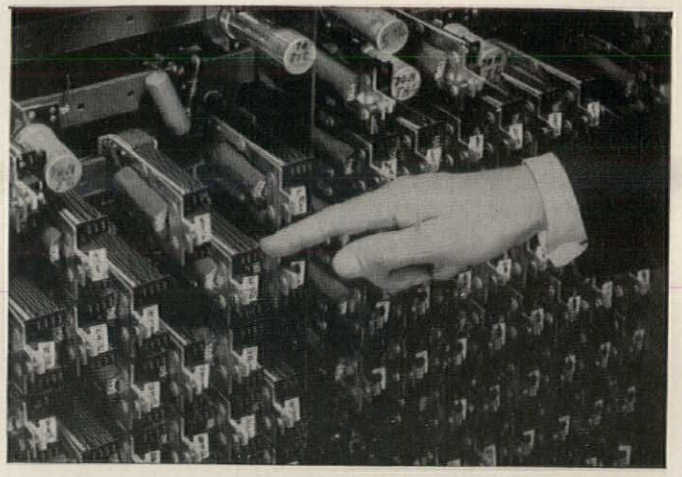
Rubber Sealing Tape
A nylon-reinforced synthetic rubber sealing tape, U-100, promises substantial time savings in curtain wall construction and maintenance. In a recent installation, exterior porcelain panels were placed in about a quarter of the normal time by simply putting lengths of the rubber tape on four aluminum beads which snapped into place on each side of the panels for permanent installation. The U-100 tape is also used where flexible gasketing and sealing is required, as an anti-squeak buffer between metal panels, and as weatherstripping and caulking. Tests show good resistance to oxidizing and hardening, virtually permanent flexibility and excellent adhesion. The tape comes in black and gray, and a variety of widths, thicknesses and roll lengths. *United States Rubber Co., 1230 Avenue of the Americas, New York 20, N. Y.*

Low-Cost Tub Enclosure
To fill the need for a quality tub enclosure at low price, *ShoDoCo* has introduced the economical new "Venus" enclosure which fits any five-foot recessed bathtub. It is glazed with heavy (7/32 in.), patterned rolled glass and framed in aluminum with a standard *Alumilite* finish. *Shower Door Co. of America, One Permalume Place, Atlanta 18, Ga.*

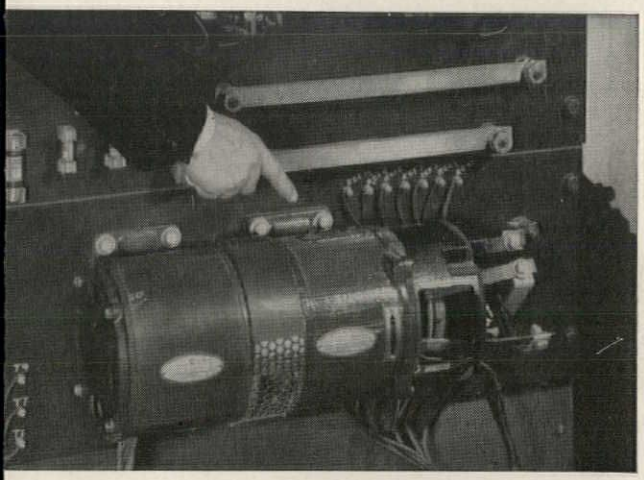
more products on page 224



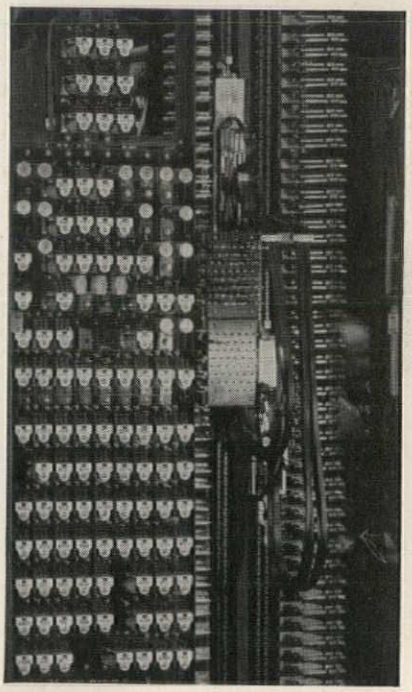
EET THE GOVERNOR... Here's the "boss" of the afety" shown at the lower left. It's constantly alert to car eed and its normal function is to stop the car at the next or landing in the event of overspeed. However, should overeed be excessive, its trigger-like reflexes will activate the afety" immediately and automatically.



SHUNTLESS RELAYS . . . Relays are vital parts of elevator control systems. Relays with small shunts (wires) connected to moving contacts break down because of repeated flexing. Result: erratic operation, elevator shutdowns, annoyance to passengers and building management. You'll see how Westinghouse solved this problem by *eliminating all shunts* from these relays.



APPY LANDINGS . . . Courtesy of Rototrol® — A estinghouse-exclusive speed regulating system. Encased in is compact unit are electronic thinking devices which control evator speed patterns through the entire cycle from start to op. Rototrol is the heart of the Westinghouse landing system. controls a four-ton elevator with incredible ease, landing it ghtly as a feather.



MINIATURE ELEVATOR

. . . See the electronically-driven selector which is a miniature "elevator" that moves in synchronism with each elevator car. Mounted on it are contacts used for many purposes, the most important of which is to "tell" the control when the car reaches the point at which slowdown should begin for a registered call. It then follows through, electrically, to do its part in achieving a comfortable, accurate stop.

"Because the cost of elevators is a major capital investment in constructing a building, it certainly made sense to me to take a personal interest in the selection of the elevator system. I saw the Westinghouse '30-Minute Pre-Investment Eye-Opener' and am glad I did because my own opinion of Westinghouse products was bolstered by what I saw. Yes, we ordered Westinghouse elevators for our 100 Church Street Building in New York City."

Erwin S. Wolfson
Chairman of the Board
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PREVIEW HIGHLIGHTS
FROM THE WESTINGHOUSE ELEVATOR

"30-Minute PRE-INVESTMENT Eye-Opener"

We extend a personal invitation to experience for yourself this revealing demonstration of operatorless elevator performance

Executives who are planning construction of new buildings—or modernization of existing ones—are invited to investigate before investing. And here's an interesting and educational way to do it. Westinghouse asks but 30 minutes of your valuable time to have you experience a special—and personal—demonstration of operatorless elevators. We call it the "30-Minute Pre-Investment Eye-Opener" because it takes you "backstage" and shows what's behind Westinghous 4-star elevator performance.

Make arrangements to see the "30-Minute Pr Investment Eye-Opener" by calling the Westinghous Elevator Division Sales Office in your city—or b writing to: R. H. Wagner, General Manager, Wes inghouse Elevator Division, 150 Pacific Avenu Jersey City 4, New Jersey.

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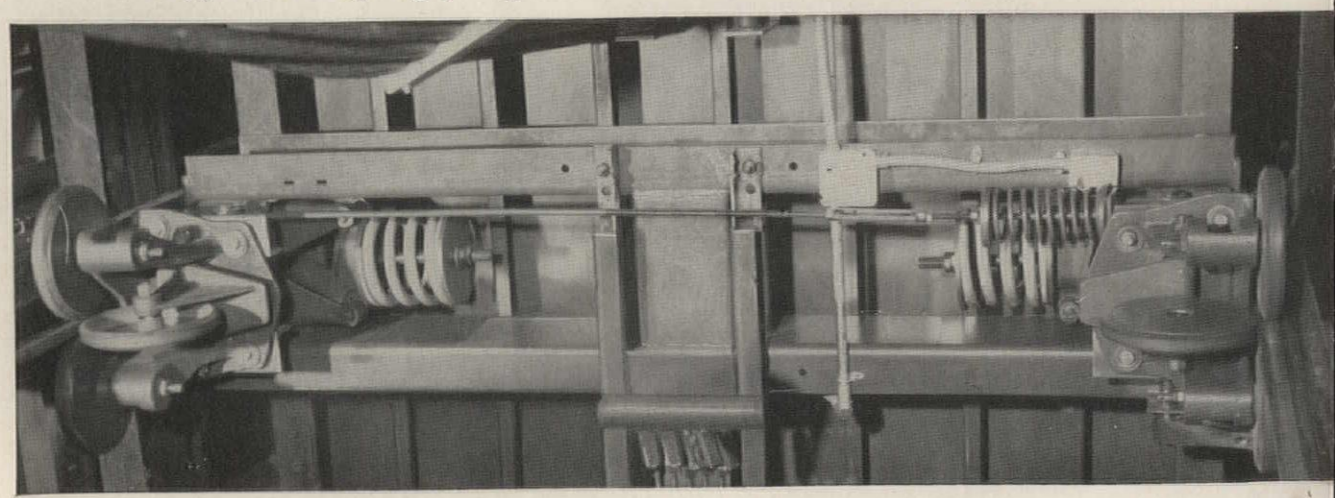
SAFETY UNLIMITED . . . You'll see why safety performance is exceptional in a Westinghouse Operatorless System. In addition to the many other safety features, should elevator speed become excessive, powerful steel jaws grip the guide rails and bring the car to a quick, smooth, comfortable stop.



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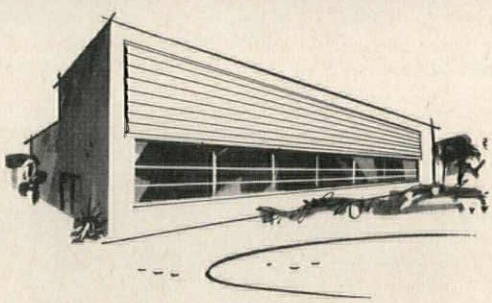
VERTICAL AIRFOILS fixed or operating

CANTILEVER AIRFOILS spans to 20 feet



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C-S Airfoils offer a new modern extruded shape, with superior structural properties, that permits unprecedented design opportunities in solar shading.

C-S Airfoils are seamless extrusions, unmarred by exposed fastenings. They can be used vertically or horizontally with equal freedom, **in either** fixed or operating installations.

Their clean, interesting shape makes C-S Airfoils pleasing to the eye. Their surface may be plain or patterned, and you have a choice of many finishes, clear or color.

C-S Airfoils are functionally right, shade efficiently and are economical.

C-S Airfoils are available in blade widths from 4 to 48 inches.

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☐ literature ☐ specifications ☐ price data

☐ the name of your local representative so that we may inspect product sample.

NAME _____

FIRM _____ **TITLE** _____

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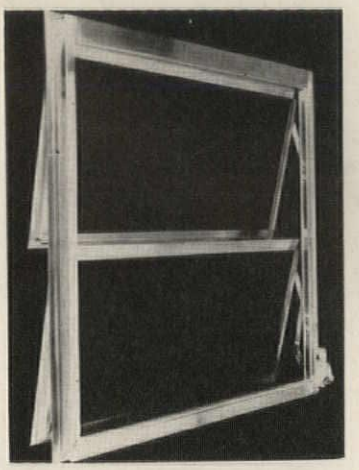
Product Reports

continued from page 189

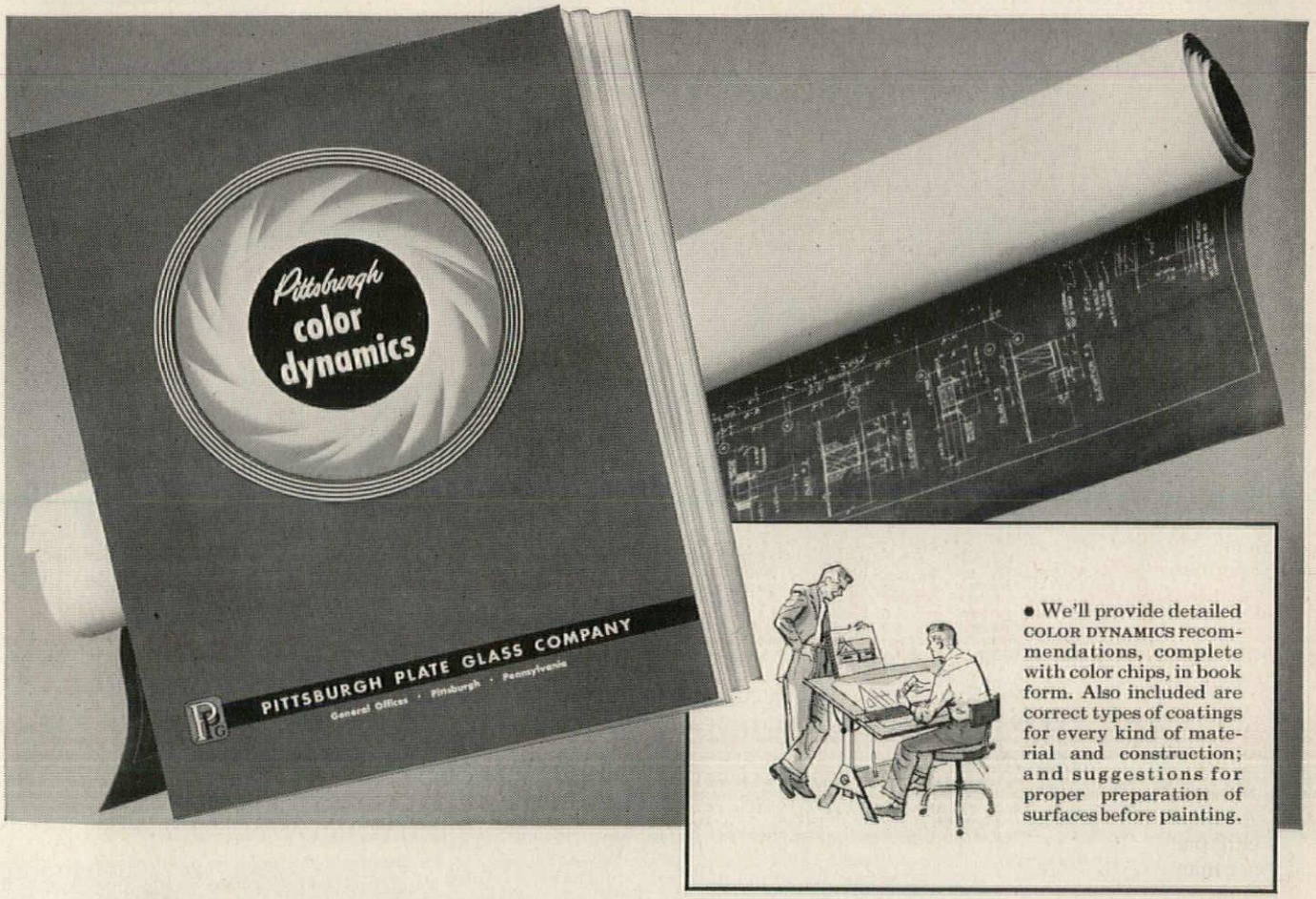


Low Cost Aluminum Awning
The new economy priced *Ualco* Series 95 aluminum awning window, the first to offer jamb-located operation, comes with a worm gear operator installed in either the right or left hand jamb. The operator is set in and up to clear the window stool and to be out of the way of curtains and drapes. Ventilators open simultaneously to about 70 degrees, the top one lowering about 3 in. when full open to permit cleaning from inside. The window is manufactured in standard, modular and masonry modular sizes. *Southern Sash Sales & Supply Co., Inc., 818 20th St., Sheffield, Ala.*

"Italian Pebble" Vinyl Flooring
The latest addition to the *Flor-Ever* family of vinyl sheet floorings is a "Cosmopolitan" pattern said to be reminiscent of Italian pebble flooring. A combination of highly-polished "marble chips," "marble dust" and iridescent metallics embedded in clear vinyl, the flooring comes in six colors: eggshell, white, gray, nutria, green and beige. *Congoleum-Nairn Inc., 195 Belgrove Dr., Kearny, N. J.*

more products on page 220

FREE... a detailed color program to help you sell your plans!



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• **With COLOR DYNAMICS,** it is possible to specify colors in work areas that relieve eye strain, reduce nervous tension and physical fatigue, minimize time-loss hazards, and otherwise improve the efficiency and safeguard the well-being of workers.

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HASKELITE—

the Curtain Wall Panel that's permanently insulated !

(It never absorbs moisture)

Warm climate . . . cold climate . . . Haskelite curtain wall panels mean permanent insulation! For here is the one curtain wall panel that is unaffected by moisture.

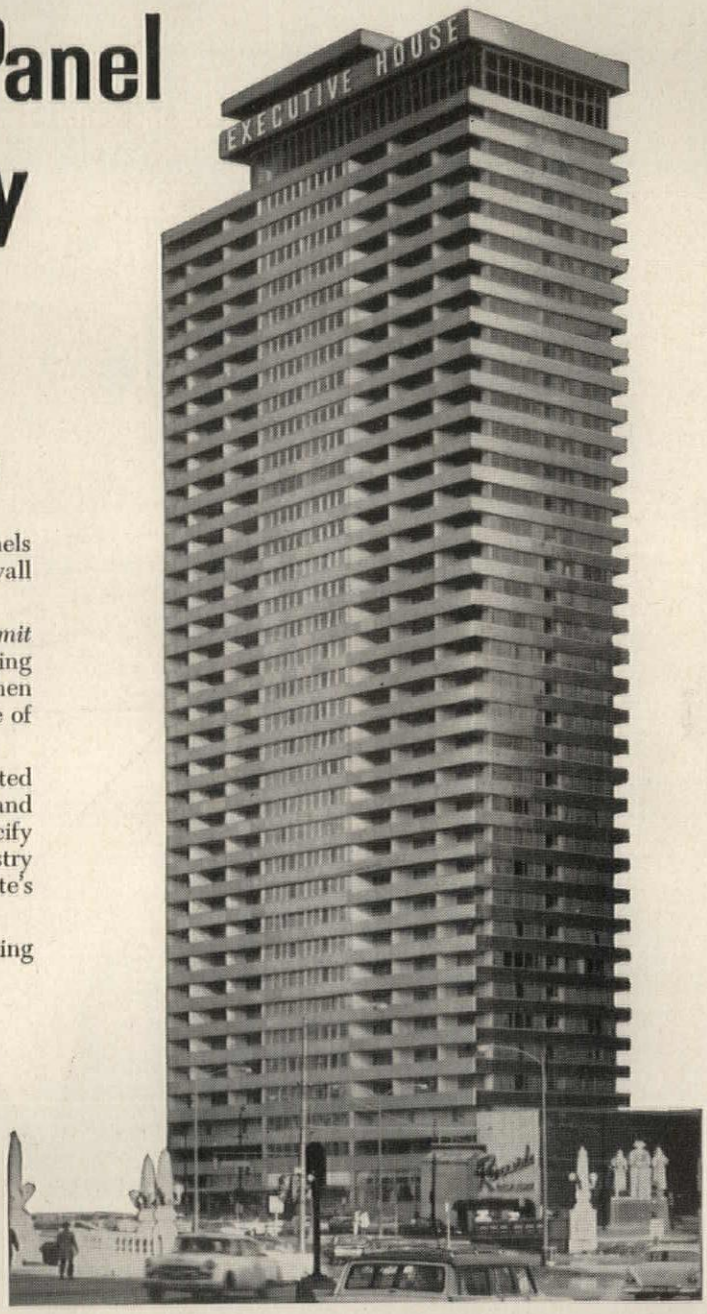
And here's why: Haskelite cores will not *absorb* or *transmit* moisture. Each Haskelite panel is constructed with the facing of your choice bonded to an interband, when required, and then to a foam core. Result: insulating value that lasts for the life of the panel.

To meet your specific requirements, Haskelite laminated panels are available in a wide range of stock sizes, thickness and facings . . . or in special sizes to your order. And you can specify Haskelite panels with confidence, for in the laminating industry no other manufacturer has Haskelite's experience . . . Haskelite's know-how.

For complete information write: Haskelite Manufacturing Corporation, Dept. BQ-8, Grand Rapids 2, Michigan.

- **Lightweight . . . easy to erect!**
- **High impact resistance!**
- **Flat, wave-free surface will not buckle—unaffected by temperature changes!**
- **Unlimited choice of facings—plastic; stainless steel; aluminum; porcelain; many others!**
- **Permanent insulation—does not absorb moisture!**

SEE HASKELITE CATALOG IN SWEETS ARCHITECTURAL FILE 3E/HA



EXECUTIVE HOUSE . . . designed for lasting beauty, the new 40-story Executive House in Chicago features Haskelite stainless-steel-faced, glass-foam-core curtain wall panels. Architect, Milton M. Schwartz & Associates, Inc., Chicago; Contractor, Wacker Construction Co., Chicago.

Haskelite Institutional Doors

- Institutional doors have been added to the line of quality doors built by Haskelite. Newly introduced hollow core doors, now available to specification, are specially built for use in institutional or commercial buildings. Complete range of standard sizes—or may be ordered in special lengths in a wide variety of facings.

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HASKELITE MANUFACTURING CORPORATION
Grand Rapids 2, Michigan

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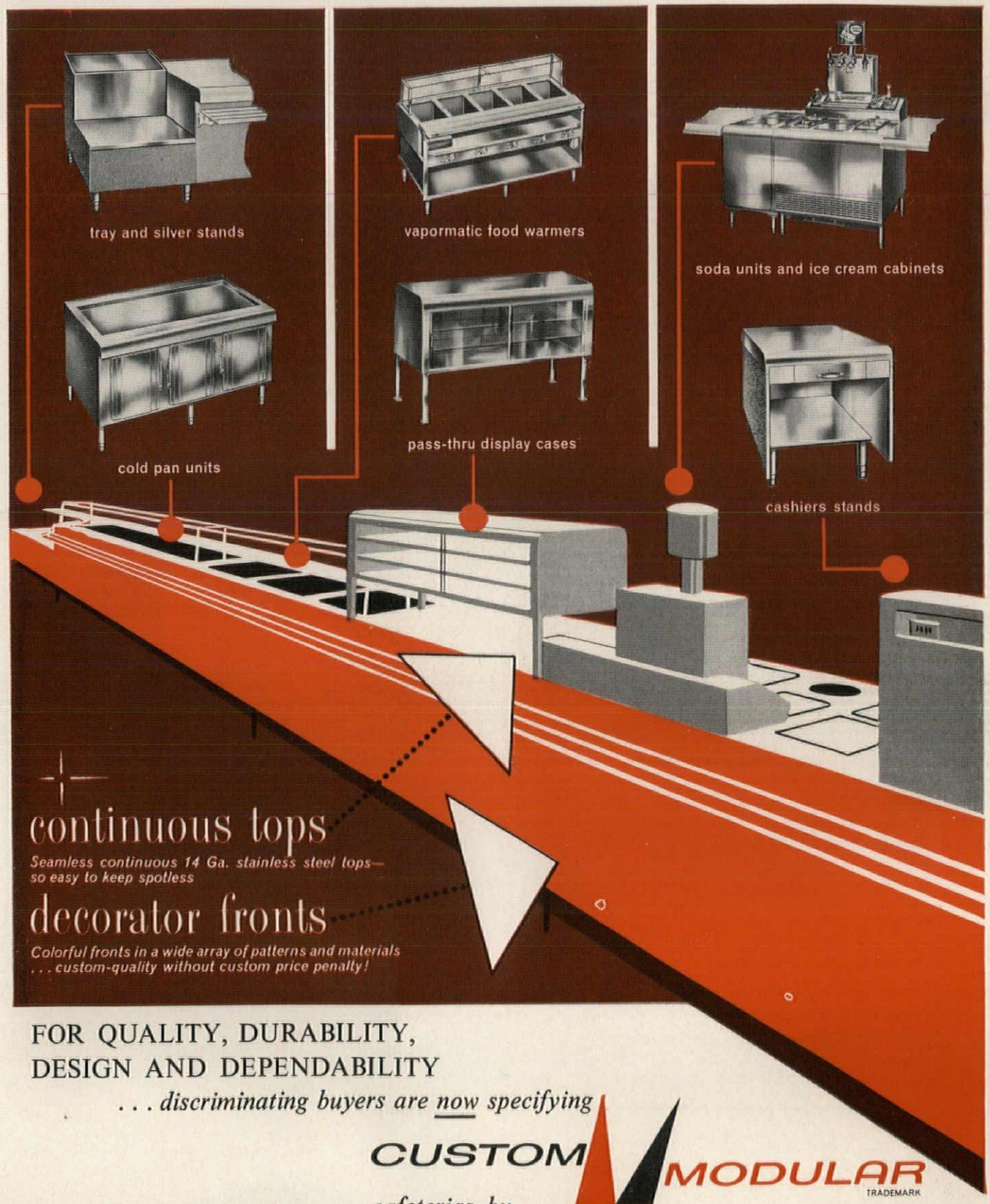

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Technical Roundup

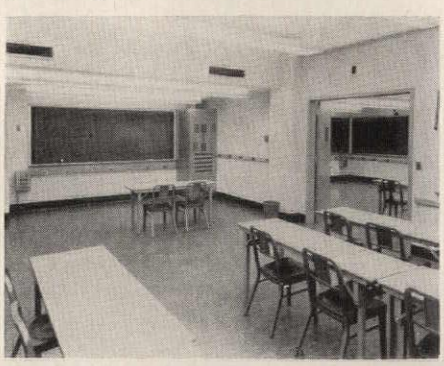
Yale's Electrical Engineering Lab Features Versatile Surface Wiring

The rapid expansion of its curriculum into such new fields as electronics, computers, ultra-high frequencies, servomechanisms and magnets has been matched by a similar expansion in the physical facilities of Yale's Department of Electrical Engineering, the most recent acquisition being a new five-story addition to the existing laboratory.

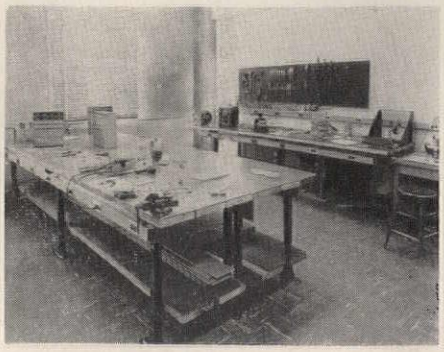
Since faculty committees worked closely with the architects, Douglas Orr Associates, in planning the building and its facilities, it is perhaps not surprising that one of its features is an extensive surface wiring system that provides the many electrical outlets needed for equipment used in class instruction.

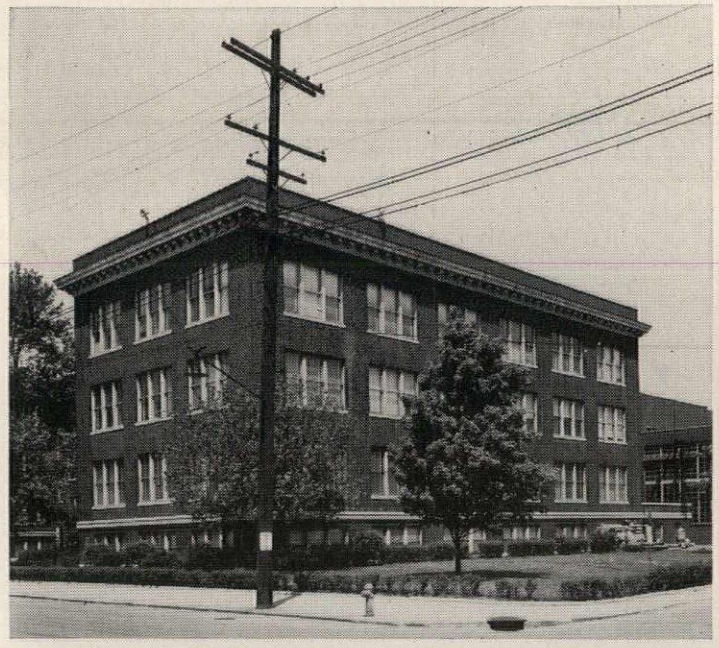
The system used, Wiremold's *Plugmold 3000*, was selected because of its appearance and, more important, its ability to accept all the different types of receptacles and services that might be needed now or in the future. Additions or change-overs to any combination of voltages, frequencies and so forth can easily be made as requirements dictate.

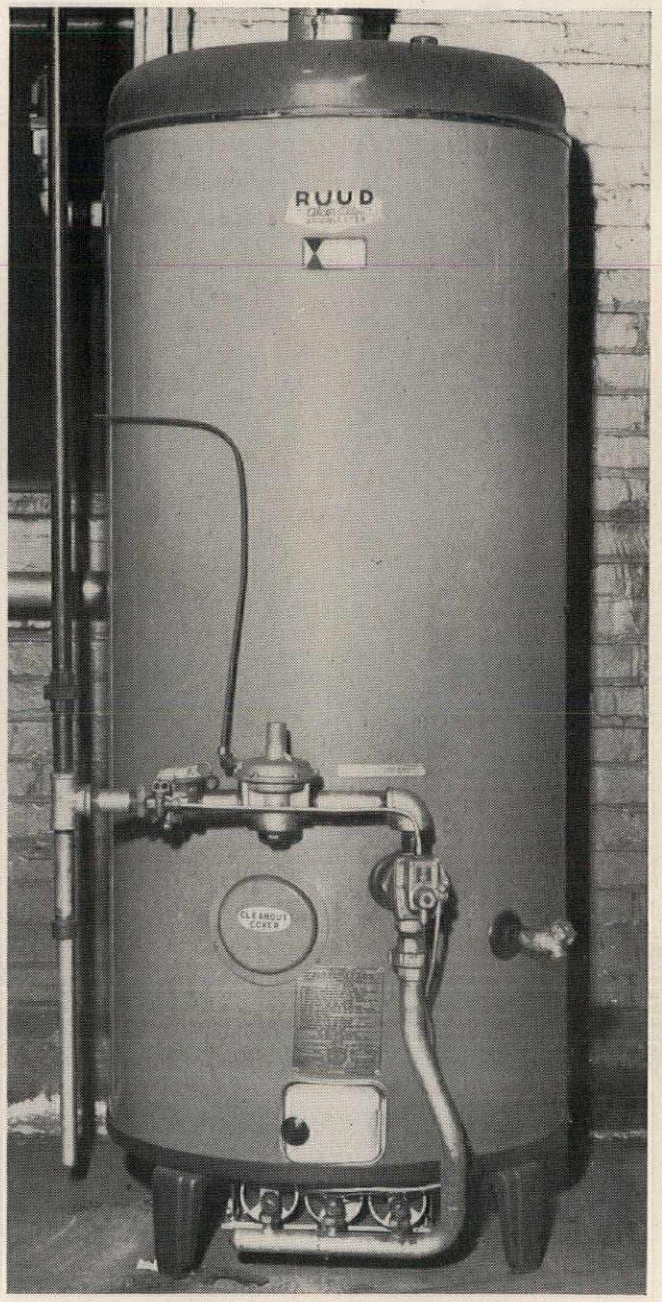
The main contract provided for *Plugmold* to be installed at wainscot height along the walls. However, the individual professors also specified it for all benches. One professor was even asked by his co-workers if he hadn't overdone the electrical outlets. His reply: "Wait a little while and you'll agree I haven't."



Note continuous outlets along walls in typical classroom, on benches in laboratories







WATER HEATERS WITH ALCOA ALUMINUM SOLVE HOT WATER PROBLEMS FOR JEFFREY MANUFACTURING CO.

It takes a lot of hot water to keep 3,000 employees happy. But at Jeffrey Manufacturing Company's Columbus, Ohio, plant, five Alcoa alloy gas water heaters provide a constant supply of hot water for the many employee washrooms and cafeteria needs.

This mining equipment and conveyor manufacturer had long been plagued with complaints about insufficient hot water. A year and a half ago they installed a water heater with an Alcoa alloy tank. The results proved so satisfactory that they replaced the entire hot water supply system with Ruud-Alcoa water heaters. Except for one minor adjustment, no maintenance or repairs have been necessary.

You can count on dependable service with Alcoa alloy water heaters. The aluminum alloy tank is strong, solid and corrosion resistant for longer life and complete freedom from water discoloration. High thermal conductivity assures rapid recovery rate and low-cost operation. Specially designed units meet American Gas Association Laboratories' requirements. For more information on any application—commercial, industrial or residential—send in the coupon, or write Aluminum Company of America, 1899-H Alcoa Building, Pittsburgh 19, Pa.

Your Guide to the Best in Aluminum Value

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Please send me *Water Heater Applications of Alcoa Aluminum*, the 12-page FREE booklet that tells why Alcoa alloy water heaters outperform other water heaters, gives the easy way to figure hot water requirements, lists case histories.

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packs the weight where it counts!

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Flintkote's exclusive Tapered Strips* weigh 275 pounds per square, pack 25-35% more weight at the exposed tab—the place where sun hits and breaks down ordinary roofing. This extra weight—up to 60 pounds more per square than in other premium shingles — makes Tapered Strips pound for pound, dollar for dollar the toughest, most dependable protection you can give a roof. Bar none. For particulars write: The Flintkote Company, Building Materials Division, 30 Rockefeller Plaza, New York 20, N. Y.

*sometimes called "Tuffy Tapers".

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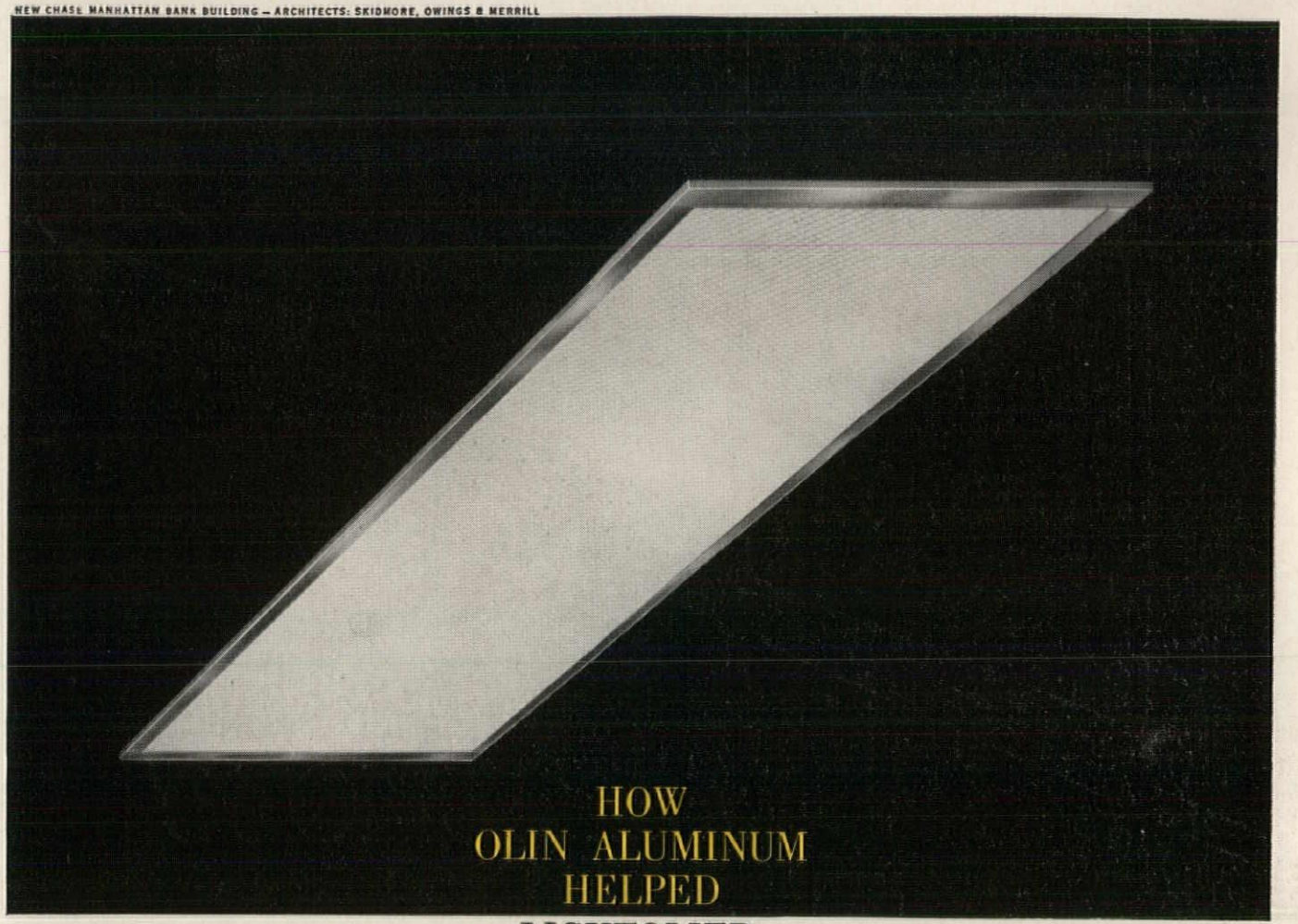
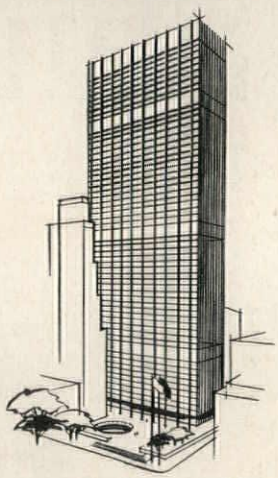
NEW CHASE MANHATTAN BANK BUILDING — ARCHITECTS: SKIDMORE, OWINGS & MERRILL



HOW OLIN ALUMINUM HELPED LIGHTOLIER CREATE A LANDMARK IN LIGHT



An architectural ideal has been attained — lighting fixtures that are all but invisible except for the light. • Key to the achievement? Strong, slim, precision-made extrusions that Olin Aluminum makes for Lightolier — leading manufacturer of commercial lighting systems. • Designed especially for the Chase Manhattan Bank Building, this type of fixture is now available to solve lighting problems in other new buildings. • And Olin Aluminum will continue to help design — and to provide — more and more problem-solving extrusions for building products manufacturers from coast to coast.

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OLIN MATHIESON • METALS DIVISION • 400 PARK AVENUE • NEW YORK 22, N. Y.

Florida University Built on Sand

In spite of the biblical injunction to the contrary, the newly chartered University of South Florida at Tampa is built on sand. Loose sand is, of course, an age-old nemesis to foundation engineers, but in this case it was rendered harmless by "Vibroflotation," a compaction technique that transforms unstable sandy soil into a compact, uniform mass with extremely high bearing capacity. (When required, an average relative density as high as 90 per cent can be attained over an entire area.)

Although the process was introduced by the Vibroflotation Foundation Company some six years ago, most of the projects for which it has been used were built within the last two or three years, mainly in Florida and the Eastern Coastal states where vast areas of sandy soils are frequently encountered. During that time, Vibroflotation has compacted foundation soils for industrial buildings, shopping centers, dams, tunnels, airports, churches and many schools, the largest of which is the University where four of the first six structures erected were built on compacted sand.

The most obvious advantage of Vibroflotation is the elimination of costly pile driving. One company spokesman states that foundation costs can be reduced by fifty per cent on jobs up to $25,000 and by more on larger ones, if soil conditions are right and the required depth of the foundations is more than 8 ft, which seems to be the break-even point for Vibroflotation versus piles. Piling at the University of South Florida, for example, was estimated at $1 million; with Vibroflotation, the cost came to $115,000. Less spectacular benefits include savings in the cost of actual foundation construction and more freedom in choosing the site itself. The high bearing capacities achieved permit the design of smaller footings, and concrete can, in many cases, be poured directly into the trenches without formwork. Moreover, the process often makes it possible to use a desirably located site that could not otherwise be built on economically.

Essentially, Vibroflotation is the process of compacting granular soil by simultaneously vibrating and saturating it with a "Vibroflot" machine, a tubular instrument 6 ft long and 15 in. in diameter. In operation, the Vibroflot and a follow-up pipe (see diagram this page) are sus-

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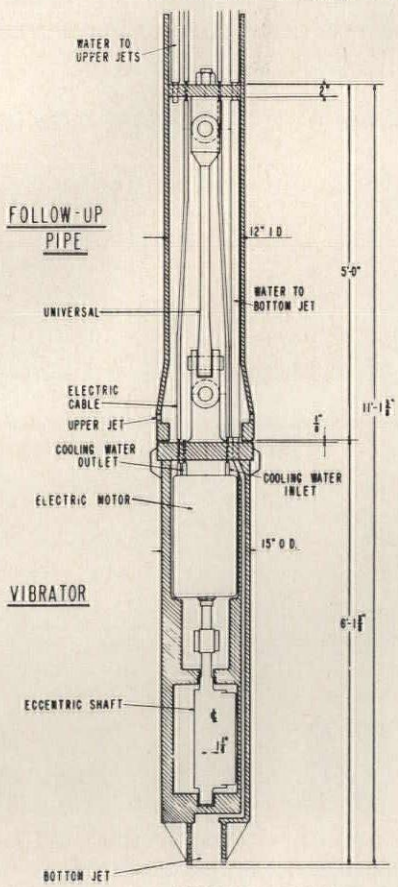

SECTION THRU VIBROFLOT

Beauty...
...and Versatility

The Nesbitt Year-round Syncretizer

BLENDING smartly with modern classroom decor, the Year-Round Syncretizer makes a handsome, functional addition to any classroom. Clean-lined, the Year-Round Syncretizer maintains ideal temperature and humidity conditions in each classroom on the hottest, stickiest summer day . . . and in the most severe winter weather. Designed specifically to meet the particular requirements of schools and colleges—it is the quietest unit of its capacity manufactured today.

The Year-Round Syncretizer is available in capacities from one to five tons. There's a wide choice of non-recessed, recessed, window intake, low sill, concealed or horizontal units. Some models are designed especially for panel wall construction. Whatever the architectural requirement, there is a Nesbitt Year-Round Syncretizer to meet it.

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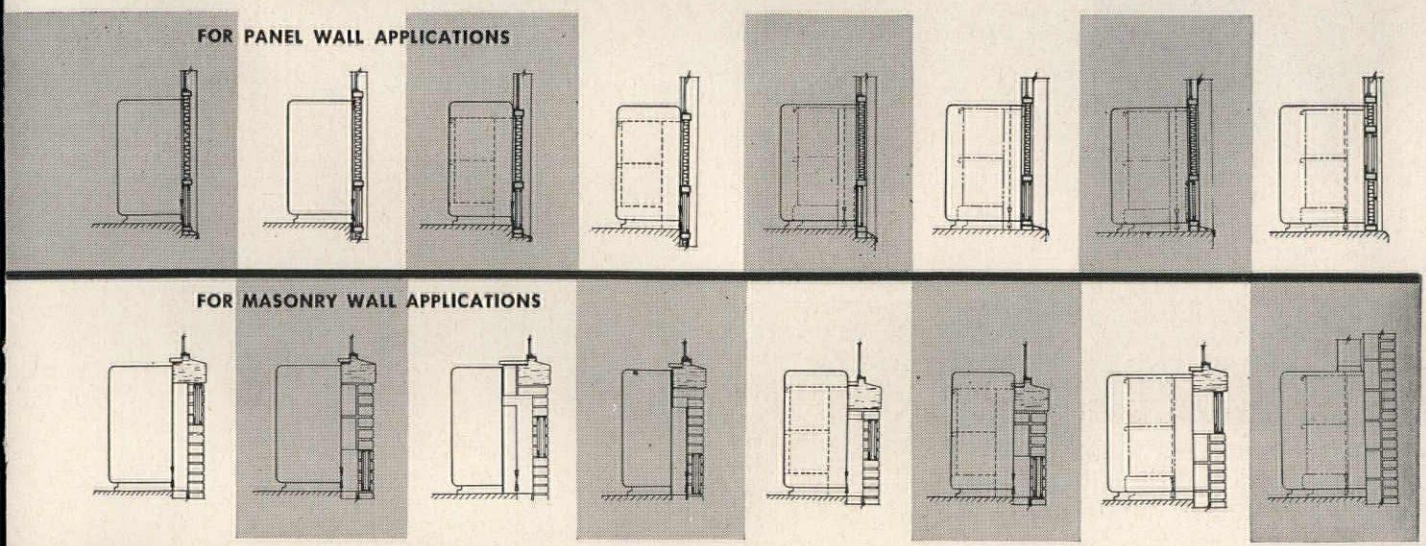

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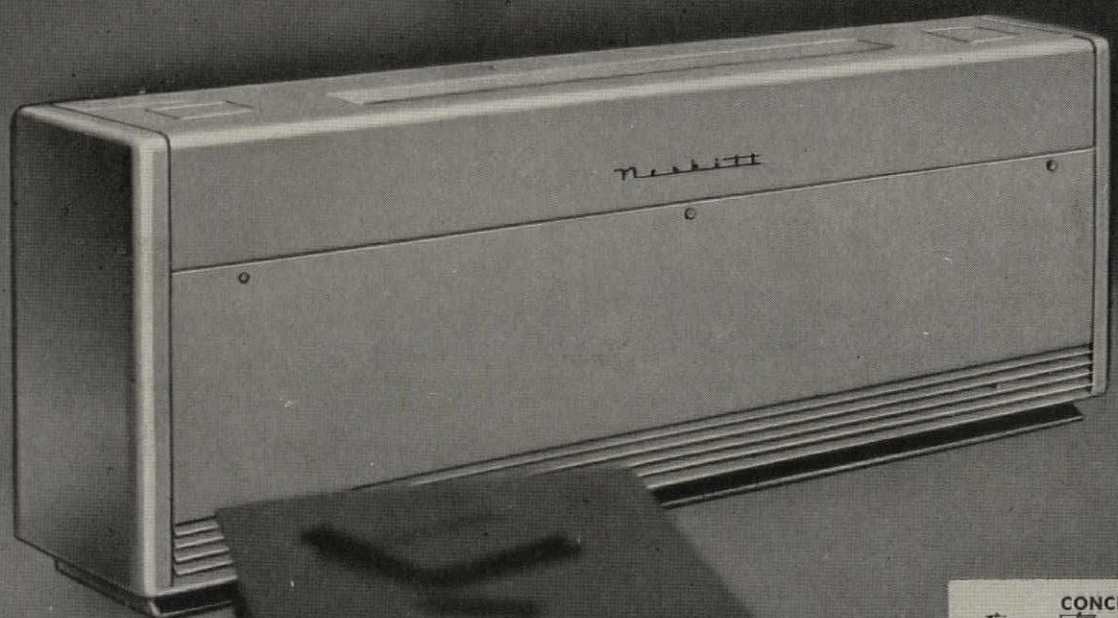

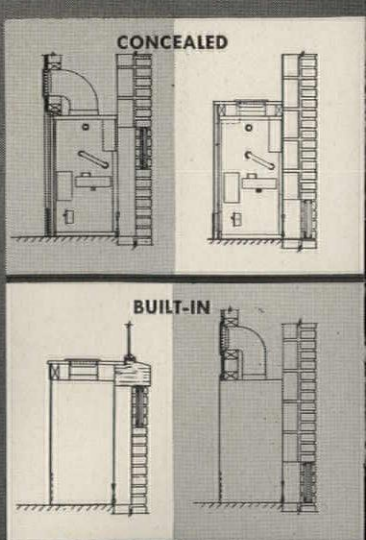

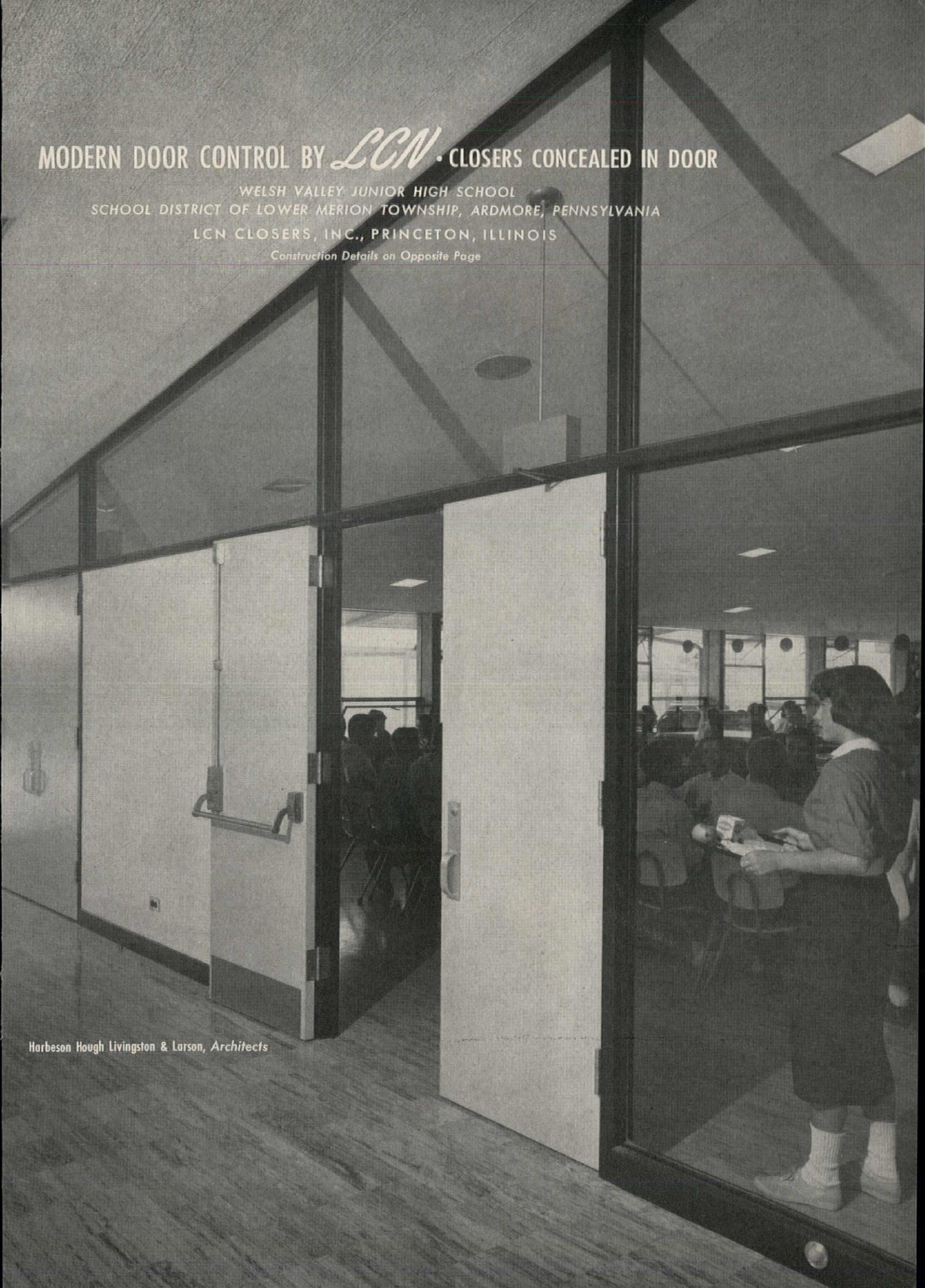

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Construction Details on Opposite Page

Harbeson Hough Livingston & Larson, *Architects*

continued from page 188

World's Largest Timber Arches

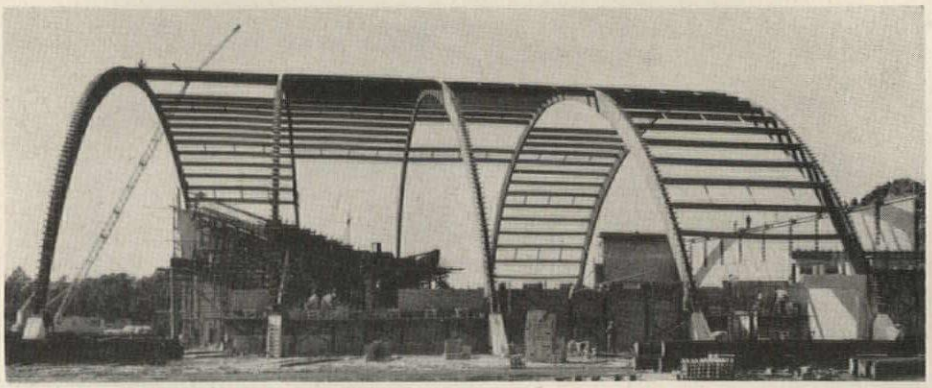
Construction of the Volusia, Florida, jai alai arena reportedly establishes a new world's record for clear span timber arches. Designed to seat 3500 spectators, the arena is framed with five three-hinged, glued laminated arches spaced forty feet on center. Each spans 252 ft and rises to just over 67 ft at midspan.

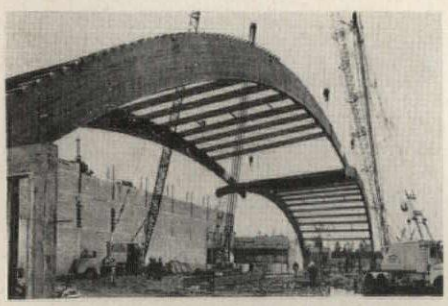
Because of shipping limitations, the arches were spliced at the quarter points, an expedient which incidentally facilitated handling during erection and allowed the fabricator to use a water-resistant glue for the center sections. (The outer ends of the arches are exposed to the weather, so it would otherwise have been necessary to use a more costly waterproof glue for the whole arch.)

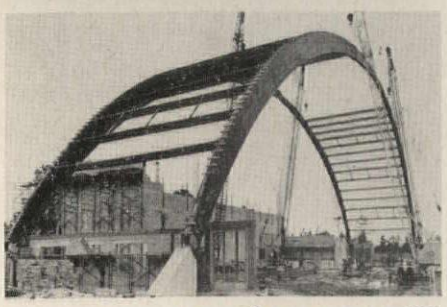
Once the sections had arrived at the site, they were assembled into half-arches which were pinned to the abutments with their center pin connections resting on the ground. Purlins and bracing were then installed between the first two arches, and the paired halves rotated upward about the abutment pins and secured at the center. The three remaining arches were raised in like manner.

This preassembly procedure saved erection time by reducing the load on the four mobile cranes used to lift the assembled sections and by making it possible to install many of the purlins from the ground. Moreover, a stable structure resulted as soon as the erection of the first two arches was completed.

Architect: Francis R. Walton; Structural engineer: Oboler & Clark; Timber framing: American Fabricators, Inc., Donald E. Orazem, chief engineer.







more roundup on page 204

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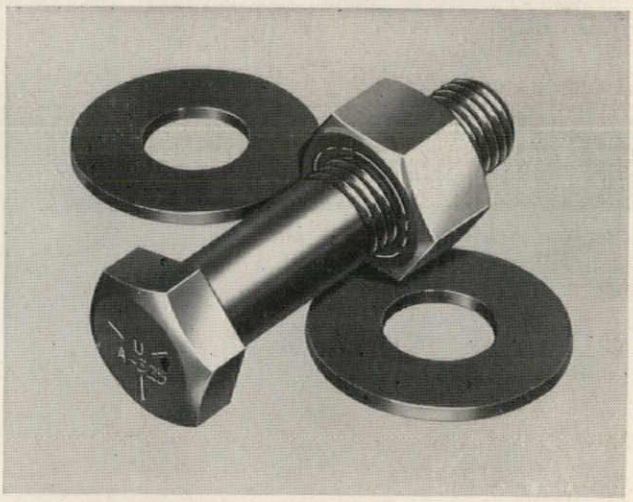
ENDURO is the trade name given to the family of more than 30 standard types of stainless steel produced by Republic — the world's largest original manufacturer of alloy and stainless steels. For complete details on Republic Stainless Steel for architectural applications, return the coupon. Or, check Sweet's Architectural Catalog File, Section 6c/Re.



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LONG, LOW, AND

Stainless Steel gives Chicago's new Morton Salt Building longest

STAINLESS STEEL REVERSIBLE WINDOWS, here being installed, and Stainless Steel Curtain Wall, used throughout the new Morton Salt Company Office Building, were fabricated by Republic's Truscon Division. Architects: Graham, Anderson, Probst & White, Inc., of Chicago, Illinois. Contractor: Sherman Olson, Inc., also of Chicago.

10¾" DIAMETER REPUBLIC STEEL PIPE was used in erecting the new Tremco Building in Cleveland, Ohio. Slabs were poured on the ground, then hoisted up pipe by means of hydraulic screw jacks. Time and money were saved by the elimination of scaffolding and elevators. Slabs were raised at the rate of three feet per hour. Mail coupon for details on Republic Steel Pipe.

To save dollar after dollar, year after year, architects put stainless steel to work in Chicago's new Morton Salt Company Office Building. Stainless Steel was selected for curtain walls and reversible windows.

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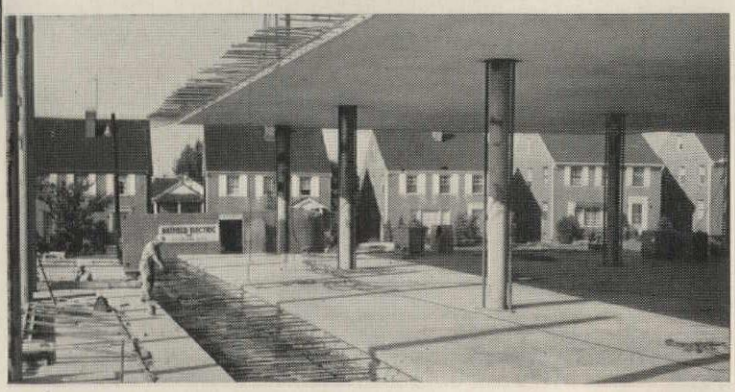

METAL CURTAIN WALL TERMINOLOGY: 3

From the Metal Curtain Wall Manual, *National Association of Architectural Metal Manufacturers*

PANEL—A term used loosely to denote:
(a) a solid filler or facing material, either of one piece or an assembly, for use within a surrounding frame (e.g. a spandrel panel on a wall).
(b) a pre-assembled section of wall, including framing (if any), window area and solid area.
(c) a length of formed metal sheet, or an assembly of such sheets, usually with insulation between, as used for wall enclosure on industrial type buildings.
The definition in (a) above is preferred.

PARKERIZING—A treatment for iron and steel, in which the clean surface is treated with manganese dihydrogen phosphate. Its primary value is to improve the bonding of paints and lacquers, but it also provides a durable finish which minimizes corrosion due to porosity or imperfections in the paint film.

PASSIVATION—See "Pickling"

PERM—The unit of measure of the rate of water vapor transmission through a material, expressed in grains per (square foot) (hour) (inches of mercury pressure difference).

PHYSICAL PROPERTIES—Those properties which serve to characterize and describe matter, and to distinguish the different kinds of matter. These properties include specific gravity or density, electrical and thermal conductivities, coefficient of thermal expansion, etc.

PICKLING—The treatment of stainless steel surfaces with a strong oxidizing agent such as nitric acid, to make them chemically clean and provide a strong inert oxide film, increasing corrosion resistance.

POT LIFE—The period of time during which a sealant, adhesive or coating, after being mixed with a catalyst, solvent or other compounding ingredient, remains suitable for use. Also referred to as "Work Life".

ORGANIC COATING—A coating such as paint, lacquer, enamel or plastic film in which the principal ingredients are derived from animal or vegetable matter or from some compound of carbon (which includes all plastics).

REGLET—A groove cut or formed in masonry or concrete to receive and hold the edge of flashing material.

RIGIDIZED—A term generally used in reference to light gauge sheet metal which is embossed or textured by a rolling process. Also the name used by one specific manufacturer of this material.

ROPE CAULK—A pre-formed bead or "rope" of tacky caulking compound, often supplied with twine reinforcement to facilitate handling.

SANDWICH PANEL—A panel made by laminating a core material, usually of low density, between sheets or "skins" of a material or materials of higher density and strength.

SEALANT—Any mastic or viscous material used to seal joints or openings against the passage of water or air.

SETTING BLOCK—A small block of neoprene, lead, wood or other suitable material, placed under the lower edge of a sheet of glass when setting it in a frame.

SHELF LIFE—The length of time that a packaged material such as adhesives and sealants can be stored under specified temperature conditions and still remain suitable for use.

SPANDREL—The area of an exterior wall between two superimposed windows or openings.

SPANDREL BEAM—A beam in the building frame which extends between exterior columns at a floor level.

SPANDREL PANEL—A panel covering the spandrel area; see "Spandrel".

STARVED JOINT—An adhesively bonded joint in which the amount of adhesive is insufficient to produce a satisfactory bond.

STOP—See "Bead", definition (a).
Also, the part of a door frame against which the door closes.

STRETCHER LEVELING—The process of flattening metal sheets by stretching them mechanically.

TACK-FREE TIME—See "Dust-free Time"

TACK WELD—A weld used for temporarily holding metal parts in position.

THEODOLITE—An instrument used for measuring horizontal and vertical angles. Used in curtain wall construction to establish elevations in reference to fixed bench marks.

TIN-CANNING—Same as "Oil-Canning".

TOLERANCE—Permissible deviation from a nominal or specified dimension or value.

U-VALUE—The overall coefficient of heat transmission, air to air, through building materials, either singly or in combination; the time rate of heat flow expressed in Btu per (hour) (square foot) (Fahrenheit degree temperature difference between air on the inside and outside surfaces).

ULTIMATE SET—The final degree of firmness obtained by a plastic compound after cure, evaporation of volatiles or surface polymerization.

VAPOR BARRIER—A material or coating sufficiently resistant to vapor transmission to retard the passage of water vapor from zones of high vapor pressure to zones of lower vapor pressure; by usual standards, a material having a permeance of one perm or less, when tested by the ASTM method E-96-53T, Procedures A or C.

VINYL—A thermoplastic compound, specifically a vinyl chloride polymer, with good resistance to weathering. Used for gasketing and coatings, both decorative and protective.

WEATHEROMETER—A machine in which specimen materials can be subjected to artificial and accelerated weathering tests. There are several varieties, but in general the effects of sun, rain and seasonal changes are simulated by electric arcs, water spray and heating elements respectively.

WEEPHOLE—A small opening in a wall or window member, through which water may drain to the building exterior.

WORK LIFE—Same as "Pot Life".

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METAL CURTAIN WALL TERMINOLOGY: 2

From the Metal Curtain Wall Manual, National Association of Architectural Metal Manufacturers

DEFLECTOMETER—A device for measuring the amount of bending induced in a beam by transverse loading.

DEW POINT—The temperature at which the condensation of water vapor in a space begins, for a given state a humidity and pressure, as the temperature of the vapor is reduced.

DOUBLE GLAZING—In general, any use of two thicknesses of glass within an opening, in place of one, to improve insulation against heat transfer and/or sound transmission. In factory-made double glazing units the air between the glass sheets is thoroughly dried and the space is sealed airtight, eliminating possible condensation and providing superior insulating properties.

DUROMETER—An instrument for measuring the relative hardness of materials such as rubber. Also, the term often used (loosely) as a synonym for relative hardness. Durometers are of several proprietary types, one of the most common being the Shore, Type "A". On the scale of this instrument, which is graduated from 0 (softest) to 100 (hardest), a faucet washer or rubber flooring has a value of 90 plus 5, and a stationer's rubber band a value of 40 plus 5.

DUST-FREE TIME—The time required for a freshly-applied paint or compound to form a sufficiently dry surface skin so that dust will not adhere to it. Also known as "Tack-free Time".

EDGE CLEARANCE—The distance between the edge of a pane of glass or panel and its surrounding frame, measured normal to the edge in the plane of the pane or panel.

EMBOSSED—Having a raised and/or indented pattern impressed on either one or both surfaces (of a sheet material). Usually accomplished by the use of patterned rolls.

ERECTOR—The party who installs the metal curtain wall on a building.

EXTRUSION—The process of producing metal shapes of a constant cross section by forcing the hot metal through an orifice in a die by means of a pressure ram. Also, any item made by this process.

FABRICATOR—The manufacturer who makes the curtain wall or any of its components.

FACADE—The face, or elevation, of a building.

FACE CLEARANCE—The distance between the outer face of a sheet material such as glass, and the inner face of its retaining frame or stop, as measured normal to the plane of the sheet. This dimension is also the thickness of the sealing material outside the sheet.

FACE GLAZING—A method of glazing which employs no loose stops. The glass is set in an L-shaped or rabbeted frame and the glazing compound is finished off in the form of a triangular bead.

FLUSH GLAZING—A method of glazing wherein the surfaces of the glass retaining members (stops or beads) are in the same plane normal to the glass as the side faces of the frame members; often achieved by providing pockets in these faces.

GALVANIC ACTION or GALVANIC CORROSION—The electrochemical action which takes place when dissimilar metals are in contact in the presence of an electrolyte, causing corrosion. The extent of corrosion will depend both on the difference in potential between the metals involved and the relative areas of the metal parts.

GASSING—The addition of a small amount of unleaded gasoline to oil-base glazing compound, to soften its consistency.

GLAZING COMPOUND—A soft dough-like material used for filling and sealing the space between a pane of glass and its surrounding frame.

GLUE LINE—A plane in which glue or adhesive occurs, in a glued or laminated assembly.

GUN GRADE or GUN CONSISTENCY—Of suitable degree of softness for proper application by a caulking gun (referring to caulking or glazing compound).

INCLUSION—Presence of a foreign material in a finished material.

INITIAL SET—In reference to a mastic compound, adhesive or coating, the stage in drying when the surface has become sufficiently firm to be unmarked when touched with the finger.

K-FACTOR—The thermal conductivity, or time rate of heat flow, through a unit area of a homogeneous material under steady conditions, perpendicular to the temperature gradient. Its value is expressed in Btu per (hour) (square foot) (Fahrenheit degree per inch of thickness).

KNIFE GRADE or KNIFE CONSISTENCY—Of suitable degree of firmness for proper application by means of a putty knife (referring to caulking or glazing compound).

LAMINATE—A product made by bonding together two or more layers of material or materials.

MASTIC—A general descriptive term referring to any heavy-bodied dough-like compound.

MECHANICAL PROPERTIES—Those properties of a material which characterize its response to applied forces. These properties fall into the broad categories of strength, stiffness, ductility and elasticity.

