# ARCHITECTURAL RECORD

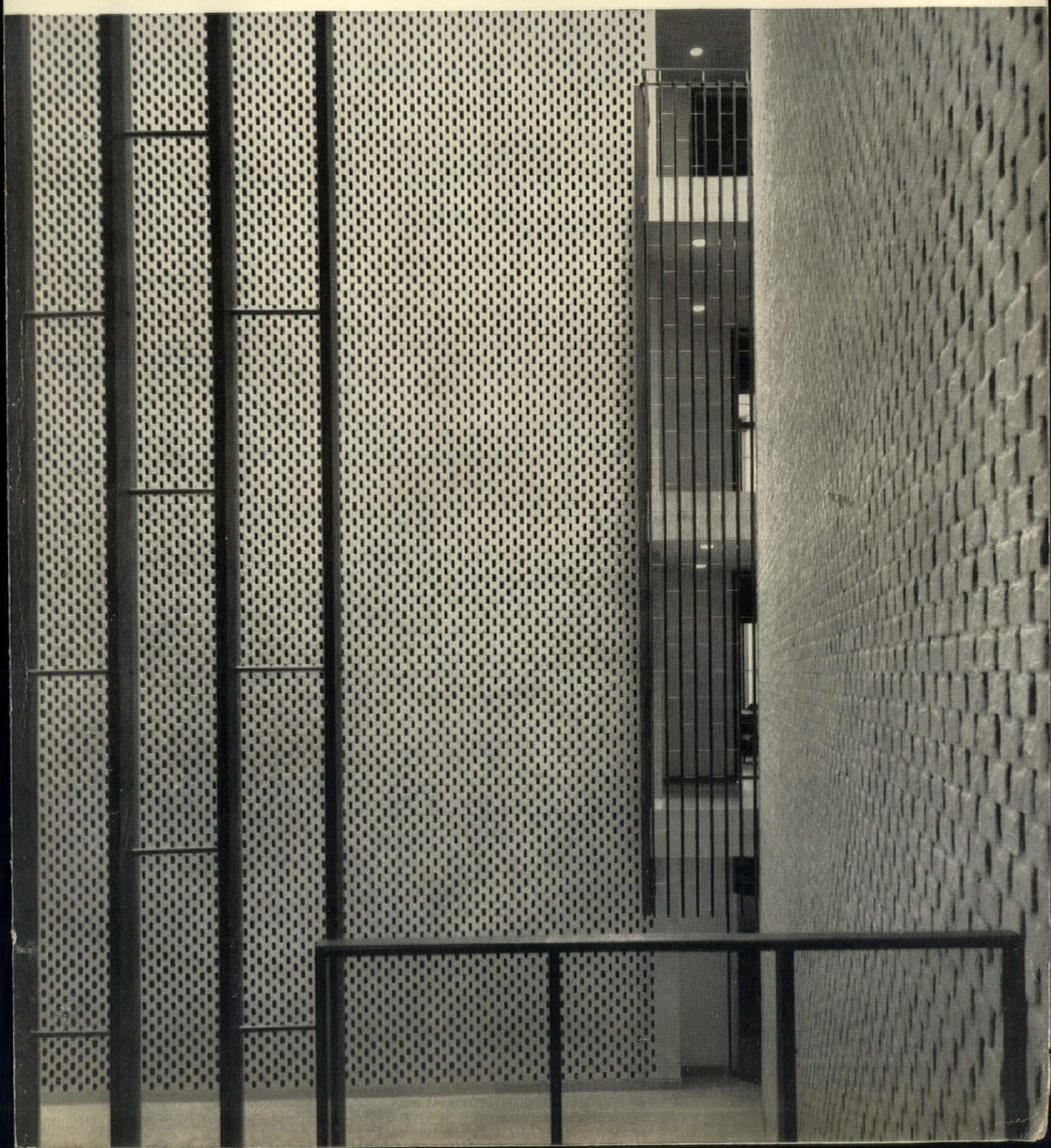
12 *December 1959*

*Building Types Study: Churches*

*Saarinen Designs U.S. Embassy in Oslo*

*Semi-Annual Index*

*Full Contents on Page 5*



# CABOT, CABOT & FORBES PLANNED THIS "CITY"

Canada Dry Corp., Waltham, Mass.


Raytheon Company, Bedford, Mass.

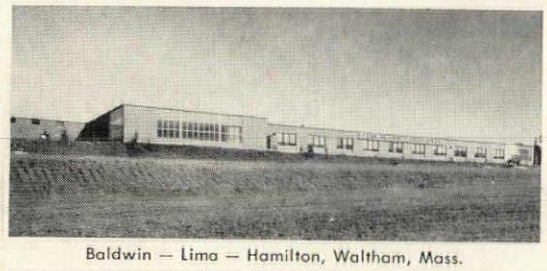

Wirthmore Feeds Inc., Waltham, Mass.

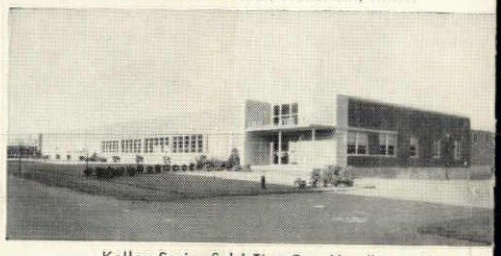

Roddis Plywood Corp., Needham Heights, Mass.


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.

Singer Sewing Machine Co., Needham, Mass.


Polaroid Corp., Waltham, Mass.

Farrington Manufacturing Co., Needham, Mass.


General Motors Corp., Newton, Mass.

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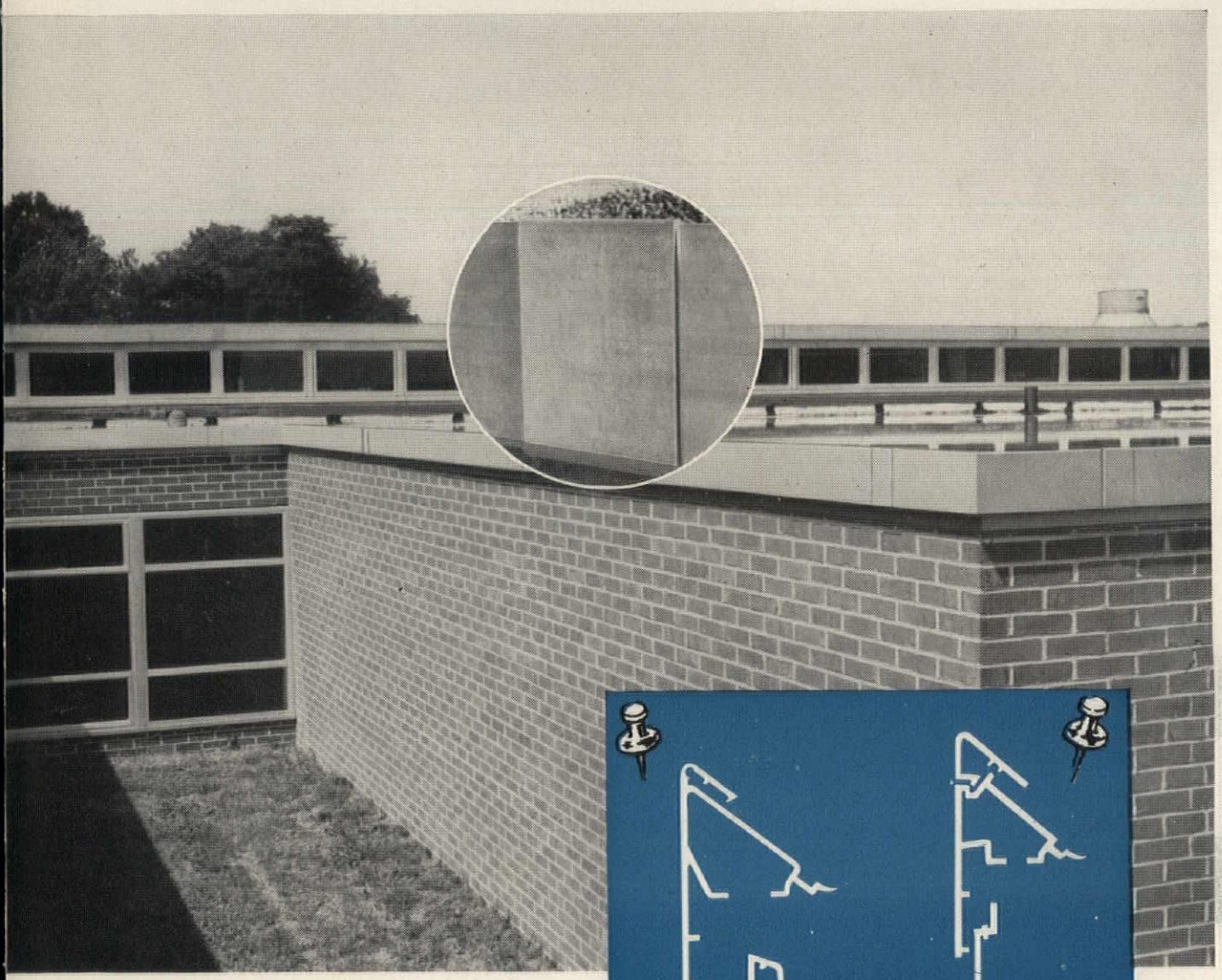
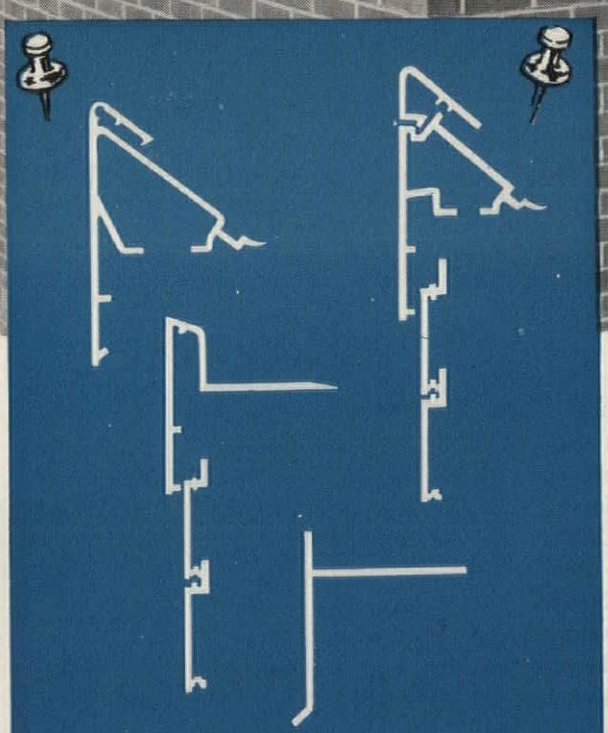


Revere Aluminum Gravel Stop as applied to roof of school building. Close-up in circle shows quality of the factory-formed, extruded joint cap and neatness of installation made possible with Revere Aluminum Stops. Note how the cover plate hugs the gravel stop fascia.



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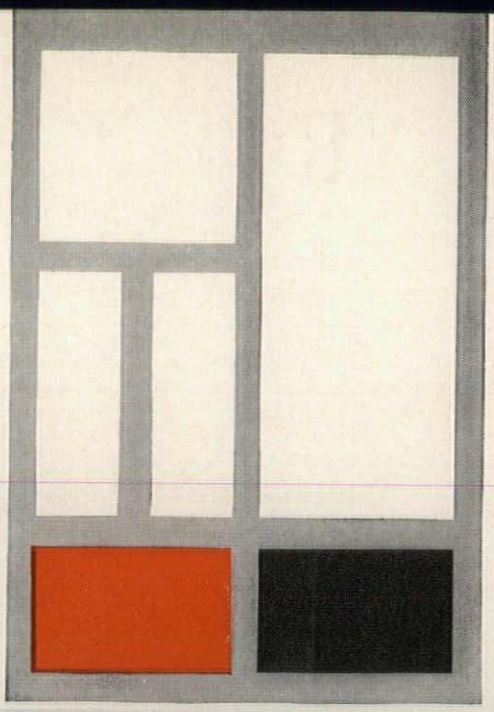
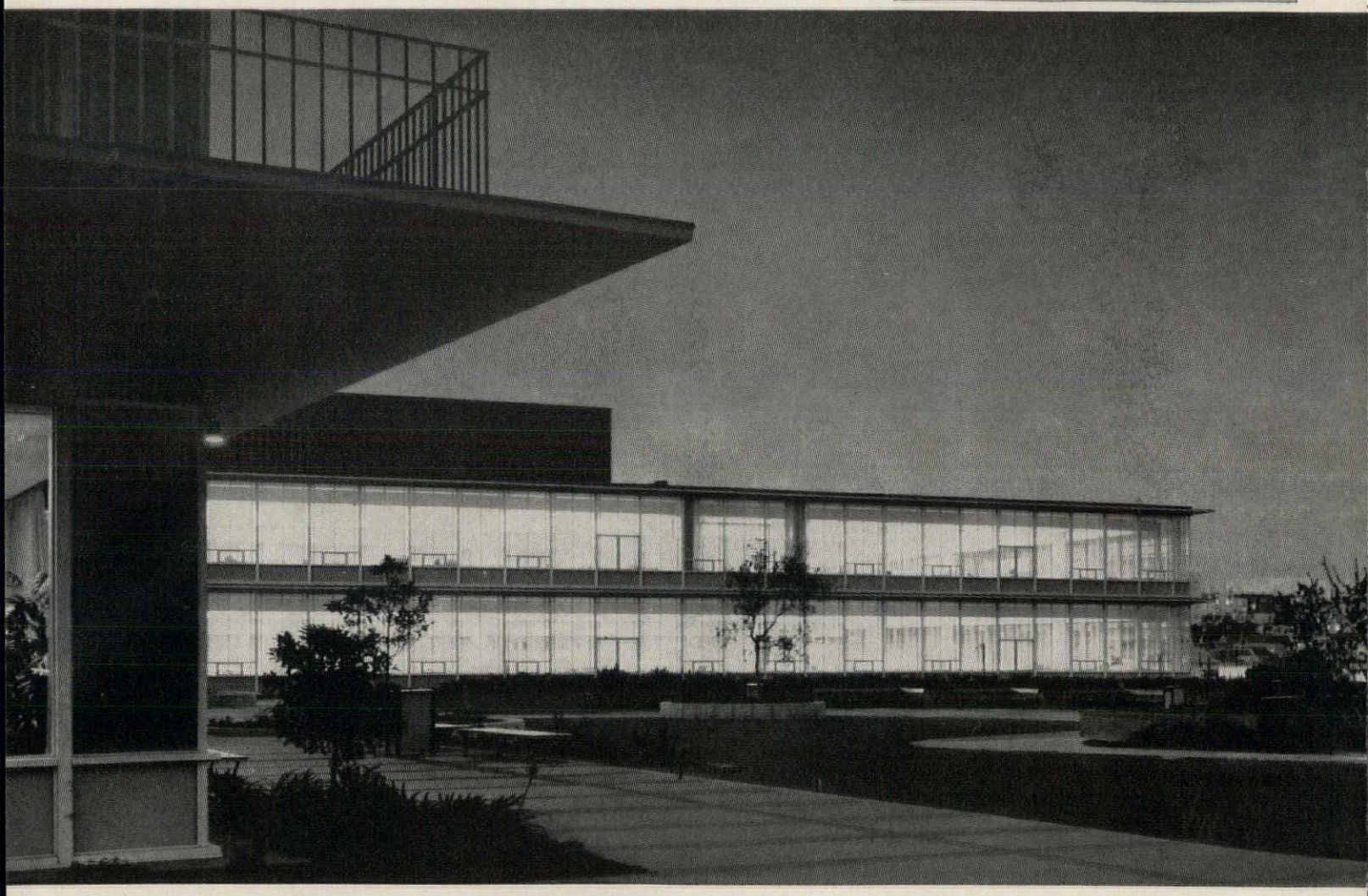
Revere has also just issued a 28-page booklet, "Revere Aluminum Components for Modern Structures," which you will find a valuable adjunct. This may also be found in *Sweet's Architectural* and *Industrial Construction Files.*



*Articulate architecture*

*in a park-like setting . . .*

*Wrought Iron Pipe helps make it work*



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

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

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# ARCHITECTURAL RECORD

*December 1959*



*Cover:*

United States Embassy, Oslo, Norway. Eero Saarinen & Associates, architects. K. Teigen, photo.


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December 1959
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Berkeley 8, California.

# Coming in the Record

MATURE WORK OF A MODERN MASTER

*A new development of some familiar preoccupations and a new concern with old materials used in a new way characterize the current work of Marcel Breuer which will be shown in a major portfolio next month. Masonry and modern architecture is one theme; the binuclear plan developed in a new way another; some new approaches to enclosed exterior space still another. The portfolio will include three houses and the new U.S. Embassy in The Hague.*

BUILDING TYPES STUDY: INDUSTRIAL BUILDINGS

*No building type has had so spectacular an increase in activity in recent months as industrial buildings; and the F. W. Dodge Corporation forecast for 1960 is for a whopping 20 per cent increase over 1959. The Building Types Study for January will focus on this important field of opportunity for architects, with emphasis on the variety of opportunity that exists.*

AUTOMATIC CONTROLS FOR HEATING AND AIR CONDITIONING

*The first of a special series of articles on mechanical services for buildings will offer a broad survey of design trends, practices and equipment and installation methods in a field which has seen some significant changes in the basic concept of control over the last several years. The article, by Arthur Spaet of Slocum and Fuller, consulting engineers, will include a sample specification related graphically to the components involved.*

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

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

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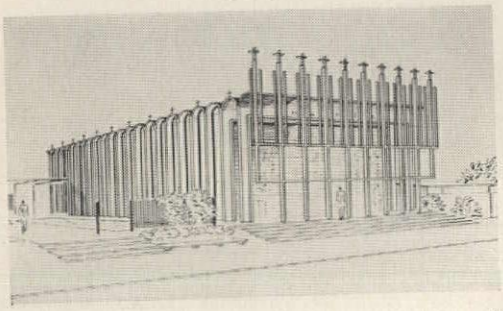
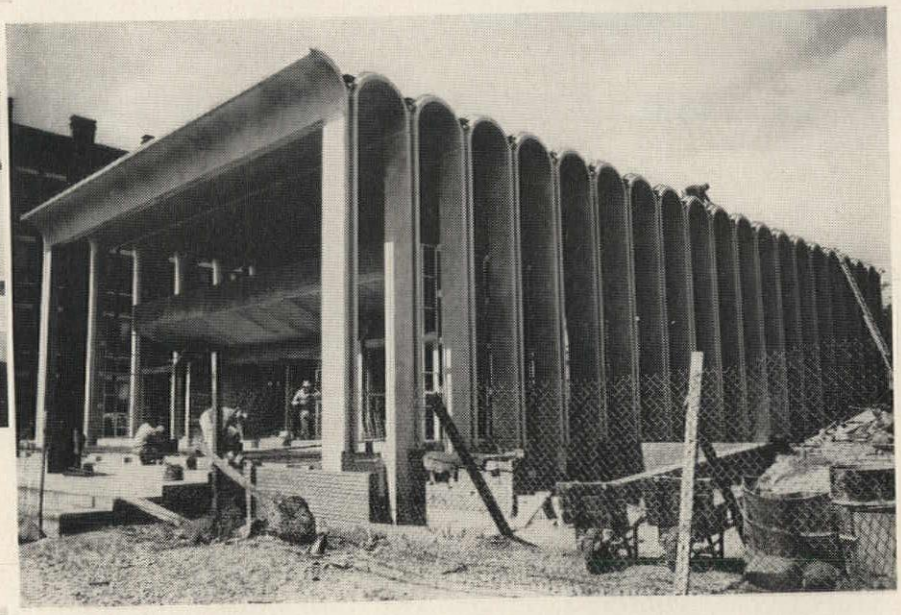


# PITTSBURGH CHURCH OF Precast Concrete

The 20 Y-units are 53′ long, have 3″ shells. Vaults have a 27½″ radius and rise to 24′ above floor level, supported on precast columns spaced 5′ 5″ on centers.



**HOLY TRINITY GREEK ORTHODOX CHURCH**
Pittsburgh, Pa.

Architect: **JAMES A. MITCHELL,** Pittsburgh, Pa.

Consulting Engineer (Structure):
**NORMAN K. LONG,** Pittsburgh, Pa.

Consulting Engineer (Precast Sections):
**CHARLES H. WOLF,** Philadelphia, Pa.

General Contractor:
**SAMUEL N. ZARPAS, INC.,** Pittsburgh, Pa.

Precast Columns and Roof Members fabricated by:
**FORMIGLI CORPORATION,** Berlin, N. J.

● Byzantine architecture has been given an impressive new treatment in Pittsburgh's Holy Trinity Greek Orthodox Church, constructed of precast concrete units.

Although the original design called for monolithic reinforced concrete, the architect and contractor decided to save time with precast units which could be stockpiled during the Winter for rapid erection in warm weather. Precast concrete would provide all the inherent values of reinforced concrete—fire-safety, corrosion-resistance, rot-resistance, low initial cost and maintenance-free service—and in addition, the architect felt, it would also increase the aesthetic acceptability of the structure.

Barrel arches for the nave are comprised of Y-shaped precast units placed alongside each other and supported by precast columns. Lightweight concrete fills the rooftop valleys.

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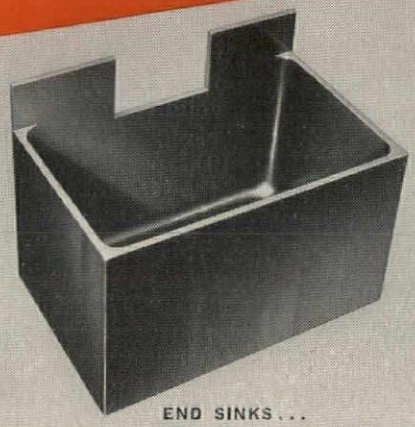

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### Saarinen's New Vocabulary

The design for Yale's projected new residential colleges (see page 13) has provided contemporary architecture with a new phrase—and possibly with a new phase as well. "Polygonal masonry architecture" is Eero Saarinen's phrase for it; and although he notes it was a special response to a special challenge, he also calls it "an architecture with certain truths and one which answers certain needs of our time that are more widespread than this one-time use." At Yale, the site is "angular and odd," the neighboring buildings pseudo Gothic: one "formidable" in scale, the other smaller; the emphasis was to be on the individual, the atmosphere focused on work and study, the buildings not "dormitories" but "colleges." Studying the "dual challenges of site and meaning," Mr. Saarinen reports, "we realized that these very special problems could not be solved within the general current vocabulary of modern architecture. . . . Repetition, regularity, uniformity, standardization—all prime parts of the vernacular—were at direct odds with the diversity, variety and individuality we wanted. . . . We became convinced that . . . we would have to create a new vocabulary or add to the vocabulary of modern architecture. . . . We have made the buildings polygonal—their shapes derived in order to provide the special and diverse student rooms, to answer the needs of the site and to give a variety and sequence of spatial experiences in the courts. We have used a large-scale bending of walls back and forth to give these buildings a scale that would make them stand up next to the surrounding buildings. Most significantly, we conceived of these colleges as citadels of earthy, monolithic masonry —buildings where masonry walls would be dominant and whose interiors of stone, oak and plaster would carry out the spirit of strength and simplicity." As for those walls: "an entirely new technological method will be used . . . so that for the first time a stone wall will be as 'modern' as a curtain wall of panels. . . . Formwork is built as if the wall were to be poured in concrete; but crushed pieces of stone ranging between 3 in. and 8 in. are first dumped into the mold; then high strength grout cement mortar is pumped through hoses inserted in the form wall between the stones; after the wall has set and the outer form is removed, the wall is washed with water under 100 lb of air pressure, thus removing some of the surface mortar and exposing the stones."

### Gingkoes in Gotham

In response to a telephone call, we went last month to a tree transplanting at the Seagram Building. When we arrived at the plaza, it was deserted, except for a truck, a large tree on the truck, and half a dozen or so burly, busy workmen. A raw wind had evidently discouraged the spectators one would have expected to show up for an operation of this size on a sunny morning in October. The landscape architect, Karl Linn (small, animated, earnest) was finally located in the lobby of the building, out of reach of the wind, and told us that the tree on the truck was one of six gingkoes, to replace the weeping beeches which had earlier graced the plaza. The beeches, it was explained, had survived but not thrived on New York air. Gingkoes, variously spelled ginkgoes, and variously pronounced with a hard or soft g, are described by the dictionary as "handsome gymnospermous trees." Mr. Linn further explained that the gingko is the oldest known tree—"first the ferns, then the gingko"—and that its remains have been found fossilized in its native China. Unlike most trees, it is bisexual, and the Seagram Building is provided with three males and three females. It is very hardy, and just about pest-proof. And esthetically, its advantage in this case is that its light green, open foliage should contrast well with the dark mass of the building. These trees, Mr. Linn said, were 50 or 60 years old; a widespread search had been conducted for gingkoes of this size, and they had finally been run to earth in a nursery near Baltimore. Mrs. Catherine Brun (sensible shoes, charming voice, and it is believed, the only woman tree moving contractor in the country) further added to our information by reporting that these gingkoes weighed between eight and nine tons each, that the transplanting would take about a week for all six trees, that moving trees of this size was simply a matter of knowing how, and that the life span of the gingko was not, as far as she knew, a matter of knowledge, though she had seen gingkoes growing in New York City with trunks six ft in diameter.

### Why Architecture?

The Bacardi company has commissioned Mies van der Rohe for its new office buildings, in Santiago de Cuba and Mexico City, marking its first entry into the ranks of businesses using internationally known architects to design their buildings. The president of Bacardi, Jose M. Bosch, asked to explain the decision, had this to say: "Ever since I became president of this company, about 15 years ago, I have tried to build factories and offices that are a little better looking than the usual constructions in the tropics. We have used Cuban, Puerto Rican and Mexican architects, sometimes American decorators; the results have been fair, perhaps because we were always short of time. The Bacardi building in Santiago has been studied carefully and because of the ample time it gave me the opportunity of looking into the work of many architects and I came to the conclusion that Mies' work in one-story building was foremost in the world. Perhaps it should also be considered that it is possible that I may want to mark my tenure of office with indelible marks that to my successors would create a definite necessity to work for the greater success of our enterprise."

*A Record Special Report*

# U.I.A. Assembly and Executive Committee Meet in Lisbon

**A Report by Delegate Henry S. Churchill, F.A.I.A.:**

**Working Committees Report—Cooperation with UN on Low-Cost Housing Problems Contemplated —International Competitions Discussed—1961 Congress Planned in London**

The Union Internationale des Architects (U.I.A.) held a business meeting of accredited delegates (Assembly) and a meeting of its Executive Committee in Lisbon, 20-27 September. It was very well attended, with about 100 delegates representing 42 countries present, and all 20 members of the Executive Committee from 20 countries. The agenda was a very full one, and many of the items were of the usual "internal affairs" type, so that what is reported here concerns only those which seem of general interest.

The United States delegates were Henry S. Churchill (member of the U.I.A. Executive Committee), Ralph Walker (past vice president of the U.I.A.), Samuel L. Cooper of Atlanta, John Fugard, Sr. (chairman A.I.A. Committee on International Relations), Ernest Grunsfeld (U.I.A. Financial Assistant). Eugene Fuhrer of Chicago and John R. Badgley of San Luis Obispo were present as observers.

U.I.A. through its representatives has made closer ties with other international organizations, to the end that the role of the architect has been strengthened and the part he can play in helping formulate programs has become better understood. These organizations include the appropriate sections of the United Nations, both in New York and Geneva; World Health Organization; International Federation for Housing and Planning; International Labor Office; C.I.B.A.; UNESCO; and other alphabets. It was also pointed out that the now effective European Market has opened new possibilities for international cooperation and technical exchange among architects.

There were reports of the Working Committees, some of them of much interest. To reproduce them here would require too much space, but they can be obtained from the Secretary General's office. Professor Mountschen of Belgium had an excellent paper on the Practice of the Profession. Alexander Cochran of Baltimore is a member of this committee. Professor Gardner-Medwin of London reported on the Education of the Architect; M. Andre Gutton of Paris on Town Planning (Henry Churchill of Philadelphia is a member); Herr Wilhelm on School Buildings; Professor Goldfinch gave an excellent account of relations with WHO (Zachary Rosenfeld of New York has just joined this committee); and M. Vouga of Switzerland reported on Housing and on Research (Walter Campbell of Boston is a member).

A small temporary Committee was set up to establish definite working arrangements with the United Nations under its "Long Range Programme of Concerted Action in the Field of Low Cost Housing and Related Community Facilities." It is composed of Matthew of Great Britain, Rasmussen of Denmark, Abrossinov of USSR, Dubuisson of France. J. P. Vouga of Switzerland is reporter. It was given a mandate to suggest action programs by 1 December. Churchill of USA is the connecting link through Ernest Weissmann of UN in New York.

Michel Dard of UNESCO presented a final draft of a proposed international document defining the mutual rights and obligations between practitioners of the plastic arts and architects. This was adopted, subject to some minor revisions of text, and will probably become official within the year.

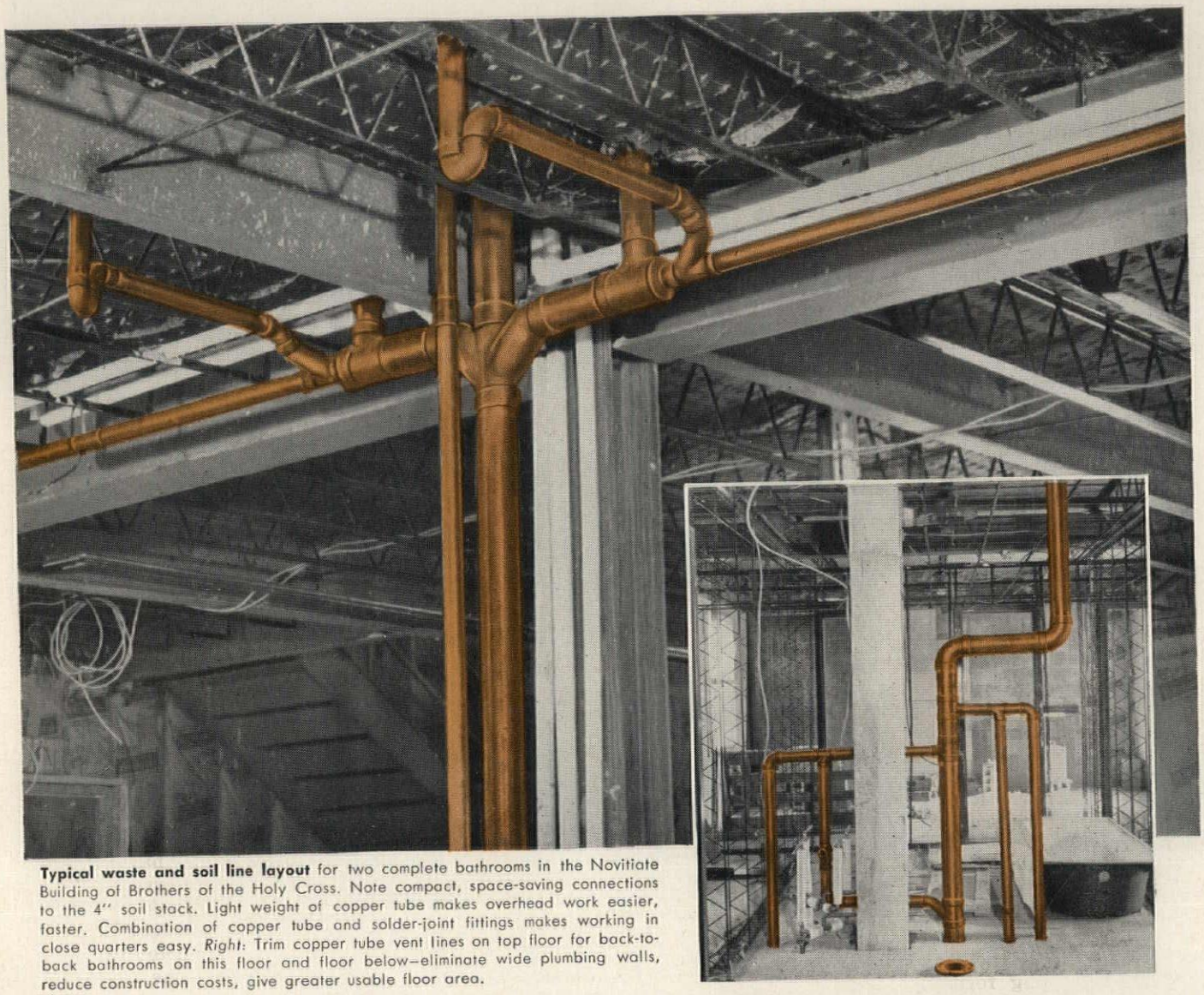
In the field of international competitions there were two reports. M. Pierre Vago, Secretary-General, recommended that in spite of some obvious defects in the regulations for International Competitions it seemed to him better not to propose changes at this time, since it was only last year that they had been accepted as an international document by UNESCO and become officially binding in most countries. He suggested that further use of the regulations might show the need for additional modifications, which could perhaps be discussed in London in 1961.

Professor Robert Matthew of Great Britain said he hoped to have ready soon a program for a competition for Schools of Architecture to be presented and judged at the London Congress. The subject will be the design of a small demountable theater. Presumably this can be fitted into the 1960-61 college year. As soon as details are available the information will be circulated by the American Institute of Architects.

M. Jiri Novotny of Czechoslovakia reported that the traveling exhibition on City Planning and Architecture which was gotten together for Moscow last year has been shown in Bulgaria, East Germany, Poland, Hungary, Czechoslovakia and Yugoslavia, and is scheduled for France, Turkey, China and North Korea. It will be available for the United States in late 1960 if it is wanted. The delegates were also shown an excellent documentary film (15 minutes) of the Congress in Moscow last year. Everyone agreed it was well and fairly edited. There are copies available in

*continued on page 232*

U.I.A. Executive Committee in session at Lisbon: (clockwise from left) Navarrete and (observer) Macias of Cuba; Wichtendahl of West Germany; Churchill, U.S.A.; Ahlberg, Scandinavia; Yang, China; Matthew, Great Britain; Tschumi, Switzerland; Mardones, Chile; Secretary-General Vago; Ceas, Italy; Van Hove, Belgium; Lebret, France; Saad-el-Dine, U.A.R.; Zachwafvicz, Poland; Kabiljo, Romania; Tokawaga, Japan; and (observer) Grunsfeld, U.S.A.



**Typical waste and soil line layout** for two complete bathrooms in the Novitiate Building of Brothers of the Holy Cross. Note compact, space-saving connections to the 4" soil stack. Light weight of copper tube makes overhead work easier, faster. Combination of copper tube and solder-joint fittings makes working in close quarters easy. *Right:* Trim copper tube vent lines on top floor for back-to-back bathrooms on this floor and floor below—eliminate wide plumbing walls, reduce construction costs, give greater usable floor area.

# In big jobs, too, Copper Tube drainage systems provide substantial installed-cost savings

"We prefer to use copper tubes because we have compared costs — material and installation — and come up with copper tube as the most economical of the specified materials *every time*," says David L. Farrell of Farrell Bros., plumbing contractor of Albany, N. Y. "The light weight of copper tube makes it easier to work with and reduces the hazards of handling heavy, bulky materials. Copper tubes can be accurately cut to desired lengths and much more quickly installed. All of these advantages add up to substantial savings."

More and more local and regional building codes are being modernized to allow copper tube in sanitary drainage systems. Wherever permitted, in buildings large or small, copper can effect substantial savings as compared with conventional cumbersome materials. It is a worthwhile building cost-reduction factor.

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**Model of Chapel and Novitiate Building,** Brothers of the Holy Cross, Kinderhook, N. Y. Anaconda Type DWV copper drainage tube and Anaconda cast-brass drainage fittings were used on interior soil, waste, and vent lines. Architect: Toole and Angerame, Albany, N. Y. Plumbing and heating contractor: Farrell Bros., Albany, N. Y.

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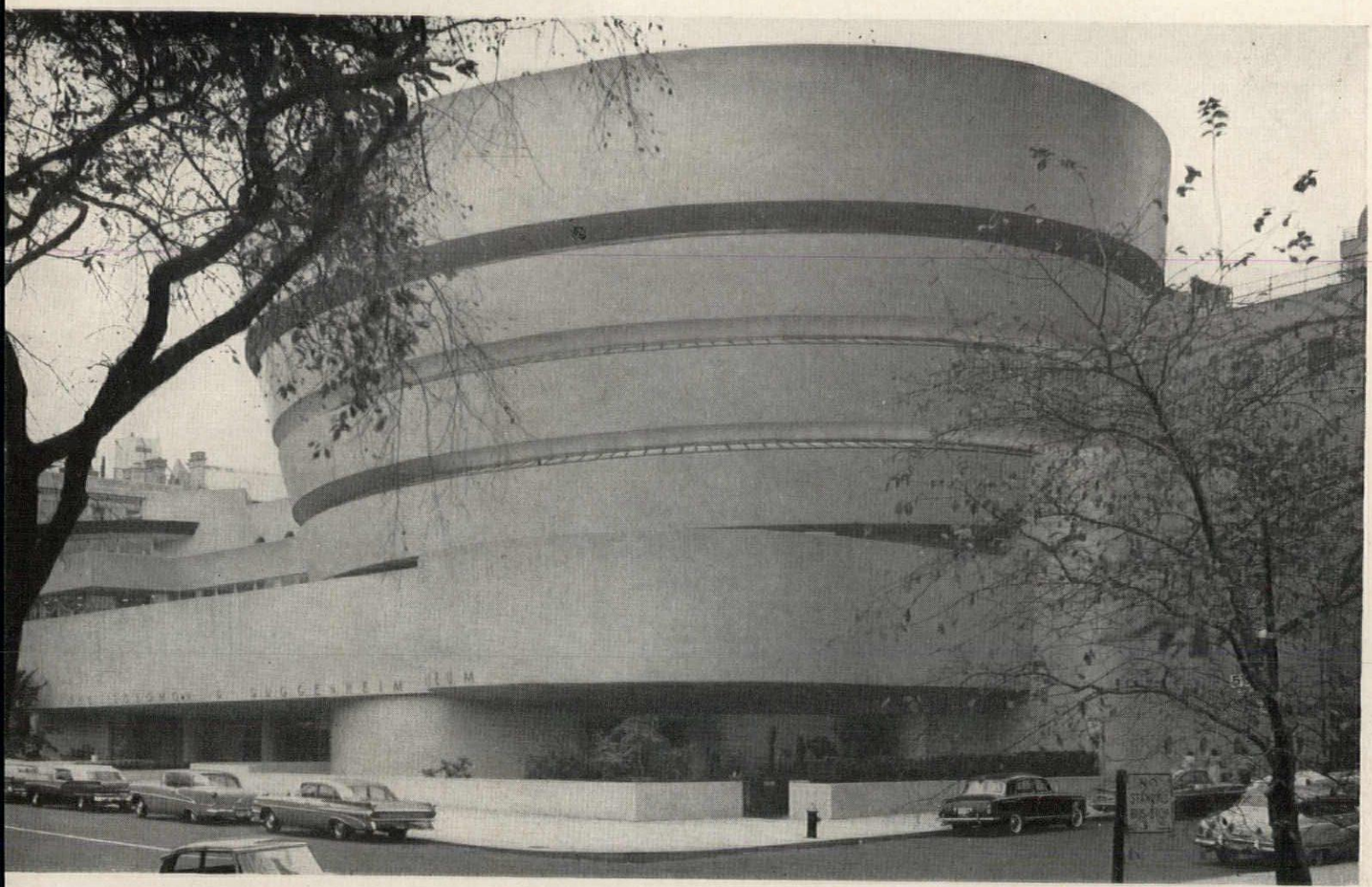
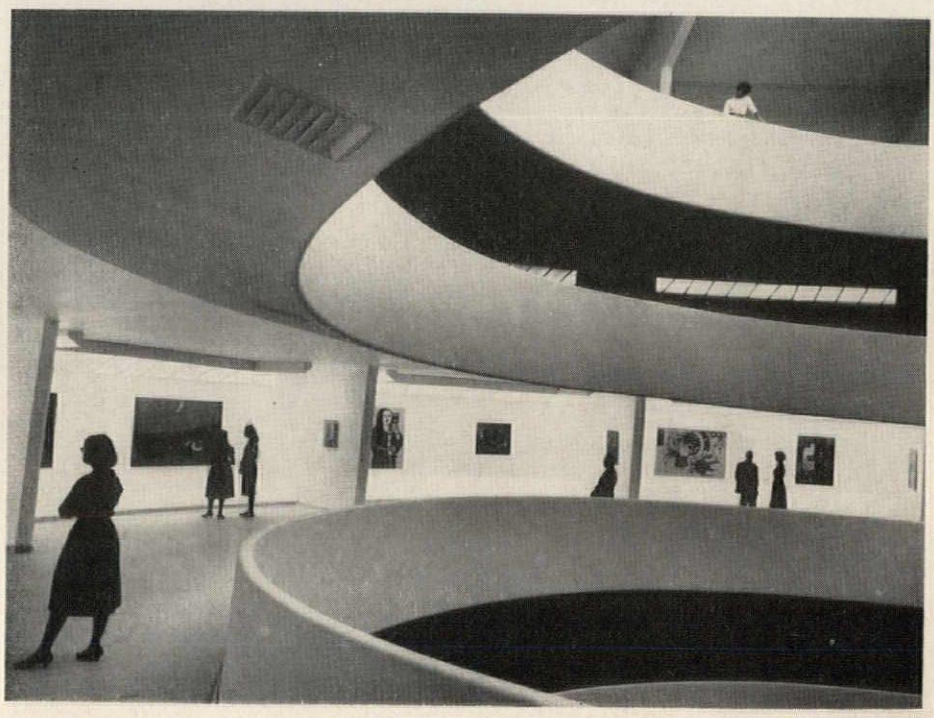
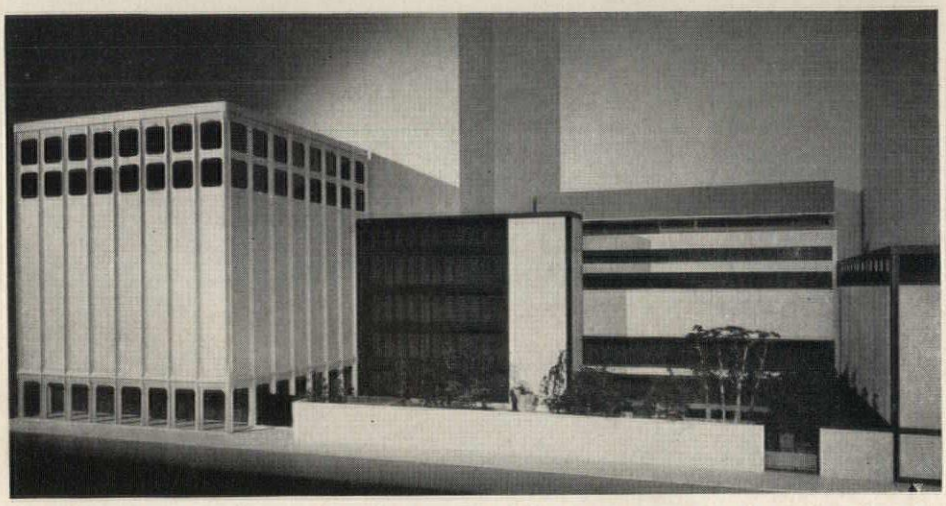


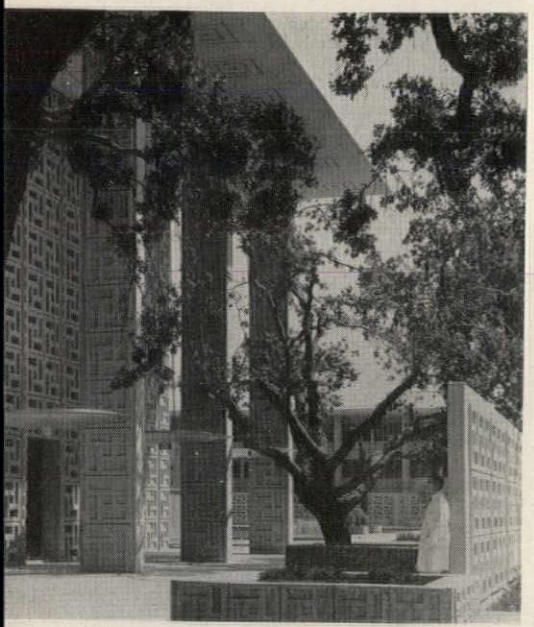
**WRIGHT'S GUGGENHEIM COMPLETED** Frank Lloyd Wright's Solomon R. Guggenheim Museum in New York opened in the end of October to a hullabaloo in the local press equal to any its architect created in his lifetime. Its ramp gallery (shown in two views below), 1416 ft long, has a grade of 3 per cent; paintings are mounted in bays along the continuous side wall according to a system devised by the museum's director, James Johnson Sweeney. The building has a diam of 100 ft at ground level and 128 ft at the roof; height to the glass dome is 92 ft. Facilities include a 277-seat theater. Charles Middeleer, landscape architect; Euclid Contracting Corp., general contractor



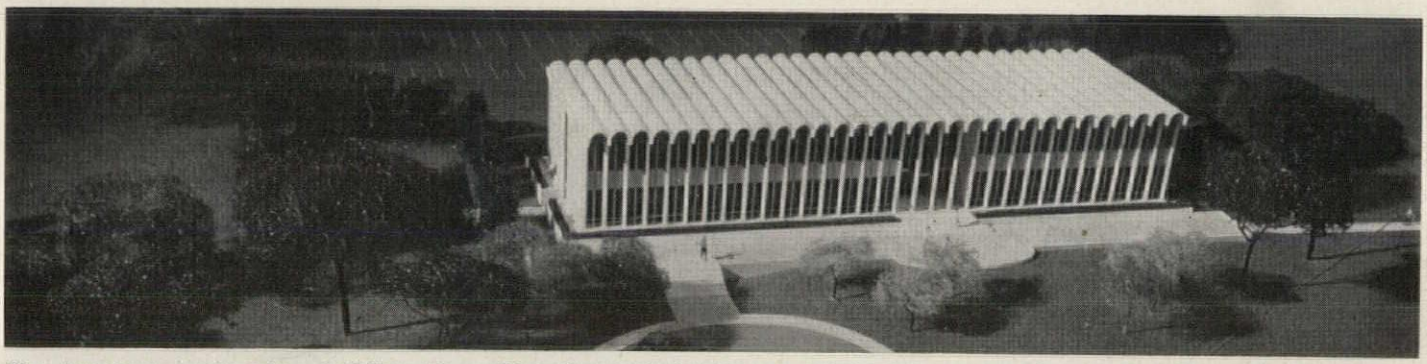


MUSEUM OF MODERN ART EXPANDS
Philip Johnson Associates are the architects of a proposed new wing for New York's Museum of Modern Art, to be east of the garden. The eight-story structure, at left in model photo, is to be connected with the existing building, right, by glass-walled corridors. The reinforced concrete and steel wing, sheathed in travertine, will raise total exhibition space to 43,000 sq ft and storage space to 11,000 sq ft (present totals: 12,000 and 4500). Philip Goodwin and Edward D. Stone were the architects of the present main building, *left*, built in 1939; a 1951 annex was designed by Philip C. Johnson

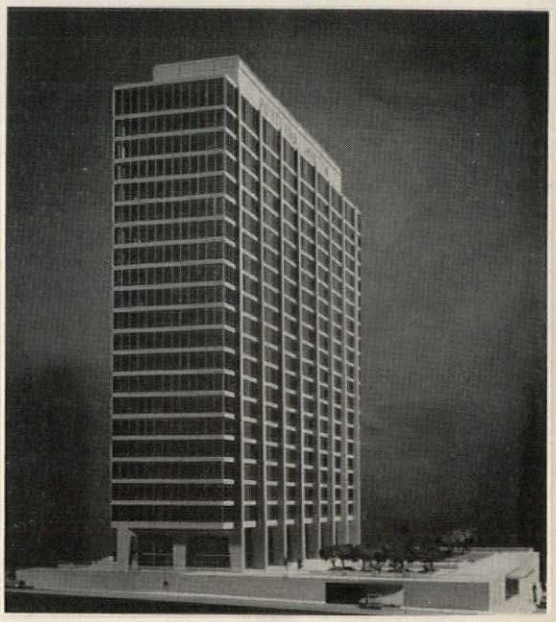
YALE GETS NEW COLLEGES
Eero Saarinen is the architect of two new residential colleges for Yale University. The model shows, in foreground, Ezra Stiles College and, in background with tower, Samuel F. B. Morse College. (The Yale Graduate School is shown in lighter shade at right rear.) The colleges' "warm grayish monolithic walls" will be of crushed stone molded in high-strength grout cement mortar, according to Mr. Saarinen. Construction and maintenance cost of the new colleges, to accommodate 500 undergraduates, is $7.5 million



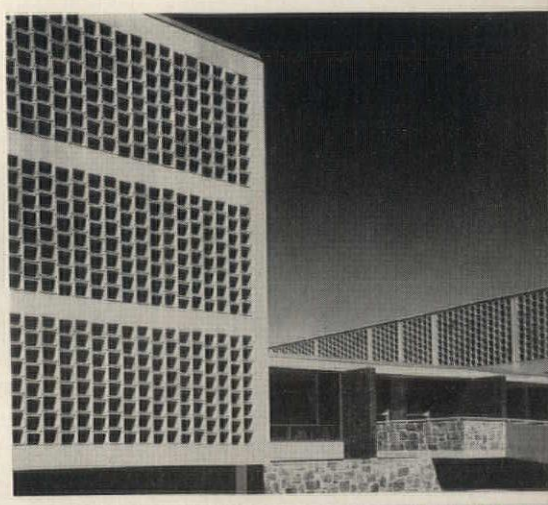
The Stanford Medical Center in California consists of three hospital and four medical-school buildings of three stories, all connected by arcades and walkways. Structure is reinforced concrete with precast grills. Exteriors are painted buff with red and brown trim. Total area: 715,321 sq ft. Total cost, including construction, furnishings, equipment: $21,006,000. Edward D. Stone, architect; E. Todd Wheeler, consulting hospital architect; Stanford University, general contractor; Wagner & Martinez, managers of construction



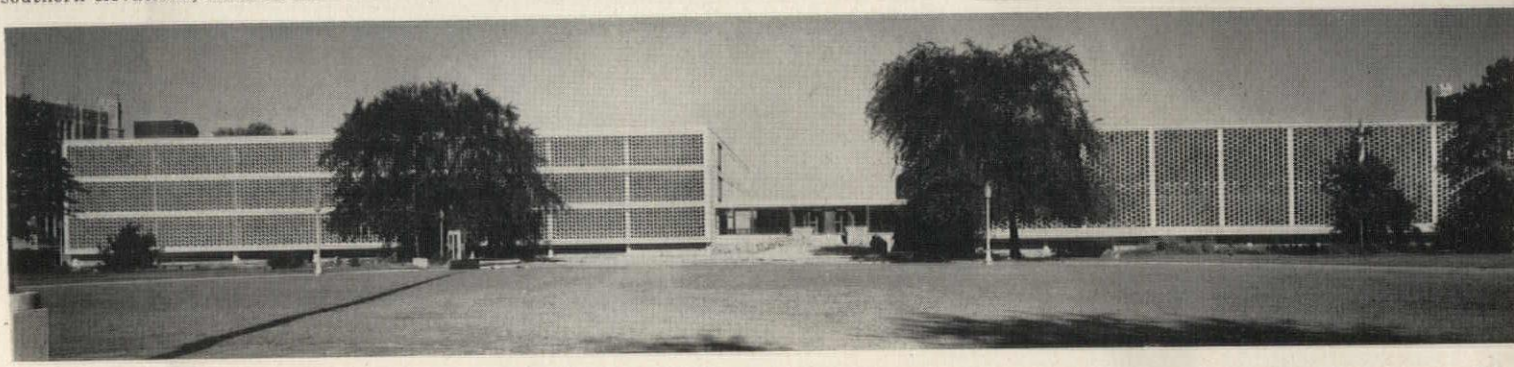
The two-story headquarters building of the Michigan State Medical Society at East Lansing is due for completion next June. There is a vaulted precast roof and a two-story-high lobby with a bridge connection for the upper floor of offices; meeting rooms are also provided. Minoru Yamasaki, architect; Granger Brothers, Inc., general contractor

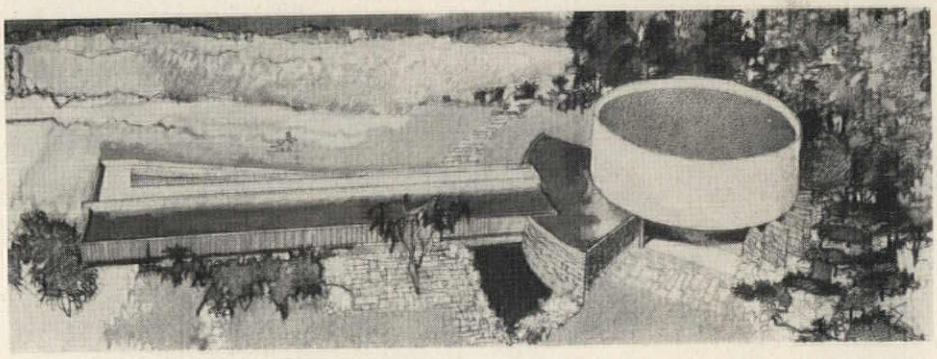



A pair of new hotels: *Above:* The Pittsburgh Hilton, opening this month. Cost of the 24-story, 800-room structure is $15 million. The skin is glass and gold aluminum. William B. Tabler, architect; Turner Construction Co., general contractor. *Right:* Construction will start in March on the $10-million Portland Hilton in Oregon. The hotel, 500 rooms, has a 21-story tower rising from a four-story base. Skidmore, Owings & Merrill, architects



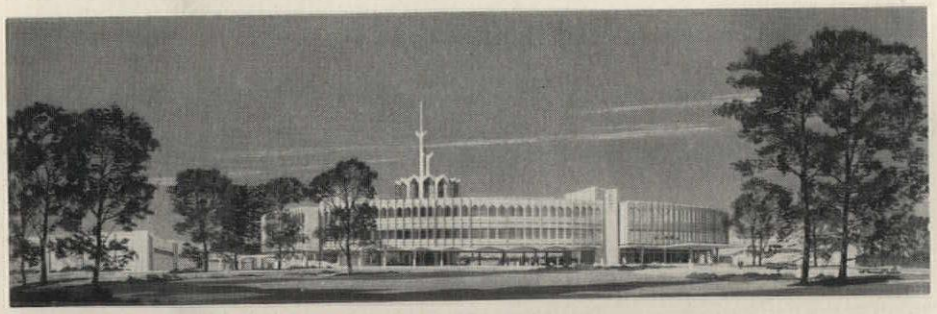
Two new buildings on the Bronx Campus of Hunter College in New York were dedicated recently. Shown below, they are, left, a limestone-clad Classroom-Administration Building, and a glass-walled Library. The detail at right shows the screen walls on southern elevations, made of horizontal clay flue tile. The Library is roofed by hyperbolic paraboloid concrete shells, making possible only six columns on the main reading floor. Total cost: $3.3 million. Marcel Breuer, architect; Robert F. Gatje, associate; Eduardo Catalano, consultant; Leon D. de Matteis & Sons, Inc., general contractor





*Right:* The $1 million Visitors' Center and Cyclorama Building at Gettysburg National Military Park, to be completed in 1961. Included are a concrete cyclorama drum and 200-ft-long office wing. Richard J. Neutra & Robert E. Alexander, architects; Orndorf Construction Co., general contractor

*Below, upper:* National headquarters of the American Baptist Convention at Valley Forge, Pa., is to be a circular concrete structure costing $5.5 million. Occupancy is scheduled for spring, 1962. Vincent G. Kling, architect. *Below, lower:* The National Library of Medicine in Bethesda, Md., now under construction, has a roof of four post-stressed hyperbolic paraboloid quadrants. Area: 231,855 sq ft. Cost: $4.4 million. R. B. O'Connor & W. H. Kilham Jr., architects; Arthur Venneri Co., general contractor



*Below:* Westinghouse Electric Corporation's research and development center near Pittsburgh will be occupied in 1961. The two buildings, 712,000 sq ft, have some 450 individual laboratories. (Existing labs are in left foreground). Skidmore, Owings & Merrill, architects

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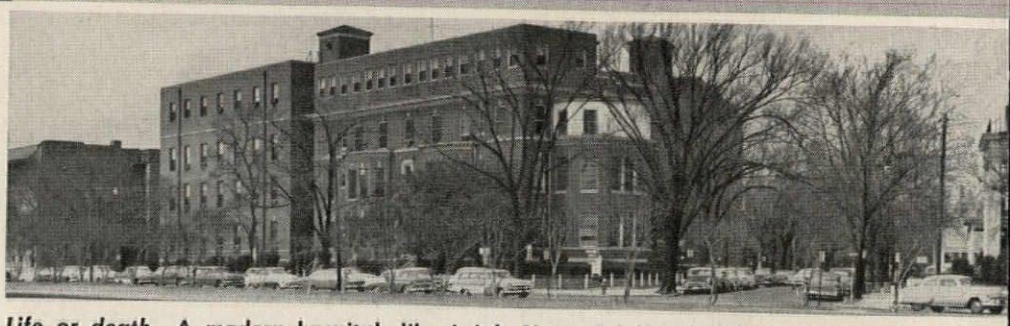

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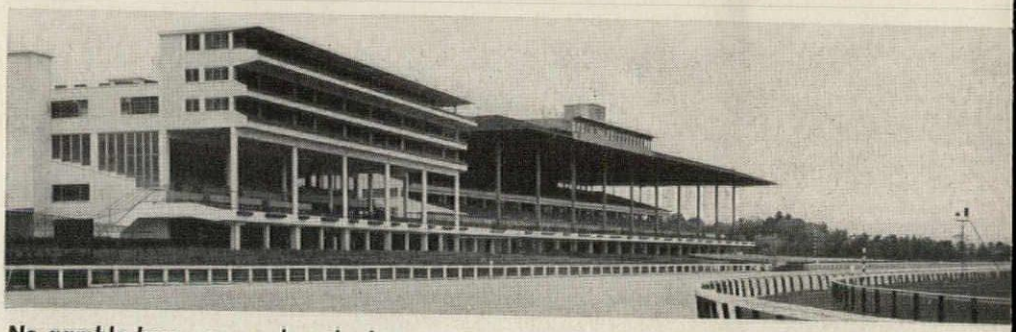

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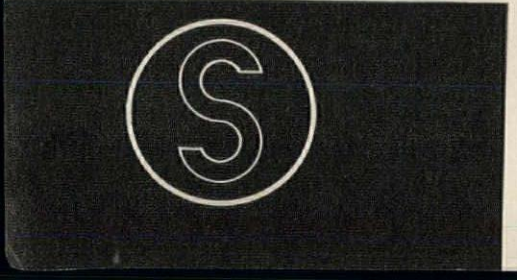


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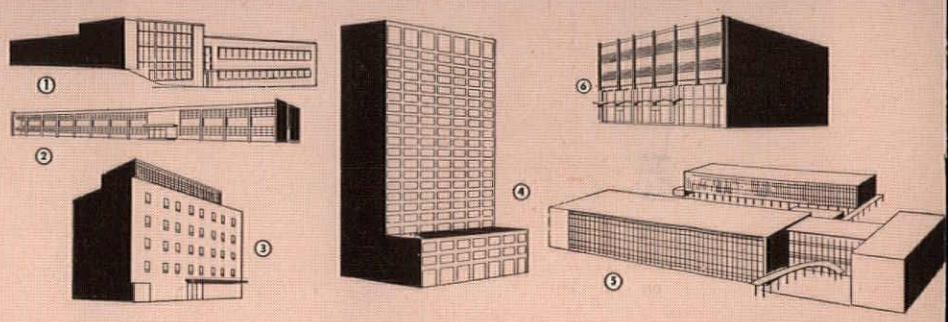

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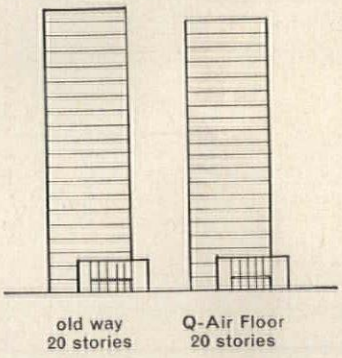
## 1 Initial capital investment cut 5%

Since Q-Air Floor permits an average saving of a foot of space between each suspended ceiling and the floor surface above, a twenty-story building can be built at the same height as a nineteen-story structure built by older methods. This results in a substantial saving in structural steel, walls, piping . . . in fact every building material that is installed from floor to floor.

