

# ARCHITECTURAL RECORD

**2** February 1960

*Building Types Study: Schools*

*Image of the Architect in Practice*

*A Church and School by Yamasaki*

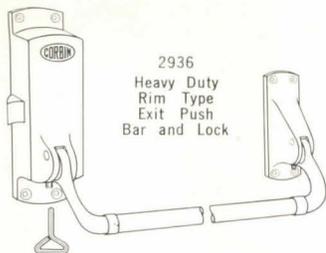
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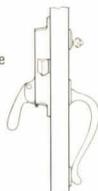
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# ARCHITECTURAL RECORD

February 1960

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Art School, Society of Arts & Crafts, Detroit, Mich. Minoru Yamasaki and Associates, Architects. Baltazar Korab, Photo.

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## Coming in the Record

### ARCHITECTURE THAT SALUTES ITS PLACE

*From Bangkok to San Francisco, the work of John Carl Warnecke has been distinguished by its sensitivity to the essential circumstances of place and purpose. The RECORD series on significant contemporary design continues with an article illustrating the development of this quality in Warnecke's major new buildings.*

### RETAILING AND THE AUTOMOBILE

*The Building Types Study for March examines the impact on the design and organization of facilities for retailing of that familiar but ever more compelling fact, the automobile. The downtown shopping area, the suburban shopping center and stores on the highway will all be discussed in an article by Victor Gruen, and several other architects contribute pertinent examples. Some very thoughtful comment here on current theories, not forgetting the downtown mall.*

### WHAT ABOUT THIN SHELLS?

*Everybody's doing it, as everybody knows, but when is it justified? The first of two articles by a distinguished engineer examining the behavior of shells and (with notable sympathy for architectural considerations) their feasible design applications.*

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## Architects and the City

Questions reaching far beyond New York were raised last month at a forum discussion "What Is Good Design and Planning in New York?" sponsored by The New School in New York with Grand Central City as its focus. To explain the thinking that will put the world's largest office building on one of the world's busiest commercial sites, the forum assembled a distinguished "presentation panel" consisting of the builder, Erwin S. Wolfson; the architect, Richard Roth; and the consulting architects, Pietro Belluschi and Walter Gropius. They were confronted with a "questioning panel" of four, an audience invited to participate in the discussion and the following rather formidable questions listed in the program: "Is New York in danger of overbuilding? Can esthetics be balanced with economics? What is the future for large urban centers? How much responsibility should the architect bear for his product? At what point should civic consciousness influence building design?"

### "Victims of Circumstances"

Perhaps needless to say, the questions were not answered. The trend of the discussion was summarized in these remarks by Victor Gruen, a member of the questioning panel:

"The presenting panel was modest in its claims, very conservative, and very careful not to overstate its case, and the questioning panel was kind and partly took over the task of the presenting panel.

"I guess the reason is that we all feel that under the circumstances the developer and architects did a good and workmanlike job, and maybe one could even say that they did the best they could under the circumstances.

"The question then arises, how about those circumstances? I believe that they are highly unfortunate

from the point of view of urban planning. . . .

"If the developer and architects are, as I believe has been proven, victims of circumstances, who then is the culprit?"

"The villain of the piece is the official attitude towards environmental planning. The fact that this largest city in the nation has still no master plan, that we permit hit or miss construction, that we are not concerned with the separation of various types of traffic, the fact that legislation offers, as I pointed out, no encouragement to good developers but, on the contrary, encourages fullest speculative exploitation of the land. They all form an indictment of the villain. Thus, our questions, which all eight of us, I am sure, have in mind, should be directed to the villain, who is not present in the flesh: governmental agencies, city, state and Federal.

"Yet if we consider it carefully, maybe the villain is present after all. It is all of us, we on the panel and you in the audience. As inhabitants of the city, and as citizens of this country, we have the democratic right and possibility, and duty, to ask for action in order that our urban areas may be saved from destruction by chaos."

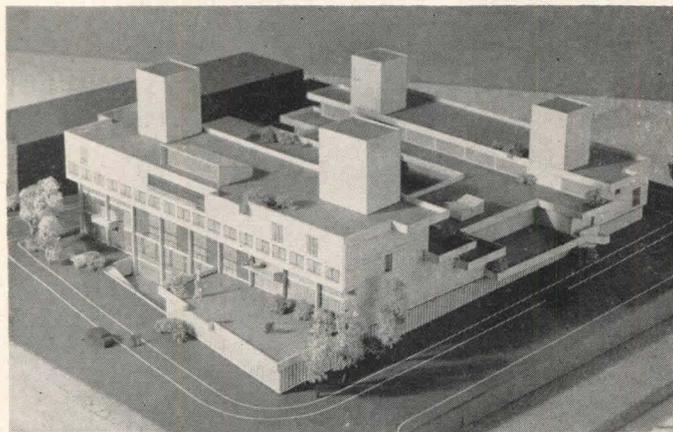
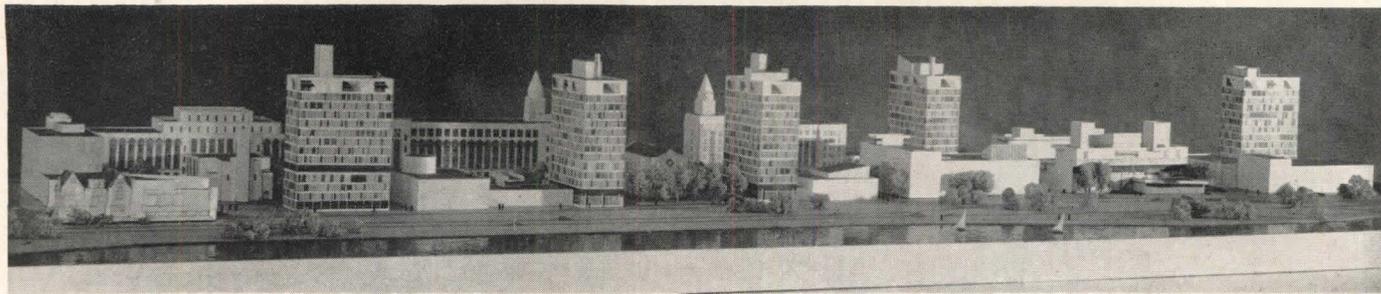
### Plea for Learning

The expanding demands on the architect are continually expanding the requirements of his education, Architect Charles Luckman asserted in a recent address before the Massachusetts Building Congress. "How many architects," he asked, "are being properly educated to qualify as master planners, as architectural leaders of the team effort?" Referring to the RECORD's recent survey of architectural deans (November 1959, pages 177-184, 256, 260), Mr. Luckman noted that there is wide disagreement as to what measures are required to improve education and apprenticeship procedures in

the profession. His own view, he said, is that no proposal for improving formal education makes sense "unless it rests on the premise that the life of the architect is one long pursuit of learning," not just from daily experience but from systematic study. Mr. Luckman proposed a six-point educational program to (1) intensify and multiply refresher courses, seminars and institutes for the practitioner; (2) extend college education for the architect to eight years, culminating in a master's degree in architecture and automatic registration to practice; (3) encourage practicing architects to take on part-time teaching assignments at architectural schools; (4) use more visiting lecturers from the business world in architectural schools; (5) unite architects, engineers, contractors, suppliers, labor leaders and educators in a cooperative effort to encourage youth to prepare for careers in the building industry; (6) provide for fellowships for the architectural practitioner, after his first five or ten years of experience, to finance a year of academic study along lines similar to those of the Nieman Fellowships for journalism at Harvard.

### Astornauts for Building

In line with the occasional efforts of this page to report current developments in the burgeoning field of sidewalk superintendency, let it be known that the latest notice to arrive on this subject was an invitation to join the "Astornauts, an exclusive club for sidewalk supervisors of the new Astor Theater on Times Square." The invitation (which only shortly preceded completion of the building) was accompanied by a pink and white lapel button the size of a fifty-cent piece proclaiming "I am an Astornaut" and a membership card establishing the bearer as "a full-fledged Astornaut, worldly observer of progress and dedicated sidewalk supervisor of the new Astor Theater."

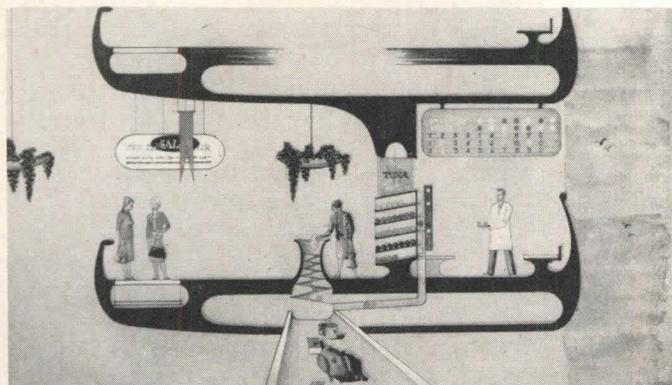


Sert, Jackson & Gourley are architects of a master plan for a new high-rise campus for Boston University (shown in their model above) on the banks of the Charles River. Under a \$60-million, 10-year building program several buildings of 15 or 16 stories will be erected. The first two structures, scheduled for completion in the fall of 1962, are a \$3.6-million academic building and a \$4.4-million University Union Building. The design of the Union building (shown at left) is the first to be approved; its architects are Hoyle, Doran & Berry, with Sert, Jackson & Gourley as consultants

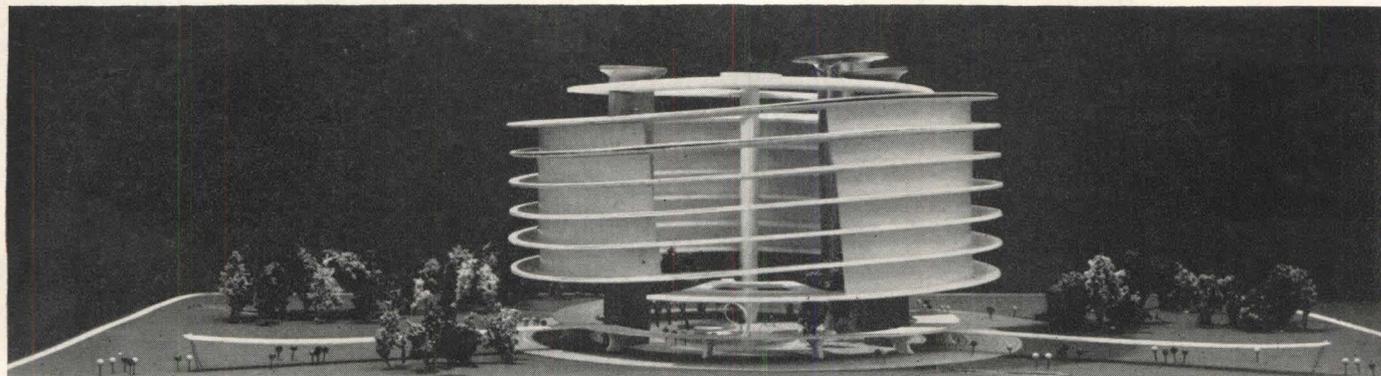
A service station designed by Edward D. Stone has been built by the Gulf Oil Corporation at New York International Airport. Its features include not only a grille, but also transparent plastic roof domes, canopy supported by gold-painted steel pillars, three hanging gardens, and planted alcoves. Jack Glicksman was the general contractor



Hale Haberman



A "Supermarket of the Sixties" was shown in model form recently. Its designers, who were commissioned by the Daitch-Shopwell supermarket chain, are William N. Breger, A.I.A. (chairman of the department of architectural design, Pratt Institute), and Michael Brill. A shopper would ride a moving sidewalk down a spiral ramp past food displays, picking and marking with a code number items along the way. On the main floor, all the groceries she had chosen would be assembled for her final decision before a computer added up the bill. She would then pay a change-making automated cash receiver



# COPPER

simplifies plumbing  
in big addition to  
Children's Hospital,  
Pittsburgh



**MAKING A SOLDER JOINT** on an 8-inch copper soil and waste line — the largest size used in the drainage system. Solder-joint connections are one of the important reasons why copper tube systems are so much easier and faster to install.

**S**OME 70,000 pounds of Anaconda copper tube were used in the sanitary drainage system, hot- and cold-water lines, oxygen, vacuum, and compressed-air lines of the addition to Children's Hospital in Pittsburgh.

Copper plumbing provides the advantages of easier, faster installation, with additional economies in design and construction made possible by the lighter weight of copper tubes and the trim, space-saving, solder-joint fittings. Equally important, however, are the long-range benefits. Copper tube systems last longer, require less maintenance than systems of other materials.

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**ARCHITECT'S RENDERING** of Children's Hospital Addition (foreground) at Pittsburgh. *Architect:* Alfred D. Reid Associates, Pittsburgh. *Consulting Engineer:* J. A. Murray, Pittsburgh. *Plumbing Contractor:* Sauer, Inc., Pittsburgh.



**TESTING A VALVE** on the hot-water supply system. Other copper tube lines in view are part of the sanitary drainage system, ranging in size from 1½ inches to 4 inches. Because connections are easily made, even in tight quarters, the lines can hug the ceiling.

**Anaconda Copper Tubes** are available in all standard wall thicknesses — Types K, L, M, and DWV (Copper Drainage Tube) — through plumbing wholesalers. There's a full line of Anaconda wrought and cast solder-joint fittings. For more information on ALL-COPPER plumbing, write: The American Brass Company, Waterbury 20, Conn. In Canada: Anaconda American Brass Ltd., New Toronto, Ont.



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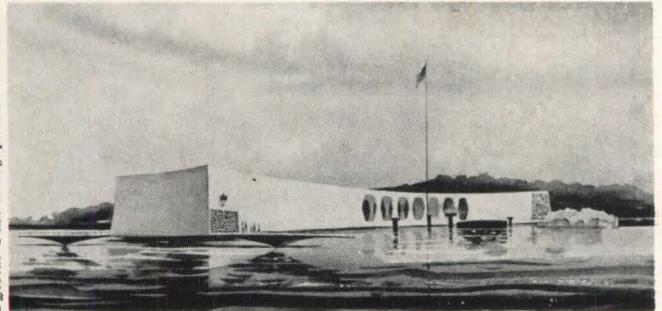


Completion is scheduled for August, 1961, on this downtown office building in San Francisco. The \$10-million structure will be headquarters for the American President Lines and Natomas Company. The steel-frame tower has recessed-L corners, doubling the number of corner offices. White quartz faces the 22-story building. Anshen & Allen, architects; Dinwiddie Construction Co., general contractor



Camera Hawaii

The \$100,000 administration building at Hawaiian Memorial Park on Oahu, opened last month, is of concrete tile block with a folded plate roof and concrete grilles. The structure was designed by Wimberly & Cook Architects, Ltd.; the Highway Construction Co. was general contractor



Official U.S. Navy photo

This 186-ft-long rectangular concrete structure over the sunken U.S.S. *Arizona* in Pearl Harbor is due to be completed in time for its dedication next December 7. The memorial to the 1102 men still entombed in the ship will contain a museum. Johnson & Perkins-Preis, architects



The Minnesota Mining & Manufacturing Co.'s research and administrative headquarters near St. Paul, as it is expected to look in about 1975. Three laboratories in foreground have been built. The tallest structure is the 14-story administration building (model shown at



right), scheduled for completion in early 1962. The \$10-million building will provide 500,000 sq ft. Ellerbe and Company are architects and planners for the research center and administration building



Two Texas banks designed by George L. Dahl, F.A.I.A. Above: The \$8-million El Paso National Bank, 19 stories and a penthouse. Carroll & Daeuble are associate architects. Below: A branch for the Dallas Federal Savings & Loan Association. Cost: \$432,539. J. E. Morgan & Sons, general contractor



A proposal for the redevelopment of a central area in Newark, N. J., is shown in model form at top. The plan envisages the elimination of a blighted area and the erection of apartments, office buildings, parking garages, and a shopping center. Certain existing buildings (darker color) would remain. The rendering is of a view into a planned square. The estimated cost is about \$200 million, and the estimated time of construction, about five years. The proposal recently was submitted to the city by John W. Galbreath & Company and the Turner Construction Company. The architects are John R. Diehl & Francis R. Stein. Planning consultants are Urban Planning Associates



Washington Evening Star photos

The new Swiss Chancery in Washington was designed by Swiss-born William Lescaze, F.A.I.A. The exterior photograph shows the main building at left, connected with a glass-walled auditorium by a glass-enclosed corridor. The main stairway is shown in other photo. John McShain, Inc., general contractor



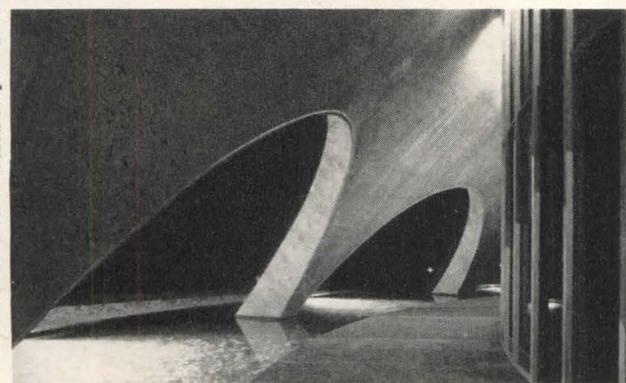
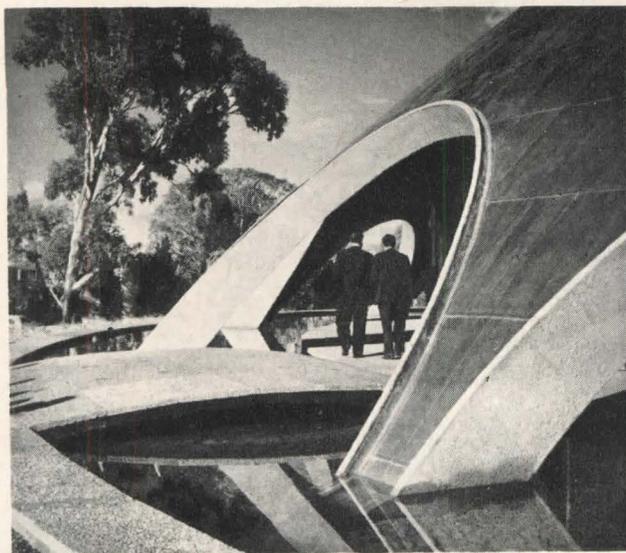
## DOME IN AUSTRALIA SHELTERS SCIENCE HEADQUARTERS

A copper-skinned dome springing from a circular moat is the new Australian Academy of Science building in Canberra. The architects were Grounds, Romberg and Boyd of Melbourne, who were scheduled on January 29 to receive the second annual Pan-Pacific Architectural Citation of the Hawaii Chapter of the American Institute of Architects for "work of exceptional merit in the Pacific area." Structural consultants: W. L. Irwin and Associates and the department of engineering, University of Melbourne. Acoustical consultants: Bolt, Beranek & Newman. General contractor: Civil & Civic Contractors, Ltd.

The 24,175-sq-ft structure, 166 ft in over-all diam, contains a central conference chamber for 150 people, reception rooms, several offices, an exhibition gallery-reading room. The design arose in part from the necessity to provide for both the occasional accommodation of large groups and regular supervision by a staff of only one or two; thus there is a single external entrance. The wide overhang is for sun control.

Because the 16 large scallops presented problems in the calculation of stress distribution, strain measurements were carried out on a scale model. The concrete ring tying the 16 points of the dome together is the bottom of the moat; each point, which carries 45 tons, is connected to the ring with a hinged joint.

In the conference chamber, acoustical provisions include plywood discs tuned with absorbing and reflecting panels.

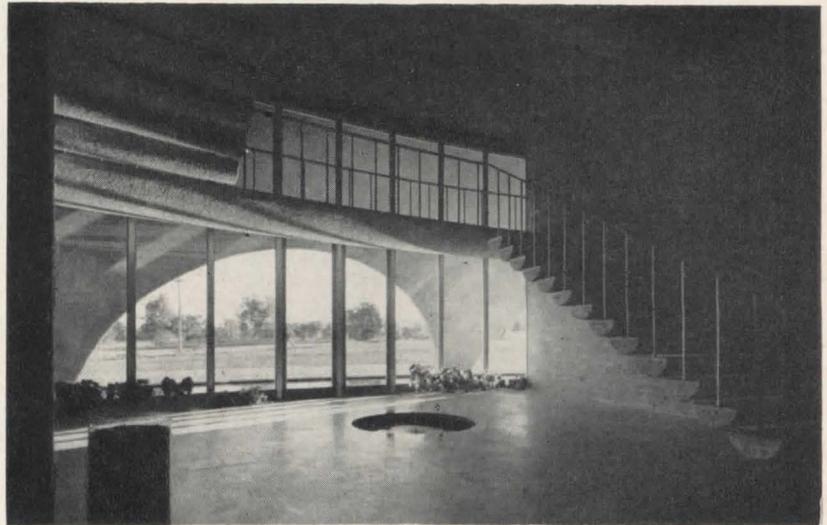


*Photos: Kenneth Ross and Max Dupain Studio*

The bridge across the moat, shown in upper photograph, leads to the one entrance to the building. Above, a night view of the cloister skirting the moat



1



2

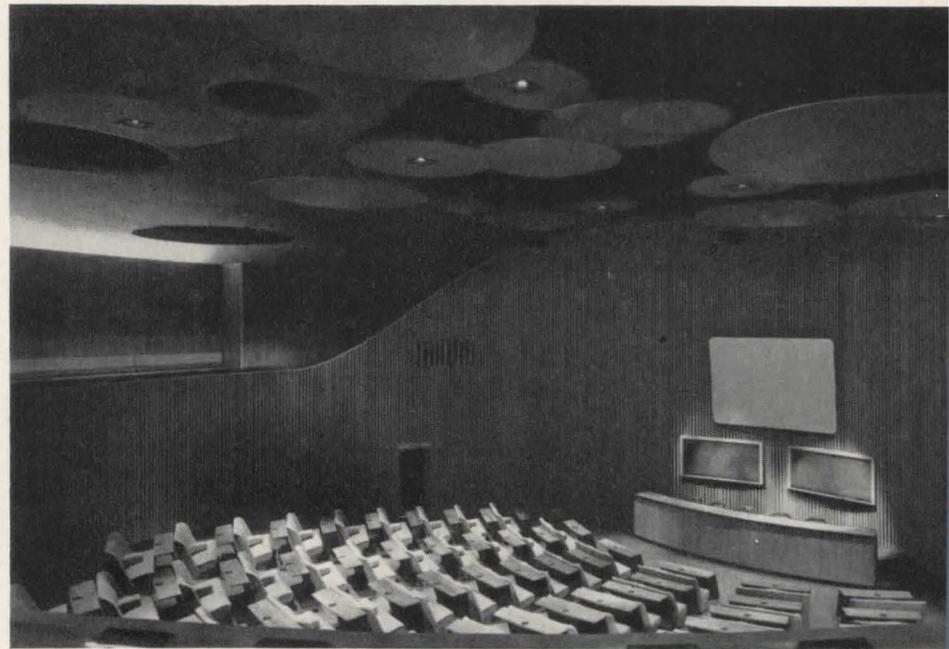
1. The entrance foyer, showing reflections from the moat

2. One of the two identical stair halls

3. Looking down at the conference chamber from the gallery. The acoustical plywood discs suspended from the dome can be seen

4. The council room, the only room with curtains, for privacy

5. The Fellows' room, with shell-vaulted ceiling



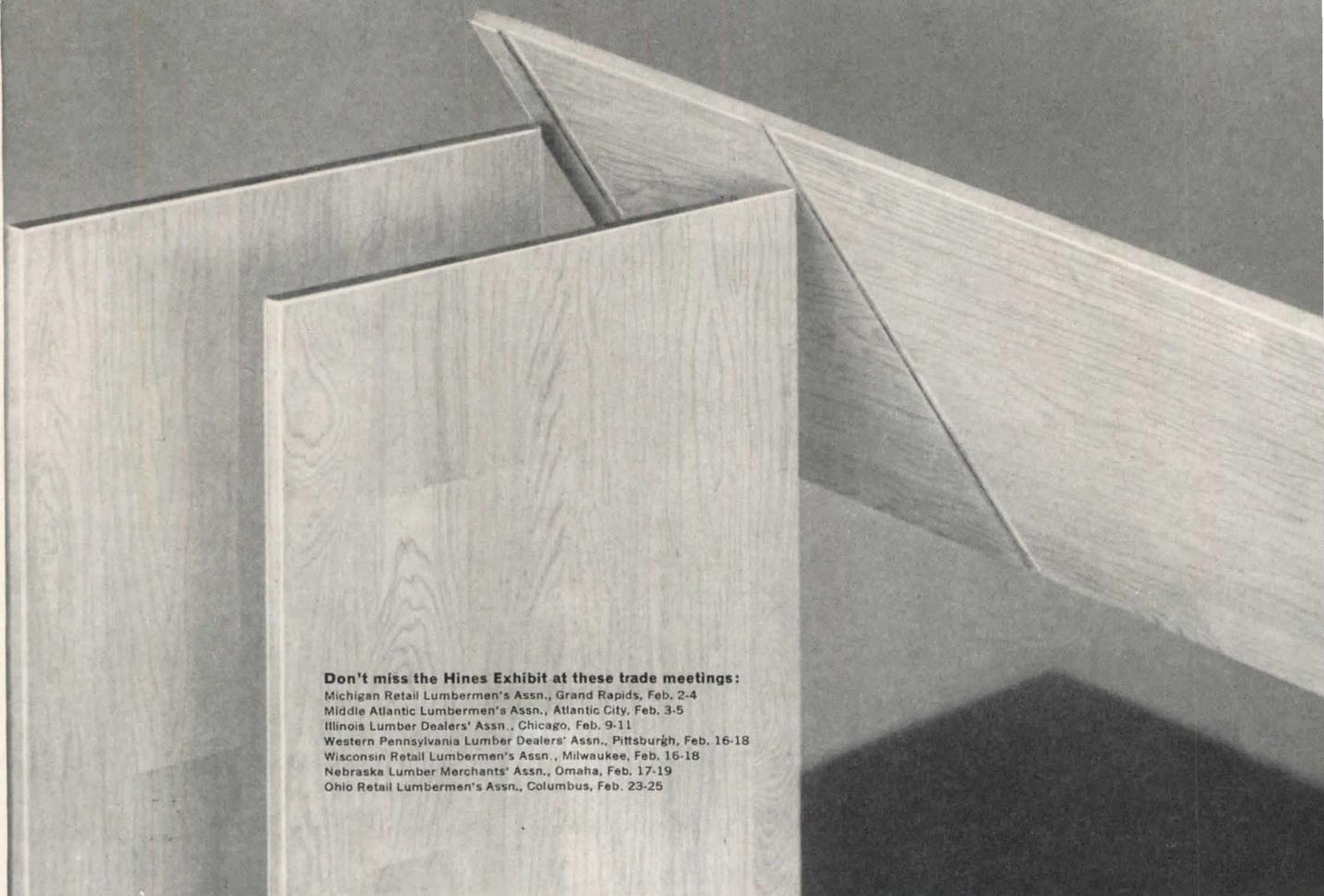
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# HINES



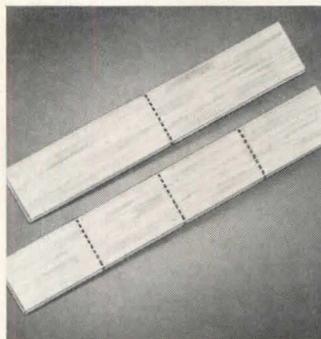
**Don't miss the Hines Exhibit at these trade meetings:**

Michigan Retail Lumbermen's Assn., Grand Rapids, Feb. 2-4  
Middle Atlantic Lumbermen's Assn., Atlantic City, Feb. 3-5  
Illinois Lumber Dealers' Assn., Chicago, Feb. 9-11  
Western Pennsylvania Lumber Dealers' Assn., Pittsburgh, Feb. 16-18  
Wisconsin Retail Lumbermen's Assn., Milwaukee, Feb. 16-18  
Nebraska Lumber Merchants' Assn., Omaha, Feb. 17-19  
Ohio Retail Lumbermen's Assn., Columbus, Feb. 23-25

## MAKES A CLOSET WALL



**Only waste is the sawdust!** The Hager Manufacturing Company of Mankato, Minnesota, uses Hines Widewood to make pre-cut closet wall units, cabinet ends and other types of millwork. Hager buys Hines

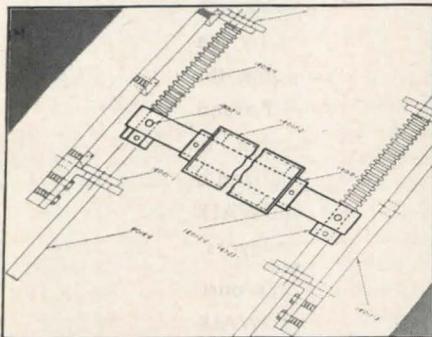


Widewood  $\frac{3}{4}$ " x 24" in 16' lengths, clear grade. Sawing one piece in half makes the sides of a closet wall unit. Three cuts in a second piece yield the top, bottom and shelves. Sides are rabbeted to hold shelf ends.



## Ever Want Prints Emphasizing Parts of a Drawing?

Engineers, architects and many other types of technical people often want prints that separate key parts of a drawing from the rest of it, and some weird and costly techniques have been used. This is understandable because the cost of *not* getting good separation or emphasis can also be shocking. Take the case of a large West Coast engineering organization constantly involved in plant construction. They used sepia prints of floor plans to lay out the electrical work. But the lack of contrast between the plumbing shown in the sepias and the electrical layouts added required hours of careful checking and frequent revisions, even caused some expensive construction errors.



Diazo print from special-blue image intermediate produces a sharp contrast between the parts to be emphasized and those to be subdued.

That's all ancient history now! Two of Dietzgen's numerous modern drafting-printmaking aids have turned this tough old chore into a picnic. They are new drafting media (one a polyester film and

## SOLVED: A COSTLY PROBLEM OF COMBINING DRAWINGS AND GRAPHS



Drafting time costing as much as \$40 was used to draw a single grid...and draftsmen resented the tedious assignment.

A large manufacturer of automotive parts decided to plot their graphs directly on the drawings in order to end the nuisance of their being separated in

the other a vellum) diazo sensitized to produce a special blue image. The reproduction of your basic drawing on either of these media is bold and clear so drafting additions can be made without confusion or error. But when you make prints from the completed intermediate, the basic part in the special blue prints faintly (clearly visible but subdued) . . . while the added drafting, even in pencil, prints strong and bold. The results are perfect, easily and quickly obtained, delightfully inexpensive.

handling, filing, plant interchange, etc. But this created many new problems. Tracing or drawing the grids in position proved costly, as much as \$40 each in drafting time. They were rarely accurate and never uniform in character. The lines often smudged and usually reproduced poorly. The work created a morale problem because draftsmen resented the tedious assignment.

One of Dietzgen's modern drafting-printmaking aids furnished a perfect answer! It is a light-weight drafting film which is adhesive-backed and furnished printed with a stock grid. It is simply mounted in place and the grids are sharp, clean, clear and uniform, so much more accurate that fewer plotting points are needed to develop the graphs. Reproductions were so noticeably better as prints moved through other departments and associated plants that the change was investigated and quickly adopted. Much needed drafting time and capacity is saved and the reduction in costs amounts to many thousands of dollars a year.

### Drafting-Printmaking Handbook reports new techniques for solving engineering and production problems

This new 36 page handbook describes a wide variety of engineering and production problems that have been solved with advance techniques in drafting and printmaking pioneered by Dietzgen. The concise, problem-solution approach suggests ways in which you may improve

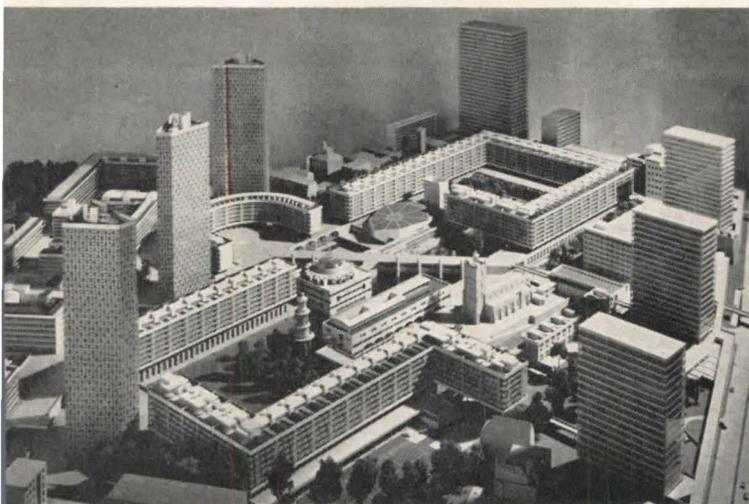
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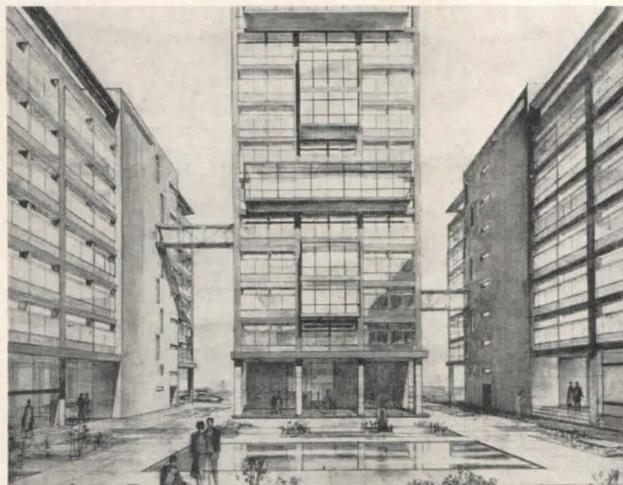
EVERYTHING FOR DRAFTING  
SURVEYING & PRINTMAKING

## Four New Developments for London



Model illustrating the proposed redevelopment scheme for the Barbican area of London. Projected are some 2000 middle- and upper-income apartments, new buildings for the City of London School for girls and for the Guildhall School of Music and Drama, a hotel, shops, a fire station, and other adjuncts of a residential community. One of the features of the scheme would be the re-erection of the rotunda of the present Coal Exchange—which is a favorite with devotees of cast-iron architecture—to form a central concourse for the music school. Chamberlin, Powell and Bon are the architects; Ove Arup and Partners are the structural engineers

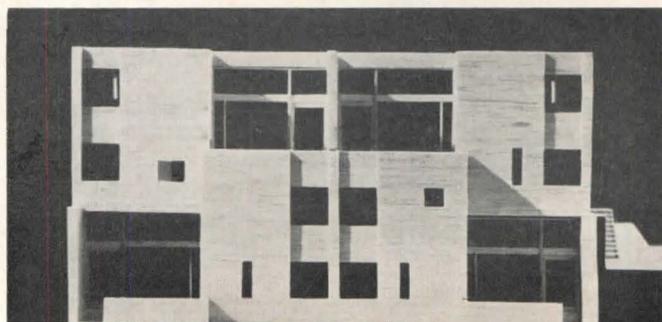
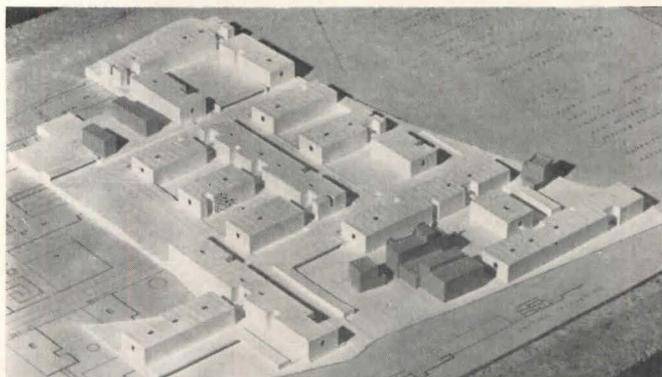
This design for Site 2 of the comprehensive re-development of the Elephant and Castle section of South London consists of three office blocks grouped around a central courtyard (shown below) and incorporates provision for re-housing two banks and a public house that at present occupy the site. The architect is Erno Goldfinger

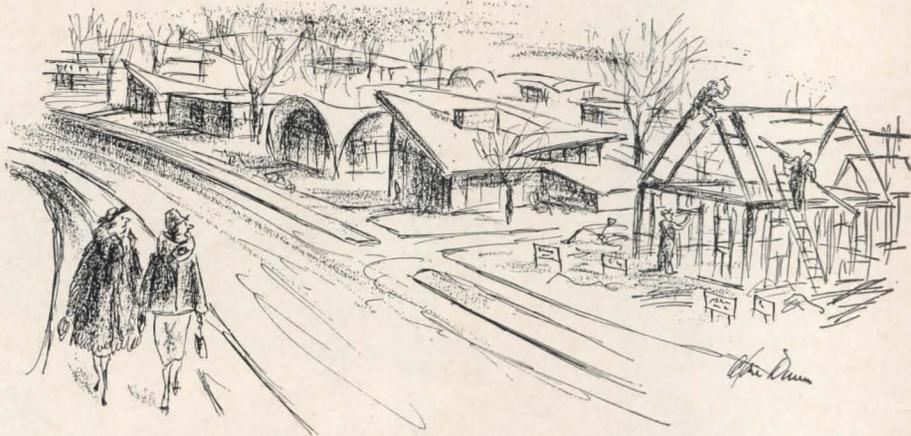


This housing scheme for the St. Pancras Borough Council achieves a density of 136 persons to the acre solely through a flexible system of three-and-a-half-story maisonette blocks. Accommodation ranges from bed-sitting rooms to six-room apartments, and there is ample provision for garaging or parking of cars. Below are a block diagram of the site and a model of an individual maisonette unit. Professor Sir Leslie Martin is the architect



Construction has begun on New Zealand House, the administrative and social headquarters for the New Zealand government in London, which will stand at the corner of the Haymarket and Pall Mall. A four-story base covering the entire site is surmounted by a 15-floor tower block. The resulting building will be 225 ft high, tall enough to be one of the most prominent features of the London skyline. Architects: Robert Matthew & Johnson-Marshall; structural engineers: Scott & Wilson, Kirkpatrick & Partners





—Drawn for the RECORD by Alan Dunn

“I think they’re just trying to stand out!”

### Colbert Named Columbia Dean

Charles R. Colbert has been appointed dean of the Columbia University School of Architecture. Mr. Colbert is senior partner of Colbert and Lowery and Associates, New Orleans architectural firm. He will assume his new duties on April 1.

Mr. Colbert has been given a leave of absence for the first three months of his new position to inspect other centers of architecture in this country and Europe and to compare and evaluate educational techniques.



The new dean, the sixth head of the Columbia school, succeeds Leopold Arnaud, who retired a year ago. In the interim, James Grote Van Derpool has been acting dean.

Mr. Colbert is a graduate of the Columbia school. He has been assistant professor of architecture and lecturer in city planning at Tulane, and in 1956-57 he directed the division of architecture at Texas A. & M. He is a past president of the New Orleans chapter, A.I.A.

### Plans for 1964 World's Fair

Though the World's Fair is definitely to be held in New York in 1964, and the New York World's Fair 1964 Corporation is a going concern, at press time publicity arrangements had not quite shifted to high gear. One reason is that certain key personnel were yet to be named: the members of the board of design and the president of the corporation.

But progress has been made. For instance, a temporary official symbol has been evolved (see inset). It was designed by Milton Ackoff, graphics designer for the Fair, and will be used until a permanent official symbol is chosen as the result of an international competition. The symbol, which incorporates the Fair's permanent theme, “Peace Through Understanding,” has blue, yellow, and red peripheral sectors and a black central triangle; the lettering is on white. These colors were chosen because they are those that appear most often in the flags of all nations.



Robert Kopple, executive vice

president of the Fair, gave some other facts in a talk at New York's Engineers Club recently: The 1964 Fair, which is expected to cost \$500 million and attract 60 million visitors, will be open for six months. By June it is expected that the staff will be complete, and the Administration Building is scheduled to be built during 1960. The board of design will have the challenging job of translating the theme into overall design concepts, while still allowing individual design expression to the many national and corporate exhibitors (it is expected that more than 80 nations and every major U. S. corporation will participate).

### Reynolds Award Jury Chosen

The five members of the jury who will select the structure to receive the fourth annual \$25,000 R. S. Reynolds Memorial Award have been named by the American Institute of Architects. The presentation will be made at the A.I.A.'s April annual convention. The jury members are: Walter Gropius, F.A.I.A.; Philip Will, Jr., F.A.I.A.; James M. Hunter, F.A.I.A.; Arthur Fehr, F.A.I.A.; C. E. Pratt, F.R.A.I.C.



# Molded Drawers make built-ins behave...

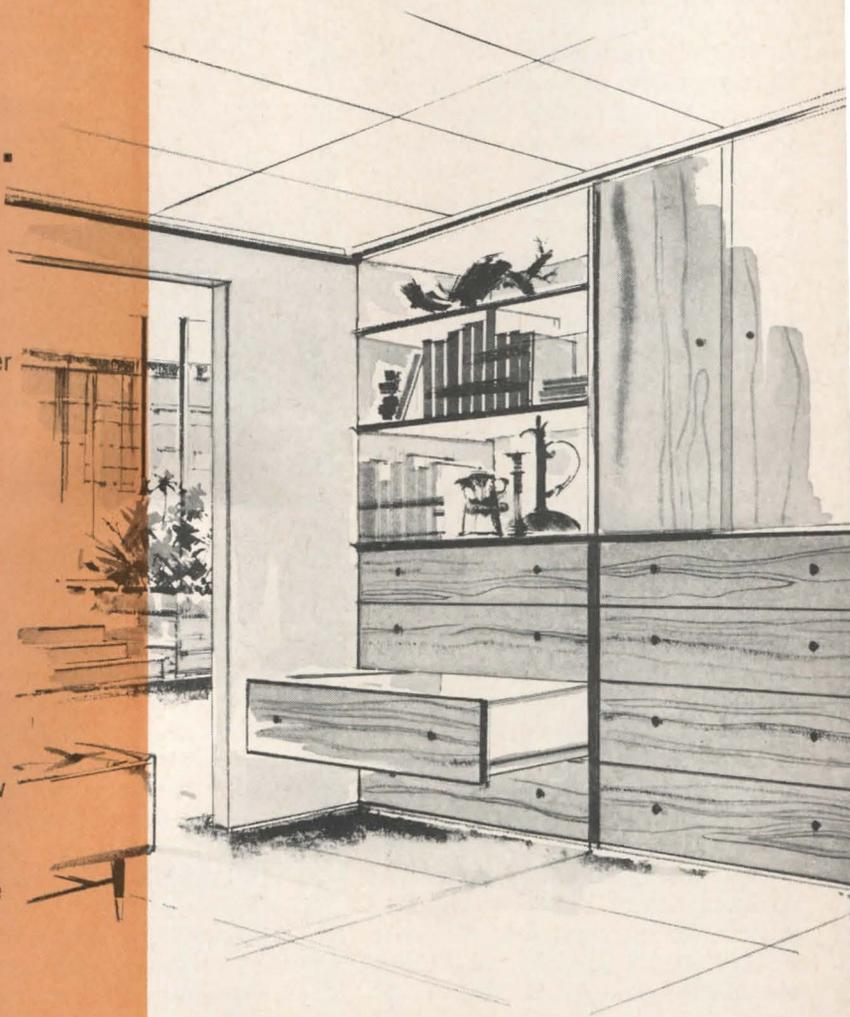
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## Competition for Memorial

Last fall, Congress set aside 27 acres in West Potomac Park, Washington, for a memorial to Franklin Delano Roosevelt, and appropriated \$150,000 for holding a competition for its design. Edmund N. Bacon, executive director, Philadelphia Planning Commission, has been appointed professional adviser to the competition. At press time, other arrangements were still pending.

## Worth the Winning

NATIONAL COMPETITION FOR DESIGNER-CRAFTSMEN, sponsored by the American Craftsmen's Council. The theme is: "Designed and Handcrafted for Use." Accepted entries will be exhibited at the Museum of Contemporary Crafts in New York, May 27-September 11, and some will receive awards; the exhibit will be circulated afterwards. Entries may be made in any one of five use-groups. Entry forms are due by March 23, and entries by April 15. Details from: American Craftsmen's Council, 29 W. 53rd St., New York 19.

THE SECOND ANNUAL COPPER AND BRASS ACHIEVEMENT AWARD, sponsored by the Copper & Brass Research Association. The award—\$1000 and a bronze symbol—honors "the year's most significant advancement" in the use, application, or metallurgy of copper, brass, bronze or other copper-base alloys. The deadline for submission of entries is March 31. Details from: Copper & Brass Research Assn., 420 Lexington Ave., New York 17.

THE 13TH ANNUAL ENGINEERING UNDERGRADUATE AWARD AND SCHOLARSHIP DESIGN PROGRAM, sponsored by the James F. Lincoln Arc Welding Foundation. To be submitted are designs for machines, machine components, structures, or structural parts in which arc welding is of major importance. Resident undergraduate students in architecture and all branches of engineering are eligible. Duplicate awards, ranging from \$500 down, are made in both mechanical and structural divisions. There are also three grand awards of \$750, \$500, and \$250; scholarship funds are, in addition, granted to the schools represented by the recipients of these three awards. The deadline for submission of entries is

New York's newest monument, opened last month by the American Battle Monuments Commission, is the East Coast War Memorial in Battery Park. On the eight granite pylons are inscribed the names of 4596 American servicemen lost in the coastal waters of the Atlantic during World War II. An 18½-ft bronze eagle (Albino Manca, sculptor) will be placed later on the center pedestal, on axis with the Statue of Liberty. The architects are Gehron & Seltzer



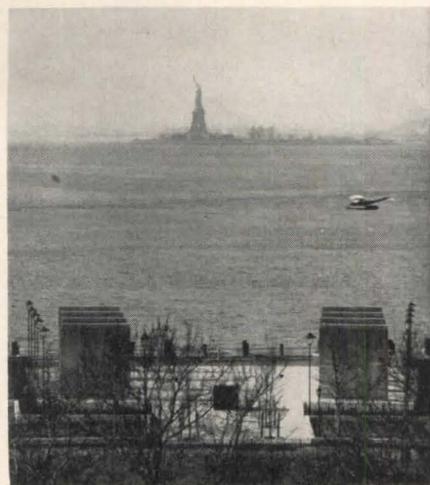
July 1. Details from: The James F. Lincoln Arc Welding Foundation, Cleveland 17, Ohio.

CORNELL UNIVERSITY, GRADUATE DIVISION OF ARCHITECTURE AND FINE ARTS: fellowships, scholarships, and assistantships in architecture, landscape architecture, city and regional planning, painting, sculpture. Applications are due by February 12.

CRANBROOK ACADEMY OF ART: scholarships in architecture, ceramics, design, graphics, metalsmithing, painting, sculpture, weaving and textile design. Applications are due by March 1.

HARVARD UNIVERSITY, GRADUATE SCHOOL OF DESIGN: scholarships and fellowships in architecture and landscape architecture (including the Arthur W. Wheelwright Fellowship in architecture for travel and study abroad; holders of Harvard B.Arch. or M.Arch. degrees are eligible; the stipend this year is more than \$6000; nominations from the profession are welcomed). Applications are due by March 15.

UNIVERSITY OF ILLINOIS, COLLEGE OF FINE AND APPLIED ARTS: the Kate Neal Kinley Memorial Fellowship of \$1500 for one year of study. Eligible are graduates of the College and similar institutions whose principal



Morris Ketchum Jr., president of the Architectural League of New York (right), and David R. Campbell, president of the American Craftsmen's Council, go over plans for the League's 61st National Gold Medal Exhibition, due to open February 26 at the Museum of Contemporary Crafts, New York, and run through May

studies have been in architectural design or history or in music or art. Applications are due by May 18.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY, SCHOOL OF ARCHITECTURE AND PLANNING: fellowships and scholarships, including four new doctoral fellowships in urban design and land use and transportation. Applications are due by February 15.

UNIVERSITY OF MICHIGAN, DEPARTMENT OF ARCHITECTURE: graduate scholarship and fellowships. Applications are due by April 1.

ROTCH TRAVELLING SCHOLARSHIP: applicants must be American citizens under 31 whose architectural record includes study or experience in Massachusetts. Applications are due by March 21. Details from: William G. Perry, Secretary, Rotch Travelling Scholarship Committee, 955 Park Square Bldg., Boston 16.

## MAJOR CURRENT COMPETITIONS

- National Competition for Designer-Craftsmen (see above)
- The Second Annual Copper and Brass Achievement Award (see above)
- The Second Annual \$25,000 Mastic Tile Architects' Competition (Jan., p. 25)
- The 13th Annual Engineering Undergraduate Award and Scholarship Design Program (see above)

## The Record Reports

### Committee for Protection of Designs Promotes Remedial Bill Pending in Congress

Increasing concern about unauthorized copying of designs of useful articles has led to the formation of a committee to promote the passage of remedial legislation in Congress. In fact, a bill was introduced in the Senate last May 28 by Senators Joseph C. O'Mahoney (D-Wyo.), Alexander Wiley (R-Wis.), and Philip Hart (D-Mich.). The sponsors are three of the four members of the Senate Subcommittee on Patents, Trademarks and Copyrights, the subcommittee to which the bill has been referred (Senator O'Mahoney is chairman of the subcommittee). It was expected that hearings would begin this month.

The committee, which began active operations in July, 1958, is the National Committee for Effective Design Legislation. Its officers are: George Lucas, Jr., chairman (president, L. E. Carpenter & Company, vinyl manufacturer); D. J. DePree, vice chairman (president, Herman Miller Furniture Company); Forest Wilson, vice chairman (industrial designer and chairman, Design Protection Committee, Industrial Designers Institute); O. E. Cumings, Jr., treasurer (general counsel, Oneida, Ltd., silversmiths). The executive secretary and counsel is Alan Latman.

According to Mr. Latman, the Senate bill has been interpreted as including architectural designs.

Among the organizations that are members of the N.C.E.D.L. are the American Institute of Architects, American Society of Industrial Designers, Industrial Designers Institute, National Society of Interior Designers. Of the A.I.A. Mr. Latman says: "The American Institute of Architects was one of our charter members and has been extremely helpful in every way. It is encouraging to note the effective nature of A.I.A. activities for a cause which the Institute feels is morally right."

The N.C.E.D.L. refers to the unauthorized copying of the appearance of someone else's product as "design piracy"—appropriating artistic work which is commercially valuable to its creator. According to the committee, this practice "is rampant in many industries. . . . The pirate relies on the proven success of another's venture. He not only undertakes no designing expense but takes no risks as to popular approval of a design. He is thus enabled to undercut the competitor in price and usually tries to add to his profits by using inferior materials and workmanship. . . . This practice is possible because of a gap in the present laws concerning patents, copyrights and unfair competition."

Briefly, the O'Mahoney-Wiley-Hart Bill (S. 2075) would protect the creator of an original design intended to give an ornamental appearance to a useful article. Protection against unauthorized copying would last for five years after the design had first been made known publicly. A design owner would have remedy for infringement by civil action; certain specific remedies could be awarded to a successful plaintiff by a court.

The N.C.E.D.L. solicits contributions to further its educational and legislative work. Its address is 200 East 42nd St., New York 17.

more news on page 52



The walnut desks are available in open style as well as closed.



Designer, Charles U. Deaton

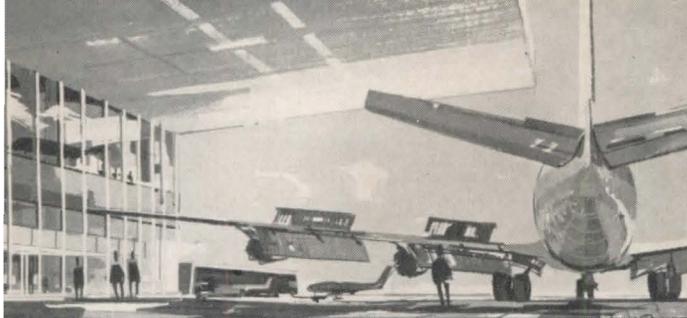
The Template Group's interchangeable components allow unlimited combinations for executive, secretarial and clerical offices. The group includes executive L desks, bi-level L desks, double pedestal and conference desks, tables, cabinets, chairs and credenzas. All combine veneer finished walnut with brushed 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.**

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Coordinated chair line includes two swivel chairs, two arm chairs, a side and secretarial chair.



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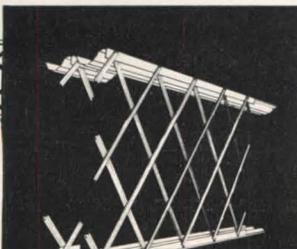
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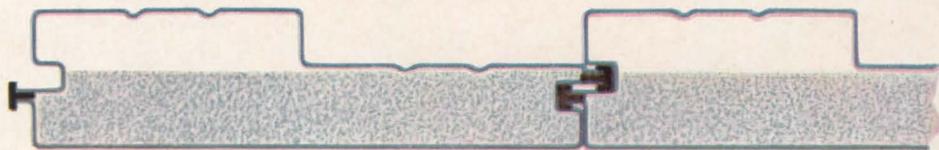
A factory-assembled wall panel in one foot modules . . . one that is self-sealing for life by mere installation. You never caulk it. And there are no visible outside joints or fasteners to mar the surface. This is Monopanl, the most unusual curtain wall. Tongue-and-groove joints with double vinyl gaskets provide the seal. The cross section sketch shown below tells the story.

Spanning ability is exceptional, as you can see from the configuration. Glass fiber insulation will not settle.

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For further information refer to Sweet's 1960 Architectural File. For complete technical details and actual samples of Monopanl, contact your Butler Builder. He's listed in the Yellow Pages under "Buildings" or "Steel Buildings." Or write direct for a descriptive brochure and data sheets.

*...the most unusual curtain wall*



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FIRST HONOR AWARDS: *Above, left:* Laboratory Buildings for Rice Institute, Houston. George Pierce-Abel B. Pierce, architects; Marshall Construction Co., general contractor. *Above, right:* Residence for Mr. and Mrs. M. L. Cook, Friendswood. Bolton & Barnstone, architects; Knoll Planning Unit, interiors; Pine Construction Co., general contractor



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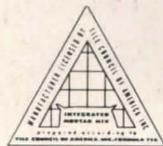
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**Five Buildings Win Awards  
In Texas Program**

The five buildings shown on this page and page 56 won awards in the Texas Architecture 1959 program of the Texas Society of Architects. Two First Honor Awards and three Merit Awards were given.

The members of the jury were: John Dinkeloo of Eero Saarinen & Associates, Birmingham, Mich.; Marshall H. Walker of Walker & Walker, Shreveport, La.; William Stephen Allen, F.A.I.A., of Anshen & Allen, San Francisco.

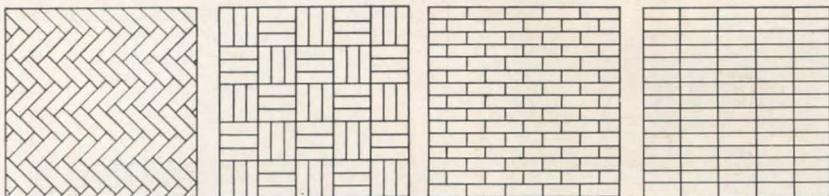
Work was exhibited by 29 firms, including the five winning firms.



MERIT AWARD: First Christian Church, Houston. Brown & McKim, architects; Marxen & Son, general contractor

*continued on page 56*

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Natural Oak



Dark Oak



Standard O



Ice Blue



Mahogany



Beige



Black

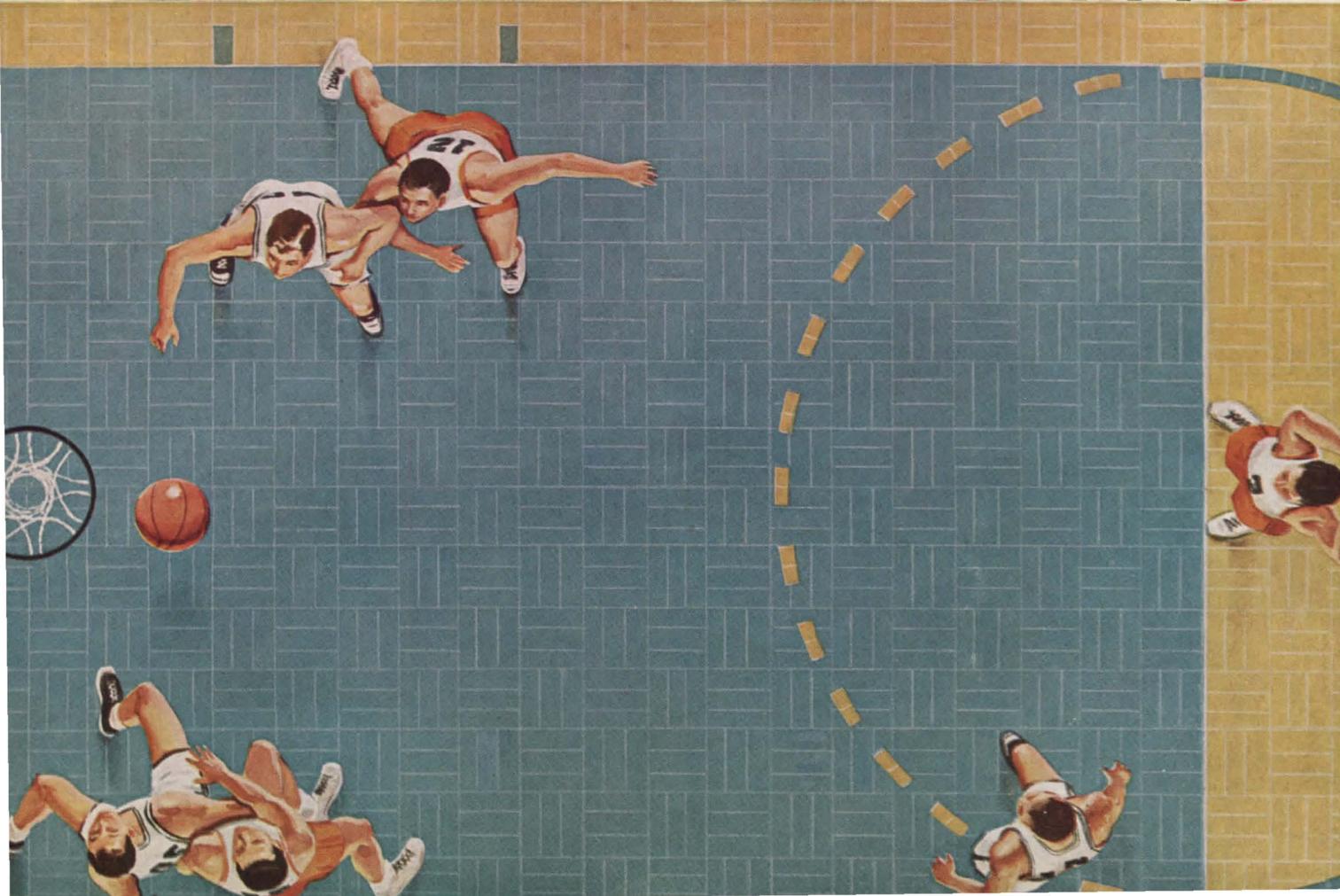


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Grey



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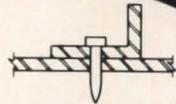
WOOD TO CONCRETE



STEEL TO CONCRETE



WOOD TO STEEL



STEEL TO STEEL



INTO STEEL



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### The Record Reports

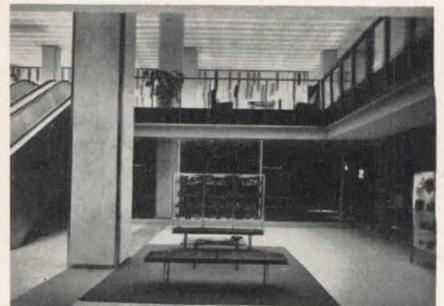
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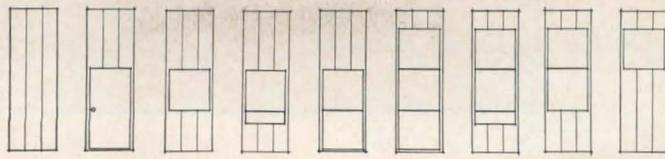
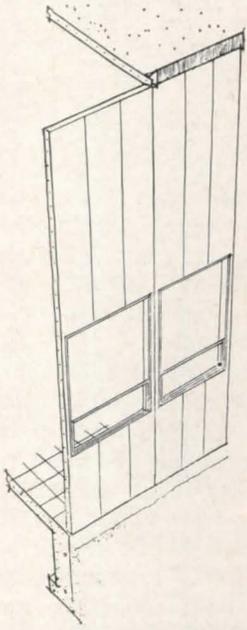
MERIT AWARD: Utilities Plant, Exchange Park, Dallas. Lane, Gamble and Associates, architects and engineers; J. E. Morgan and Sons, general contractor



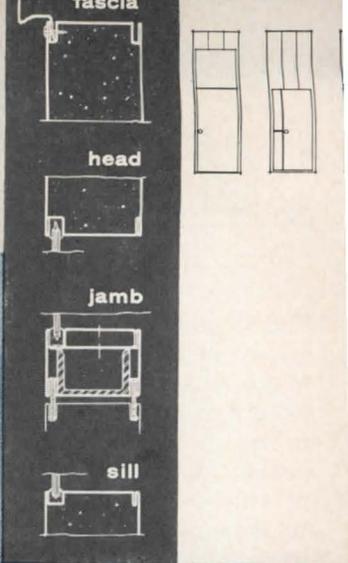
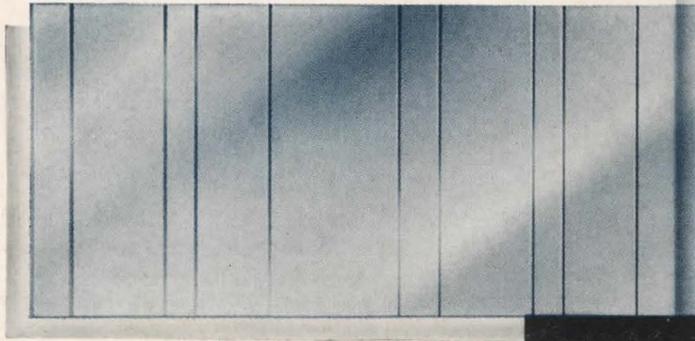
MERIT AWARD: Gibraltar Savings & Loan Association, Houston. Greacen and Brogniez, architects; J. Victor Neuhaus III, associate architect; Marshall Construction Co., general contractor



more news on page 58



typical panels



Teague suggests  
**SHARONART** \*  
 to add life to prefabricated walls

Sharonart\*—Sharon's popular rolled-in patterned steel—is the ideal material for adding spark to prefabricated wall panels. Here famed designer Walter Dorwin Teague suggests a random line pattern that could either "hide" or emphasize panel joints and give each building an attractive individuality.

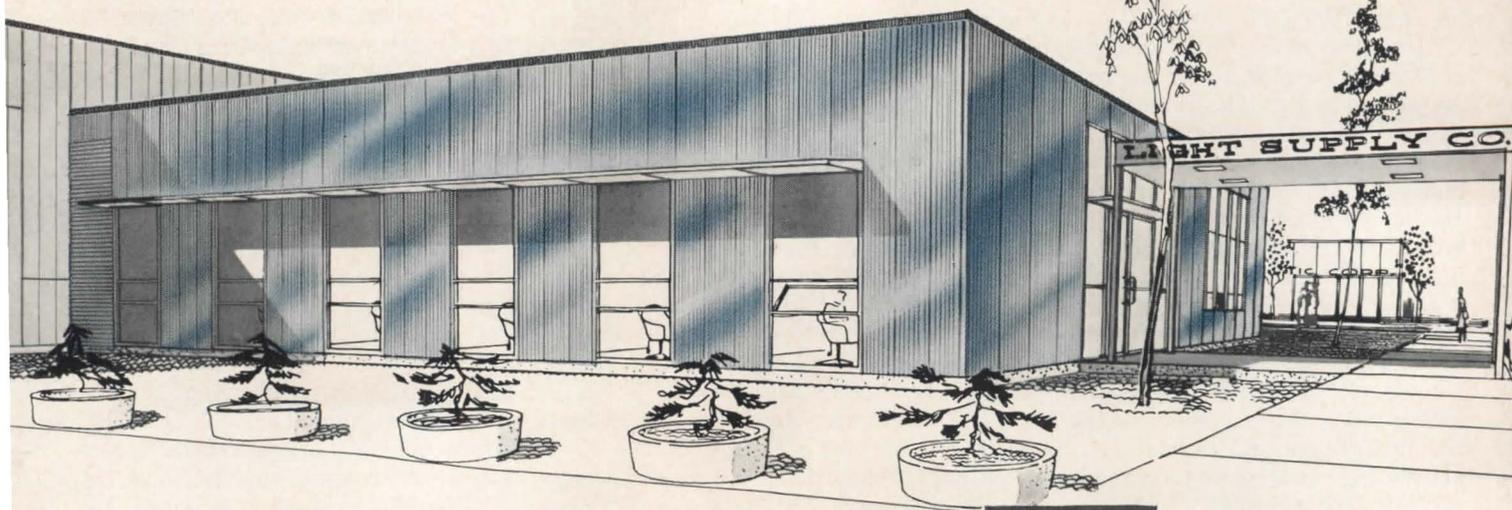
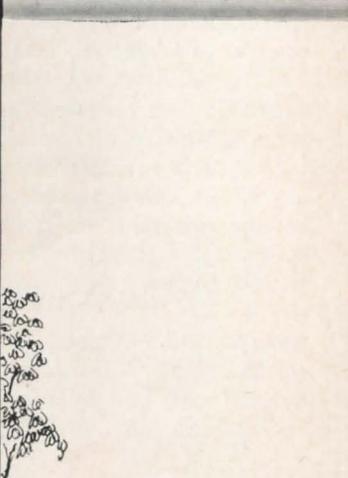
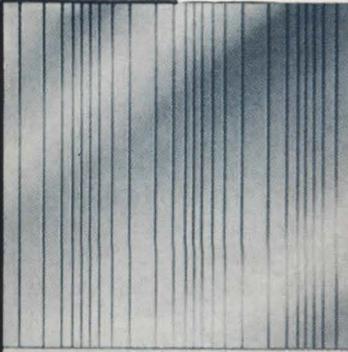
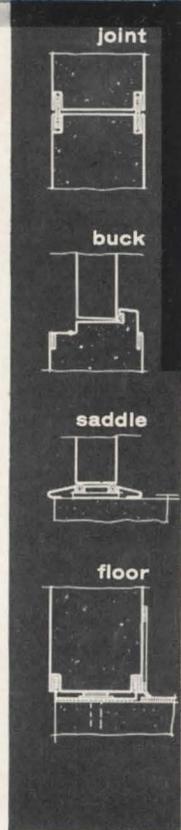
By using the new "sandwich" technique of Sharonart\* and polystyrene, Teague creates a design panel weighing less than three pounds per square foot with a K factor of better than .20; the skin-and-insulation sandwich entirely replacing expensive framing members.

Sharonart\* patterns can be rolled in stainless steel or in plain steels to which an epoxy finish can be applied by the fabricator to achieve unusual color effects.

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Note: The wall panel ideas illustrated on this page are not now manufactured products. They are designs only.



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## School Aid Bill Early on Agenda as Congress Comes Back

The second session of the 86th Congress convened last month in an atmosphere of urgency which pointed toward a shorter session, one terminating perhaps by July 4. Thoroughly conscious of the political portents of the last half of 1960, the lawmakers were eager to expedite their work and adjourn in time for the important Presidential nominating conventions. There was some talk that a conclusion as early as July 4 would mean a resumption of deliberations later in the year but members appeared to be more intent upon focusing their attention on legislation carried over from the first half of the current session and winding up their affairs as quickly as possible.

The first piece of major construction legislation on the docket was the aid to education measure which had moved part way through Congress during the first session last year. The President's State of the Union Message, delivered on January 7, indicated that the Administration intended to stand by and large on the program sent to Capitol Hill last year. In principle, at least, the White House proposals which were to go to Congress early would coincide with the general tenets frequently outlined by Administration spokesmen.

### School Aid: No Hypodermic

Here is how the President stated it on January 7:

"I do not doubt that our urban and other perplexing problems can be solved in the traditional American method. In doing so we must realize that nothing is really solved and ruinous tendencies are set in motion by yielding to the deceptive bait of the 'easy' Federal tax dollar.

"Our educational system provides a ready example. All recognize the vital necessity of having modern school plants, well-qualified and adequately compensated teachers, and of using the best possible teaching techniques and curricula.

"We cannot be complacent about educating our youth."

Then the President's message

touched on the more specific Administration attitude on Federal aid for school construction and other educational programs, foreshadowing an anticipated deadlock in the matter of school aid. He said:

"But the route to better-trained minds is not through the swift administration of a Federal hypodermic or sustained financial transfusion. The educational process, essentially a local and personal responsibility, cannot be made to leap ahead by crash, centralized governmental action.

"The Administration has proposed a carefully reasoned program for helping eliminate current deficiencies. It is designed to stimulate classroom construction, not by substitution of Federal dollars for state and local funds, but by incentives to extend and encourage state and local efforts. This approach rejects the notion of Federal domination or control. It is workable, and should appeal to every American interested in advancement of our educational system in the traditional American way.

"I urge the Congress to take action upon it."

These proposals as voiced last year in a special message to Congress and by the Secretary of Health, Education, and Welfare, Arthur S. Flemming, embody the idea of temporary emergency Federal assistance with states assuming "a fair share" of the school building costs on a matching basis.

### A Prospect of Compromise

If any new legislation on the subject were to come out of the 86th Congress, the Administration proposals would have to be compromised with a number of measures already on their way through the legislative mill which called for far more drastic action through direct Federal aid for school construction and teacher salary assistance.

The Murray-Metcalf bill was being supported strongly by the National Education Association and other groups seeking a substantial program of direct Federal expendi-

ture in assisting states with their classroom construction. The McNamara-Hart bill had gained Senate Education and Labor Committee approval last September and was headed for floor action.

Senator Clark (D-Pa.) had promised to try to amend this legislation to include a \$125 million program of direct Federal loans for the construction of college classrooms. His decision was made last year when a similar plan was struck from the 1959 housing bill in a compromise move to get that legislation approved at the White House.

Representative of the pressure on Congress for quick action in the area of assisting states and local communities with their classroom construction programs was a letter sent to all members by the Clearinghouse on Public School Legislation. This organization is composed of 19 national liberal groups, including several labor unions.

The letter read in part:

"We firmly believe that the pending proposals of underwriting school bonds—a portion of the interest and principal payments—by the Federal government will not meet the crisis in education. These proposals are apparently made on the erroneous assumption that school districts are not making the necessary effort and that a Federal incentive to help pay debt services will encourage the states and localities to increase their efforts."

The letter went on to argue that this assumption was not supported by testimony given at hearings held last year on the subject.

### State of the Union

The President's State of the Union message had a strong international flavor this year. Roughly half of it was devoted to a discussion of America's role in world affairs and it touched only lightly on domestic programs. Many of these, of course, were to be spelled out in detail in subsequent messages and in legislative programs brought to Capitol Hill by the executive departments.

*continued on page 358*

# METALLIC CHIP IN SOLID VINYL TILE

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### Building Still Short of Need, Latest School Survey Shows

The design and construction of classrooms in the United States fails to keep up with stated needs because of the pressure of increasing enrollments in elementary and secondary schools. While the country's requirements for elementary and secondary school facilities actually dropped in terms of classrooms needed to replace obsolete buildings during the

past year, the number of additional rooms needed to accommodate pupils enrolled in excess of normal capacity increased.

This is according to reports from education departments of the 50 states and the District of Columbia, as well as outlying parts of the United States, as summarized in an advance report on the sixth annual fall survey of public school enrollment, teachers, and schoolhousing. The summary was issued by the

Health, Education, and Welfare Department ahead of full publication of survey results which will come at a later date.

Commenting on the findings, HEW Secretary Arthur S. Flemming said they led him to only one conclusion—that the nation is not moving fast enough to reduce the classroom shortage. Two factors, he said, determined this opinion after a study of survey results:

"1. For every pupil counted as enrolled in excess of normal classroom capacity, there are many others whose education is handicapped by overcrowding, split sessions or the use of makeshift facilities. When the number of such children is actually increasing it can only mean that we are losing ground in our efforts to overcome the classroom shortage.

"2. Even if local bond sales continue at the high national rate of recent years, we will still be confronted with an indefensible shortage of classrooms in many parts of the country."

### New York Leads in Need

The greatest need for additional instruction rooms as of Fall, 1959, was reported by the state of New York which said it required 9000 such rooms to accommodate an excess enrollment of 266,000 pupils. Second among the states was Michigan, reporting a need for 4698 rooms to accommodate 131,071 now enrolled in excess of normal capacity of accessible publicly-owned school plants in use.

(In dire straits too was Puerto Rico, which told HEW that another 5323 classrooms should be built there to accommodate a 207,890 pupil overload.)

Low among the states in the reported volume of units required to house excessive enrollments was Delaware, which reported that 50 more classrooms could take care of its Fall, 1959, excessive pupil load of 1446 students.

In the 50-state lineup only six reported that they were scheduling the completion of more classrooms during the 1959-60 school year than were reported needed, both for excess enrollments and to replace unsatisfactory facilities, in the fall of 1959. These were Delaware, Indiana, Ohio, Wisconsin, California, and Oklahoma.

*continued on page 350*

★



Cafeteria  
•  
Oak Ridge  
Tennessee  
High School  
•  
U.S. Atomic  
Energy  
Commission



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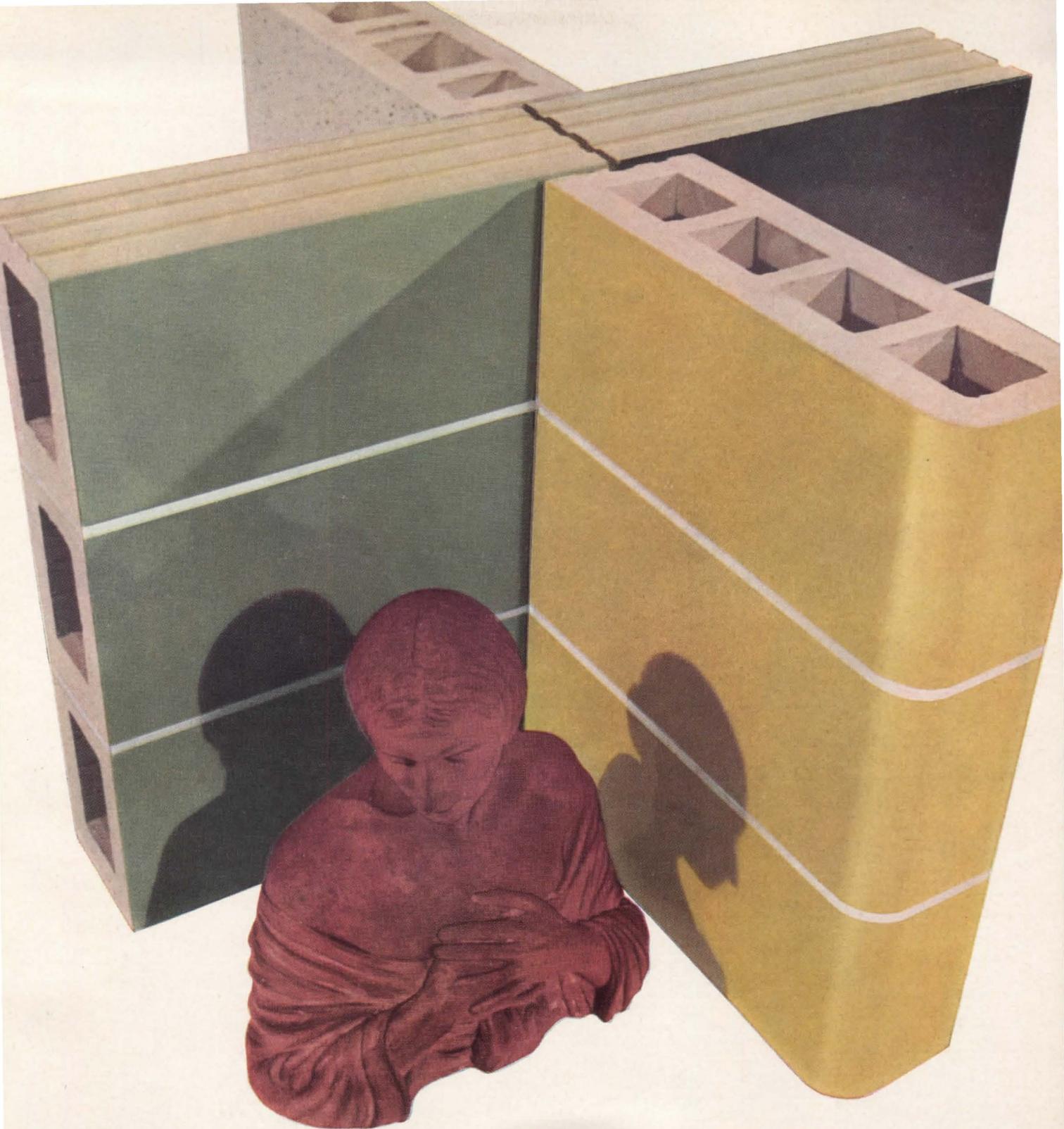
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# Construction Cost Indexes

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

## ATLANTA

PERIOD	RESIDENTIAL		APTS., HOTELS, OFFICE BLDGS.	COMMERCIAL AND FACTORY BLDGS.		RESIDENTIAL		APTS., HOTELS, OFFICE BLDGS.	COMMERCIAL AND FACTORY BLDGS.	
	Brick	Frame	Brick and Concrete	Brick and Concrete	Brick and Steel	Brick	Frame	Brick and Concrete	Brick and Concrete	Brick and Steel
1930	127.0	126.7	124.1	128.0	123.6	82.1	80.9	84.5	86.1	83.6
1935	93.8	91.3	104.7	108.5	105.5	72.3	67.9	84.0	87.1	85.1
1939	123.5	122.4	130.7	133.4	130.1	86.3	83.1	95.1	97.4	94.7
1947	219.3	222.0	207.6	207.5	203.8	180.4	184.0	158.1	157.1	158.0
1948	250.1	251.6	239.4	242.2	235.6	199.2	202.5	178.8	178.8	178.8
1949	243.7	240.8	242.8	246.6	240.0	189.3	189.9	180.6	180.8	177.5
1950	256.2	254.5	249.5	251.5	248.0	194.3	196.2	185.4	183.7	185.0
1951	273.2	271.3	263.7	274.9	271.8	212.8	214.6	204.2	202.8	205.0
1952	278.2	274.8	271.9	265.2	262.2	218.8	221.0	212.8	210.1	214.3
1953	281.3	277.2	281.0	286.0	282.0	223.0	224.6	221.3	221.8	223.0
1954	285.0	278.2	293.0	300.6	295.4	219.6	219.1	233.5	225.2	225.4
1955	293.1	286.0	300.0	308.3	302.4	225.3	225.1	229.0	231.5	231.8
1956	310.8	302.2	320.1	328.6	324.5	237.2	235.7	241.7	244.4	246.4
1957	318.5	308.3	333.1	345.2	339.8	241.2	239.0	248.7	252.1	254.7
1958	328.0	315.1	348.6	365.4	357.3	243.9	239.8	255.7	261.9	262.0
Sept. 1959	344.9	331.7	370.8	388.5	376.9	254.9	249.9	269.5	276.2	276.2
Oct. 1959	344.9	331.7	370.8	388.5	376.9	254.9	249.9	269.5	276.2	276.2
Nov. 1959	345.6	332.6	370.9	388.6	377.0	254.9	249.9	269.5	276.2	276.2
			% increase over 1939					% increase over 1939		
Nov. 1959	179.8	171.7	183.8	191.3	189.8	195.4	200.7	183.4	183.6	191.6

## ST. LOUIS

## SAN FRANCISCO

1930	108.9	108.3	112.4	115.3	111.3	90.8	86.8	100.6	104.9	100.4
1935	95.1	90.1	104.1	108.3	105.4	89.5	84.5	96.4	103.7	99.7
1939	110.2	107.0	118.7	119.8	119.0	105.6	99.3	117.4	121.9	116.5
1947	202.4	203.8	183.9	184.2	184.0	193.1	191.6	183.7	186.8	186.9
1948	227.9	231.2	207.7	210.0	208.1	218.9	216.6	208.3	214.7	211.1
1949	221.4	220.7	212.8	215.7	213.6	213.0	207.1	214.0	219.8	216.1
1950	232.8	230.7	221.9	225.3	222.8	227.0	223.1	222.4	224.5	222.6
1951	252.0	248.3	238.5	240.9	239.0	245.2	240.4	239.6	243.1	243.1
1952	259.1	253.2	249.7	255.0	249.6	250.2	245.0	245.6	248.7	249.6
1953	263.4	256.4	259.0	267.0	259.2	255.2	257.2	256.6	261.0	259.7
1954	266.6	260.2	263.7	273.3	266.2	257.4	249.2	264.1	272.5	267.2
1955	273.3	266.5	272.2	281.3	276.5	268.0	259.0	275.0	284.4	279.6
1956	288.7	280.3	287.9	299.2	293.3	279.0	270.0	288.9	298.6	295.8
1957	292.0	283.4	295.2	307.1	302.9	286.3	274.4	302.9	315.2	310.7
1958	297.0	278.9	304.9	318.4	313.8	289.8	274.9	311.5	326.7	320.8
Sept. 1959	306.9	297.5	317.0	332.0	326.0	303.3	287.8	327.7	344.2	334.3
Oct. 1959	306.9	297.5	317.0	332.0	326.0	303.3	287.8	327.7	344.2	334.3
Nov. 1959	307.3	297.9	317.6	332.8	326.8	303.3	287.8	327.7	344.2	334.3
			% increase over 1939					% increase over 1939		
Nov. 1959	178.8	178.4	167.6	177.8	174.6	187.2	189.8	179.1	182.4	186.9

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.