METALLIZE—To apply a coating of metal on a base material, usually by spraying the coating metal in a molten state.

MOCK-UP—A model of a section of a wall or its parts, built to scale or at full size, for purposes of studying its construction details, judging its appearance and/or testing its performance.

MOISTURE MIGRATION—The passage of moisture into or through a material or construction, in the form of water vapor, due to a difference in vapor pressure of the two faces.

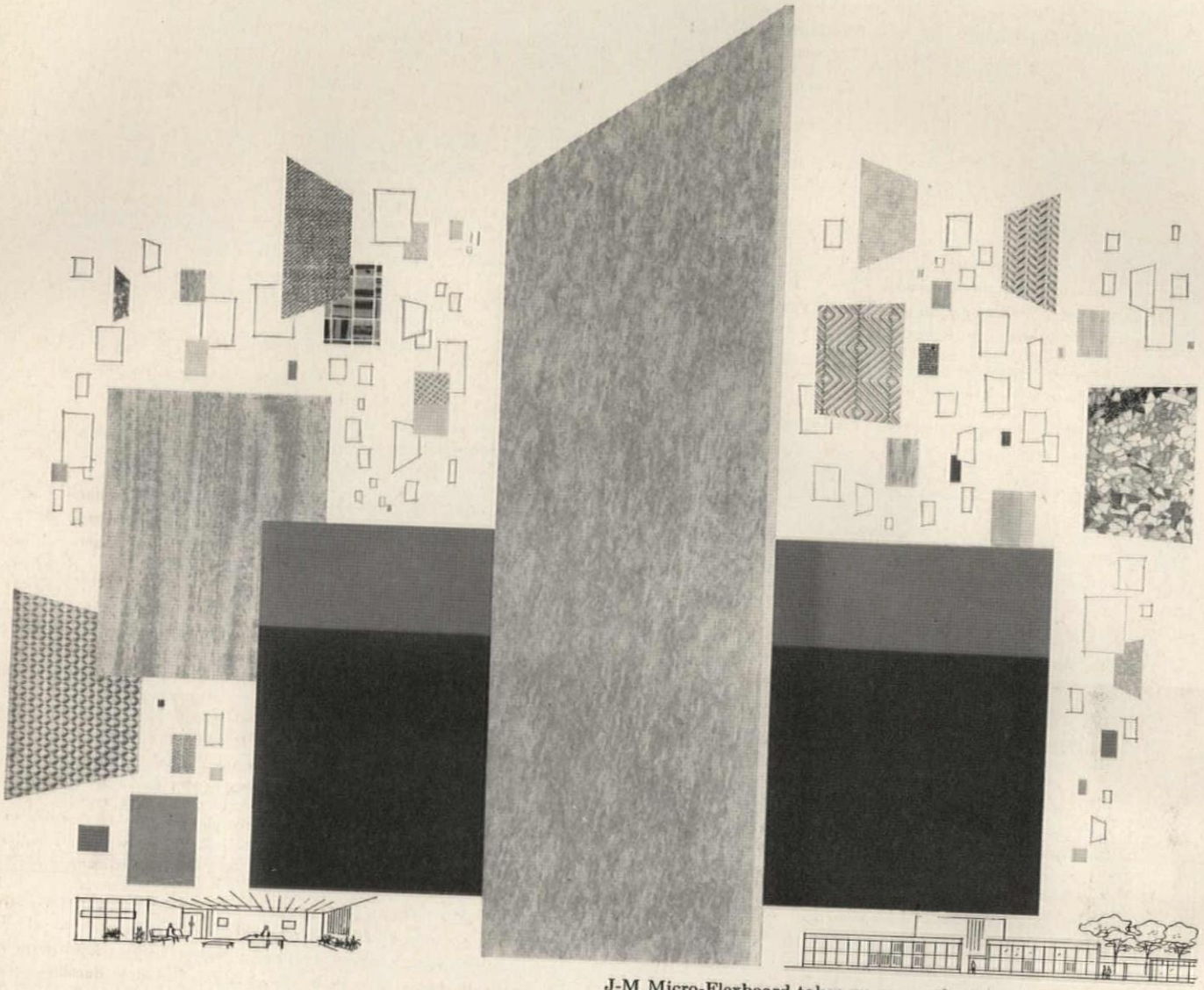
MULLION—A vertical framing member in a wall, separating and usually supporting adjacent windows, glass areas, panels or doors.

MUNTIN—A bar member supporting and separating panes of glass within a sash or door.

NEOPRENE—A synthetic rubber made by polymerizing chloroprene.

OIL-CANNING—A slight buckling in sheet metal, causing the appearance of waviness or unevenness.

OXYGEN STARVATION—Localized corrosion of metals, in the presence of an electrolyte, due to a smothering or "poultice" action or resulting from a crevice between a metal and another material.



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METAL CURTAIN WALL TERMINOLOGY: 1

From the Metal Curtain Wall Manual, *National Association of Architectural Metal Manufacturers*

ALCLAD—An aluminum product clad with an aluminum alloy coating which is anodic to the alloy it covers, protecting it both physically and electrolytically against corrosion.

ALODINE—Trade name copyrighted by Amchem Products, Inc. for their chemical conversion coating used as a protective and/or decorative finish on aluminum. Applied by either spray or dip process, this finish may be colorless or one of various shades of green or gold.

ALUMILITE—Trade name used by Aluminum Company of America for their anodized finishes on aluminum. *(See "Anodize")*

ALUMINIZE—To apply a surface coating of aluminum to another metal or other base material, usually by spraying or dipping in molten aluminum. On steel, such coatings greatly increase corrosion resistance. "Aluminized Steel" is a trademark of Armco Steel Corporation.

ANCHOR—Any device used to secure the metal curtain wall or its parts to the building frame. Anchors should generally be adjustable in three dimensions.

ANNEAL—To heat above the critical or recrystallization temperature, then cool, metal, glass or other materials to eliminate the effects of cold-working, relieve internal stresses or improve electrical, magnetic or other properties.

ANODIC COATING—The surface finish resulting from anodizing. *(See "Anodize")*

ANODIZE—To provide a hard non-corrosive oxide film on the surface of a metal, particularly aluminum, by electrolytic action. The electrochemical process produces an anodic coating by conversion of aluminum into essentially aluminum oxide. Appearance depends upon both the alloy involved and the surface preparation. Anodic coatings may be transparent, of varying shades of silver, gray or brown, or colors may be incorporated by the use of dyes or pigments.

ARC WELDING—A process for the joining of metal parts by fusion, in which the necessary heat is produced by means of an electric arc struck between an electrode and the metal or between two electrodes.

BACK PUTTY—The bedding of glazing compound which is placed between the indoor face of glass and the frame or sash containing it.

BAFFLE—A deflecting surface within a metal wall member, so located as to control or prevent the penetration of air or water into or through the wall. Commonly used in conjunction with weepholes or slip joints.

BEAD—(a) A strip of metal or wood used around the periphery of a pane of glass to secure it in a frame or sash. (Also referred to as a "Stop")

(b) A strip of sealant, such as caulking or glazing compound.

BED GLAZING—Same as "Back Putty".

BENCH MARK—A datum point of known elevation, which serves as a reference in establishing other levels or locations.

BONDERITE—A surface treatment for aluminum; see "Bonderizing".

BONDERIZING—A treatment for iron and steel in which the surface is converted into an insoluble phosphate. It has little corrosion resistance in itself, but provides an excellent base for paint. "Bonderite" coatings as a paint base for aluminum are also available, similar in appearance and properties to "Alodine" coatings.

BRINELL HARDNESS—A measure or resistance to indentation, determined by measuring the area of indentation produced by a hard steel ball under standard conditions of loading.

BURR—A rough or sharp edge left on metal by a cutting tool.

CARBURIZE—To produce a hard surface layer on steel by heating in a carbonaceous medium to increase the carbon content, then quenching. The process is also referred to as "case-hardening".

CAULK—To fill joints, cracks or crevices in order to make them watertight.

CAULKING CARTRIDGE—An expendable container made of plastic, fiberboard, or metal, filled with caulking compound, for use in a caulking gun. A common type is 2" in diameter, 8½" long, and is fitted with a plastic nozzle.

CAULKING COMPOUND—A soft putty-like material intended for sealing joints in buildings and other structures, where leakage or structural movement may occur. It is usually available in two consistencies; "gun grade", for use with a caulking gun and "knife grade", for application with a putty knife.

CAULKING GUN—A device for applying caulking compound by extrusion. In a hand gun the necessary pressure is supplied mechanically by hand; in a pressure gun the pressure is usually greater, and is supplied pneumatically.

CAUSTIC ETCH—A decorative matte texture produced on aluminum alloys by an etching treatment in an alkaline solution, generally caustic soda (sodium hydroxide). Also known as "Frosted Finish".

CLEARANCE—The space or distance allowed for anchorage or erection processes or to accommodate dimensional variations in the building structure.

CLIP—(a) A small device, usually of metal, for holding larger parts in place, either by friction or by mechanical action.

(b) In glazing, a spring device of metal used to hold glass in a metal sash.

COLD WELDING—A method of joining metals such as aluminum, by subjecting the thoroughly cleaned joining surfaces to pressure in specially shaped dies. When the combined thicknesses of the surfaces are reduced by a specific percentage, a weld occurs at normal temperatures.

CORROSION—The deterioration of metal by chemical or electrochemical reaction resulting from exposure to weathering, moisture, chemicals or other agents or media.

CREEP—The permanent deformation of a material at a given temperature under sufficiently high sustained loading, continuing with time but without increasing the load.

CURTAIN WALL, METAL—An exterior building wall which carries no roof or floor loads, and which may consist principally of metal or of a combination of metal, glass and other surfacing materials supported in a metal framework. There are three basic types:

Custom: Walls designed specifically for one project, and using parts and details specially made for this purpose.

Commercial: Walls made up principally of parts and details standardized by the manufacturer and assembled either in the manufacturer's stock patterns or in accord with the architect's design.

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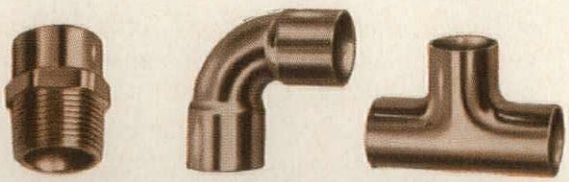

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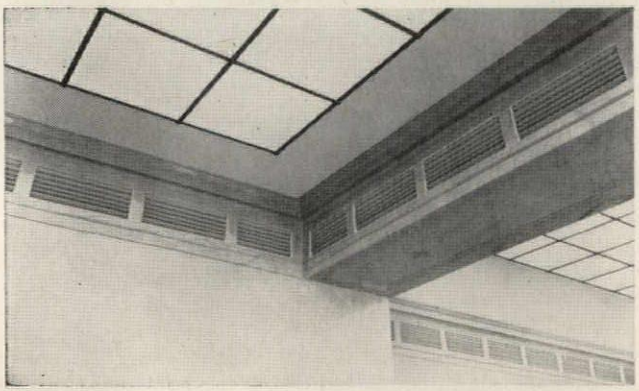

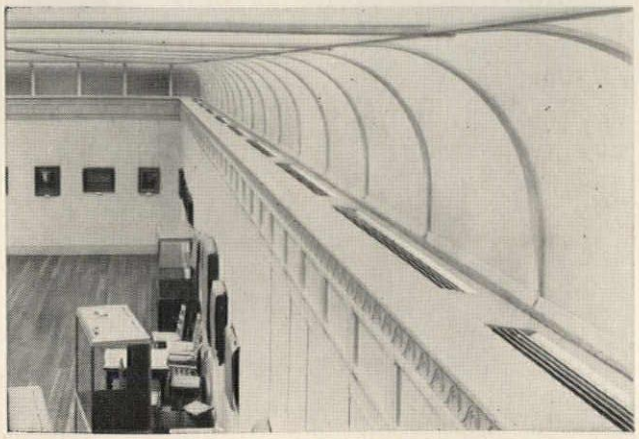

The photograph above illustrates an Anemostat Straightline Air Diffuser installation in the gallery design of the Sterling and Francine Clark Art Institute at Williamstown, Mass. The conditioned air is supplied through Straightline Diffusers located on all four sides of the gallery. The diffusers not only draftlessly introduce conditioned air into the gallery, but also blend into the architectural design.

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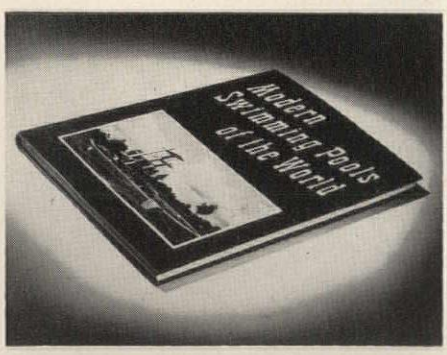


MODERN SWIMMING POOLS OF THE WORLD
This handsome hardcover book by Dr. Dietrich Fabian, Technical Advisor on Olympic Standards and world-renowned authority on swimming and swimming pools, pictures and describes the latest developments in design of swimming pools from all over the world. Special emphasis has been made on Olympic requirements and dimensions with illustrations and photographs, many of them in color, of the outstanding indoor and outdoor pools. They are supplemented by a wealth of technical data, including plans, sections, and construction details. 148 pp., $10. *National Pool Equipment Co., Lee Highway, Florence, Ala.*

Architectural Lighting Fixtures
Catalogs the complete Wohlert collection of contemporary lighting fixtures designed and manufactured in Denmark and wired in this country. The line includes both lamps and fixtures, many of which can be made for pulley suspension, wall mounting or special groupings. Catalog C3, 44 pp. *Architectural Lighting Corp., 238 East 47th St., New York 17, N. Y.*

Faces, Figures, Facts
Compiles photos and descriptions, and basic grade-use data on all types of hardwood plywood in a pocket-size booklet. Information on mechanical and physical properties and application and finishing methods is also included. 71 pp. *Hardwood Plywood Institute, 2310 S. Walter Reed Dr., Arlington 6, Va.*

Huck Blind Rivets
Lists the advantages of Huck PT and 9SP blind rivets, and gives technical information on recommended hole sizes, material specifications, shop practice, and shear and tension strength. Dimensional drawings and illustrations showing the driving cycle and typical blind applications are included. Form 8-409, 8 pp. *Huck Mfg. Co., 2480 Bellevue Ave., Detroit 7, Mich.*

Bayley Detention Window Systems
(A.I.A. 16-E) Includes brief descriptions, detail drawings and specifications covering a complete line of steel and aluminum detention windows. Catalog D-59, 24 pp. *The William Bayley Co., Springfield, Ohio**

Windows by Albro
Discusses features of several lines of custom-made metal windows (reversible, sliding, projected, awning, single and double hung, fixed and hopper combinations) in aluminum, bronze and stainless steel. Section drawings, installation photos and specifications are included. Catalog 17A, 16 pp. *Albro Metal Products Corp., 944 Longfellow Ave., New York 59, N. Y.**

Construction of Indoor Rifle
. . . *and Pistol Ranges* gives detailed programming information and typical plans, sections and details. 16 pp., $1. *Range Plans Section, National Rifle Assn. of America, 1600 Rhode Island Ave., N.W., Washington 6, D. C.*

Hartzell Duct Fans
Gives dimensions, performance data and construction details on several types of duct fans, including a new line of belt-drive fans with adjustable driver sheaves. Bulletin A-114A, 12 pp. *Hartzell Propeller Fan Co., Piqua, Ohio **

The Sandwich Wall Story
Describes and illustrates a variety of aluminum sandwich walls, field-assembled with end-welded studs. A chart lists the specific types of wall recommended for various conditions. 18 pp. *Nelson Stud Welding Div., Gregory Industries, Inc., Lorain, Ohio*

Kawneer Wall Systems
(A.I.A. 17-A) Describes and gives suggested applications, details and specifying information on four new Kawneer wall systems. 20 pp. Also available is a similar 14-page folder on the *Sealair* line of aluminum windows (A.I.A. 16-E). *Architectural Products Div., Kawneer Co., 1105 N. Front St., Niles, Mich.**

Electro-Channel Steel Joists
(A.I.A. 13-G) Introductory Manual No. 3011 A describes and illustrates the new Ceco *E/C* (electro-channel) line of steel joists, which incorporate a built-in duct for under-floor wiring. 28 pp. *Ceco Steel Products Corp., 5601 West 26th St., Chicago 50, Ill.**

The Engineering Aspects
. . . *of Architectural Floodlighting*, GER-1555, gives basic engineering details for use of floodlighting to enhance appearance of commercial structures. Photos show outstanding examples with charts to provide photometric data and recommended footcandle levels and distribution. 8 pp. *General Electric Co., Schenectady 5, N. Y.**

RLM Specifications Book
(A.I.A. 31-F-23) 1959 Edition includes new specifications for incandescent and mercury vapor uplight porcelain enamel and aluminum high mounting units, "all-white" incandescent specs, and many upward revisions in specifications for industrial fluorescent fixtures. 44 pp. *RLM Standards Institute, 326 W. Madison St., Chicago 6, Ill.*

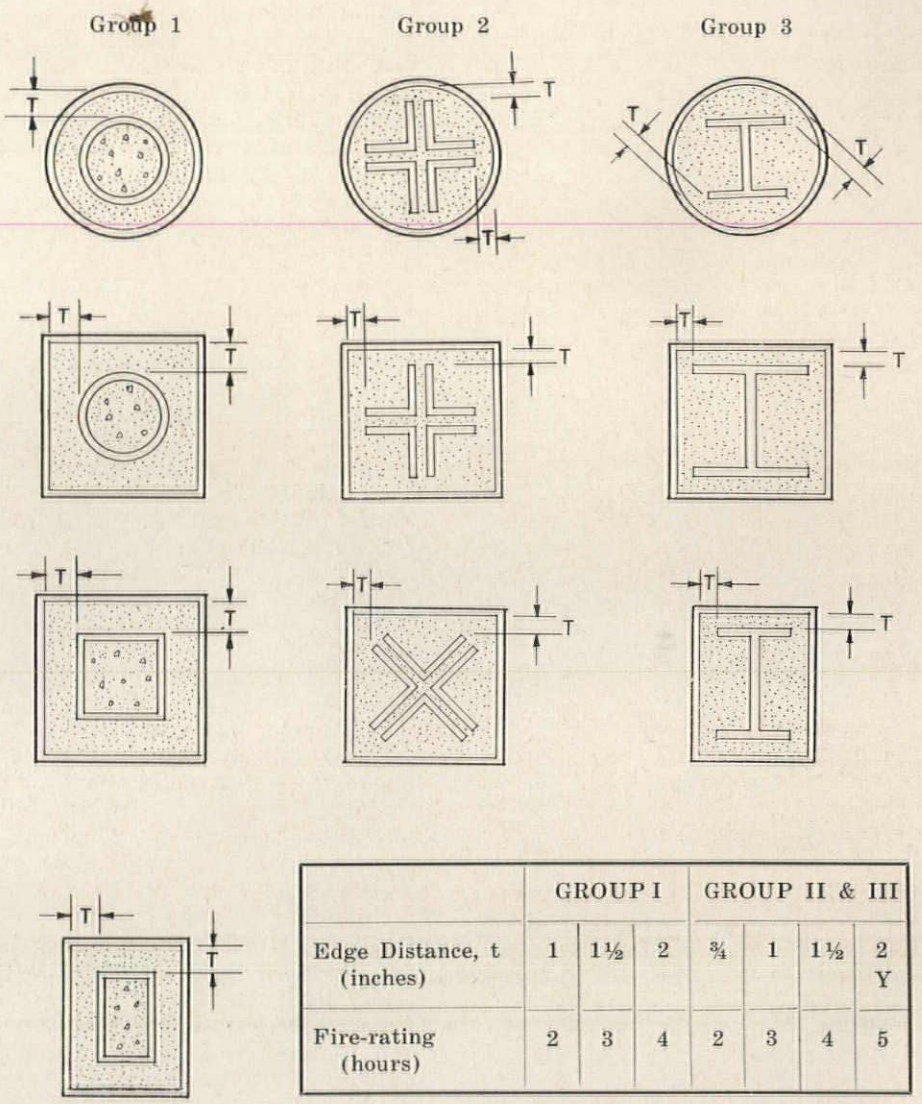
Silicone Masonry Water Repellent
Details common effects of water penetration and use of silicone water repellents to prevent masonry damage. Also included is a standard guide form for specifying materials and application procedure. Booklet CDS-118A. *Silicone Products Dept., General Electric Co., Waterford, N. Y.**

**Additional product information in Sweet's Architectural File.*

more literature on page 246

Prefabricated, Fireproofed Steel Columns Win U/L Approval

Underwriters' Laboratories, Inc., have for the first time awarded their seal of approval to a prefabricated, fireproofed steel column that fully conforms to all established building codes. Marketed under the trade name *Fire-Trol,* the columns have received official fire retardant classifications of from one to five hours (see chart at right), depending on the thickness of the fireproofing cover. They come in a wide enough range of shapes and capacities to lend themselves to virtually any building type, from a one-story school to a multi-story office tower. The ten types of load bearing columns currently being manufactured include round, square and rectangular concrete filled columns, as well as H, wide flange, and built-up angle columns, with a minimum one-inch thick covering of *Vermiculite* or *Perlite* encased in round, square and rectangular outer steel jackets. All are completely fabricated in the shop and shipped to the job-site ready for immediate erection. Since their use eliminates field labor for fireproofing on the job, reduces weather delay and cuts over-all completion time, job-site labor costs are reduced accordingly. In addition, the U/L rated and labeled fireproofed columns take more favorable insurance rates. *Lally Bros. Co., 819 West 88th St., Chicago 20, Ill.*



	GROUP I			GROUP II & III			
Edge Distance, t (inches)	1	1½	2	¾	1	1½	2 Y
Fire-rating (hours)	2	3	4	2	3	4	5

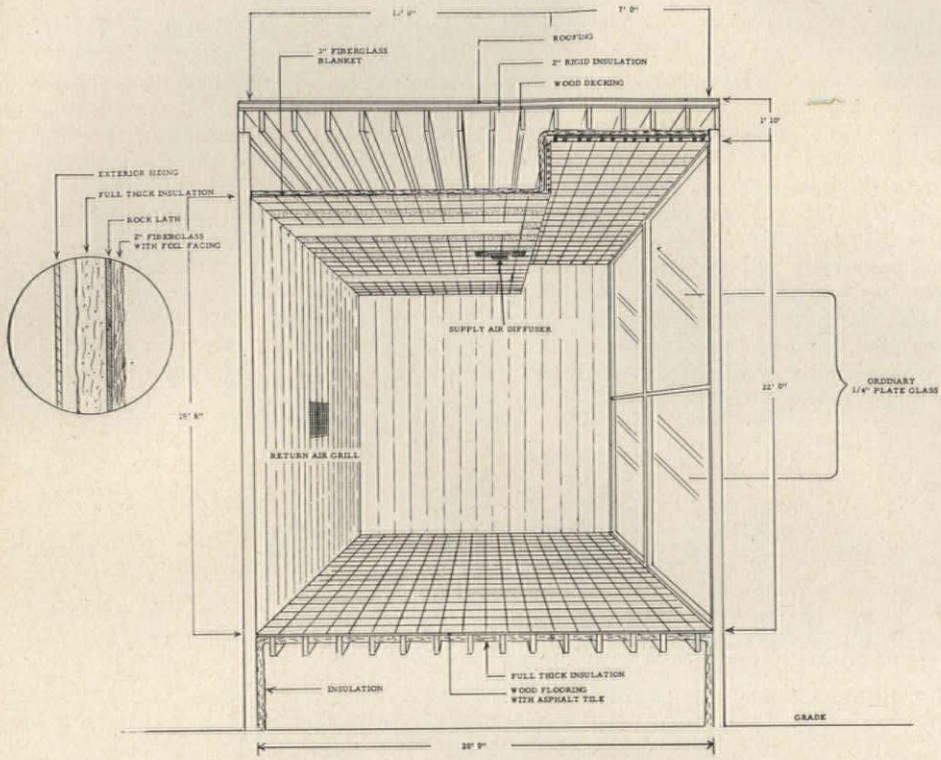
Flexible Air Conditioning For Multi-Occupancy Buildings

According to its manufacturer, York's new "Three Pipe" induction unit system, the first of which was recently installed in Boston's Statler-Hilton Hotel, offers a unique combination of advantages not only for hotels but also for many other types of multi-use, multi-occupancy buildings. Those cited include savings in first cost and operating cost, complete individual room temperature control, and flexible zoning.

Both warm and cold water are always available at each induction unit, the conventional chilled water supply and return system being supplemented by a small warm water supply line. Unlike the standard three way valve, the control valve used on this system does not mix warm and cold water but selects varying quantities of one or the other and modulates its flow to the induction unit coils to maintain the desired room temperature. The efficient *Hi-I* induction units permit the primary air supply, delivered from a central system, to be reduced to the minimum required for ventilation, resulting in smaller ducts, and smaller and/or fewer fans. Since there is no need to zone the air flow by exposures, a single primary air system is used unless space limitations demand multiple systems, in which case they may be proportioned and located for ease of installation, without regard for zoning. Likewise only a single set of secondary water pumps is needed, one pump for the warm water and a second pump for the chilled water.

To prevent loss of energy from mixing warm and cold return water, the return system is divided into a minimum of four zones—one for each exposure. The secondary water risers for each zone are connected into a single zone return main. Depending upon whether the water in the zone return main is relatively warm or relatively cold, it is diverted to either the heating or the chilling apparatus. This method of zoning is so simple and inexpensive that it is often practical to increase the number of zones to provide for partial shading of an exposure or to group areas with similar load characteristics. *York Corp., York, Pa.*

more products on page 216



CUTAWAY VIEW OF TEST ROOM

Test Room Yields New Data on Radiant Heat

When asked by an architect how their radiant-acoustical ceiling system would perform if installed in a building with a 22-ft-high outside wall of plate glass, the Airtex Corporation responded by setting up a test room to find out. The test structure itself was designed to simulate the conditions that would be present in a particular building, but the data recorded also sheds new light on the use of radiant heating in any building with large glass areas.

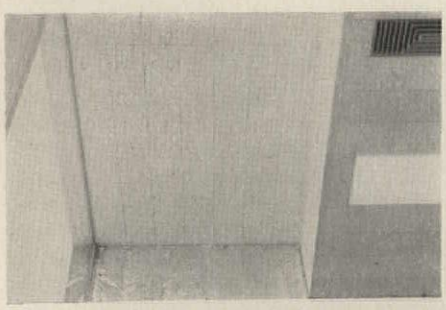
The section of the test room ceiling nearest the glass is 22 ft high and composed entirely of radiant aluminum panels. Seven feet back from the glass, it drops down to 19 ft to allow room for ventilation ducts and for spandrel beams. This lowered portion is half radiant panels and half perforated metal acoustical pans. Each section has its own water pump and control system so that the temperature of the water delivered to the high ceiling can be varied according to the outside air temperature while that supplied to the dropped ceiling is controlled by a return air thermostat.

The floor and wall construction is fairly standard, as shown in the drawing at left. However, since the test room simulates only a 20- by 20-ft section of a much larger heated area, it was necessary to make the side walls "disappear" in order to get accurate readings on the other surfaces. This was done by blanketing them with a foil-faced insulation that neither absorbs nor radiates heat. Thus the radiant effect of the walls is neutralized, and the only factors that affect the conditions in the space are the air temperature and the radiant effect of the floor and ceiling.

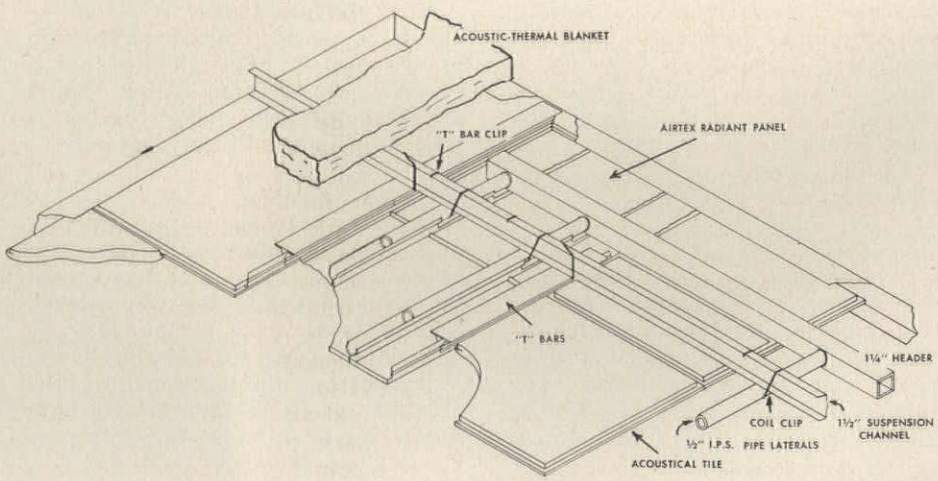
For 46 days, these factors were measured by an electric potentiometer that made continuous recordings of air temperatures, surface temperatures and water temperatures at twelve points in the test set-up. The principal conclusion drawn from this data is that a radiant ceiling with panels concentrated near the potential source of heat loss *can* comfortably heat a space with a large glass area—even if the ceiling is 20 ft high and the heat loss about three times that of an average room. Tests in temperatures down to five degrees above zero, with a low supply air temperature, have consistently resulted in glass temperatures of about 53 degrees and floor temperatures of about 80 degrees. These measurements have remained fairly constant, in spite of wide variations in the temperature of the outside air.

It is also interesting to note that increasing the temperature of the supply air actually decreased the glass and floor surface temperatures. According to Airtex, this occurred because the higher air temperatures tended to satisfy the room thermostat, reducing the output of the radiant ceiling.

more roundup on page 200



Ceiling installation in Airtex test room (above) banks radiant panels near outside glass wall. Lowered portion of ceiling combines radiant panels with acoustic tile as shown in typical installation at right. Standard T-bar grid also is used to support lighting fixtures, diffusers, etc.



This idea was discarded as too expensive, and sprays were tried instead. These were not satisfactory, both from the standpoints of effect and public relations. (Wind shooting across the plaza blew water onto the sidewalk. Spray also is a problem at Roosevelt Field Shopping Center since the pools are rather narrow in relation to the height of the jets when operating at full capacity.) Finally at Seagrams, the architect and contractor designed a nozzle consisting of a slotted cylinder having a conical section under the head of the cylinder to direct the water into a flat spray several feet in diameter; the effect is one of droplets, rather than a continuous sheet.

If a pool is to have fish in it, then this presents special plumbing problems. Copper-bearing pipe and accessories are not recommended. At Mile High Center a large pool with jets has trout swimming about. For this pool, the engineers specified plastic pipe, rubber-lined pumps and activated carbon filters to insure the health of the wild life. Architects were I. M. Pei and Associates; engineers were Jaros, Baum & Bolles.

While dirty water has nothing to do with nozzles, its appearance nonetheless can detract from the overall effect. This is more serious in the city and industrial areas than elsewhere, but it deserves attention in the matter of proper recirculation and filtration including proper location and number of return outlets. For example, unsightly foam can accumulate in a corner if the outlets are improperly located. Vacuum cleaning may be advisable for removing sediment.

TIPS ON MECHANICAL DESIGN

by Vincent Mandracchia, Syska & Hennessy, Consulting Engineers

Mechanical design of fountains involves the following considerations: (*a*) selection of nozzles. (*b*) determination of what pressures and volumes of water are required. (*c*) design of mechanical room—selecting pump piping, valves, strainers, etc. (*d*) design of recirculation and filtering systems.

Nozzles

Types and sizes of nozzles to be used will depend on the effect the architect thinks will best work with the building and on the shape and size of the pool. Flow rates can be determined from manufacturers' tables when the pressure is known. With smooth nozzles (jet and mushrooms) a rough rule of thumb is that the pressure in psi multiplied by 2.31 gives the approximate height of the stream (friction loss of nozzle will decrease this slightly). With spray nozzles (especially at the wider angles such as 60°) a maximum height is reached at a certain pressure, and increased pressure merely makes the spray more dense. Data on characteristics of spray nozzles should be obtained from the manufacturer. Special designs will need to be tested for effects and flow rates.

Pump Room

It is advisable to place the pump room as close to the fountain as possible and below the fountain. This insures the most economical piping layout and provides constant submersion of pump impellers. Single-stage, horizontal centrifugal pumps are the type used mostly.

Recirculation Piping

Supply and return piping generally is galvanized and in smaller sizes brass or copper. Recirculating piping inside or above the water level of the pool is usually brass. When many jet nozzles are required in a single line, threaded brass adaptors can be brazed to the pipe.

In long runs, supply headers should be connected at various points to equalize friction loss, thereby giving approximately the same heights to all jets. Plug, bell or globe valves can be used to adjust the heights of the jets, and gate valves for shutting off the jets.

Various types of fountains will require different piping arrangements. A simple fountain, for example, will consist of piping from drain to strainer, pump and back to nozzles. A strainer should be provided in the suction piping before the pump to remove foreign matter.

Note that overflows to the sewer should be provided, either on the side of the pool or through a standing overflow connection. Water should always cover pool suction drains so that the pump will not draw air.

Vacuum Cleaning

Where there is heavy airborne dirt and where people may be prone to litter an area, suction outlets should be installed below the water level. Piping from these outlets may be connected on the suction side of the recirculating piping ahead of the strainer or to a separate vacuum pump intended only for this purpose. There should be sufficient vacuum cleaning outlets to cover the entire pool. For small fountains, portable cleaning units may be used.

Make-up Water

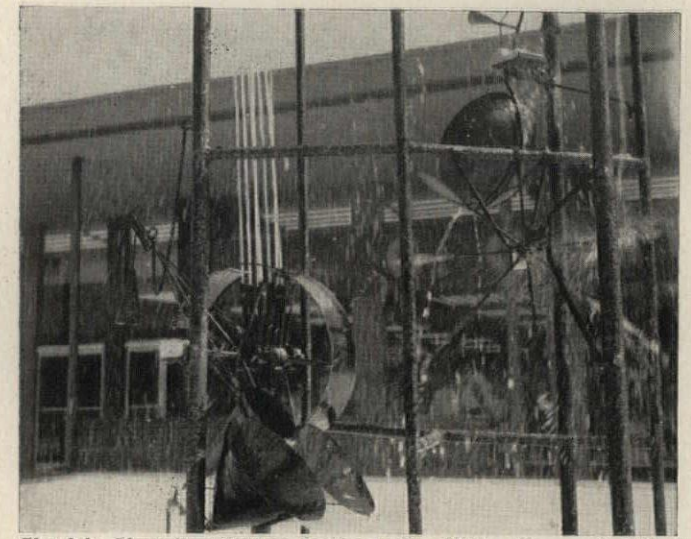
This is necessary to compensate for evaporation and wind-blown losses. Pools can be filled from hydrants, sillcocks or through make-up water piping. When potable water is to be used, direct connections should be avoided. In fact, most cities forbid cross-connections. A positive break in the system can be achieved by providing a supply outlet above the rim of the pool. If this is impossible, then a surge tank connected to pump suction must be provided.

Makeup water can be turned on manually or by automatic controls.

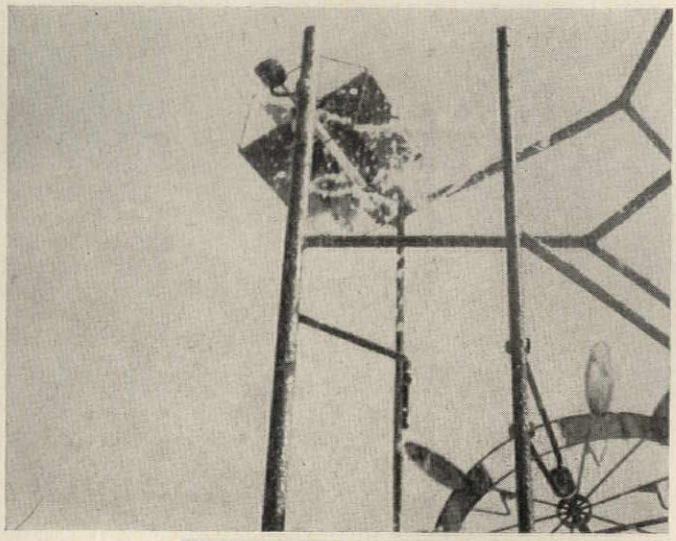
Filtration

For large display fountains and areas where considerable sediment is to be expected, filtration is recommended.

It is not necessary to filter pool water at as great a rate as for swimming pools. So when partial filtration is used, it will be necessary to provide two pumps. For example at Roosevelt Field Shopping Center, 2200 gpm is required for the fountains; a 1600 gpm pump bypasses the filter, and a 600 gpm pump sends water through the filter. In calculating the head at which pumps will operate, the engineer must find the total friction loss in piping plus pressure required at the nozzles; also, friction loss through the pressure-type diatomceous filter amounts to as much as 35 psi. Conventional swimming pool filters can be used.

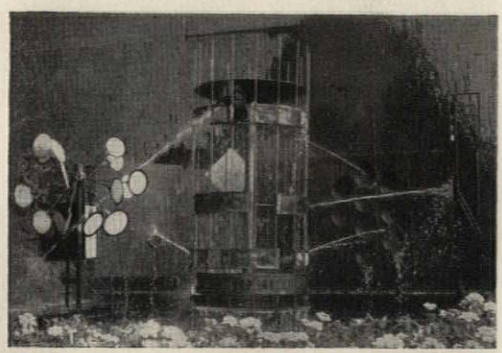


Glendale Shopping Center, Indianapolis; Victor Gruen, Architect

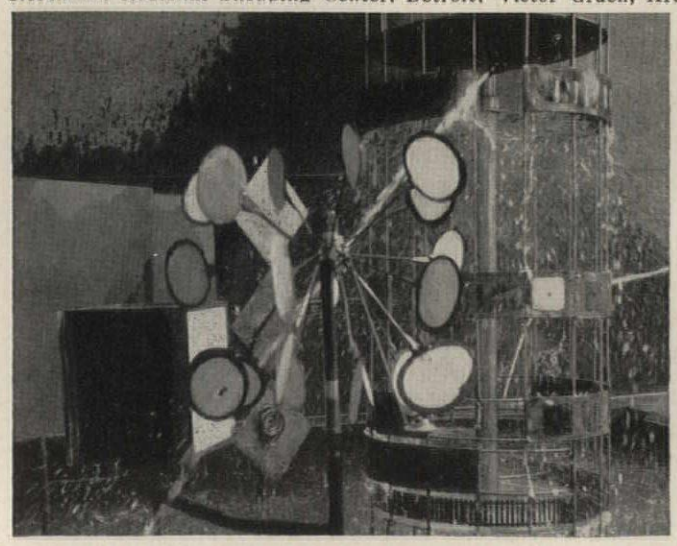


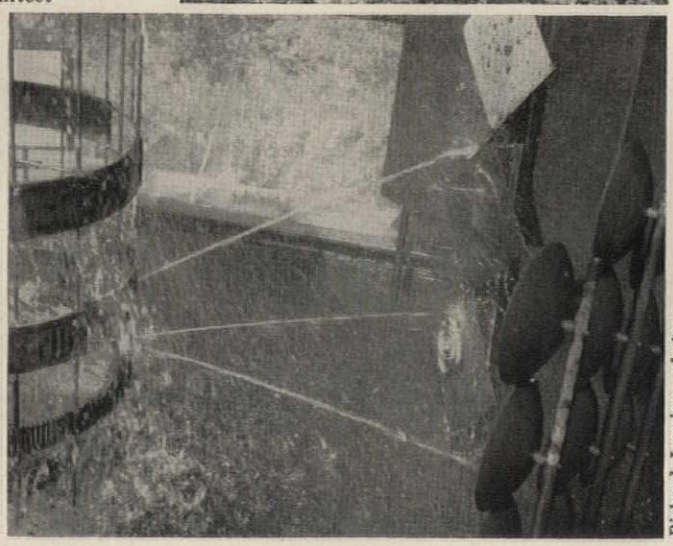
"Sculptured mechanisms that achieve a form of controlled mobility through the force of water," is how Richard H. Jennings characterizes these two fountains which he designed for shopping centers in Indianapolis and Detroit. He feels that "mobile pool" is a misnomer for the one at the bottom of the page, and reports that a critic dubbed the other one "oriental plumbing." Whatever the appellation, the colorful idiomatic sculpture of each of these fountains combines the playfulness of a child's sandbox toy with the whimsical complexity of a Rube Goldberg creation. The fountain above has as principal activating devices counterweighted buckets which tip when full to expose nozzles that shoot their streams against a variety of paddle wheels. It works like this: in one of its cycles a vertical paddle wheel at the top meters water into a dish counterbalanced by a stream of water. When full, the dish tips, letting a second stream rotate an auxiliary paddle wheel. In a second cycle, three counterweighted conical buckets tip when full, turn a slotted wheel and allow seven nozzles to turn another paddle wheel at the top.

The fountain below is sort of a carousel affair. A rotating central column turned by a jet-operated turbine at its base controls sprays of water by means of baffles. These sprays shoot at rotatable targets (box and paddle wheel) and at stationary targets around the periphery of the pool.

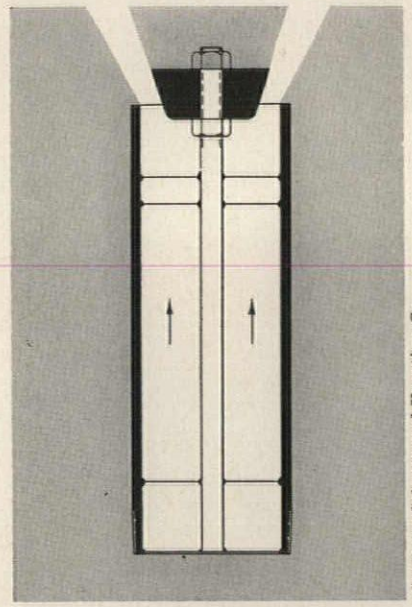


Northland Regional Shopping Center, Detroit; Victor Gruen, Architect

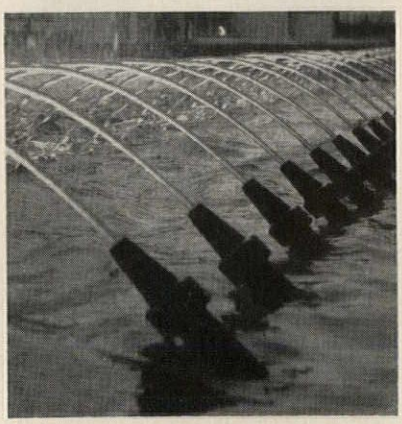


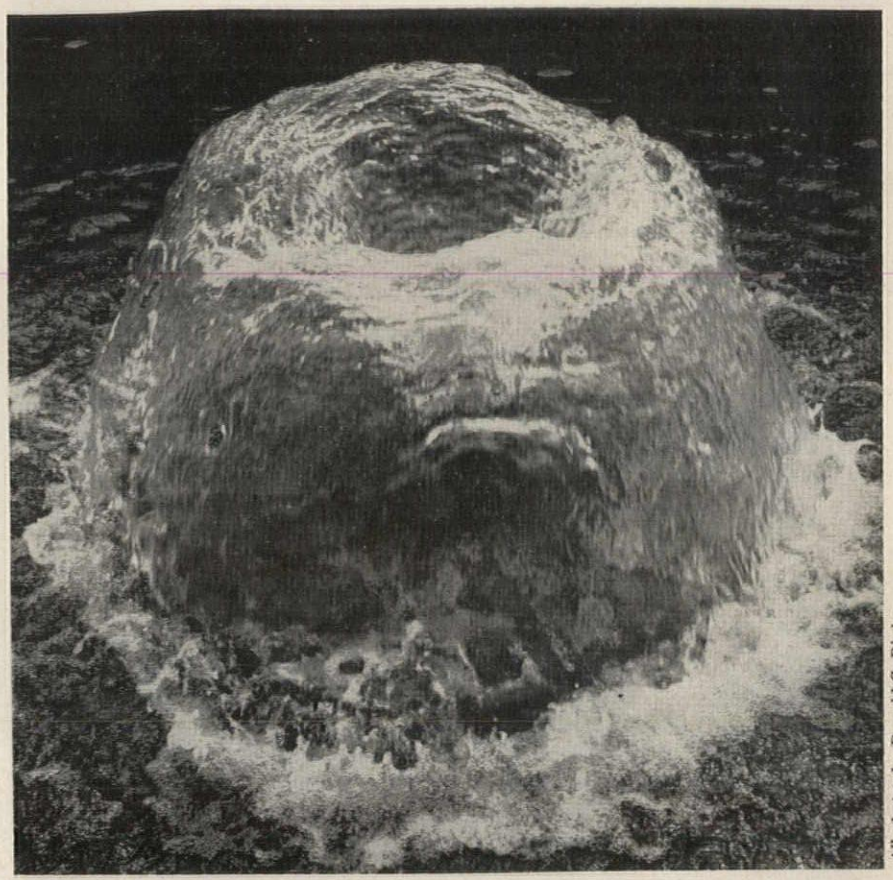


Richard Jennings photos

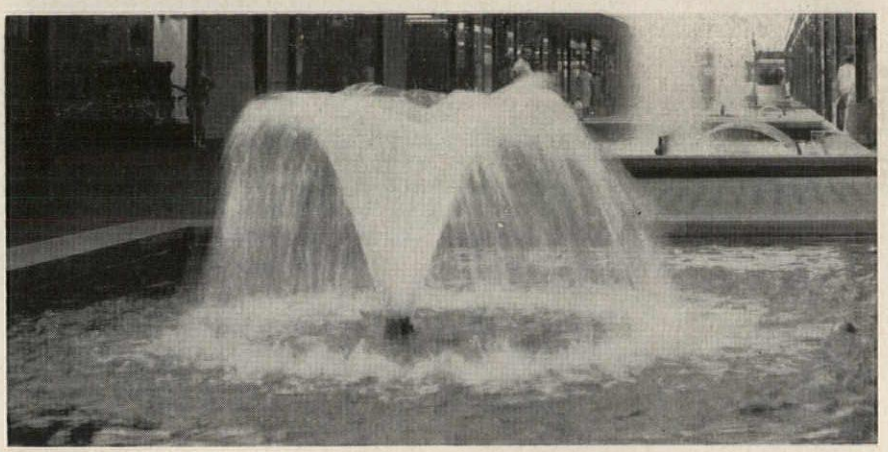


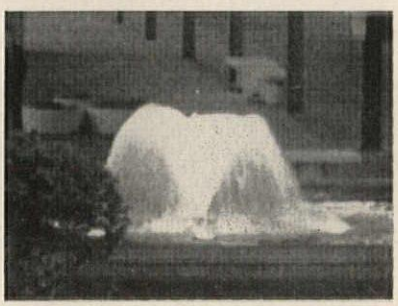
Courtesy Schutte and Koerting Co.





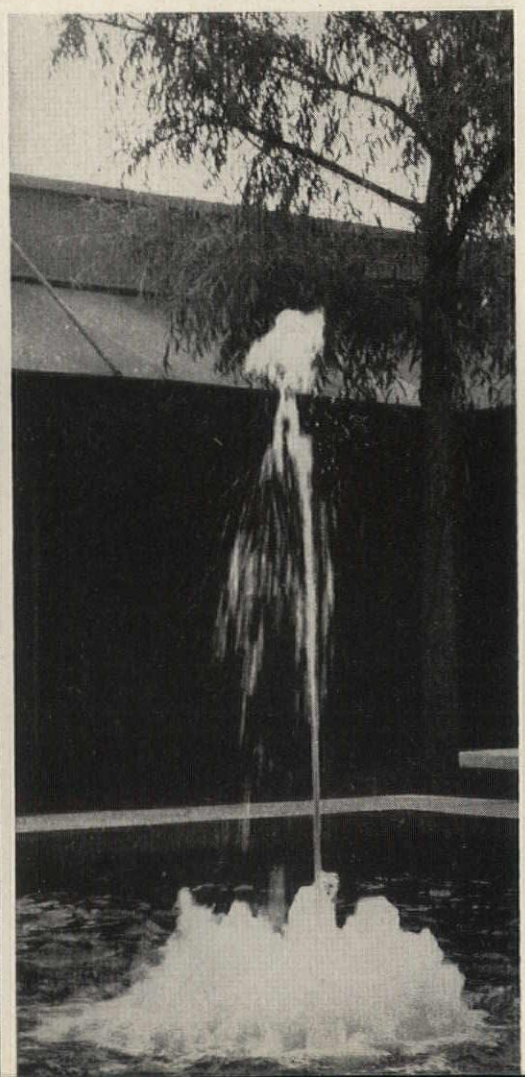
All photos by Ronald C. Binks





Mushroom nozzle at Roosevelt Field produces a shimmering sheet of water both day and night *(photo right)*. This is a 4-in. diameter nozzle of the type shown at top left of this page. It has a capacity of 500 gpm at 5 psi and would be 8-9 ft high with these conditions. Less pressure is being used in these photos, and fountain is about 4 ft high. Two of these pools operate in winter and are heated by circulated ethylene glycol. *I. M. Pei and Associates, Architects; Syska and Hennessy, Mechanical and Electrical Engineers*

Left: close-ups show jets at Roosevelt Field Shopping Center (*opposite page, top*). The large nozzle is 12 in. high and has a ¾-in. orifice. At 12 psi it has over a 20-ft throw and uses 55 gpm. The small jet is 2 in. long and has a ¼-in. orifice. At 3 psi it has a 6-ft throw and uses 3 gpm. *All manufactured nozzles by Schutte and Koerting Co.*



several of the effects along traditional lines, with some indication of the scale of these effects and pressures, rates of flow and sizes of nozzles. Also shown is an unorthodox approach at two midwest shopping centers in which water is used to cause mechanical movement and to create surprise with water intermittently hitting targets.

Now and then the architect may feel that the fountain design somehow has missed—stream too thin, wrong nozzle, too few nozzles, etc. Quite likely there is an inadequate amount of water. If the recirculating piping has been sized closely, then it is practically impossible to increase the total flow. One engineer has suggested that the filtering system be kept separate from the nozzle system, and that the nozzle pressure might be supplied by submerged pumps which could be installed right in the pool. Then if greater pressure were needed, merely this pump and piping to the nozzles would have to be changed.

More and more special effects are in demand. The mushroom fountain at Roosevelt Field Shopping Center shown on page 185 uses a nozzle that was developed for Mile High Center in Denver. The first one has a capacity of 500 gpm; the latter, 1000 gpm, reaching a height of about 8 ft.

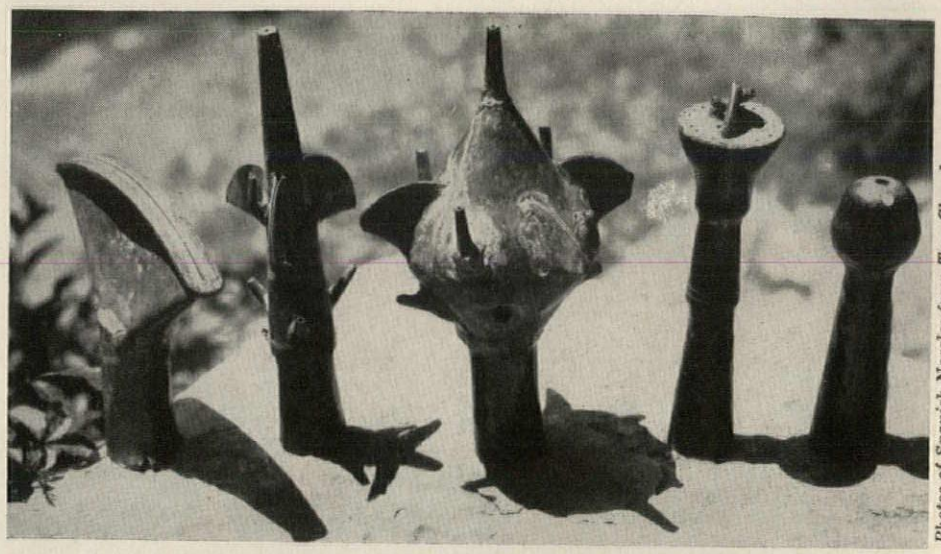
At Roosevelt Field Shopping Center, the architect provided a small pool which has a bubbler with a small jet in the center. The bubbler was "homemade," consisting of several pipes in a radial pattern, slightly submerged to give the frothing effect.

At the Seagrams Building, Philip Johnson first conceived of having a wave of water surge from one end of a long pool, to the other, but this would have required a 36-in. discharge pipe and a 400 hp motor.

text continued on page 187

Top: day and night shots of jets at Roosevelt Field Shopping Center. Each end of a 120- by 14-ft pool has 12 vertical jets spaced 1 ft 6 in. o-c. At the edge of the pool on either side of these are 23 jets set at 45° and 9 in. o-c. The two types of nozzles are shown on the opposite page. The lights are white, green and amber. *Bottom left:* smaller (½ in.) orifice jets for Franklin National Bank at Roosevelt Field. *Bottom right:* bubbler and jet in 18 ft square pool at shopping center. Radial pipes hold 24 ordinary pipe nozzles in circles of 9 in. and 14 in., 12 nozzles each. *Fountain in photo lower left: I. M. Pei and Associates, Architects; Cosentini and Associates, Mechanical Engineers*

FOUNTAINS: EFFECTS AND MECHANICS



Photos of Spanish Nozzles from Tom Church

The Moors in Spain left a tradition of jet fountains. *Top:* a series of nozzles found on Majorca. Tallest nozzle is 8 in. *Above:* jets at the Alhambra, circa 1300 A.D., about 9 in. high. *Bottom,* in the modern idiom: mushroom fountain (left-center) and jets at Roosevelt Field Shopping Center. Fountains are duplicated at other end of mall. *I. M. Pei and Associates, Architects; Syska and Hennessy, Mechanical and Electrical Engineers*

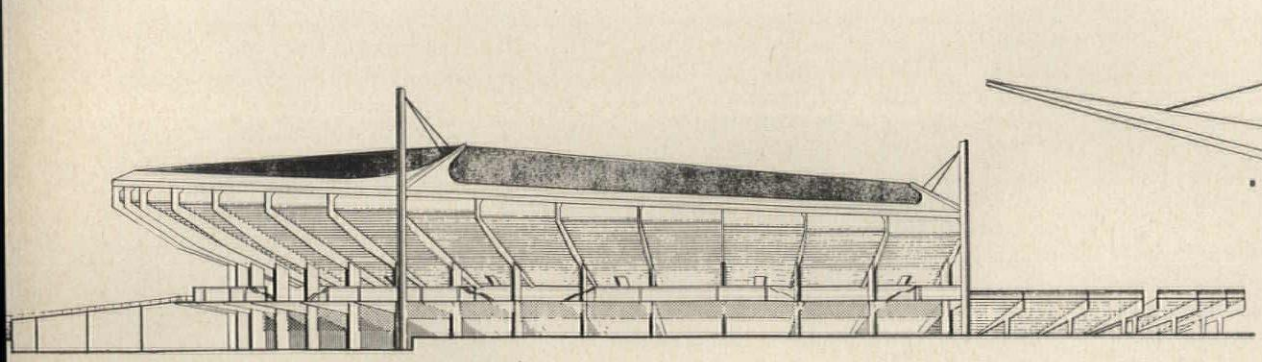
Photo below © Ezra Stoller

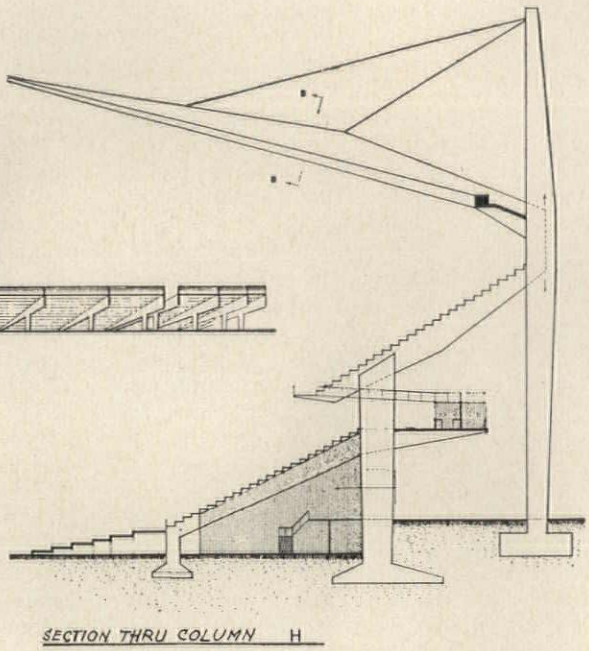
While the laws of hydraulics are immutable, achieving fountain effects that complement architecture involves a great deal of empiricism—even today. Design of something like a weir is straightforward, but with nozzles, the effects are not conveniently cataloged. Engineers and architects with experience in fountain design say that nozzles have to be tried out in the field with pressures varied to be certain of the range of effects possible. They also warn that if these effects are to be impressive, in keeping with large-scale projects, huge quantities of water are involved. The fountains in the photo below at Roosevelt Field Shopping Center (only half of installation is shown) spurt forth some 2200 gallons per minute, of which 600 gpm are filtered. To do this requires one 50 hp motor and one 60 hp motor—not insignificant items.

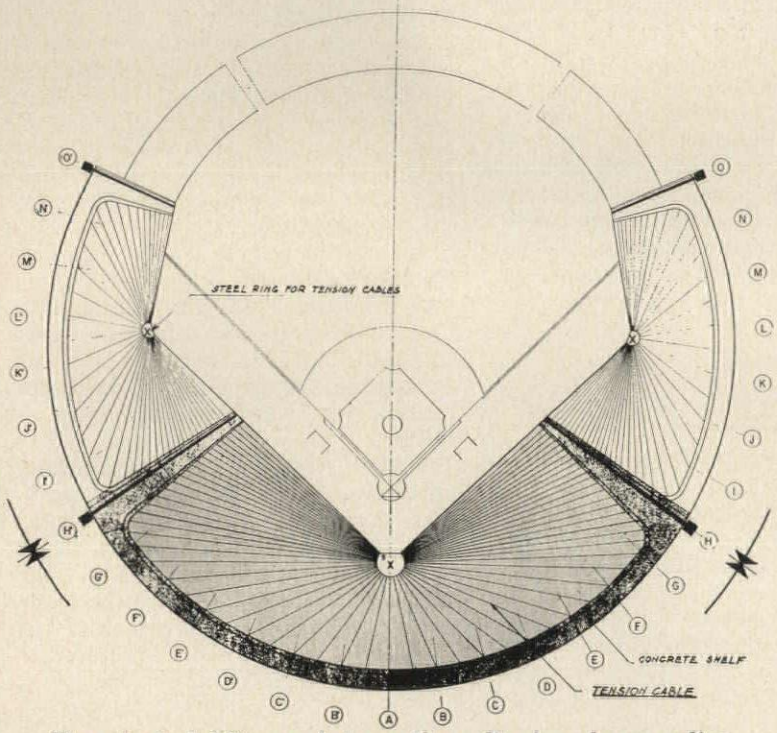
Few manufacturers have standard nozzles intended for fountain application—although most could supply jets and some spray nozzles. At least one manufacturer lists several nozzle types suitable for fountains: jets, sprays (with various angles of spread from 5° to 60°), cones (solid and hollow), fans, and, more recently, mushrooms. Not all of these are always carried in stock, however, since fountains are still a small part of the market. Also, for this reason, development of special effects is usually somewhat expensive.

The trouble with nozzle selection is that the designer cannot simply turn to the literature, and choose a spray of certain height, proportions and density and then find in a table the model type, pressure required, rate of flow, etc. Catalogs only give a general idea of effects along with charts showing flow rates vs. nozzle pressures. The only way to be absolutely sure of the effect is to see the nozzle in action—either in an existing installation or in a mock-up.

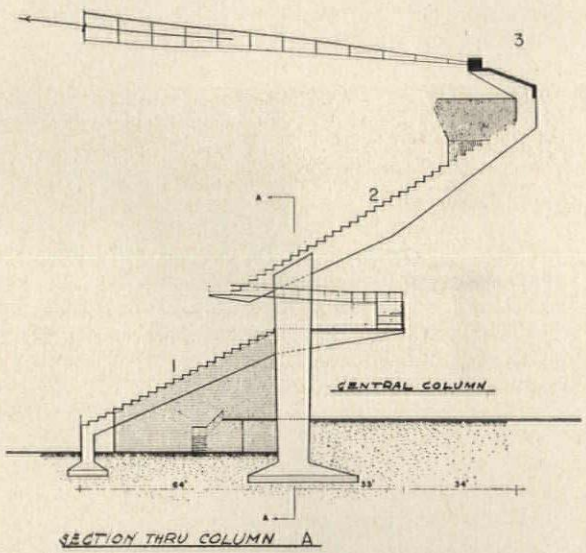
The purpose of this article is to show as best as photographs can,





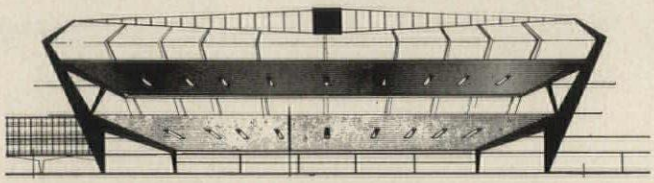


SECTION THRU COLUMN H



SECTION THRU COLUMN A

The principal difference between the auditorium shown earlier and the stadiums here is that the cable structure in the auditorium merely rests on top of the columns. Here the cables are active in keeping the cantilevers from tipping



Here is another proposal for a stadium. The plan is a square with rounded corners and cables support cantilevers

hand, the cost per sq ft actually goes down with an increase in span. The upper limit would be about 1800 ft. By increasing the number of cables, their size and initial tension would be kept constant. The spreaders would become heavier to prevent buckling as their length increases. But the cost of fittings and erection would remain more or less constant.

Together with architect Helge Westermann, Dr. Zetlin has drawn up plans for larger buildings, in which he has taken advantage of the constant horizontal force generated by the double cable system to balance cantilevered "C" shaped frames which support grandstands. Two of these are shown here, one a square building with rounded corners, with an 800 ft span roof, the other an irregular canopy over the seats for a baseball diamond. In this "C" shaped grandstand design, the horizontal forces are distributed in plan in such a way that they resist the tendency of the cantilevers to tip back. This is especially important for the compression member at the top of the cantilevers, which looks like a giant "C" clamp in plan. The cantilevers try to pull it apart; the cables hold it together.

In the Utica Auditorium, the cable system is inert. That is, cables and rings merely sit on top of the columns. In these last two examples, the cables actually support outside cantilevers, permitting their span to be larger and cross-section smaller.

essary to avoid excessive bending of the ring.

When all of the cables had been fastened, the initial prestressing forces were developed by raising the upper tension ring and lowering the bottom ring, forcing them apart by means of jacks. The spreaders or stanchions were then placed, further increasing the amount of force built into the cable system. The sequence of placing the spreaders was important for the reason already mentioned. This method for introducing prestress by jacking approximately at right angles to the cable is said to be much easier than by applying an axial force using turnbuckles or tightening screws at the end.

Once the initial forces had been achieved, the delicate stage of the construction was passed. Installation of a formed metal roof decking, insulation and roofing is now being completed. The space between the upper and lower cables is used for air conditioning equipment, ducts, lighting, etc. There will be sound absorbing material in the center and around the edge, leaving a wide circular area in between.

How It Works

To get an idea of the relative magnitude of forces, a 20 lb per sq ft dead load would produce 12.6 kips vertical load at each fastening. But the horizontal forces are much greater than this because of the prestressing.

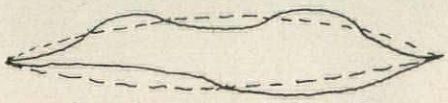
There is no change in the horizontal pull on the compression ring when load is added because the horizontal components cancel out. Roof decking, equipment, snow, etc. decrease the tension in the upper cable and increase the tension in the lower cable. By creating a sufficiently large initial force in the upper cable, this tension will never be reduced to zero and the cable will never go slack. Wind loads when acting upwards will produce the opposite situation.

The purpose of the prestressing can be summed up as follows:

1. To maintain tension in the cables at all times so there is no sagging.

2. To keep tension at such values as to control natural frequencies of top and bottom cable systems, preventing flutter.

3. To control deflection of the whole cable system under dead and live load. (Worst situation was taken as a downward force on ⅛ sector and upward force, i.e. wind, on ⅛ sector diametrically opposite.) Deflection is controlled by the predetermined curvature of the cables as well as by tension of the cables. This was solved in design by trial and error. Deflection due to roof and air conditioning equipment was 4 in.



Damping action at the cables

Tension in the cables was predicted by geometry—i.e., knowing original length of cables, length of spreaders and final length of cables. Final tension was checked by putting a jack on the end of the cables, turning the nuts on the fittings up tight and reading a pressure gage—tension checked out as predicted.

What is the nature of the curves of the upper and lower cables? They will follow the funicular curve for the loadings. Since the loading is complicated, the true shape of the funicular curve is not any simple mathematical function. We can distinguish three main features:

1. A catenary, due to the dead weight of the cables alone;

2. A polygon, due to the forces generated in the spreaders by the initial prestressing and also due to the partial transfer of loads from the roof deck to the lower cable system by these spreaders;

3. Approximately a third degree parabola, which is the funicular curve for the dead loads acting on the triangular projected area supported by each cable in plan.

The true curve would have as ordinates the algebraic sum of the ordinates of these different curves. This had to be calculated as accurately as possible so that the spreaders could be fabricated to the correct lengths and all of the fittings and sleeves to the correct angles.