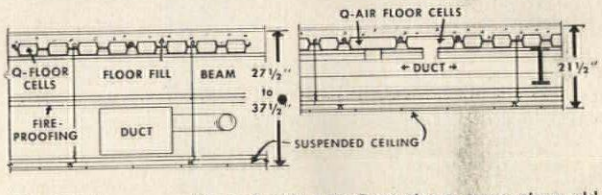


old way
20 stories

Q-Air Floor
20 stories

## 2 Reduced building height cuts BTU requirements 4% to 11%

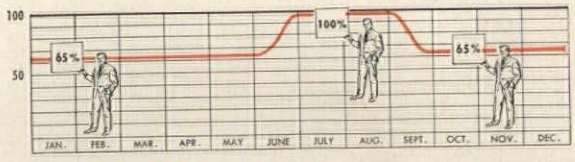
In normal high-rise buildings, the BTU requirements for heating and cooling are based primarily on exterior wall exposure. Therefore, a saving of 6″ to 16″ per floor can easily reduce BTU needs by 4% to 11%. This reduction permits the use of lower capacity, lower cost equipment, effecting a saving on capital investment as well as in yearly operating cost.




Simplified cross sections of ceiling-to-floor-above areas show old way left and Q-Air Floor right. Average compaction is one foot.

## 3 Yearly power costs cut 30%

The Q-Air Floor system includes the Robertson Aerator, a mixing device with an exclusive seasonal changeover feature. Full blower power is used only for peak summer cooling. The rest of the year the system operates at about 65% of capacity. Older methods require a constant 100% volume of air all year. With Q-Air Floor yearly power cost can be reduced as much as 30%.




During the winter, Robertson Aerators satisfy heating requirements at 65% of peak volume.

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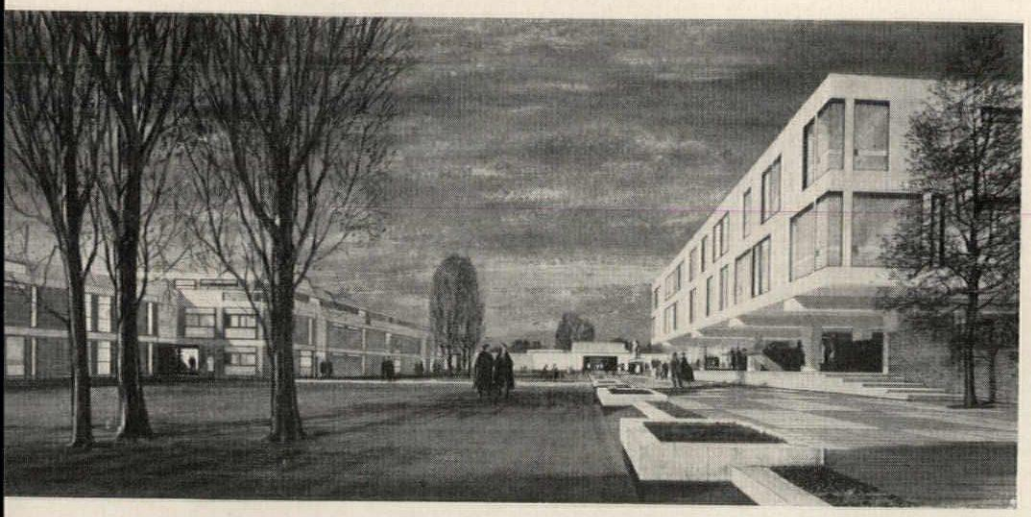
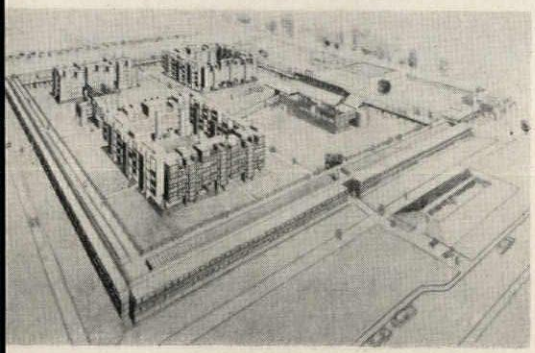
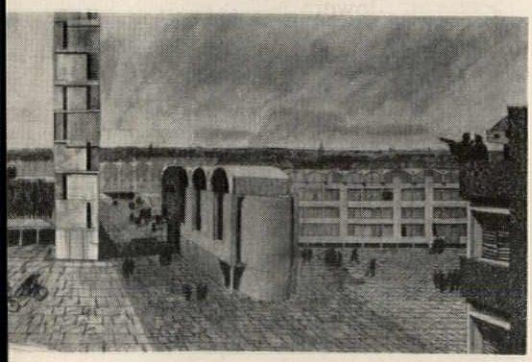
# A Report on the Design Competition for a New College at Cambridge



The winning design in the Churchill College competition by Richard Sheppard, Robson & Partners

The designs of the other finalists by *(top to bottom)*: Howell, Killick & Partridge; James Stirling & James Gowan; Chamberlin, Powell & Bon





Churchill College, named in honor of Sir Winston Churchill, will be the first collegiate foundation at Cambridge University in almost a hundred years. The trustees, anxious that such an important architectural opportunity should not go by default, have just held a competition to determine the design.

Twenty architects or firms were invited to compete, and the list of their names reads like a roll call of the brightest and most promising figures in British architecture today. The designs were submitted to a distinguished board of three assessors who chose four schemes to be developed further and then made their final decision. The assessors were: Basil Spence, president, Royal Institute of British Architects; Sir William Holford, professor of town planning, University of London; Sir Leslie Martin, professor of architecture, Cambridge University.

The result has not come up to expectations. The winning design, although unquestionably highly competent and with a totally admirable system of living accommodation, displays a disappointing lack of architectural distinction.

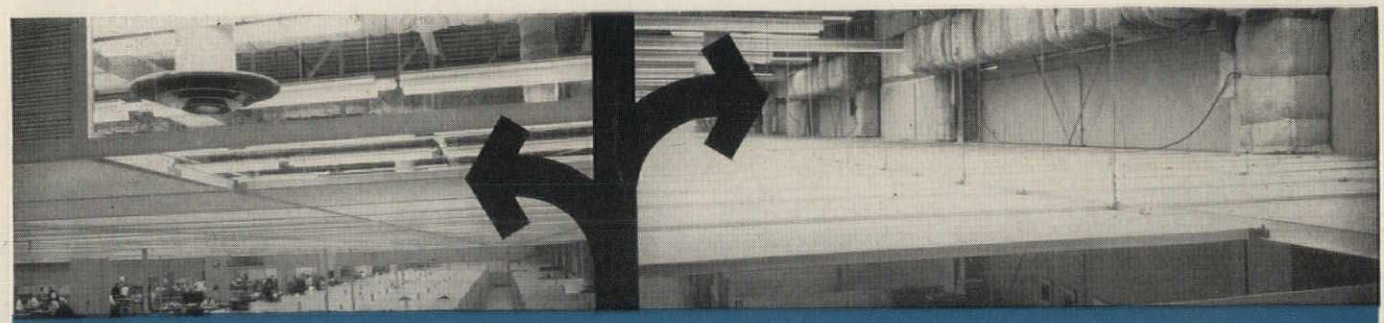
Those people who are inclined to second-guess the choice of the assessors have had ample opportunity to do so, for all the competition drawings have been on exhibit at the R.I.B.A. for an entire month. Seen together in this way, the entries present a rather startling picture. The designs differ widely in overall conception and in plan; but when it comes to the elevations, the work of every architect, "humanist" and "brutalist" alike, seems to be cut from the same bolt of not very interesting cloth. It certainly looks as if the architects were so busy trying to consolidate the complex requirements of the college into a workable plan that they had little time left over to develop the elevations.

Even in the designs of the four finalists, which were taken much farther than the others, the same schematic tendency can be found. It is particularly evident in the Chamberlin, Powell & Bon design (4), but also exists in the gigantic enclosing court suggested by Stirling & Gowan (3), and, to a certain extent, in the winning design itself. The only proposal which was not vulnerable to criticism on this point was that of Howell, Killick & Partridge (2), who had developed a complex series of modeling effects through the use of pre-cast concrete panels. This entry was highly praised by the assessors, whose principal objection seemed to be that the authors' own estimate was considerably over the budget and might still be set too low. It should also be noted, however, that the panel scheme, while it does give the design character, is not completely fortunate in all of its effects.

The author of the winning design, Richard Sheppard, has indicated in a recent issue of the *Cambridge Review* that he considers the elevational drawings submitted in the competition to be of necessity provisional, and the buildings will doubtless acquire a more individual character as each unit is erected.

The competition itself, however, although it was administered under almost ideal circumstances, cannot be said to have produced any truly distinguished designs. It would be interesting to know the reasons for this failure. Perhaps the cause lies in limitations inherent in the competition system. It may, however, be a question of an excessively pragmatic attitude on the part of the architects.

—*Jonathan Barnett*



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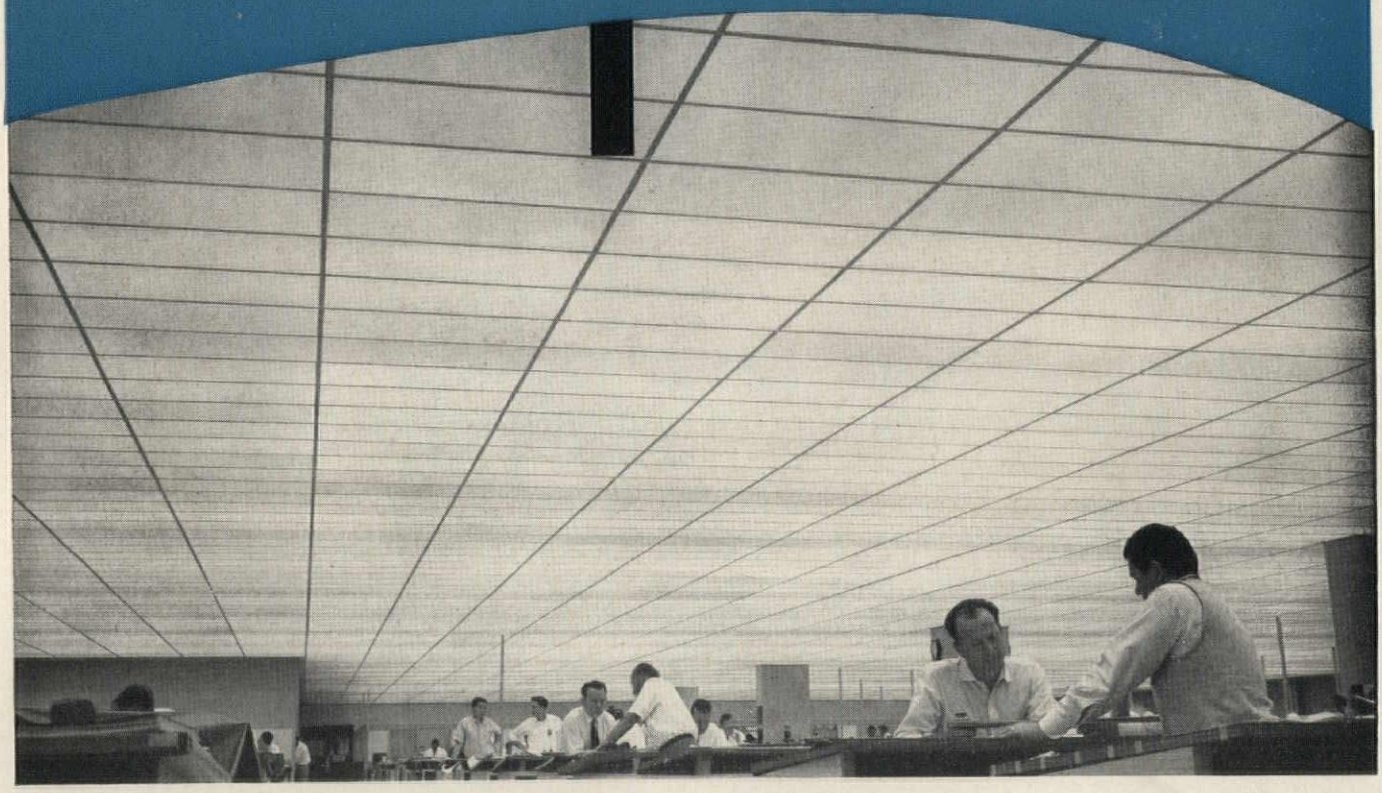

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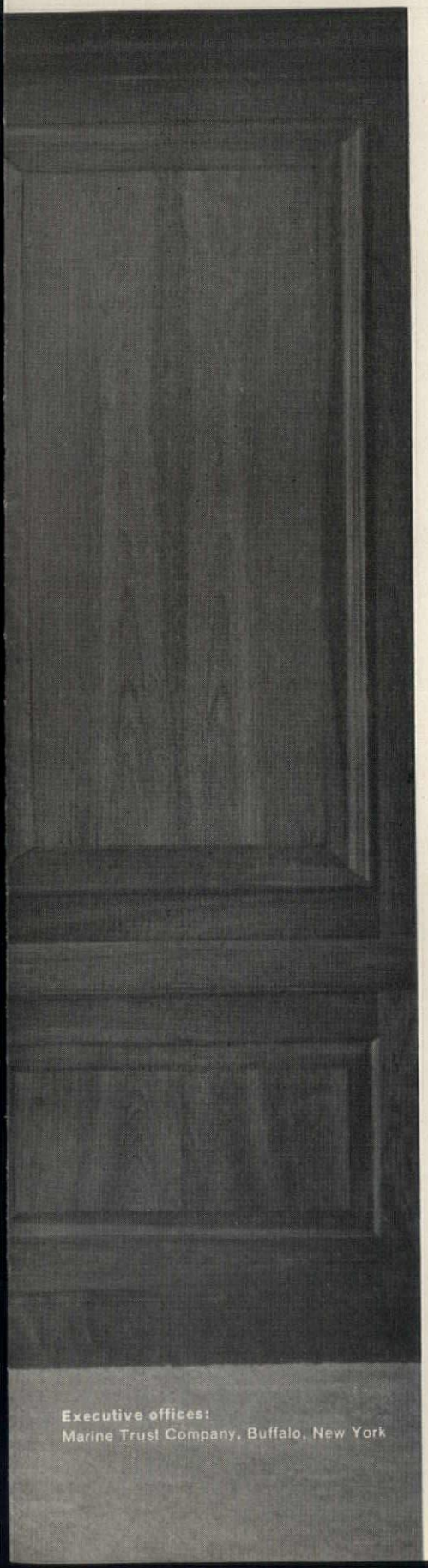

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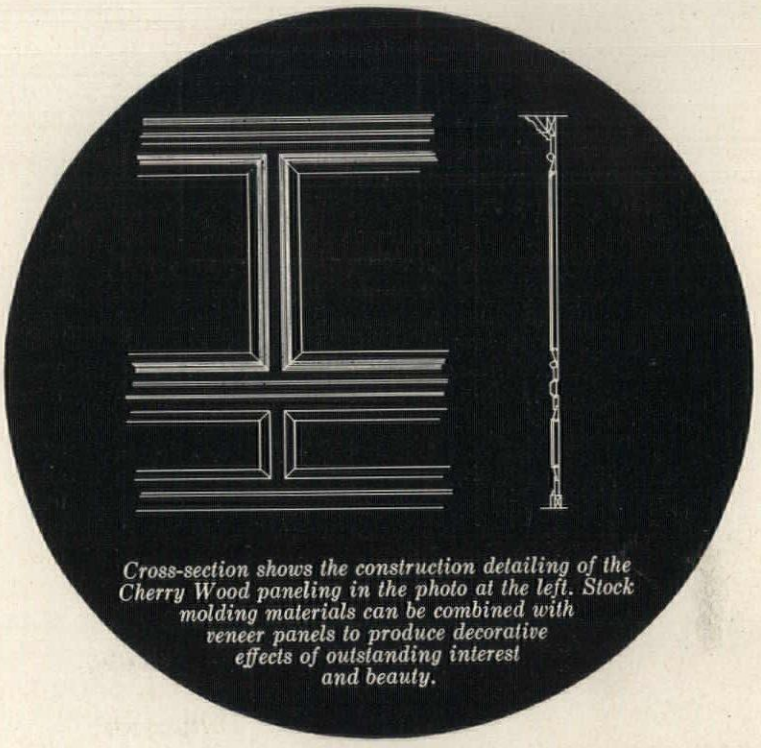

*Cross-section shows the construction detailing of the Cherry Wood paneling in the photo at the left. Stock molding materials can be combined with veneer panels to produce decorative effects of outstanding interest and beauty.*

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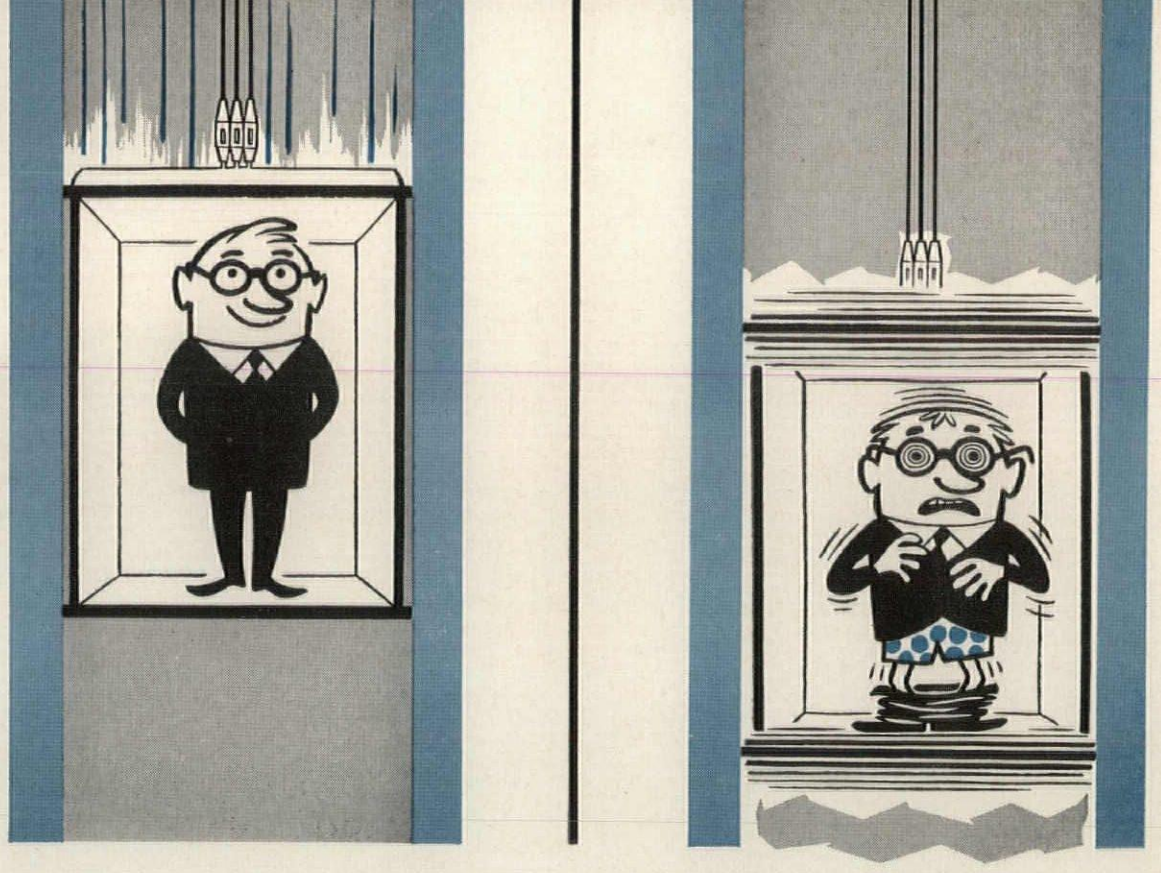

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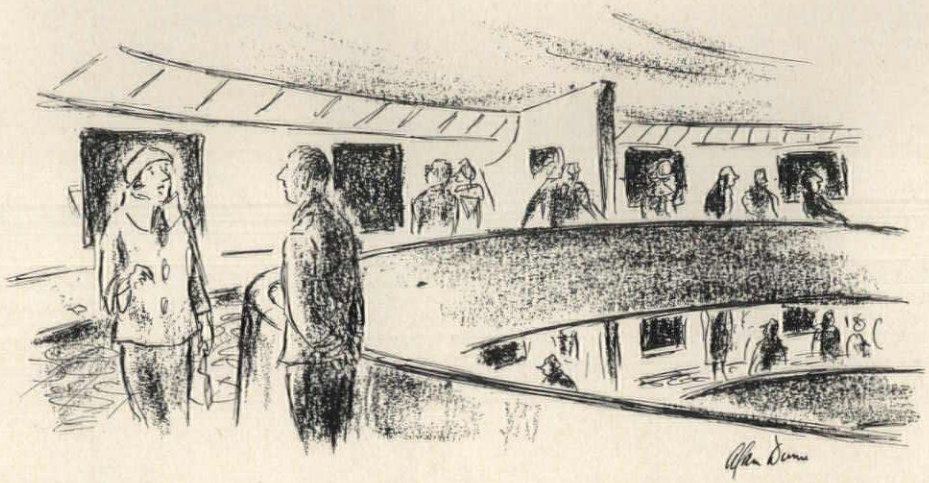
# *Meetings and Miscellany*



*—Drawn for the* RECORD *by Alan Dunn*

"Do I have to go through Kandinsky to get to Modigliani?"

### First Pacific Rim Conference

Despite the fact that the distance from home prevented many California architects from attending, the First Pacific Rim Conference, sponsored by the California Council, A.I.A., and held October 8-14 in Honolulu, was a great success (see cuts, page 28). With a combination of tropical island atmosphere and a roster of speakers from a variety of fields outside architecture as well as internationally known architects, the Conference drew an attendance of over 150 architects from the mainland (some from the East who stopped en route to Japan on the Architect's Tour of that country) and their wives. Local architects joined them to make a total architect attendance of nearly 200.

The program format was new: non-architect speakers spoke in their own fields to the conference theme, "Wellsprings of Design"; architect-speakers linked architecture and the other fields. A final session gave each speaker a chance to recap on his own words, to comment on what others had said and—for the non-architects—to add impressions after a week's sojourn among architects.

The three aspects of the theme chosen for exploration were the physical, sociological and cultural wellsprings for design. Throughout the sessions, architecture was challenged: by Dr. Paul Siple, internationally known geographer and antarctic explorer, and Honolulu architect Harry Seckel on the physical sources of design; by Dr. Wendell Bell, associate professor of sociology, U.C.L.A., and architect and city planner Carlos Contreras of Mexico City; by Dr. Karl With, integrated arts department head, U.C.L.A.; by Australian architect and author Robin Boyd; and by John A. Kouwenhoven, professor of English, Barnard College, editor and author of *Made in America*, who in his summation address cautioned that the "architect as artist will neglect at his peril the vernacular forms which are, perhaps, the most life-giving of all wellsprings of design."

With ample free time allowed by the program organization, architects could take tours of Honolulu houses and other building, arranged by the local A.I.A. and W.A.L. chapters; drive around Diamond Head and the lush and still rural windward side of Oahu; and savor some of the islands' history in a special program of costume song and dance put on by the Kaahumanu Society. Post-conference tours to the outer islands were popular enough to make it seem that the convention was still in session.

Citations for outstanding service to the profession were presented by Council president Lee Kline of Pasadena to L. F. Richards of Santa Clara, immediate past president of the Council; and to publishers L. W. Lane of *Sunset* magazine and John Entenza of *Arts and Architecture*.

A.I.A. president John Noble Richards and Institute secretary Roy Carroll attended the conference and participated in its program.

John W. Kruse, San Francisco, was chairman of the convention advisory committee. Ulysses Floyd Rible is regional director for California.

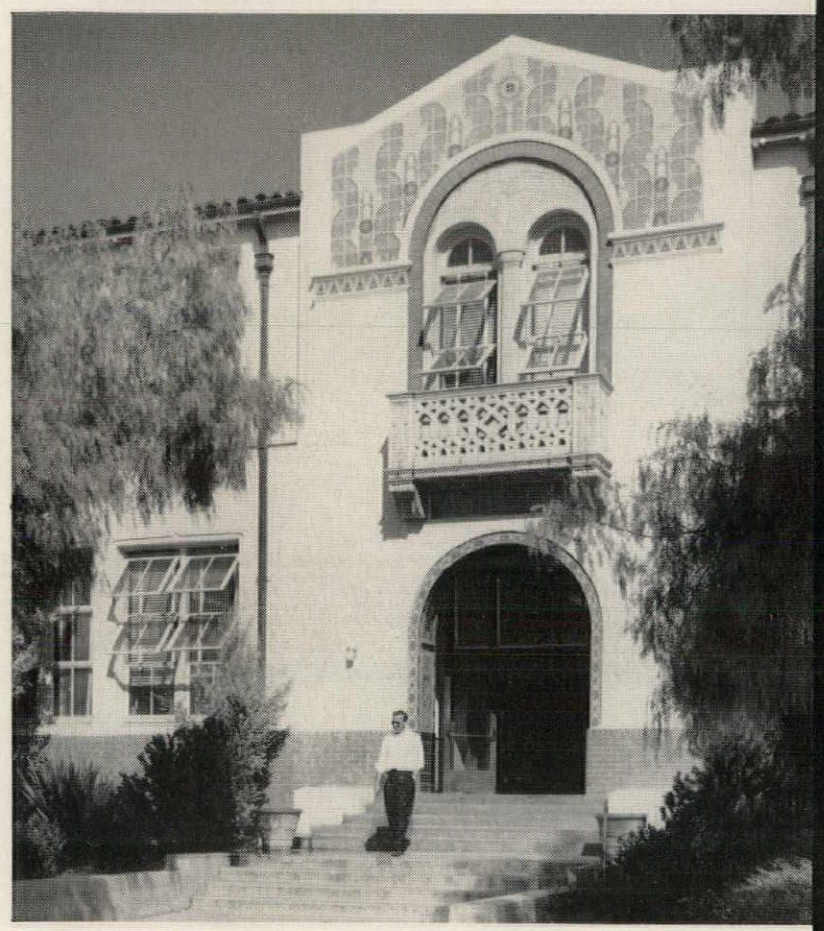
*—Elisabeth Kendall Thompson*

### Western Mountain Meeting

More than 240 architects and their wives and guests from the six states —Arizona, Colorado, Nevada, New Mexico, Utah, and Wyoming—met in Albuquerque October 8-10 for the annual regional conference of the Western Mountain region, A.I.A. Within the theme, "Science in Architecture," the conference offered a stimulating program which suggested that more knowledge and more research are needed if architecture is to cope with the problems of today and tomorrow.

Among the speakers on the program were Herbert Swinburne, Philadelphia architect and member of the national A.I.A. research committee; Dr. E. J. Workman, president, New Mexico Institute of Mining and Technology; Dr. C. H. Topping, senior architectural consultant, design division, E. I. DuPont de Nemours Company; and Dr. Clayton S. White,

# AT San Jose SCHLAGE

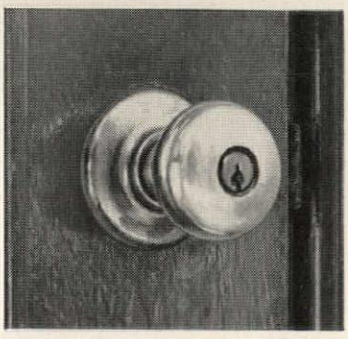


Old Science Building
San Jose State College
San Jose, California

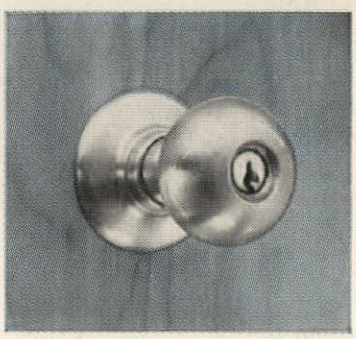
1931

1956

New Science Building
San Jose State College
San Jose, California



Original installation operating perfectly after 28 years' hard service



New installation ready for decades of maintenance-free service

# State

## LOCKS PASS EXAMINATION


SCHLAGE cylindrical locks were installed in San Jose State's old science building when it was constructed in 1931. And, when a new science building was built in 1956, the long-term excellent performance of Schlage locks again made them the choice.

Schlage, pioneer in the cylindrical lock field, engineers locks that are particularly suitable to school building construction. Schlage Locks present a wide selection of designs, finishes and functions to anticipate every school need. Their rugged construction and finishes make them virtually maintenance-free. The Schlage masterkeying system eliminates much detail and expense.

Another excellent feature is the panic-proof construction. Schlage heavy duty entrance locks have a built-in dead-lock feature to withstand jimmying, yet the panic-proof design makes it possible to exit immediately simply by turning the knob. Every Schlage Lock is always free for exit.

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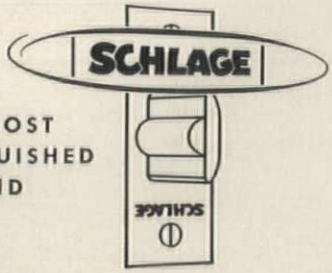


AMERICA'S MOST DISTINGUISHED LOCK BRAND

radio biologist and director of research, Loveland Foundation, Albuquerque. A "Science in Architecture" seminar, led by William E. Burk, Jr., who was chairman of the conference program committee, considered the proposal to set up a research foundation within the A.I.A.

A tour of nearby Sandia Base was a feature of the conference events. James S. Liberty was general conference chairman; Miles Brittelle is president of the New Mexico chapter, hosts to the conference; and Frederic Porter of Cheyenne is regional director.

Awards for excellence in architectural design, given annually at the regional meeting, went to Robert Wehrli, Casper, Wyo., for his Architectural Guild building in Casper; Ralph Haver, Phoenix, for a school in Scottsdale, Ariz.; and Donald Panuska for a residence in Salt Lake City. Dr. David Gebhard, director of the Roswell, N. M., Museum, was made an honorary member of the New Mexico Chapter.

*—Elisabeth Kendall Thompson*

*W. E. Phillips*

At the First Pacific Rim A.I.A. Conference: *Top:* Carlos Contreras, George Vernon Russell, Wendell Bell. *Center:* Karl With, Harry Seckel, Wendell Bell, John A. Kouwenhoven (speaking), Carlos Contreras, Paul A. Siple, Robin Boyd. *Bottom:* Harry Seckel and Paul A. Siple

### Northwest Region, A.I.A., Meets

Innovation in its conference is almost a by-word in the Northwest region. This was the first area to hold annual interstate conferences, on which regional meetings of A.I.A. groups were later patterned, and now this region has effectively demonstrated that a joint conference with allied professionals can not only be held but can be a big success.

This year's Northwest regional meeting, with Harry Weller as its new director and Keith Boyington as its chairman, was a joint meeting with the Washington Arts and Crafts Association, October 8-11 in Spokane, Wash. Some sessions were concurrent, some joint. The artists' group offered Charles Eames as a speaker to the entire assembly; the architects' presented Albert Bush-Brown of M.I.T. Both groups showed slides of their work, a panel discussion probed the problem of "how to purchase art in architecture," and the artists and craftsmen staged a practically continuous "art in action" show in a wide variety of work.

Breakfast sessions are regular parts of Northwest conferences, but this year's lively program, "Cities are Funny," topped the usually good offerings at such events. Five architects—Charles Endicott of Eugene, Ore., Alan Liddle of Tacoma, DeWitt Robinson of Portland, John Detlie of Seattle, and Paul Blanton of Moscow, Ida.—were equipped (the previous day) with 20-shot cameras with which to photograph whatever they saw in Spokane that would illustrate the session's topic. The ends justified the means: Spokane's foibles and its virtues, sought out with uncanny perception, were not only amusing footnotes to a visit to that city, but pungent commentary on Anytown, U.S.A.

Next year's conference will be held in Sun Valley, Ida. In 1961 Hawaii, newest member of the region, will be host to the conference.

*—Elisabeth Kendall Thompson*

### New Schools For New Education

A highly concentrated and unusually stimulating architectural workshop on schools was held in Ann Arbor, Mich., October 19-21. Under the general direction of C. Theodore Larson, the sessions were conducted by the department of architecture in collaboration with the School of Education, University of Michigan, on behalf of Educational Facilities Laboratories, Inc. (Ford Foundation).

Planned to explore possible and practicable applications to school planning of J. Lloyd Trump's much-talked-about report "Images of the Future," the conference invited ten architects active in the school field to present workable schemes—actual or hypothetical. The attendance totaled some 50 people in the architectural and educational fields.

The response was a rather amazing enthusiasm shown for Professor Trump's teacher-team, varied-space theories, but with a wide variety in approach and focus of interest. Added together, the ideas advanced seem to give a school picture of big, medium, and little rooms banked with many individual carrels (variously referred to as "Q Spaces," "Cells," "Zest Spaces" at the conference)—all put together with an extraordinary degree of flexibility to give multi-use, reduced costs, and to permit transition from present curriculum set-ups to the Trump one, then to ones undefined as yet. Mechanical aids, even mechanical brains to do the complex scheduling required, received considerable attention. The next few years should prove quite interesting for the school field, both educationally and architecturally.

The participating architects included John C. Harkness of The Architects Collaborative, Charles W. Brubaker of Perkins & Will, William W. Caudill, Phillip J. Daniel, Donald Barthelme, John W. McLeod, John Lyon Reid, Charles R. Colbert, Eberle M. Smith, and Samuel E. Homsey.

*—Herbert L. Smith, Jr.*

# new Imperial Watrous electrically operated automatic flushing system

## no gears, or cams to wear ...no lubrication ever!

Now available from Watrous, an electrically operated, completely automatic urinal flushing system! This new system *ends* actuating *unit maintenance* and delivers *greater water savings* compared to most other automatic flushing systems.

The actuating device is adaptable for all Watrous Flush Valves, *either new or installed.* It is a heavy-duty, industrial-type solenoid that replaces the flush valve handle assembly. It has no gears or cams to wear or require service . . . no lubrication is ever necessary! It's moisture proof.

This reliable, vandal-proof flushing system is remotely controlled by a day-night timer, a three-circuit or single-circuit timer, as desired.

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• **THREE CIRCUIT OR SINGLE CIRCUIT TIMERS**—Timers of five and ten minute intervals are furnished for wall-box mounting. Mechanism is completely enclosed in a Bakelite case, eliminating any possibility of damage during installation.



On Day-Night Timers, entire timing system including a terminal strip is furnished enclosed in a wall box. It can be located wherever desired.

Get your free copy of the new 48-page Watrous Flush Valve Catalog No. 459. Just off the press, it contains complete flush valve description, features and technical details for every type of installation.

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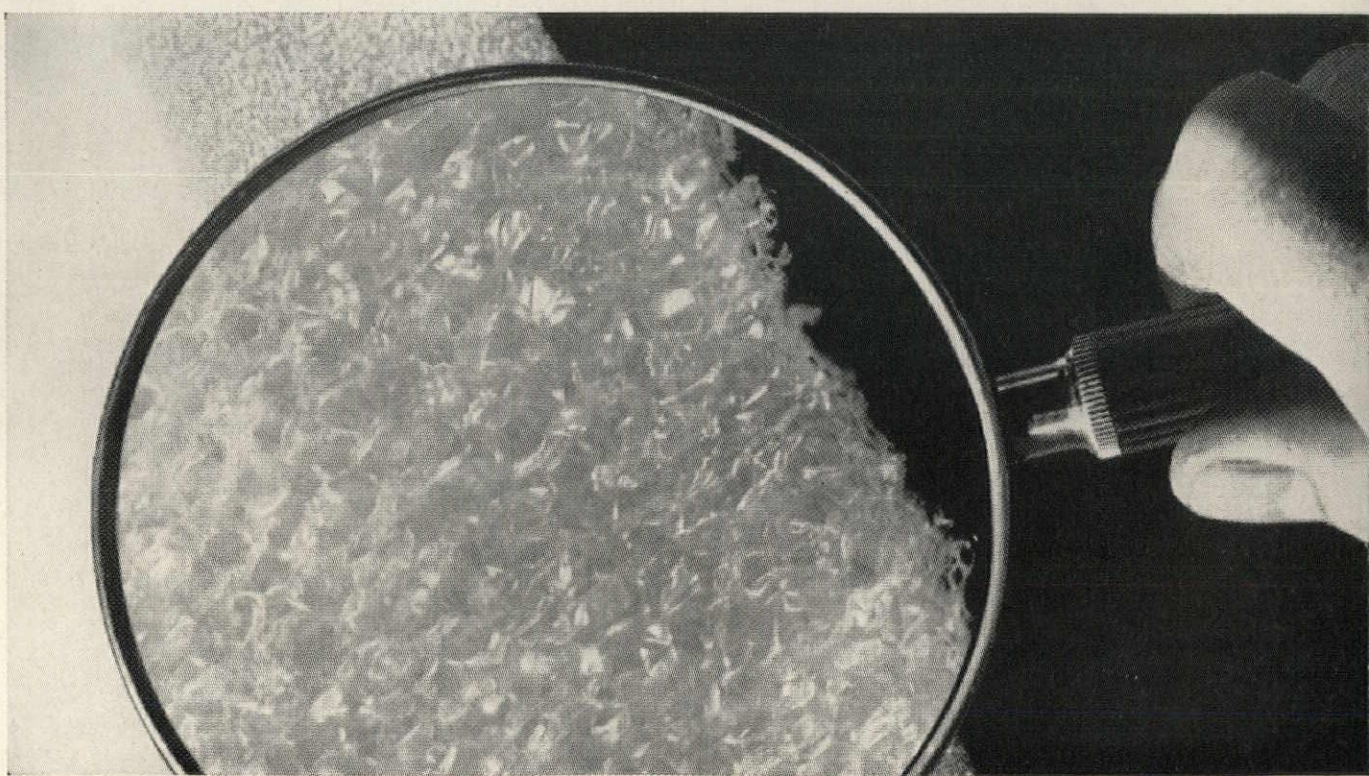
# MYRIAD-CELLED STYROFOAM® HALTS MOISTURE MIGRATION

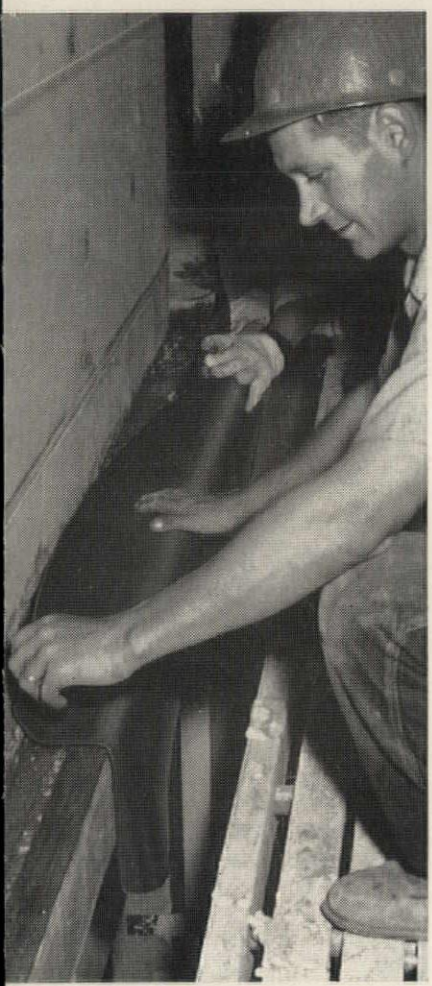
**Years of use have proved Styrofoam for low-temperature insulation. Unique combination of properties cuts costs during and after installation.**

Dow's polystyrene foam insulation presents a formidable barrier to heat and moisture. Thousands of non-interconnecting air cells in every board foot of Styrofoam serve a dual purpose. These tiny cells are responsible for the low thermal conductivity of Styrofoam . . . its "K" factor averages less than 0.28 at a mean temperature of 40°F. And the cellular structure also keeps water and water vapor out of the insulation so that Styrofoam stays sound and serviceable for many years. Repeated check-ups of early installations of Styrofoam show that moisture seldom penetrates beyond surface cells.

Other outstanding characteristics such as light weight, rigidity, ease of fabrication and high compressive strength (as high as 3,300 psf), team up to do a superior insulating job for a relatively small dollar investment.

The Styrofoam distributor in your area will gladly supply detailed case-history information about Styrofoam in low-temperature applications, and comfort installations as well.





## SARALOY® 400:

*← protects new bank*

This tough, flexible flashing can be formed right on the job to fit any contour. It makes a snug, waterproof seal on metal, masonry and other building materials. And it readily expands and contracts with the materials to which it is adhered. In the 14-story National Bank of Detroit building, located near Detroit's new Civic Center, Saraloy 400 seals the outer edge of the building at each floor level. 100 foot long strips of Saraloy were bonded to narrow concrete ledges and covered by stainless steel sills. Photo shows workers bonding Saraloy 400 to the ledge.

## ROOFMATE*:

*new roof insulation →*

Dow's new insulation board for built-up roofs has excellent insulating characteristics as well as high resistance to water and water vapor. This ability to stay dry helps Roofmate deliver a lifetime of useful service, reduces blistering and resultant leaks in built-up roofs. In most applications, Roofmate eliminates the need for a moisture barrier.

Roofmate is lightweight, yet rigid and strong and can be readily cut with ordinary tools to fit around vent stacks and other obstructions, thus reducing installation time. *TRADEMARK


ARCHITECT: ALBERT KAHN, ASSOCIATED ARCHITECTS & ENGINEERS, INC., DETROIT


**SCORBORD**—High quality insulation board specially developed for foundation and slab use. Delivers long, effective service life—resists moisture, deterioration.

**LATEX PAINTS**—Easy-to-apply paints made with Dow Latex stay fresh looking longer . . . keep their color. Excellent washability, resistance to alkali, mildew and mold.

**STYROFOAM**—Specify Styrofoam in unique insulation-plasterbase application. Provides full-wall insulation to keep heating costs low.

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*TRADEMARK

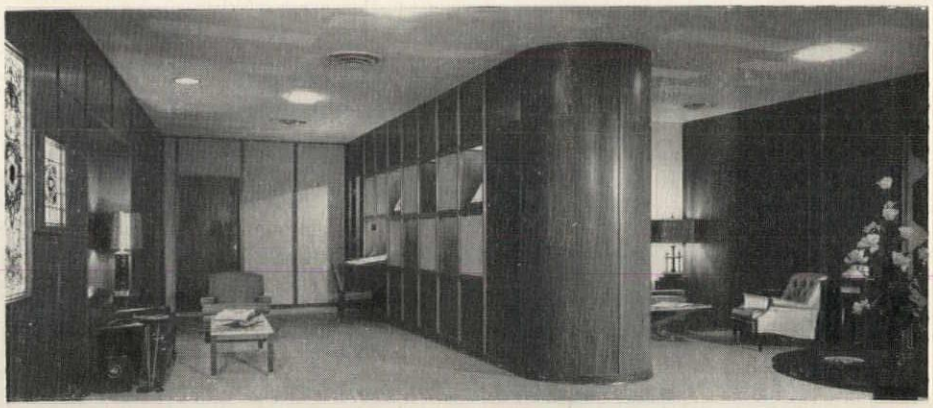
**THE DOW CHEMICAL COMPANY • Midland, Michigan**

DOW

### Dallas Graphic Arts Center Built by Paper Company

Believed to be the first of its kind in the country is the Graphic Arts Center in Dallas. Constructed and operated by the Olmsted-Kirk Company, wholesale paper concern, the 5000-sq-ft center is located on the ground and second floors of the company's building. The architect was George R. Lemmon of the Office of Mark Lemmon.

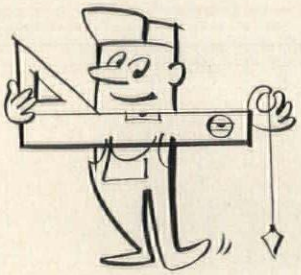
The center includes a library with three conference areas (top cut shows one view) and adjoining paper storage. There people in advertising and printing can bring clients for consultation on paper and printing techniques. An 83-seat auditorium for trade association meetings is nearby, with a snack bar in between. A reception desk is at the head of the stairs (upper cut below).



The high-ceilinged ground floor contains an entrance lobby (bottom cut) and display area where exhibits include heavy printing equipment. There are also a buffet bar and kitchenette (the bar is decorated with printers' copper plates and old lithograph stones). A number of art, photographic, and printing exhibits have already been held in the center.

*more news on page 42*

# Asphalt for built-up roofs provides top weather resistance at lowest cost



Roofing Asphalts are tailor-made for whatever roof slope you specify – dead-level on up.

For maximum waterproofing, for a host of other important advantages over coal tar pitches, low-melting-point Asphalt should be specified for dead-level decks; higher melting point Asphalts for sloped roofs.

## Proven service life

For 2 generations architects and builders have specified and used Asphalt roofing on decks of all slopes. No other built-up roofing material can match the record of these Asphalt roofs – 20, 30, even 40 years of low-maintenance service! Many such roofs outlast their buildings!

Asphalt roofing has proven itself over the years in the severe sun exposure of our Western climate and in the severe winters of northern areas. Proven tops in resistance to undesirable hot-weather flow, tops in all-weather flexibility and durability.

## Lower costs

Asphalt roofing products cost less because of a healthy competitive atmosphere among the many Asphalt roofing manufacturers. For this and other reasons, Asphalt built-up roofs typically **save** $1.00 to $4.00 **per square and sometimes more.**

## Application advantages

Roofers are more familiar with the handling of Asphalt products. And most roofers are aware of their lower toxicity. Workmen generally prefer to work with Asphalt, prefer it over any other type of roofing material used today.

## Available anywhere

Asphalt roofing manufacturers are strategically located throughout the United States—their products are readily available for your job, regardless of location. This is not always the case with coal tar roofing products.

Assure your next building of trouble-free, low cost protection by specifying Asphalt roofing materials. Want more information? Contact your Asphalt roofing supplier.

**THE ASPHALT INSTITUTE**

Campus, University of Maryland, College Park, Md.

# HI-DISCHARGE • HI-CAPACITY


## ...new JENN-AIR "HI-D" Power Roof Exhausters

When specifications call for an exhaust fan with BIG air moving capacity, they call for Jenn-Air's new "Hi-D" Power Exhausters. Designed in both axial and centrifugal wheel models, these belt drive units offer capacity ratings in a broad range from 480 to 28,650 cfm.

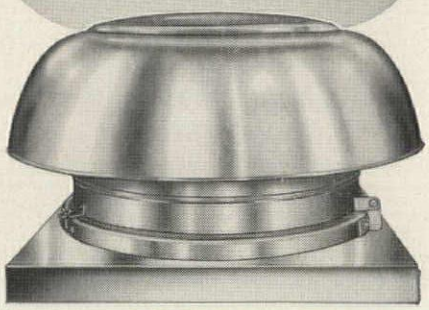
In addition to high capacity, Jenn-Air "Hi-D" Exhausters provide these important design features:

- Wheel is located above motor to combine high discharge point with an overall installed height lower than any comparably-rated exhauster.
- Non-overloading wheel, made of heavy gauge aluminum, is dynamically and statically balanced in the Jenn-Air Sound Laboratory.
- Exclusive guide vane construction improves air moving efficiency while minimizing turbulence and noise.
- Adjustable motor pulley permits speed variation.
- Totally enclosed motor and tubular drive assembly feature permanently sealed, pre-lubricated ball bearings. Motor is effectively cooled by air stream.
- Bird guard of heavy gauge stainless steel is an integral part of every unit.
- Maintenance-free aluminum housing provides strength without weight.

The HAB Series of "Hi-D" Exhausters (axial blade) gives highest air-per-dollar value in short duct runs where static pressures are negligible. The HCB Series (centrifugal wheel) effectively overcomes static pressures and is usually preferred for long duct runs. Its smaller diameter permits a corresponding reduction in duct size.

## JENN-AIR

### All-Aluminum LOW-CONTOUR RELIEF VENTS

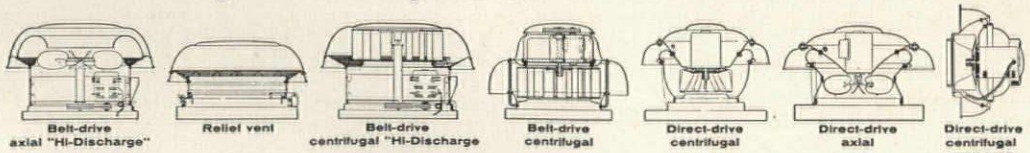


For fresh air intakes or pressure relief within buildings, specify Jenn-Air relief vents. These high-discharge units are designed in seven sizes . . . built to handle from 356 to 18,350 cubic feet per minute. Weather proof, bird proof Jenn-Air relief vents eliminate unsightly goosenecks and hoods.

Specially designed hinge on housing permits ready access to damper. Simple locking mechanism keeps unit tightly closed.

Ask your Jenn-Air representative for performance and dimensional data on the complete line of Jenn-Air Power Exhausters and Relief Vents.

*Member Air Moving and Conditioning Association*

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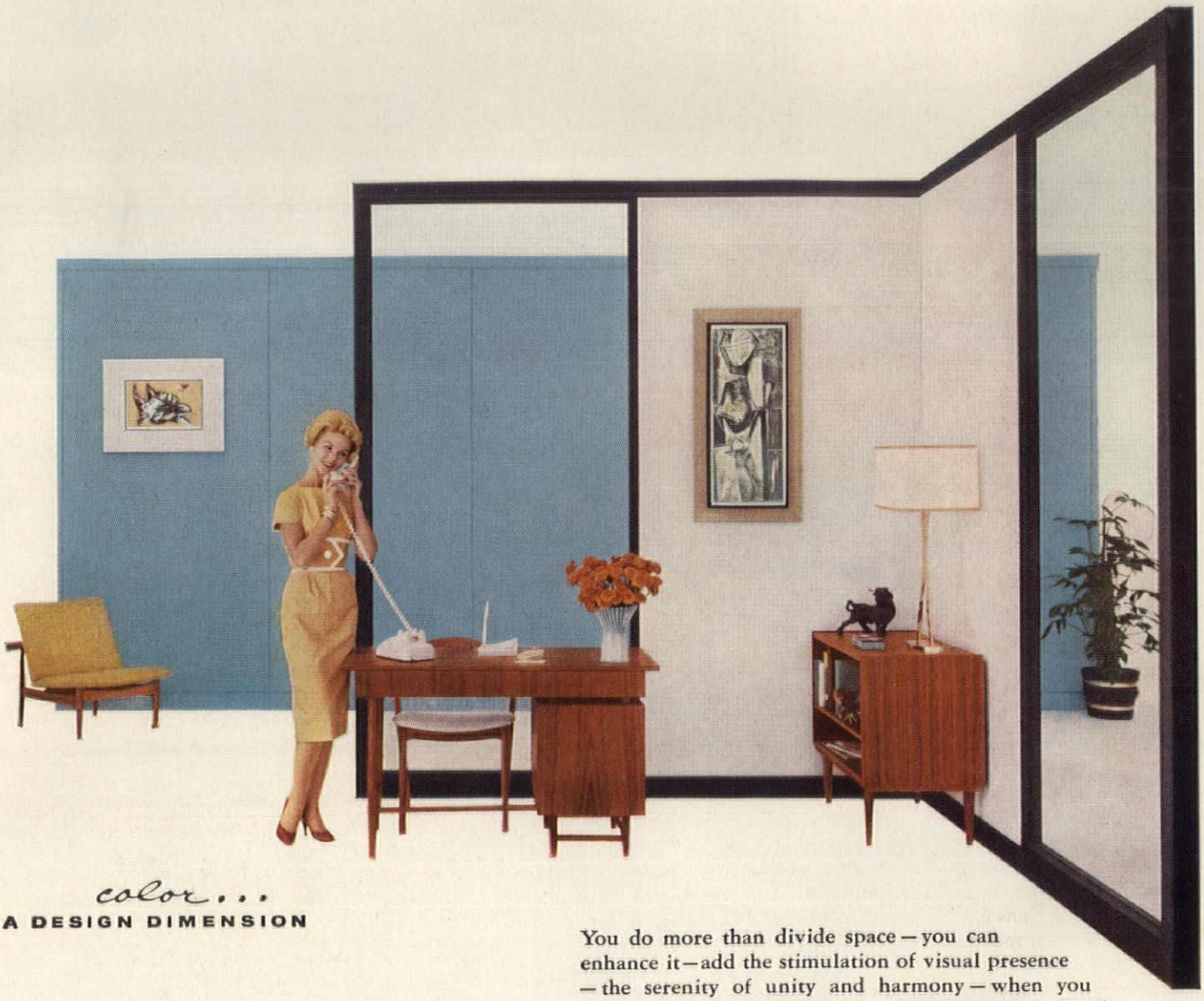

*color . . .*
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## with HAUSERMAN Walls you can achieve any desired design effect

You do more than divide space—you can enhance it—add the stimulation of visual presence—the serenity of unity and harmony—when you design your interiors with Movable HAUSERMAN Walls. Here is design potential that is imagination-deep—with a color potential that is spectrum-wide to emphasize and define every detail of your design.

This design potential is the key to creative flexibility for you. All of the numerous combinations of components are multiplied by the possibilities of color and texture and contrast of materials, until it is possible to achieve almost infinite variety. Color and materials, within the framework of HAUSERMAN design potential, become more than elements of decor. Their function becomes dynamic—adding apparent depth and structuring the space of a room.

Explore the length and breadth of HAUSERMAN design dimensions. Call the nearby HAUSERMAN representative. He is listed in the Yellow Pages under "Partitions." Or write . . .

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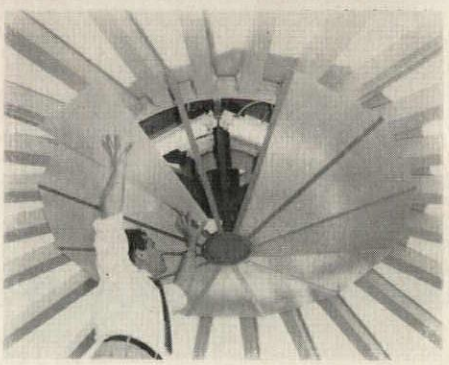
## MOVABLE HAUSERMAN INTERIOR WALLS

*If it's new . . . you'll find it first in Hauserman*

**Recreation Area Designed As Exercise in Plastic**

A private recreation area which—not surprisingly—demonstrates in a single project nearly all of the most effective applications of fiberglass reinforced plastic building panels has been constructed on the grounds of the Beverly Hills residence of the president of Filon Plastics Corporation. Roger Lee was the architect; Eckbo, Dean & Williams, landscape architects; Bayridge Construction Company, general contractor.