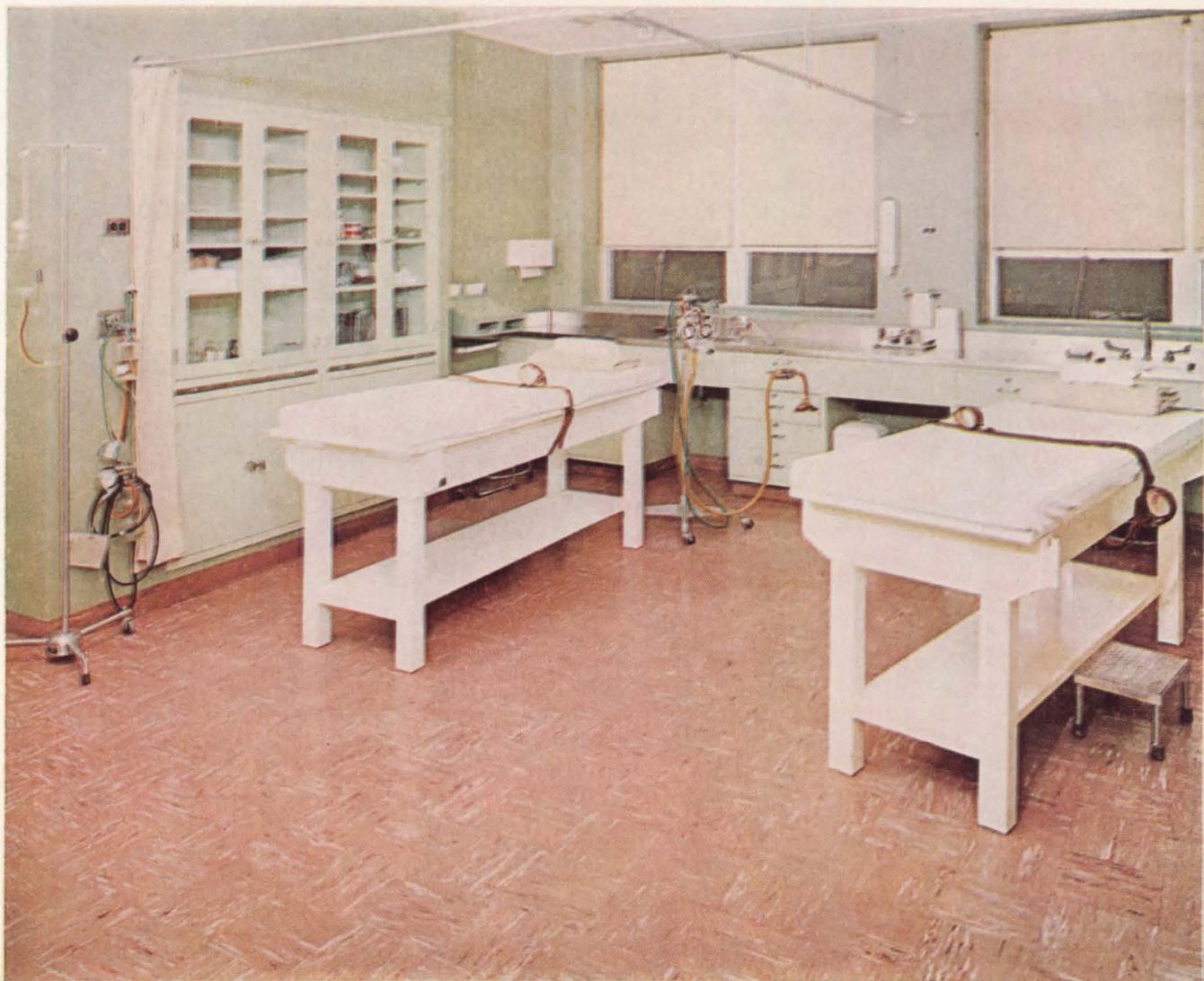
$$\frac{110-95}{95} = 0.158$$

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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# Required Reading

## Homes for the Aged Surveyed In Comprehensive Handbook

PLANNING HOMES FOR THE AGED. Edited by Geneva Mathiasen and Edward H. Noakes. F. W. Dodge Corp., 119 W. 40th St., New York 18. 119 pp., illus. \$12.75.

BY JOSEPH DOUGLAS WEISS, A.I.A.

There are some definitely predictable trends in future building needs. Just as statistics of population growth anticipate the need for schools, the comparatively new accelerated increase of our elderly population makes the need for more homes for the aged inevitable. The number of people in the United States who reach the age of 65 is now about 2000 per day. Economic, political, and social pressures are building up for providing adequate shelter and care for these citizens. The problem has become acute, and the whole concept is emerging from the status of charity into a public function where state, Federal, and local governments will share the responsibility for it with private capital.

The philosophy on which all design of buildings for the care of the aged must be based is still in a somewhat controversial stage, complicated by social, medical, and economic circumstances. *Planning Homes for the Aged*, however, is a basic statement of a great many principles; the book clearly and concisely presents the result of years of intense study and experience.

Ollie A. Randall, vice chairman, National Committee on the Aging, writes a chapter on "Congregate Living for Older People." Rarely is there so much valuable background data in a book. Why people land in old-age homes and what they should find there, the attitudes of patients, and responsibility for the kind of accommodations needed are logically explained in concise but always interesting language.

Geneva Mathiasen, executive secretary, N.C.A., writes on "Community Needs and Resources." The results of years of study and well-screened experience are condensed in the few pages of this section. It contains all the general knowledge an architect or community leader needs to enable him to ask the necessary specific questions before programming a

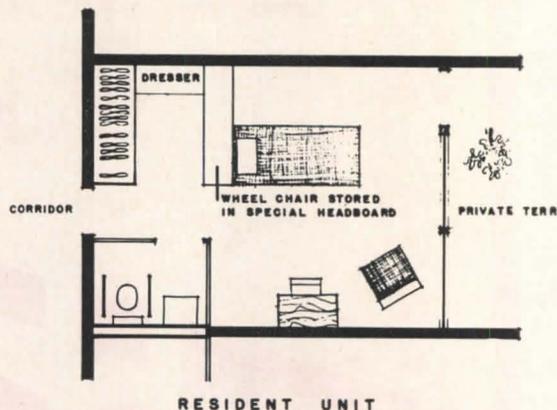


Above: Winner of the first prize in the competition for the design of a home for the aged: three residential units in a cluster around the main building.

Architects: Joe J. Jordan and Hanford Yang.

Right: Plan of a suggested resident unit.

Architects: Smith & Williams



building to house the aged. It covers the laws regulating this type of institution, admission policies, size required for a community, location considerations, the desirable services, cost and financing problems.

These two chapters of the book are full of the type of information which is most difficult to find. Some of it is new even to those who are generally familiar with the subject.

The nine other chapters written by other contributors are on more specific aspects of the theme. They cover "Location and Building Site," "Common Services" to be provided, "The Residence Unit and Room," "Health Needs," "Administration and Staff Facilities," "Service and Mechanical Facilities," "Construction Materials and Costs," "Design," and "The Function of the Architect." All are written by practitioners in these various fields. The chapters constitute a competent, well-organized coverage of the subject.

The second section of the volume contains the program and results of an architectural competition for the design of a home for the aged, held in 1956. A great deal of thought went into the program, and I am sure I. S. Loewenberg's contribution was important in shaping such a forward-looking list of requirements. Edward H. Noakes also did a good job. A study of the program is worthwhile, and it will help many an institution in shaping its own development program. The comments of Pie-

tro Belluschi, chairman of the jury, on the aims and results of the competition add some pertinent and valuable points of view to the book.

The competition drawings reproduced must have given insurmountable difficulties to the publishers. To bring the drawings down in size necessitated such reduction in scale that the notes on the plans are difficult to read.

This is a well-organized general survey of a timely subject. It will be a valuable practical aid to all who are interested in this acutely pressing problem of our time.

## Recent Apartment Buildings

MASTERWORKS OF INTERNATIONAL APARTMENT BUILDING DESIGN. By F. R. S. Yorke and Frederick Gibberd. Frederick A. Praeger, Inc., 15 W. 47th St., New York 36. 211 pp., illus. \$12.50.

This new volume is a sequel to the authors' *The Modern Flat* of 1937. It is a well-produced companion to the earlier collection, with broad and diversified selections. The really major omissions would seem to be restricted to A. E. Reidy's Pedregulho project near Rio de Janeiro and Perret's Le Havre reconstruction program. Quite naturally, both volumes are addressed to an audience of architects, but this reviewer, himself an historian, cannot help but be im-

continued on page 78

There's an Armstrong floor precisely right for each particular interior. For 7 interiors at Eastman Kodak Co., these are the **Armstrong FLOORS**

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- 3. Executive Reception Area: Custom Corlon (solid vinyl) Tile** Elegant, flecked design. Very rugged material. Light color of floor and ceiling provides low brightness contrast, accents furnishings.
- 4. Assembly Hall: Excelon Tile** Very good resistance to scuff marks from chairs and foot traffic. Long wearing, too. Low initial cost.
- 5. General Offices: Linotile** No ill effects from heavy office furniture (Linotile withstands loads up to 200 lbs. psi!). Non-directional graining of the tile creates an over-all background design that isn't affected when movable partitions are rearranged.
- 6. Camera Service Area: Textelle Linoleum** This material provides a heavy-duty floor in an almost seamless installation. Moderate cost, too.
- 7. Studio: Linotile** Remarkable strength and abrasion resistance prevent scratching and marring from heavy, mobile photographic equipment. Gray matte surface provides excellent studio background.

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**Armstrong floors price list**

Approximate installed prices per sq. ft.

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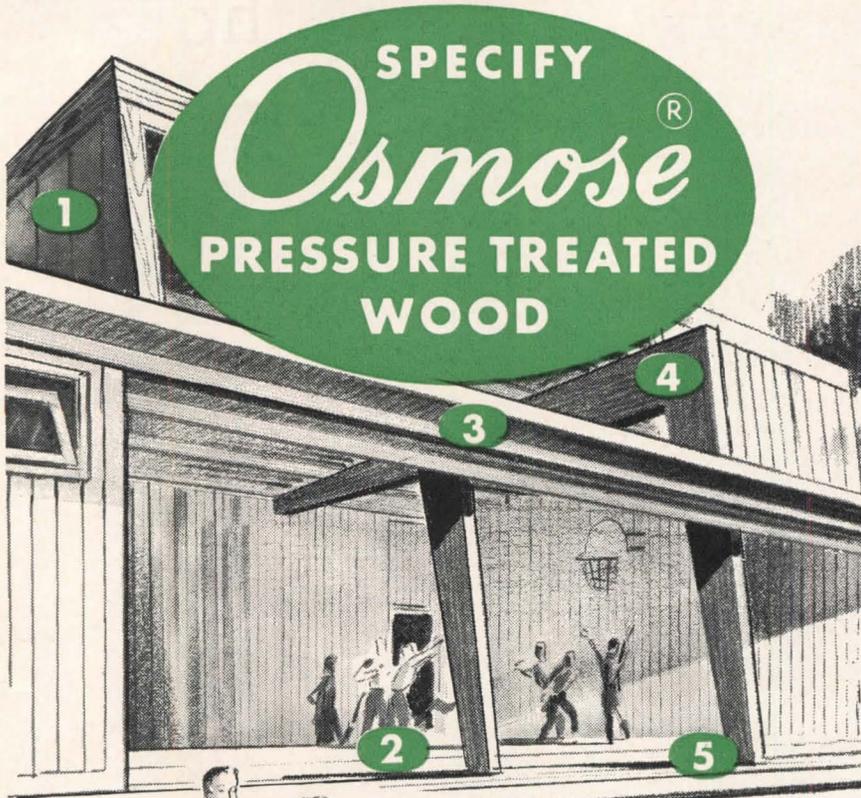
<p>15¢ - 25¢</p> <p>Linoleum Tile .0625" Asphalt Tile 3/8" (A, B, C, D and greaseproof) Asphalt Tile 3/16" (A, B)</p>	<p>30¢ - 45¢</p> <p>Linoleum Tile .090" Asphalt Tile 3/16" (C, D) Excelon Tile .0625" (vinyl-asbestos) Linoleum .090"</p>	<p>50¢ - 65¢</p> <p>Excelon Tile 1/8" (vinyl-asbestos) Excelon 3/32" Linoleum .125" Battleship Vinyl Corlon .070" Cork Tile 1/8"</p>
<p>80¢ - 95¢</p> <p>"Futuresq" Vinyl Corlon .070" "Futuresq Supreme" Vinyl Corlon .070" Cork Tile 3/16" Rubber Tile 1/8" "Tessera" Vinyl Corlon .090" Linotile 1/8" Custom Corlon Tile 3/32"</p>	<p>\$1.00 and over</p> <p>"Imperial" Custom Corlon Tile 3/32" Custom Corlon Tile 1/8" Cork Tile 3/16"</p>	<p>\$1.00 and over</p> <p>Rubber Tile 3/16" Custom Vinyl Cork Tile 1/8" Opalesq Vinyl Tile 1/8"</p>

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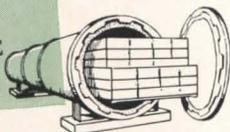
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## Required Reading

pressed with their value as historical documents.

If the present notice should ideally be concerned with the more recent of the two publications, which is devoted exclusively to post-war designs, comparison with the earlier collection remains irresistible. This impulse does not reflect upon the editors or their publishers, but upon the character of their chosen subjects. The representative apartment architecture of the 1930's simply has a greater stylistic impact than the earnest, yet often platitudinous, works of the 1940's and '50's. The reader can verify this situation by examining the early works of the Tecton group, such as Highpoint I, Highgate, of 1933-35, and comparing these to some of their more recent efforts, which are illustrated in the newer volume. Thus one discovers how the well-conceived clarity and directness of style, possessing a logical elegance and exactness of form, has, today, regrettably deteriorated into a fuzzy, ineptly intricate series of design clichés, motivated in part by a genuine if misplaced effort to be different and new. Unfortunately, the results tend to be unnecessarily evasive and stilted assemblages of forms which are all too frequently devoid of real architectural vitality. In this tame context the recent work of the 20th century's old masters possesses a restless pioneering quality which, in truth, ought now to be borne by the more resourceful of the newer generation.

—JOHN M. JACOBUS, JR.  
*Princeton University*

## Plastics in Building

BAUEN MIT KUNSTSTOFFEN. By *Amtor Schwabe and Hansjürgen Saechtling*. Ullstein Fachverlag, Berlin West, Germany. Available from Wittenborn & Co., 1018 Madison Ave., New York 21. 452 pp., illus. \$14.75.

In this well-organized book plastics are first defined for the reader unfamiliar with these materials, their properties, and their types and variations. Fully synthetic materials, continued on page 378

# Glass School In A Walled Garden

*Art School of The Society of Arts & Crafts  
Detroit, Michigan*

*Minoru Yamasaki & Associates, Architects  
Ammann & Whitney, Structural Engineers  
Eichstedt-Johnson Associates, Landscape Architects*

The heart of the tradition of the school of the Detroit Society of Arts and Crafts—which dates from 1906—consisted of a series of studios grouped about a central landscaped garden, which served as a place for gossip, exchange of ideas, and exhibits. The new school carries on that tradition, but *in reverse*. The site lies on the edge of a blighted heavily trafficked area, so to screen out the confusion and unattractiveness of the surroundings, the property was shielded by a two-story-high, perforated brick wall, broken only for one entrance gate. The school, set in this compound, looks *outward* to a controlled garden which becomes an oasis in a slum. The school's tradition remains intact.

The skin of the two-story, concrete-framed building is an aluminum and glass curtain wall with spandrel panels of gray porcelain enamel. Gray tinted glass and aluminum solar-screening control sunlight and sky-glare for the studios, workshops, and offices.

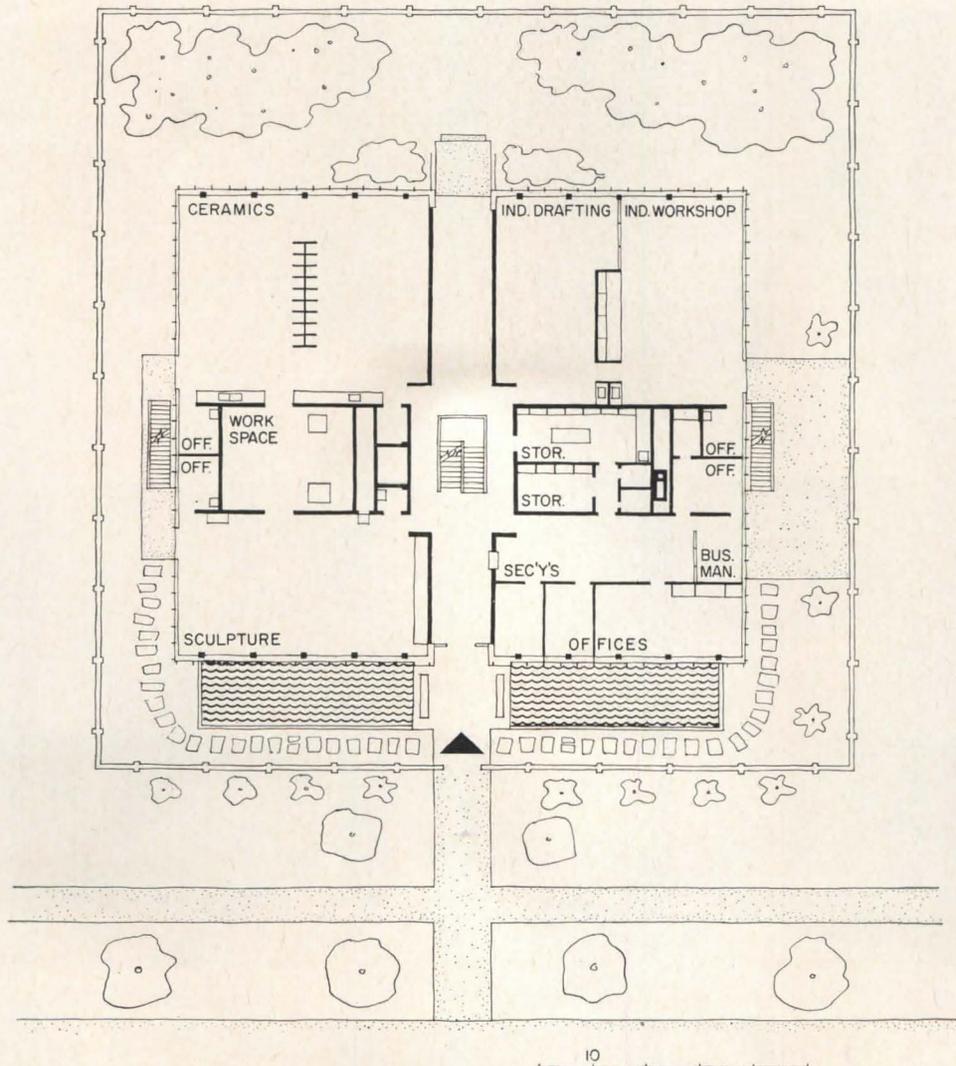
*All photographs by Baltazar Korab*



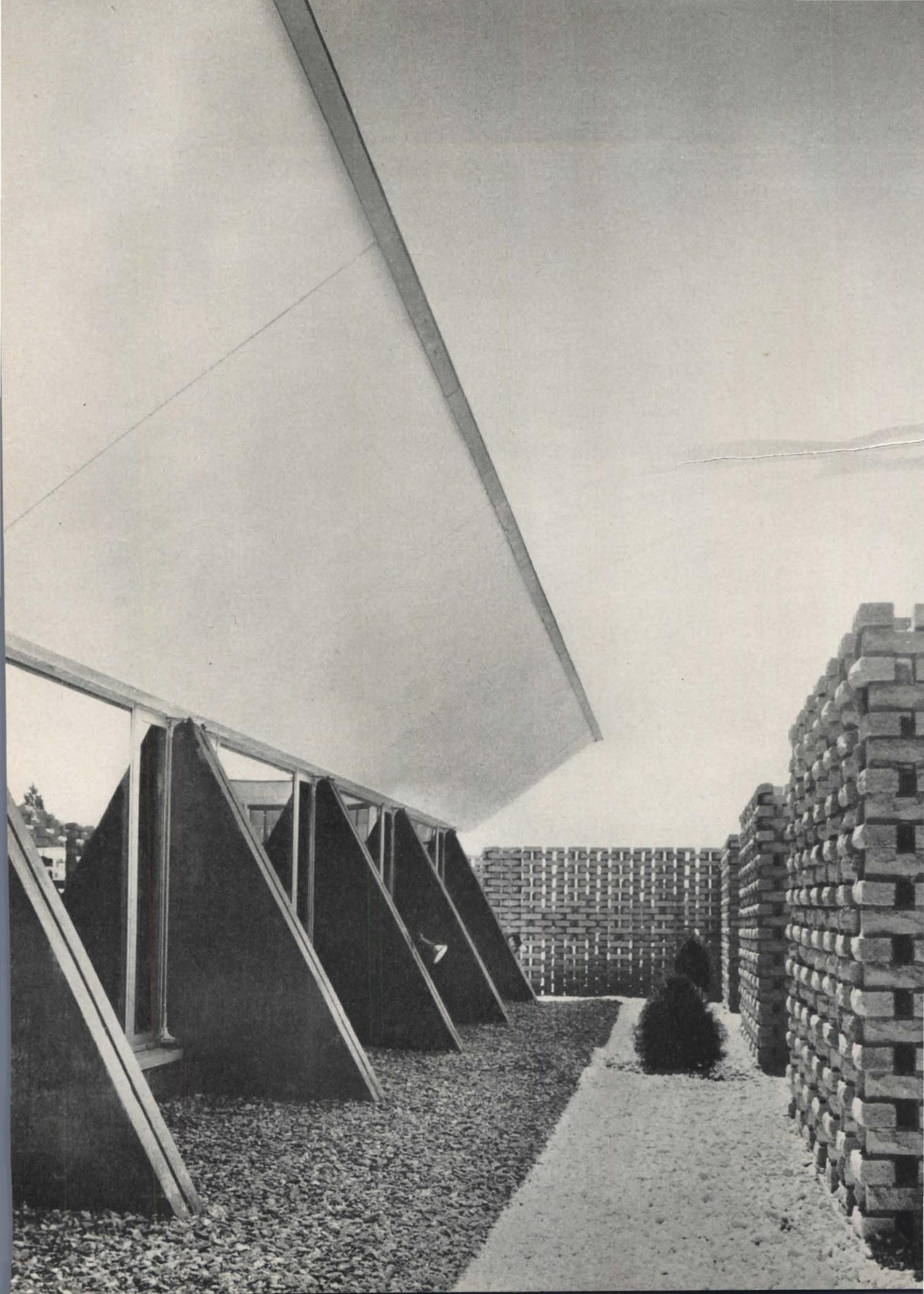


## Arts & Crafts Society School

Working closely with the staff—all professional artists—the architect devised a compact, economical plan consisting of studio and workshops symmetrically flanking a central, two-story exhibition gallery which features an open stair, and is topped by a 26-ft-high skylight of aluminum tubing and heat-absorbing glass. Additional exhibit area, auditorium, and library are located in the basement. The flanking groups of studios are each clustered about a mechanical core, allowing the central area to become free space







# Protected Sanctuary

*The Warren Methodist Church  
Warren, Michigan*

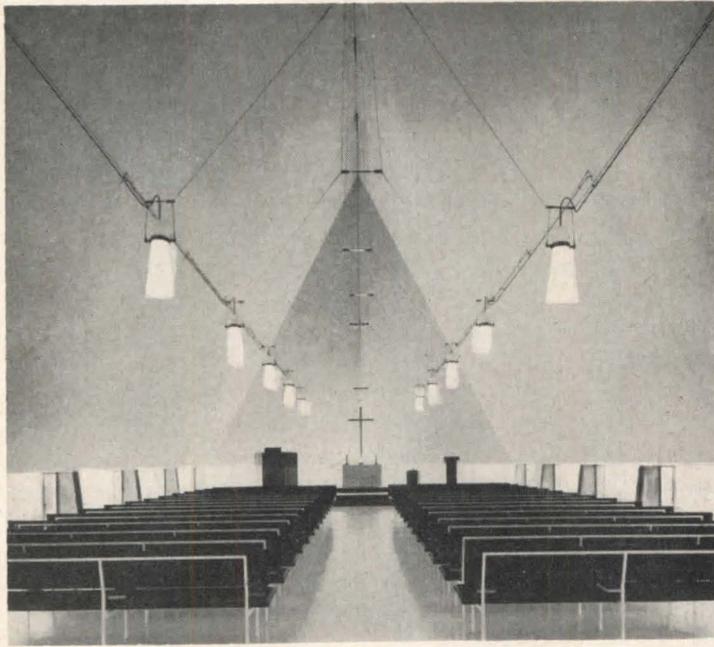
*Yamasaki, Leinweber & Associates, Architects  
R. H. McClurg Associates, Structural Engineers  
Trowell Construction Co., General Contractors  
Bolt, Beranek & Newman, Acoustical Consultants*

Three principal means were used to carry out the architect's idea that this should be a place of serenity, dedicated to worship and meditation; protected from the everyday distractions on all sides. The white plaster nave was made lofty and simple in form; windows were set low (4-ft-6-in. heads) to eliminate disquieting light; and a pierced, decorative brick wall was placed to limit the view from the entire nave and to surround a quietly landscaped area outside the glass. The theory works well in execution, and this space has truly become a peaceful sanctuary removed from the bustling suburb.

The small budget exerted great weight in design and execution. The congregation built choir platform, altar, and podium; gutters were omitted; the roof was temporarily covered by white asphalt shingles but designed for standing-seam copper and finials; trusses were redesigned for wood instead of steel. Rapid congregation growth makes it likely that these economies will soon be corrected in accordance with the original design.

*All photographs by Baltazar Korab*

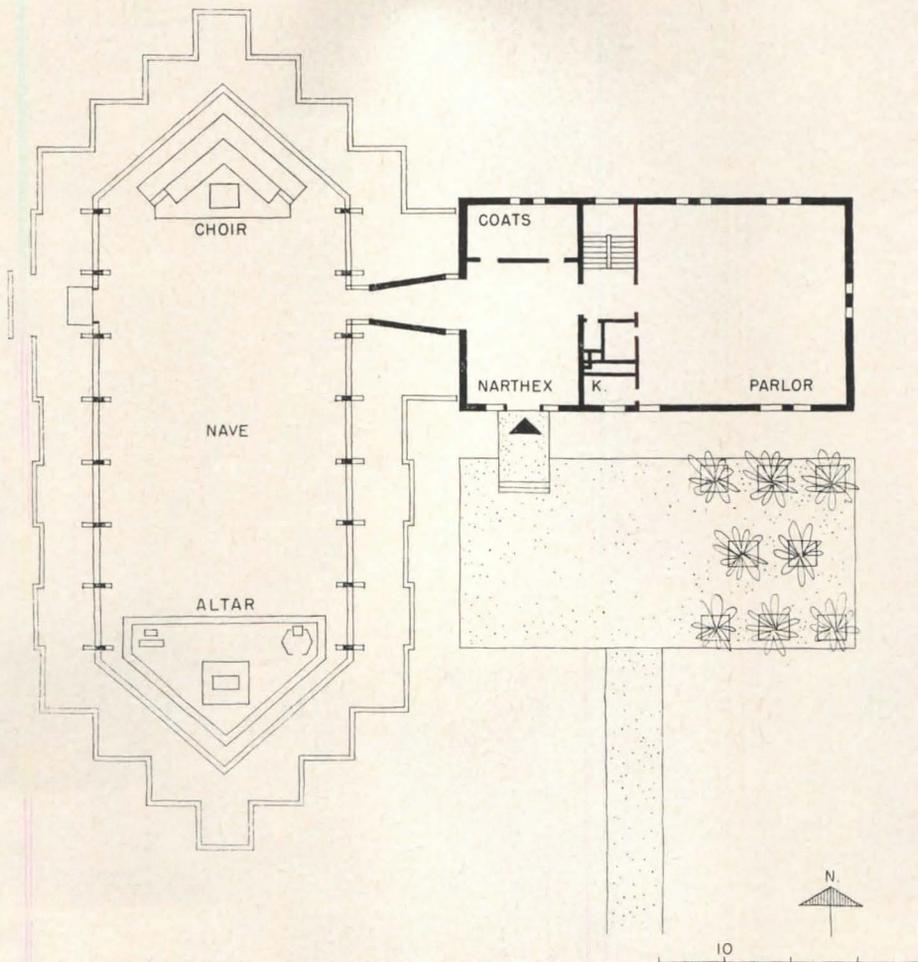


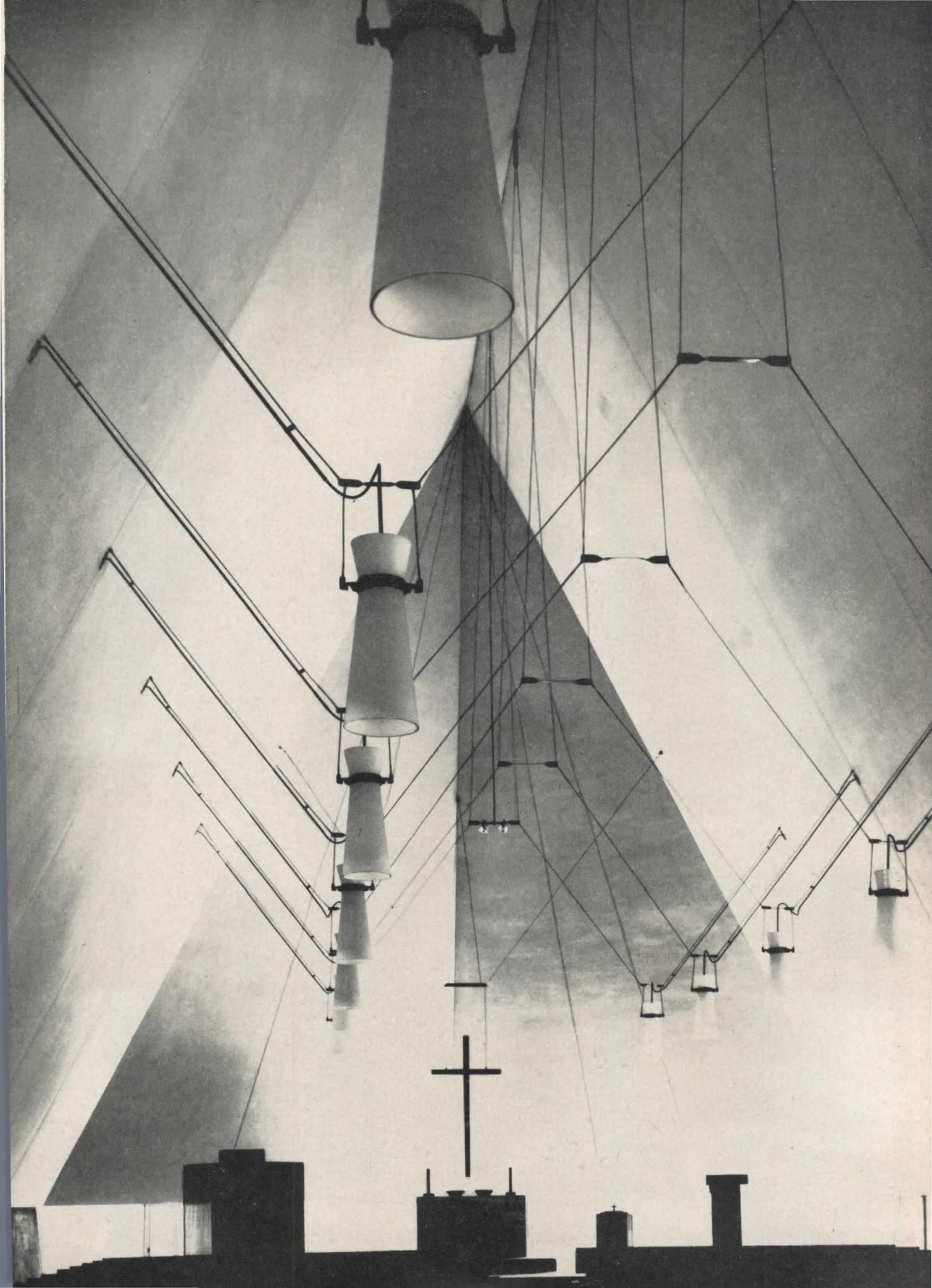


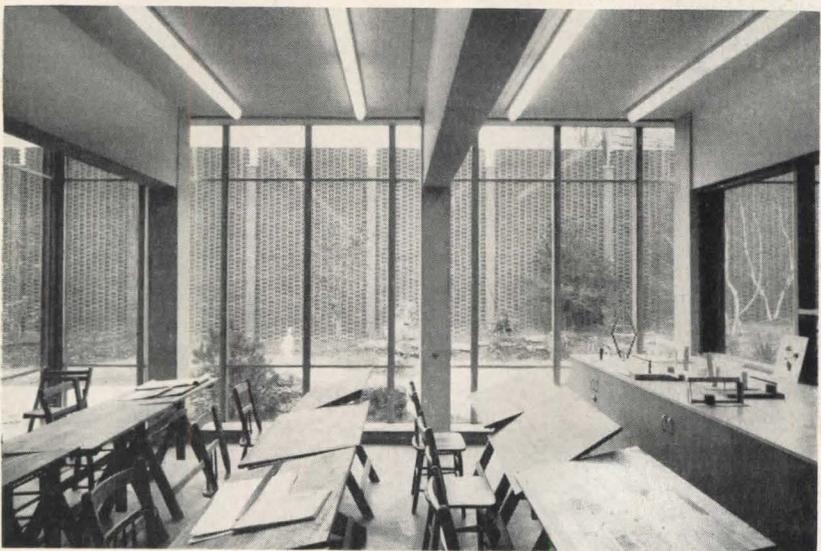
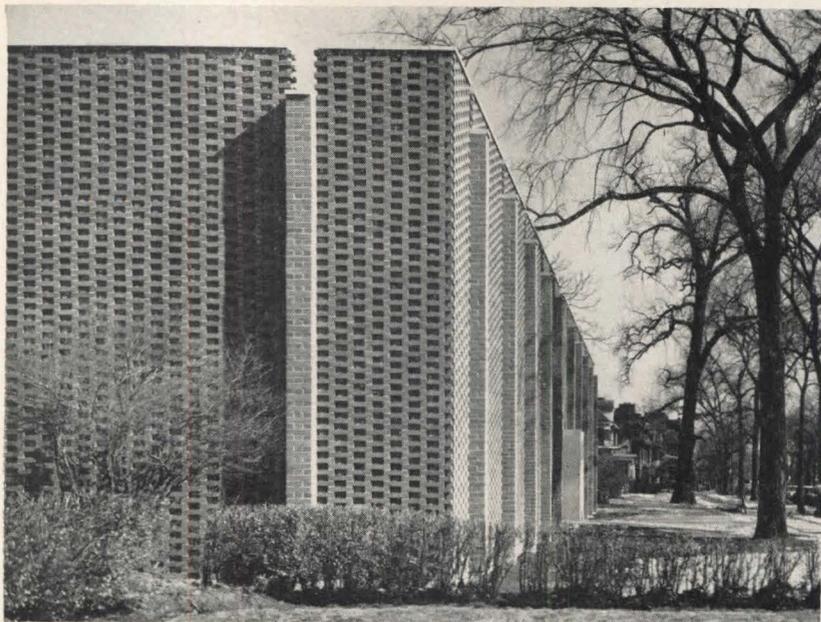
## Warren Methodist Church

On the theory that a fine place of worship would generate maximum interest and cause the congregation to grow most rapidly, it was decided to build the sanctuary and a minimum of related spaces first. The wisdom of this decision has been proven by the rapid increase in membership, with the result that educational and other facilities will be added soon.

The suspended lighting for the nave, designed by the architect, consists of stainless steel cables and conduits with marine hardware fittings, arranged to support the glass globes, which were imported from Venice. A similar suspension system is used to support the chrome-plated cross that hangs over the altar. Recessed speakers for the organ are located behind the choir (see plan) and covered by a white plastic grille-cloth, flush with the plaster

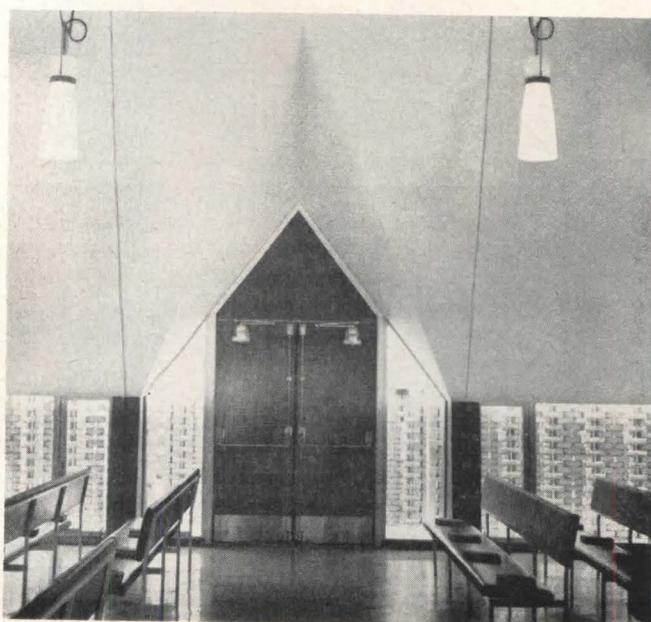
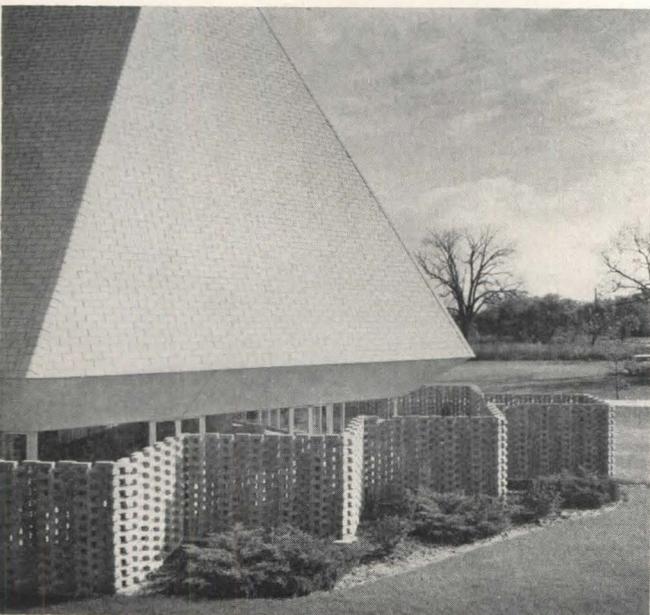






### Arts & Crafts Society School Warren Methodist Church

These photographs illustrate the controlled outlook characteristic of both the art school and the church, and show both the exterior and interior aspects of that control. Each of the studios and workshops in the art school looks out upon a garden, which varies in depth as one moves about the building. For the church, the sanctuary seating is visually separated from the surrounding environment by the decorative brick wall that encompasses the garden just outside the glass. The latter scheme provides the desired degree of privacy for those within the church, and at the same time eliminates any possibility of a "hemmed-in" feeling





## “POLYGONAL” ARCHITECTURE

*A Many-angled, Several-faceted  
Expression in Stonework for the  
Samuel F. B. Morse and Ezra Stiles Colleges  
Yale University, New Haven, Connecticut*

*Eero Saarinen & Associates, Architects*



## Two New Colleges at Yale

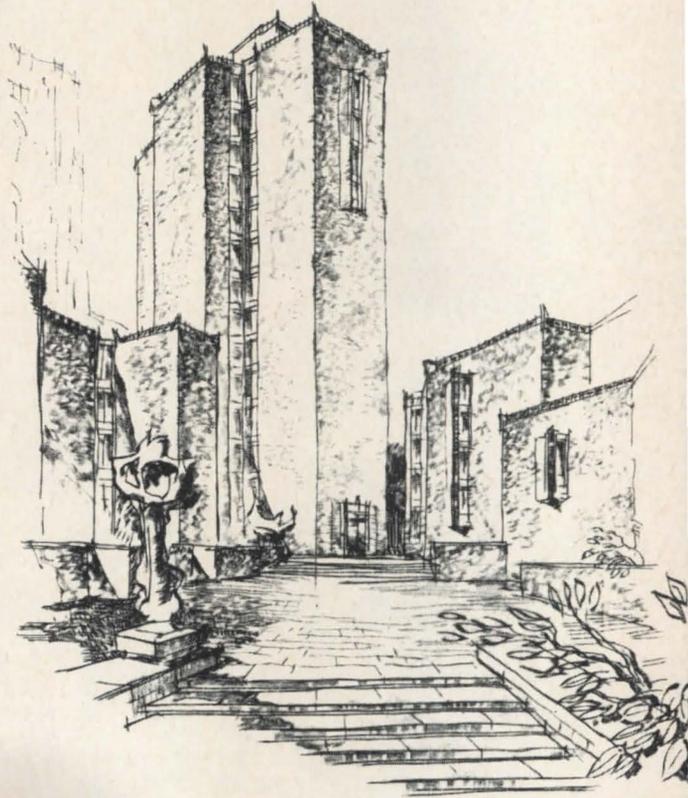
*The design of these residential colleges posed unusual problems due to the shape and nature of the site, the style and scale of neighboring buildings, and the special qualities of diversity and individuality the architect wanted to achieve in the new group. Saarinen's answer is an architecture of faceted, many-angled planes of rough stone, described by the architect as "polygonal." It will be built of a material most easily described as monolithic concrete with exposed, large-scale aggregate.*

*Plans have been approved, and university officials have announced an early beginning of construction. Each of the two colleges will accommodate 250 undergraduates, provide offices and quarters for master and fellows, will include a library, dining room, lounge and snack bar, plus facilities for activities, games, and informal music.*

*The architect's emphasis on individuality and diversity—the effort to give rooms a random quality as in an old inn, of varying sizes, shapes, and arrangements—has resulted in an architectural idiom both novel and traditional; modern architecture with a medieval twist. Architect Eero Saarinen explains it thus:*

As we studied the dual challenges of site and meaning, we realized that these special problems could not be solved within the current vocabulary of modern architecture. The systems, the elements, the materials usually associated with modern architecture—regularity, uniformity, standardization—were at odds with the diversity and individuality we wanted. Flatness, lightness, glistening metal and glass—smoothness instead of rough texture and chiaroscuro—all these likewise failed to express the spirit we were seeking. Rectangles and cubes seemed ill-suited to the irregular site, bounded by buildings placed at a variety of angles.

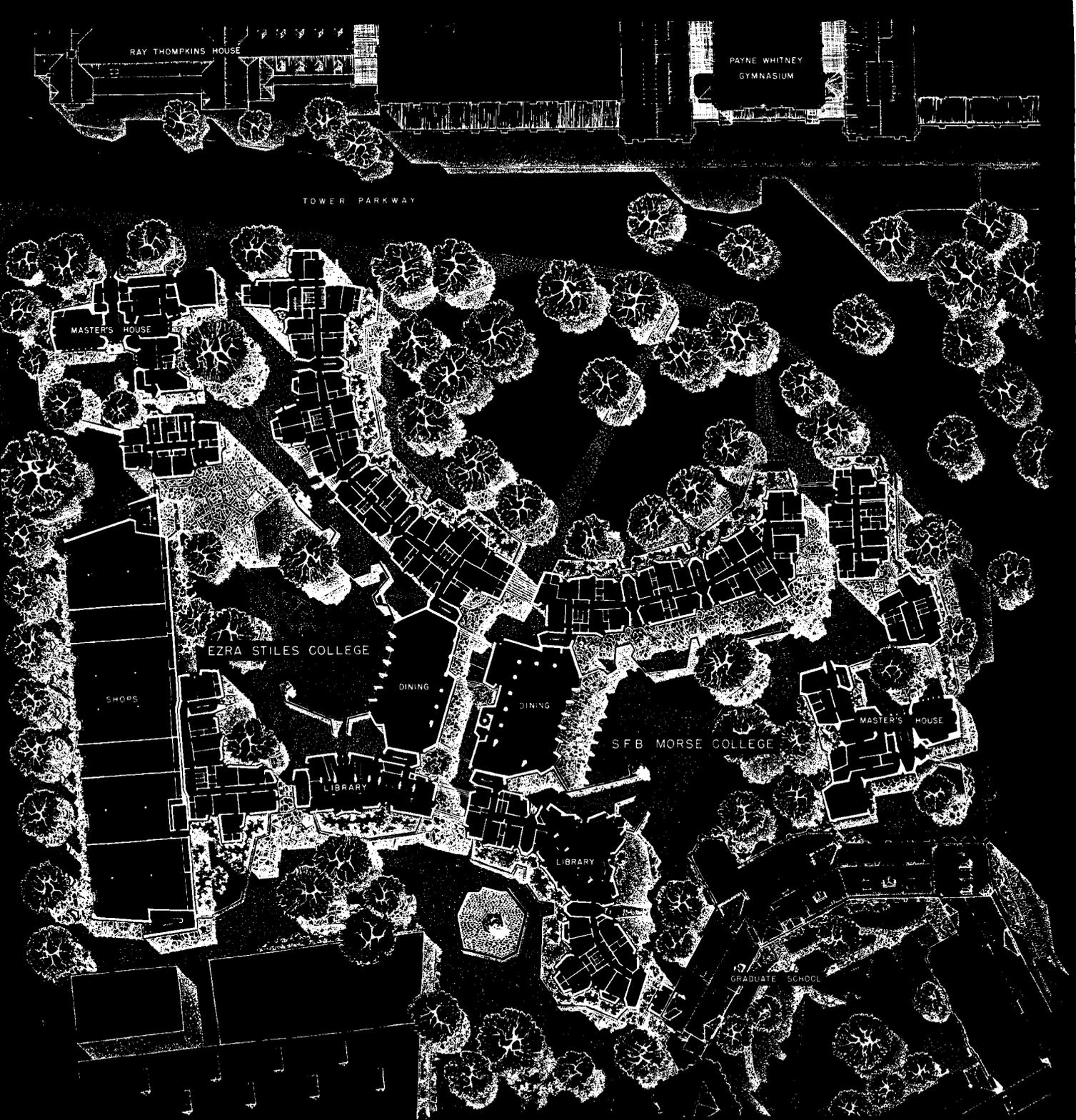
Thus, we made the buildings polygonal; their shapes calculated to provide



The sketch above (by Eero Saarinen) depicts the Morse College tower as seen from the library. Since the existing colleges at Yale each have a belfry or tower as visual landmark in the silhouette of the university, each of the new colleges will likewise have towers as parts of the composition.

The picture below shows the stone texture achieved by the unusual process described in the text, and is a photograph of a sample panel that was erected for study and approval





The irregular site lies between the pseudo-Gothic Graduate School, of ordinary scale, and the pseudo-Gothic Whitney Gymnasium, large and formidable in scale. The architect's solution forms a great crescent-shaped plaza across the street from and facing the gymnasium, and divides the two colleges by means of a narrow walkway—reminiscent of an Italian hilltown street—which changes level up and down as it nears the gymnasium, and offers an interesting series of large and small spaces as it unfolds. The common kitchen for both of the two new colleges lies beneath this pedestrian way.

The program required commercial buildings, in the form of shops, against Broadway (to the left) and this block is designed so it roughly defines one edge of the Stiles College court

## Two New Colleges at Yale

### *Saarinen:*

diverse student rooms, to answer the needs of the site, and to give a variety of spatial experiences in the courts. A large-scale bending of walls back and forth will give these buildings a scale appropriate to surrounding buildings. Most significantly, we conceived these colleges as citadels of earthy, monolithic masonry—buildings in which masonry would be dominant, and whose interiors of stone, oak and plaster would further the spirit of strength and simplicity.

Conventional masonry walls require anachronistic handicraft methods, so we devised an entirely new technology for the stonework. Forms will be built as for concrete; then crushed stone ranging from 3 to 8 in. will be dumped into the mold; then high-strength grout cement mortar will be pumped through hoses inserted in the form wall. After the wall has set and the outer form is removed, the wall will be washed with water under 100 lb of air pressure to remove some of the surface mortar and expose the stone. In character and texture, these walls will resemble the walls of old Pennsylvania houses, where worn plaster reveals the face of the stonework.

In evolving a new architectural vocabulary, idea, site, plan, and structural system have to be pulled together into one expression. Many months of trial and error were involved. Each decision altered every aspect. For instance, there were dozens of studies of windows—their placement, proportion, framing, the way they looked in plan, their appearance in elevation—because placing windows in this kind of monolithic masonry architecture, polygonal in plan, was in every way a completely new problem.

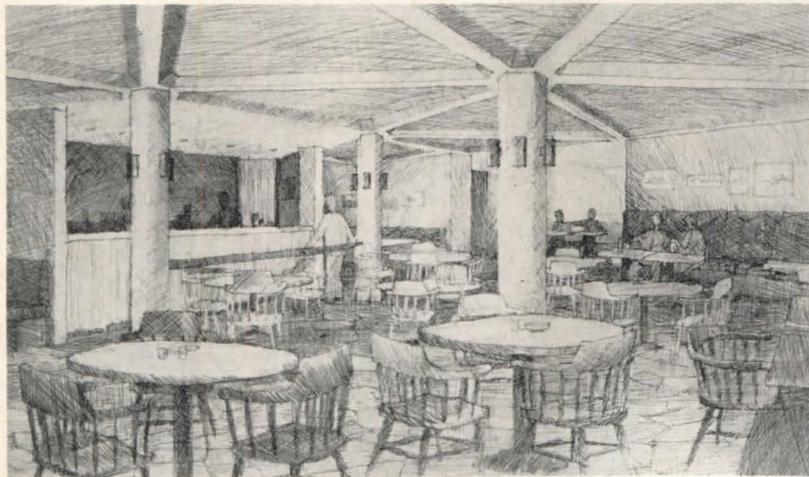
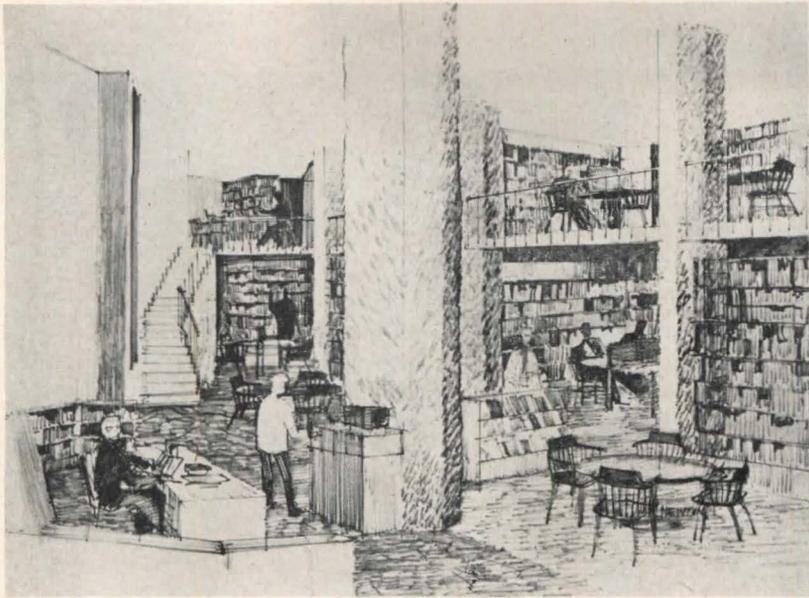
I look upon this architecture as one which answers certain needs of our era that are more widespread than this one-time use would indicate. I believe there are potentials for development in this polygonal masonry architecture.



The model photograph above shows the walkway that separates the two colleges and leads to the gymnasium. Its variety of widths, levels, and changing directions should offer a series of interesting spatial experiences to passersby.

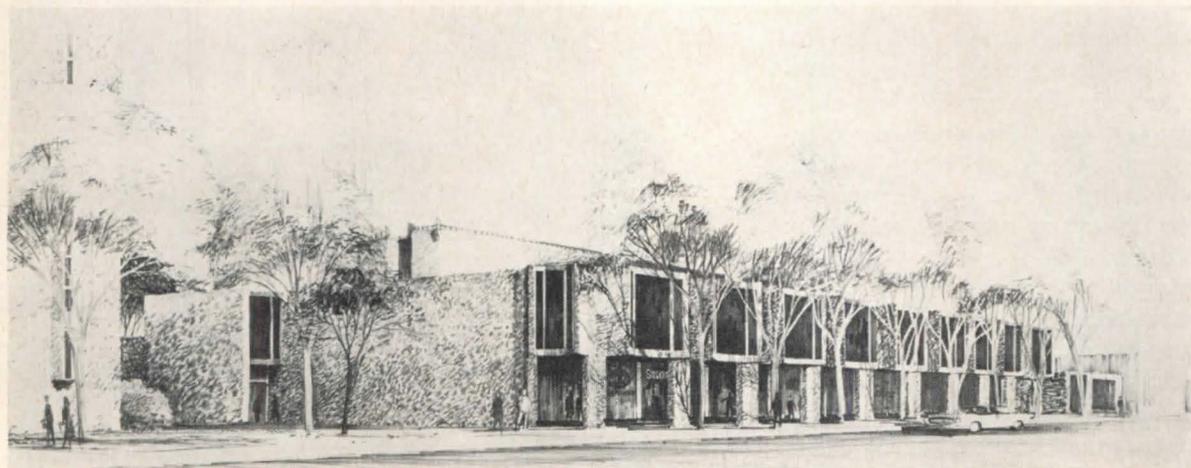
The stone walls will be carried through into the dining halls, below, and used with dark wood. The wood floor can upon occasion be used for dancing, and a raised platform for dramatic performances





## Two New Colleges at Yale

The libraries, top sketch, are given favored positions on the courts, and will feature small alcoves for private study. Next above, the butteries will be rathskeller-type rooms with stone floors and round oak tables, serving snacks and soft drinks during off-hours. The block of shops facing Broadway is shown below. Its rear façade defines the Stiles court





## *Image of the Architect* **IN PRACTICE**

The earnest little man with the beret and the brush is really a pretty facetious "image of the architect." Now that he has been taking his measurements in these pages for nearly a year, it seems time to move on to more serious consideration of the architect and his functions. If, as F. W. Dodge economists promise, we shall "build a second U.S.A." in the next 40 years, architects will be faced with fabulous assignments. Volume of work will be extremely heavy, and probably quite varied, with architects and engineers called on to meet the fast-changing needs of technological advance. Surely while we are building a physical plant as large as that we already have, we shall expect to find it vastly different. We don't need science fiction to tell us that architects will be designing things not yet invented.

The architects' share in the total design function in all of this, we have kept pointing out, will be whatever they make it, depending on the "image" the architect has of himself—and, of course, the image other people have of him and his services.

Time now to stop questioning the image and move into the reporting stage of our program. On the positive side it is clear that many architectural firms have established aggregations of talent equal to a wide variety of design services, and to real leadership in any of the design complications involved. Far from scorning the clients' interest in the workaday functioning of buildings, or their preoccupation with costs, the architects have shouldered all of the responsibilities of the design task. They have added personnel as required—specialists, technicians, engineers, consultants. And they have undertaken research projects in building types and techniques to keep the basic fund of knowledge adequate to the assignments.

So we start in this issue a new series of reports on what individual firms have done, while Harold Burson rounds out the questioning of the image of the architect with his sharp observations on public relations of architects.

The reports that follow are the first resulting from the RECORD's study of activities of architect firms. With these we inaugurate what amounts to a new RECORD series on the *practice* of architecture.



## The Architect and Public Relations

by *Harold Burson*

*President, Burson-Marsteller Associates, Inc., Public Relations Consultants*

Rather often in the past decade, architects across the land have debated the image of the architect as it applies to the faceless mass of society referred to as "the public." There has been a plea for a public relations program and there has been not only a desire, but an expectation, that these magic words, "public relations program," could transform the architect, not quite overnight but certainly in a year or two at the most, from the unknown to the known, from the misunderstood to the understood, from the man on the outside of certain categories of design activity to the man on the inside. In effect, many architects have felt that their calling could lend itself (with ease) to an image-building program, and all the project needed was the skill of an artful public relations practitioner to get the story across to the public.

In a sense, this kind of attitude has a strong parallel in architecture itself. The basic thinking is no different from that of the Main Street department store owner who knows his store must present a modern décor; his own answer to the problem is to erect a windowless store front of a not-too-expensive panel material and, ergo, he has a modern new store. The architect is not convinced this is the proper solution, but more important from the merchant's standpoint: his customers are not convinced either, and they do their shopping elsewhere.

And so it is with public relations. The problem is too broad to be solved with the curtain-wall type of approach of a few articles in mass circulation magazines, a novel or movie where the architect portrayed is neither the "heavy" nor the dreamer, and (happy day!) credit lines appear under all renderings published in the nation's newspapers. Not that these techniques don't have a place in a public relations program; they do, but they are the superficial manifestations that are seen by all but

may have little permanent value in terms of building a positive image.

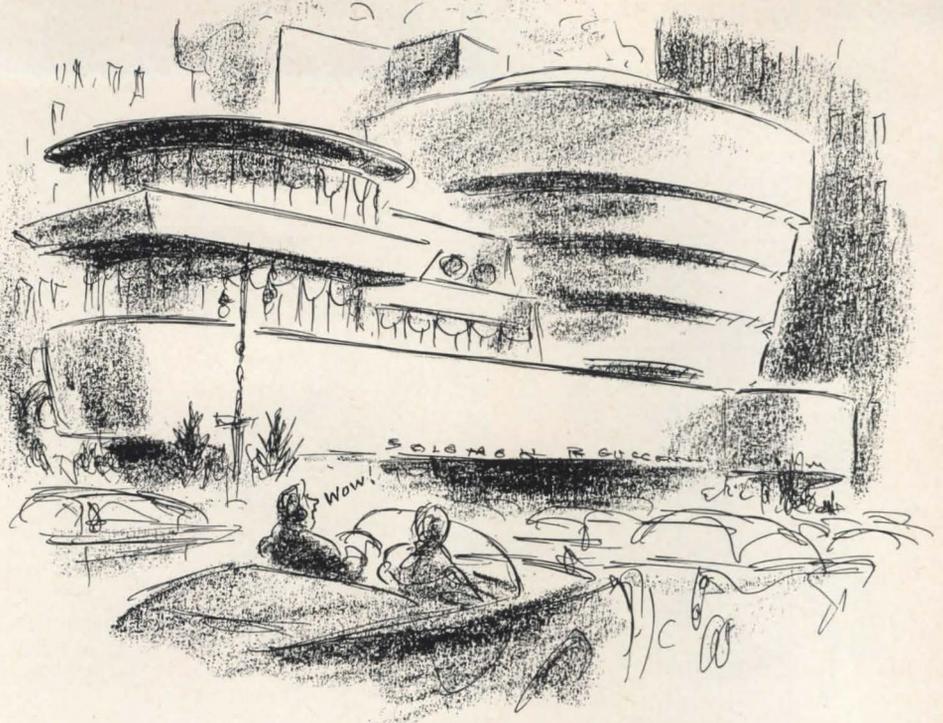
In any discussion of the public relations of a profession or a company or an individual, it must be recognized that each and everyone of them has a public "image" at any given moment. The image can be good or bad, positive or negative, or any shading in between. There can even be a good as well as a bad image that's being projected simultaneously to the same person—a double exposure, so to speak. And the image can even be *no image*.

Again, this is not unlike architecture itself. Every structure on the face of the earth does in fact incorporate architecture. It may be good architecture or bad architecture or indifferent architecture. No matter whether or not an architect participated in its design, the structure itself embodies and reflects an architectural expression.

So it is that architecture and the architect do have a public image in today's society. The fact that it is far different from the architect's own image of his profession is immaterial. So is the fact that the image held by the public might be without foundation. The problem is no less.

But twenty years of working with various parties to the design-construction function—including architects, engineers, builders and materials and construction equipment manufacturers—give me the impression that the public image of the architect is no more diffuse than the sum total of all the images of their calling that might be expounded by architects themselves. The lack of image clarity in the public mind is essentially a reflection of a lack of clarity of what the image should be among architects themselves. This is a public relations problem—but it is a problem that will not be solved by more or better press releases.

It would be imprudent on my part to try to paint



"The public generally knows there is such a profession as architecture . . ."

*Illustrations by Alan Dunn*

in detail the public image of the architect even on the basis of impressions over an extended period. As all know, techniques do exist whereby a picture based on more scientific sampling and evaluation can be obtained. But I do believe I can say—without too much contradiction from architects themselves—that, by and large, the public fails, or at best, finds it difficult, to identify the architect or architecture in terms of the individual's own needs or interests. The public generally knows there is such a profession as architecture and that its practitioners call themselves architects; but they are unable, in the main, to associate the architect or architecture with their own day-to-day living. To most, it seems to me, he is as remote as the anthropologist or the archaeologist, although perhaps more numerous.

This is a rather paradoxical situation in a nation where close to 60 per cent of all families own their homes—each of them an expression architectural, good, bad or indifferent. It is paradoxical indeed that a nation of homeowners—the home being the greatest investment most families make in their lifetimes—cannot associate the architect in terms of his own interests and requirements.

Even though the situation is paradoxical, it is not without explanation. In simple words, most people buying a home in the United States never encounter an architect. They may be dimly aware of the participation of an architect in the building process, but they are apt to regard the few lines he draws on a few sheets of paper as pretty much of a routine function as compared to the really substantial work performed by others. He can see the stonework, the roof, the electrical outlets and the plumbing—he knows the roof is good if it doesn't leak or that the plumbing job is satisfactory if there is abundant hot water. He is, unfortunately, unable to visualize that those lines on a few sheets of paper could have

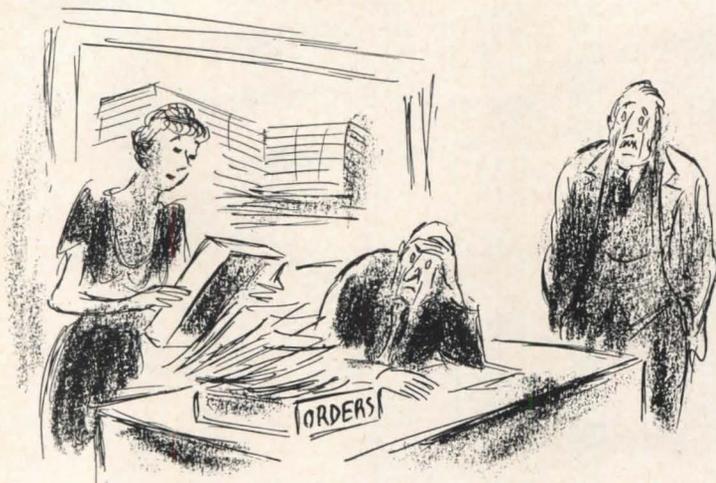
made living more enjoyable with less effort if some lines had gone in other directions.

It is difficult to trace the specific cause and effect sequence that has made the architectural function so little appreciated in the average American household—the household of the man who agreed to pay \$16,999 for his home, and there are literally millions of them. But I believe it is important to have some understanding of some of the transitions in architectural practice in order to appreciate the public relations problems of the profession. Merely opining that the architect has lost the low-cost residential market to the speculative builder is an over-simplification. The real need is for the architect to examine what has happened in some areas in the past and decide his future on that basis and while deciding, lay the foundation for the image he will project in the future to the public.

On the other hand, many architects would argue by asking if it's really necessary for him to project an image that reaches the \$16,999 homeowner—or, more bluntly, who cares what this segment of the public thinks? But these same architects are not at all happy that a startling percentage of the potential commissions from \$16,999 houses multiplied by a factor reaching almost a million units a year are passing by them and their professional architectural colleagues.

The reasons the low-cost residential business bypasses the architect in today's economy may offer a clue to some of the factors that underlie the development of an image—whether it be for the corporation, a profession or an individual. In the simplest words, it is that the image depends more on what one does than on what one thinks or believes should be done.

The architect is not associated in the public mind with the low-cost house because, rightly or wrong-



"Their first hospital led to a second hospital and to a third and fourth. By that time the firm was a specialist in hospital design . . ."

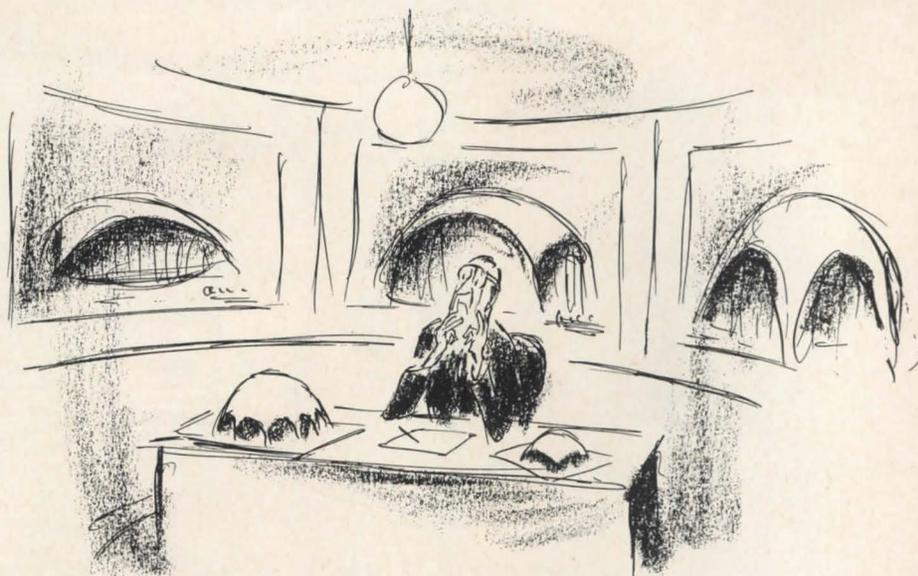
ly, he has not made himself a part of the process that has provided new homes to millions of families within our generation. The one essential character in this process has been the speculative builder (often, in architectural circles a term of derision). It is charged that he has usurped the traditional function of the architect and even worse, has shown almost total disregard of architecture itself in his end product. But going back to the once prevalent concept of the architect as the "master builder," it might be argued that the architect has abdicated his traditional role. Regardless of who did what, a need for housing existed: the need was recognized by those willing to take the financial risks of bringing to market a product (this time a house) for a price. Little matter that some of these speculative builder entrepreneurs did in fact engage competent architects on their staffs, or that they were able and willing to take risks outside the bounds of what is today considered professional practice, or that they did fulfill a need of society at a time when that need was desperate. All of these factors aside, the architect feels he has been wronged and many feel their "image" is at fault. Would, however, the image have been the same as regards low-cost residential developments if in the immediate postwar period architects themselves had shown leadership in forming business enterprises that would have provided our people with houses they wanted on terms they were able to meet? In blunt commercial language: if this was a market the architects wanted to keep, architects could have—and, for a better society should have—responded to the challenge taken up by the speculative builder.

This may seem far afield from the image of the architect as viewed by the public relations man. Again, I make the point that the image is a reflection of the actual rather than the hope or the promise.

Take another area in which architects believe their image has been faulty—with the result that the professional architectural firm is now a smaller factor than it should be in one of the more lucrative fields of building construction. I refer to the industrial building, a type of structure that has developed the bad word "package builders."

Package builders have become a recognized part of the economy because they had the ingenuity to devise a method of designing and erecting industrial facilities on a basis that made sense to the industrial manager. Too many companies have used the package contract for too many plants over too many years to dismiss the practice by saying it's not in the owner's interest to buy his buildings in this manner. On the contrary, there is probably no other group in modern society in a better position to evaluate value received for dollars spent. Yet, the package firms grow and prosper—and keep their clients.

Once more, this is a problem of the image—this time as projected to the industrialist. It is not enough to deprecate the package building concept or to extol the benefits of doing business with an architect. The basic problem is that the industrial customer seems to have developed the feeling he is better off when he does business with a single firm that fixes responsibility for whatever goes wrong in his plant. (Admittedly, this could lead to a layout that costs him hundreds of thousands of dollars a year in extra handling costs, which is quite a price to pay for having only one party to deal with when the roof leaks.) Another factor, rightly or wrongly, is that the industrial owner has leaned to a greater dependence on the engineering-oriented as opposed to the architecturally-oriented. The concept that the building is at most a protection against the elements for people and machines is probably at the root of this attitude, coupled with the fact that the architectural ele-



"In specialization the architect<sup>o</sup> has identified and has, at the same time, limited his audience . . ."

ments of an industrial structure represent a minor part of the total cost. It is not enough, insofar as the industrialist client is concerned, to be told that the architect's "professional viewpoint" is the safeguard of the client's dollar. I suspect that most package builders will testify that owners have shown exceptional talent at safeguarding their dollars without outside assistance. The desirable image, to have substance, needs both the "safeguarding of the client's dollar" and the willingness of the performer (in this case the architect) to accept responsibility in the event of building shortcomings.

In building an image, it seems to me that the architectural profession has two separate and distinct problems. On the one hand, there is the problem of the architect as a member of a profession; on the other hand, there is the problem of the architectural firm as a commercial enterprise which happens to market the output of architects. It is my conviction that no public relations program for the architect can ever be successful (other than superficially so) unless these two separate, and sometimes divergent, problems are taken into account.

Let us examine some of the fields where the image of the architect is favorable—at both the level of the individual architect as a member of a profession and the architectural firm as a good place to do business—in schools, hospitals, monumental and institutional buildings, religious buildings, the more expensive homes to name some of the more obvious categories.

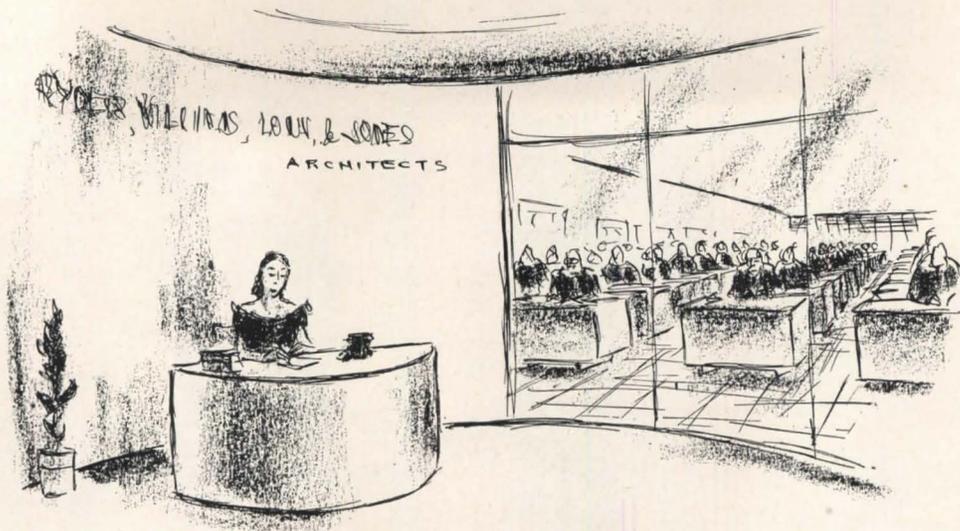
If you investigate why Architectural Firm A is regarded as a specialist in school design or why Architectural Firm B has a thriving business in hospitals or why Architectural Firm C designs more churches than any other firm in its area, the chances are that you will find evidences that these firms have (consciously or unconsciously) gone through certain

steps that have enabled them to project an image along certain specific lines. Their first hospital, for one reason or another, led to a second hospital and to a third and to a fourth. By that time, the firm was either a specialist in hospital design through experience or more likely, they began thinking in terms of specialization by acquiring personnel whose background was in the hospital field. After some indefinite period, the firm's reputation grew.

It was, of course, possible to condense the getting known period through public relations techniques. Speeches before hospital and medical groups, articles in hospital trade journals, the presence of the firm name on a hospital under construction—all of these contribute to building an image. But it would hardly have been possible to build this kind of reputation unless the firm had, in one way or another, qualified itself for this kind of work.

This course of action is by no means confined to the fields mentioned above. In the industrial field, for example, several architectural firms including some of the largest in the profession have been extremely successful in building an image as industrial plant specialists, even against the most spirited competition from package builders. But their image is based on what they are and what they are doing rather than on the abstract hope of what they'd like to be.

The public relations problem of the specialist is simple when compared to the public relations problem of the architect in general practice. In his specialization, the hospital or the school or the church architect has automatically solved one extremely important problem: he has identified, and at the same time, limited his audience. At the same time, he has limited the range of themes he should project. In effect, he is able to tell a well-defined story to a known audience and his problem becomes one of maintaining his effort on a continuing basis.



"The reputation of all large and successful firms is grounded as much on sound business principles as that of the successful soap manufacturer."

Life is not so easy for the architect in general practice. If he practices on a national basis, he must not only reach some 25,000 school administrators who form the total audience of the school architect and the 7,000 hospital administrators who form the total audience for the hospital architect, but he must attempt to reach hundreds of thousands of others responsible for churches, industrial facilities, office buildings, government buildings and anything else which may require the services of an architect.

Some architectural firms have done a most effective job in projecting an image, even though their practice has been general. In most of these cases, the firm has taken inventory of its assets and then capitalized, for purposes of public relations, on a single theme that has been played over and over again. Thus it is that one of our major architectural firms has gained a reputation for its clean modern design over a range of facilities that includes factories, banks, hospitals and Park Avenue office buildings. Another firm has been able to make good use of the distinguished industrial career of its head as a symbol that differentiates it from other firms. The one theme that appears to be common in the images of all the large and successful firms is that their reputation is grounded as much in sound business principles as that of the successful soap manufacturer or television manufacturer. Essentially, they are businessmen whose business is architecture and their major clients and prospects are never allowed to forget this.

This is not always true of well-known and highly respected architects. The late Frank Lloyd Wright offers a case in point. As the world's best known architectural name, he stood as a symbol for the architectural profession. Ask ten people whom they think of when they think of architecture: a good percentage of them will come back with Frank Lloyd

Wright. Mr. Wright was never accused of being a practical businessman; undoubtedly he would have scorned the association. As a result, a good many of his potential clients took cognizance of Wright's abilities and bemoaned their inability to afford not only his kind of architecture but architecture in general.

To a lesser degree, there are literally hundreds of other architects who inspire this kind of reaction from the general populace. They are the architects who look on themselves as the artist rather than the businessman; the public in turn looks at the artist with suspicion, certainly when it comes to entrusting his pocketbook to one. For better or worse, we come down to the fact that, from the standpoint of public relations, an architect does more to advance his profession by delivering a building below budget than by creating an architectural masterpiece. This may be a regrettable circumstance of the age in which we live, but it is one which the architect must recognize as he goes about the task of image-building in his daily work.

This, I believe, is at the nub of building the image of the architect as a member of a profession. Undoubtedly, there would be a great many answers to any mass sampling among architects themselves on their own image of what an architect is. They would range from the artist to the businessman and all combinations in between. The architect's own ideas on their role in society would be similarly diverse. Yet, these are matters about which a degree of unanimity must be achieved before any effective public relations program can be launched. What the public says about the architect will, in large measures, reflect not only what the architect himself says and how often he says it, but more so the part he is playing in serving the needs of an increasingly complex society.

*In these fast-moving times, with their increasing opportunities, what is happening to architectural practice? In order to obtain a broad view of current changes, improvements, and diversification, ARCHITECTURAL RECORD asked a large number of practitioners to comment on developments within their firms. From their response, it would appear that no single answer holds for all firms; they are coping with their problems in a variety of ways. In the following pages, the comments are reported almost in full, with only a minimum amount of routine editing.*

## Office Organization And Procedures for Present-Day Practice

### Special Services Personally Conducted

I am a great believer in the potential value of the architect in many related fields because of his training in analytical thinking and long range conception and his general breadth of interests and values. These he must always keep in their proper perspective. This is in contradistinction to the engineer, real estate man, banker, etc.

As chairman of last year's Public Relations Committee and current member of the Executive Committee of the local A.I.A., I have been trying to promote this broadening of the scope of the architect's services, together with the closely related items of proper practical training for the architects and a proper public relations campaign to implant the architect's broad capabilities and economic value in the minds of the public.

As for my office in particular, I have broadened our services, but have not set up any *special* organization to do so, as all such diverse work is done under my personal direction. These extra fields of service fall into the following categories:

1. Economics—Development of maximum return on investment and future values.
2. Site selection—Suitability, economics, and future values.
3. Land planning—Types of use and methods of development.
4. Programming—Development of space criteria, etc.
5. Merchandising—Development of maximum sales potentials for shopping centers, etc.
6. Standardization of program, details, and construction for maximum economy.
7. Sociological problems—such as in oil company housing.

Some of the fields of service that are possibly beyond the normal work of architects, in which we have operated are:

U.S. Atomic Energy Commission—Member of committee of seven (architects, engineers and builders) called on to review design criteria, space allocation, details and site planning for all office buildings, shops, laboratories, cafeterias, clinics and other non-process structures of recent \$2 billion program.

Report was to insure "Minimum cost and maximum simplicity, uniformity and utility." Also recommendations on AEC procedure and the feasibility of standardized space and design criteria in planning AEC facilities.

Svenska Esso—Site selection, space analysis requirements and planning criteria review for proposed office building, Stockholm, Sweden.

### *The architects were asked—*

Please describe your own concept of architectural services, along these specific lines:

1. *Have you extended or diversified your own services or added new specialties? Are you offering services for new building types, making specialized studies, or doing out-of-the-ordinary consulting work?*

2. *What innovations have you made in your office organization and procedures, to accomplish these objectives?*

International Petroleum Corp., Coral Gables, Fla.—Site selection, space analysis requirements, and planning criteria for office building, Bogota, Colombia.

Esso Standard Oil Co. (Belgium). Economic and planning studies and report to determine whether to retain existing space, purchase additional adjacent space, or construct new building in suburbs, Antwerp, Belgium.

Colombiana de Seguros—Review of preliminary plans for \$5,000,000 office building, Bogota, Colombia, with emphasis on real estate considerations, tenant facilities, standardization of design and mechanical equipment.

Electchester—Market analysis and report on economics and planning for proposed site of Shopping Center, Queens, N. Y. (for Paul Tishman Co.)

Creole Petroleum Corp.—Economic and sociological study with extensive report and recommendations on oil company and native housing and community facilities throughout Venezuela with the intent of reducing social unrest in camps. In collaboration with others.

Henry Hudson Hotel—Economic analysis, report and studies for replanning of public areas to increase their revenue.

Vincent Astor Estate—Economic analyses and plans to explore the possibilities of various apartment and commercial properties and land use as a guide to retention or sale of property.

Humble Oil Co.—Survey of housing requirements, Baytown, Texas.

Shopping Centers—Consulting work on site selection, programming, merchandising, traffic, general economics (for 15 regional centers in various parts of U. S., Canada, Puerto Rico).

Office Buildings—Consulting work on selection of furnishings for various projects (in addition to services indicated above).

Perhaps all this is not of great enough scope or volume for your purposes, but I would like to say I heartily endorse your program.

*Lathrop Douglass  
Architect*

## Volume, Organization, Engineers Required

As you probably know our firm has carried on a general practice of architecture and engineering in its broad aspects for many years and, with a staff of over 225 architects and engineers, we are in a position to provide a comprehensive service on any size or type of architectural and engineering project.

We are of the opinion now, and have had this opinion for many years, that an architectural firm should have on its staff a comparable group of engineers. Many building projects such as hospitals, research laboratories, etc. involve engineering problems to such an extent that the cost of engineering items as such involves fifty per cent of the cost of the project. An architect, therefore, without an engineering staff is not in a position to render as comprehensive a service as those firms with an engineering staff within the organization.

It takes a tremendous volume of work to sustain an organization with a full staff of architects and engineers. Smaller architectural organizations are not capable of

developing such an organization unless they have a tremendous volume of work or will take the way we did of developing slowly over a period of forty years.

*Jesse M. Shelton  
Robert and Company Associates  
Architects and Engineers*

## Opportunity in Related Design Fields

Our office is perhaps an extreme example of what you are talking about. For legal reasons we have two organizations, George Nelson and Company, Inc. and the architectural partnership. In fact, however, we might be said to be an architectural office which has expanded into so many other areas that we are scarcely regarded as architects. Most of our design work relates to building in some way and we prefer jobs which lend themselves to an architectural approach but we often do industrial design for architectural clients and vice versa. All of this develops naturally out of "corporate identity" and "company image" programs.

We have "departments" for interior design, industrial design and graphics, but some of our designers are reasonably flexible and work in different departments as occasion demands. Design supervision and administration for the different categories of work is generally fixed but may overlap, as for instance when what is primarily an interior job involves graphics or specially designed fixtures. This emphasizes the basic similarity of all design problems which we feel is a good thing for all of us.

Our belief that building will become more industrialized has been the biggest factor in making us the kind of office we are. We think that our kind of service will be increasingly in demand. Right now we often find ourselves in the position of having what seems to be a great thought for new building components or types and then having to partially work it out in order to convince a possible sponsor. It is clear that, not only should architects expand their services, but industry must learn to go to these architects for solutions to their design problems.

*Gordon Chadwick  
George Nelson & Gordon Chadwick  
Architects*

## Need For System and Business Knowledge

Except to say we have a system, *and use it*, the only specialty that I am aware of as being added to our normal architectural service is the fact that we understand an amortization sheet, can advise our clients on (1) *bond issues* for construction capital account, and (2) *the sale-lease back device* that allows certain classes of clients to build to suit their needs, and sell the completed property to an insurance company coincidental with execution of a long-term lease for client occupancy.