Patented Features

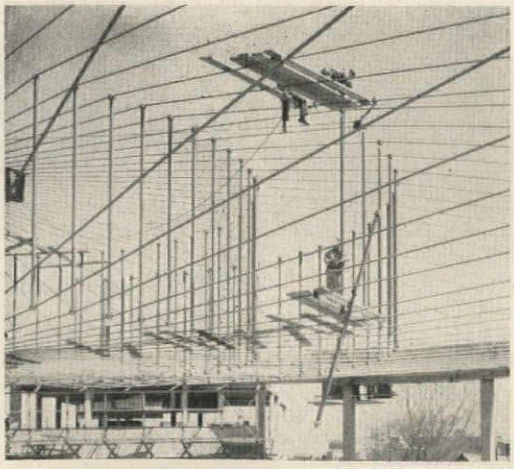
The architects, Gehron and Seltzer, decided on a circular building. When they called in Dr. Zetlin, he suggested a cable system as a solution and said he would study the problem of flutter.

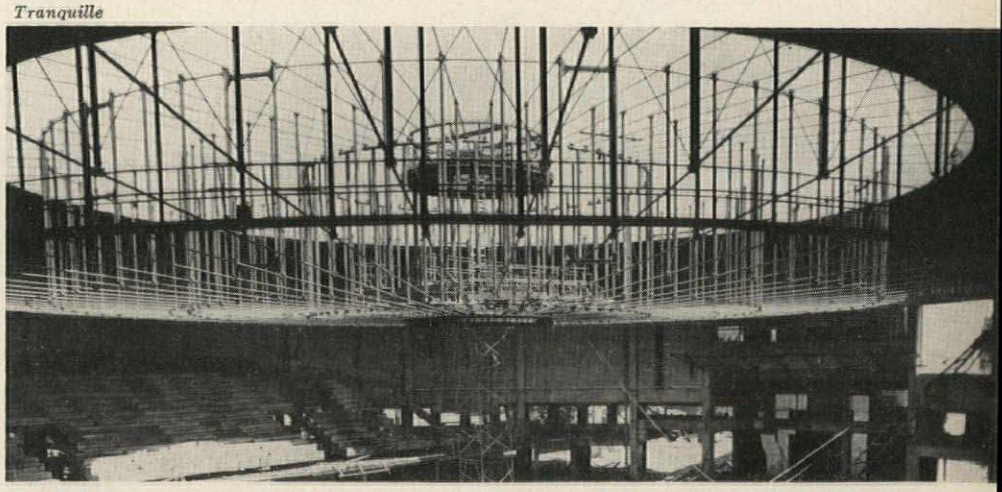
Recognizing that he had come up with something new, he and his associate Tyge Hermansen, applied for a patent (Serial No. 653,129, April 16, 1957), covering the main features of the roof system: the large initial tension; the curvature of the cables; and the spreaders required to establish the curvature.

New Applications

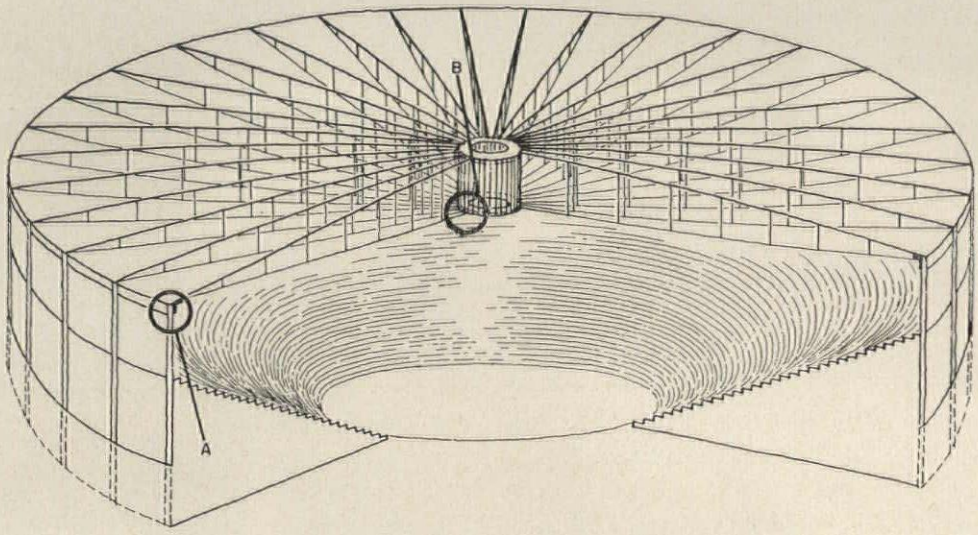
Like all suspension systems, this prestressed double cable roof is not particularly appropriate for "small" spans. Dr. Zeltin believes the lower limit of economic applicability to be about a 200 ft span. On the other

Tranquille

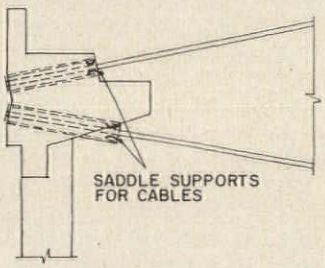




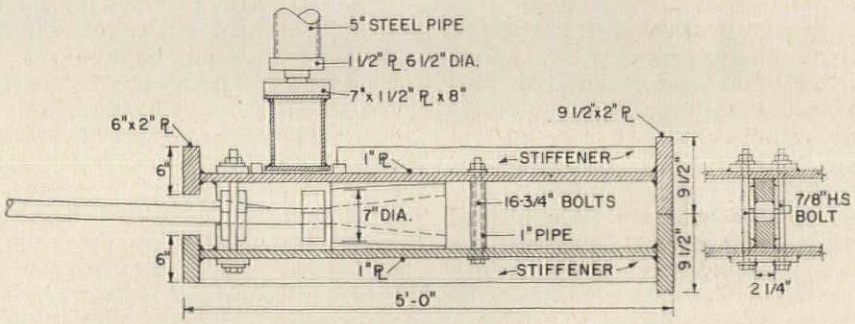
Left: key to damping is spreader between two sets of cables. Lower cables have more tension than upper cables; their sizes are 2 in. and 1⅝ in. respectively. Insertion of the spreaders was a relatively simple way to achieve prestressing. *Right:* walls filled in; roof being covered. Auditorium has 4000 permanent seats, but can hold 6500



Prestressing of cables plus their curvature both help in resisting deflection due to imposed loads. Predicting the actual curvature was complicated, but had to be done accurately for sizing the spreaders. The details below show how the cables were anchored to the 240-ft concrete compression ring and the steel tension rings. The right-hand detail (b) shows how the tension rings are kept apart. Jacking of these rings was the next step after the cables were strung. Cable work was done by the John R. Roebling & Sons Co.



SECTION A



SECTION B

Interstate Photographers

Left: tightening up the bolts on the top tension ring after the cables had been strung. *Center:* to get initial prestressing of cables, the two steel tension rings were jacked apart. *Right:* rings are about at their final position and are ready for 5-in. pipe spreaders to be inserted. Detail above indicates how this was done

PRESTRESSING PREVENTS FLUTTER OF CABLE ROOF

Tranquille

by Seymour Howard

Municipal Auditorium, City of Utica, New York; Gehron & Seltzer, Architects; Frank Delle Cese, Associate Architect; Lev Zetlin, Structural Engineer; Fred S. Dubin Associates, Mechanical and Electrical Engineer; General Sovereign Construction Co., Ltd., Builder

Steel has remarkable strength in tension so when roof spans must stretch beyond several hundred feet, steel cables surpass other systems in structural efficiency. The thing that has bothered engineers until very recently, however, is flutter. Cables—in contrast to other roof systems—have no inherent rigidity to dynamic loads. So one way or another they have to be stabilized against vibrations or noises caused by wind and other external forces—truck traffic, for example.

So far this has been accomplished by weighting cables down with a heavy roof, by guying them with other cables, and in several cases by partially prestressing a dish-shaped concrete roof. (Suspension bridges are stabilized by means of stiffening trusses.)

The unique method shown here, developed by engineer Dr. Lev Zetlin, builds self-damping right into the cable system. This is done by using two sets of cables, stretched apart by means of spreaders, and thus prestressed by forces of 135,000 lb or more per cable.

Upper cables always have a different tension than the lower cables—first because the prestressing force is applied against cables of different sizes, and second, because any applied load will increase the tension in one set of cables and reduce it in the other. Thus the two sets of cables always have different natural frequencies. No matter what frequency the wind imposes on the roof—even if it happens to be the same as that of one set of cables, the other set will be out of phase and quash the vibration (see diagram p. 181). A much simplified analogy for such a damping system would be the soft pedal on a piano quieting a string.

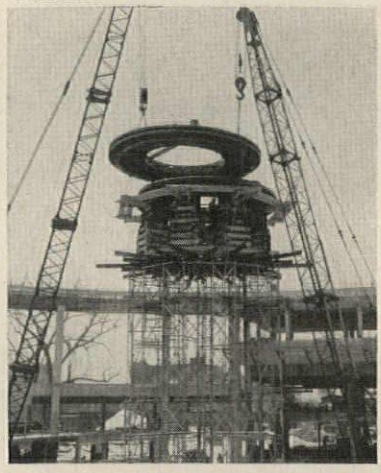
The cables are anchored to a 240 ft diameter concrete compression ring and to two steel tension rings (see details) and are kept apart by pipe spreaders. The compression ring is supported by 24 rectangular concrete columns spaced 15 degrees apart. Each pair of upper and lower cables is spaced 5 degrees apart, making 72 pairs in all. The distance between upper and lower tension rings is about 20 ft, so the depth/span ratio is 1/12.

How It Was Built

After the concrete columns were completed, the entire compression ring was poured using 5000 psi concrete. Pipe sleeves were cast into the ring to allow cables to pass through. In the meantime the upper and lower welded steel tension rings were fabricated and hoisted to a wooden tower in the center, approximately halfway between the final vertical positions of the two rings.

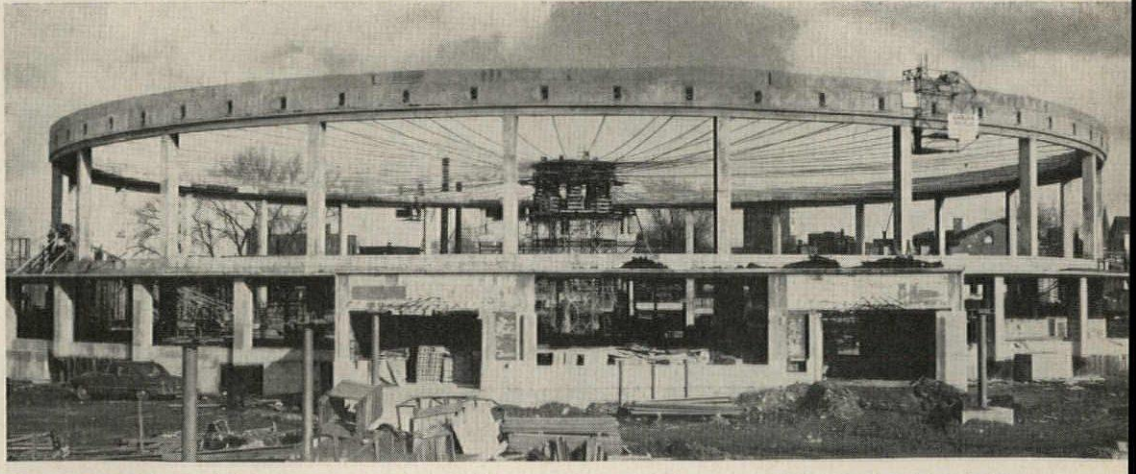
Now the cables were placed. This was the most critical moment in the erection procedure because the edge compression ring was designed for forces evenly distributed at 5 degrees around the circumference, not for the force of one pair of cables acting alone. Thus a carefully planned sequence for placing cables and pulling them into place was nec-

Tranquille



After the inner steel tension rings were fabricated, cranes hoisted them to a central tower topped with wood blocking.

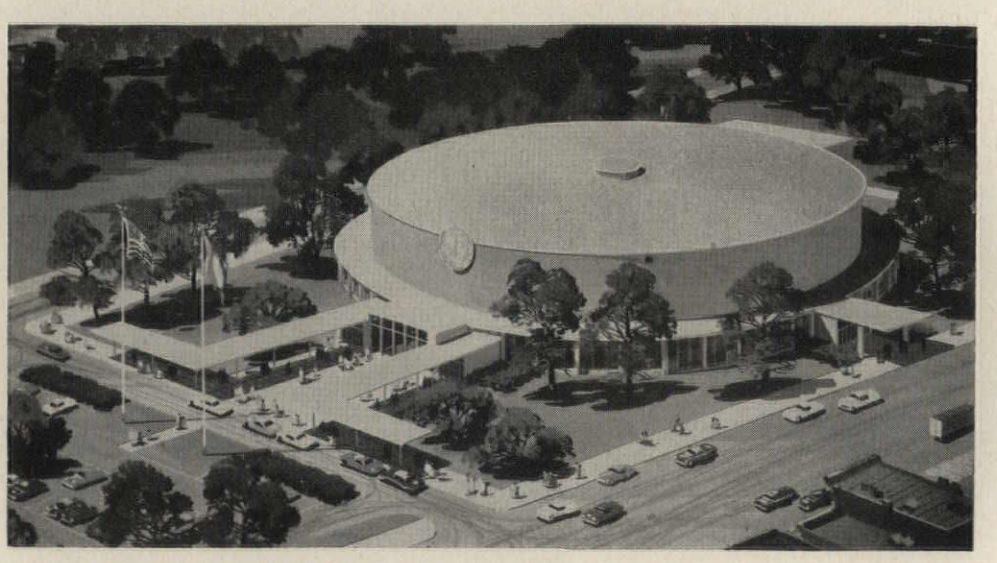
Interstate Photographers



Then cables were strung between inner and outer rings. Concrete ring is 240 ft in diameter

Tranquille

All the elements of the roof structure are shown above. Two sets of cables, upper and lower, are attached to an outer concrete compression ring and two inner steel tension rings. When pipe spreaders are inserted between cables, they become prestressed. The diagonal bracing is an added safety factor against large local eccentricities. Horizontal steel angles are for hanging mechanical equipment.



Architectural Engineering

Engineered Houses In America

Engineered houses—in the sense of Dymaxion, Pierce Foundation, Lustron and Acorn—have suggested dramatic improvements over traditional methods, but mainly because of social and economic factors, they have not been successful commercially. Nevertheless their influence has been felt. Two research houses built last year in South Bend and Knoxville by the National Association of Home Builders have taken clues from these earlier efforts and tried out some new materials and systems. The technical aspects are written up in two reports recently made available. The South Bend House shows how plastic can be used for the core of stressed-skin panels—exterior and interior load-bearing walls, and 18-ft panels for the roof. Panels were made with plywood faces and a polystyrene foam core. While local fire officials were concerned about strength of panels in case of fire, apparently they were reassured by the way the foam performed in the way of a fire stop, and the fact that splines provided additional strength to the wall. The problem of what to do with wiring for continuous-core panels was solved through the use of surface-mounted metal raceways as baseboards, and by fishing circuit wires through voids molded into the edge of the interior wall panels. The Knoxville house boasts prefab stud-type wall panels, plastic pipe for plumbing, plastic flashing, foamed concrete floor slab, a special aerobic sewage system (which uses ⅛ the conventional quantity of water for toilets), a riveted-on aluminum roof and a flexible floor tile, made dimensionally stable through a steaming and stretching process. Consulting architects were Herman H. York for South Bend and Bruce McCarty for Knoxville.

Prefabs in Europe

The grave housing shortage and economic difficulties caused by two wars have compelled European countries to adopt cheaper, faster and engineered methods of building housing. Large-scale prefabrication of complete wood, lightweight concrete or steel structures met with limited success, so lately more attention has been given to new materials and improvements of on-site construction through the use of industrialized components. New lightweight and prestressed concrete components are available in everything from lintels to balconies and cornices. For a serious survey of what is being done on the Continent, in Britain and Scandinavia AR readers should note a 124-page report on *Prefabricated Building* published by the European Productivity Agency in Paris.

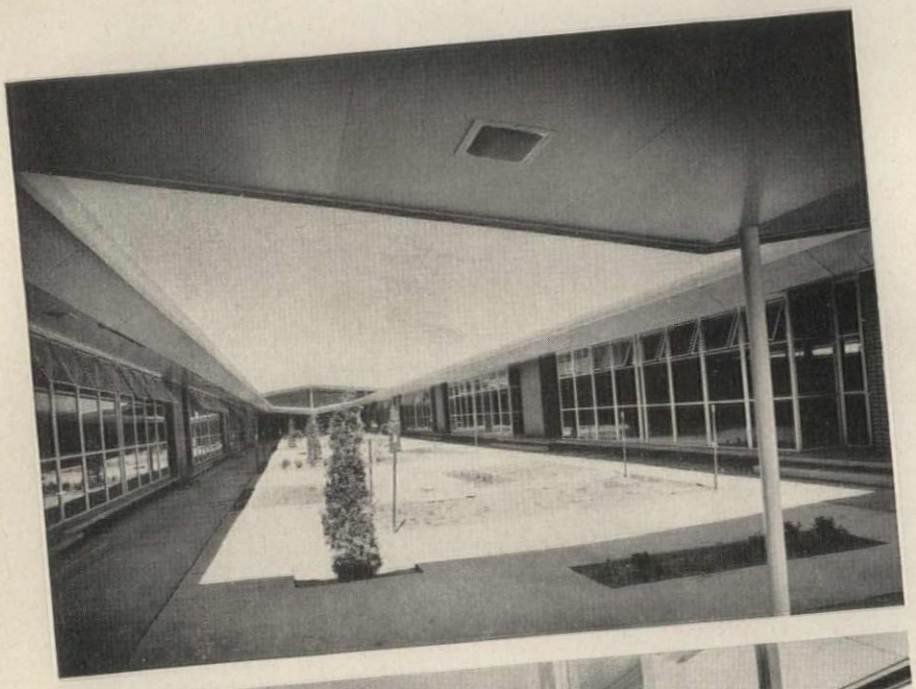
Campaign for Fallout Shelters

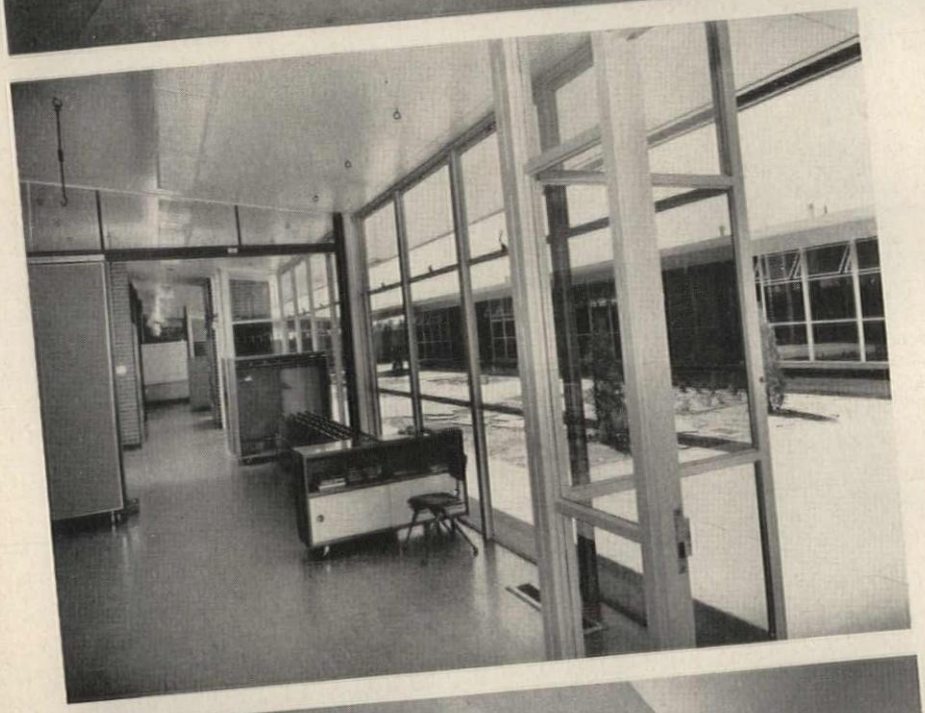
Five-million copies of how-to-do-it instructions on building *The Family Fallout Shelter* have been printed by the Office of Civil Defense Mobilization to show how protection from radiation hazard can be provided through: (1) concrete block shelters in the basement, (2) double-wall concrete block shelters above ground, (3) underground concrete shelters, or (4) pre-shaped metal shelters covered with earth. Advisers of New York's Governor Rockefeller think all houses should have fallout shelters and are suggesting legislation to require them. Blast-resistant construction made little headway with the public. It remains to be seen how seriously they take these new suggestions.

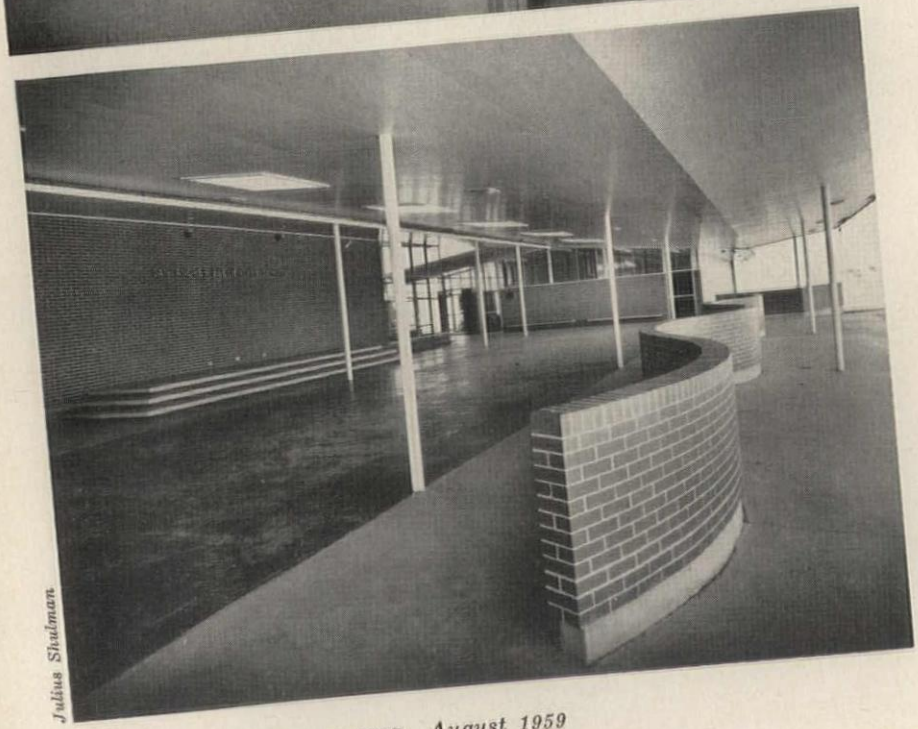
Plastics and Fire Safety

A $19,000, one-year study to determine how plastics stand in relation to fire safety is being undertaken at Southwest Research Institute under the sponsorship of the Manufacturing Chemists' Association, Inc. Fire technologists and architects will study plans of a multiple-occupancy building and a house to see where plastics might be used. Extent of fire hazard will be evaluated; fire tests and standards will be studied.

This Month's AE Section



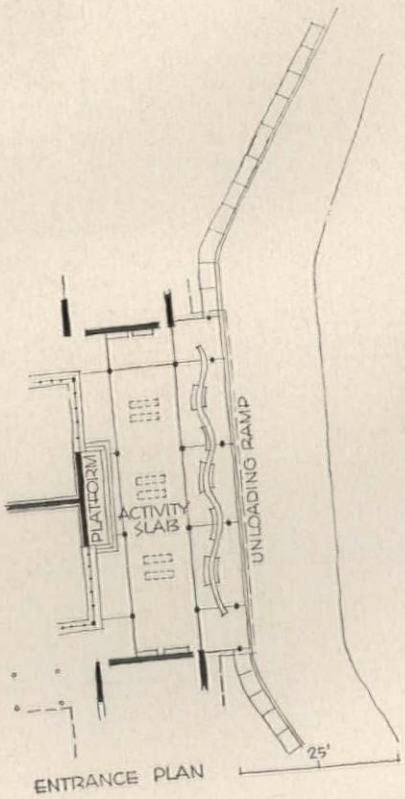




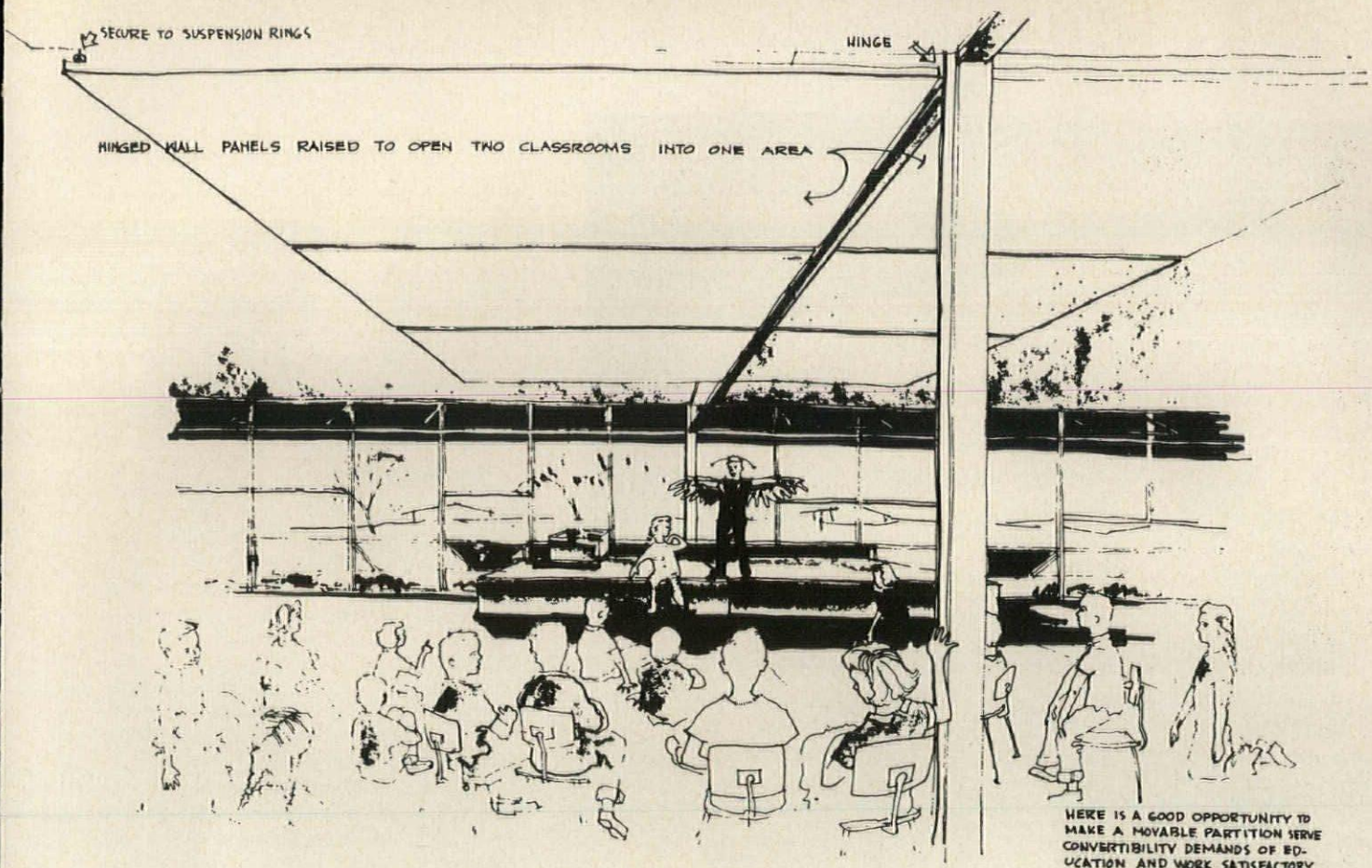
Julius Shulman

San Andres Elementary School

At the entrance to the school, an "activity slab" (*photo and plan below*), forms a novel and useful feature. It is sheltered, has a concrete platform—and many uses: unloading main concourse, skating, dancing, carnivals, etc. It is an outdoor all-purpose area. The center photo gives a glimpse along the classroom wing, and shows a few of the movable cabinets used in the school: the teacher's closet and the sink cabinet are built in, all other cabinets are movable to allow each teacher to rearrange for varied activities and groupings. Separate playrooms, with tempered glass walls, are provided for boys and girls. The structure of the school is a rigid steel frame and bar joists on steel columns. Walls are brick, floors are asphalt tile. Each classroom is heated by its own furnace unit, with warm air reaching floor registers through underfloor ducts

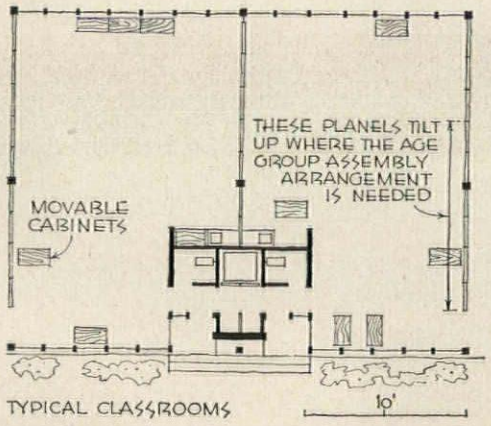


ENTRANCE PLAN

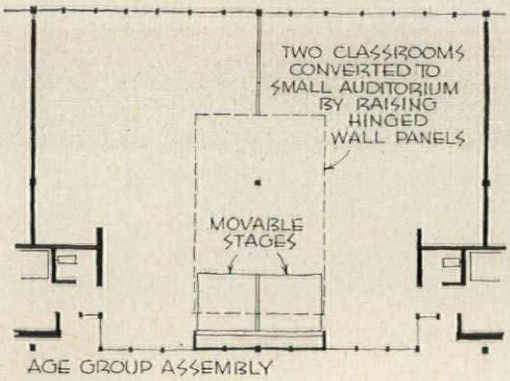


THIS ARRANGEMENT SEATS 130 PUPILS

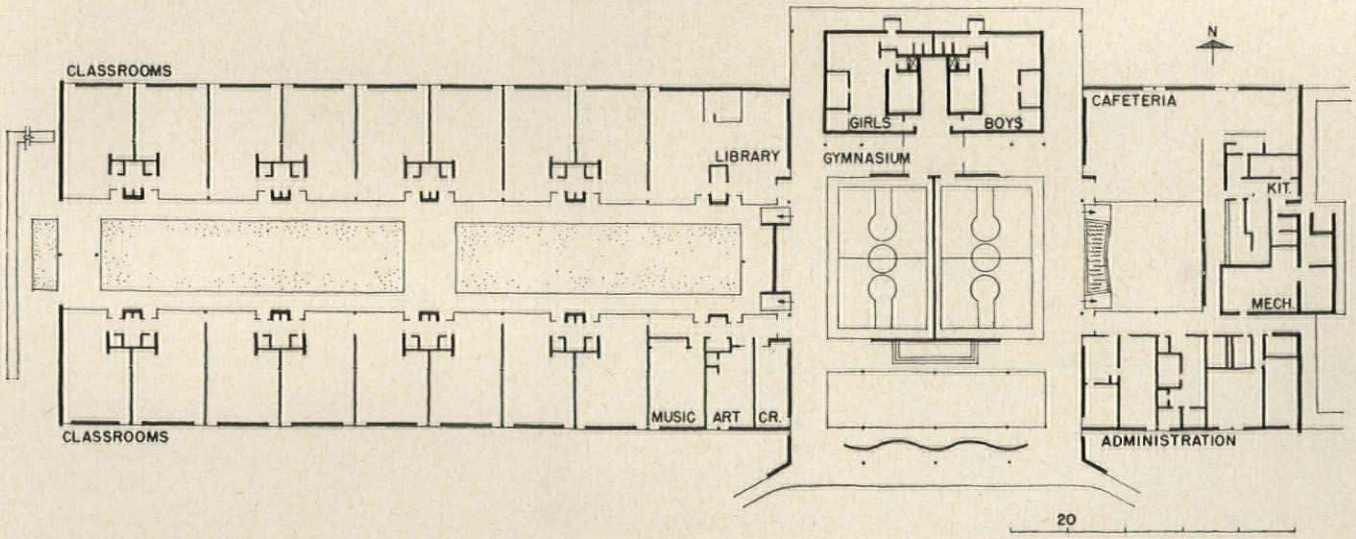
HERE IS A GOOD OPPORTUNITY TO MAKE A MOVABLE PARTITION SERVE CONVERTIBILITY DEMANDS OF EDUCATION AND WORK SATISFACTORY AS A SOUND BARRIER — THE LAP JOINTS (LIKE A DOOR) AND DOUBLE LEAF ARRANGEMENT SHOULD DO THE TRICK.



TYPICAL CLASSROOMS



AGE GROUP ASSEMBLY



Flexible Classrooms and an Academic Mall

This imaginative school takes a big step towards adaptation to the new educational thinking. It is also the latest of a rather remarkable series of schools for the community (see ARCHITECTURAL RECORD, April, 1957: five primary schools in Andrews, Texas; and November, 1958: the Underwood Elementary School.)

The public school system there is "dedicated to the philosophy that the freedom, dignity and worth of the individual personality are paramount." Thus, the educational program there is aimed toward the individualized training of students within a "family" relationship. Specialists are available to help the teacher do her best job in dealing with individual children.

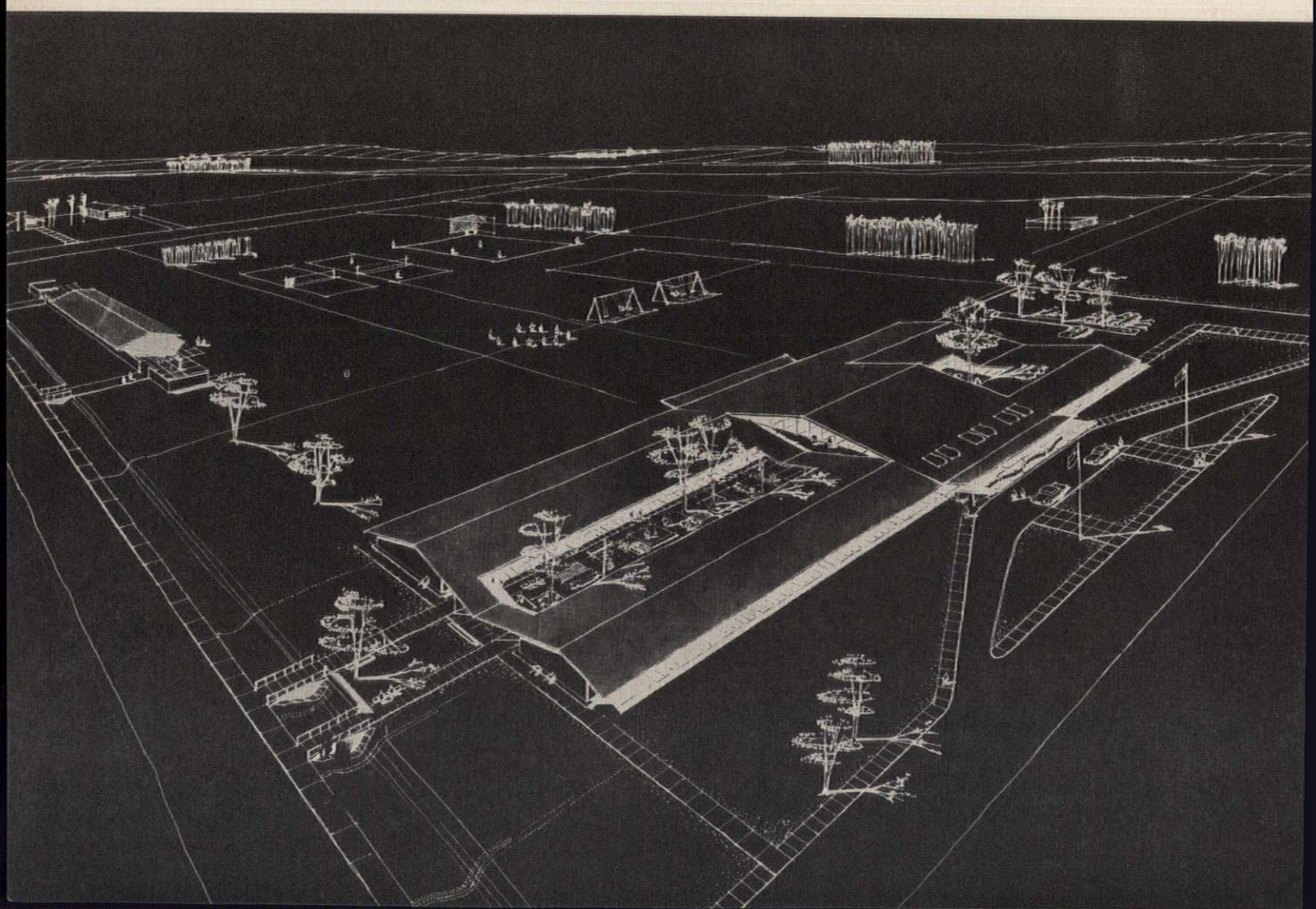
To fit this program, two wings of very adaptable classrooms are faced toward an academic mall—which helped create an interesting view where none existed. Walls on the outside perimeter have high windows for light, with occasional low glass areas to prevent any feeling of confinement. In good weather, the mall is the hallway. Each classroom has its own entrance. However, during inclement weather, the students can use the "corridor" end of each classroom to travel the length of the classroom wing. There are no doors between classrooms. Each two classrooms share toilets near the classroom entrances. (See plans, right). Two classrooms are equipped with hinged wall panels that can be raised to open the space for small assembly. This was done on an experimental basis. The architect states, "it has been used on occasions, but not as often as we would like . . . perhaps a mechanical system that would raise the panels would make it more convenient."

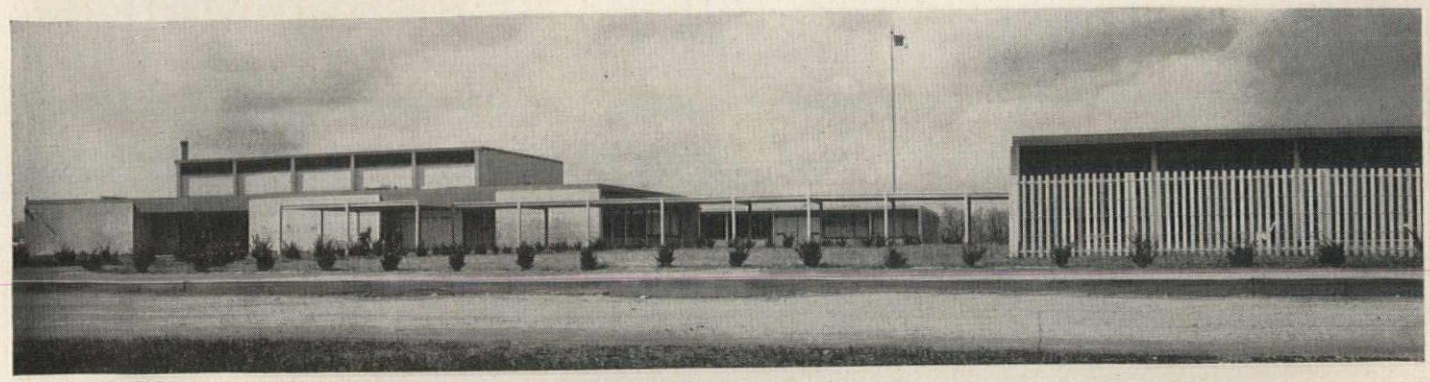
San Andres
Elementary School,
Andrews, Texas

Architects:
Caudill, Rowlett and Scott

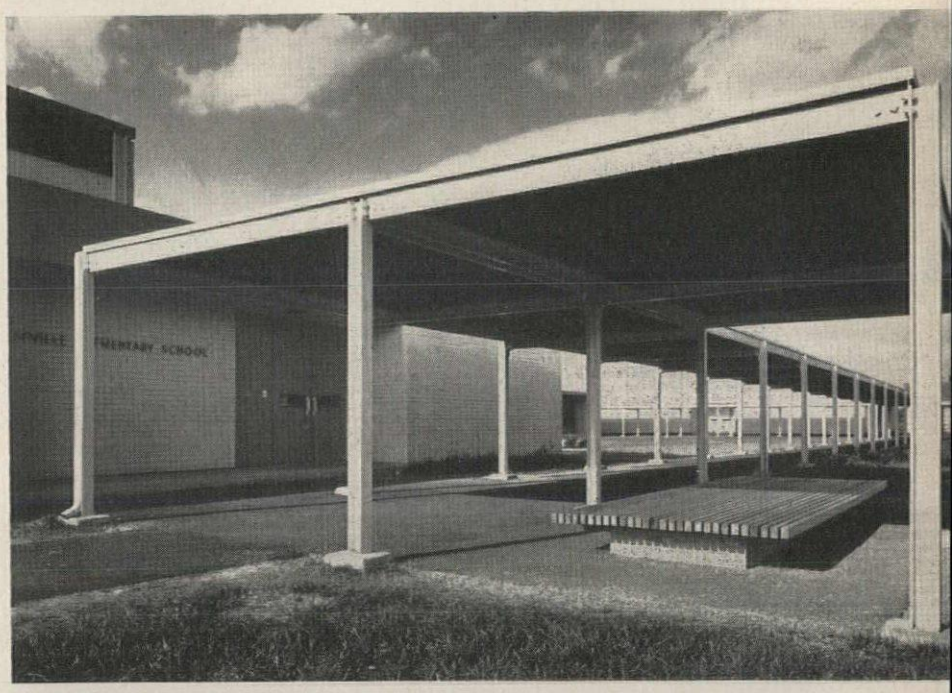
Mechanical and
Electrical Engineer:
James M. Samis

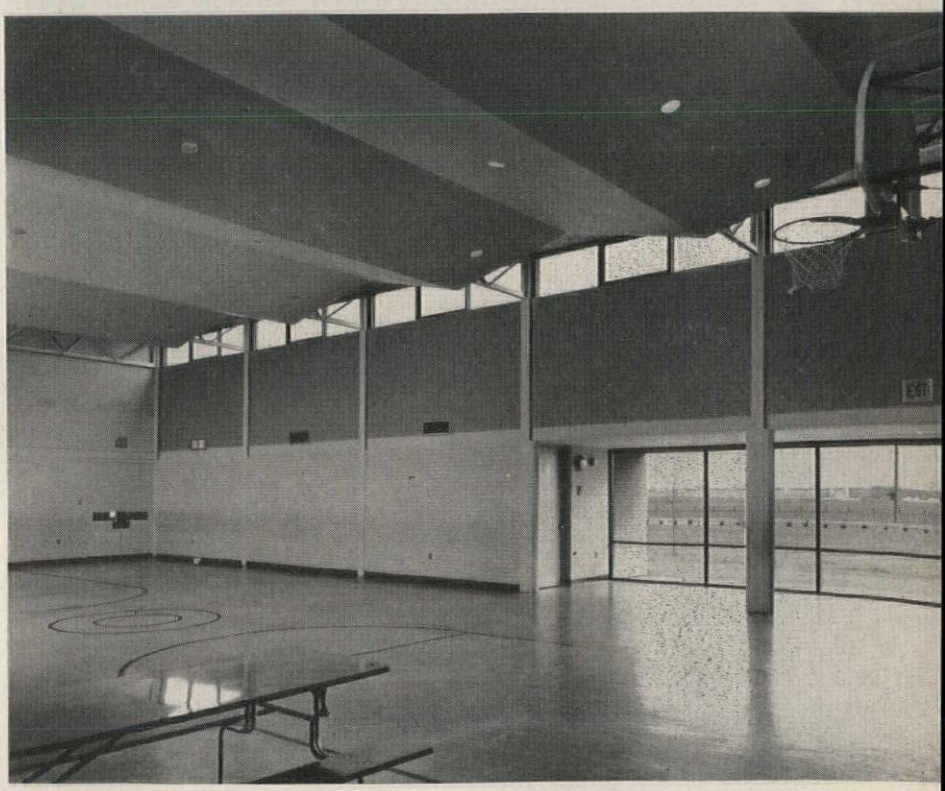
General Contractor:
Warner Construction Company





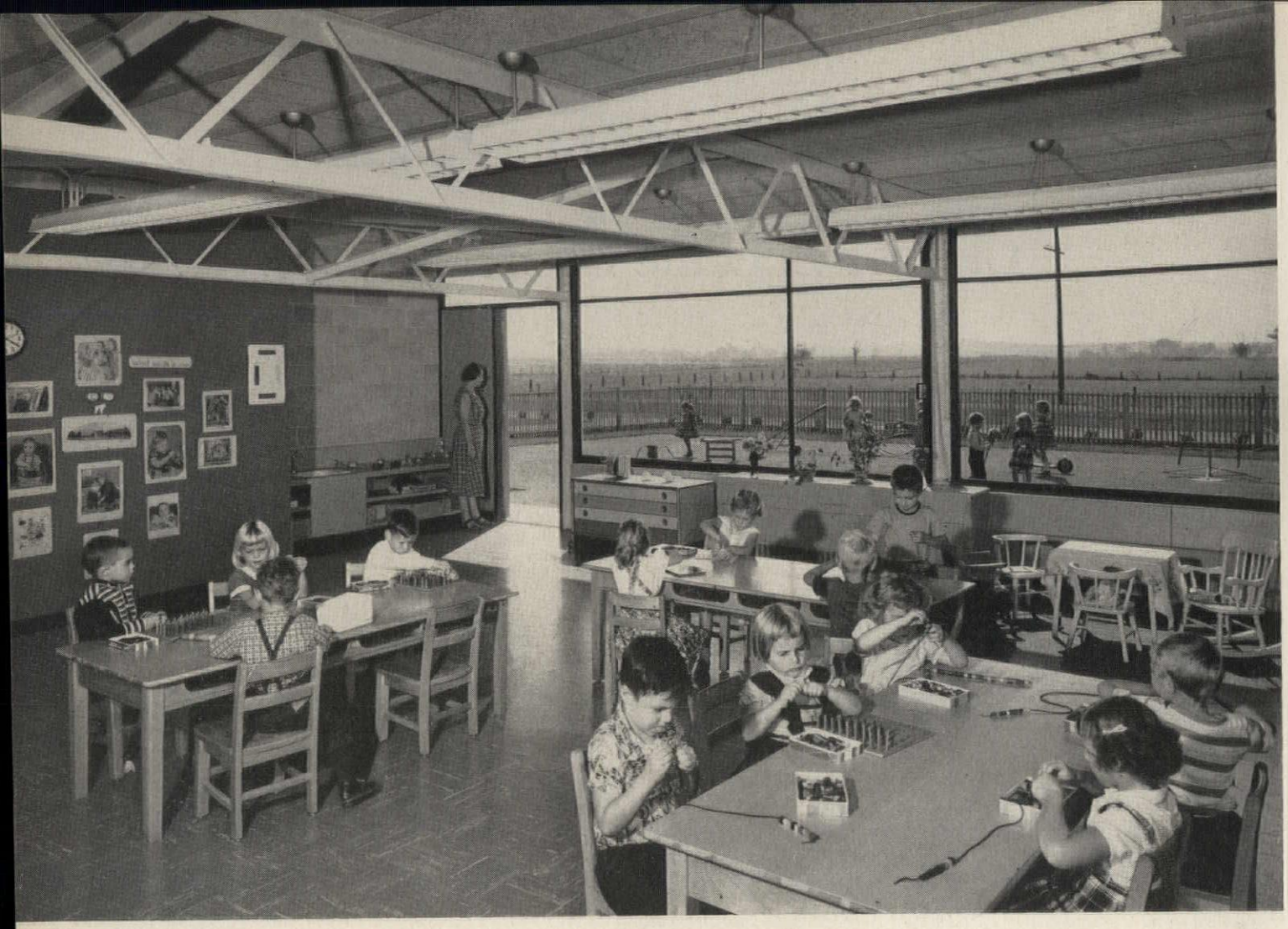
Lawrence S. Williams

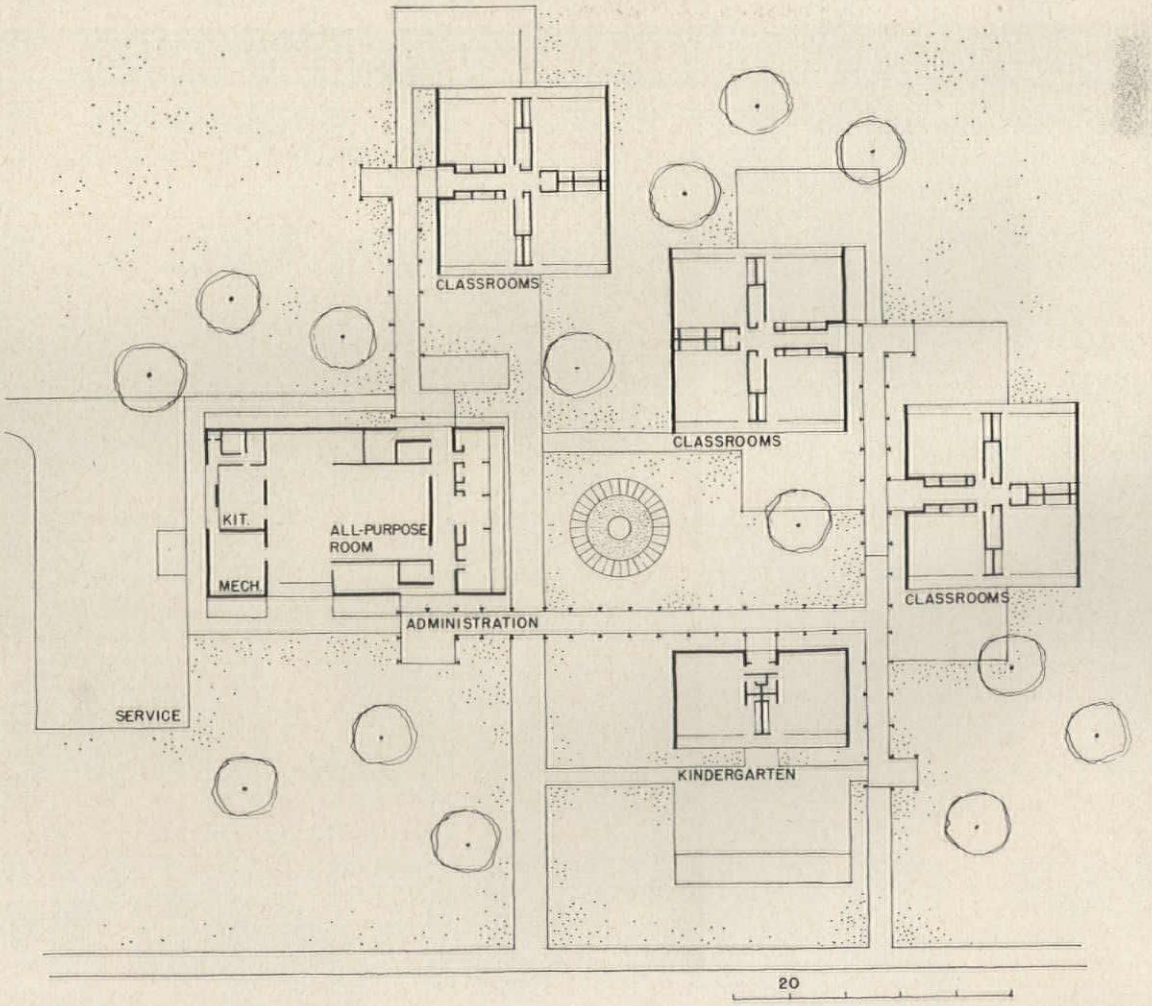




Hurffville Elementary School

This economical school occupies a flat 14-acre site at the intersection of two rural roads, surrounded by broad farm fields and wooded pastures. All buildings are of masonry bearing-walls with brick exterior facing; steel joists, and fireproof, preformed deck. The built-up roof has an occasional domed skylight to admit light to the center section of each unit. Reinforced concrete floors are finished with plastic tile. Windows are sliding glass panels set in aluminum frames. Panels below the windows and fascias are fireproof asbestos cement. The all-purpose room has walls of brick with perforated hardboard above. Classrooms have hot water heating and ventilating units with supplementary fin tube radiation; offices and secondary rooms have convectors




CLASSROOMS
CLASSROOMS
CLASSROOMS
KIT.
ALL-PURPOSE ROOM
MECH.
ADMINISTRATION
SERVICE
KINDERGARTEN
20

Cluster Scheme Separates Age-Groups

Hurffville Elementary School, Hurffville, New Jersey

Architect:
Vincent G. Kling

Structural Engineer:
Allabach & Rennis

Mechanical Engineer:
Pennell & Wiltberger

General Contractor:
Laessle Builders, Inc.

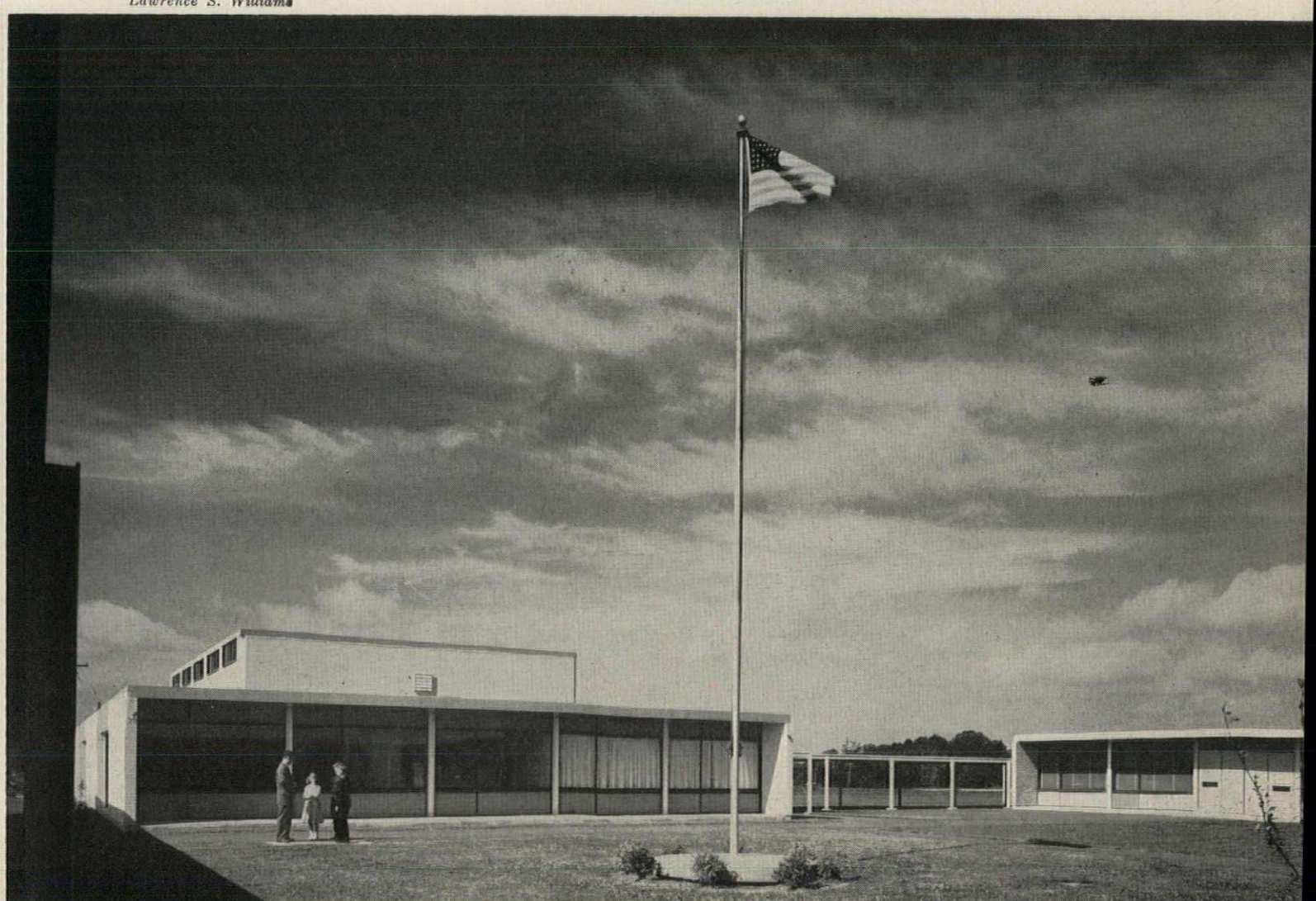
In order to achieve intimate scale and a sort of "little school" atmosphere—as well as definition of outdoor and indoor spaces—functions in this elementary school have been separated into several small buildings connected by canopied walks. Three similar classroom buildings of 3800 sq ft each, house grades 1 and 2, 3 and 4, 5 and 6. Kindergarten classes have a separate building with a fenced-in play yard.

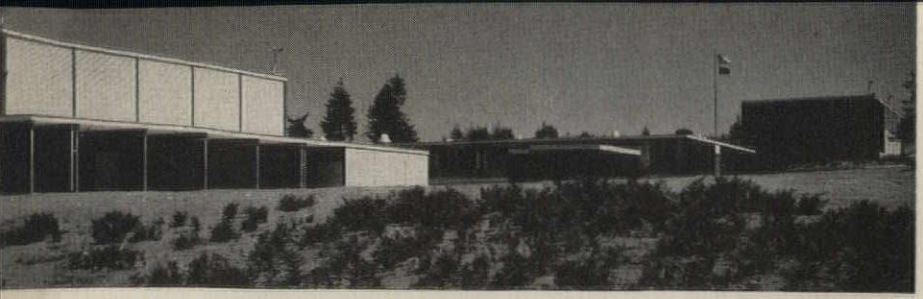
A separate building is devoted to administration facilities and an all-purpose room. The principal's office, a health room, and a teachers' room all face on the central courtyard (photo below). The all-purpose room has a folding stage and a completely equipped kitchen. Placement of this building permits convenient use during the school day, as well as providing for independent quarters for evening meetings and performances.

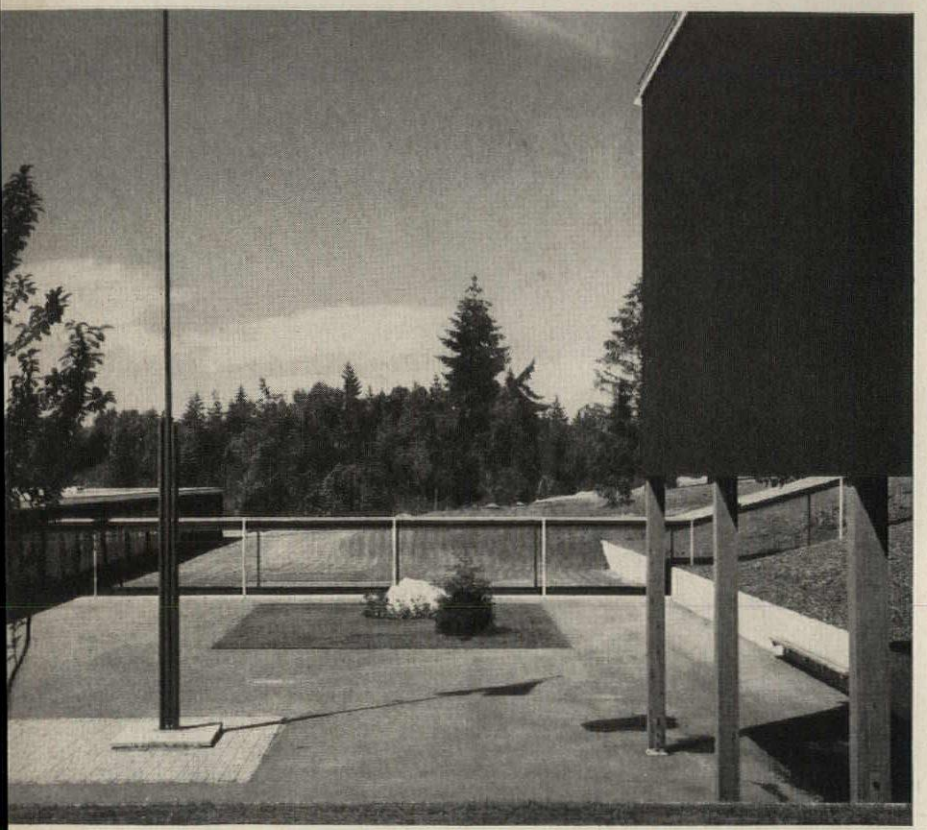
Special use is made of color to relieve the simplicity of the design, and give each unit its own identity. The exterior brick, below-window panels, fascia, and doors of each building are all shades of a dominant hue—blue-green for the kindergarten; yellow-buff, russett, and grey-blue for the three classrooms; and gray and white for the administration building. Low canopies over the main walks are gray with white columns.

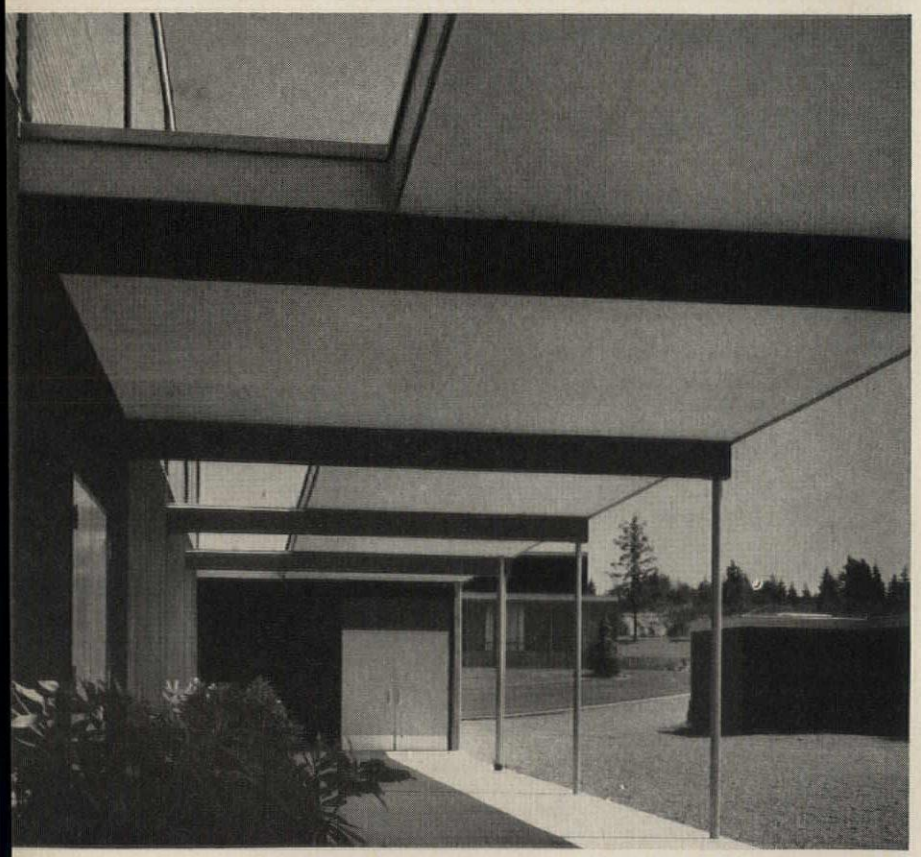
A long pick-up driveway, set back from the main road is used by buses and private automobiles to bring children to the school. Staff and visitor parking is provided on the service driveway at the side.

Lawrence S. Williams









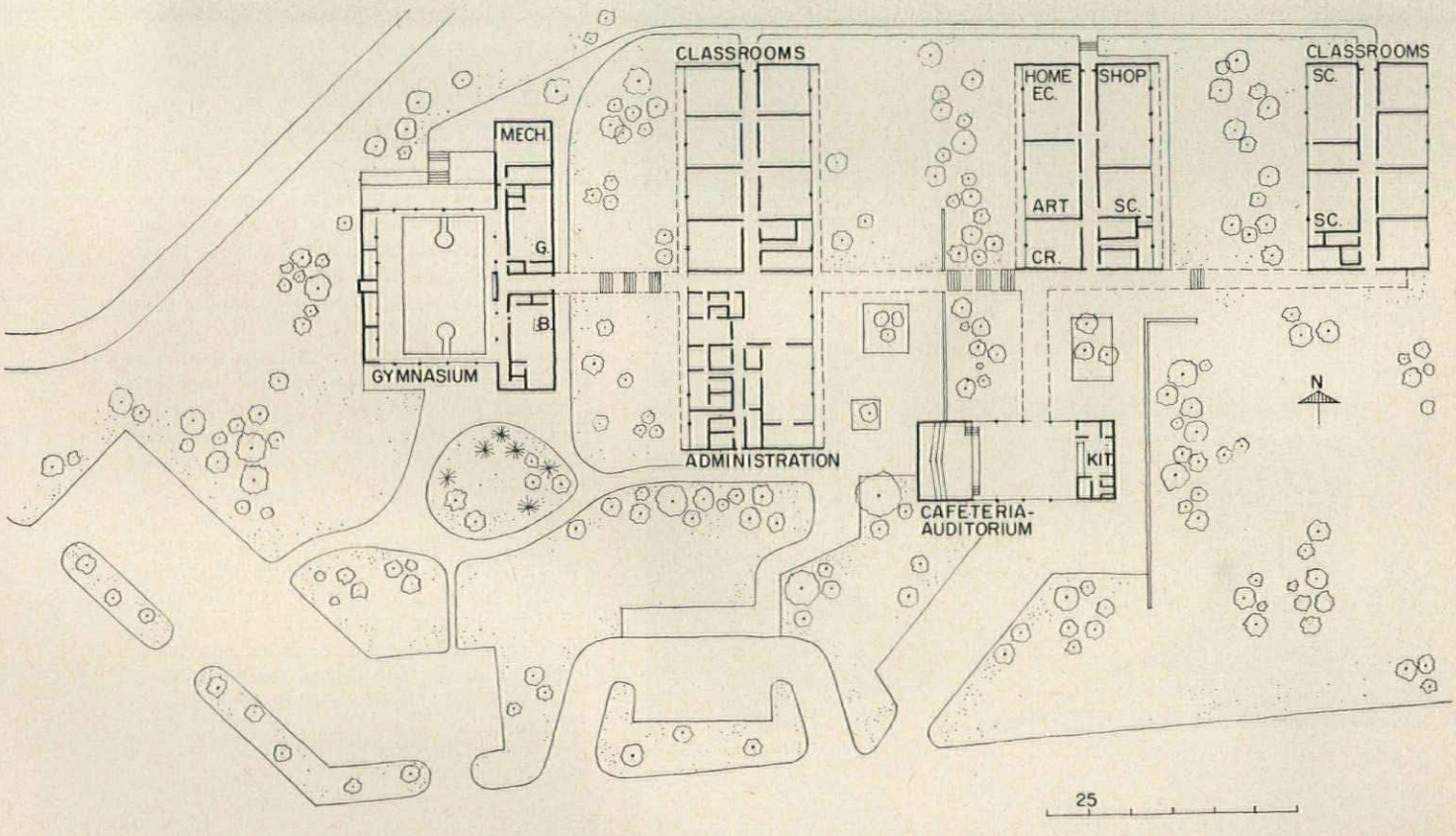
Dearborn-Massar

George R. Curtis Junior High School

To minimize costs, great simplicity in construction details was maintained. The structure is made of glued, laminated columns and beams, which span 32 ft. Over these are 2 by 8 joists, plywood, 1-in. rigid glass fiber insulation, and a glass fiber built-up roof. Interior partitions are either natural concrete block or textured plywood. Corridor partitions are surfaced with plasterboard. Heating is by a high temperature hot water system, with unit ventilators and convectors. The breezeway is used as a carrying medium for the heat pipes as they branch off to various buildings.