The project consists of a circular garden pavilion, a carport, two dressing rooms and a heater-storage room, and two patios. It is built on the rear of an 80-by-12-ft lot, with a swimming pool between it and the residence. It was designed for use as an indoor sitting area adjacent to the pool, a place for parties and a meeting place for informal business conferences.



Fiberglass panels are used for walls and roof, with glass doors below the near-opaque panels of the pavilion walls and a 5-ft-diameter steel ring supporting the roof beams. The electric exhaust fan which draws fresh air filtered through louvered transoms through the center of the roof is hidden from view below and above by circles of fiberglass panels which conceal fluorescent tubes. In the pavilion the front of the bar is built of flat white fiberglass panels illuminated from behind, a mural above the bar is made of the panels and a lighting fixture incorporates a light-diffusing panel.

*more news on page 46*

Broader design possibilities, lower costs

# with this new kind of wood paneling


# 7/16" ARCHITECTURAL CRAFTWALL

**A new type of factory-finished wood paneling. Has exceptional strength and rigidity. Works and handles like the finest ¾" plywood paneling . . . yet costs far less!**

New, solid-feeling Architectural Craftwall is made from choice, hardwood veneers bonded to a ⅜" center of Timblend, Roddis' amazing man-made board. *This exclusive Timblend center makes the big difference!*

A unique, wood-blend shaving board, Timblend gives extra strength and rigidity . . . assures maximum freedom from movement after installation. Architectural Craftwall stays put!

No underlayment needed! Architectural Craftwall goes up fast . . . directly on studs or furring strips. No costly, time-consuming underlayment needed. Install with Roddis Contact Cement. Or use nails if preferred.

Sound reduction properties are impressive, too. Tests prove acoustical values of Architectural Craftwall are comparable to plaster or drywall construction.

A wide choice of woods and styles enhances your design possibilities. Select from Birch, Silver Birch, Pastel Cherry, Oak, Sherwood Oak, Walnut, Elm, Cherry or Mahogany. *Each is completely factory-finished, ready to install.* Available V-grooved only or V-grooved, cross scored and pegged. All panels V-grooved at veneer joints also. In regular plywood sizes . . . *plus lengths to sixteen feet.*

Architectural Craftwall is also available in standard or special size panels, *without grooves*, with matched flitches in the wood of your choice.

For free sample just send the coupon.

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**RODDIS** does wonderful things with wood

## Meet Special Lighting Problems in Special Ways...

# with STANDARD SYLVANIA FIXTURES

Every so often a lighting situation develops that just cannot be answered by conventional methods.

Take the installation shown above as an example. Here is a shop where precision machine work is performed daily. Lighting requirements call for effective vertical illumination on the key surfaces of intricate tools as well as even, high level horizontal lighting. Reflected glare from the polished surfaces must be kept at a minimum and shadows should be practically non-existent.

To meet the lighting requirements under these challenging circumstances, Sylvania engineers recommended a louvered fixture with 35° x 45° shielding and plenty of up-light to achieve two purposes . . . to eliminate unsatisfactory contrast between the fixtures and the ceiling background; and to achieve effective uniformity of illumination throughout the entire area. Very high output (1500 ma.) lamps were used to produce the 150 foot-candle level desired. And a special grid-type layout was used to provide lighting on vertical surfaces from all directions.

The result, as shown above, is uniform, high level lighting where workers perform efficiently in complete comfort. Production efficiency has increased and rejected parts have been reduced considerably.

This illustrates why it pays to check with Sylvania no matter what the lighting problem may be.

Sylvania's *complete* line of fluorescent lighting equipment—industrial, commercial, troffers, luminous ceilings—assists you in specifying the *exact* lighting system that fits your plans best.

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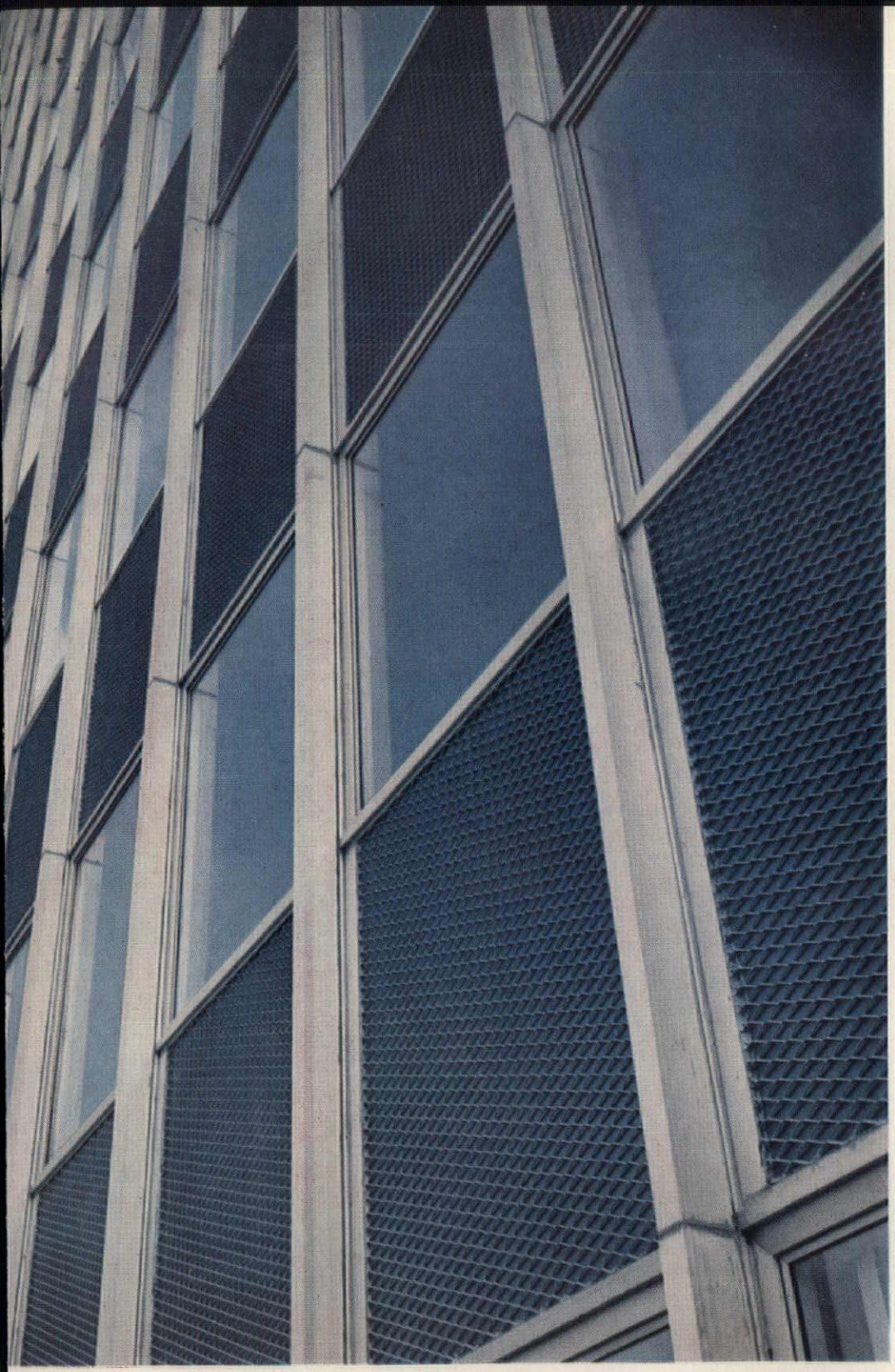
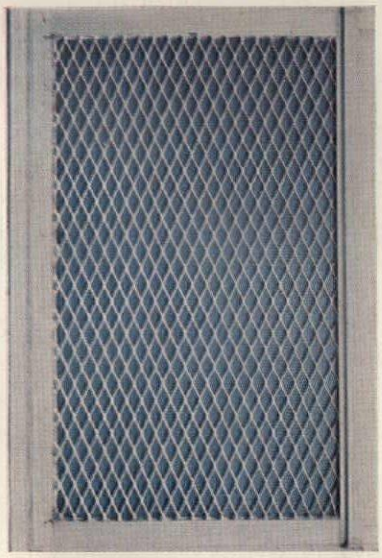
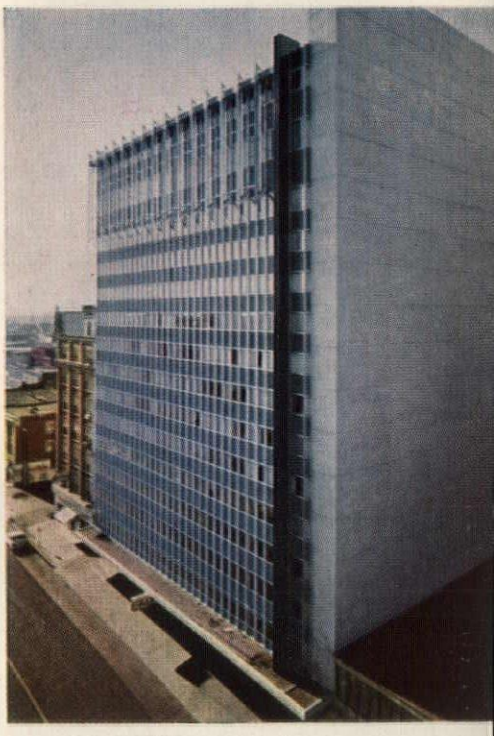
**FLUORESCENT LIGHTING FIXTURES AND SYSTEMS • BEST FIXTURE VALUE IN EVERY PRICE RANGE**







# Alcoa Aluminum breaks new trails in color, form and texture

Architects for the Petroleum Club Building in Oklahoma City wanted a textured effect and an interesting contrast in color tone. And they achieved just that with the first major use of a new Alcoa architectural development: expanded aluminum sheet.

Overlaying Alcoa 3120 blue flat wall panel, the natural finish of this diamond-patterned mesh creates a unique, textured facade. Color intensity changes with the clock and the angle of sight in a striking example of aluminum's ability to banish humdrum monotony from the skylines of America.

But don't overlook the practicality. Lightweight aluminum window wall, windows and horizontal louvers went up faster with less labor. Inherent corrosion resistance means lasting good looks and permanent freedom from painting and expensive maintenance.

For exciting developments in architectural applications of aluminum, look to Alcoa. As the pioneer and leader in this field, Alcoa is in a unique position to help you. For more information, contact your Alcoa sales office, or write Aluminum Company of America, 1823-M Alcoa Building, Pittsburgh 19, Pa.

ALCOA ALUMINUM
ALUMINUM COMPANY OF AMERICA

*Your Guide to the Best in Aluminum Value*

BUILDING: Petroleum Club Building, Oklahoma City, Okla.

ARCHITECT: Bailey-Bozalis-Dickenson & Roloff, Oklahoma City, Okla.

GENERAL CONTRACTOR: Harmon Construction Co., Oklahoma City, Okla.

ALUMINUM SUBCONTRACTORS: Windows and Wall Panels—Browne-Window Manufacturing Co., Dallas, Tex.
Expanded Aluminum—Penn Metal Co., Inc., Parkersburg, W. Va.

For exciting drama watch "Alcoa Presents" every Tuesday, ABC-TV, and the Emmy Award winning "Alcoa Theatre" alternate Mondays, NBC-TV

## *The Record Reports*

**Equitable's 42-Story Tower Rises in New York**

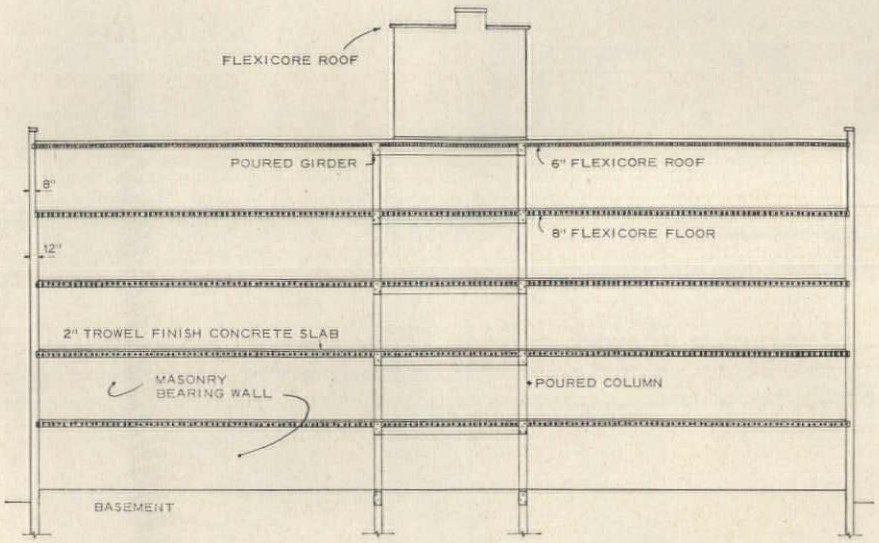
The 42-story office building under construction for the Equitable Life Assurance Society of the United States in mid-Manhattan was up to the sixteenth-story last month and completion is scheduled for spring or summer of 1961. Skidmore, Owings & Merrill are the architects; Turner Construction Company the general contractor.

The building is rising on a site 200 by 400 ft on the Avenue of the Americas and bounded by 51st and 52nd Streets. To cost an estimated $58 million, it will have a gross area of 1.7 million sq ft.

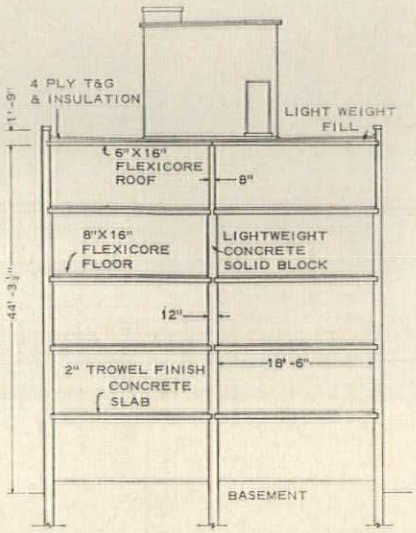
The tower and its rear base will be set in a plaza of 40,000 sq ft. The tower face will be set back 16 ft from the Avenue of the Americas building line and 24 ft from that on the side streets. The rear base will be 10 ft from the building line. The feeling of space and light at ground level will be further enhanced by a façade composed of glass panels recessed 15 ft behind the tower's metal columns and continuous paving extended through the lobby to the curbs.

The building will have 37 office floors of 24,500 sq ft each in the tower and 14 office floors of 37,000 sq ft each in the rear base. Four floors will contain mechanical equipment. There will be 34 passenger elevators capable of moving 2000 persons, or one fifth of the building's working force capacity, in five minutes.

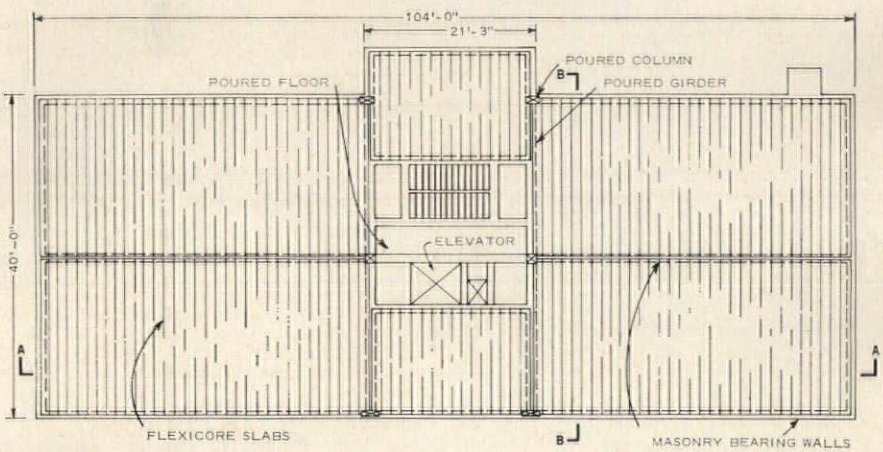
*more news on page 50*




**SECTION AA.** Precast cellular concrete Flexicore decks provide fireproof structural floors and roofs at Fairmay Apartments, Chicago. The five buildings are masonry wall-bearing except for reinforced concrete stairway and elevator core. Design called for 75 psf live load.

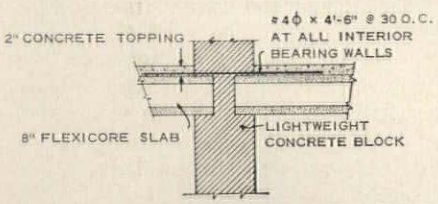



**SECTION BB.** Clear span of 18'-6" between masonry bearing walls permits simplified design and fast construction. Underside of Flexicore deck is exposed for finished ceiling.

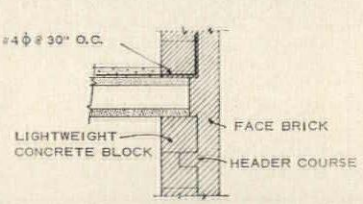



**TYPICAL FLOOR FRAMING.** Each 3800-sq. ft. Flexicore deck was placed, leveled and grouted in two days. Available on third day as work deck for erection of walls and frame for next story.

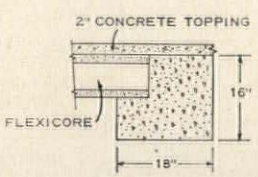
# How to Design a Low-Cost, Fireproof Apartment Building




FLOOR ANCHOR RODS INTERIOR WALLS

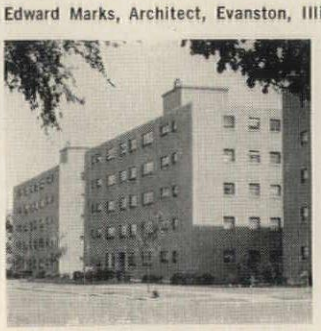



FLOOR ANCHOR RODS EXTERIOR WALLS




BEARING OF FLEXICORE ON TYPICAL POURED BEAM

**Edward Marks, Architect, Evanston, Illinois**



The use of Flexicore precast decks permitted Fairmay Apartments to meet Chicago's strict fire code, and resulted in substantial savings to the owners. High-speed erection permitted earlier occupancy and exposed Flexicore slabs eliminated ceiling plaster.

For more information on this project, ask for Flexicore Facts No. 78. Write The Flexicore Co., Inc., Dayton, Ohio, the Flexicore Manufacturers Association, 297 S. High St., Columbus 15, Ohio or look under "Flexicore" in the white pages of your telephone book.

# Radiant Ceiling News

**With Burgess-Manning Ceilings — Your Building Is Better — Your Building Budget No Bigger**

## Complete Comfort — Lower Cost with Burgess-Manning Radiant Acoustical Ceiling

### New Addition to American Casualty Company's Reading, Pa. Offices is Both Heated and Cooled by Radiant Energy

The American Casualty Company of Reading, Pa. owns and operates many headquarters and branch offices across the country, consequently its management was well aware of the difficulty of satisfying any group of employees in conventionally heated, or cooled offices.

When the 5 story addition to the Reading, Pa., headquarters was planned, the usual problems of maximum employee comfort versus cost presented themselves.

The planners were aware of the many advantages of radiant heat, and, since acoustical ceiling treatment was planned for the entire building, it was decided to combine this function with comfort conditioning by installing Burgess-Manning Radiant Acoustical Ceilings.

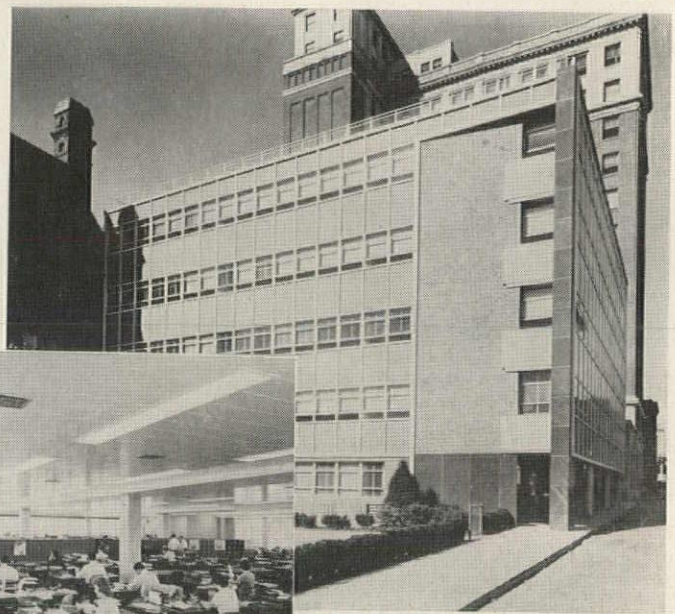
The result, after operation through a summer and winter season, is virtually 100% satisfaction for both management and employees.

Here is a building with approximately 70% glass exterior walls and yet there is no noticeable "cold wall" effect.

With the Burgess-Manning Radiant Acoustical Ceiling the air movement that is a part of conventional heating or cooling systems and that is so frequently a cause of discomfort to employees, is limited to only that amount required for ventilation.

Space saving, made possible by the elimination of floor level heating units, particularly along the outside glass walls, proved to be another inherent advantage.

All of these factors contributed to the universal satisfaction experienced with the Burgess-Manning Radiant Acoustical Ceiling in this outstanding new office building.

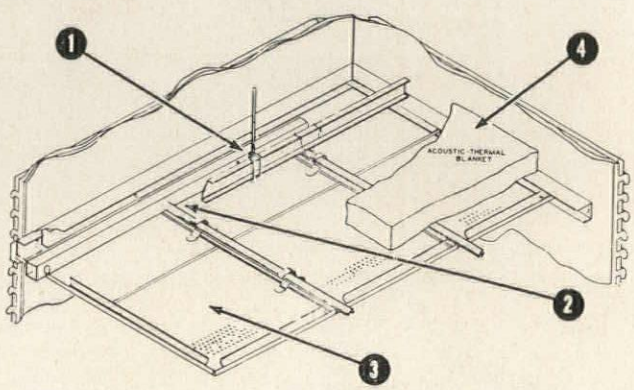


*American Casualty Company's new 5-story home office addition, Reading, Pa. Architects:—Muhlenberg, Yerkes and Muhlenberg. Engineers: — Moody and Hutchinson. Burgess-Manning Ceiling installed by Jacobson & Company, Inc.*

*Thermal and acoustic environmental comfort is assured for American Casualty employees by the Burgess-Manning Ceiling.*

## Basically Simple, But Amazingly Efficient

The deceptively simple construction of the Burgess-Manning Radiant Acoustical Ceiling is scarcely indicative of its operating efficiency. A standard 1½" channel grid (1) supports a grid or sinuous type galvanized coil (2). Perforated aluminum panels (3) are fastened directly to the coil (2) and a sound absorbent blanket (4) is laid on top of the suspension grid (1). Thermostatically controlled hot water circulates through the coil (2) and warms the aluminum panels (3) which transmit radiant energy to the floors, walls, furniture and occupants of the room and provides a high degree of comfort conditioning. On the cooling cycle, the process is reversed so that chilled water, with temperature above the dew point to eliminate condensation, cools the panels and permits them to absorb radiant energy from the objects, floor and walls of the room.




Write for descriptive Burgess-Manning Catalog No. 138-2L

3 Heating Cooling Acoustical

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*Architectural Products Division*

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Interior Planners and Designers:
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General Contractor:
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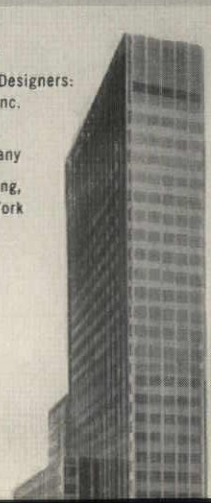
The Corning Glass Building,
717 Fifth Avenue, New York



# *A Washington Report* by Ernest Mickel

## Gigantic Post Office Building Program Begins to Move

**14,000 New Post Offices Expected—$1.5 Billion to be Spent—
New Brochure Presents Schematics—Mechanization Takes Over**

The Post Office Department's quiescent program of modernization has just begun to move and with this start of a new age for mail handling comes a $1.5 billion building program.

There have been no direct appropriations for new post offices—except for the experimental giant at Providence, R. I., and the Gateway project soon to be built at Oakland, Cal.—since 1938. This lapse of more than two decades after the building program of the thirties has left the department with facilities ill-suited to the demands now placed upon it by the steadily increasing volume of daily mailings.

The situation was described by Postmaster General Arthur E. Summerfield two years ago when he presented Congress with the plan for modernization. He said at that time: "The physical plant of the department has not kept pace with the nation's growth. More than half of the post office space is concentrated in 3300 Federal buildings, all located in key gateway cities. These buildings, built in the late thirties or earlier, some over 50 years old, are mostly monumental in character and completely unsuited for today's mail-handling problems."

### Mechanization Means Obsolescence

In the meantime, General Summerfield and his assistants have pushed ahead doggedly with the technical development of new equipment of all sorts—electronic devices to sort mail in a fraction of the time required by the "case" method now in prevalent use, canceling and handling machines that virtually take over the job from human effort, and self-serving substation machines devised to vend stamps, money orders, weigh and insure packages and make change, needing human attention only once every 24 hours.

The significance for architects in these current and future events is obvious enough. The Department confidently expects to work 14,000 new post offices into its program within the next few years. The rate now has reached three new post offices; in 1960 it is to reach six per day, and General Summerfield says the rate will continue to increase. The Department requires that an advisory private architect be retained on each job in excess of 12,000 sq ft; it urges that the services of architects be obtained on the smaller projects as well.

### How the Program Operates

Under the present system, the government does not build these structures with appropriated funds. Sponsors are selected by the post office department to finance and construct the buildings, leasing them back for periods of from 10 to 30 years.

In carrying out this program, the government advertises for bids to lease in advance of construction. This is done through competitive bidding. Appropriated funds cover all equipment costs, but construction and cost of working drawings are financed privately.

The regional offices of the Post Office are responsible for advertising the projects approved, giving initial approval to drawings and construction requirements, and for the follow-through with working drawings and final specifications. Washington, however, retains the privilege of a final look at the lessor's building plans.

To aid sponsors and the architects they engage, Post Office has published a brochure of designs applicable to buildings ranging in size from 1000 to 12,000 sq ft. This presents 37 schematic plans and elevations in color for each. There are plan descriptions, suggested materials and general notes on each plan. The book also contains sections on space criteria, lot layouts, and minor suggested construction detail.

### New Brochure As Guide

In a foreword, E. O. Sessions, until recently deputy postmaster general, states that "for the first time in the department's history a means is now available for obtaining uniformly efficient and architecturally attractive small post office buildings throughout the United States."

The brochure is intended as a guide in the development of working drawings and specifications for proposed postal facilities. "Acceptable" designs are shown. Said General Sessions, who now has been appointed Ambassador to Finland, "We wish to point out that it is not the intention of the Post Office department to preclude original designs by architects; however, any such original designs must be submitted to the Post Office department for approval.

On the larger projects, architects and engineers are retained by the sponsors and announced by them, the Department's Facilities Bureau explained. As the modernization program goes into high gear, concentration will be on the larger jobs, General Summerfield said, since half the mail volume is handled in only 60 of the nation's 3600 post offices. The smaller locations will not be neglected, however, and eventually thousands upon thousands of the automatic substations will be erected throughout the country, according to present plans.

The construction industry division of the Business and Defense Services Administration (Department of Commerce) recently covered the post office program in some detail in its Construction Review. This presentation pointed out that the working drawings and specifications for the larger projects are prepared by private industry working with government engineers and architects. Buildings and machinery are planned and constructed as a unit.

### Trend to One-Story Buildings

The trend is toward one-story structures. Each of the 37 schematics presented in the brochure is one-story in design and many of the larger installations are being projected in this concept. Basements in the new buildings are rare. Absence of columns allows for flexible working space and the areas are being designed so they can be converted easily at any later time to non-postal uses. A store-type interior was one of the conversions mentioned by the BDSA. Said the Construction Review article, "These structures have been planned with the view of achieving low construction costs and economy of maintenance. This results in low rental costs to the government. As the Post Office department recently pointed out, the rental cost of the new space is considerably lower than the rentals paid by the government as a whole.

# *Membrane fireproofing: a re-examination*

For years, membrane fireproofing has been the standard method of attaining low-cost fire protection in floor-ceiling assemblies. For example, where one-hour or two-hour construction was required—and an acoustical ceiling was wanted—most specifications called for mineral fiber acoustical tile cemented to either a lath and plaster or gypsum board membrane. The acoustical ceiling tile alone could not offer rated fire protection to the structural members in the assembly.

*acoustical tile offers rated fire protection*

Now a new method of membrane fireproofing, Armstrong Acoustical Fire Guard, eliminates the need for intermediate fire protection between the suspended tile ceiling and the structural floor above. Acoustical Fire Guard is the first acoustical ceiling tile to offer rated fire protection to structural steel. Floor-ceiling assemblies using Acoustical Fire Guard as *the only protective element* beneath the structural floor have received one-, two-, and four-hour ratings from Underwriters' Laboratories, Inc.

*significant savings in time and cost*

Because Acoustical Fire Guard eliminates the need for additional fire protection above the suspended ceiling, it offers significant savings in construction time and cost. It is installed in a completely "dry" operation; there are no delays of the kind caused by "wet" work. This has already enabled many general contractors to save three to six weeks' construction time.

Through elimination of materials and labor, Acoustical Fire Guard can mean savings of up to 30¢ per square foot, depending upon locale, building design, type of fire protection being considered, and type of alternative acoustical ceiling being considered.

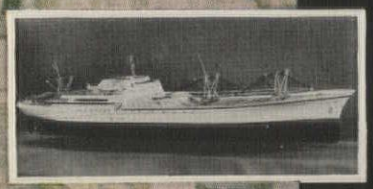
There are many instances when Acoustical Fire Guard ceilings will provide greater fire protection than would be the case with alternative methods. In such cases, this additional protection will usually be recognized in the form of lower fire insurance rates—year after year—on the building and its contents.

*additional advantages*

Acoustical Fire Guard offers unlimited accessibility to pipes, ducts, and electrical fixtures above the acoustical ceiling. Its acoustical efficiency is built in at the factory and does not depend upon the skill of the man who installs it. And it is an interior finish that requires no job painting after it is installed.

Acoustical Fire Guard has been chosen for millions of square feet of fire-retardant ceilings in commercial, institutional, educational, and industrial buildings across the country.

If you would like to learn more about this remarkable new ceiling, contact your Armstrong acoustical contractor or your nearest Armstrong district office. Or write to Armstrong Cork Company, 4212 Rock Street, Lancaster, Pa.



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**DRAPERIES AND BEDSPREADS OF**

# SARANSPUN

PHOTO: STATEROOM ON THE N.S. SAVANNAH

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The unique properties of Saranspun made it the logical choice for the world's first nuclear-powered ship. Soft as it is to the touch, Saranspun is amazingly rugged—withstands scuffing and beating without showing signs of abuse. It is inherently and permanently flameproof and is unaffected by moisture. Saranspun yarns are made of 80% solution-dyed saran fibers and 20% solution-dyed viscose—a blend that assures greatest fade-resistance. Saranspun means maintenance-economy in every type of commercial and industrial installation.

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### U. S. Proposes New Pattern For Noise Control at Airports

Noise at large airports, long a problem for land planners and realtors as well as aviation officials, is being attacked by the Federal Aviation Agency.

FAA's administrator, E. R. Quesada, has proposed adoption of a special civil air regulation. This is the first government effort to develop air traffic rules which provide requirements for abatement of aircraft noise.

First application would come in the Los Angeles area. The proposal is Special Civil Air Regulation No. 436, dealing with airport traffic pattern rules for Los Angeles.

This would establish and designate a specific area of space surrounding the airport as an airport traffic pattern area within which special operating rules would apply for both civilian and military aircraft. The airspace would extend upward to 2000 ft within a radius of five miles of the geographical center of the airport. (The Los Angeles airport is ranked second only to Chicago's Midway Field in order of air carrier operations.)

CAA stressed the fallacy of applying the proposed regulation to other busy airports in the country; each center will require its own study and solution because of individual operating patterns. The study of other airports where the jets are flying is in progress, CAA said.

Of Los Angeles, the agency said: "Jet air carrier operations alone . . . during a typical week in October 1959 amounted to 41 scheduled departures and the same number of arrivals each day for a total of 285 outbound and 285 inbound jet flights. The airport is located close to highly populated communities; and, as a result, the operation of high performance jet transports during take-offs and landings can seriously interfere with school and other community life. With the increased number of jet operations scheduled for the future, the problem demanded action."

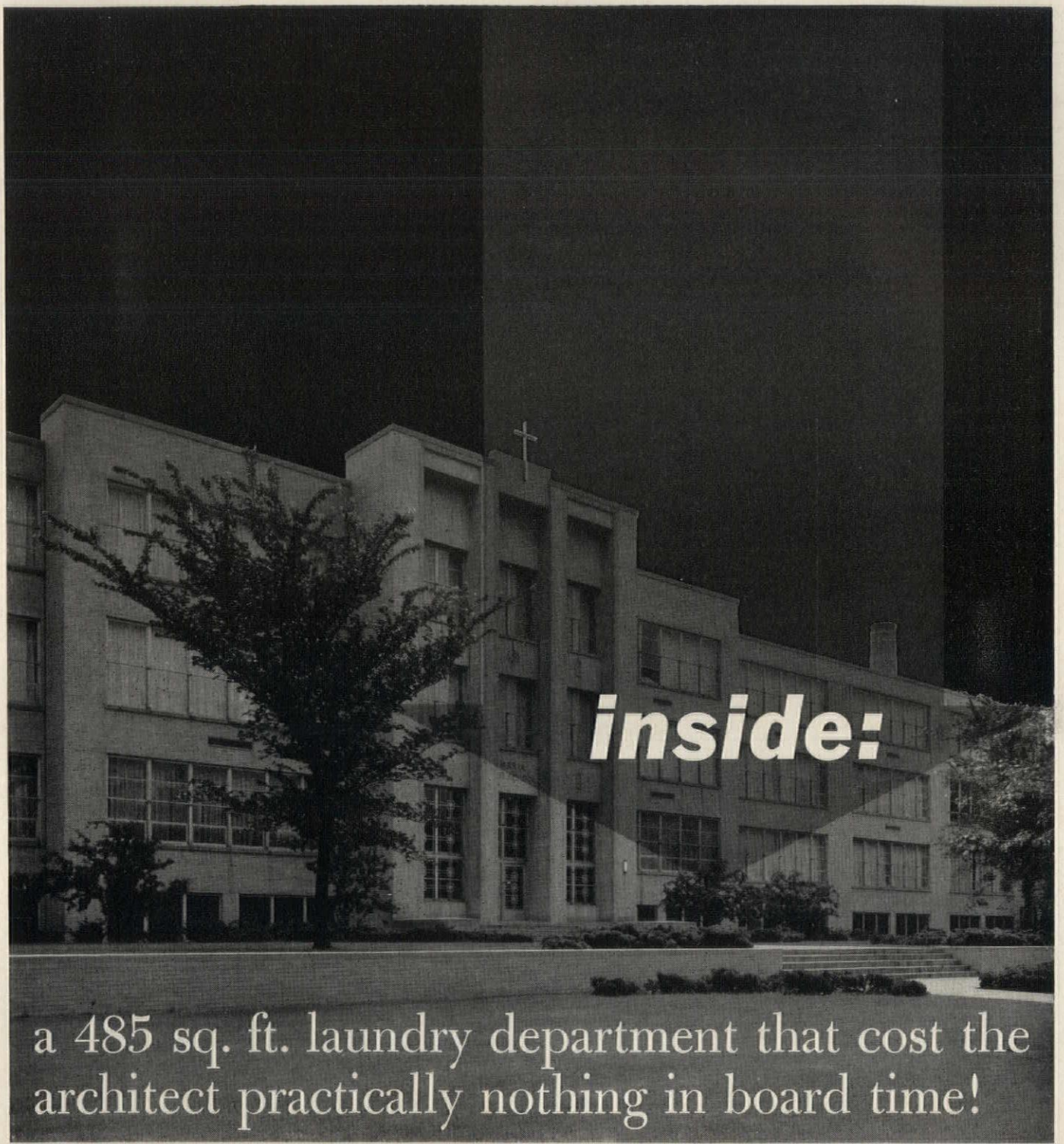
Here is how CAA proposes to minimize noise disturbance:

Minimum altitudes would be observed while entering, operating within, and departing from the airport traffic pattern area. The procedures would prescribe safe directions of flight over areas of least congestion within the area. It would be required that under calm wind conditions aircraft use preferential runways for take-offs in westerly directions over open water. The rules would not cancel the pilot's prerogative to use alternate runways, traffic permitting, if the pilot believed that use of a preferential runway would jeopardize the safe conduct of his flight.

All aircraft landing at the airport would be required to enter the traffic pattern at an altitude of at least 1500 ft, weather permitting, and maintain that altitude as long as practicable while in the pattern. Similarly, aircraft taking off would be required to climb straight ahead to at least 1500 feet before proceeding on course.

Special rules for inbound jets would require them to descend at a minimum angle of three deg when on final approach for a landing in a westerly direction over the residential areas. This angle of descent corresponds to ILS (Instrument Landing System) glide slope which

*continued on page 236*




*Maria High School, Chicago, Illinois. Architects: Gaul & Voosen*

Under the direction of Gaul & Voosen, Architects, all the laundry facilities for the new Maria High School were planned, designed, arranged, specified, cost estimated and installed by engineers of The American Laundry Machinery Company. Detailed drawings, a comprehensive floor plan layout and complete specifications accompanied the proposal to assure Maria High School the very finest laundry equipment for its specific needs, with minimum investment, lowest operating cost and years of dependable service.

Your firm, too, may save many man hours and dollars, and your client obtain inestimable benefits, by taking advantage of our complete laundry planning service. Your nearby American representative is listed in your telephone directory. Call him for complete information. No obligation, of course.

**THE AMERICAN LAUNDRY MACHINERY CO., CINCINNATI 12, OHIO**

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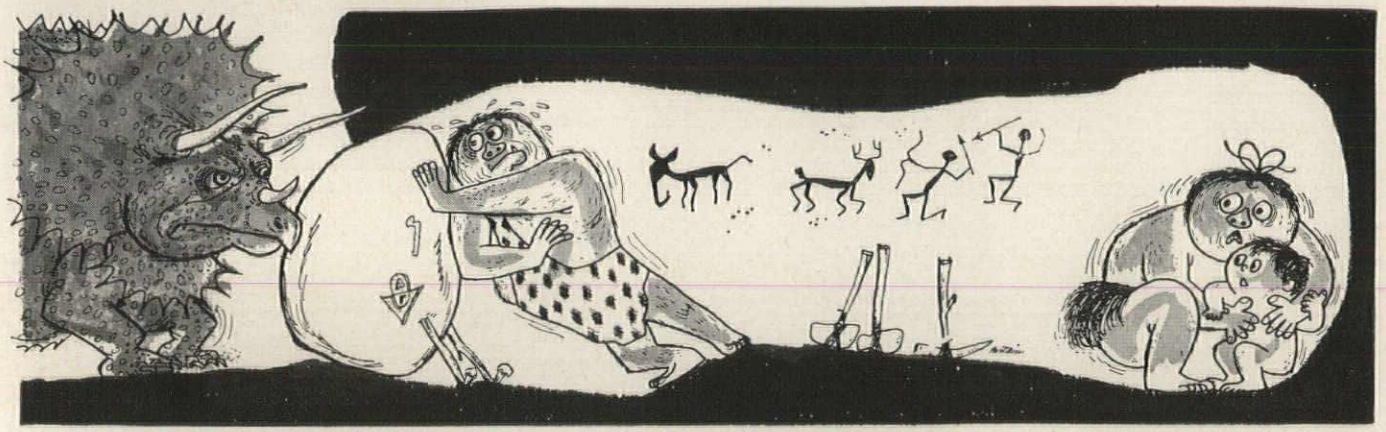
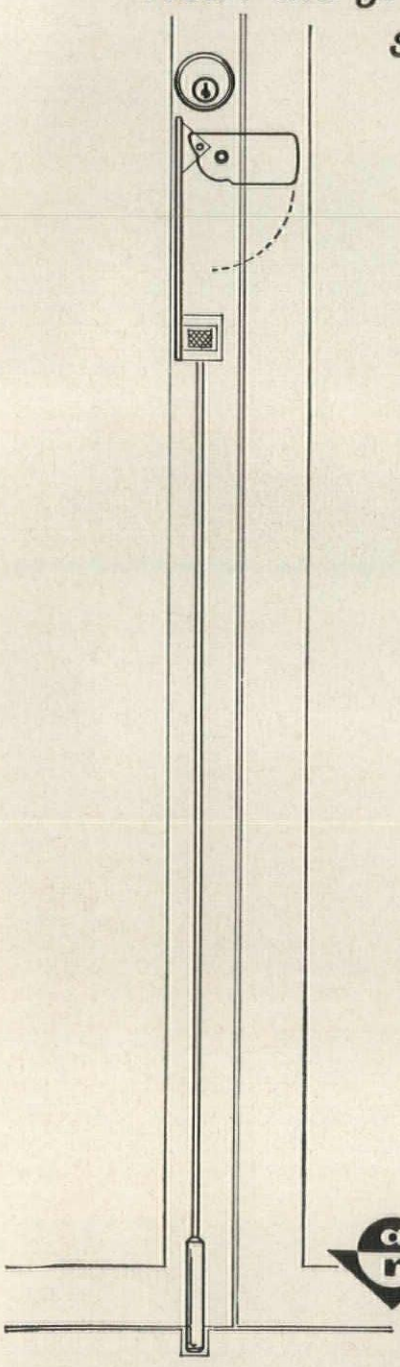


## *Now! the greatest advancement in locking protection since the bolt replaced the boulder*

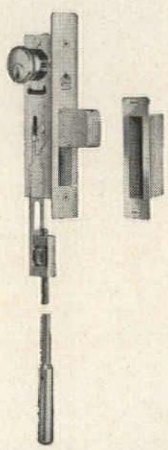


### The new *MS® 1851-II TWO-WAY LOCK for pairs of SWINGING GLASS DOORS ...gives double protection and exit safety!

The MS® 1851-II Two-Way Lock is specifically designed for the control of *Main and Obvious* entrance pairs of doors for places of public assemblage. One 360° turn of the key throws or retracts both a *lock* and *threshold bolt*, simultaneously locking or unlocking both doors. This insures that the *entire opening* is usable during business hours and places the responsibility of traffic control on management. The key can be removed only in the locked or unlocked position. Holding special interest for insurance companies and organizations whose professional concern is public safety, this purposefully designed deadlock adds strength to the narrow stile installation and assures exit freedom.

More than a slogan, **MAXIMUM SECURITY.** is the exclusive basic principle that governs the design and manufacture of Adams-Rite locking devices that are, in fact, stronger than the doors and windows in which they are installed, providing the ultimate in security and safety.

An outstanding example of this principle in action is the new MS® 1851-II. Unique in deadlock design and construction, the MS® 1851-II operates unlike standard bolts that vacate the lock when projected. The MS® counter-balanced bolt retains as much bolt within the lock stile as projected. Actually bridges the opening with a solid bar of steel (from as short a backset as 7/8"), making it impossible to force entry without destroying the door channel itself. This, coupled with the joint action of the 4015 two-way converter threshold bolt, and the lifetime strength of dichromate zinc plated steel construction, maintains Maximum Security. The MS® 1851-II which eliminates locking hardware in the inactive door is a combination of the basic MS® 1851 Lock and No. 4015 Two-Way Converter. The 4015 may be stocked separately to convert any MS® 1851 series lock into an MS® 1851-II.



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**Adams-Rite also produces over 90% of all door hardware for the airframe industry.**

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Bright, matte and crystalline glazes in a tremendous range of sizes and shapes. Unglazed mosaics in porcelain and natural clay, plain and textured. All are available in the greatest variety of colors and shades you've ever seen. Use them alone or in endless combination to produce the precise decorative effect you wish. And for exterior use, Romany•Spartan tile is certified frost-proof—your assurance of care-free permanence—yet you pay no premium. For your next job, indoors or out, consider low-cost Romany•Spartan, the designer's line. Your nearby Romany•Spartan sales representative or distributor will be glad to work with you—even arrange for design help if you like. Call him—he's listed in the Yellow Pages. United States Ceramic Tile Company, Dept. R-40, Canton 2, Ohio.

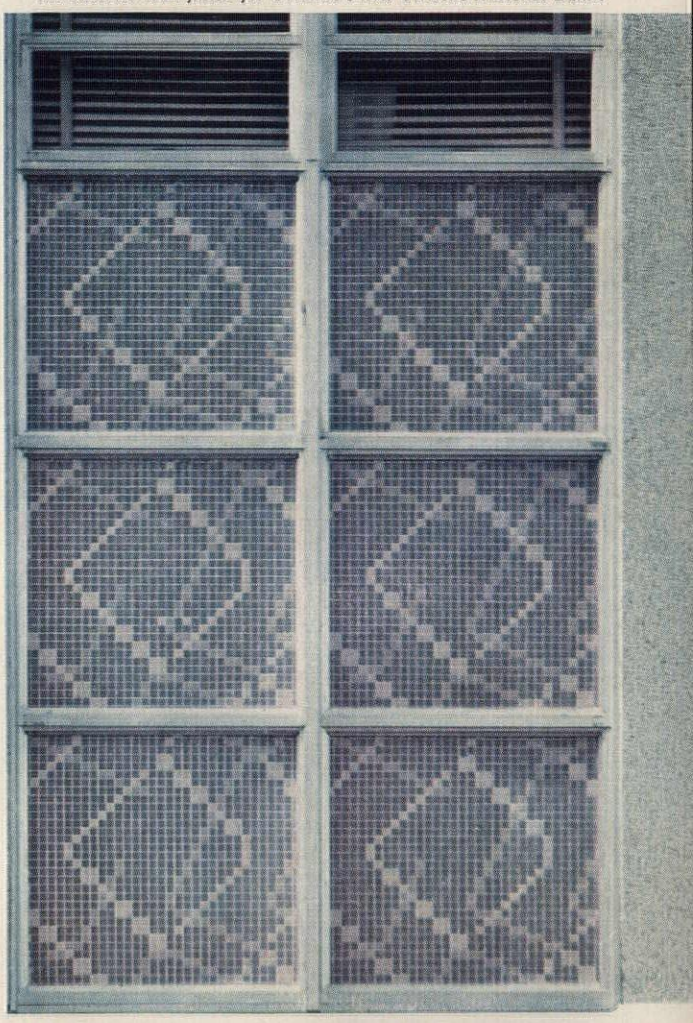
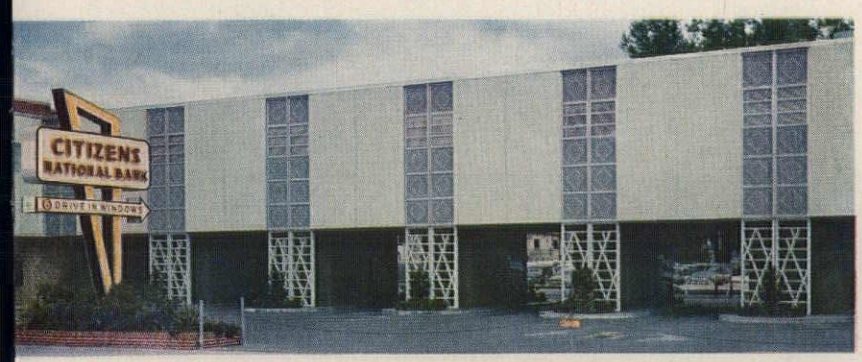


Plate No. 1090

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# *Construction Cost Indexes*

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

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

**NEW YORK**

| PERIOD | RESIDENTIAL Brick | RESIDENTIAL Frame | APTS., HOTELS, OFFICE BLDGS. Brick and Concrete | COMMERCIAL AND FACTORY BLDGS. Brick and Concrete | COMMERCIAL AND FACTORY BLDGS. Brick and Steel |
|---|---|---|---|---|---|
| 1930 | 127.0 | 126.7 | 124.1 | 128.0 | 123.6 |
| 1935 | 93.8 | 91.3 | 104.7 | 108.5 | 105.5 |
| 1939 | 123.5 | 122.4 | 130.7 | 133.4 | 130.1 |
| 1947 | 219.3 | 222.0 | 207.6 | 207.5 | 203.8 |
| 1948 | 250.1 | 251.6 | 239.4 | 242.2 | 235.6 |
| 1949 | 243.7 | 240.8 | 242.8 | 246.6 | 240.0 |
| 1950 | 256.2 | 254.5 | 249.5 | 251.5 | 248.0 |
| 1951 | 273.2 | 271.3 | 263.7 | 274.9 | 271.8 |
| 1952 | 278.2 | 274.8 | 271.9 | 265.2 | 262.2 |
| 1953 | 281.3 | 277.2 | 281.0 | 286.0 | 282.0 |
| 1954 | 285.0 | 278.2 | 293.0 | 300.6 | 295.4 |
| 1955 | 293.1 | 286.0 | 300.0 | 308.3 | 302.4 |
| 1956 | 310.8 | 302.2 | 320.1 | 328.6 | 324.5 |
| 1957 | 318.5 | 308.3 | 333.1 | 345.2 | 339.8 |
| 1958 | 328.0 | 315.1 | 348.6 | 365.4 | 357.3 |
| July 1959 | 344.2 | 331.0 | 369.8 | 388.5 | 376.9 |
| Aug. 1959 | 344.6 | 331.4 | 370.4 | 388.5 | 376.9 |
| Sept. 1959 | 344.9 | 331.7 | 370.8 | 388.5 | 376.9 |
| | % increase over 1939 | | | | |
| Sept. 1959 | 179.3 | 171.0 | 183.7 | 191.2 | 189.7 |

**ATLANTA**

| PERIOD | RESIDENTIAL Brick | RESIDENTIAL Frame | APTS., HOTELS, OFFICE BLDGS. Brick and Concrete | COMMERCIAL AND FACTORY BLDGS. Brick and Concrete | COMMERCIAL AND FACTORY BLDGS. Brick and Steel |
|---|---|---|---|---|---|
| 1930 | 82.1 | 80.9 | 84.5 | 86.1 | 83.6 |
| 1935 | 72.3 | 67.9 | 84.0 | 87.1 | 85.1 |
| 1939 | 86.3 | 83.1 | 95.1 | 97.4 | 94.7 |
| 1947 | 180.4 | 184.0 | 158.1 | 157.1 | 158.0 |
| 1948 | 199.2 | 202.5 | 178.8 | 178.8 | 178.8 |
| 1949 | 189.3 | 189.9 | 180.6 | 180.8 | 177.5 |
| 1950 | 194.3 | 196.2 | 185.4 | 183.7 | 185.0 |
| 1951 | 212.8 | 214.6 | 204.2 | 202.8 | 205.0 |
| 1952 | 218.8 | 221.0 | 212.8 | 210.1 | 214.3 |
| 1953 | 223.0 | 224.6 | 221.3 | 221.8 | 223.0 |
| 1954 | 219.6 | 219.1 | 233.5 | 225.2 | 225.4 |
| 1955 | 225.3 | 225.1 | 229.0 | 231.5 | 231.8 |
| 1956 | 237.2 | 235.7 | 241.7 | 244.4 | 246.4 |
| 1957 | 241.2 | 239.0 | 248.7 | 252.1 | 254.7 |
| 1958 | 243.9 | 239.8 | 255.7 | 261.9 | 262.0 |
| July 1959 | 254.9 | 249.9 | 269.5 | 276.2 | 276.2 |
| Aug. 1959 | 254.9 | 249.9 | 269.5 | 276.2 | 276.2 |
| Sept. 1959 | 254.9 | 249.9 | 269.5 | 276.2 | 276.2 |
| | % increase over 1939 | | | | |
| Sept. 1959 | 195.4 | 200.7 | 183.4 | 183.6 | 191.6 |

**ST. LOUIS**

| PERIOD | RESIDENTIAL Brick | RESIDENTIAL Frame | APTS., HOTELS, OFFICE BLDGS. Brick and Concrete | COMMERCIAL AND FACTORY BLDGS. Brick and Concrete | COMMERCIAL AND FACTORY BLDGS. Brick and Steel |
|---|---|---|---|---|---|
| 1930 | 108.9 | 108.3 | 112.4 | 115.3 | 111.3 |
| 1935 | 95.1 | 90.1 | 104.1 | 108.3 | 105.4 |
| 1939 | 110.2 | 107.0 | 118.7 | 119.8 | 119.0 |
| 1947 | 202.4 | 203.8 | 183.9 | 184.2 | 184.0 |
| 1948 | 227.9 | 231.2 | 207.7 | 210.0 | 208.1 |
| 1949 | 221.4 | 220.7 | 212.8 | 215.7 | 213.6 |
| 1950 | 232.8 | 230.7 | 221.9 | 225.3 | 222.8 |
| 1951 | 252.0 | 248.3 | 238.5 | 240.9 | 239.0 |
| 1952 | 259.1 | 253.2 | 249.7 | 255.0 | 249.6 |
| 1953 | 263.4 | 256.4 | 259.0 | 267.0 | 259.2 |
| 1954 | 266.6 | 260.2 | 263.7 | 273.3 | 266.2 |
| 1955 | 273.3 | 266.5 | 272.2 | 281.3 | 276.5 |
| 1956 | 288.7 | 280.3 | 287.9 | 299.2 | 293.3 |
| 1957 | 292.0 | 283.4 | 295.2 | 307.1 | 302.9 |
| 1958 | 297.0 | 287.9 | 304.9 | 318.4 | 313.8 |
| July 1959 | 306.9 | 297.5 | 317.0 | 332.0 | 326.0 |
| Aug. 1959 | 306.9 | 297.5 | 317.0 | 332.0 | 326.0 |
| Sept. 1959 | 306.9 | 297.5 | 317.0 | 332.0 | 326.0 |
| | % increase over 1939 | | | | |
| Sept. 1959 | 178.5 | 178.0 | 167.0 | 177.1 | 173.9 |

**SAN FRANCISCO**

| PERIOD | RESIDENTIAL Brick | RESIDENTIAL Frame | APTS., HOTELS, OFFICE BLDGS. Brick and Concrete | COMMERCIAL AND FACTORY BLDGS. Brick and Concrete | COMMERCIAL AND FACTORY BLDGS. Brick and Steel |
|---|---|---|---|---|---|
| 1930 | 90.8 | 86.8 | 100.6 | 104.9 | 100.4 |
| 1935 | 89.5 | 84.5 | 96.4 | 102.7 | 99.7 |
| 1939 | 105.6 | 99.3 | 117.4 | 121.9 | 116.5 |
| 1947 | 193.1 | 191.6 | 183.7 | 186.8 | 186.9 |
| 1948 | 218.9 | 216.6 | 208.3 | 214.7 | 211.1 |
| 1949 | 213.0 | 207.1 | 214.0 | 219.8 | 216.1 |
| 1950 | 227.0 | 223.1 | 222.4 | 224.5 | 222.6 |
| 1951 | 245.2 | 240.4 | 239.6 | 243.1 | 243.1 |
| 1952 | 250.2 | 245.0 | 245.6 | 248.7 | 249.6 |
| 1953 | 255.2 | 257.2 | 256.6 | 261.0 | 259.7 |
| 1954 | 257.4 | 249.2 | 264.1 | 272.5 | 267.2 |
| 1955 | 268.0 | 259.0 | 275.0 | 284.4 | 279.6 |
| 1956 | 279.0 | 270.0 | 288.9 | 298.6 | 295.8 |
| 1957 | 286.3 | 274.4 | 302.9 | 315.2 | 310.7 |
| 1958 | 289.8 | 274.9 | 311.5 | 326.7 | 320.8 |
| July 1959 | 298.3 | 285.0 | 320.8 | 334.7 | 327.9 |
| Aug. 1959 | 298.3 | 285.0 | 320.8 | 334.7 | 327.9 |
| Sept. 1959 | 303.3 | 287.8 | 327.7 | 344.2 | 334.3 |
| | % increase over 1939 | | | | |
| Sept. 1959 | 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.

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

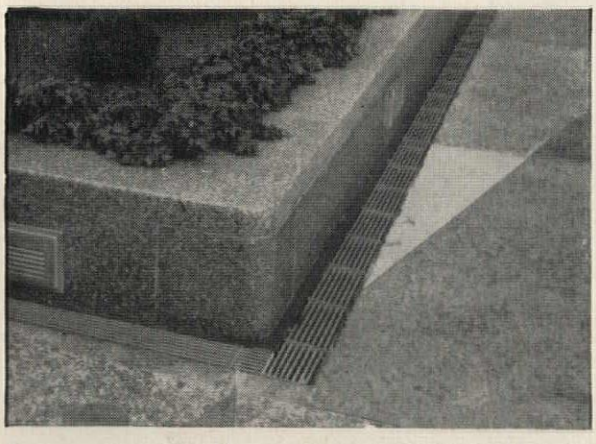
Conversely: costs in B are approximately 14 per cent lower than in A.

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

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.


# BORDEN ALUMINUM GRATING IN MELLON SQUARE PARK . . .



***PITTSBURGH, PENNSYLVANIA***

Encircled in the picture above is one of several aluminum grating air vents in use throughout the park as air exhausts for the multiple-level parking area below ground.