Through the years (since 1934) we have successfully initiated dormitory and food service bond issues repeatedly for 3 different colleges, always making them work financially with something to spare. Presently we are adding to our big University Medical Center considerable housing in efficiency, one-, two- and three-bedroom apart-

ments for students, technicians and faculty, using rents to amortize bonds (and all the walls and ceilings are plastered and painted). A year ago we completed a large operating center for a public utility, and were involved with the sale-lease back idea on that project.

C. E. Silling  
C. E. Silling & Associates,  
Architects

Architecture and Engineering Integrated

I have read "The Image of the Architect" articles and although I appreciate your purpose, I feel that they have thus far been somewhat vague, theoretical and even pretentious. Also, I question whether they were effective for an audience composed primarily of architects.

As far as we are concerned, I can list the following points:

1. First and foremost we believe in an integrated architectural and engineering office. We maintain large structural, mechanical and electrical departments which we think make it possible for us to secure better coordinated

plans, cheaper bids, and more efficient buildings. It also facilitates the awarding of separate contracts for various phases of the work. This is not only a talking point for us in seeking new business but is something which is being requested by clients more and more in our initial conversations with them.

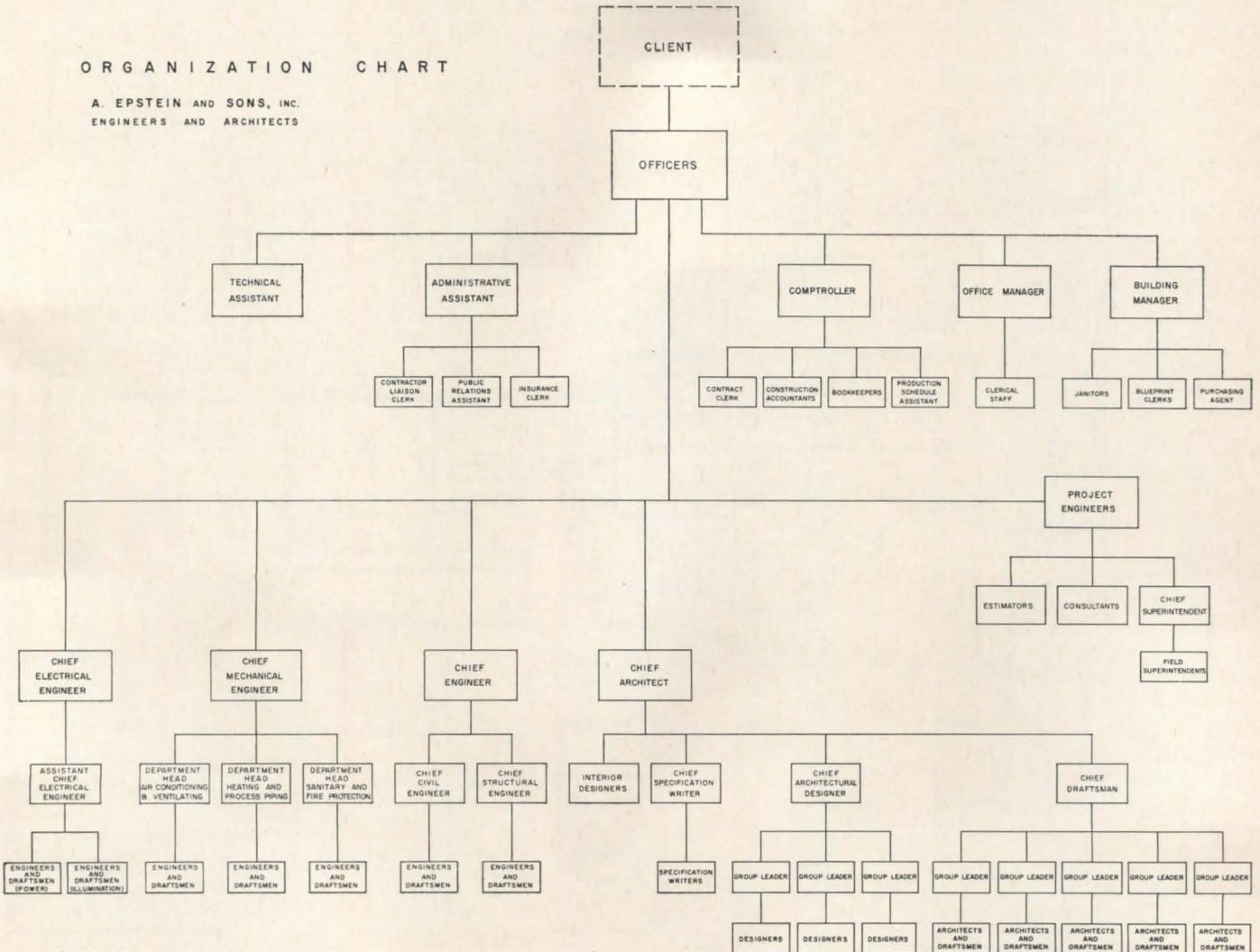
2. We now maintain a small interior decorating and contract furniture section which, in addition to preparing color schedules and material selections for construction, purchases approximately one-quarter million dollars of furniture and furnishings annually. We consider this primarily a courtesy service but find it to be appreciated.

3. We find it necessary and desirable to provide complete on-the-site supervision—not by a clerk of the works but by one of our own permanent staff of outside superintendents.

4. Site selection has become a more significant item with us. We do not yet make complete economic and political surveys of locations all over the country but we do find ourselves looking at property in every state. Subsoil conditions, adequacy of utilities and nature of the terrain are, of course, major concerns but we spend a good deal of time on zoning (including appearances before local boards), railroad considerations, insurance un-

ORGANIZATION CHART

A. EPSTEIN AND SONS, INC.  
ENGINEERS AND ARCHITECTS



derwriters' requirements and even some study of the available labor force, local transportation, and the like.

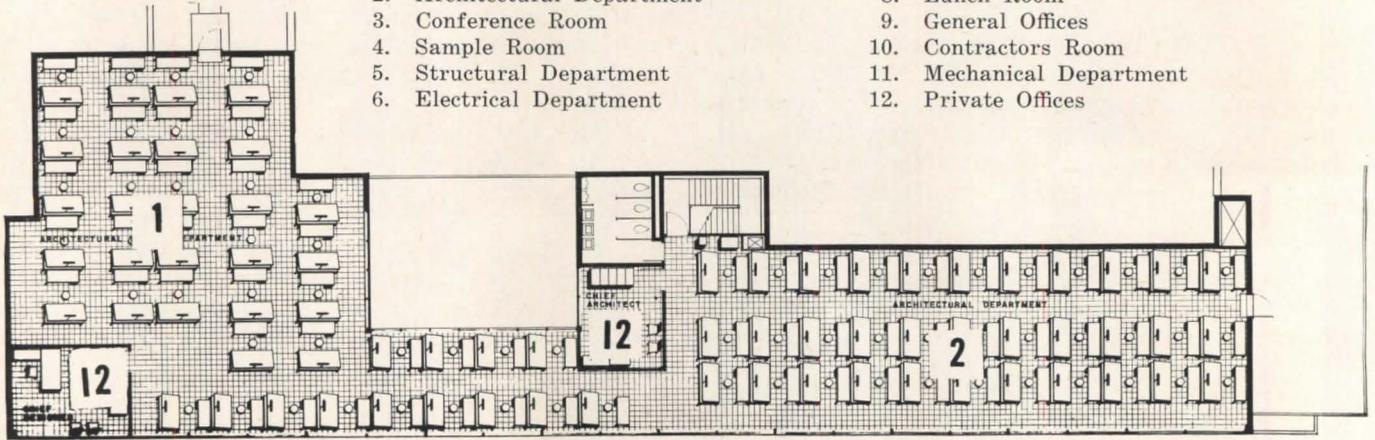
5. We find it necessary to do a lot more programming for our clients than years ago. Particularly in fields where we have performed an unusual amount of work—as for example grocery warehouses—we become very involved in materials handling, the establishment of palletizing methods and similar operational factors. In hospital work

we usually poll the entire medical staff for basic requirements.

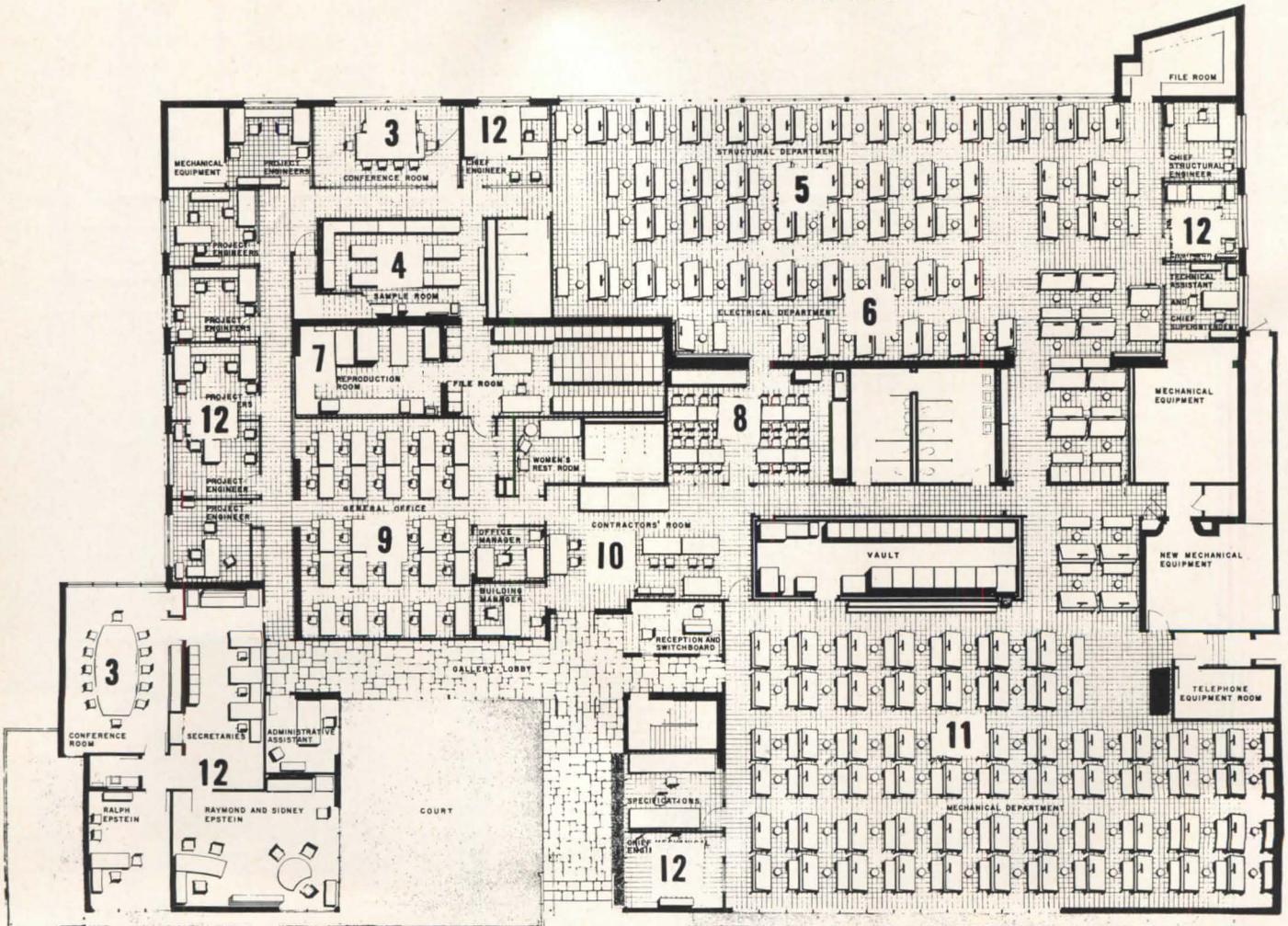
6. The rash of large office buildings has helped to foster firms which specialize in pure layout. To stave off such competition we have developed a section of our own for this purpose.

7. Similarly, many contracts, particularly those with the Government, require quantity surveys of the draw-

- |                               |                           |
|-------------------------------|---------------------------|
| 1. Architectural Design Dept. | 7. Reproduction Room      |
| 2. Architectural Department   | 8. Lunch Room             |
| 3. Conference Room            | 9. General Offices        |
| 4. Sample Room                | 10. Contractors Room      |
| 5. Structural Department      | 11. Mechanical Department |
| 6. Electrical Department      | 12. Private Offices       |



Floor Plans, A. Epstein and Sons, Inc. Offices—Below: Main floor, Above: Second floor



ings before the bid period. Again, for the sake of keeping all the work in our own office and partially from some lack of confidence in the services being offered by others, we started making our own detailed take-offs.

8. We have been associated with industrial districts since the inception of our office. There is much of this activity today and we continue to offer a specialized service in this field.

9. Many internal changes have accompanied the expansion of our activities, for example, constant additions to our building, microfilming of drawings, the use of payroll and accounting machines, cost accounting and production budgeting (this really helps with negotiated fees as must be done with the Government, etc.). There has been a constant growth of so-called employee benefits including hospitalization insurance, life insurance, a profit sharing plan, and many other personnel inducements including such things normally associated with large business corporations as a bowling league, suggestion boxes, and a house news publication.

I enclose herewith our latest organization chart and the plan of our office building which was initially erected in 1947 and to which the third addition is now being completed. This letter has been pretty sketchy but I hope some of it serves your purpose. I have skipped many things such as the man who spends more than half his time doing nothing but debating permit problems with code enforcement officials and our process piping division which deals solely with owner's equipment, piping, and connections for a diversity of manufacturing equipment.

*Raymond Epstein, President  
A. Epstein and Sons, Inc.  
Architects-Engineers*

### Improved Services Strictly Architectural

I'm afraid that we don't have any "hot" developments to describe for you in answer to your specific questions about added services or specialties. However, the reasons why we don't might have some relevance to your point, so I'll take the time to set them down here.

Our controlling aim as an office is to provide the best architectural service available. We understand this aim to limit sharply the kinds of things we are prepared to undertake, and at the same time to present us with, in your words, a "challenge of these fast-moving times." The limit is that we refuse all temptation to try to apply our design and organizing skills to fields that are not a part of architecture, attractive as those temptations sometimes are. The challenge is to be continually alert for any aspects of the practice of architecture which we must include and master in order to be able to offer, with confidence, a complete and superior architectural service.

What this has meant in practice is roughly this: as our office has grown we have found it advisable to include a number of additional services, and we have made considerable and steady effort to see that existing services stay at peak effectiveness. The additions have included expansion of our design department to enable us to spend the necessary time for thorough study of every project, a full time estimator who runs complete estimates on almost every job, a complete mechanical and electrical engineer-

ing department, and an interior design group. Senior men in the office are experienced in master planning and landscape design, and we put great emphasis on good programming.

The result is that we are able to provide a top quality service starting from the vaguest outlines of a project in a client's mind, helping him to organize it and get it soundly programmed and then following through with direct supervision of interior decoration and furnishings. We feel that this is what architecture really is. Not just the competent design of an individual building, but an understanding of that building in relation to what came before and will come after it, to its immediate and remote environment, and to the whole complex of requirements it should be intended to meet.

The basic problem, we find, is one of control. If we are to practice the kind of architecture I have described, we need to have control over every phase, at each step of the way. This means two things: first, we must have the client's cooperation and, second, we must have effective controls on our own operation. Both of these are hard to achieve. Sometimes circumstances prevent the client, even with the best will in the world, from giving us the kind of control we need. And in our own office, with a large and active shop working at close to capacity much of the time, keeping a close check on every last detail can be an overwhelming job.

These things refer to what might be called "quality control" and are essential. We also use a quite elaborate system of internal cost control (external, i.e. project, costs are controlled through the estimating set-up) which we also believe to be an essential of a successful operation. So this matter of control has many aspects, and we like to think that we have had some real success in achieving them. To do it we have built an organization we are proud of, and we watch over it like anxious parents of an only child.

The purpose of all this, of course, is to perfect a thoroughly hardheaded, cost conscious, business operation in order to make available the creative abilities of outstanding architects to our clients. All the good business practice in the world would be of no value if it produced second-rate architecture as the end product. Conversely, all the imaginative design ability in the world would be pretty useless if it couldn't be put to work in an orderly, reliable, and economical way.

If we can do this, if we can practice this kind of architecture with a reasonable degree of success, that is meeting the challenge to architecture pretty well, it seems to me. It is also keeping us both busy and rewarded enough so that we aren't looking around for any new trouble to get into.

*George F. Hellmuth  
Hellmuth, Obata, & Kassabaum, Inc.  
Architects*

### Development of Additional Specialties

We are very much interested in the theme you are developing in "The Image of the Architect." We have felt for some time that there are many fields of service that we must enter in order to be not only of more value to our clients, but also to be more competitive.

Several years ago we felt the need of an addition to our Engineering Department because of the tremendous road building program going on. Our staff in this department soon grew to about 30 persons and we found that by the use of an electronic computer we were able to extend our activities and our consulting services in this field. Due to various changes in the Michigan Highway Department we have reduced our staff in this department considerably. We do, however, still have work in this field both in Washington and Ohio, as well as locally.

The computer programs which we developed ourselves and received from other sources for this were most interesting and useful. For example, we found that a project we were developing in Mexico using structural members based on Mexican fabrication suddenly had to be changed to United States steel sections. In just a few hours we reestablished the structural system for this rather large building by the use of the computer. We continue to use the electronic computer and also offer its service, including the development of programs to expedite and reduce costs, to other engineering firms. We feel that as time goes on we will be able to use electronic computers in solving many problems in the mechanical work of buildings, as well.

For many years our firm has carried on complete survey services for brewery buildings. In these, we analyze the existing plants in all departments and diagram and calculate loads and capacities throughout. From these highly detailed surveys we make recommendations for the expansion or construction of various sections of the operations and present the owner with a master plan projection for his entire program. This results in numerous building commissions.

We have also developed a specialty of community mausoleums. We have been engaged in this field for the last 30 years. Here we develop the necessary preliminary planning documents necessary for preparing sales plans and illustrations which form the basis of sales brochures. We guide and counsel the owner on the preparation of these brochures and the establishing of pricing schedules, but we do not actually carry on any of the sales programs. These efforts have brought into the office projects of considerable size.

We have become increasingly aware of the problem of space utilization of office buildings, particularly municipal ones. We have extended our services to cover this field and the proper development of building programs based on the requirements for work space and facilities. We find that this additional service has been of great assistance to our owners and makes our architectural development much more direct and logical.

As a means of serving our clients better we have reorganized our staff so that we have a vice president in charge of the separate divisions of our work. Each of them is a specialist in his own division. The fields of activities are generally as follows, although other divisions can be added or each division expanded as the need becomes apparent.

1. Architectural Projects Division which handles work primarily of an architectural nature, namely, commercial, governmental, recreation, etc., including mausoleums and cemeteries.

2. Educational Projects Division which handles educational and research work, including institutional and religious projects.

3. Processing Engineering Division which handles industrial work where the process is fundamental to the design, such as storage and distribution of food stuffs, including breweries, beverage, chemical, dairy projects.

4. Engineering Projects Division which handles work primarily of an engineering nature, military engineering projects and includes airports, highways, railroads and harbor facilities.

One of the discoveries we have made is that each new service added to our field opens opportunities for still others and we are presently very vitally interested in urban renewal because all of the services which architects can offer are essential to proper rehabilitation of our cities.

*Malcolm R. Stirton  
Harley, Ellington and Day, Inc.  
Architects and Engineers*

### **Design for Industry and Building Groups**

I believe one of the widest-open fields for architectural services is in design for industry. More and more of our buildings are being manufactured in the factory and only occasionally are well trained designers influential in their creation. In fact, most architects are apt to be bored with the idea of product design.

An equally important area for architects is in site and neighborhood planning. We are building more of our new work in larger and larger projects. As architects we should be more familiar with and concern ourselves more with groups of buildings rather than single ones. We are all too apt, with the best of intentions, to contribute to the chaos and disorganization so apparent all around us by failing to relate our work to the buildings and areas which surround it.

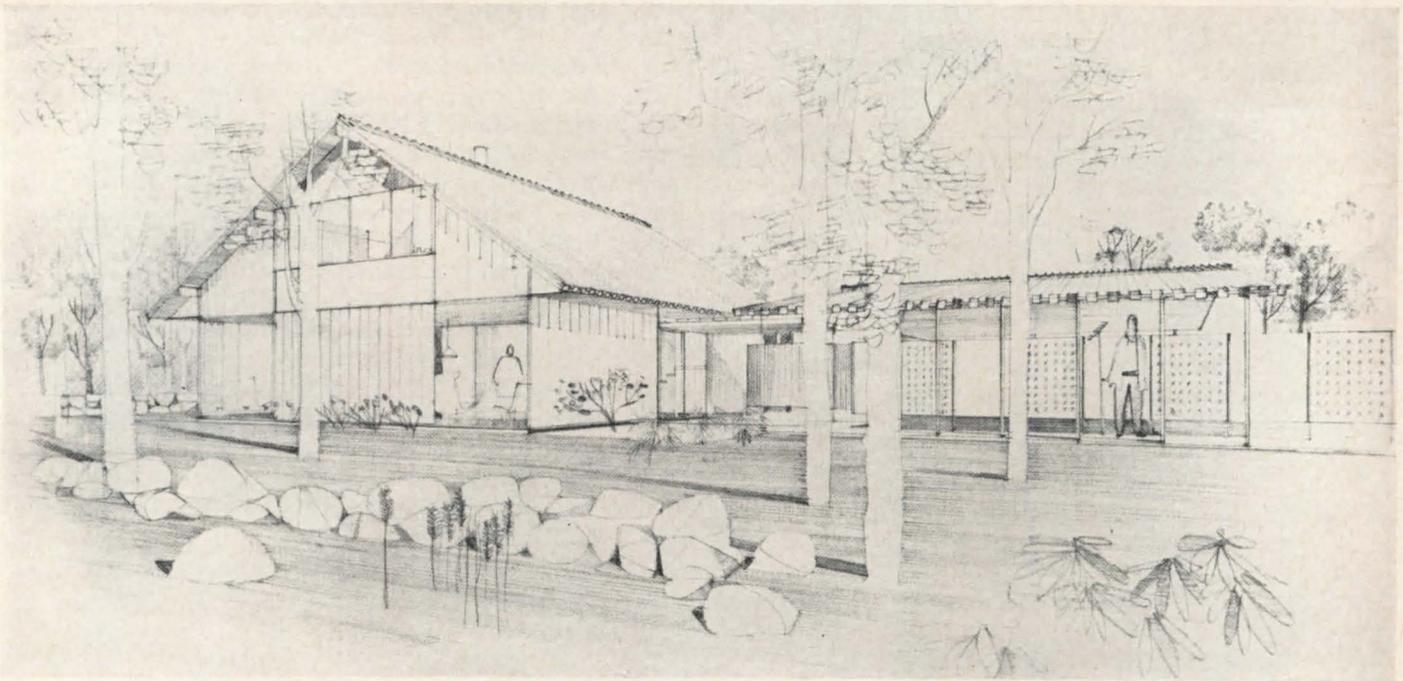
As for the contribution of this office to such work, we are at present working on a research house for the Ferro Corporation. We have done several urban renewal proposals and are just now entering the second phase of an interesting example in Pittsburgh. We are just beginning work with a steel company on the development of components and a multiple-family housing system.

Regarding innovations in our office organization and procedure, we are very much aware of the desirability of change, but at the present time are just talking about it. My own feeling is that in technical innovation for product design, as architects, we can contribute only a part of the necessary skills and knowledge. We are exploring ways and means of acting as a catalytic agent in this field and in the meantime our work loosely falls on a one-job-at-a-time basis.

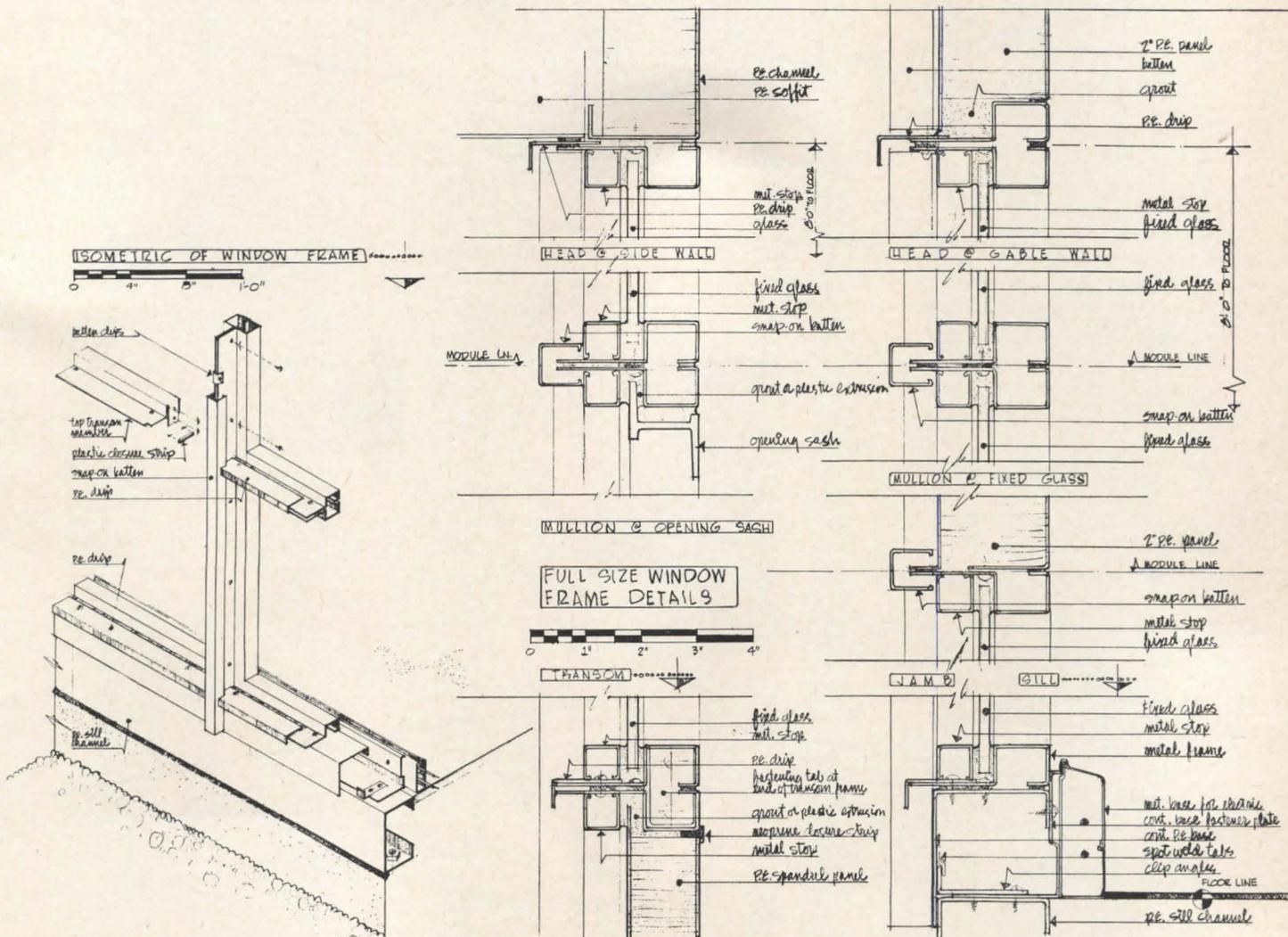
*Carl Koch  
Carl Koch & Associates, Inc.  
Architects*

### **Programming and Master Planning Important**

No matter if a new project is small or large we write a program which has the owner's approval before we get too involved. Next, we champion master planning. We stress that an owner must look at the big picture instead



Carl Koch & Assoc., Inc.: Research House for Ferro Corporation



of only at the present need. This has resulted in many a project growing to something bigger and better.

After the two above ideas have taken a pretty *tight hold*, we encourage the owner to research with us and have other owners tell him what they feel is good and what is not so good in the plants they are using. We may not always be successful, but we try to produce an environment rather than just a pleasant building. It is important to help the owner buy the right land. By so advising him, an important architectural service is rendered. We also advise on the purchase of existing structures, for a fee based on time.

The architect must show leadership in his community. For years we have worked to do something about city planning. Austin finally did employ a planning group.

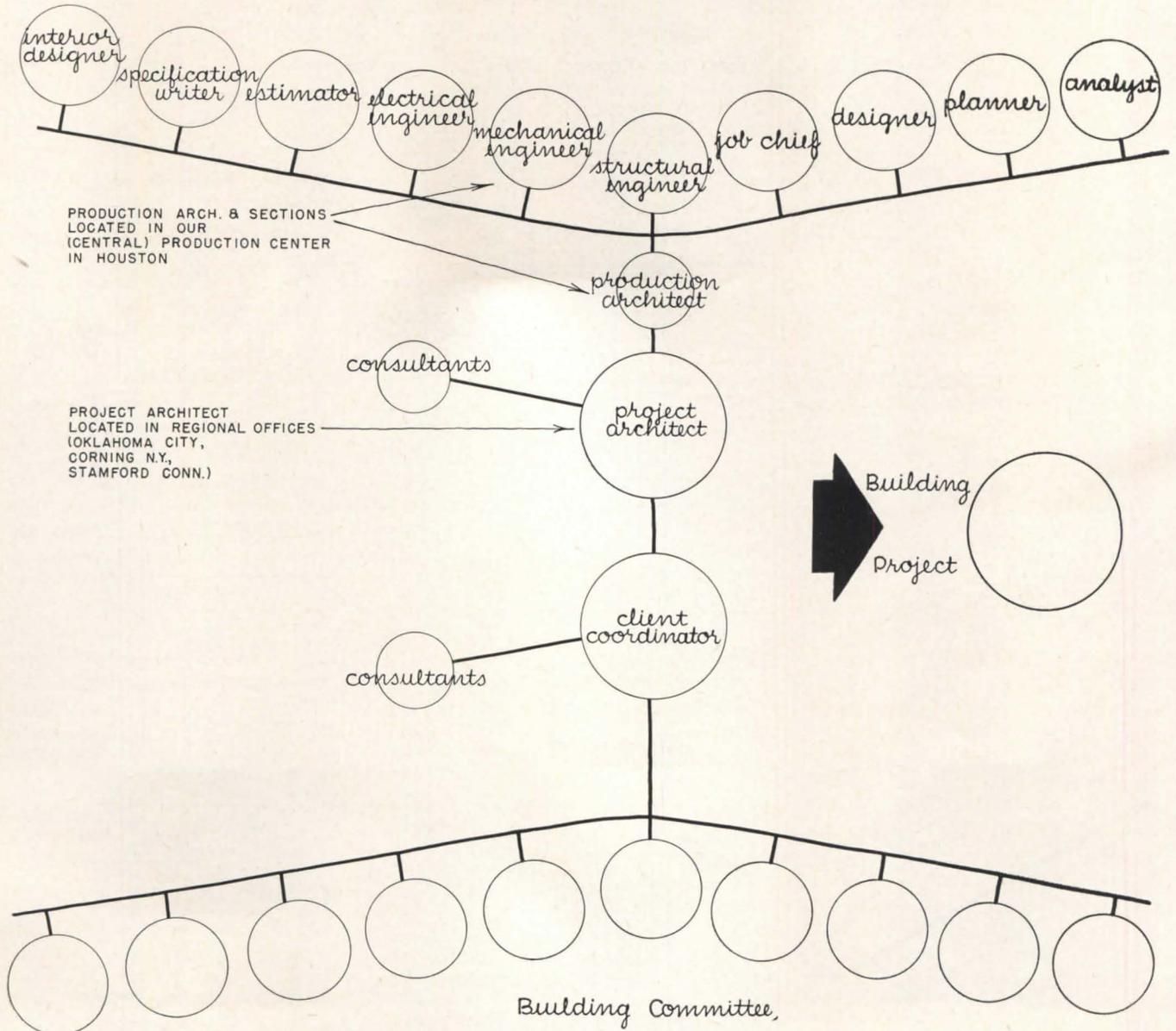
Arthur Fehr  
Office of Fehr and Granger  
Architects and Planning Consultants

### Regional Offices with Central Production

1. On extended services. . . . Over the past three years we have extended, or rather expanded, our services by adding city planning, mechanical and electrical engineering sections to our firm. At the present time, our M-E section works full time on architectural projects. We have not expanded into pure engineering projects although we may find this desirable within the next few years. We have just recently completed a contract with Convair for the design of a nuclear reactor facility.

Our city planning section was started mainly to assist us with site work, parking, drives, etc. as related to building design. It has now grown to the point where we are doing urban renewal and comprehensive planning in nine Texas cities. It is our hope that this section will also help us bridge the gray area between architecture and planning. In our recent campus planning project at Ohio State

Caudill, Rowlett and Scott: Diagram of Relationships for Building Projects



University, this section played a major role along with our architectural programming section. This section is also providing planning feasibility studies to certain clients for speculative projects.

We have also extended our services into other areas such as research by using staff members from existing sections of the firm. In looking ahead we feel that a research section would be a logical step in our plan for a comprehensive organization.

2. On organization. . . . As our clients have always been the long distance type (active ones now cover fifteen states) we have tried to shape our organization and procedures in such a way as to provide the best in service as well as design.

We now have an organization of three regional offices and one central production office. The regional offices perform client-project service and are staffed with generalists, comprehensive architects. Our production office in Houston produces all of our work and is staffed with experienced production specialists as well as providing operational-management control for all offices.

In the past we had more than one production office, but it became a problem of assuring our clients of consistent architectural quality. So about six months ago we combined the talent of the three production offices into our present central-regional office setup. We have found that there has been no objection on the part of a client in New York or Oklahoma to having his project produced in Houston—that is, as long as he is properly serviced.

Actually we have very little on paper about our way of doing business. We certainly need more. I'll bet you are finding that there are many different ways to run an architectural business. For example, at the time I am writing this, Bill is in Saginaw, Michigan, with five of our key designers and production men spending the week arriving at a concept of a new high school. This will be a period of concentrated effort at the beginning of the design phase, taking place in the client's backyard. The purpose is to return to Houston with concept approval, not preliminary approval. Preliminary design as well as the rest of the production will be done in Houston.

*Tom A. Bullock  
Caudill, Rowlett, and Scott  
Architects Planners Engineers*

### Materials Research and Special Studies

Some significant activities are now in effect at Giffels and Rossetti, which extend our services beyond those normally provided by an integrated architect-engineer firm, and some innovations have been made in our organization and procedures to accomplish these objectives.

Material research is at the top. The chief of our specifications group, a former college president, has inaugurated a material research program which has been of immeasurable benefit to our clients, without added cost to them. He also has made a scientific study of specifications with respect to their improvement and types, followed by recommendations to meet varied client requirements. Further, we have centralized our specifications group under his complete direction, resulting in a meeting of the minds of the writers with resultant economies and improvements.

Studies and surveys have been extended, and their nature and extent, I would say, are comparable to the efforts of the firms who make a specialty in this field. Not only have we put them in the professional service category from the standpoint of coverage, but we have improved their format and appearance to make them highly competitive in this regard. And they do reap many benefits to us. A good share of them turn into complete jobs.

Our fully equipped model shop I consider a much needed extension of our service. Located in a separate room, it adjoins our architectural design department and is serviced by all required power tools. It also serves as an interesting show case.

I believe, too, that the physical reorganization of our departmental functions can be considered as an indirect extension of our services. Here we have organized our groups on the basis of production flow, eliminating to a large degree the costly to-and-fro realized when these functions are not tightly coordinated. This reorganization of our departments is the result of a \$750,000 modernization program completed in 1958. All of the areas we occupy on the top four floors of the Marquette Building, totaling some 75,000 sq ft, are geared for a smooth operation. We consider ourselves a very tight ship.

*Louis Rossetti  
Giffels and Rossetti  
Architects-Engineers*

### No Specific Examples at the Present Time

Your project on broadened fields for architects' services in these rapidly changing times sounds very interesting. Unfortunately we do not have any specific examples to describe for you.

*J. C. Sherrick  
Holabird & Root  
Architects-Engineers*

### Attention to Economics of Architecture

We have limited our services to those that may be fairly strictly classified as architectural or engineering. I sometimes think, however, that our "architectural services" may be broader than the generally accepted definition. For example, we feel an obligation to give at least some consideration, when it's needed or desired by the client, to the economic feasibility of a proposed commercial project. We have accordingly found ourselves, in many cases, making preliminary cost and operating studies and advising our clients on the "business" aspects of ventures. Our work is, of course, not so detailed as specialists in these fields. It is generally confined to such preliminary analysis as is necessary to form an intelligent opinion as to the probable economic soundness of a proposed venture, with the thought that specialists will be called upon by the client for more detailed studies should they appear warranted.

Our studies have resulted in some of our clients abandoning unsound projects before they are started thereby, perhaps, resulting in our loss of some jobs. On the other hand, however, being able to take a "businessman's" view

and speak a "businessman's" language has, in my opinion, been a tremendous asset to our firm. I am confident it has resulted in our receiving commissions that would not have been forthcoming without this "know how." And, after all, I think it's to everyone's advantage to avoid unsound projects and concentrate on those most beneficial to our clients and our community, insofar as is practicable.

*T. J. Bissett  
Lyles, Bissett, Carlisle & Wolff  
Architects-Engineers*

### Consideration of Future Development

We have always endeavored to maintain a flexible organization to handle the many problems of an architectural practice. We have always believed in an open program philosophy so that through research and constant contact with the client we can produce a result that will not only take care of known requirements but take into consideration future development.

We have frequently done special consulting work for clients in the development of their materials as applicable to modern construction. In addition, we engage many top special consultants over and above the normal standard services of consulting engineers to obtain, in collaboration with ourselves and the client, the best results for the numerous problems involved.

*Max Abramovitz  
Harrison & Abramovitz  
Architects*

### Diversification Through Variety of Means

We have extended and diversified our services and included new specialties during recent years, to accomplish our concept that an architectural office should provide *complete services*. Some of the services which we offer in this connection are:

1. Complete engineering design for the normal structural, mechanical, and electrical engineering required for buildings.
2. Cost studies—cost estimates.
3. Studies on the most economical use of materials.

4. Comparative studies for types of construction.
5. Space requirement surveys.
6. Master planning.
7. Site planning.
8. Color consulting services.
9. Interior design consulting.
10. Emphasis on supervision of construction.

At present we are executing a contract with the Second Air Force (as a joint venture with an engineering firm) covering 66 projects at 9 air bases in Nebraska, Indiana, Missouri, Arkansas, Mississippi, Louisiana, and Texas. This work is primarily M. & O. (Maintenance and Operation) and represents the first time, as far as we know, that the Strategic Air Command has entered into a contract such as this with one firm.

During the past few years, we have had a varied practice covering practically all types of buildings. During this time we have done architectural work in Louisiana, Mississippi, West Virginia, Texas, Ohio, and South Carolina.

The following innovations have been made in our office organization and procedure to accomplish the above objectives:

We employed highly trained engineers to set up the engineering departments shown on our organization chart. We have our own office building, and our mechanical department was set up in a separate smaller building on the same property.

b. One of our partners is a pilot, and the firm has its own plane for complete mobility.

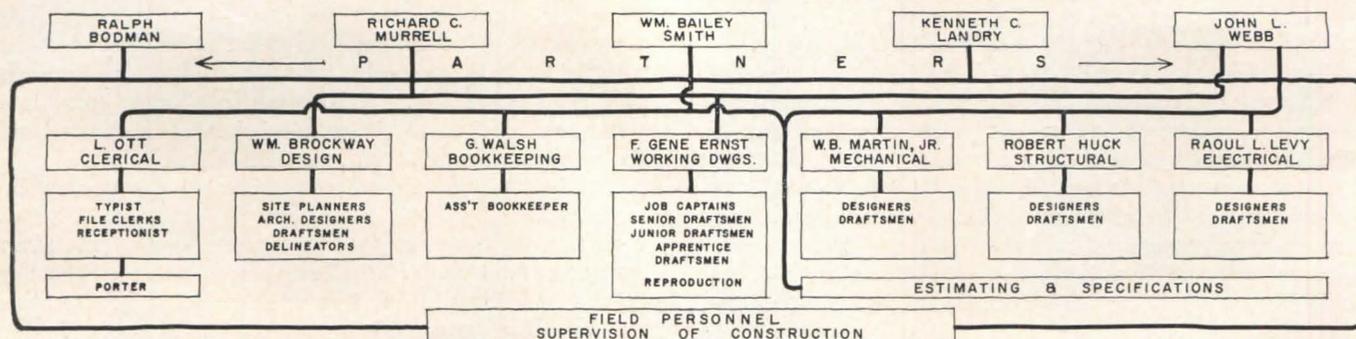
c. We organized a joint venture corporation with a large firm of consulting engineers (located next door to our office), for the purpose of furnishing *complete services*, over and above what we can furnish in our own organization (i.e., architectural, structural, mechanical, electrical, civil, utilities, etc.) to governmental agencies, industries, etc.

d. We retain nationally known consultants on new projects where we do not feel our experience is adequate, such as on a large university library, a shopping center, a complex hospital, etc.

3. We encourage our principals and employes to take active parts in activities of the A.I.A. and other organizations, both civic and professional. Two of our partners are past presidents of the Louisiana Architects Association.

*Ralph Bodman  
Bodman & Murrell & Smith  
Architects & Engineers*

Bodman & Murrell & Smith: Office Organization Chart





*Dearborn-Massar photos*

## SMALL-HOUSE PRIVACY IN LARGE-HOUSE SPACE

Spaciousness was the theme around which this house was designed: the owners, a couple with a young daughter, placed it at the top of their list of requirements. That list, drawn up by the mother, a talented artist and former decorator, was unusually specific: a studio where she could paint in privacy without being cut off from family activities; a well-equipped kitchen and laundry with an adjoining breakfast area; a gallery and generous other wall space for the hanging of paintings; a bedroom, dressing room and bath for each member of the family; good storage facilities; an isolated guest room, complete with bath and kitchenette, which could double as a recreation room.

From these varied requirements a simple and imaginative plan (see next page) was developed. The sloping site—part of an old estate purchased by the owner and sub-divided with the view-commanding part reserved for his own home—was used to good advantage to separate guest and maid quarters from the main part of the house. A patio inserted between the living-dining area and the master bedroom suite effectively enhanced the sense of spaciousness where it was most desired.

OWNERS: *Mr. and Mrs. I. B. Adelman*

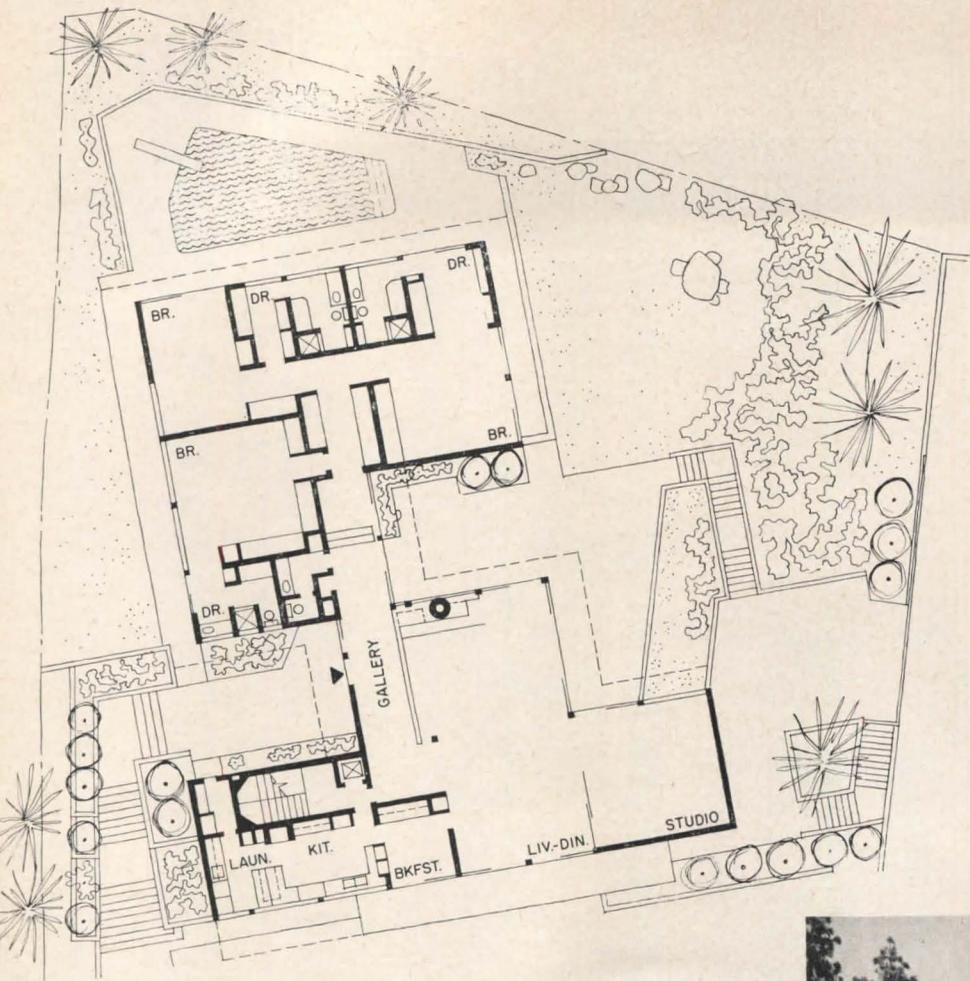
LOCATION: *Beverly Hills, Calif.*

ARCHITECTS: *Thornton M. Abell;  
O'Neill Ford & Associates*

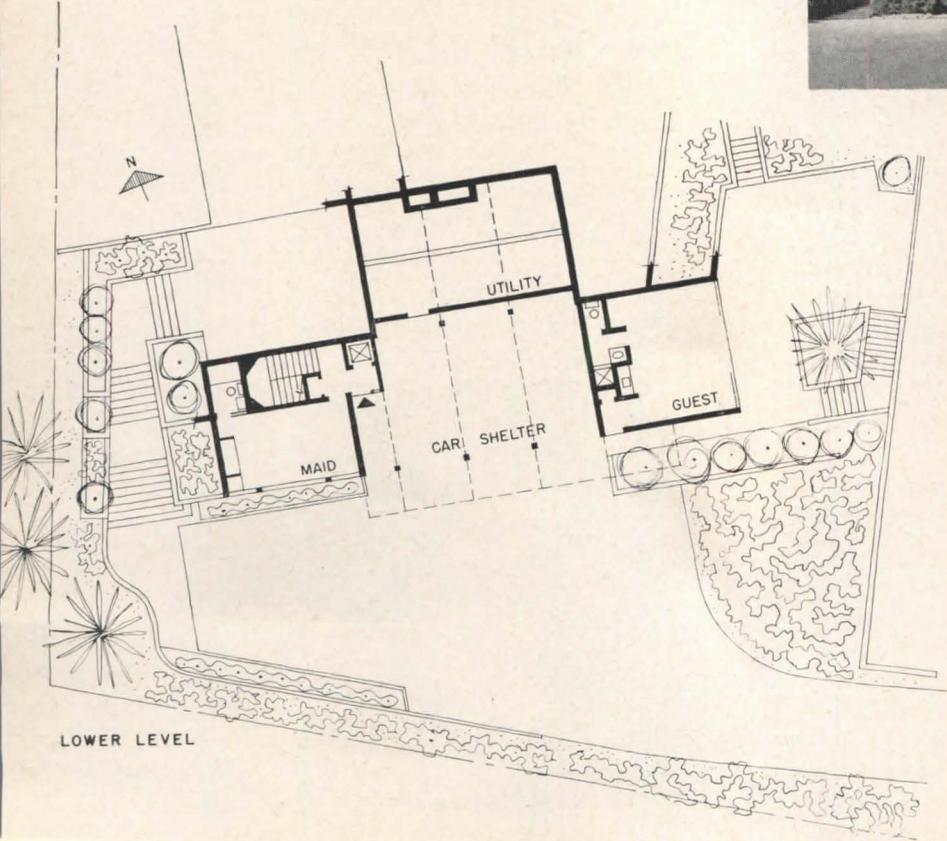
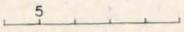
LANDSCAPE ARCHITECT: *Bettler Baldwin*

CONTRACTOR: *H. E. Marks*





UPPER LEVEL

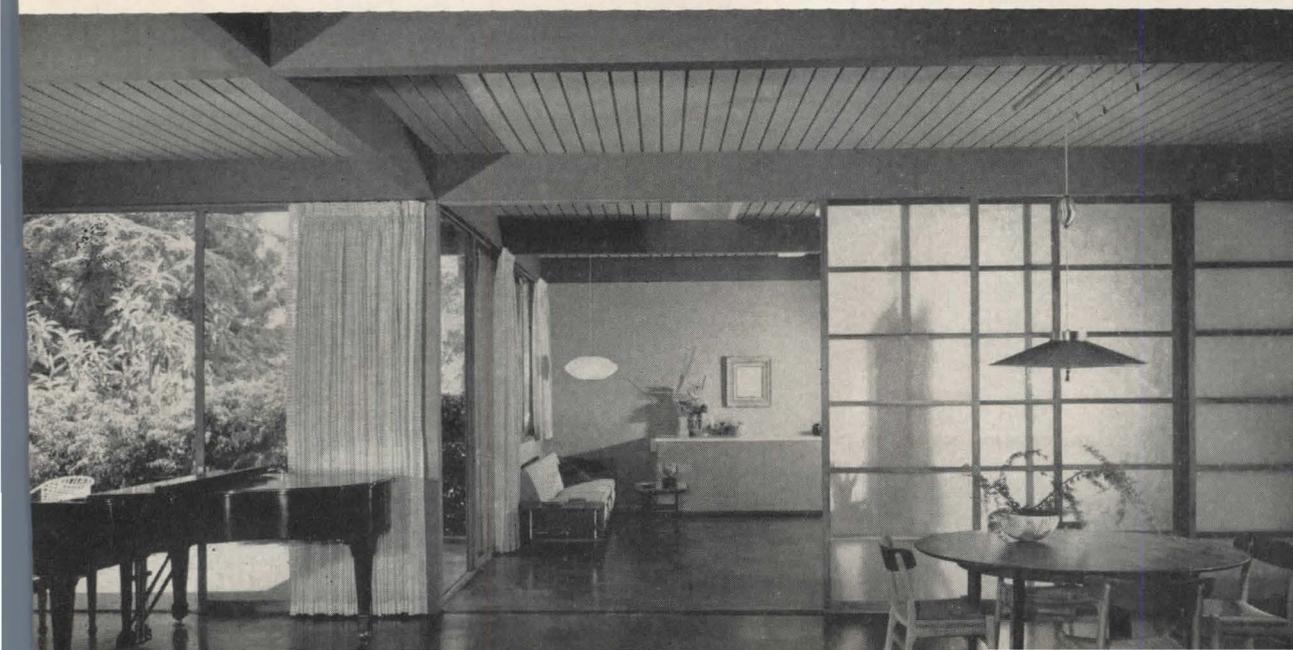
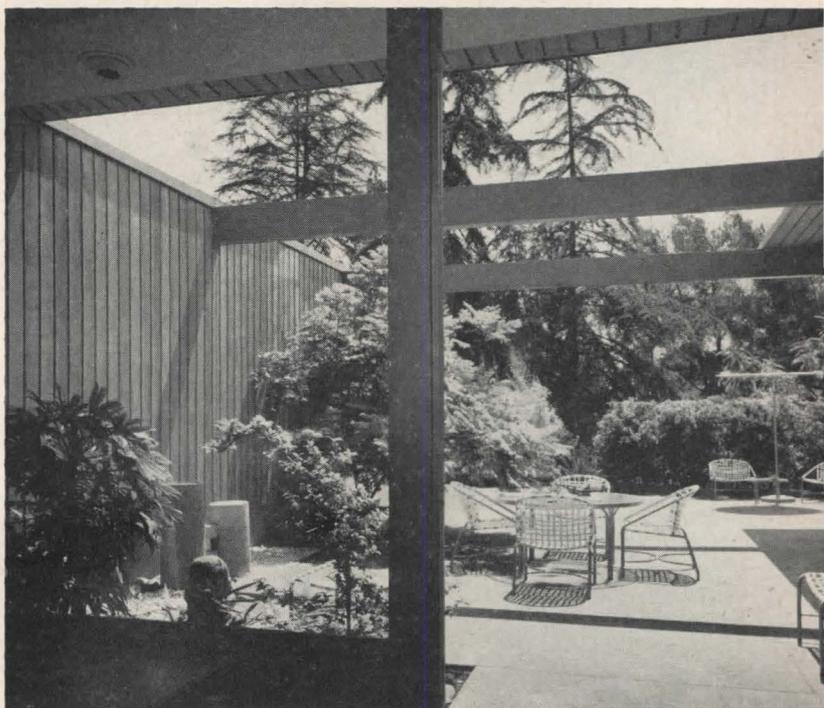


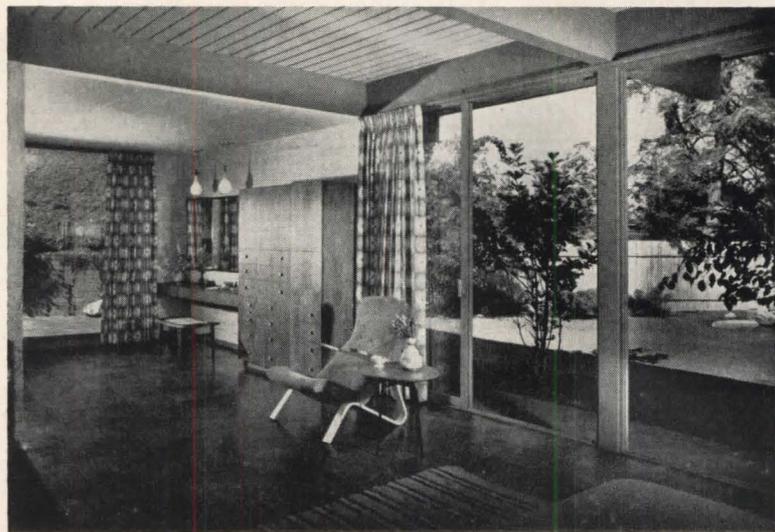
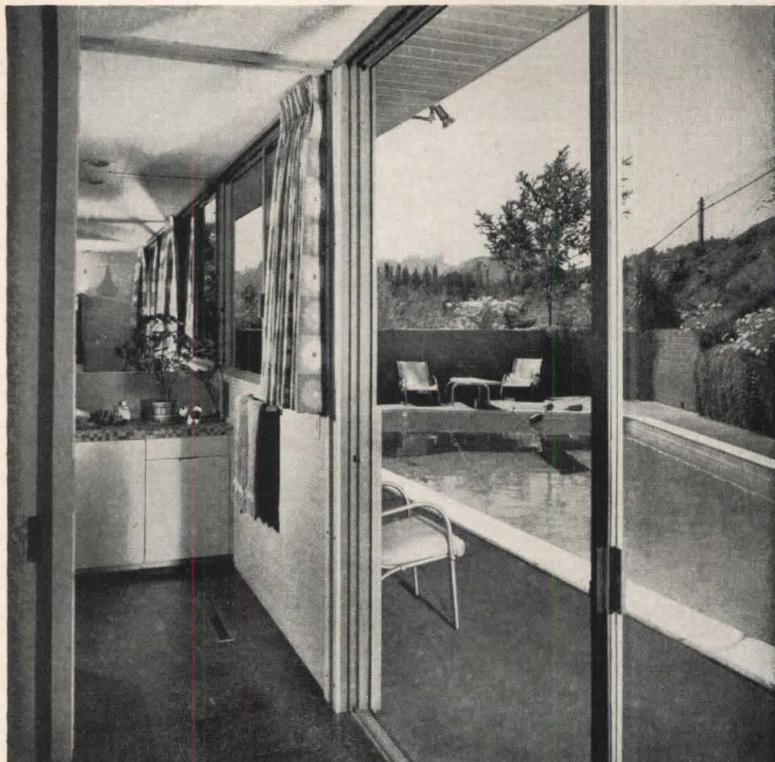
LOWER LEVEL



## Adelman House

Cater-cornered positioning of house on lot saved surrounding pine trees, increased outdoor living area, and brought direct north light to studio. Main entrance is through a landscaped court into gallery. On opposite side is a sheltered patio (right) to which both living room and gallery open. Colors are closely integrated with the surroundings and with each other: cedar exterior walls are stained an olive beige; bricks have a vinyl coating of deep earth tone; exposed concrete beams and balcony are pale oyster; wood beams, posts, steel windows and doors are painted a dull slate; wood plank ceilings and overhangs are light jade. The main floor level is a radiant heated concrete slab with dark Danish cork covering throughout except for kitchen, where vinyl tile is used





### Adelman House

Both master bedrooms overlook and open to swimming pool at rear of house; the larger of the two (above) also opens to a covered side terrace. All glass doors and windows are sliding steel units, bathroom walls and counters are ceramic tile. Some rooms, such as breakfast (right) have furred dry-wall ceilings with acoustic tile finish. The house has many special features: a flower-arranging sink, fruit and vegetable drawers and a mixer shelf in the kitchen, disappearing towel racks, and provision for the future installation of an elevator as well as a cooling system in case one should prove desirable





*Julius Shulman photos*

## A HOUSE WELL-MATCHED TO ITS WOODED SITE

A heavily wooded site was the major consideration in the design and planning of this small house for a retired couple with no children. "The basic design conception," the architect explains, "was to create within this wooded property a podium retained by a concrete wall upon which the house would sit with its cultivated gardens and landscaping; the remainder of the site was to be left in native plant material and trees so that the upkeep and maintenance would be kept to a minimum. A shingled roof seemed to be most applicable under the tall fir trees and, because of the woodland setting, a clerestory permitting south light to enter into the center of the house seemed most advisable. Gutters were extended over the edge of the podium to permit water to drain into rock areas beyond the limits of the garden proper."

Materials and colors were chosen carefully to blend with the site. Exterior walls are red cedar stained a warm weathered gray; stone, ranging from white to beige, is used on both exterior and interior to heighten the rustic effect. The long, low lines of the house, and its complete simplicity, are additional valid links to the site.

OWNERS: *Mr. and Mrs. Frank L. Gilbert*

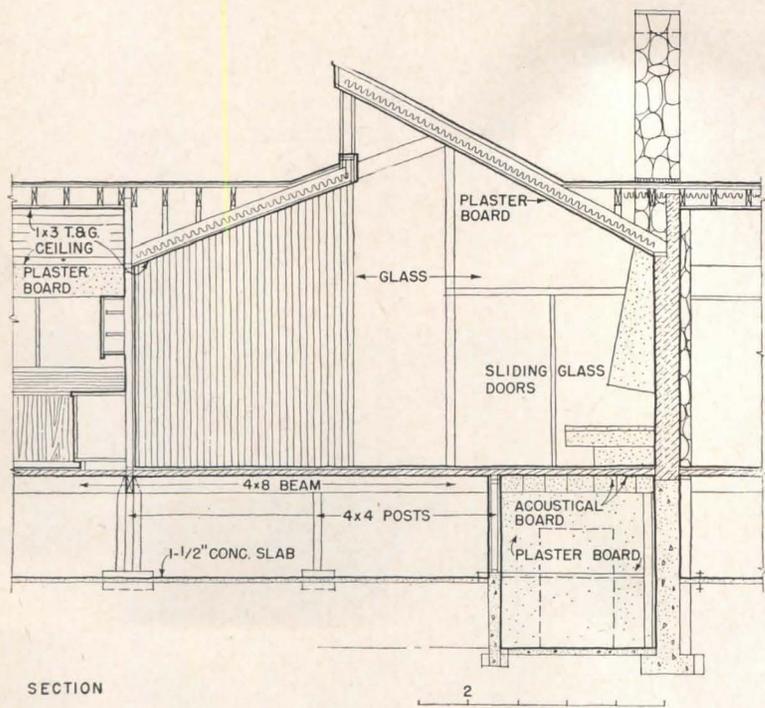
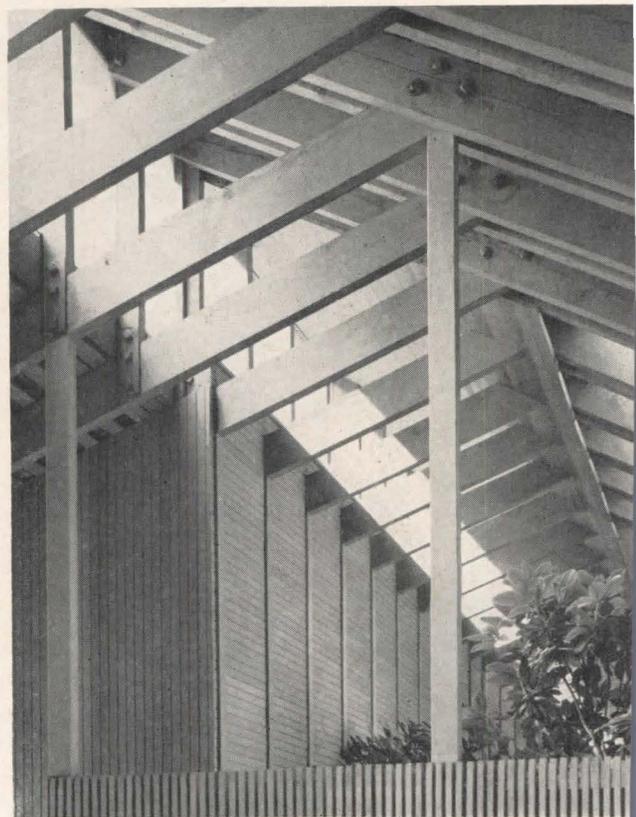
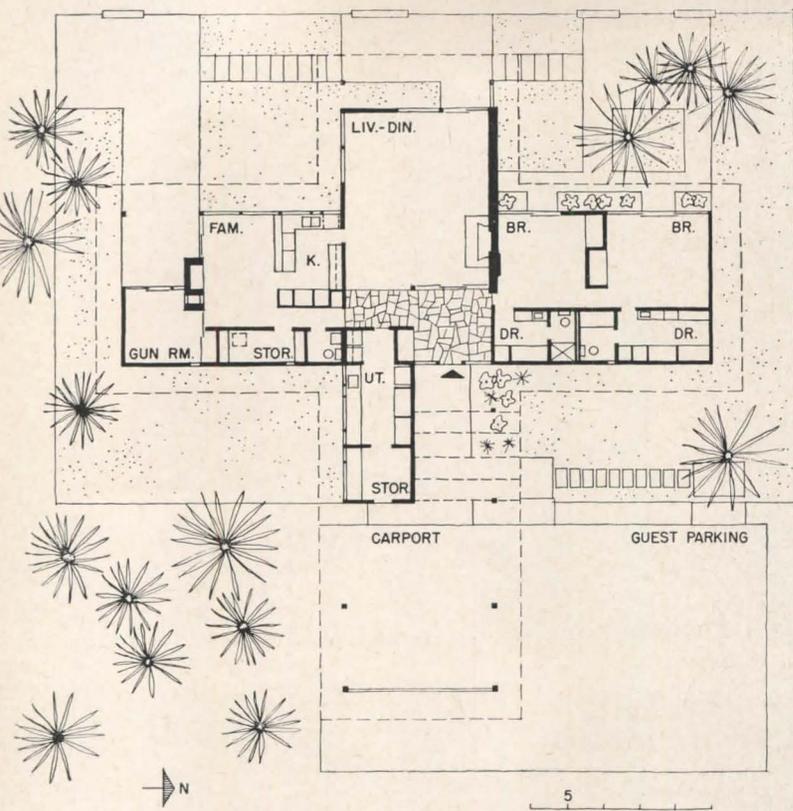
LOCATION: *Seattle, Wash.*

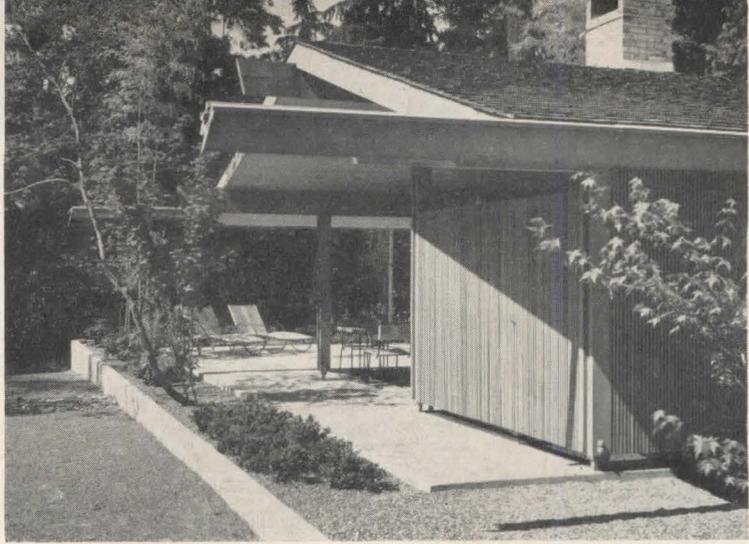
ARCHITECT: *Paul Hayden Kirk & Associates*

LANDSCAPE ARCHITECT: *William G. Tafel*

CONTRACTOR: *Charles R. Tuttle*



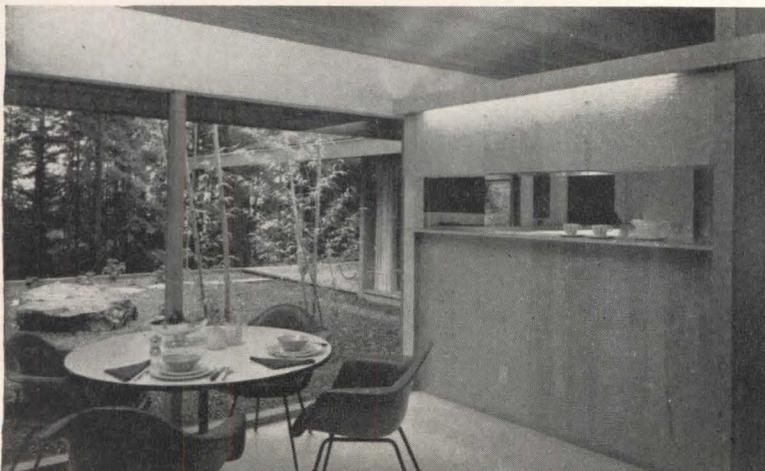
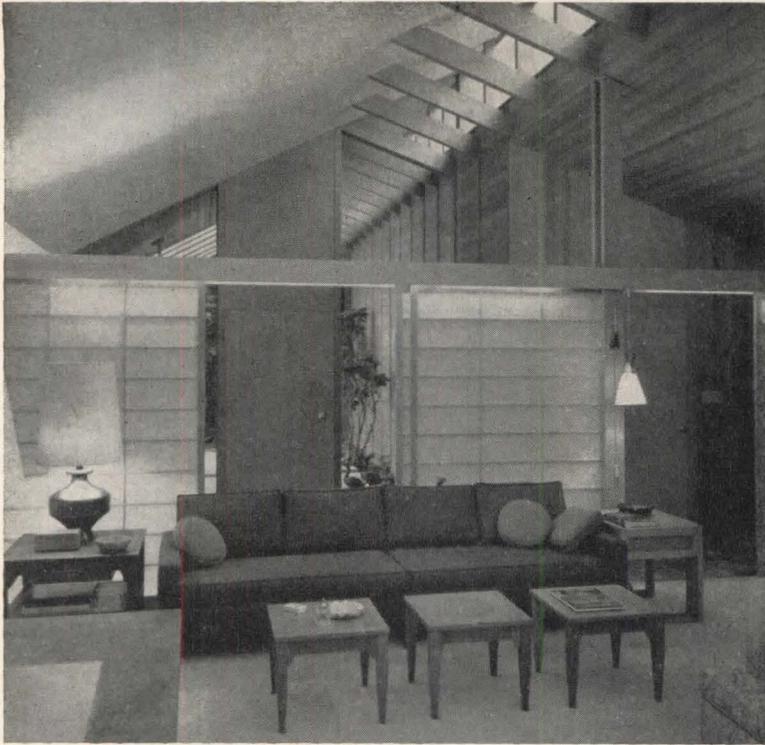




## Gilbert House

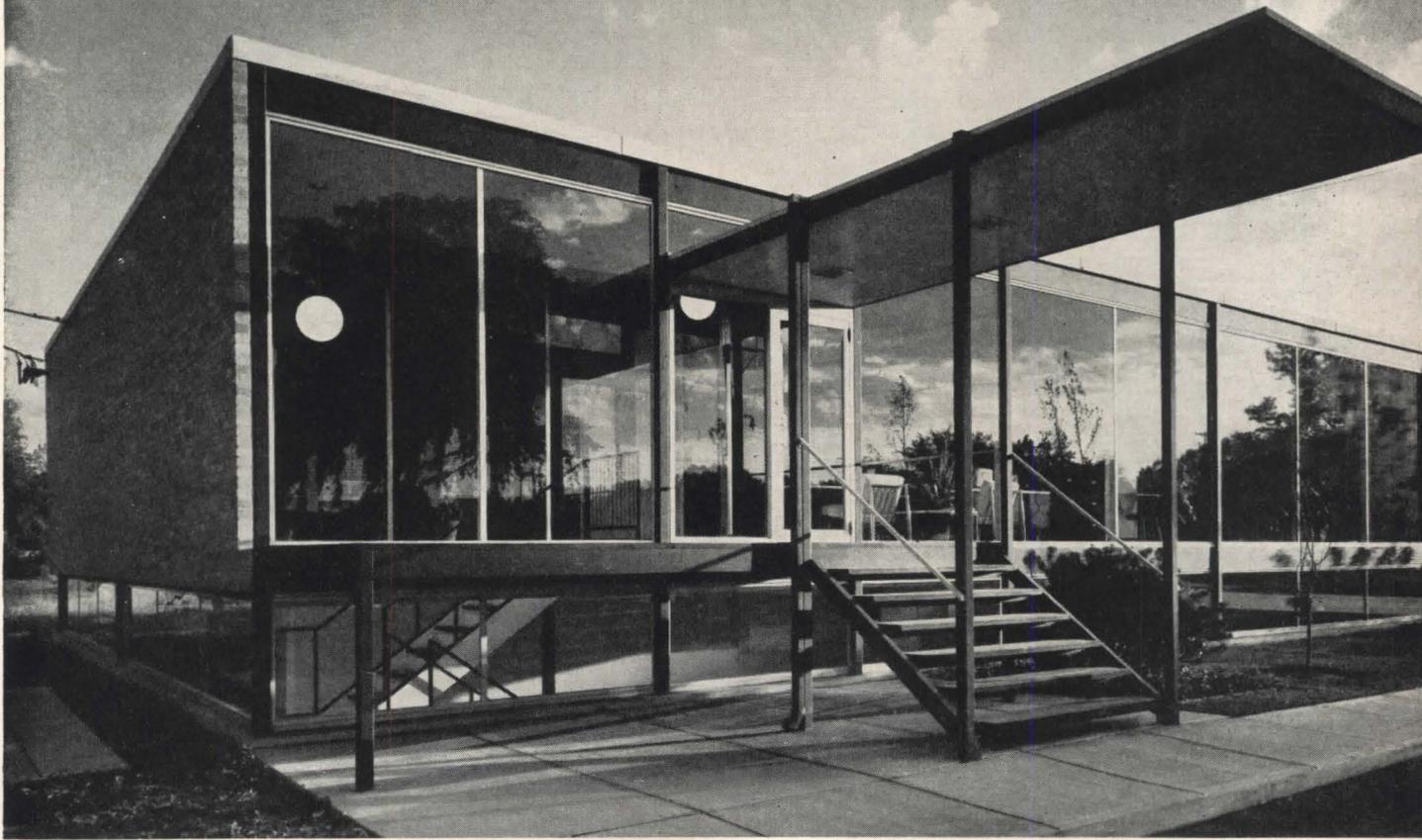
Both the owners of this house are very much interested in hunting, hence the unusual inclusion of a gun room in the plan. Small though the house is, it has a wonderful feeling of space because of the entrance treatment and the clerestory. "One decision that was made during the design," the architect says, "was to have the ceiling area directly opposite the clerestory off-white to accentuate the play of sunshine and shadow from the windows, with the ceiling under the clerestory being of natural hemlock. This has proved to be most interesting and adds a great deal of interest and drama to the living area." Photo right above shows how gutters were extended over edge of podium for drainage beyond gardens





## Gilbert House

*Top:* main entrance looking toward carport; door is solid laminated Idaho white pine core sculptured on outside by Mignonne Keller. *Center:* fireplace in family room has built-in barbecue pit. *Bottom:* wall between kitchen and dining area has convenient pass-through and counter, drawers for storage of linens, silver, etc. Storage space throughout the house is generous



Fixed glass beneath entrance floor helps give a distinctive proportion to the building and a higher rental value to the lower story

## A Two Level Office Building

NAME: *P. F. Pfeister Building*

LOCATION: *Detroit, Michigan*

ARCHITECTS: *Krebs & Fader*

STRUCTURAL ENGINEER: *R. H. McClurg*

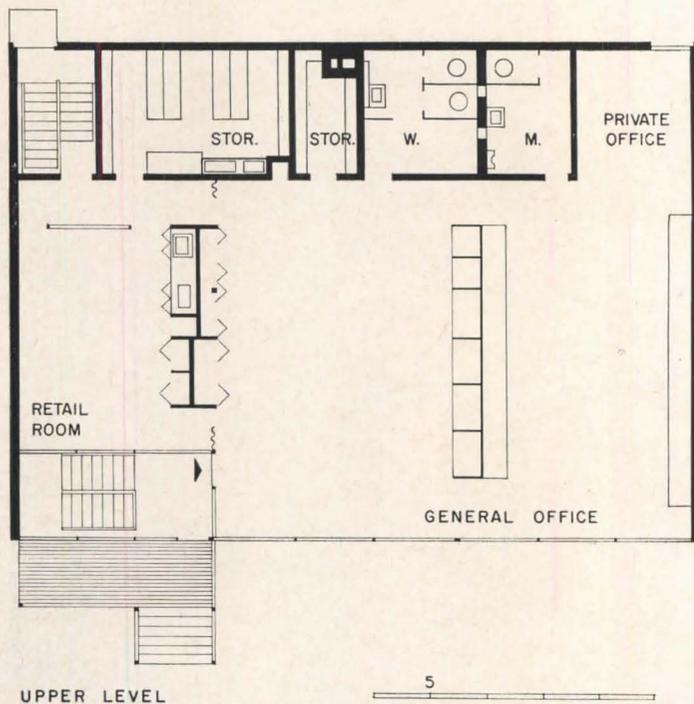
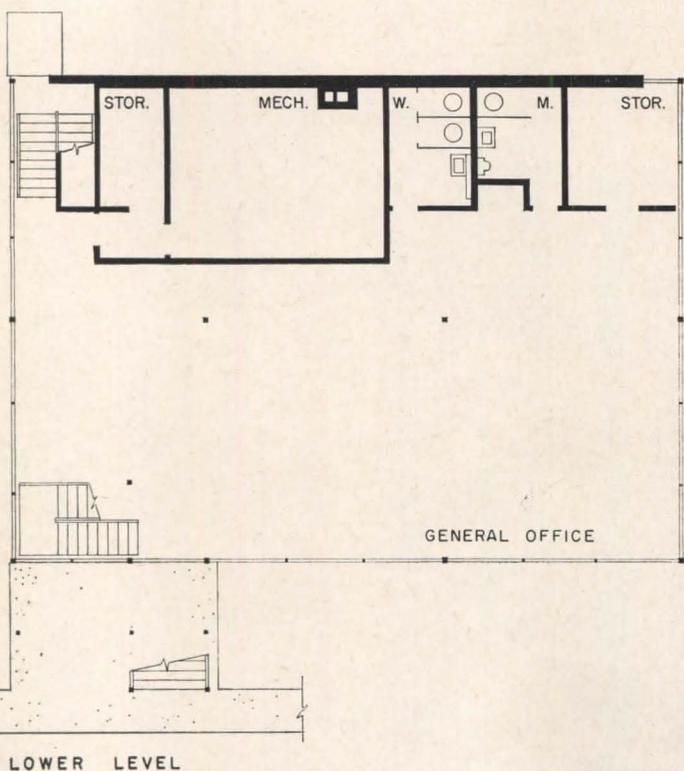
MECHANICAL AND ELECTRICAL ENGINEERS: *Migdal & Layne*

LANDSCAPE ARCHITECT: *Milton Baron*

INTERIOR CONSULTANT: *Lillian Pierce*

GENERAL CONTRACTOR: *Taubman Company*

Right top: reception area of P. F. Pfeister. Beyond door is vestibule off main entrance with access to offices of separate tenant on lower level. Right bottom: A retail sales area also used for large conferences, coffee breaks and a lunch area

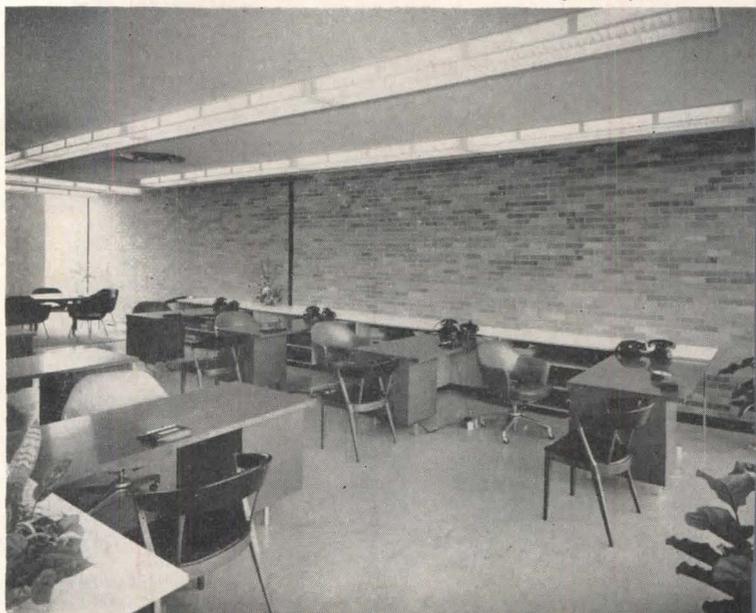


The client required an additional 2,000 sq ft of rental space in addition to his own needs. A two story solution was decided upon to allow sufficient land to remain for parking 25 cars. By raising the first floor 4 ft above grade it was possible to create a pleasant rental area on the lower floor surrounded by a glass area 3 ft deep.

The building's owners are food brokers who distribute the products of their customers to local groceries, delicatessens and supermarkets. A large open work area was called for, instead of private cubicles, because of the importance in this business of rapid communication among the salesmen. Secretaries share the same general space but are separated from the salesmen by a low storage wall. A food sample storage room and a separate area for store display material has been provided.

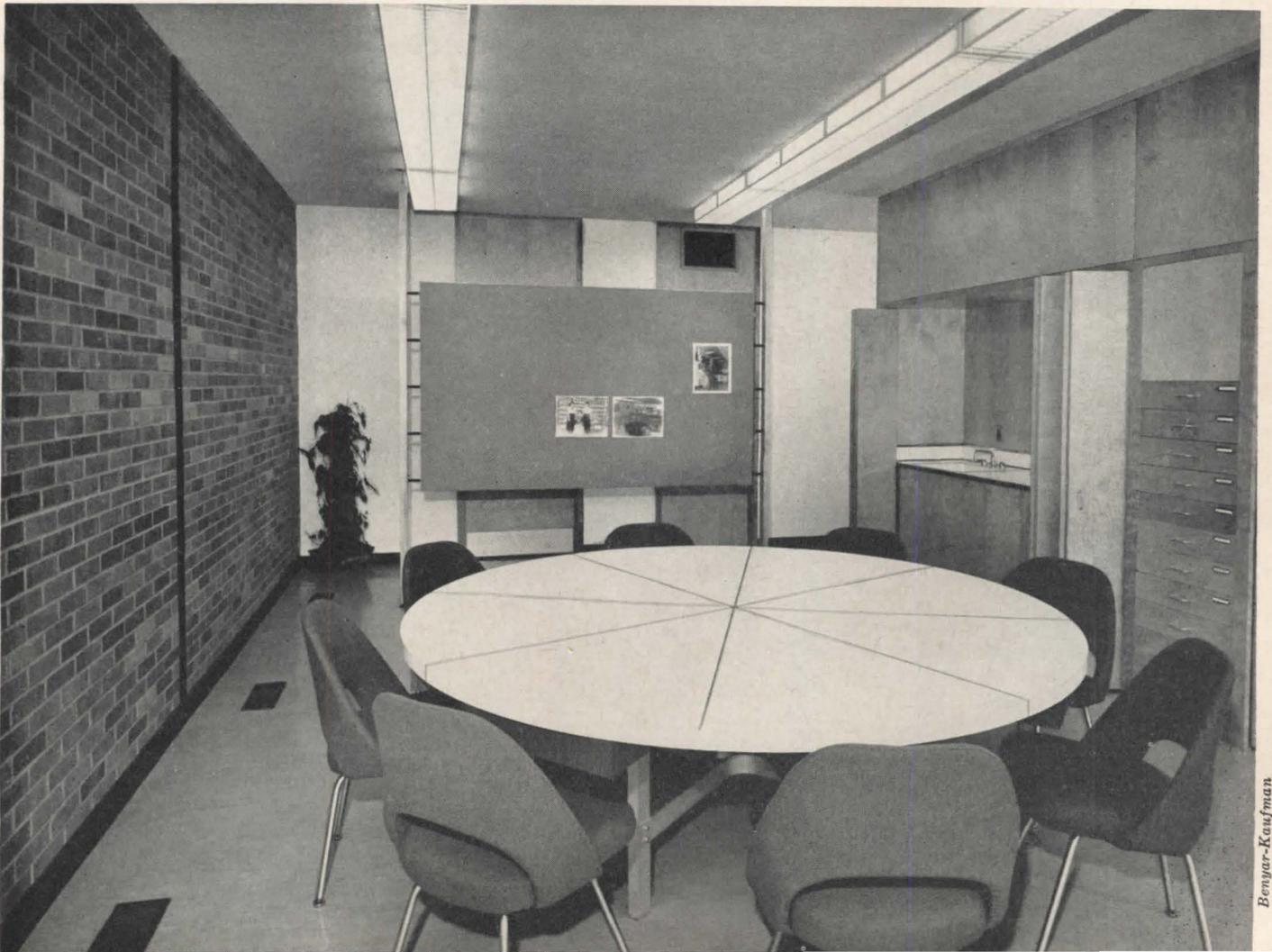
The structure is of 4- by 4-in. steel tube columns, steel beams, open web joists and concrete slab floors with a gypsum deck roof. Walls are of brick and glass. The building is fully air conditioned permitting all glass to be fixed. The cost of the building and site development excluding the landscape work was \$15.80 per sq ft.