All plywood siding is stained dark brown. Beams and columns are Swedish red, and the fascia is a pale blue. Accent colors for doors, drawers, etc., are red, gold, light or dark blue, black, white

Dearborn-Massar



Expandable School Adapts to Hillside Site

The contention, made by Harold Gores in his article, that the junior high school might well be the needed "cushion" for placement of enrollment crests—either toward elementary or high school grades—seems well borne out in this school. It was planned as a junior high school to accommodate 15 teaching stations for an initial enrollment of 450 students. The architect's basic thesis of providing for an orderly and systematic method of expansion has already paid dividends: the school district, since the start of the building, has become a high school district. To date, one building has been added (the class room block at right in plan) and the architect is now designing a second addition. These extra units produced an ease of transition, making it possible to use the building as a Junior-Senior High School.

Another prime factor in the design was the steep hillside site. The architect wished to disturb a minimum of the natural terrain. Therefore, simple ledges were cut in the hillside and the buildings placed to run parallel to the contour lines. This preserved a great percentage of the trees, which were incorporated in the landscape plan.

The gymnasium was located at the lower end of the site for several reasons. As this was the only flat area, it was reserved for the playfield. Also, the septic tank field, as it worked out, was equal in size to the football field, thereby solving two problems. Esthetically, the gym acts as an anchor at the end of the walkway "spine." The building budget was fairly low: $11.20 per square foot, including sales tax and fees.

George R. Curtis
Junior High School,
Tacoma, Washington

Architect:
Robert Billsbrough Price

Engineers:
Worthan & Wing

Landscape Architect:
Lawrence Halprin

Superintendent:
George R. Curtis

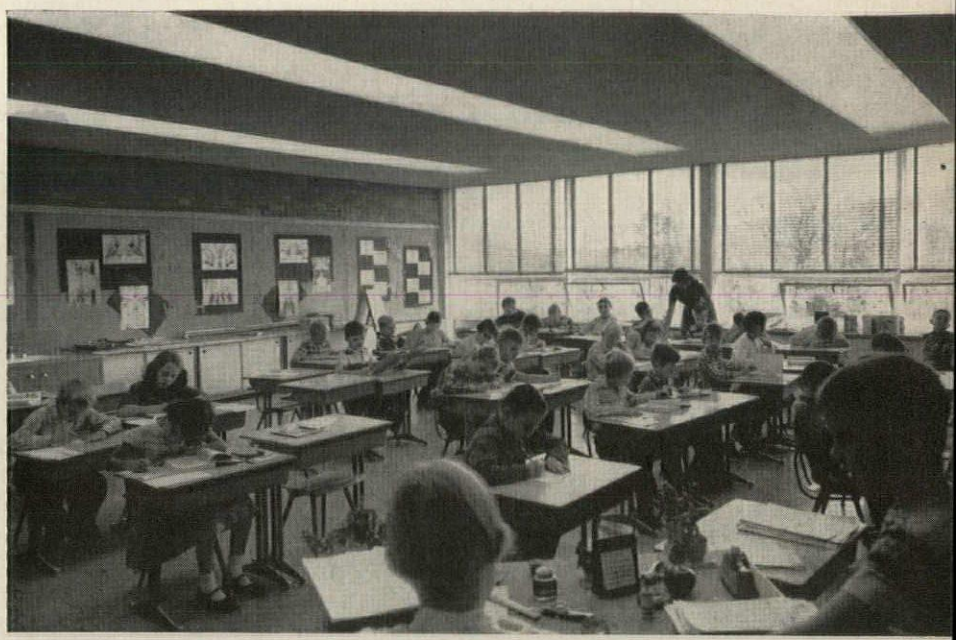
General Contractor:
Standard Construction Company of Tacoma

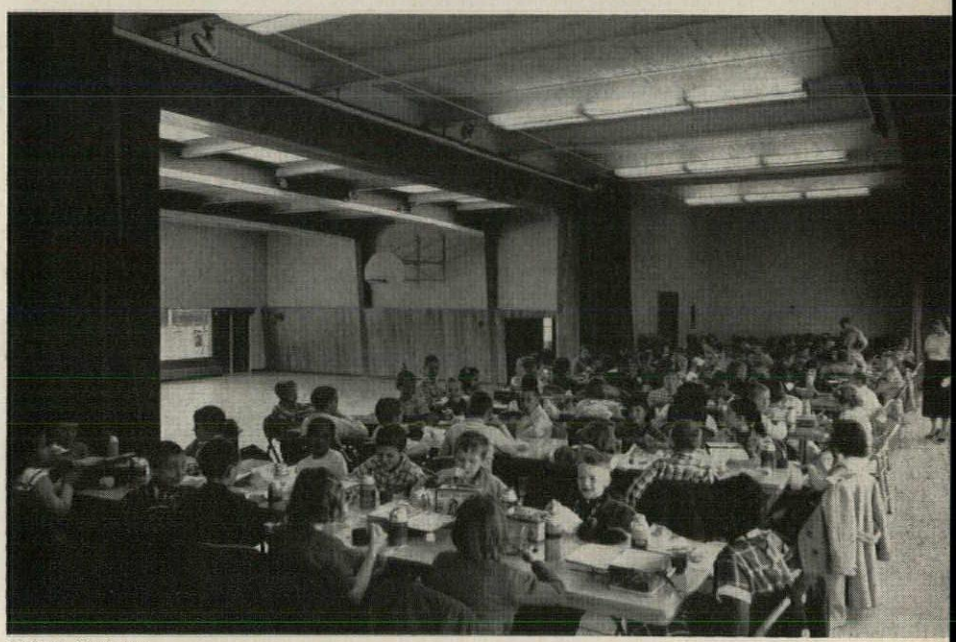
Nathan Hale Elementary School

The construction of the school is of light steel framing with no bearing walls. The outside curtain walls are independent of the structural framing steel, and pass in front of the steel pipe columns. These curtain walls consist of steel sash framing the openings, with spandrels of porcelain enameled metal sandwich panels. The roof is metal decking with a hung acoustic tile ceiling. In the gym, ceilings are exposed, precast, lightweight planks.

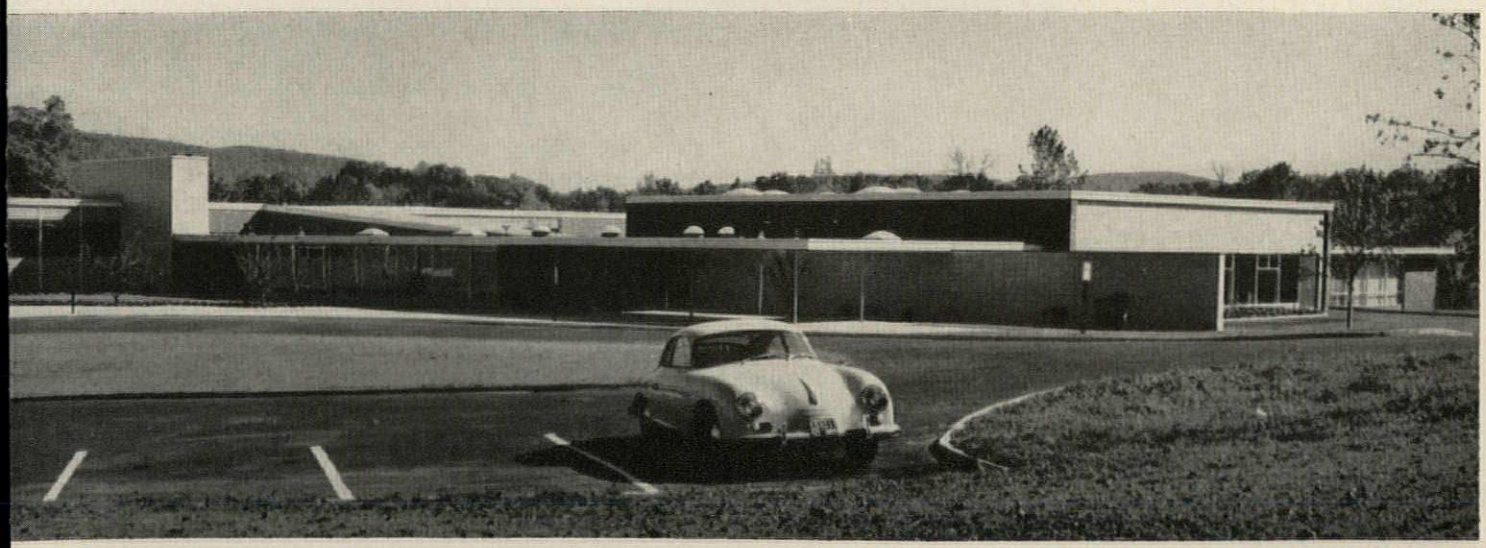
Heating is a direct fired warm air system, with separate ducts providing individual control for each room.

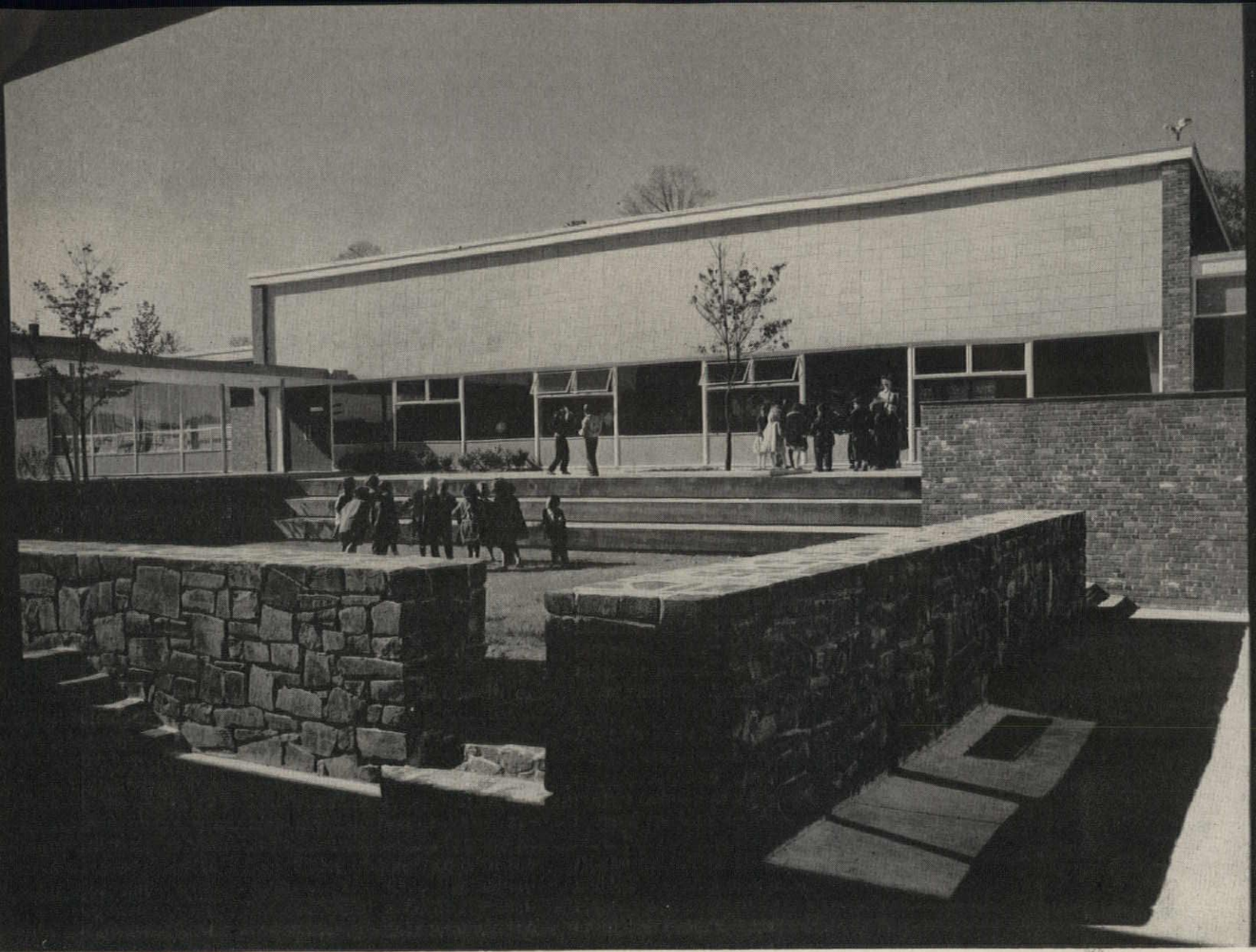
Interior walls are brick or concrete block; floors are vinyl or asphalt tile. A typical classroom is shown, *top right.* At *right center* is the multi-use stage in service as a lunchroom

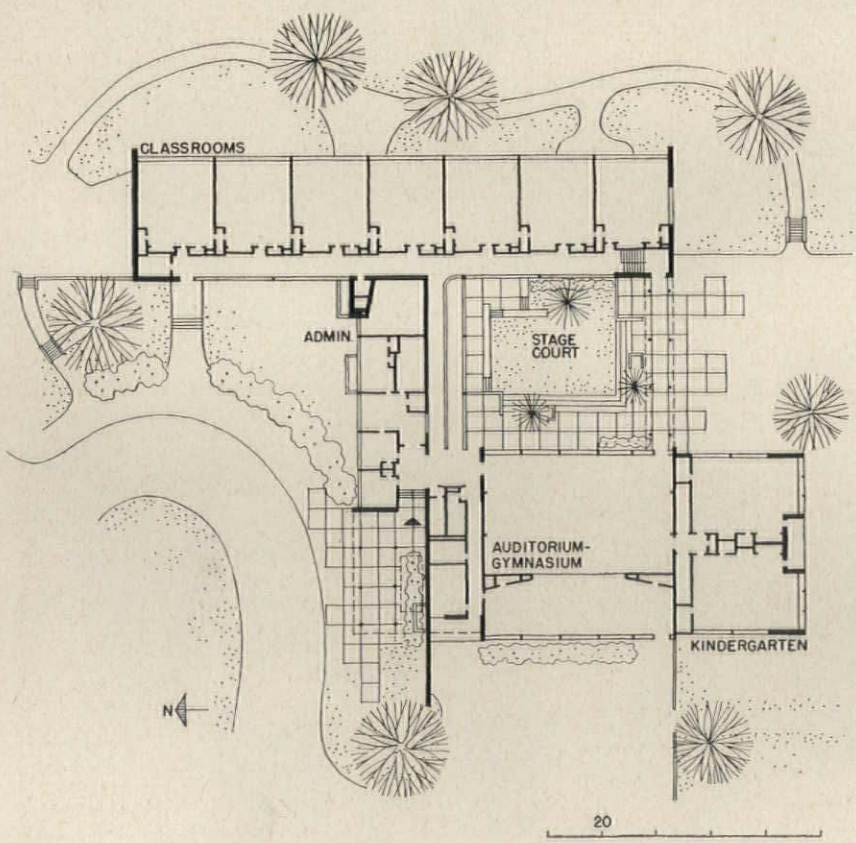




Robert Stahman






CLASSROOMS
ADMIN.
STAGE
COURT
AUDITORIUM-
GYMNASIUM
KINDERGARTEN
N
20

A Pleasant Environment for Teaching

Nathan Hale
Elementary School,
Meriden, Connecticut

Architect:
Sherwood, Mills & Smith

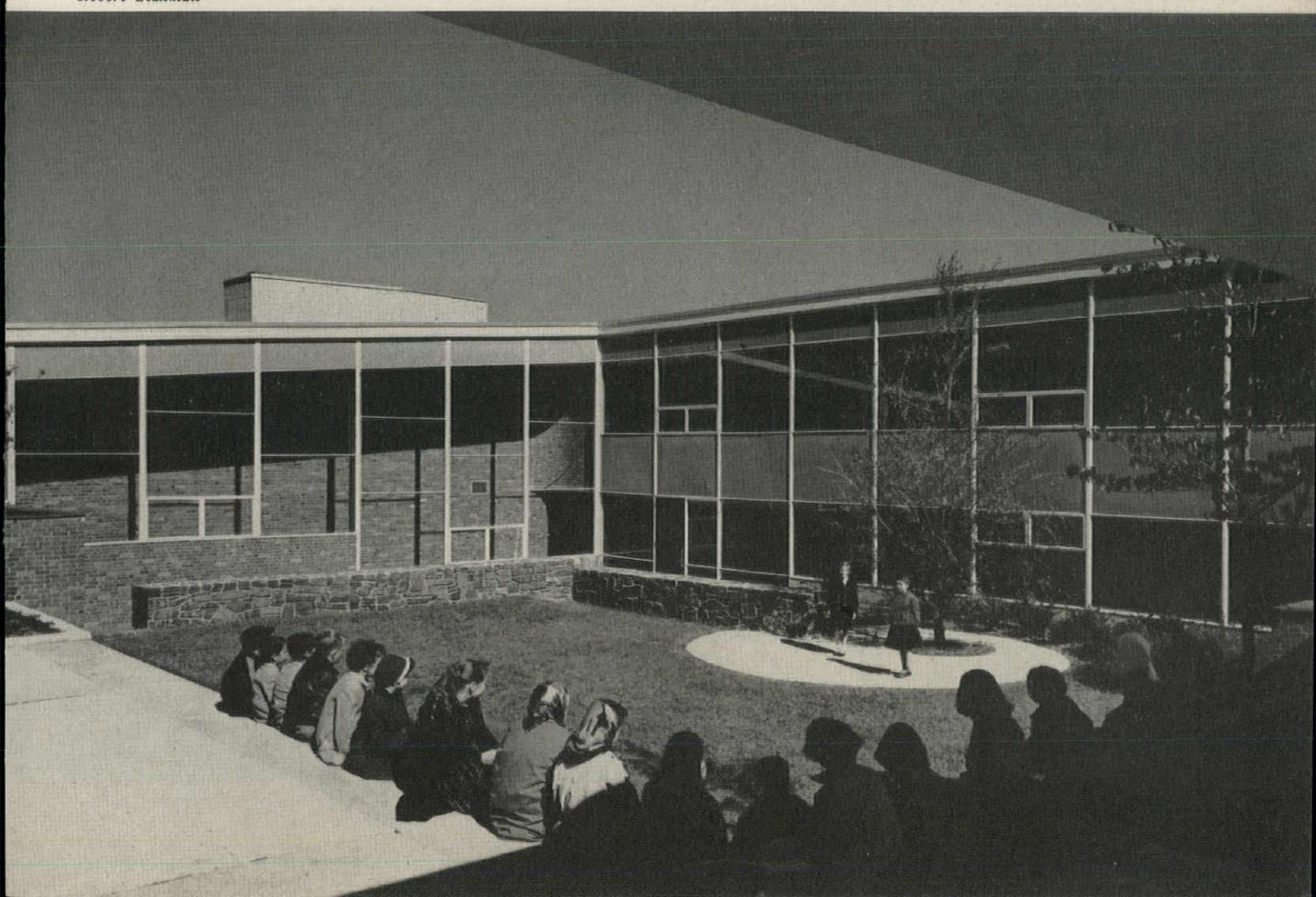
Mechanical and
Structural Engineers:
Marchant & Minges

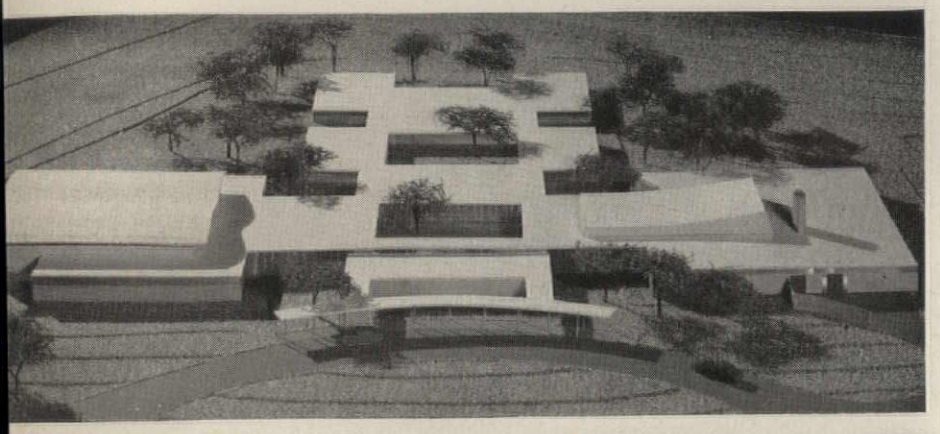
Land Planners:
Charles A. Currier Associates

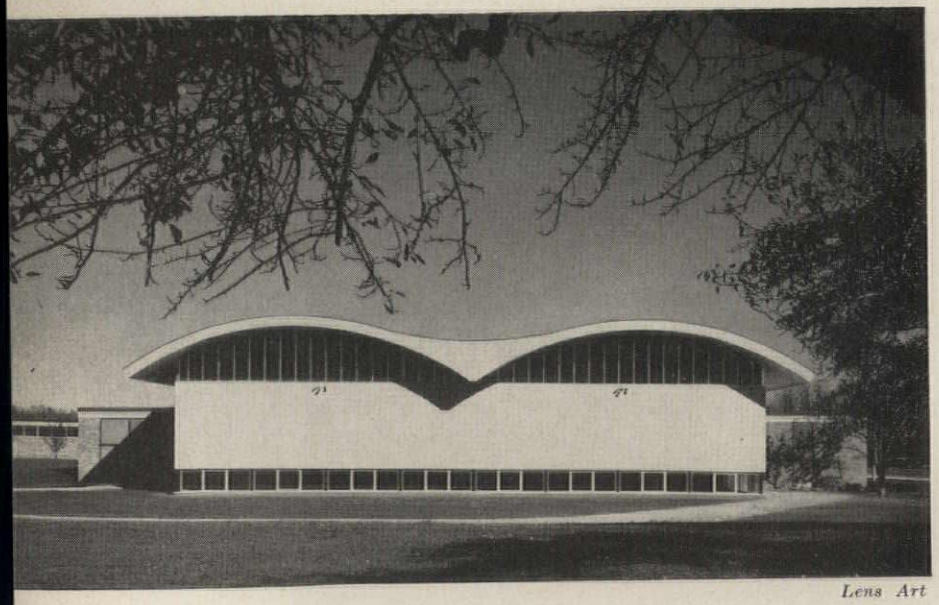
A multi-use, outdoor "stage court" (below), and a split-level plan solution are two novel elements of this elementary school. The building takes advantage of a sloping site, and, as in a split-level house, one enters on the middle level. This contains the entrance lobby, administrative and health offices, kindergartens, and playroom-auditorium. Ramps connect this section with the fourteen classrooms, which are in a two-story wing—each story being accessible to grade at both ends. Seven intermediate classrooms are on the upper level, and seven primary classrooms are at the lower level. The school was designed to accommodate 520 students. Each classroom is nearly square, has about 900 sq ft. The architects feel that the split-level system used in the design provides the convenience of the single level school, and the structural economies of two-story construction. The building cost $12.68 per sq ft. Total costs, exclusive of land, landscaping, furniture and fees, was $421,070. Total size is 33,185 sq ft., 439,883 cu ft.

The central exterior stage court can be reached from all parts of the building, and provides a pleasant, flexible outdoor room for group activities, commencements, and other outdoor recreational programs. The low masonry walls can be used as stage backdrops and the wide steps serve as seats for the audience. The playroom-auditorium next to the court is for gym and multi-purpose use; the stage has a bank of light-proof-curtained windows along the rear, and doubles as lunchroom, assembly area, and visual aids room, minimizing chair handling.

Robert Stahman



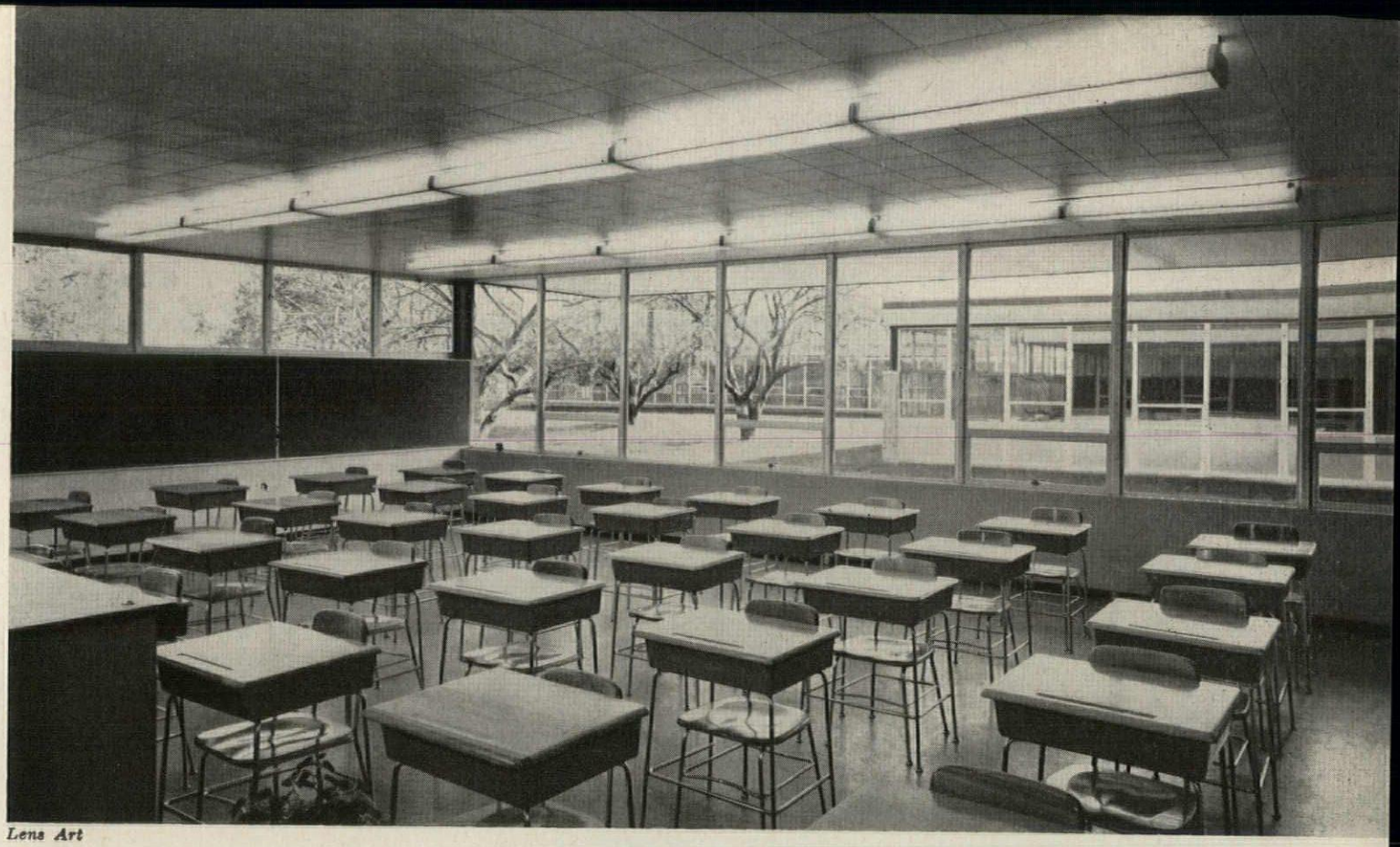




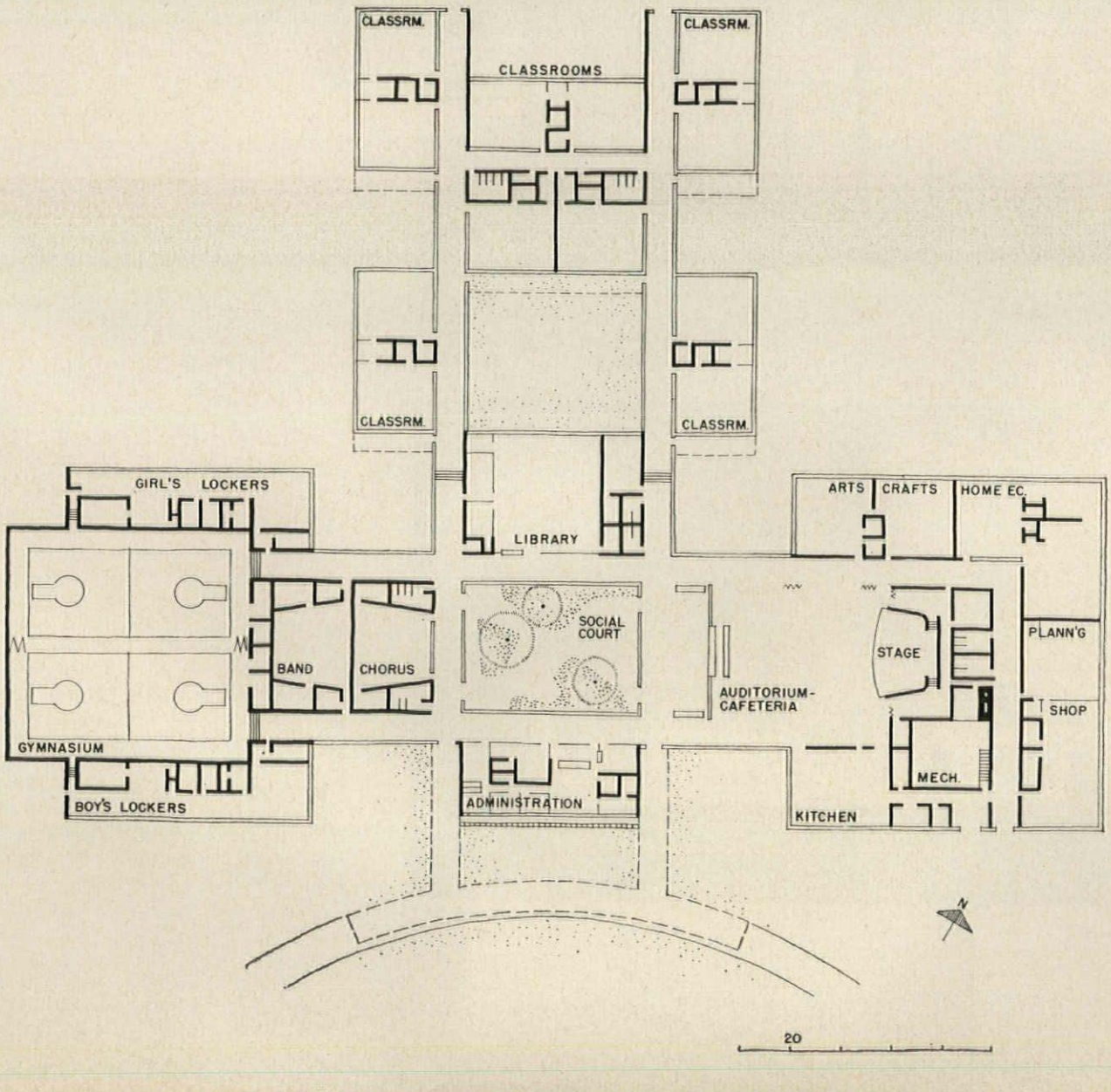
Lens Art

Bloomfield Hills Junior High School

The dominance of the roof shapes in the design is clearly apparent in the photos on this page. *At top*, an air view of a model of the school shows the gymnasium at left, auditorium at right, and the checkerboard of classrooms and courts beyond. A curved shelter at the entrance (*center photo*) forms a loading dock for cars and buses; directly behind it, a grilled wall gives privacy to administrative offices, while permitting supervision of the entrance. The double vault of the gymnasium is shown in the *bottom photo*. Heating is by a hot water system, with two gas-fired boilers, wall fin radiation units



Lens Art


CLASSRM.
CLASSROOMS
CLASSRM.
CLASSRM.
CLASSRM.
GIRL'S LOCKERS
LIBRARY
ARTS
CRAFTS
HOME EC.
SOCIAL COURT
BAND
CHORUS
AUDITORIUM-CAFETERIA
STAGE
PLANN'G
SHOP
GYMNASIUM
MECH.
ADMINISTRATION
KITCHEN
BOY'S LOCKERS
N
20

Roof Shapes Highlight Flexible School

This attractive junior high school, set on a large site strewn with apple and pear orchards, makes great use of accented roof shapes over gymnasium, auditorium, and entrance walk, to relieve the general simplicity of its design. The plan of classroom wing alternates paired classrooms and courts in a checkerboard fashion to provide a variety of bright, highly pleasant indoor and outdoor teaching areas. The scheme also gives the areas an appropriate scale, avoids monotony.

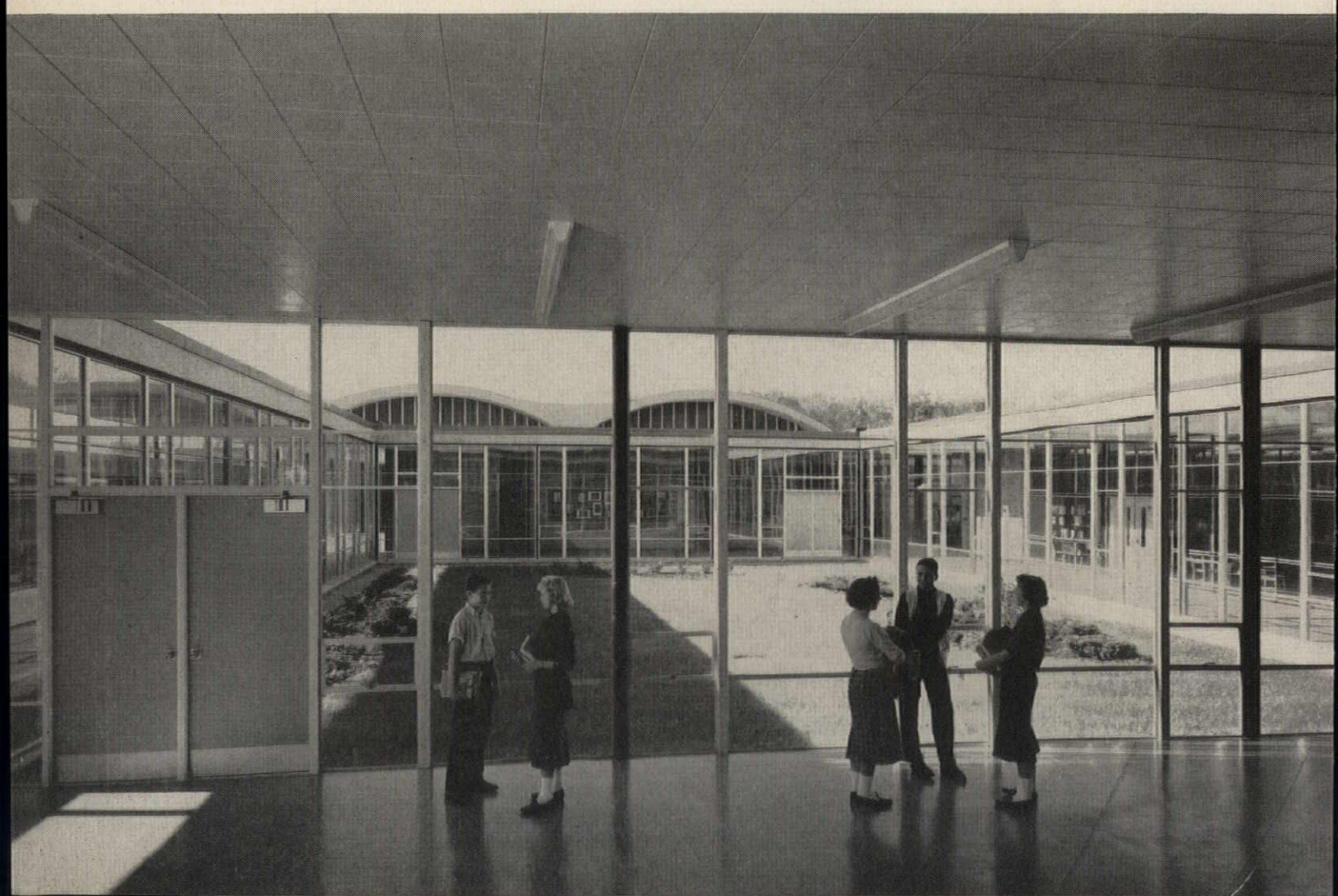
The trend toward a more adult atmosphere is perhaps marked by the placement of a lounge and a large social court (photo below) just off the main entrances. This area is flanked by a wing containing a flexible auditorium-cafeteria, backed by shops and technical training rooms; administration offices; the library; and a wing containing the noisier activities—chorus, band, and gymnasium. A folding partition down the center of the large gym adapts its use to simultaneous classes. The arrangement of the facilities around the social court permit their easy use, singly or collectively, for community activities in the evenings.

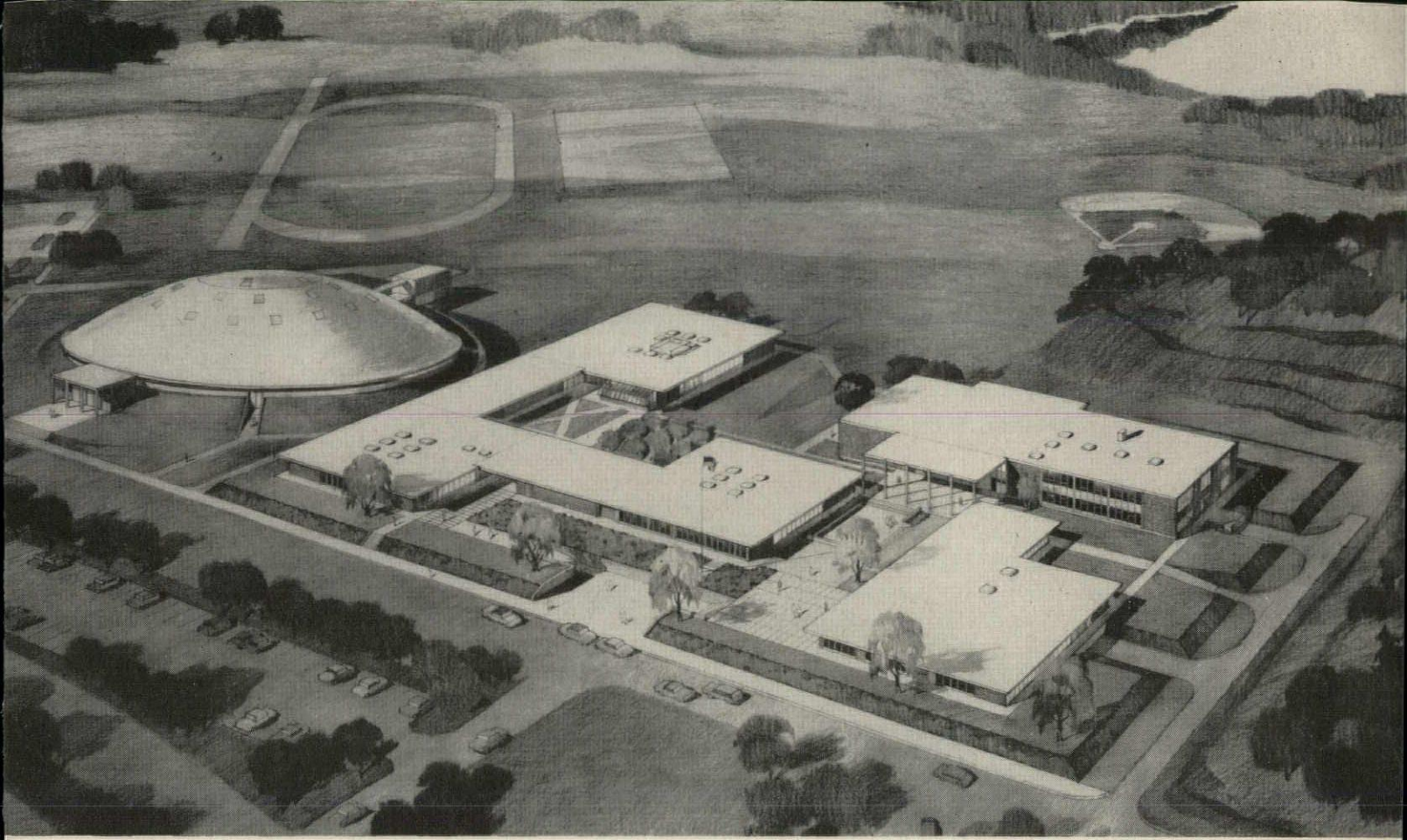
All materials were chosen with an eye for durability and easy maintenance throughout. The structural frame is steel, sash is aluminum. Interior walls are glazed block or ceramic tile; ceilings are plastic-faced metal. Most floors are composition—those in the kitchen are quarry tile, wood is used in the gymnasium and in the shop. A spur road gives access for deliveries to kitchen, shop and other facilities.

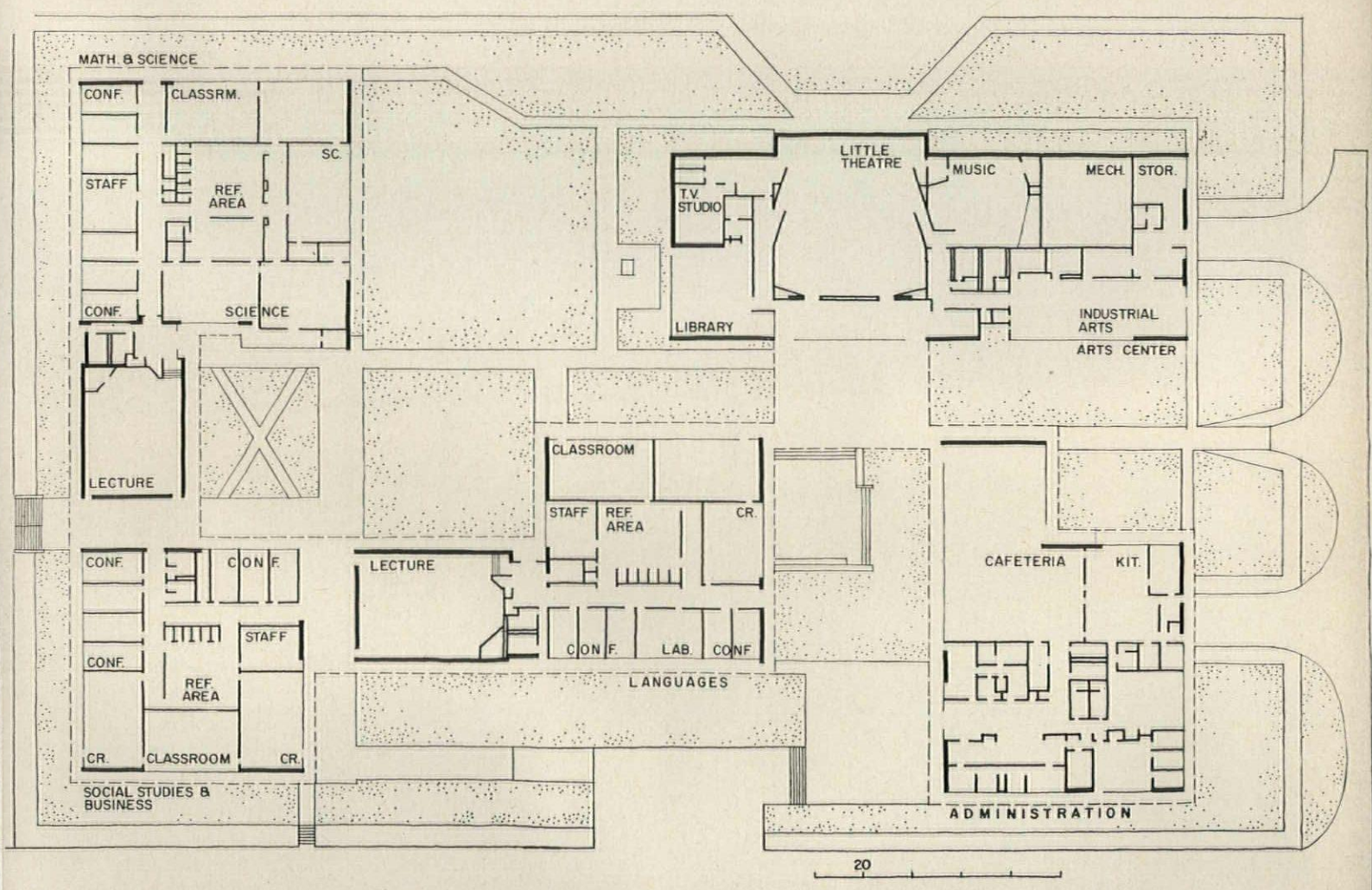
Bloomfield Hills Junior High School, Bloomfield Hills, Michigan

Architect:
Linn Smith Associates, Inc.
Linn Smith, A.I.A.
Almon Durkee, A.I.A.
Gordon Hayem, P.E.
James Newbold, Associate
formerly
Smith, Tarapata, MacMahon, Inc.

General Contractor:
Pulte-Strang, Inc.



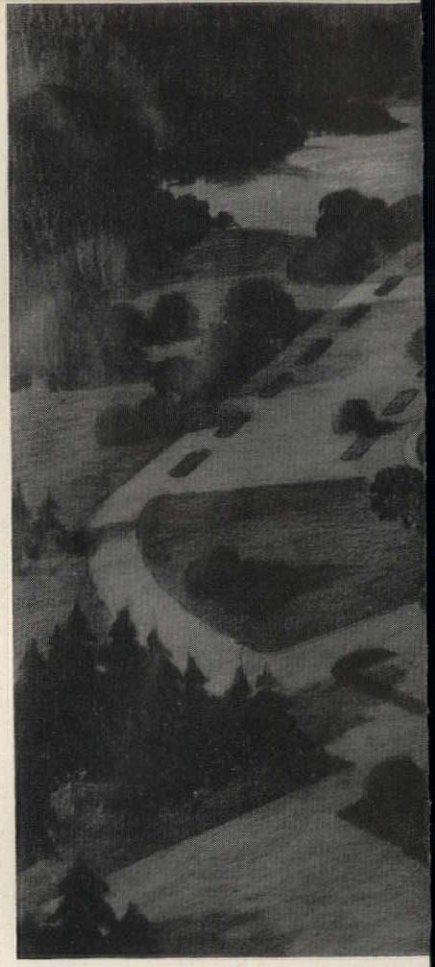


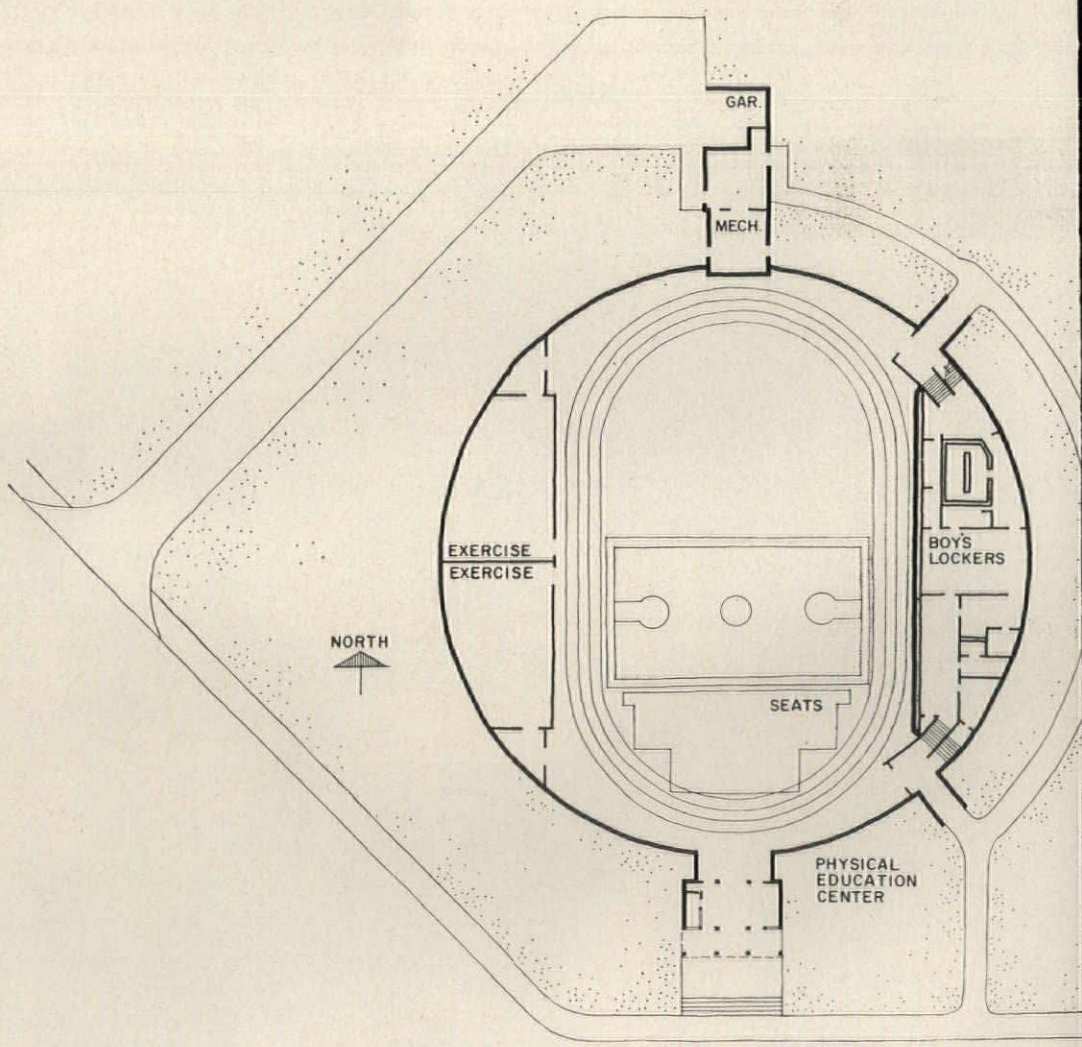

MATH. & SCIENCE
CONF.
CLASSRM.
SC.
STAFF
REF. AREA
CONF.
SCIENCE
LECTURE
LITTLE THEATRE
T.V. STUDIO
MUSIC
MECH.
STOR.
LIBRARY
INDUSTRIAL ARTS
ARTS CENTER
CLASSROOM
STAFF
REF. AREA
CR.
CONF.
CONF.
LECTURE
CAFETERIA
KIT.
STAFF
CONF.
LAB.
CONF.
REF. AREA
LANGUAGES
CR.
CLASSROOM
CR.
SOCIAL STUDIES & BUSINESS
ADMINISTRATION
20

Wayland Senior High School

The concrete "lift-slab" method of construction selected for the four one-story academic buildings "inherently requires" a wide overhang, which provides shelter for student traffic between buildings. Inside, acoustical tile is cemented to the underside of the concrete roof slab where required, otherwise the slab is painted. The two-story arts center has a poured-in-place, ribbed slab second floor with steel roof structure supporting an exposed cement-fiber deck. Ceilings are suspended only in locker rooms, toilet room, and a small area in the first floor of the arts center.

Exterior walls are of brick cavity construction and interior partitions are pumice block. Spandrel panels on the arts center are porcelain enameled steel. Flooring is primarily asphalt tile, with some vinyl asbestos in areas of hard usage. The physical education center is roofed with a network of grid of 4- by 14-in. laminated wood members forming a domed surface and supporting a 2-in. wood deck. Roofing is asphalt shingle, and built up with white marble chips where the slope levels out towards the top of the dome.





Campus Scheme for Flexible Programming

Wayland Senior High School, Wayland, Massachusetts

Architects:
*The Architects Collaborative**

Partner in Charge of Design:
John C. Harkness

Job Captain:
Herbert Gallagher

Educational Consultant:
Kargman, Mitchell & Sargent

Structural Engineer:
Souza & True

Mechanical Engineer:
Morgenroth & Associates

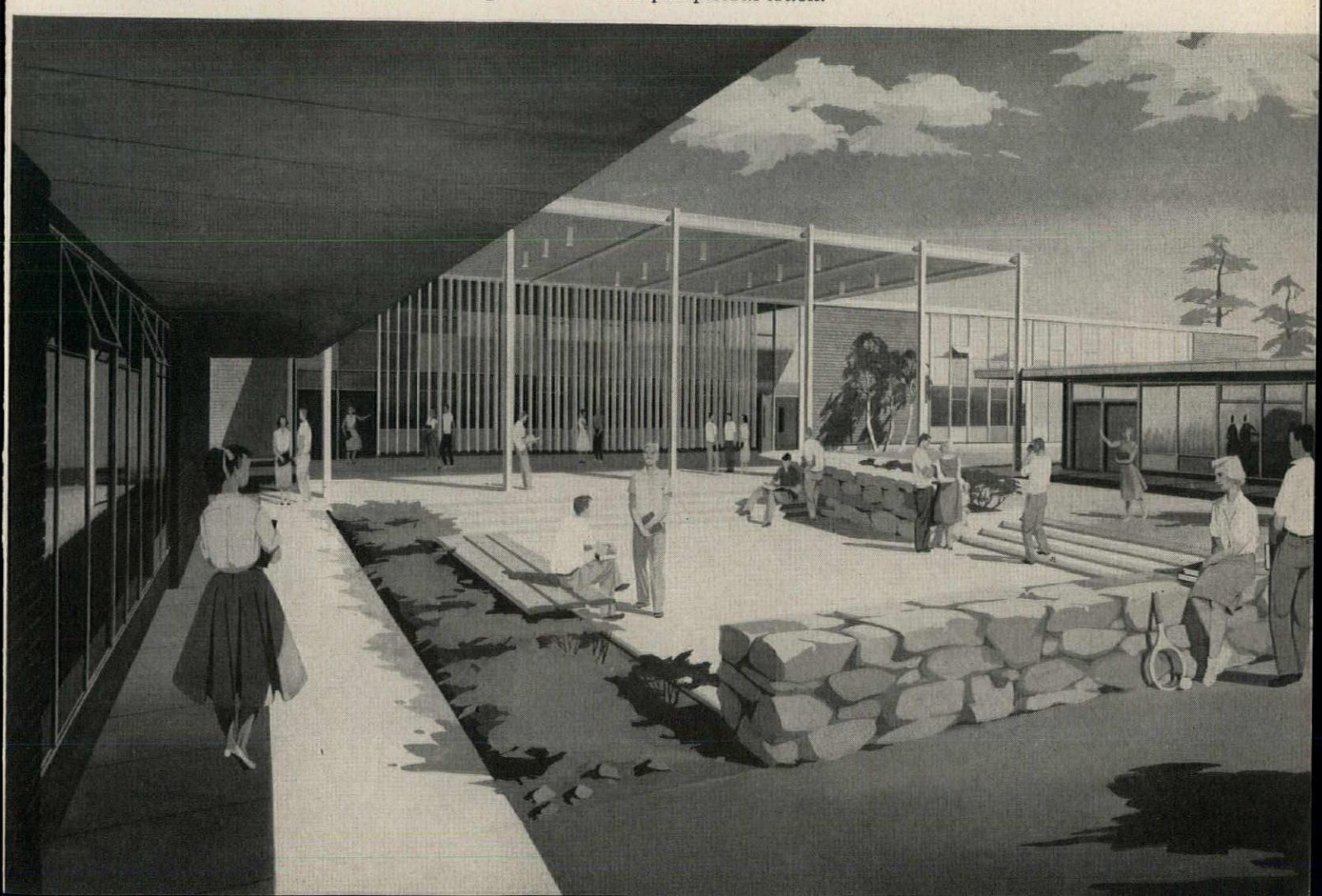
Contractor:
N.D.C. Construction, Inc.

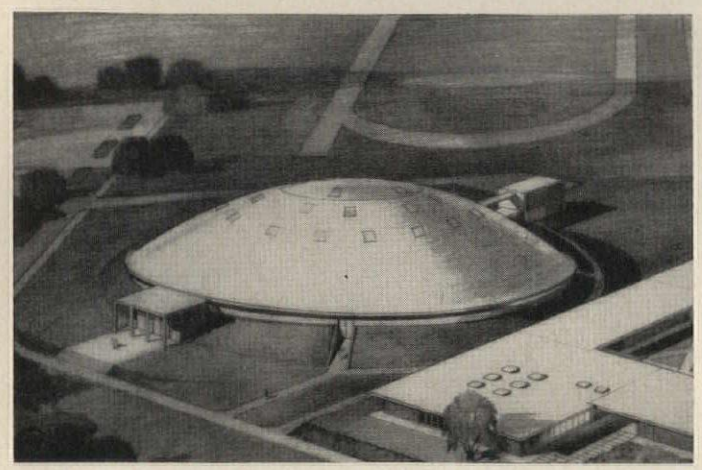
*Jean B. Fletcher, Norman Fletcher, Walter Gropius, John C. Harkness, Sarah P. Harkness, Robert S. McMillan, Louis A. McMillen, Benjamin Thompson, Richard Brooker, Herbert Gallagher, William J. Geddis, H. Morse Payne, Jr.

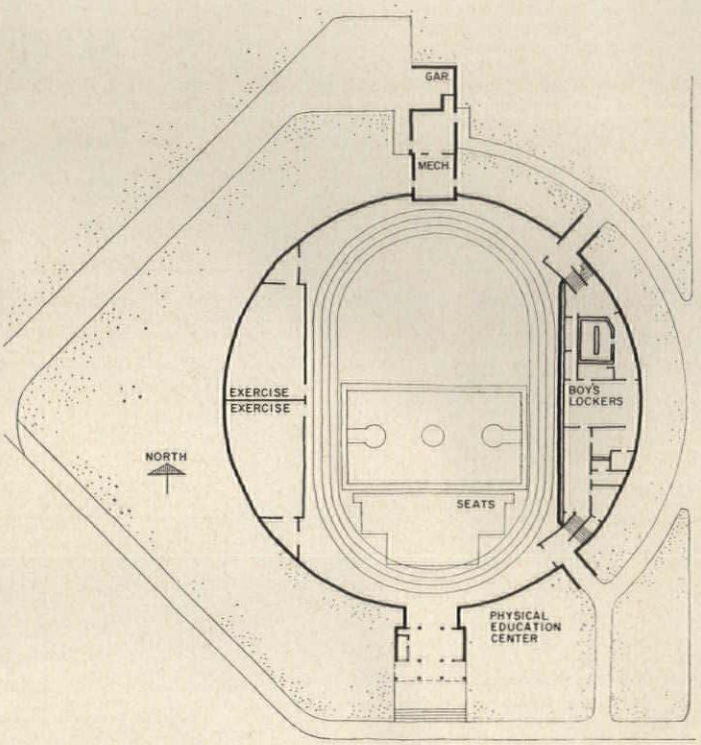
Built to accommodate a teaching program paralleling that discussed by Harold Gores in the preceding article, this school seeks to achieve program flexibility "through variety of accommodation." This is, generally, in direct opposition to the principle of multi-purpose space which has been used to advantage in many schools. In this case, the architects state, "in general, the 'multi-purpose space' has been avoided with the idea that it is never ideally suited to any of its purposes . . ."

The concentrated campus type layout of the school contains six buildings or centers. An area of 23 acres is being developed for the buildings and playfields. With the scheme, corridor space has been reduced to about 6 per cent of the total floor area, and, wherever possible, circulation spaces serve double use as in the reference areas of the academic centers. These centers, each devoted to a distinct field of teaching, contain rooms ranging from small conference spaces up to a large lecture hall, all centered on a reference area. Few "standard" classrooms exist.

Another innovation is the allocation of assembly- or auditorium-space. In place of the usual 1000-seat auditorium, general in a school of this size, a 350-seat Little Theater has been included; and the physical education center—less expensive space—enlarged to field house proportions to house all big assemblies and town meetings. Smaller assemblies are more efficiently housed in the lecture halls, seating 125 and 150, designed with stepped seating and used for group forums, demonstrations and audio-visual purposes. The field house has a dirt floor games area and peripheral track.







"Physical education . . . contained not in the standard box gymnasium, whose dimensions are determined by the rules of basketball, but in a field house . . ." A domed scheme for the physical education facilities for the Wayland, Massachusetts, High School by the Architects Collaborative (see opposite page)

education be contained not in the standard box gymnasium, whose dimensions are determined by the rules of basketball, but in a field house, which incidentally is being contained in a geodesic dome.

Another school is specifying that its auditorium be divisible into separate teaching spaces that will be kept working all day; another specifies that library service be decentralized to provide sub-libraries in the various houses of the school in order to increase the accessibility of books and to promote the sale of high quality paperbacks to the student body; and so it goes.

Some schools are seeking to dejuvenilize the environment and management of high school youth to the end that mature seniors will not be pressed into the same environment, the same scheduling, and the same relation to the faculty as are accorded the prepubescent freshman. If one of the purposes of education is the maturing of the individual, the introduction of a modest amount of amenity is in order. Accordingly, some schools are specifying that there be common rooms whose furnishings yield to the body and whose appointments suggest dignity, in contrast to the sterile and indestructible environment elsewhere provided in the interests of low maintenance.

In sum, the educational specifications of many secondary schools today are calling on the architect to plan buildings which will allow and, indeed, encourage the school to:

(1) Provide the student with a sharper sense of personal identification with the school.

(2) Use teachers in teams grouped either around a particular subject-field or around a fixed number of students.

(3) Use a broad range of audio-visual devices and machines for teaching.

(4) Move toward organizing groups which vary in size according to the nature of the instruction and ranging from the one-student study booth to the round-table seminar, to the standard class, to lecture-discussion, to audience participation.

(5) Seek decentralization of special services if the school is large—e.g. dispersing library service by creating sub-libraries rather than draw all students to one central facility; by creating sub-dining rooms rather than relying solely on one massive cafeteria; by deploying administration rather than concentrating principal, assistant principals, deans, etc. in one cluster of administrative offices.

(6) Dejuvenilize the environment by providing some places of comfort and amenity, thus to counteract the general institutional tone of "kitchen-like" classrooms and "hospital-like" corridors where the furnishings and surface place such premium on antisepsis and indestructibility.

The story is told of Casey Stengel's going to the mound to remove a pitcher who had just yielded five consecutive hits. After listening to the pitcher's plea that he be allowed to face one more batter, Casey pointed to the clamoring crowd and said, "I've got to take you out. People are beginning to talk." In education, too, people are beginning to talk.

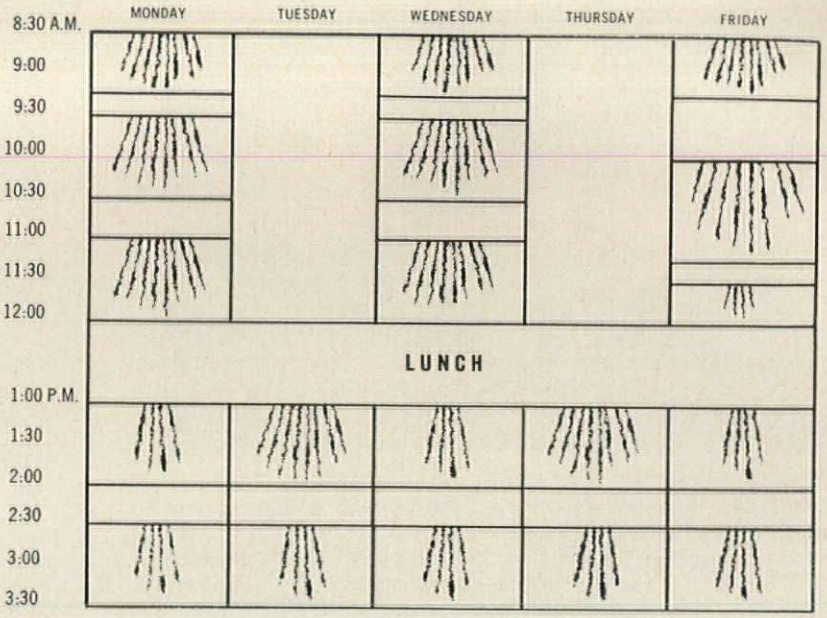
These charts of new thinking which can affect school planning are from IMAGES OF THE FUTURE—A NEW APPROACH TO THE SECONDARY SCHOOL, by J. Lloyd Trump, Commission on the Experimental Study of the Utilization of the Staff in the Secondary School; appointed by the National Association of Secondary-School Principals, a Department of the National Education Association; and supported by the Ford Foundation.