The arrows indicate two of the locations of a system of drain trenches in existence throughout the park.

The grating installed is Borden Pressure Locked Aluminum Grating. This was an exacting job, one where only standards of quality equal to Borden's would do. Functional beauty and low maintenance are but two of the many advantages of Borden's Pressure Locked Aluminum Grating.

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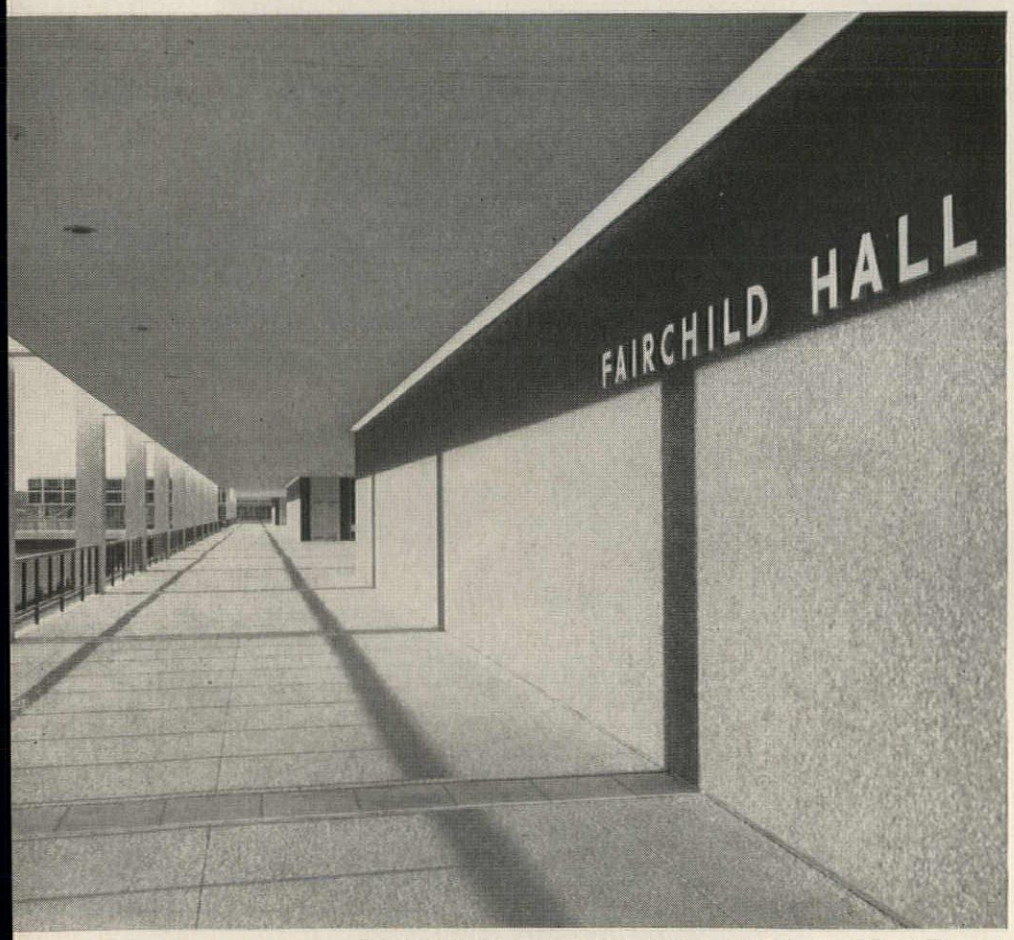
**PLANTS—UNION, N. J., LEEDS, ALA., CONROE, TEXAS, BEETON, ONTARIO**

United States Air Force Academy, Colorado Springs . . . dramatically positioned with the Rampart Range of the Rocky Mountains as a backdrop.

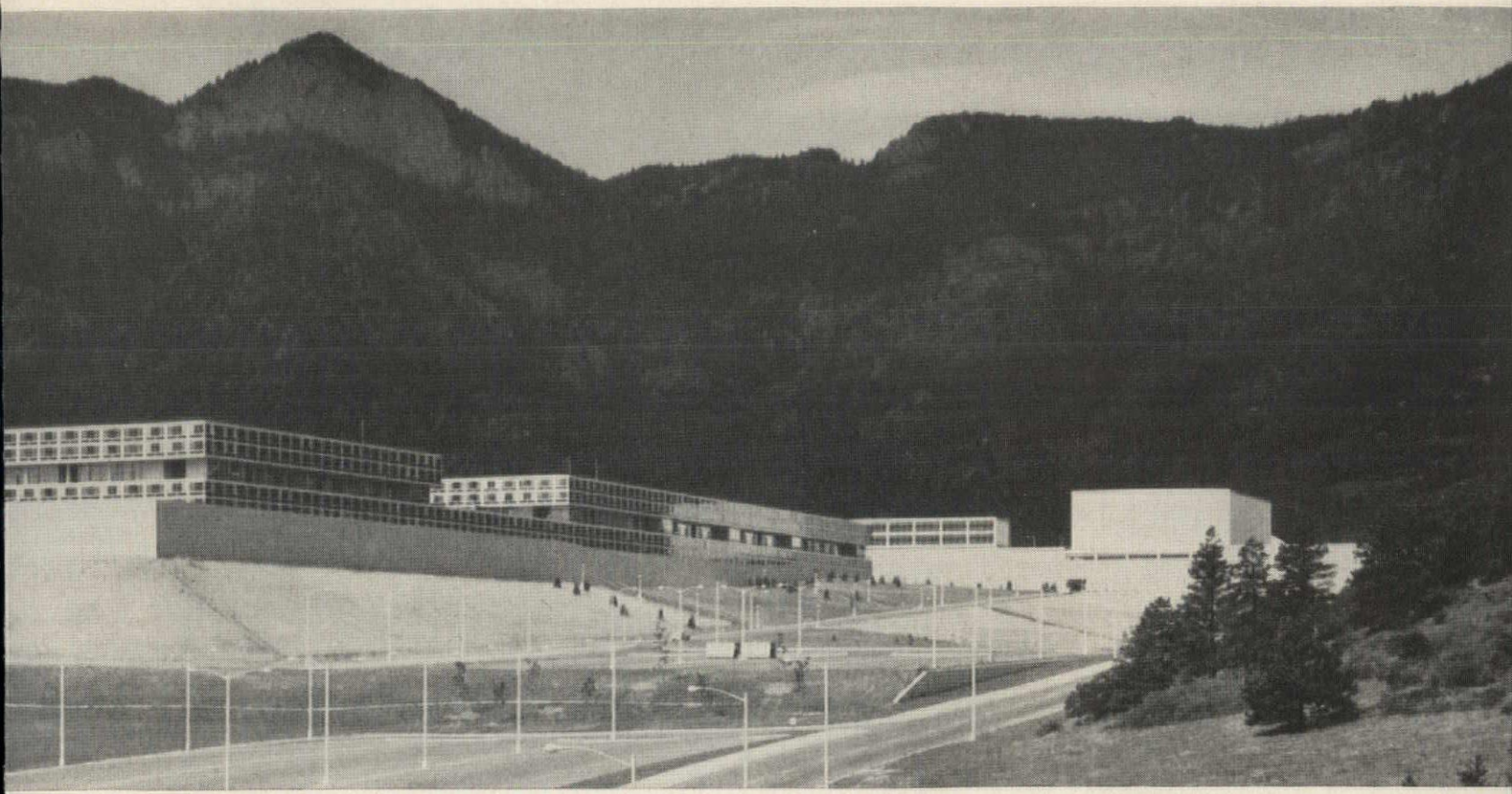
Architects & Engineers: Skidmore, Owings & Merrill.

Electrical Engineer: Syska & Hennessy, Inc.




Fairchild Hall where open floors give a semblance of flight. The outside corridors are illuminated by special corner fixture troffers using lenses to direct light outward.

Cafeteria in the headquarters building in the service and supply area. Here flush mounted troffers with curved lenses assured a pleasing lighting effect of low brightness luminescence.



# A monument to tomorrow...

# The Air Force Academy

*Complemented by AllBrite Lighting in Keeping with the Space Age*

A calvacade of contrast . . . that's the Air Force Academy near Colorado Springs.

Buildings of aluminum, glass and white marble in military order seem to march down a mesa of broad terraces. There are buildings within buildings, separated by courts. All in all, there is earthbound strength in their precise arrangement. Yet, a sense of air and flight permeates structures that stand on stilts. Here and there floors are left completely open. Colored walls of glass mosaic read as vertical planes to add illusion of height.

This feeling of the future challenged imagination in illumination so unusual effects were sought. In one instance open floor areas were illuminated by special AllBrite corner troffers using lenses which gave light an outward direction, adding to the semblance of flight. In another, an office area was bathed in low brightness luminescence to create an unusually restful atmosphere. This was achieved by AllBrite troffers with curved lenses.

Thus did architects Skidmore, Owings & Merrill wed lighting to the total design concept of a monument to tomorrow . . . and with special skills and products AllBrite engineering served the architects well. Curtis-AllBrite Lighting, Inc., AllBrite Lighting Division, 352 Shaw Road, South San Francisco, California; Curtis Lighting Division, 6135 West 65th Street, Chicago 38, Illinois.

East end of the headquarters building in the service and supply area. Lighting was achieved by troffers with curved lenses which assured an unusually restful atmosphere.

CURTIS

visioneers in planned lighting

All-Brite

# *Required Reading*

## Wright's Creative Process Shown in Drawings

DRAWINGS FOR A LIVING ARCHITECTURE. *By Frank Lloyd Wright. Published for the Bear Run Foundation, Inc., and the Edgar J. Kaufmann Charitable Foundation. Horizon Press, Inc., 220 W. 42nd St., New York 36. 255 pp, illus. $35.*

BY FREDERICK GUTHEIM

More is to be learned about Frank Lloyd Wright in this magnificent book than in any other place. At least, by architects. Here, in the moment of conception, we can explore the creative process of our most original architect. The format is generous, the reproduction faithful, the selections definitive. Seldom have architectural drawings been so well reproduced in color. It is inconceivable that short of possession of the actual drawings themselves, one could be put in a better position to make his own judgment of Wright's total achievement.

The drawings are grouped according to themes, without attention to chronological order, building type, or style of drawing. This is a happy arrangement because, like all artists, Wright was loyal to such themes, often over many decades, and developed numerous variations on them. The most fruitful theme is structure. Other themes are theories of life. ("Organic buildings are always of the land and for the life lived in the buildings" Wright believed.) Some themes are related to such architectural subjects as the tall building or rural architecture. The anonymous editor (presumably Edgar Kaufmann, Jr., whose *Taliesin Drawings*, published in 1952, anticipates the present work) has not neglected the historical aspects of his work. These varied facets of some 200 drawings are united in this splendid and perceptive collection.

Ours is a day when drawing is still in disrepute among architects. Past excesses have made clients wary of elaborate presentations; they smack of hoodwinking. A whole generation of architects has reacted sharply against beaux-arts draftsmanship. But we live also in a day when the need for architectural drawing of a different sort is increasingly recognized. What we have today, as I attempted to show in a small group of drawings that formed part of the A.I.A. centennial exhibition, is the vigorous, energetic drawing of conception—well illustrated by the aggressive lines of Louis Kahn; the open, informal, low-pressure, back-of-the-envelope sketch, which Harry Weese does so well; the realistic advertising-art perspective rendering that will always be with us; and the thin, intellectualized architectural drawing that has its origin in engineering. Of these categories, Wright clearly belongs to the first. He employs drawing as the primary tool of architectural creation. This volume does well to include, in addition to actual working sketches, some of the many drawings executed in the white heat of three-dimensional conception, illustrating Wright's matchless power to conceive fully an entire structure and describe it in a single drawing. None of the present collection show this as well, I believe, as a framed drawing of the Millard House to be found in the studio at Taliesin, exhibited originally by Oskar Stonorov in the famous Gimbel's 1951 display—the first to show more than 200 original Wright drawings, and to include conceptual as well as presentation drawings. This quality

*continued on page 70*

Two illustrations from *Drawings for a Living Architecture:* V. C. Morris house, project, San Francsico, 1945; and Frank Lloyd Wright in the drafting room at Taliesin West, 1958, with Wesley Peters, far left, and John Howe

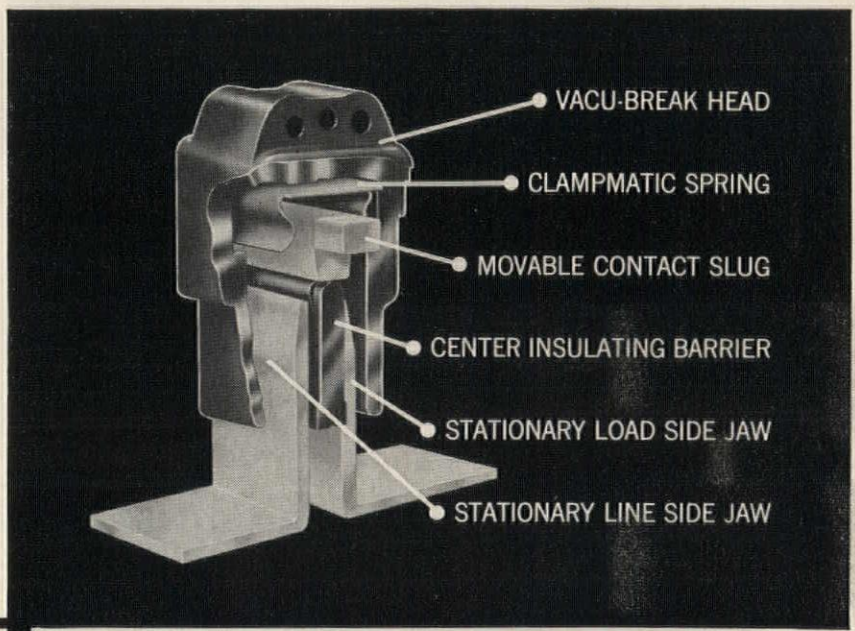
Mildred F. Schmertz

# FOR SAFETY'S SAKE BUY VACU-BREAK

There's a big difference in safety switches—a difference between maximum safety and halfway safety—low maintenance and excessive maintenance. These differences are readily apparent when you look at the design and operation of the BullDog Vacu-Break Clampmatic* Safety Switch.

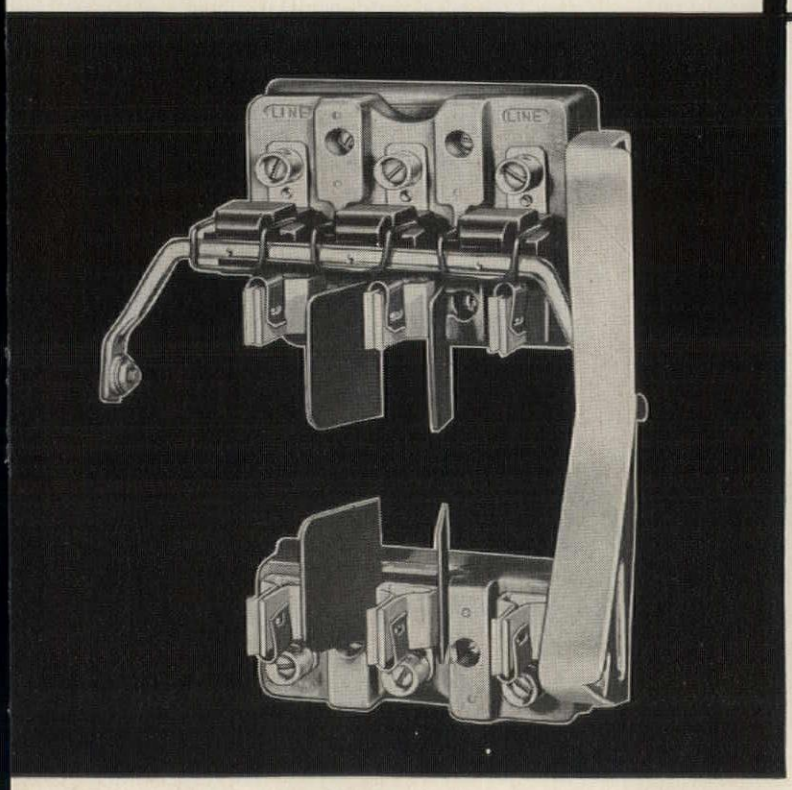
**THE VACU-BREAK:** Contacts are housed inside compact arc chambers which have very little air space. When contacts are "broken" under load, arcs can't build up because of the lack of oxygen. Pitting and burning of the contacts are reduced to the absolute minimum. Maintenance is virtually eliminated.

**POSITIVE SWITCHING:** For positive safety, the Vacu-Break switching mechanism does not rely on tricky toggles or springs to trigger the disconnect operation. The operating handle is directly connected to the contact heads by means of a sturdy *metal* rod. Push the handle "OFF" and the switch *is off!*




Vacu-Break heads are connected directly to the switch handle. No toggles or triggers . . . no tricky springs. No danger of switching failure, either. One of several exclusive BullDog Vacu-Break features that set the performance standards for the industry.

Close-up of Vacu-Break head shows movable contact slug inside the compact, oxygen-limiting arc chamber. Clampmatic spring assembly assures bolt-tight contact, speeds "break". This combination guarantees positive, safe operation, long switch life.




**WITHSTAND 100,000 AMP FAULT CURRENT:** Vacu-Break Clampmatic switches equipped with current-limiting type Amp-Traps** were subjected to 100,000 amp short circuit current. *The switches were undamaged.*

*Play it safe!* Compare, recommend, *buy* . . . BullDog Vacu-Break Clampmatic Safety Switches. They cost no more than other switches . . . yet give you the maximum in safety and performance.

**Vacu-Break and Clampmatic are registered trademarks of the I-T-E Circuit Breaker Company.*
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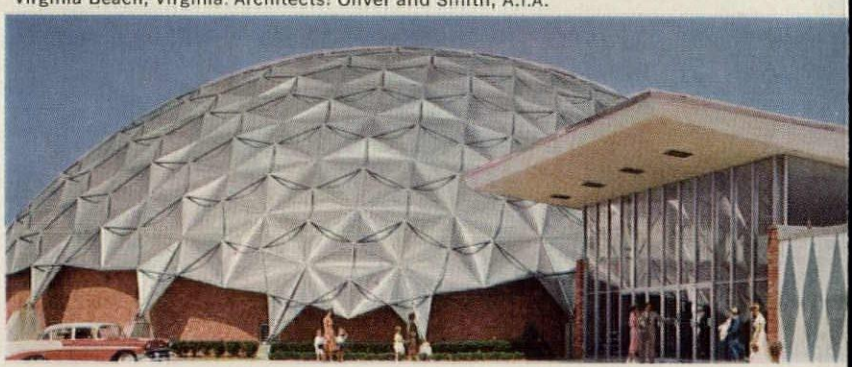
## AN EXHIBITION PAVILION

**United States Cultural and Industrial Exhibition, 200′ diameter Dome**
Sokolniki Park, Moscow, Russia. Architects, Welton Becket, F.A.I.A. and Associates

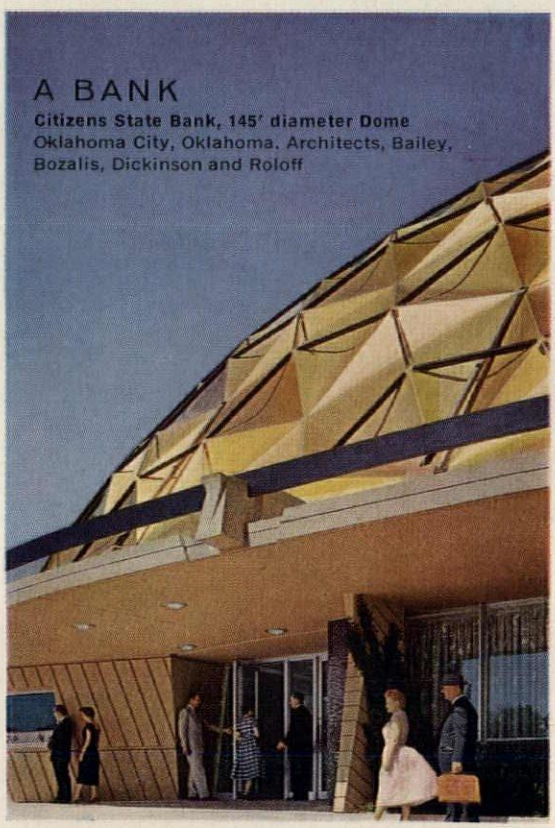
## A CONVENTION HALL

**Civic Center Convention Hall, 145′ diameter Dome**
Virginia Beach, Virginia. Architects: Oliver and Smith, A.I.A.



## A BANK

**Citizens State Bank, 145′ diameter Dome**
Oklahoma City, Oklahoma. Architects, Bailey, Bozalis, Dickinson and Roloff



## AN OPERA HOUSE

**Casa Manana, Opera House, 145′ diameter Dome**
Fort Worth, Texas. Architect, A. George King, A.I.A.

**Whether in terms of practical end-use or in terms of harmonious blending with other architectural forms, there is virtually no limit to the versatility of the aluminum stressed-skin dome.**

All four of the buildings shown here feature Kaiser Aluminum Domes. And yet, each of the four leading architects represented has incorporated the Dome to satisfy a unique set of requirements (summarized below).

The Dome also has been designed and used as a theatre, a manufacturing facility, an element of a commercial and shopping center complex. For all of these and still more applications, it offers efficient clear-span coverage of floor areas up to 30,000 square feet.

From the wide range of Dome structures already planned and erected, Kaiser Aluminum has gained a wealth of practical experience which is yours to call upon. Contact any Kaiser Aluminum Sales Office for details and the name of the franchised dome contractor serving your area.

## SUMMARY OF REQUIREMENTS:

**MOSCOW DOME:** To demonstrate and symbolize (as the dominating structure of the United States Cultural and Industrial Exhibition at Sokolniki Park in Moscow, Russia) the newest in American engineering progress and industrial ingenuity. To house, for visitors' clear-traffic access, five motion picture presentations plus dozens of floor-level exhibits.

**FORT WORTH DOME:** To create an opera house and theatre of classic but dramatic lines to integrate both esthetically and practically with existing monumental structures, memorial and museum. To house musical and dramatic productions efficiently, and to provide outstanding acoustical qualities.

**VIRGINIA BEACH DOME:** To provide, within critical considerations of design, appearance and cost, a dominating civic center structure complementary to surrounding landscape. To provide sufficient space for 1,500 persons at meetings or 1,000 persons at banquets.

**OKLAHOMA CITY DOME:** To build an impressive yet contemporary, economical and practical structure appropriate to a leading financial institution. To house complete banking services, including drive-in facilities.

KAISER ALUMINUM

Kaiser Aluminum & Chemical Sales, Inc.
1924 Broadway, Oakland 12, California

## *Required Reading*

*continued from page 66*

is recognized by A. Hyatt Mayor, author of one of the introductory essays: "His drawings tell so much because he refrains from drawing until he has meditated the building in all essentials." "When Wright is ready to draw he merely records a vision that has matured to singleness. . . ." But nowhere in this volume is there a discussion of Wright's drawing methods: the crayon work, the dotted line, the Japanese screen layouts; nor an account of the many draftsmen—Marian Mahony, Henry Klumb, John Howe—who contributed.

Do not think that this collection is all a glamorizing of well-known works. There are new buildings and drawings never before published, such as the Huntington Hartford "country club" residence. Only those who have studied at Taliesin have ever seen those great unexecuted powerfully imaginative compositions—the San Marcos hotel, the Doheny ranch, the San Francisco funeral chapels, and others like them of huge, urbanistic scale, reaching into the future.

The editor hews well to his avowed aim: "to bring to a larger number of people the pleasure of seeing Frank Lloyd Wright's architecture at the stages of conception and first formulation." This is an album. The explanatory captions are cut to the bone. The other introductory essay, by Giuseppe Samonà of the University of Venice, is an appreciation, full of insight, but brief. Yet it is a book that will take its place beside the great Wasmuth 1910 portfolio and the Santpoort anthology of 1925, and like them will become a landmark in the growing literature on Wright.

### Two for Christmas

THE MAGIC STONES. *By Alain. McGraw-Hill Book Co., 330 W. 42nd St., New York 36. 32 pp., illus. $2.50.*

LITTLE BLUE AND LITTLE YELLOW. *By Leo Lionni. McDowell, Obolensky, 219 E. 61st St., New York 21. 38 pp., illus. $2.95.*

Having trouble finding the *right* gift for the young artist or architect on your Christmas list? Take heart. Two books written with just such creative children in mind have come to the rescue.

Monsieur Down, hater of beauty and godliness, is the villain, and Architects are the heroes of *The Magic*

*continued on page 264*

*another first from* **Bilt-Well**
*by* **Caradco**

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Here is one basic window in three models with stepped-up features to satisfy your design requirements in every price range. All far surpass FHA minimum standards for weather tightness. All offer infinite variety in window arrangement. All provide alluring talking points for the builder. All will do credit to your good name as a designer of fine homes.

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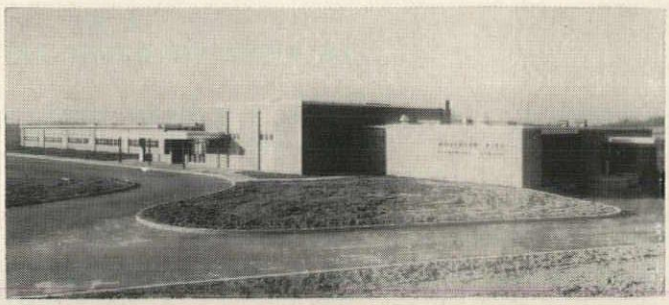

*Monroeville School District is so well satisfied with its first electrically-heated school building that it is now planning to build another which will be heated in the same manner. The first building, shown above, the Northern Pike Elementary School, was first occupied last December 1. Schoolboard officials and administrators say they consider it a success from every point of view. The second building will be a 20-room structure in University Park.*

CHROMALOX

# Electrically-heated school triumphs over high costs

from Pittsburgh Sun-Telegraph June 28, 1959

Classroom in Northern Pike Elementary School . . . it's warm in winter, cool in summer.

. . . one of over 250 electrically heated schools.

The cost of heating the Pittsburgh district's first all-electrically-heated and equipped school during the past winter was less than had been expected, according to school officials and the designers and manufacturers of the equipment. It is Northern Pike Elementary School at Monroeville.

According to the figures revealed after the severe winter's heating bills were all in, the cost will not exceed $4,700 per year for electricity. The original estimate, before the heavily-insulated building was built, was $5,330 per year.

The estimated cost of heating with other fuel was $5,720, including payment of principal and interest on the extra initial cost of the building, maintenance cost of boilers, higher insurance, etc.

Designers of the electrically-heated school say initial cost savings in construction amount to $53,000 rather than $41,500 as had originally been estimated.

The Northern Pike school contains 13 classrooms, a multi-purpose room which serves as an auditorium, playroom and cafeteria, a kitchen and administrative offices. It accommodates 250 children.

The school is heated principally by modern baseboard electrical units thermostated so that the body heat of the children, the sun which shines through windows and the heat from cooking in the cafeteria kitchen is not wasted. A constant flow of fresh air is pumped into the rooms from the outside.

Dr. Carl Newman, superintendent of Monroeville schools, says the operation has been entirely satisfactory from a comfort and health standpoint as well as from a cost point of view.

The architect of the original building was Walter E. Schardt Associates; the manufacturer of the equipment, the Edwin L. Wiegand Co.; the electrical contractor, Morganstern Electric Co., and the general contractor, Spires Brothers.

*Write for "The Dollars and Sense Story of Electric Heat." Edwin L. Wiegand Company, 7500 Thomas Blvd., Pittsburgh 8, Pa.*

91824


# Creating in Color?

## Consider Ceramic Veneer!

No building material is more stimulating to creative design than colorful Ceramic Veneer. Its versatility gives you a vast selection—delicate tints or dominant hues, monochrome facings or polychrome panels . . . smooth, roughened or tooled textures . . . bevelled, fluted or scored forms. You have a choice of ornamental sculpture or bas-relief, intricate trim or repetitive patterns. Whatever your plans—Ceramic Veneer will fit into them perfectly, for it is custom-made by Federal Seaboard craftsmen using modern manufacturing techniques. Permanence of color, ease of maintenance and long range economy are also assured when you specify Ceramic Veneer. Write us today. Without charge we will gladly furnish construction detail, data, color guide brochure, advice and estimates on preliminary sketches involving Ceramic Veneer.

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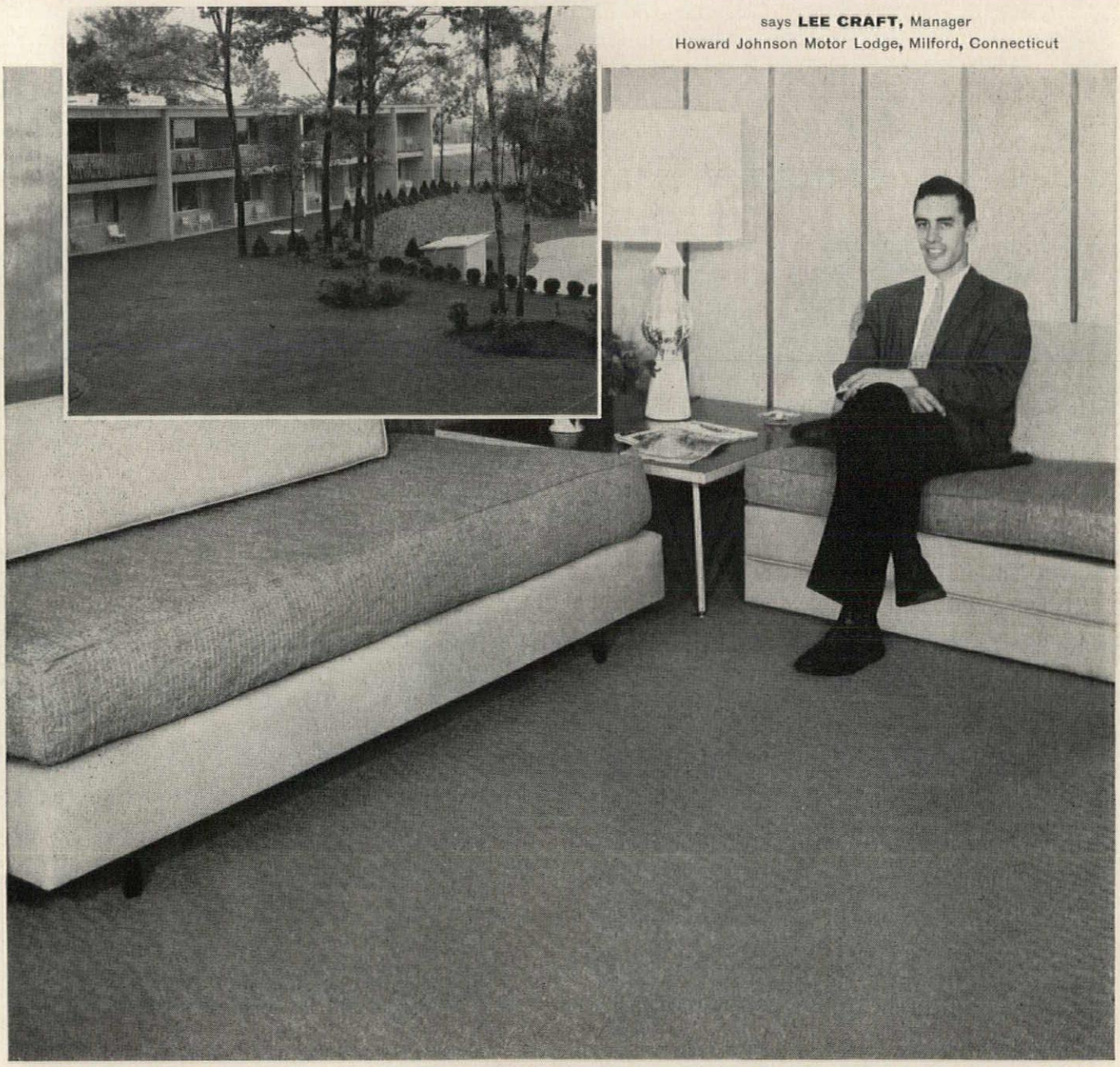
**J. L. Guay & Frère Ltée.**
*—Builders*

*The official seal of St. Laurent was reproduced in polychrome Ceramic Veneer; tan Ceramic Veneer was specified for the facing. Unit sizes are 20" x 27" and 24" x 24".*

# "Gulistan makes our welcome warmer! And in the long run... Gulistan costs less than hard-floor coverings,"

says **LEE CRAFT**, Manager
Howard Johnson Motor Lodge, Milford, Connecticut



Howard Johnson Motor Lodge. Custom carpet by Gulistan Design Dept. Installed by Wayside Furniture Shop. Alton L. Craft, A.I.A., Architect.

*"This kind of luxury is good business, too. Gulistan carpet wears so well and is so inexpensive to maintain, it actually saves a lot of money."*

With all these advantages—beauty, long wear, permanent mothproofing, soundproofing, safety—Gulistan needs so little care it cuts costs of floor maintenance up to 50% over other kinds of flooring. In limitless colors and original designs. Ask your Gulistan dealer about them. Or let us work out a one-of-a-kind design carpet for you.

More distinguished hotels, restaurants, theaters, banks choose Gulistan than any other carpeting.

Write: Commercial Department AR-12, A. & M. Karagheusian, Inc., 295 Fifth Avenue, New York 16, N. Y.

# SINGLINE by **MILLS**

Singline, a crisply modern movable wall, solid and cleanly detailed from all-steel corners to uniform profiles in the slender glass-panel mullions. Single line panel joints, narrow base and ceiling trim . . . completely flush surface accommodates a limitless choice of field-applied wall coverings. The newest concept in partition economy . . . one of seven systems by Mills.

Singline is 3 inches thick, soundproofed and insulated, packed with non-settling Fiberglas®. Rugged panel joint design (patent pending) assures sturdy installation and simplified panel interchange. Concealed wiring facilities.

*For details write to The* **MILLS** *Company, manufacturers of movable partitions since 1921. The address is 961 Wayside Road, Cleveland 10, Ohio. If you must design efficient, comfortable work areas, you will find the Mills Planning Kit excellent help in visualizing arrangements: a request on your letterhead will bring you one.*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Living, Dining Rooms: bright for parties, soft for conversation.

Bedrooms: bright for sewing, soft for resting.

Recreation Rooms: bright for games, dim for dancing.

**COMMERCIALLY**

Restaurants: gay for lunch, mood lighting for dinner.

Conference Rooms: bright for charts, dim for TV showings.

Medical Suites: bright for examinations, soft for interviews.

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Create an infinite variety of moods...instill the excitement of changing personality in your residential and commercial interiors. The remarkably effective new MOE Light M-6360 Dimmer brings you everything you want in light intensity control.

**Easy to Operate**—One dial turns on, dims, turns off.
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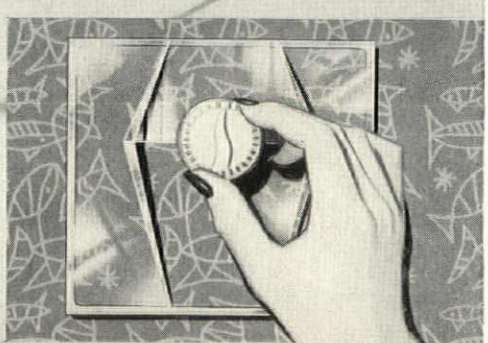
**Easy on the Eyes**—Transparent face plate permits matching or contrasting wall decor.



**M6360**—Handles up to seven 40-watt fluorescent or total 360-watt incandescent. Housing 5½"x6¼"x3⅜"; face plate 6½"x7¼".

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# "Pre-wired telephone outlets? They're a standard feature of every home we build!"

**—SAYS PHIL JONES, CUSTOM BUILDER OF INDIANAPOLIS, INDIANA**

"You're not offering the buyer a really modern home unless you provide for his telephone convenience," says builder Phil Jones. "That means giving him built-in, pre-wired telephone outlets in key areas of his home, just as you give him pre-wired electrical outlets."

Phil Jones builds custom homes priced from $21,000 up, and every one has from three to five outlets for telephone service. "I let the buyer tell *me* where he wants them located," he says. "After all, *he's* going to use them.

"Pre-wiring makes good sense. People like the idea—and I use it as a solid, competitive sales advantage."

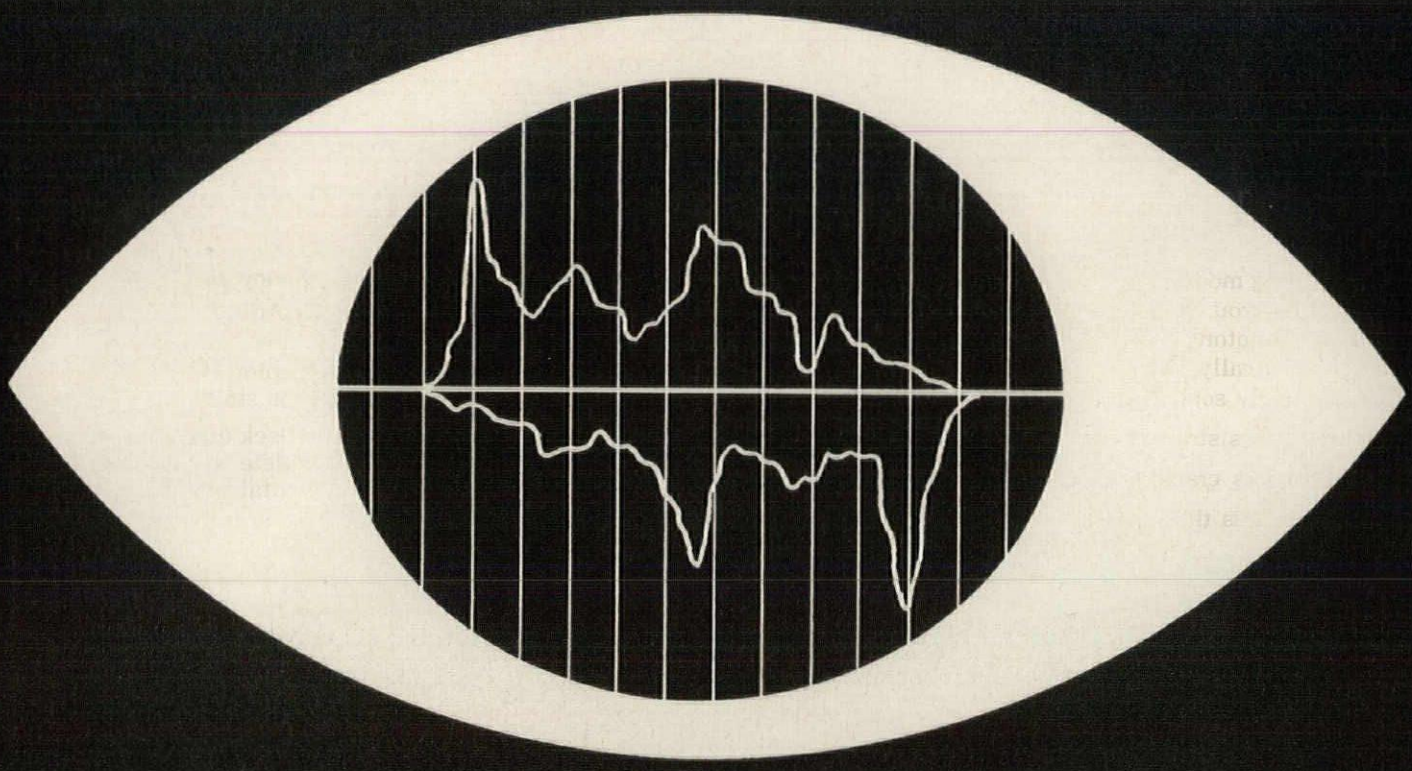
* * *

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

**BELL TELEPHONE SYSTEM**

*At left, Phil Jones and telephone company man Bob Hill discuss outlet locations. Below is one of the builder's handsome "Johnson Meadows" homes.*

# Check Up On Elevator Performance...



# Through The Eyes Of HAUGHTON elevonics*

*Haughton's advanced program in elevator systems research and engineering, with specific emphasis on the creative application of electronic devices and instrumentation for betterment of systems design and performance.

Now—elevator performance in any building can be precisely measured under *all* traffic conditions for any predetermined time period. Through our development work in Elevonics*, new instrumentation has been created that "sees" every move an elevator makes . . . and automatically charts a continuous visual record of starts, stops and waiting time.

This information is of incalculable value to evaluate the quality of elevator service. And it provides, for the first time, a truly uncontestable basis for sound corrective action.

This is but one of many ways that Haughton skills and experience are shaping the new technology in vertical transportation . . . and creating superior new standards for design, modernization, maintenance.

Swift, smooth, dependable elevator service is an unfailing source of satisfaction for building occupants, visitors and owners. Be certain *your* elevators are doing the best possible job. Ask your Haughton representative to let you see them in action—through the eyes of Haughton Elevonics.

EMBLEM OF EXCELLENCE IN VERTICAL TRANSPORTATION

HAUGHTON ELEVATOR COMPANY

DIVISION OF TOLEDO SCALE CORPORATION

EXECUTIVE OFFICES AND PLANT • TOLEDO 9, OHIO

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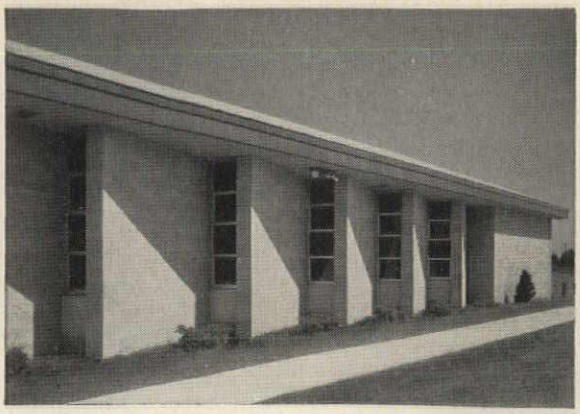
*Lights and shadows dramatize the enduring beauty of Vibrapac Monumental Block*



# Impressive way to set a mood

This exciting modular concrete block faithfully expresses the feeling you envision during planning: Simplicity without monotony. Dignity. Warmth. In addition to being esthetically pleasing, Vibrapac Monumental Block is structurally sound. It is:

. . . three times stronger than ASTM grade A block

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. . . is steam-cured and dried according to rigid specifications

. . . is uniform in dimensions and color, clean, non-fading, and free from popping and/or stains.

Specify Vibrapac Monumental Block on the next project you design for the ages. Complete specifications and detailed information on monumental block construction available on request.

*The exterior walls of this beautiful Michigan church are of exposed, dense, water-tight, sand-and-gravel block. Architect: Edward F. Jansson, AIA, Chicago, Illinois.*

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# which do you prefer?

Or, perhaps, we should ask, "Which do you provide for *guests* in your home?"

Your client's employees and customers are *guests*, too. And when they use the washroom facilities you design, they also look for cloth.

Why? The reason is very simple. There is no substitute for the luxury and quality of clean cotton toweling.

You, as an architect, can provide your clients with the best, by including cotton towel service in the washroom facilities you design.

How? By specifying modern recessed cloth units like the one pictured (center, right) . . . or by providing proper wall space for any of a variety of modern, wall-mounted continuous cloth towel cabinets . . . ALL available to your clients through local Linen Suppliers.

*You do not obligate your client to any particular service. Why? Because this recessed unit will accept a wide variety of cabinets . . . both cloth and paper.*

You specify the recessed unit . . . your client decides what type of service he wants. And, for continuous cotton towel service, there is no investment or installation charge to your client.


*For complete information, write to Linen Supply Association on your letterhead. Send for this free Planning-for-Cloth Kit Illustrated, includes specifications for recessed unit and continuous cloth towel cabinets.*

A. I. A. File No. 29-J

**Linen Supply** Association of America

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## GOOD DAYLIGHTING DESIGN, TOO

Wasco Pyrodomes® could be the difference between a small, localized fire and a conflagration. Pyrodomes combine an acrylic Wasco Skydome with a thoroughly tested, heat-activated spring mechanism to assure automatic heat, smoke and gas venting should fire occur*. Made by the originators of the Skydome, this combination of year-in, year-out Daylighting with emergency fire venting is another example of Wasco's endless search for better daylighting products. See details on Pyrodomes and Wasco's complete line in Sweet's Architectural File 20a/Wa or write

*Wasco has also developed a flat aluminum Pyrovent® for building areas that do not require daylighting

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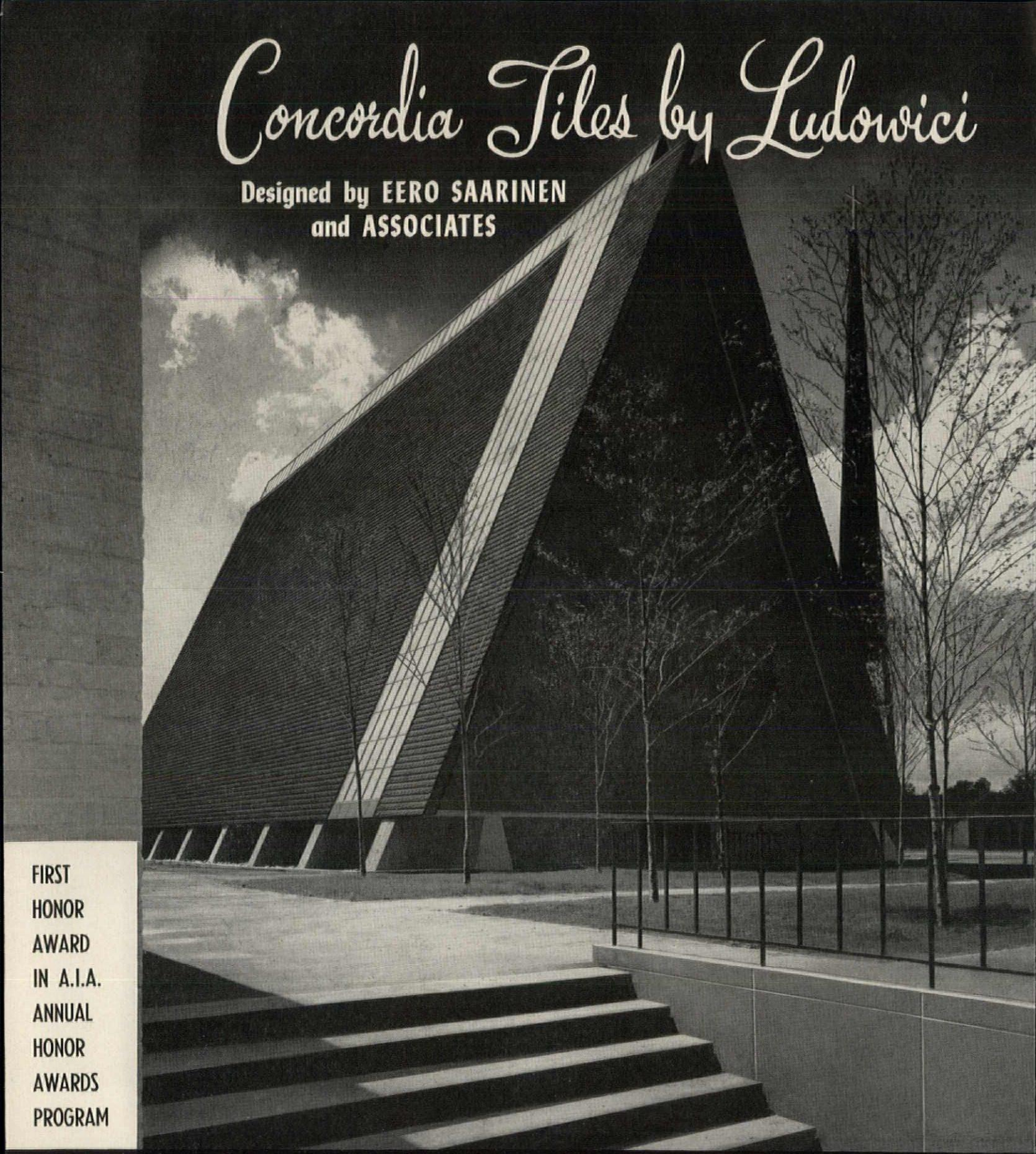
# Concordia Tiles by Ludowici

**Designed by EERO SAARINEN and ASSOCIATES**



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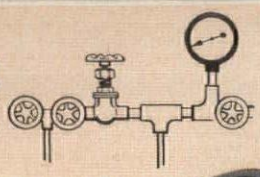
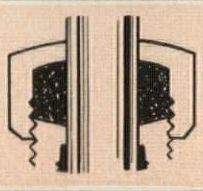


All brass parts are 85-5-5-5% red brass, the most corrosive-resistant brass alloy known.

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

Handwheel screw is stainless steel for easy removal.

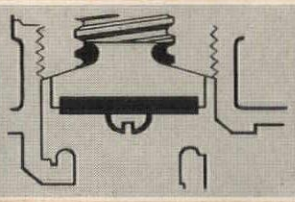
Packing chamber is big for positive sealing, long wear in constant use.



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

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

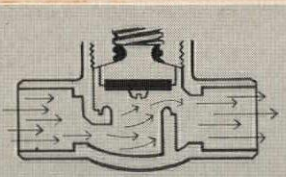
Back seating feature permits re-packing under pressure . . . without leaking.



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

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

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



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



Insist upon NIBCO compact pattern valves—most versatile and thriftiest for water, oil or gas.

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

NIBCO

New valve catalog is available from Nibco wholesalers —or write

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*fully-finished random-grooved paneling in six exclusive, new Trendwood finishes*

Marlite now offers true random planks . . . 16″ wide and ¼″ thick for easy handling . . . edges tongued and grooved for easy installation. The beautiful new Trendwood finishes (Danish birch, English oak, Swedish cherry, Italian cherry, Swiss walnut, American walnut) were developed especially for Marlite by American Color Trends to complement any room, any decor.

New ¼″ thick Marlite Random Planks go up quickly over furring or existing walls, lower your in-place costs. It's the modern new paneling for dry-wall interiors, new or remodeled. And Marlite's soilproof melamine plastic finish needs no further painting or protection . . . resists stains and mars for years! Get details from your building materials dealer, or write Marlite Division of Masonite Corporation, Dept. 1205, Dover, Ohio.

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*plastic-finished paneling*

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trouble-free performance backed by Barrett's famous complete roof inspection service!

The Barrett "Anchorbond" Roof is ready now! Development of a suitable asphalt—involving improved methods of quality control—now makes it possible for Barrett to extend its famous bond to asphalt built-up roofing for 10, 15, or 20 years. "Anchorbond" Roofs, applied by Barrett Approved Roofers, receive the same careful inspection service by Barrett trained inspectors, before, during and after installation, that is given to the famous Barrett SPECIFICATION® and BLACK DIAMOND® Bonded Roofs.

The "Anchorbond" Roof utilizes Barrett asphalt felt with the newly-formulated "Anchorbond" Cement—a high-grade asphalt for the construction of flat built-up slag or gravel-surfaced roofs. "Anchorbond" Cement has good body to assure waterproofing between the layers of felt, and meets Barrett's strict low-water absorption standards. It has excellent adhesive and self-sealing characteristics, and its weathering stability is such as to anticipate trouble-free service for the duration of the bonded guarantees.

You can now specify the new "Anchorbond" Roof with full confidence that it's the equal of the best asphalt flat roof available anywhere. And it's backed by Barrett—the critical standard in built-up roofing for 105 years—the same manufacturer that offers the unique 25-year bonded SPECIFICATION® Pitch and Felt Roof, and the BLACK DIAMOND® Pitch and Felt Roof bonded for 10, 15, or 20 years.

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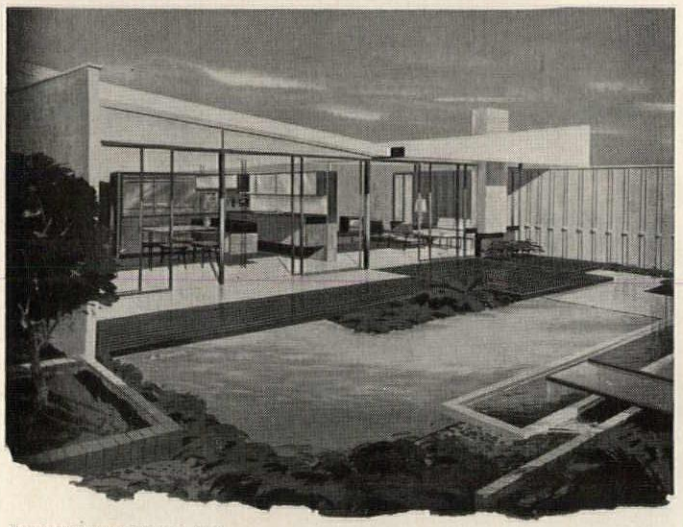

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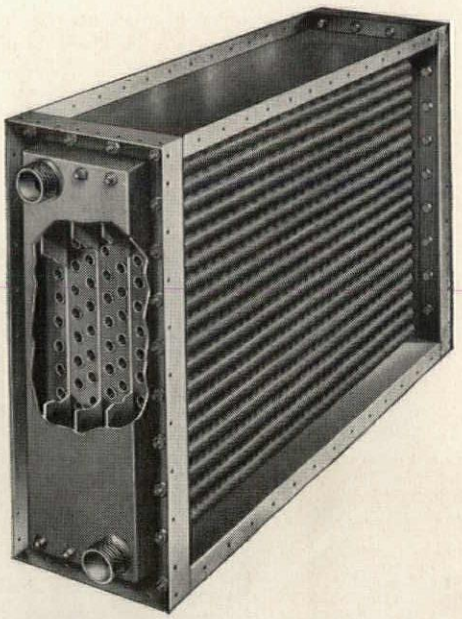

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# NEW Sky-Glo line
## of illuminated plastic ceilings

- ✓ SIMPLIFIED SUSPENSION FROM LIGHTING UNITS
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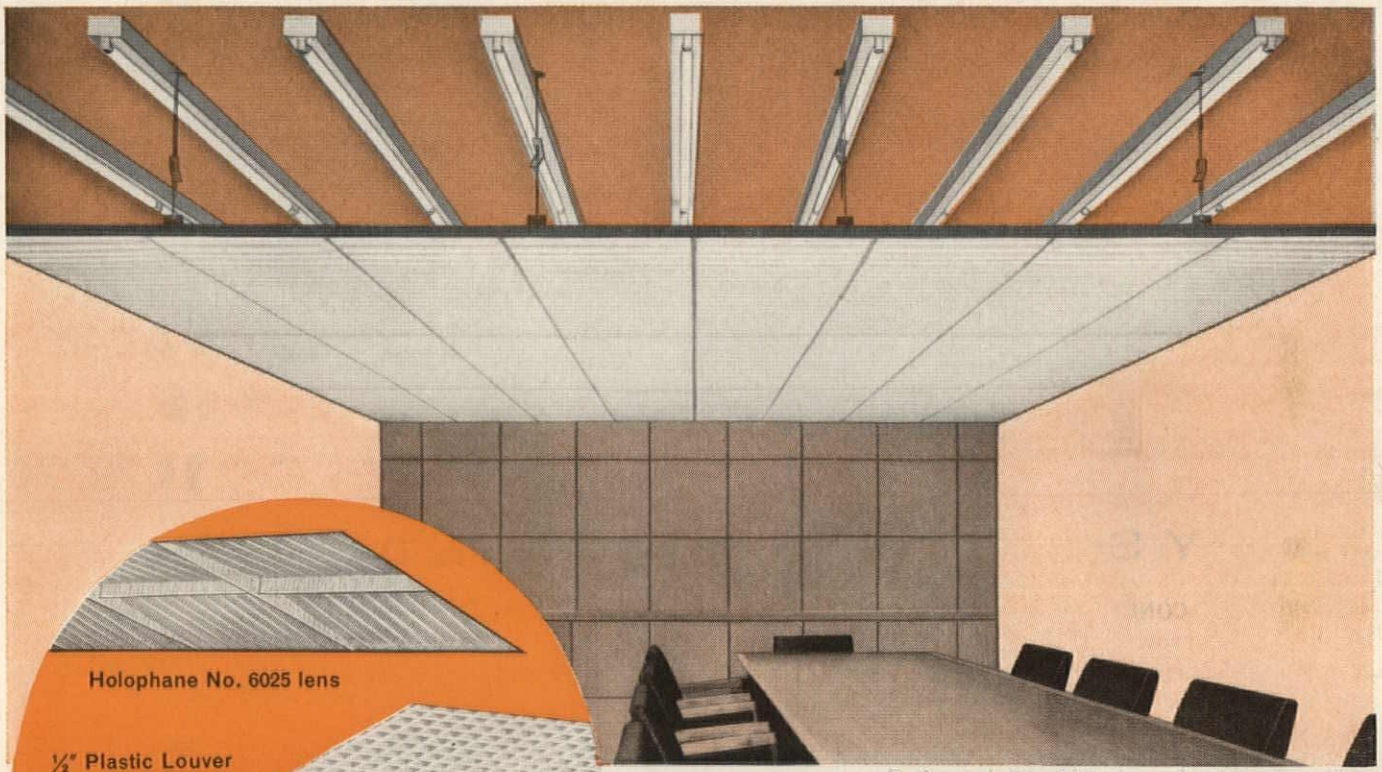
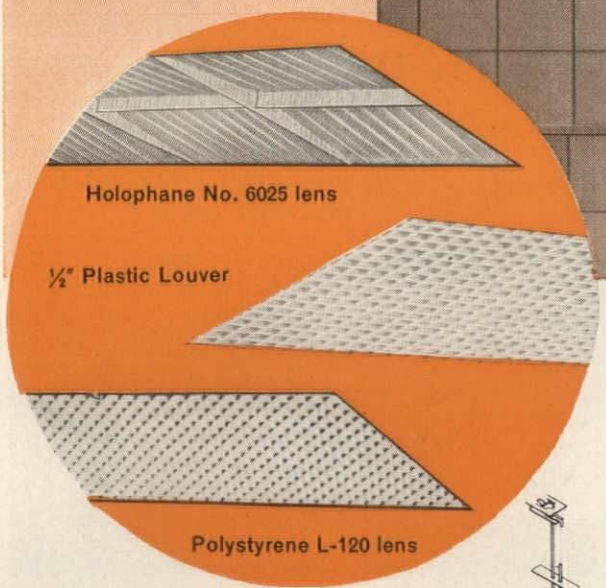


Perforated ribbed Vinyl panels shown in ceiling

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Ceiling grid of lightweight aluminum alloy, rigidly fastened with easy to use lock-tabs. Simplified spring steel leveling device quickly adjusts hanger length. A wide range of closures offers complete flexibility of ceiling type. *Priced by the square foot, complete with choice of Rapid-Start, Slimline, High Output or Power-Groove lamps.*

For fixture engineering at its finest, look to Benjamin. Your local Benjamin representative will be happy to help you. Contact him on any problem...large or small.