*Benyas-Kaufman*



Salesmen's area. Small conference room beyond

Baltazar Korub



Benyar-Kaufman

# Clay Tile Screens Shade Offices

NAME: *The Caribe Building*

LOCATION: *New Orleans, Louisiana*

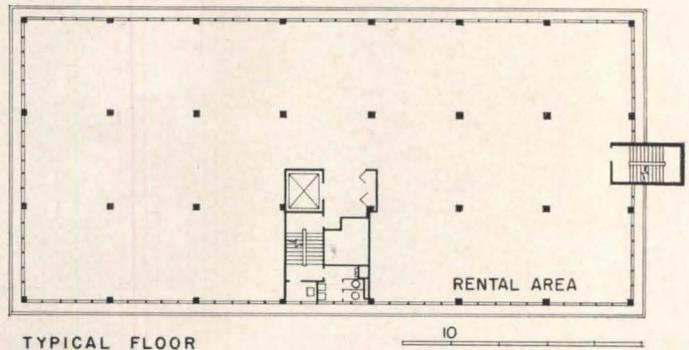
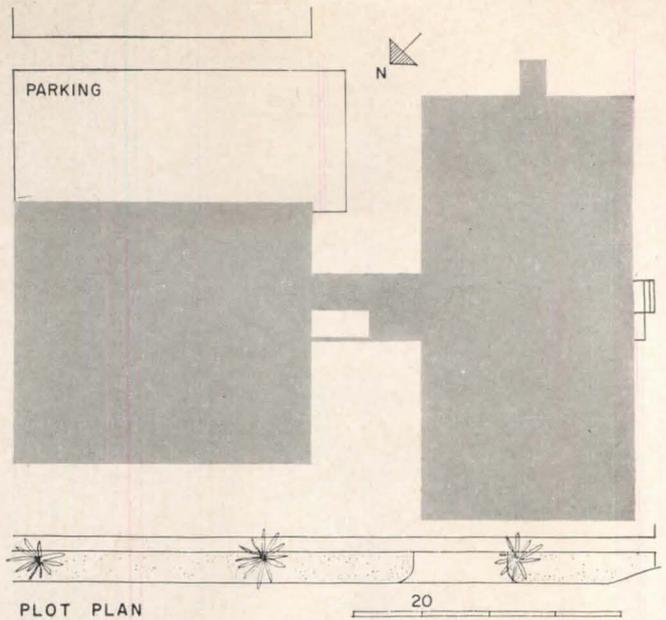
ARCHITECTS: *Curtis and Davis and Associated Architects  
and Engineers*

MECHANICAL ENGINEERS: *Cary B. Gamble and Associates*

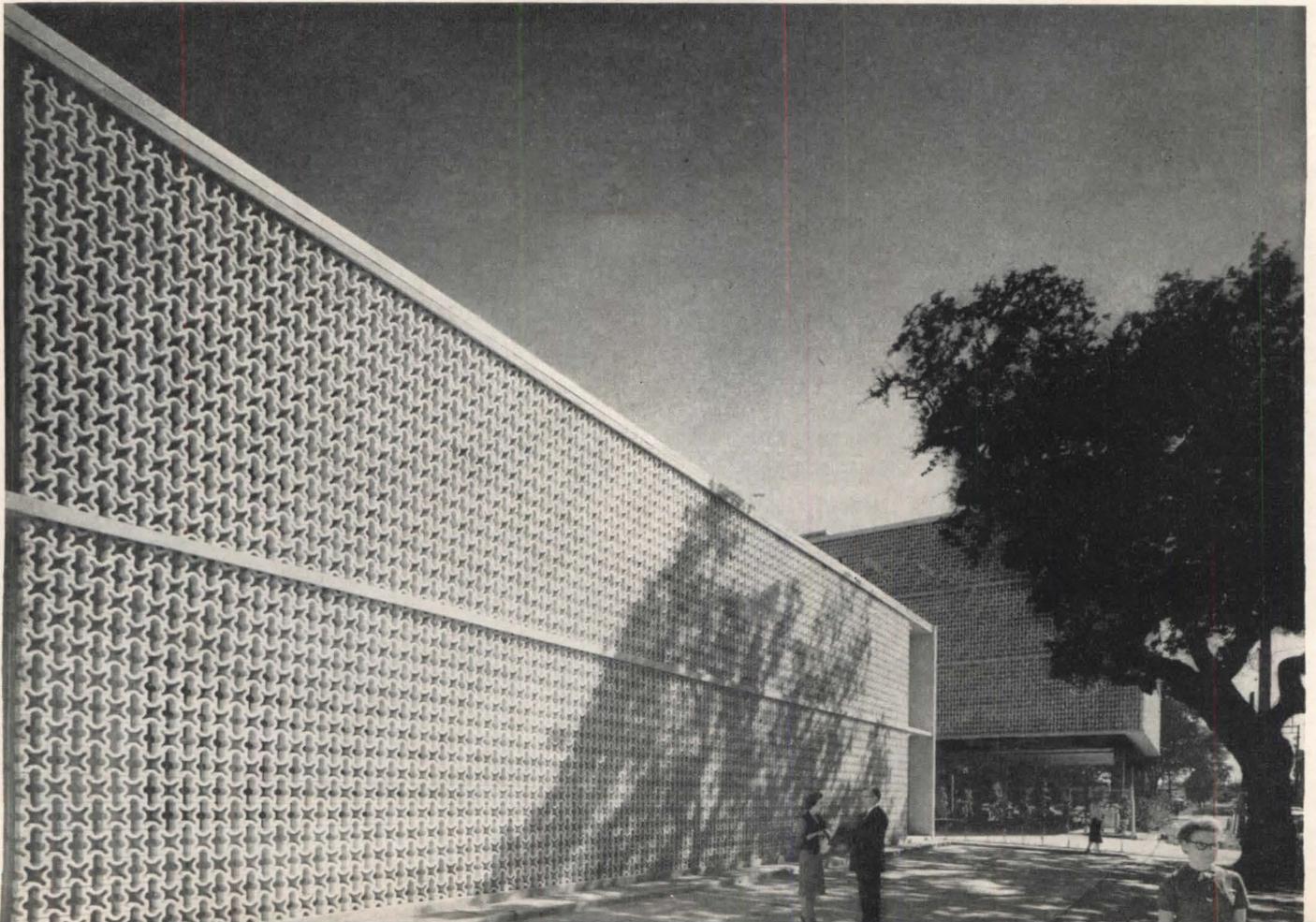
ELECTRICAL ENGINEERS: *Mario Zervigon and Associates*

GENERAL CONTRACTOR: *R. P. Farnsworth and Company*

The architects have endeavored to design this two unit structure in harmony with the climate and tradition of New Orleans. A sun screen made of decorative clay tile units is used on all window walls as protection against the hot Louisiana sun, sky glare and tropical rainstorms. The building shown at the right side of the plot plan is the larger. It is four stories high and consists of three office floors raised on stilts above a parking area at ground level. Additional parking for tenants is provided behind the two story smaller building with visitor parking in front. The structures are joined by a canopy at street level. The two story unit which hugs the ground in contrast to its neighbor was designed for a major tenant who required ground floor space with a separate and distinct main entrance. The clay tile screen covers the window walls at the front and back.

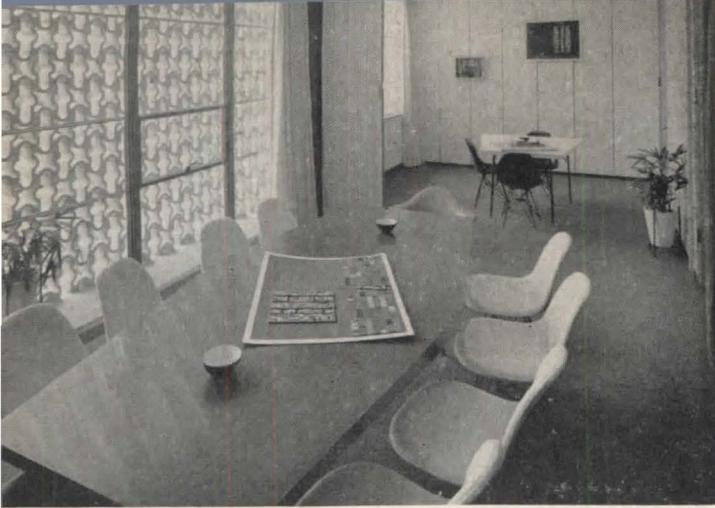


Office floor plan in four-story unit



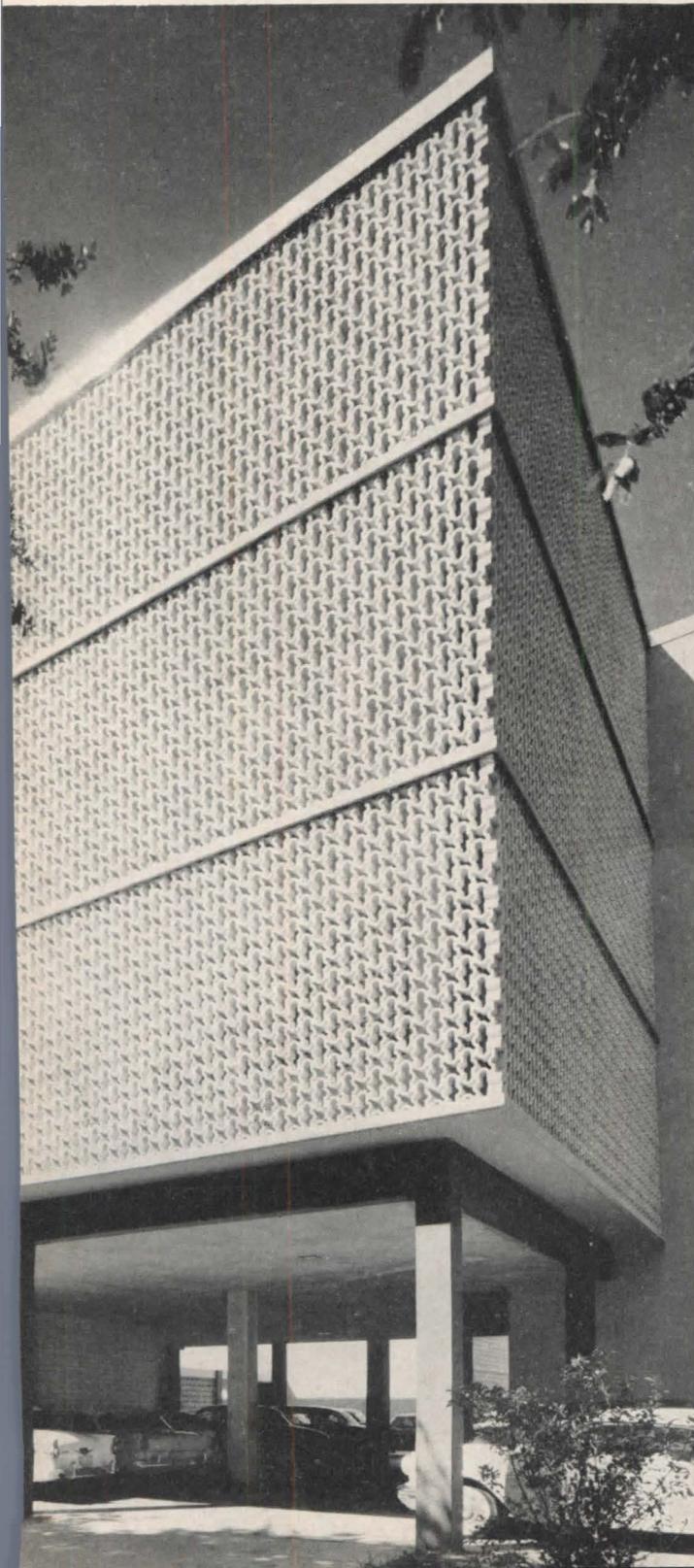
Frank Lotz Miller





*Small Office Buildings: Caribe Building*

Sun screen provides a soft diffused light and affords interior privacy, making venetian blinds or draperies unnecessary



*Frank Lotz Miller*

Architects have kept sun screen delicate in scale in sympathy with New Orleans wrought iron ornament. Columns and beams are of reinforced concrete with pan and joist floor slabs

# SCHOOLS

The interest which everyone seems to have today in any and all forms of educational and school-planning controversy has, at least, forced a healthy airing of what is being—and perhaps what should be—done.

## BUILDING TYPES

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STUDY 279

One of the most interesting developments in this area was last fall's school planning conference sponsored by the Ford Foundation's Educational Facilities Laboratories, Inc., at Ann Arbor, Michigan. The meeting invited a number of architects to present their views and planning schemes for buildings to house the educational programs proposed in the much talked-about "Trump report."

Among the major highlights of the conference was the presentation made by John Lyon Reid, who analyzed two of his schools and demonstrated how they could be adapted to the new theories. One school, Mills, is built and in use. The other is an active project for Andrews, Texas. They are both "loft" schools, with partitions which can be revised in layout with considerable ease.

Since no one can predict with any certainty just what turn in direction educational theories might take in the next few years—the Trump ideas are very newsworthy now, but there will surely be others cropping up with equal, or perhaps more, validity—schools such as these of Reid's, which are capable of total revision, are worth some serious study. With this in view, we have asked John Lyon Reid to recreate his Ann Arbor presentation for this study.

In addition, we have included a new school by Musick and Musick which gains flexibility by glass walls and sound equipment (permitting larger groupings of classes), and several which reflect a continued concern with more pleasant teaching environment, low maintenance, and the like.



Andrews Senior High School, Andrews, Texas; John Lyon Reid & Partners, Architects

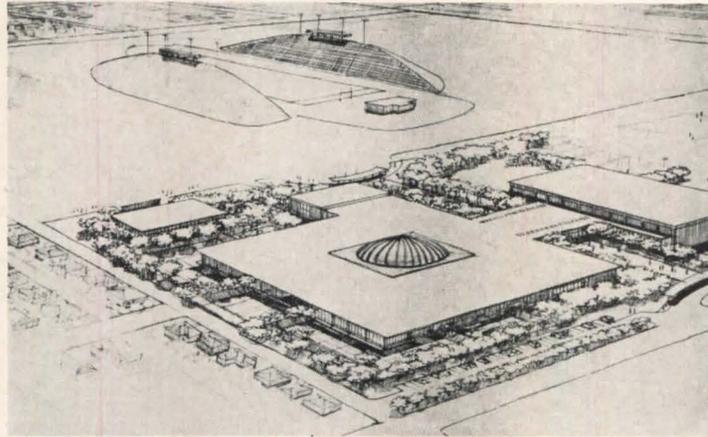
# Two Loft Schools: New Instruments of

by *John Lyon Reid*

The recently published study of secondary education by the National Association of Secondary School Principals makes a proposal for teaching high school students which holds much interest for both educator and architect. This is "Images of the Future," written under a grant from the Ford Foundation by Dr. J. Lloyd Trump of the N.A.S.S.P.'s Commission on the Experimental Study of the Utilization of the Staff in the Secondary School.<sup>1</sup> Many ideas calculated to improve our educational program have been offered in the last few years, and this one in particular, coming from a body of experienced, professional teachers, deserves a thoughtful second look.

It proposes far-reaching changes in educational method which suggest to both architect and educator an opportunity to consider the kind of school building needed to house the resulting curriculum. At a recent conference of educators and architects, held last October at Ann Arbor, Mich., under the sponsorship of the Educational Facilities Laboratory and the University of Michigan's School of Architecture, this opportunity was offered to several architects, who were invited by the conference to present their ideas for school building designs which would implement these educational proposals. Our firm was one of those invited to take part in the conference. However, instead of preparing a new design to meet the requirements of the program as stated in "Images of the Future," we decided to see whether or not several of the schools that we had recently designed would be adaptable to the requirements of this kind of educational program.

Our years of working with educators have resulted in the belief that a school building must not stand in the way of program changes and educational progress, that the building must be ready to adapt itself not only to minor but to major program changes. We believe that total flexibility—or as close to that as possible—is a necessary attribute of the secondary school building of today, facing, as it does, the problem of a growing, changing, improving educational philosophy. Many of the school buildings designed by our office are flexible, and this flexibility is provided in anticipation of just such



*Andrews Senior High School, Andrews, Texas. Reid, Rockwell, Bamwell and Tarics, Architects. Royston, Hanamoto and Mayes, Landscape.*

*Roger Sturtevant*



*Mills High School, San Bruno, Cal. John Lyon Reid & Partners, Architects; Burton Rockwell, Architect Partner in Charge; Alexander Tarics, Structural Engineer Partner in Charge. Royston, Hanamoto & Mayes, Landscape. G. M. Richards, Mechanical Engineer. Dariel Fitzroy, Acoustical Engineer. William Laib, Electrical Engineer.*

<sup>1</sup> For detailed report on this proposal, see "Educational Change and Architectural Consequence," by Harold B. Gores, *ARCHITECTURAL RECORD*; August, 1959, pp. 154-158.



programs as are proposed in "Images of the Future."

"Images of the Future" takes a fresh look at the American educational scene. It suggests that education at the secondary level would be more effective if it were based on the student as an individual rather than on class schedule and classroom groups—there is a vast difference. The learning program for each student would, presumably, be based on his own special needs, interests, deficiencies and skills as they are discovered by the faculty. This individual program, once formulated and scheduled, is guided by the teachers and their assistants but the individual must assume responsibility for carrying it out. Forty per cent of the student's time is spent in individual effort in study, research and inquiry; 40 per cent in groups of 10 or 12 in discussion, evaluation, sharing of experience and in joint effort on projects. The remaining 20 per cent is spent in large groups of 100 to 120 in lectures and demonstrations. The aim of developing each individual to his maximum potential underlies the whole program.

I do not believe that such a program, nor the building that houses it, can spring into being in full flower. Rather, it will evolve over a period of years. An educational program begins either with or without a philosophy to guide it; the successful and effective program must of necessity find a sound philosophy at some stage of its development. Usually the development results from educational assumptions followed by a period of trial and evaluation and continues through many cycles. Alert, inquiring and creative educators are on a never-ending quest for improvement. The building must encourage and facilitate this quest.

The two schools we chose to analyze in the light of the N.A.S.S.P. study were the Mills High School in San Bruno, Calif., and the Andrews Senior High School in Andrews, Texas. We wanted to determine whether or not the rather drastic alterations required to meet the program of "Images of the Future" could be feasibly accomplished in them. We regarded this as a test of our planning concept.

First, let us examine these two schools as they are now designed to meet today's program. Mills, which has been in use for over a year, was given more emphasis in our study than Andrews, for which the working drawings have just been completed. In order to visualize the transformation which "Images of the Future" suggested, it is necessary to understand these buildings and their backgrounds, particularly Mills.

Mills' design objectives and criteria are best examined in reference to our earlier Hillsdale High School at San Mateo, Calif.; but both should be con-

sidered in the context of the community they serve and of the people who made up, at the time of their design, the executive, administrative and teaching staffs of the school district, all of whom in a very real sense made possible what was in Hillsdale an unconventional solution—architecturally and educationally—and is in Mills a refinement of the ideas first stated in Hillsdale.

Mills, like Hillsdale, was designed not only to permit but to encourage the kind of creative thinking, educational exploration and growth implicit in the "Images of the Future" proposal. Concurrently with the design of the Hillsdale High School, Dr. Charles Bursch, then chief of School Planning for the California State Department of Education, and I began work on a book which was finally published in 1957, *High Schools Today and Tomorrow*.<sup>\*</sup> It is interesting to note that the thesis of this book and that of "Images of the Future" are strikingly parallel. Hillsdale, completed in 1954, was directly influenced by Dr. Bursch's and my thinking. Both Hillsdale and Mills are designed to permit the development of the kind of educational program described in our book and in "Images of the Future."

Hillsdale's loft plan freed interior space of permanent partitions, making its use completely adaptable to any changes that might occur in the curriculum. The loft plan, with its large area tending, in its overall shape, toward the square, permits the maximum flexibility and greatest opportunity for rearrangement, and at the same time imposes its own vexing problems on the architect. During the design of Hillsdale, we found that in accepting the loft concept we also accepted the inevitability of dealing with interior spaces. To make these spaces at least acceptable as rooms was a particular challenge to us. We thought, at that time, that in going to the interior classroom—which we had to do if we were to achieve the total flexibility we had been directed to provide—we were foregoing something educationally desirable: the outside classroom with its windows opening on the surrounding environment. But after Hillsdale had been in use for several years we found, to our considerable surprise and gratification, that a majority of the teachers preferred inside rooms to view rooms. During planning conferences, some of the teachers requested that all rooms at Mills be the so-called inside rooms. But both types of rooms have their special virtues, and so our decision was to provide both at Mills.

The acceptance of Hillsdale by the community and by the school district led to the commission to design Mills, which the school board originally en-

<sup>\*</sup> *High Schools Today and Tomorrow*, by Charles W. Bursch and John Lyon Reid. New York: Reinhold Publishing Company (1957).

## Mills High School

The "spare, restrained" quality at Mills was intended as an expression of a serious academic life, as well as of the possibilities inherent in the plan for an orderly and disciplined development of the curriculum. If its austerity seems slightly monkish, this is apparently fine with the students; a spot check revealed that they are just as happy to have no distractions as they go about their work. All classrooms are interior, except for those used in teaching more informal classes, such as shop or journalism



From small court to central court, past gym at right, cafeteria at left

*Photos by Roger Sturtevant*



Central court, typically full of students



Loft space before partitioning



Corridors are wide, brightly lit



Library shelves gradually filling up



From playing field: rhythm of auditorium trusses rises in counterpoint above simple outside walls

visioned as a duplicate of Hillsdale. But after our site study pointed to the impracticability of re-using the Hillsdale plans on the Mills site, we were commissioned to design a new school. We construed this as official endorsement of the design approach represented by Hillsdale. The concepts used in Hillsdale were the governing principles in the directive given us by the school board, and seconded by the administrative and teaching staffs, for the new school.

These were the objectives which they gave us:

- 1) The plant would be built of first quality materials and equipment. Cost records of the District proved that this policy would yield maximum economies. The Building and Grounds Committee of the board, in a study of Hillsdale High School during five years of use, finds that a saving in custodial salaries of \$450,000, in comparison with more conventional buildings, can be expected over the full life of the plant.
- 2) The building must implement the educational program which was current in the District and must, at the same time, be completely flexible to permit change in teaching methods and growth in educational philosophy. The directive of the board to provide flexibility was the strongest single force which guided us in the design of the Mills High School. It was agreed by all that a loft plan, top lighted and mechanically ventilated, would best accomplish these objectives.
- 3) The plant must symbolize the dignity and importance that the community attaches to its young people and to its responsibility to them.

Although the basic Hillsdale scheme was retained, many opportunities for change and improvement were found as plans for the Mills High School developed, and these refinements have added to the flexibility of the building's use.

The shops, music areas and cafeteria were included in the loft portion instead of in separate wings, as in Hillsdale. There were many reasons for this, but one was of primary importance. The inclusion of these rooms in the loft area increased the total flexibility of the plant and further strengthened the architectural statement of flexibility. Experience at Hillsdale assured us that this change was not only feasible but desirable.

Changes—or, rather, refinements—in both the natural and artificial lighting at Mills, although apparently minor, have also proved desirable. For instance, the prismatic glass block panel used in the light wells are smaller (5 ft by 5 ft) at Mills than at Hillsdale (6 ft by 6 ft), but there is no loss of illumination intensity levels. It has also been possible at Mills to reduce the amount of contrast, when the lights are turned off, by placing the light tubes high in the well, directly underneath the plane of the

prismatic blocks, so that the source and direction of both natural and artificial light were the same. Since the depth of the well provided a visual cut off, a louver protection seemed unnecessary, and permitted the use of a less costly industrial fixture. Mills also has a photo-electric cell which turns off the light when a pre-determined intensity of natural light has been reached; there is an over-ride switch which permits the teacher to turn on the lights.

The ventilation system is designed to provide eleven air changes per hour without a perceptible feeling of air movement. Due to the thermal lag of the building, it is always several degrees cooler inside the building than outside in warm weather, which occurs rather infrequently. On warm days, teachers are encouraged to open classroom doors into corridors, and in turn custodians open certain of the corridor doors to the exterior. This simple arrangement increases the number of air changes, and air movement becomes perceptible, which is desirable in warm days. This is accomplished without adding capacity to the system or horsepower to the fans.

Mills' level site enabled us to carry virtually all utilities overhead, whereas at Hillsdale, the sloping site required all main runs of the utility services to be run underground. Considerable areas of building required to cover the ramps which connect the different levels at Hillsdale were eliminated at Mills.

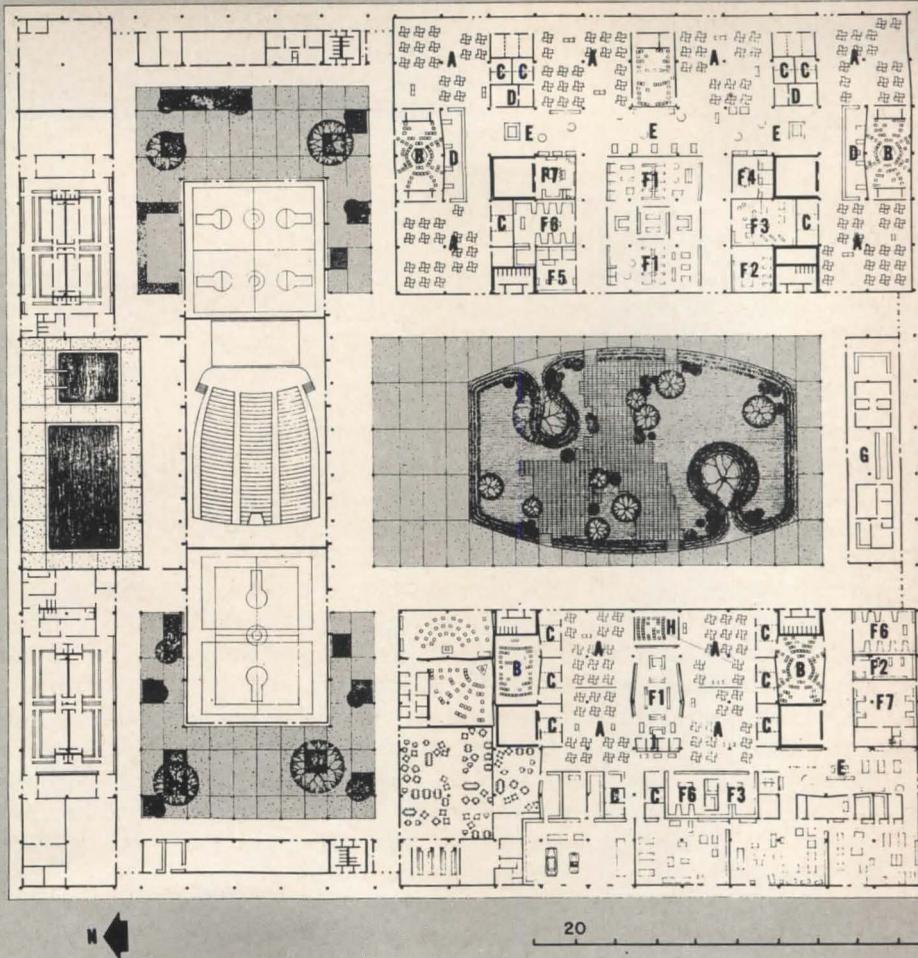
The structural system which makes possible the complete flexibility of use of the interior spaces is not identical in the two schools. The most readily discernible change in the structural system is found in the use of Vierendeel trusses at Mills; these span the auditorium and gymnasium rooms and provide their own bracing against seismic forces. In Hillsdale, vertical trusses were applied to the structural frame at the exterior wall, and in this exposed portion they were treated as elements of the visual design. There were many other simplifications in the Mills structural system. The entire project was fabricated from 10 in. WF and 12 in. WF structural shapes, with the exception of the vertical supports of the high gymnasium-auditorium frame, which are made up of steel plate and channel sections.

It was our considered intent that Mills be a spare, restrained, architectural statement, because we believe that thinking, growth and creative effort thrive in the stimulus provided by such an environment. We have sought to bring into a disciplined orderly expression all of the complex components of the mechanical system, structural forms and materials, and all educational space and equipment. The color scheme is as spare as the building and, on the exterior, uses mainly varying grays and white with

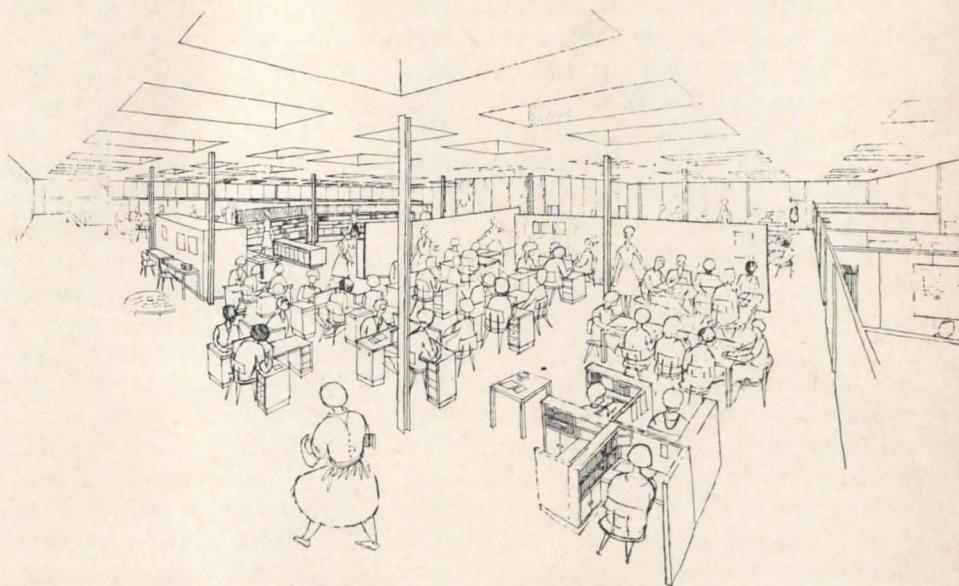
# Mills High School

The school as envisaged to accommodate a Trump-type curriculum:

- A. Instructional areas
- B. Large group meeting
- C. Small group meeting
- D. Offices
- E. Exhibition
- F. Resource center
  - F1. Library
  - F2. Business machines
  - F3. Crafts
  - F4. Dark rooms
  - F5. Printing
  - F6. Science laboratory
  - F7. Homemaking
- G. General administrative area
- H. Projection room
- J. Listening booths



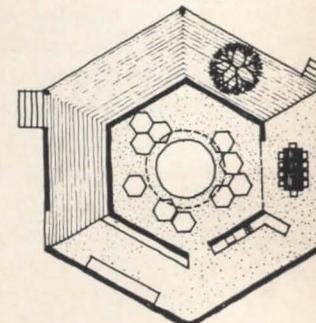
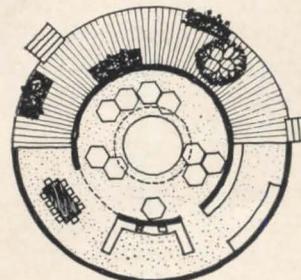
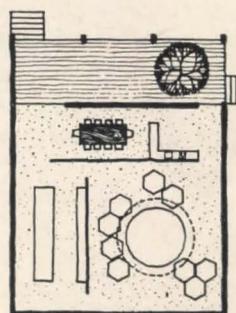
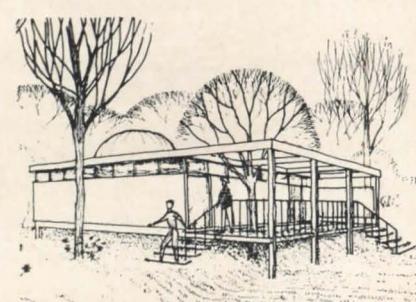
Large group activity area



Space will be as open as possible; carpeting will help reduce noise



Study carrels, small group areas



"Cottages" will be used by special short-term study groups for research and seminars

color accents of green and persimmon. Interior colors were selected with a concern for brightness, contrasts and reflectances.

That Mills' apparent austerity has a further basis in the school district's shrinking income from property assessment taxes is only an accessory after the fact that its architectural expression is what we, and the educators and citizens of the school district, wanted it to be. But it is nevertheless true that Mills, despite the general prosperousness of the community in which it is situated, is faced with a serious problem. As its population increases and its school enrollment consequently grows larger, its property assessment rate, per student, is decreasing. In 1950 there were 2654 students in high school; today there are 7318. In 1950 the assessed valuation, per student, was \$53,050; today it is \$36,500—and \$37,000 is needed to finance a well-rounded educational program. This district does not qualify for state or Federal assistance, so it must finance its educational and building programs.

At Mills, practically all partitions can be moved and spaces altered; the heating, ventilating and lighting accommodate themselves to any arrangement of rooms or areas; the parts of the exterior wall, doors, windows, wall sections, are interchangeable. The room arrangement and the disposition of the elements of the exterior curtain wall provided by the architect to meet the current program are provisory. The function of the architect, then, is the design of a system, not the design of specifically programmed space. The interesting question arises as to whether or not the future user, who may himself rearrange the space and forms of the building, usurps the traditional prerogatives of the architect.

Can the design of such a system be architecture? We believe that it can. We believe that this system may be regarded more as an instrument than as a building in the traditional use of the word; it is an instrument of education.

The flexibility of Mills and Hillsdale is achieved without a cost premium. I am often asked if this flexibility is used. To date, some use of this attribute has been made. At Hillsdale, changes have been made in the administrative offices, and in some of the rooms, minor but needed changes have been made. In planning these two schools, we attempted to interpret current needs in a plan which worked. Our job would have been poorly performed, indeed, had there been a necessity of making major alterations at this early date. The advantages of the schools' flexibility can be assessed only when significant changes in program require the plant to adapt itself to such changes. When will these program changes occur? We do not know, but we are sure that they will occur long before the useful life

of the plant has been served. Another high school, the Andrews Senior High School at Andrews, Texas, is now being designed by our office. Its design follows the same principles that have guided Hillsdale and Mills, although it is markedly different in character. We believed that it would be interesting to find whether or not it would lend itself to the requirements of the Trump plan, and whether we would find some new problems not experienced at Mills. The "Trump proposal" is presented in broad and general terms, and it invites varied architectural interpretations; the Andrews school appeared to be a further opportunity to test our concept of flexibility and to explore a somewhat different approach.

The difference in our "Trump plan" for Mills and the plan for Andrews is that the instructional rooms for the latter are smaller, but they are capable of being doubled in size, if needed, by a separating folding partition between pairs of adjoining rooms. Research laboratories for craft and science are shared by room pairs, and small meeting rooms are immediately accessible from each instructional area. Several of these room groups are clustered around a large meeting room, which also serves as a library and study center. There are three such major clusters in the school. The main library remains in its present location, but it replanned to include a greater variety of resource materials. Another music room has been added; the shops and physical education remain the same.

In the central concourse are lockers, dining area, spaces for social gatherings and activities and a domed space to be used for a wide variety of purposes, such as assembly, projected pictures, drama, lectures, concerts and dances, as well as for circulation and lounging when not serving other uses.

A fixed pattern of educational spaces can never make the N.A.S.S.P. Commission's imaginative proposal come to life. What this proposal requires for realization is a plant which will grow, change and adapt itself to an orderly and perhaps gradual program of experiment and improvement. Unexpected findings and conclusions might lead to a program differing from the Commission's plan; "Images of the Future" does not necessarily represent a final educational pronouncement but is, rather, a direction and an invitation.

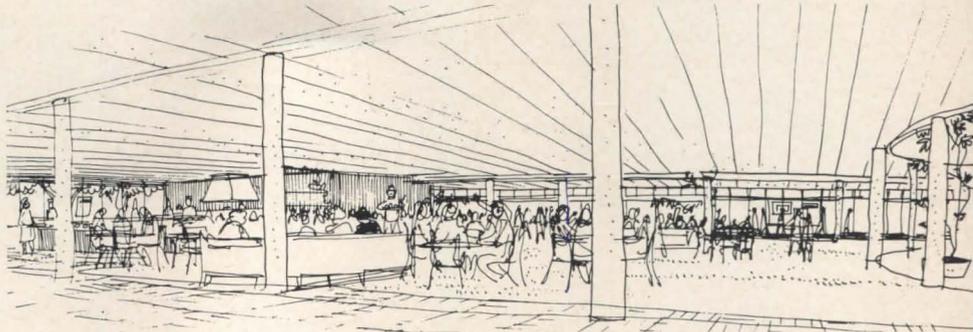
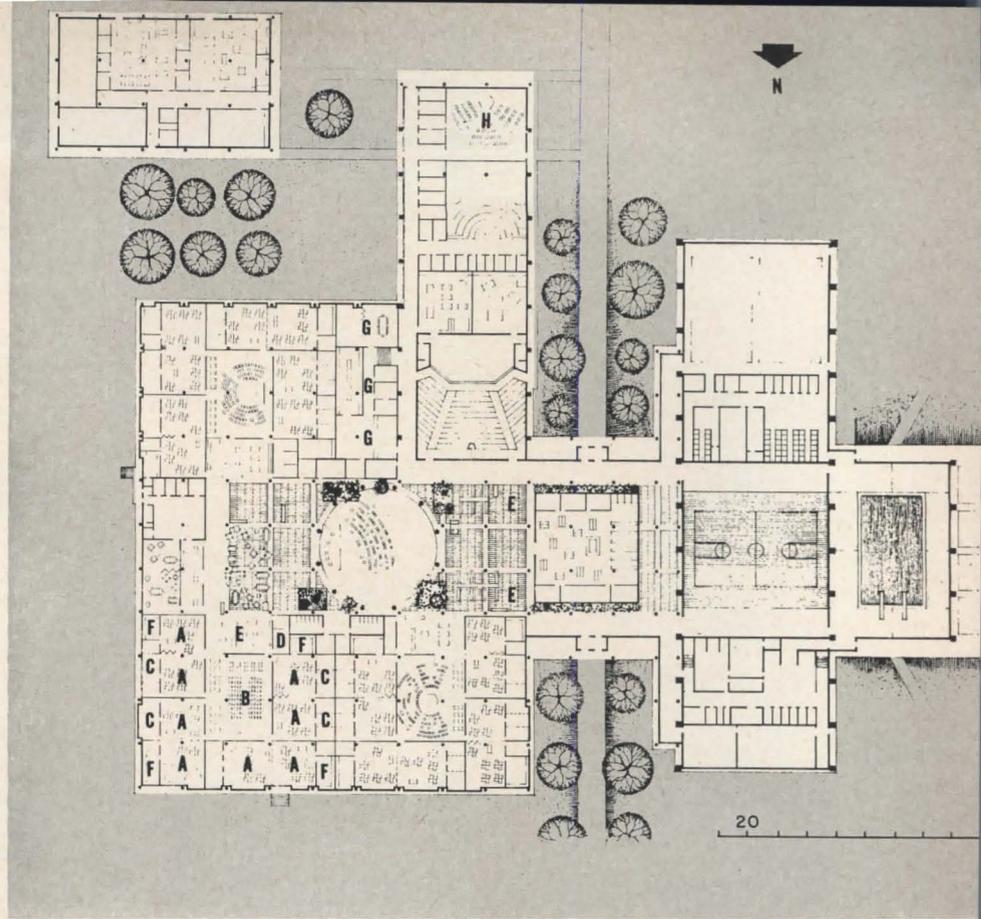
The secondary schools that will implement the proposals of "Images of the Future" do not necessarily represent a final educational pronouncement, but is a direction rather than an invitation.

The secondary schools that will implement the proposals of "Images of the Future," or of other sound educational plans, I believe must be planned and built now.

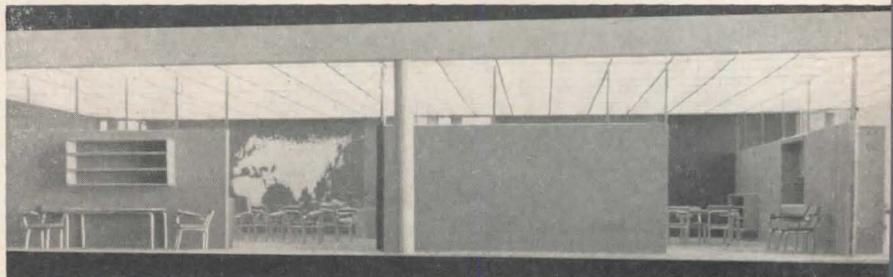
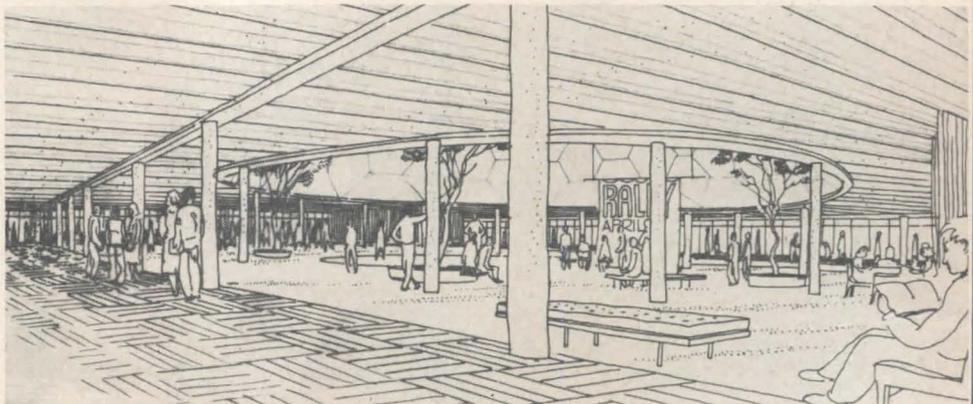
## Andrews High School

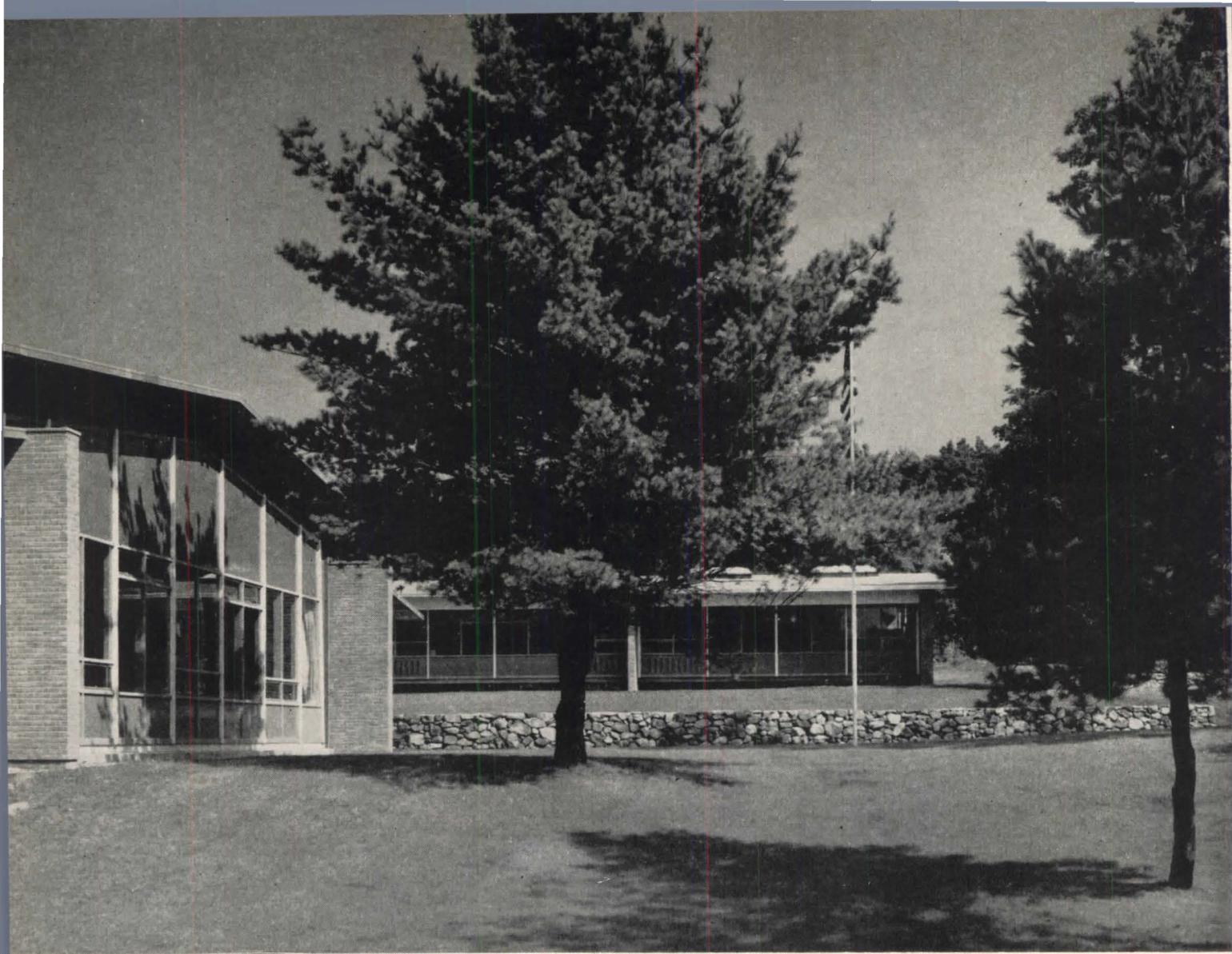
The school as envisaged to accommodate a Trump-type curriculum:

- A. Instructional areas
- B. Large group meeting
- C. Small group meeting
- D. Offices
- E. Exhibition
- F. Craft and science laboratories
- G. Administration
- H. Choral room



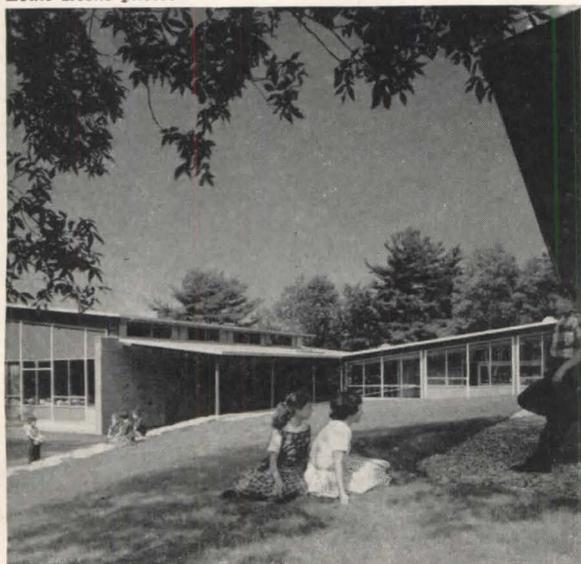
Central area, under and around dome, will be used for dining and lounge, as here, as well as for assemblies, dances, concerts or lectures. Photographs below show model of exterior and of classroom areas





## Expandable School For A Growing Community

Louis Reens photos

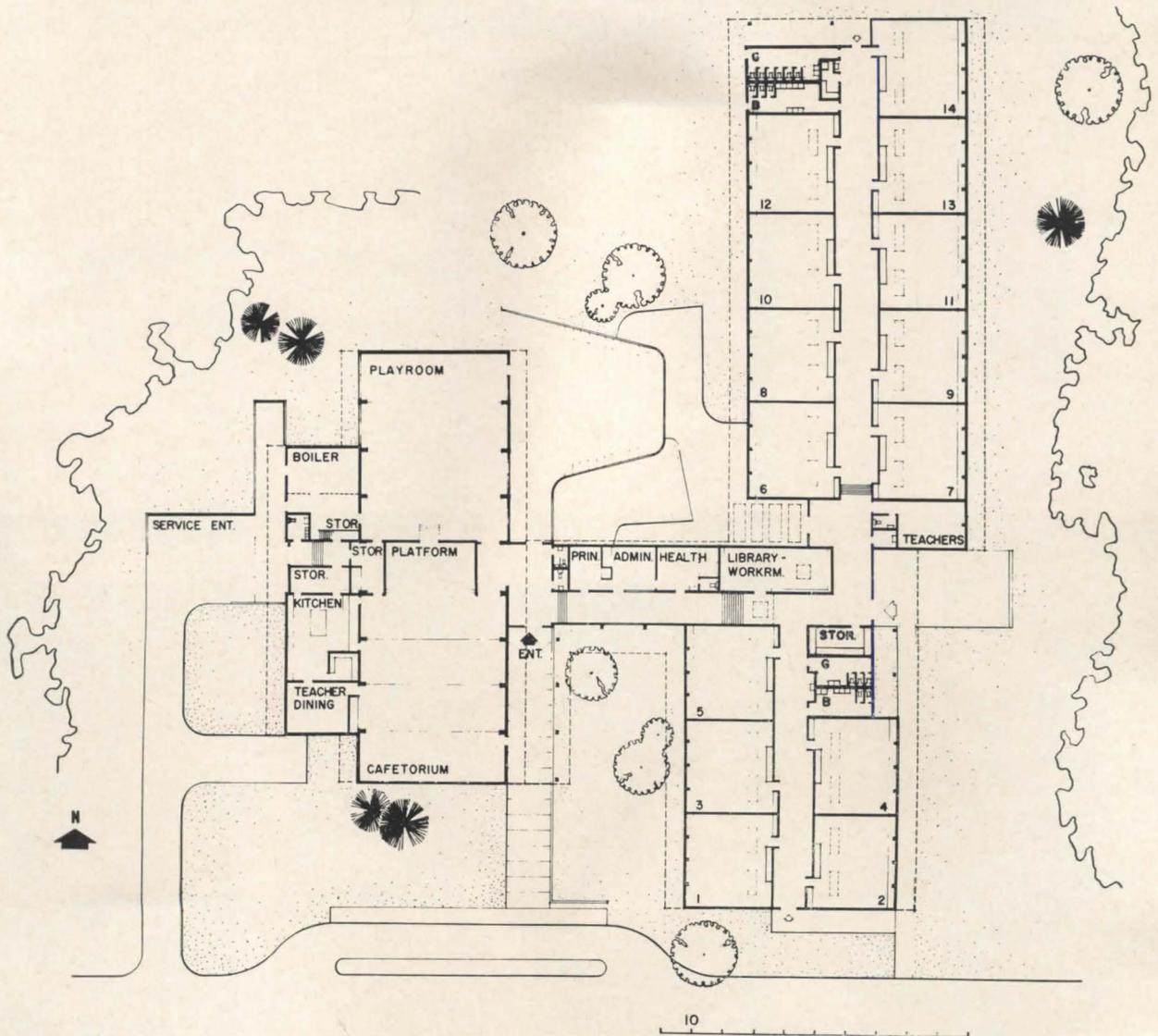


*Stoughton Elementary School, Stoughton, Mass.; The Architects Collaborative, Architects. Goldberg, LeMessurier & Associates, Structural Engineers; Thomas Worcester, Inc., Mechanical Engineers; Morgenroth & Associates, Sanitary Engineers; C. A. Batson Company, General Contractor.*

The sloping roofs and somewhat informal array of the various wings gives a highly pleasant atmosphere and scale to this 14-classroom school. The anticipated growth of the town indicates a need for future classrooms. The scheme was designed in view of this from the outset: the playroom shown in the center of the plan at right is to be added, and an additional wing of six classrooms and toilet facilities will be placed at a right angle to the present ones. To conform with the site, the building is disposed on several levels connected by stairs. Each area has its ground level entrance.



Partners of The Architects Collaborative: Jean B. Fletcher, Norman Fletcher, Walter Gropius, John C. Harkness, Sarah P. Harkness, Robert S. McMillan, Louis A. McMillen, Benjamin Thompson, Richard Brooker, Alex Cvijanovic, Herbert Gallagher, William J. Geddis, H. Morse Payne, Jr.

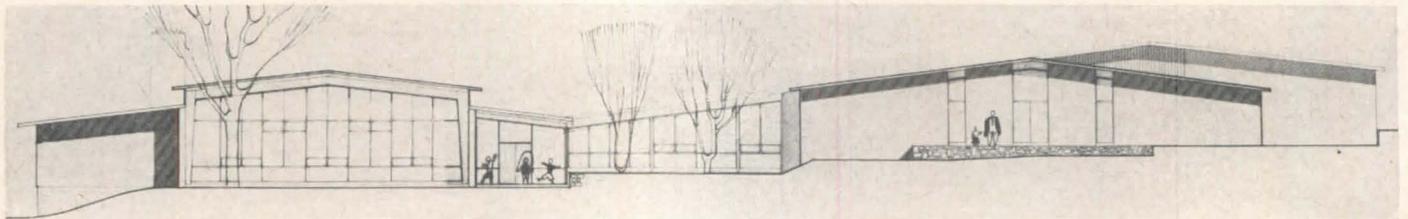


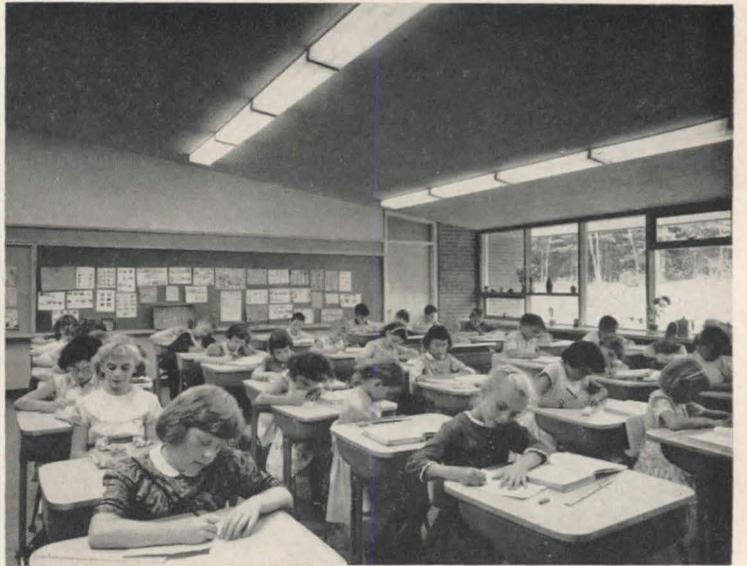
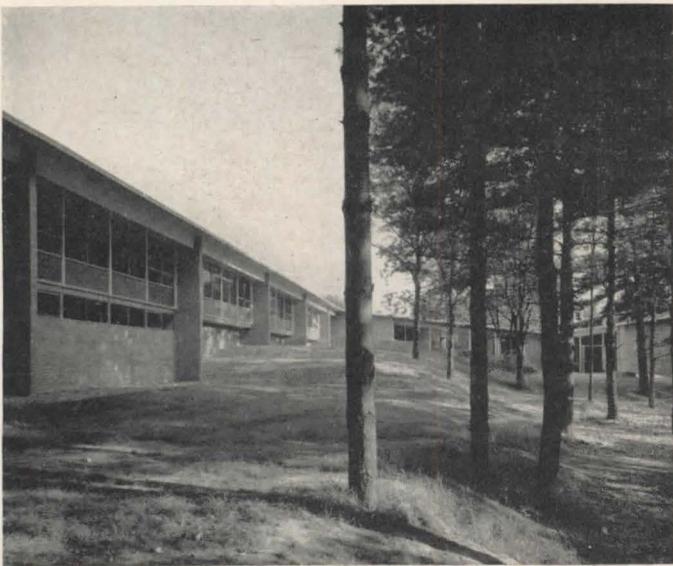
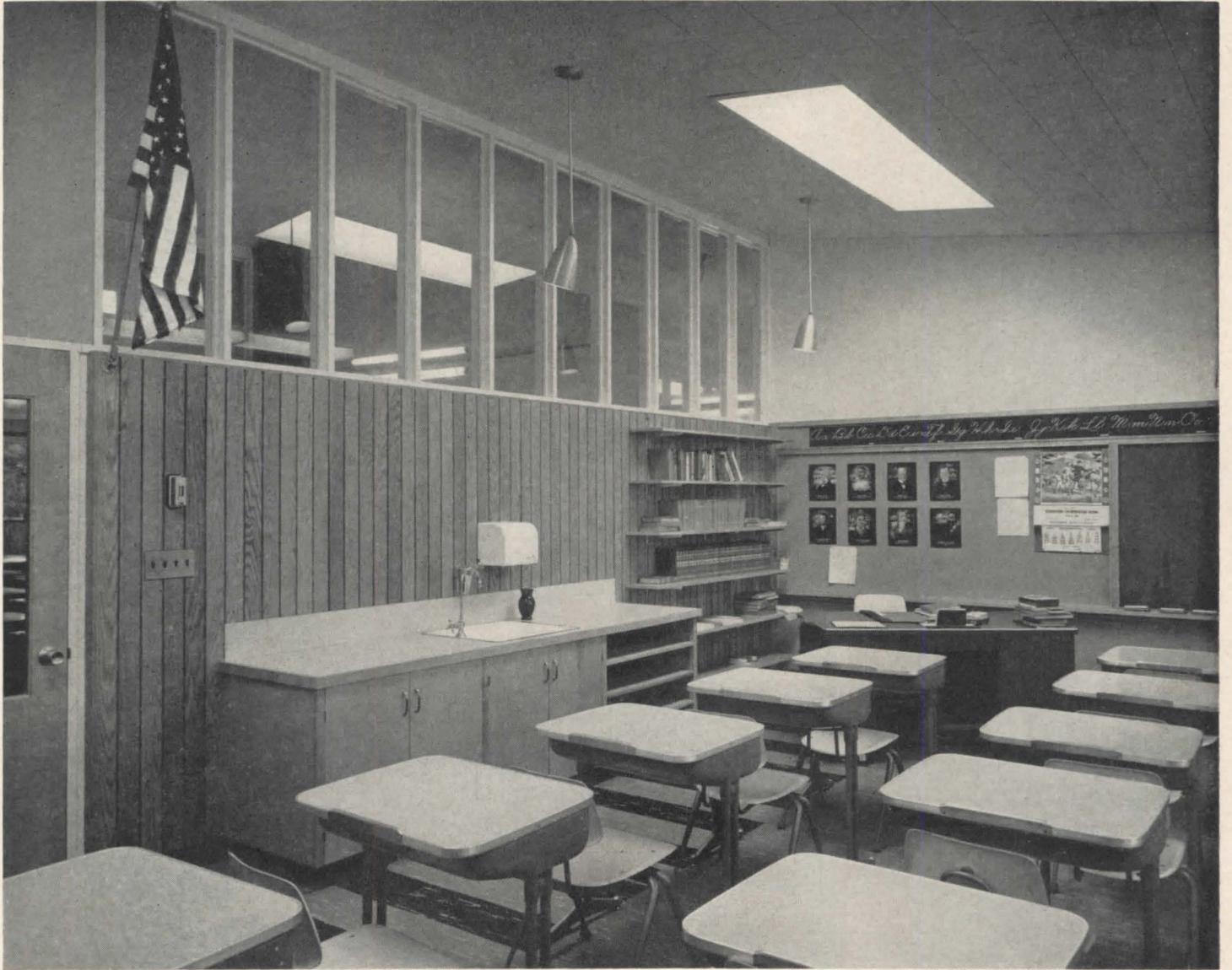


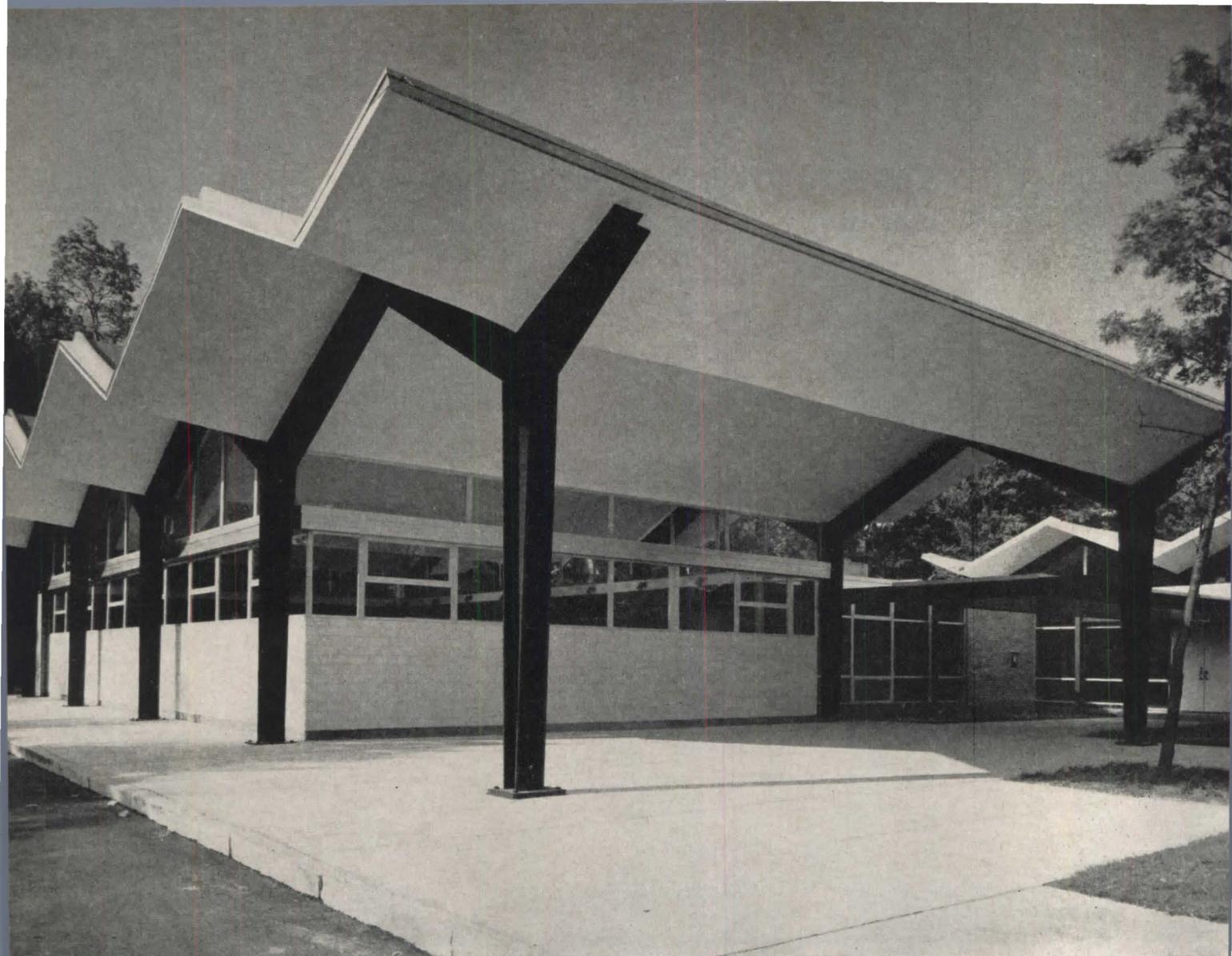
## Stoughton Elementary School

The various units of the school, which are accessible to the ground at all points, are unified by the flow of the gently sloping roofs. (Note elevation, below.) An established roof slope of 1 to 7.5 is used throughout. Classrooms have been designed so that the large windows toward the outside have a low eave line and are well shielded against the sun. At the opposite sides of the classrooms, a series of high transom windows and plastic skylights add light and the illusion of space. In the corridor (left), a continuous bench, with a rack for boots beneath, and hook strips along the oak walls, give coat storage facilities.

The end walls of the buildings are generally brick cavity wall; window walls are wood or metal subframes, with glass and porcelain enamel paneling. Open web joists span the structural classroom walls. Joists are spanned by 3-in. fiber planks, with a ceiling of acoustic tile, built-up roof. Heating is by a forced hot water system







## Easy Maintenance Highlights Lively School

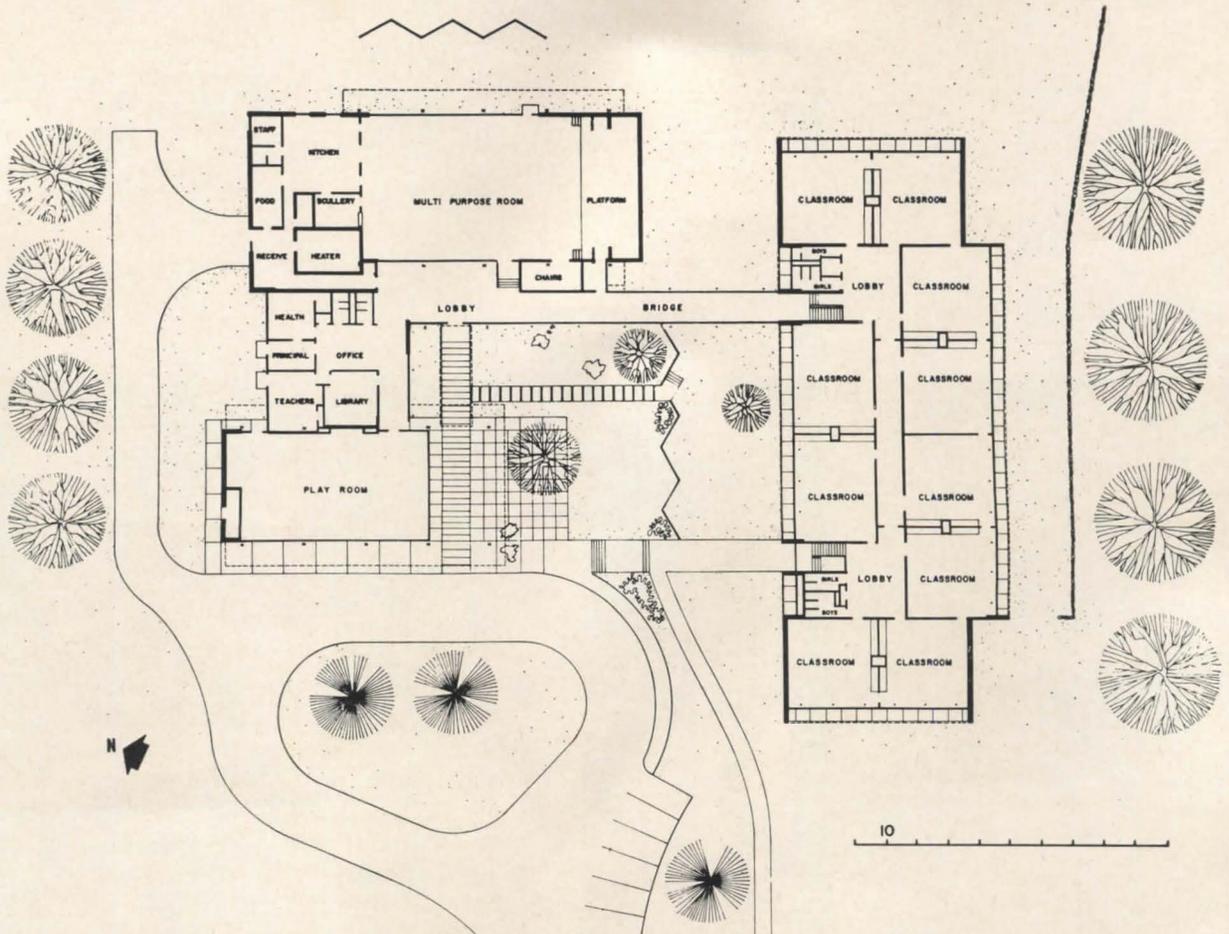
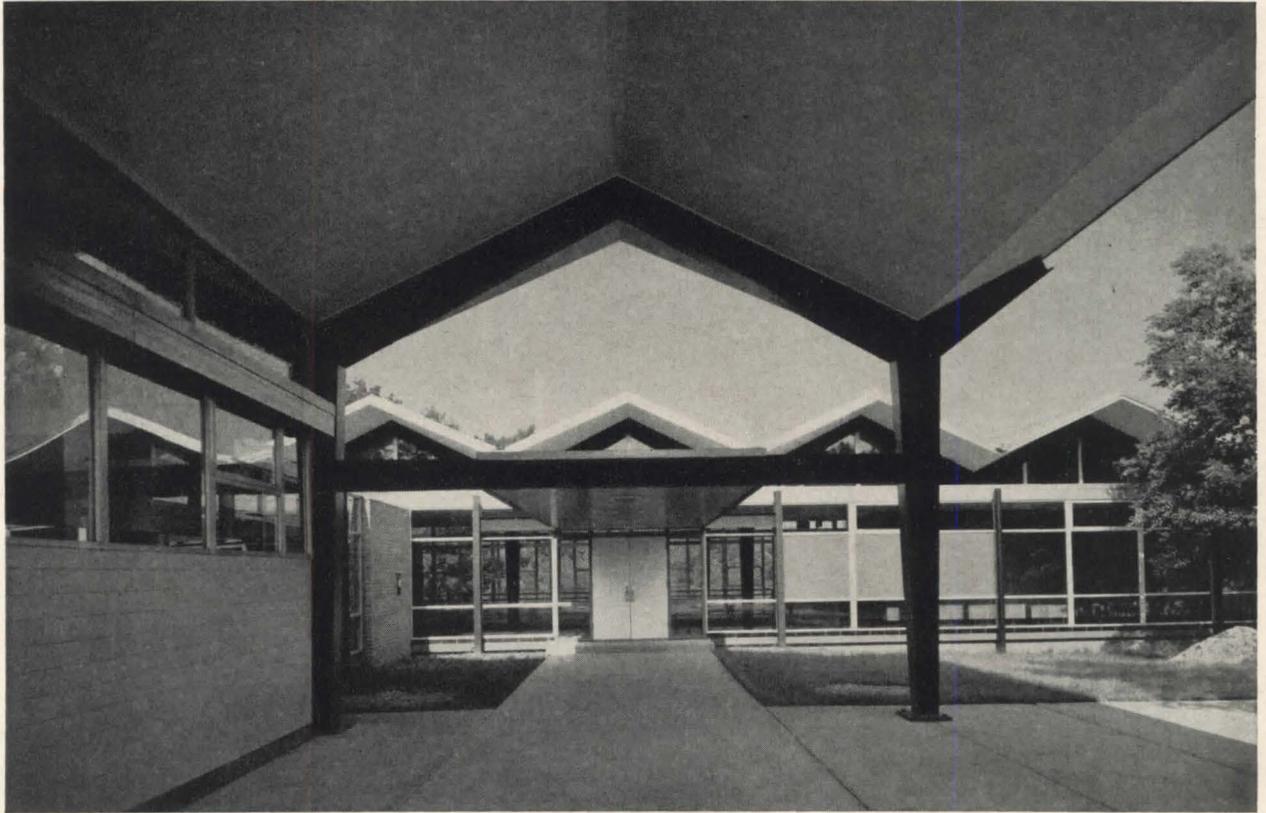
Louis Reens photos

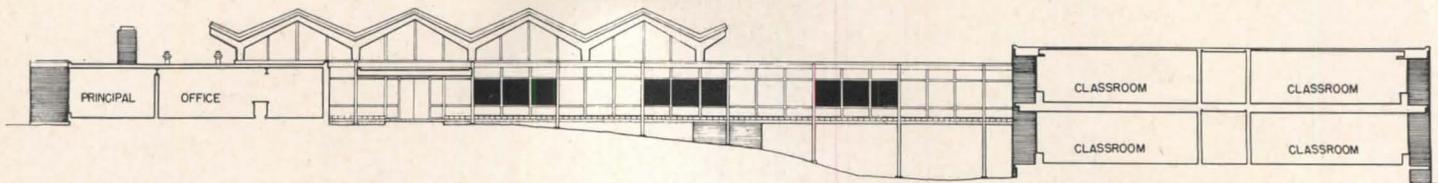
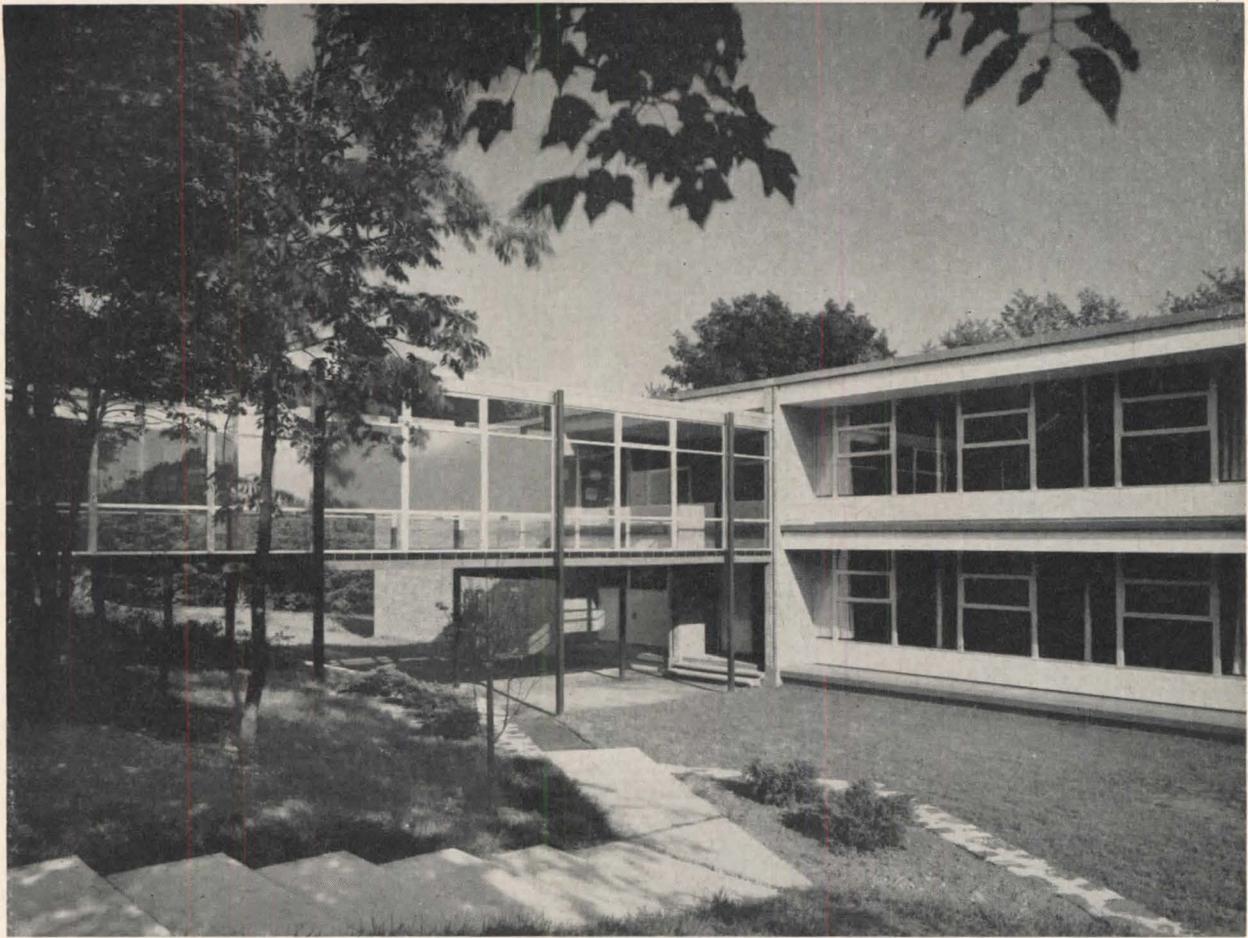


*Acton Elementary School, Acton, Mass.; The Architects Collaborative, Architects (John C. Harkness, Partner-in-Charge); Thomas Worcester, Mechanical and Electrical Engineer; Morgenroth & Associates, Sanitary Engineers; Brick & Concrete Construction Corp., Contractor.*

The lively, extremely pleasant design of this school makes the most of an attractive, but relatively tight, site, and uses materials selected to make the building as maintenance free as possible. The school forms the third unit of a consolidated school plan in the geographic center of the Township of Acton. It is adjacent to the original elementary school and a regional high school. The scheme places general purpose and administration areas on a high ledge—with folded plate concrete roofs on rigid steel frames to give dominance—and a two-story classroom block on the side of the hill.

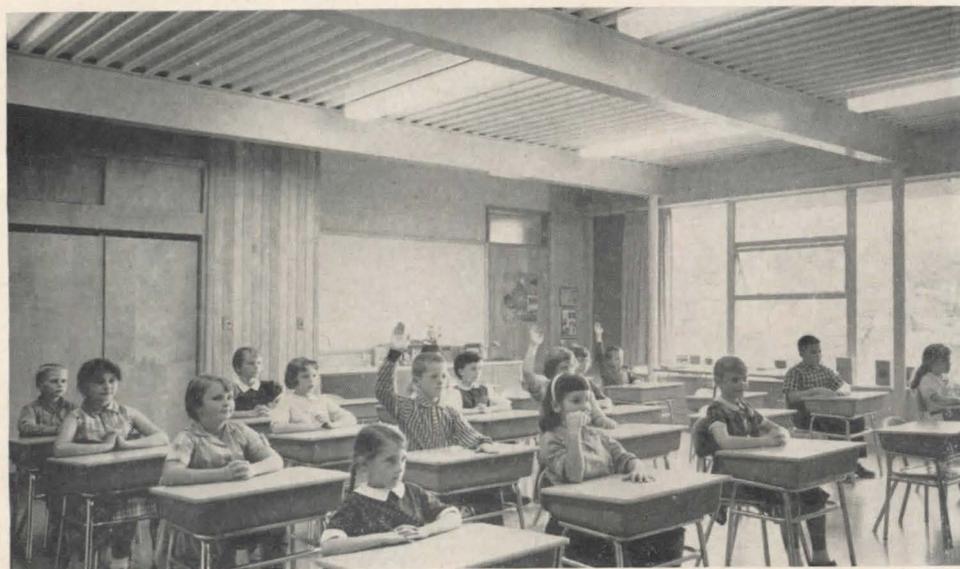
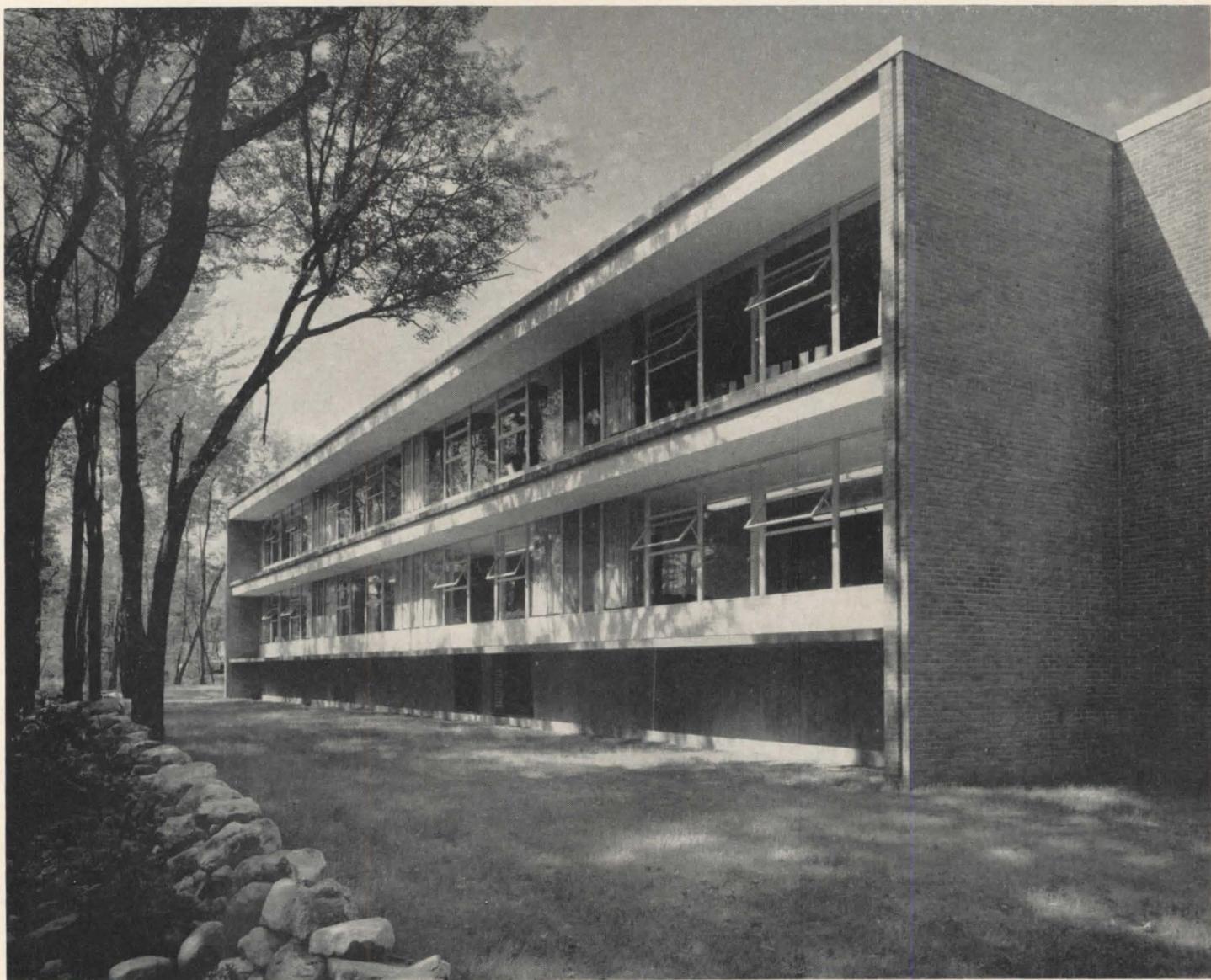
Partners of The Architects Collaborative: Jean B. Fletcher, Norman Fletcher, Walter Gropius, John C. Harkness, Sarah P. Harkness, Robert S. McMillan, Louis A. McMillan, Benjamin Thompson, Richard Brooker, Alex Cvijanovic, Herbert Gallagher, William J. Geddis, H. Morse Payne, Jr.