HOW A TEACHER MIGHT SPEND TIME IN THE SECONDARY SCHOOL OF THE FUTURE

LARGE-GROUP INSTRUCTION: various activities and length of periods—9½ hours

SMALL-GROUP INSTRUCTION: various activities and length of periods—8½ hours

BLANK SPACES: indicate times available for professional activities



(3) Some aspects of the curriculum will be taught to large groups—groups exceeding 100 students. Spaces should be provided for such instruction, yet be convertible to smaller units as the need arises. Flexibility and multiple use of space should be basic to the design of the building. Standardization of educational areas should be kept to a minimum, with the emphasis being placed on designing spaces that meet particular needs, yet are not so frozen that they cannot, at will, be used for other purposes.

(4) In order to justify their inclusion, specialized areas such as the shops, home economics and physical education should provide opportunity for all students, including college-preparatory, to find something of interest and worth. Therefore these spaces and their special facilities must differ from the traditional layouts of these areas.

(5) The school will be expected to prepare approximately 90 per cent of its student body for college. Therefore a program rich in academic opportunities, including the offering of subjects of freshman collegiate grade must be possible.

(6) High school education is moving toward a twelve-month school year for many students. With the increased emphasis on college entrance requirements, it is only a matter of time before summer courses will become generally available to the student desiring to meet unusual admission standards or to broaden his background in a particular field. It therefore will be prudent to consider not only the heating of the building, but also its overheating in the summer months.

(7) The school will seek through its organization and hopefully its physical arrangement to give parents the assurance that they, as individual families, will be known intimately and well by someone in an administrative post. This is of particular concern to the parents of average children. The child who is either highly talented or extremely nonconforming is visible to the administration even in a large school. But unless we are careful, the great majority of pupils who conform and possess normal intellectual endowment are destined to live out their school days in anonymity, their names sometimes mispronounced at graduation.

"In general we desire a building oriented to the student but within the context of the requirements of the curriculum. It is this middle path between the extremes of the completely student-centered building on one hand and the completely subject-centered building on the other that we wish to follow. The following pages describe how we propose to do this."

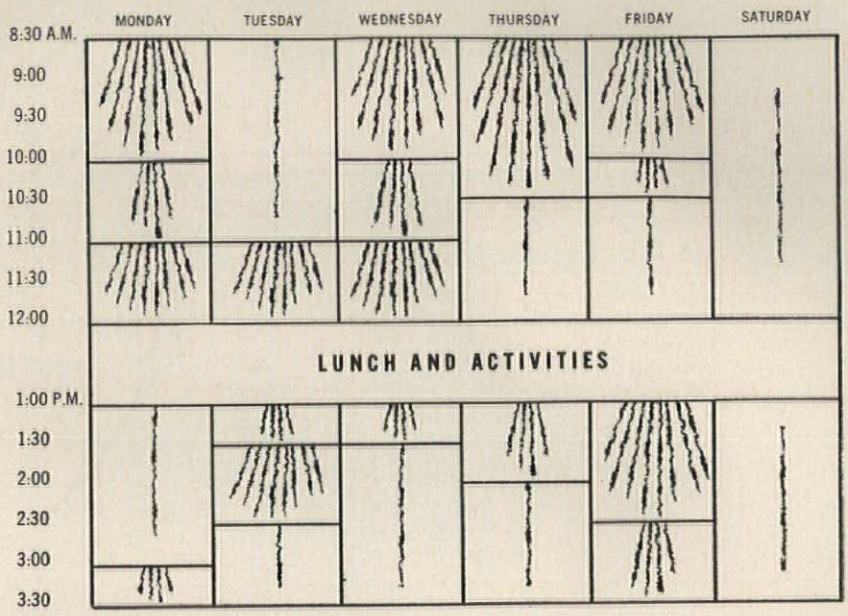
The educational specifications for another high school say, "When the school opens, academic class time for students will be distributed as follows: 10 per cent in small seminar, 80 per cent in standard classes, 10 per cent in large lecture-discussion classes. In five years, when the school will require an addition, the building should provide appropriate spaces for the following distribution: 20 per cent seminar, 60 per cent standard class, 20 per cent large class. Ultimately the distribution may run to 30-40-30." This same school specified that physical

HOW A STUDENT MIGHT SPEND TIME IN THE SECONDARY SCHOOL OF THE FUTURE

LARGE-GROUP INSTRUCTION: various subjects, activities, and length of periods—12 hours

SMALL-GROUP INSTRUCTION: various subjects, activities, and length of periods—6 hours

INDIVIDUAL STUDY: various subjects, activities, and places—12 hours, not including time on Saturday and after 3:30 P.M.



Some junior high schools are experimenting with schedules which set up a thirty-minute module of time so that classes may vary in length according to the task at hand from the basic half-hour, to an hour, to ninety minutes. And no bells ring.

But it is from the high school that currently the great questions are coming. If the high school is small or isolated, the architect must prepare the way for teaching by television, for however remote may be the school's location, it is inevitable that eventually the rural school will be joined in a county, state, or regional network for instruction by eductional television. Prepare the small high school, too, to become replete with new mechanisms for individual learning. The "teaching machine" is still in its infancy, the Synchoreader (a machine that reads aloud from recordings printed on the page) will soon be tried out in this country, the language laboratory is already well established as is the use of various recorders of action and sound. The rural high school especially needs to be tooled up to give aid to its faculty and to reduce its cultural isolation. Prepare the way for these schools by giving them malleable interiors. Then, and only then, can the faculty and students change the setting of education according to the dictates of new mechanisms not yet fully within our grasp but sure to come.

Just as there are special considerations arising from a school's smallness so there are requirements peculiar to the large school. Excerpts from the preface of the educational specifications of a recent large high school illustrate the bundle of nettles handed nowadays to an architect for the program:

"Essentially this school building is to be an envelope which is drawn around the people and the process it is to contain. Its design should flow from what the people will be doing in the building and the contour of the land on which it rests. Its materials should be selected according to the severity of the climate from which it is to protect the occupants, and how long the building is intended to last. And basic to both design and materials is beauty and economy.

"The design of a school should reflect the philosophy of its times. There are many published statements of what a school should be and do, most of which say about the same thing, namely, that the days of educating a select few beyond the grammar school for a handful of professions are long past, that today's schools must strive to personalize as much of the student's school experience as is practicable, and that every boy and girl must be thought of as an individual with unique problems, interests and potentials, and not as another face in the crowd.

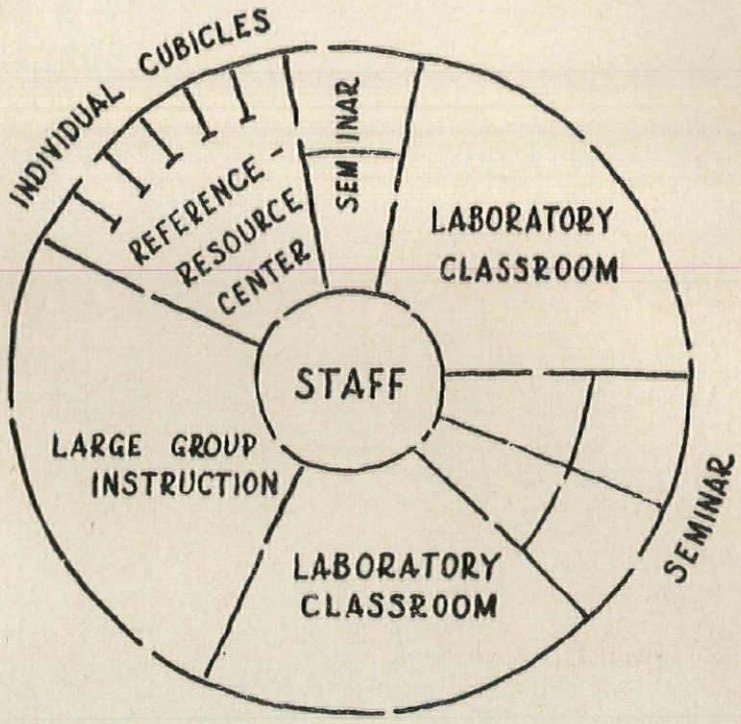
"To these commonly accepted concepts we would add the following:

(1) Since this is a large school, it is desirable that the student body be subdivided into smaller units which provide an instructional program that more nearly fits the needs of the individual and at the same time personalizes his relationship to the school.

(2) Teachers will work in teams, both in subject-matter fields and in the general life of the school.

Planned Variability: "What is needed is a structure which can house the following types of teacher-student relationships." (from the program analysis from the Wayland, Massachusetts, High School)

NO. OF TEACHERS	NO. OF STUDENTS	TYPE OF EDUCATIONAL ACTIVITY
0	1	Individual Project
1	1	Conference
1	10	Seminar
1	23 avg.	Laboratory Traditional Classroom
1-3	125-150	Lecture Demonstration Audio-visual Centered Student Programmed



where individual children may on occasion and in partial privacy pursue knowledge on their own? Can there be spaces created at will and at once where a teacher may work with a handful of children, whether remedial for the slow or tutorial for the quick, while another member of the faculty-team is working with a double class or more on matters of scholarship where the setting for instruction need not be intimate?

Many an elementary school in its press for quality is seeking ways of rearranging the enterprise, whether by clustering teachers in teams, or learners in teams, or using television as a supplement to teaching, or using television as a direct means of teaching, or ungrading the school, or selecting out the slow or the quick for special attention subject-by-subject—whatever the arrangement other than the solitary teacher in her solitary room, the traditional building gets in the way. As instruction turns more and more to the individual, as children are grouped across class and grade lines according to their academic pace, the desire for space that can be divided or multiplied at will and at once increases accordingly. The time is fast approaching when not just a few, but many clients will ask that the design of an elementary school be more than the ingenious arrangement of fixed and uniform quadrilateral boxes.

But it is the design of the secondary school that will really put the architect to the test. Of all levels of education—elementary, junior high, senior high, college—the senior high school and college are in greatest ferment. For the moment the junior high school, barely a half-century old as a separate institution, poses the fewest questions. For some reason both the educational profession and the general public are less perplexed about how to instruct a thirteen-year-old than the eight or eighteen-year-old. Consequently there is less dissatisfaction with the classic arrangement of space. But watch out! As elementary school enrollments recede and then crest again while the high school enrollments are in the opposite phase of the birth cycle, the junior high school, being the middle school, becomes logistically the most economical and the least disruptive level of the school system in which to flow pupils in order to get maximum occupancy of total plant. Therefore design the school against the day when a grade or two above or below its original complement may have to be assigned there.

There is nevertheless some stir in the junior high school. The dropping down of subjects traditional to the senior high school (e.g. algebra to grade eight and biology to grade nine for the academically talented), and the reduction of pre-vocational emphasis in the practical arts are exerting influence on traditional design and allocation of space. Many junior high schools have broken away from "block booking" the scheduling of classes so that the same group of children stay together for academic instruction all day and all year. Increasingly there are schools which regroup the children from period to period according to their academic pace in systematic subjects such as mathematics and science.

EDUCATIONAL CHANGE AND ARCHITECTURAL CONSEQUENCE

by Harold B. Gores

President, Educational Facilities Laboratories, Inc.

Education is today under great pressure. The pressure comes from heightened birth rates, shortage of teachers, new subject-matter, new ways of teaching, inflated dollars, accumulated obsolescence, and the recent realization by the Federal government that how well our children are taught is critical to the national security. Accordingly, education is in a period of ferment. But this was to be expected for historically major waves of change sweep over the schools about every thirty years and the current wave is right on schedule. Changes in the processes of education set off new problems for those who plan the place and space for education.

Not every school architect has had to face the new hard questions, especially if his clients have been those who merely sit back and choose among the architects who happen to apply. But an increasing number of school boards and trustees are not content these days just to "sort the fish that come to the net." Many boards want a whale of an architect, and whales are hunted, not netted. If it is true that the difference between a top-flight architect and a mediocre one can mean as much as five per cent savings in the bid price of the building and an infinite difference in how it functions, school boards have cause to seek out architectural service rather than trust the matter to the market place or the yellow pages.

The kind of community which seeks its architect is the kind that asks the new hard questions. Moreover, this kind of community expects its educators to describe what will go on in the building and why Even before the architect is on the scene, the educator will have been put to the test of reducing to prose the philosophy and practice to be found in the school. Under such circumstances standard practice is challenged at every turn. Take, for example, the elementary school. It is held in certain quarters that an elementary school consisting of a number of equal-sized classrooms, strung along a corridor and one or two large spaces for physical education, assembly, and food service may not be the most effective way of arranging space for teaching and learning. The self-contained classroom, so revered through the years, where the teacher and her class of twenty-five (if the community is wealthy), thirty (if typical), or thirty-five or more (if poor) work together all day, is, of course, the easiest arrangement to organize and administer. Just divide the expected enrollment by the presumed class size, apply one or two rules of thumb, such as that the auditorium, if any, shall be four-sevenths of the enrollment, or that the kindergarten, if any, shall be equal to one and one-half classrooms, and we're off. Having settled these matters by resort to formula, the school administrator can then return to administration—which is easier than leadership, and the architect can pursue cosmetology, which is easier than architecture.

But a number of schoolmen and school boards are asking whether the school can be designed to accommodate itself easily and immediately to changing arrangements of children and the consequent redeployment of staff. Can there be small spaces

George R. Curtis Junior High School, Tacoma, Washington. Robert Billsbrough Price, Architect. Dearborn-Massar photo

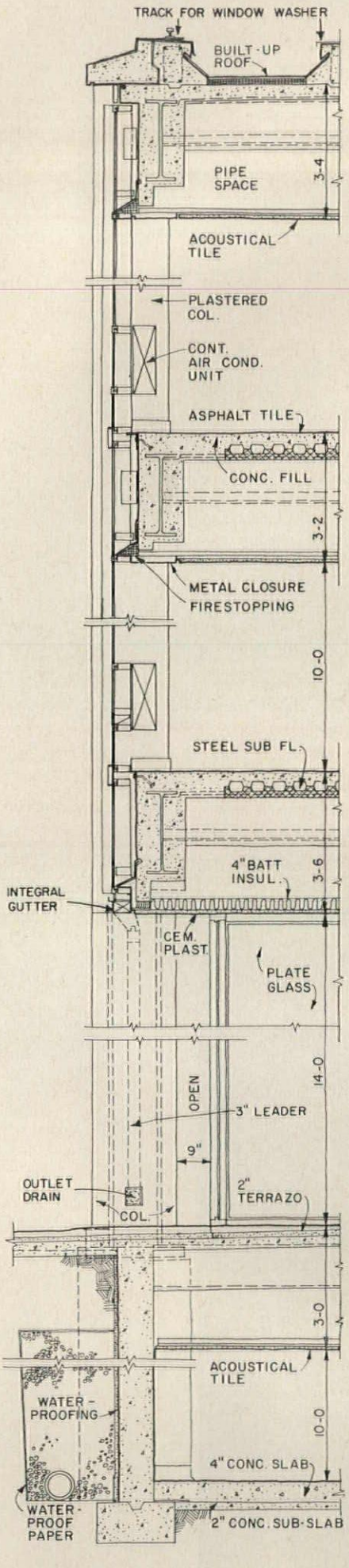
SCHOOLS

BUILDING TYPES STUDY 273
®

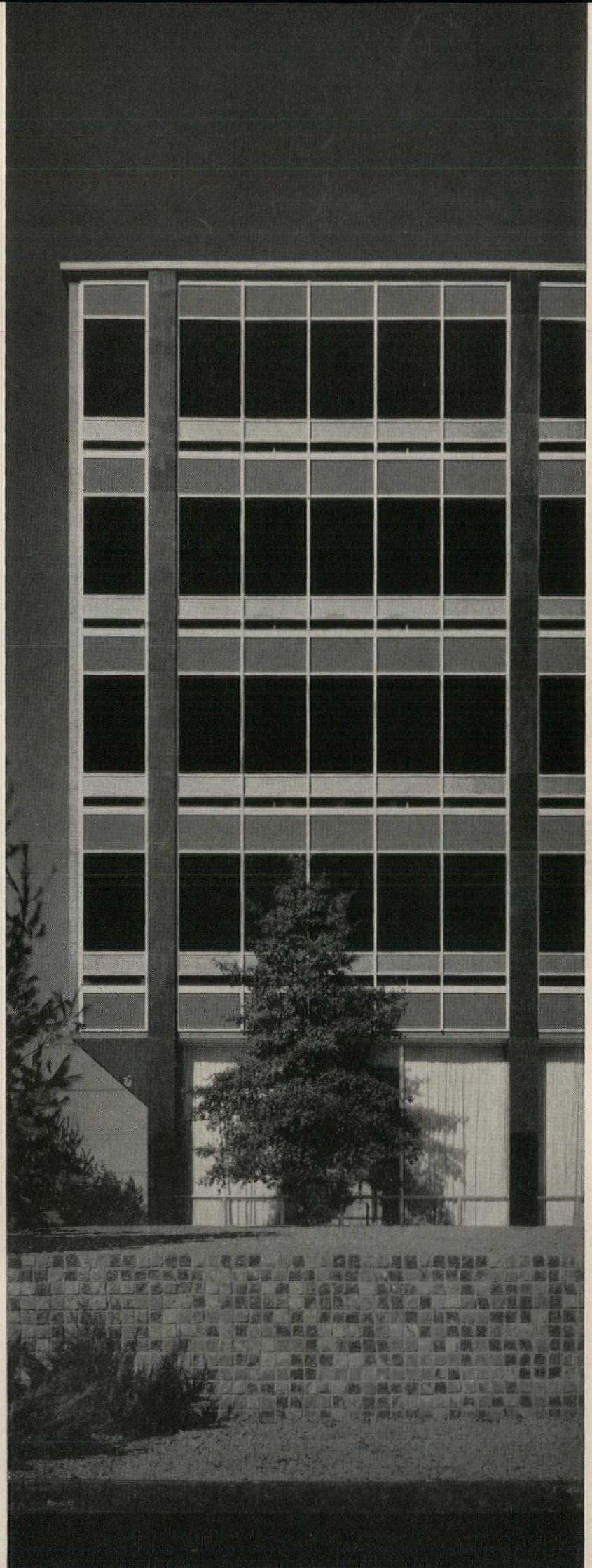
In the midst of the architectural quest for greater economy and quality in schools, educators have been taking a good hard look at teaching methods to see how the achievement of these two prime objectives can be sharpened from their point of view. The result is a set of new educational concepts, which—though far from being firmly fixed as yet—are beginning to have a strong impact on the design of the buildings to accommodate the new programs. Perhaps paramount among the changes is the waning of the self-contained classroom idea, and emphasis on the need for greater flexibility of all teaching spaces. Harold B. Gores, noted educator and president of the Ford Foundation's Educational Facilities Laboratories, presents a summary of these changes and the architectural implications in the following article.

OFFICE BUILDING

Private offices are finished with painted or fabric-covered plaster contrasted with ebony paneling. Floors are carpeted except for a traffic strip adjacent to the windows. This portion of the floor is covered with vinyl tile. Ceilings are covered with acoustical tile. Offices have built-in cabinets, bookcases, and other storage facilities, and are furnished with contemporary furniture selected with the assistance of the architects. The design of the private office interiors was closely coordinated with that of the other building areas in order to achieve harmony in the interiors


TRACK FOR WINDOW WASHER
BUILT-UP ROOF
PIPE SPACE
3-4
ACOUSTICAL TILE
PLASTERED COL.
CONT. AIR COND. UNIT
ASPHALT TILE
CONC. FILL
3-2
METAL CLOSURE
FIRESTOPPING
10-0
STEEL SUB FL.
4" BATT INSUL.
3-6
INTEGRAL GUTTER
CEM. PLAST.
PLATE GLASS
14-0
OPEN
3" LEADER
9"
OUTLET DRAIN
COL.
2" TERRAZO
3-0
ACOUSTICAL TILE
WATER-PROOFING
10-0
4" CONC. SLAB
WATER-PROOF PAPER
2" CONC. SUB-SLAB

SECTION

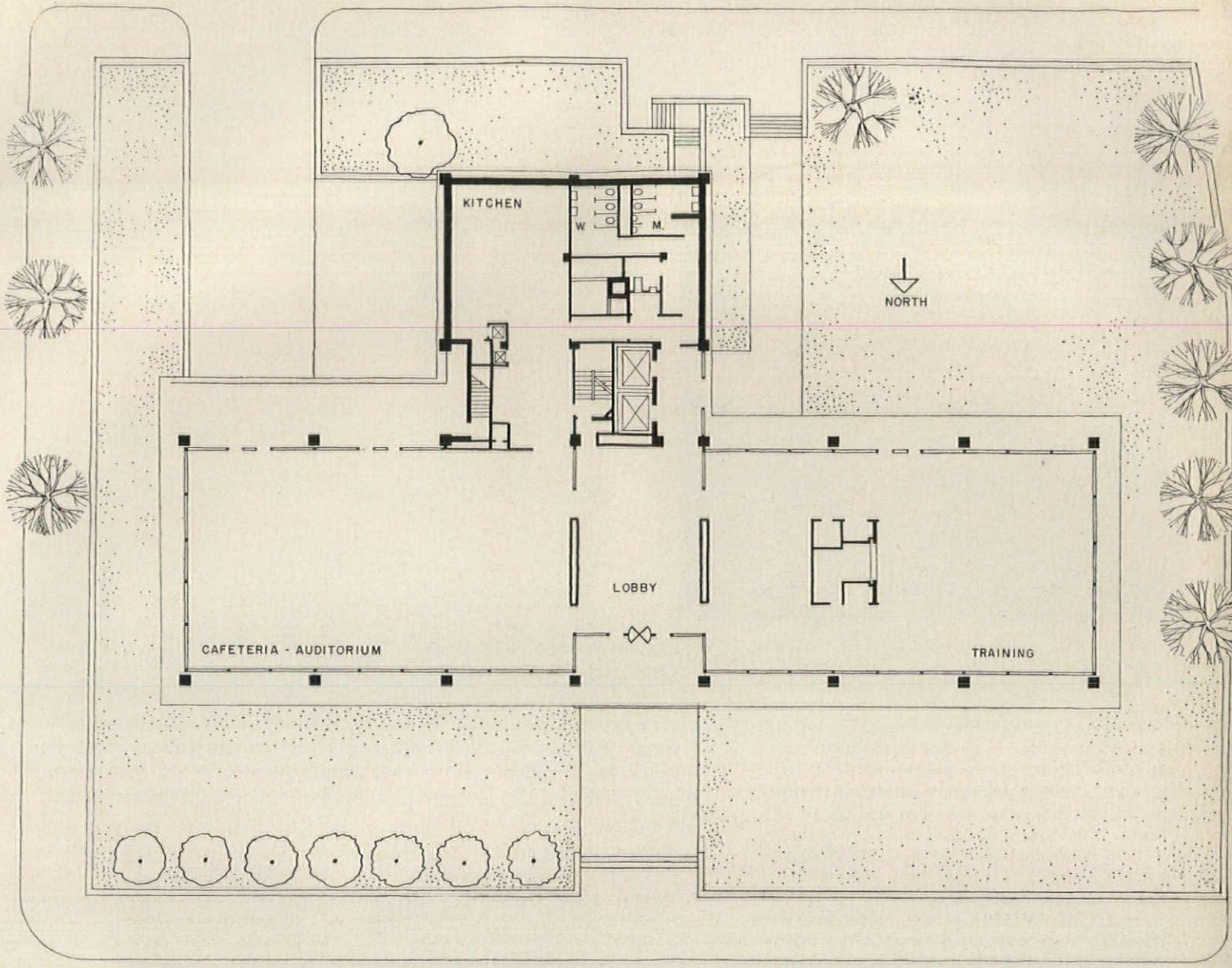


OFFICE BUILDING

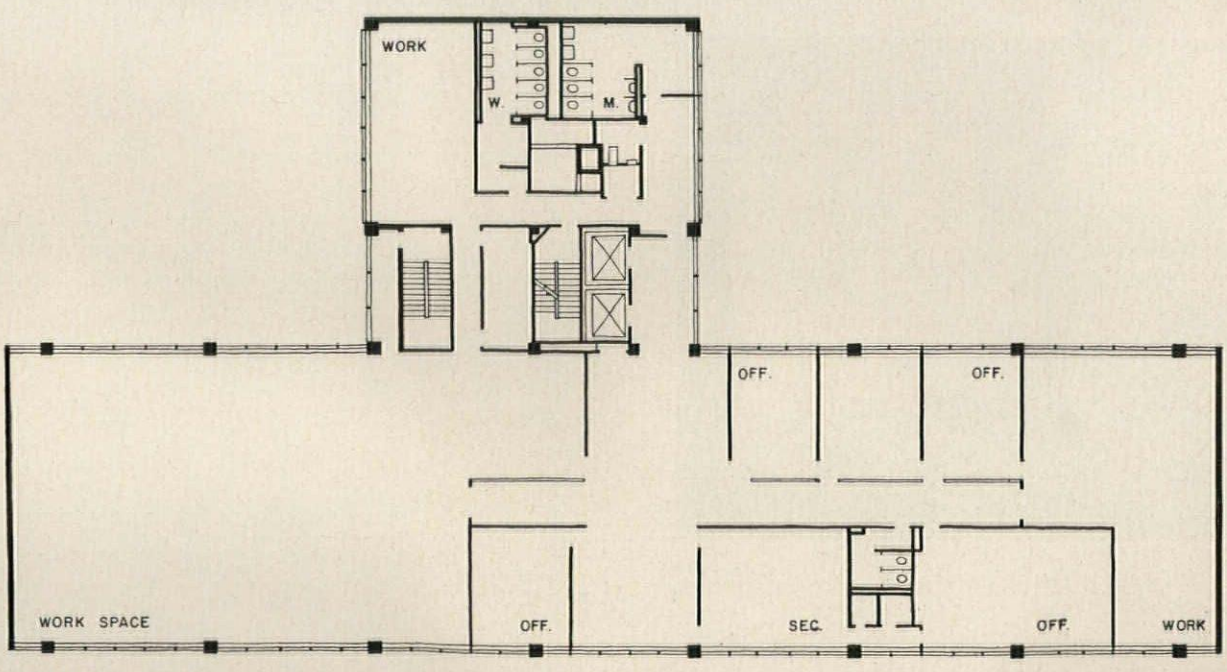
The company board room (above) is located near other executive spaces on the fifth floor. It is connected with the president's office by a private corridor. Lighted with direct fluorescent fixtures and a luminous ceiling in the center, the room is finished with ebony walls, rift oak cabinets, and carpeting. The directors' table is teak. The training room (below) is on the ground floor. Its major use is for the instruction of field agents who come here for meetings and refresher courses. The floor-to-ceiling glass walls on three sides of this area are equipped with lightproof curtains for darkening the room to show films, television, or other training aids used for instruction

The building structure is fireproofed steel frame with cellular steel, concrete-topped floors. With this system, the architects were able to achieve considerable electrical and communication flexibility. The cells in the subfloor act as raceways for these services. Connections for both utilities are therefore available on 6-in. centers. Automatic conveyors distribute mail and interdepartmental correspondence between floors. Year-round air conditioning is provided by a hot and chilled water system, with zone controls for various large, important building areas.

The short end walls of the building are covered with brown brick. Aluminum curtain walls are glazed with gray glare-and heat-reducing glass. Bands of dark gray and light blue spandrel glass with a clear vision strip between run across the curtain wall elevations. The columns are covered with black opalescent granite. A light buff limestone cornice provides a visual stopping place at the head of the walls. The entire ground floor of the major wing is glazed floor-to-ceiling.



MAIN FLOOR PLAN



FIFTH FLOOR PLAN

OFFICE BUILDING

In order to keep interior spaces uncluttered and easily modifiable, the architects employed a large design module—26 ft longitudinally with clear spans across the major wing. The columnless interiors and movable partitions (used wherever possible) will allow efficient, quick changes in office layouts occasioned by the rapid growth of the company. Plans (right) show the lobby, cafeteria, company training room, and related areas on the main floor and the layout of a typical office floor. Other floors are similar in arrangement. Partitions are located on these floors according to particular requirements of the departments housed. Typical reception rooms (left) on office floors are open and simple in detail. Movable partitions and lighting fixtures are modular in keeping with the design of the building for the utmost in flexibility

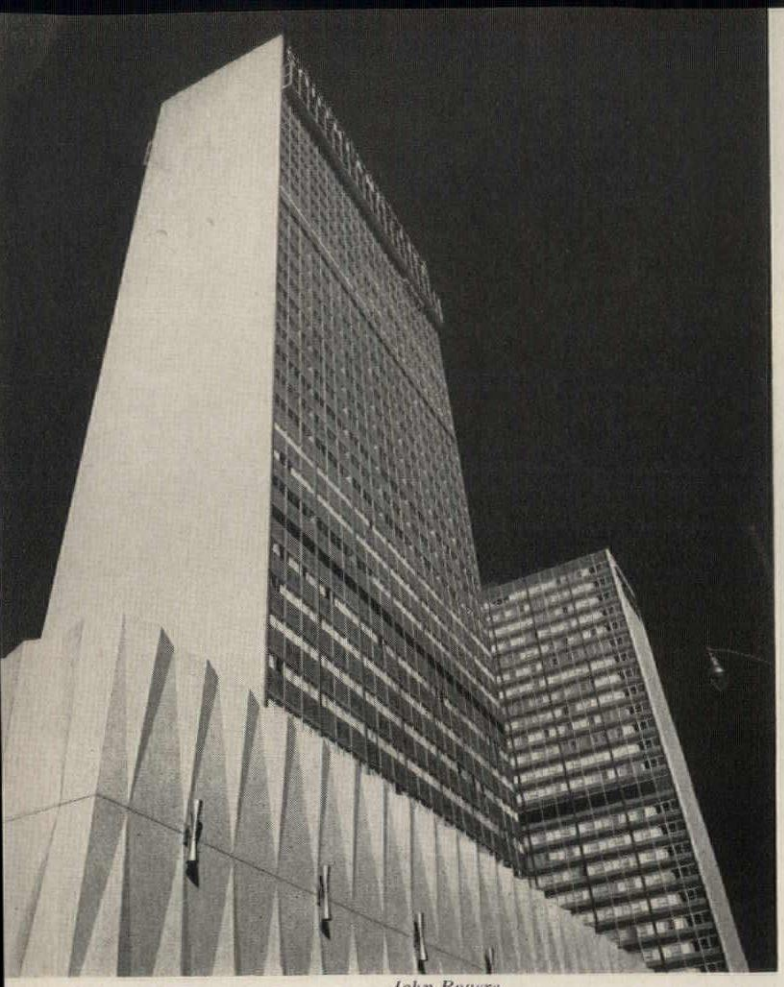
This building represents a straightforward solution to the problems of a growing insurance company's needs for unobstructed work areas, good working conditions, and spacial flexibility. Close attention was paid in its design to smooth work flow lines and provisions for all departments to function without disturbances, yet retain the best possible relationships among them. A special effort was made to reduce employe fatigue to a minimum through good acoustics and lighting, and restful surroundings.

Life Insurance Company Home Office Building

Home Security Life Insurance Company, Durham, North Carolina

Associated Architects: Small & Boaz, Antonin Raymond & L. L. Rado
Structural Engineer: Paul Weidlinger
Mechanical and Electrical Engineers: General Engineering Associates
Landscape Architect: Edwin G. Thurlow
Contractor: George W. Kane

All photos: Joseph W. Molitor



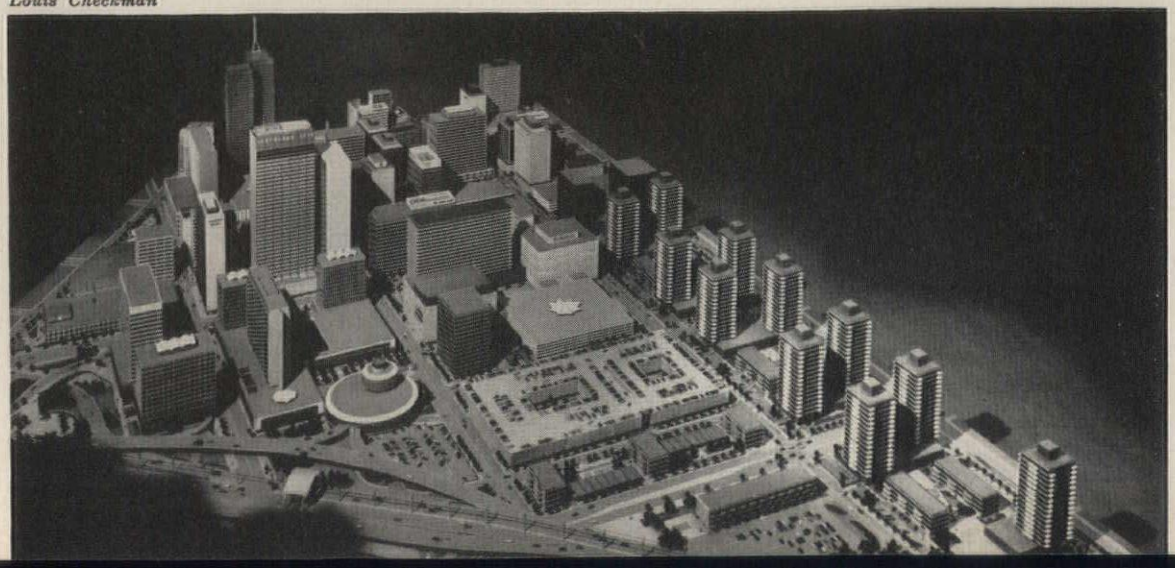
John Rogers

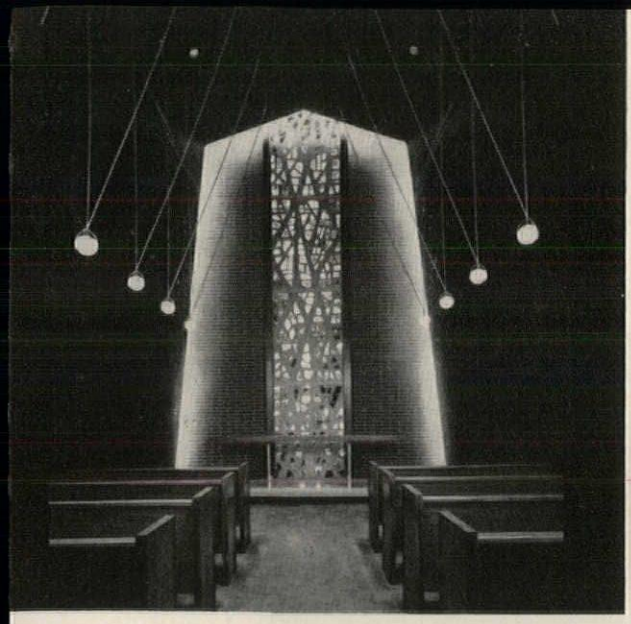
Office Building and Hotel

The Center is located in the major growth area of the business district of Dallas. Below are shown models made by the architects of the existing area and a plan for future development. Expansion and improvements would be accomplished by means of private capital and initiative. Needs were based on estimates derived from the studies of the Greater Dallas Plan Commission, which indicate an expected rise in the city's metropolitan population to 1.8 million by 1980. No changes in public utilities, other than placing them underground, are proposed. The area will be served by freeways and a suspended overhead rapid transit system. These will feed into a series of transportation centers conveniently located adjacent to the inner freeway loop. Facilities will be provided in the centers for parking, car rentals, baggage checking, and travel and ticket offices. The transportation centers will also serve as terminals for bus and helicopter lines. After projecting trends to indicate future needs, the architects allocated about 80 per cent of the land for office, commercial, and recreation uses and related parking areas. Hotel sites were carefully chosen close to the transportation centers and other required facilities. The areas remaining are allocated to municipal and institutional uses and to apartments

Louis Checkman

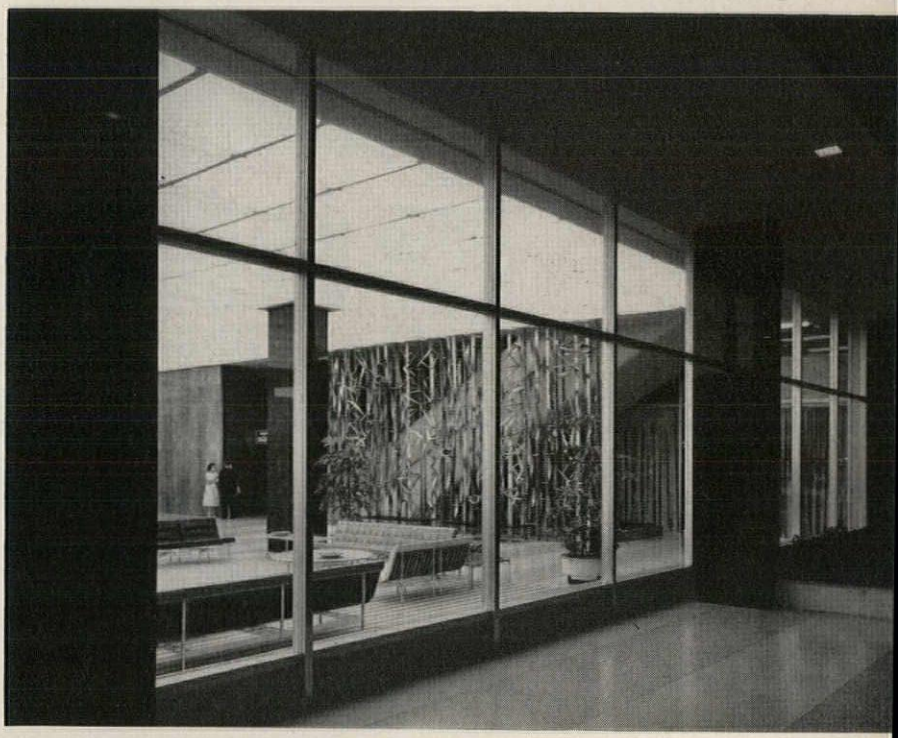
Louis Checkman



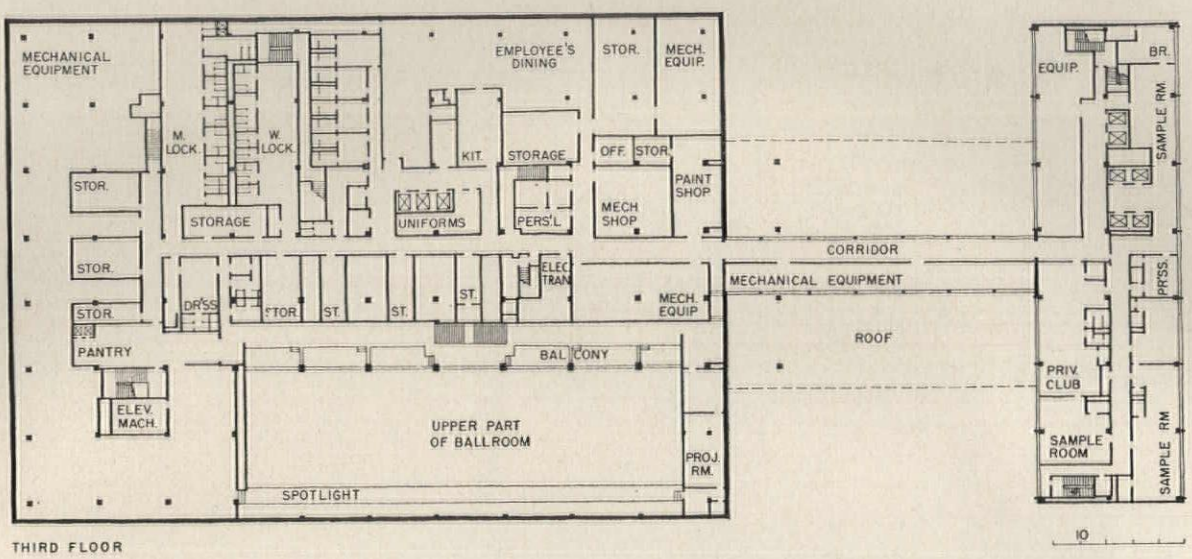


Office Building and Hotel

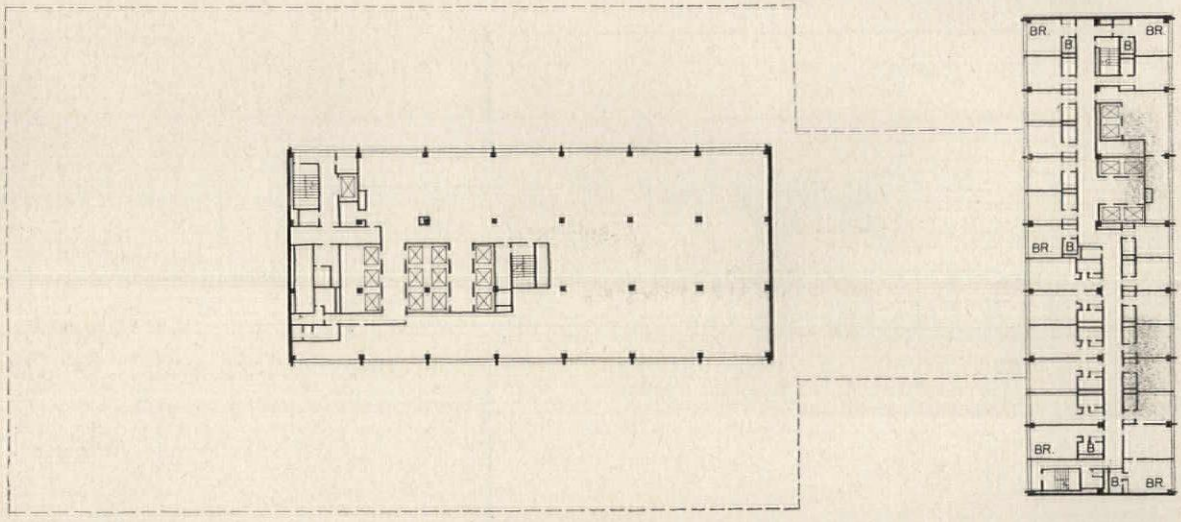
The center contains spacious and flexible public areas, in addition to the hotel guest rooms and office spaces, designed for the comfort and convenience of office workers and hotel guests. Shops of all kinds, ticket offices, an automobile service station, a stock broker, and a real estate office are among the variety of stores and services offered. In addition, there is, in the office tower, a heliport on the roof, an observation deck and snack bar on the 41st floor, and a chapel seating 25 persons on the 39th floor (upper left). Circulation throughout the center is made more efficient and agreeable by the use of large, relatively unimpeded lobbies and foyers in a number of locations. Upper right: the entrance lobby of the hotel is utilized almost entirely for guest circulation. Center right: the main office building lobby and lounge area as viewed from the landscaped plaza between the towers. Lower right: hotel grand ballroom lobby



John Rogers photos

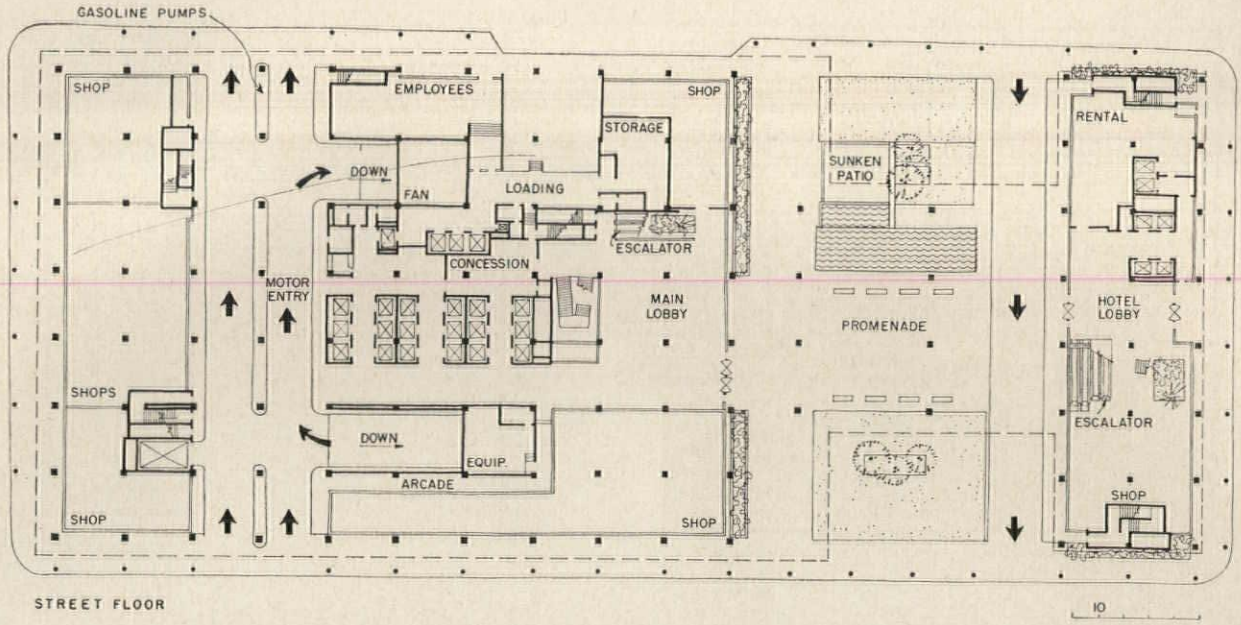


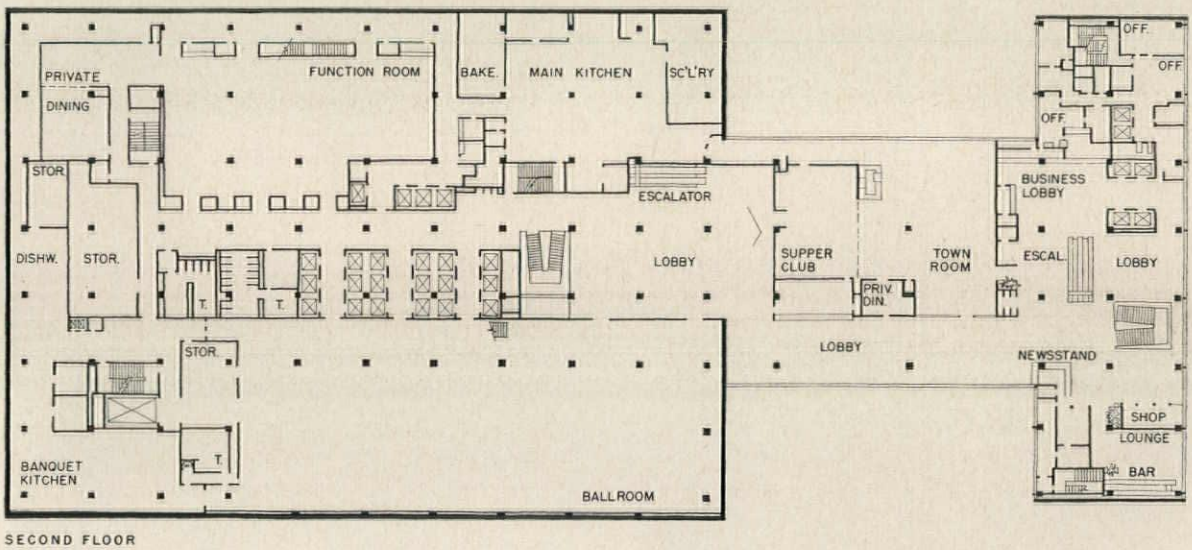
THIRD FLOOR



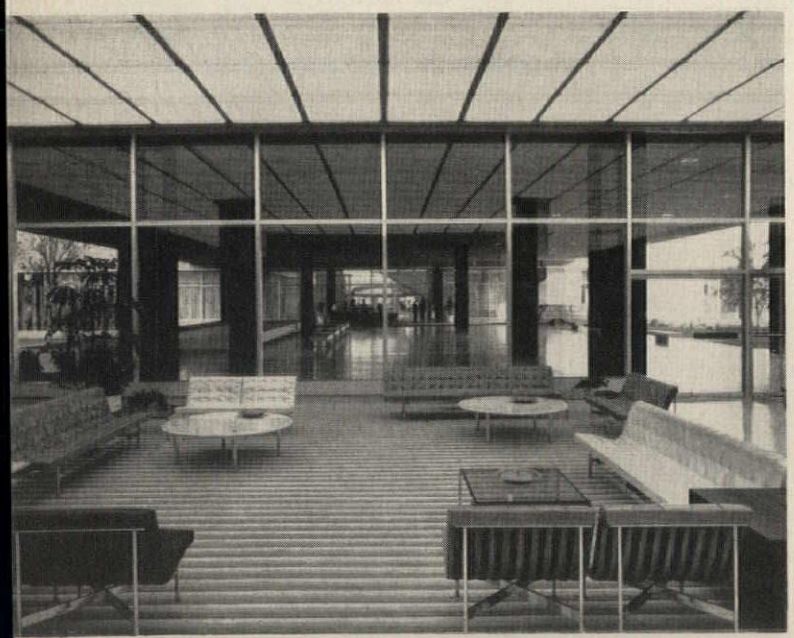
TYPICAL FLOOR

The third floor of the Center is mainly devoted to service facilities and employe's areas, except for spaces used for private clubs. By placing most of these facilities on a single floor, the architects were able to simplify the design of the hotel and offices and to provide for easier operation and maintenance. The office tower fourth floor is used primarily for employe dining and lounge, required by the owners who occupy the fourth through 18th floors. These areas face landscaped terraces on the third floor roof deck. Office tower floors (other than the 13th and 27th which are used for equipment) are planned around a nucleus of service facilities with otherwise open floor areas. Subdivision will be made in accordance with the requirements of individual lessees. The 36th and 37th floors are cantilevered eight feet from the face of the building on two sides. These floors will be leased to clubs or other organizations for headquarters, dining, or other private uses. Each hotel tower floor above the third contains 15 typical guest rooms (the smallest is 14 by 14 ft), six luxury rooms, and a two room suite. Exceptions are the top floor which contains only luxury suites and the 15th floor which is used for equipment. Fireproofed steel frame with cellular steel and concrete floors are used throughout the Center. Exterior walls are prefabricated lightweight concrete curtain walls, finished with exposed quartz aggregate on the end walls and integrally cast Italian glass mosaic tile on the others. Windows throughout are aluminum with alternating fixed and top-hinged sash. Subdivision of interior spaces is with metal stud, lath, and plaster solid partitions.





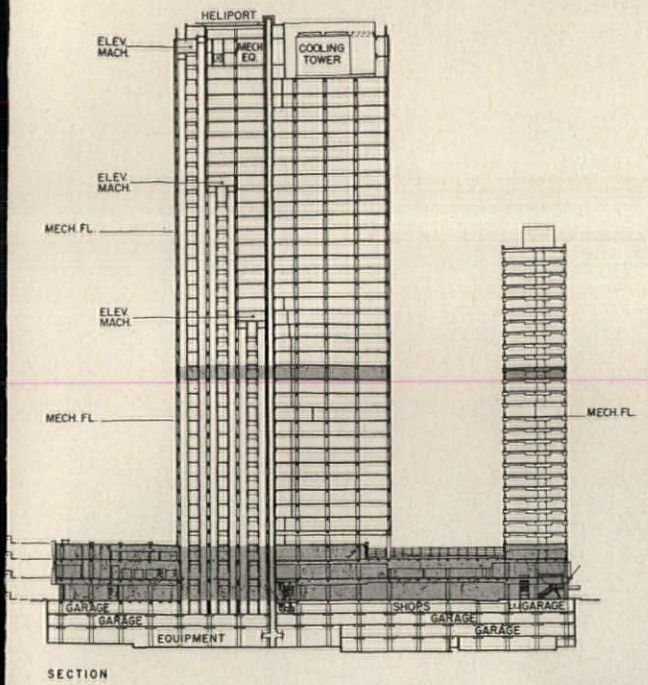
In this large building complex, the architects have successfully provided for the varied functions required for a 600-room hotel, a 41-story office building, numerous shops and stores, and parking for all guests and occupants. At the present time, the center contains more than 1.5 million sq ft of floor area. A third tower to be built at some later time will bring the total area to approximately 2 million sq ft. Four below-grade floors, each equal in area to the ground floor, contain parking areas, shops, and equipment spaces. The ground floor includes—in the area under the hotel tower—the entrance lobby of the hotel and its related covered off-street automobile entrance, shops, and a coffee shop. Separated from these areas by an open plaza is the main lobby area of the office tower, additional shops and offices, and the main motor entrance. Also located here are a number of storage-service facilities for the hotel. Escalators, located near the office lobby, allow patrons to go directly to the hotel ballroom and other public rooms on the second floor. By similar means, patrons reach the second floor main lobby and registration desk of the hotel tower. Near the second floor hotel lobby are the staff offices and several shops. The hotel lobby at this level is joined to the office tower by a glass-enclosed concourse and lounge on which are located two of the dining rooms. The concourse leads to the grand ballroom which accommodates 2500 for meetings, 1800 for banquets. This room may be subdivided for use by smaller groups. Several other public rooms of various sizes and the required kitchen and service areas are located on this floor.



Office Building and Hotel

An important factor in the extremely open and spacious feeling of the center is the plaza area (about one-third of the total site) which is located between the office and hotel lobbies (upper left). Two pools are located adjacent to a sunken patio area (upper right). Sculpture is used to enhance the spaces, and to create more intimate closeup views of planting and surroundings to contrast with the open vistas. Left: from the office lobby, a view is obtained of the plaza and beyond it the hotel driveway. Lower right: In addition to the hotel automobile entrance, the main motor entrance drive may be used by all building occupants. Running through the building under the office tower, the drive is entered under canopies similar to those shown. Automobiles are left with attendants who park them underground via ramps as shown on the plans. Incorporated into the motor entrance are an automobile service station and a conveniently located cashier's position

John Rogers photos



SECTION

OFFICE BUILDING AND HOTEL COMBINED

SOUTHLAND CENTER
DALLAS, TEXAS

Welton Becket and Associates, Architects and Engineers

Mark Lemmon, Consulting Architect

Murry Erick Associates, Structural Engineers

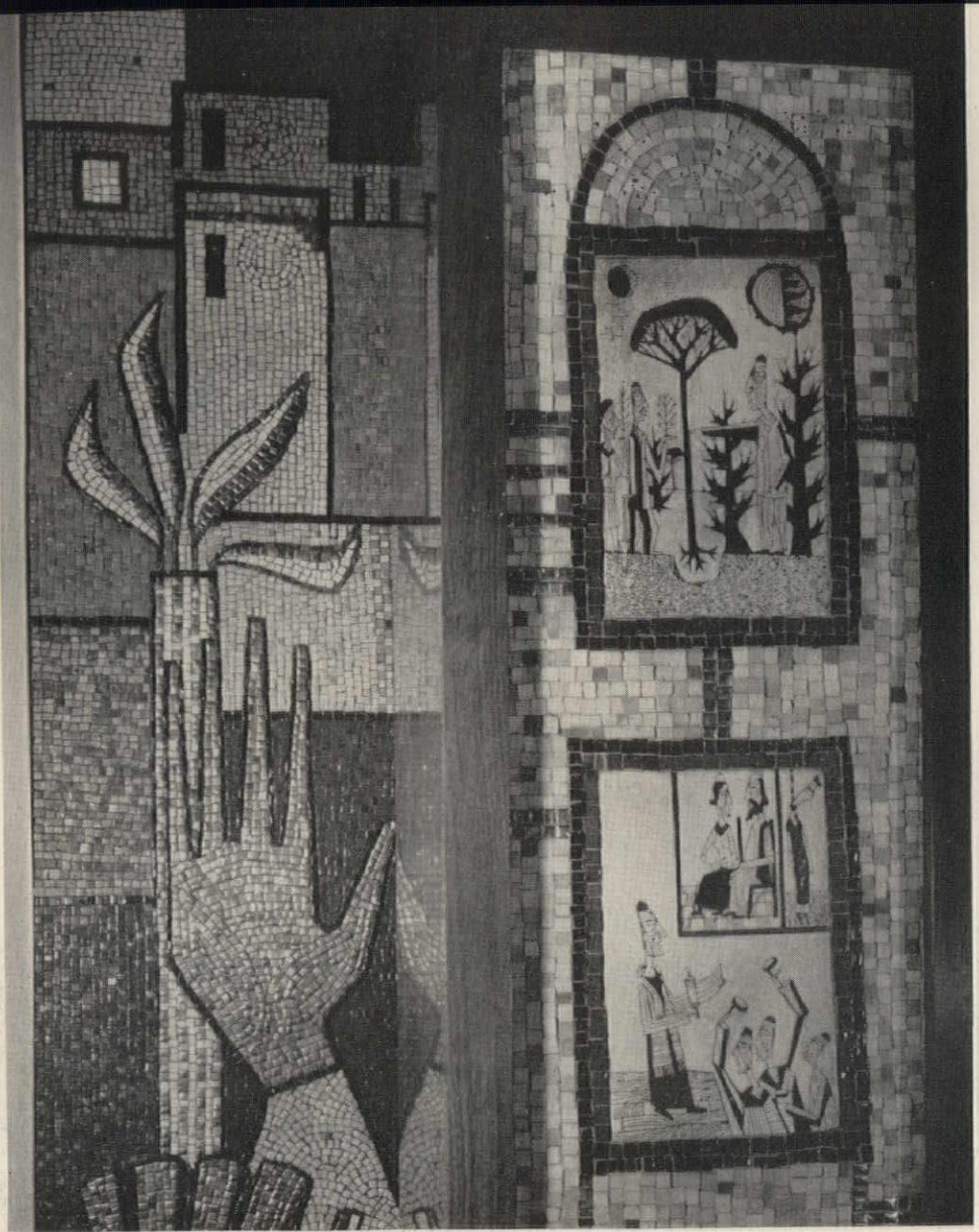
Edwards & Hjorth, Consulting Structural Engineers

Zumwalt & Vinther, Consulting Mechanical Engineers

Mason-Johnston & Associates, Geologists-Engineers

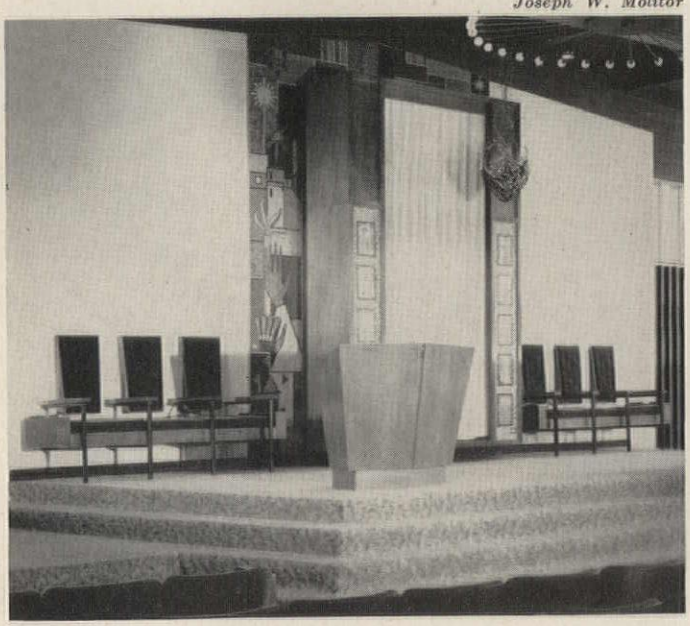
J. W. Bateson Company, Inc., Contractors

John Payne



In the sanctuary the Ark projects forward. It not only serves its traditional purpose as the repository for the Torah scrolls, but it contains the organ components above the scroll shelf and the organ amplifier beneath it. The detail above shows a portion of the mosaics on the wall and on the face of the Ark.

Joseph W. Molitor



Joseph W. Molitor

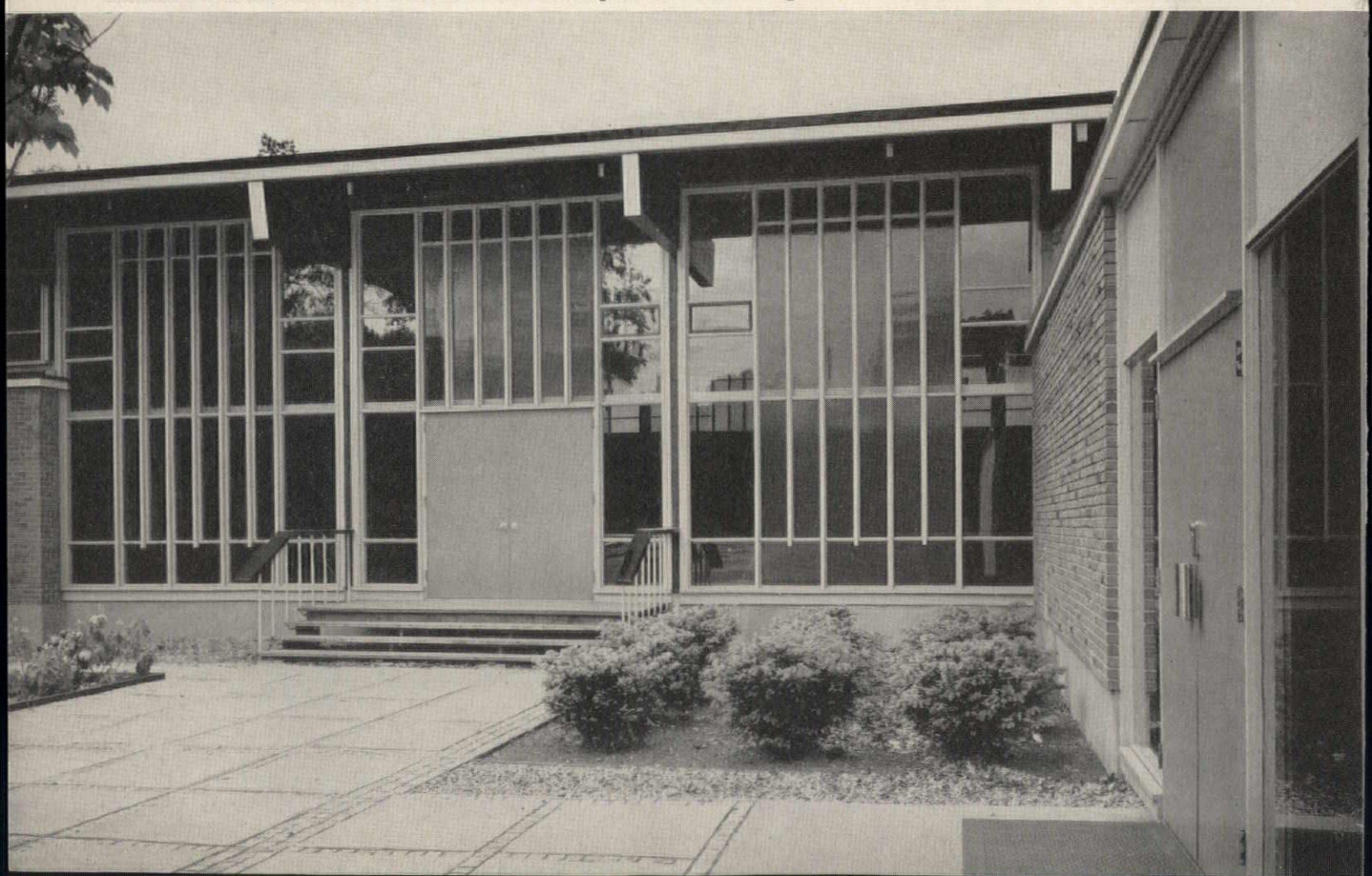
The use of color in the sanctuary is extremely subtle and distinguished. The ceiling beams and columns are of laminated southern yellow pine with a dark stain and dull varnish. All other woodwork in the temple has also been stained and finished to achieve a consistent dark walnut quality which harmonizes well with the dark red brick walls of the side aisles. Seats for the congregation are covered with a deep rich blue fabric, the sedilia are upholstered in a reddish purple. The translucent cathedral glass of the clerestory windows which gradually changes from amber to deep blues and purples near the Ark, produces a subdued luminosity expressive of spiritual intent. The Eternal Light suspended before the Ark takes the form of the Burning Bush and glows softly red. Lighting reflectors and metal work in general have been painted matt black and hardware has been kept to a bronze finish.