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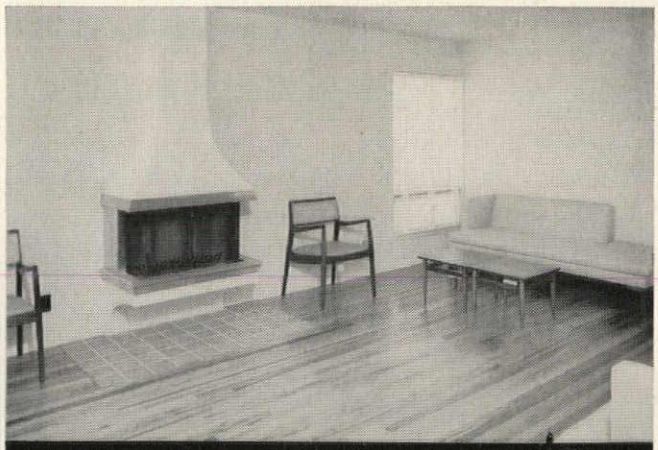
For the new Air Force Academy buildings, only highest grade materials were chosen, including Hillyard seal and finish for well over one million square feet of wood floors.

Besides appearance, the architects were concerned with longtime protection against wear, efficiency of application and ease of maintenance. A Hillyard Maintaineer served as "Job Captain" without compensation, while the floors were being finished. Architects: Skidmore, Owings & Merrill. Flooring Contractor: Superior Floor Co., Colorado Springs.



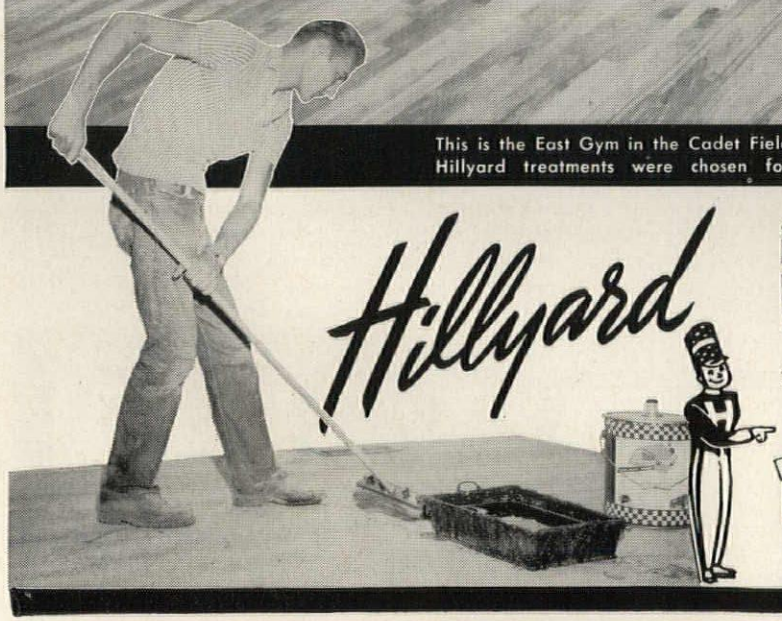
Hillyard treatments were chosen for oak floors in 1200 units of Capehart housing, for instructors and support personnel.

# *Specified* to make a Dream Come True

*"Produced for Generations to come . . . not just for Today or a Decade hence"*

—SKIDMORE, OWINGS & MERRILL

This is the East Gym in the Cadet Field House. Hillyard treatments were chosen for all 8 Academy gyms, 12 handball courts, 12 squash courts—and for 2 Olympic-size swimming pools.



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*The Hillyard "Maintaineer®" will serve as your expert consultant on floor treatment,*

*"On Your Staff, Not Your Payroll"*

FLOOR HILLYARD TREATMENTS

A-2

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The Case Wellington* Three Hundred Concave Lavatory is the most wanted because it's the first really comfortable lavatory ever made for men and women. Gracefully curved for comfort and unusual beauty. Extra-spacious, wide, flat deck. Shown with art designed black and gold rustproofed wrought iron legs and non-slip towel bars all in one piece. (Chrome legs also available).

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*Patent Pending
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247 Delaware Avenue, Buffalo 2, New York

Case

The heavily corroded panel was not Bonderized; the virtually undamaged panel was. The panels were scratched and then subjected to the A.S.T.M. standard salt-spray test. In the finish over Bonderite, rust stopped at the scratch-mark — but it spread extensively over the other panel.

Continuous 8-day salt-spray test proves prime advantage of Milcor steel roof deck

B-deck has wide ribs for maximum strength and rigidity. Safely carries normal loads over spans up to 10'. Wide purlin-spacings cut framing costs.

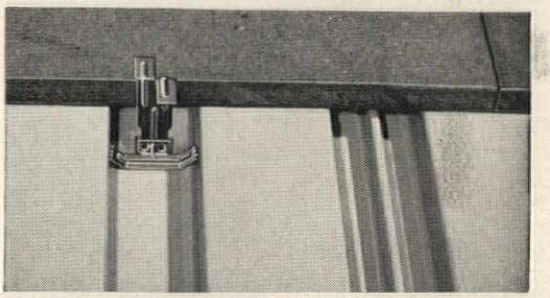
# Field painting costs cut in half with Milcor Bonderized Deck!

Prime paint that withstands salt spray for 192 hours certainly can take the wear and tear of shipping, storage, and erection. This often damages ordinary factory-applied primer.

Milcor deck is Bonderized, fortified against corrosion. Then it is flow-coated with an epoxy-resin enamel, oven-baked to abrasion-resistant hardness—for the most durable finish ever applied to roof deck!

One field coat of paint on Milcor deck usually does the job of two coats on ordinary decks. As you know, a finished paint job can be no better than the prime coat.

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



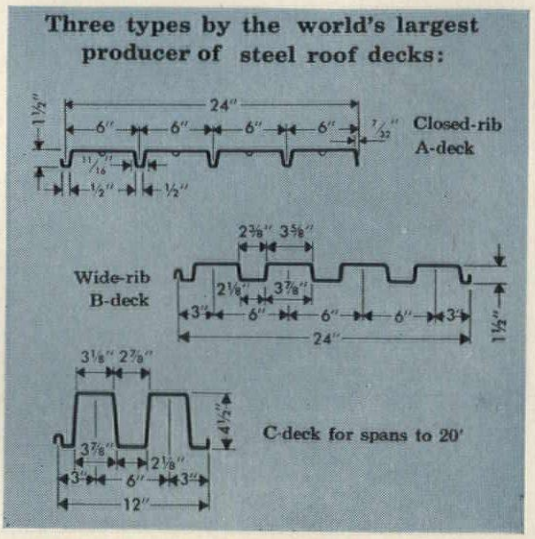
You can get Class 1 fire ratings for roofs over Milcor deck, by using Milcor's new non-piercing insulation clip that eliminates asphalt coating.

**MILCOR®** Steel Roof Deck

*It pays . . . in many ways . . . to specify Milcor Steel Building Products*

| | |
|---|---|
| MILCOR WALL PANELS: | *Sweet's, section 3b/In* |
| MILCOR CELLUFLOR: | *Sweet's, section 2a/In* |
| MILCOR ACOUSTIDECK: | *Sweet's, section 11a/In* |
| MILCOR RIBFORM: | *Sweet's, section 2h/In* |
| METAL ROOF DECK: | *Sweet's, section 2f/INL* |
| MILCOR METAL LATH: | *Sweet's, section 12a/In* |
| MILCOR ACCESS DOORS: | *Sweet's, section 16J/In* |

**Three types by the world's largest producer of steel roof decks:**

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# *Climate by Chrysler*

## . . . your clients would pay $364 just to get the standard "extras" alone

If your clients went out to buy all the valuable extra features that are standard only on Chrysler packaged air conditioners, they'd pay up to $364! Here's what they'd get:

1. Light load capacity control. Brings down humidity rapidly and economically when outside temperatures are moderate.
2. Electro-magnetic safety controls. Increase the service life of your air conditioning equipment.
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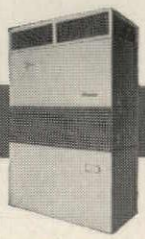
4. Quick-response expansion valve. Brings you steady supply of cool air in 30 seconds. Cuts operating costs and wear on parts.
5. Oil rectifier. Cleans and purifies the system's lubricant; protects your equipment better, prevents service break-downs.

When you select Climate by Chrysler, your clients get much more than just coolness for their air conditioning investment. Exclusive features, low operating costs, reduced maintenance are three of the many advantages they get from Chrysler—the company that pioneered packaged air conditioning. For complete specifications and technical information, write: Airtemp Division, Chrysler Corporation, Dept. M-129, Dayton 1, Ohio. Canadian Distributor: Therm-O-Rite Products, Ltd., Toronto, Ontario.

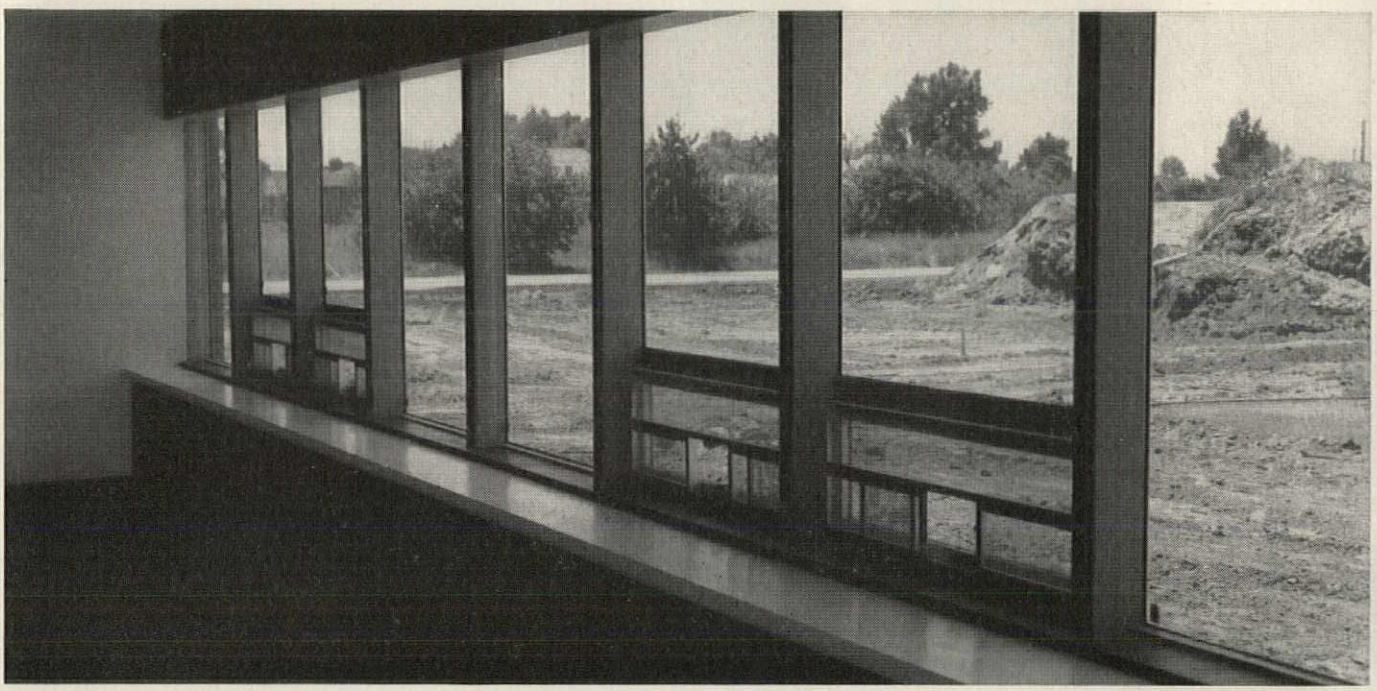


CHRYSLER AIRTEMP

*FIRST WITH THE FINEST IN AIR CONDITIONING*

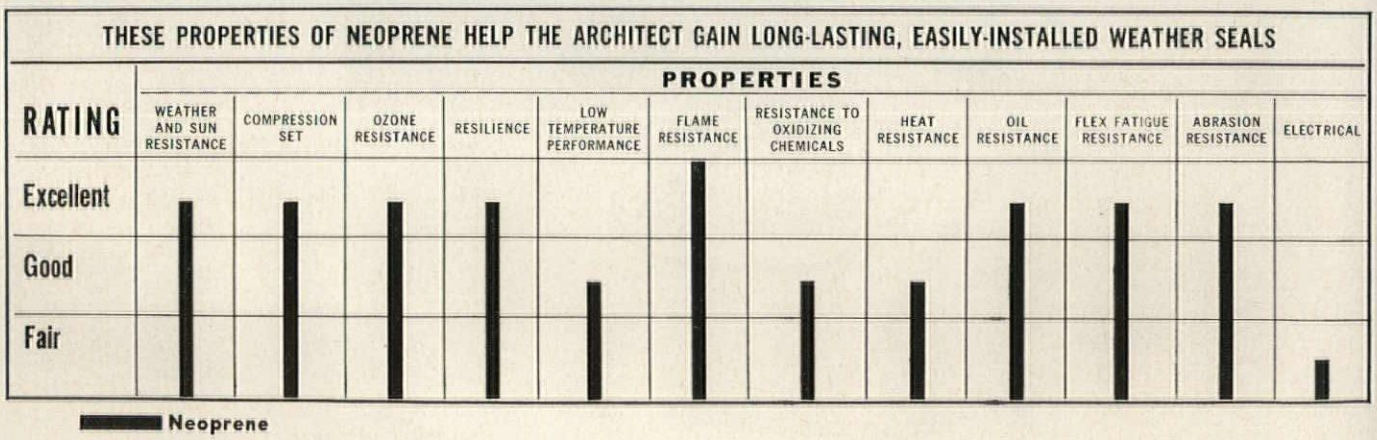
In new Lockport, N. Y., elementary school...

# THESE LIGHTS WERE GLAZED



Anna Merritt Elementary School, Lockport, New York, covers an area of 17,111 sq. ft., features a new aluminum framing system with a neoprene seal that eliminates caulking.

**THESE PROPERTIES OF NEOPRENE HELP THE ARCHITECT GAIN LONG-LASTING, EASILY-INSTALLED WEATHER SEALS**



# 3 TIMES FASTER THAN NORMAL

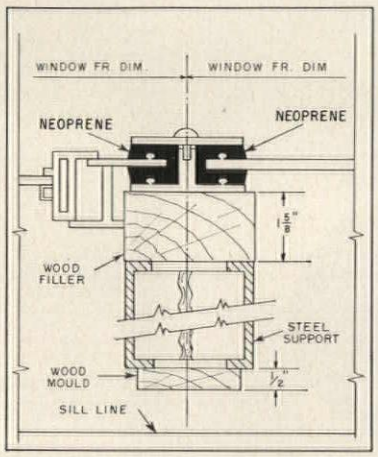
For the new Anna Merritt Elementary School (shown in photo) and the Roy Kelly Elementary School in Lockport, New York, architects Sargent, Webster, Crenshaw & Folley, Syracuse, N. Y., developed an ultra-thin aluminum mullion (only 1¾ in. wide) which, in combination with a prefabricated neoprene synthetic 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—2½ times as large—was glazed in 3½ days.

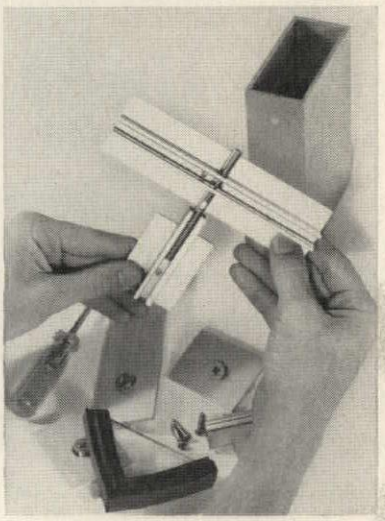
**LASTING SEAL.** A properly compounded neoprene gasket will perform efficiently for decades in this application. It resists weather, sun, ozone, heat, cold, chemicals, pressure . . . stays resilient and maintains a tight seal . . . protects glass against wind breakage . . . can be re-used if a window 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-12, Wilmington 98, Delaware.

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

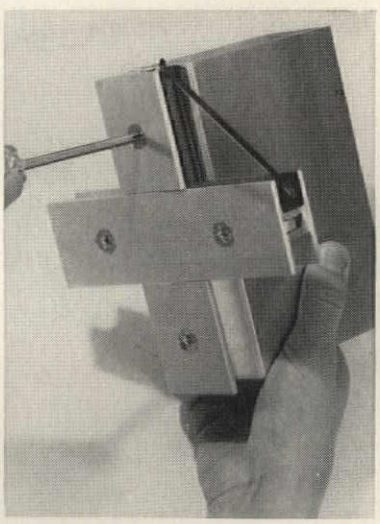



STEP 1—The simple, durable aluminum frame (only 1¾ in. wide) is assembled quickly and easily.



## 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.

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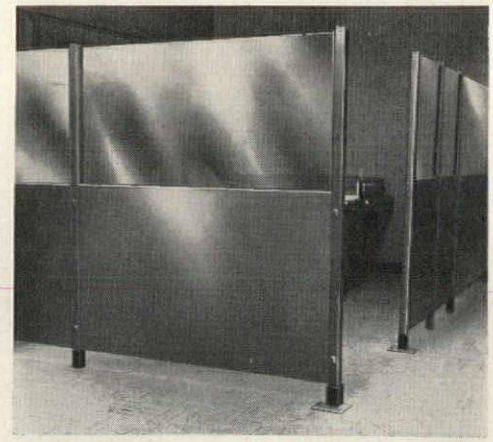
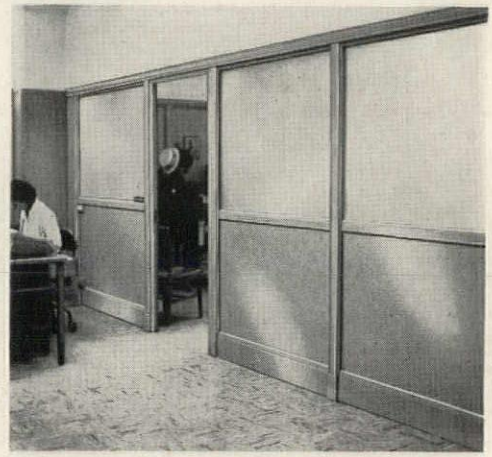
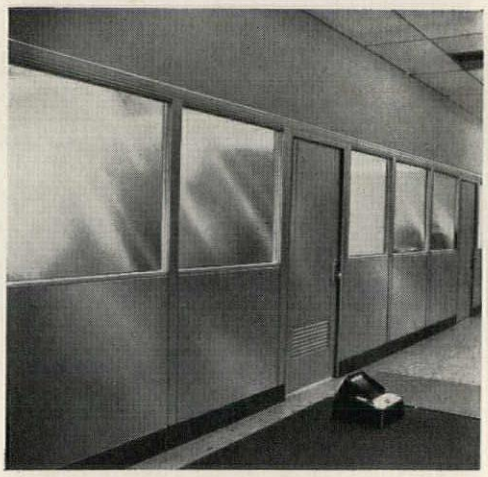


Free Standing Snap-Joint type gives complete flexibility. Various heights and widths.



Type "SM" -- economical yet as flexible as the more expensive types.



Flush Type "F" Moveable Steel Partition - the finest available.

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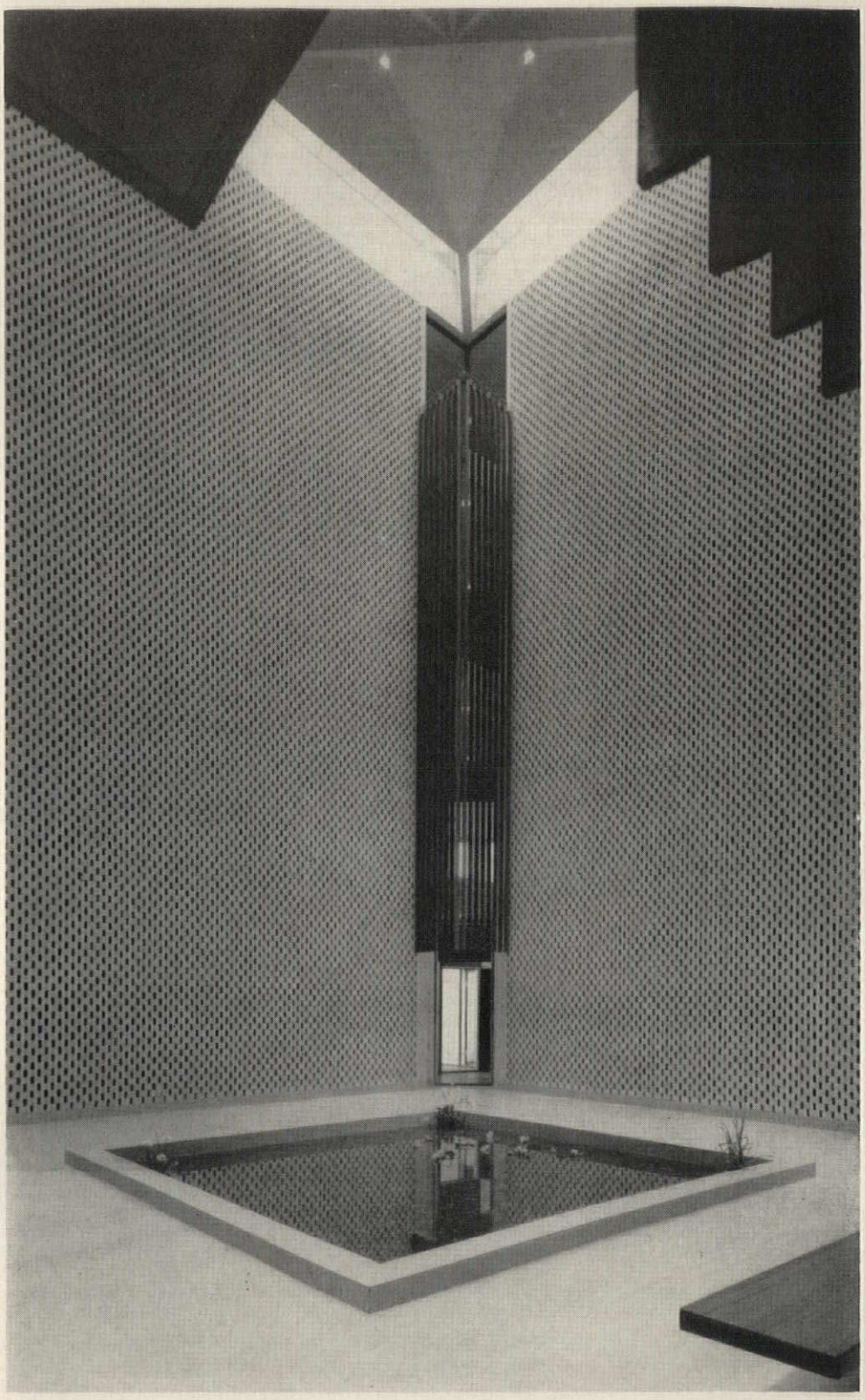
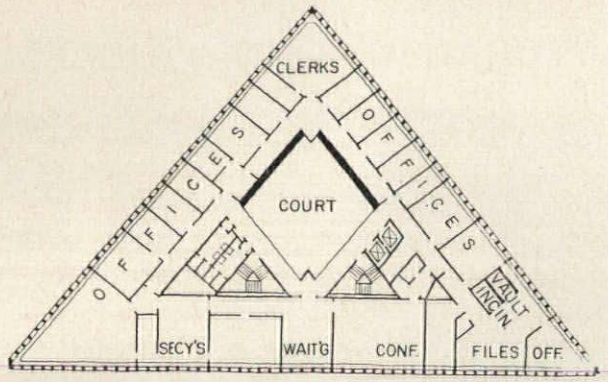
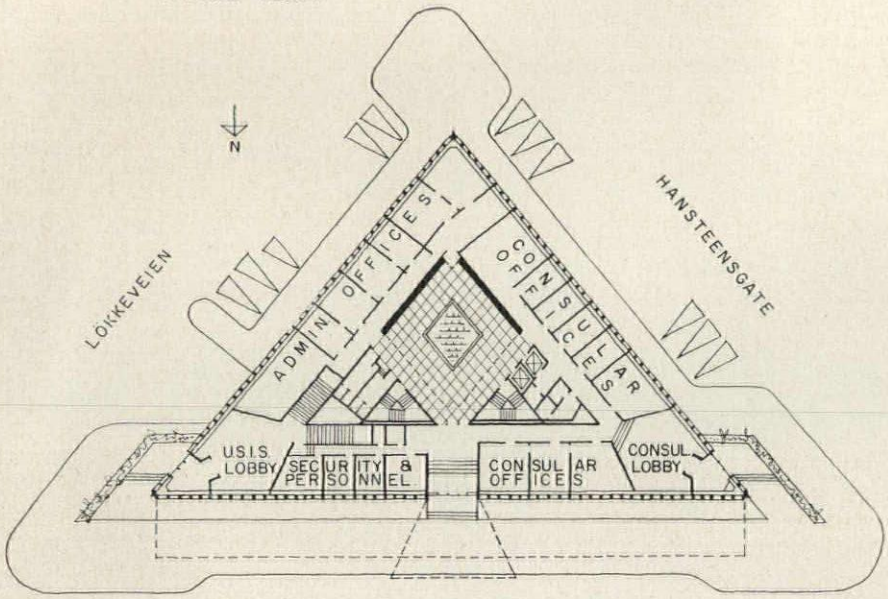


# NEW U. S. EMBASSY IN OSLO

*Eero Saarinen & Associates, Architects; Engh, Quam & Kiaer, Associate Architects, John Engh and Henrik Kiaer, Superintendents; Nils S. Stiansen, Contractor*




TYPICAL FLOOR




DRAMMENSVEIEN

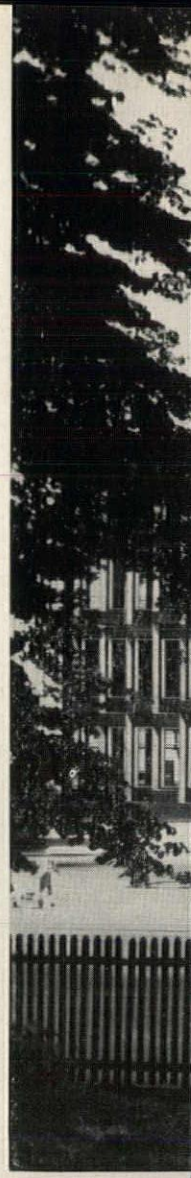
## U. S. Embassy in Oslo

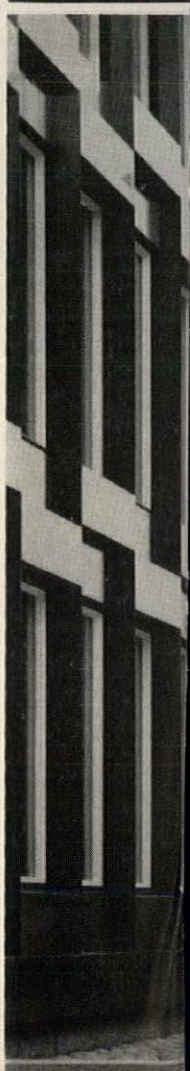
10

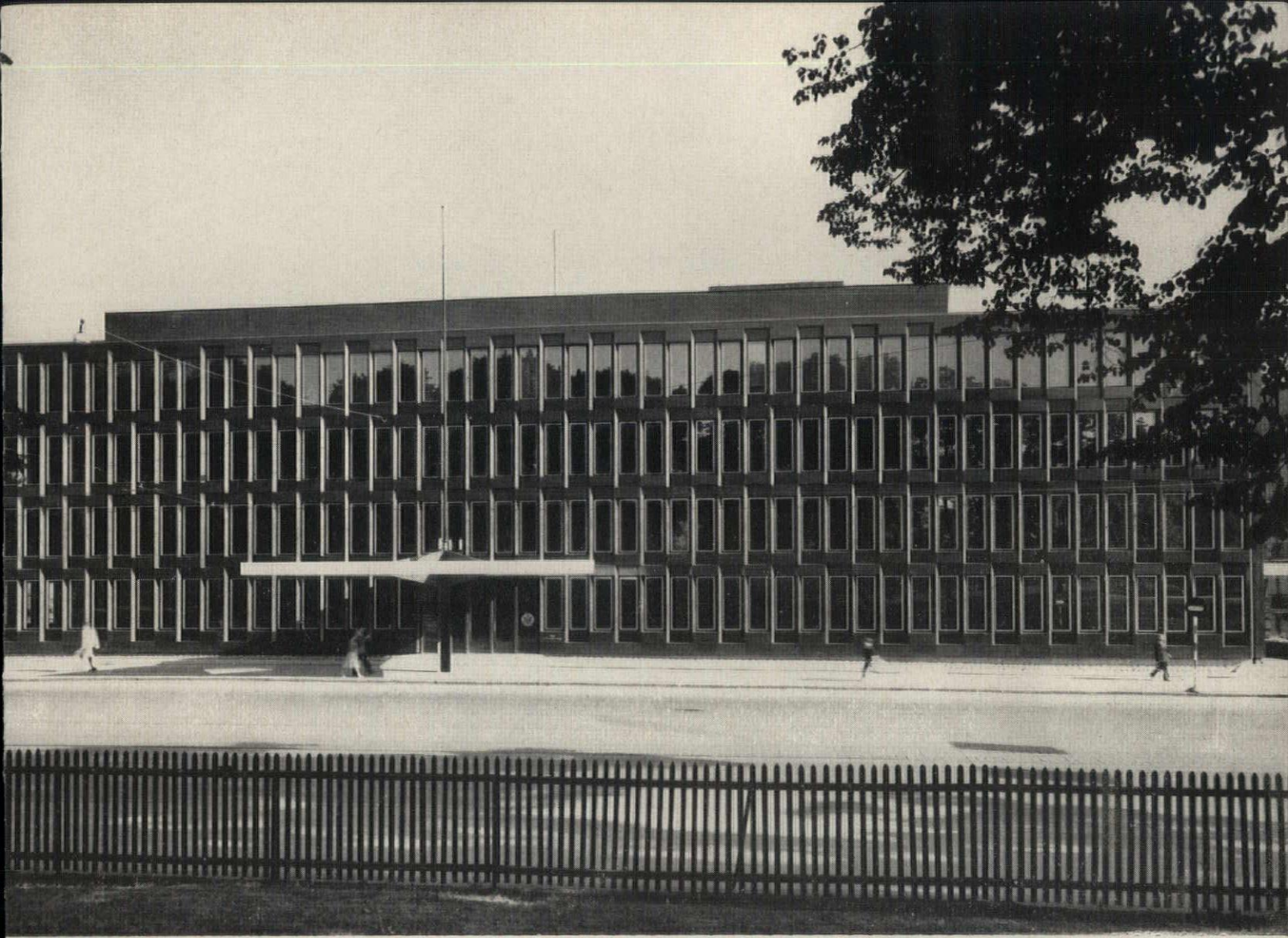
The handsome new United States Embassy in Oslo, Norway, is notable on several counts: its plan; its unusual precast façade; and its dramatic, four-story central court—the focus, or "eye" of the entire scheme—which connects all the corridors, stairs, and elevators. The main elevation faces on Drammensveien, a principal Oslo street which opens on the opposite side to a park-like garden containing the royal palace. The architect wanted to continue unbroken the character of Drammensveien—that of continuous façades—and thus the new building's façades respect the existing building lines.

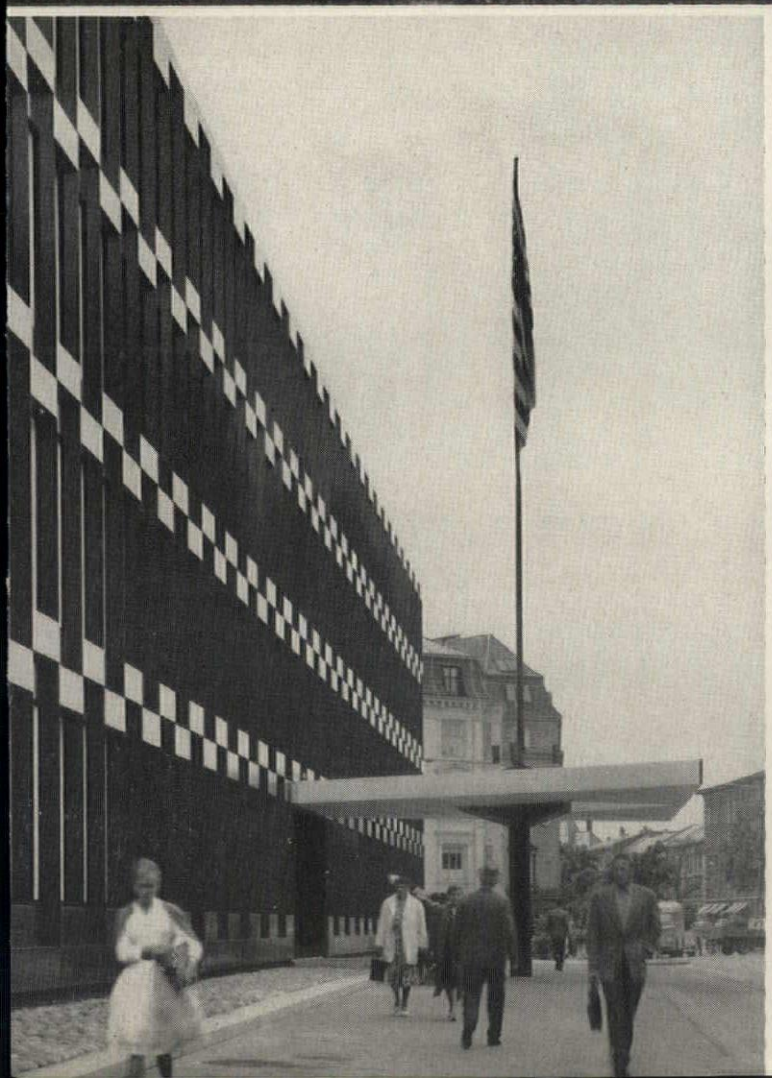
The 190-ft-long principal façade—precast and composed largely of Norwegian Emerald Pearl Granite aggregate—is a rich, dark green color and built up of components ground and polished to a high sheen and then very precisely assembled with minimal joints. This wall is both functional and decorative: it combines the interior office module with structure (bearing wall) and is interpreted visually as a three-dimensional screen that interestingly changes in aspect according to one's angle of view. From a distance (top) it appears as a series of verticals; from nearby in sharp angle (bottom) it becomes a pattern of horizontal checkerboard traces, some mat, some glossy—some light, some dark.

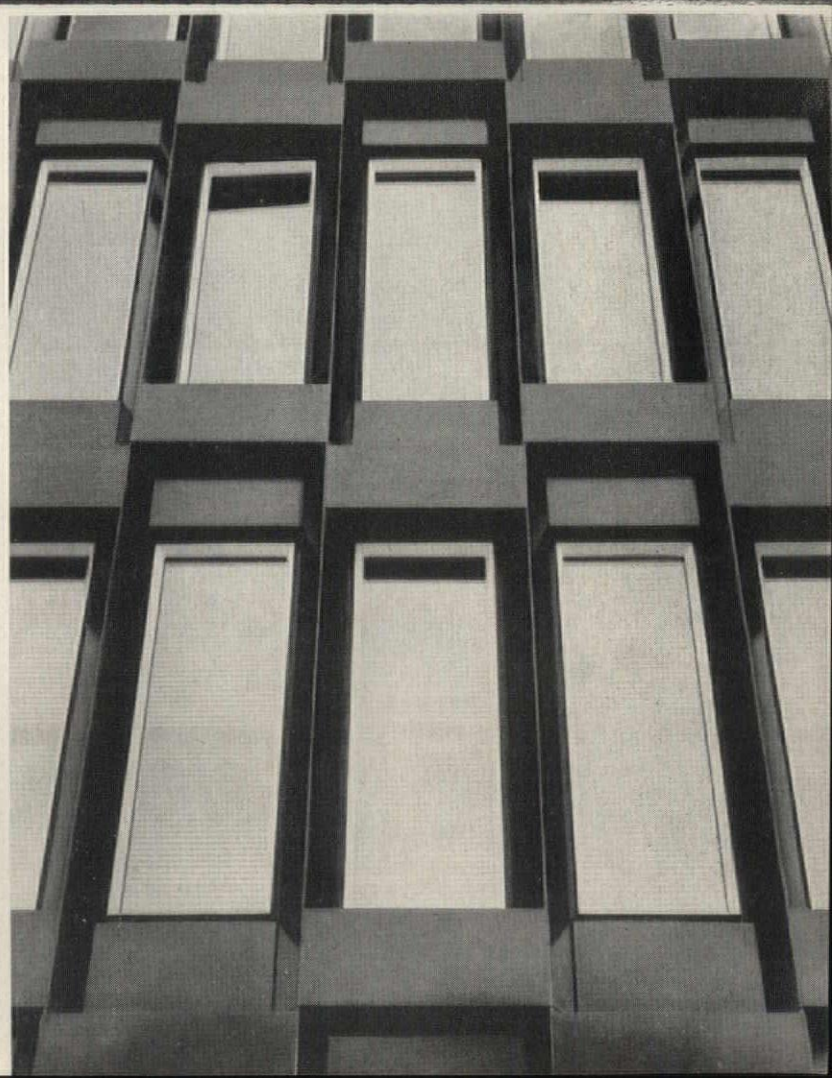
The triangular plan was dictated by the triangular plot, bounded by three built-up streets. The diamond-shaped court resulted naturally as the plan developed; it is actually an inner triangle with two corners removed for stairs, elevators, utilities, etc. The spaces are used as follows: ground floor, administrative and consular sections; second floor, USIS and cultural affairs facilities; third floor, economic and military sections; fourth floor, ambassador and political section; basement, garage, cafeteria, auditorium, and service areas.



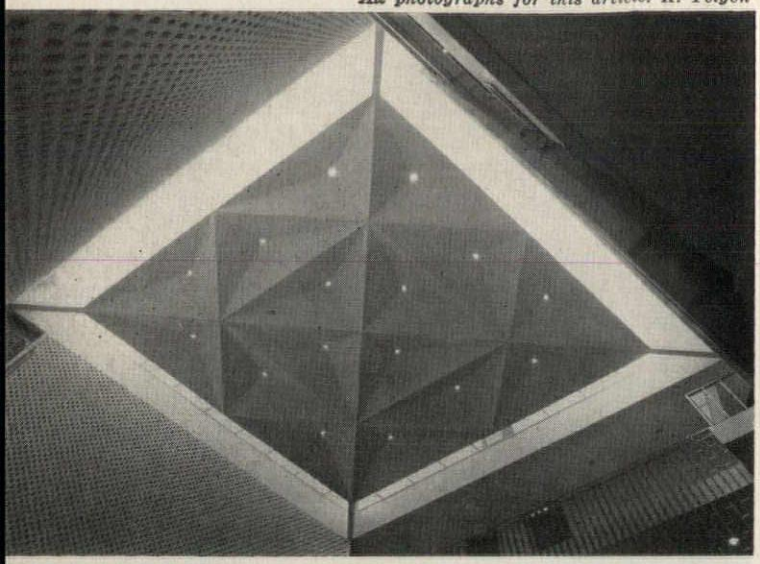


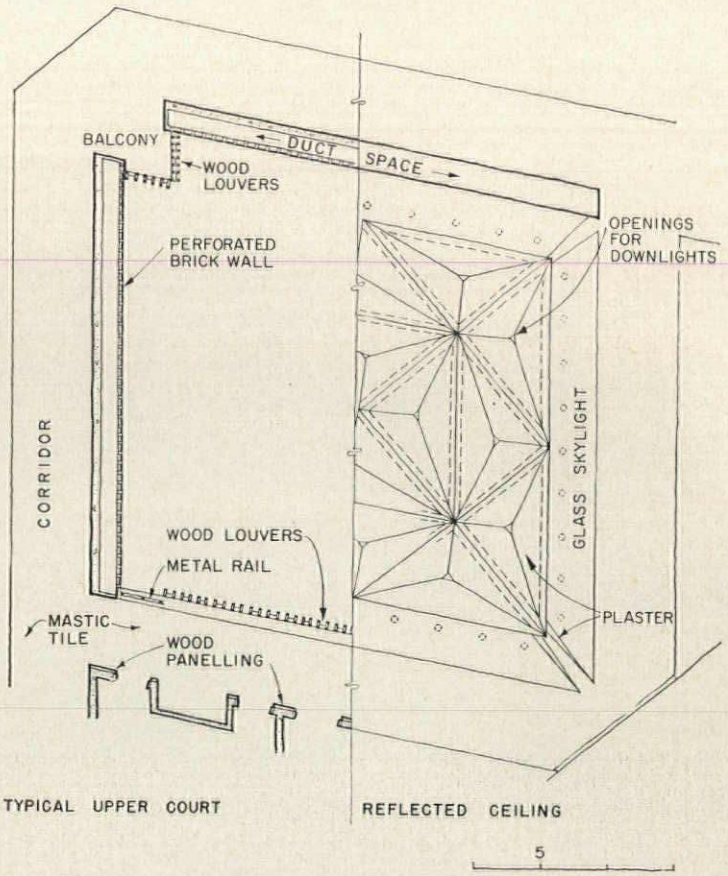


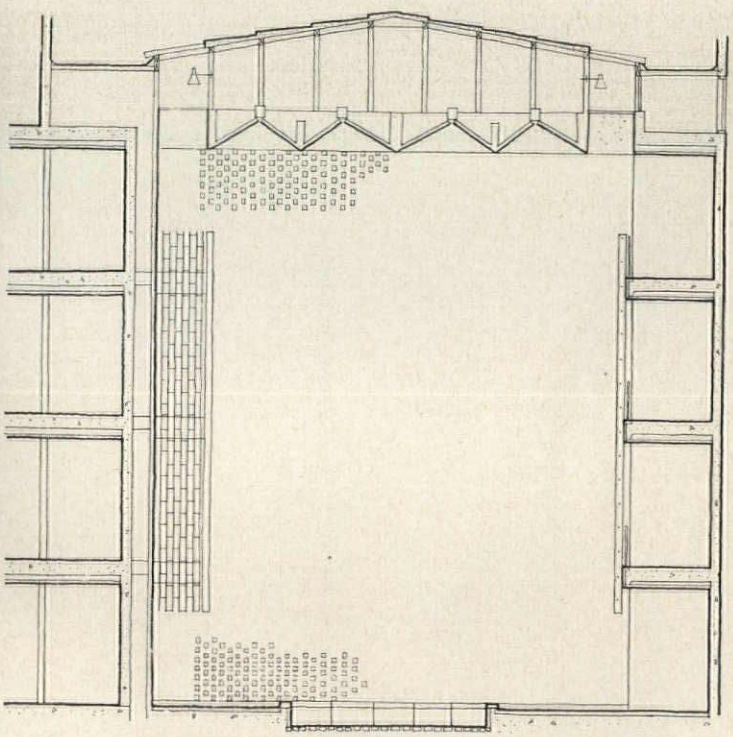




*All photographs for this article: K. Teigen*

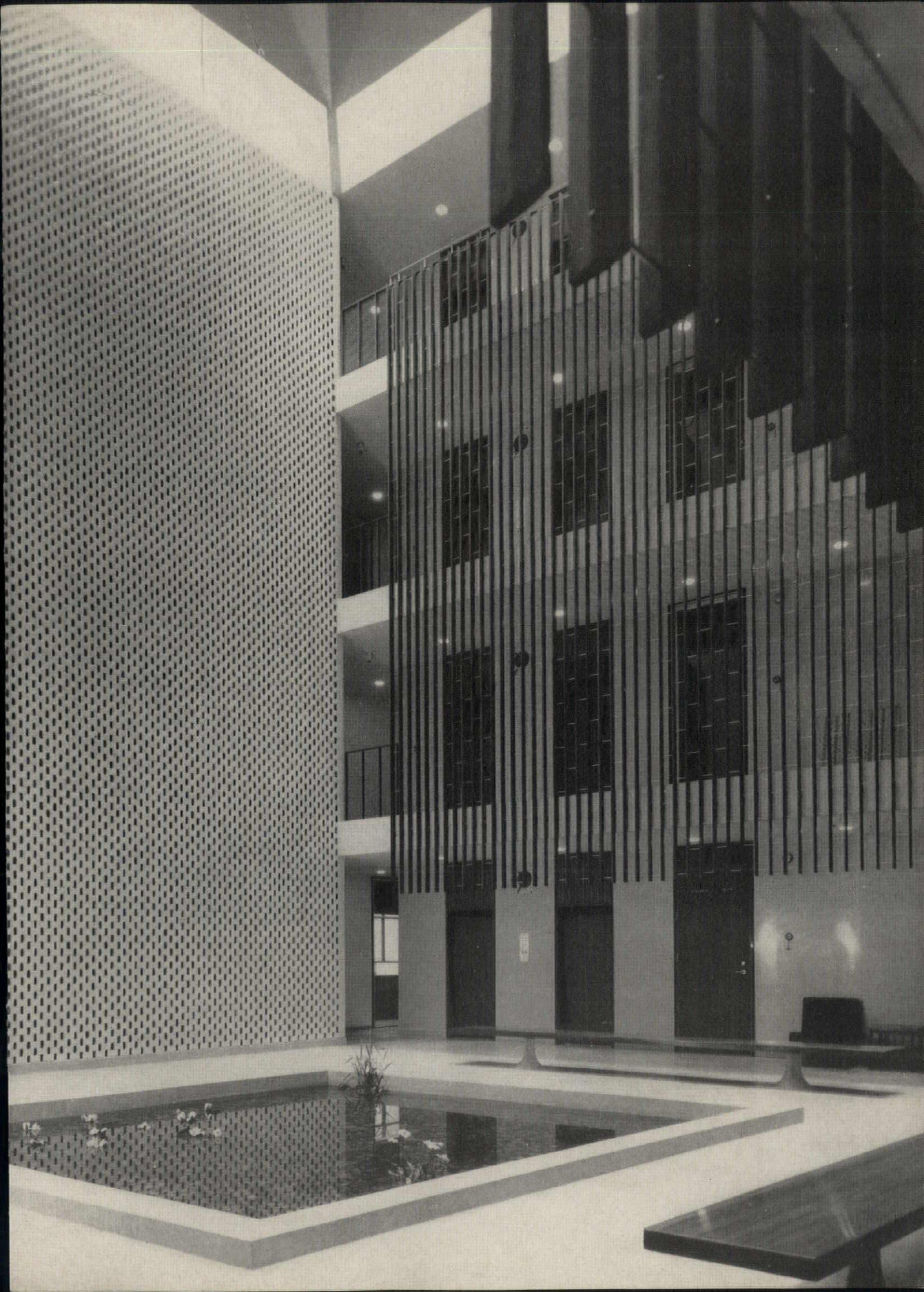


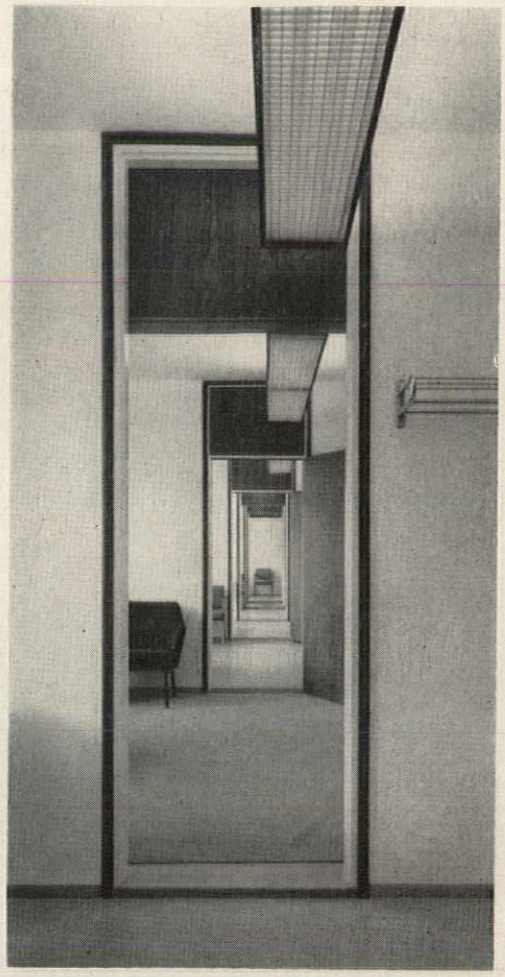


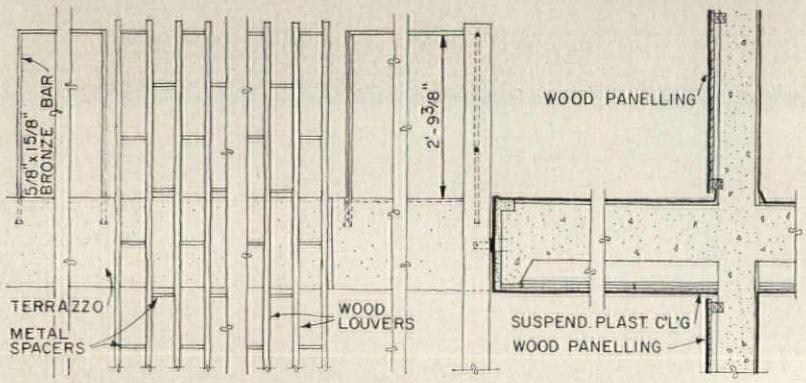



## U. S. Embassy in Oslo

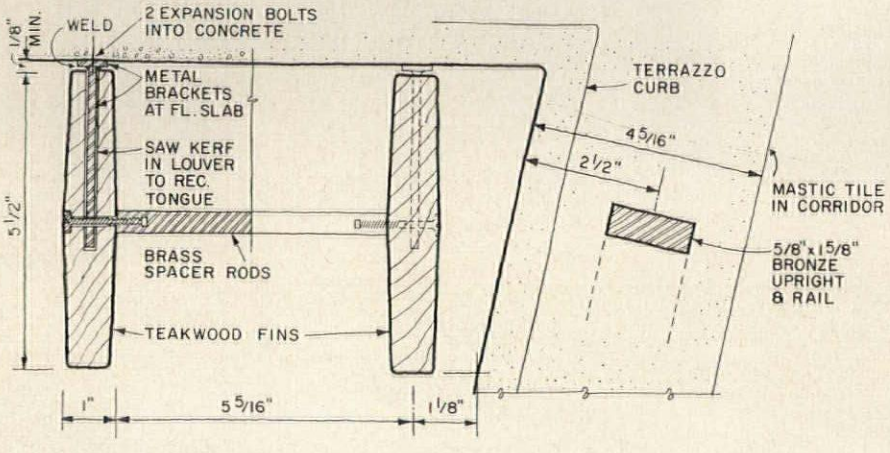
Of the court, Architect Saarinen says, "In a sense, the building is conceived as a triangular Renaissance palace, with rooms surrounding a court. However, the climate of Oslo demanded that such a court be enclosed and skylighted rather than open, since for many months of the year the gray, cold weather must be countered by a completely interior civilization. A feeling of enclosure and warmth seemed wise—hence the warm beige Roman Travertine floor, the honey-colored teak screen, and the light-toned brick grille. The diamond shape of the court is a natural outgrowth of the bas-*(continued page 112)*








TYPICAL ELEVATION & SECTION OF CORRIDOR




DETAIL SECTION

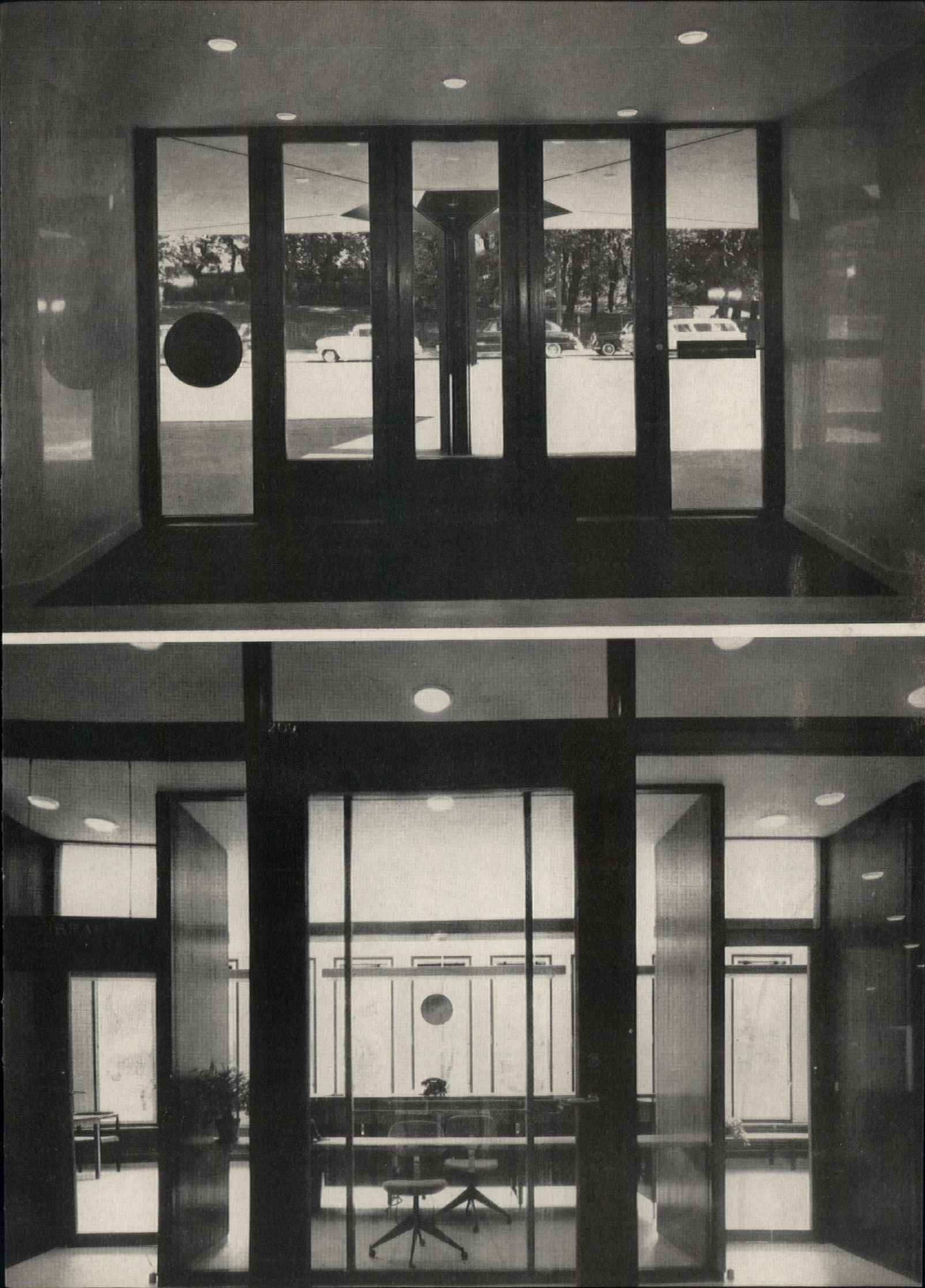
## U. S. Embassy in Oslo

ically triangular plan. In the center of the court is a pool, planned for a 15-ft-high sculpture, which would serve to accent the volume of the court. We are hoping this will come to pass. Warm lighting gives a feeling of sunshine in a city which is without sunshine for many months each year."

*At left:* detail of the central court teakwood and polished brass screen and railing, with a photo *(top left)* of the fourth floor corridor and skylight, showing the screen and railing in application.

*Above:* A view of several interconnected offices, showing how continuous strip lighting is used to tie them together.