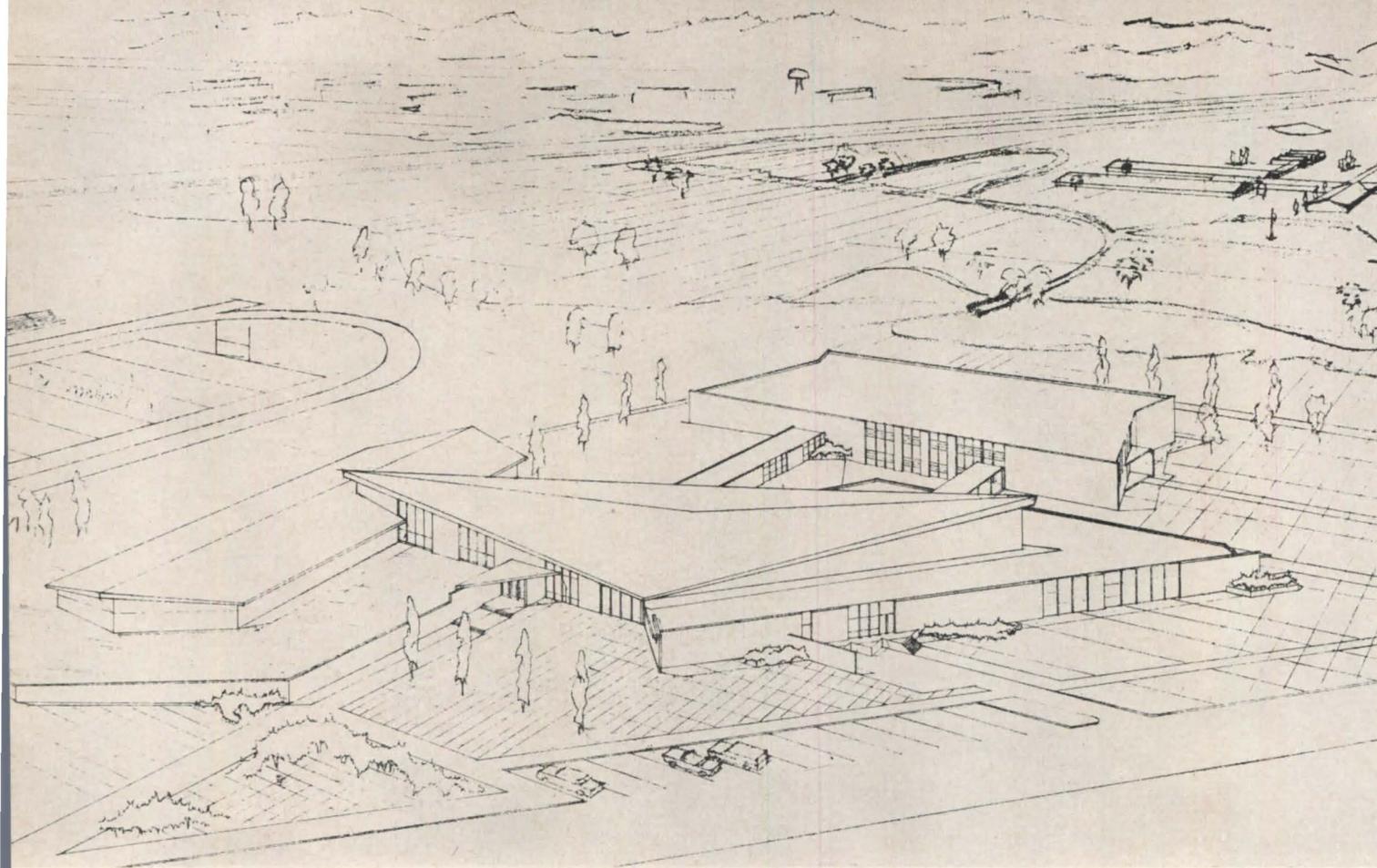


Acton Elementary School

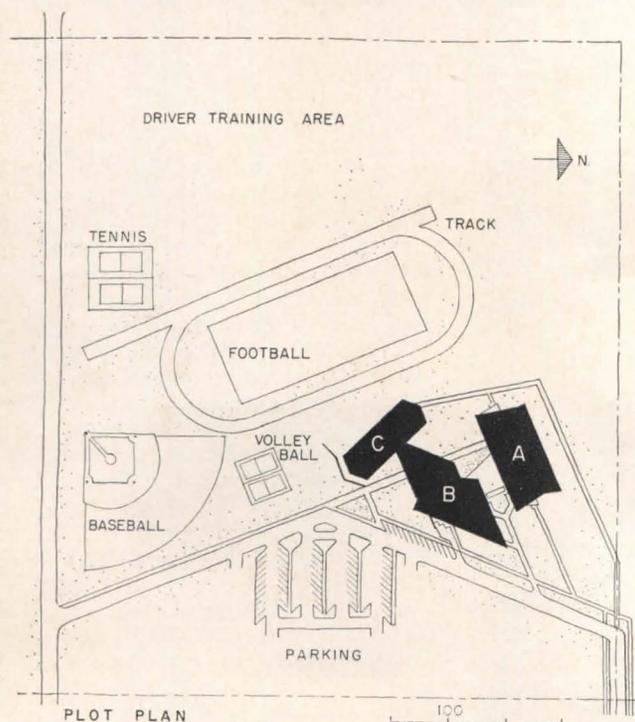




The two major units of the school, general activities and classrooms, are connected by a bridge and rambling exterior walks. An open court is created by the arrangement. In the classroom wing, each group of five rooms has its own lobby, exhibit spaces, and toilets. The classroom wing is a steel frame construction. Exterior walls are brick. Interiors are structural glazed tile, fir siding, painted concrete block, and brick. The fascia boards are porcelain enamel, the sash are aluminum. Most floors are asphalt tile, except for vinyl asbestos in the multi-purpose room, ceramic tile in toilets and kitchen, wood block floors in the playroom. Ceilings are acoustical tile, partly covering steel deck and concrete folded plate. The heating system is divided into five direct fired warm air units—four for the classrooms, one for other areas

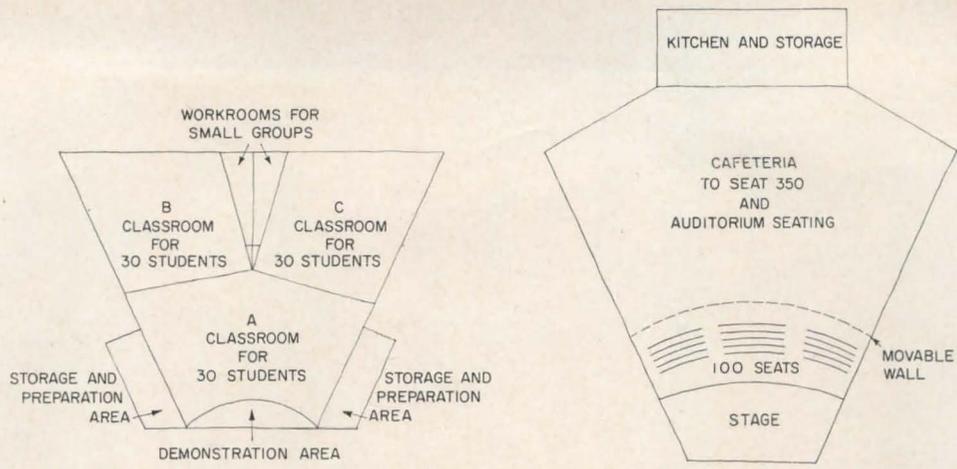


## School With Changeable-Area Teaching Spaces

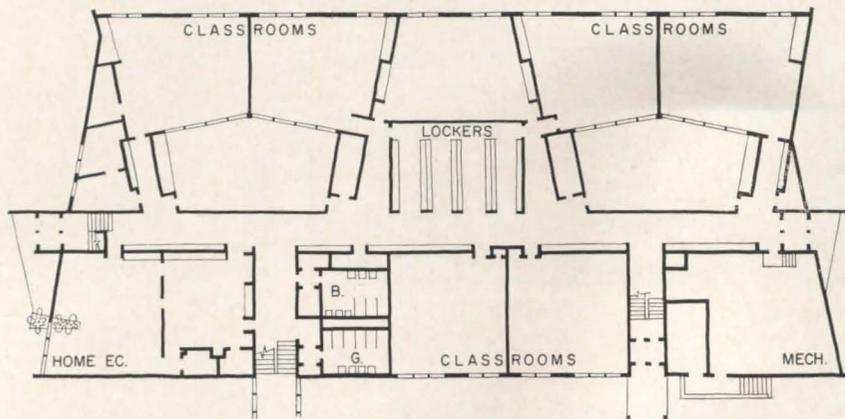


*Marie Creighton Junior High School, Jefferson County, Colo.; G. Meredith Musick and Clayton S. Musick, Architects; Glen Nimnicht and Leonard Walsh of the Educational Planning Service, Educational Consultants (the Educational Planning Service is the Western Regional Project Center of The Educational Facilities Laboratories, Inc., Ford Foundation.)*

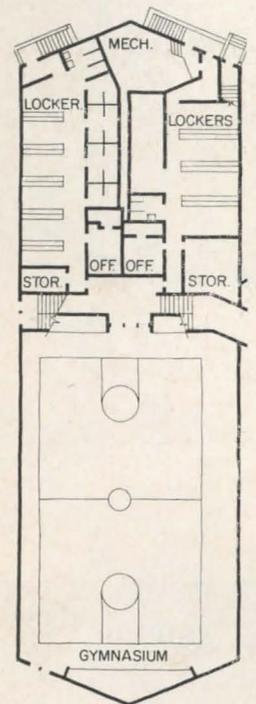
This school project, developed under the auspices of the Education Facilities Laboratories, brings into concretion some of the divisible-area teaching and assembly spaces envisioned by the Trump report. It is now in the working drawing stage. Rather than trying to establish some sort of prototype, the architects, consultants and the citizens committee have sought to provide facilities explicitly to serve their local needs and wants. The scheme incorporates an arrangement of classrooms which, by use of transparent partitions, will be suitable for instruction in groups of 30, 60 or 90. The arrangement will provide for the traditional program now in use, and experimentation in new ones.



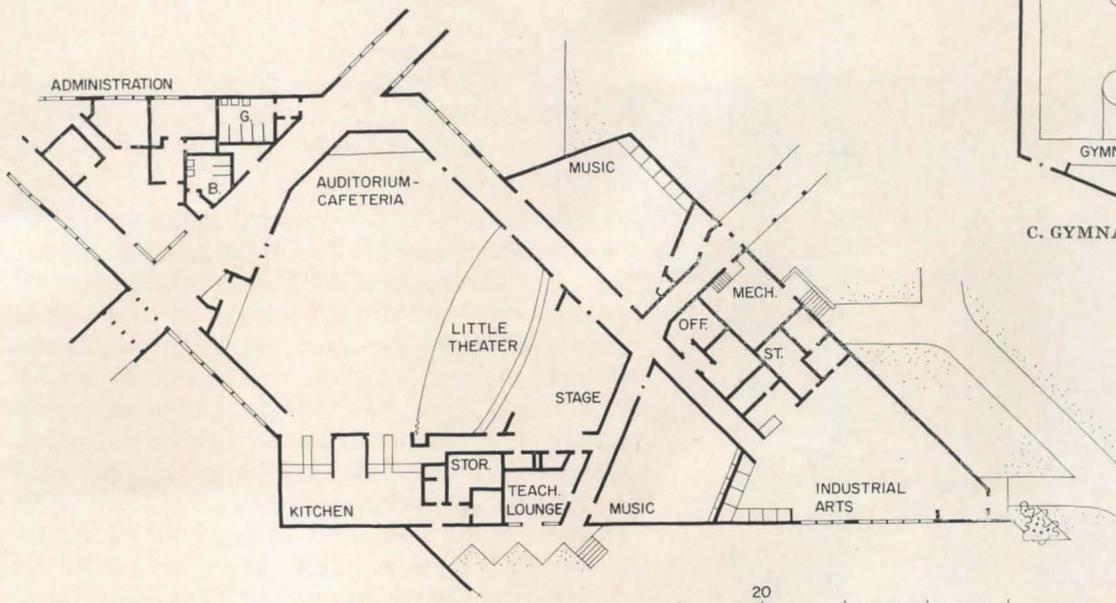
The basic planning units of the 750-student junior high school are the changeable-area arrangements diagrammed above. At left: three classrooms are placed so that each room can form a separate teaching station, or be used in combination with one or two others. Walls of glass, with pull curtains for separation, are between classroom A and the other two. Audio equipment is used to transmit sound through the areas. Cost and the desired degree of acoustical privacy led to the use of glass rather than movable partitions. The classrooms B and C are on a higher level to improve viewing into area A. At right: a folding partition adds cafeteria space to the little theater for auditorium use. Further developments are below



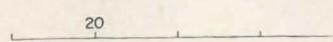
A. CLASSROOM BLOCK: Library and Arts and Crafts are on second floor (lower left and right corners respectively)

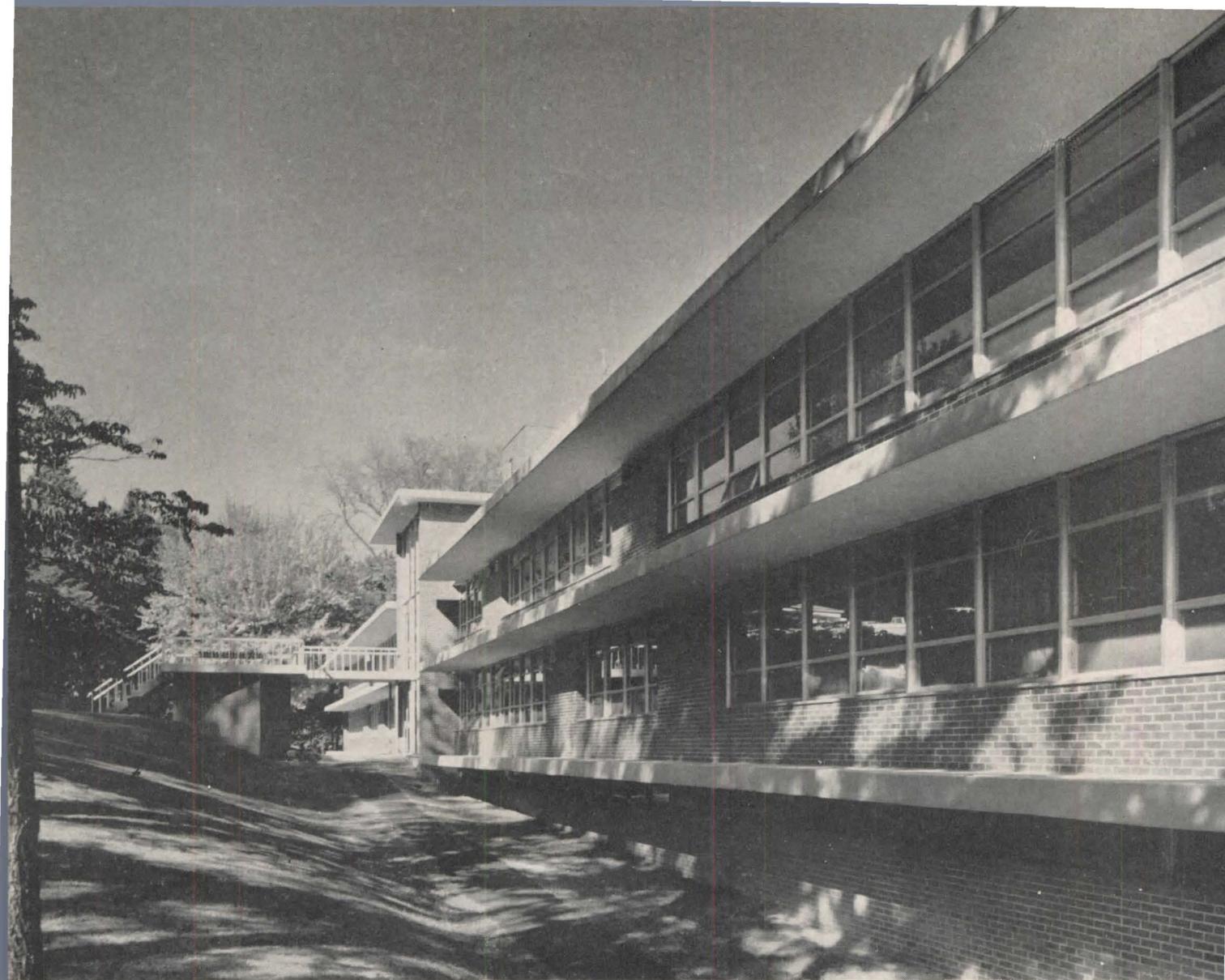


C. GYMNASIUM



B. AUDITORIUM AND ADMINISTRATION





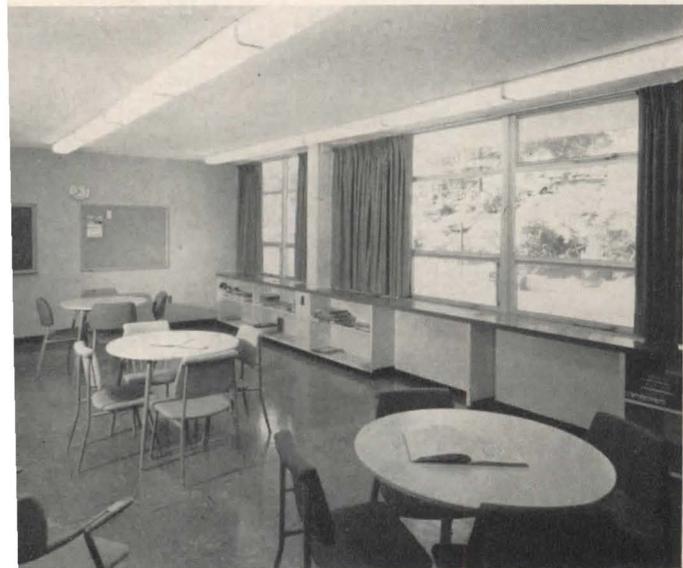
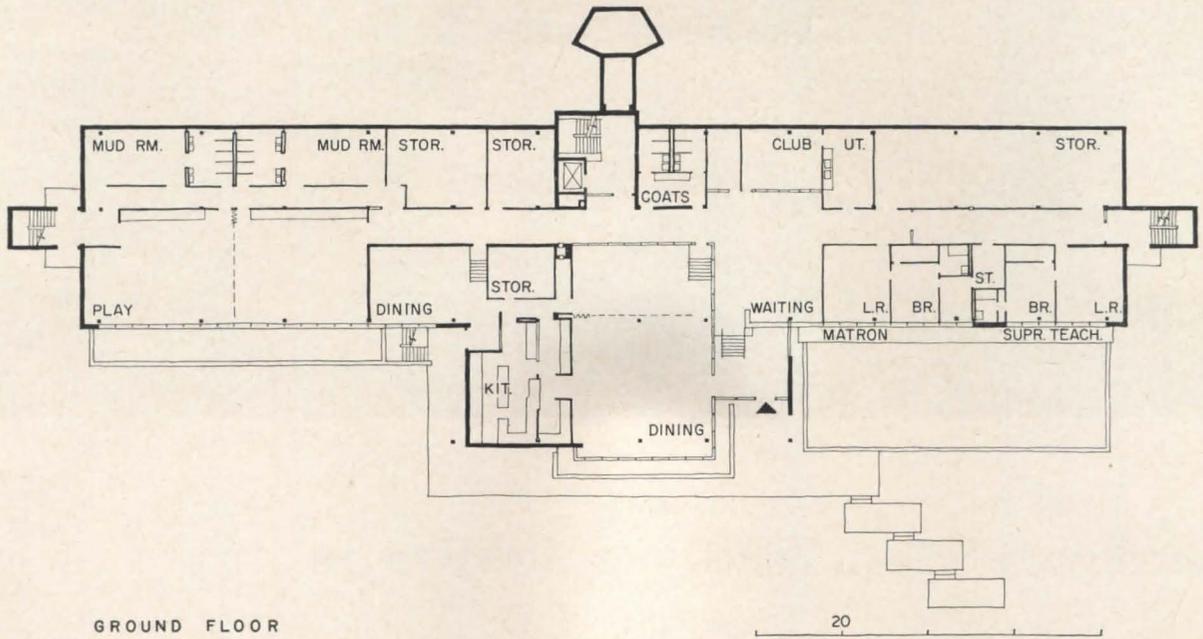
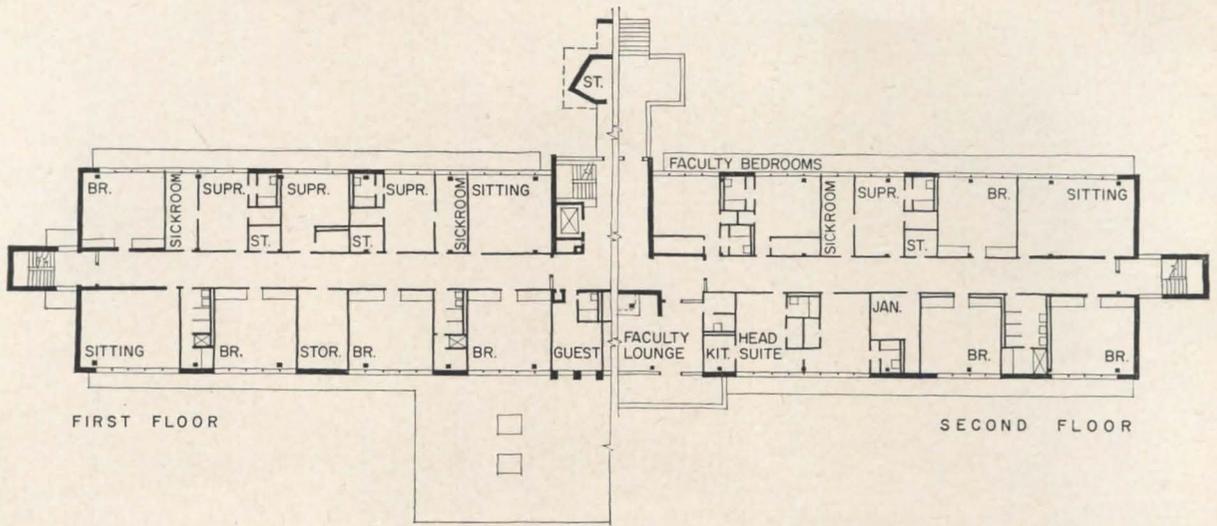
## Visual Comforts In School For The Deaf

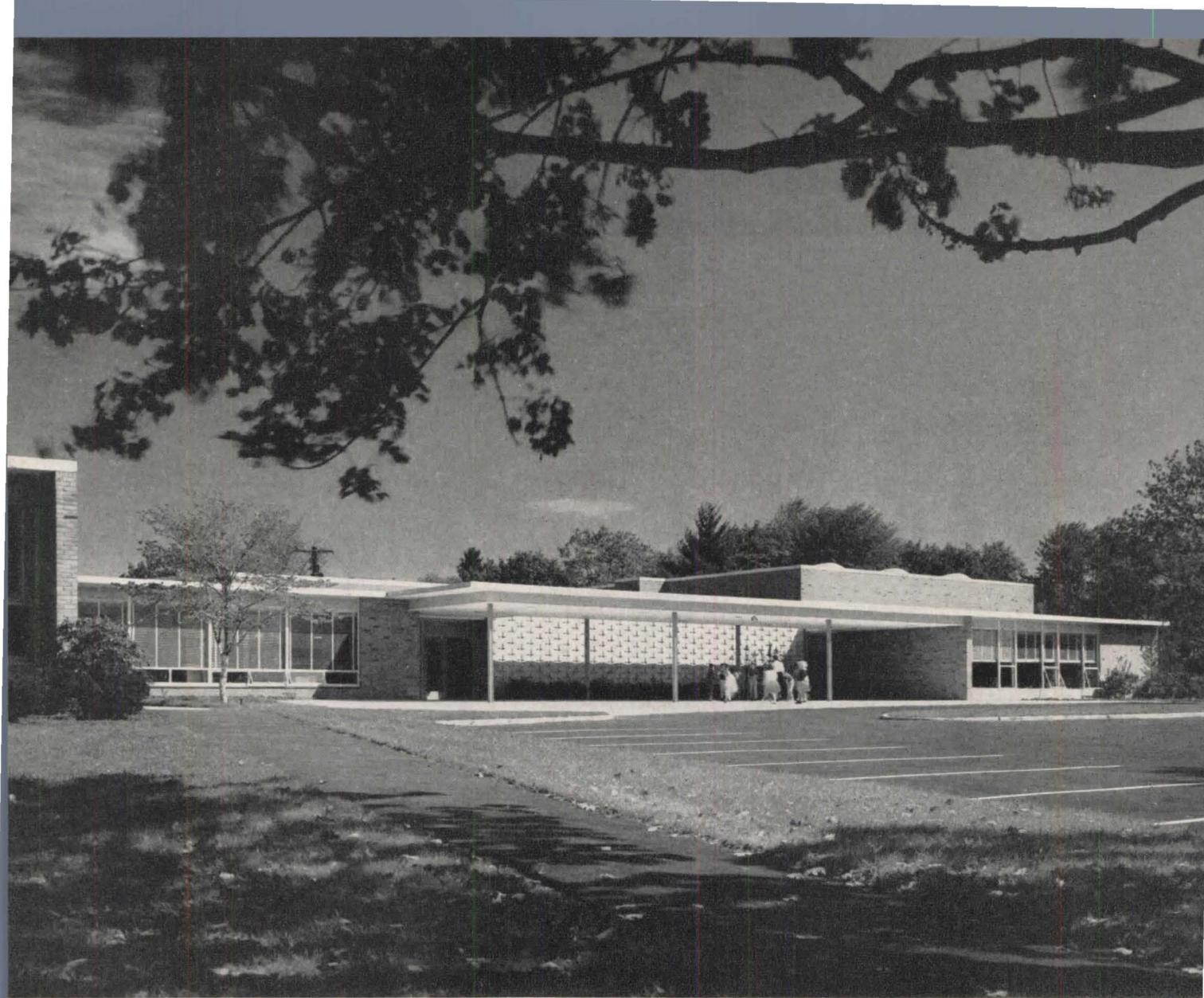
*Joseph W. Molitor photos*



*Clarke School for the Deaf, Northampton, Mass.; James A. Britton, Architect; Buerkel & Co., Plumbing, Heating and Ventilating Engineers; Aquadro & Cerruti, Inc., Contractor.*

This dormitory for 56, age 6 to 12, live-in students of the Clarke School for the Deaf seeks to make the most of its park-like setting, and of high-level lighting and visual textures and patterns, to increase the efficiency and pleasures of its handicapped students. Generally, the building is designed to help those without hearing to get along with ease in ordinary environments. Wall papers, colored tiles and mosaics, patterned fabrics, large (but shaded) windows, and displays and television in the lounges, are all explicitly devised to foster a greater reliance on the sense of seeing. The building is in three levels on a sloping site. The upper two levels are mainly dormitory rooms; each level of the lift slab building has direct access to grade.





## Elementary School Zoned For Age Groups

Photos © Ezra Stoller



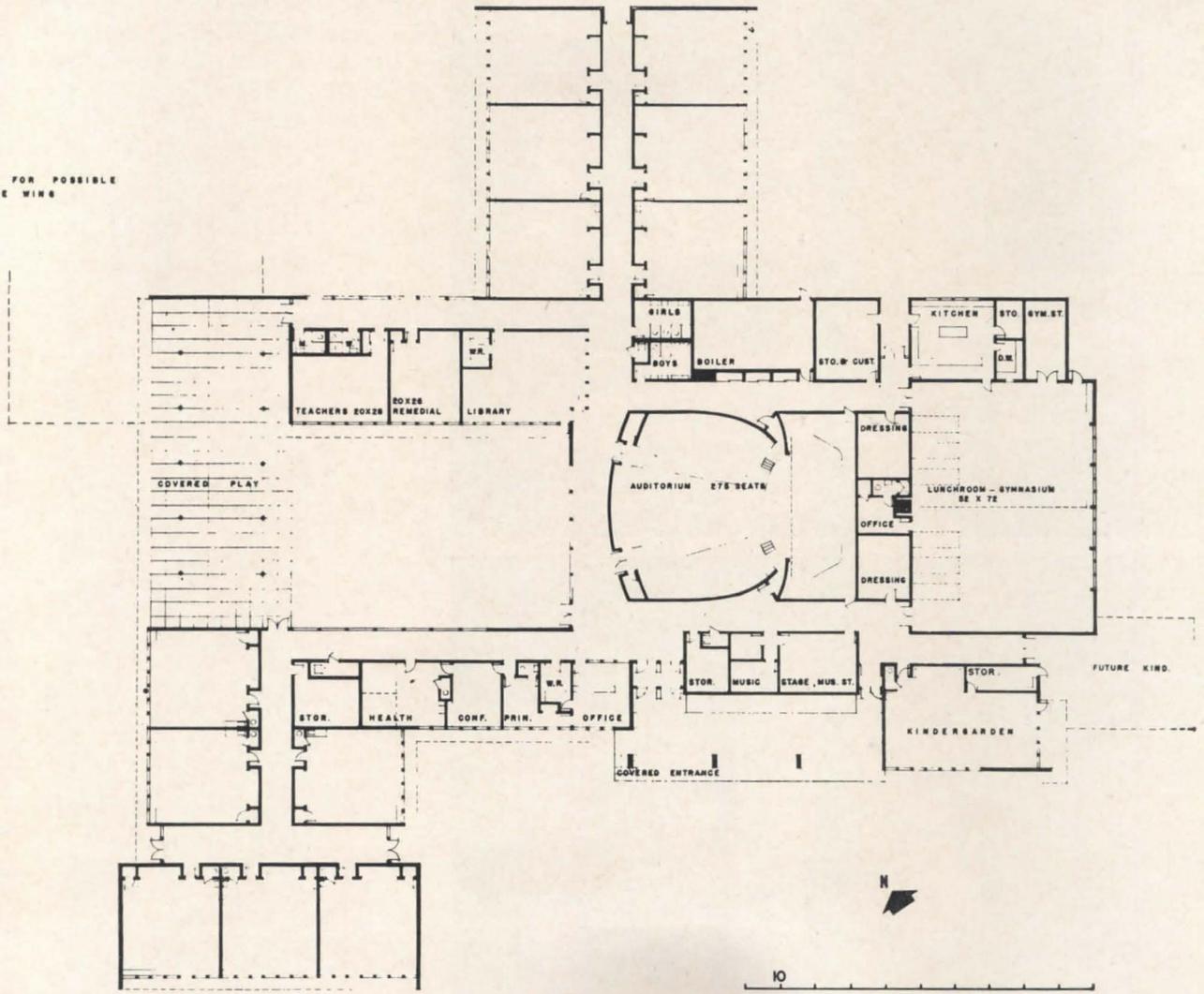
*Osborn Road Elementary School, Rye, N. Y. Sherwood, Mills and Smith, Architects.*

This 13-classroom elementary school uses courts, covered play area, and a big separation of age groups to create an extremely pleasant environment for teaching. Classrooms are grouped into a block of six for primary grades (bottom left in plan), six for intermediate grades (top center in plan), and a kindergarten (lower right in plan). While all are linked with the range of facilities in the central core of the building, their separation provides separate entrances and playfields for each group, and facilitates possible expansion for any of the blocks.

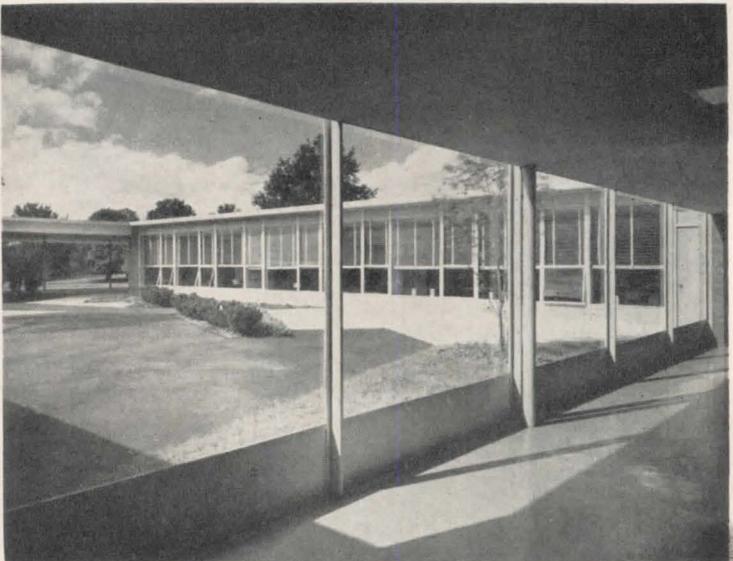
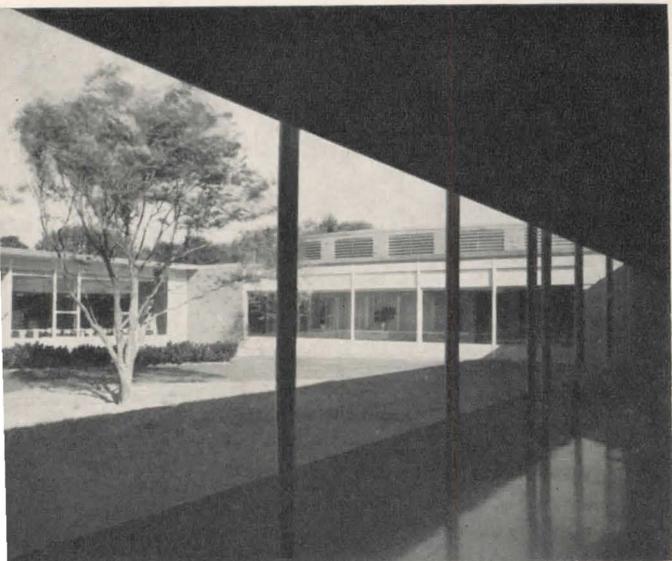
Total gross area of the school is 38,600 sq ft (counting covered, unheated spaces at  $\frac{1}{2}$ ). Cost for the building construction itself was about \$750,800; equipment was \$31,600; site development, \$66,000.

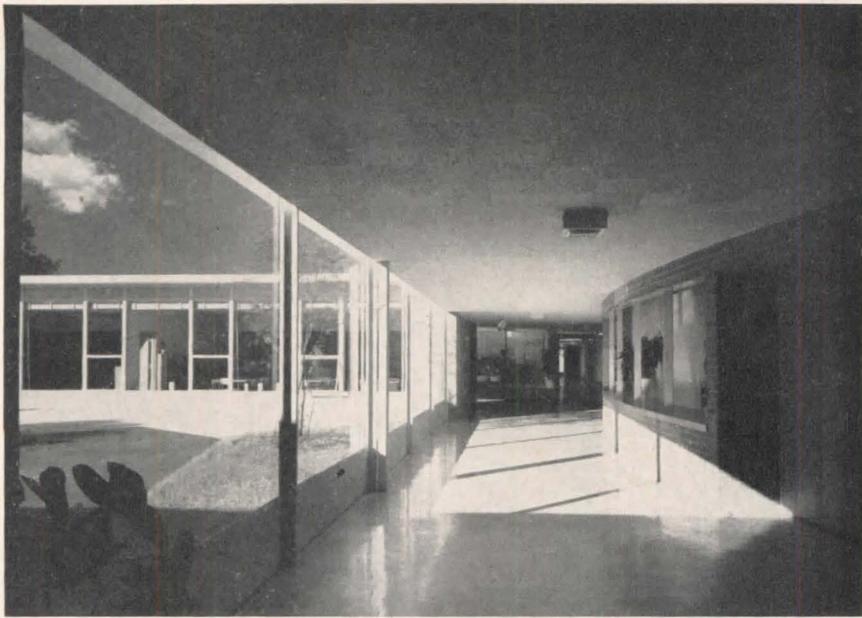
8 INTERMEDIATE CLASSROOMS

SPACE FOR POSSIBLE FUTURE WING

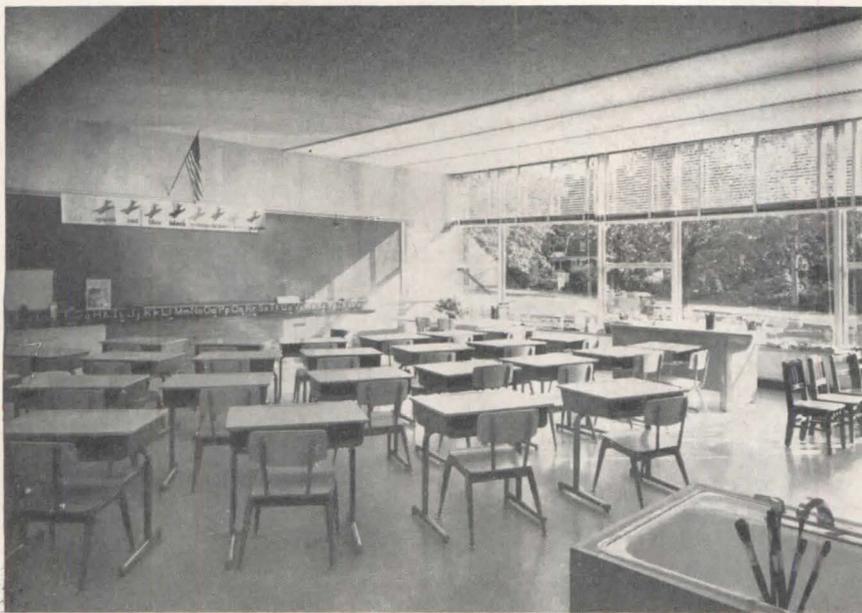


6 PRIMARY CLASSROOMS





*Fraioli, Blum & Yesselman, Structural Engineers; Bernard F. Green, Electrical and Mechanical Engineers; Walter A. Sandy, General Contractor; Charles A. Currier, Site Work.*



## Osborn Road Elementary School

The plan arrangement of the school is devised to keep the quieter work areas for administration, health, lounges, library, etc., turned toward the court or entrance area, and away from the noisier play fields. The scheme also permits use of lunchroom-gym, auditorium, and courts as a unit for evening events and parent-teacher functions. The photo at top shows the entrance lobby flanking the auditorium. Center photo is a continuation of this area, and shows the glass-walled library. At bottom is a typical classroom

# Architectural Engineering

## Lighting for A Cozy Home

An important trend in lighting is the architect's growing awareness of its potential as a design element—to establish the character of building interiors and exteriors. An encouraging sign, too, is the lighting industry's recognition that the emotional content of light deserves attention, along with techniques for better seeing. Evidence from abroad is a recent issue of the *International Lighting Review* (Amsterdam), describing a campaign for better home lighting by Philips Netherland, Dutch electrical manufacturer. Idea was to encourage higher levels of light, not by techniques for factory or office, but, as they put it, by "light dispersion." Its definition: correct screening and scattered arrangement of light sources to insure appropriate illumination, while at the same time enhancing the general atmosphere by incidental light accents. First, Philips couldn't find luminaires that were technically appropriate, thermally and electrically safe and esthetically pleasing. Their remedy was to assign the development of a whole range of fixtures to a special group which included an architect, a color specialist, an industrial designer and a fabricator. Next, Philips discovered that architect-designed sets and special photos were needed to make their story convincing to the public. Our reaction: while the photos look posed, the lighting fixtures appear appropriately conceived; handsome and functionally sound. Philips reaction: "the attractive manner in which the camera has been used is so outstanding that the demand for proper lighting is automatically linked to a cosily arranged interior and good-humored people."

## Concrete (Precast) Suggestions

Precast concrete panels are a rather common commodity these days. Sufficient time has elapsed for their advantages to be appreciated and their problems analyzed. The three most troublesome difficulties are variations in color, reduced thermal efficiency through improper design, and bulging and warping due to moisture, temperature and weathering cycles—according to Victor F. Leabu, Assistant Chief Structural Engineer for Giffels and Rossetti. In a technical paper published in the *Journal of the American Concrete Institute* (October 1959), Leabu outlines the following solutions: To minimize color variation—cement and aggregates should be consistent throughout the job; panels should be matched during erection; textured panels and surface treatments should be used to prevent monotony; exposed steel or iron inserts, edge angles, etc., should be avoided to prevent rust staining. To prevent loss of thermal efficiency—ribs and stiffeners should be kept to a minimum. To avoid unsightly cracks—panels and connecting components should be properly designed to minimize effects of bulging and warping; lateral movement should be accommodated through slip joints.

## BRI Affairs

Staff of the Building Research Institute and its committees are busily preparing for the upcoming 1960 BRI Spring Conferences to be held in New York this April. The Fall Conferences in Washington last November drew over 1000 members and visitors, including a contingent of a dozen or so Russians who wandered in and out of sessions on plastics, sandwich panels and curtain walls. Other topics on the program included new heating techniques, modular coordination, building science documentation, and international building research. Miscellany from the Conferences: Sandwich panels are being used for shells (naturally including the paraboloid family). Fossil fuel reserves are more adequate than popularly believed (construction of nuclear power plants in Europe has slowed from its earlier rapid pace). Artificial hailstones, cut from ice and shot from grenade throwers, were used by South African building researchers to find criteria for hail-resistance of roofing.

## This Month's AE Section

*TOWARD GREATER CEILING FLEXIBILITY.* pp. 220-225.  
*THE NEW LOOK OF LAMELLA ROOFS.* pp. 226-230  
*PRODUCT REPORTS,* page 231. *OFFICE LITERATURE,* page 232.  
*TIME-SAVER STANDARDS.* Asphalt Shingles, pp. 235, 237, 239.

# Toward Greater Ceiling Flexibility

*Ceiling system  
in the Union Carbide Building  
integrates lighting,  
air conditioning and sound control  
for privacy in a manner  
that allows unusual  
flexibility for location  
of office partitioning*

From the day that technology permitted the architect to design the ceiling as an indoor sky—a plane of light—he has striven, first, to conceal the apparatus, and, second, to create in the ceiling a source of light, air conditioning and sound control with unlimited flexibility. The ceiling system shown on these pages, Skidmore, Owings & Merrill believes, is the most highly integrated this firm has yet developed. It is not a luminous ceiling as conventionally known, but rather a “fixture” ceiling, since it is composed of a series of contiguous fixture units (about 70,000). In addition to its illumination function, the fixture also acts as a sound barrier above the ceiling. Fixtures are spaced in both directions by runners which outline, but do not support, them and which receive the movable partitions. One of the runners is slotted and contoured to supply conditioned air and to exhaust it.

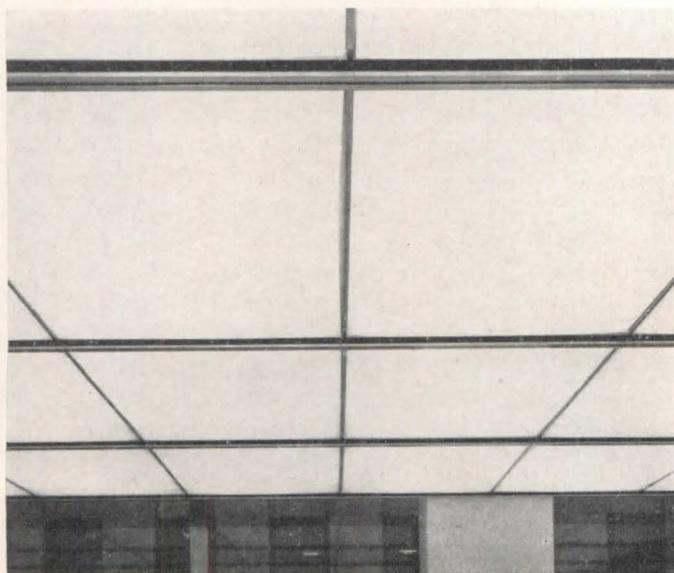
No clear evolution can be traced from previous Skidmore, Owings & Merrill ceiling systems because each had its own particular requirements. At Manufacturers' Trust Company's glass bank in New York, the luminous ceilings were divided by a grid of 8-in. flat strips with slots for diffusers and a series of small purlins in the other direction. At Connecticut General Life Insurance Company building in Hartford, which has a high ratio of open areas to partitioned spaces, the ceiling consists of a series of deep fins in an egg-crate pattern which act as blinders for the fluorescent lamps, conceal the exposed ductwork, provide sound absorption, and give a 6-ft grid, where desired, for partitioning.

In the Union Carbide Building, however, typical floors are a checkerboard of offices ranging between 10 and 15 ft on a side. The owner wanted to be able to change office layout overnight, without requiring maintenance men to climb up into the ceiling to make adjustments in the services or sound barriers.

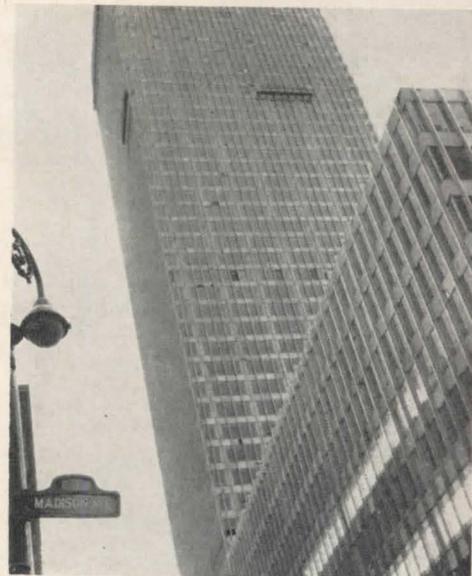
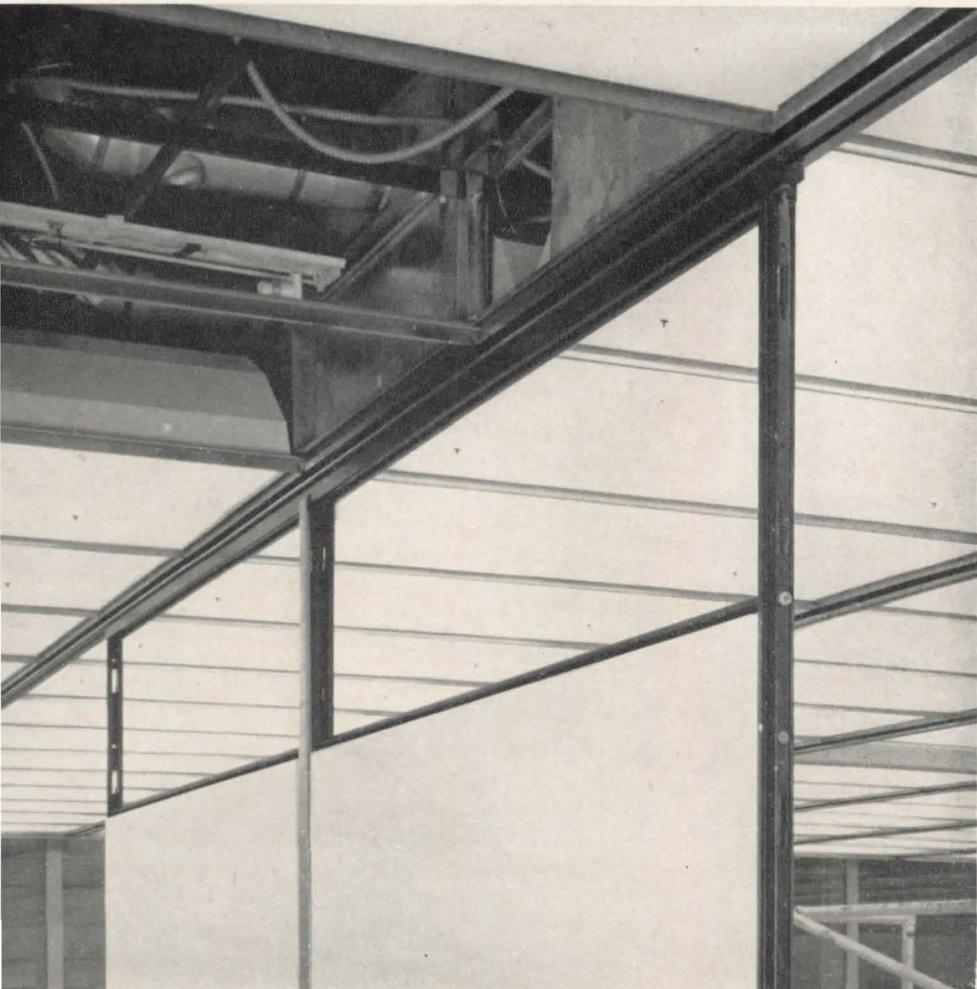
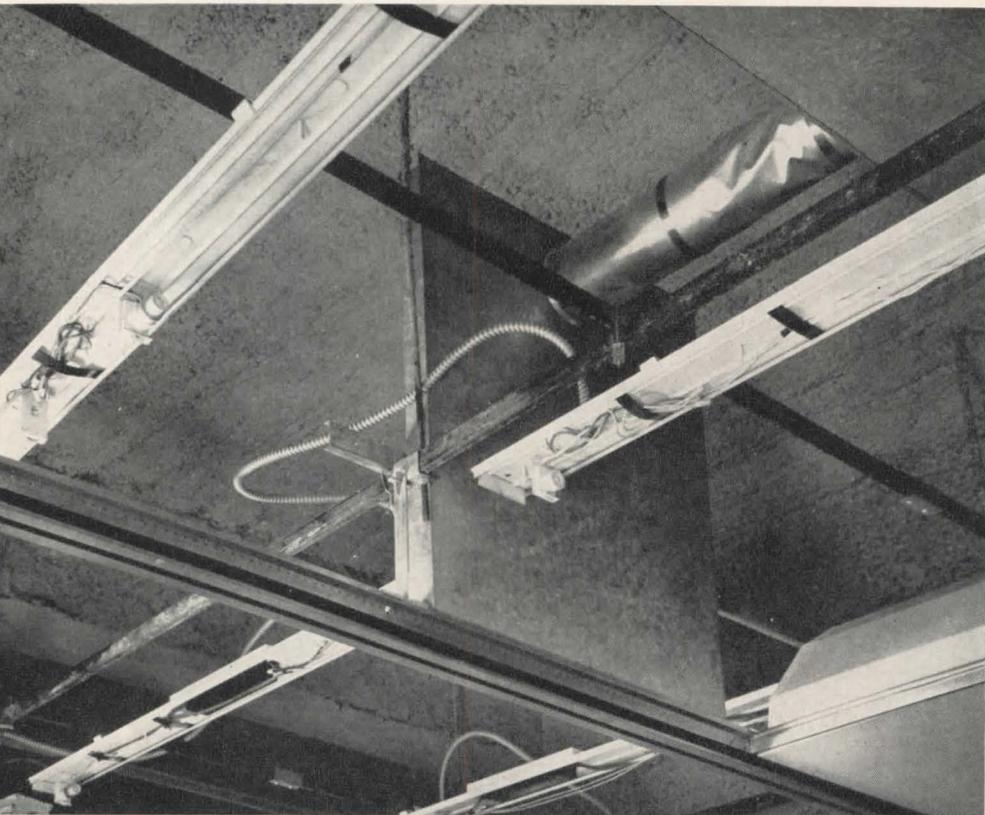
Originally a 5-ft module was established, based on column spacing and the office planning consultant's recommendation. Mock-ups of six different ceilings were built, and these included one with troffers and five with various plastic ceilings. A luminous ceiling with a flat sheet of plastic in a metal frame was favored.

Later the module was cut in half to permit interior offices to be in multiples of 2½ ft in one direction, and 5 ft in the other; corridors could be 5, 7½ or 10 ft. The 5-by-5-ft module in a luminous ceiling required three fluorescent tubes for even illumination at about 60 foot-candles, but with this module halved, a partition would have been directly under one of the tubes. The three lamps were therefore reduced to two, and it was necessary for the engineer to design a special fixture so as to get even illumination and maintain the originally intended lighting level of approximately 60 foot-candles. (It actually is nearer 80.) Additional criteria for the fixture included: construction to provide a dust-free diffuser, preclusion of sound transmission over partitions (carpet on all floors gives the needed sound absorption to control reverberation), and easy maintenance.

Development of the Union Carbide ceiling required an unusual amount of collaboration by the building team, from the engineer who designed a completely new lighting and air distribution system, to the manufacturer who used a recently developed cold-rolled forming process to make the runners from flat sheet of stainless steel.

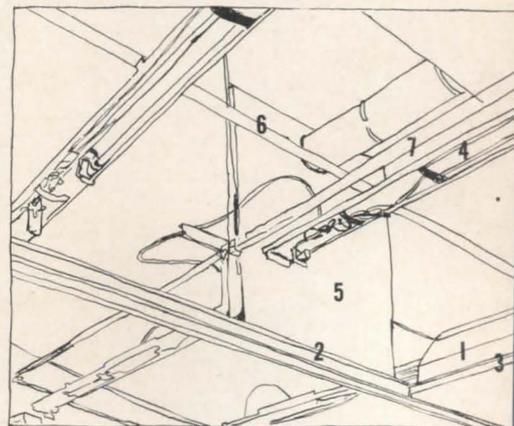


All photos Ronald Binks

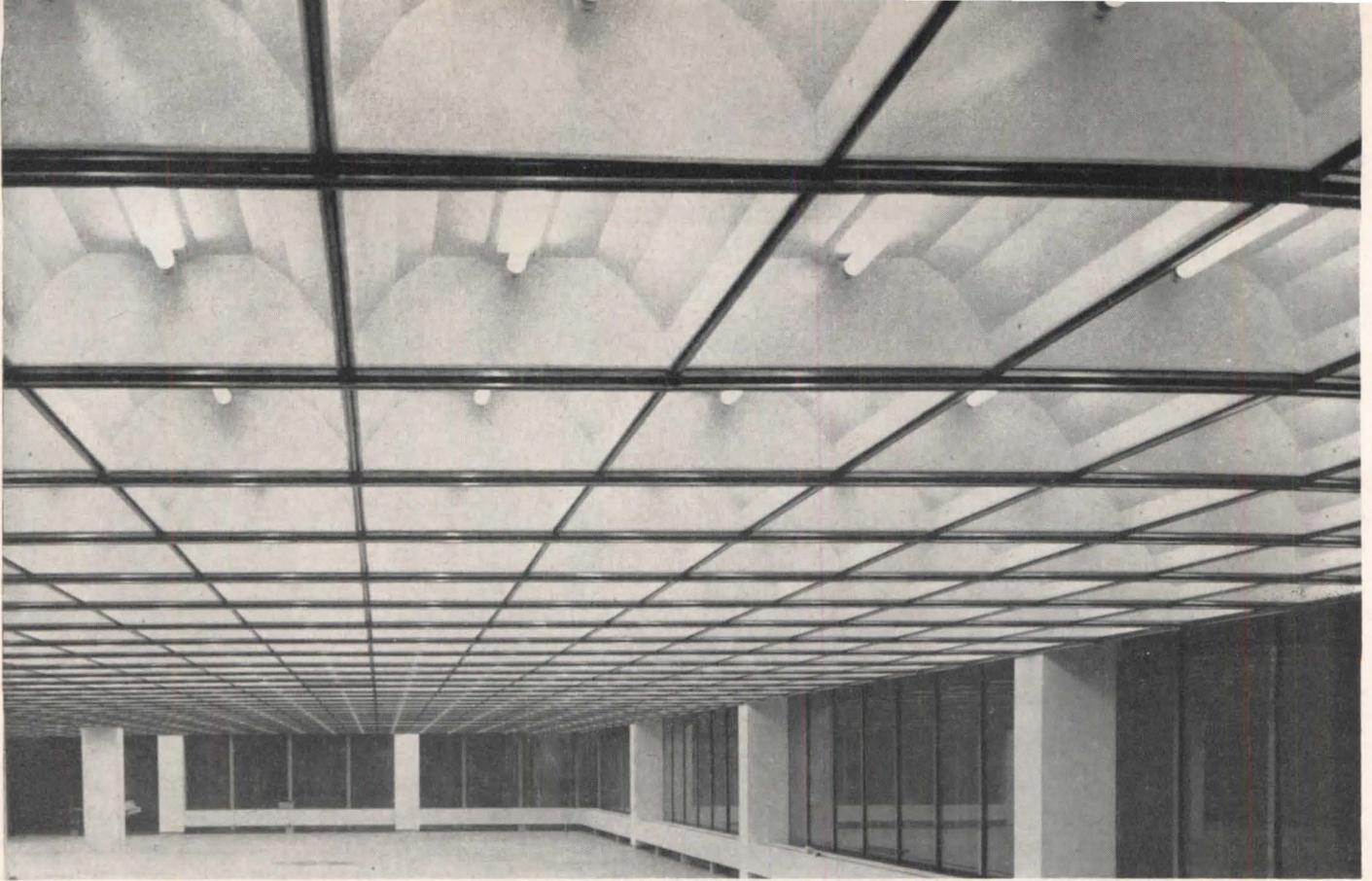


*Union Carbide Building, New York City.  
Skidmore, Owings & Merrill,  
Architects;  
Syska & Hennessy, Inc., Consulting  
Mechanical and Electrical Engineers;  
Weiskopf & Pickworth,  
Consulting Structural Engineers;  
Bolt, Beranek and Newman,  
Consultants in Acoustics;  
George A. Fuller Co., General Contractor.*

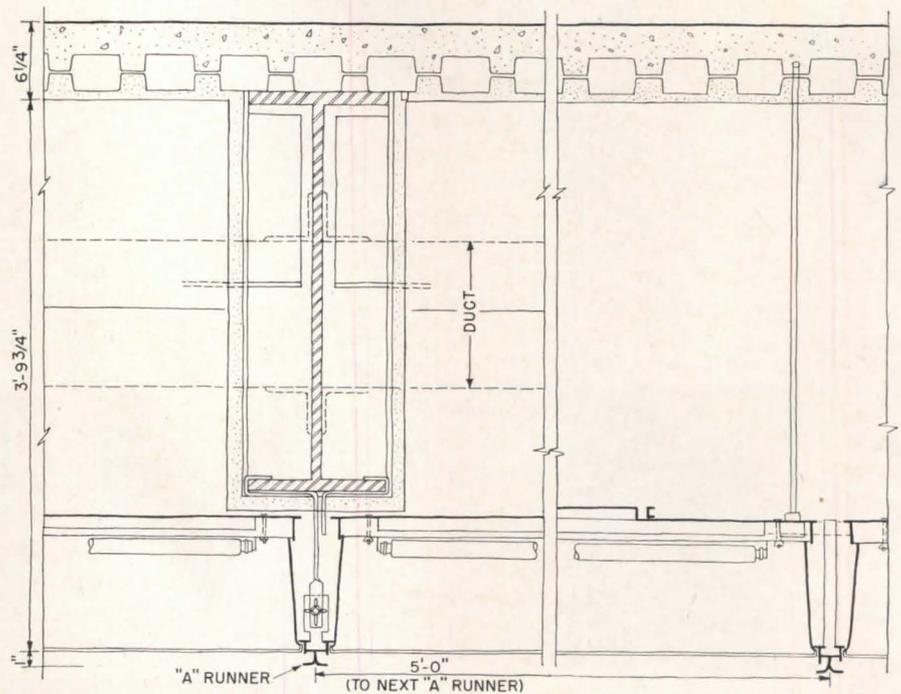
Altogether there will be over 800,000 sq ft of lighted ceilings in the 52-story tower on Park Avenue and the connecting 12-story block on Madison Avenue. Photo opposite page shows an area of finished ceiling with the illuminated vinyl plastic divided by major and minor runners of stainless steel as indicated above. Both runners can receive the metal and glass partitions. The partitions which fall under the minor runners have an adapter to fit over the runner. The major runner is contoured and slotted so as to distribute conditioned air to the space and return it. Partitions have glass at the top to permit an uninterrupted vista of the ceiling. The architect felt this to be extremely important for interior offices

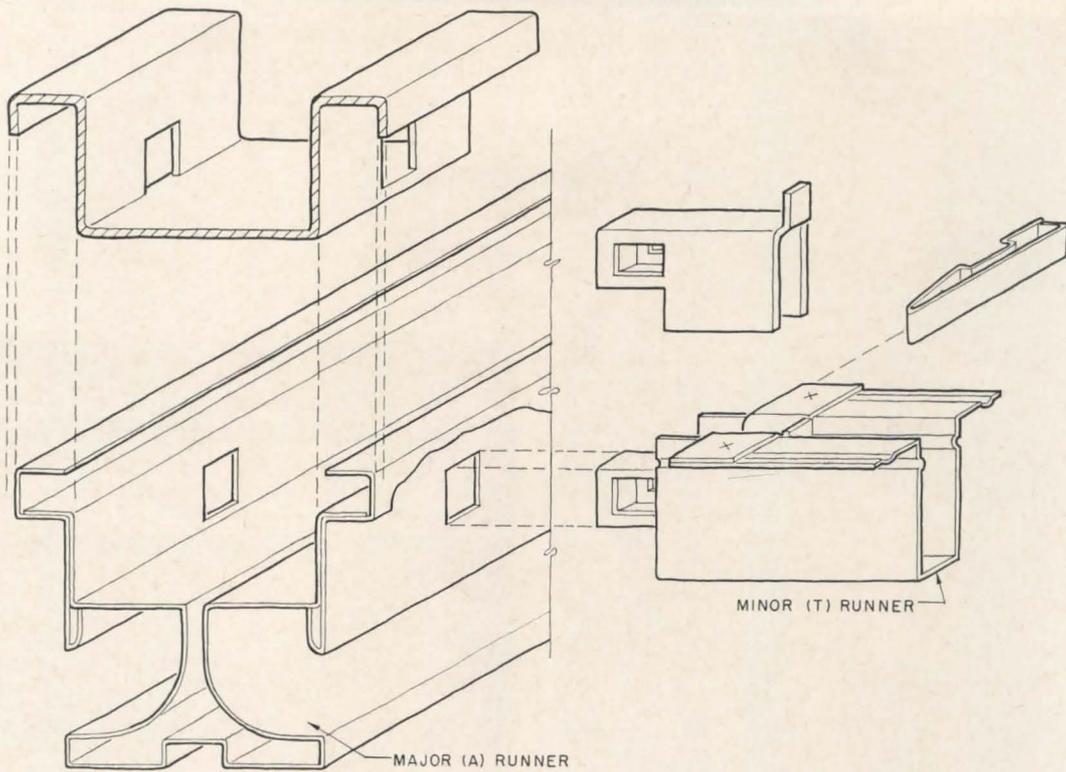


1. metal fixture reflector
2. major ("A") runner
3. minor ("T") runner
4. fixture wireway
5. air-conditioning boot
6. supporting channel for wireway
7. supporting channel for "A" runner



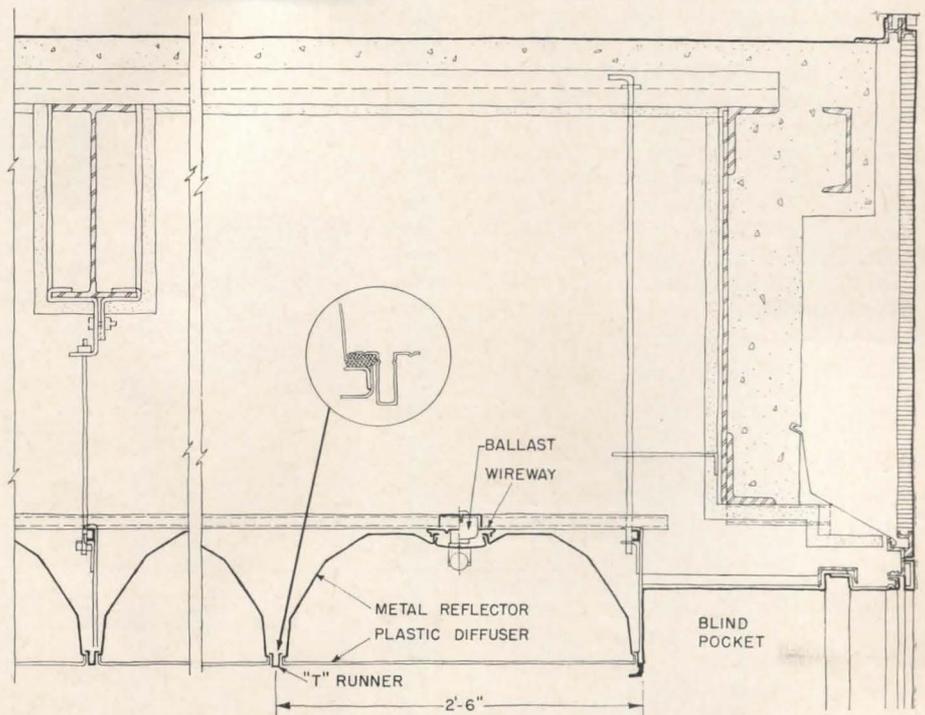
This photo shows how a large area of the ceiling will appear, even though the vinyl plastic diffusers have not yet been installed. At the top of the photo can be seen the configuration of the fixture reflector which was designed to give even illumination across the face of the light diffuser. The fixture dimensions,  $2\frac{1}{2}$  by 5 ft, are those of the module for movable partitioning. Due to the versatility of the runner-fixture system, offices can be rearranged without need for access to the ceiling

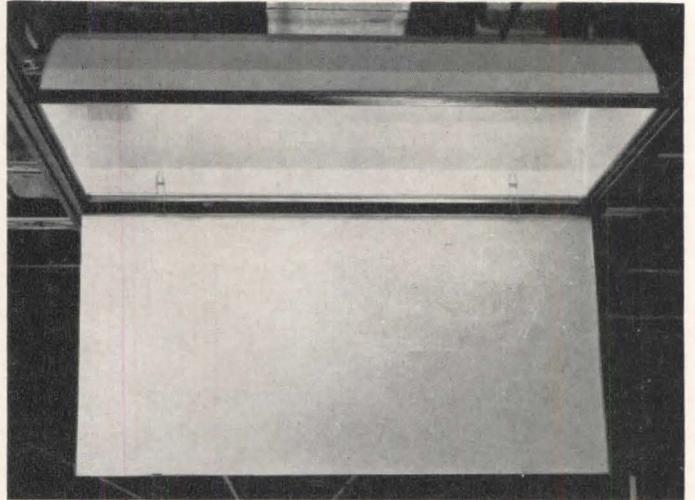
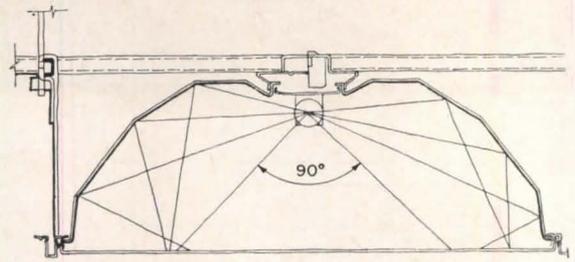
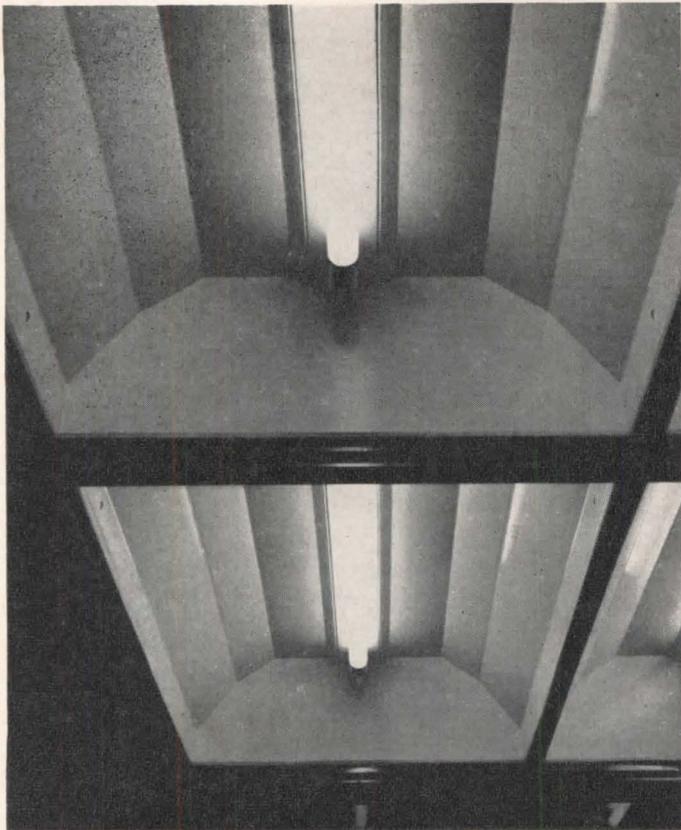




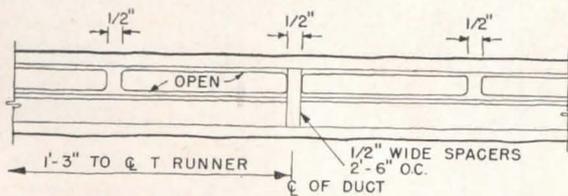
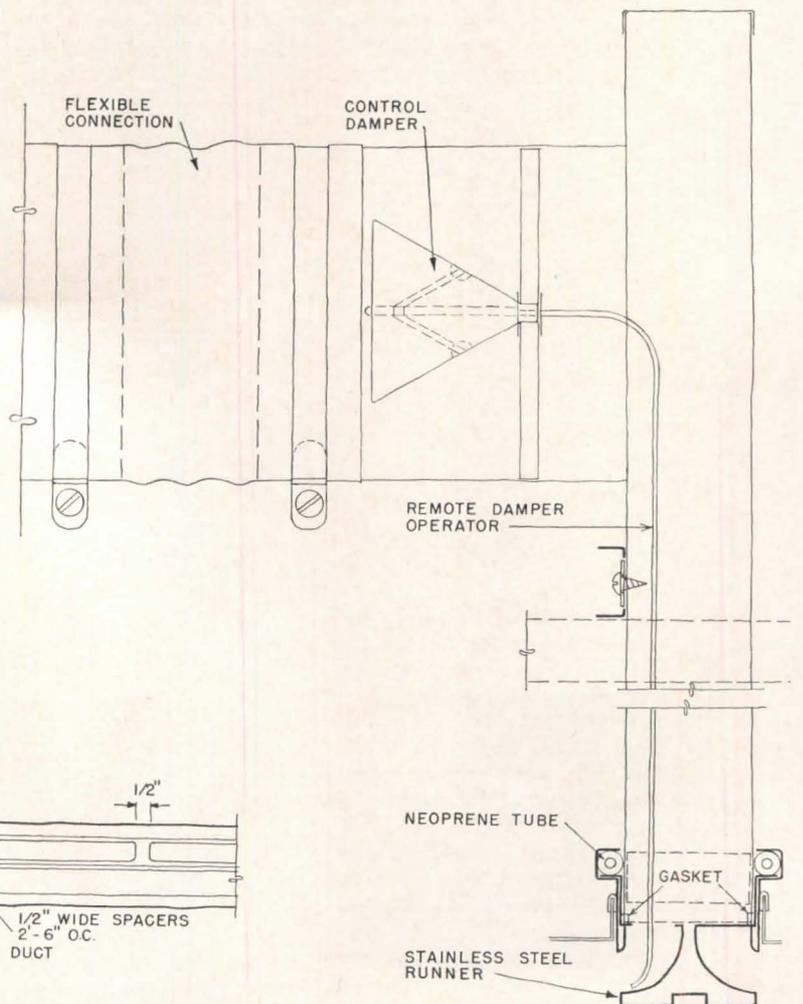
The runner system is a result of meticulous detailing and precise manufacture. Both runners are fabricated from flat stainless steel strip by cold-rolled forming. The strip is bent by a series of wheels (or dies), which produce smooth curves and knife-like edges. The curve of the major runner was empirically designed for a smooth flow of air with minimum turbulence. The folded section projecting in front of the curve limits the opening; helps to direct the air. It also conceals the supply and return slots

The "A" runners and the fixtures are independently suspended from channels. First, the fixture had to be ceiling-suspended to be classified as a surface-mounted fixture and gain building code advantages. Second, the designers didn't want to overload runners by resting lighting units on top of them. "T" runners are supported by "A" runners. The detail of the "T" runner shows a polyurethane gasket around the perimeter which makes a seal between reflector and diffuser frame, and between reflector and "T" or "A" runners. This gasket seals the fixture from dust and prevents leakage of sound from one office to another

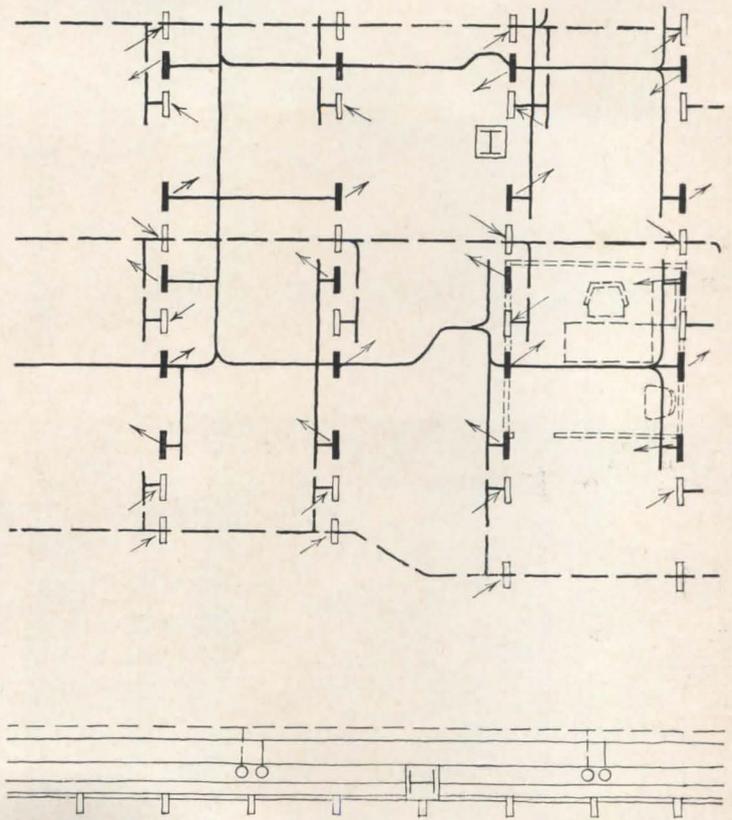
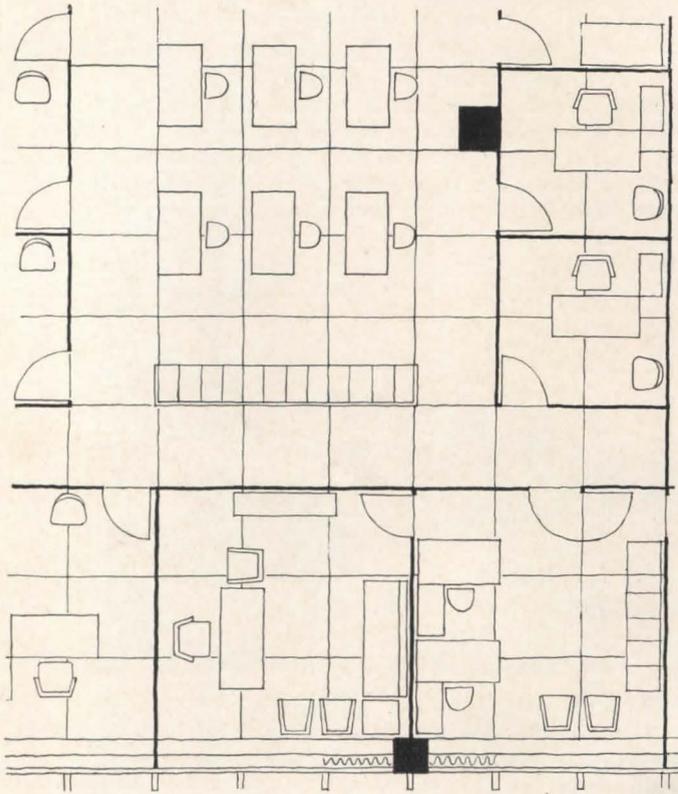




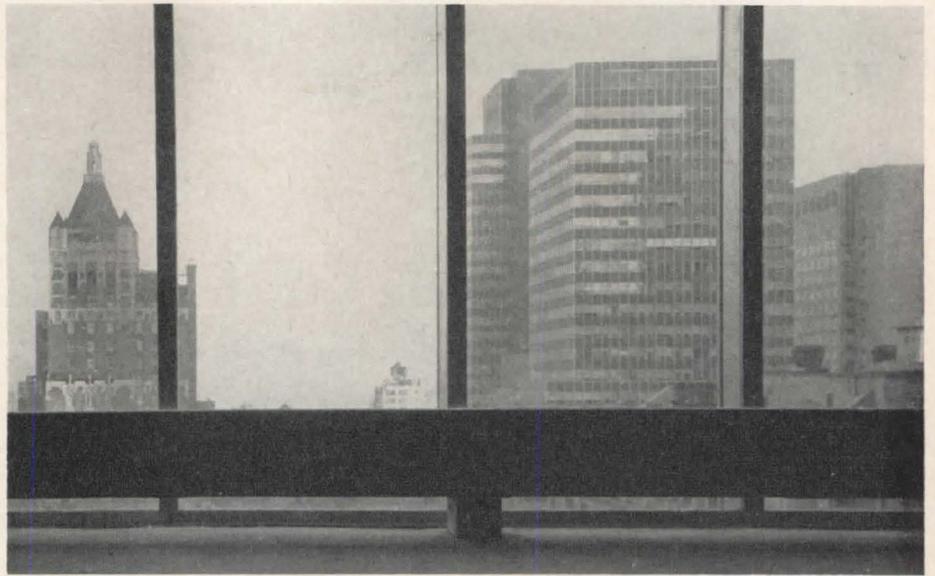
The fixture was shaped to produce even light distribution on the diffuser. The quadrant below the tube is illuminated principally by direct rays. Lines in the drawing show how reflected light is directed to outer edges of the diffuser to supplement direct light. First design was for a curved fixture, but any slight imperfections in manufacture caused streaks on the diffuser. The diffuser is attached to the reflector with four concealed "dart" hinges which look like oversized hairpins. The diffuser can be released from either side in two steps. In step one a special tool releases the bottom indented portion of the hinge from an angle clip. In step two the maintenance man reaches inside and releases the top portion of the hinge from the clip. Diffuser panels are a lamination of two .015-in. sheets of vinyl (bottom sheet matte, top sheet polished) and a .001-in. ultraviolet filter. The flanged plastic is banded with an aluminum frame



PLAN OF SLOTS



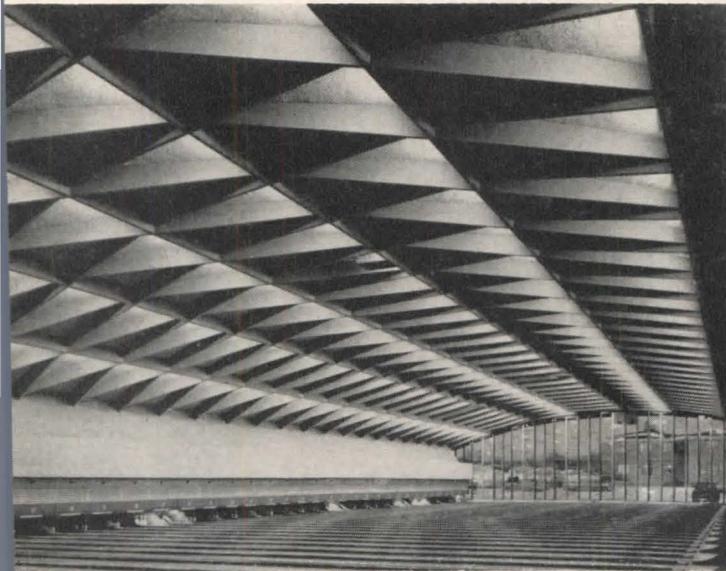
Details at left show how conditioned air is supplied to the major runner. Each supply and return has a control damper which can be operated from within the room to make adjustment to suit a particular pattern of offices and occupancy. Note in the plan of slots that they are placed on one side of the runner only. This is to prevent a short-circuit of sound from one office to the adjacent office. The runner system provides air supply up to within 15 ft of the outside wall. The remaining space is handled by a perimeter induction system (right). Perimeter system air ducts are run horizontally within the ceiling space to obviate the need for large chases at the columns. Drawings at the top of the page demonstrate the flexibility of the runner system for air conditioning. Based on the premise that the smallest office would have at least one dimension of 10 ft, the duct connections are laid out on this spacing in one direction. The other direction has a supply (black) or return (white) every 2½ ft.