Social hall as seen from sanctuary

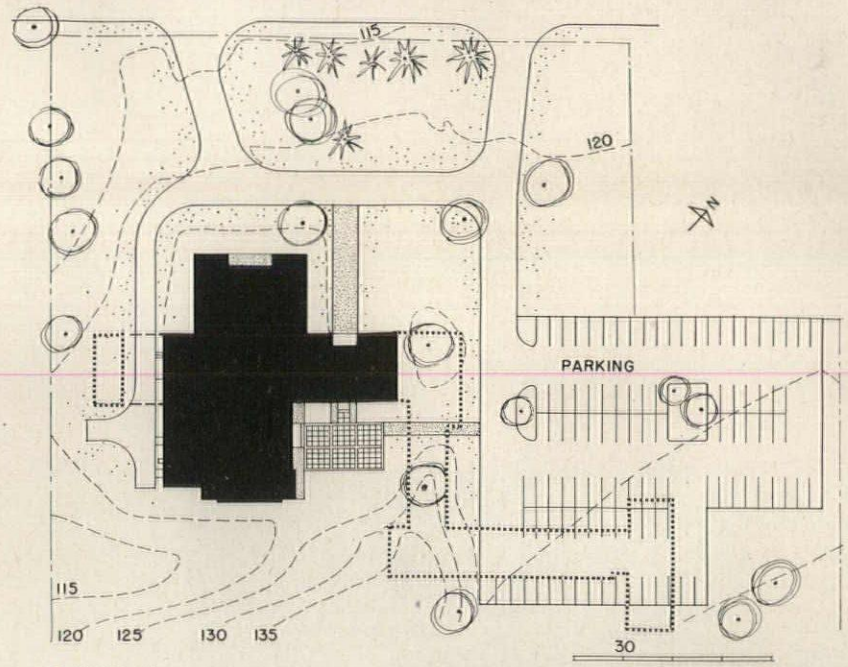
Temple Reyim

Proposed classroom wing which will be constructed in foreground area will enclose court on third side

Entrance to social hall from court. Dark beams are painted white at edges

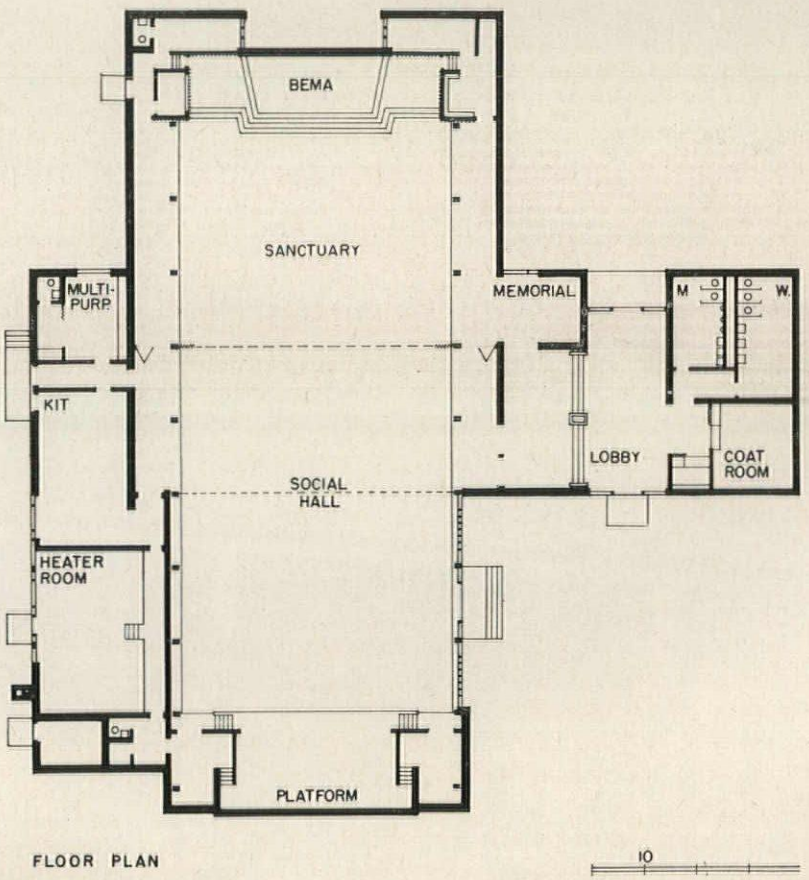


Temple Reyim



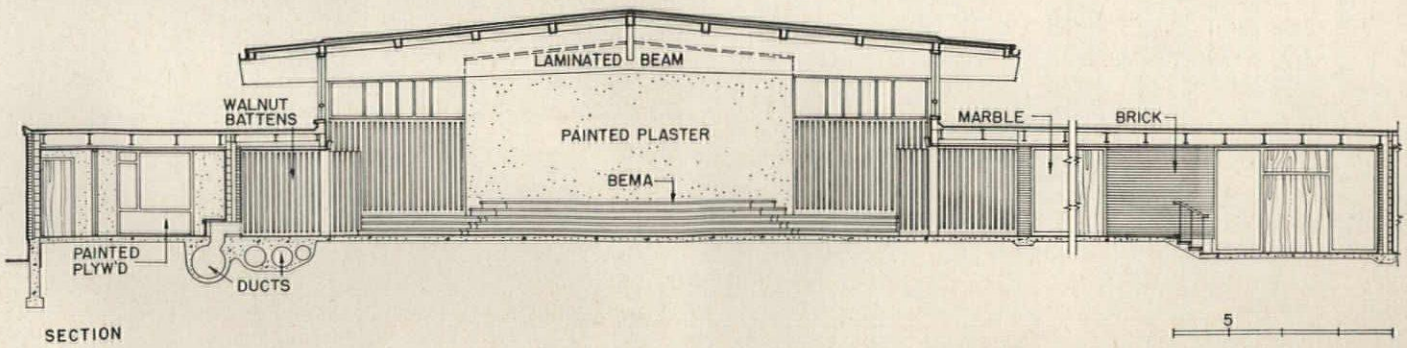
PLOT PLAN

Right: dotted area on plot plan extending over parking area shows future classroom wing. Dotted area to the left on plot plan will be custodians' quarters



FLOOR PLAN

Right: small rectangular enclosure to the left of the Bema conceals the organist and choir master who is visible through a series of vertical louvers only to the choir on the adjoining lower platform, and to the cantor who occupies a forward position on the upper platform to the left of the Ark. The small area to the right of the Bema is for the storage of books, and the spaces projecting beyond the Bema wall are for the choir on the left and for the rabbi on the right



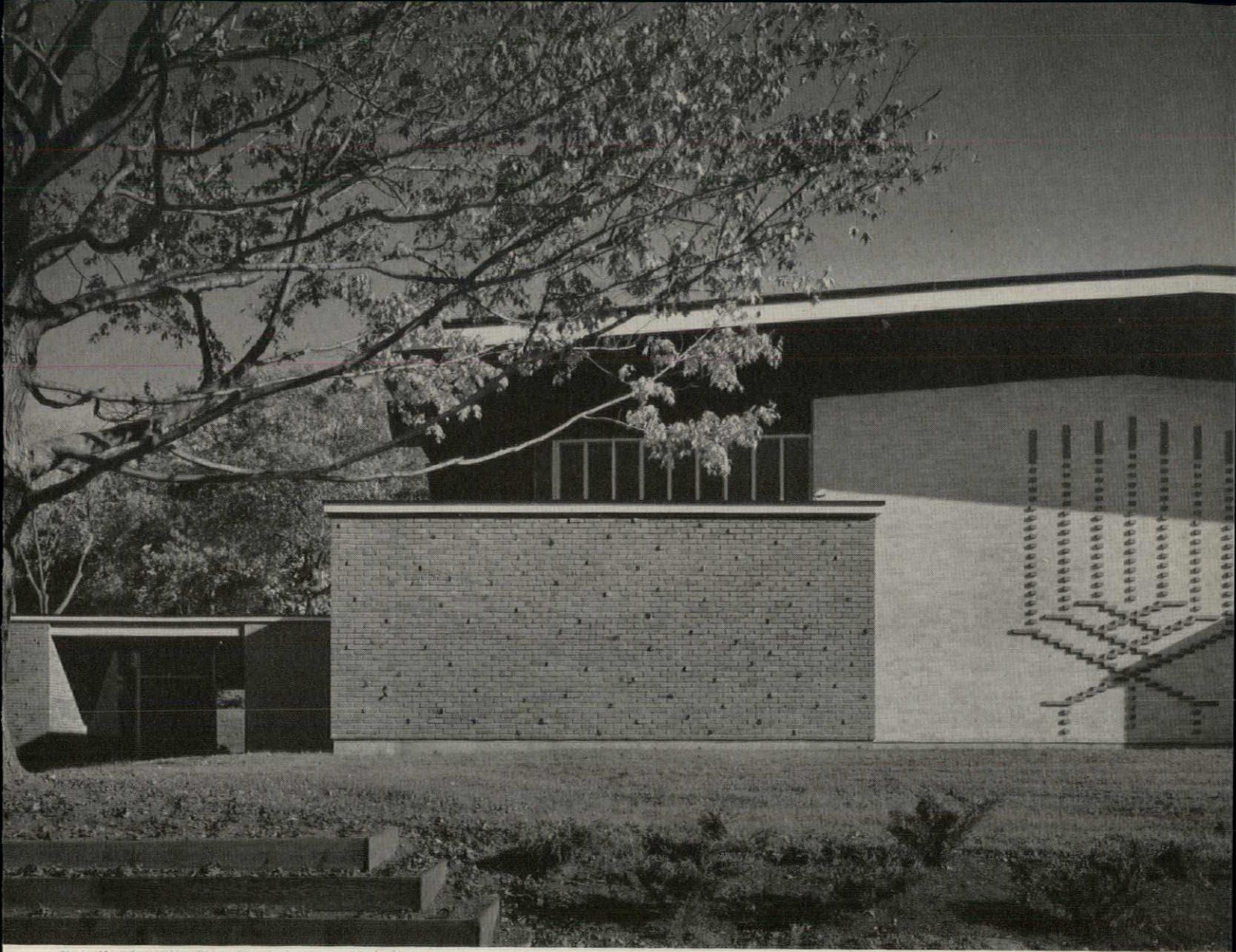
SECTION

The basic design requirements of the Temple Reyim are common to most synagogues. Jewish congregations usually require generous social facilities as well as space for formal worship. On High Holy Days when everyone attends services, expanded seating arrangements are necessary in the sanctuary. To keep within a budget of approximately $250,000, the architects placed the sanctuary and social hall under a continuous roof on the same axis, so that the social hall becomes an extension of the worship area for special services. (See plan on opposite page.) Frequently in this kind of solution the social hall and sanctuary are so different in character that the worshipper who is not fortunate enough to sit in the sanctuary feels emotionally as well as physically distant from the service.

The architects of Temple Reyim avoided this effect, however, by emphasizing the strong rhythmic continuity of the laminated columns and beams through both major spaces. Introduction to both areas is by means of low side aisles with lower separate roofs. The extension of these symmetrical elements and the clerestory windows above them into the first two bays of the social hall helps integrate the two spaces. In addition, a consistent use of materials unites both parts of the structure.

Above: main façade. Inset wall defines Bema. Two contrasting kinds of brick are used; a reddish water struck brick with a small proportion of smooth antiques projecting forward, and for the inset wall at the end of the sanctuary a buff-colored, ceramic glazed face brick. The Menorah designed by Norman Fletcher is of water struck bricks set in the glazed brick surface. The deep overhangs shade the clerestory windows and contribute to the quiet soft quality of the lighting within. *Below:* entrance wing. A courtyard with a secondary entrance to the social hall is beyond

Joseph W. Molitor



Detail of main façade, entrance at left

Joseph W. Molitor

A SYNAGOGUE OF INTEGRATED SPACES

NAME: *Temple Reyim*

LOCATION: *Newton, Massachusetts*

ARCHITECTS: *The Architects Collaborative* *

PARTNER IN CHARGE: *Norman Fletcher*

JOB CAPTAIN: *Richard Brooker*

STRUCTURAL ENGINEER: *Nisso Aladjem*

MECHANICAL ENGINEERS: *Fred S. Dubin & Associates*

ACOUSTICAL ENGINEERS: *Bolt-Beranek and Newman*

CONTRACTOR: *Concrete Construction Company*

ARTIST FOR MOSAICS ON ARK: *David Holleman*

SCULPTOR FOR ETERNAL LIGHT: *William Martin*

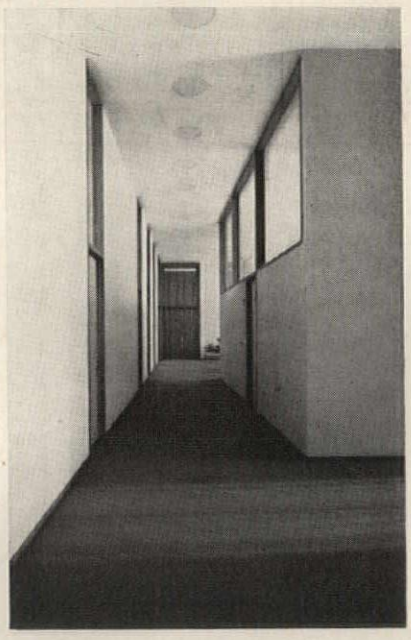
COLOR CONSULTANT FOR WINDOWS: *Napoleon Setti*

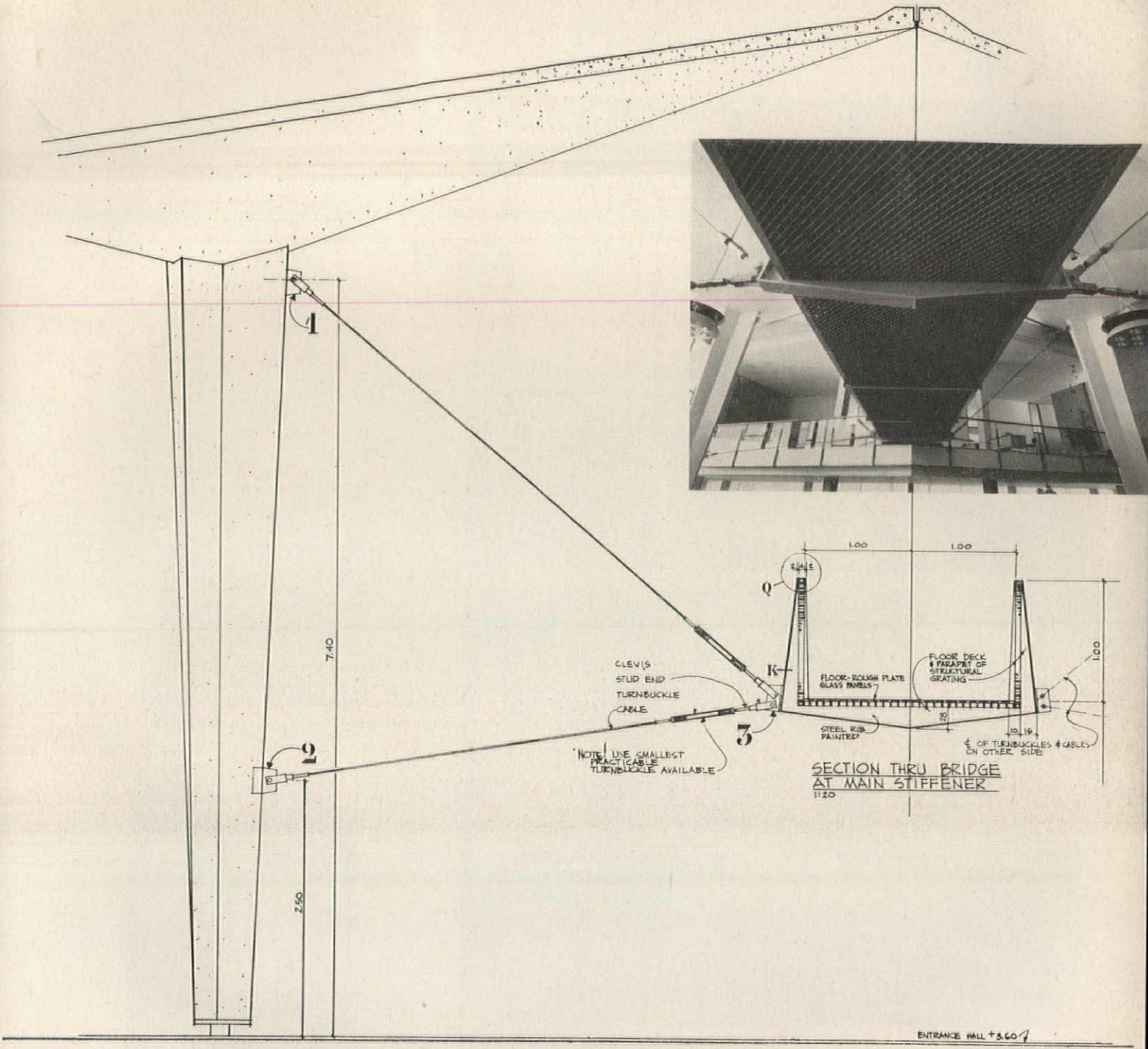
* Jean B. Fletcher Norman Fletcher Walter Gropius
John C. Harkness Sara P. Harkness Robert S. McMillan
Louis A. McMillen Benjamin Thompson Richard Brooker
Herbert Gallagher William J. Geddis H. Morse Payne Jr.

Van Leer
Office Building

In office areas, natural ventilation is provided by a combination of opening sash 4 ft 8 in. above the floor and heavy overhead exhaust fans. An air movement is thus created above the heads of office workers, obviating drafts; and the view outdoors for one seated at a desk is not impaired.

Office floors are typically of gray linoleum; walls are plaster covered with an off-white plastic; ceilings are of a fissured, mineral acoustic material; the circular lighting fixtures contain three fluorescent tubes, shielded by an egg-crate of white plastic



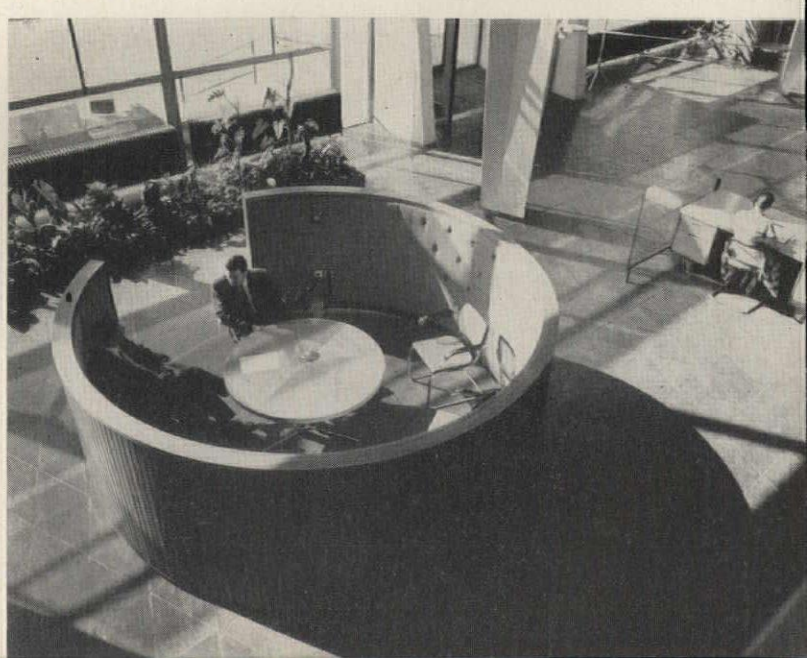


SECTION THRU BRIDGE AT MAIN STIFFENER
1:20

The bridge connecting the upper level of office wings makes an intriguing feature in the two-story entrance lobby, which is set at the split-level between the 15-ft-high office floors. Such an arrangement allows space for a ground-level storage and mechanical area beneath the lobby. The bridge is supported by stainless steel rods; has sides and deck of steel grating, upon which 1-in. rough glass is laid as a walking surface.

Pictured below is a circular sales booth, which is faced with teakwood. The lobby floor is waxed Norwegian slate, dark gray in color; stair cheeks and the rear wall are faced with an unusual mosaic tile from Switzerland composed of split, quartz-patterned mountain granite with blue-white, gray, and beige coloring

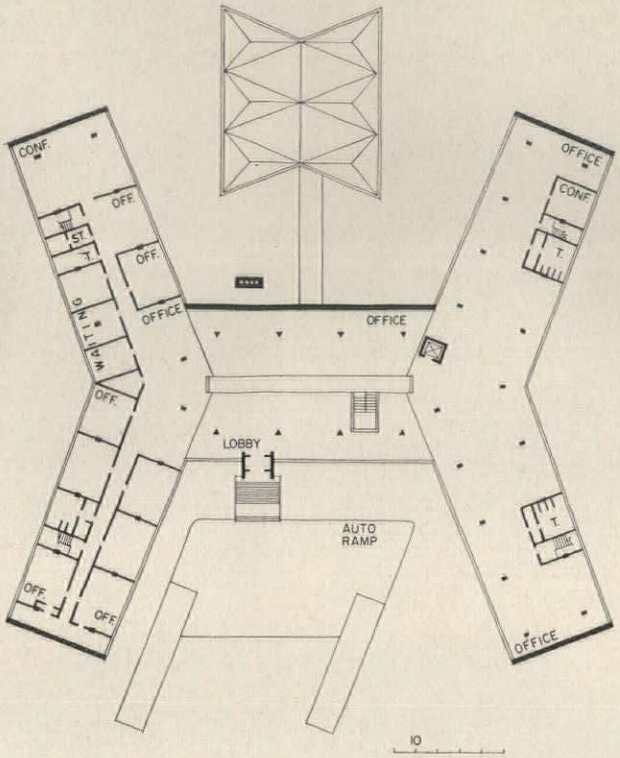
Van Leer
Office Building



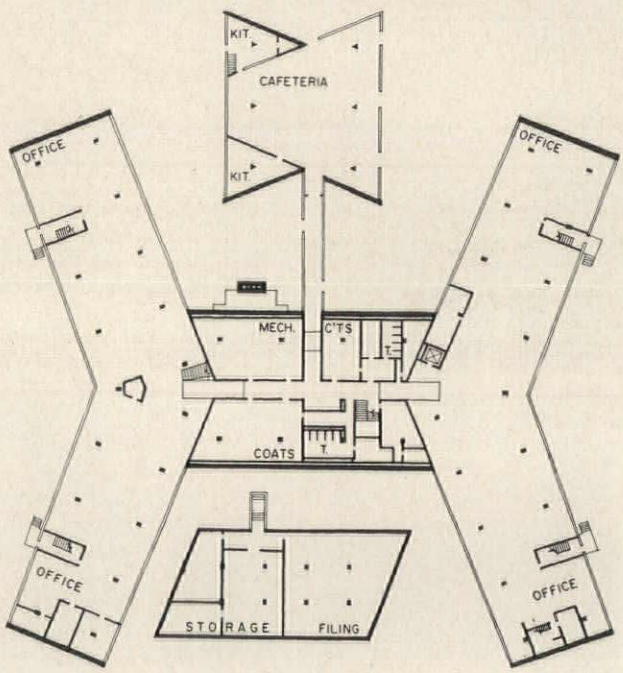
The plans show the manner in which the "pooled" office areas relate to the two-story central lobby, which features an open bridge connecting the upper level of the wings (see next page). The employe's canteen, shown in these photographs, is a separated, small building reached by an enclosed walkway; housed therein are a lending library, dining room, and kitchen. It is also used for social functions, movies, etc.

The wings are of conventional steel construction and slabs, but the central lobby and canteen building are of concrete with folded plate roofs, which the architect felt could be used in a more expressive fashion. The roof plates were poured in place; the supporting columns were precast

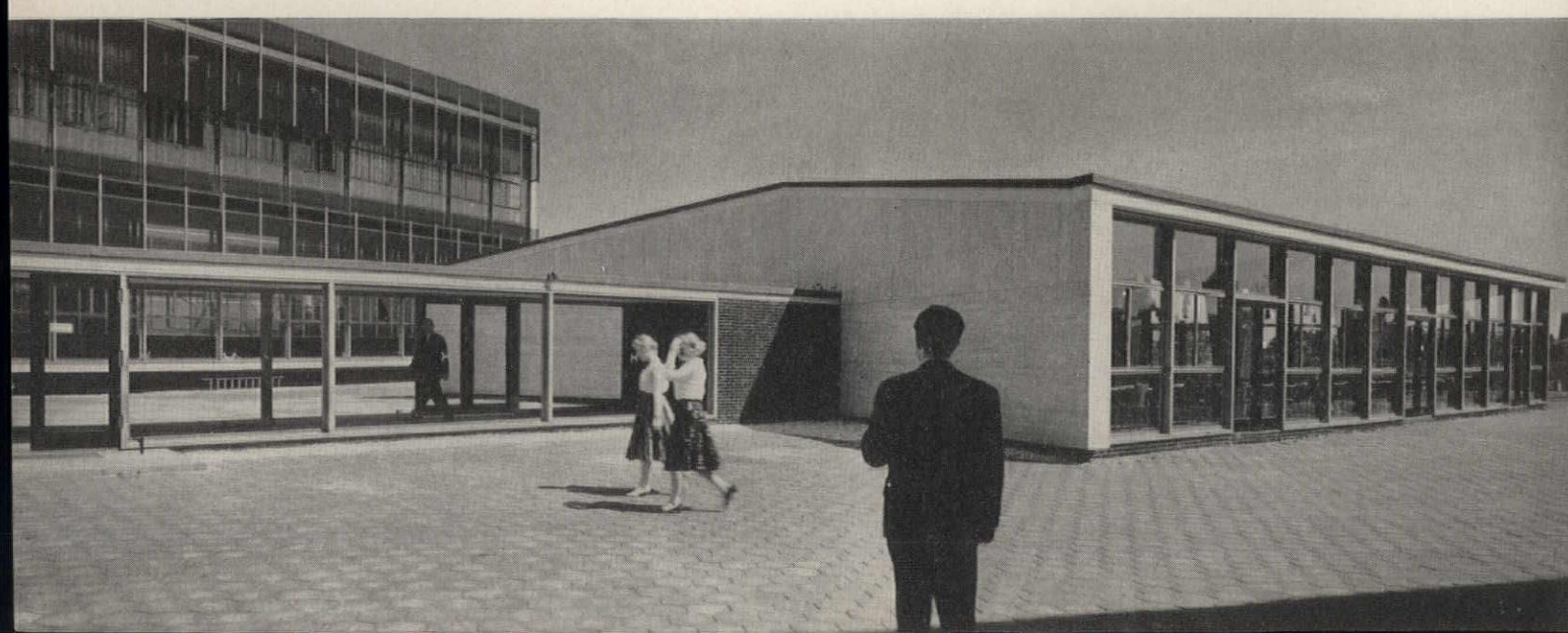
Van Leer Office Building

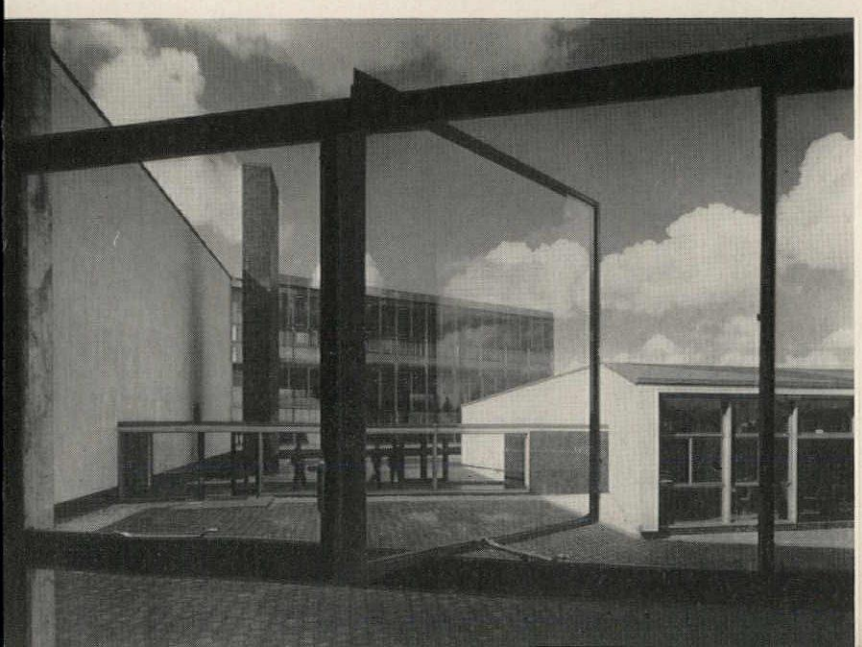


FIRST FLOOR



GROUND FLOOR

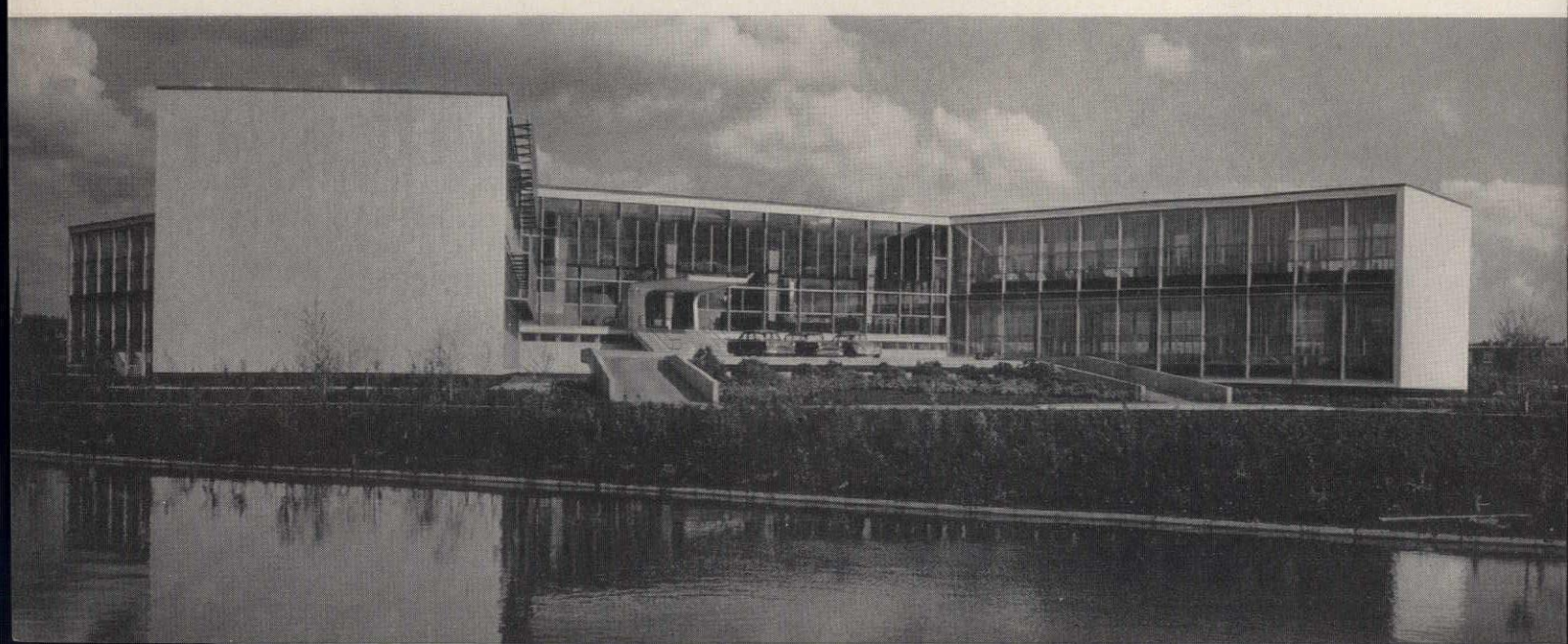




Van Leer
Office Building

Sun shields of a type similar to those designed by Breuer for the UNESCO Headquarters were provided where necessary here. They consist of ⅜-in. dark gray solar glass panels supported by a metal framework, and stand free of the building for heat radiation. For a complete technical description, refer to ARCHITECTURAL RECORD, March 1959, pages 226-9.

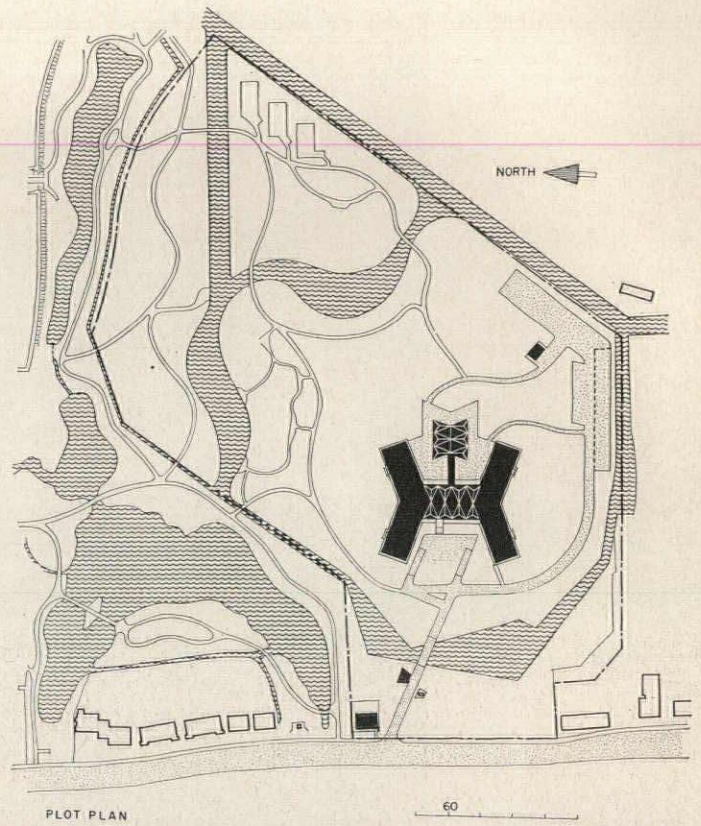
Typical of construction in Holland, the building rests on a concrete mat on piles, with the substructure designed to withstand hydrostatic pressure. Exterior stone is Roman travertine; exterior metal is hot-dip galvanized steel, which is left natural to weather a lead gray color; the entrance canopy is of concrete



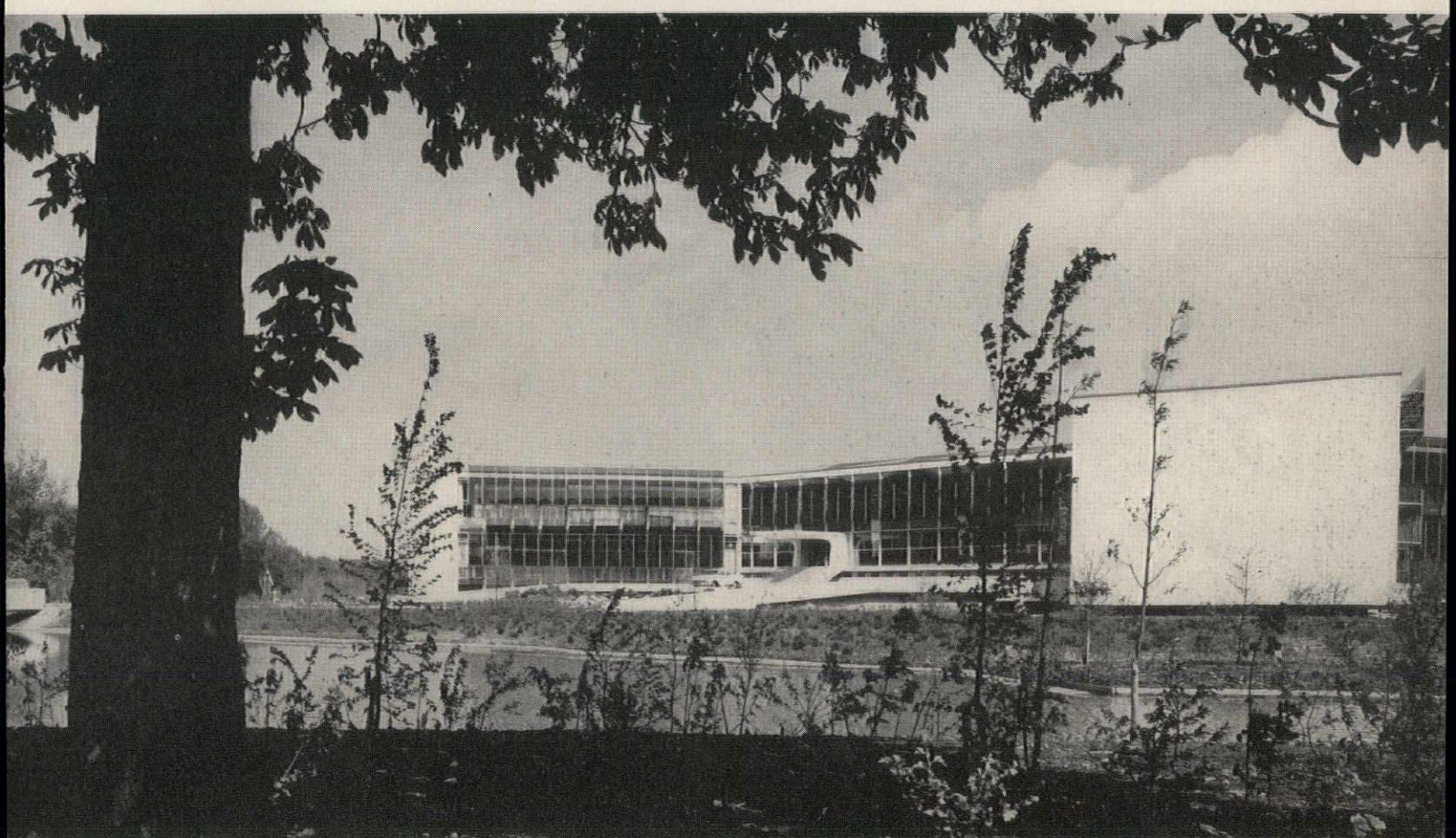
With completion of their new suburban administration center near Amsterdam, the Van Leer Company has brought to Holland several innovations in office arrangement and design. Employes who formerly occupied one of a series of cubicles—in accordance with long standing European custom—now sit in the high-ceilinged, well-lighted spaciousness of the new "pooled" office space within the four slim wings that look out in two directions over the pleasantly landscaped, park-like setting. When the architect first proposed such a scheme, the idea was greeted with skepticism, but its realization has been an unqualified success with both employes and management. The "pooled" spaces provide adequate privacy, excellent scale, better than usual natural light, a low level of office "hum" with 15-ft acoustic ceilings), and attractive outlook. Only the company directors have private offices.

The 65-year-old company—manufacturers of metal containers, pails, gas bottles, and machines for making and reconditioning metal drums—has 47 offices and factories around the world. They believe that pleasant surroundings and cordial employe relationships contribute to loyalty, morale, and increased productivity.

The site—formerly the property of the township —was acquired only upon condition that the unused portion would be landscaped and maintained as a public park. Thus, the natural character of the vegetation, which architect Breuer describes as "unusual, mossy, and heath-like," has been augmented.



PLOT PLAN



All photos by Jan Versnel

Van Leer Office Building
Amstelveen, Holland

Marcel Breuer
Architect

W. Van den Wijngaart
Supervision

C. P. Broerse
Landscape Architect

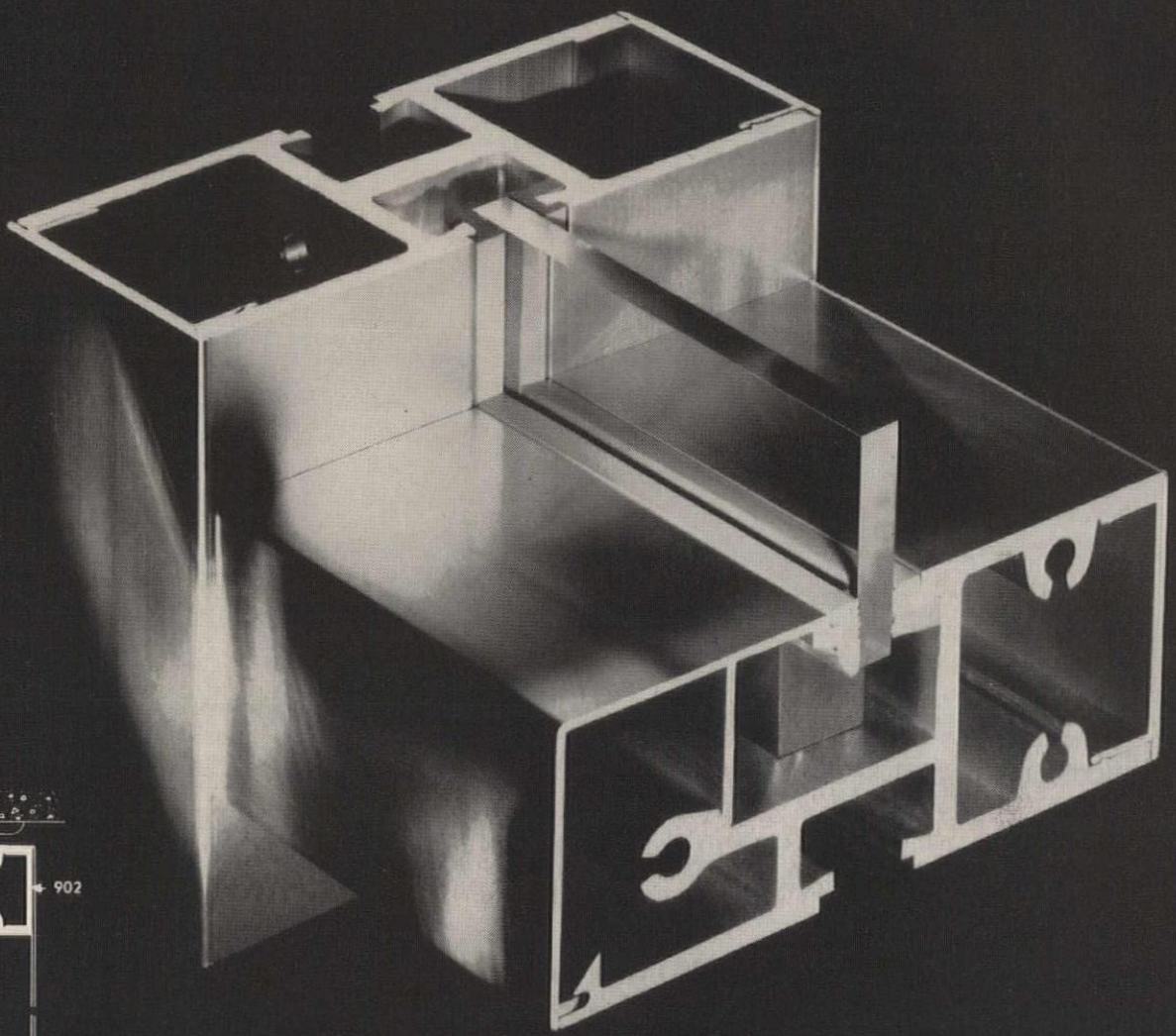
H. Salomonson
Office Interiors

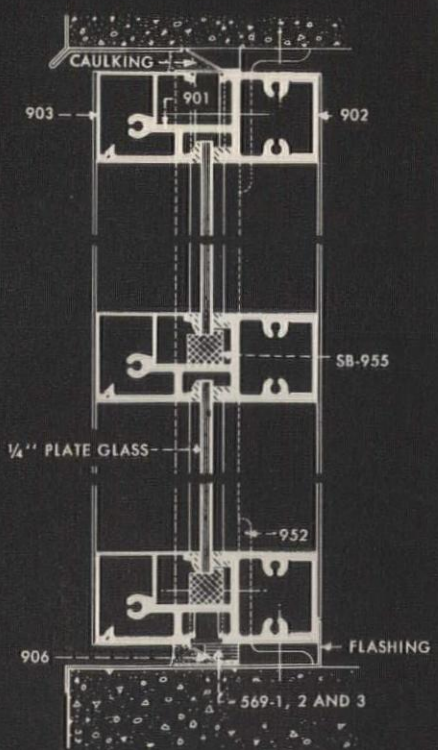
ARCHITECTURAL RECORD

AUGUST 1959

SUBURBAN OFFICE BUILDING NEAR AMSTERDAM BY BREUER

THE NEW PITTCO® "900" SERIES





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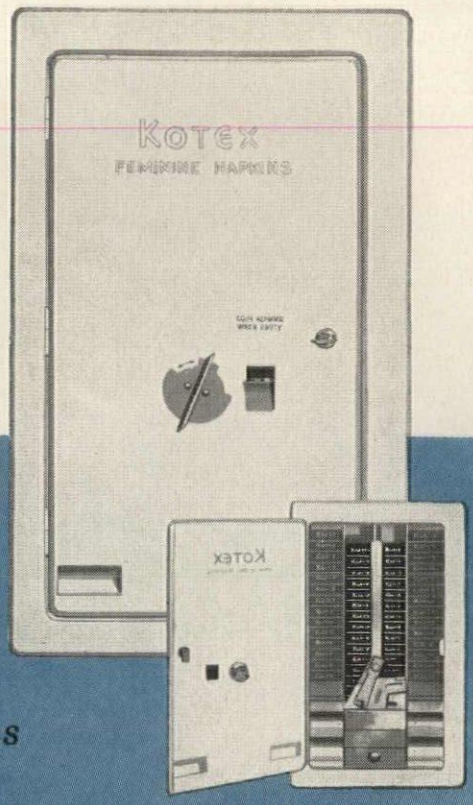

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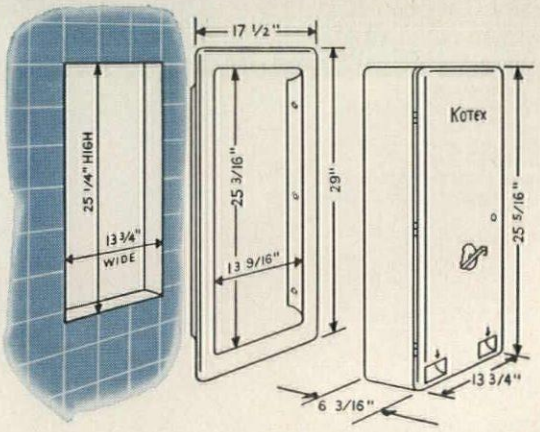
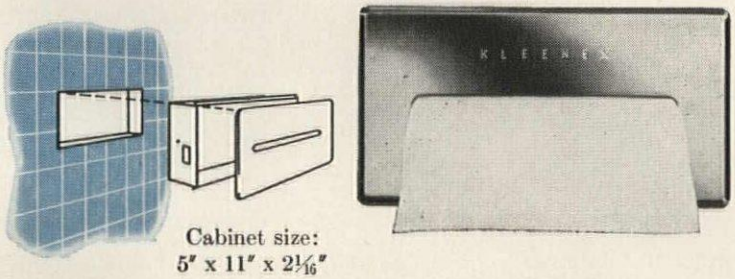
Available in durable white enamel, satin chrome, gleaming polished chrome and stainless steel. Matching frame for recessed installation. (Other vendors that can be surface mounted are also available.)





Cabinet size:
5" x 11" x 2 1/16"

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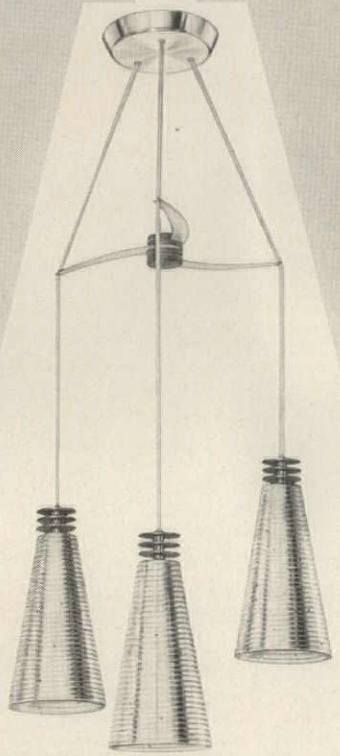
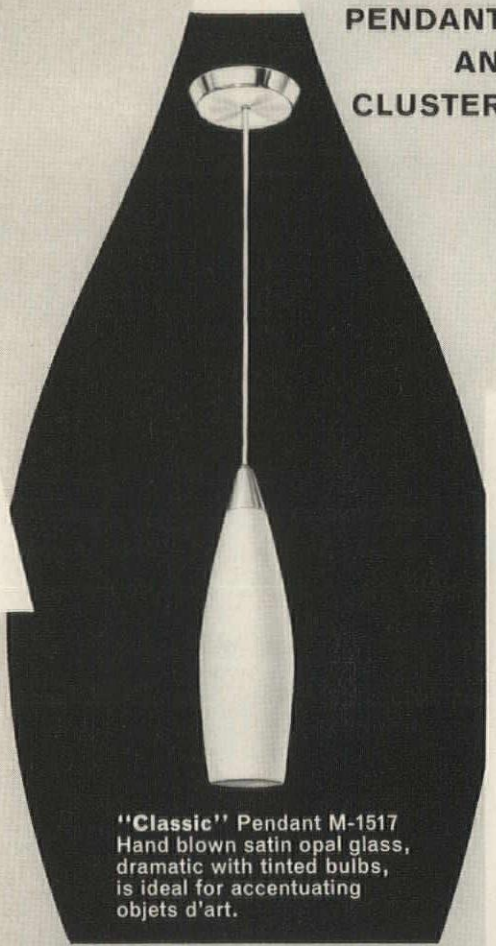


"Spiralite" Cluster M-1577 Gleaming sculptured brass, handsomely perforated, creates fascinating light patterns.



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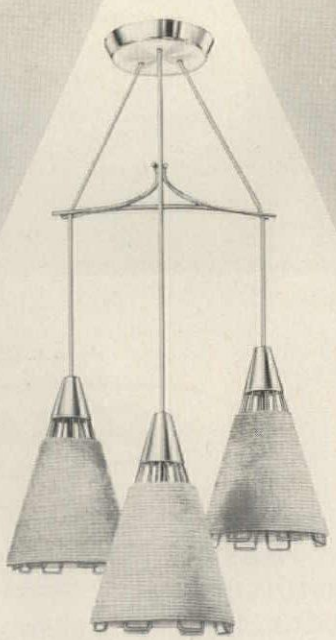

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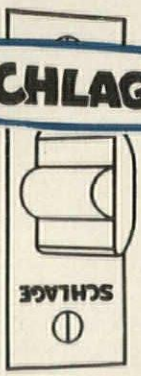

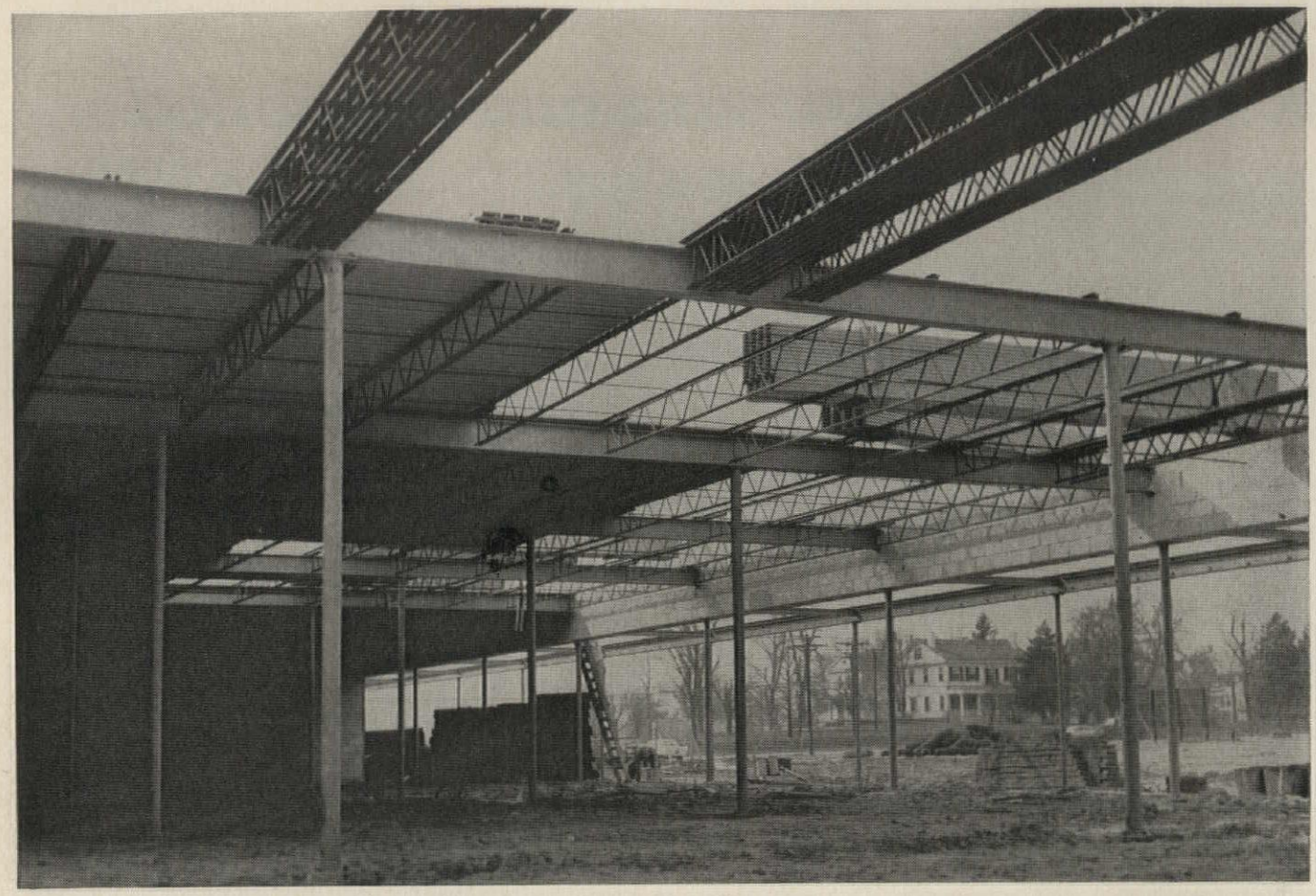

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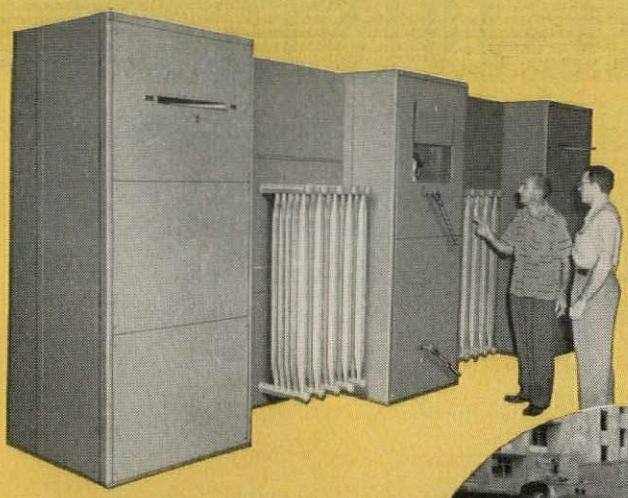

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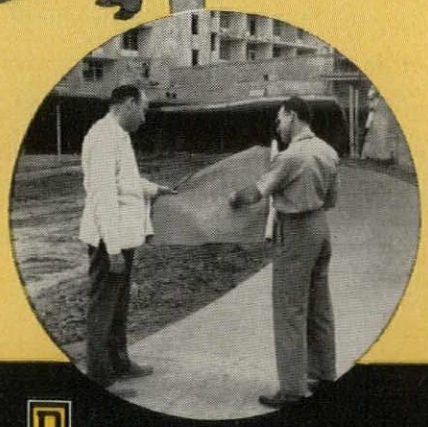

Sager Colman, Square D Export Manager, discussing electrical equipment installations with Harley Watson, General Manager of El San Juan Intercontinental Hotel, during early construction stage.

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MAGNETIC BRAKES
METER MOUNTINGS
MOTOR STARTERS
PRESS CONTROL
PRESSURE, FLOAT, & VACUUM SWITCHES
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RELAYS AND CONTACTORS
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STAGE DIMMERBOARDS
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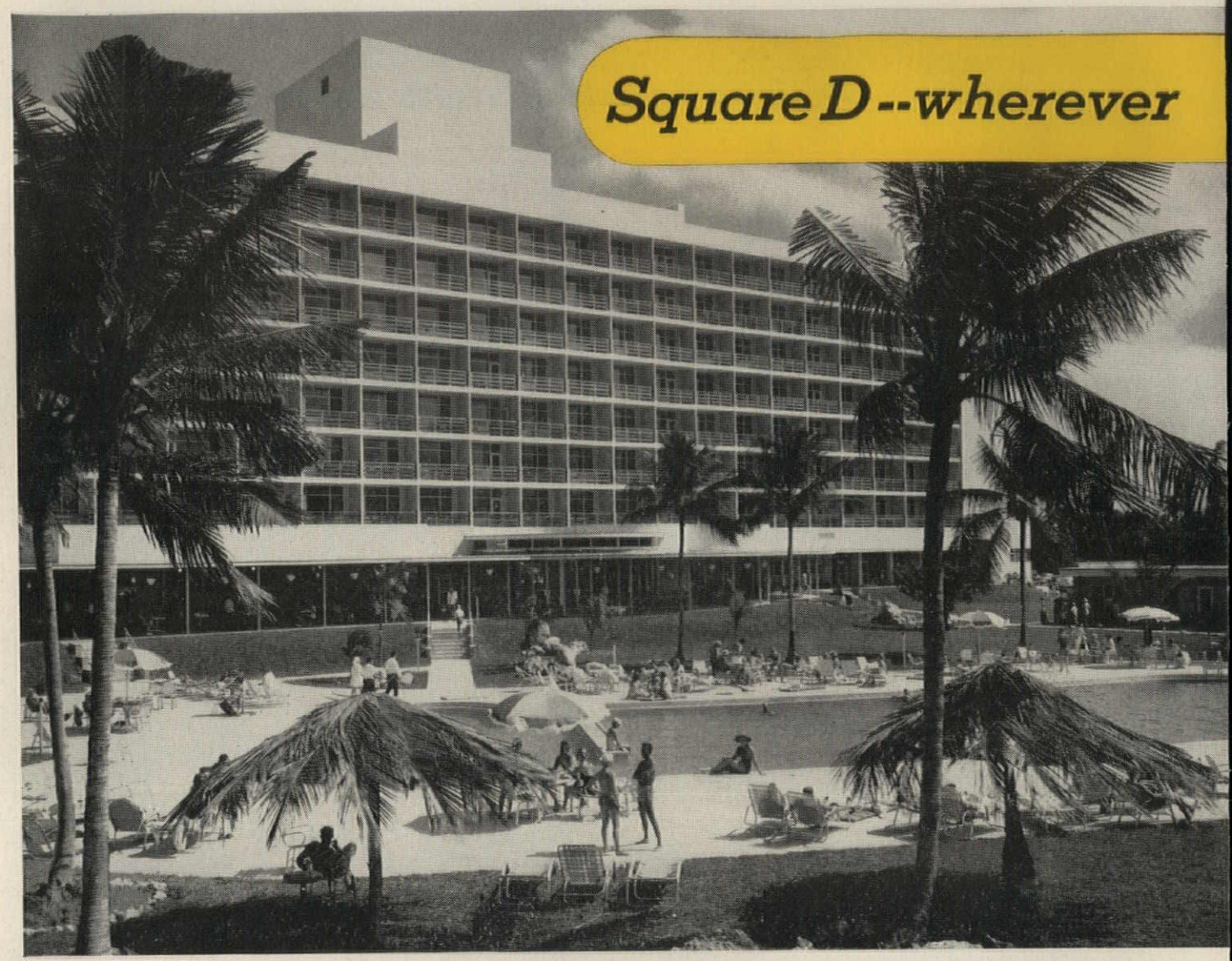

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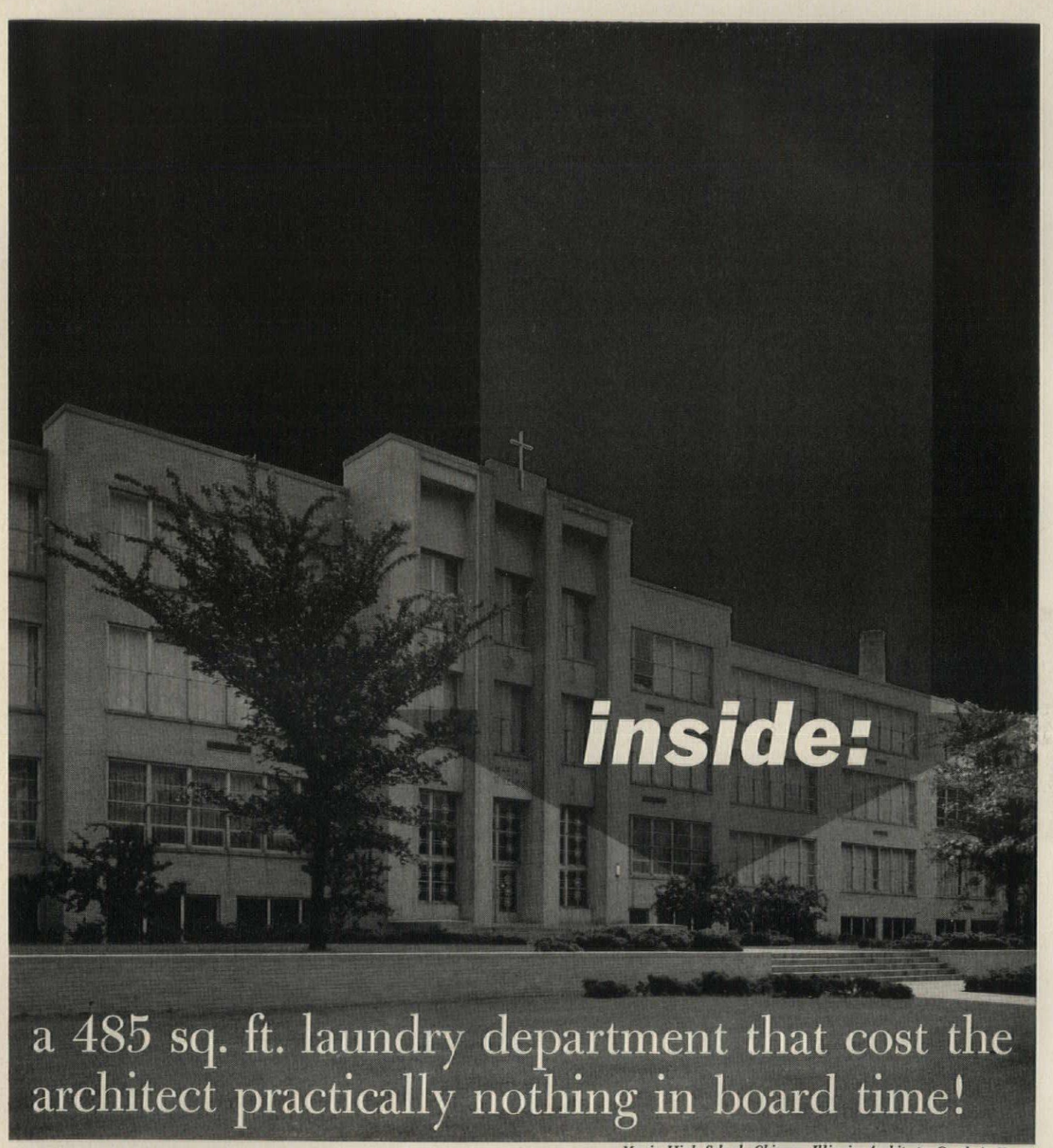

Maria High School, Chicago, Illinois. Architects: Gaul & Voosen

Under the direction of Gaul & Voosen, Architects, all the laundry facilities for the new Maria High School were planned, designed, arranged, specified, cost estimated and installed by engineers of The American Laundry Machinery Company. Detailed drawings, a comprehensive floor plan layout and complete specifications accompanied the proposal to assure Maria High School the very finest laundry equipment for its specific needs, with minimum investment, lowest operating cost and years of dependable service.

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New... Tectum Roof Deck Assembly

A dynamic new approach to roof deck design

Tectum box-type sub-purlin roof deck assembly applies 2-way continuous beam principle for increased rigidity, faster erection, excellent appearance and lower costs.

2-WAY CONTINUOUS BEAM STRENGTH is provided by both box purlins and structural Tectum plank. Tectum box purlins span at least 3 joist spaces while Tectum spans 3 sub-purlin spaces. Sub-purlins are welded to purlins with ¾" fillet welds providing lateral bracing.

The new box sections are supplied in either 16, 18 or 20 gauge galvanized steel, require little maintenance and have a light, silvery sheen. Strength characteristics of the box section are excellent. The new sub-purlins weigh about one-half as much as bulb tees and are available in lengths up to 34'. Mechanical fastening of sub-purlins to joists is optional.

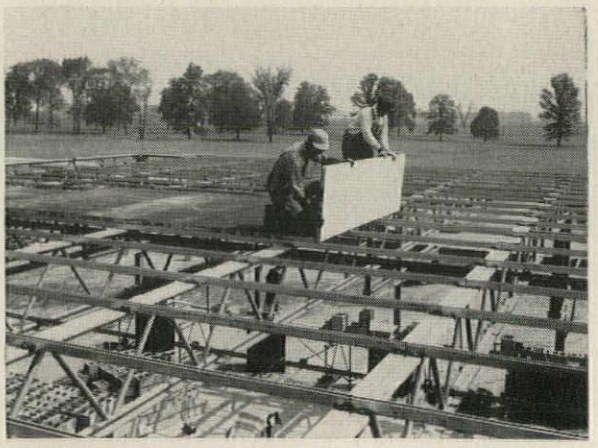
Interesting design possibilities are being tested with two standard 2⅜" x 1⅞" box purlins stacked and welded. Wide spans are possible with their superior resistance to deflection.

HIGH SPEED CLIPS GIVE SUPERIOR UPLIFT RESISTANCE. Fast erection is assured. Clips slide into slotted opening on the top of the box section and are quickly installed to fit the tongue of the Tectum plank. Tests prove a minimum 450# holding strength per clip — meeting hurricane uplift resistance requirements.

Improved thermal insulation is also evident as there are no thermal breaks in the roof deck. Clips are nested into the tongue and groove joint of the deck material. There is no thermal transfer through clips.

AN IMPROVED ROOF DECK SYSTEM AT LOWER COST. Box section sub-purlins have greater resistance to deflection, thus fewer purlins are necessary. Their cost is lower and as their weight is about half that of bulb tees, they are easier and faster to handle. The new sub-purlin also eliminates grouting — another saving. They are quickly installed and aligned for welding. In combination with Tectum's inherent advantages as a structural, insulating, acoustical roof deck material, the new system offers many economies for industrial, commercial and educational buildings.