*Right page, top:* looking out from the main entrance lobby to the sheltering marquee and park across the street. *Bottom:* view from the second floor corridor on the central court into the entrance and control portion of the United States Information Service Library, which extends along the entire front of the building at second floor level

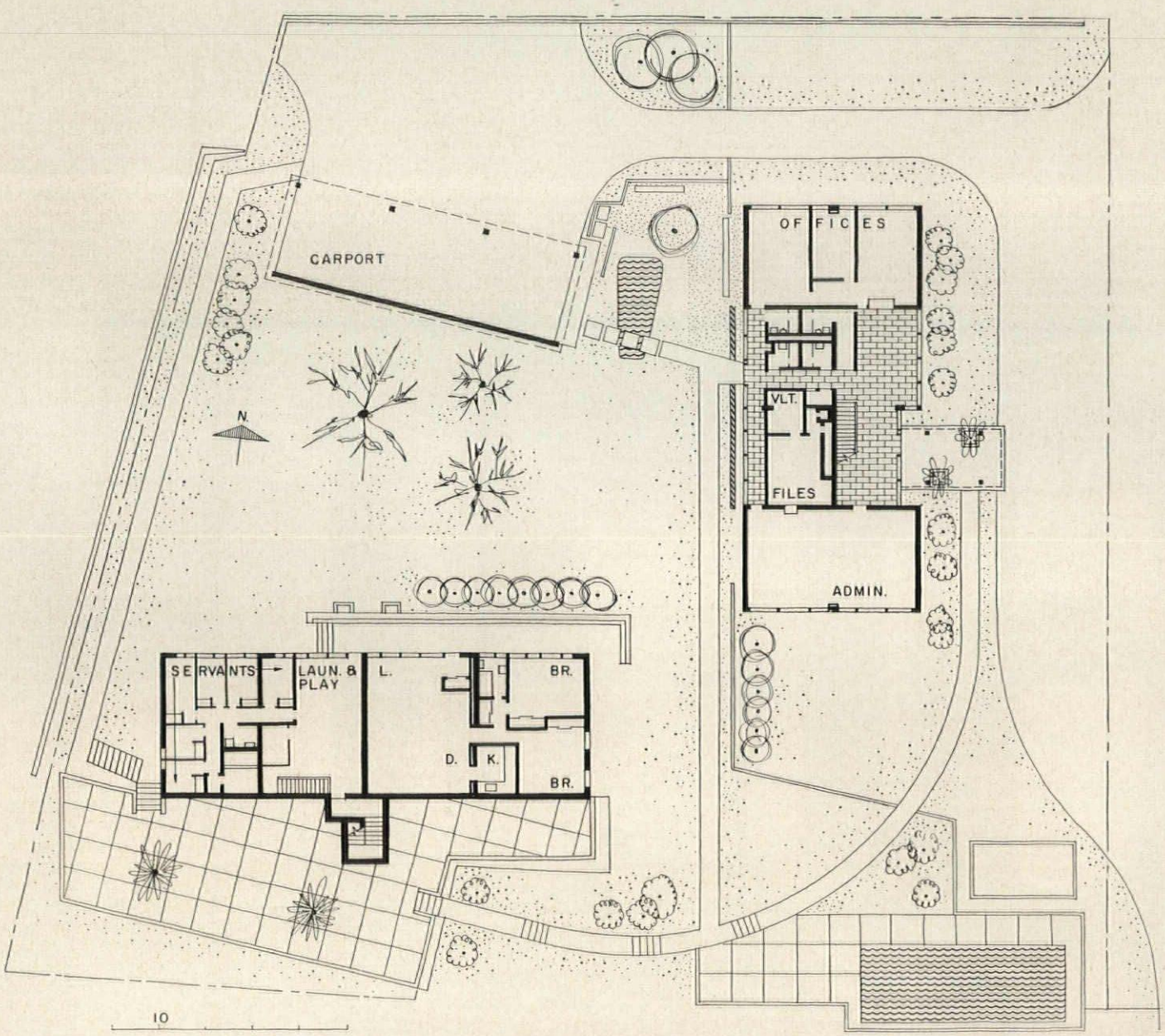


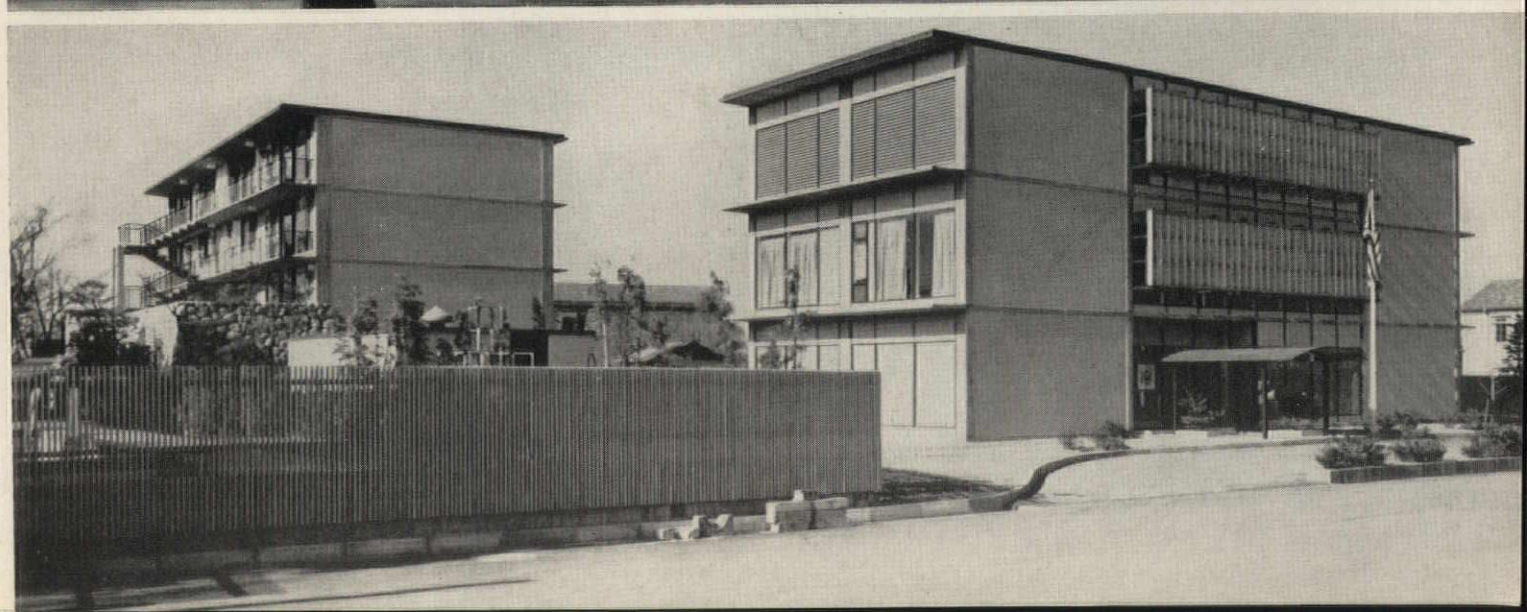
# NEW U. S. CONSULATE IN NAGOYA

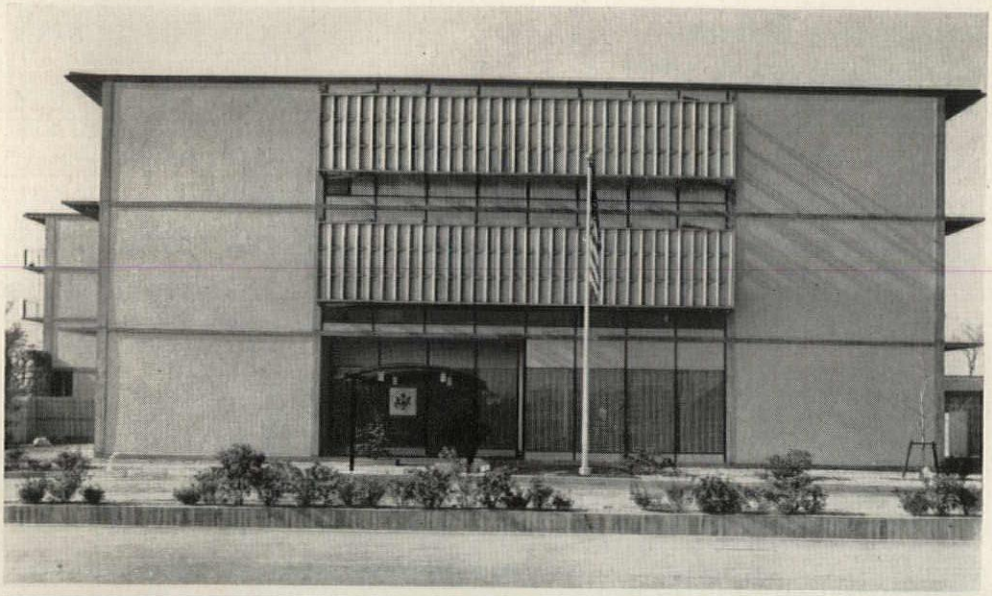
*Cochran, Stephenson & Wing, Architects; E. Bruce Baetjar, Landscape Architect; Ewell, Nelson & Bomhardt, Structural Engineers; Henry Adams, Mechanical and Electrical Engineers; Obayashi-Gumi, Contractors*

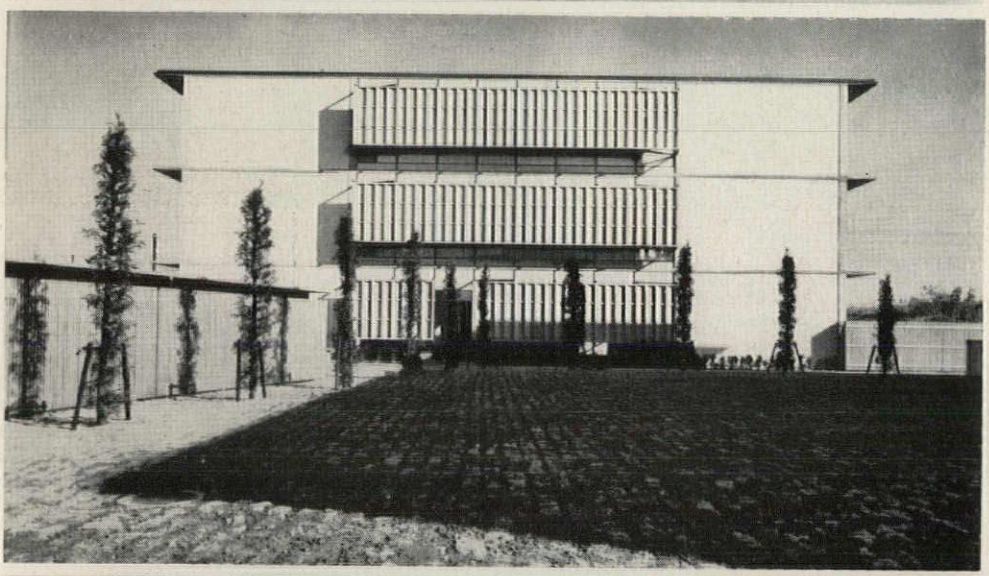
The architectural problem in designing this consulate—the first of any nation in the city of Nagoya—was to create a building of such character that it would appear inviting (since the local Japanese citizenry would shy away from anything with an "Imperial" look) and at the same time provide needed security and privacy. Privacy was especially important for the staff apartments—the building at the left in the lower photograph.

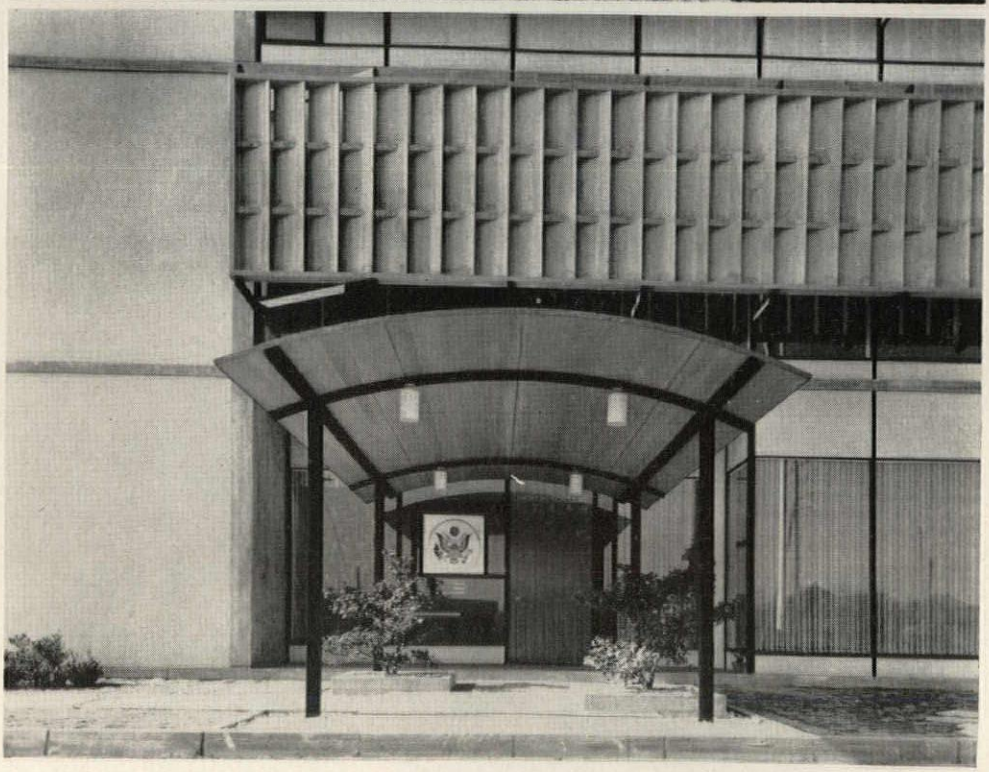
Both buildings are seismic-resistant, reinforced concrete rigid box frames with tied footings. The concrete structure is left exposed, with infilling panels of masonry faced with blue, unglazed ceramic tile in 1-in. squares. The buildings are located in Imperial Park, the 90-acre site also of the 300-year-old Nagoya Castle, on a plot which affords a dignified setting and a fine view of the city for the new buildings.







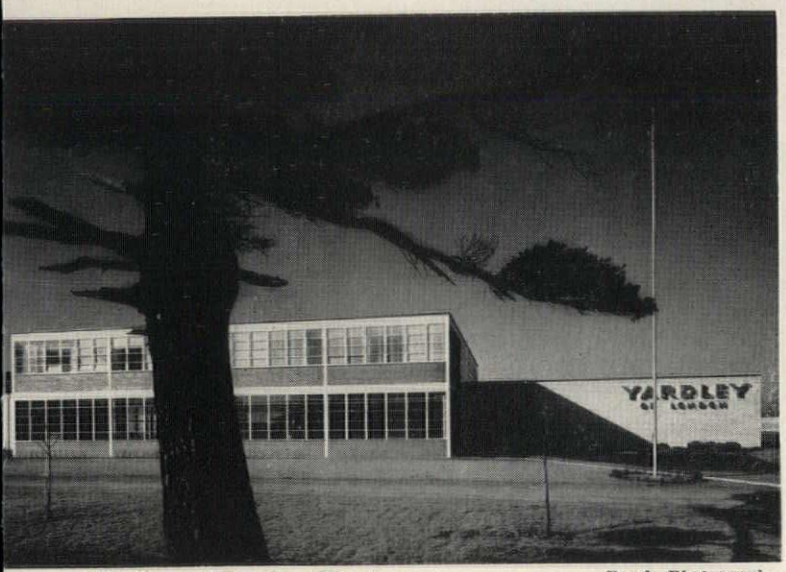




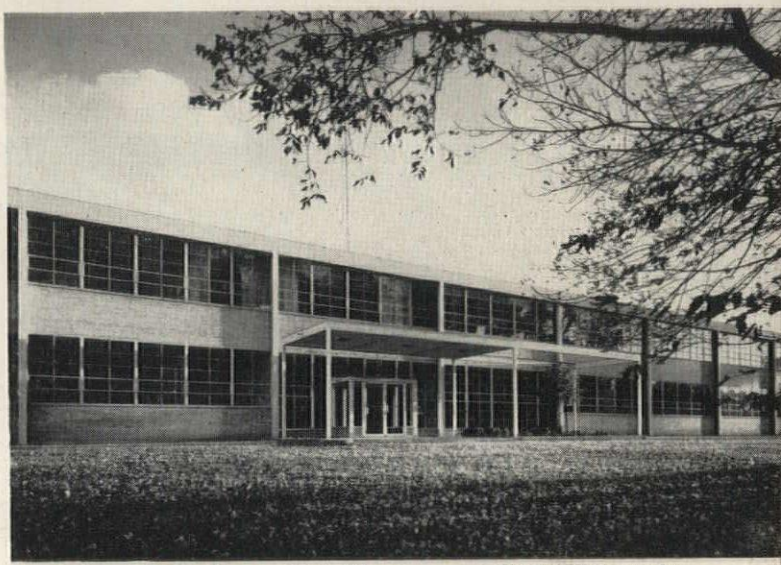
## U. S. Consulate in Nagoya

*Materials and finishes:* the exposed reinforced concrete structure is earthquake-resistant and rests on piles of precast spun concrete; infilling panels are of slag block faced outside with mat ceramic tile in 1-in. squares; non-bearing partitions are either slag block or surgi wood studs, finished with walnut or lauan plywood paneling; floors are predominately of asphalt tile on concrete slabs, tatami mats on wood platforms in servants' quarters, and terrazzo in lobbies and corridors; ceilings are acoustic tile in the office building, natural concrete in staff quarters; sash are painted steel casements with hopper vents; all windows have split bamboo curtains; doors are flush wood (teak or maple) in hinoki wood frames; both buildings are heated from a central plant; the office building is air-cooled during summer months

John B. Parkin Associates Office — *Max Fleet photo*




Yardley of London Plant — *Panda Photography*



Dominion Electrohome, Ltd. Plant — *Panda Photography*

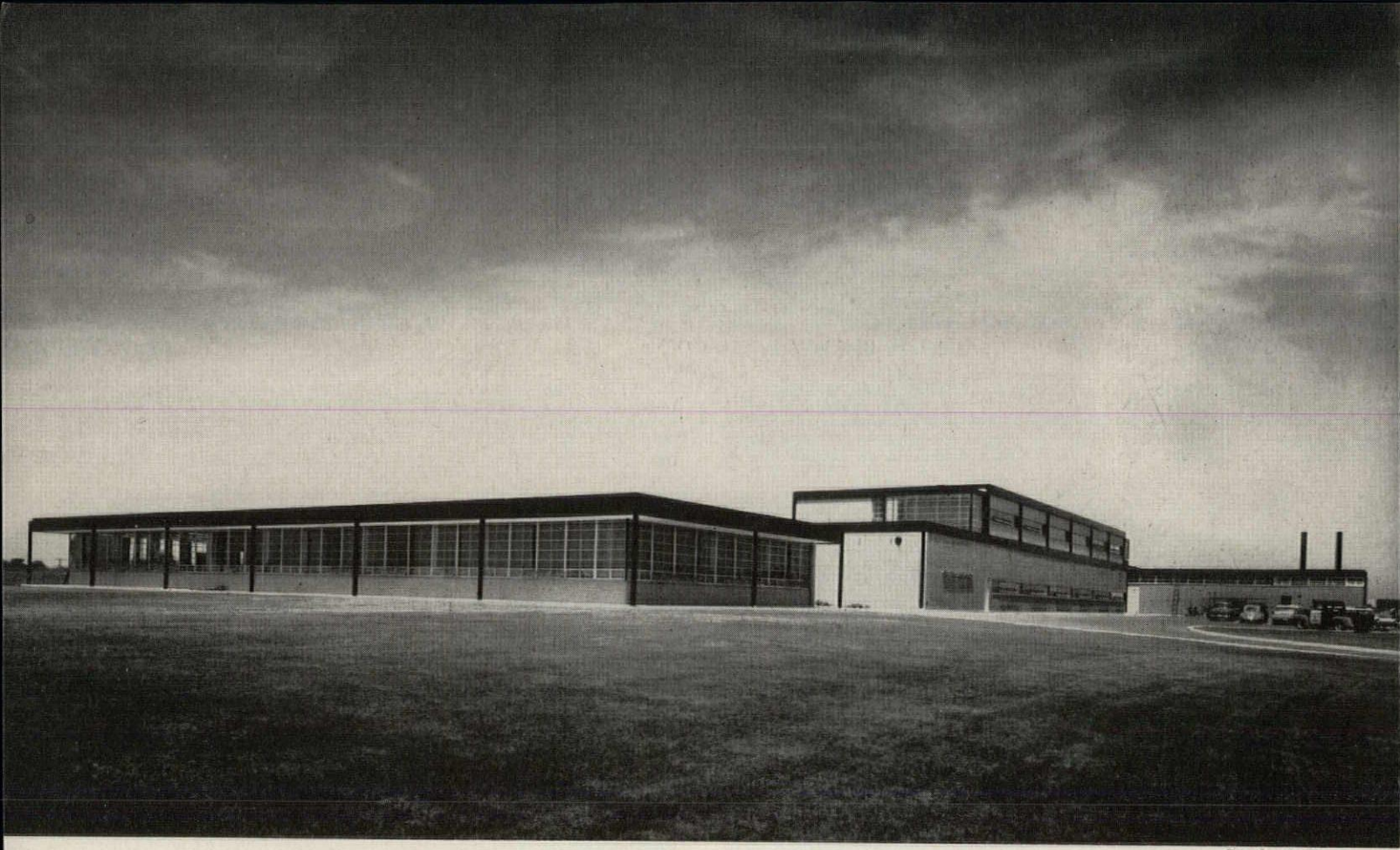
# Complete Professional Service For Diverse Industries

Industrial Buildings of
John B. Parkin Associates,
Architects and Engineers

*John C. Parkin, Partner in Charge of Design; Edward R. Wilbee, Associate in Charge; J. E. Mews, Associate, Mechanical Engineering; R. F. Marshall, Associate, Structural Engineering; Project Architects: J. Beckett, Chesebrough-Ponds; J. B. Mar, Ortho Pharmaceutical; J. G. Shaw, York Farms*

Soon after World War II, the principals of the John B. Parkin firm decided that the realities of the postwar world required a re-evaluation of the role of the architect. One result of the discussions that followed was the basic decision to expand the professional services of the firm to enable it to handle building types not ordinarily worked on in the past, and to handle all of its work in a much more efficient and complete manner. The decision was made to get into the industrial field in a big way. In order to accomplish this goal, the firm was reorganized, quite drastically, into a new type of professional organization. It would become one which could take industrial commissions and perform all of the required professional services, including those which were traditionally the architect's job, and a number of additional ones which have, of late, become necessary or desirable.

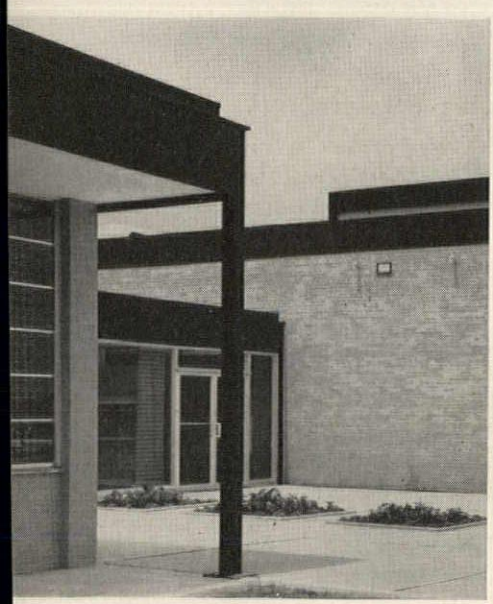
Today, the firm is equipped to handle, with its own staff, all of the programming, architectural, engineering, and other phases (except construction) of a widely varied number of industrial building types. One of the most important additions to the firm was the establishment of an industrial engineering department within the framework of the organization. This department handles the needs of industrial clients for analysis and layouts of production lines, flow patterns, equipment, operations, and the like. Working in close harmony with the design department, the industrial engineers participate in the selection of the correct modules for design, in the development of preliminary schemes, and the production of working drawings and details. The photographs above and the following analyses of three of the firm's buildings illustrate some of the results.



*Panda photos*

Industrial Buildings of
John B. Parkin Associates,
Architects and Engineers

*Manufacturing Plant, Chesebrough-Ponds (Canada), Ltd., Markham, Ontario: Chestnut McGregor, Ltd., Contractors*

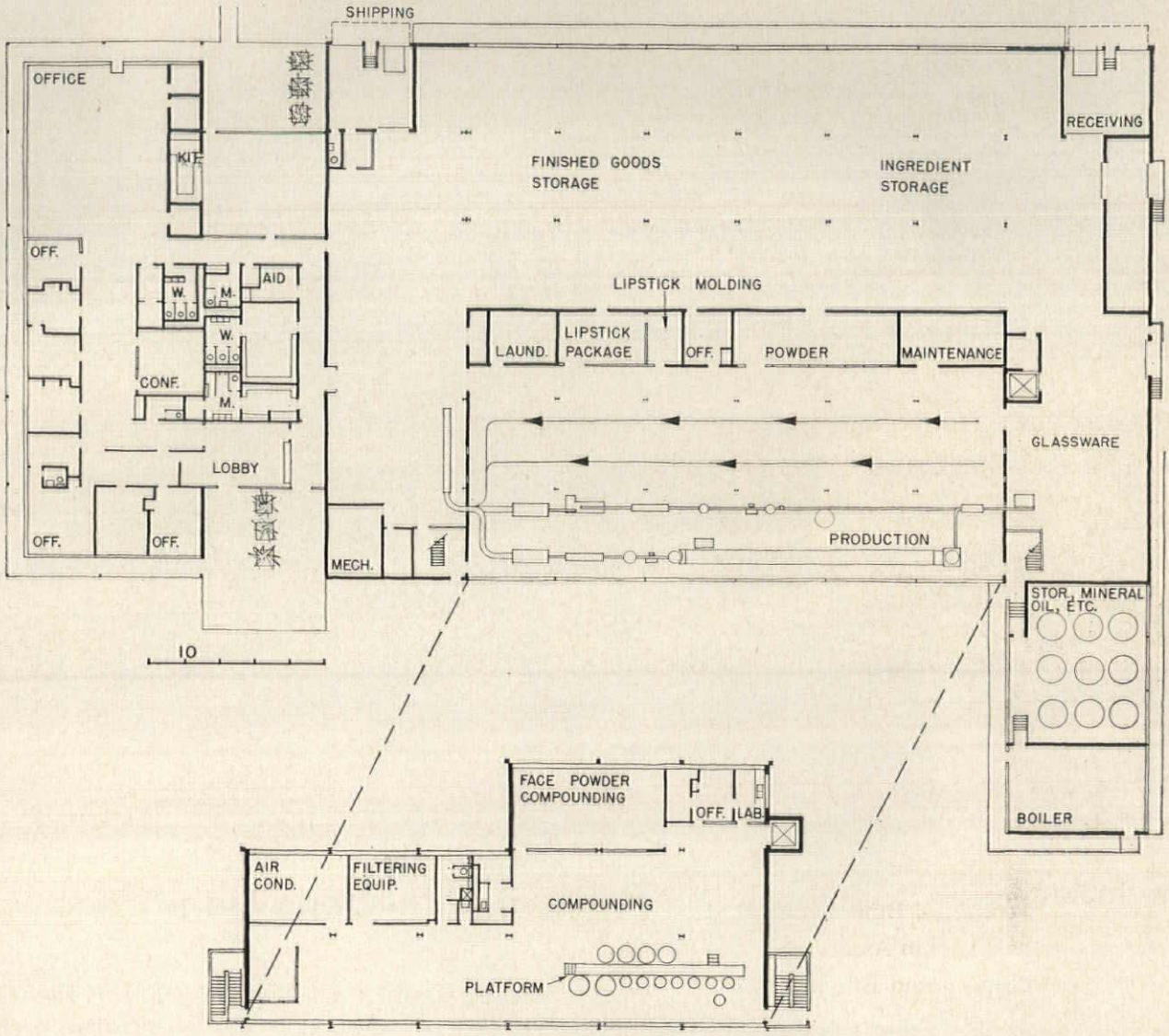


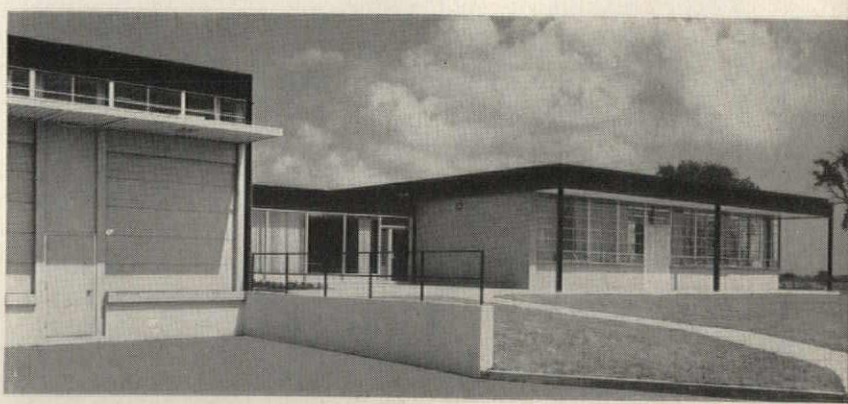
# Complex Processes Simplified

In this building may be seen an example of one of the important principles of industrial building design developed in the past few years by the Parkin firm, the relating of the office to manufacturing spaces by the insertion of a neck containing service facilities. In this plant, the neck portion is utilized for a main entrance. Traffic divides here to enter the other portions of the building. Behind the lobby are located such spaces as toilet-locker rooms and first aid, making these facilities equally convenient to the offices and manufacturing area, yet removed from them for efficiency of operations.

The manufacturing processes required for the production of cosmetics, as carried on here, are quite complex and require extreme cleanliness and good housekeeping. In order to accomplish a smooth operation and meet the housekeeping requirements, the manufacturing portion of the building was designed for a gravity flow system which begins on the second floor with compounding and preparation operations, then continues on the first floor with packaging. In keeping with the cleanliness requirements, ceramic tile and other impervious, relatively permanent materials have been used on floors and walls. An unusual problem was the provision for receiving and storage of hot, liquid petroleum jelly. The cooled jelly is reheated by the use of steam coils to make it easily transferable to the compounding areas when needed.

An exposed, painted steel frame structure is used throughout the building. Gray face brick walls are used on the office section and the second floor. Red face brick are used elsewhere. The service section walls are constructed of aluminum store front sections.


SHIPPING
OFFICE
KIT.
FINISHED GOODS STORAGE
INGREDIENT STORAGE
RECEIVING
OFF.
W.
M.
AID
W.
CONF.
M.
LIPSTICK MOLDING
LAUND.
LIPSTICK PACKAGE
OFF.
POWDER
MAINTENANCE
GLASSWARE
LOBBY
OFF.
OFF.
MECH.
PRODUCTION
STOR. MINERAL OIL, ETC.
10
FACE POWDER COMPOUNDING
OFF. LAB.
BOILER
AIR COND.
FILTERING EQUIP.
COMPOUNDING
PLATFORM



*Max Fleet photos*

# Several Functions Combined

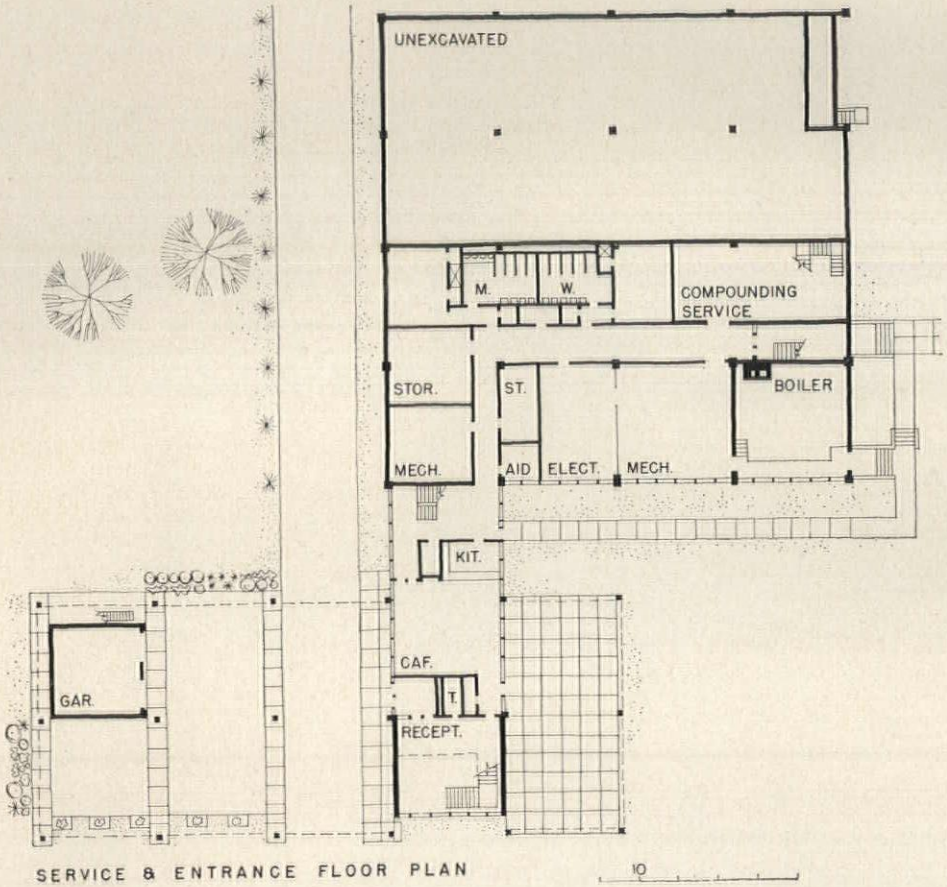
Industrial Buildings of
John B. Parkin Associates,
Architects and Engineers

*Plant, Laboratory, and Offices, Ortho Pharmaceutical (Canada), Ltd., Don Mills, Ontario*
*Foundation Company of Canada, Ltd., Contractors*

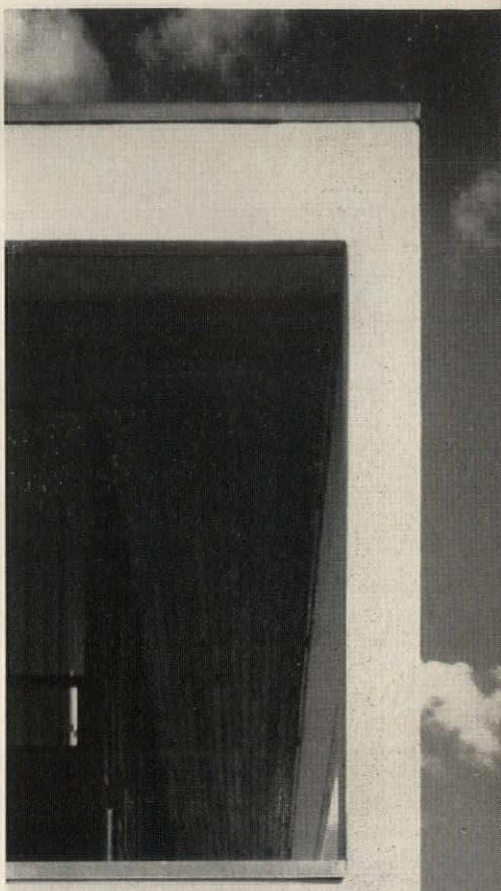
In this building for the Canadian subsidiary of Johnson and Johnson, spaces have been provided for offices, laboratories, and manufacturing of pharmaceuticals in a two-story scheme. The most important primary guiding principle of the design was the separation of office and manufacturing functions by the use of the service neck employed in many of the architectural firm's other buildings. In addition, the very high standards of cleanliness and sterilization, and the need for precision in the manufacturing of products of this type had to be given a great deal of consideration.

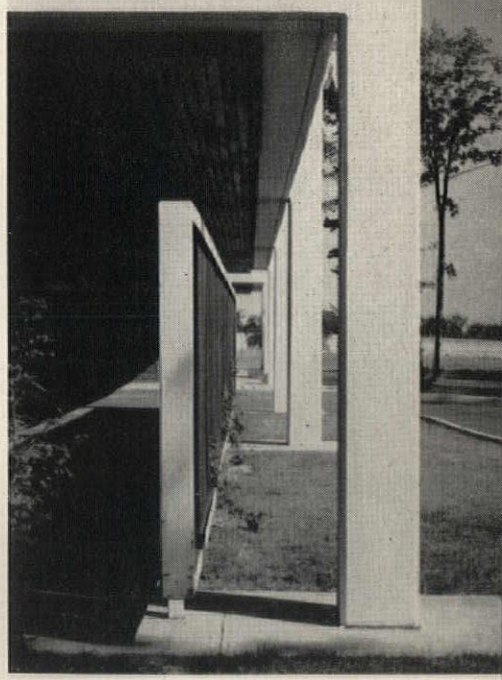
Many months of study, in cooperation with the clients, were required before the industrial engineering section of the architectural firm could solve the production problems satisfactorily. During this time, the industrial engineers worked closely with the design, architectural, and engineering departments of the Parkin organization. The building, which has resulted from this close attention to the problems and details, provides the client with an efficiently functioning production setup. The exact requirements of the manufacturing processes have been provided for. Processes may be altered easily without major changes in the building. Offices or manufacturing spaces may be extended for increased production.

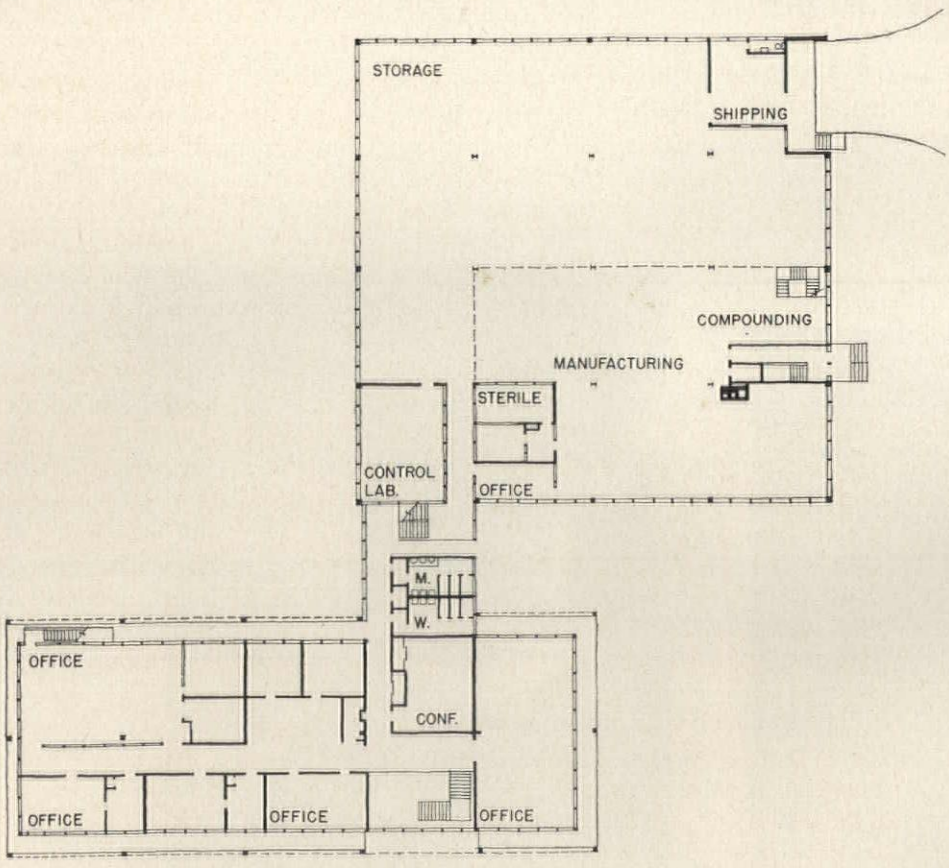
The building structure is steel frame, fireproofed with concrete. The entire frame is painted white. Window walls are composed of black steel sash with blue, fused glass bulkheads under the windows. The bulkheads are fireproofed with a masonry backup. Under the overhanging office wing, provisions are made for parking and a driveway through the building.



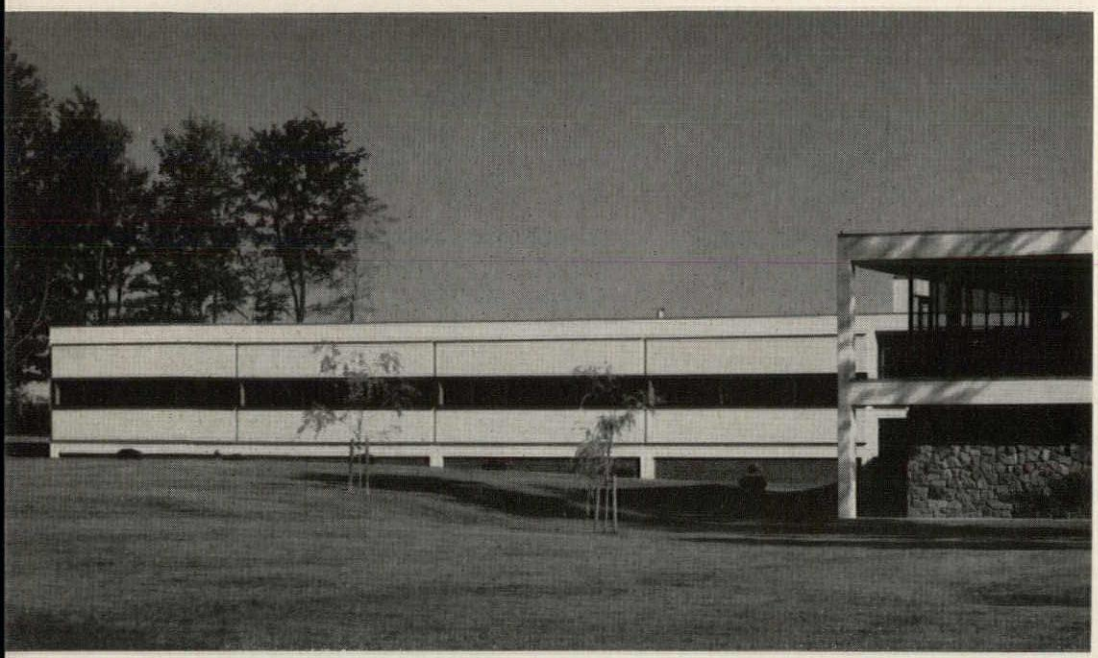

SERVICE & ENTRANCE FLOOR PLAN





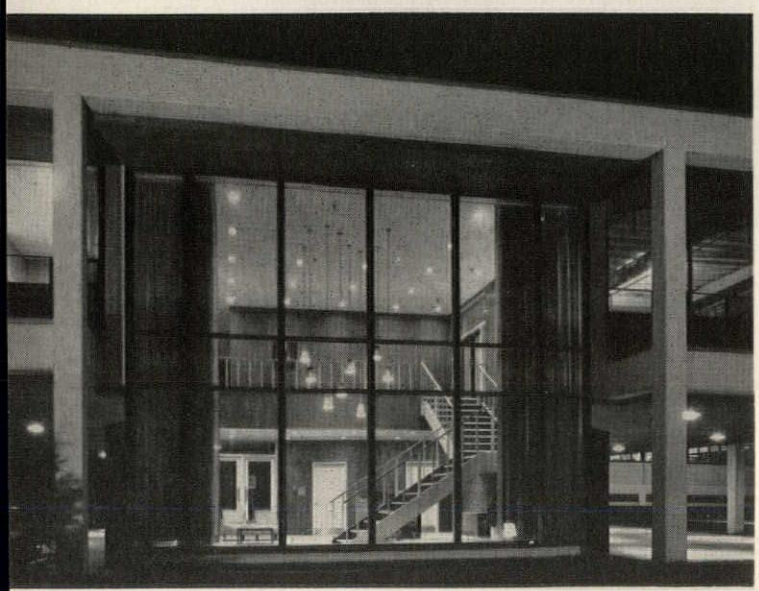


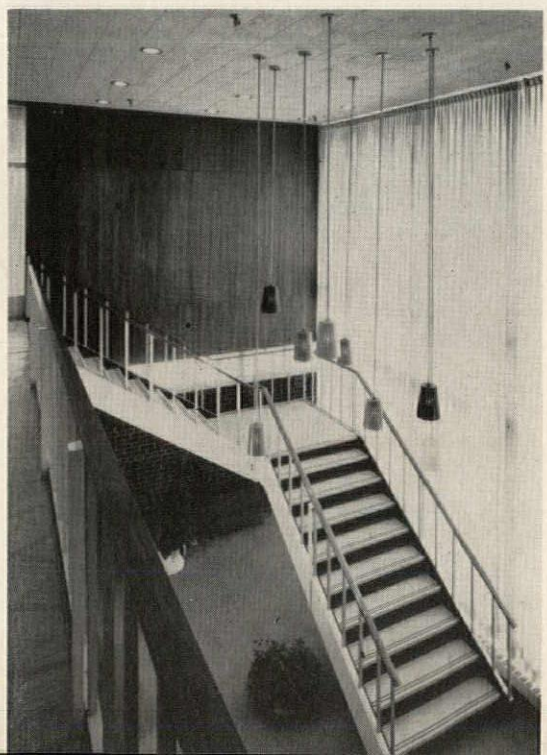

OFFICE & SECOND FLOOR PLAN

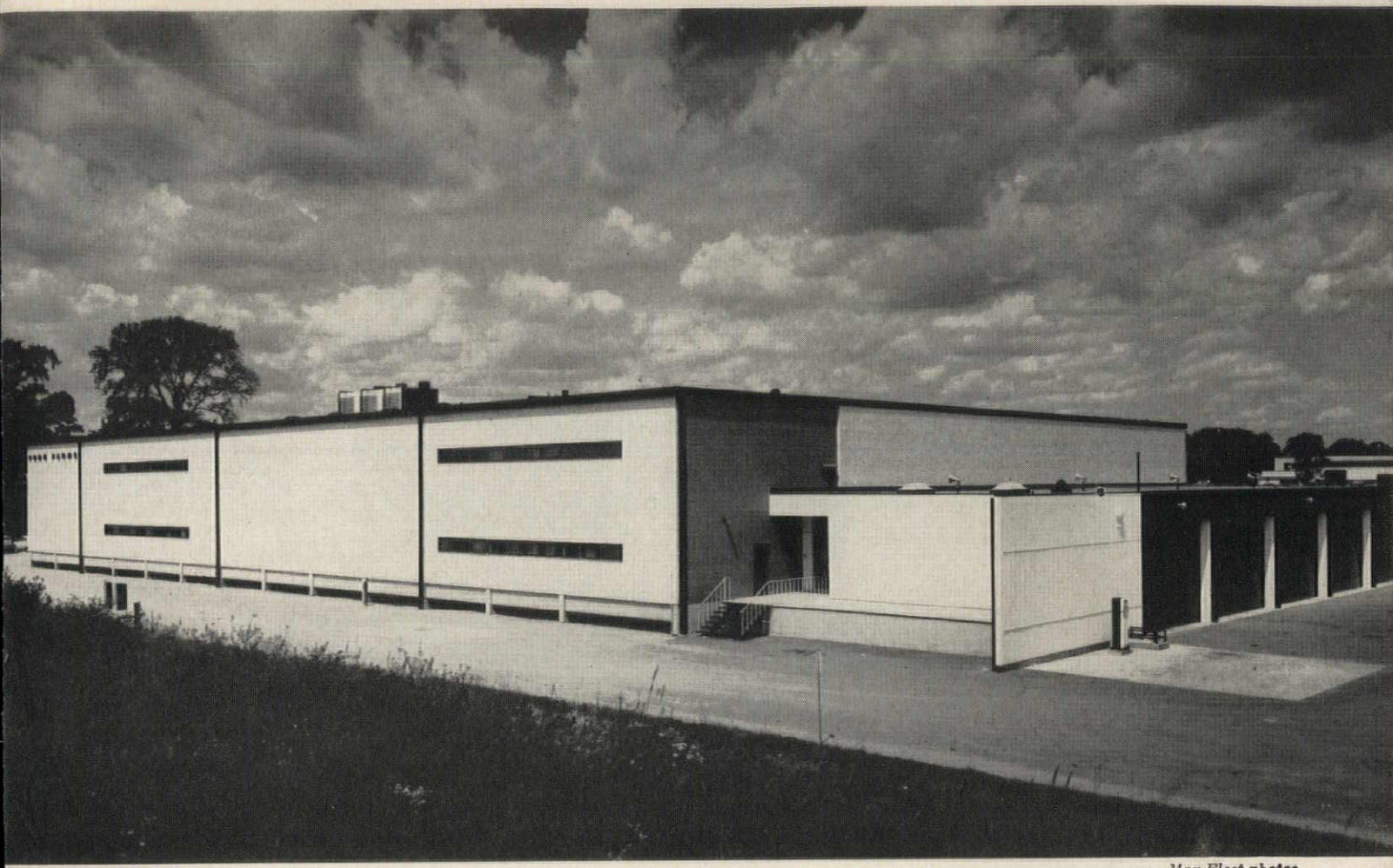


*Ortho Pharmaceutical (Canada), Ltd.*

The extremely clean lines and good details of this building are suggested by the photographs. Some of this feeling results from the desire of the architects to make the building reflect the character of the processes involved in drug manufacturing taking place here. Of considerably more importance in the achievement of the final result is the organization of the architectural firm for the handling of the complete commission in all of its phases other than actual construction. The view above shows the manufacturing wing and gives some indication of the site problems solved. Below may be seen two views of the entrance lobby and the main stair. Automobile parking areas and a two car garage are to the left of the lobby, covered exterior terrace to the right. The cafeteria is directly behind the lobby and the second floor contains the company offices.







*Max Fleet photos*

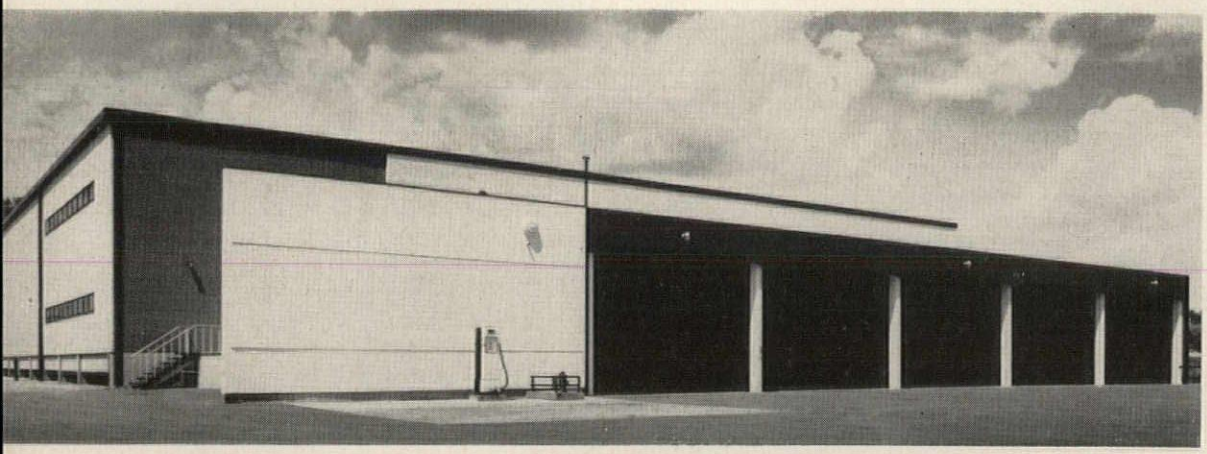
# Raised Floor Stops Permafrost

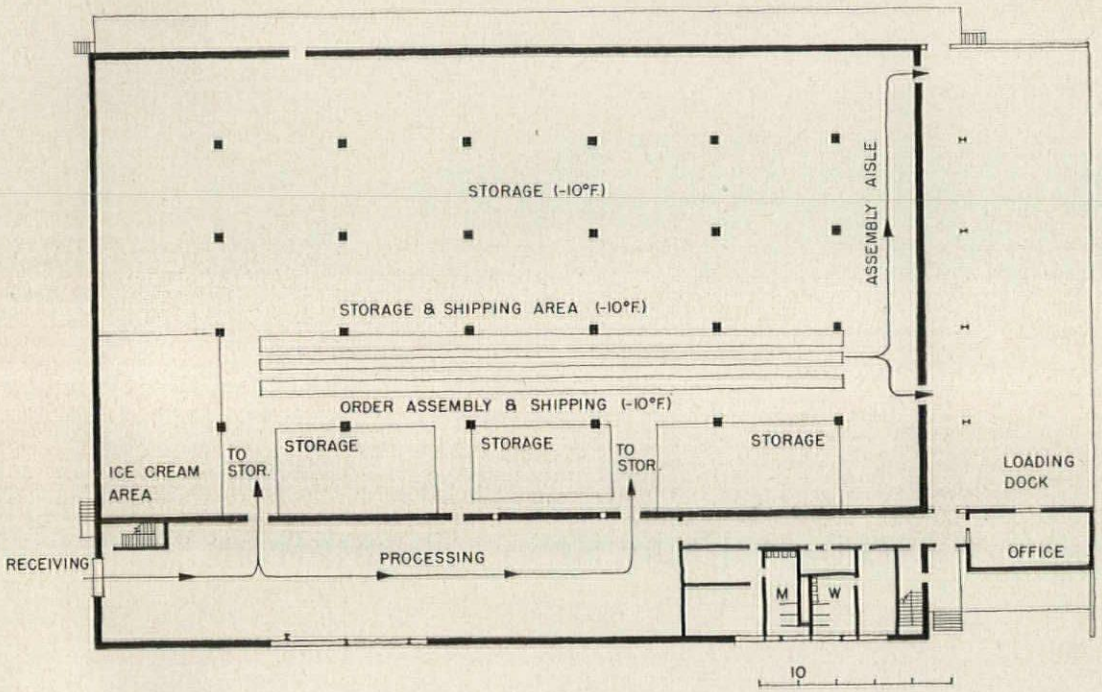
Industrial Buildings of
John B. Parkin Associates,
Architects and Engineers

*Cold Storage Plant, York Farms, Ltd., North York, Ontario*
*Chestnut McGregor, Ltd., Contractors*

In order to overcome the disadvantages of a low lying site on a major highway and the requirement for below zero temperatures inside, this building was raised off the ground. By doing so, the formation of permafrost in the ground under the building, which might have resulted in heaving and other problems, was avoided. Instead of the usual appearance of most warehouses or other buildings designed primarily for storage, this one is more impressive. Instead of the low, squat look of many such buildings, this one seems to float above the landscape. Simple details and close attention to the placement of roof ventilators and other unsightly necessities of warehouse buildings have contributed to what might otherwise have been a cluttered design. The plan used is almost perfectly rectangular, yet the rectilinearity has been relieved by the difference in roof levels used for the office-loading dock area and the main production area.

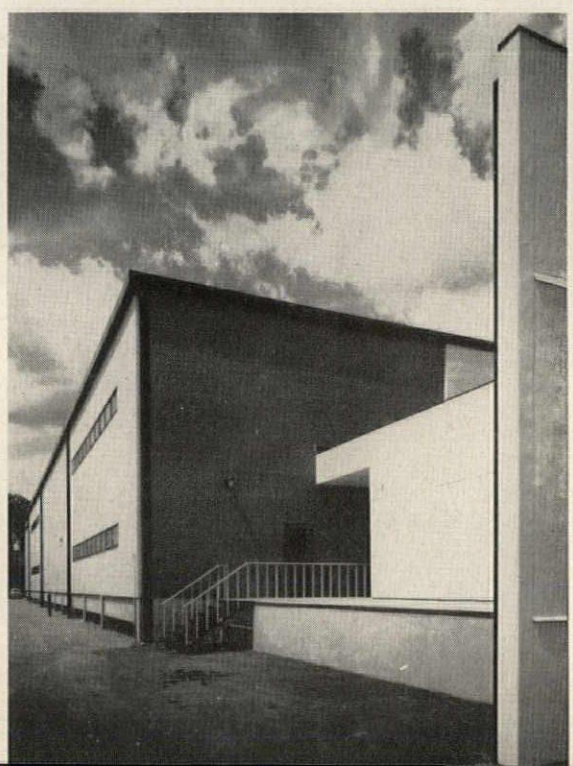
For contrast with the black steel columns of the building frame, white glazed brick has been used with an 8 in. clay tile backup. Walls, ceilings, and floor are insulated with 8-in. of cork, in order to enable the required interior temperatures to be maintained. The spaces between ceilings and roof are mechanically ventilated for the purposes of reducing the cooling load and the prevention of condensation which would cause the insulation to deteriorate. Floors are composed of 4-in. emery-finished concrete poured over the cork insulation, supported on an 8-in. reinforced concrete structural floor. Interiors of walls are finished with cement plaster.