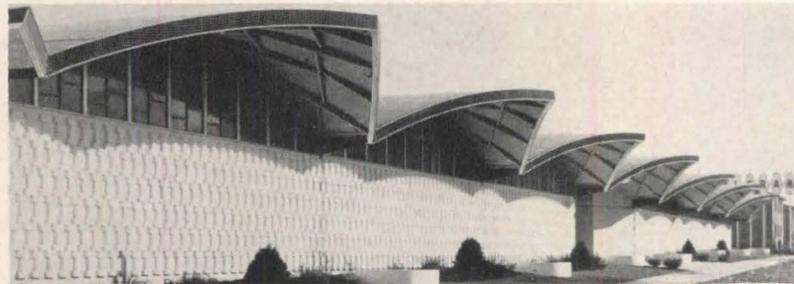


Piaget Studios

David R. Kitz



1. For the multi-purpose room of this elementary school, the architects called for ornamental short-span lamella arches between glued laminated beams 20 ft on center. Because of the short radius and short span required, the cut-off for the lamella curve became so excessive that it proved more economical to fabricate the lamellas of one-inch plywood than to use the customary short lengths of stock lumber. This also made it possible for the individual members to be curved top and bottom, using a centric joint, so that the resulting pattern of the barrels is unusually light and delicate



2. This bowling alley shows a new development in the lamella system: the projection of the gable ends of the lamella roofs, both along the side walls (above) and the end walls, along the lines of opposite skewed arches. In the small side roofs (34-ft spans), the sheathing was sufficient to take care of the longitudinal tension resulting from the skewing of the arches. However, on the large (109 ft) spans at left, the longitudinal tension is carried by tierods concealed in baffles at the joints. The light fixtures are also attached to these baffles, which act as glare shields for bowlers

## THE NEW LOOK OF LAMELLA ROOFS

by Dr. G. R. Kiewitt, Consulting Engineer, Roof Structures, Inc.

*For many years, the diamond-patterned lamella roof has been pictured in textbooks, and doubtless in most people's mind's eye, as an arch. Decorative, yes. Economical, no doubt. But still an arch, and as such limited in application. On these pages, however, a leading consultant on the lamella system presents its pros and cons, and with photos from his case-books shows that lamella arches can be varied in form—and that they need not be arches at all.*

In 1908, the Building Commissioner and City Architect of Dessau, Germany, was confronted with a task familiar to city officials (and architects) even now. Additional housing

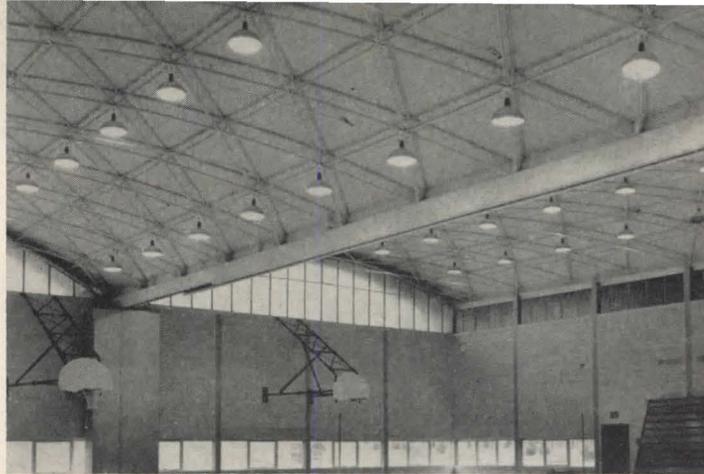
was needed; funds for new construction were not available. To compound the problem, existing houses defied expansion. Not only were their foundations inadequate to support an additional masonry wall for a third floor, but their roof construction, which consisted of high pitched trusses with purlins and rafters, precluded even the development of a livable attic.

At this point, necessity became the mother of invention, and Herr Zollinger devised the first lamella roof, an arch made up of similar, mutually supporting members arranged to form a decorative network of diamonds when viewed perpendicular to the roof surface.

Onto the existing walls went the arch. Into the crotches of its intersecting members went the ceiling joists for a new third floor. Up went the necessary housing within the city budget. And into the vocabulary of structural engineering went the lamella roof.

It was first imported to this country in 1925, and has since found ever wider use for hangars, exhibition halls, field houses, gymnasiums, auditoriums, and virtually any structure where wide clear spans are desired at relatively low cost and where a curved roof surface is more an asset than otherwise.

In its most familiar form, the lamella roof is still an arch. However,



David R. Kitz

3. This gymnasium is a further example of how the lamella roof may be adapted to achieve an architectural effect. The space is covered by twin barrels, this time of lightweight steel, supported at the center by a beam which leaves the floor unobstructed and also accommodates a folding partition

Thomas Korn



4. The parabolic cross section of the lamella roof for this small church was formed by using a short radius arch in the center section and longer radii for the sides. Since the lamella units for the very short radius would otherwise have required a considerable curved cut, this area was made just half that of the lower portions. This produced a visual division between "roof" and "walls," which was further marked by the installation of sound-absorbing insulation in the smaller ceiling panels

the system has also been used to construct spherical domes, parabolas, sections of cones, and hyperbolic paraboloids, and may theoretically be used to form almost any geometric surface.

Whatever its shape, the efficiency of the lamella roof stems largely from the fact that it takes full advantage of the triangle for stability in the pattern surface. The lamellas themselves are relatively short wood or steel members of uniform length, bolted or welded together at an angle so that each is intersected by two similar adjacent members at its mid-point. When the interlocking diamonds thus formed are triangulated by the decking or by purlins,

the stability requirements of the structure in the plane of the surface are complete.

Stress functions perpendicular to the plane of the surface are carried through the action of the lamella units as beam columns under combined axial and bending stresses. For this reason, the lamellas are oriented with their deeper section perpendicular to the surface of the structure.

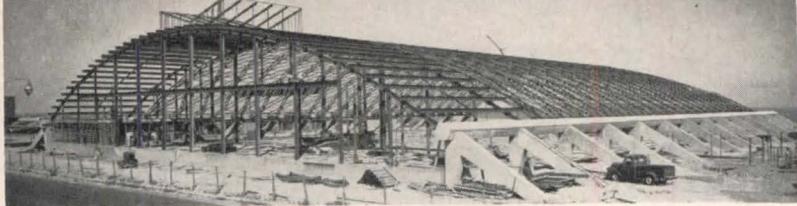
As might be expected, the system is most efficient in compression. Since the lamellas brace each other at frequent intervals, concentrated or live loads are rapidly dispersed through the network of intersecting diamonds, so that loads seldom, if

ever, depend on one or two members for support, but are supported mutually by many members. Thus, if a few members fail because of fire, earthquake or excessive wind loading, adjacent lamellas assume the additional load and collapse is prevented. During the tornado in St. Louis last spring, for example, the twister scored a direct hit on the St. Louis Arena. A small segment of its lamella roof was ripped out and had to be replaced, but the rest of the roof was unscathed.

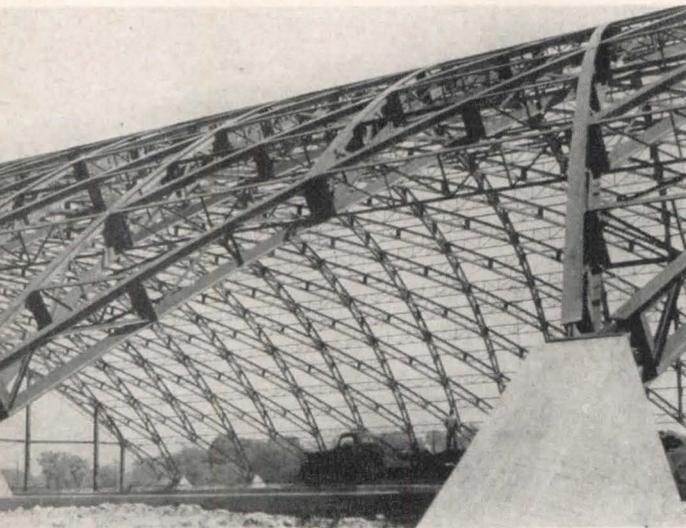
Moreover, since the singly or doubly curved surfaces of lamella structures maintain the neutral axis of the structure near the pressure line of the loads applied,



Sammy Gold



5. The 224-ft steel span for this civic auditorium was buttressed in the conventional way, using concrete struts between them. The use of intermediate purlins permitted the steel deck to be run across the arch, forming a true curve which was highlighted by painting the undersides of the lamellas in a bright coral that contrast vividly with the brownish-gray painted decking



G. R. Kiewitt



6. Though similar to the conventionally buttressed auditorium shown above, this exhibition hall represents an advance over it in that the need for buttress-type supports was eliminated by pulling the lamella barrel down almost to grade level and scalloping the frame between the low concrete piers. This proved to be doubly advantageous since the considerable reduction in the size of the buttresses cut expenses while the scalloping produced a pleasing esthetic effect

7. The same buttressing system used for the exhibition hall above was repeated for the gymnasium shown here, although the span was increased to 252 ft. There were also other refinements, notably the emphasis of the scallops by building up sculptured "eyebrows" along their sides. The shape of the longer, lower abutments and of the eyebrows was established through collaboration with sculptor Hillis Arnold of St. Louis



Piaget Studios

the predominant stresses are axial rather than bending stresses. This eliminates a mechanical disadvantage common to the straight prismatic beam or truss, and, combined with the interdependence of the individual lamella units, makes possible maximum efficiency in the use of material.

This material has traditionally been wood, and wood is still the predominant construction material for lamella roofs, but the recent trend toward longer spans has made the use of standard steel shapes increasingly important. Concrete has also been used, especially in Italy where Pier Luigi Nervi built two lamella-

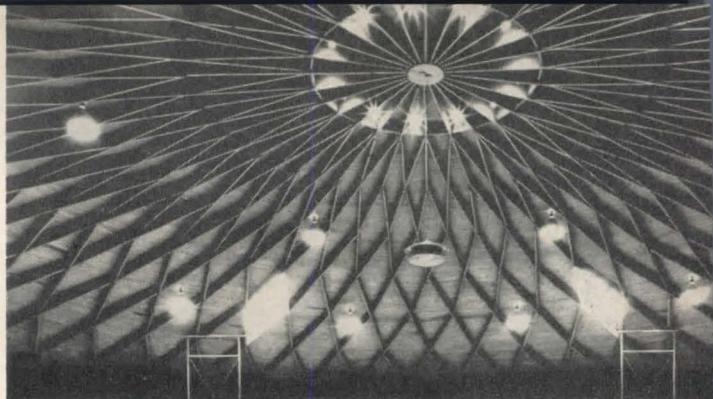
type hangars, one of poured-in-place concrete (1938) and one of precast concrete (1943). However, in the United States, concrete has so far been avoided for lamella roofs because of the high cost of the formwork involved.

In this country, development of lamella roofs has moved principally in the direction of applying the system to special shapes and improving conventional methods of support. Since lamella structures are, in effect, a series of intersecting diagonal arches, they exert a horizontal thrust which must be distributed to, and resisted by, thrust supports such as buttresses or tie rods.

The arch action of lamella structures also gives rise to other factors which must be considered in their design. To begin with, lamella arches, like all arches, are very sensitive to unsymmetrical loads. Some—wind and snow, for example—are natural and thus unavoidable, but imposed loads like those from mechanical equipment and hanging accessories can and should be located symmetrically if the arch is to perform efficiently. Uneven spring lines, which have basically the same effect as unsymmetrical loads, should also be avoided.

In addition, the lamella roof system is not easily adaptable to rapid

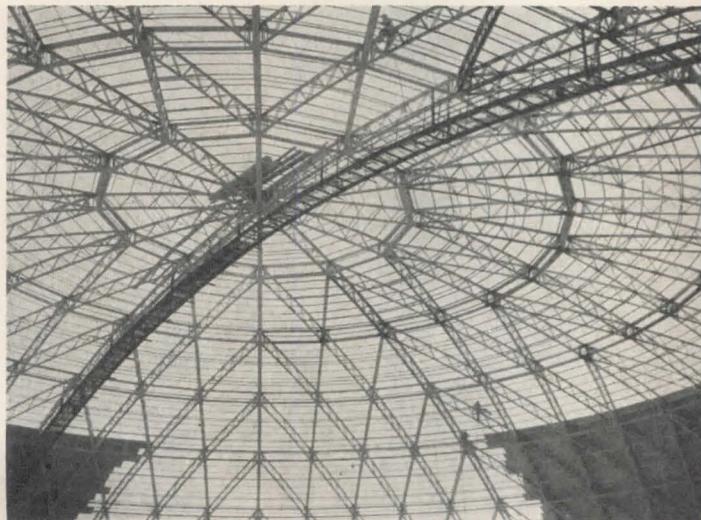
8. The roof of this community center is a conventional lamella pattern dome, which requires the same number of members in each concentric band. Since this crowds the members near the crown, with a resulting increase in dead weight in this area, the section of the lamella units was gradually decreased from 4 by 16 in. at the sill to 2¼ by 12 in. in the crown band. Similarly, the thickness of the sheathing membrane was reduced from two inches at the base to one inch over the crown



*Les Cooper*



*Rohrbaugh & Millsap*



9. The initial design for the fieldhouse dome shown above left employed three-hinged radial arches acting as load bearing ribs of a multi-sectored, spherical lamella roof. However, the designers soon noted a marked increase in dead weight toward the crown and, to maintain an even dead load distribution, instead divided the dome into twelve pie-shaped sectors with the lamella arches running parallel to the sector arches. This made the lamella size and spacing uniform throughout, and when the dome was analyzed as a pierced shell, resulted in a very lightweight structure. 10. Maintaining uniform lengths for the lamella units did not however permit the purlins to form a pleasing pattern of concentric rings, so this was remedied on subsequent domes. In the one shown above right, the bulb tees are also concentrically arranged and serve as stiffeners for the top chords. This lamella pattern, which has since been patented, has also been used for domes with fewer sectors, as well as for wood domes

changes in curvature except at points of support. If such changes are made, they cause high bending moment concentrations which substantially reduce the structure's efficiency.

In basically compressive structures like lamella roofs, the degree of curvature itself must be related to deformation in order to prevent buckling. If the point deformation becomes too large secondary stresses become excessive, bringing with them serious problems. These stresses can, however, be minimized by determining limiting curvatures—in the case of lamella arches and domes, a minimum rise to span ratio of about 1 to 7½.

In general, the circular segments used in the lamella system closely follow the parabola which represents the pressure line of a uniformly distributed load placed on an arch. The higher the rise required, the greater the deviation from this parabolic stress pattern, and the less efficient the structure. A rise to span ratio of 1 to 2 is still in the realm of practicality, but lower ratios are to be preferred.

Assuming that these requirements are considered in the design, the lamella system is competitive with more conventional framing methods for spans ranging from 40 to 1200 ft or even more. This is due not

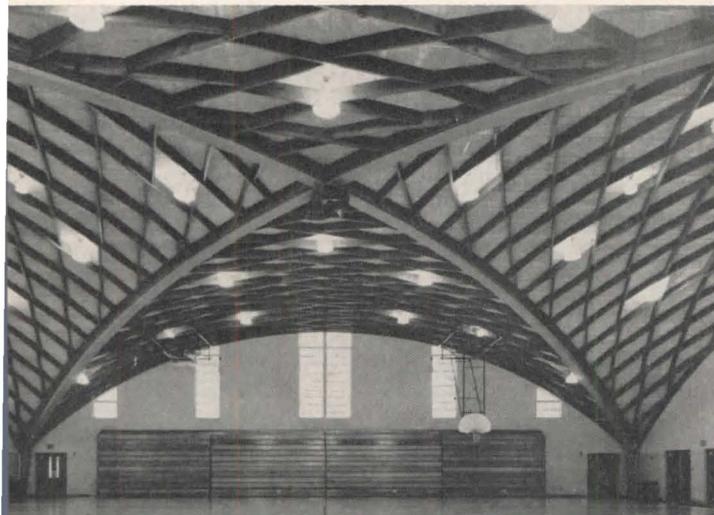
only to the economy inherent in its efficient use of material, but also to the ease with which the lamellas can be fabricated and erected. Obviously, the high degree of repetition means that low cost mass production techniques can readily be adapted to lamella fabrication. But field erection is also quickly and easily accomplished, with a minimum of scaffolding.

Lamella arches, for example, are usually erected a bay at a time from a movable scaffold as wide as the roof. After the sill beams or spacers which distribute the horizontal thrust to the supports have been placed, the lamella network is simply

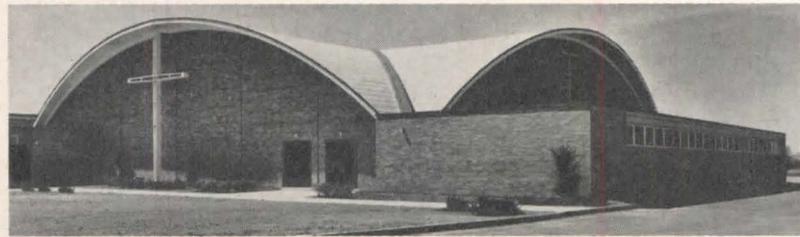


Calberne Studios

11. The lamella roof of this amphitheater was designed to conform to a cone sector, with the number of lamella joints across the arch, and the angle of intersecting lamellas, remaining constant throughout the length of the roof. This was done by decreasing both the long and short axes of each successive diamond, and inclining the lamella faces in relation to the cone axis so that the stage roof reflects sound to every part of the amphitheater



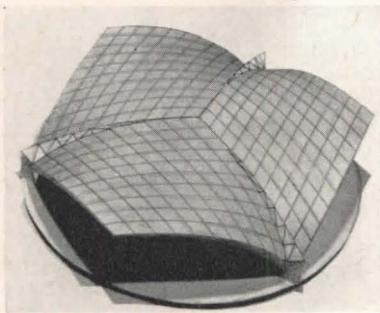
Benyas-Kaufman



12. When the stress distribution for this groined roof was worked out, all loads from the lamella roof surfaces were channeled into the groin arches. As a result, the arches had to be extremely large, and, in addition, all lamellas adjacent to the groin had to be field cut and fitted. From this experience evolved the idea of using for such a roof four symmetrical diamond-shaped lamella sectors combined with edge beams so that each would become a self-supporting arch structure. If an enclosed angle of 60 degrees were used for the lamellas, together with a joint, all units for such sectors would be identical and could be shop fabricated.

Piaget Studios

At left are shown two further proposals based on the same idea, both using triangular lamella roof sectors with the same enclosed angle as the intersecting lamellas. In the first, starting with a square building, there is a wide star-shaped opening between the four triangular units. This would lend itself to a structural connecting frame to be used for skylighting, admitting daylight at the points farthest from the windows. In the second scheme, the triangular sectors are joined at the apex, with the roof crests horizontal. Due to the curvature of the sectors, their edges move apart between the points of intersection so that the edge beams could be developed as curved tapering trusses with a common top chord and with inclined faces which could be glazed or enclosed with louvers for light or ventilation



woven from the sill up, from both sides, until it meets in the center. Spacer boards are then placed over the joints to prevent the network's spreading while successive bays are erected, and the scaffold is moved into the next bay, where the process is repeated.

Joints are simply made by the use of bolts and plates. Wood lamella structures use a thrust and shear connection, while steel structures use a moment, thrust and shear connection made by erection bolts and field welding or by high strength bolts. In either case, the entire structure may, if necessary, be dismantled and re-erected at another site.

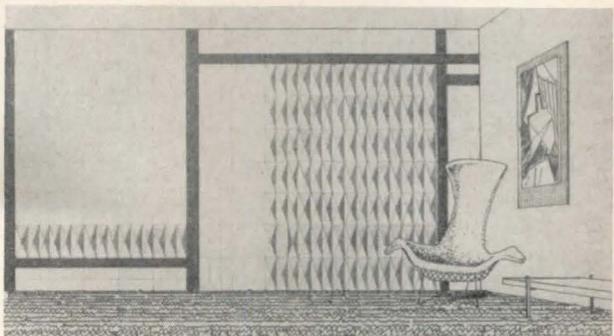
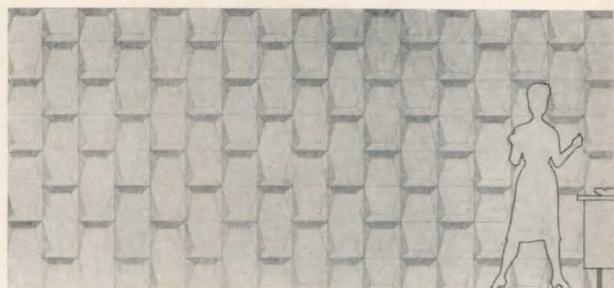
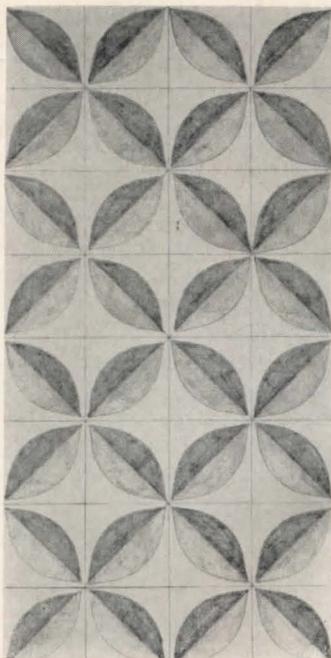
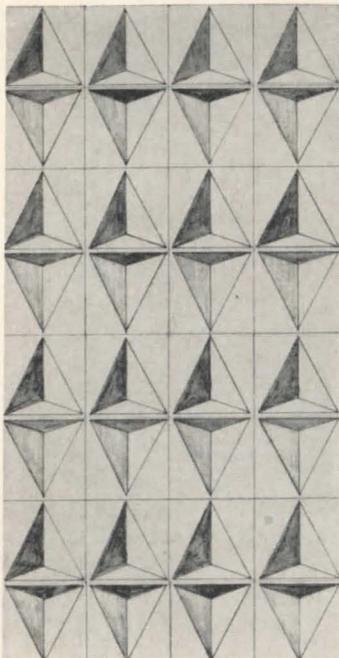
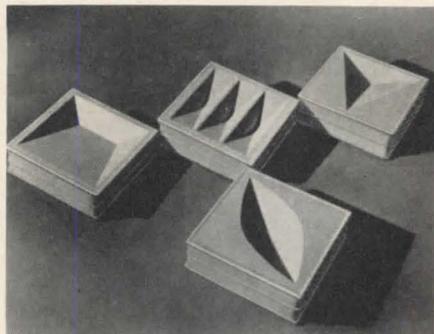
LIST OF ILLUSTRATIONS, Pages 238 to 242

- 1—Warson Woods Elementary School, Webster Groves, Missouri. Architects: Hellmuth, Obata & Kassabaum; Caudill, Rowlett & Scott, Associated.
- 2—Bowlerama, Detroit, Michigan. Architects: Hawthorne & Schmiedecke
- 3—Bloomfield Hills Junior High School, Bloomfield, Michigan. Architects: Smith, Tarapata, MacMahon, Inc.
- 4—St. Mary's Church, Joplin, Missouri. Architects: George Barnett; G. R. Kiewitt, Associated
- 5—Civic Auditorium, Corpus Christi, Texas. Architect: Richard S. Colley
- 6—Fruit and Features Building, National Orange Show, San Bernardino, California. Architect: Harwell H. Harris and Jerome Armstrong
- 7—Ladue Junior High School, St. Louis County, Missouri. Architects: Murphy & Mackey
- 8—Pine Hill Community Center, Memphis, Tennessee. Architects: Mann, Harrover & Williams
- 9—Fieldhouse, University of Wichita, Wichita, Kansas. Architects: McVay, Peddie, Schmidt & Stone
- 10—Brown County Veterans Memorial Arena, Green Bay, Wisconsin. Architect: John Somerville
- 11—Sidney and Phyllis Allen Amphitheater, Camp Tamarack, Ortonville, Michigan. Architect: Louis Redstone
- 12—South Side Lutheran High School, St. Louis, Missouri. Architect: William B. Ittner

## Sculptured Block Adds Texture to Glass Walls

Sculptured glass units with concave three-dimensional surfaces are the latest in a series of "glamour" glass blocks aimed at the curtain wall market. The 12-in.-sq *Sculptured Glass Module* is said to combine the architectural appeal of texture and color with the advantages of light transmission, high thermal and sound insulating value, and simplified instal-

lation and maintenance. Its principal cost advantage stems from the use of stock units to form a finished wall that can be installed by one trade in one operation. The four patterns shown here are available in clear glass or twelve fired-on ceramic colors. *Pittsburgh Corning Corporation, One Gateway Center, Pittsburgh 22, Pa.*



## Pre-Coordinated Electronics Equipment Simplifies Lab Planning

With the new emphasis on technical education in secondary schools, architects will welcome a ready-made electronics laboratory that coordinates in "task area" work benches like the one shown below all the equipment necessary for instruction and individual laboratory work in electronics. Standard instrumenta-

tion at each task area includes an oscilloscope, wave and signal generators, and metering devices, all fed by a multiple supply unit that the instructor regulates to deliver low or high voltages in direct or alternating current. Once this central power supply and adequate service wiring have been provided, more task areas

and supplementary equipment can be added as needed to serve curriculums ranging from a terminal vocational course in electronics to pre-college instruction in advanced physics. *Labpower Div., Associated Products & Service Co., Inc., 272 West Ave., Long Branch, N. J.*

*more products on page 240*



Left: Student benches include equipment needed for carrying out experiments and building model circuits. Below: Typical lab layout ranges task areas around central power unit at right



**A New Concept in Partitions**

. . . and *Movable Interiors* (A.I.A. 35-H-6) describes the *ColorLine* system of movable interior partitions, with typical partition sections, inter-sectional and framing details, door details and footnotes, and specifications. Catalog 903, 8 pp. *Unistrut Products Co., 933 W. Washington Blvd., Chicago 7, Ill.\**

**Specification Manual**

(A.I.A. 19-E-9) Covers the physical characteristics of Northern hard maple, beech and birch hardwood flooring, thicknesses and face widths available, uses of the different grades, suggested specifications for strip and block flooring, and directions for laying and water-proofing. 8 pp. *Maple Flooring Manufacturers Assn., 35 E. Wacker Dr., Chicago 1, Ill.\**

**Capri Mosaic Tile**

Describes, illustrates and gives directions for specifying a complete line of imported textured ceramic mosaic tile. 4 pp. *Standard Tile Co., Inc., 854 Rockaway Ave., Brooklyn 12, N. Y.\**

**The Balanced Door (A.I.A. 16-E)**

Describes, and gives installation photos, specifications and details for "balanced" entrance and vestibule doors. 12 pp. *Ellison Bronze Co., Inc., Jamestown, N. Y.\**

**Lock and Escutcheon Catalog**

Features full-color illustrations, cut-away diagrams and technical specifications on complete line of locks and escutcheons. *Challenger Lock Co., Inc., 2349 W. La Palma Ave., Anaheim, Calif.\**

**Cincinnati Time Systems**

Describes centralized, self-regulating master time and program signaling systems, with data on controls and secondary indicating clocks for both minute impulse and wired synchronous systems, as well as audible signaling equipment. Typical specifications and system diagrams are included. 20 pp. *Cincinnati Time Recorder Co., 1733 Central Ave., Cincinnati 14, Ohio*

**Terne Roofing Specifications**

(A.I.A. 12-C-1) File folder contains specifications and other pertinent data on seamless terne metal roofing. *Follansbee Steel Corp., Follansbee, W. Va.\**

**Spontaneous Combustion**

. . . and *Its Early Detection*, written by A. S. Radford for the English magazine, *Paint Technology*, examines the phenomenon of spontaneous combustion, and discusses its detection by a device marketed in this country under the trade-name *Pyra-Larm*. 8 pp. *Pyrotronics, P. O. 390, Newark 1, N. J.*

**Saxe Manual**

. . . *For Structural Welding Practice*, Fifth Edition, incorporates data covering the theory, engineering and detailing of economical welded joints with *Saxe* connection units. 60 pp. *J. H. Williams and Co., Buffalo 7, N. Y.*

**Office Equipment (A.I.A. 35-H)**

Catalogs complete line of steel office equipment, from desks to duplicators. 80 pp. *Cole Steel Equipment Co., Inc., 415 Madison Ave., New York 17, N. Y.*

**Masonry Anchoring Handbook**

Offers a complete source of information on masonry anchoring, including tables that show the proper anchors to be used with each type of fixture and material, and dimensions and specifications for each type of anchor and drill. 48 pp. *Rawlplug Co., 244 Petersville Rd., New Rochelle, N. Y.*

**"Photo Tile" File**

Includes true-color, true-size photo reproductions of tiles in Pomona's "Distinguished Designer Series." The name of the design, the catalog number, and other available sizes, colors and glazes are printed on the back of each. *Pomona Tile Mfg. Co., 629 N. La Brea Ave., Los Angeles 36, Calif.\**

**Vartung Paints and Varnishes**

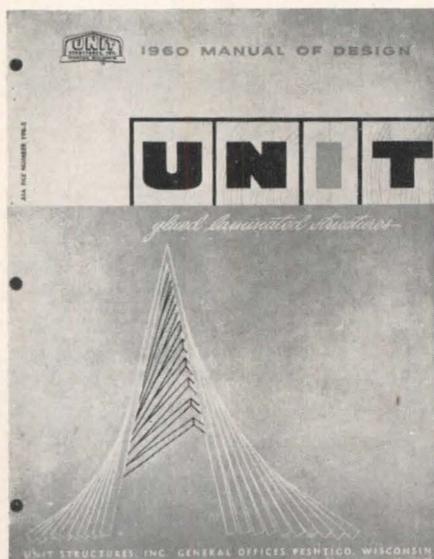
Gives descriptions of tung oil paints and varnishes recommended for a wide variety of interior and exterior applications. 4 pp. *Crosby Forest Products Co., Picayune, Miss.*

**Architectural Details**

. . . and *Specifications* gives pertinent detail drawings, specifications and accessories for Mitchell steel buildings. 8 pp. *Mitchell Engineering Co., Columbus, Miss.\**

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

*more literature on page 310*



The *Unit 1960 MANUAL OF DESIGN* provides detailed information and design data on various types of glued laminated wood structural members. Included are arch and beam connection details, comprehensive roof beam design charts, specifications for glued laminated construction, a color chart for stain finishes, details and specifications on structural roof decking, and other factual information. *Advertising Dept., Unit Structures, Inc., Peshigo, Wis.*

**ASPHALT STRIP SHINGLES: 1—Resistance to Wind and Wind-Driven Rain**

by Howard P. Vermilya, A.I.A.

New materials and methods of application offer solutions to former difficulties with asphalt shingle roofs caused by high winds and low-sloped roofs. High winds could lift tabs and permit wind-driven water to penetrate the roof. If winds were strong enough, they could rip off the tabs. Previously the industry-recommended minimum roof slope for asphalt shingles was 4 in 12, because lower roof slopes also were susceptible to wind-driven rain penetration. Now, however, the industry recommends the use of asphalt shingles for slopes as low as 2 in 12.

This was made possible through the technique of cementing the shingle tabs with a quick-setting adhesive as they are laid. More recently new products have been introduced to achieve the same result and these include:

1. A factory-applied self-sealing adhesive which is activated after application by pressure and/or solar heat.
2. Interlocking tabs (square butt strip shingle).
3. Increased size and weight. Self-sealing shingles should be fastened down with metal clips. The increase in stiffness in the tabs of the heavier strip shingles plus increase in size, where it results in triple coverage, also decrease the hazard resulting from high winds and low roof slopes.

**APPLICATION**

1. The standard 210-lb, 12-by-36-in. square butt strip shingle providing double coverage at exposure of 5 in. is applied as follows:

ROOF PITCH	UNDERLAYMENT
a. 7 or more in 12	none
b. 4 thru 6 in 12	single layer
c. 2 thru 3 in 12	double layer*

2. The heavy 300 lb, 15-by-36-in. square butt strip shingle providing triple coverage at exposure of 5 in. is applied as follows:

ROOF PITCH	UNDERLAYMENT
a. 4 or more in 12	none
b. 3 in 12	single layer
c. 2 in 12	double layer

● Single layer of No. 15 asphalt saturated felt underlayment is applied with a 2-in. headlap and a 6-in. endlap.

● Double layer of underlayment is applied with a 19-in. headlap and a 6-in. endlap.

● Starter course of shingles shall be doubled and project about 3/8 to 1/2 in.

● Eaves flashing (Where design temperature is 25 F or colder):

1. Provide double layer of underlayment extending back from eaves to a line 24 in. inside the inner face of exterior wall, and

2. Where roof slope is less than 4 in 12, seal lap of double underlay with continuous layer of asphalt cement.

\* Cement tabs of strip shingles, use self-sealing strip shingle, or use lock tab type shingle.

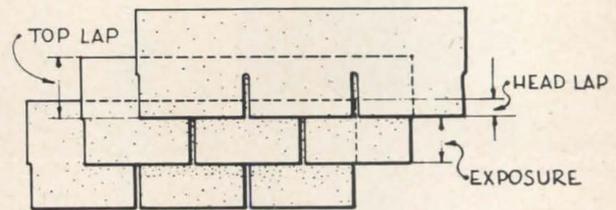


Fig. 1 TERMS relating to lapping of shingles

● Roofing nails should be corrosion resistant with deformed shanks made from 11 or 12 gauge wire with at least a 3/8-in. head. The nail should penetrate the roof deck at least 1 in. At least four and preferably six nails should be used in each strip. Special fasteners may be used if recommended.

**TERMINOLOGY**

**Weight** Approximate shipping weight per square.

**Square of roofing** Amount of roofing which, when applied at the usual exposure, will cover 100 sq ft of roof surface.

**End or Side Lap** Shortest distance in inches by which horizontally adjacent roofing elements overlap each other.

**Headlap** Distance from the lower edge of an overlapping shingle to the upper edge of the one in the second course below.

**Exposure** Distance between exposed edges of overlapping shingles.

**Coverage** Number of layers of shingle covering a given area, usually double or triple for strip shingles. Cutouts less than 3/4 in. are ignored.

**Saturated Felts** Used for underlayment. No. 15 weighing approximately 15 lb is recommended.

**Plastic Asphalt Cement** Usually used as part of a flashing assembly where roof meets a wall, chimney or other vertical surface.

**Lap Cement** Usually used where one sheet overlaps another.

**Quick-Setting Adhesive Cement** Adhesive of either brush, trowel or gun consistency, is usually used for sealing tabs of strip shingles or for sealing laps of roll roofing.

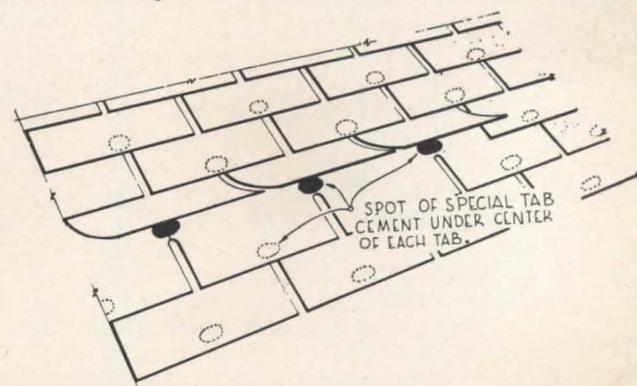


Fig. 2 CEMENTING of shingle tabs is used for low-slope roofs and for roofs in windy areas



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Canada Dry Corp., Waltham, Mass.



Raytheon Company, Bedford, Mass.



Wirthmore Feeds Inc., Waltham, Mass.



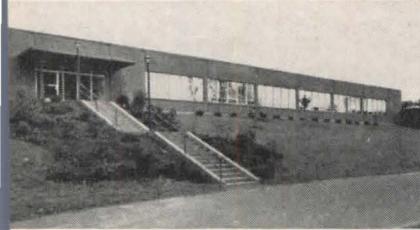
Plywood Corp., Needham Heights, Mass.



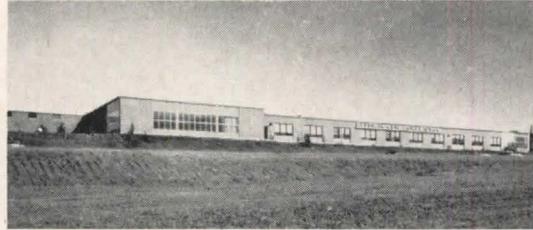
H. A. Whittemore & Co., Needham Heights, Mass.



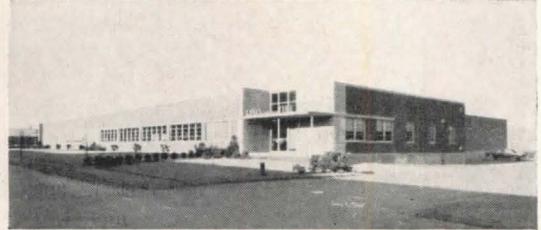
B. F. Goodrich Co., Needham, Mass.



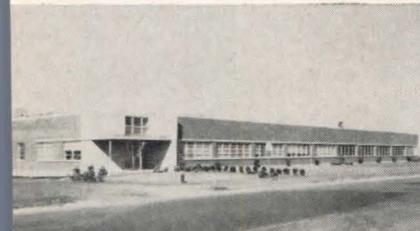
Houghton Mifflin, Burlington, Mass.



Baldwin - Lima - Hamilton, Waltham, Mass.



Kelley-Springfield Tire Co., Needham, Mass.



Radio Corp. of America, Needham, Mass.



American Motors, Needham, Mass.



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For information about Grinnell Automatic Sprinkler Protection, write Grinnell Company, Providence 1, R.I.

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**ASPHALT STRIP SHINGLES: 2—General Application Procedures**

by Howard P. Vermilya, A.I.A.

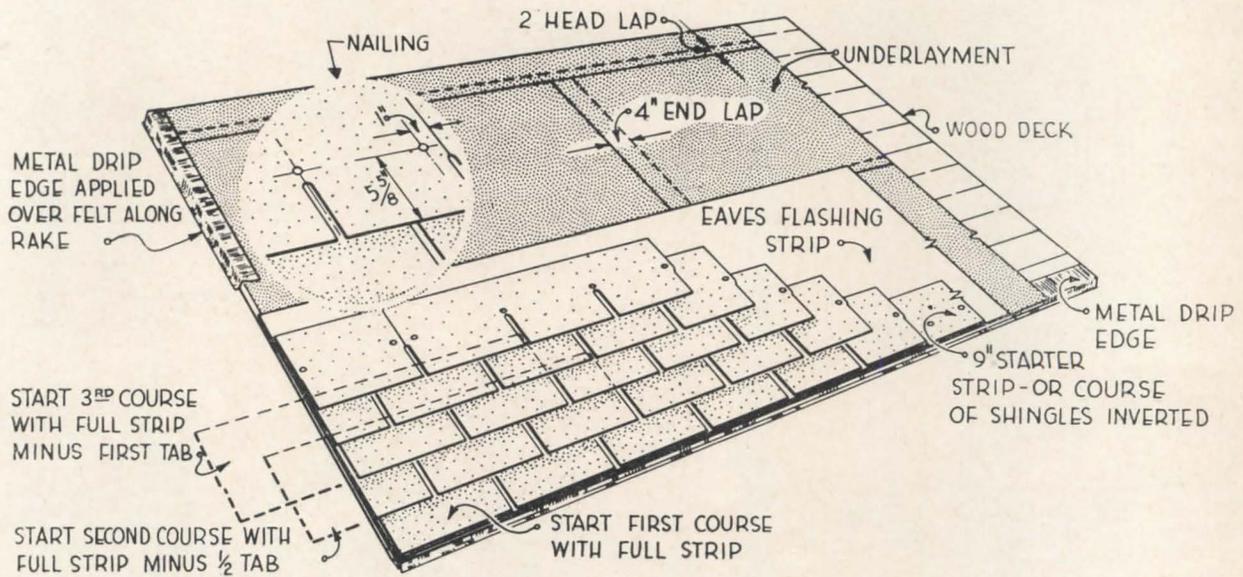


Fig. 3 PROCEDURE FOR APPLYING square-butt asphalt shingles

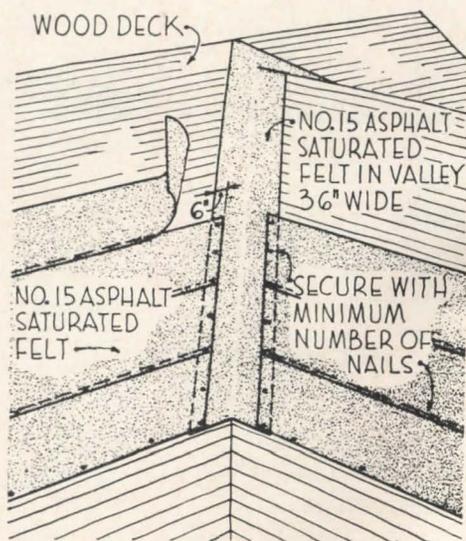


Fig. 4 DECK PREPARATION for a valley. Saturated felt underlayment is centered in the valley and secured with only enough nails to hold it in place until the shingles are applied. The courses of felt underlay are cut to overlap the valley strip by not less than 6 in. The eave flashing strip is then applied.

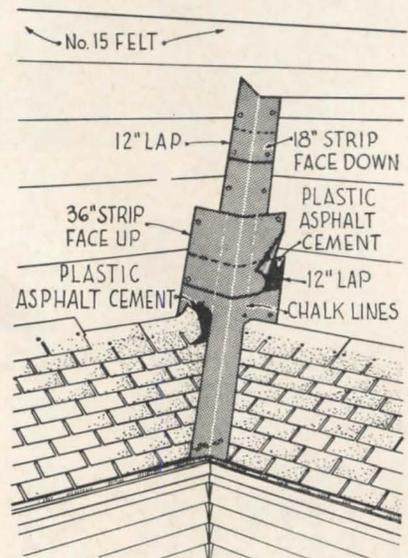
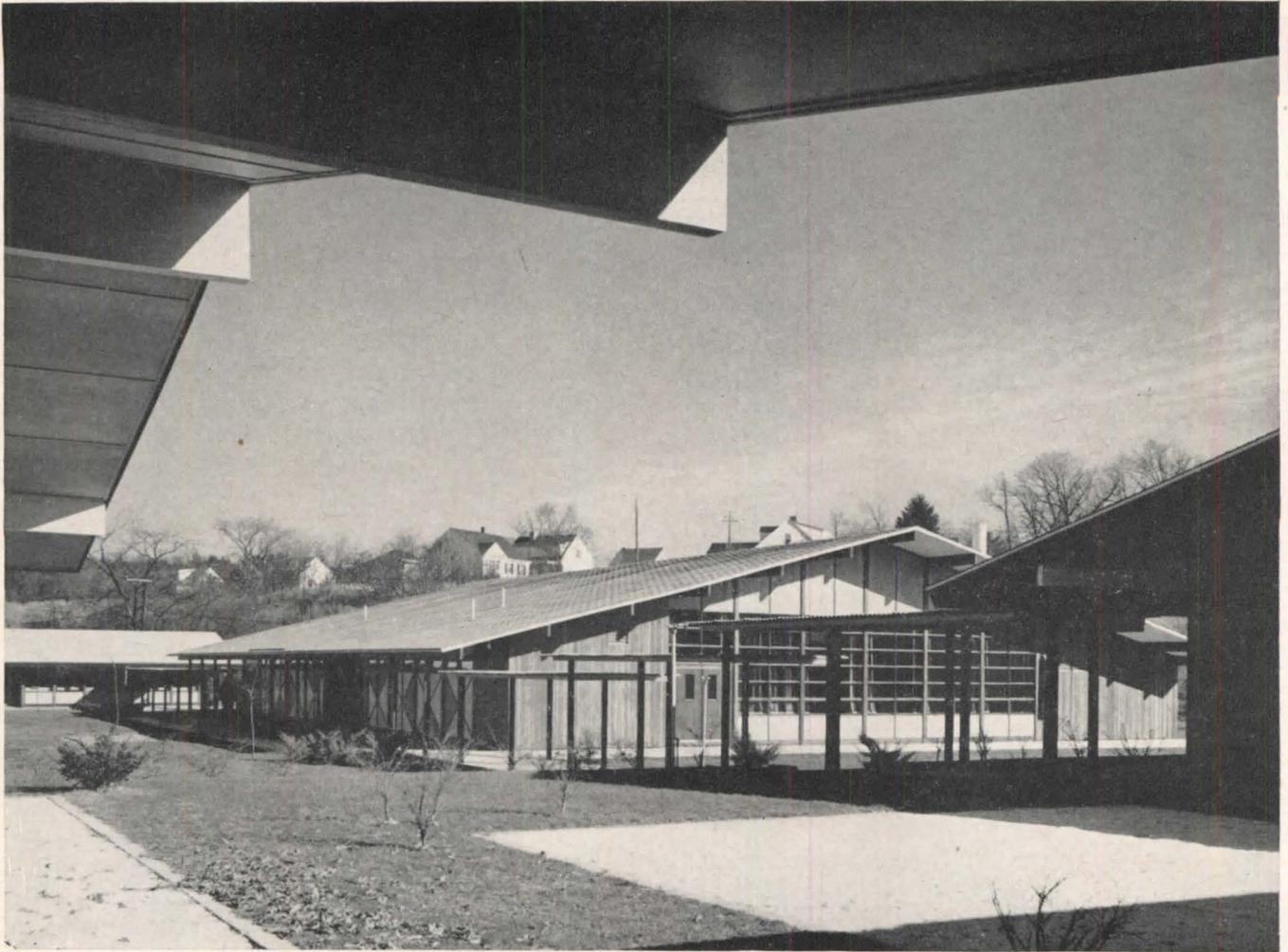


Fig. 5 VALLEY FLASHINGS are made from mineral surfaced asphalt roll roofing. An 18-in.-wide layer of mineral surfaced roll roofing is centered in the valley, surfaced side down, and the lower edge is cut to conform to and be flush with the eave flashing strip. When necessary to splice the material, the ends of the upper segments overlap the lower segments and are secured with plastic asphalt cement as shown. Only enough nails are used in rows 1 in. in from each edge to hold the strip smoothly in place. The upper corner of each end shingle is clipped as shown to prevent water from penetrating between the courses. The roofing material is cemented to the valley lining.

All drawings are from the publication, *Manufacture, Selection and Application of Asphalt Roofing and Siding Products*, August 1959, by J. L. Strahan, Technical Director, Asphalt Roofing Industry Bureau, New York City



Halliwell School, North Smithsfield, Rhode Island

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**ASPHALT STRIP SHINGLES: 3—Low Slope Application**

by Howard P. Vermilya, A.I.A.

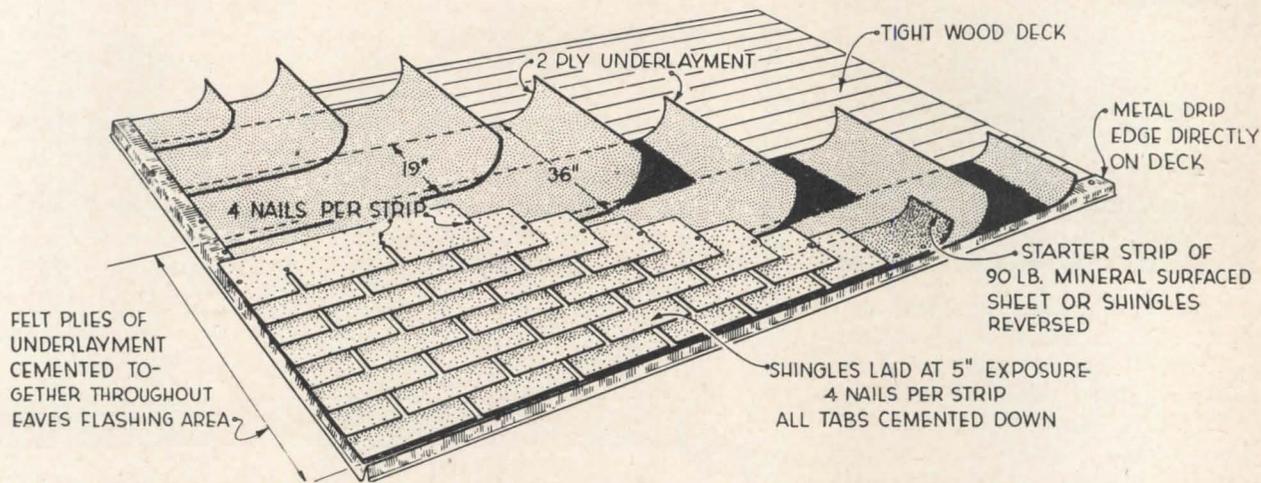


Fig. 6 SQUARE-TAB STRIP SHINGLES are recommended for use on decks having a slope lower than 4 in 12 but not less than 2 in 12 when special application methods are used to compensate for the slower water run-off resulting from the lower roof slope. These application methods involve: (a) double underlayment; (b) a special cemented eaves flashing strip; (c) use of quick-setting cement to fasten shingle tabs.

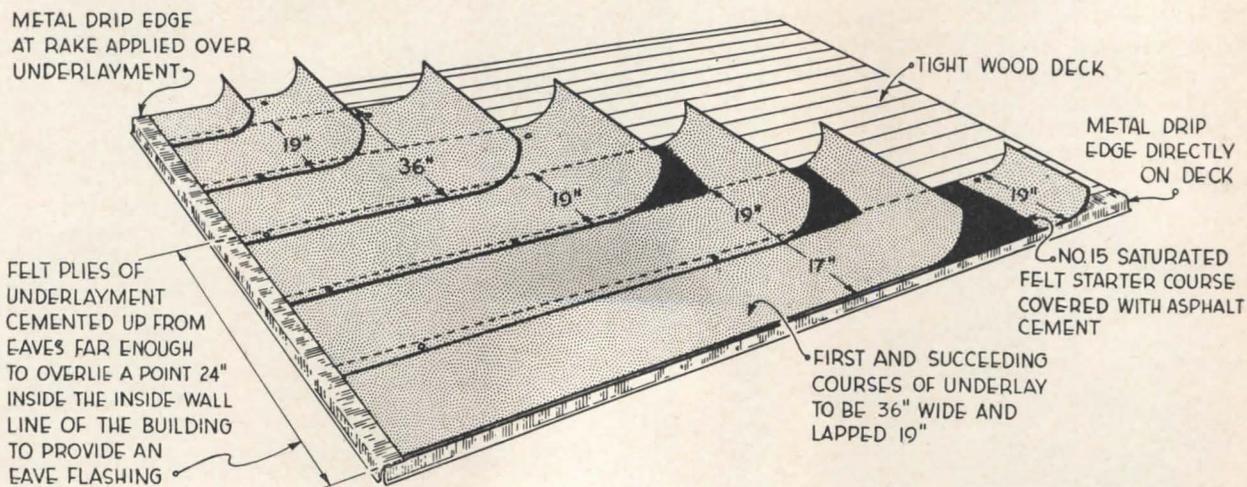


Fig. 7 FELT UNDERLAY application on a low slope deck.

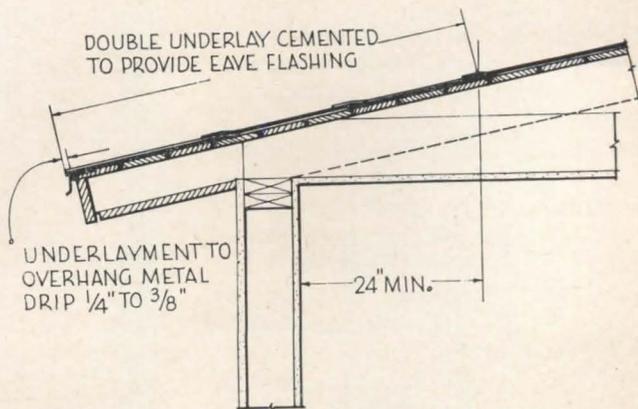
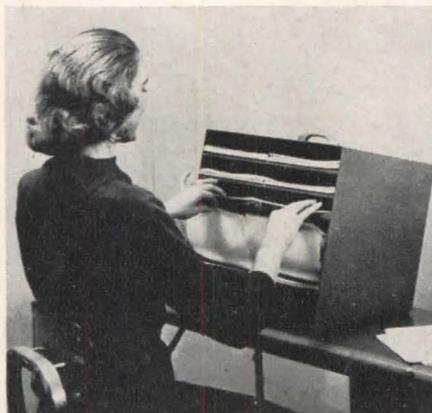


Fig. 8 EAVE FLASHING. The felt underlay that extends from the eave up the roof far enough to overlie a point 24 in. from the inside wall line of the building is treated as follows: A continuous layer of plastic asphalt cement is applied to the surface of the underlay starter course before the first full course is applied, and also to the 19-in. underlying portion of each succeeding course which lies within the eaves flashing area, before placing the next course. Fig. 6 shows how the shingles are applied over the underlay. The exposure is 5 in. and four nails are required.

continued from page 231



**Automatic Light-Operated Switch**  
A tiny (1¼-in. diameter), light-operated "eye" that automatically turns outdoor lights on at dusk and off at dawn can be installed in lighting fixture canopies, outlet boxes or post lanterns, or in conjunction with mercury plunger-type relays for control of heavier electrical loads. Models suitable for tungsten loads up to 300 watts at 120v ac are designed to turn on at one foot-candle and off at ten foot-candles. The switch is not affected by weather or temperature, and a built-in time delay prevents its being activated by auto headlights or other temporary light flashes. *Schacht Electronic Mfg. Co., 1213 St. Emanuel St., Houston 3, Tex.*

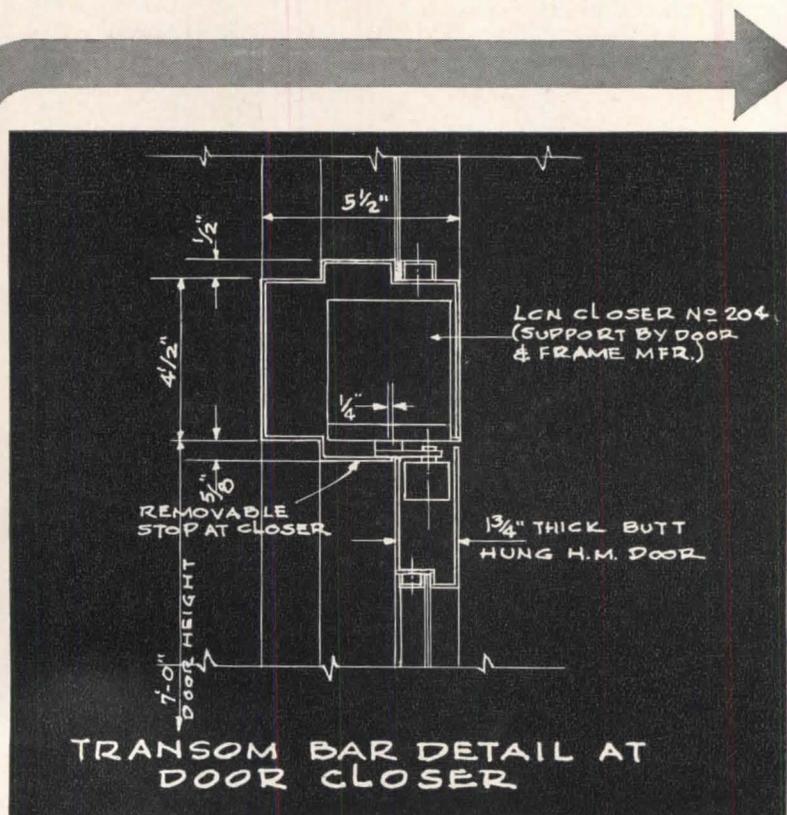


**High Speed Portable Collator**  
By using a new principle in manual paper gathering techniques, the Heinz portable collator makes possible a simple, two-handed operation by which an unskilled operator can assemble as many as 6000 pages per hour—a speed comparable to that of most mechanical and some automatic equipment. Genuinely portable, the compact aluminum unit occupies only 1½ sq ft of desk space and weighs only 7 lb. Each of its twelve stations holds 300 sheets of 20-lb stock in sizes up to 17 by 11 in. *A. P. Heinz Co., 2422 Lunt Ave., Chicago 45, Ill.*

**Electronic Mail-Handling Controls**  
A unique control system will be installed in New York City's new Union Carbide Building (SOM) to speed handling of mail, supplies, and duplication and reproduction materials. With the system, it is possible to link a series of vertical and horizontal conveyors to central handling facilities. After the destination of mail or other material is selected by dialing a floor selector dial, the control impresses a coded address on the

mail basket and sends it on its way along the conveyor system. The unit is rejected by all receiving stations except the one which responds to the coded address. There, the magnetic system triggers a mechanism to remove the carrier basket from the conveyor line. According to the manufacturer, *Maitrol* controls are also applicable to other widely diversified material handling systems. *Maico Electronics Inc., 21 N. Third St., Minneapolis 1, Minn.*

more products on page 243



**CONSTRUCTION DETAILS**

for LCN Overhead Concealed Door Closer Shown on Opposite Page  
*The LCN Series 200 Closer's Main Points:*

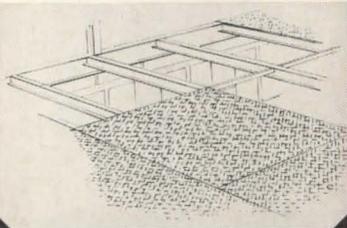
1. Efficient, full rack-and-pinion, two-speed control of the door
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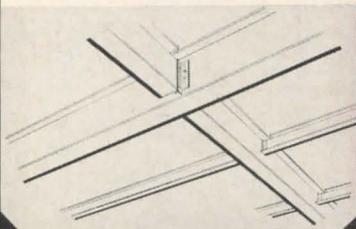
**LCN CLOSERS, INC., PRINCETON, ILLINOIS**

Canada: Lift Lock Hardware Industries, Ltd., Peterborough, Ontario

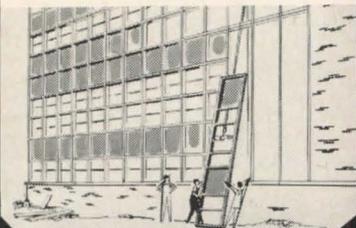
**other Inland construction products**



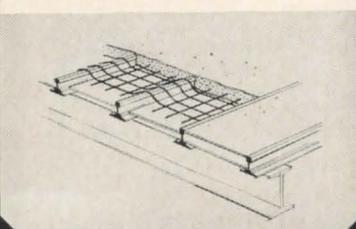
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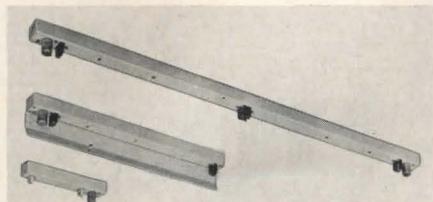
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*Product Reports*

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**"Homespun" Vinyl Wallcovering**  
"Cotter's Loom," the newest addition to the *Virtex* line of vinyl wall coverings, reproduces the rough, hardy look of Scotch homespun, but is far tougher and more durable. Available in 28 colors, this permanent wall covering is waterproof and weatherproof, and fade-, stain- and flame-resistant. It wipes clean with a damp cloth. *L. E. Carpenter & Co., Inc., Empire State Bldg., New York 1, N. Y.*



**"Midget" Display Fluorescents**  
A series of tiny (2¼ by 1¼ in. overall) fluorescent fixtures are designed for portable or permanent mounting wherever space is limited—in counter displays, coves, valances, cabinets, show cases, book cases, wall cases, and so forth. Models up to 40¾ in. long take standard T5 and T8 lamps, and come pre-wired with a low power factor ballast mounted in the channel for maximum compactness. Reflectors are available for all sizes. *Duray Fluorescent Mfg. Co., 3118 W. Montrose Ave., Chicago 18, Ill.*  
*more products on page 250*



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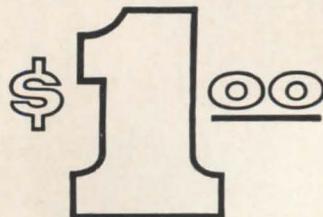
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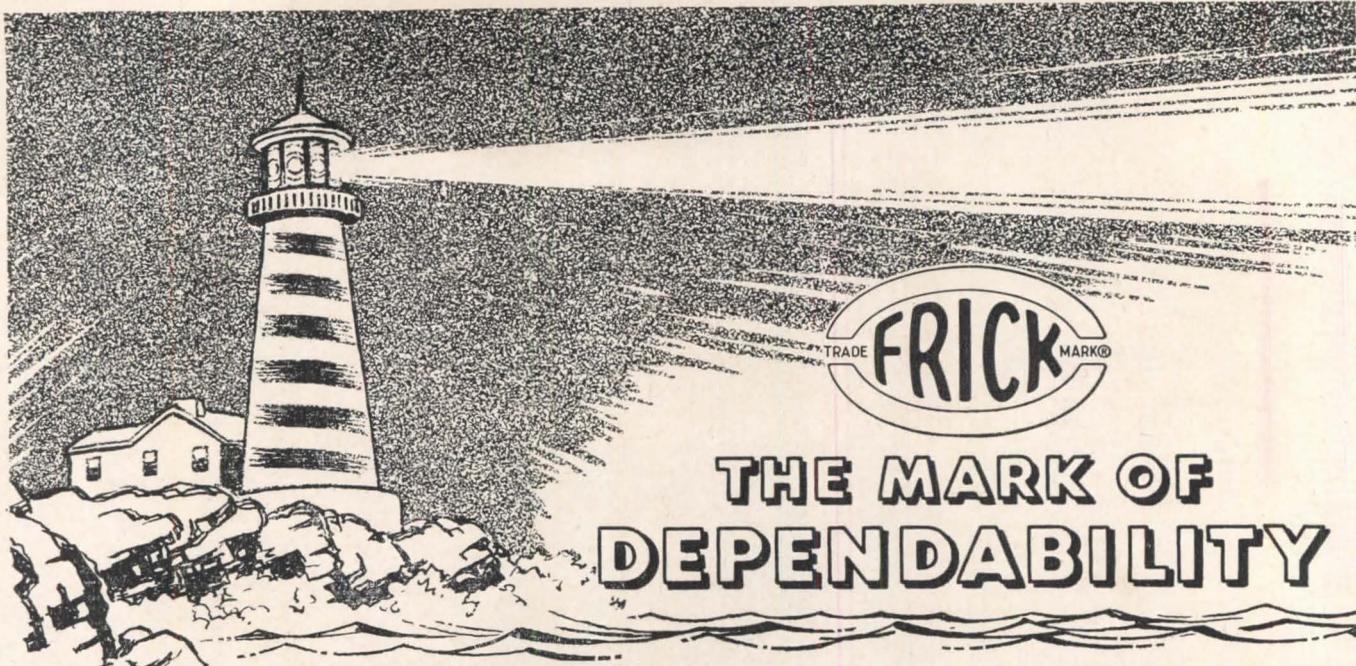


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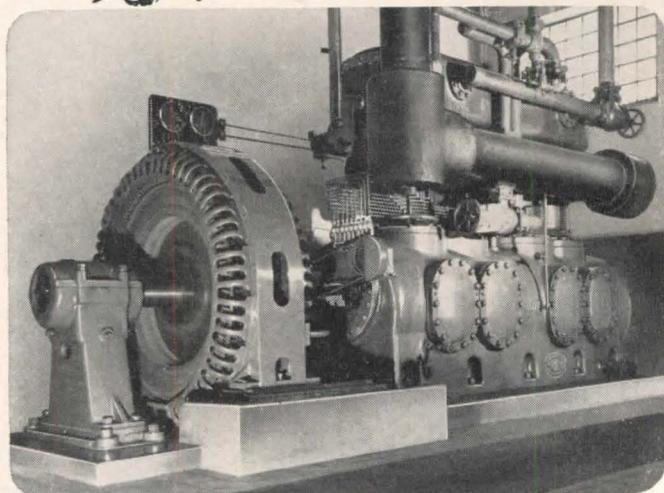
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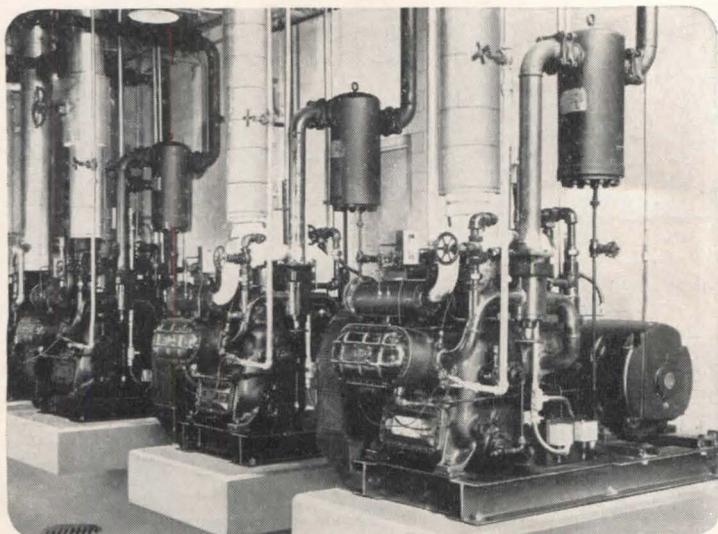
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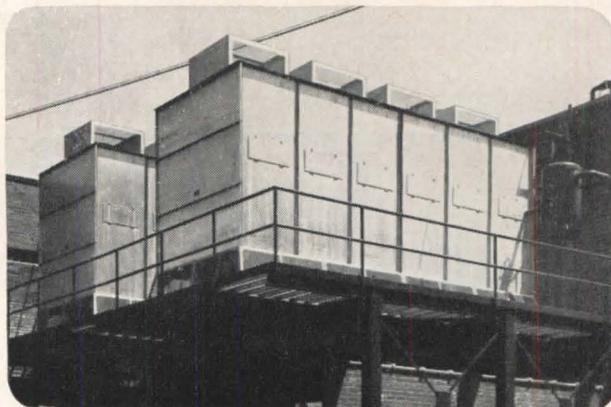
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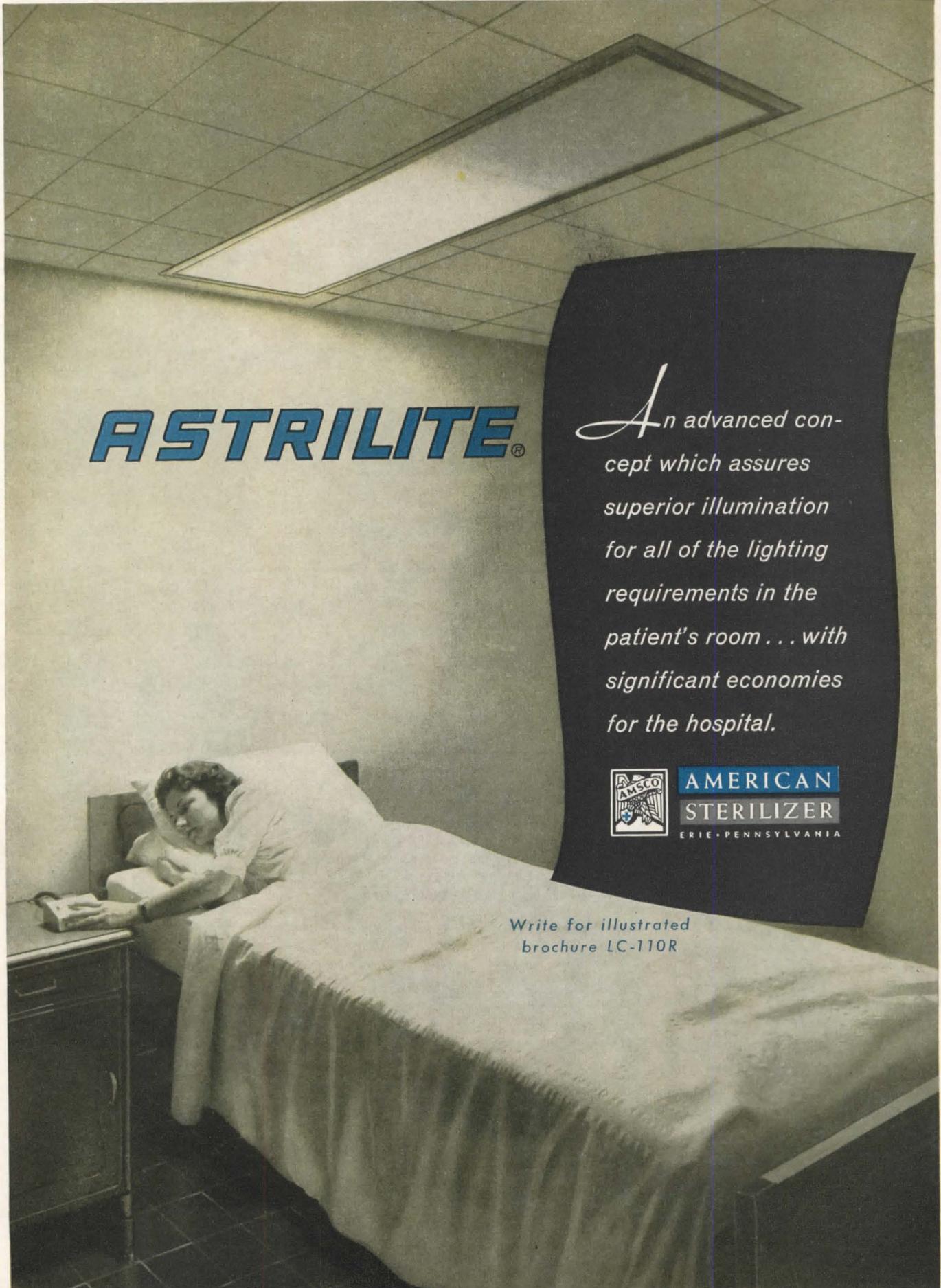
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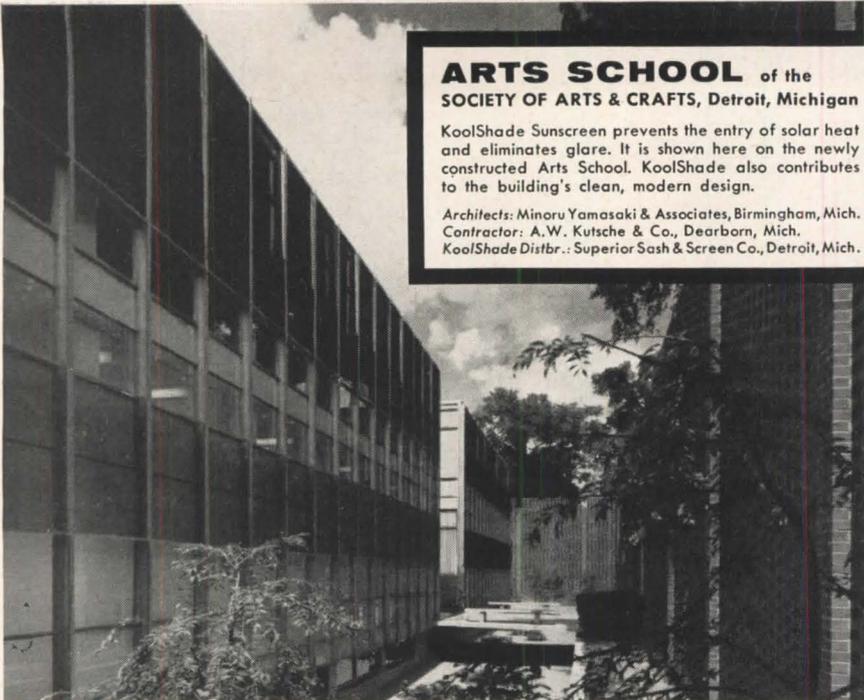
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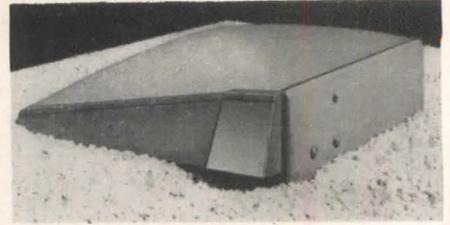


**ARTS SCHOOL** of the  
SOCIETY OF ARTS & CRAFTS, Detroit, Michigan

KoolShade Sunscreen prevents the entry of solar heat and eliminates glare. It is shown here on the newly constructed Arts School. KoolShade also contributes to the building's clean, modern design.

Architects: Minoru Yamasaki & Associates, Birmingham, Mich.  
Contractor: A.W. Kutsche & Co., Dearborn, Mich.  
KoolShade Distbr.: Superior Sash & Screen Co., Detroit, Mich.

Editorial story on the building, elsewhere in this issue. Photo by: Baltazar Korab. ©



**Low-Cost Ventilating Skylight**

A rugged fiber glass skylight with a built-in squirrel cage blower provides both ventilation and natural lighting at a cost equivalent to that of an ordinary ventilator. The low silhouette unit is available in self-flashing and curb mounted designs for 20- by 20-in. roof openings. Since the blower is factory-attached, it allows fast, one-piece installation with no ductwork required. Its exhaust capacity is 108 cfm. Like all *Consolite* skylights, the power ventilating unit is leakproof and shatterproof, and comes in a choice of five colors. An accessory plastic grid with aluminum frame is available for finishing the ceiling opening if desired. *Consolidated General Products, Inc.*, 2401 Nicholson, Houston 8, Tex.



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Zonolite's *Mono-Kote*, an improved direct-to-steel fireproofing, can be sprayed on in any required thickness in one application, thus substantially reducing installation costs. The pre-mixed material requires only the addition of water for use with standard mixers and plaster machines. When applied to ceilings and beams, it sets to become a tough, hard material, without fissuring or shrinking. It provides excellent fire protection, insulation, sound absorption, and certain rust inhibitive advantages "all in one package." *Zonolite Co.*, 135 S. LaSalle St., Chicago 3, Ill.

more products on page 258

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- ④ **Gives full outward visibility.** Because it's woven (not stamped), KoolShade permits up to 83% clear

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- ⑧ **Franchised installation.** For maximum satisfaction and performance, KoolShade is sold and installed only by Franchised, factory-trained distributors.

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# 3 TIMES FASTER THAN NORMAL

For the new Anna Merritt Elementary School (shown in photo) and the Roy Kelly Elementary School in Lockport, New York, architects Sargent, Webster, Crenshaw & Folley, Syracuse, N. Y., developed an ultra-thin aluminum mullion (only 1 3/4 in. wide) which, in combination with a prefabricated neoprene synthetic rubber sealing gasket (a special gasket designed with Patent Pending) gives the exterior wall a trim, modern appearance . . . speeds glazing . . . and cuts maintenance.

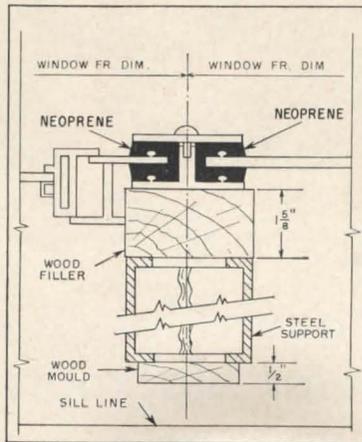
**GLAZED IN A DAY AND A HALF.** This modern neoprene-sealed glazing system requires no tool more complicated than a screwdriver . . . permits precision factory manufacture of all components . . . eliminates chance for error or careless workmanship in caulking . . . insures a clean, neat glazing job. The contractor estimates that, with the preformed neoprene gasket, installation moves three times faster than conventional glazing. The 17,111-sq.-ft. Merritt School was completely glazed in just a day and a half. Kelly School—2 1/2 times as large—was glazed in 3 1/2 days.

**LASTING SEAL.** A properly compounded neoprene gasket will perform efficiently for decades in this application. It resists weather, sun, ozone, heat, cold, chemicals, pressure . . . stays resilient and maintains a tight seal . . . protects glass against wind breakage . . . can be re-used if a window is broken. Neoprene's excellent combination of properties is shown in the graph on the opposite page.

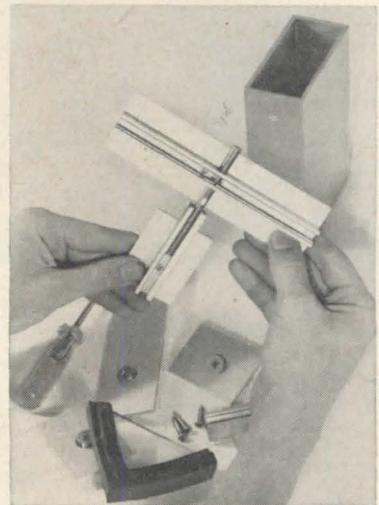
For more information on neoprene gaskets, write to: E. I. du Pont de Nemours & Co. (Inc.), Elastomer Chemicals Department AR-2, Wilmington 98, Delaware.

This glazing system is sealed against weather by a prefabricated neoprene rubber gasket.

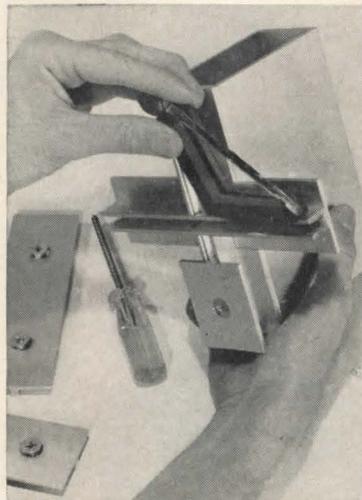
STEP 1—The simple, durable aluminum frame (only 1 3/4 in. wide) is assembled quickly and easily.



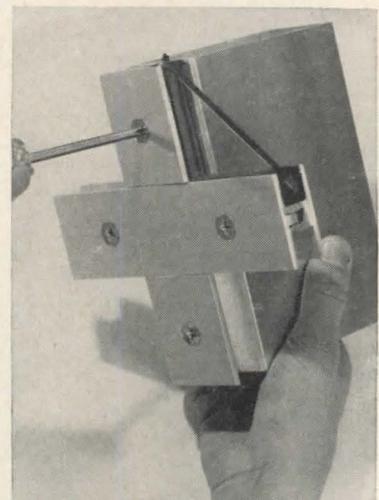
Neoprene gasket is Pawling Rubber Corporation's "Wet" Seal Channel



## ONLY A SCREWDRIVER IS NEEDED!



STEP 2—Resilient neoprene seal snaps easily over glass, then gasketed light can be set in place in frame.

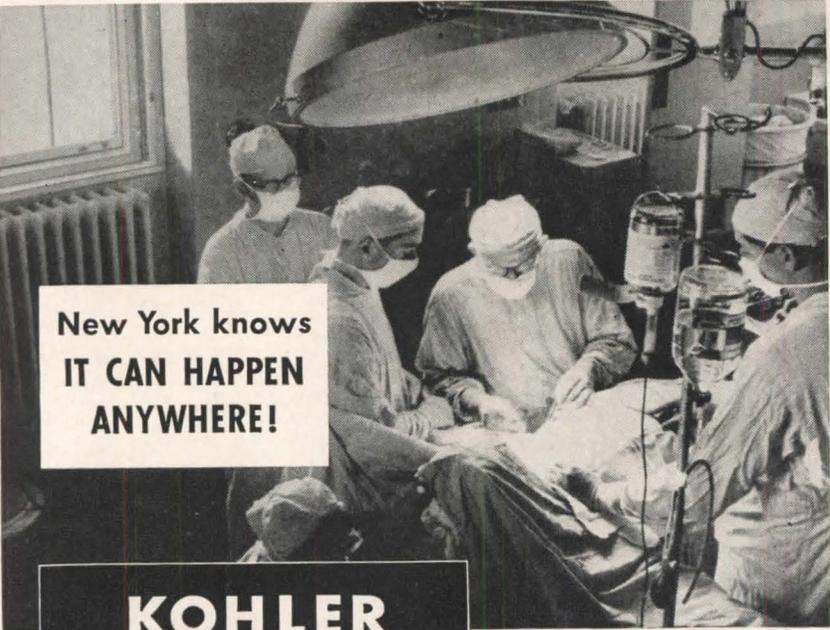


STEP 3—Screwing down of pressure strip against neoprene gasket assures a durable, weathertight seal.



## NEOPRENE SYNTHETIC RUBBER

Better Things for Better Living . . . through Chemistry



**New York knows  
IT CAN HAPPEN  
ANYWHERE!**

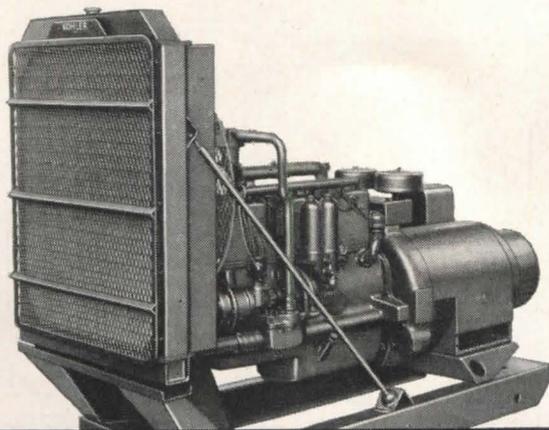
**KOHLER  
ELECTRIC PLANTS**

Major surgery in Mt. Sinai Hospital, New York, being performed with illumination from windows and one emergency light.

## Reliable safeguard for power blackouts

The 13-hour power failure in New York's Manhattan last summer caused widespread hazards, inconvenience, discomfort or loss—in places without stand-by power. In hospitals, surgery was performed without proper lighting, patients were served by candlelight. Buildings of all kinds had no use of lights, air conditioning, elevators, freezers.

Kohler electric plants are reliable, easy to install for emergency power made vitally important by today's increasing dependence on electrical equipment. To help you write specifications for varied applications Kohler Co. will send on request a manual with complete data on sizes from 1000 watts to 100 KW, gasoline or diesel. Write Dept. G-53.