THE TECTUM BOX SECTION SUB-PURLIN ROOF DECK SYSTEM OFFERS WIDE LATITUDE FOR DESIGNERS. By studying the main illustration at left, you will note the advantages of the new system for mounting utilities, air conditioning, heating and other necessities. In one job alone, $3000 was saved in the installation of a sprinkler system. The opening above the joists, between the sub-purlin and joist, suggests a number of ways to route ducts and utilities. Lighting units may be mounted to the box section — either directly or with hangers.

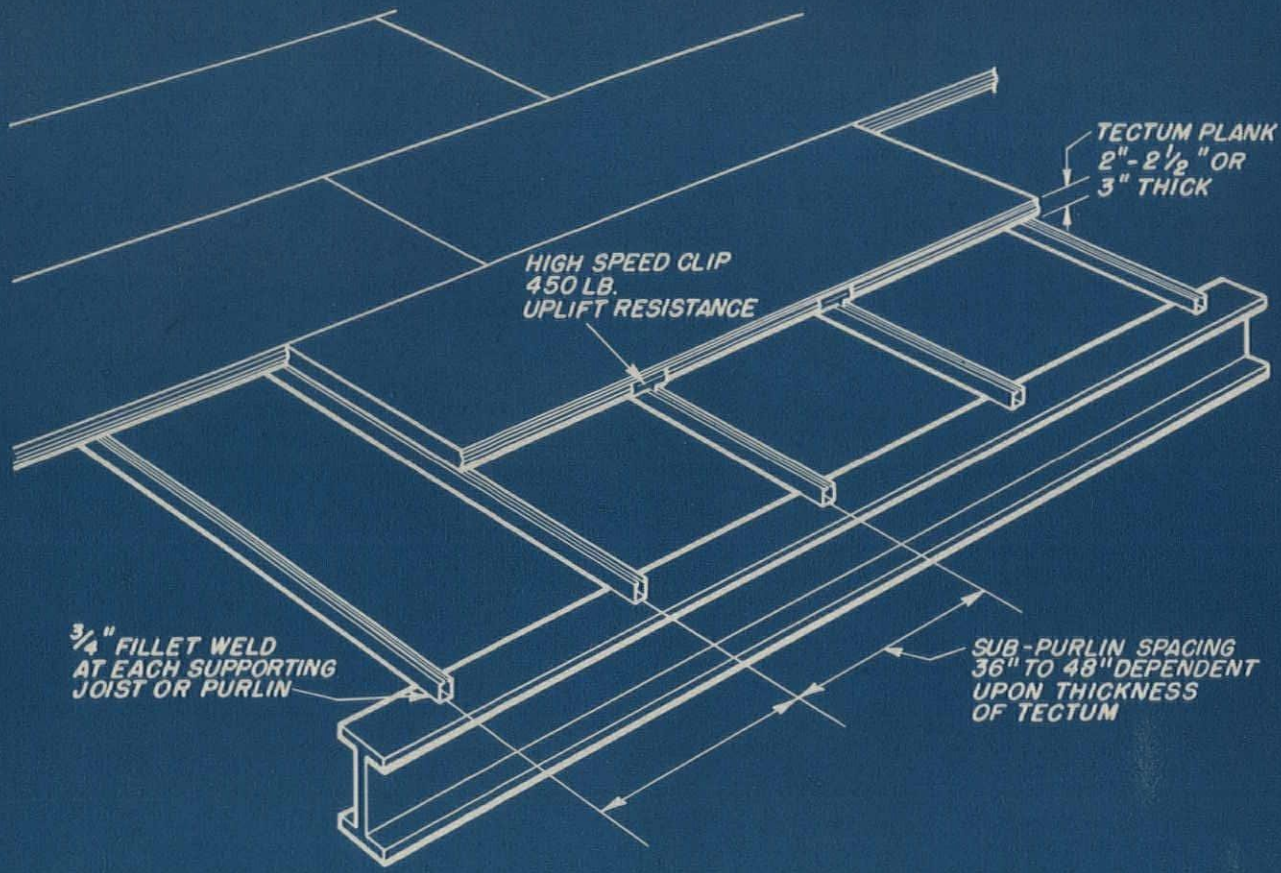


The new Tectum roof deck assembly offers many advantages for commercial, industrial and educational buildings.

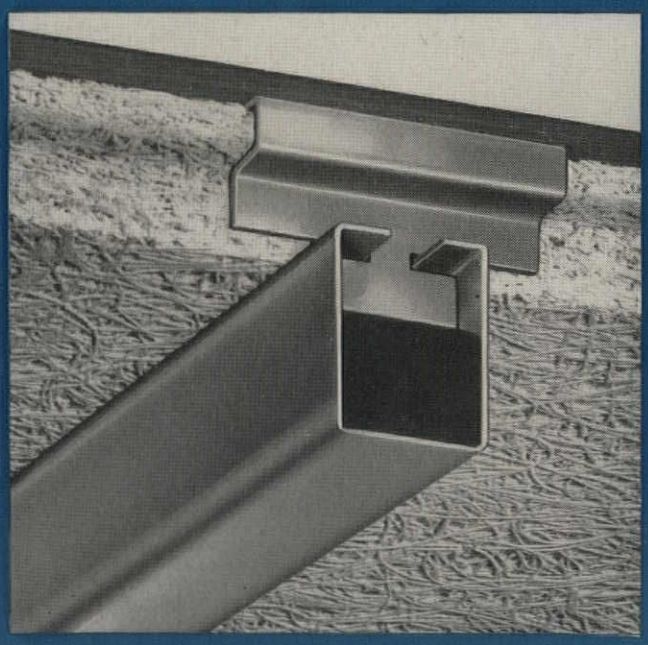
For complete catalog information write Tectum Corporation, Newark, Ohio or contact the regional office nearest you in Philadelphia, Atlanta, Columbus, Chicago, Dallas, Beverly Hills, Seattle and Toronto, Canada. There are competent distributors in all major localities.

Tectum®

QUALITY • INTEGRITY • SERVICE 9-28



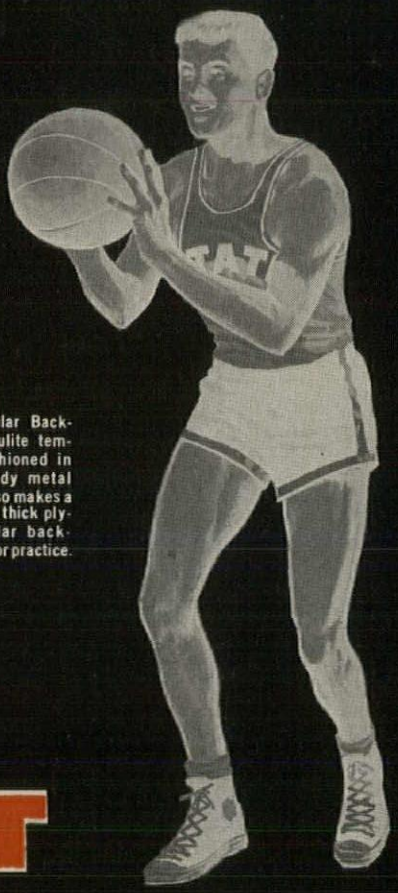
New Tectum box section sub-purlins, available in lengths up to 34', are made of galvanized steel. Tectum plank is anchored at right angles with special high speed clips. The continuous beam principle is evidenced in both roof deck material and sub-purlins; the deck assembly has exceptional rigidity in both directions. The new assembly has high resistance to uplift pressures.



Standard high speed T-clips lock quickly into slotted box sections. Resistance to uplift pressures have been tested in excess of 450#, meeting hurricane uplift resistance requirements. The clip is anchored firmly within the roof deck and has no contact with outside temperatures.

Every one is Tailored-To-The-Job!

Official Rectangular Backboard. ½" Herculite tempered glass cushioned in Neoprene. Sturdy metal frame. Medart also makes a ruggedly framed, thick plywood rectangular backboard, a favorite for practice.



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Backstops may look alike but it's the many extra years of trouble-free, maintenance-free service that proves every dollar invested in Medart Backstops is a dollar better spent.

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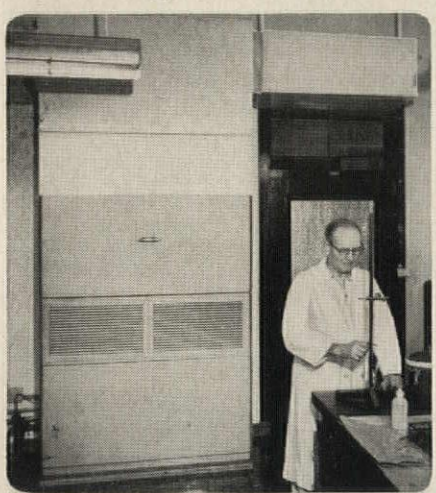

7½-Ton Frick unit air conditioner serving four research and lecture rooms.

Here 11 Frick unit air conditioners and 42 Frick compressors supply the necessary cooling services for operating rooms, private rooms, auditorium and chapel, class rooms, nurse-interns' dormitories, offices, libraries, laboratories, cafeterias, kitchens, special freezers, research departments, morgues, animal rooms, etc. Installation by L. V. Fleiter Co., Inc., Frick Distributors in St. Louis, Missouri.

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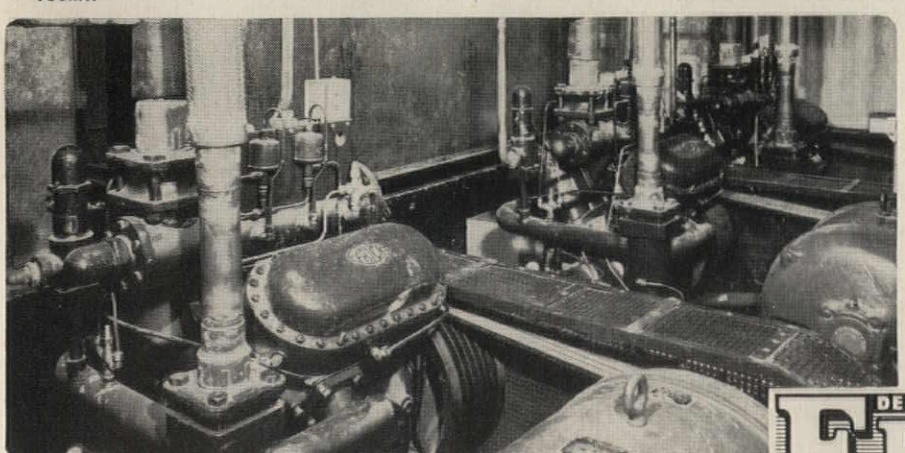

Three Frick "ECLIPSE" compressors which air condition several operating rooms at Barnes Hospital, St. Louis.

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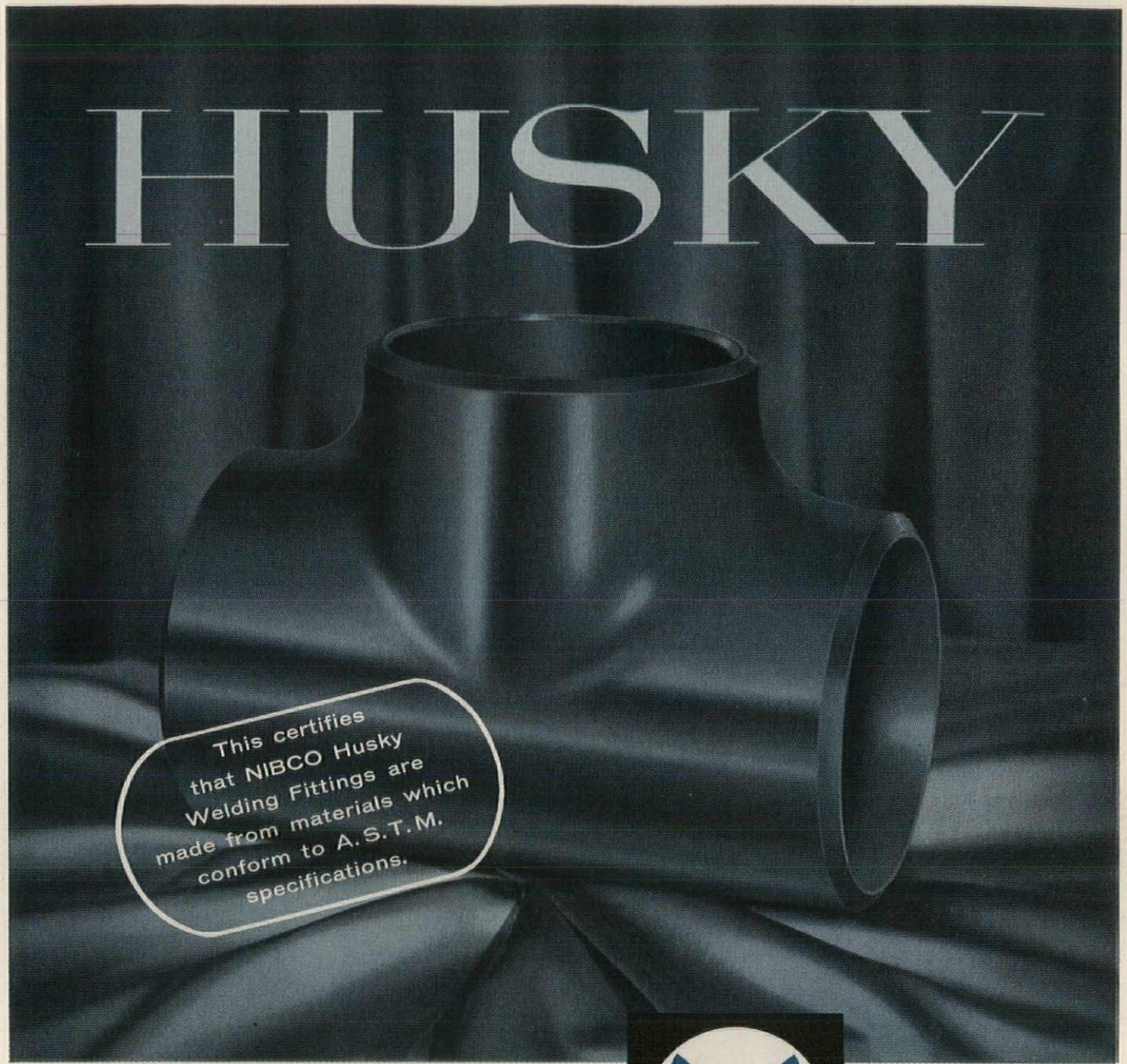

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"Modernfold" doors are made by New Castle Products, Inc., New Castle, Indiana. B.F.Goodrich Chemical Company supplies the Geon polyvinyl material.

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HELP ROOMS DO DOUBLE DUTY

Flexible folding doors are adding new perspectives in homes, halls, restaurants and offices. They solve space-use problems by serving as dividers or replacements for conventional doors.

These versatile and colorful doors, consisting of two separate sheets of fabric coated with a Geon polyvinyl material, are mounted back to back on a framework of steel hinges and rods. The color is part of the Geon coating. Geon also makes it possible for the fabrics to be washed with soap and water. They won't mildew, fade, crack or peel even after years of use.

In addition, each fabric has a Geon back-coating containing aluminum powder. This is for sealing the fibers, to prevent distortion or shrinkage caused by changes in humidity or temperature. The back-coating also makes the fabric opaque and improves the insulating qualities.

Geon polyvinyl materials are producing many useful properties in coatings for metal, paper, textiles and flooring products. A recent development uses a Geon material containing powdered lead to produce a coated fabric with superior sound and vibration deadening properties. If you have an idea for a new product development, write Dept. AW-3, B.F.Goodrich Chemical Company, 3135 Euclid Avenue, Cleveland 15, Ohio. Cable address: Goodchemco. In Canada: Kitchener, Ontario.

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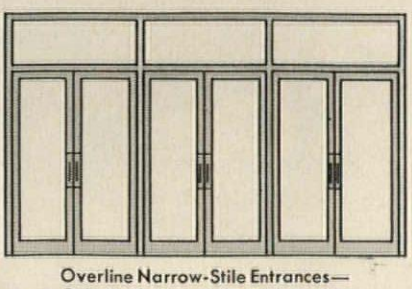

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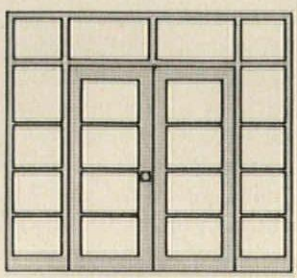

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Radiant Ceiling News

With Burgess-Manning Ceilings — Your Building Is Better — Your Building Budget No Bigger

Radiant Acoustical Ceilings in New Porter Building Provide Uniform Year-Round Temperature

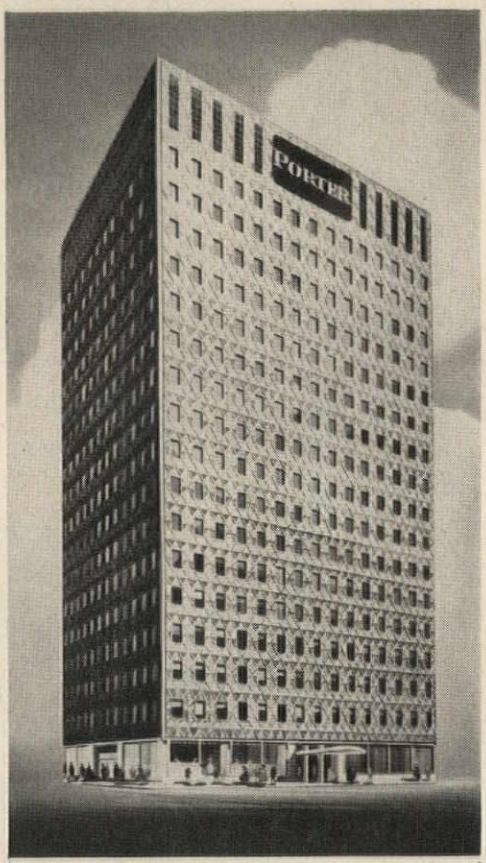
One of the most attractive of the many outstanding features of the new Porter Building, located in the heart of Pittsburgh's "Golden Triangle," is the uniform, year-round temperatures maintained throughout the building by the Burgess-Manning Radiant Heating, Cooling and Acoustical Ceilings. Each office has its own thermostatic control and the ceiling automatically warms or cools the room, depending on the season, to maintain the desired temperature.

The radiant energy from the ceiling heats only the occupants, floor and objects in the room. It does not raise the air temperature except as the air is warmed by the floor or the objects in the room, so there are no air currents or drafts; the room temperatures are uniform from floor to ceiling and throughout the room. The down-drafts in front of a window, or the up-drafts above a radiator, common in convection heated rooms, are not found in radiant heated rooms.

In the warm weather, chilled water is circulated through the coils of the ceiling, and the panels will absorb excessive heat from occupants and furniture in the room. Again there are no drafts such as the chilled air currents emitted from conventional air conditioners.

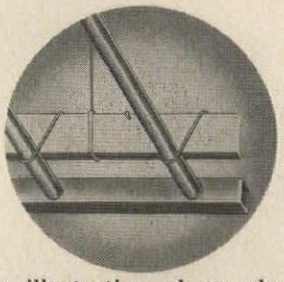
The architects, Harrison and Abramovitz, and engineers, Jaros, Baum and Bolles, made the most of the possibilities offered by the Burgess-Manning Radiant Acoustical Ceiling. The floor area of the Porter Building is uncluttered by radiators—the walls contain a minimum of ducts required with the more conventional comfort conditioning devices. Less ceiling thickness, because only ventilating ducts are required—mean lower building height and lower cost for the same number of stories.

The modern Porter Building, in addition to radiant heating and cooling, has an electronic precipitator that will remove dust, pollen and smoke from the ventilating air. Half inch solar glass windows absorb solar heat and reduce outside noise. The Burgess-Manning Radiant Acoustical Ceiling absorbs interior noises.

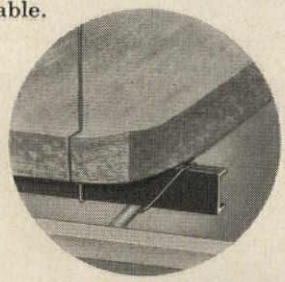


Radiant Acoustical Ceiling Cuts Down Building Weight

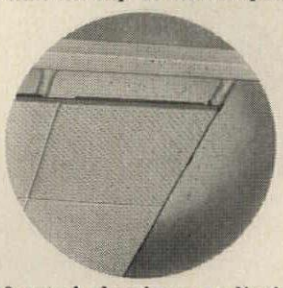
In addition to other economies in first cost, the Burgess-Manning Radiant Acoustical Ceiling, because of its reduction in weight over a plaster ceiling, permits the use of lighter structures. The weight of the aluminum panels of the radiant heating and acoustical ceiling, plus the water filled grid, is only 25% of the weight of a plaster ceiling.



The illustration above shows the construction of the Burgess-Manning Radiant Acoustical Ceiling. A conventional 1½" channel suspension grid supports a water circulating coil which consists of ½" laterals welded into square headers. A sinuous type coil can be used where conditions make it desirable.



The sound absorbing insulating blanket is laid on top of the suspension.



Perforated aluminum radiating panels are attached directly to the water circulating coil.

The distance from the face of the aluminum panel to the top of the suspension member is ⅜", a substantial saving in space over the ventilating ducts, etc., required for some other systems.

Write for descriptive Burgess-Manning Catalog No. 138-2L

3 Heating Cooling Acoustical

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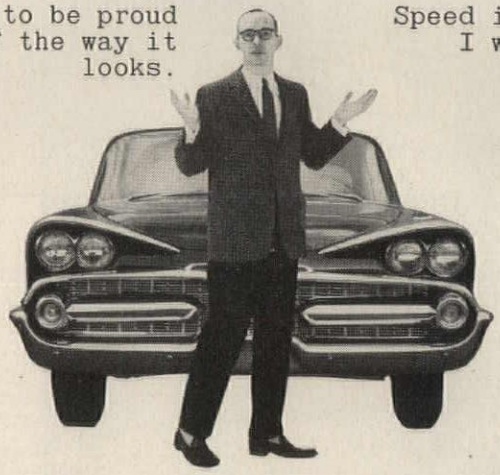

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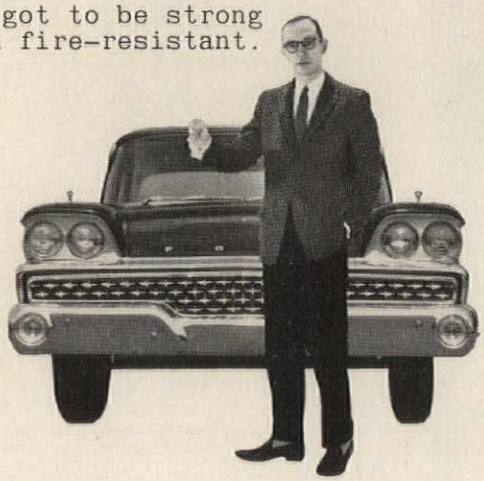

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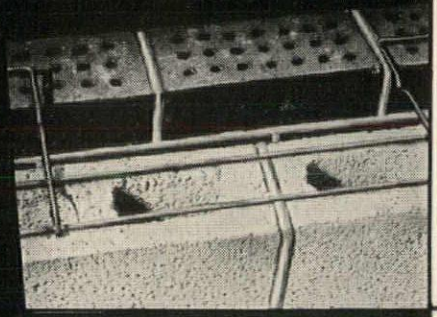
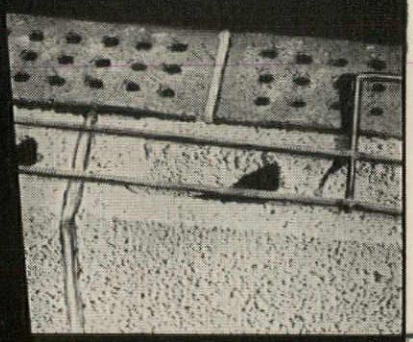


ECONO CAVITY-LOK* ®

(For cavity walls of block and brick)

Two parallel reinforcing wires of 3/16" high tensile steel wire control shrinkage cracking in the concrete block backup. Flush-welded rectangular ties, spaced 16" O. C., of 3/16" high tensile steel wire (to comply with building code requirements), tie facing to backup; permitting some movement between wythes. Made in 12' lengths and packaged 15 pieces to a bundle.



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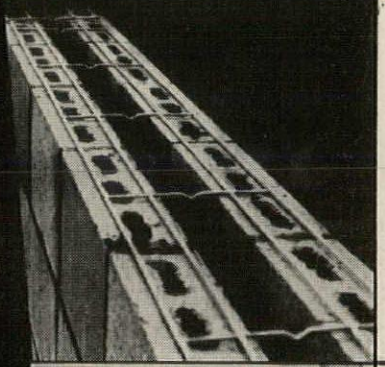
Independent Research Foundation Report shows ECONO-LOK tied walls are stronger than two wythe walls using masonry headers. (Write for your copy of the full report). Available in No. 9 high tensile steel wire, for curtain walls, and all 3/16" high tensile steel wire, for bearing walls, per A. S. A. Code requirements for metal bonders. Made in 12' lengths (9 rectangular ties each) and packaged 15 pieces to a bundle.



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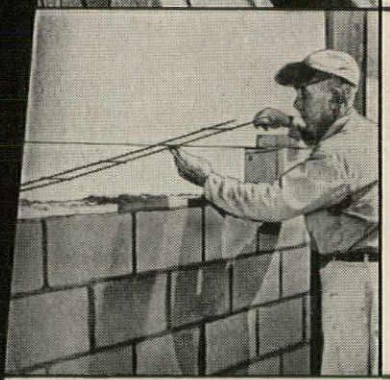
Four parallel reinforcing wires control shrinkage and settlement cracking and add lateral and tensile strength to both inner and outer wythes of a cavity wall. (Flush welded cross ties spaced 16" O.C. tie inner wythe to outer wythe). Made of all 3/16" high tensile steel wire to comply with building code requirements. Made in 10' lengths and packaged 10 pieces to a bundle.



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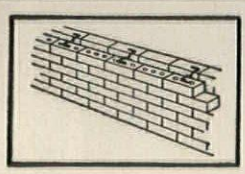

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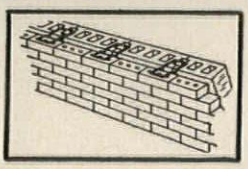

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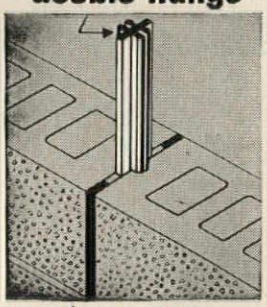

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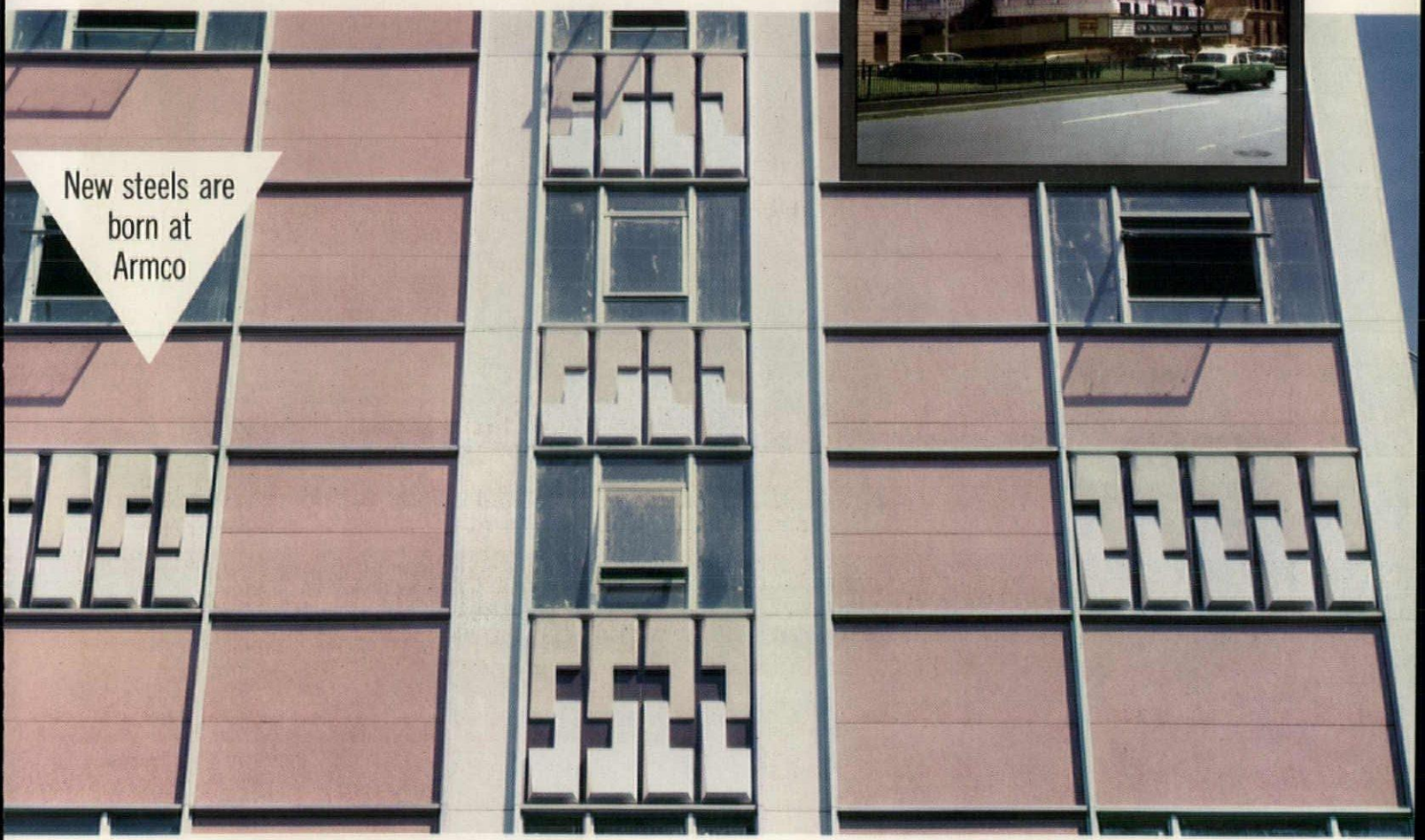


Lenox Hill Hospital, New York
Architects: **Rogers & Butler, New York**
General Contractor: **Psaty & Fuhrman, Inc., New York**
Porcelain Enamel Panels: **Seaporcel Metals, Inc.**

For the first step in a multi-stage development of the Lenox Hill Hospital in New York, Rogers & Butler have created a distinctive, colorful new hospital building.

Taking full advantage of the unlimited colors of porcelain enamel, they combined ivory in formed panels and two-toned dusty pink in large flat panels. This gives the facade a fresh look indicative of the modernization. Yet its color harmonizes with surrounding brick structures.

Extra richness was added to the building's exterior by utilizing third-dimension variation. The prismatically formed panels and the 7′ by 10′ flat pink panels, both made of Armco Enameling Iron, not only contrast effectively but create a concept of form and depth that make the building highly distinctive.

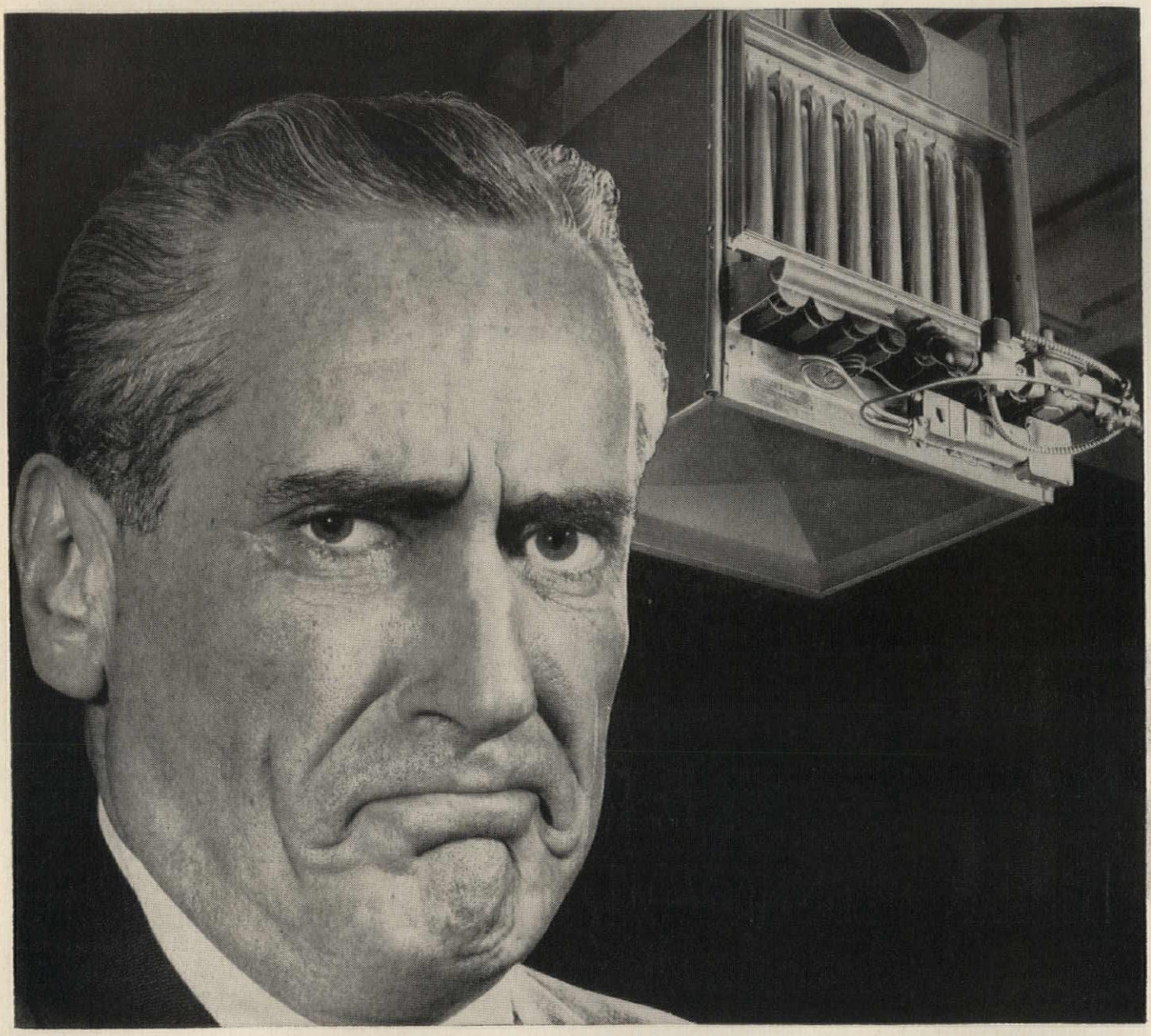
In addition to aesthetic considerations, porcelain enamel curtain walls were specified because of their practical advantages. Better and more precise control of dimensions, economical construction, low maintenance and durability were key factors affecting the decision.

Take advantage of the design freedom and economies offered by curtain walls of porcelain enamel on Armco Enameling Iron. Write for data sheets and a copy of "Architectural Design with Porcelain Enamel." Armco Steel Corporation, 2809 Curtis Street, Middletown, Ohio.

ARMCO STEEL

ARMCO®

Armco Division • Sheffield Division • The National Supply Company • Armco Drainage & Metal Products, Inc. • The Armco International Corporation • Union Wire Rope Corporation • Southwest Steel Products



TOUGH BUYERS

DEMAND REZNOR STAINLESS STEEL DUCT FURNACES

BECAUSE THE HEAT EXCHANGER AND BURNERS CANNOT CORRODE!

The engineer or architect has to be a tough buyer. When he specifies a furnace, he has to protect his customer against possible trouble makers like corrosion in air conditioning, make-up or ventilation air systems. That's why so many engineers and architects demand Reznor *stainless steel* duct furnaces: they *can't* corrode!

LOWER FUEL COSTS, TOO—The tough buyer wants to make sure his customers get even heat and lower fuel costs. That's why he appreciates Reznor "extras," like the gas modulating valve. As discharge temperatures rise, the valve cuts gas input to 20% of rated capacity, then shuts off the supply completely.

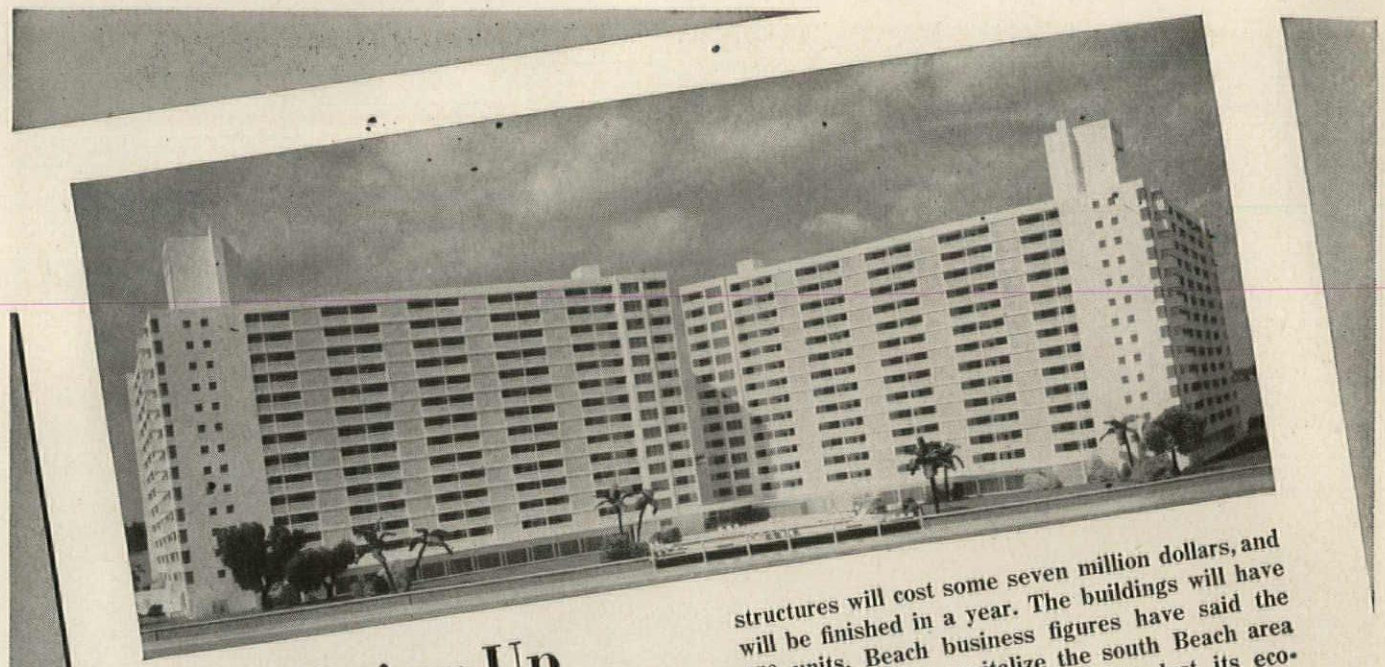
CHECK THE "TOUGH BUYERS' LINE" You can specify Reznor duct furnaces in capacities up to 300,000 Btu. Use them in multiples if heat requirements are greater. Select matching Reznor blowers.

For catalog and information, phone your nearby Reznor distributor, or write Reznor Manufacturing Company, Dept. 62B, Mercer, Pa.

THE HEATING WORLD IS FULL OF TOUGH BUYERS; THAT'S WHY REZNOR IS THE WORLD'S LARGEST SELLING DIRECT-FIRED HEATER!

REZNOR HEATERS

"THE TOUGH BUYERS' LINE"



Going-Up

These two large apartment buildings, as depicted in an artist's conception, will soon be under construction on Miami Beach at 10th St. and Biscayne Bay. The builder, Nathan S. Gumenick, said the structures will cost some seven million dollars, and will be finished in a year. The buildings will have 550 units. Beach business figures have said the project could help revitalize the south Beach area which in recent years has steadily lost its economic importance.

Reprinted from
Miami Herald
November 6, 1958

Yes! Going up with... FRANK ADAM ELECTRICAL EQUIPMENT

New Southgate Apartments—

550 units of 1600 rooms—7-million dollars—a year to build! Frank Adam's experience with installations of this magnitude—where quality and performance is a "must"—is just one of many reasons why more and more better-built structures are "going up" with Frank Adam electrical equipment.

Electrical and Mechanical Engineering:
Sasnett Engineering, Miami, Fla. Mr. John K. Sasnett is shown at right; Mr. Leonard Glazer at left, is in charge of Electrical Dept. of the firm.

Architect:
Melvin Grossman, Miami Beach

Gen'l. Contractor:
Robt. S. Turchin, Miami Beach

Electrical Contractor:
B & W Electric, Miami

FRANK ADAM ELECTRIC COMPANY
P. O. BOX 357, MAIN P. O. • ST. LOUIS 66, MO.

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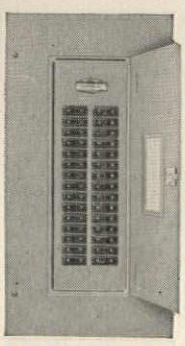
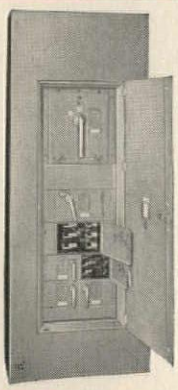
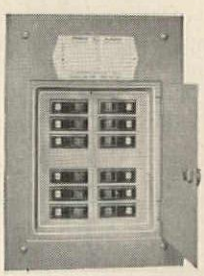


QP PANELBOARDS

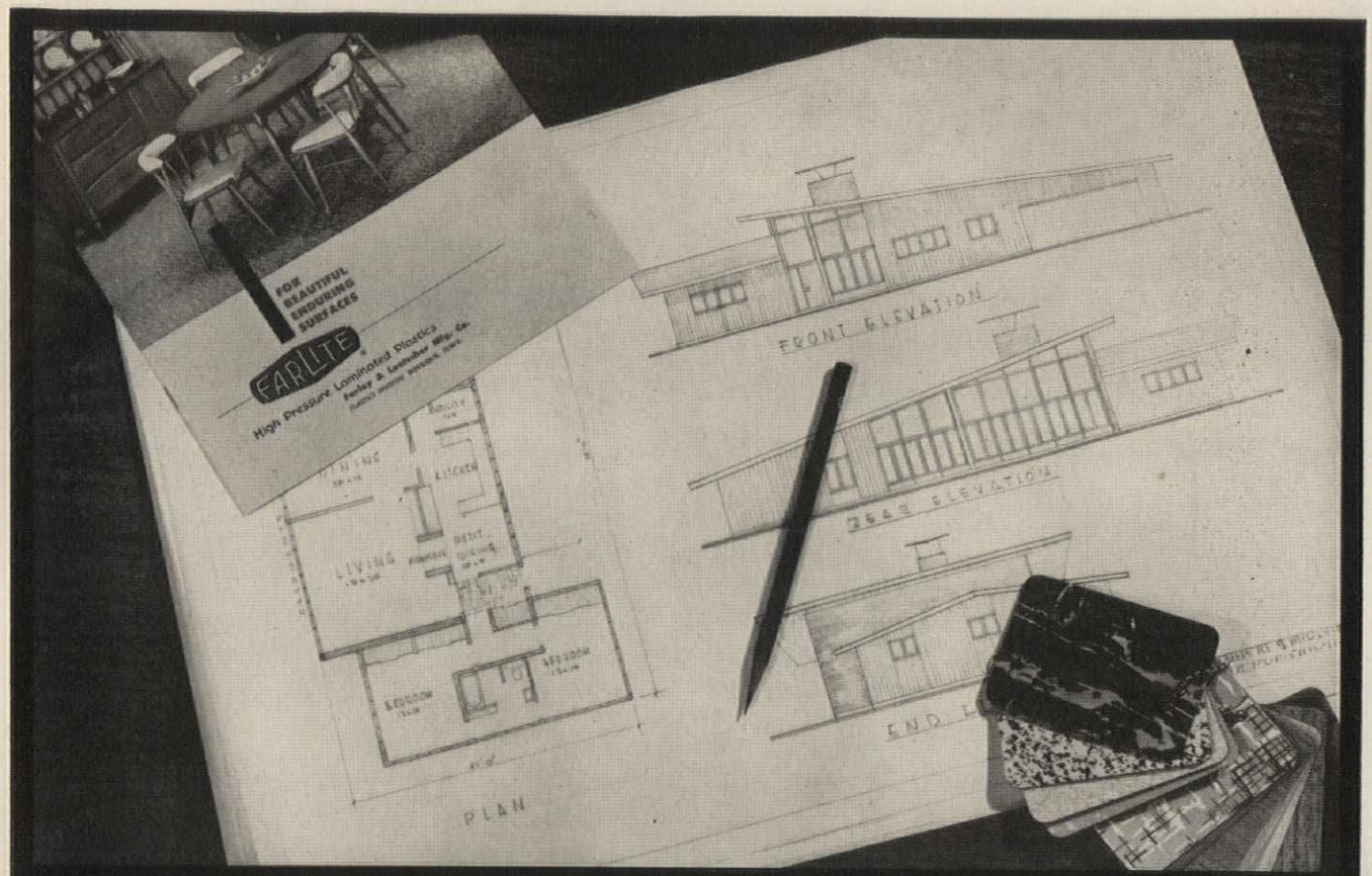


S-A-W PANELBOARDS



LOAD CENTERS

(FA) High Efficiency Busduct and Meter Socket Panelboards are also being installed in the Southgate Apartments project



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Here's the surest way to include a lifetime of comfort and convenience in every home . . . use lots of FARLITE high pressure plastic laminates. Versatile, practical Farlite stays colorful and carefree a lifetime . . . never needs refinishing. It's the perfect surface for busy places, like kitchen countertops, snack bars, nursery walls, bathrooms, etc. A wide selection of over 120 gay, refreshing patterns and woodgrains fulfills practically any design application. Write for samples and literature!

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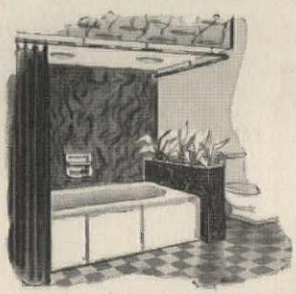
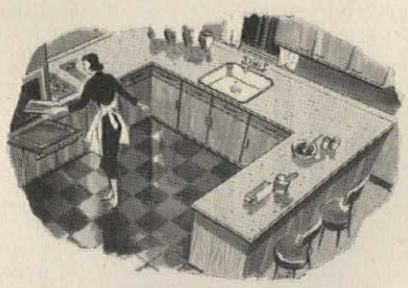
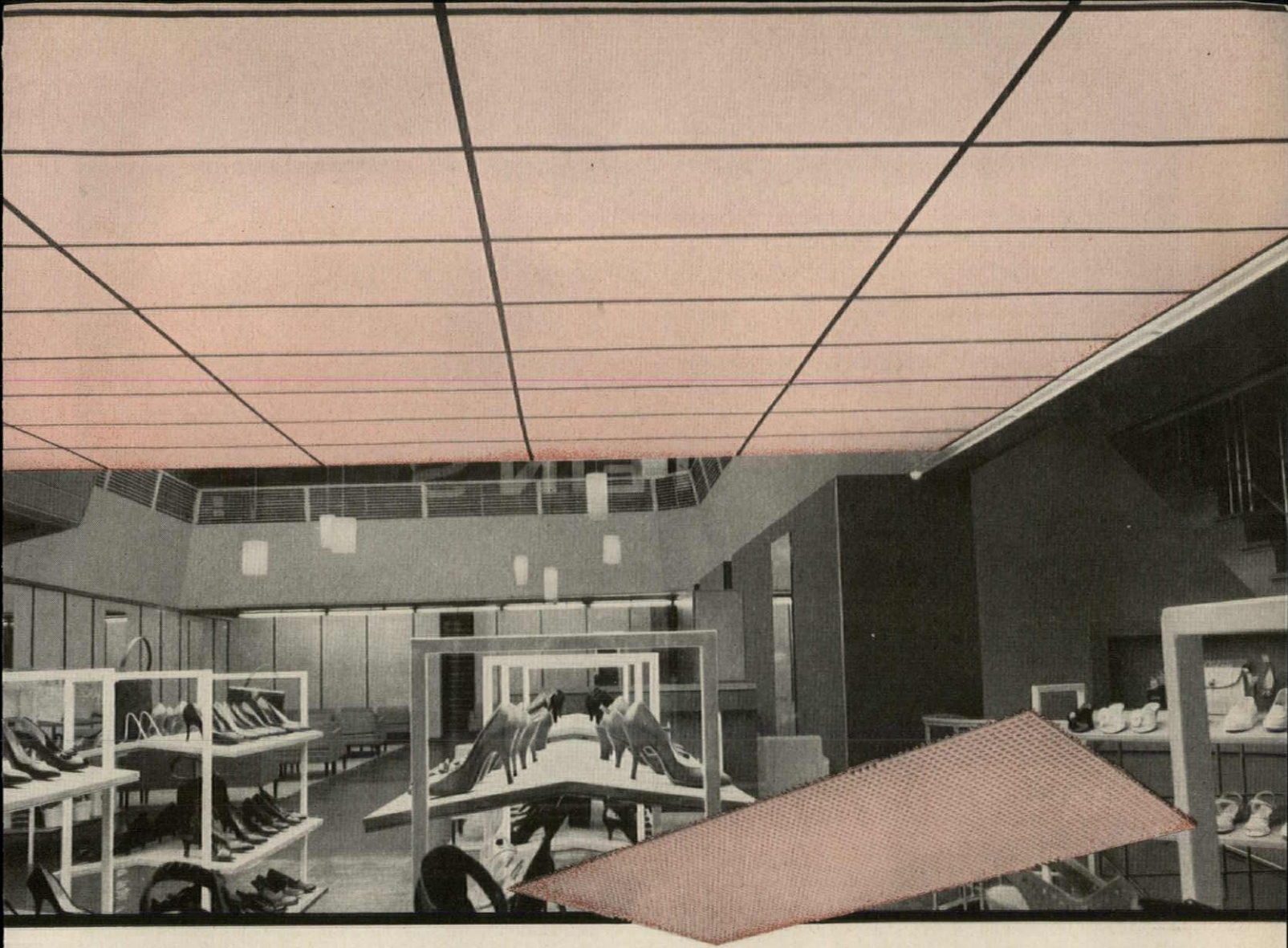


SHOWER STALLS
Adds "tile-like" beauty that cleans in a whisk, yet won't chip or craze under normal treatment.



KITCHEN COUNTERTOPS
Glass-smooth Farlite resists stains, heat, fading . . . stays beautiful without attention for years.



Sinko low brightness louvers

in practical pastel Colors

Sinko THIN-CELL Louvers' enchanting pastel colors complement any interior. Sinko Louvers not only reduce surface brightness and increase working level efficiency, they also add a warmth and charm to any room through their soft pastel colors.

Quality control, greater flexibility, immediate delivery are yours when you specify Sinko THIN-CELL Louvers, because Sinko is the only manufacturer who produces and sells their own Louvers —no other louver can offer you these advantages.

The design and construction of Sinko Louvers has met the requirements of architects, interior decorators and builders in many prominent installations.

Sinko THIN-CELL construction has many advantages: Molded plastic that has permanent color-fast beauty, with high impact strength and rigidity, making Sinko Louvers easy to handle and durable, regardless of size; apertures of ½″ x ½″ x ½″ with a true 45° x 45° cutoff for greater light transmission with no sacrifice of mechanical strength.

THIN-CELL Louvers are available in white and five beautiful pastel colors—blue, pink, aqua, yellow and gray.

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OR WRITE FOR COPY

SINKO "THIN-CELL" louvers

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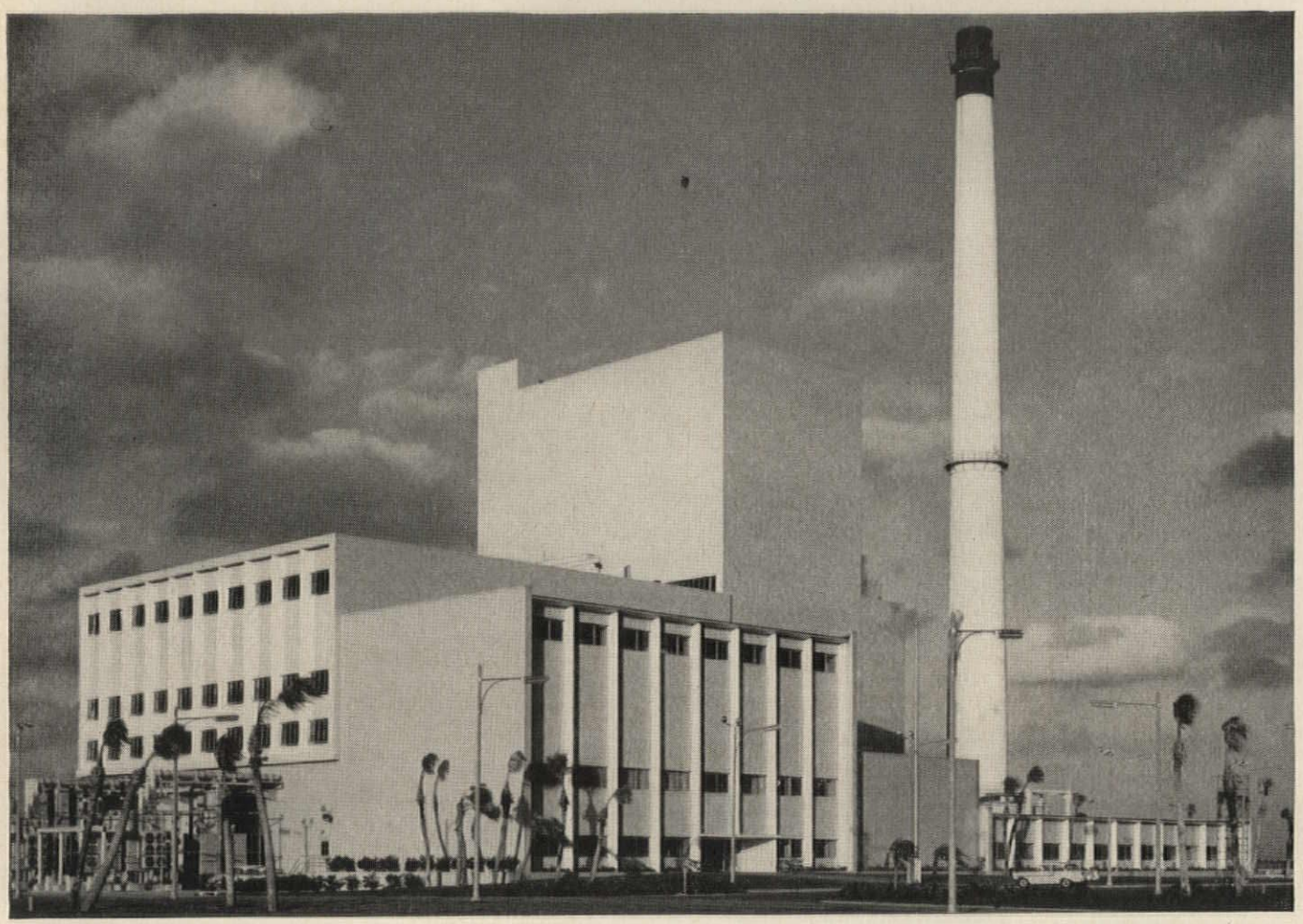
SINKO MANUFACTURING AND TOOL CO.
7310 W. WILSON AVE., CHICAGO 31, ILL.



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FLORIDA POWER CORPORATION
WEEDON'S ISLAND
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Black & Veatch — *Engineers*
Ceramic Veneer, in white for piers and jambs and in buff for sills and coping, was specified for this new power plant. Unit sizes are 20" x 24" x 1¼", and also special shapes.

FEDERAL SEABOARD TERRA COTTA CORPORATION

F S T C

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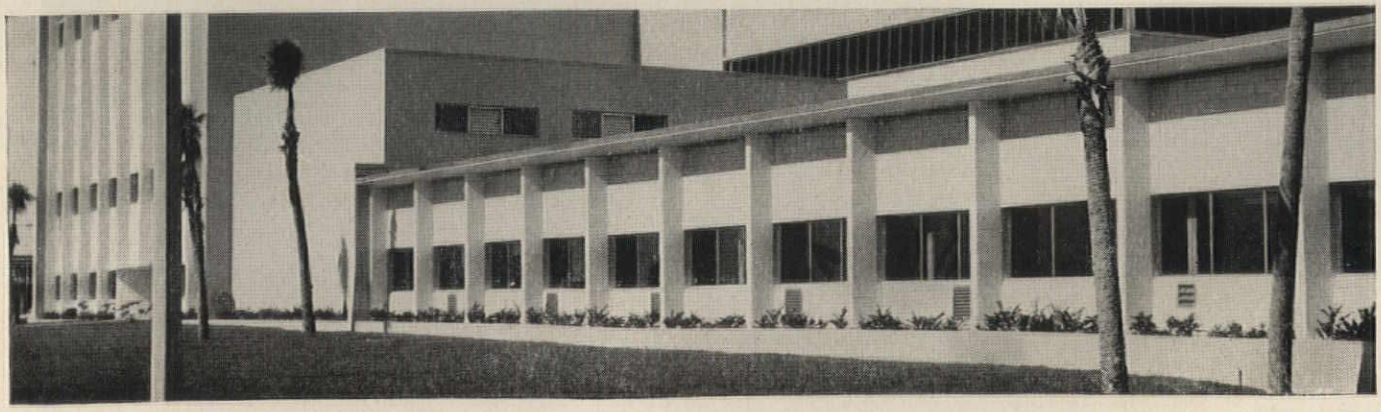
Plant at Perth Amboy, N. J.

Ceramic Veneer assures lasting color and beauty—it's self-cleaning

Dirt, grit and grime have little effect on the fire-glazed finish of Ceramic Veneer. Exterior treatments — plain surfaces, polychrome panels or sculpture—need only normal rainfall to keep clean and colorful. Interiors of this modern architectural terra cotta need only soap-and-water washings to retain their original richness and beauty indefinitely. Besides minimum maintenance, Ceramic Veneer offers other important advantages—moderate initial cost, ease of installation, and proved permanence. Consider, too, that Ceramic Veneer, in units large or small, is custom-made precisely to your specifications and you can choose from a spectrum-rivaling range of colors. For complete data on how well Ceramic Veneer can fit into your plans, write today. Without charge we will gladly furnish construction detail, data, color samples, estimates and advice on preliminary sketches involving use of Ceramic Veneer.



new Union Carbide Office Building

USS American Welded Wire Fabric!

concrete slabs, fills and fireproofing, three USS American Welded Wire Fabrics—of varying weights—were used.

American Welded Wire Fabric has long been used successfully and economically in practically every form of structure. It has an enviable record of successful structural application in the world's tallest and largest buildings. For more information on American Welded Wire Fabric, write to American Steel & Wire, Dept. 9165, 614 Superior Avenue, N. W., Cleveland 13, Ohio.

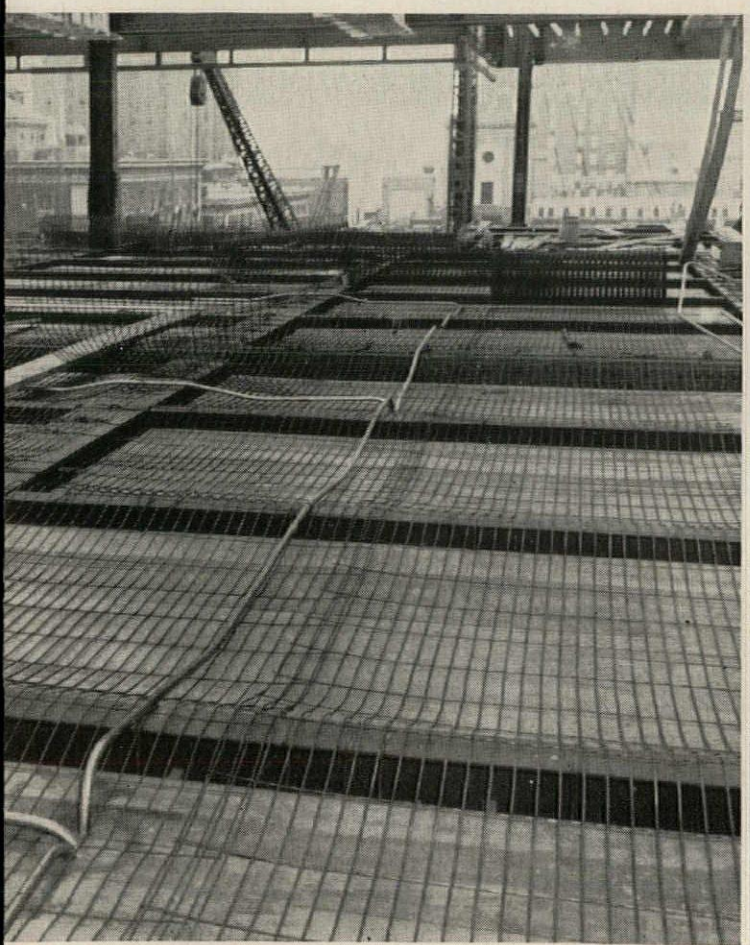
USS and American are registered trademarks

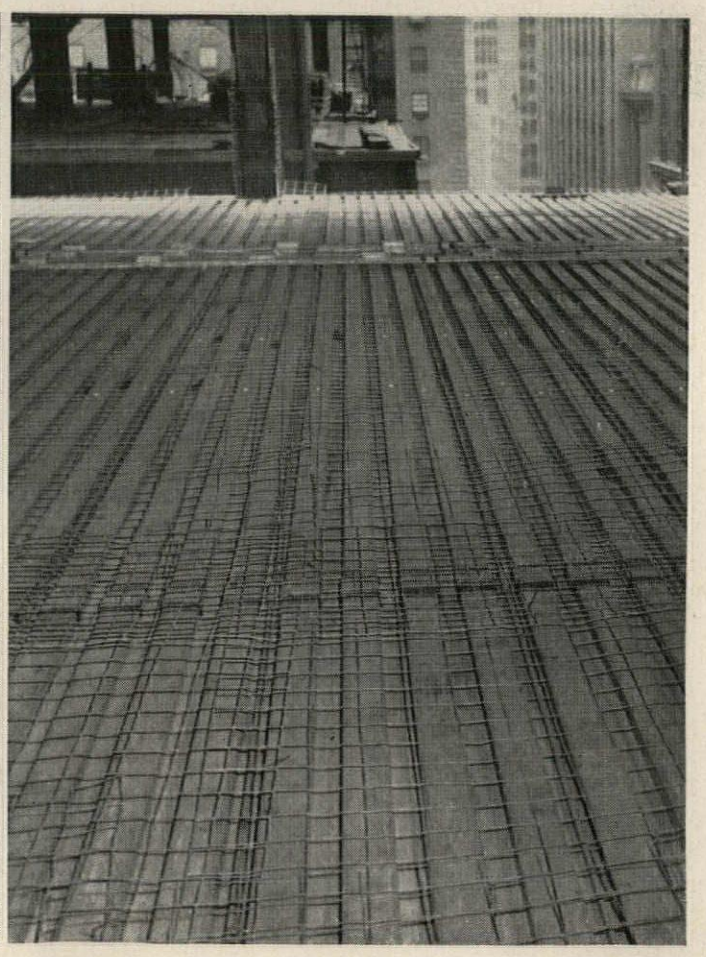
USS American Steel & Wire Division of United States Steel

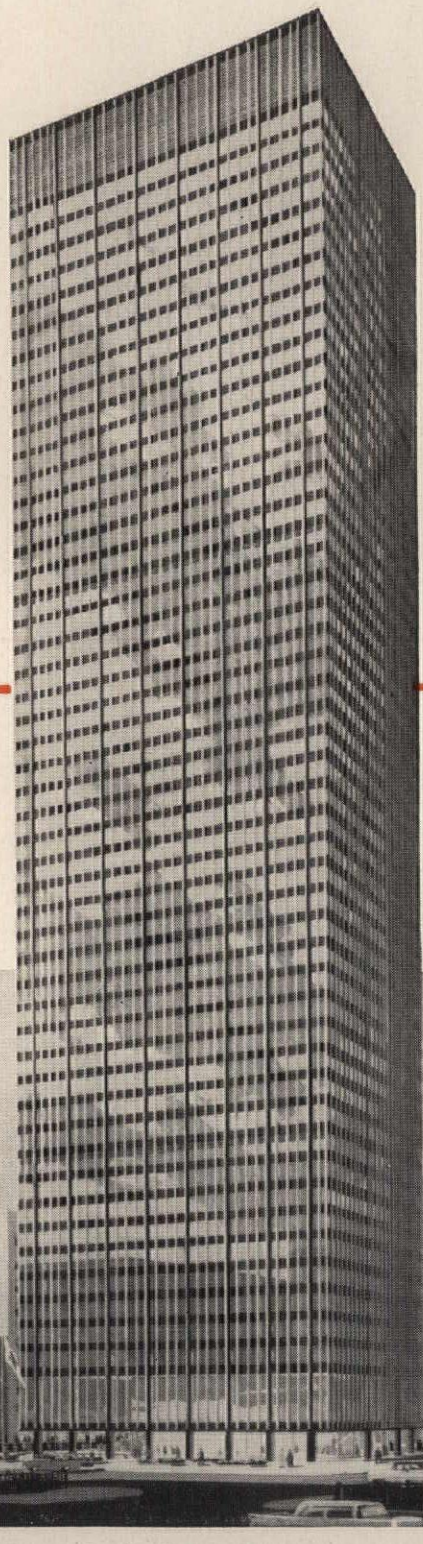
Columbia-Geneva Steel Division, San Francisco, Pacific Coast Distributors
Tennessee Coal & Iron Division, Fairfield, Ala., Southern Distributors
United States Steel Export Company, Distributors Abroad

Short span concrete slabs are structurally reinforced with a rectangular style of USS American Welded Wire Fabric. The high yield point of the cold-drawn wires permits higher working stress, thus reducing the amount of steel to be handled and installed. It is easily draped and placed at points of maximum stress due to positive and negative movement. Long fabric rolls speed installation and assures continuity of slab action through continuous reinforcement.