## *York Farm Plant*

As indicated in the plan, the arrangement of the areas of this plant is quite simple. Flow of products smoothly progresses from the receiving area, through processing, into the large storage spaces. The orders are then assembled, packed, and transferred to the over-sized shipping dock for loading on trucks and transportation to markets. Expansion of the plant may be accomplished by extending the length of the building. In the office area, another floor may be added. In the photograph above, the large covered shipping dock is shown. Overhead doors are provided for closing the area off during periods when loading is not underway, or at the end of the working day. The view at the right shows the main pedestrian entrance to the plant. At the top of the stairs, the office entrance is located, and the service area, main plant, and loading dock may be entered here



*Hedrich-Blessing*

# A New Twist To Two-Story Zoning

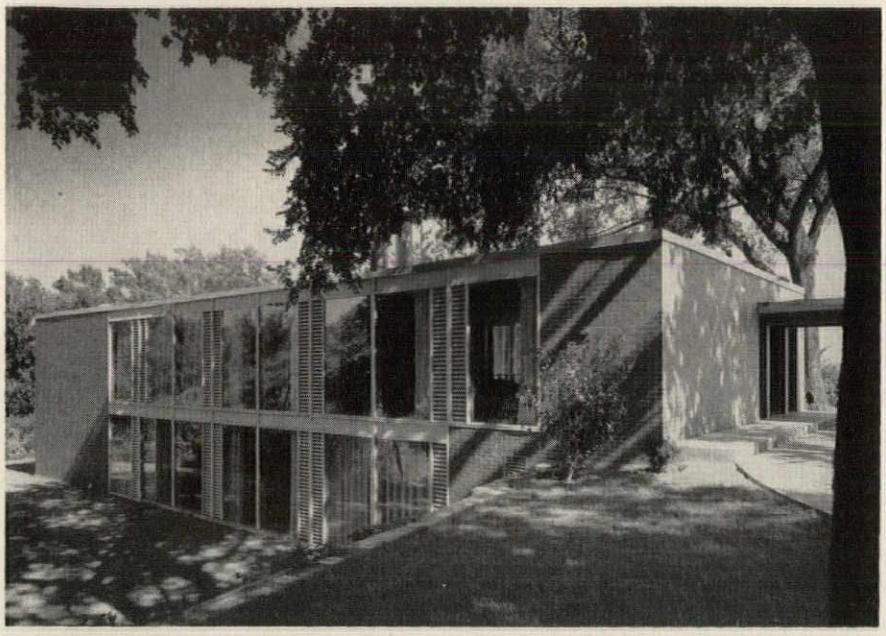
*Residence for*
*Dr. and Mrs. Donald J. Buser,*
*Riverdale—Bettendorf, Iowa*

*George Fred Keck—*
*William Keck, Architects*

*Ericson Construction Co.,*
*Contractor*

*Elizabeth Howerton,*
*Landscape Architect*

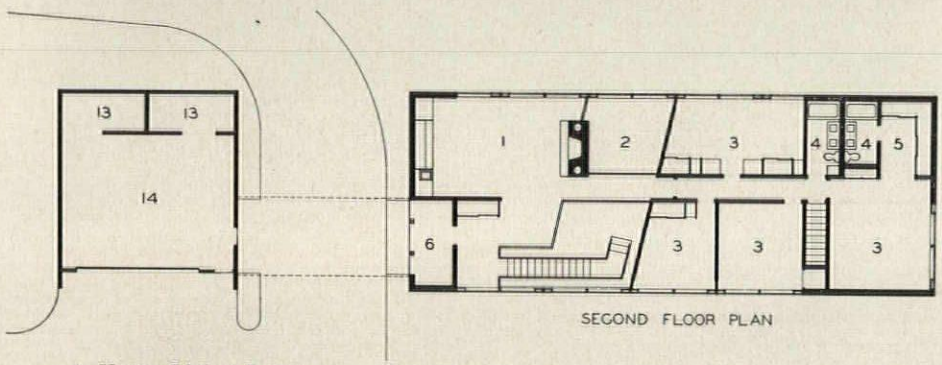
This trimly elegant house offers some interesting planning variations on the familiar two-story plan with an upstairs sitting room. The main program objective was to gain optimum circulation patterns and privacy for adults and children, and also for family living and entertaining. The uneven terrain, with little flat area, and the wish to preserve all existing trees, led to a more compact two-story scheme. The very adaptable plan has family living and activity areas on the lower level, and a more formal living area on the upper level adjoining the main entrance. Bedrooms are also at the upper level, but set apart by a two-story section of the lower living room, and connected to the entry by a cat walk. All areas interrelate, retain privacy.



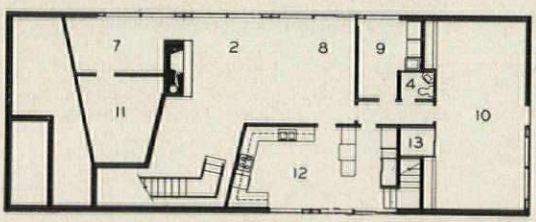
## The Buser House

The zoned plan functions in a variety of ways. Daily living activities take place on the lower level, where there is a playroom for the three children set apart visually and audibly from the rest of the house, but convenient to the kitchen for parties and meetings. The children use either the playroom door or the kitchen door, which are most convenient to their school and their play yard. A stairway off the kitchen leads to bedroom areas. The upstairs living area is kept uncluttered for "drop-in" guests and the parents' evening relaxation. For entertaining on a large scale, both living areas are used: cocktails are served from a bar in the upper area, and dinner for 12 to 24 on the lower level. A stair links the levels.

The garage is at the upper level, connected to the entry by a porte-cochere; the retaining wall existed on site



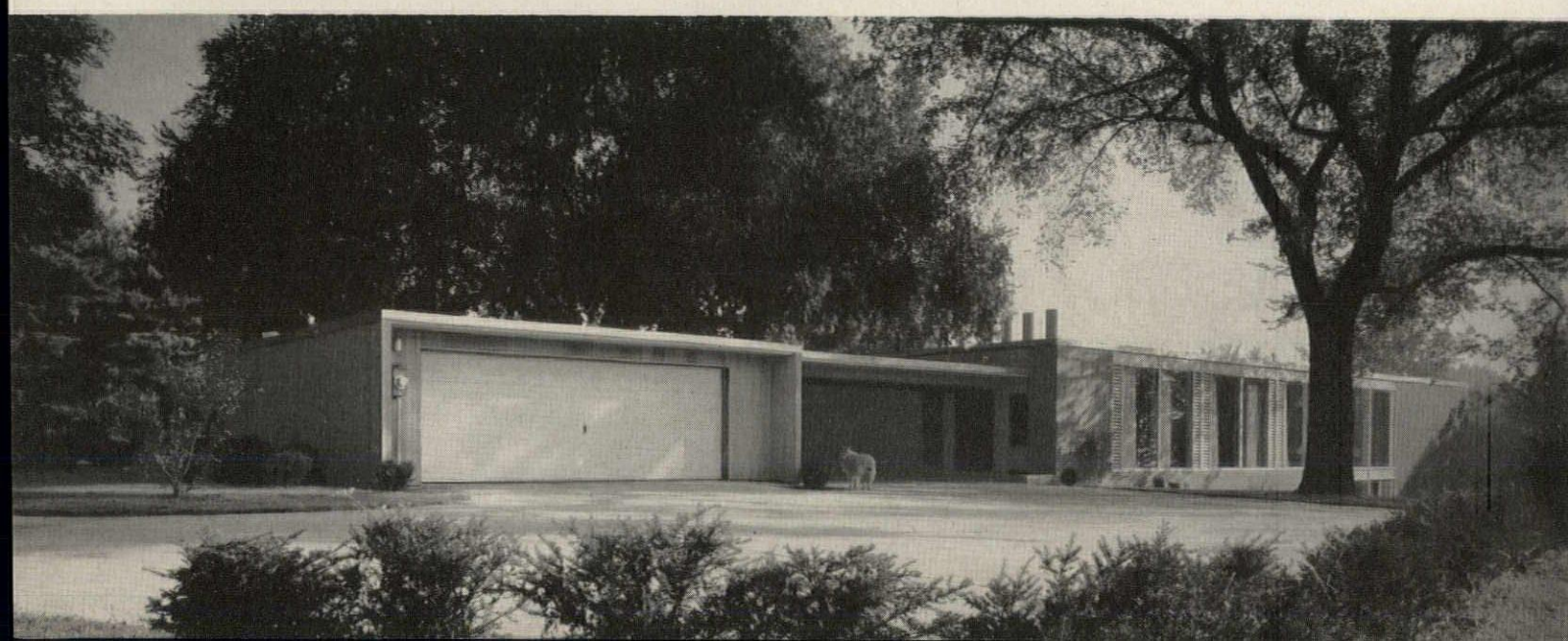

SECOND FLOOR PLAN



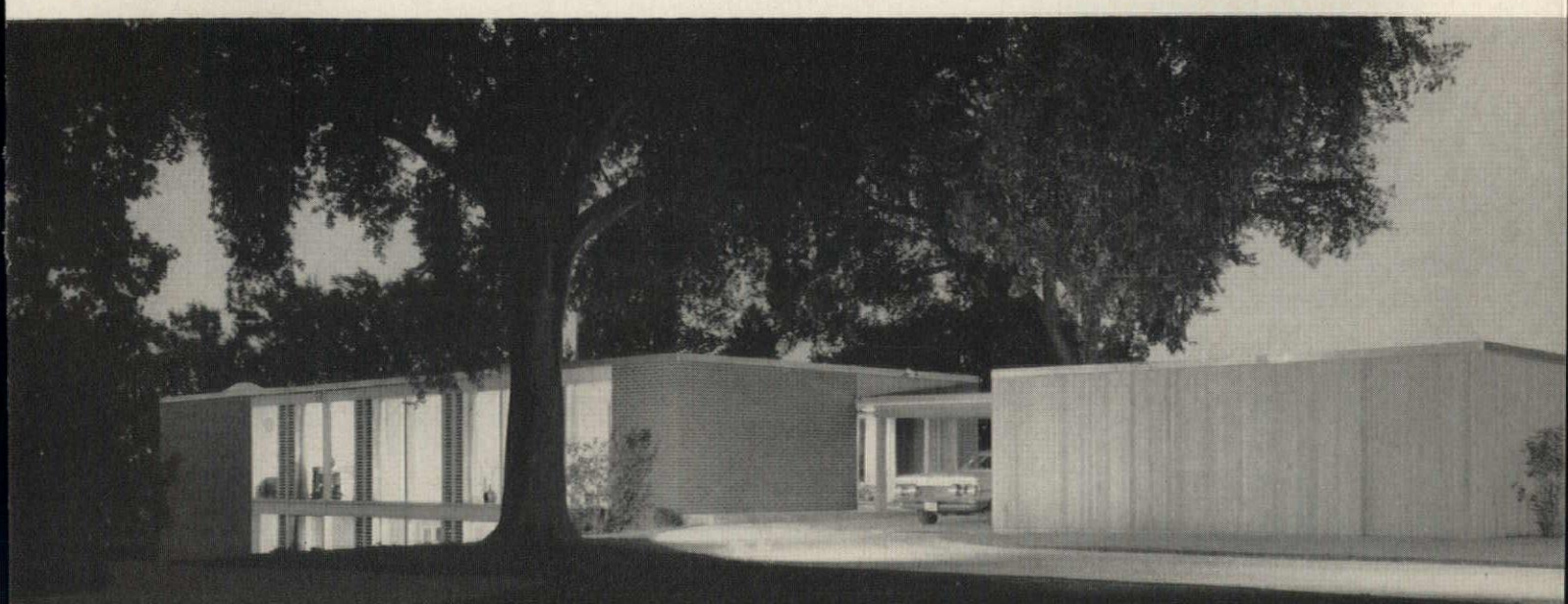

FIRST FLOOR PLAN

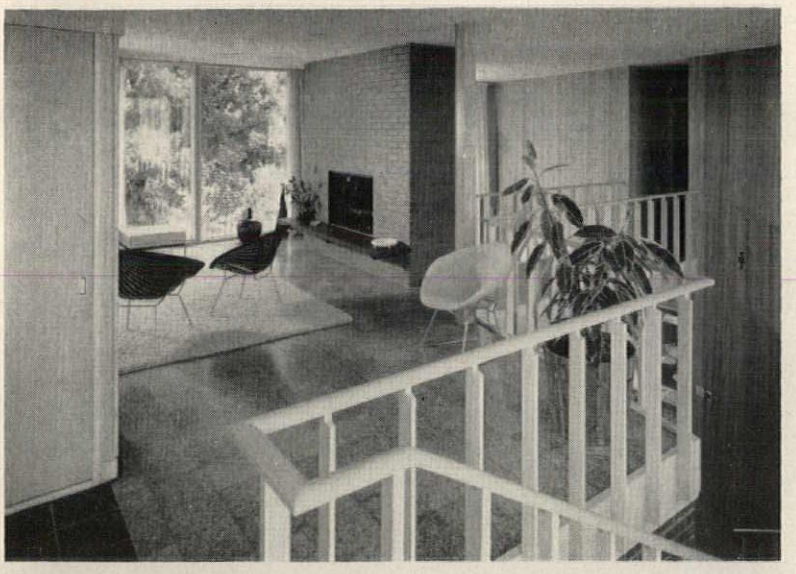
0 5 10 20 FT

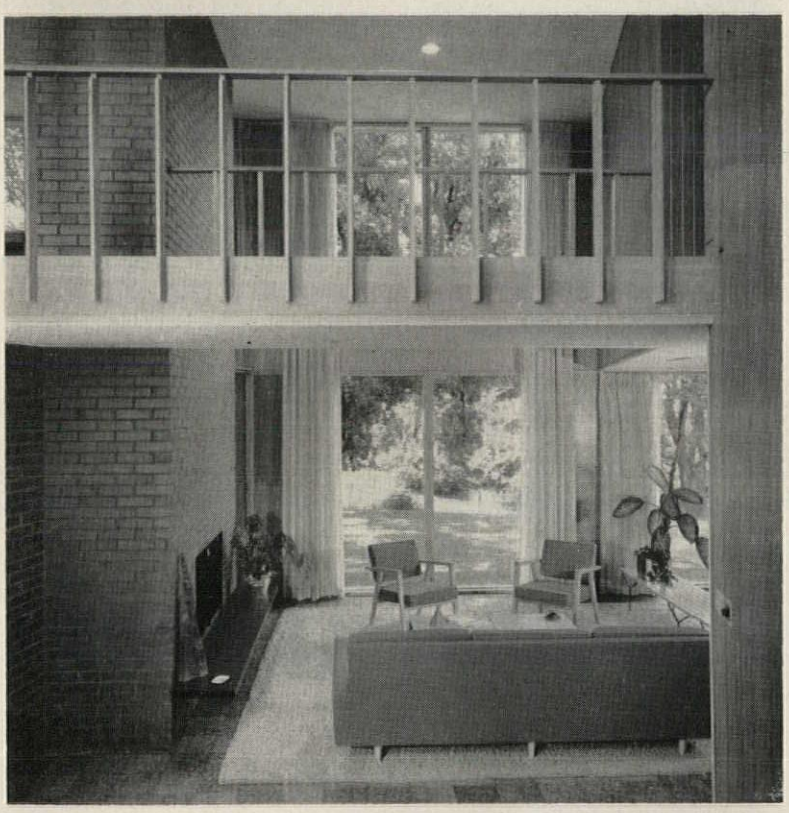
1. Upper Living Room
2. Lower Living Room
3. Bedroom
4. Bathroom
5. Dressing Room
6. Entry
7. Study
8. Dining Room
9. Laundry Room
10. Playroom
11. Boiler Room
12. Kitchen
13. Storage
14. Garage



*Hedrich-Blessing*







## The Buser House

Although the house is comparatively large—about 4000 sq ft—it gains an even greater sense of spaciousness from the open, two-story living areas, and from the extensive fixed double-glass walls. Ventilation is through screened wood louvers at the window sides. Weather-stripped wood doors close louvers on the inside. Sliding doors open to terraces on three sides of the lower level.

The house is built of a near-black, hard-burned brick veneer over a wood frame. White trim and an aluminum cornice offer a sharp contrast. As the plan is fairly open, living areas are finished with acoustical plaster; other interiors are painted smooth plaster. Doors and cabinets are mahogany.

Heating is by a radiant hot water system, gas-fired. Three zones are used for control: two upstairs, with coils in the plaster ceiling; one zone downstairs in the concrete floor slab. Floor finishes are vinyl plastic in kitchen, concrete in playroom, carpet in master bedroom, tile in baths, and vinyl cork elsewhere

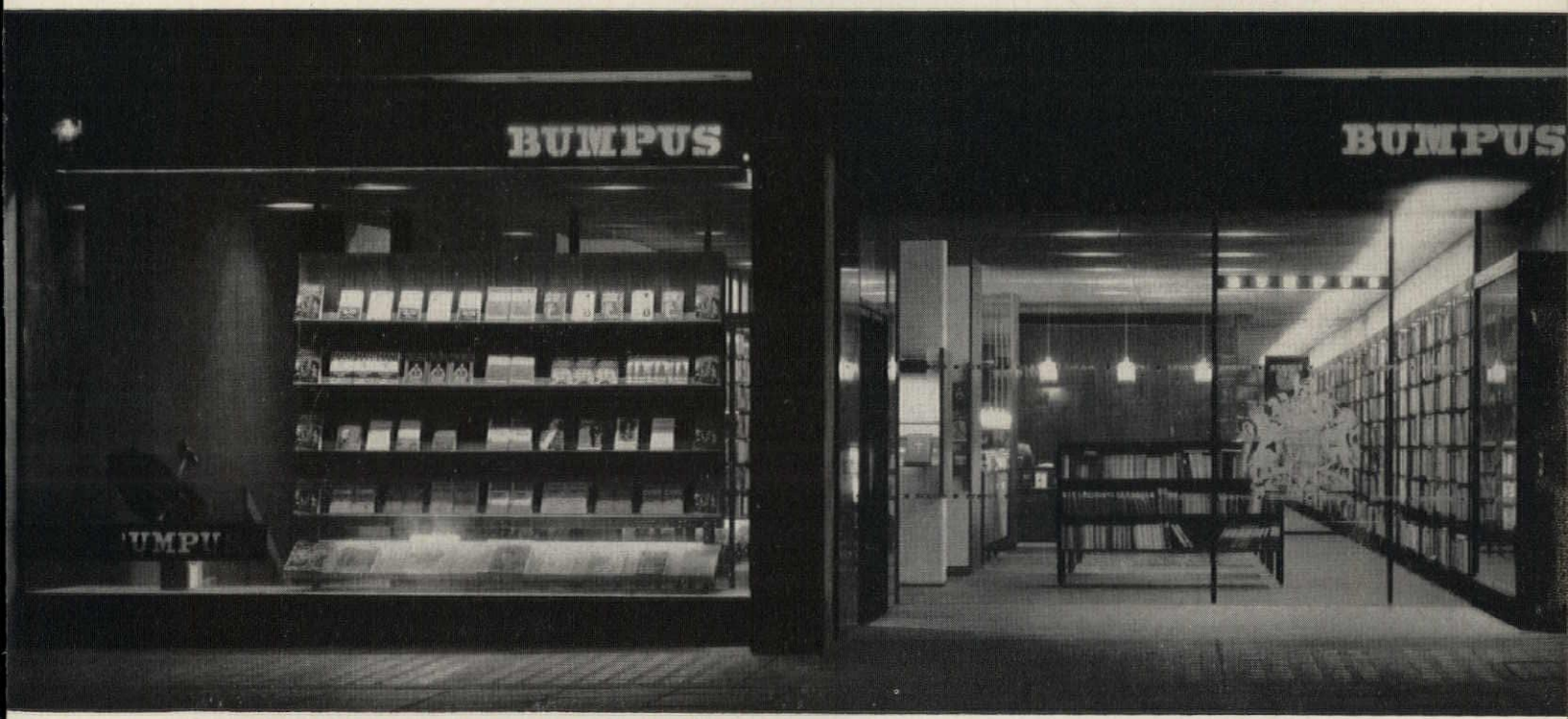
*Hedrich-Blessing*

JOHN & EDWARD BUMPUS, LTD., LONDON W1

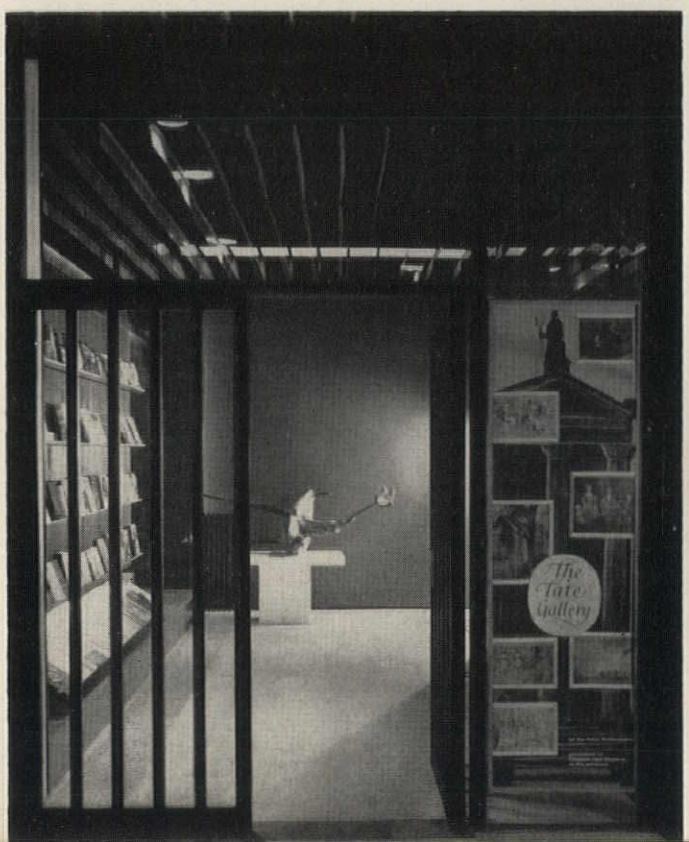
*David Rock, Architect*

*J. Musgrove & N. Watson, Lighting Consultants*

# NEW BOOKSHOP FOR OLD LONDON BOOKSELLERS




*Alfred Cracknell photos*

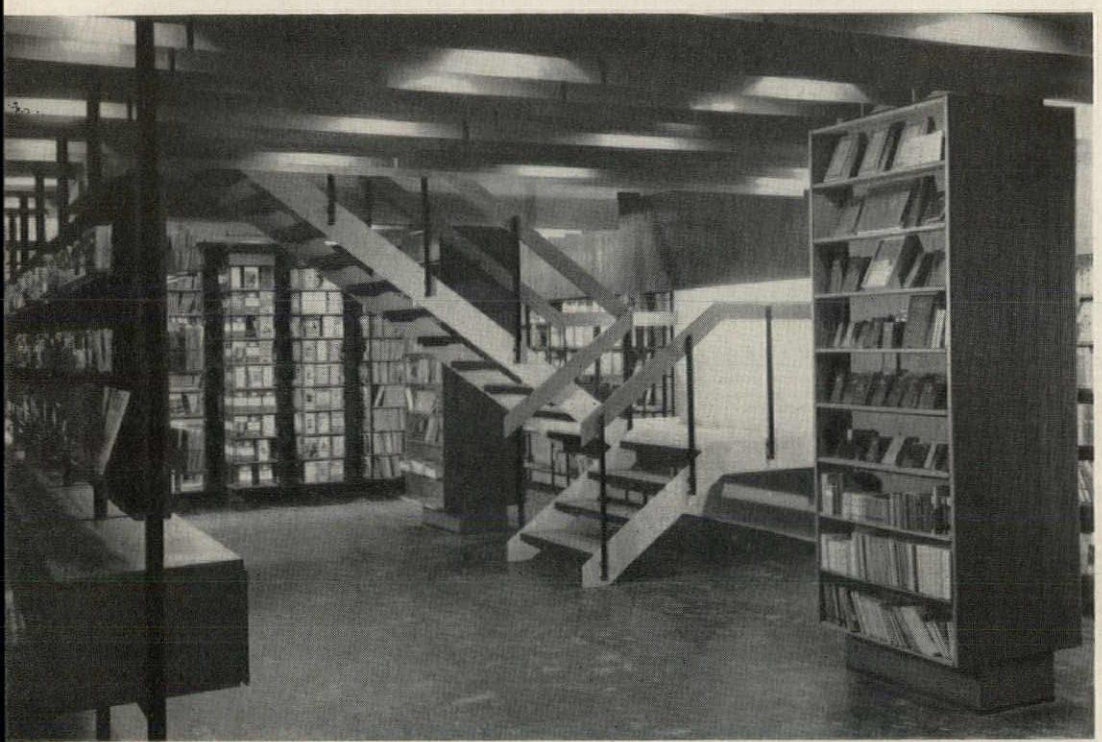


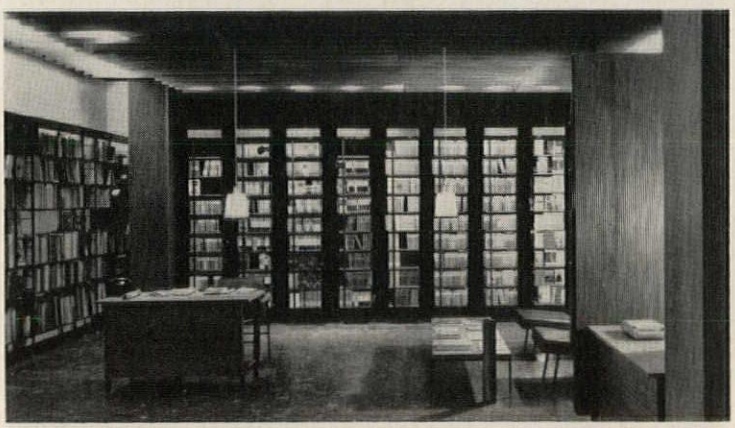

In this small London bookshop, the architect has managed a relaxed contemporary atmosphere which is accepted and appreciated by the owners and customers alike. This is quite an accomplishment in Baker Street. It seems even more of an accomplishment when one considers that the architect's clients were the oldest booksellers in London (the firm was founded in 1790), and they hold the Royal Warrant.

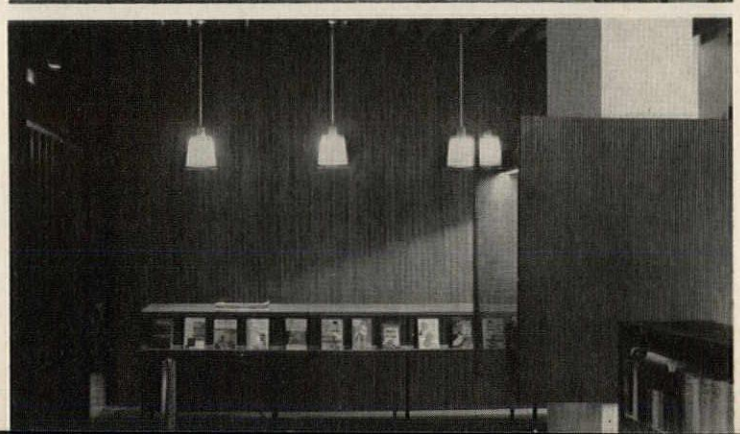
The shop occupies two ground floor bays and the basement of an eight-story building. Provisions are made for customers to browse, or sit and read in comfort. The view from the street is inviting and congenial. The interior is restrained, but possessed of great warmth, extremely comfortable, but spare.

## LONDON BOOKSHOP

Of his design, the architect says, "A bookstore is somewhat of a cross between a library and a self-service store. Therefore, I tried to create a congenial background for leisurely shopping. Further, my purpose was to surround the occupants with a space which was unobtrusive, yet one which would also be recognizable as architecture." In order to achieve these purposes, the shop has been designed with restrained good taste, as is evident in the illustrations. The rich materials such as marble, African walnut, copper, and leather contrast with simple white plastered walls. Sculpture is placed in a number of locations, in an attempt to integrate this art with those of literature and architecture







WASHINGTON AIRCRAFT AND TRANSPORT CORP., SEATTLE, WASH.

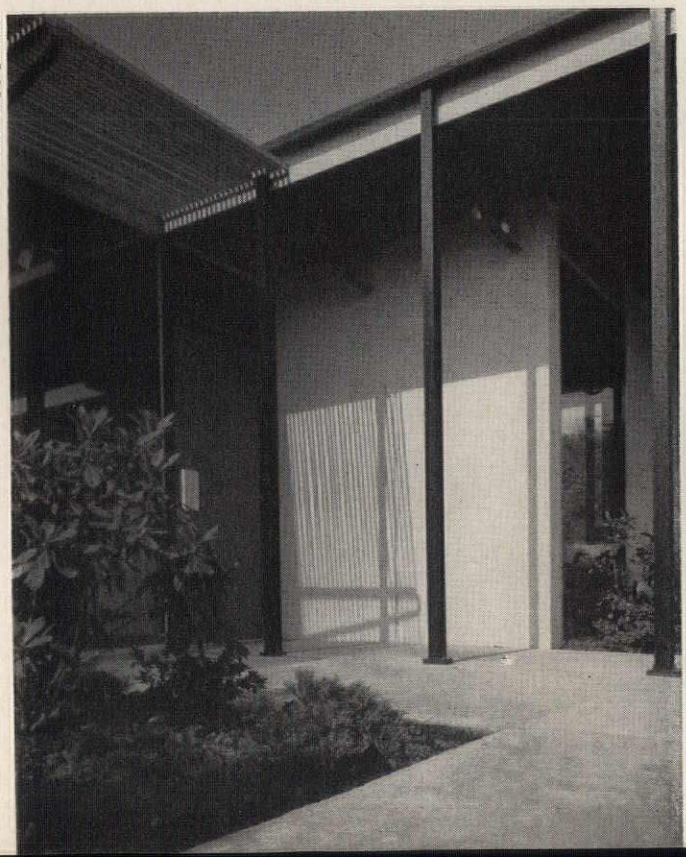
*Mithun, Ridenour and Cochran, Architects*

*Gerard Torrence, Structural Engineer*

*Puget Construction Co., Contractor*

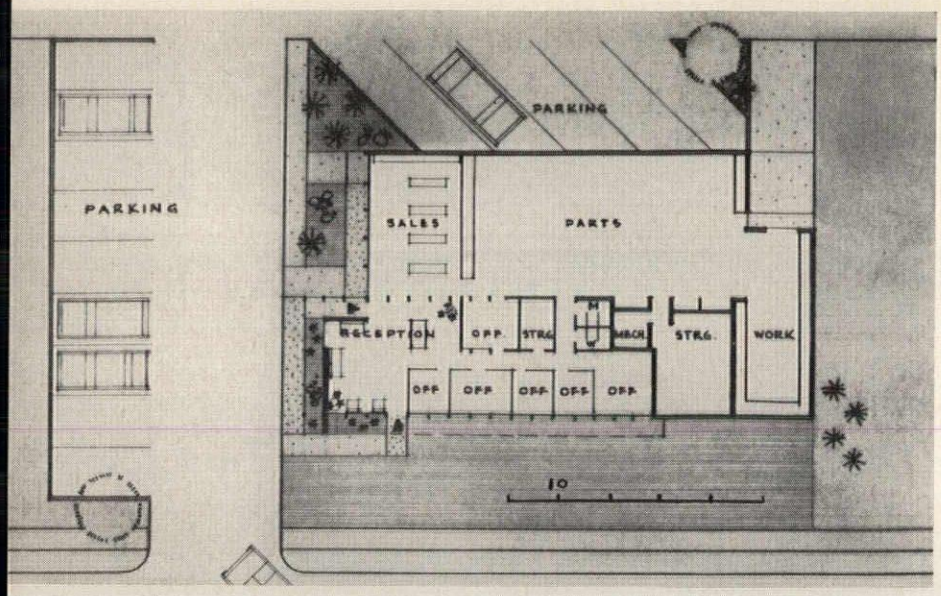
# AIRPORT SALES OFFICE FOR PRIVATE PLANES

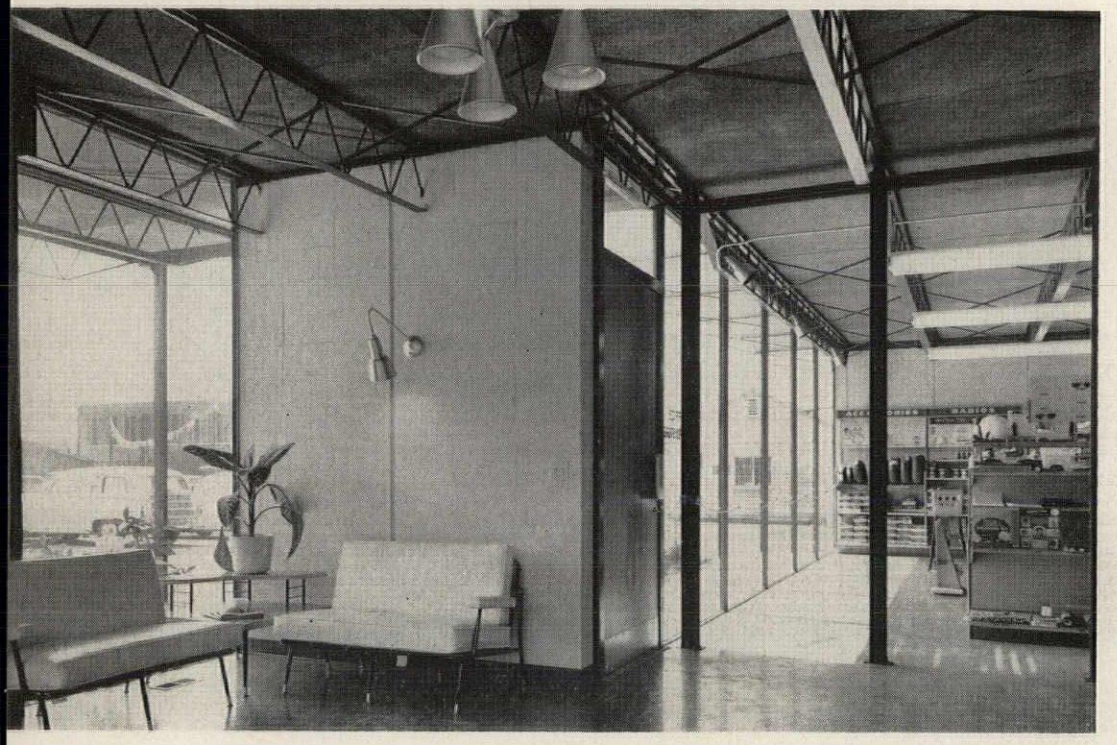

*Art Hupy photos*



At this location, the sales and servicing of small private aircraft are separated from those related activities involved in sales and storage of parts, office functions, and the like. In order to accomplish this to the best possible advantage, the architects designed two closely related buildings, a hangar for the airplanes and an office building for the other functions.

Both buildings were designed for economical construction, ease of maintenance, and efficient operation. The buildings are comfortable and provide the atmosphere the clients desired for their customers and company personnel. The structure is quite simple, the materials clean and unobtrusive, in harmony with the location and purpose of the buildings.



## AIRPORT SALES BUILDINGS

The extreme simplicity of the office building is indicated in the plan shown above. This feeling is reflected in the interior. The structure and materials used are not extraordinary—exposed concrete bearing walls and bar joists, with a wood-fiber cement board roof. Thus, the materials serve not only as structure, but also double as finishes. Additionally, the roof deck acts as insulation and acoustical treatment. The resulting economy has not obviated good appearance. The hangar building, shown below, is constructed with a clear-span rigid steel frame, for the utmost in flexibility of the space. Concrete block walls are used for enclosure only, and one wall is composed entirely of sliding doors for maximum utility

DEXTER CHEVROLET, INC., DETROIT, MICH.

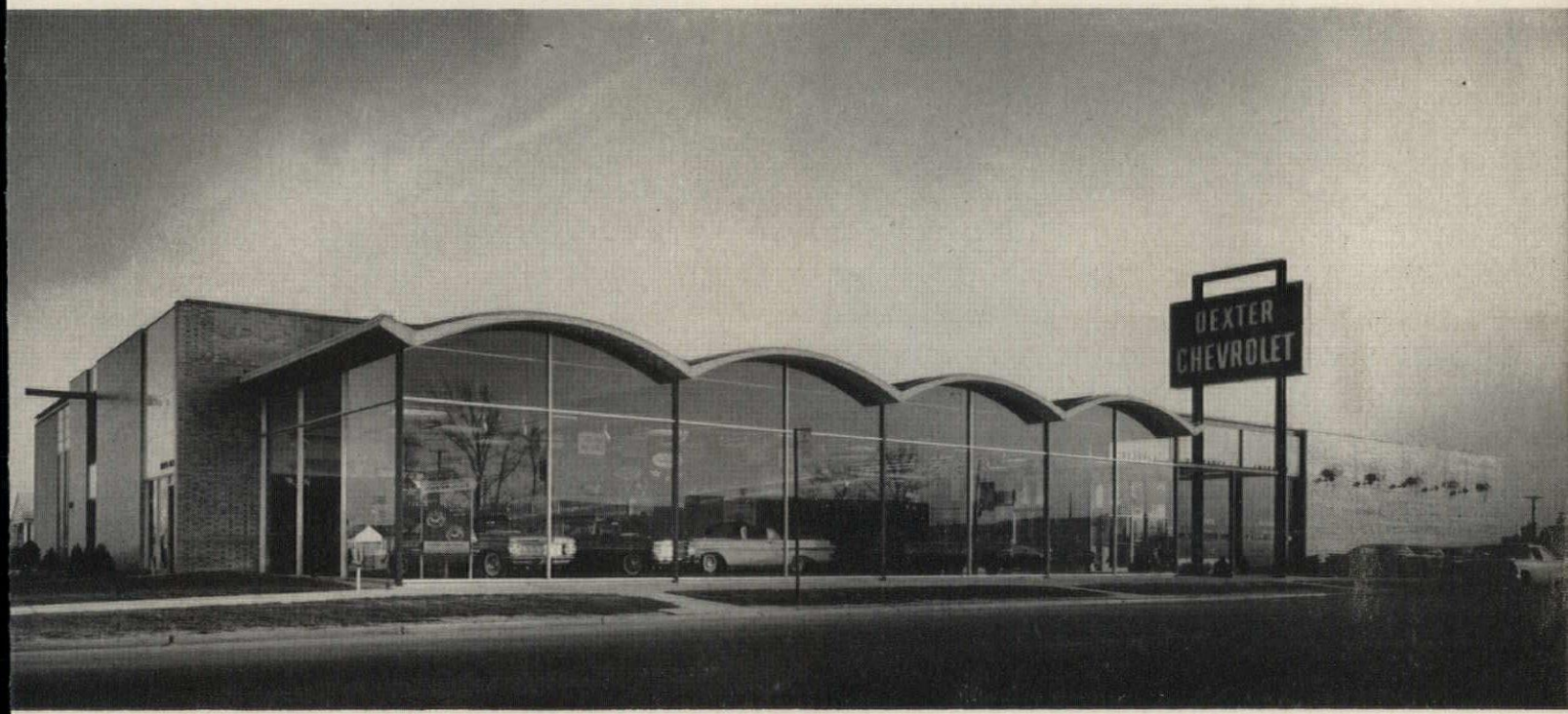
*King & Lewis, Architects*

*R. H. McClurg & Assoc., Structural Engineers*

*Migdal & Layne, Mechanical & Electrical Engineers*

*Henry Slatkin Builders, Contractors*

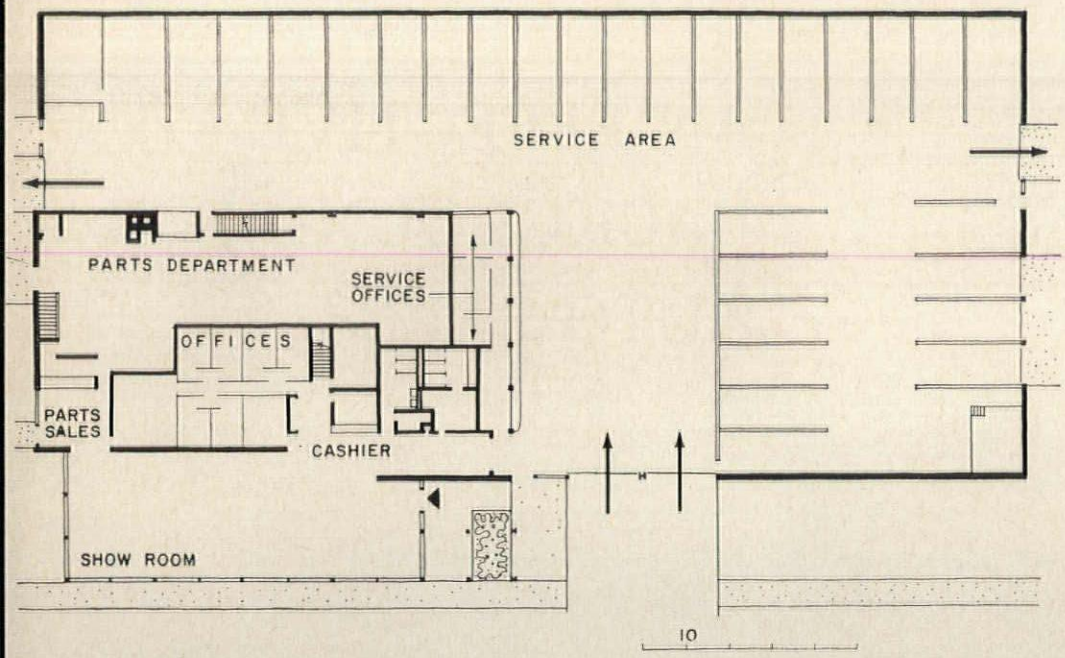
# AN EFFECTIVE BACKGROUND FOR AUTO SALES




*Balthazar Korab photos*

The architects of this building wished to express something of the assembly line, machine product qualities of the automobiles it will house. However, it was felt that the building must serve as background for the products, not compete with them in any way. This, with the added desire for architectural excitement, was the goal set for the design.

In order to accomplish their aims, the architects have provided for complete sales and service functions within a plain, rectangular building and added to this an exciting showroom on the front. This wing with its vaulted roof and floor to ceiling glass contrasts mightily with the austerity of the remainder of the building. The result fulfills the functions programmed.




## AUTO SALES BUILDING

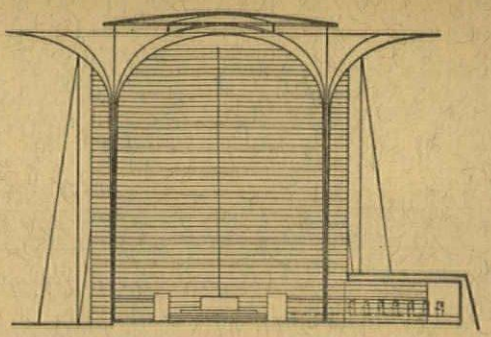
As may be seen in the plan, the relationships between the pedestrian entrance, showrooms, offices, parts sales and storage, and service areas have been worked out for a smooth flow of operations. The automobile entrance and exits make the movement of cars through the various phases of service as easy as possible, with very little congestion. The illustrations indicate some of the clean qualities of the structure and materials used. These include steel frame and concrete vaults, concrete block and face brick, with blue, white, and gray porcelain enamel panels at the entrance, and terrazzo floors. Wood paneling set in light steel office partition framing is used for division of interior spaces wherever feasible

# FOUR CHURCHES BY VICTOR LUNDY

Victor Lundy has asked: "Why should the architect be ashamed to do something just because he likes it that way . . . without having to justify it with logic, science, economy . . . necessarily?" And speaking for himself he might have added: "Let the architect do it the way he likes it, and then justify it any way he has to." Lundy may have to argue adroitly with clergymen and committees to get his highly individual churches built, but as soon as one is finished it justifies itself. Like a warm presence it inspires a response, from critics certainly but from the congregation as well. The four churches shown in project form on the following pages indicate, however, that Lundy's expressive, personal conceptions require more than verbal infighting to get built. His structures are daring and original, his use of wood inventive. Without great technical skill these evocative forms would remain on paper; Lundy gets them into space.

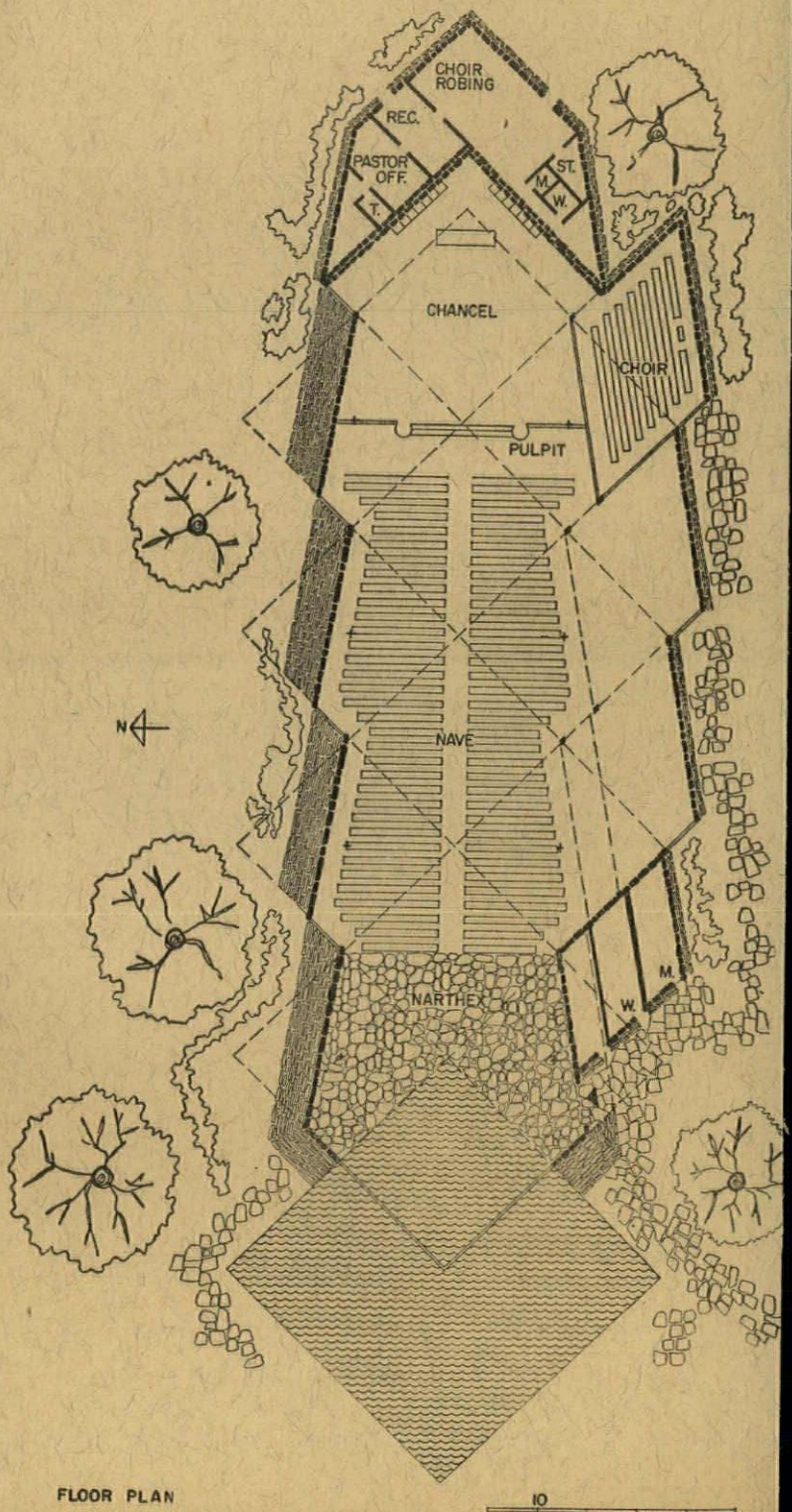
*Victor Lundy*

# Pine Shores Presbyterian Church



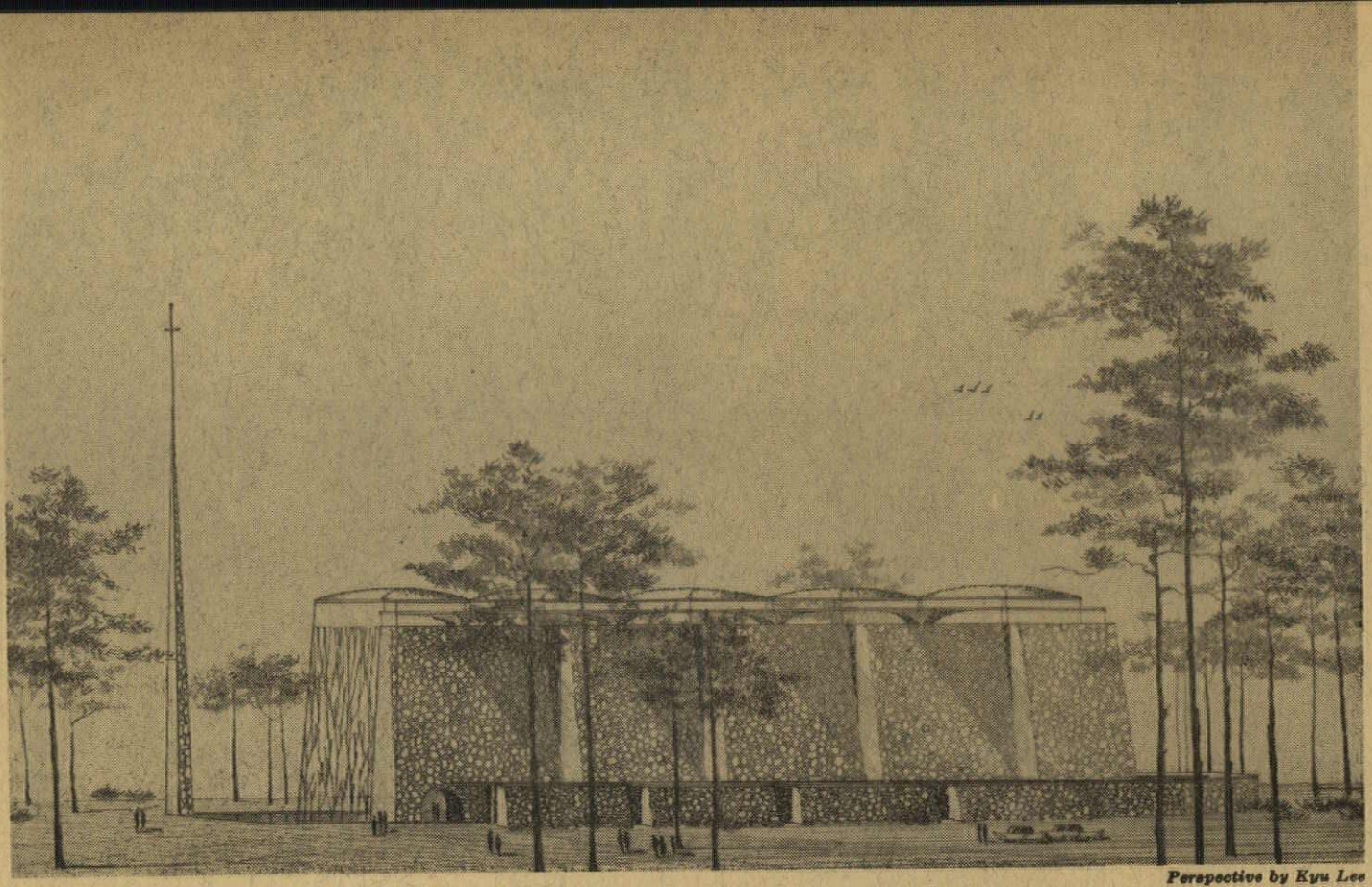
TRANSVERSE SECTION 10

LOCATION: *Sarasota, Florida*




FLOOR PLAN 10

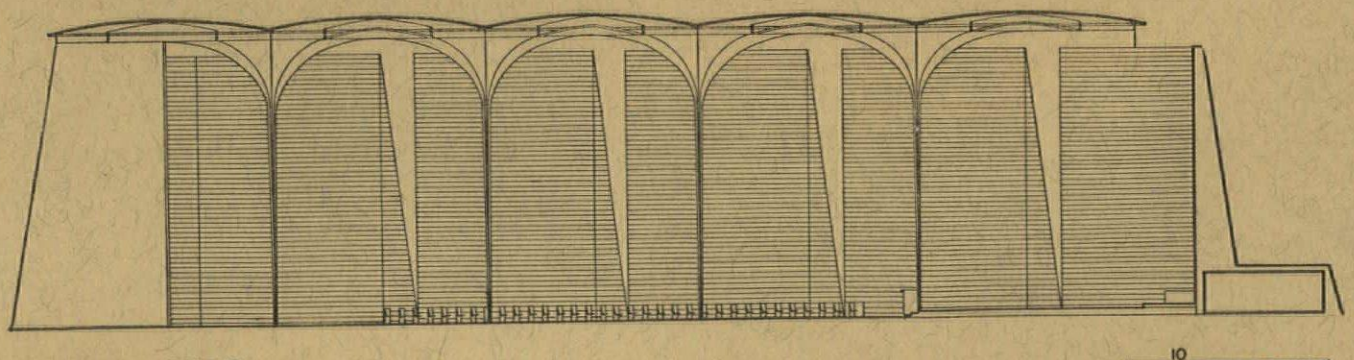
To explain the basic concept of this church Lundy has written: "There is so much sunshine, brightness and glare in Florida, that I decided on a design that would look inward on itself. There will be a simple exterior of high battered masonry walls faced with white coquina (a beautiful Florida stone of calcified marine life). These walls will be placed at slight angles to one another for acoustic reasons and to permit triangular slivers of stained glass between. The building has two structural systems that have little to do with each other. The exterior walls stand alone as a heavy, protective enclosure for what happens inside. The interior is a lacework of eight hyperbolic paraboloids that crisscross, touching at the tips (they stabilize each other that way, and are better delineated individually). To further delineate them, the center voids are roofed with five simple vaults, probably framed in wood, the spaces between filled with colored glass."



*Perspective by Kyu Lee*

*Above:* church will occupy a flat four-acre site covered with pine trees through which the building will be viewed from long approaches. The narthex will be enclosed by two great walls of stained glass which will probably be designed in an abstraction of the branches and needles of pine trees, and which will be reflected in the indoor, outdoor pool at their base. The tower will be of steel faced with the white coquina stone with an illuminated cross on top. Side areas shown in perspective and on plan (opposite page) are kept low for scale contrast and provide gathering areas for the congregation after the service. Masonry walls resolve into arches (not shown) where these areas open off the nave. The area beyond the chancel has also been kept low. Side and rear areas which would appear as roofs below the plane at which the narthex, nave and chancel are drawn are shown defined by walls in plan

*Right:* photograph of model showing earlier roofing scheme




LONGITUDINAL SECTION

*Victor Lundy*

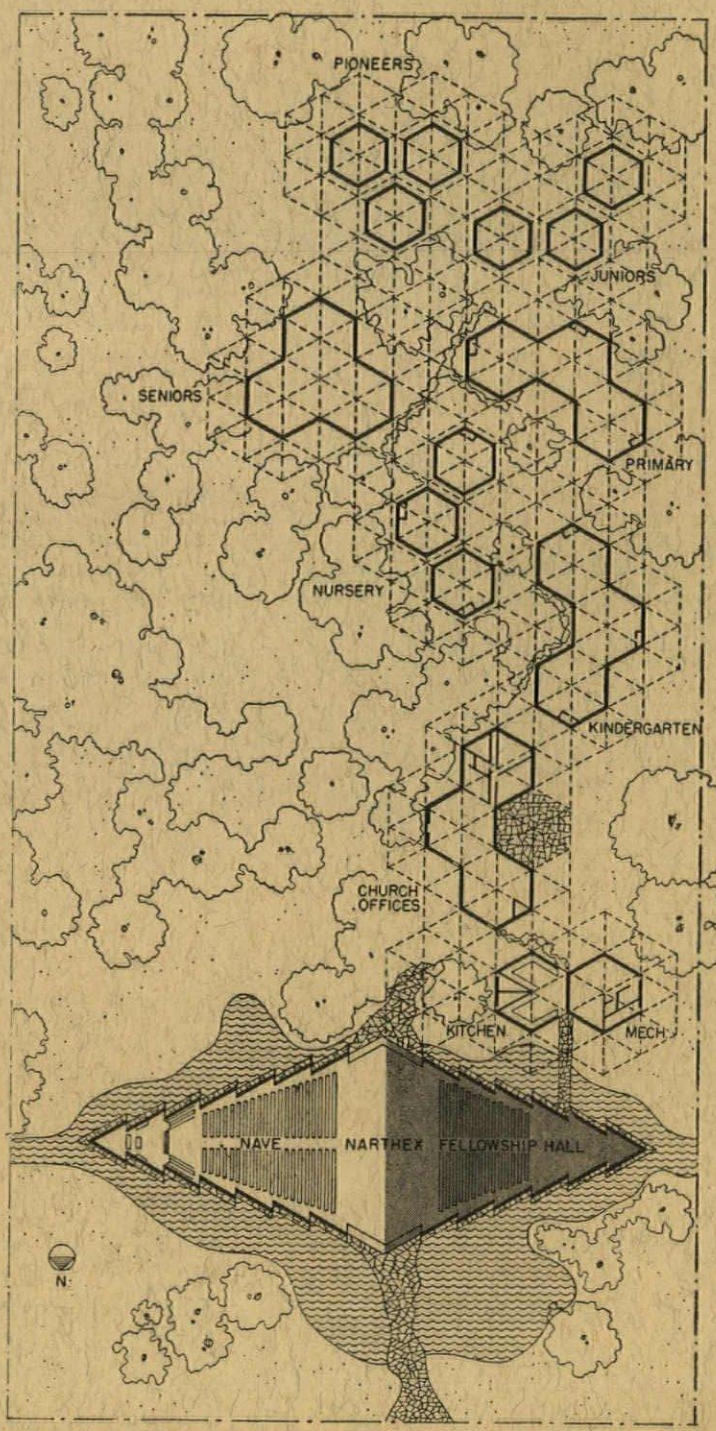
# St. Andrew's Presbyterian Church

LOCATION: *Dunedin, Florida*

The ultimate concept must be built in easy stages at five or ten year intervals, so a design had to be developed in which the first stage would be a beautiful thing by itself. The fellowship hall is to be constructed first (see the plot plan) and will be used as a sanctuary until the second and larger portion is finished. The hexagonal units which house Sunday school rooms, offices, etc. will be built as needed. This system is flexible enough to allow each group of units to take advantage of a site which offers thick clusters of beautiful trees and exotic plants. The erection of five units is planned for the first stage.