**MODEL 100R81**  
100 KW,  
120/208 volt A.C.  
Stand-by.  
Remote start.

**KOHLER CO. Established 1873 KOHLER, WIS.**

**KOHLER OF KOHLER**

Enameled Iron and Vitreous China Plumbing Fixtures • Brass Fittings  
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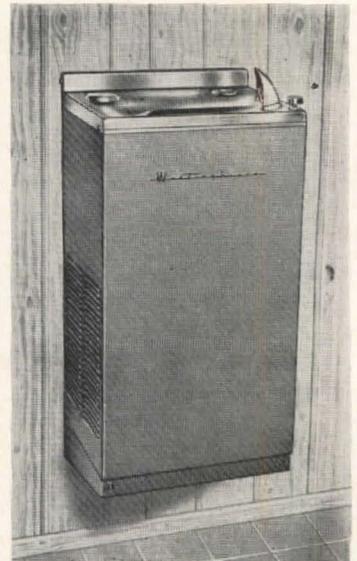
## Product Reports

### Pre-Amplified Sound Systems

A new sound system design uses transistorized pre-amplifiers to achieve greater flexibility in the placement of system components and faithful, distortion-free reproduction even where input lines must be run long distances. The pre-amplifier approach also makes possible economy in installation and service: 1. Input and output lines may be run in the same conduit without interference.

2. Since the transistorized pre-amplifiers and mixers require no 110v AC connection, much expensive wiring can be eliminated.

3. Plug-in terminal blocks throughout the system and plug-in relay controls on the power booster permit easier, less costly installation and service. *Executone, Inc., 415 Lexington Ave., New York 17, N. Y.*



### Flush, Wall-Hung Water Coolers

Two new "wall-hung" water coolers, model WL7D with a capacity of 7 gallons per hour and model WL11D with a capacity of 11 gallons per hour, can be installed flush to the wall with all plumbing concealed and with space underneath for cleaning and waxing the floor. Both models can be hung at any desired height or installed directly on the floor, in which case they are at a desirable height (31 in.) for young children. Both have fan-cooled finned tube condensers and hand actuated bubblers. *Water Cooler and Dehumidifier Dept., Westinghouse Electric Corp., Columbus, Ohio*

*more products on page 262*



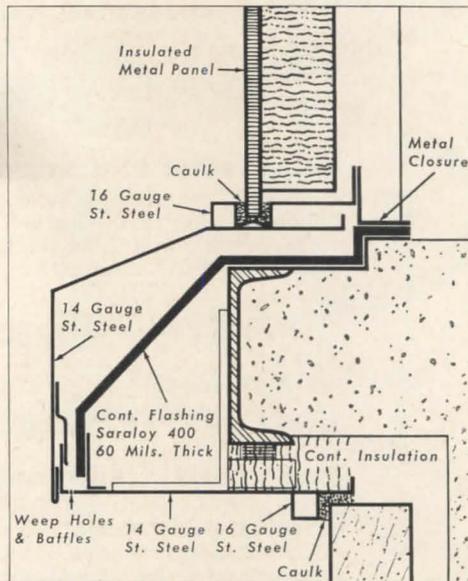
# SARALOY<sup>®</sup> 400

seals hard to flash joints of any design

Here's a new material that outperforms other flashing materials in hundreds of applications. It's an *elastic* sheet flashing—one that's durable and difficult to damage. Flexible and easy to fabricate on the job, Saraloy 400 helps to solve the toughest design problems—seals joints securely and permanently. Since Saraloy 400 flexes with the expansion and contraction of materials to which it's attached, it lasts years longer than ordinary flashing materials.

Saraloy 400 was selected as a flashing at each floor level on this recently completed bank building in downtown Detroit. Its elasticity and durability were put to good use in flashing the concrete ledges, which were then finished with stainless steel sills.

Saraloy 400 can be bonded to roof coverings, concrete, metal, wood, masonry and glass-reinforced plastics. It's weatherproof and waterproof—won't check, crack or peel. Specify Saraloy 400 for long lasting service life on those hard to flash joints. An FHA Materials Release has been issued. For more information, write to THE DOW CHEMICAL COMPANY, Midland, Michigan, Plastics Sales Department 1700N2.



SARALOY 400 seals outer building surfaces from moisture before stainless steel sills are installed. Note how Saraloy 400 conforms to irregular surface contours.

## Dow Building Products at Work

**STYROFOAM\***—Long lasting insulation for cavity walls; an effective insulating base for plaster. Rigid, low "K" factor, resistant to water and water vapor.

**SCORBORD\***—(Pat. applied for) Superior rigid insulation for foundation perimeters, slab floors. Exclusive pre-scored feature speeds installation.

**ROOFMATE\***—Lightweight rigid insulation for built-up roofs serves as its own moisture barrier. Reduces blistering, resultant leaks.

**POLYFILM\***—High quality polyethylene film for temporary enclosure or moisture barrier under slab or insulation.

\*Trademark

THE DOW CHEMICAL COMPANY, MIDLAND, MICHIGAN

# Executone gives you 4-way service for sound and intercom systems!

We provide not only wiring plans, shop drawings, specifications and costs, but with our nation-wide organization of exclusive distributors we also give your clients on-premise maintenance of equipment and instruct their personnel in its proper use. If you have a job on your boards that should utilize intercom or sound, you should be familiar with these four important Executone services;

## Not only this...

- 1 Consultation Service**  
 Executone's Field Engineers will assist you in determining your clients' communication needs... recommend the system designed for the job... provide you with a professional consultation service.

- 2 Installation and Supervision**  
 Each local Executone distributor is prepared to take full responsibility for the final and satisfactory operation of the system, whether installed by the contractor, or his own factory-trained crew.

## But also this!

- 3 On-Premise Maintenance**  
 Each local distributor is staffed with skilled, factory-trained technicians. They also have complete stocks of standard replacement parts. Continuous, uninterrupted performance of every Executone system is assured.

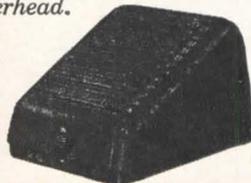
- 4 Personnel Instruction**  
 Local Executone representatives instruct your clients' personnel in the proper use of Executone Systems. This planned program assures maximum benefits through proper operation and utilization of their systems.

Architects and engineers are invited to send for Executone's 325 page Reference Manual "J-6." No charge or obligation. Please use your letterhead.

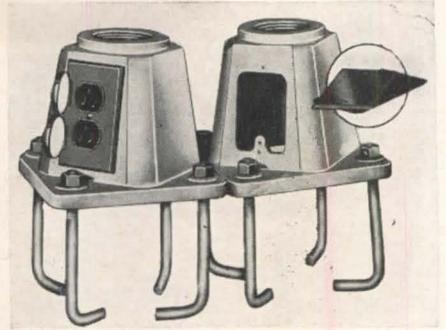
# Executone

INTERCOM AND SOUND SYSTEMS FOR  
HOSPITALS, SCHOOLS, HOMES, PLANTS, OFFICES

415 Lexington Ave., New York 17, N.Y. • In Canada...331 Bartlett Ave., Toronto

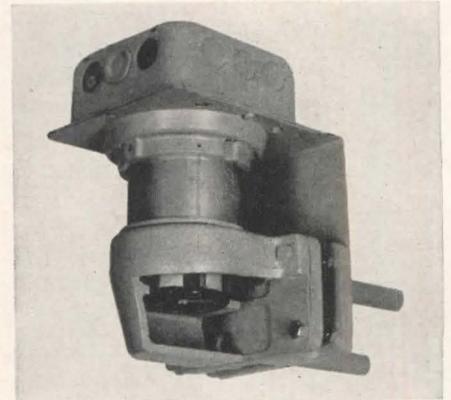


## Product Reports



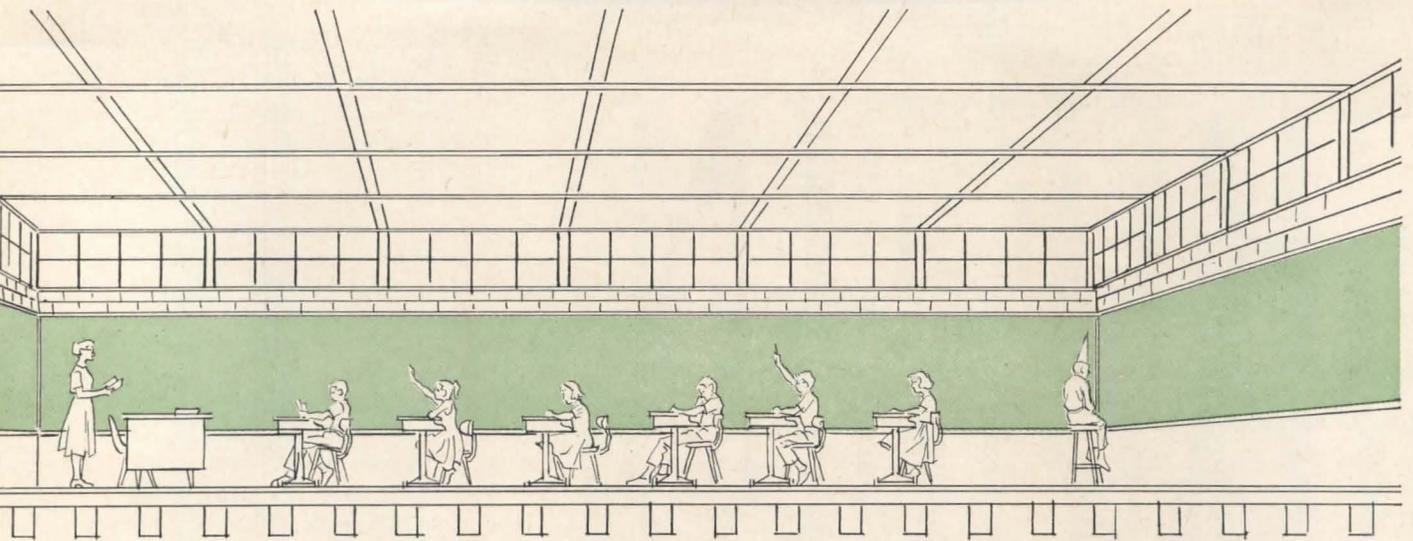
### Cast Aluminum Pole Base

By utilizing a special high-strength aluminum alloy that is strong enough to withstand the elements but capable of being cast into any desired shape, Moldcast Manufacturing Company has produced a series of inexpensive, maintenance-free pole bases for many outdoor lighting applications. The bases are threaded for 2-, 2½- and 3-in. pipe sizes, and come with anchor bolts, mounting templates, and easily accessible grounding screws. Dept. PB-15, Moldcast Mfg. Co., 236 South St., Newark 5, N. J.



### Air Duct Type Fire Detector

A special air duct type fire detector assembly designed for the protection of ventilating and air conditioning systems houses a standard *Pyr-A-Larm* detector bolted directly onto the outside of the duct work. A perforated sampling tube (standard ½-in. electrical metallic tubing) that extends across the duct from the assembly brings a continuous supply of air through the detector, which transmits an alarm if smoke or even the invisible toxic products of combustion are present in the air stream. *Pyrotronics Div., Baker Industries, Inc., P. O. Box 390, Newark 1, N. J.*  
more products on page 266



## New Johns-Manville *Colorlith*<sup>®</sup> Chalkboard

Never before has one material solved so many classroom problems

**Architects say**—Handsome color and texture run all the way through this homogeneous sheet . . . can't wear off.

**Teachers say**—Colorlith makes an ideal smooth, hard writing surface—erases easily—reduces writing fatigue.

**Pupils say**—We like the color . . . it's easy on the eyes . . . and we can always see what's written on it.

**Maintenance Superintendents say**—Colorlith is easy to maintain. Wash occasionally with clear water. Remove stains with household cleansing agents.

**School Supervisors say**—Colorlith chalkboards have the strength and durability to withstand daily classroom usage and give many years of service.

**Taxpayers say**—Meets the requirements of premium quality boards at low prices . . . and it's strong enough not to need any expensive backing.

Everyone connected with today's school problems of cost vs. quality finds an answer in new J-M Colorlith Chalkboard. Here is a dense, new homogeneous sheet developed to provide the same smooth, hard writing surface and light reflectance values as premium chalkboards—but at lower cost.

Colorlith gets great strength from integral mixing of Portland cement, carefully selected asbestos fibers, and selected pigments. It can be used in ¼" thicknesses without expensive backing to make it rigid. Accurately butted joints need no divider strips which could hinder writing. Comes fully finished and ready to use as a self-supporting wall member. Its natural finish is durable—colors and pattern cannot be scratched off. Withstands heat, flame, moisture (fully washable) . . . acids and solvents in working concentrations.

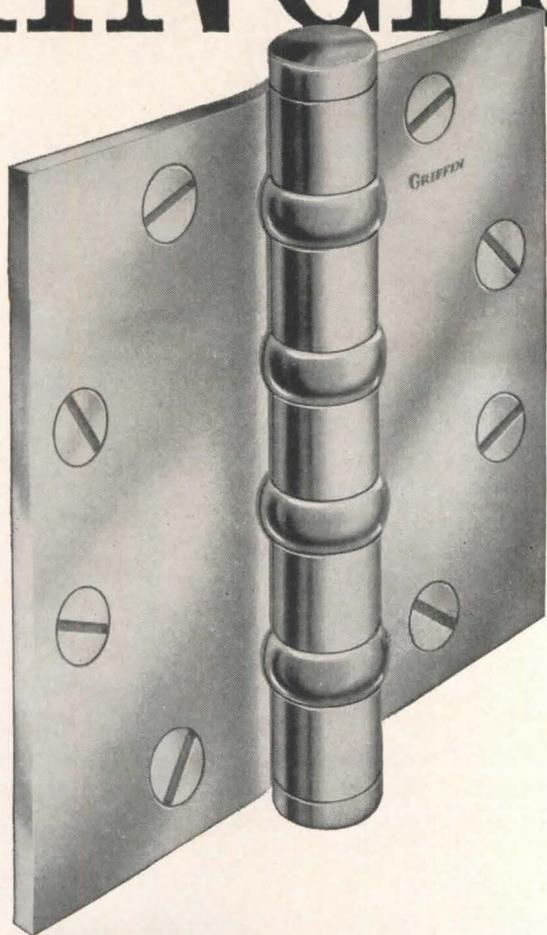
Write for Colorlith specification sheet IN-230A and brochure EL-62A. Johns-Manville, Box 14, New York 16, N. Y. In Canada, Port Credit, Ontario.

# JOHNS-MANVILLE



WHY

# GRIFFIN HINGES?



Why have building supply and hardware dealers everywhere tagged Griffin as "A Good Line to Handle"? Because Griffin makes a product builders and architects respect; because Griffin offers a complete line of steel hinges, both ferrous and non-ferrous; because Griffin prices its product to offer the distributor a good profit margin; because Griffin service is exceptionally quick, dependable.

Write today for complete information. Ask for a salesman to call.  
**GRIFFIN MANUFACTURING COMPANY • ERIE, PA.**

## Product Reports

### One-Part, Rubber-Based Sealant

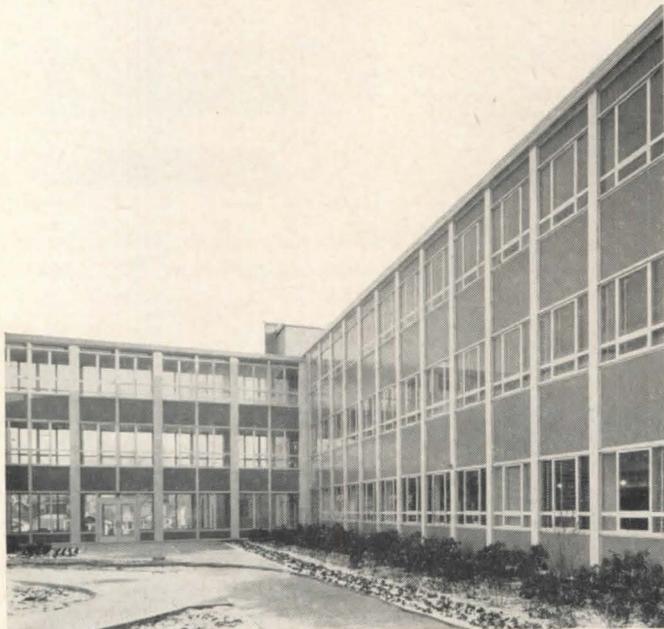
Du Pont's *Hypalon* synthetic rubber, heretofore available for sealing only in the form of extrusions and sheet, is now being used as a base for a new mastic sealant that promises to answer a wide variety of caulking and glazing problems. The one-part sealant comes ready to use; can be applied by ordinary putty knife, caulking gun or trowel; bonds tightly to all materials without special priming; and self-cures to a long-lasting, resilient rubber seal. (Accelerated aging tests are said to indicate a potential service life of over 20 years.) Since it does not depend on carbon-black reinforcement, it can be compounded in any desired hue—white, pastels, solid colors and black. The applied cost is said to be about half that of the widely used polysulfide sealers. *Grayguard, Inc., P. O. Box 1644, Wilmington 99, Del.*



### Miniature Seismograph

Reliable cost estimates can be obtained without costly drilling through the use of a new miniature engineering seismograph that provides such subsurface information as the precise depth to bedrock, the presence or absence of bedrock or other solid materials, and accurate identification of subsurface materials. Operation of the 16-lb instrument requires only two men, and a sledge hammer which is used to produce seismic impulses. An electronic counter circuit measures the time required for sound waves to travel from the blow of the sledge hammer through the earth to the instrument. Depth and type of material present can then be determined from the instrument readings. *Geophysical Specialties Co., 15409 Robinwood Dr., Hopkins, Minn.*

*more products on page 270*



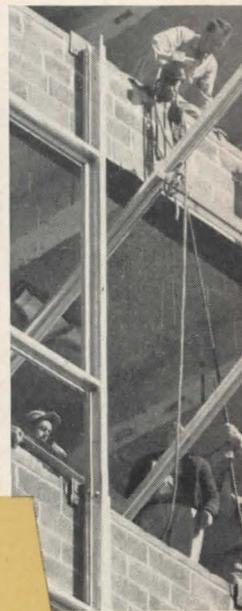
**East High School** in Rochester, New York has Adlake curtain wall.

*Architects:* Faragher & Macomber, Rochester, N.Y.  
*Consulting Architects:* Moore & Hutchins, Rochester, N.Y.  
*General Contractor:* A. Friederich & Sons Co., Rochester, N.Y.

**1. engineering** . . . Adlake's reputation for A+ quality starts with experience . . . first-hand knowledge Adlake's engineering staff shares with you.

**2. testing** . . . new Adlake windows must pass with an A+ rating. Test includes variations in static air pressure equal to wind velocities from 0 to 100 m.p.h. . . . driving rains of approximately 30 gals. per minute.

**3. erection** . . . when erection is an Adlake responsibility, nothing is left to chance or experiment.



**curtain walls**

*product of experience*

**not experiment**

for complete catalog of non-residential aluminum windows and curtain walls, and name of Adlake representative nearest you, write The Adams & Westlake Company, Elkhart, Indiana.



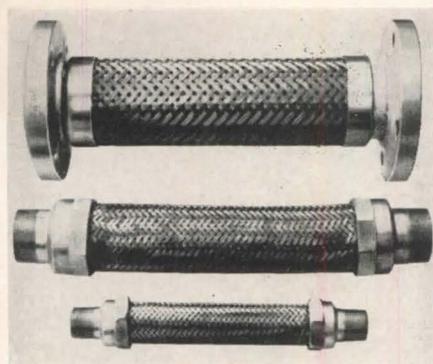
### Sound Deadening Sheet

*Coustifab*, a new high-density, low-mass, sound and vibration attenuating material, is a flexible vinyl sheet impregnated with metallic lead powder and backed with either woven glass-fiber cloth or cotton duck or other fabrics. It may also be obtained with a pressure-sensitive adhesive backing, making it easy to apply to metal and other surfaces. Because of its effectiveness in minimizing low-frequency sound, as well as

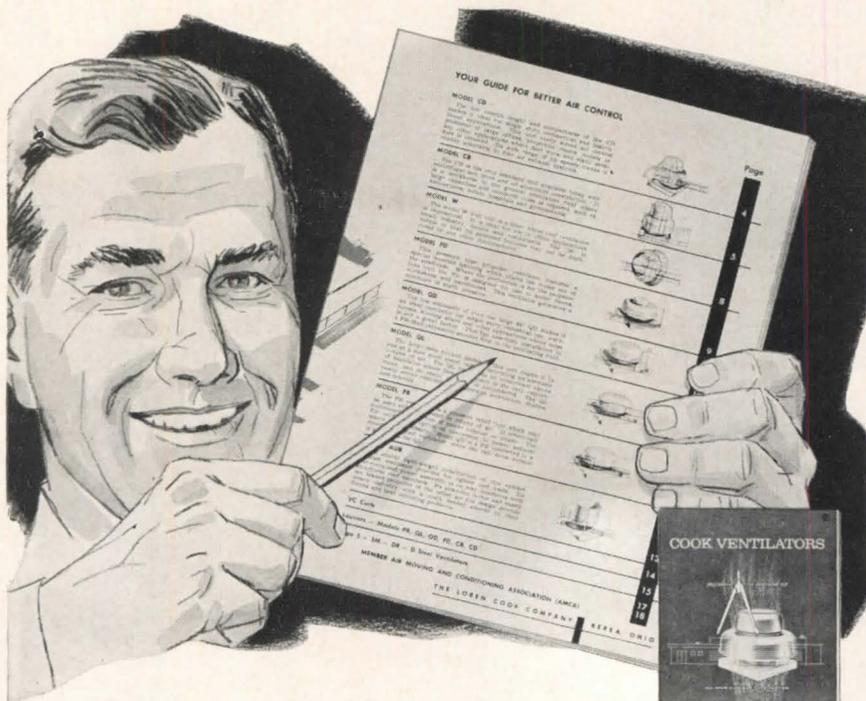
lowering mechanical vibration, the sheet is expected to find wide use in linings for machinery housing, noise suppressor covers for pumps and compressors, wall panels, and folding partitions. It comes in several weights in rolls from 1 in. to 38 in. wide. *Cordo Chemical Corp., 34 Smith St., Norwalk, Conn.*

### Flexible Metallic Connectors

A series of new flexible metallic connectors has been developed for use



where thermal expansion and vibrations are problems. They have been tested for the correction of pipe misalignment, as connectors to absorb pipe expansion in steam and hot water lines, and on pumps where the vibration of the unit must be dampened to prevent its being transmitted to other parts of a building. Performance data shows that the design of the couplings and flexible tubing used in the connectors has yielded high operating efficiency at low cost. Bronze *Penflex* connectors range in size from 1/2- to 4-in. i.d., and stainless steel connectors from 5- to 12-in. i.d. They will take pressures up to 600 psi. *Pennsylvania Flexible Metallic Tubing Co., 7200 Powers Lane, Philadelphia, Pa.*

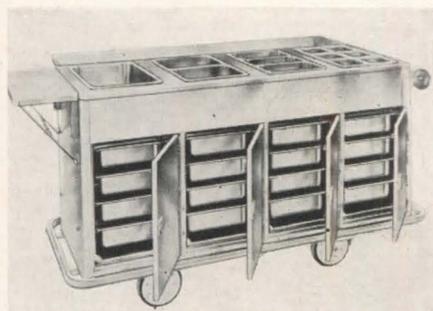


THIS BOOK SHOWS YOU WHAT

## Cook CONTROLLED VENTILATION WILL DO FOR YOU!

- ★ Assures the right ventilator for every job
- ★ New Economy and Ease of Installation
- ★ All Aluminum Quality Construction means trouble free, maintenance free service.

Here's the reason. You can tell at a glance which of the Cook line will work for you. Cook has the most complete line of air control ventilation equipment available. Cook ventilators are engineered to your exact job requirements for top efficiency and lasting economy. We'll be glad to send you a copy of our new booklet which takes the mystery out of specifying ventilating equipment.



### 300-Meal Bulk Food Conveyor

A new bulk feeder which holds enough food to serve up to 300 meals per load features one-piece seamless construction to facilitate cleaning and provide high sanitation. The top deck will accommodate interchangeable square and rectangular insets up to 6 in. deep, and is heated and thermostatically controlled to provide uniform food temperatures. All but one of the lower storage compartments are also electrically heated. Designed to accept 12-by-20-in. pans up to 6 in. deep, the lower compartments are fitted with insulated doors with finger-tip release latches. *S. Blickman, Inc., 8400 Gregory Ave., Weehawken, N. J.*

more products on page 276

Please send me a copy of your 1960 Controlled Ventilation catalog.

Name \_\_\_\_\_

Position \_\_\_\_\_

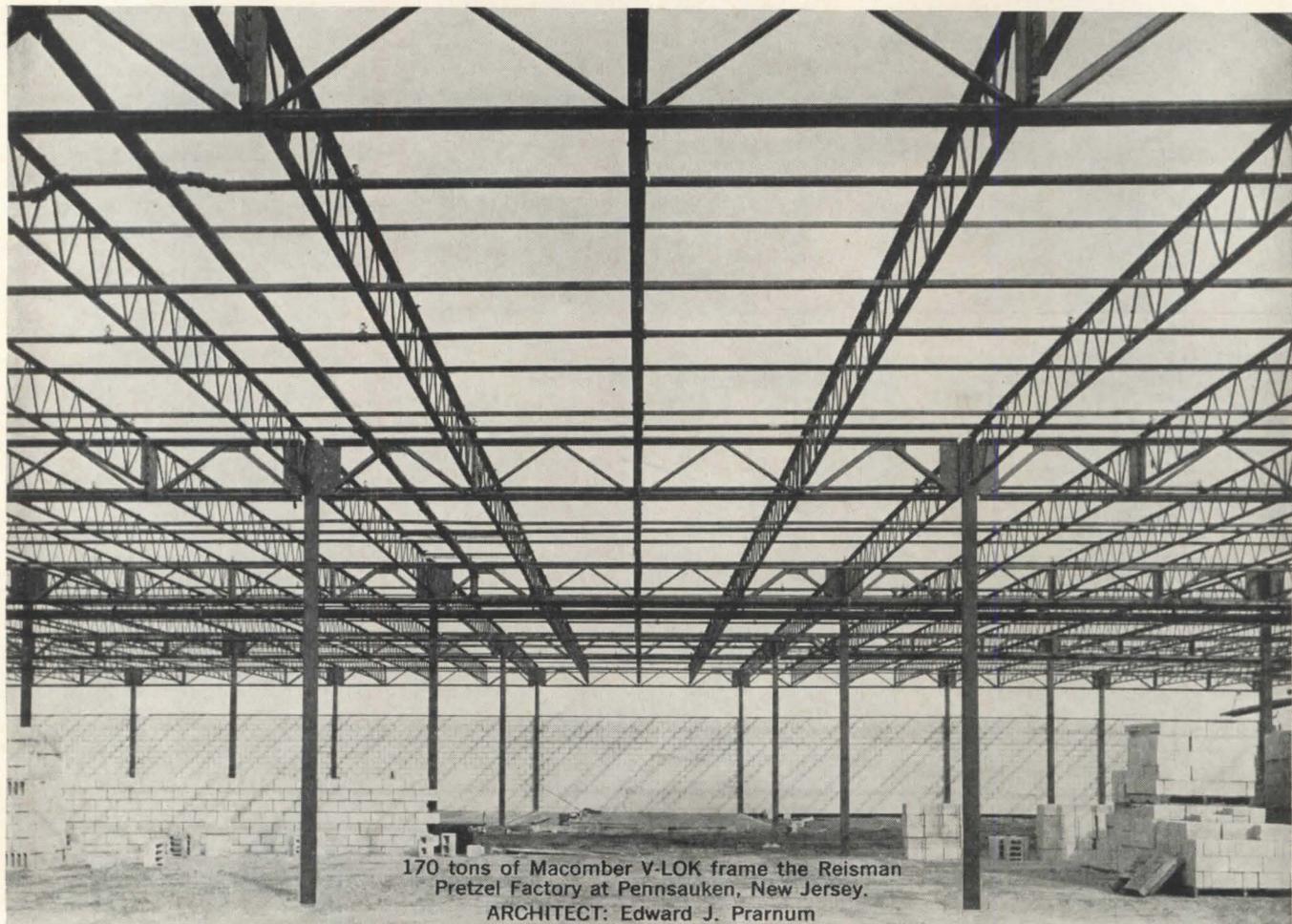
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**Cook** ALL SPUN ALUMINUM VENTILATORS

THE LOREN COOK COMPANY • BEREA, OHIO

# NO FIELD WELDS - BOLTS - OR RIVETS!



170 tons of Macomber V-LOK frame the Reisman Pretzel Factory at Pennsauken, New Jersey.  
ARCHITECT: Edward J. Prarnum

## MACOMBER V-LOK reduces framing time from weeks to days!

V-LOK's driven joint quickly and positively interlocks standard structural members into a rigid, expandable frame — eliminates costly, time-consuming field welding, bolting or riveting. V-LOK puts your building under roof quickly — ready for interior finishing — with minimum skilled labor and special equipment.

Your local Macomber Sales Representative can show how V-LOK uses construction man-hours most economically . . . how V-LOK reduces framing time from weeks to days!

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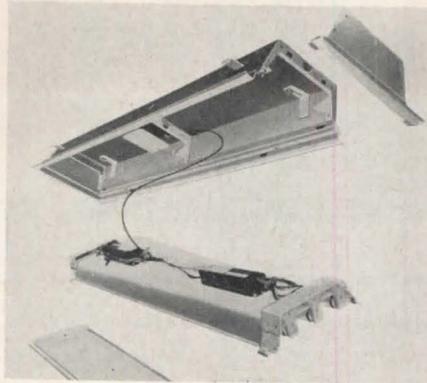
**MACOMBER**  
CANTON 1, OHIO

ALLSPANS • V-LOK • V-BEAMS • V-GIRDERS  
BOWSTRING TRUSSES • ROOF DECK • STRUCTURAL STEEL

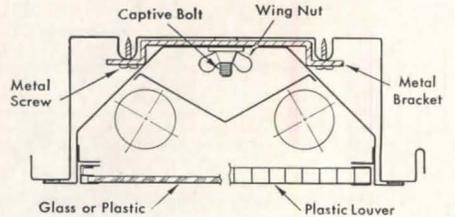
SEE OUR  
CATALOG IN  
SWEET'S  
OR WRITE  
FOR COPY

**Plug-In Recessed Lighting Fixture**

A new recessed type lighting fixture features a "plug-in" unitized electrical assembly that can be replaced by a tested spare without replacing the whole fixture. According to the manufacturer, this plug-in design offers such advantages as savings in maintenance and repair labor costs, uninterrupted lighting, and sustained peak performance for lighting units. The housing for the *Shallotroffer* fixture recesses into a 5½-in. plenum.

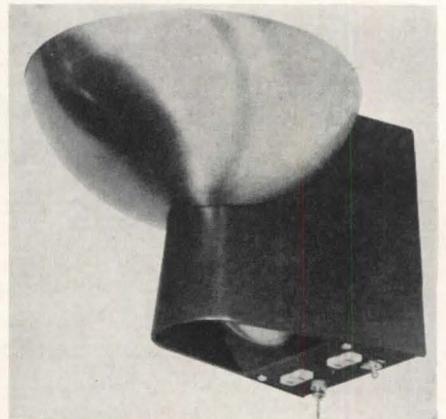


Once it is installed, the electrical assembly, which comes with a cord and polarized plug, is simply plugged into a polarized receptacle in the center cross brace of the housing and secured by hook-on hinges. Thus if the electrical unit becomes defective, it can easily be removed and replaced, serviced and used as a spare. The fixture is available in a choice of eleven diffuser types. *Globe Illumination Co., 2121 S. Main St., Los Angeles 7, Calif.*



**Lighting Fixture for Roof Decks**

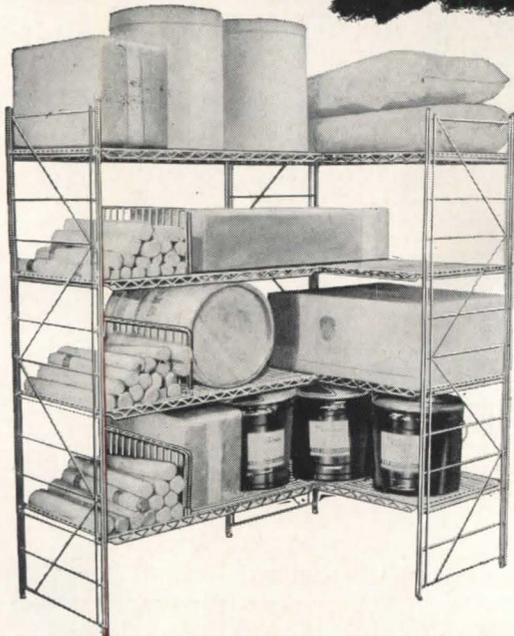
A new type of lighting fixture has been designed for flush installation in standard, roll-formed steel roof decks. As shown, it requires no special adapting devices or modification of the deck. The unit is produced in 48-, 72- and 96-in. lengths, for slimline or 40-watt rapid start lamps. *Building Products Div., R. C. Mahon Co., Detroit 34, Mich.*



**Patient Room Light for Hospitals**

This handsome over-bed light bracket combines in one compact, inexpensive unit a 150-watt bulb for general room illumination, a 100-watt reading light, a 6-watt night light, and two convenience outlets. Each lighting element is skillfully controlled to deliver optimum illumination without annoying brightness. Moreover, since the lamp has no moving parts, it is virtually maintenance-free. It mounts easily to 3- or 4-in. boxes. *Kurt Versen, Inc., Englewood, N. J.*  
more products on page 280

**Shelve STORAGE PROBLEMS WITH ERECTA-SHELF\***  
\* U.S. Patent No. 185,601

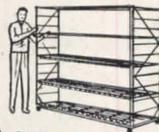


**SPECIFY THIS LOW COST SHELVING**

Erecta-Shelf's steel rod construction supports up to 1,000 lbs. per shelf! Shelves and uprights friction-fit into place without nuts, bolts or special tools! Assembly takes only minutes. Simple additions adapt Erecta-Shelf to most any height, depth or length requirement. You can count on Erecta-Shelf for a quick, easy, low cost solution to just about any storage problem!

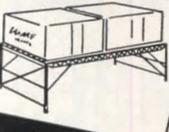
**WRITE FOR A FREE CATALOG TODAY!**

• Erecta-Shelf on wheels rolls away storage problems.



• Corner Braces eliminate post, permitting full use of corner space.

• Erecta-Shelf platforms keep storage high and dry. Simplifies cleaning!



• Shelf Dividers adjust to any arrangement, to make neat, orderly compartments.



• Back and Side Braces keep storage from falling off.



**ERECTA SHELF.**

*a quality product of*

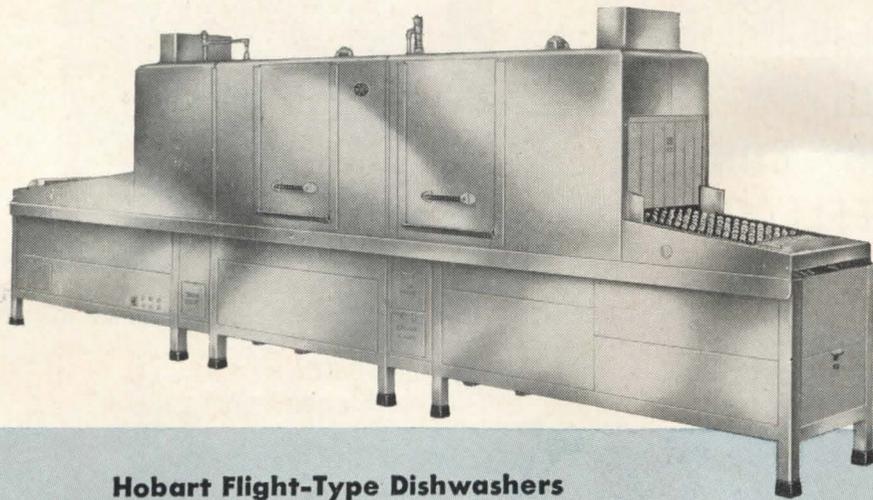
**METROPOLITAN WIRE GOODS CORP.**

N. WASHINGTON ST. and GEORGE AVE.  
WILKES-BARRE, PA.

# ever eat on a plane?



## Chances are your tableware was washed by a Hobart Flight-Type dishwasher



It's the overwhelming choice of the airline caterers and all volume food preparation operations. Here is every dishwashing service built into one amazingly fast, high-capacity machine—a fully automatic dishwasher that will rapidly pay for itself in lower operating costs. And Hobart dependability is built-in.

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

### Hobart Flight-Type Dishwashers

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

Nationwide Service through over 200 Hobart Service Offices—the largest network of service in the industry.

## Hobart MACHINES



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

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

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

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BE "AN EXPERT  
ON DRUMS"

WITH ONE EASY LIGHTING LESSON!



GLASS DRUM UNITS  
MAY LOOK ALIKE, BUT ONLY

Swingaway maintenance!  
Hinged ring and chain for easy  
relamping and cleaning.



OTHER  
DRUM UNITS

**B 1215**  
Long-Boy Ellipse;  
intense narrow-  
beam light,  
specular Alzak  
reflector.



**B 1210**  
Metal drum  
units, concave  
prismatic lens  
with genuine  
Alzak reflectors.



**B 1192**  
Prison and  
psychiatric units;  
cast guard,  
shatter-proof  
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**B 1618**  
Gym drum units,  
with guard or  
louwer, single to  
quadruple  
mountings.

## GUTH BRASCOLITES HAVE HIGH EFFICIENCY, CONTOUR ALZAK REFLECTORS

Real parabolic-design provides permanent, efficient light control. Unlike flat-pan or aluminum-foil types, Alzak contour reflectors can't come unglued, tarnish, or become permanently discolored from lamp heat. Super white opal glassware has satin-finish ceiling ring. Unit gives excellent downlight, plus good ceiling illumination above and around the fixture. Models to accommodate up to three 100-watt lamps. Complete selection available.

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LIGHTING  
since 1902

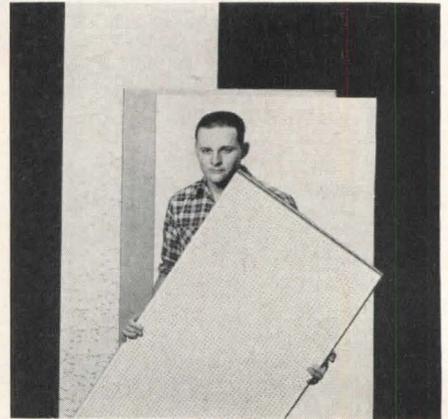
**brascolite**

THE EDWIN F. GUTH COMPANY • ST. LOUIS 3, MISSOURI

## Product Reports

### Fireproof Vapor Barriers

The new *Pyro-Kure* family of vapor barriers is said to offer such advantages as permanent fire resistance, a maximum water vapor permeability of less than 0.10 perms, strength and durability, and low cost. The barriers consist of aluminum foil and kraft paper bonded together with a flame-extinguishing adhesive and reinforced with fiber glass strands. Depending on the specific properties desired, they can be supplied with various weights of paper, thickness of foil, and amounts of reinforcement. Foil to embossed kraft and foil to foil barriers are also available. Because of the effectiveness of the flame-extinguishing adhesive bond, the average flame spread is 15 on the foil side and 30 on the kraft side, as rated by Underwriter's Laboratories. *American Siskraft Corp., Attleboro, Mass.*



### Acoustical, Insulating Formboard

A new formboard made up of a 1/2-in.-thick natural board laminated to a 1/2-in.-thick asphalt-impregnated insulation board serves as a form for poured perlite, vermiculite or gypsum roof decks and also provides low-cost noise control, high thermal insulation value, and an economical finished ceiling. Standard perforated and unperforated formboards, painted or unpainted, are available 32 in. wide in any length between 72 and 120 in. The painted perforated boards are also available in a 24-by-48-in. size with tongue and groove on the 24-in. end, and bevel edges. A fissured painted board comes in a 24-by-96-in. size. *Simpson Logging Co., 1033 White Bldg., Seattle 1, Wash.*

more products on page 286

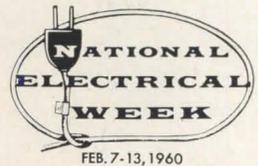
A generation ago, an architect's main concern with electricity was to plan a lighting system into the home.

Today, public interest in *total electric living* requires that you have far more product and application knowledge. To help you in this area, General Electric has organized all divisions of the company to support the Medallion Home Program. A national advertising campaign will increase consumer demand. A local program will help you in planning modern home electrical systems.

Most important to you, General Electric has joined with your local utility to prepare a complete Electric Heating Institute, including training films and instruction manuals for all types of electric heat installations. Your utility has probably scheduled this program. Ask them for time and place.

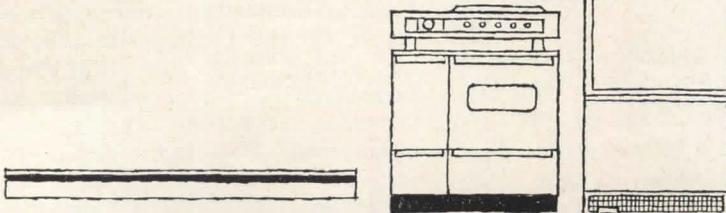
**P.S.** See the General Electric Exhibit at the National Electric House Heating Exposition, Hotel Sherman, Chicago, March 21-23.

Residential Market Development Operation, General Electric Company, Appliance Park, Louisville 1, Kentucky.



#### **ALL-ELECTRIC KITCHEN-LAUNDRY**

Refrigerator, freezer, washer, dryer, range, dishwasher, Disposall® are a vital part of modern living. Electric water heating eliminates flames and fumes.



#### **FULL HOUSEPOWER**

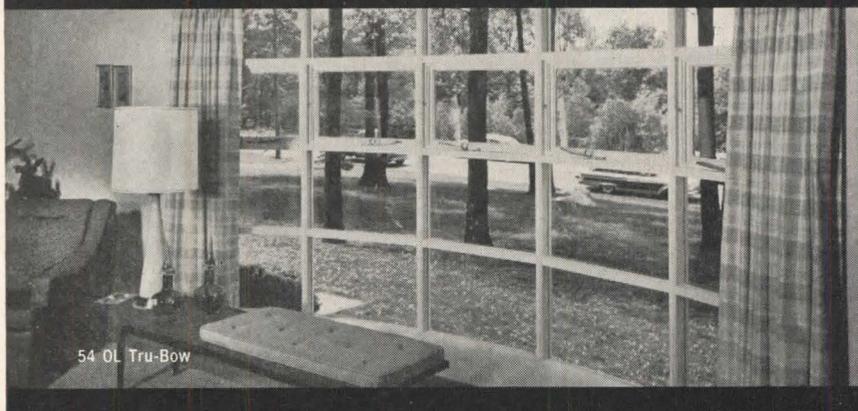
Ample wiring, switches, controls are the foundation of *total electric living*. Without them no equipment can produce top results and the installation of future equipment can be costly.



*Progress Is Our Most Important Product*

**GENERAL  ELECTRIC**

# For Your Finest Homes Reuten



## window walls



REUTEN Tru-Bows and Tru-Walls . . . quality wood windows . . . enhance the beauty of homes in any architectural style. The OL Tru-Bow (top picture) fits perfectly in a Modern setting; the OC Tru-Bow (second picture) adds charm to a Colonial house. Four additional styles and over sixty combinations of sizes, pane shapes, and vent positions can be ordered. Both Tru-Bows and Tru-Walls meet custom quality standards and are stocked by regular millwork jobbers.

See our complete catalog in Sweet's A or LC files, our display in the Architects Building, 101 Park Ave., New York City, or write for additional information.

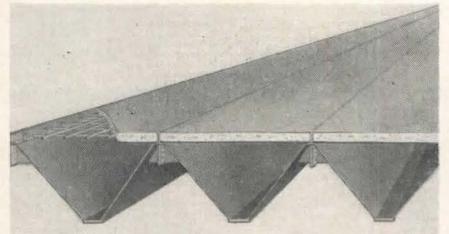


**FRED REUTEN INC.**  
C L O S T E R , N E W J E R S E Y

## Product Reports



**Sound-Absorbing Light Diffuser**  
*Soundsheet* solves the problem of combining acoustical and light diffusing qualities in a single material by laminating a layer of porous cellulose film to each side of a core of rigid vinyl sheet perforated with small, evenly spaced pores. The resulting material gives a noise reduction coefficient of 70 per cent or more with about 48 per cent light transmission. Maintenance costs are estimated to be one-third less than those of baffle ceilings because of the ease of cleaning and unbreakability of the sheet. The recommended air space of 18 to 36 in. is standard for luminous ceiling installations. *Contrex Co., Chelsea, Mass.*

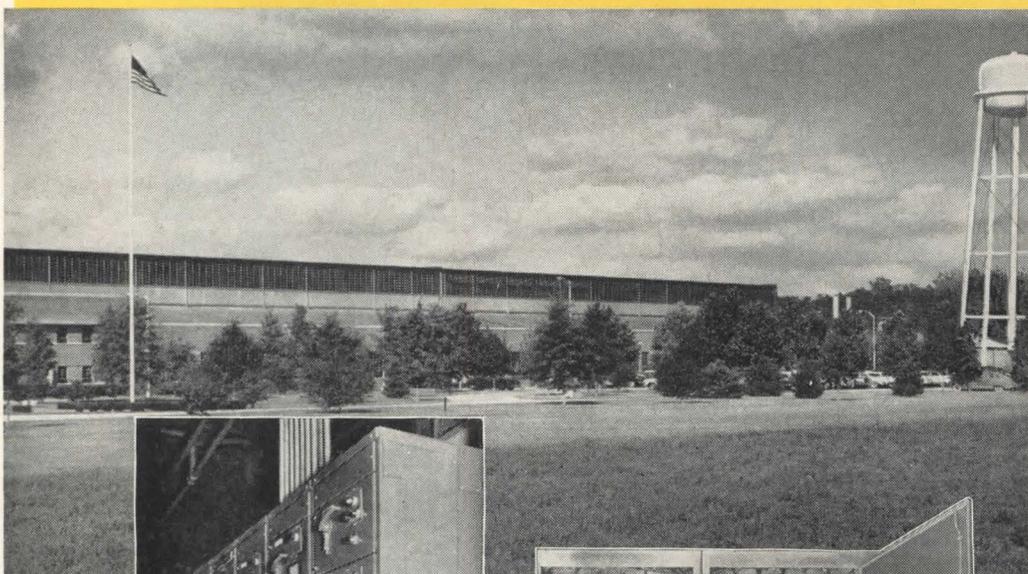


### Prefab Composite Girder

A prefabricated composite triangular girder, with the top flange formed of reinforced concrete, and the webs and bottom flange of steel, offers many advantages in the construction of roofs, floors and bridge decks, especially where long spans and heavy loads are required. Since the girders come with the top flange finished and watertight, they may be erected in any type of weather. This plus the carefully-controlled plant fabrication, and the ease of handling and erection is said to make them highly economical structural shapes. *Shlagro Steel Products Corp., Somerville 43, Mass.*

more products on page 290

# electricity is distributed and controlled



## A *Complete* LINE OF ELECTRICAL DISTRIBUTION AND CONTROL EQUIPMENT

- ADJUSTABLE SPEED DRIVES
- BUSWAYS & WIREWAYS
- CIRCUIT BREAKERS
- CONTROL CENTERS
- CRANE & HOIST CONTROL
- DISTRIBUTION SWITCHBOARDS
- ELECTRIC TRUCK CONTROL
- HIGH VOLTAGE CONTROL
- LAUNDRY CONTROL
- LIFTING MAGNETS
- LIGHTING AND POWER PANELBOARDS
- LIGHTING CONTROL — LOW VOLTAGE
- LIMIT AND FOOT SWITCHES
- MACHINE TOOL CONTROL
- MAGNETIC BRAKES
- METER MOUNTINGS
- MOTOR STARTERS
- PRESS CONTROL
- PRESSURE, FLOAT, & VACUUM SWITCHES
- PUSHBUTTONS
- RELAYS AND CONTACTORS
- RESISTORS
- SAFETY SWITCHES
- SERVICE ENTRANCE EQUIPMENT
- STAGE DIMMERBOARDS
- STEEL MILL CONTROL
- SWITCHGEAR & UNIT SUBSTATIONS
- SYNCHRONOUS MOTOR CONTROL
- TERMINAL BLOCKS
- TEXTILE MACHINE CONTROL
- TIMERS
- VOLTAGE TESTERS
- WELDER CONTROL



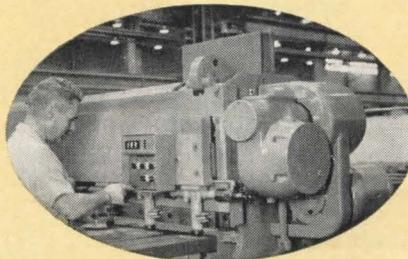
• This Square D control center in the Administration Building includes circuit breaker combination motor starters for the heat pump and air-handling equipment. Heat pump operation is automatically controlled through thermostats and programmed by clock system.



• Lighting (a high frequency system, 450 volts at 840 cps) in the Administration Building is controlled from this panel. Note space for future additions of Square D contactors as they're needed.



• Square D circuit breaker panelboards are installed throughout the plant. Breakers in upper half are for light switching; those in lower half for receptacles, emergency lights, drinking fountains, etc. Lockable, two-door arrangement prevents inadvertent switching of lower units.



• You'll find Square D controls on a lot of the machine tools which roll off Cincinnati Shaper's production lines. Above, Square D pushbuttons being installed on a power squaring shear.



# NOW!



## ONE instead of TWO

**Certain-teed®**  
**40# ROOFERS**  
**BASE SHEET**

More and more, Certain-teed's new 40-pound Roofers Base Sheet is being used in place of the two "dry" sheets of 15-pound felt previously required in nailable roof deck specifications. Result is speedier built-up roof construction.

The new sheet can be applied to a wet deck or exposed to the elements, allowing the quickest possible "drying-in" of a building. Since it is coated with asphalt in addition to being saturated, it resists moisture absorption and wrinkling and holds nails better.

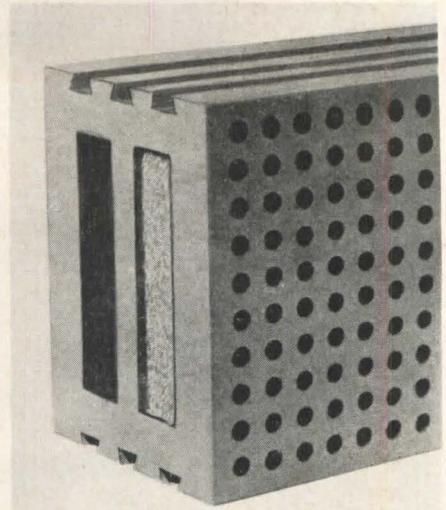
Get Certain-teed's "Built-up Roofing" manual from your Certain-teed representative or write direct.



**CERTAIN-TEED PRODUCTS CORPORATION**

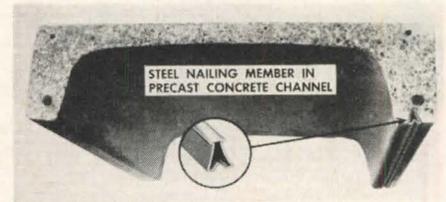
Ardmore, Pennsylvania • Plants and offices throughout the United States

### Product Reports



#### Sound-Absorbing Ceramic Tile

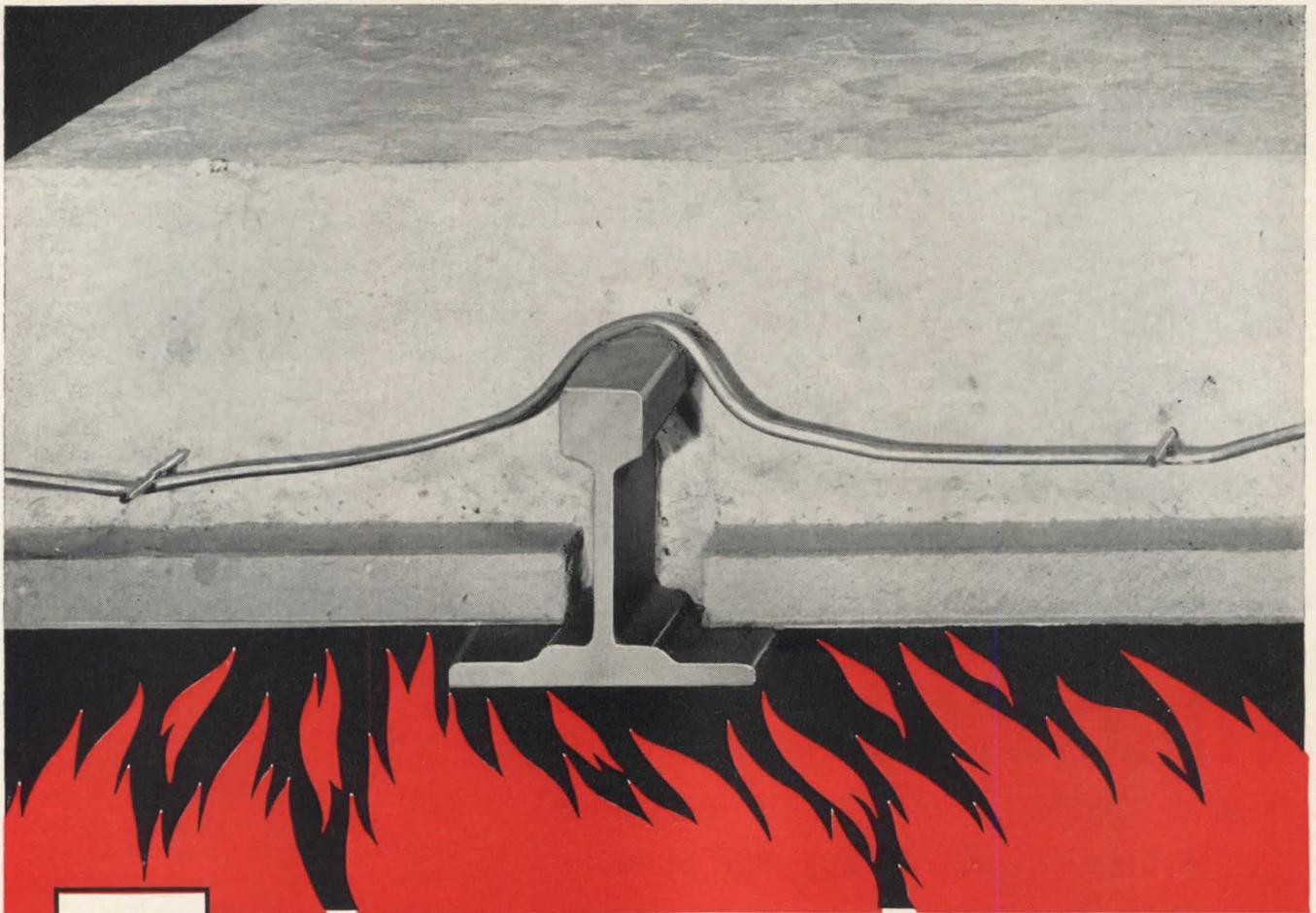
*SCR Acoustile*, a new ceramic glazed structural facing tile with a perforated face and a *Fiberglas* core, makes it possible to build, finish and sound condition a wall in a single operation. The units, which were recently developed by the Structural Clay Products Research Foundation, have a sound absorption factor of 65 per cent and a transmission loss of 47 decibels, and meet local and national code requirements for compressive strength and fire resistance. They come in clear glaze and a full range of ceramic field colors in 6T Stretcher Units with random and parallel perforations. *Metropolitan Brick, Inc., 1017 Renkert Bldg., Canton, Ohio*



#### Slabs with Built-In Furring

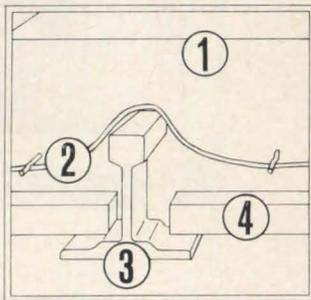
Long-span concrete channel slabs in lengths up to 32 ft are now being constructed with a continuous steel furring strip built into one leg. Since the channels are two feet wide, this gives a nailing surface every 24 inches, which greatly simplifies ceiling constructions. For example, plasterboard can be nailed directly to the channels, without intermediate furring members, to produce a fire-safe ceiling with room behind the plasterboard for utility and conduit runs. *George Rackle & Sons Co., Newburg Station, Cleveland, Ohio*

more products on page 298



**2½"**

**Poured Gypsum Roof Deck passes 2 hr. fire test!**



1. 2½" Gypsum Roof Deck
2. Mesh reinforcement
3. Subpurlin
4. ½" Gypsum formboard

**Extra half-inch thickness adds only 10% to cost, adds a full hour to fire resistance!**

In one of the most rugged fire tests ever run, a Gypsum Roof Deck, poured 2½" thick over ½" gypsum formboards, withstood a furnace temperature up to 1850°F. for over 2 hours before the first end-point temperature was reached on the top surface. The deck *still* carried an imposed live load of 40# per square foot when the test was completed.

Compare this to fire ratings of one hour for 2" gypsum roof decks, and less than one hour for most other decks, and you'll see what a bargain this 2½" system is. The extra half inch thickness of gypsum costs only a few cents per square foot, and adds a full hour to the fire rating!

Ask your Gold Bond® Representative for a copy of the test report, or write Dept. AR-260.

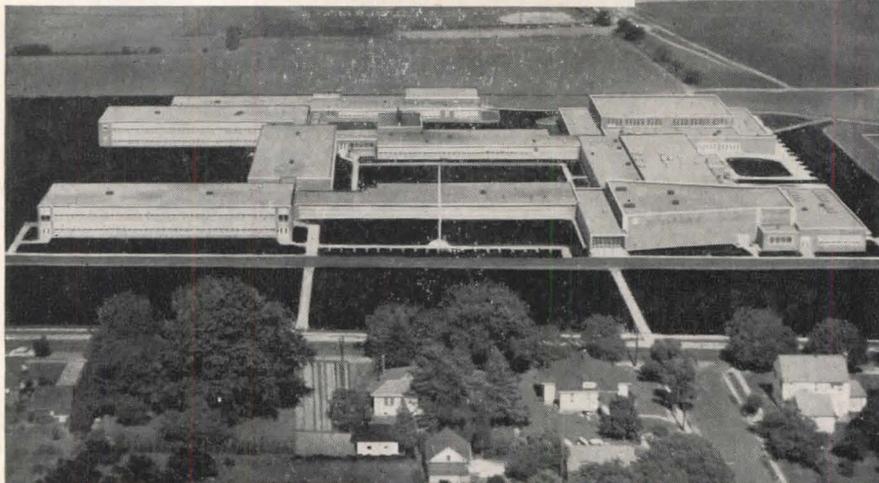
**NATIONAL GYPSUM COMPANY, BUFFALO 13, NEW YORK**



... a step ahead of tomorrow

## Product Reports

Architects: Edwards and Green, Camden, N. J.  
General Contractor: Messick Bros., Bridgeton, N. J.



# Vibroflotation®

was selected over alternate foundation solutions for New Jersey high school.

Bridgeton High School, Bridgeton, N. J., was built on sand compacted by Vibroflotation. 668 compactations were made to a depth of 12 feet below the bottom of footings to obtain a minimum 70% relative density.

Vibroflotation provided a substantial savings over alternate foundation solutions. Additional savings were realized through elimination of all formwork for footings.



Vibroflotation stabilizes granular soil so effectively that excavations retain neat, vertical walls even after placement of reinforcing steel and pouring of concrete.

Other schools recently built on sand compacted by Vibroflotation include: In Florida, nine Catholic schools in Pensacola, Orlando, Largo, St. Petersburg, Fort Pierce, and (four) in Miami; four educational buildings at the new University of South Florida, Tampa; Sarasota High School, Sarasota, Florida; Marlow Heights Junior High School, Prince George's County, Maryland; Colonie Junior High School, Colonie, New York.

Write for Booklet A-23

### Proven Applications

Deep Foundations • Dams  
Bridges • Airports • Tunnels  
Commercial Foundations  
Industrial Foundations

## VIBROFLOTATION FOUNDATION CO.

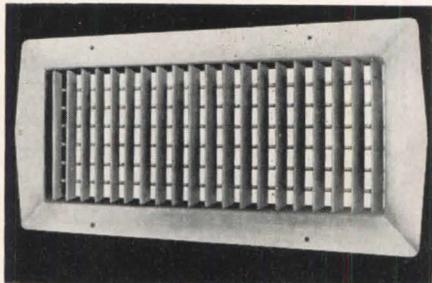
930 Fort Duquesne Boulevard  
Pittsburgh 22, Pa.

ATLantic 1-2500



### One-Piece Integral Expansion Bolt

A new one-piece, single integral expansion bolt is designed to simplify the fastening or anchoring of electrical equipment, structural members, machinery and so forth in concrete, masonry, plastic, stone, steel and other non-frangible materials. Called the *Wej-It*, the new bolt eliminates the need for marking operations, requires only one-size hole, and expands as it is wrench-tightened to provide an effective anchor. According to the manufacturer, tests have established that it saves up to 90 per cent in labor time and has a holding power four times greater than conventional fasteners. It is available in sizes ranging from 1/4-in. o.d. by 1 3/8 in. long to 3/4-in. o.d. by 12 in. long. *Kirel, Inc., Kingston, N. Y.*



### Molded Nylon Air Outlets

The *Aristocrat 400* series of nylon injection-molded grilles, registers and curved blade diffusers is said to offer many special features at a cost comparable to that of metal air outlets. The manufacturer points especially to total rust elimination; the sound absorbing characteristics of nylon, which permit higher air velocities without noise; and a built-in double *Air-Loc*, which provides permanent air-tight closure against wall or ceiling without gaskets. The outlets in the line come in a variety of types and sizes, all in an easily maintained two-tone gray finish. *Air Guide Plastics Corp., 20 S. E. 3rd Ave., Miami 32, Fla.*

more products on page 304

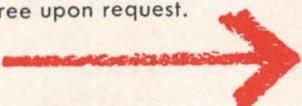


**Look for  
the WCLB  
STAMP  
on  
LUMBER**



Either mill number or name appears as part of stamp.

Shown above are five basic stamps of the WCLB grading system. Details of these as well as all other WCLB grade stamps are shown in a pocket size folder "Grade Stamps for West Coast Lumber" free upon request.



The WCLB grade stamp is used by some 450 sawmills operating in Coast-type timber in Western Washington, Western Oregon and Northwestern California. These mills believe in strict conformance to uniform standards of lumber grading and manufacturing. Grading procedure in each of these mills is carefully supervised; they take pride in their reliability and in their product.

Look for the WCLB grade stamp on lumber. For 35 years it has been the "seal of approval" on lumber everywhere.

**WEST COAST LUMBER INSPECTION BUREAU**

of the West Coast Lumbermen's Association



West Coast Lumber Inspection Bureau Room 14  
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Please send me your free folder  
"Grade Stamps for West Coast Lumber".

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## TEMPLE-TOP PERFORMANCE

### Pair of Cleaver-Brooks boilers give top efficiency on top floor of San Francisco's new 10-story California Masonic Memorial Temple

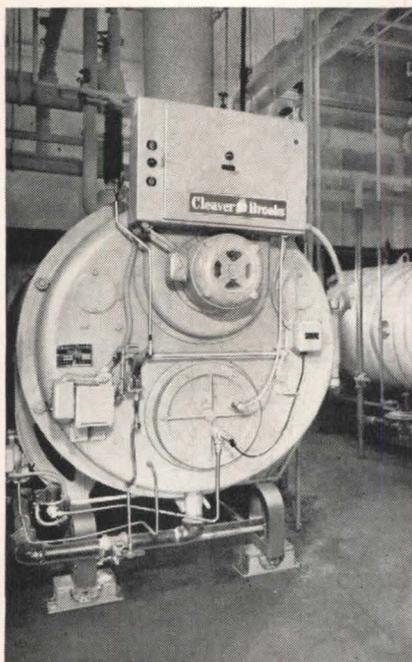
Cleaver-Brooks packaged boilers go to the top in many of today's best designed structures. A perfect example is this new \$6,000,000 Masonic temple where all the mechanical equipment including two 60 hp hot water CB heating boilers are neatly consolidated on the building's top level.

This move upward is made practical by a boiler that not only looks better but operates cleaner, quieter in a lot less space — a boiler with styling and performance in keeping with the most modern of designs.

Architect for this magnificent new structure was Albert Roller. Engineers were Dudley Deane & Associates. James A. Nelson

Co. was the heating contractor. General contracting was performed by MacDonald, Young and Nelson.

If you'd like to know more about the "top" boiler in the field—how Cleaver-Brooks packaged boilers (15 to 600 hp) can fit into your particular plans, contact your representative or write Dept. B, 362 East Keefe Avenue, Milwaukee 12, Wis.



**Cleaver**  **Brooks**

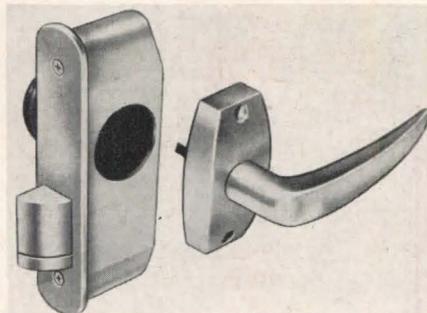
ORIGINATOR AND LARGEST PRODUCER  
OF PACKAGED BOILERS

## Product Reports



### Decorative Dry Wall Panels

A new wall panel that combines the durability and ease of maintenance of *Micarta* high-pressure decorative laminates with the ease of installation, insulation properties, and strength of processed pulpboard is expected to find wide use in commercial, institutional and residential interiors. Since the panels can be stapled directly to studs or furring and can be worked with conventional hand tools, a complete dry wall can be constructed rapidly with a single application of a single material. A barrier sheet applied to the back surface assures stability over a wide climatic range. The panel sections which come in eleven patterns with matching moldings, are 96 in. high, 0.55 in. thick, and designed for tongue-and-groove jointing on 16-in. centers. *Micarta Div., Westinghouse Electric Corp., Hampton, S. C.*



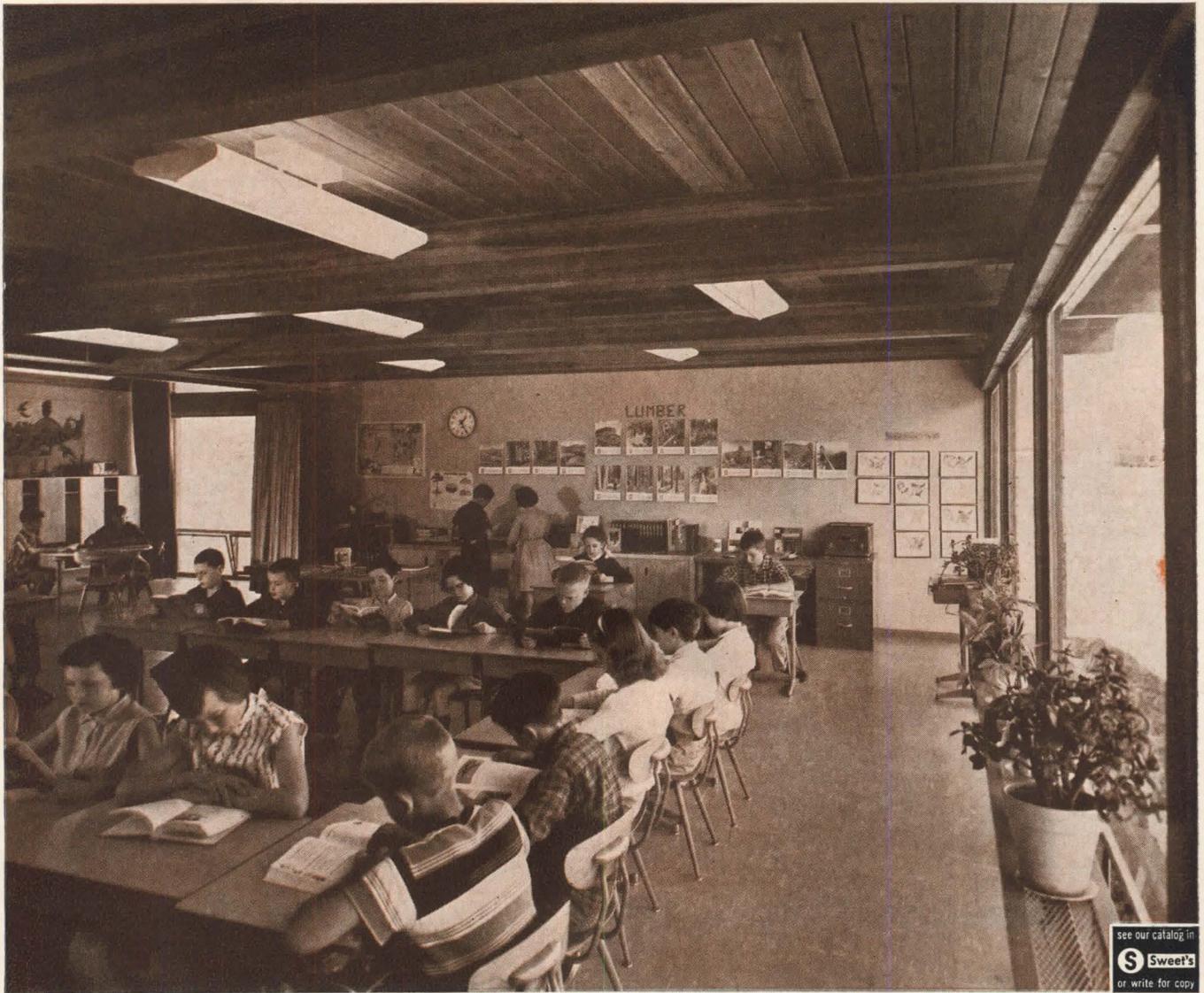
### Dead Locking Door Latch

The newest addition to Detroit Hardware's line of door locks is a *Dead Locking Latch* engineered for long lasting dependability. Its principal features are a bolt that can be held retracted with use of a key only, and its interchangeability with other locks in the line which makes it possible to install without additional machining on the door. *Detroit Hardware Mfg. Co., Roseville, Mich.*

**Tokeneke Elementary School, Darien, Connecticut. Architects: O'Connor & Kilham, New York City. Contractor: George L. Hickey, Inc., Stamford, Connecticut.**

**Space provided:** fourteen classrooms, two kindergarten rooms, multi-purpose Common Room, covered play area, library, administrative suite, two conference rooms, teachers' room, health room, ten toilet areas, cafeteria kitchen, storage areas, custodial facilities. **Structural framing:** glulam timber beams spaced at 7'-9" for classrooms; glulam beam-and-column bents spaced at 21'-9" for Common Room and play area; heavy timber decking left exposed for ceilings. **Exterior walls:** brick with concrete block in service area; cypress siding for playroom. **Interior walls:** plastic coated coverings in classrooms, Common

Room and halls. **Heating:** hot water radiant panel system, zoned and thermostatically controlled. **Ventilation:** exhaust fans in classrooms, toilet rooms and kitchen; tempered air supply units in Common Room. **Lighting:** semi-indirect fluorescent fixtures. **Floors:** vinyl asbestos tiles on concrete slab over insulated concrete fill and moisture barrier. **Roofing:** translucent corrugated panels over playroom and covered walks; built-up tar and felt with white graveled surface over remainder. **Volume:** 300,000 cubic feet. **Area:** 28,000 square feet. **Cost:** \$14.40 per square foot; per-pupil cost \$760 (state average \$1105).



see our catalog in  
  
 or write for copy

Glued laminated timber beams provide structural framing for a fire-safe school of natural charm while contributing to a saving of 31% in prevailing per-pupil cost of construction.

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 and Producers' Council

# Send Today for this New Data on Upward-Acting Doors for Every Need



Kinnear originated the interlocking slat door

Get full details on this complete line of time-saving, cost-slashing doors. They add highest efficiency to space-saving, coiling upward action. Kinnear offers a wide choice of flat and curved slats—fabricated of aluminum, zinc-coated steel, or other metals. They fit every need, from small counter openings to largest doorways. Slat sizes range up to the seven-inch "Goliath" slat at the extreme left, above — maximum protection against wind,

weather, intrusion or vandalism!

### Zinc-Coated Dual Protection

Kinnear Steel Rolling Doors feature extra-heavy hot dip galvanizing! 11¼-ounces of pure zinc per square foot of metal (in accordance with ASTM standards). And Kinnear's special phosphate treatment makes this zinc surface ready *immediately* for thorough paint grip.

Make sure you get this complete door guide — check it *now!*

**KINNEAR**  
ROLLING DOORS  
Saving Ways in Doorways

### The KINNEAR Mfg. Co.

FACTORIES:  
1860-80 Fields Ave., Columbus 16, Ohio  
1742 Yosemite Ave., San Francisco 24, Calif.  
Offices and Agents in All Principal Cities

## Office Literature

continued from page 232

### Zone Heat Control

Describes and gives advantages, wiring diagram, and installation diagrams for *Zonvalve* zone heat controls for steam, hot water and chilled water systems. 4 pp. *Heat-Timer Corp.*, 657 Broadway, New York 12, N. Y.

### Insulation for Modern Roof Decks

Discusses economic and other advantages of effective insulation for roof deck construction; and gives detailed design and performance data, and specifications on a variety of roof deck systems. 32 pp. *Celotex Corp.*, 120 S. La Salle St., Chicago 3, Ill.\*

### Louvered Ceiling (A.I.A. 31-F-2)

Describes and gives suggested layouts, application data and lighting data for *SC-Mini-Cell* louvered ceilings. 4 pp. Also available: a sample kit of actual sections of the aluminum louver panels. *Neo-Ray Products, Inc.*, 315 East 22nd St., New York 10, N. Y.\*

### Aluminum Curtain Wall Details

Presents details and specifications for *Modu-Wall* aluminum frames, windows, mullions and insulated panels. 8 pp. *Modu-Wall, Inc.*, *Parchment, Ind.*

### The Answer

... to All Soap Dispensing Problems (A.I.A. 29-I) describes the advantages of a new recessed powdered hand soap dispenser, and gives a specification extract. 4 pp. *20 Mule Team Products Div., United States Borax & Chemical Corp.*, New York 20, N. Y.

### Architectural Metal Products

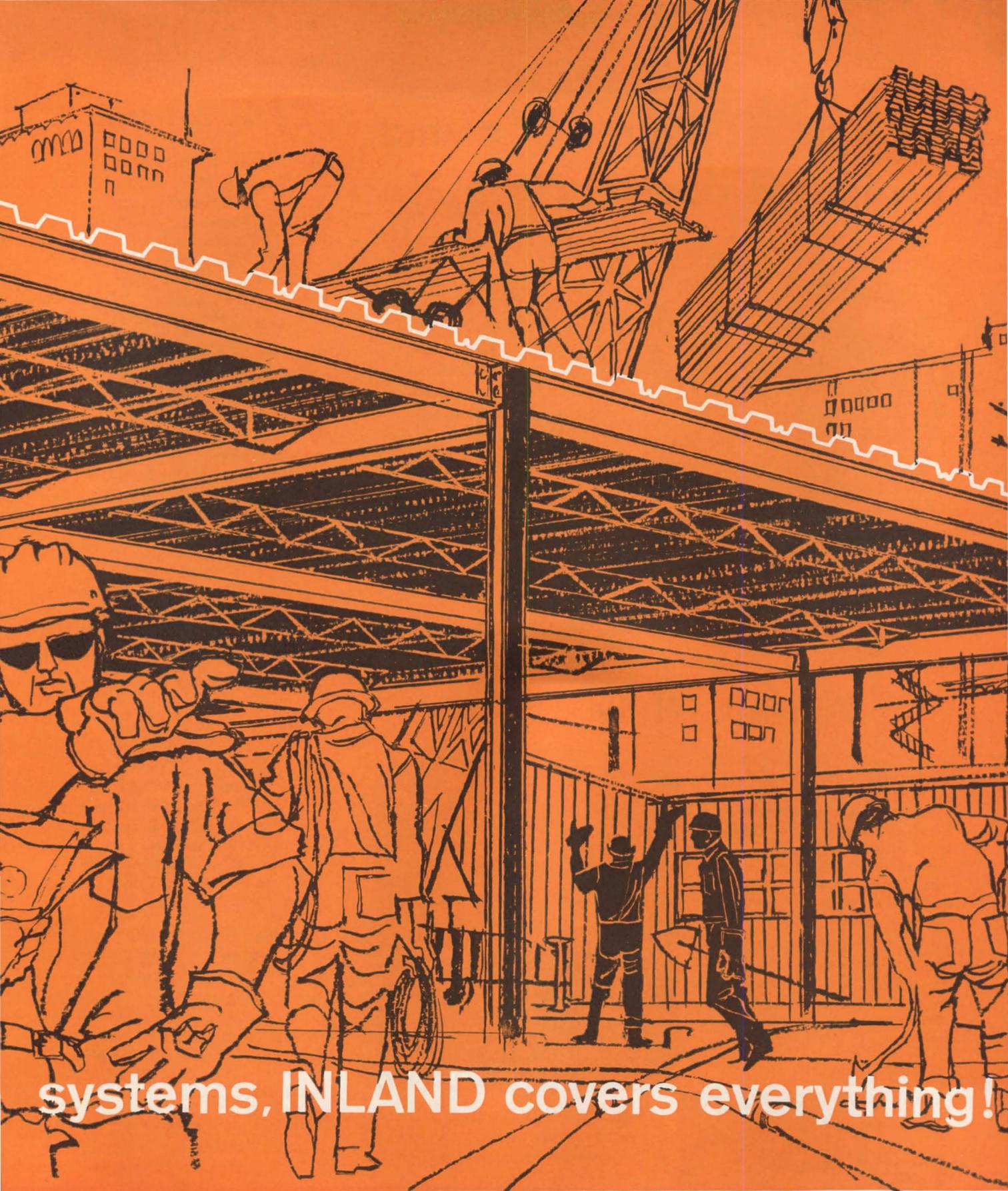
Presents features of *Brasco* line of architectural metal products, with separate sections on aluminum entrances, store fronts, *Brasco-Walls* and *Tube Set* flush glazing construction. Details are included. Catalog 60, 16 pp. *Brasco Mfg. Co.*, 15207 Commercial Ave., Harvey, Ill.\*

### Bells and Chimes

Describes and gives complete selection data on bells and chimes for signal and alarm applications. 4 pp. *Autocall Co.*, *Shelby, Ohio* \*

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

more literature on page 314



systems, INLAND covers everything!

absorb water, nor lose their strength when wet — the job stays on schedule.

Types A, B, C, and H decks have the additional advantage of a Bonderized, baked-enamel prime finish that resists on-the-job damage. One field coat of paint on these Inland decks usually does the job of two coats on ordinary decks.

Write for catalogs 240, 241, and 245 — or see Sweet's sections 2c/Inl, 11a/In, and 2a/In for full information on Inland steel roof deck and permanent centering. If you have an unusual problem, you can draw upon their diversified experience by consulting Inland's Engineers.

member of the  steel family

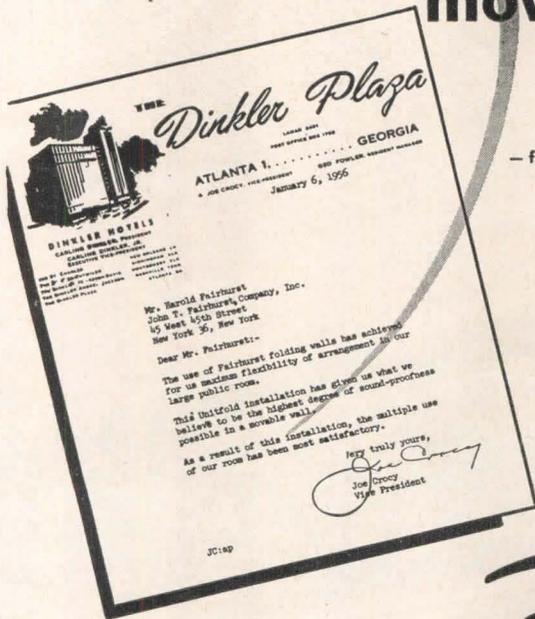
ENGINEERED PRODUCTS DIVISION

**INLAND STEEL  
PRODUCTS COMPANY**

Dept. B, 4033 West Burnham Street  
Milwaukee 1, Wisconsin

DALLAS, DENVER, DETROIT, KANSAS CITY, LOS ANGELES, MILWAUKEE, MINNEAPOLIS, NEW ORLEANS, NEW YORK, ST. LOUIS

"...highest degree of sound proofness possible in a movable wall"



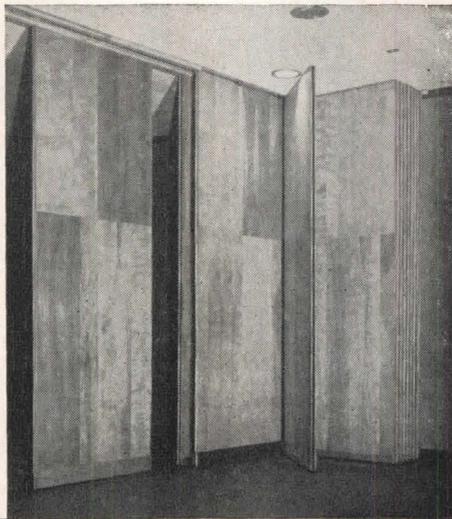
— from a letter by A. Joe Crocy, Vice-President, The DINKLER-PLAZA, Atlanta. Alexander & Rothschild, Arch.