The designers and owners specified that distributed reinforcement be used in the concrete fill over cellular metal decking to prevent temperature and shrinkage cracking. USS American Welded Wire Fabric style 44-1212 was selected. The small diameter closely spaced wires provide the needed protection against unsightly cracking.







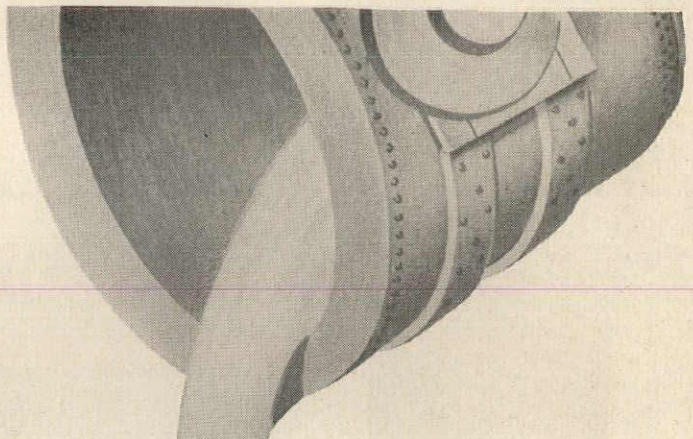
Concrete work in **is reinforced with**

JUST north of Grand Central Station a new skyscraper is rising to join New York's storied skyline. It is the 52-story Union Carbide office building. During the razing of the Hotel Marguery, formerly on the site, and the erection of the new skyscraper, Grand Central trains operated below—on time, without interruption.

USS American Welded Wire Fabric was used throughout this building to add strength and durability to concrete work. To meet the differing requirements of

USS American Welded Wire Fabric style 22-1212 was used to reinforce the thin layer of concrete encasing the structural steel for fire protection. The closely spaced small members of fabric ideally suit it for this reinforcement to prevent crack-causing stresses due to temperature changes and structural deflection. The fabric readily shapes to the steel and retains its rigidity in the bent form. Large sheets can be applied to speed construction.

Architect:.....*Skidmore, Owings & Merill*
Consulting Engineer:.....*Syske & Hennesey*
General Contractor:.....*George A. Fuller Company*
Concrete Contractor:.....*Knickerbocker Construction Company*
Fabric Distributor:.....*Carroll-McCreary Company, Inc.*



Indestructible Architectural Beauty

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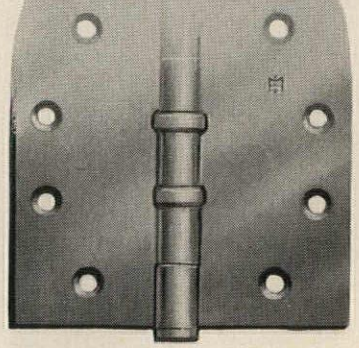
to match the beauty of America's new stainless steel structures, entrances, doors, window frames.

HAGER STAINLESS STEEL HINGES

. . . the aristocrat of metals
. . . the craftsmanship of a master

HAGER HINGES OF #302 STAINLESS STEEL
(selected from the nearly 50 types of stainless) is the finest stainless steel for hinges . . . for hardware. Its appearance and performance are flawless. Its function is eternal . . . its hardness can't outmatch Hager craftsmanship.

When the finest possible quality is indicated, specify all butt hinges in HAGER #302 STAINLESS STEEL.



all Hager Hinges available in AISI type-302 Stainless Steel (chrome-nickel); also AISI type-430 or other types, when specified.

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EVERYTHING HINGES ON *Hager!* ®

Its initial higher cost is justified!

- 2 times the strength of hot rolled Carbon Steel (tensile strength 80,000 psi).
- No discoloration. Hygienic! Easy to keep clean. Hager AISI type-302 Stainless Steel looks new years after lesser metals have badly discolored and corroded.
- No corrosion. Type-302 is homogeneous, dense, austenitic type stainless (hardenable by cold working), hi-chrome nickel steel; no plating or protective coating to peel off; its own natural surface beauty is eternal; scratching will not lay a foundation for corrosion.
- Less frictional wear. Hager Stainless Steel hinges swing smoothly, silently, forever.
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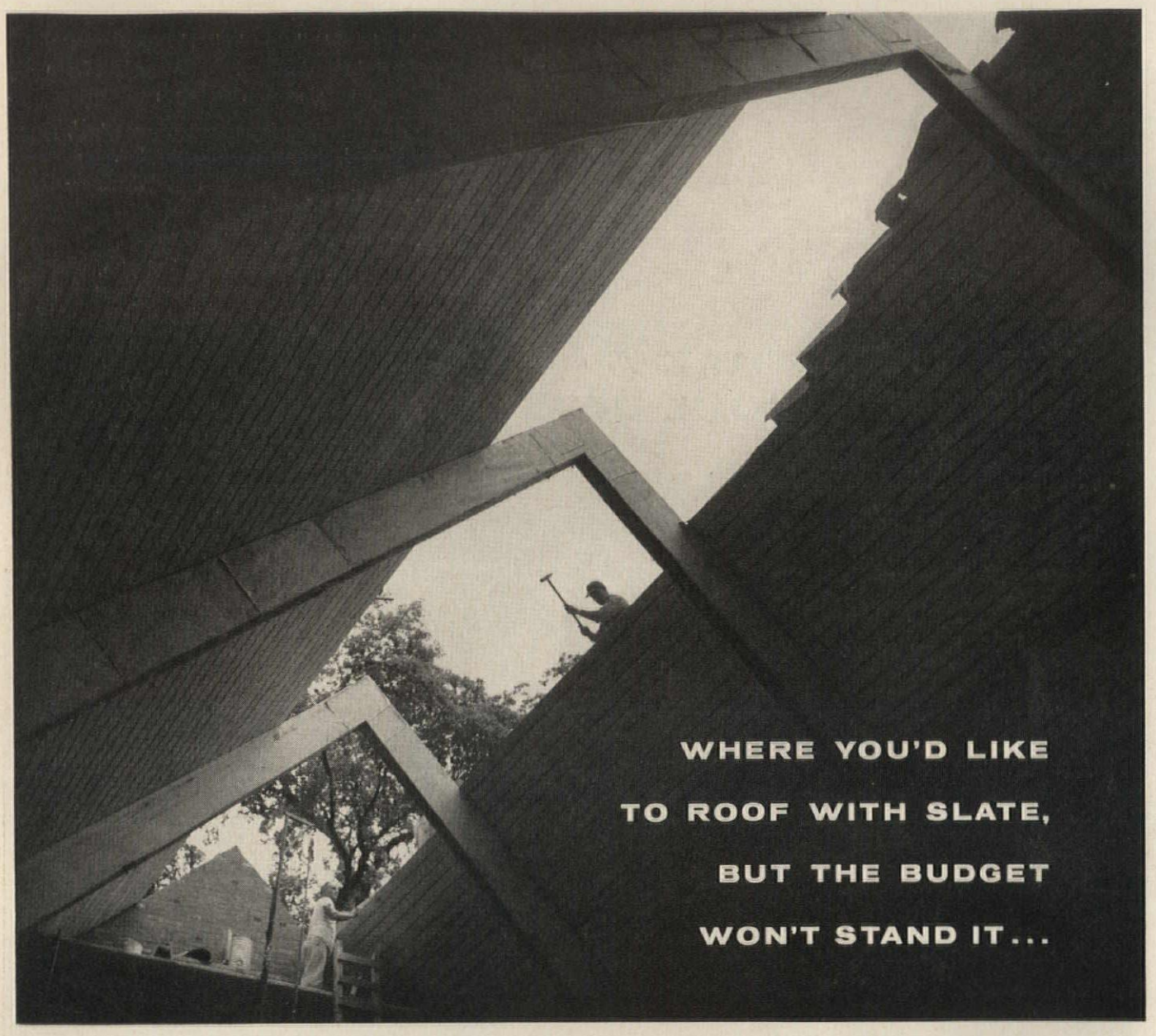
C. HAGER & SONS HINGE MANUFACTURING COMPANY, ST. LOUIS 4, MO. • IN CANADA: HAGER HINGE CANADA LIMITED, KITCHENER, ONTARIO



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1. Massive 15″ x 36″ — 300 lbs. per square.
2. Exclusive jumbo granules, 3 times standard size, for rich texture, deeper color, greater holding power.
3. Three full layers of protection with 5″ exposure.
4. For use on slopes with a pitch as low as 2″ in 12″.
5. Two 18″ wide tabs vs. standard three 12″ wide tabs, for longer, cleaner roof lines, ⅓ fewer vertical cutouts, broader color masses and stronger nailing.
6. Thickness of standard slate for a massive look.
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See specifications in Sweets File 8C/Bi or write BIRD & SON, inc., Box AR-89, East Walpole, Mass.

E. Walpole, Mass. Charleston, S. C. Shreveport, La. Chicago, Ill.

TERMITES AND MOISTURE A PROBLEM? *Write for details on Bird Termibar combination Termite and Vapor Barrier.*

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...AND KEEPS YOUR COST LOW

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FUTURLITER—The handsome, practical, economical, new school luminaire. Available in 12", 17" and 24" widths—with solid steel sides or with plastic windows.

GUTHLITE—All-time school favorite. Brand new models in two and four lamp widths . . . all metal with light spill, or luminous plastic sides.

PRISMOID GRATELITE—Sparkling, crystal-clear prismatic louver-lens adds new beauty and efficiency to Guth School Fixtures.

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General fatigue, eye-strain and hazey feeling caused by improper lighting!

FUTURLITER®
with cross baffles

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with GrateLite Louver Diffuser**

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...new JENN-AIR "HI-D" Power Roof Exhausters

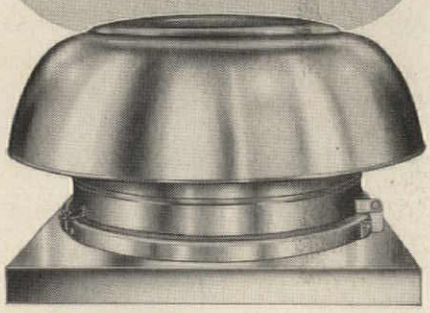
When specifications call for an exhaust fan with BIG air moving capacity, they call for Jenn-Air's new "Hi-D" Power Exhausters. Designed in both axial and centrifugal wheel models, these belt drive units offer capacity ratings in a broad range from 480 to 28,650 cfm.

In addition to high capacity, Jenn-Air "Hi-D" Exhausters provide these important design features:

- Wheel is located above motor to combine high discharge point with an overall installed height lower than any comparably-rated exhauster.
- Non-overloading wheel, made of heavy gauge aluminum, is dynamically and statically balanced in the Jenn-Air Sound Laboratory.
- Exclusive guide vane construction improves air moving efficiency while minimizing turbulence and noise.
- Adjustable motor pulley permits speed variation.
- Totally enclosed motor and tubular drive assembly feature permanently sealed, pre-lubricated ball bearings. Motor is effectively cooled by air stream.
- Bird guard of heavy gauge stainless steel is an integral part of every unit.
- Maintenance-free aluminum housing provides strength without weight.

The HAB Series of "Hi-D" Exhausters (axial blade) gives highest air-per-dollar value in short duct runs where static pressures are negligible. The HCB Series (centrifugal wheel) effectively overcomes static pressures and is usually preferred for long duct runs. Its smaller diameter permits a corresponding reduction in duct size.

JENN-AIR All-Aluminum LOW-CONTOUR RELIEF VENTS

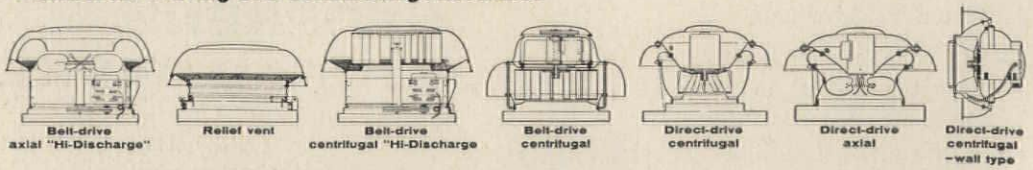


For fresh air intakes or pressure relief within buildings, specify Jenn-Air relief vents. These high-discharge units are designed in seven sizes . . . built to handle from 356 to 18,350 cubic feet per minute. Weather proof, bird proof Jenn-Air relief vents eliminate unsightly goosenecks and hoods.

Specially designed hinge on housing permits ready access to damper. Simple locking mechanism keeps unit tightly closed.

Ask your Jenn-Air representative for performance and dimensional data on the complete line of Jenn-Air Power Exhausters and Relief Vents.

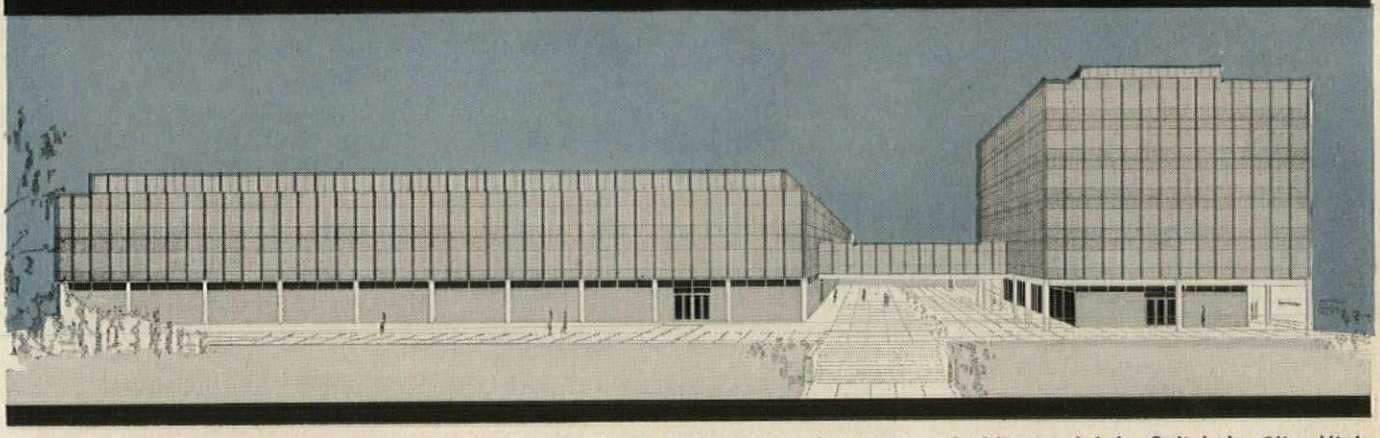
Member Air Moving and Conditioning Association



JENN-AIR

Jenn-Air Products Company, Inc. • 1102 Stadium Drive, Indianapolis 7, Indiana

NEW UNIVERSITY OF UTAH BUILDING HAS INLOCK® H-TYPE GASKETS FOR LEAKPROOF SEAL



Dean L. Gustavson Associates—Architects, A.I.A., Salt Lake City, Utah.

The new Engineering Section at the University of Utah illustrates the many advantages of Inlock H-Type Neoprene Gaskets. It has complete multi Inlock grid assembly designed for black spandrels at floor and ceiling, using gray window glass.

With versatile H-type gaskets, you can combine glass and spandrels, or glass and glass. You reduce cost of the window frame. You eliminate horizontal metal muntins. And you provide a highly desirable shadow line effect.

Many years of successful field experience back Inlock gaskets. They are the original patented gasket used in the structural field. For modern architecture, Inlock is the complete sealing answer.

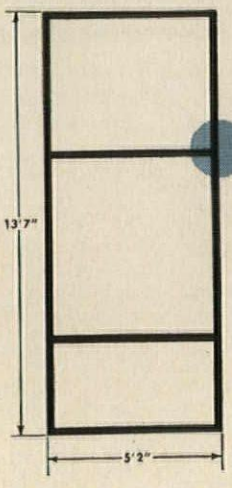
An everlasting pressure on the sealing edges results from Inlock Gaskets. There are no local pressure points. Separate locking strip insures this permanent seal.

Separate filler strip zips into place quickly, locking out leaks. All joints are injection molded.

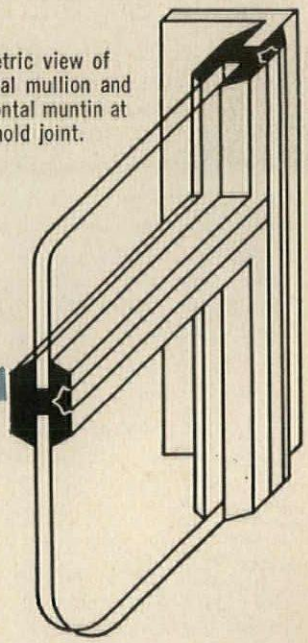
Savings are many. Outmodes mastic glazing methods. Painting or recaulking eliminated. Maintenance free. Installs easily from inside or outside.

Tell us your conditions. We will make a gasket to solve your problem. Inlock functional designs are patented, cannot be copied or duplicated. Send for latest catalog with a wealth of standard sections.

Dimensional drawing of Inlock multi grid assembly.



Isometric view of vertical mullion and horizontal muntin at "T" mold joint.



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General Motors Corporation
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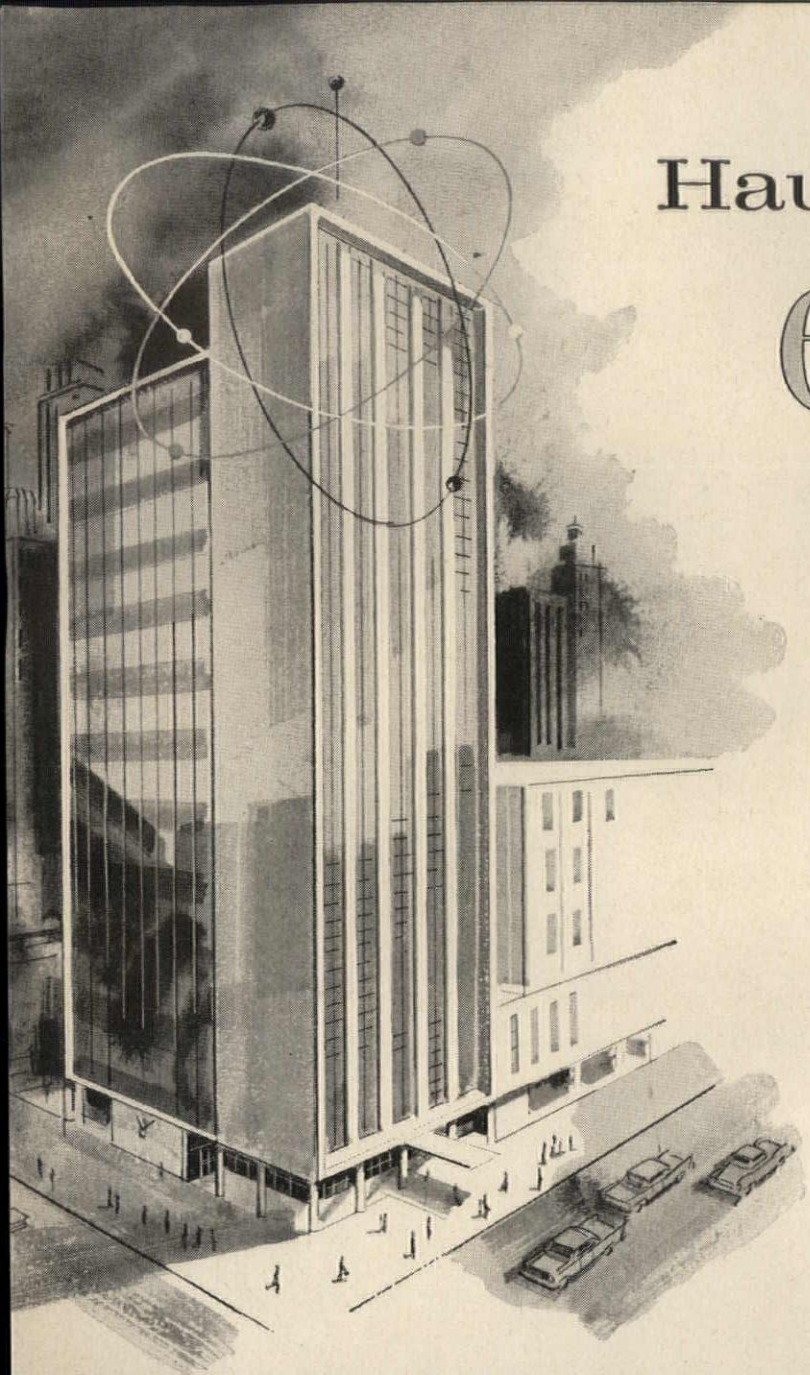


Haughton elevonics

wellspring of progress in vertical transportation for multi-floor buildings

Elevonics . . . the application of electronic devices for the betterment of elevator design and performance.

It is in this special field of science that Haughton Engineers are opening new doors to progress in elevator technology. For example: Haughton Elevators that *think for themselves* are now operational in buildings coast-to-coast. They combine the economy and efficiency of true automated (operatorless) control with new swiftness, comfort and safety.

Motivated by an amazing electronic brain that anticipates elevator service needs at every moment in a busy building's life, these elevators are dispatched at proper time and in proper sequence to meet traffic needs exactly.

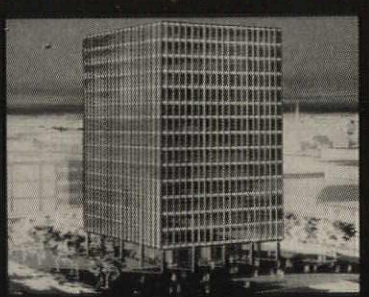
And, though complex is the job they do, Haughton operatorless elevators that *think for themselves* feature simplified design to assure complete reliability and substantial savings in operation.

If you want to upgrade elevator service and cut costs, call on us. A background rich in experience, and a future dedicated to the quest for new advancements in elevator technology, are your assurance we can best meet your elevator design, modernization or maintenance needs.

throughout America . . . Haughton Operatorless Elevators

Stephens T. Mason Building, Lansing, Michigan; Smith, Hinchman & Grylls, Architects and Engineers

National Bank of Detroit, Detroit, Michigan; Albert Kahn & Associates, Architects



Libbey-Owens-Ford Building, Toledo, Ohio; Skidmore, Owings and Merrill, Architects

Universal Building, Washington, D. C.; LeRoy Werner, Architect

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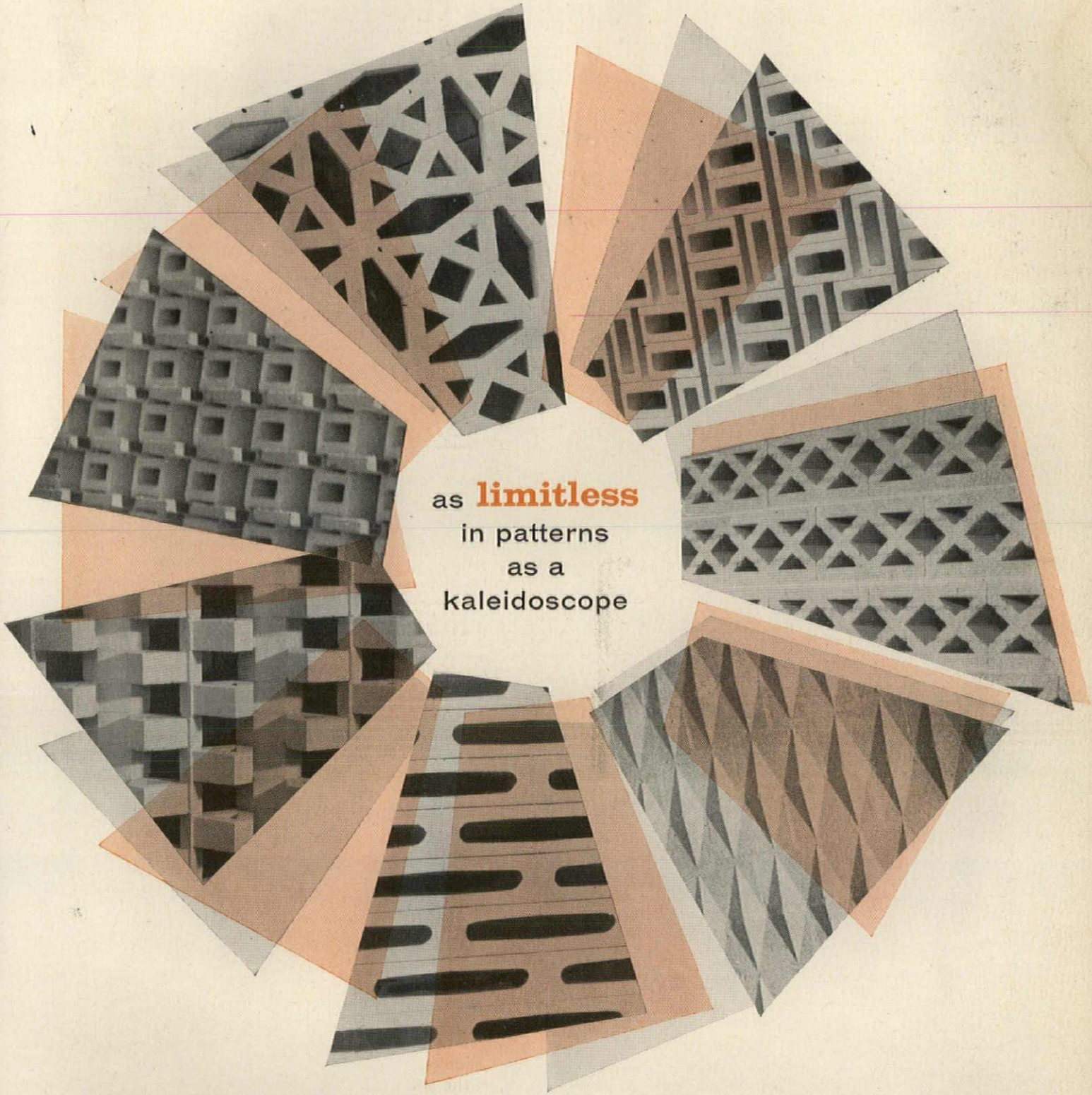

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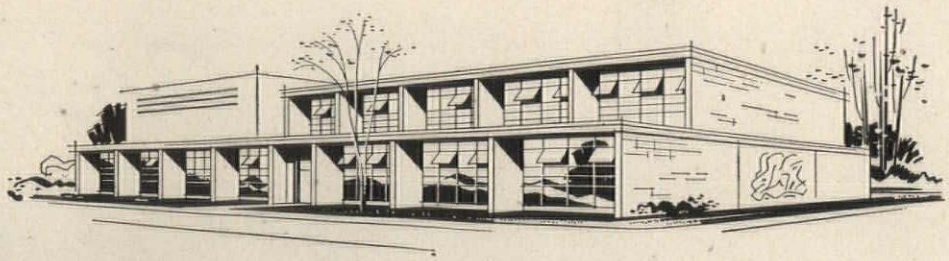

"Painting school windows is expensive!"

"Painting school windows is unnecessary!"

Any big school district has *miles* of windows to paint every three or four years. And the cost is shocking!

Shocking because it's *unnecessary!* Unnecessary because it's so easy to get *Fenlite windows.*

Fenlite windows, by Fenestra, are *steel* windows . . . with all the strength only steel provides. And they never need maintenance painting.

That's because the Fenlite process protects the steel with an alloy-bonded lifetime zinc surface, passivated and chemically polished. Glazing compounds grip tighter to it. Decorative painting (only if you want it) makes a better bond.

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If you want to know more about the startling economies of Fenlite windows for all types of buildings, contact your Man from Fenestra, listed in the Yellow Pages, or write Fenestra Inc., Dept. AR-8, 2252 East Grand Boulevard, Detroit 11, Michigan.

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"Chrysler's exclusive all-weather control assures ideal indoor climate all year long . . . regardless of outdoor temperature. This control permits cooling for perfect comfort in hot interior zones, even when the temperature drops to zero outside."

"I specified Chrysler packaged air conditioning for my client for three important reasons. *Special features:* Only Chrysler includes—as standard equipment—features like all-weather control and an electronic motor control that would cost up to $364 per unit to add to ordinary air conditioning. *Low operating costs:* Chrysler's new Power Miser compressor keeps power bills down. *Dependability:* Chrysler has a 25-year reputation for low service and maintenance costs."

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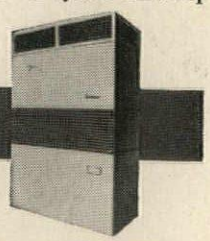
With Climate by Chrysler, you offer your clients much more than just coolness for their air conditioning investment. Before you figure your next job, why not get all the facts on Chrysler Packaged Air Conditioning. Contact your local Chrysler Airtemp Distributor. Or write direct.



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Airtemp Division, Chrysler Corporation, Dept. M-89, Dayton 1, Ohio
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The Forward Look in Fire Doors!

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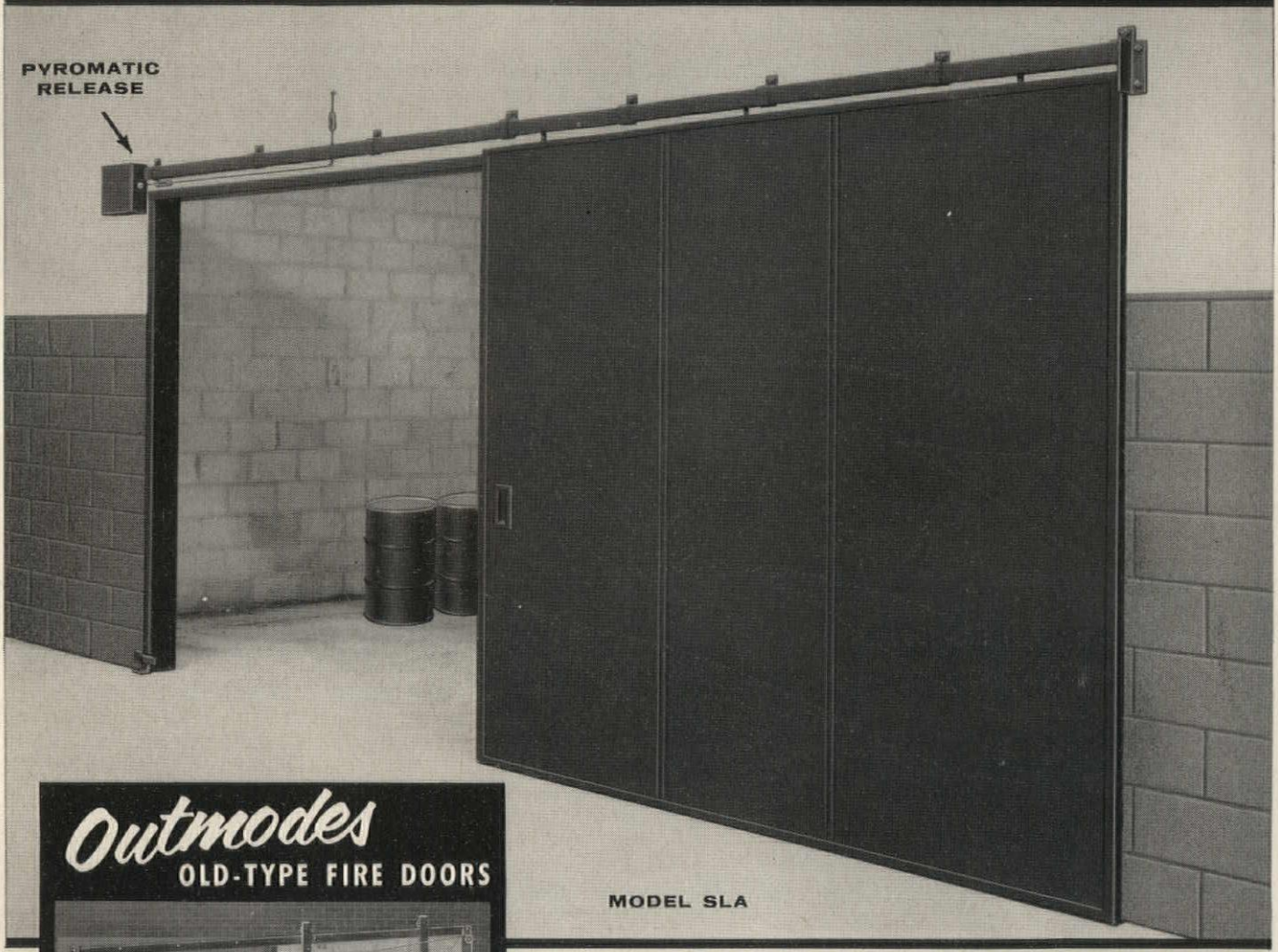
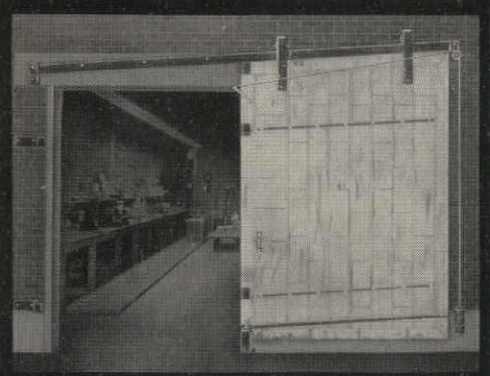


Outmodes OLD-TYPE FIRE DOORS



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Credenzas and cabinets are easily arranged for convenient and functional use. Drawers and shelves adjust to user's need.

Designer, Charles U. Deaton

The Template Group's interchangeable components allow unlimited combinations for executive, secretarial and clerical offices. The group includes executive L desks, bi-level L desks, double pedestal and conference desks, tables, cabinets, chairs and credenzas. All combine veneer finished walnut with brushed metal legs and U. S. Naugahyde trim. Either closed or open wells are available, with short or long outrigger legs. Tops are made to match the case, or finished in wood grain laminated plastic.

Architects, designers and decorators are invited to write direct to the Leopold Company, Burlington, Iowa, for pricing and purchasing information.

The walnut desks are available in open style as well as closed.

Coordinated chair line includes two swivel base, two arm chairs, a side and secretarial chair.

R.I.B.A. . . .

continued from page 28

structed at the same time as a building by another famous Welsh-descended architect—the Robie House by Frank Lloyd Wright. Colleges, art museums, and Cardiff Castle flank its sides, and although its merits were hotly debated at the time the city fathers approved its construction back at the turn of the century, it remains a masterpiece of foresight.

On Friday morning, June 12, there was a continuation of the previous day's discussion. The president welcomed delegates from overseas and your correspondent brought greetings from the American Institute of Architects and the New York Society of Architects. Great stress was laid during the morning on the necessity for good office paper work, and from the examples presented it would appear that in this sphere American architects can be quite proud. Much commendation was given to the A.I.A.'s *Handbook of Architectural Practice.*

Tours were held in the afternoon to Clandaff Cathedral, British Nylon Spinners, Ltd., Cwmbrwn New Town and Cwm Colliery, and the Vale of Glamorgan. Since the writer could not pronounce some of these Welsh names, or otherwise was not interested, he chose the Vale of Glamorgan tour. How interesting it was! The visitor saw St. Donat's Castle, owned by the Hearst estate, and a little church at Llantwit Major which the vicar, contrary to popular belief, claimed was the first Christian church in Britain. There is definite evidence, he said, that a Christian seminary was established here before St. Augustine's mission to the English in 597 A.D. In the fifth century there was a Christian university here which once had 2000 students from Britain and Gaul, including seven kings. No word was said about architects.

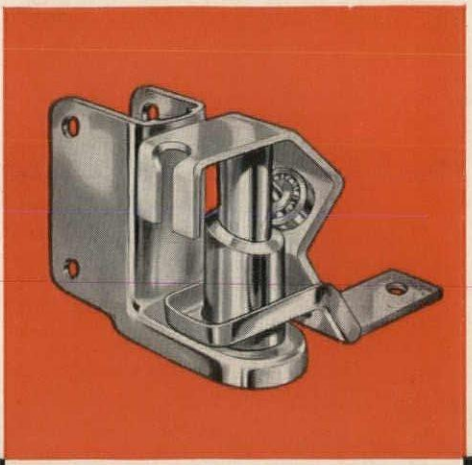
A report on the other tours cannot be given except that the participants on the Nylon Spinners excursion were rather disappointed, having merely been given a bus trip on the outside of what some claimed to be rather mediocre factory buildings, and they were not given any inkling of their insides.

On Friday night the conference program finished with a formal banquet. Speeches, as usual, were in the form of toasts and replies. With all the toasts how could anyone not enjoy himself? A. G. Sheppard Fidler proposed the toast to "The Principality and the City of Cardiff," and declared that everyone had been received so cordially in Cardiff. Lord Brecon, Minister of State for Welsh Affairs, said that national parks in Wales should not be regarded as untouchable museums but as areas suitable for light industries. The architects have a challenging task before them in this respect. The Bishop of Clandaff, who was extremely humorous, remarked about the great versatility of Basil Spence, R.I.B.A. president, who in his own right delivered some of the best speeches of the conferences. Mr. Spence, in fact, looks the part of the architect. With his goatee beard, never-fading smile, erect carriage, and sparkling eyes, he portrays the honest spirit, forthrightness, character, and design that are the hallmarks of the architectural profession. In fact, he even looks efficient.

On the Tuesday evening following the conference Mr. Spence gave a pictorial report to the R.I.B.A. of his recent trip to Africa. His photographs were not mainly architectural but were designed to show the dynamic quality, huge scale, textures, and rhythm to be found in the nature of that continent and to inspire the architect further onwards in his own creations. The annual election results were announced by the secretary, C. D. Spragg, and among other positions Mr. Spence was returned to the presidential office for another year.

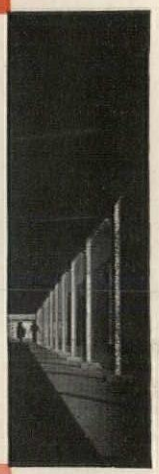
The Leopold Company: quantity production for a high styled line

The picture below gives striking evidence that there is something new in office furniture. The Template Group offers a clean, almost delicate design yet retains the rugged durability of handcrafted cabinetry. And by combining simplicity of line with conventional production methods, Leopold has made this modular furniture both affordable and practical for modern office requirements.



How strong is the hinge?

Hurffville Elementary School, Hurffville, New Jersey; Architect: Vincent G. Kling, A.I.A., Philadelphia; General Contractor: Laessle Builders, Inc., Moorestown, New Jersey. 1958 Top Award: School Executive: Seventh Annual Competition For Better School Design.



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TOILET COMPARTMENTS

Critical point in toilet compartment construction is the hinge that bears the heaviest work load for the life of the compartment. That's why architects ask, "How strong is the hinge?"

ANSWER: In an unbiased laboratory loading test comparable to the way a door is used in service, the Cutler lower hinge proved to be 76% stronger than a leading competitor's type tested. Further evidence: in another test double the weight which would be used in normal operation was applied to the nylon bearings of the lower hinge and after 486,000 equivalent door closings (equal to 15 times a day for 87 years) no wear was indicated and the test was discontinued.

Outstanding engineering is just one of the reasons you'll find Cutler Toilet Partitions specified for installation in the prize-winning Hurffville Elementary School in Hurffville, New Jersey, for instance—and in installations at Harvard University, General Motors, International Harvester, Yale & Towne, Western Electric, etc., to name just a few. Other reasons: rigidity, durability, adaptability, ease of assembly, color finishes, corrosion resistance, hardware and fittings, and the most satisfactory and safest-riding packaging in the industry. Each part, for example, is individually cartoned.

If you're interested in a new perspective on quality design, engineering, workmanship, specify Cutler Toilet Partitions—there are none finer available today. Models for every type of installation. Complete engineering advisory service. Immediate safe delivery to any job site in the U.S.A. Catalog in Sweet's Architectural File is yours for the asking. Complete specification sheets available for your use. For information, write:

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Required Reading

Sprawlscape, Motopia, Suburbia Described in Three Books

CITIES IN THE MOTOR AGE. *By Wilfred Owen. Viking Press, 625 Madison Ave., New York 22. 176 pp., illus. $3.95.*

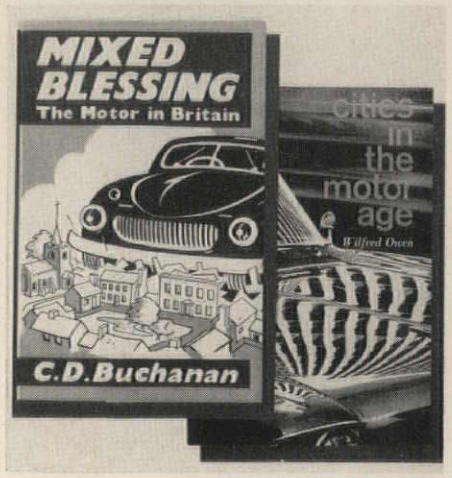
MIXED BLESSING: THE MOTOR IN BRITAIN. *By C. D. Buchanan, A.R.I.B.A. Leonard Hill, Ltd., 9 Eden St., London, N. W. 1. 221 pp., illus. 30s.*

SUBURBIA: ITS PEOPLE AND THEIR POLITICS. *By Robert C. Wood. Houghton Mifflin Co., 2 Park St., Boston 7. 340 pp. $4.*

BY JAMES S. HORNBECK, A.I.A.

Detroit turns out miles of motorized vulgarity annually, and obviously many people couldn't care less what this chromium-bedecked accretion is doing to our cities, towns, countryside, and whole manner of living. And, unfortunately, there are many city fathers, state officials, and federal officials who likewise are reluctant to face up to the tremendous problems—social, esthetic, urban, suburban, and rural—that the automobile has created. We have city strangulation and the flight to greener pastures, urban sprawl, highway honky-tonk marketing, countryside despoliation, superhighway butchery, drive-in this-and-thats, suburbia as we know it, and all sorts of others.

The more cars there are, the less useful they become—the slower we must inch forward in traffic snarls; the more difficult to park; the longer and wider the new models; the more parkways, the faster the traffic, the more confused urban movement, the more numerous the vehicular-pedestrian conflicts; the larger the federal highway program, the less control over its total planning and effect on our entire country. Where this will all end is anybody's guess—but I would hazard an opinion that it may well become worse before it improves, despite the near-panic stage some of the problems have now reached.



We see such pitiful expedients as New York's one-way avenues, country highway and parkway piecemeal widenings, and such tragic disfigurements as new turnpikes cutting parks in two, lancing blithely through community centers, etc. No one can yet predict what horrors (or blessings) the new $100-billion federal program will produce.

These three books, which have the effect of the motor car as a common denominator, are well worth the reader's attention. Owen's *Cities in the Motor Age* is an interpretive discussion of some of the best thinking on the subject as it emerged from a recent symposium. Buchanan's *Mixed Blessing* is valuable in adding an extra dimension to the American motor picture by presenting the British parallel in authoritative fashion. Wood's *Suburbia* is a scholarly account of the social nature and illogical structure of suburbia as we know it, and a plea for intelligent bigness in trying to deal with its anachronisms.

Ancient Egypt Pictured

IN THE STEPS OF THE PHARAOHS. *By Jean Leclant. Hastings House, 151 E. 50th St., New York 22. 128 pp., illus. $8.50.*

Following the paths of the Pharaohs of Egypt from the Early Kingdom through the days of the Late Roman Empire has inspired a very attractive book which describes, half in text, half in pictures, the art and architecture of ancient Egypt.

Professor Leclant has written a most enlightening foreword in which he examines the history of Egypt and the broad trends of her religion, economy, and society and applies them to the tombs and temples to arrive at some interesting observations on the characteristics and developments of the monuments.

The most outstanding aspect of this large and handsome book, however, is the 70 full-page photographs by Albert Raccah, whose sharp lens has given life to these colossal structures. He has been especially successful in the excellent close-up shots of the bas-relief panels.

In a concluding appendix, Professor Leclant has devoted a good-sized paragraph to each photograph, commenting on details in each picture and giving an interpretation of the symbols and the history of construction and of the later rediscovery. He has also thoughtfully included several maps and a chronological table of the dynasties and their Pharaohs.

—CAROLINE BRADY

Caring for the Aged

NURSING HOME MANAGEMENT. *By Ralph C. Williams, M.D., et al. F. W. Dodge Corp., 119 W. 40th St., New York 18. 230 pp., illus. $8.50*

Written by five authorities in the fields of medicine, public health, nursing, and hospital administration, this is the first handbook ever published on nursing home organization, management, and operation. It is intended as a reference for home operators and supervisors and also for those planning to open nursing homes or homes for the aged. Eight detailed chapters and an appendix analyze every facet of the nursing home and its personnel. Needed business forms are illustrated, as well as specimen regulations, personnel policies, diets, and training programs.

Cooling and Heating

HEATING, VENTILATING, AIR CONDITIONING GUIDE, 1959. *American Society of Heating, Refrigerating and Air-Conditioning Engineers, 62 Worth St., New York 13. 1229 pp., illus. (37th ed.). $12.*

This 37th edition of the *Guide,* in a larger page size, contains larger illustrations, working charts, and tables, including 286 new or revised diagrams and charts in the Technical Data Section. The subjects of five new chapters are: high temperature water systems, the heat pump, evap-

continued on page 306

Walls are Scored Tile*, SD-1 in vertical stripes of 72 Dawn Gray, 58 Vellum, 50 Cream, 32 Tan Glo and 49 Gloss Black. Color Plate 406

CERAMIC TILE FOR BEAUTY AS WELL AS DUTY

Splash-proof drinking fountain niche repeats the decorative striped treatment of the entrance lobby. Wall: SD-1 in 72 Dawn Gray, 58 Vellum, 50 Cream, 32 Tan Glo, 49 Gloss Black. Base: 38 Butternut. Floor: 1 1/16" squares, Slate Textone. Color Plate 409.

In designing this new school, Architects Heyl·Bond·Miller selected American Olean ceramic tile . . . "not only for hard-usage areas—in corridors, washrooms and kitchens where tile's durability and utility make it an obvious choice for schools—but also for 'show' areas where its beauty and versatility could be exploited to the fullest". The result: a distinctive school interior that is, and always will be, fresh, inviting, colorful—and practically maintenance free.

*PAT. APPLIED FOR

Tile Contractor: Allentown Tile & Marble Company

CERAMIC TILE

American Olean

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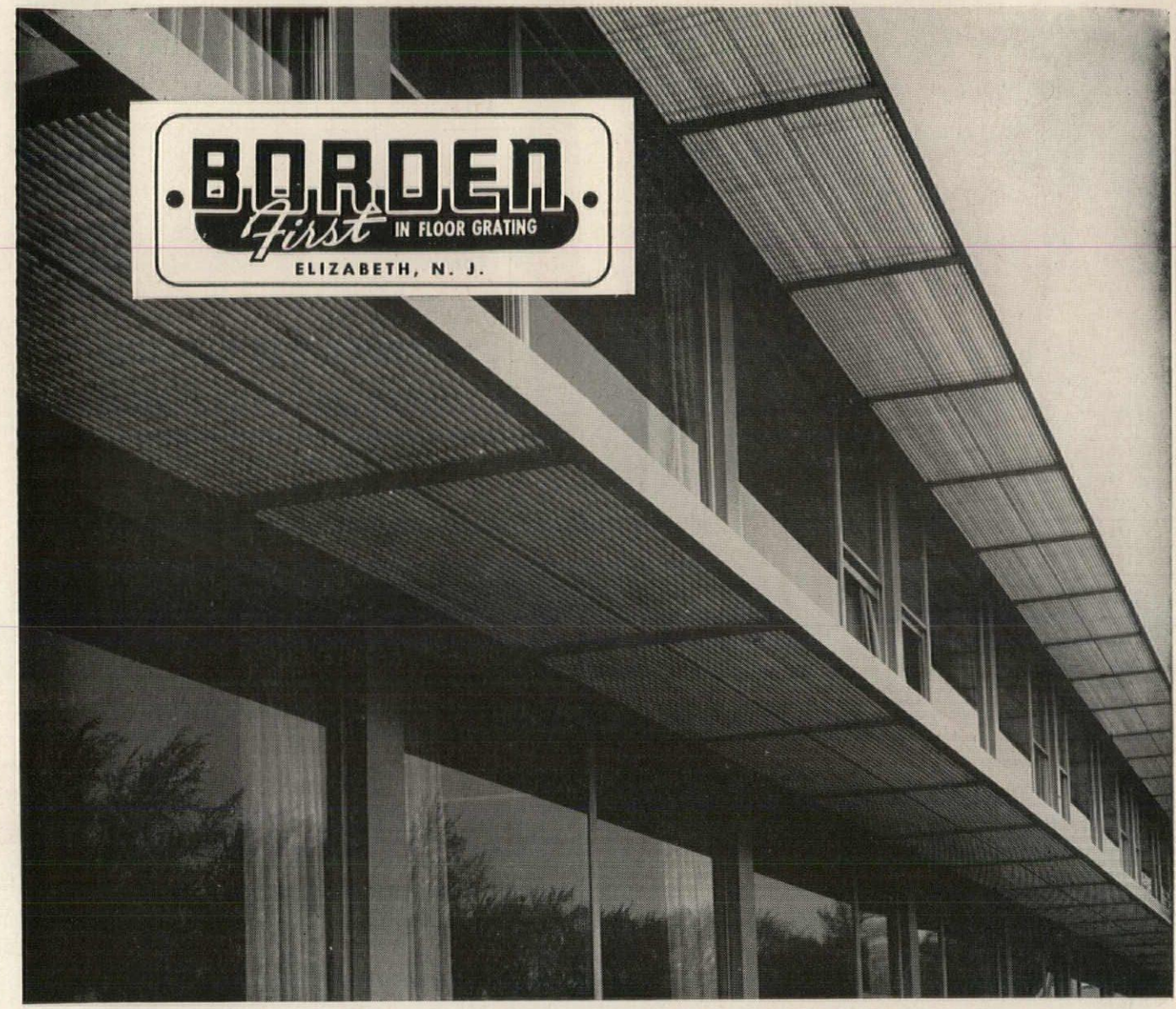
The colorful tiled entrance lobby, illuminated at night, adds to the exterior beauty of the new Hellertown-Lower Saucon Joint High School, Hellertown, Pa.

THE NEW HELLERTOWN HIGH SCHOOL USES

The cafeteria, with its tiled walls, is easily kept spic-and-span. Facing Wall: SD-1, 81 Spruce Green and 97 Gardenia. Drinking fountain wall and floor: 1 1/16" squares, Deep Blue. Side Wall: 1 1/16" squares, Medley Blend in Gray Granite, Deep Blue, Yellow and Red. Floor: Murray Quarry Tile. Color Plate 407.

Even the counter-front on this sparkling snack bar is tile—proof against young customers' scuffs and kicks. In 1 1/16" squares, Medley Blend of Gray Granite, Deep Blue, Yellow and Red. Inside Wall: 4 1/4" squares in 72 Dawn Gray. Wall Column: SD-1, 33 Nutmeg. Color Plate 408.



NEW USE FOR GRATING -- SUN SHADES FOR MODERN SCHOOLS

Light aluminum grating for SUN SHADES on schools is in perfect harmony with modern school design — allows 80% passage of light and air without the accompanying penetrating rays of the sun. Because they are aluminum they are maintenance-free. Furthermore, they provide a permanent working platform for easy access to windows.

Only the finest precision manufacturing would satisfy the architect who designed the school shown here. BORDEN is recognized as a leader in quality custom-manufactured gratings, in ferrous and non-ferrous metals.

Other uses for grating in school design: Areaways, boiler rooms, laboratories, gridiron catwalks in auditoriums and gymnasiums, footscrapers and window guards.

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Construction Cost Indexes

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
March 1959	339.4	324.9	363.1	383.2	369.6
April 1959	340.7	326.3	364.6	385.3	371.2
May 1959	340.9	326.5	364.9	385.5	371.4
	% increase over 1939				
May 1959	176.0	166.7	179.2	189.0	185.5

ATLANTA

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
82.1	80.9	84.5	86.1	83.6
72.3	67.9	84.0	87.1	85.1
86.3	83.1	95.1	97.4	94.7
180.4	184.0	158.1	157.1	158.0
199.2	202.5	178.8	178.8	178.8
189.3	189.9	180.6	180.8	177.5
194.3	196.2	185.4	183.7	185.0
212.8	214.6	204.2	202.8	205.0
218.8	221.0	212.8	210.1	214.3
223.0	224.6	221.3	221.8	223.0
219.6	219.1	233.5	225.2	225.4
225.3	225.1	229.0	231.5	231.8
237.2	235.7	241.7	244.4	246.4
241.2	239.0	248.7	252.1	254.7
243.9	239.8	255.7	261.9	262.0
249.1	245.0	262.0	268.5	268.7
249.9	246.0	262.9	269.5	271.0
250.7	246.6	263.6	270.1	271.6
		% increase over 1939		
190.5	196.7	177.2	177.3	186.8

ST. LOUIS

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
March 1959	302.2	294.0	310.7	324.6	318.7
April 1959	303.4	295.2	311.8	325.8	321.0
May 1959	306.3	296.9	316.3	332.0	326.0
	% increase over 1939				
May 1959	177.9	177.5	166.5	177.1	173.9

SAN FRANCISCO

90.8	86.8	100.6	104.9	100.4
89.5	84.5	96.4	103.7	99.7
105.6	99.3	117.4	121.9	116.5
193.1	191.6	183.7	186.8	186.9
218.9	216.6	208.3	214.7	211.1
213.0	207.1	214.0	219.8	216.1
227.0	223.1	222.4	224.5	222.6
245.2	240.4	239.6	243.1	243.1
250.2	245.0	245.6	248.7	249.6
255.2	257.2	256.6	261.0	259.7
257.4	249.2	264.1	272.5	267.2
268.0	259.0	275.0	284.4	279.6
279.0	270.0	288.9	298.6	295.8
286.3	274.4	302.9	315.2	310.7
289.8	274.9	311.5	326.7	320.8
295.0	280.3	317.7	332.4	326.3
296.2	281.6	318.9	334.2	326.9
296.4	281.8	319.2	334.4	327.1
		% increase over 1939		
180.7	183.8	171.9	174.3	180.8

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.

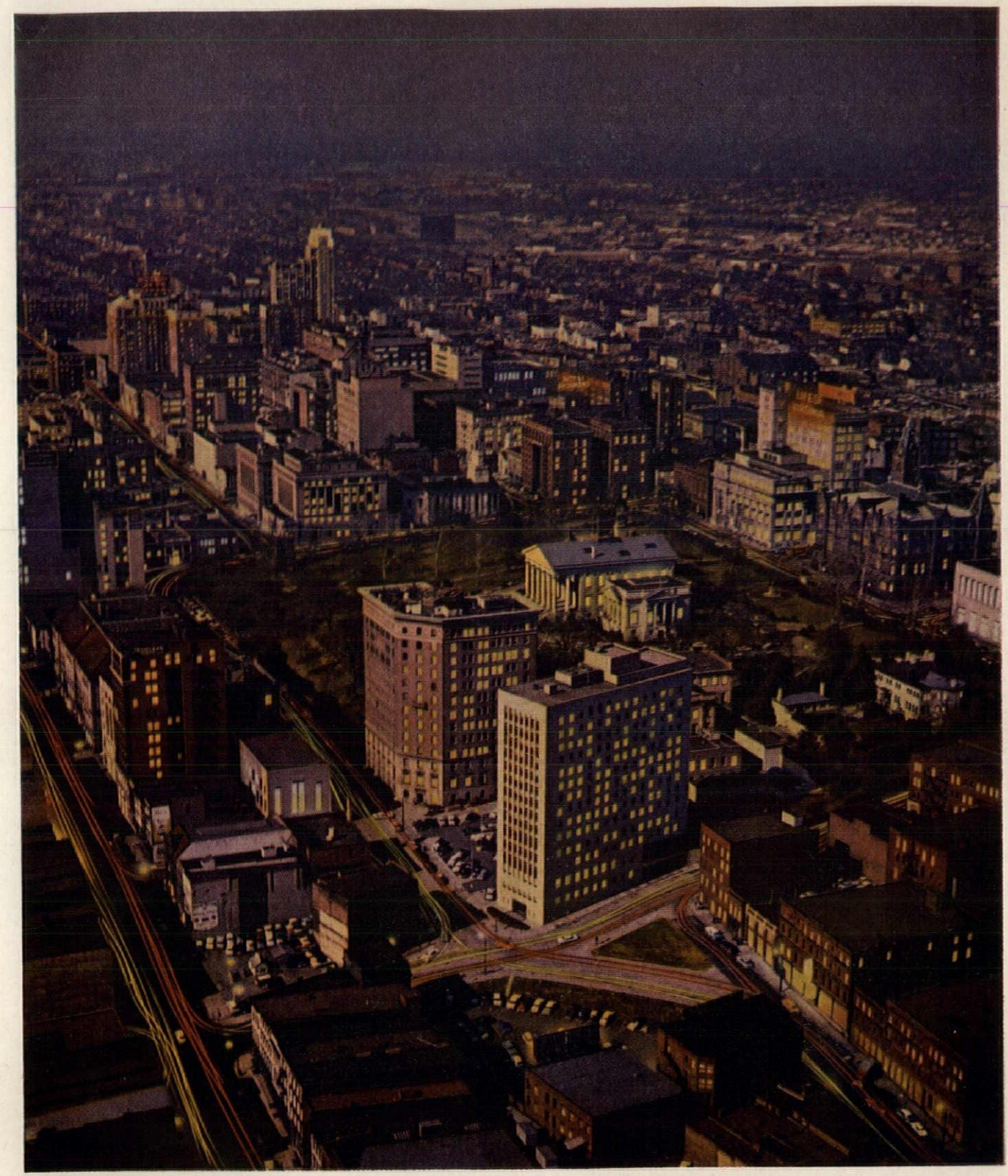
$$\frac{110-95}{95} = 0.158$$

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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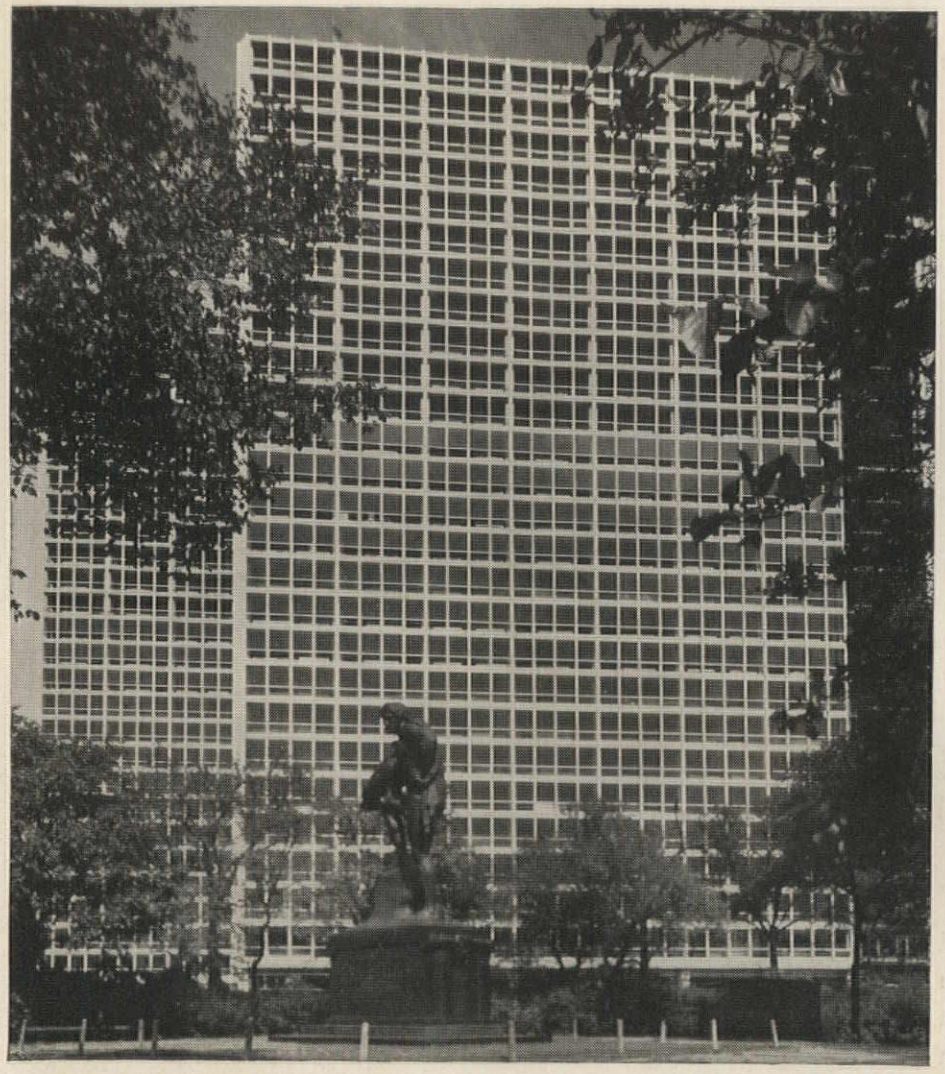

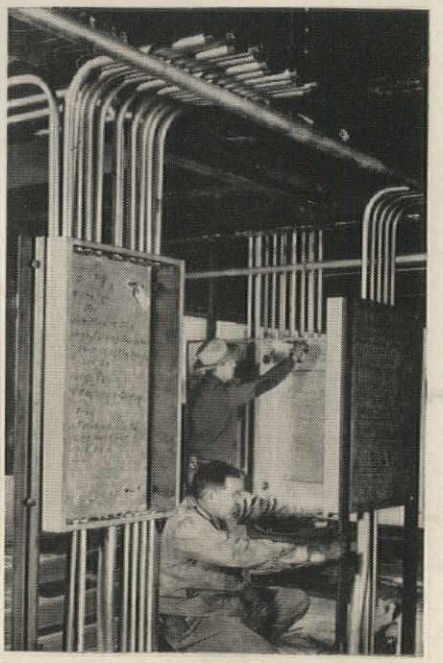

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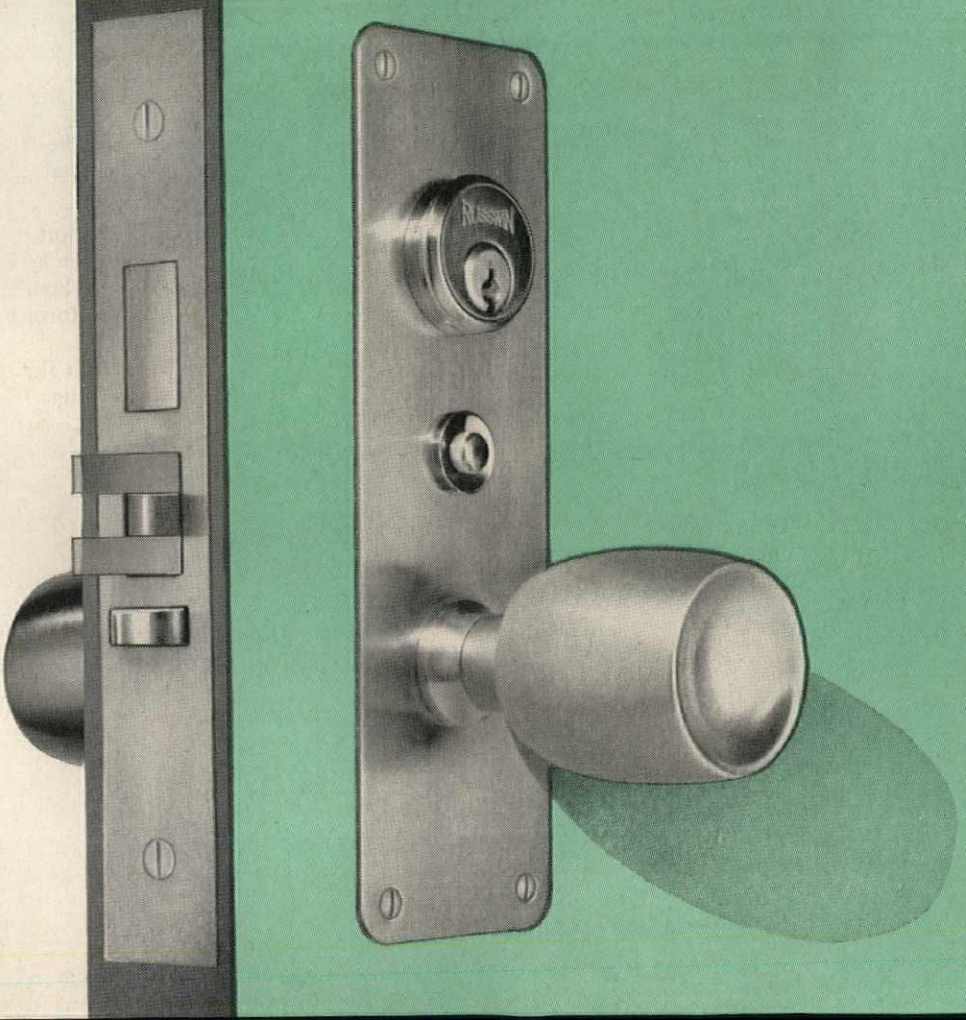

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