**Fairhurst**

## UNITFOLD® FOLDING WALLS

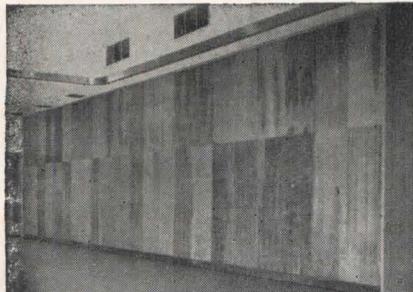
In the Dinkler-Plaza banquet room, Unitfold Walls are used to create as many as six separate areas. Sound between these rooms is blocked with the efficiency of a 10" to 12" plaster-coated SOLID BRICK WALL. This is done through double-run wall sections, lined with acoustical material and separated by sound retarding dead-air space.

All Fairhurst Walls are solid, rigid, with virtually unlimited choice of decor. Write Dept. AR for free illustrated booklet describing Fairhurst solutions to perplexing space problems.



↑ Units fold compactly to one side at the Dinkler-Plaza. Possible variations allow complete concealment of wall in special pockets.

◀ Handsome grained veneers give the appearance of a permanent wall.



**John T. Fairhurst Co., Inc.**

45 West 45th Street

New York 36, N. Y.

FAIRHURST . . . First Name in Folding Walls

## Office Literature

### Metal Doors and Frames

Describes complete line of hollow metal doors and frames, special hollow metal openings, industrial steel doors, kalamein and tin clad fire doors, and soundproof doors. Specifications are included. 8 pp. *Pioneer Fireproof Door Corp., 811 S. Fulton Ave., Mount Vernon, N. Y.\**

### Toilet Partitions

Gives details and specifications for toilet partition line including a series faced with laminated plastic. Color chips of the enamels used on metal partitions, and information on standard fittings and hardware, are also included. 12 pp. *American Sanitary Partition Corp., 37-03 21st St., Long Island City 1, N. Y.\**

### Panelfab Doors

Describes, and gives specifications and details for, Panelfab's new packaged aluminum-faced honeycomb door, frame and hardware. *Panelfab Products, Inc., 2000 N. E. 146th St., North Miami, Fla.\**

### Standard Grading Rules

. . . for *Southern Pine Lumber*, 1960 Edition, further simplifies standards for established grades and adds new features, including provisions for special roof decking, all-purpose stress ratings, and revised moisture content provisions. *Southern Pine Inspection Bureau, P. O. Box 1170, New Orleans 4, La.*

### Cast Panel Construction

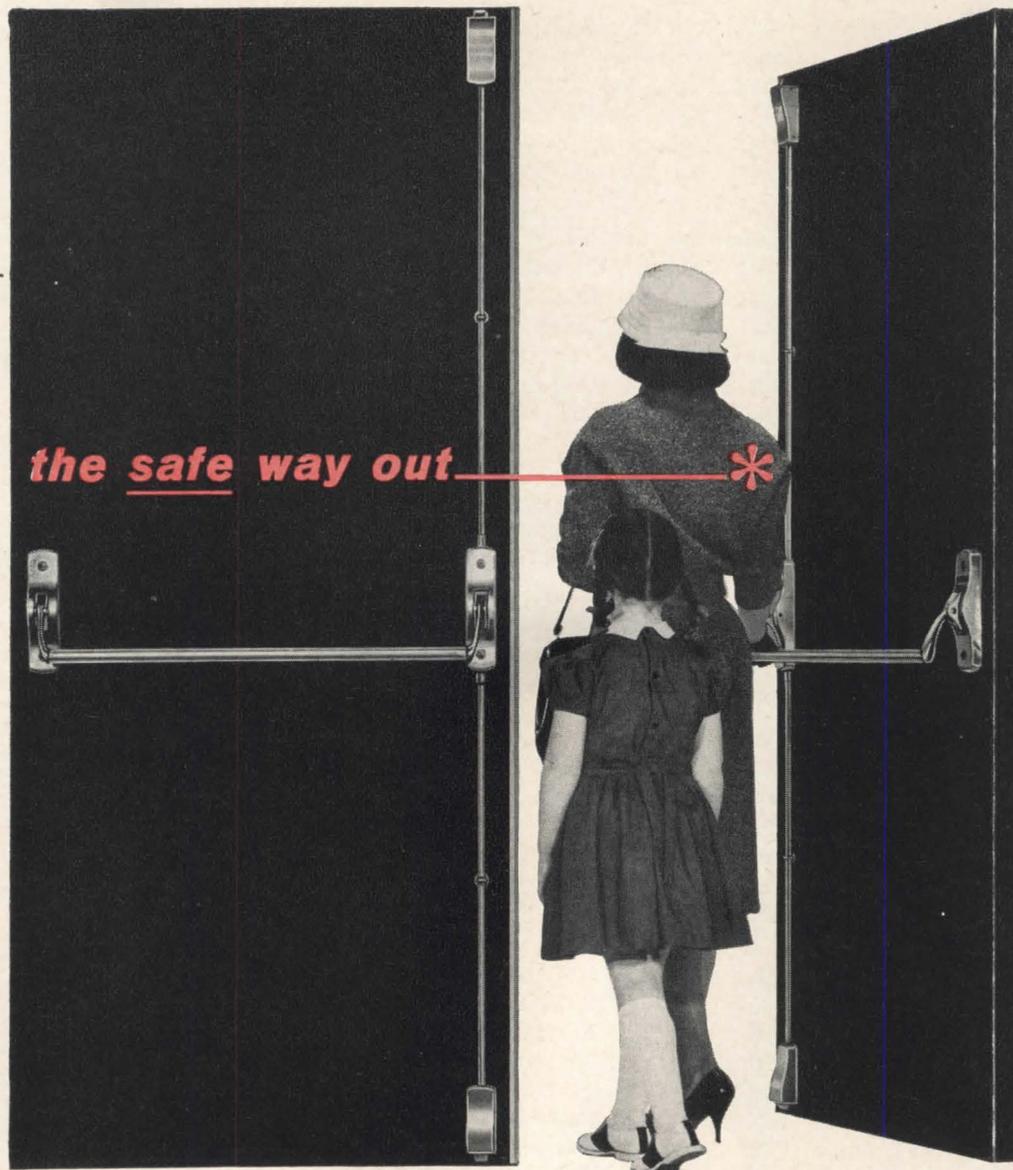
. . . for *Curtain Walls and Fascia Panels* gives engineering data, details and specifications for the Type CWA-5 curtain wall framing system, which employs castings as well as standard metal wall components. *The Michaels Art Bronze Co., Inc., P. O. Box 688, Covington, Ky.\**

### Pocket Manual on Heating

Includes sections on wet heating systems, radiation, unit heaters, pumps, specialties, control equipment, engineered radiation, blower unit heaters, special purpose pumps and related products, engineering data, and terminology. \$1. prepaid. *Dunham Bush, Inc., West Hartford 10, Conn.\**

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

more literature on page 318



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**illustrated above:** the sleek, smart Type 66 device . . . in stainless steel. Catalog number 6621 on active door; 6627 on inactive door. Write for Bulletin 581 for full details.

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## Office Literature

### Doctor's Interphone

... and Music System, Installation Sheet IS-100, describes the operation and advantages of a Bogen communications and music system as installed in a typical doctor's office or small clinic. 4 pp. *Bogen-Presto Co., P. O. Box 500, Paramus, N. J.*

### Aluminum Curtain Walls

(A.I.A. 17-A) Presents product descriptions, specifications and complete detail drawings for five stock curtain wall systems. 24 pp. *American Art Metals Co., P. O. Box 7364, Station C, Atlanta, Ga.\**

### Cushioned Rubber Floor Tile

Lists properties, features and suggested applications for *Airpath* cushioned rubber floor tile. An acoustical properties chart and other technical data are included. *B. F. Goodrich Co., Flooring Products, Watertown, Mass.\**

### Non-Slip Aggregates and Abrasives

Describes and gives specifications for the various types of application of *Alundum* terrazzo and concrete aggregates and non-slip abrasives. Catalog 1935-16, 8 pp. *Norton Co., Worcester 6, Mass.\**

### Underfloor Duct System

(A.I.A. 31-C-62) Gives detailed descriptions, specifications and installation information on *Orangeburg* non-metallic underfloor raceways for electric wiring distribution. Catalog 203, 14 pp. *Orangeburg Mfg. Co., 375 Park Ave., New York 22, N. Y.\**

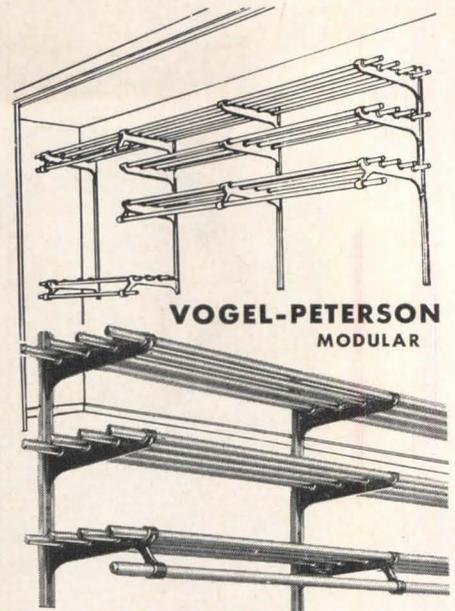
### Reflectolites by Gruber

(A.I.A. 31-F-2) Describes and illustrates, with complete specifications and mounting details, the *Reflectolite* line of wall mounted fluorescent and incandescent lighting fixtures for indoor and outdoor use. Catalog R-60, 16 pp. *Gruber Bros., Inc., 90 S. First St., Brooklyn 11, N. Y.*

### Carriers and Plumbing Fixtures

Engineering manual illustrates and gives selection data and detail drawings for complete line of carriers and carrier fittings. Catalog W-78, 48 pp. *Wade Mfg. Co., Elgin, Ill.*

\*Additional product information in *Sweet's Architectural File* more literature on page 324



VOGEL-PETERSON  
MODULAR

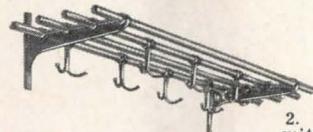
## CUSTOM-LINE

### Aluminum HAT and COAT RACKS

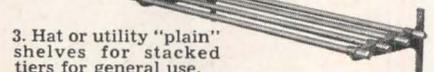
Tailored to fit any given wall area. Die cast aluminum brackets adjustable to exact centers . . . also adjustable as to height without removing from wall.

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2. Hat shelves with staggered cast aluminum coat hooks.

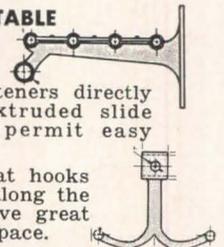


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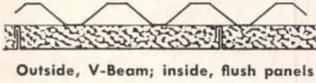
For complete information, structural spans and specification, please refer to Sweet's Architectural File 8b/Sm, or write for Bulletin 59S.



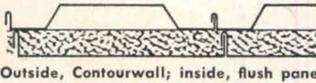
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## Office Literature

### Riveting Aluminum

Covers use of conventional and special rivets and explains design and fabrication of riveted joints. Tables list weights and dimensions of aluminum rivets, recommended rivet lengths, mechanical properties of wrought aluminum alloys, and other data. 52 pp. *Reynolds Metals Co., Dept. PRD-23, Richmond 18, Va.\**

### Welded and Fitted Railings

Provides basic engineering and specification data and standards for railing design plus design details for welded and fitted railings. 12 pp. *Tubular Products, Inc., Souderton, Pa.\**

### Rolling Steel Doors

(A.I.A. 16-D) Details features and engineering specifications of fourteen types of rolling steel doors. Tables of clearance dimensions and specifications for window shutters and grilles are also included. Catalog G-60, 16 pp. *R. C. Mahon Co., East 8-Mile Rd., Detroit 34, Mich.\**

### Pyrex Lifetime Drainline

(A.I.A. 29-B-8) Contains product and property data, information on joints and hanging, and a complete list of available fittings for the new Pyrex lifetime drainline system for disposal of corrosive wastes. Schematic drawings and sample specifications are also included. Bulletin PE-30, 12 pp. *Plant Equipment Sales Dept., Corning Glass Works, Corning, N. Y.\**

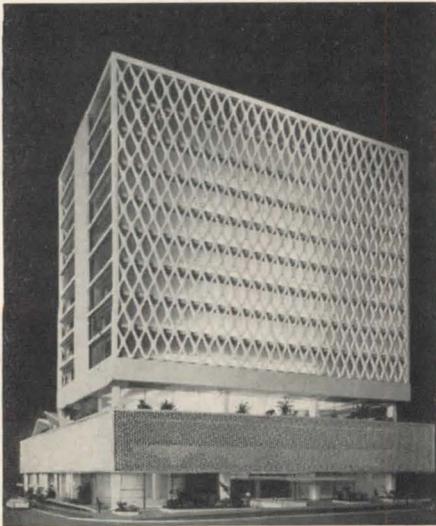
### Expanded Metal Meshes

(A.I.A. 15-T) Shows five new architectural expanded metal meshes, with drawings and descriptions of suggested applications, and a table of sizes, weights and dimensions. 8 pp. *Penn Metal Co., Inc., Expanded Metal Sales Office, P. O. Box 1460, Parkersburg, W. Va.\**

### Painting Galvanized Steel

Describes galvanized steel sheets, including those with inhibitive coatings; discusses the reasons for painting galvanized steel; and gives instructions for selecting and applying appropriate paints. 14 pp. *American Iron and Steel Institute, 150 East 42nd St., New York 17, N. Y.\** Additional product information in *Sweet's Architectural File*

*The Record Reports*



**California Office Building  
Has Load-Bearing Grilles**

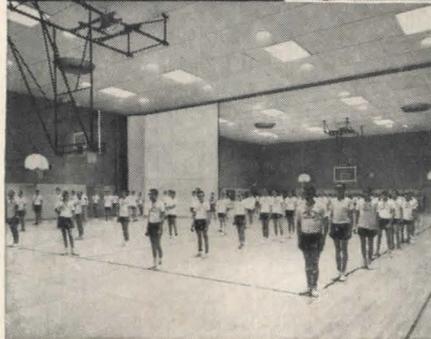
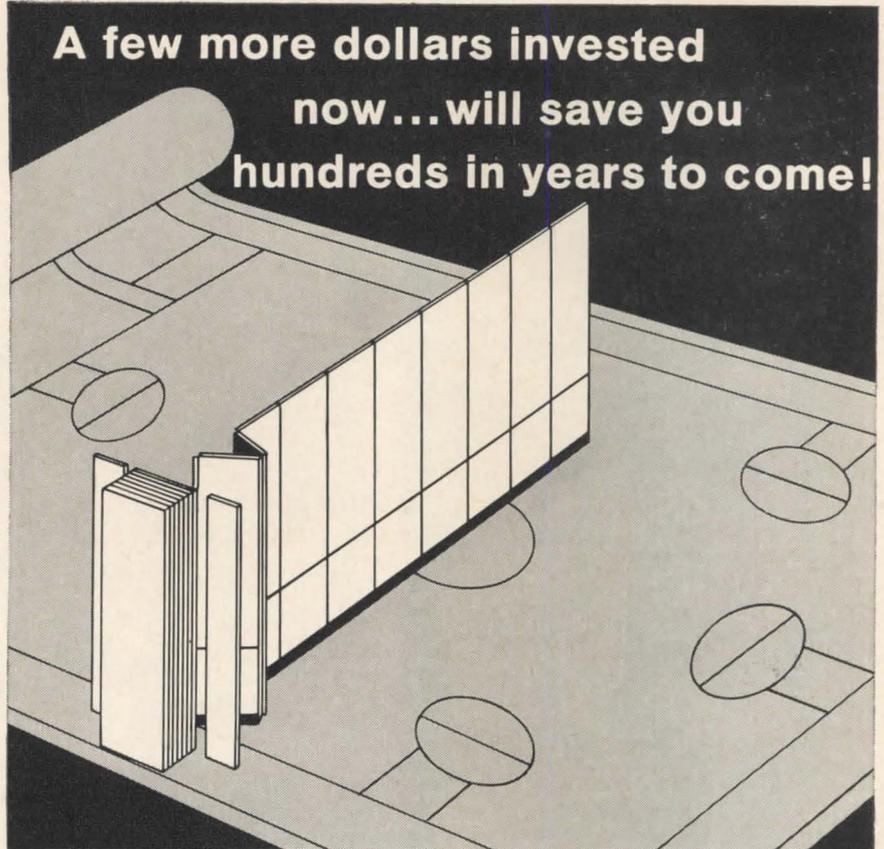
The American Cement Corporation's 13-story home office building in Los Angeles, scheduled for completion next fall, is a reinforced concrete structure with load-bearing concrete grilles as north and south walls. Concrete mullions surround two parking levels above the ground floor. Daniel, Mann, Johnson & Mendenhall, architects and engineers; Peter Kiewit Sons Co., general contractor.



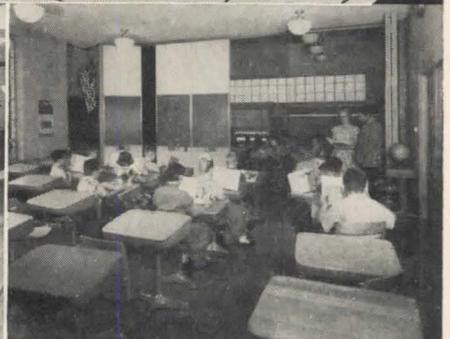
**New Orleans Office Building  
To Be City's Largest**

Construction is to begin soon on New Orleans' largest office building, a 28-story structure at 225 Baronne. Total net rentable area is 421,000 sq ft, with each floor having about 16,500. Shaw, Metz & Associates, architects.

*more news on page 334*



Shadle Park High School, Spokane, Washington,  
Culler, Gale, Martell and Norrie, Architects



Grace McWayne School, Batavia, Illinois,  
Raymond A. Orput, Rockford, Architect

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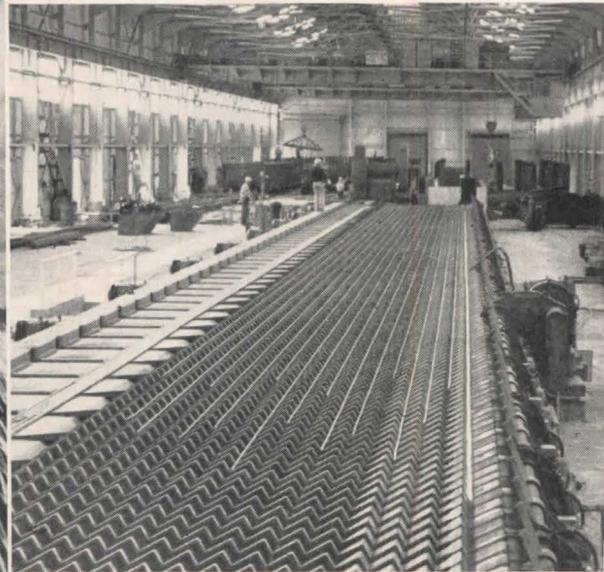
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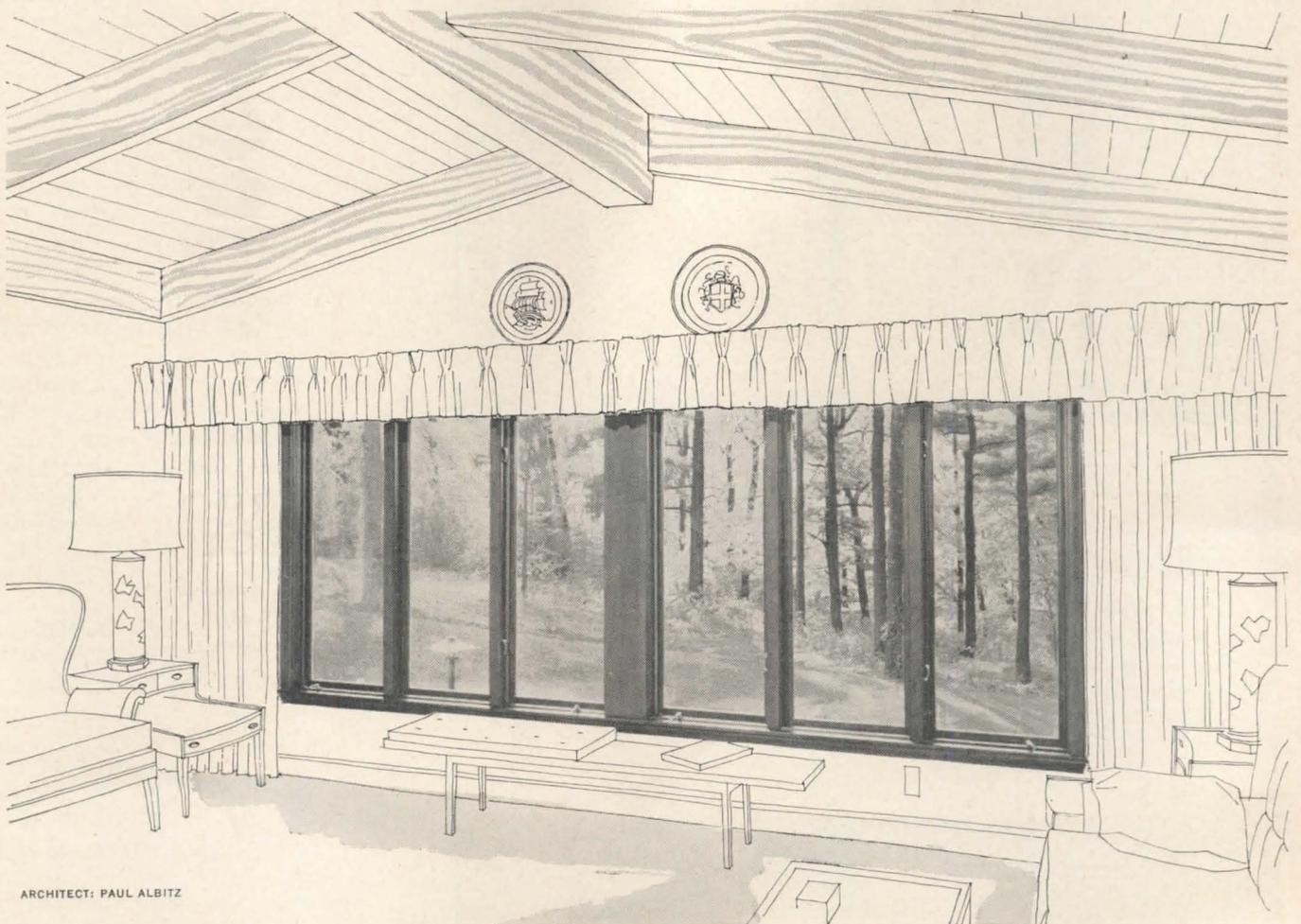


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ARCHITECT: PAUL ALBITZ

## The Record Reports

### On the Calendar

#### February

- 1-4 Semi-Annual Meeting, American Society of Heating, Refrigerating and Air-Conditioning Engineers—Baker Hotel and Memorial Auditorium, Dallas
- 1-4 First Instrument-Automation Conference and Exhibit of 1960, sponsored by Instrument Society of America—Rice Hotel and Sam Houston Coliseum, Houston
- 5-7 Fourth Annual Home Improvement Products Show—Navy Pier, Chicago
- 18-20 Winter Meeting, National Society of Professional Engineers—Broadview Hotel, Wichita, Kan.
- 22-27 Banff Session '60, Architecture and Structure—Banff, Alberta, Canada
- 29ff National Convention and Exhibit, Dept. of Audio-Visual Instruction, National Education Association; through Mar. 4—Netherland Hilton Hotel, Cincinnati

#### March

- 6-9 Fifth National Electrical Industries Show, sponsored by Eastern Electrical Wholesalers Association—The Coliseum, New York
- 7-11 National Convention (first of three in 1960), American Society of Civil Engineers—New Orleans
- 13-14 Annual Convention, National Housing Conference—Statler-Hilton Hotel, Washington
- 14-17 56th Annual Convention, American Concrete Institute—Commodore Hotel, New York
- 21-23 First National Electric House Heating Exposition, sponsored by Electric House Heating Equipment Section, National Electrical Manufacturers Association—Sherman Hotel, Chicago

#### April

- 4-7 1960 Nuclear Congress—The Coliseum, New York

*continued on page 338*

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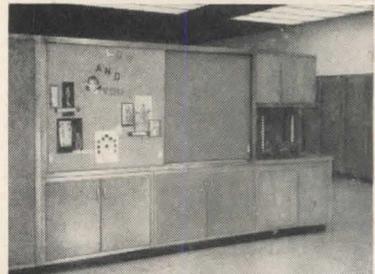
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- 5-7 Spring Conferences, Building Research Institute—Statler-Hilton Hotel, New York
- 18-22 92nd Annual Convention, American Institute of Architects—Mark Hopkins Hotel, San Francisco
- 19-21 Church Design and Building Conference and Exposition—Morrison Hotel, Chicago
- 25-27 Annual Convention, Construction Specifications Institute—Rickey's Studio Inn, Palo Alto, Calif.

25-29 41st Annual Convention and Welding Exposition, American Welding Society—Biltmore Hotel and Great Western Exhibit Center, Los Angeles

**Office Notes**

*Offices Opened*

Ralph C. Beardsworth and Robert C. Stearns announce a new partnership, Beardsworth & Stearns, Architects, at 1290 Patterson St., Eugene, Ore.

John W. Floore and Clyde Huepelsheuser announce a new partnership for the practice of architecture, Floore & Huepelsheuser, at 1401 W. Lancaster, Fort Worth, Texas.

James Waldowski, A.I.A., has opened an office for the practice of architecture at 310 Fidelity Bldg., Spokane, Wash.

*Firm Changes*

Chatelain, Gauger and Nolan, Architects and Engineers, announces that James L. Murphy, Jr., A.I.A., and Thomas J. Stohlman, A.I.A., are now associates in the firm. Address: 1632 K St., N.W., Washington.

Daniel, Mann, Johnson & Mendenhall, Inc., announces the appointment of Frank R. Sherman, manager, international operations, as vice president. Address: 3325 Wilshire Blvd., Los Angeles 5.

Charles Luckman Associates of New York and Los Angeles announces that Edward X. Tuttle, Sr., has joined the New York office as vice president.

D. B. Steinman, Consulting Engineer, announces that his associates R. M. Boynton, C. H. Gronquist, and J. London have been admitted to partnership and that the firm is now known as Steinman, Boynton, Gronquist & London, Consulting Engineers. Address: 117 Liberty St., New York 6.

*New Addresses*

Frank D. Cain, Jr., A.I.A., 609 Cedar Ridge Rd., Bowling Green, Ky.

Chapman & Hurst, Architects, 416 Moore Ave., Toronto 17, Ont.

Jos. V. Edeskuty & Associates, Consulting Engineers, 2917 Hennepin Ave., Minneapolis 8.

Gunn & Meyerhoff, A.I.A., 128 Haversham St., Savannah, Ga.

Hammel & Green, Inc., Architects, 2650 University Ave., St. Paul.

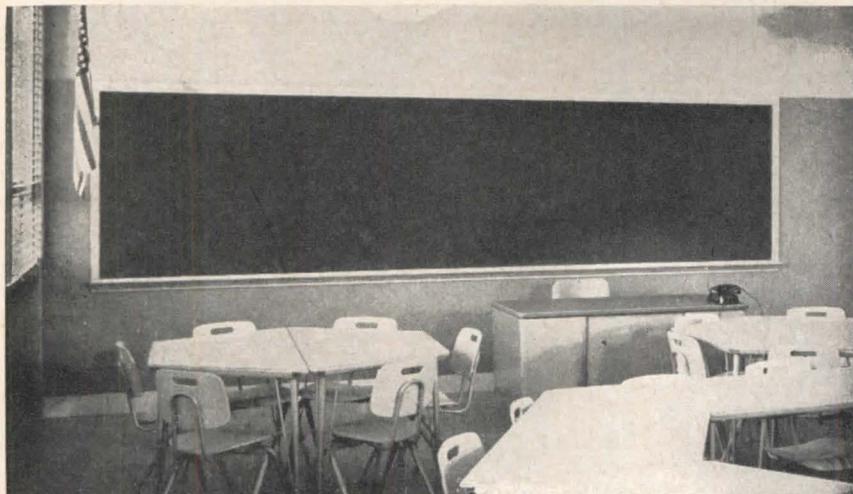
LaPierre, Litchfield & Partners, Architects, and Litchfield, Whiting, Bowne & Associates, Architects and Engineers, 8 W. 40th St., New York 18.

Charles Luckman Associates (New York office), 680 Fifth Ave., New York 19.

Simons, Lapham and Mitchell, Architects, 10 N. Atlantic Wharf, Charleston, S. C.

Walker-McGough-Trogdon, Architects, North Nine Post St., Spokane 1, Wash.

*more news on page 344*



West Springfield High School West Springfield, Mass. Arch., Warren H. Ashley West Hartford, Conn.

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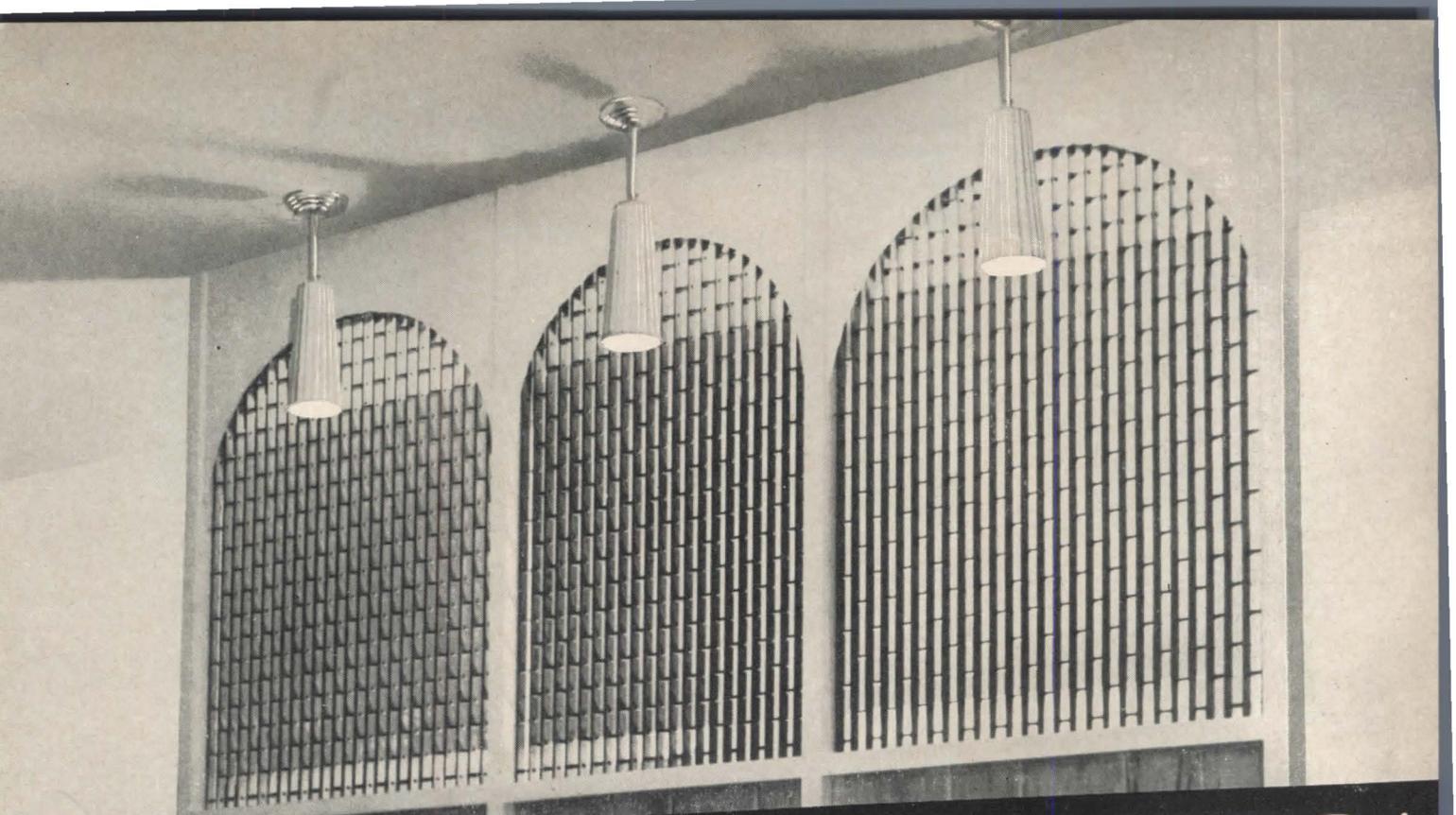
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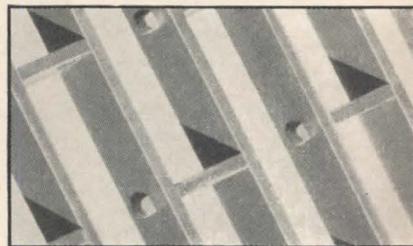
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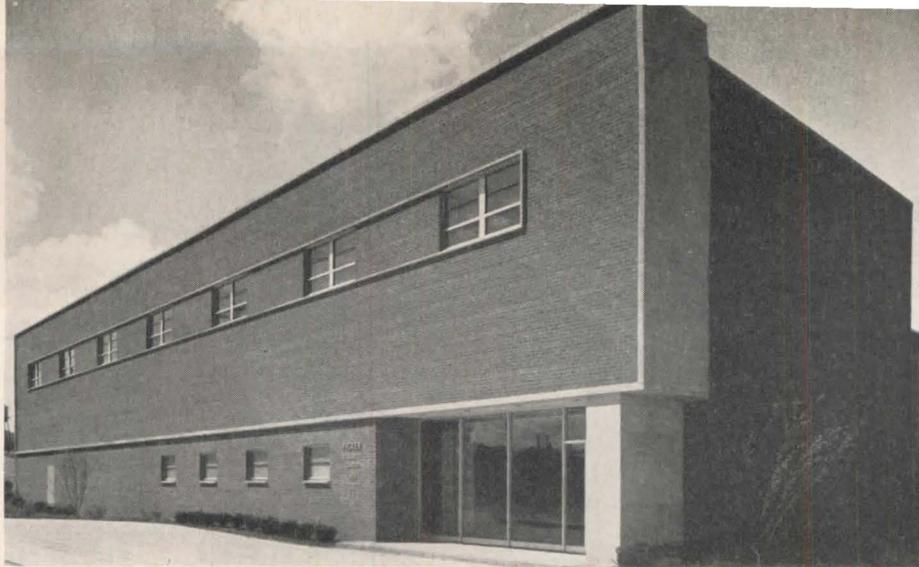
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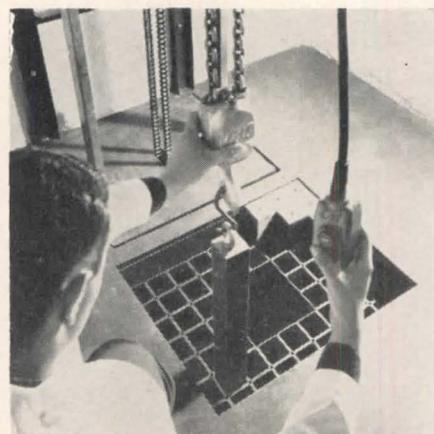
The Picker Research Center in Cleveland, dedicated last June, is one of the most completely equipped radioisotope laboratories in the country for commercial use. McGeorge-Hargett & Associates were architects and engineers for the \$1-million Center; the Sam W. Emerson Company was general contractor.

Because the Center is located near



residential and industrial areas, particular emphasis was placed on maximum safety in design, construction, and operation. Some of the design features:

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Gamma "garden," the main storage vault for radioisotopes and the high-level irradiation facility, is a well extending from the first-floor level to the basement level. The 54 storage tubes (one here being sealed by a technician) can hold up to 100,000 curies of Cobalt 60 or equivalent. The 6-ft-sq well in a corner of the building is shielded on the inner sides by shield rooms filled with coarse concrete sand (bulk density: 127 lbs per cu ft)

more news on page 346

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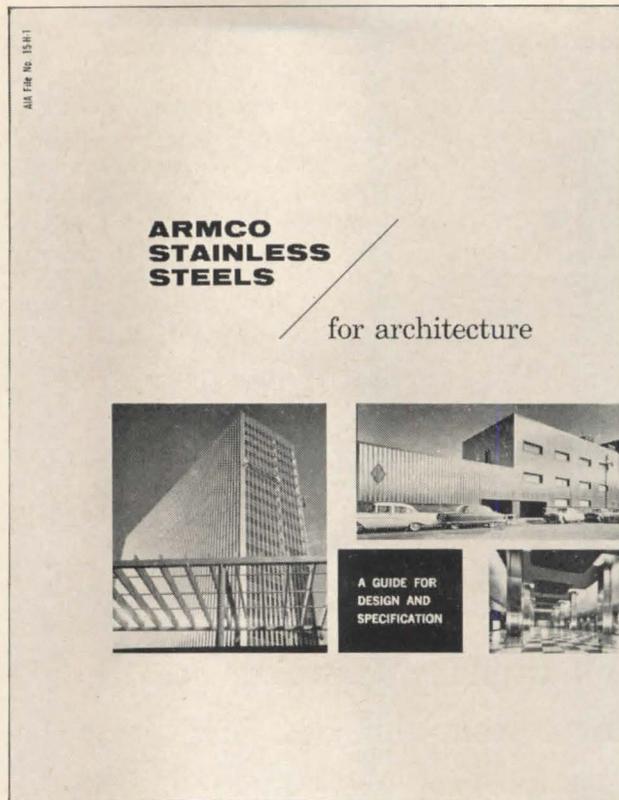
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For the first time, you can obtain a *complete guide* for the design and specification of stainless steel. A new manual published by Armco Steel Corporation shows the expanding use of stainless in contemporary architecture and presents useful pertinent information on grades forms, finishes and fabrication, including roll forming.

Especially useful are the extensive data on factors that affect the cost of stainless steel and are subject to control by the architect. Graphs and tables establish the relative cost of various grades. They show how the price of stainless steel components can be reduced by design methods and by judicious selection of sheet sizes, finish, and fabrication.

Also included in the Armco manual are discussions of standard building products of stainless steel, how to insure maximum durability, and recommended specifications as well as a glossary of stainless steel terminology.

Prepared on the basis of suggestions from leading architects, both designers and specification writers will find the new manual extremely helpful in making the most effective use of stainless steel at least cost. It enables you to confirm the fact that stainless steel can be specified at a price comparable to that of less durable metals. For your free copy of Armco Stainless Steels/for Architecture, write Armco Steel Corporation, 1170 Curtis Street, Middletown, Ohio.

continued from page 58

He gave a measure of attention to the recently-settled steel strike and to the dangers of inflation. Of the prolonged strike, he said that one of its lessons was that the potential danger to the entire nation of longer and greater strikes must be met.

"It is my intention," the President added, "to encourage regular discussions between management and labor outside the bargaining table, to consider the interest of the public as well as their mutual interest in

the maintenance of industrial peace, price stability and economic growth."

On urban problems, the President made these general remarks:

"Our vigorous expansion, which we all welcome as a sign of health and vitality, is many-sided. We are, for example, witnessing explosive growth in metropolitan areas.

"By 1975 the metropolitan areas of the United States will occupy twice the territory they do today.

The roster of urban problems with which they must cope is staggering. They involve water supply, cleaning the air, adjusting local tax systems, providing for essential educational, cultural and social services, and destroying those conditions which breed delinquency and crime.

"In meeting these, we must, if we value our historic freedoms, keep within the traditional framework of our Federal system with powers divided between the national and state governments. The uniqueness of this system may confound the casual observer, but it has worked effectively for nearly 200 years."

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### Open-End Authorization Asked For FHA Insuring Program

FHA Commissioner Julian H. Zimmerman called upon Congress to provide his agency with an open-end insurance authorization, lifting the present ceiling of \$37.7 billion. He pointed out that under present law, FHA's insuring program can come to a complete stop if Congress refuses to raise the overall insurance authorization and that authorization has been completely used. He argued that since the FHA is a completely self-supporting Federal agency, using no taxpayers' money, there should be no reluctance to grant it unlimited mortgage insurance authorization.

But Congress repeatedly has refused to do this. It has mixed the FHA authorization legislation in an omnibus bill with several other housing matters. Mr. Zimmerman characterized this as "spoon-feeding" the agency and declared, "I don't know of anyone in Congress, either Republican or Democrat, who is opposed to the concepts of the FHA. Yet, every year Congress insists on wrapping FHA's mortgage insurance authorization into omnibus legislation which usually becomes a catch-all for many controversial or unreasonable proposals. This serves only to hold FHA as hostage in order to get legislation signed into law which the President otherwise opposes.

"Omnibus legislation has tended to become a collection of unrelated provisions in a single bill. This is unfair to a President, and has been opposed by every one of them back to President Lincoln."

more news on page 350

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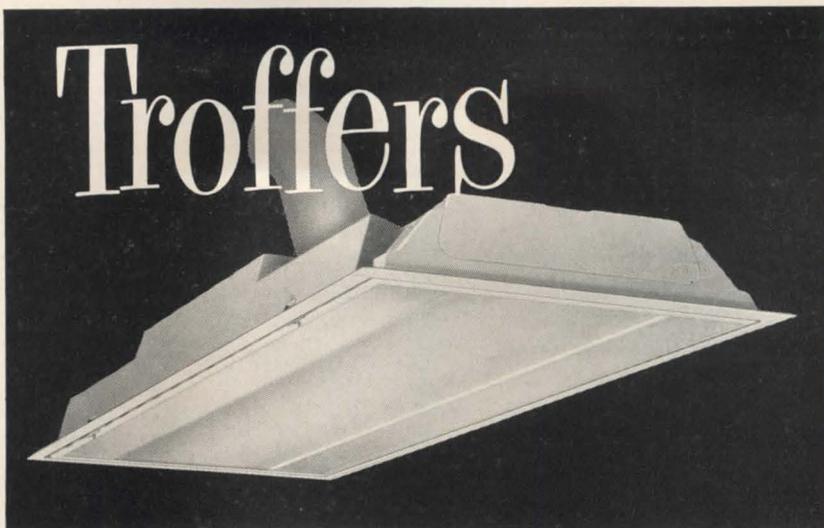
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# Diffusing Troffers



Patented\*  
double-wall  
construction  
isolates air  
from light  
for

- Controlled air distribution
- Freedom from smudging
- Maximum lighting efficiency

\*Patent No. 2564334, others pending.

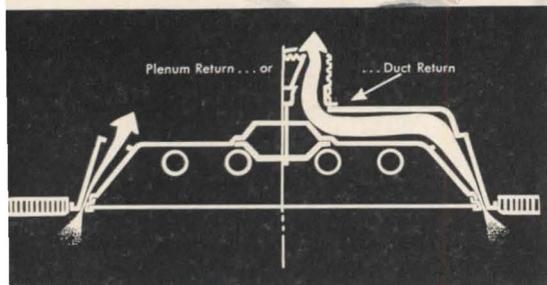
These units are the combined development of two leaders in their respective fields — Barber-Colman in engineered distribution of air and Day-Brite in engineered distribution of light. They ideally unite these two factors in a distinctive modular unit to provide the ultimate in human comfort and flexibility in interior design.

Air passes through a separate chamber completely isolated from the fluorescent tubes and is diffused into the room at low noise levels. Thorough aspiration at moderate velocities completely eliminates drafts.

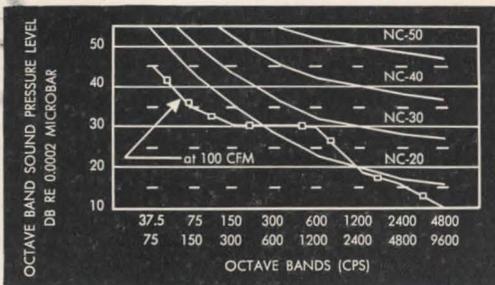
Physical separation of light and air eliminates smudging of the fluorescent tubes, reflector, and ceiling. There is no reduction in luminous area. Lighting output is maintained at uniform high efficiency because the fluorescent tube temperatures are maintained at optimum level, unaffected by air temperature and flow.

Combination diffusers may be used to handle either supply or return air and are available in 1 x 4 and 2 x 4 sizes with either two or four fluorescent tubes in a variety of glass, plastic, or metal enclosures.

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Combination units may be used for either supply or return air service.



Low noise assured — octave band sound data and NC ratings available.



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continued from page 60

Following are more detailed results of the survey as summarized by HEW Secretary Flemming:

1. On the basis of reports from all 50 states and the District of Columbia, the overall classroom shortage has been reduced from 141,900 to 132,400, or a decline of 9500. However, the number of classrooms needed to accommodate pupils enrolled in excess of normal classroom capacity rose from 65,800 to 66,400, or an increase of 600, and the num-

ber of pupils enrolled in excess of normal classroom capacity rose from 1,850,000 in the fall of 1958 to 1,883,000 this fall. The net reduction in the estimated classroom shortage was due to a reduction of 10,100 classrooms—from 76,100 to 66,000—estimated to be needed to replace obsolete facilities. Three-quarters of this reduction was accounted for by the estimates of one state, Alabama, which reduced its estimate in this category by 7600.

2. During the first 11 months of 1959, voters in 48 states approved bond issues totaling \$1,230,736,000. While this compares unfavorably with the \$1,364,100,000 approved during the first 11 months of 1958, it is an increase of approximately 30 per cent over the \$949 million approved during the first 11 months of 1957. Since the number of bond elections tends to run higher in regular election years than in off-years, the increase over 1957 is a more reliable measure of current voter support of classroom construction than the reduction from the comparable period last year.

3. State education agencies estimate that classroom construction this year will lag behind last year by 10.4 per cent. This will be the second year in a row in which classroom construction has declined, after an uninterrupted succession of annual increases extending back to the end of the war.

### Building Down Again?

Here's the record:

Year Constructed	Classrooms	% Change from Previous Year
1955-56	63,300	+ 5.3
1956-57	68,700	+ 8.5
1957-58	72,100	+ 4.9
1958-59	70,000	- 2.9
1959-60	62,700	- 10.4

"The classroom need has lessened in about three-fifths of the states," said United States Commissioner of Education Lawrence G. Derthick, in commenting on the survey results. "The survey showed, however, that the shortage increased in the remaining states.

"The number of pupils in excess of normal classroom capacity rose from 1,850,000 to 1,883,000. This is an acute problem since, as it has been pointed out many times, it is not only the actual number of pupils in excess of normal classroom capacity who suffer from overcrowding, but also all other pupils who share the same crowded school quarters with them."

The enrollments continue to rise, he pointed out. The survey recorded 35.3 million full-time pupils in public elementary and secondary schools in the fall of 1959; 24 million in elementary, and 11.3 million in secondary. The overall enrollment was 1.2

continued on page 354

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AR-2

continued from page 350

million, or 3.5 per cent greater than it was the year before.

**N. E. A. Continues Push for School Building Aid**

Pushing along with its campaign for support of Federal aid to school construction legislation, the National Education Association published a new booklet in the form of a message to parents which contends that an outlay of \$5 billion will be required to

eliminate the current shortage of classrooms in this country.

Quality classrooms are costly, the publication states, the average price being around \$40,000 per room. It states, too, that many of the buildings now being constructed are far from being "quality construction."

Parents were told by N.E.A. that their children learn more in a classroom that is well-equipped, attractive, and of appropriate size. Quotes from the "message":

"By law we require children to at-

tend school, but we often force them into an unsafe and unhealthy classroom. . . .

"We were short about 130,000 classrooms in the fall of 1959. Obsolete, inadequate, and overcrowded classrooms are affecting the education of at least eight million children. . . .

"Little if any improvement can be expected under present conditions. . . .

"Dark, damp, cold, or poorly ventilated classrooms are hazards to the health of children. . . .

"Many schools in current operation pose a definite safety hazard to children. In 1957, there were 4300 school and college fires in the United States, according to the National Fire Protection Association. . . .

"Even though the school is new, your child probably is not getting quality education if he is in an overcrowded classroom. . . .

"Many new school buildings are virtually bare of instructional equipment and materials—because the school district had to mortgage itself to the hilt just to erect the building. . . ."

more . . .



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**Sparkman Group Considers Ways To Stabilize Mortgage Credit**

A glimpse of what's on the docket for consideration in Congress along the lines of housing was provided by Senator John J. Sparkman (D-Ala.), chairman of the Senate's housing subcommittee. In a look at the 1960's, he said he was convinced the answer to housing problems could be found in an even flow of mortgage credit. It appears to him that higher and higher interest rates do not stabilize the flow of mortgage money, and he is on a search for other means.

The Sparkman subcommittee was studying a number of proposals looking toward solution of this mortgage credit problem. These included (1) creation of a central mortgage bank; (2) changes in laws affecting the Federal Home Loan Bank System, the Federal Housing Administration and the Federal National Mortgage Association, and (3) creation of a Federal agency to lend to middle income families.

The 1960's present a real housing challenge, the Sparkman statement said. "All available statistics indicate

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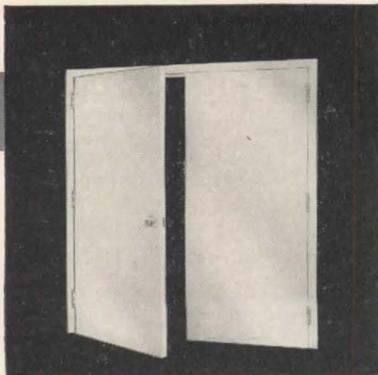
# Contours for the jet age ... Craftsmanship by Overly

This architecturally dramatic Overly parabolic roof covers the recently-completed Moissant International Air Terminal in New Orleans.\* A batten type "B" design, the new roof has an alodine aluminum finish with 12 gauge ribs accentuating the arch design.

Why was Overly specified to fabricate this design? There are several reasons: The Overly tradition for *craftsmanship* is inherent at every step from original pre-fabrication at the plant to erection supervision at the construction site. Over 70 years of experience in metal fabrication allow us to offer a 15-year warranty against manufacturer's defects on all Overly Goodwin batten type roofs. And Overly's creative crafting of *any* roof form assures the architect of a skilled and accurate interpretation of his design in metal.

In planning roof installations of metal, consider Overly's assistance in faithfully translating your ideas into a lasting structure. You may also be interested in other Overly metal products: The complete line of Overline hollow metal doors and frames, labelled and non-labelled, in over 90 different styles; the Overline stainless steel entrance series, crafted to complement the exterior of any building; Overly fire barriers, the only U/L labelled and fully tested fire barrier available today; Overly Tilt-A-Front construction, specifically fabricated for one or two story buildings; and church steeples by Overly, crafted in handsome modern or Gothic. For metal products that match your specifications, why not contact Overly.

*\*Other current Overly Goodwin batten type installations may be found at the new addition to the U.S. Senate Office Building, Washington, D.C.; the Idlewild International Airport, New York City; the University Field House, University of Illinois and the U.S. Naval Academy Gymnasium, Annapolis, Md.*



Overly "A" Label, Type 50 Doors

*The Architect's Craftsman*

## Overly

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continued from page 350

that we should immediately begin producing at least 1.5 million homes per year, stepping it up to two million a year before 1970."

The Alabama Senator explained that the nation entered the 1950's with approximately 16.5 million substandard homes. Now, 10 years later, there are an estimated 12 million substandard dwellings, he stated. He

contended that at this rate, it would eliminate the substandard residences.

**Fallout Shelters Now Covered By FHA Insurance**

A joint plan for stimulating the construction of fallout shelters in American homes was announced by the Office of Civil and Defense Mobiliza-

tion and the Housing and Home Finance Agency.

Cooperative effort between the two agencies produced a plan for bringing construction of these shelters under the benefits of Federal Housing Administration home mortgage insurance. This, it was said, would encourage building contractors and private individuals "to set an example" by building shelters into new housing developments, new subdivisions and model homes.

The cost of home shelters now becomes an eligible item in determining property values for all FHA home mortgage insurance. FHA took these steps to implement the decision:

1. Issuance to all its officials and field offices of a field bulletin describing the National Shelter Policy of the Administration. This included a statement by Director Leo A. Hoeg of OCDM on the importance of individual action by the homeowner to provide protection from the fallout hazard. Included were technical guides on how applications for FHA-insured financing of shelter construction shall be handled.

2. Initiation of a new FHA administrative memorandum series, issued periodically and designed to keep all FHA field personnel fully advised of shelter construction and financing matters.

3. Arranging conferences with top representatives of the home building industry in which their support is actively solicited.

4. Issuance of a supplemental section to the FHA Minimum Property Standards Manual devoted to shelter construction information. This includes descriptions, plans and specifications of shelters contained in the OCDM publication, "The Family Fallout Shelter," as well as additional construction guidance and information to the industry.

OCDM's Hoegh said that in the event of nuclear attack on this country, fallout shelters would offer the best single nonmilitary defense measure for the protection of the greatest number of people. Most of those beyond the range of nuclear blast and heat would survive if they had adequate protection from fallout.

The executive OCDM agency expressed confidence that the new actions taken by HHFA would substantially stimulate construction of home shelters across the entire country.

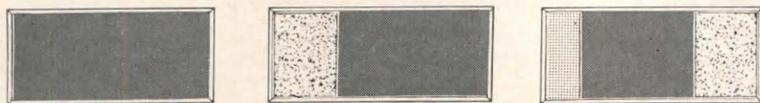
more news on page 362

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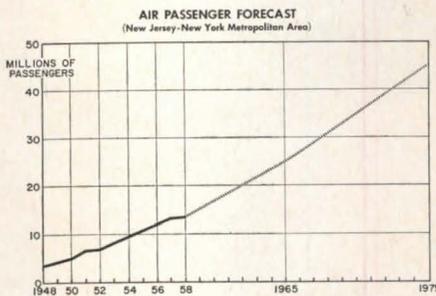
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*The Record Reports*

**Needs of a Major Airport Discussed in New York**

When the Port of New York Authority recently announced that after extensive studies it favored locating an additional major New York metropolitan area airport in Morris County, N. J., the choice of the site produced local controversy. The reasons for selection of the site were outlined in a lengthy report from the Port Authority.

A new airport is necessary, the Port Authority says, because the existing ones will be at capacity use by 1965, and passenger demand will continue to increase after that (see chart).



The Authority listed the primary requirements for a suitable site for a major airport:

*Ground travel time*—more than 60 minutes for most of the passengers is out of the question; more than 45 minutes is dubious (extensive use of helicopters cannot be assumed). *Air space*—each existing airport needs a buffer zone, a rectangle 32 by 80 mi, centered on the airport; a new airport must also be located so as not to conflict with existing airways. *Size*—four 12,000-ft runways, protection from noise disturbance, and areas needed for other facilities add up to a total of about 10,000 acres. *Physical requirements*—the site must be reasonably level or capable of being made level without prohibitive cost; the site must be available within the limits of economic practicability; the surrounding area must be free of obstructions that cannot be feasibly removed.

The Port Authority presented detailed evaluations of 15 possible sites according to these four criteria; only the Morris County one, it said, met them all.

more news on page 366

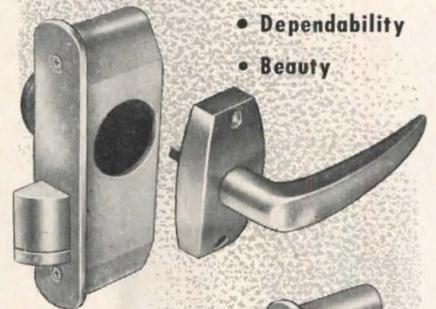
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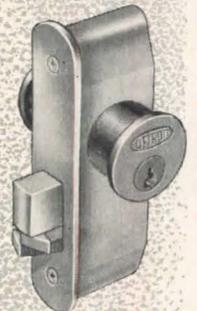


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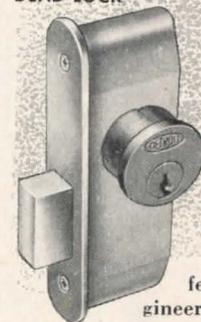


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Roseville, Michigan

Impact and fire resistance are twin features of this Polished Misco Wire Glass installation in Tennessee School for the Deaf, Knoxville, Tenn. Architect—Painter, Weeks & McCarty, Knoxville, Tenn.



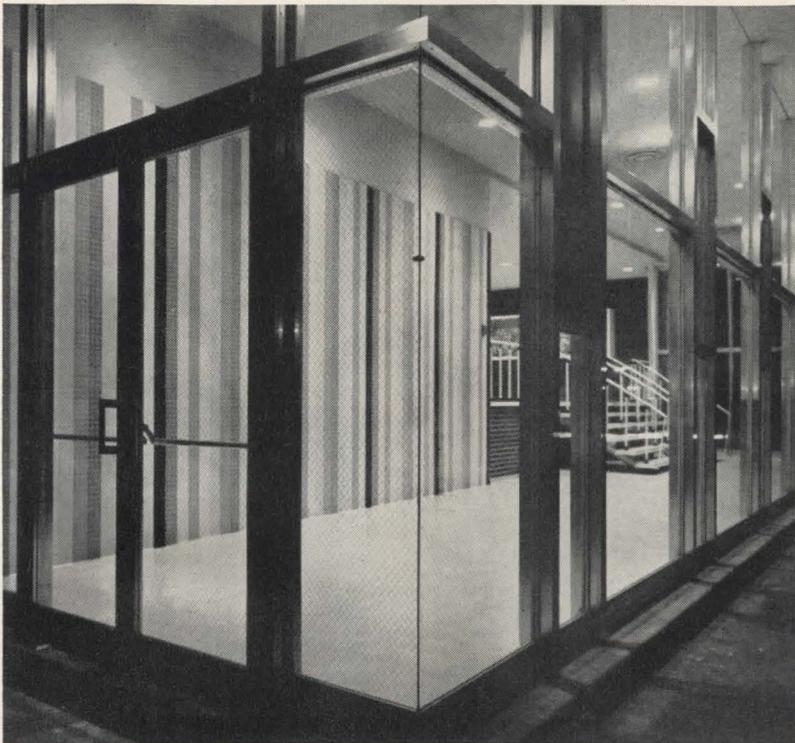
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Polished Misco Wire Glass glazed in main entrance of Hellertown High School, Hellertown, Pa. Architect—Heyl, Bond & Miller, Allentown, Pa. Contractor—Gottlieb-Schneider, Bethlehem, Pa. Glazing Contractor—Penn Allen Glass Company, Allentown, Pa.

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## The Record Reports

### Landscape Architecture Research Is Topic at Georgia Meeting

A large group of landscape architects gathered last fall for a conference specifically on research in their field; it was thought to be the first meeting on that topic to be held anywhere in the world. The conference, held at the Georgia Center for Continuing Education of the University of Georgia, was sponsored by the Joint Council on Research in Landscape Architecture of the American Society of Landscape Architects and the National Conference on Instruction in Landscape Architecture, in cooperation with the University of Georgia. About 155 landscape architects and students from 18 states attended.

The program and arrangements were directed by Campbell E. Miller, chairman of A.S.L.A.'s Committee on Research, and Professor Hubert B. Owens, chairman, Division of Landscape Architecture, University of Georgia. Among the topics considered were: "Teaching People to Use Their Eyes," "Urban Renewal," "Method of Eliminating Overhead Wires," "The City and the Automobile," "The Landscape Architect and the Highway Program," "Collaboration Between Professions and Other Specialties."

A feature of the conference was an exhibit of work of members of the International Federation of Landscape Architects; examples from 23 countries were included.



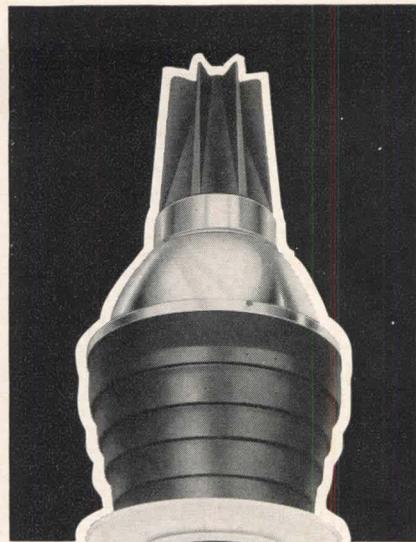
Professor Hubert B. Owens, third from left, and students examine part of the exhibit of work of members of the International Federation of Landscape Architects

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more news on page 370

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## The Record Reports

### Independence for the Aging Person Held Goal at Chautauqua Meeting

"Aging with a Future" was the title of the six-day program of lectures and workshops sponsored by the Chautauqua Institution, in cooperation with the Special Staff on Aging of the U. S. Department of Health, Education and Welfare. Held at Chautauqua, N. Y., July 6-11, the program was considered by its sponsors a "forerunner" of the White House Conference on Aging in 1961.

Among the speakers was Walter K. Vivrett, professor of architecture at the University of Minnesota, whose topic was "Housing for the Older Adult." Mr. Vivrett commented that the elderly have become increasingly able to maintain their independence: they have acquired economic security through pension plans and social security payments; health security through growing medical knowledge, particularly in the area of rehabilitation; and a lengthened capacity to care for themselves and their homes through labor-saving devices. Nonetheless, he pointed out, there eventually comes a time for the old person when the private house becomes a financial burden, and when sickness or failing strength makes the keeping of a large house impossible. Then it becomes necessary to make a move, painful enough in itself, and made more painful still by the lack of housing for the old outside of institutions. Mr. Vivrett concluded: "Most of our recent efforts, both direct and indirect, to increase the supply and improve the quality of housing have been in behalf of younger households. These same techniques and similar techniques must be developed for housing for one- and two-person older households. This housing by definition must include housing and apartments for independent living, and living accommodations in such group environments as the hotel, the residence club and, to a very limited extent, the institutional setting. . . . There is general agreement that human services should be geared to reach and to restore all individuals to optimum health and to help them maintain themselves, as far as is possible, in their own homes, whether in the independent housing of the community or in some form of group setting."

more news on page 374

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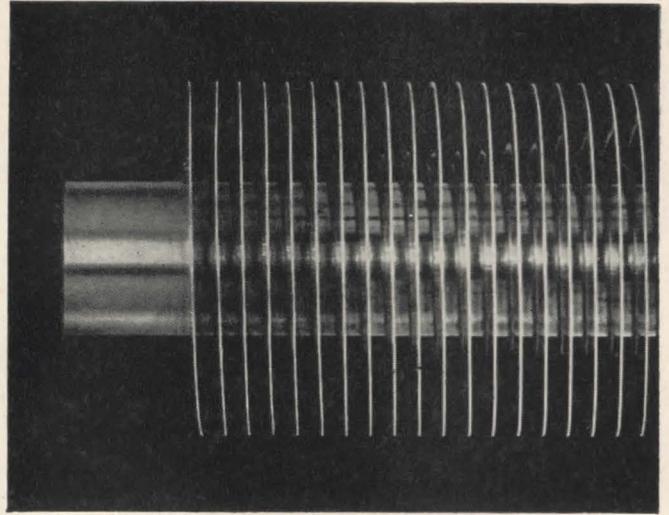
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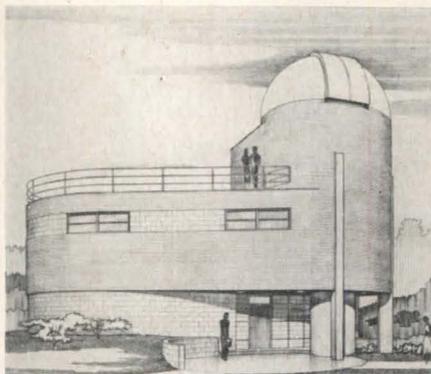
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## The Record Reports



### Architect Designs Community Observatory Building

An astronomical observatory, now near completion at the Stamford (Conn.) Museum and Nature Center, is intended for use by amateur astronomers and the public of the area. Architect of the three-story building is Gordon Edward Johnson; the concrete and steel structure, faced in brick and concrete, contains a 100-seat auditorium and other facilities. The principal instrument, a 20-in. photo-visual telescope (designed by John F. Gregory), is mounted on an independent concrete pier which shows externally outside the entrance. General contractor is Frank Mercede & Sons.



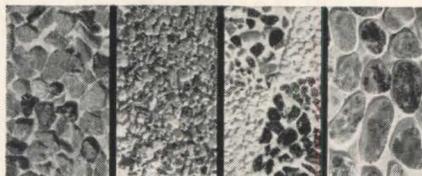
### Bronze and Stone Monument Rises in Italy

A bronze memorial to Italian soldiers dead and missing in Russia is now being erected in a Genoa cemetery. The sculptor is Lorenzo Garaventa, who donated his services. The monument is 5 m high; height of the figure, which represents "the resurrection of the hero," is 2 m. The engineer for the stone base, 6 m by 5 m, is Giacomo Viale.

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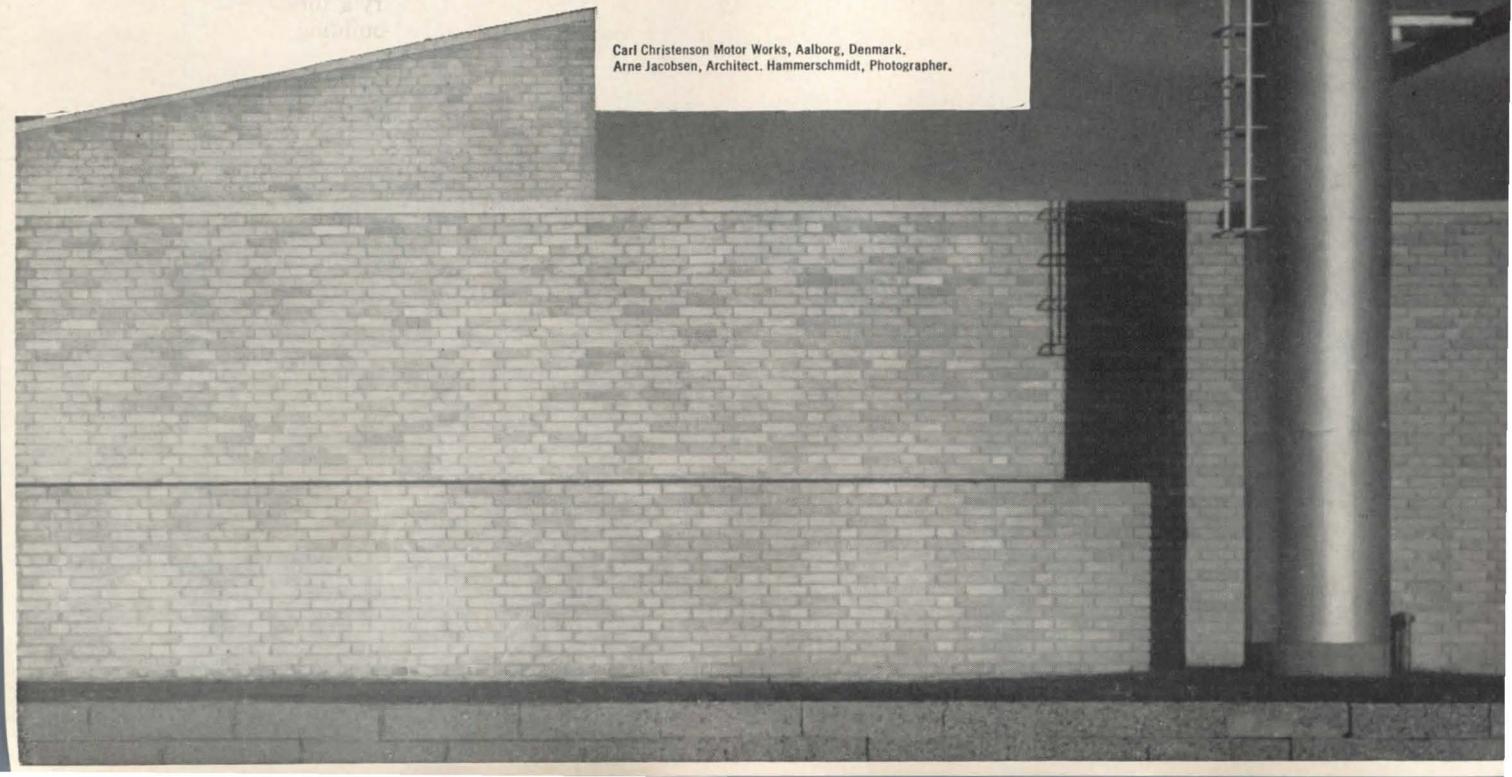


## Architectural Record

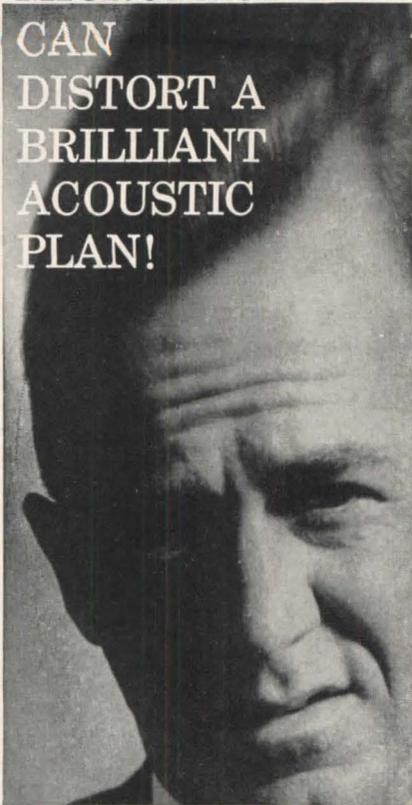
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## Required Reading

continued from page 78

plastics derived by the radical modification of natural materials, the basic differences among thermoplastic and thermosetting plastics, and the means by which variations may be obtained by additives and modifiers are simply explained. There is enough, but uncomplicated, recourse to molecular structure to make clear why these wide variations in basic materials and their different manifestations are possible.

Methods of manufacture and fabrication into finished parts are described sufficiently to indicate to the reader what is possible with these materials, and what the limitations are. The various operations of molding, extrusion, casting, laminating, calendaring of sheet and film, drawing into filaments, vacuum forming, and all the rest are included.

The major part of the book is devoted to the rather surprisingly large number of applications of plastics in buildings. Included are protection of construction from inclement weather, adjuncts to concrete and masonry, vapor barriers, thermal and acoustical insulation, roofing and drainage, flashing, wall covering, flooring, stairs and stair treads, illuminated ceilings, windows, doors, plumbing equipment, piping, electrical insulation, lighting, furniture, counter tops and fronts, and many others.

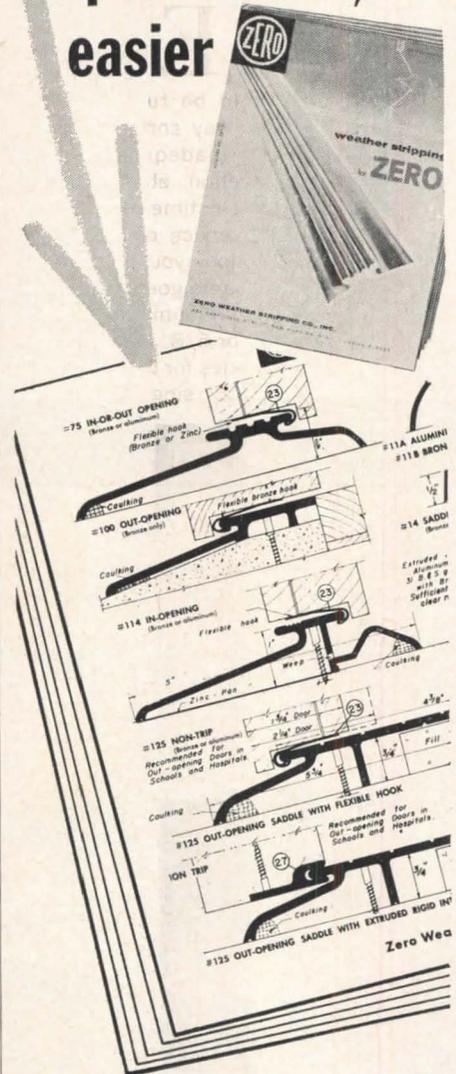
A section is devoted to the growing uses of reinforced plastics in structural applications, such as the various plastics houses, buildings at fairs, large radomes, and similar structures in which plastics are the load-bearing elements. Air-supported structures are included.

The final sections of the book contain names of plastics, trade names, glossary, and literature references.

Although many of the examples and applications are drawn from German sources (and the text is entirely in German), the book is not limited to German practice but is of general interest. The illustrations, many in color, are well chosen and profuse. This book offers probably the most complete coverage of the subject now available.

—ALBERT G. H. DIETZ  
Professor of Building Engineering, M.I.T.

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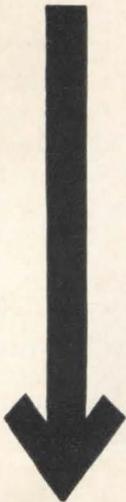
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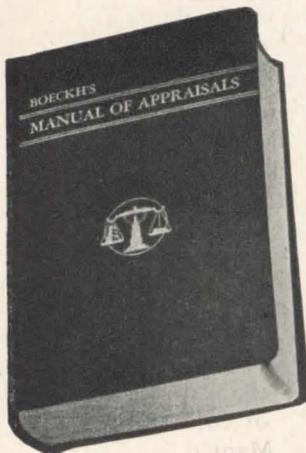


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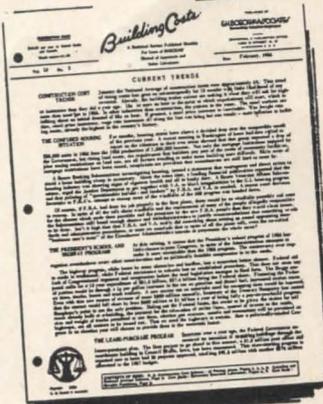


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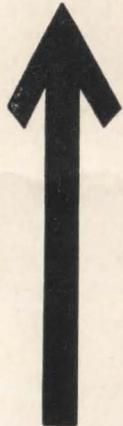


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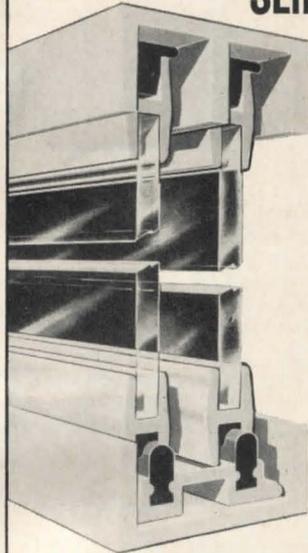
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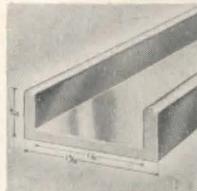
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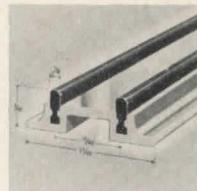
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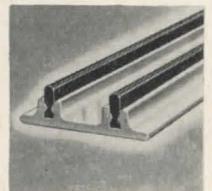
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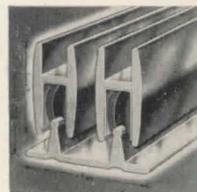
#720 track for by-passing doors. Drops into #710 track base or used alone. In 4, 6, 8 and 12 foot lengths.



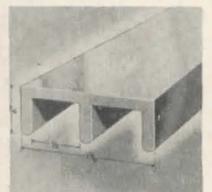
#721 track for by-passing doors. Surface installation is easy. Drilled at 6" intervals. In 4, 6, 8 and 12 foot lengths.



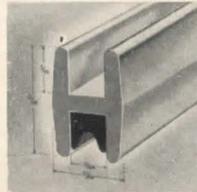
#722 track for 1/4" by-passing doors. Provides own fascia. May be mounted various ways. In 4, 6, 8 and 12 foot lengths.



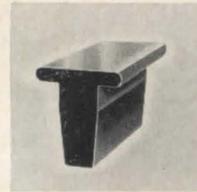
#723 track fits into #710 base. For use with #743 shoe and #752 rollers, where rolling action is desired.



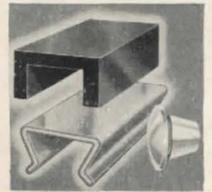
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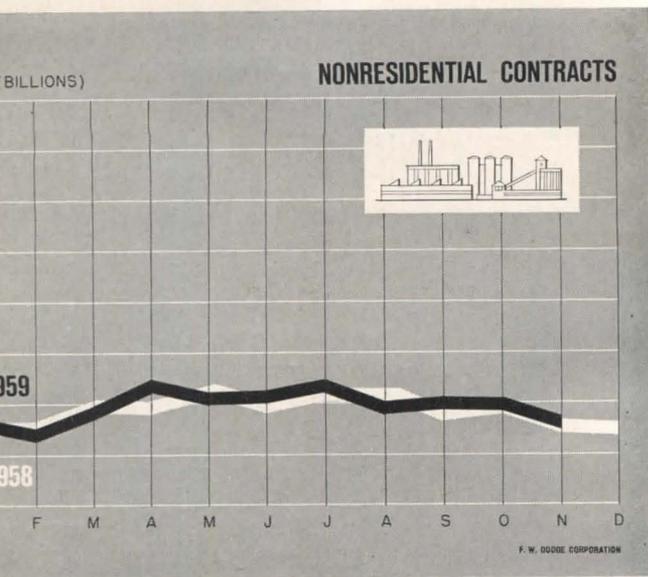


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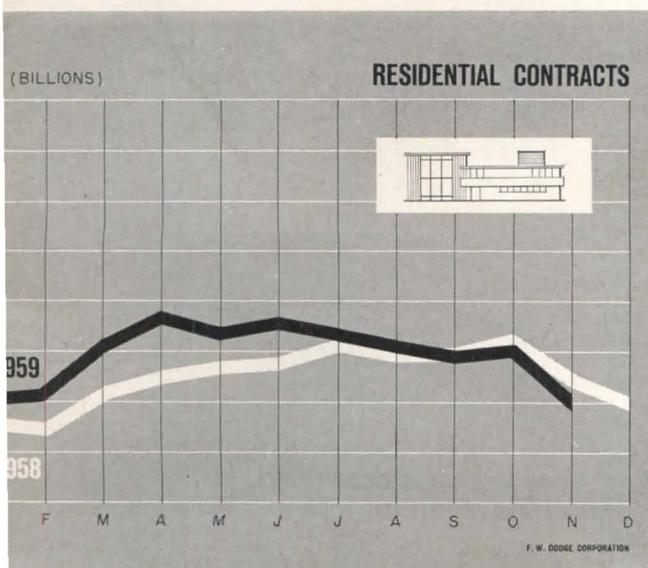
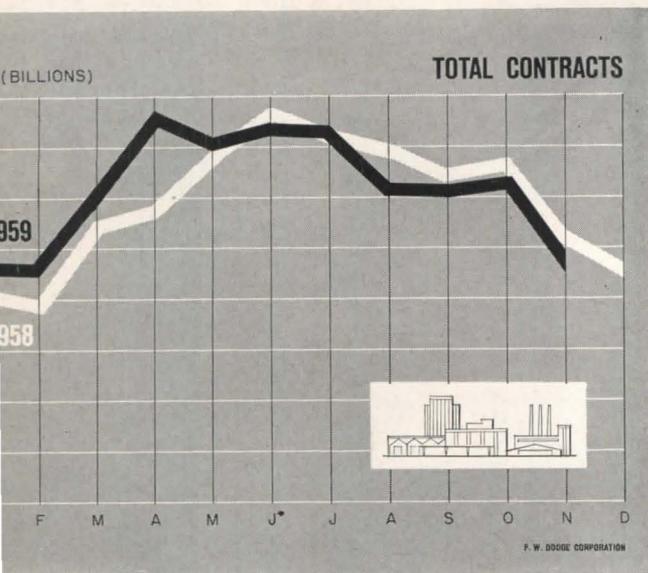
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# Current Trends in Construction



total contracts include residential, nonresidential, heavy engineering contracts



SCHOOL BUILDING did not have its best year in 1959, by any means, but it still represents an enormous part of the total building market. According to the Dodge figures, educational and science buildings in 1959 constituted the fourth largest category of construction, ranking behind residential and commercial building and highway construction. Nearly a quarter of all nonresidential building contracts in 1959 were for educational and science buildings.

THE FACT THAT school building declined rather sharply in 1959 apparently did not stem from any great easing of the need for new schools, but rather from a combination of other circumstances. These included the recession of 1958, the financial difficulties encountered by some states and municipalities, and a somewhat dim view taken by the voters in the bond issue elections of 1958. These circumstances were, of course, somewhat inter-related. Things have improved considerably on all these fronts, and the outlook for 1960 indicates that school activity will pick up perceptibly.

IN MANY, if not most, school districts, economy is the watchword. "Frills," whatever they may be, are frowned upon. One man's frill may be another man's necessity, of course, and there is endless debate over what should or should not be included, over and above bare classroom space. All too often, architects' original designs are stripped down beyond recognition by local authorities. The arguments over frills generally revolve around whether they are necessary for strictly educational purposes. But isn't there, perhaps, something more to life than the severely utilitarian?

HAVING SAT THROUGH some of these debates as a school board member, the thought has often occurred to me that the physical appearance of the building, its landscaping, and a few little luxuries may be worth far more—in cold dollars and cents—to the community than their cost. This is a radical thought, perhaps, for a school board, or for a town finance committee, but is it entirely unreasonable? Ask the real estate agents. If they operate in a neighborhood which possesses a school that is physically attractive, they will invariably take house-hunting clients past the school first, and then show them houses. Conversely, if the local school is decrepit, or even new and ordinary, it takes a low priority on the agent's itinerary. There is a definite relationship between schools and property values, and the appearance of the building may have just as much bearing as the educational excellence of the school. Perhaps it shouldn't, in the minds of some, but it does. A school on which a little extra money is spent may very well contribute far more in cash to the community, by raising property values and the tax base.

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