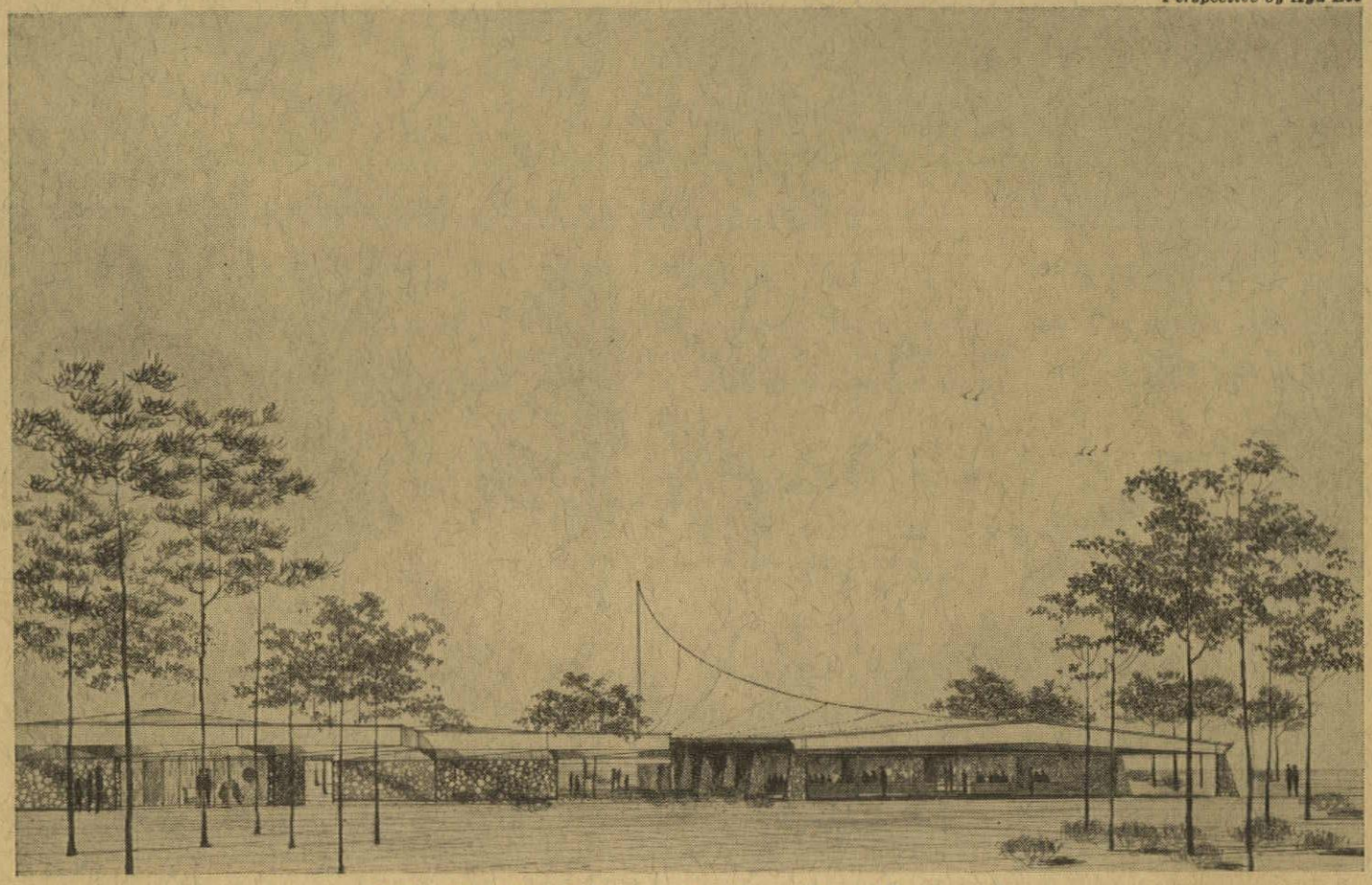
The entry (see perspective) is low ceilinged and intimate, and as one progresses into the space it rises as it narrows, ending finally in a straight line. The future narthex will be low and then the second half of the structure will also rise as it narrows culminating in a height of 80 ft at the extreme end of the sanctuary. The final plan is a diamond and by means of sliding doors both spaces can be thrown into one huge one, or either space can borrow the narthex for expandability when the need arises. Easy expansion is an important consideration in Florida where there is the problem of transient congregations. Larger spaces are needed during the tourist season.

Lundy's personal justification for the final form: "The trees and shrubbery on the site are like a jungle. I felt a very simple strong silhouette would be necessary to make an impression against nature's power. The simple shape of the prow will be quite effective. Then too, Dunedin is a fishing town and the site itself is quite close to water. There is an appropriate sense of the ship about this building."



PLOT PLAN

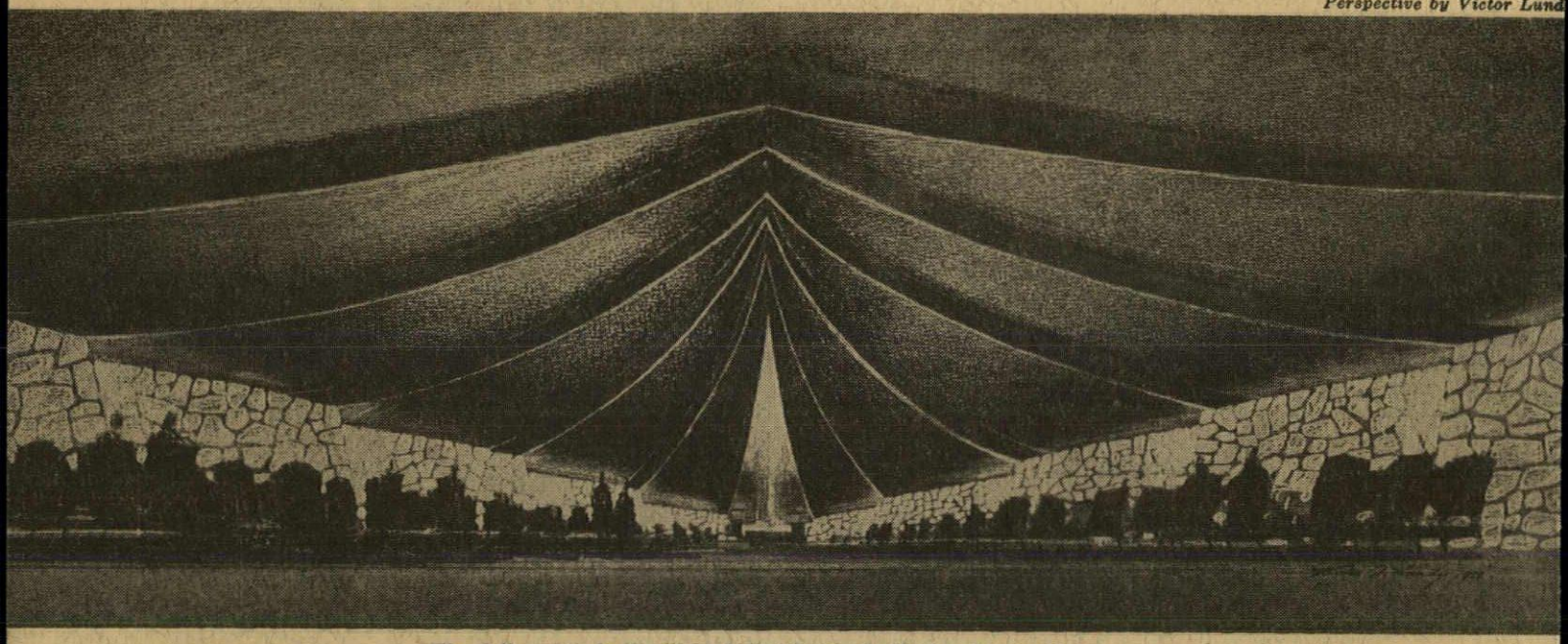
*Perspective by Kyu Lee*



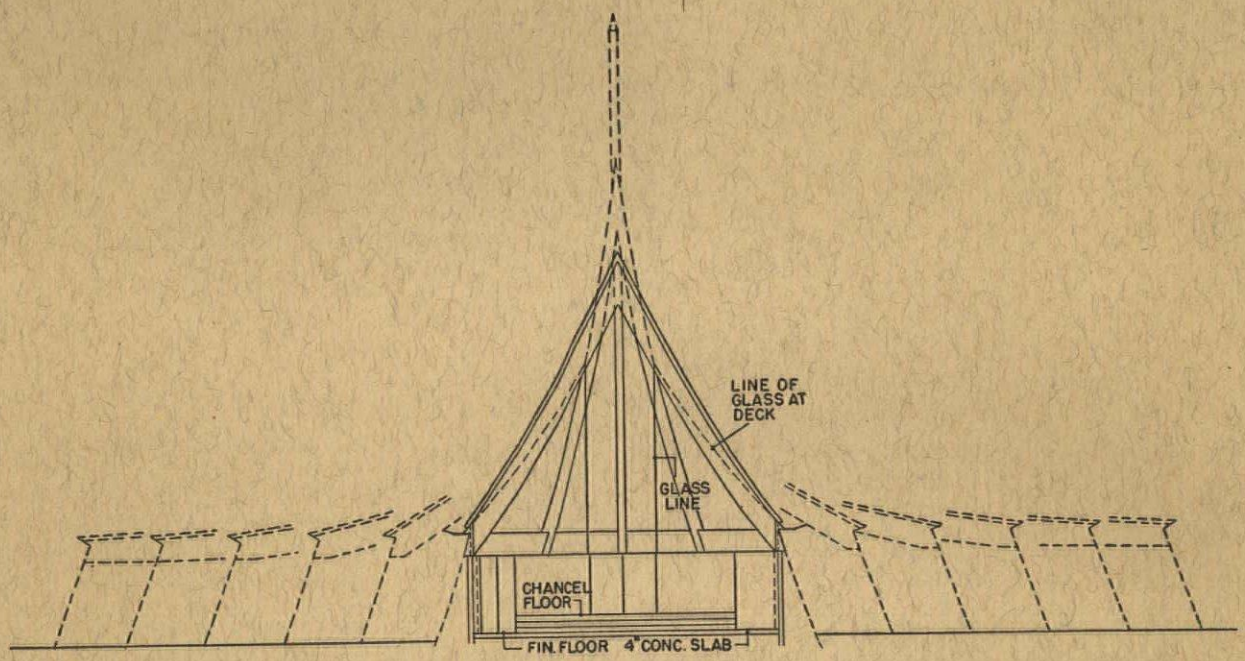
**Fellowship hall and hexagonal units as they will appear in initial stage before erection of complete narthex and sanctuary**

**Photograph of model showing sanctuary on the left, narthex in the middle and the fellowship hall on the right in final stage**

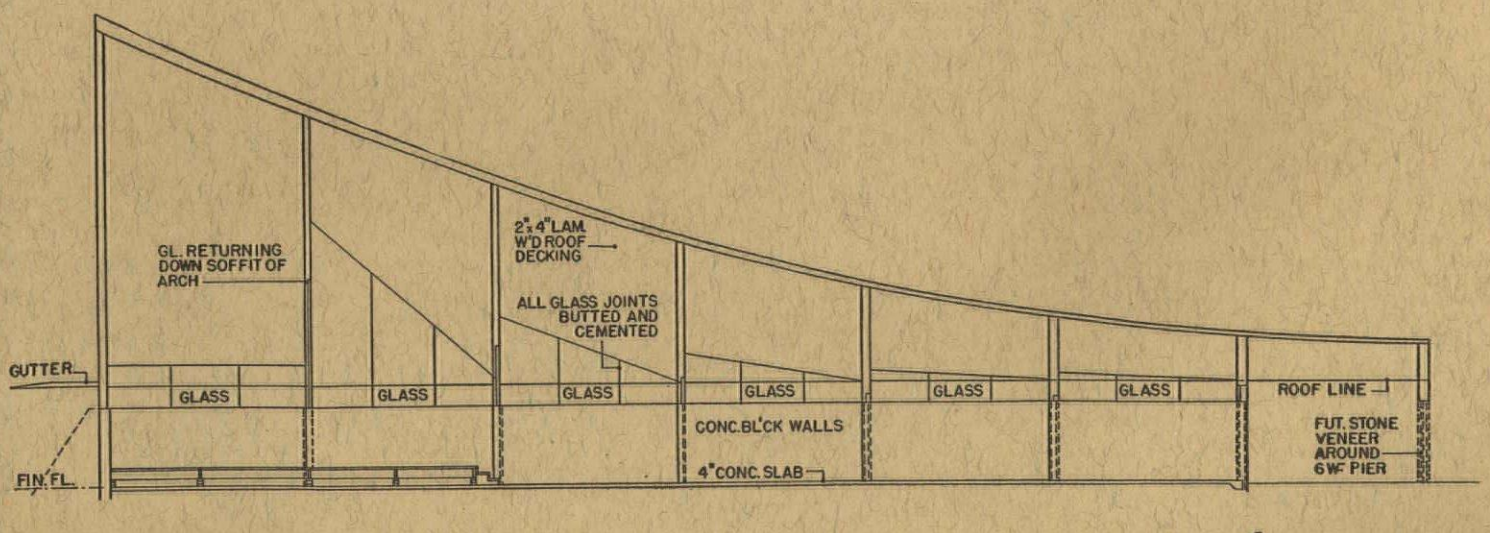
*Perspective by Victor Lund*



The fellowship hall will be built like the hull of a ship, and in fabrication the arches will be lofted like a ship's curves are. The main structural members, of laminated wood, are 16 ft apart. They will be spanned by 2-by-4-in. wood decking on edge with finger scarfs for long lengths. This wood decking will form the finished ceiling and will also serve as the final decking for the roof surface which will be wood shingles or copper. The battered walls will be faced with white coquina stone. Glass will separate both exterior and interior walls from the ceiling which will thus carry through in an unbroken line



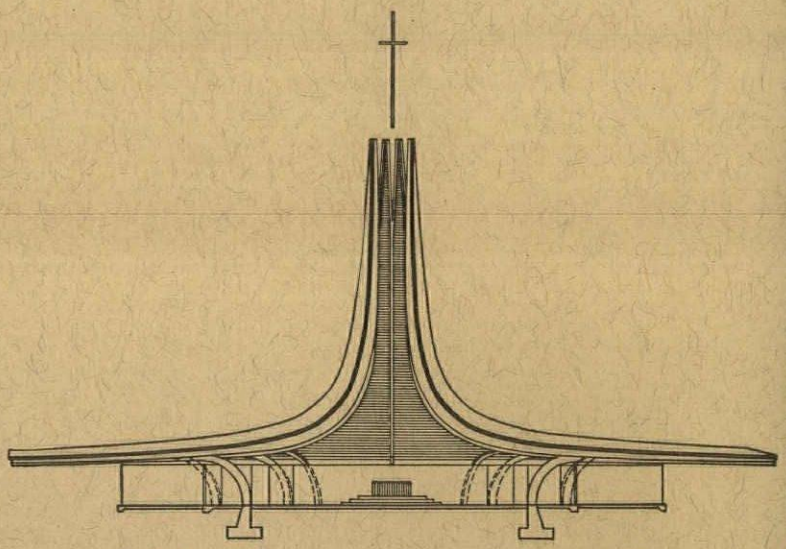

TRANSVERSE SECTION




LONGITUDINAL SECTION

*Victor Lundy*

# A Church and School near Cape Canaveral



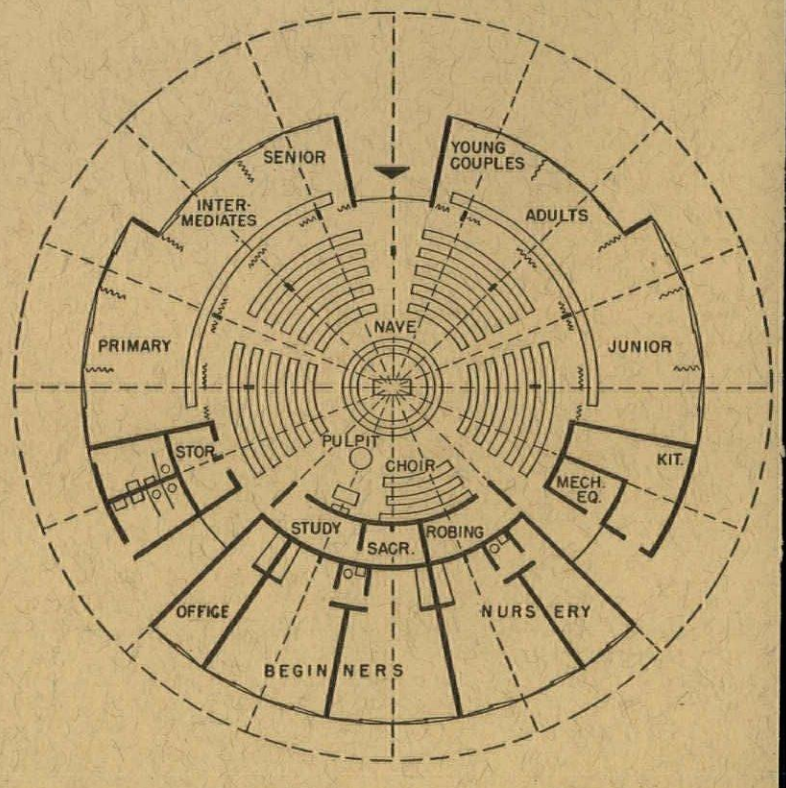
SECTION 10

NAME: *St. Paul's Lutheran Church*

LOCATION: *Melbourne, Florida*

**Many members of the congregation of this church work at Cape Canaveral as technicians and engineers. Their budget is limited, the church must be small, and here Lundy designs on a very modest scale. Since small structures have a greater presence if their appearance is fairly consistent from every viewing angle, the visual image of this church is uniform. Planned for a multi-purpose use of spaces, seating in the nave can expand into classroom areas. The altar, the unquestioned focal point, is dramatized further by the upward spring of the laminated plywood arches opening apart to admit light from the sky. A special effort has been made to plan each classroom symmetrically around each arch. That way the scalloped roof will create interesting peaked ceilings in some and little butterfly ceilings in others, and each room will have an arch thrusting overhead.**

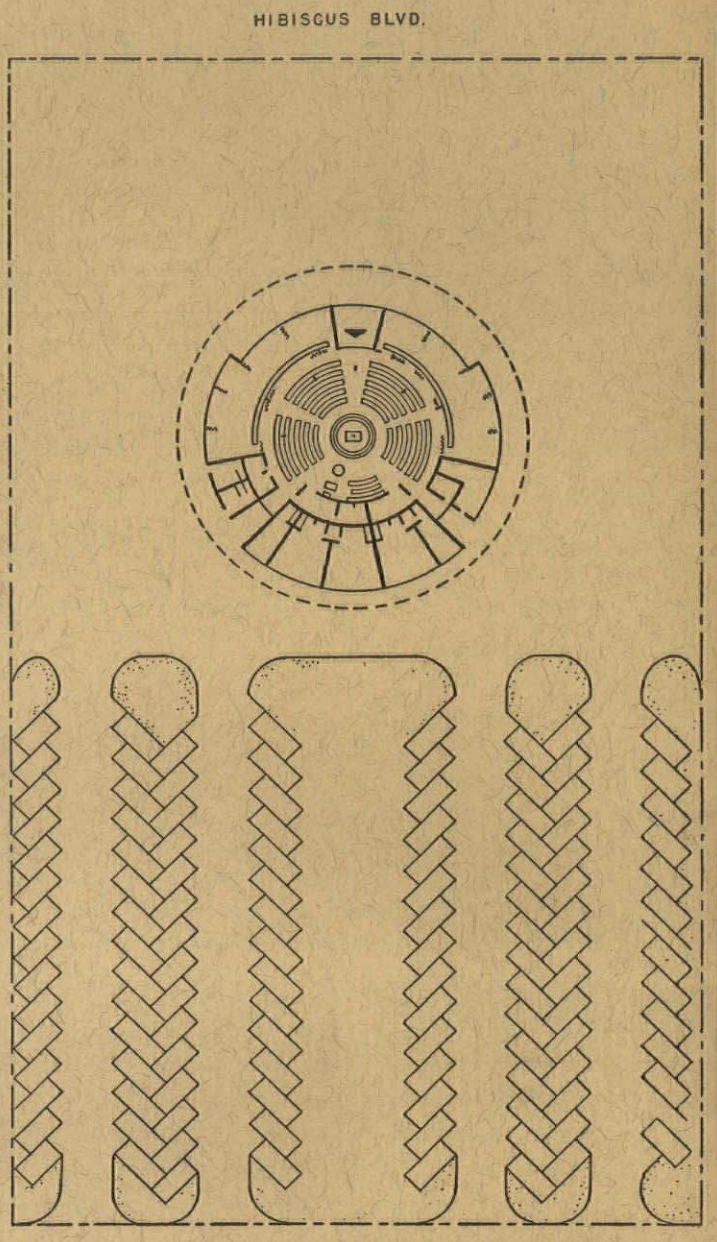
**The church will be built in two stages, working from the center out. Laminated wood arches in two orders of heights will carry the double tongue and groove wood decking which forms the finished ceiling and the roof deck. Probably a white plastic roof covering will be used to further the scalloped seashell impression created by the basic form.**




FLOOR PLAN 10

*Perspective by Victor Lundy*

The site is a nicely wooded piece of land on an island not far from Cape Canaveral. The building is set back from the property line on Hibiscus Boulevard with parking completely to the rear, so it will be viewed from a distance through trees and no cars will interrupt the main approach

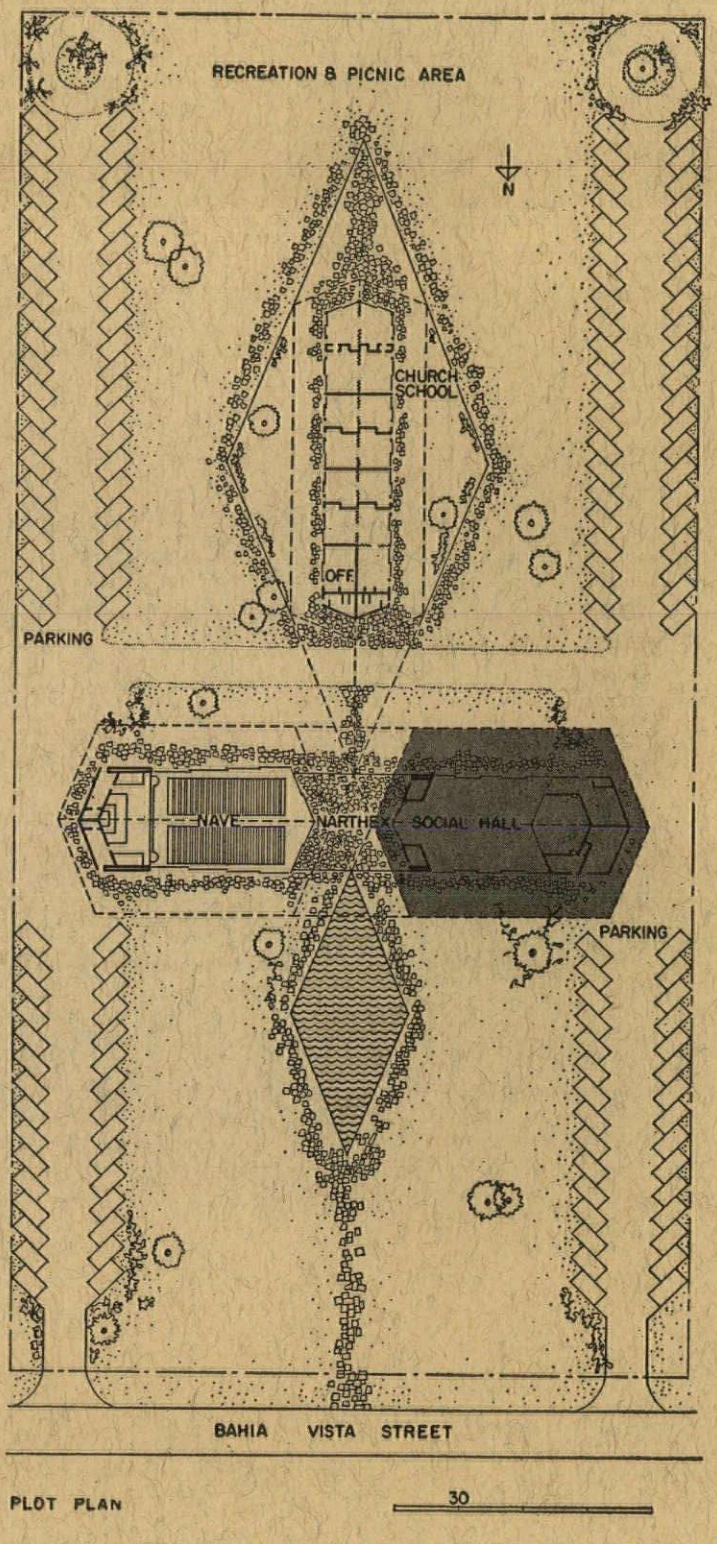



PLOT PLAN

*Victor Lundy*

# St. Paul's Lutheran Church

LOCATION: *Sarasota, Florida*

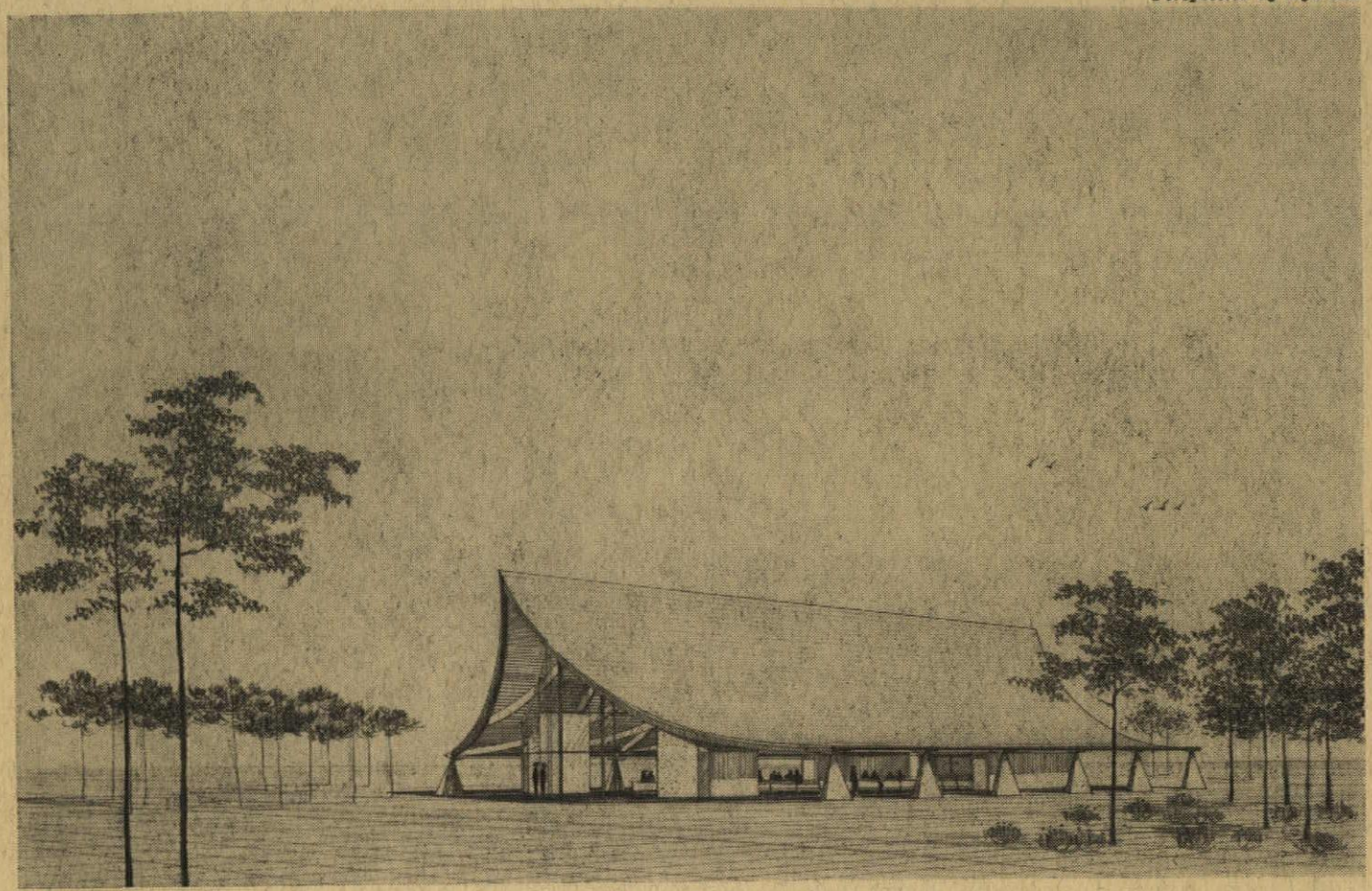



PLOT PLAN 30

Another multiple stage project, the social hall will be built first and serve as a temporary sanctuary, the Sunday school will be completed in the second stage and finally the sanctuary and central tower will be constructed. In describing the problem Lundy said: "There are several good reasons for the cross-shape besides the symbolic one. By placing the social hall and the sanctuary end to end, the building presents an imposing front to the street, its best face forward, and this is an important consideration for a young mission church just starting its growth. Most people will see the church first as they move by in cars from the main highway to the west, so this frontal impact with the central tower reflected in the pool is important. The whole complex must be easily buildable in stages, and the cross shape is ideally suited for this as each leg of the cross is free to develop and grow independently, finally taking its place in the total concept."

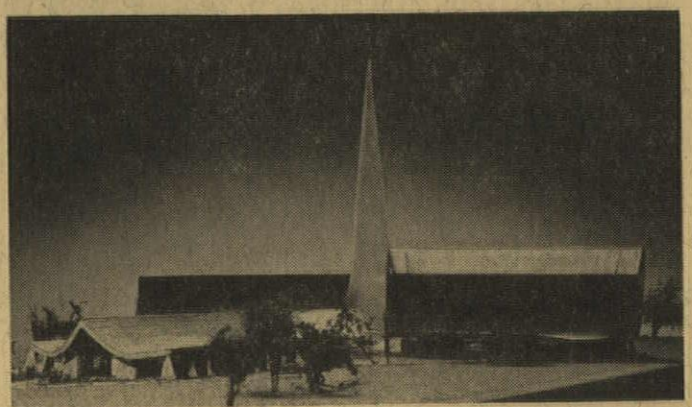
Both social hall and sanctuary open on the central narthex under the tower. The narthex can become overflow space, and on important occasions the two spaces can merge with each other to handle the crowds. There will be no paved areas on the entire site. Driveways and parking spaces are used so infrequently that it will be possible to cover the whole plot with a carpet of St. Augustine grass over marl, and cars will simply drive about over the grass. The buildings will sit on a great expanse of green. According to Lundy, this type of grass has held up very well in certain Florida drive-in churches.

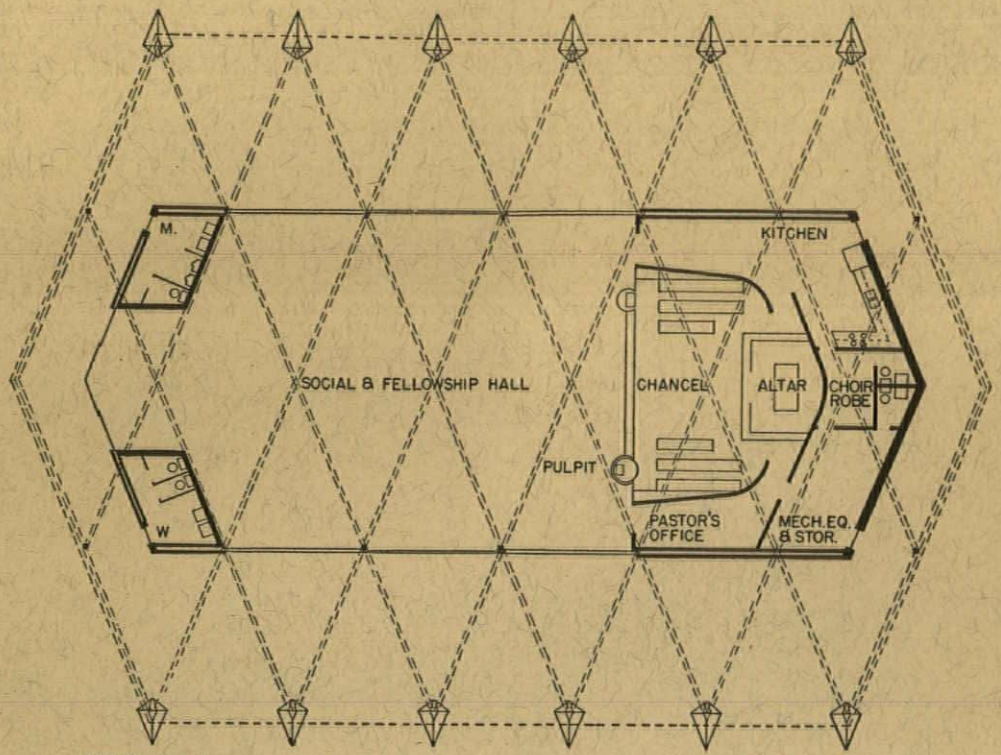
*Perspective by Kyu Lee*



Social hall as it will appear in initial stage

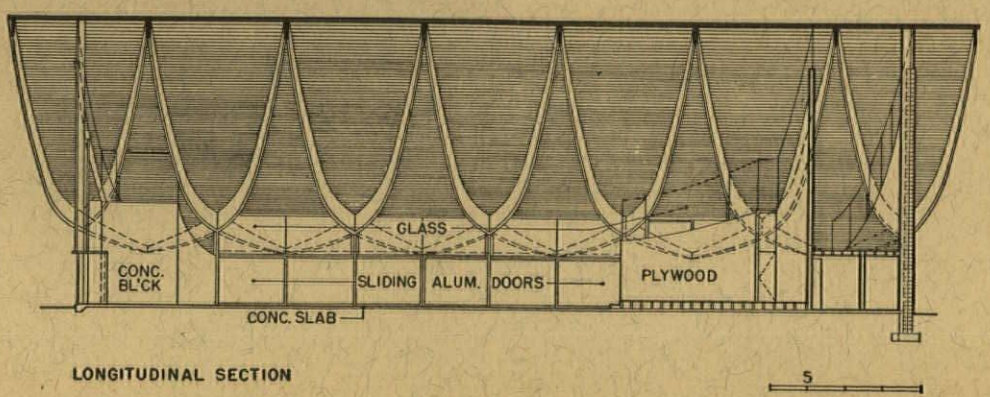
Photograph of model shows that the roof sections and structural theme of the three major elements are the same and there is a progression of scale upward to the sanctuary. The ridge of the Sunday school (forward element) will be 20 ft from the ground, and the ridge of the social hall (element at left) will be 35 ft high and line up horizontally with the solid part of the roof of the sanctuary (element at right). Above the 35 ft level, the sanctuary roof will become a skylight which will reach a height of 50 ft. The future tower will reach a height of 150 ft and will be made of heat resistant, glare reducing glass. It will be illuminated from within to serve as a beacon at night





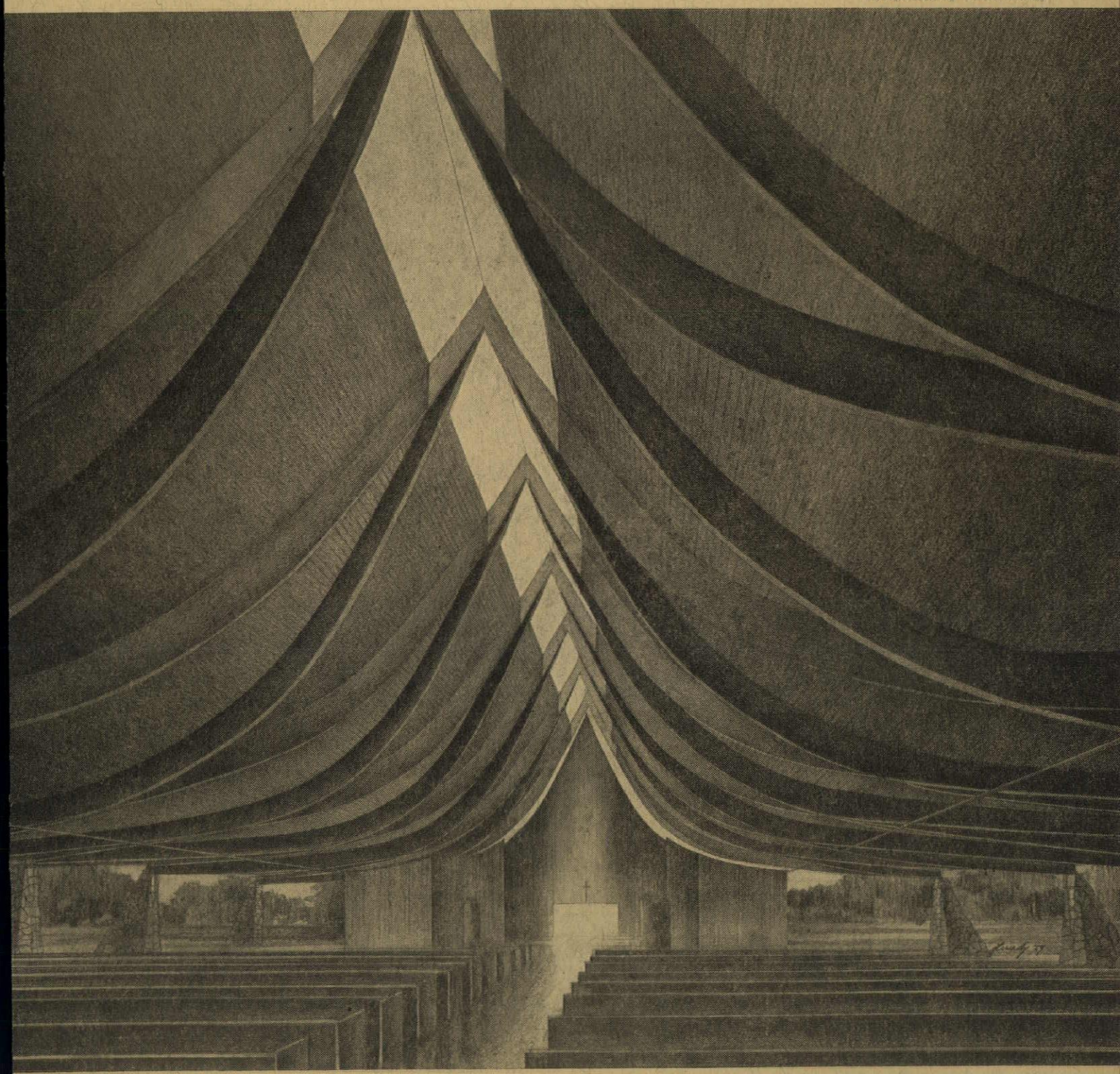

FLOOR PLAN

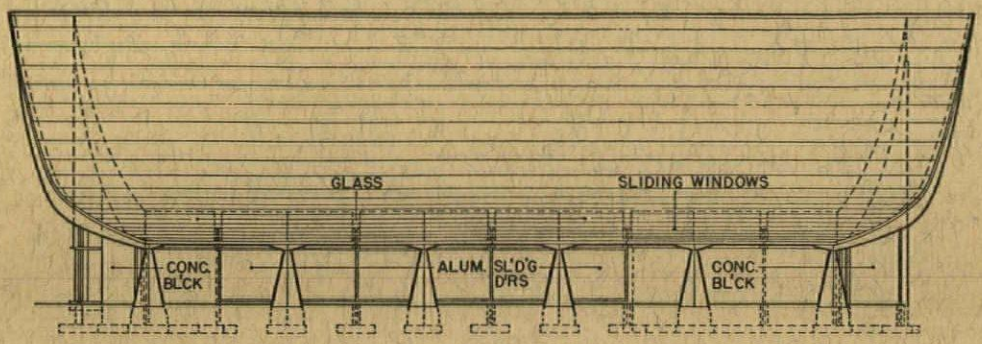
**Each of the three structures will be surrounded by great outdoor porches. The supports for the system of laminated arches which intersect over the sliding glass door lines at the quarter spans are along the outside edges of the porches. They will be of steel covered with a coquina stone facing. When overflow area is needed the sliding doors are pushed aside into their pockets and the porches become part of the general space. There are no obstructions to the edge of the porches. They will be used as outdoor seating spaces and outdoor classrooms in the Sunday school wing. The low roof shape will provide an intimate scale**




LONGITUDINAL SECTION

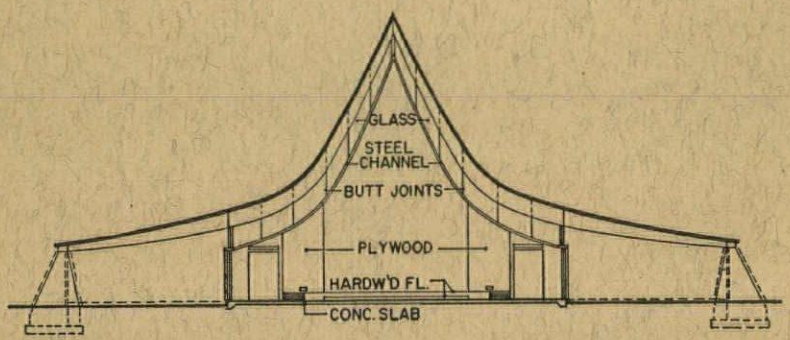
*Perspective by Victor Lundy*





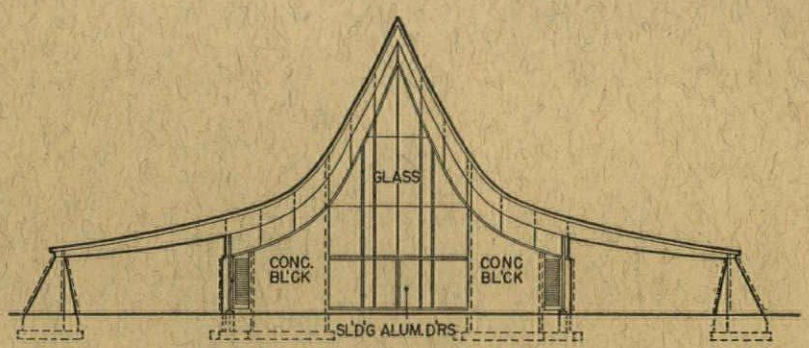

SIDE ELEVATION

5




TRANSVERSE SECTION

5




FRONT ELEVATION

5

To permit the roof to swing in an uninterrupted curve from the peak to the outside piers, no solid walls will go to the ceiling. As in other Lundy structures they will stop short and glass will be used to fill the remaining void. The roof will be of red cedar shingles on double tongue and groove decking spanning the laminated wood arches

# Religious Education and the Design of Protestant Churches

*by J. Gordon Chamberlin*
*Minister in Charge of Christian Education*
*The Riverside Church, New York City*

A leading Protestant educator traces the theological developments which have led to the new importance of teaching in modern Protestantism, and challenges the architect to express this emphasis in a new church form.

Protestantism in America requires a new architectural form which will express the understanding which contemporary Protestants have about the church's nature and mission, and will also express the fact that Christian education is integral to the whole life of the church.

The church recognizes that modern man is anxious about the pressures of life, about how old values can fit into a technological age, about the meaning of world events and the new challenges of space. The church also recognizes that it must question its own faith to see if it is relevant and helpful for contemporary man. This has led, in our time, to a vigorous and extensive reexamination by the church of its faith. According to one competent interpreter, "Not since the Protestant Reformation has there been so widespread a movement for the radical reexamination of theological traditions as there is at the present time." [1] Since the roots of a church's life feed upon the theological point-of-view it holds about its faith and how that faith should be expressed, this theological renaissance is changing Protestantism from within and has produced new approaches to the church's educational task. Whenever an educational program changes, so should the kind of building which houses it.

Since the present period is so open, since the strangle-hold of imitation has been broken, since contemporary design is no longer anathema for Protestants, church architects who understand deeply what is happening within Protestantism can make a significant creative contribution to church architecture. The architect is seldom able to become a theologian, and the theologian is seldom able to specify the architectural implications of his own theological views. Through practical experience, most architects recognize some of the theological implications for sanctuary arrangement and symbolism. A new challenge, however, confronts the church architect because there is no historical precedent for expressing architecturally the implications of a new theological posture in which teaching and preaching are integral. Because the theological revolution is now going on, the "results" cannot be defined. The architect who is concerned to understand what these theological changes will mean for church architecture must begin by trying to learn why and how this theological revolution developed.

## THE THEOLOGICAL REVOLUTION

Theology is always a lively arena of contention. Since 1900, American Protestant churches have come under the influence of three major points of view toward the Christian gospel. At the turn of the century, Protestantism was, in the main, conservative theologically with evangelical revivalism as its most dynamic pattern of development. However, for men who were experiencing the promise and optimism of an expanding frontier nation, who were developing

the means and the power to control their environment by the use of science, and who were attracted by the idea of evolution, the world seemed to be explained better by philosophies which emphasized man and his power than by theologies which emphasized the supernatural powers of God. The roots of the man-centered point-of-view were in the rationalistic and idealistic philosophies of both Europe and America. In these views the focus of man's concern should not be to placate an angry God, but should be to build a new, ethical society, the Kingdom of God on earth. Social movements of many kinds grew up, from "institutional churches" in the cities that would rehabilitate urban life, to peace movements for ending war.

There were Protestants, of course, who did not accept these "modernist" views, who continued to hold that Christian faith could be summed up in five "fundamentals"—the inerrancy of Scripture, the Virgin Birth, the bodily resurrection of Christ, "blood atonement," and the Second Coming. In the 1920's the conflict between the two positions was public, frequent, and bitter, as evidenced by the "monkey trials" and the Bryan-Darrow debate in Dayton, Tennessee, in 1925. Fundamentalism continued to spread, but liberalism gained ascendancy in most of the large Protestant denominations.

Liberal theology made a major contribution to Protestantism by breaking through a static orthodoxy and fixed supernaturalism, by its recognition of the contribution of science to human knowledge and human welfare, by its attempt to use the findings of historical study to make the Bible more relevant to the twentieth century, and by its concern to see the improvement of man's social situation as part of the Christian mission.

Liberalism, however, began to lose ground under the impact of World War I and the resultant turmoil which led to the trauma of the Great Depression in America. Liberal theology had not prepared Protestants to understand the depth and tenacity of sin nor to recognize the perennial human temptation to "absolutise the relative." In rejecting the rigidity of orthodox Calvinism, Protestantism had become consciously anti-theological and thus had become separated from the insights of its own longer theological rootage. The liberals became too optimistic about men and progress. Even Dr. Fosdick, in a famous sermon, "Beyond Liberalism," warned in the 1930's that there would be a reaction against faith in man.

The reaction had started, however, in the 1920's in Europe. Karl Barth, a pastor in Switzerland, was profoundly impressed by man's capacity for evil as exhibited in World War I. This did not look to him like "progress," nor did it seem to justify the prevailing optimism about man. Barth began to read the Bible with new questions, and with the expectation that it might be saying something new and different to men of faith than it had seemed to say to those who looked to the Bible for assurances about man's capacities. He was looking for a more adequate understanding both of the world and of God. In 1927, Barth published a study of the Epistle to the Romans and his book proved to be a theological bombshell. In this and subsequent writing, he reasserted the authority of the Bible as revelation of God, the "otherness" of a transcendent God, the finiteness of man, and the inability of man who must depend wholly upon God's grace, to gain a right relation to God by his own effort.

When the earliest writings by Barth reached America, they were violently rejected by most Protestants, and his name became a symbol to many liberals of reversion to discredited fundamentalism. Such words as sin, salvation, revelation, guilt and redemption, used by Barth and a part of historic theological terminology, could not even be understood by many thinking Protestants. The theological renaissance which followed Barth's work was not so much because of the attractiveness of his ideas as it was a reaction to the failure of liberalism to interpret to sensitive and insightful men and women what was happening to them and to their world. Men need to be able to explain their situation to themselves, and they sense that they have a right to ask Christianity to offer an adequate explanation of existence.

On the American scene it was Reinhold Niebuhr, a seminary professor in New York, who attacked liberalism's optimism about man and utopian idealism about society and presented the Christian "dimensions of depth," the transcendence of God, and both the "grandeur and misery of man." Niebuhr has been a critical commentator on the political and social scene as well as in the area of theology and ethics, and as such has had a profound effect even upon many American thinkers who do not accept his theological presuppositions.

The theological currents growing out of the work of Barth and Niebuhr have often been called "neo-orthodoxy" or "neo-Protestantism." Some who have changed their approach from liberalism to a position nearer to Barth and Niebuhr call themselves "neo-liberals."

Barth and Niebuhr were not alone. Many theologians of major stature have shared in the reexamination of the church's belief about itself during the last two decades. Emil Brunner in Switzerland; Gustaf Aulen in Sweden; William Temple in Great Britain; Paul Tillich, Richard Niebuhr in America; and a younger generation of theologians, Bible scholars, preachers and teachers, have produced a new theological literature both in scholarly works and in books for laymen which reflects and interprets that reexamination. There is a wide diversity of emphasis among these scholars, yet certain common concerns and themes recur again and again. An appreciation of these concerns and themes is a necessary step toward understanding contemporary Prot-

estantism. Six of them deserve special attention:

1. *Theology is important.* Theology is returning as the central concern of the churches. Whenever one attempts to speak about his faith, he is speaking theologically, and speaking about the faith is the main business of the church. Theology as a discipline of scholarship has many branches and serves the Christian church in a variety of ways. It is used to study the history of Christian thought, to examine the meaning of the teachings of the Bible, to understand the nature and mission of the church, to explore the relation of Christian faith to society, to meet the opposition of non-Christians, and as a basis for preaching and teaching.

The current theological revival has had a deep impact in all of these areas, and as a result the patterns of church life and thought are changing.

2. *The Bible is the Word of God.* This old phrase meant to the fundamentalist that God had either dictated each word, or had guided the hands of the writers, so that there could be no error in the Bible. The liberal was more inclined to describe the Bible as a record of man's search for God. Biblical writers who share the new theological approach point out instead that the Bible is the record of God's search for man. The phrase, "the Word of God," is now being used with new meaning. The Bible is the record of the events through which God has shown Himself to men, and particularly to His People. In whatever ways God shows Himself, those are the "Word," the communication, of God. "Word" is thus used in the broad sense of communication. When by reading the Bible a man is "spoken to" by God, then it becomes a channel for him of God's "Word."

3. *God is known by revelation.* A simple analogy can be drawn from everyday experience. We cannot "know" another person unless he lets us know him. We can know the color of his hair, his weight, something of his tastes, and who his friends are, but we cannot know the inner personality unless he allows us—unless he "reveals" himself to us. Revelation in theology, a central concept in the current theological emphasis, is something like that. It refers to the conviction that we cannot find God by our own rational effort. Biblical theology is not a "natural" theology which assumes that we can know God by reason or by observing the visible processes of nature. God reveals Himself to man in many ways—through the events of history, through the Bible, through personalities, by the Holy Spirit. God takes the initiative in revealing Himself, and He took the initiative most decisively and uniquely in Jesus Christ. What is revealed to man are not rules of living nor patterns of church life nor spiritual teachings. What is revealed is God.

4. *The Church is a covenant community.* For many liberal Protestants, a church is a society set up by Christians as a means of working together in a common spirit toward common goals. The more recent theological viewpoint sees in the church a continuation of the covenant community of Israel which grew out of the Exodus from Egypt. Present day Christians are members of a spiritual family which has a more or less continuous relationship, a common heritage in the faith, with Abraham, Isaac and Jacob, the prophets, Jesus, the Apostles and the historic church. From this point of view, to become a Christian is to adopt spiritual ancestors. The church is the Body of Christ, and He alone is its Head. It is in the world for the same purpose that Christ was sent into the world, "to reconcile the world to God." This is not first a reconciliation of man to man, but of man to God, and from this should flow reconciliation of man with man.

In the light of such a view of the church, division is seen as a sin. Church unity is understood as God's will for the church, for all who accept Christ as their Lord are members of one Family of which He is the Head. One of the great facts of Protestantism in the twentieth century is its world-wide ecumenical movement which expresses a new realization of this responsibility of divided Protestantism to unite in common work and witness.

5. *Protestantism has a distinctive witness.* Protestants are studying church history more than ever before, and while they recognize the many points at which they witness to a common Lord with Roman Catholics, they also recognize the deep gulf which divides them from Roman Catholics in their doctrines of the church and of work. This historical study has led to a new appreciation of the distinctive Reformation idea that the place where men are to fulfill their Christian duty is in their everyday work. No sphere of life can be separated from Christian concern; religion is not reserved for the pious occupations. Every occupation can be a "calling," a "vocation" from God, and men perform their obedient service to their Creator primarily through their day-by-day work. The church, then, is at work in the world through those who accept Jesus as the Christ, and its mission is expressed through their labor in farm or factory, home or classroom, at desk or drawing board.

6. *The church must act in the world.* If God acts in history, His church must allow itself to be used by Him to attain His purposes. The church is in the world, but not "of" the world. It must not allow itself to be identified completely with any particular social or economic system, any particular race or nation, any particular class or culture. The church should stand as a symbol within history of that which transcends history. It is in the world as a human institution which points to God and to His claim upon the world and upon men. However, the church must respect the function of other institutions and other points of view. Part of its mission is to maintain a dialogue between the faith and such scientific or academic fields as education, depth psychology, the arts, because not all truths are given in the revelation of God's Truth about Himself.

## RENAISSANCE IN CHRISTIAN EDUCATION

A church's theological position is reflected in worship through the form of liturgy, as well as the content of preaching, and this guides the architectural expression in the handling of nave and chancel.

The church's theological position is reflected organizationally in its education program, in both content and pattern, and this should guide the architectural expression in the facilities for Christian education.

Because education in the church is institutionalized into elaborate processes and programs, educators are usually the slowest of church professionals to adopt and implement theological changes. While neo-orthodoxy came to America in the 1930's it was nearly 20 years before the educational leadership of Protestantism began to reflect the change. The change has begun, however, and educators are teaching, organizing and writing from the perspective of a fresh theological concern, a new emphasis upon the Bible, and a new view of the church. Changes are to be seen in many local churches, but particularly in the Episcopal and Presbyterian denominations which in recent years have sponsored nationwide attempts at new patterns of Christian education.

The most important impact of these new theological currents is the acceptance of *Christian education as an integral part of the life of the church.* This is seen in the Episcopal program when the rector of the parish conducts the family service for the Church School. This acceptance is obvious in many practical ways. For many years, Sunday Schools were supported by their own offerings. Now in most churches the educational program is in the church budget—salary of director, cost of materials, equipment, curriculum, even subsidy for sending children to summer church institutes. For many years, Sunday Schools had their own committees, but now in most churches a regular board or committee of the church has responsibility for organizing and conducting the Christian education program of the church. In many churches one of the ministers is the head of the educational work of the church.

There is a deeper and more significant way in which the education program has been accepted as part of the life of a Protestant church. The change of attitude has come about from both sides—the educators and the churches. Sunday Schools no longer feel they have done their full jobs by telling children about the Bible and by developing individual character. To be a Christian means to be a part of the acting Christian Family, the church. The education task is carried on because it is part of the church's mission, and conversely it is part of the educator's task to introduce children and young people into the total life of the Christian church. Christianity is the faith of a community, of the people of God, and the participation of children in the Sunday School is their way of participating in the life of the whole Christian Church.

A second result of the new theological current is that *experimentalism is returning* to the local church education program. The new Christian education does not enthrone one method—discussion, lecture, story-telling, or audio-visual. The most important factors in the classroom are the faith of the teacher and the openness of the student to all of the experiences he will have there. The good teacher uses a wide variety of methods and techniques and the church should seek to provide the necessary facilities for such variety. More important is the fact that Christian educators are better trained and are better qualified to experiment creatively with new patterns in the local church. In more and more churches Sunday morning sessions last two or three hours. Weekday classes are increasing for youth and adults. No longer does a church stand idle from Sunday evening until Sunday morning. Because Christian educators are better trained, because the education program in itself is becoming more varied and complex, and because method is subservient to an understanding of the faith, there is little likelihood that a new fad will erupt for a one-sided educational emphasis and demand a narrowly specialized building.

A third aspect of the new currents in Christian education is its fresh concern for *adult education.* Being a Protestant Christian is now understood as involving a responsibility to continue to deepen one's understanding of the faith throughout life.

Early twentieth century religious education placed emphasis upon "growth" and the importance of starting the growth of the individual in the right direction. This sometimes implied that education in later life could contribute very little to the personality already formed. But biological maturing is not an adequate analogy for theological maturing nor for Christian development. "Growth" does not apply to faith in the same way. Understanding may come either suddenly by revelation or gradually by growth. The objective of the Christian gospel is to bring men into a right relation with God. This is not a "natural growth process," but rather is the result of a human response to a divine activity. This being true, the basic idea of Christian education is less to aid a person's spiritual growth than it is to make sure that the individual is confronted by the reality of God's activity in history so that he may be helped to recognize God's initiative in his own history and to respond with faith.

While in early childhood there is need for an introduction to the roots of the faith—Biblical and historical—as the person matures there is need for more explicitly theological training. In recognition of this a number of local churches now offer a midweek School of Religion, or a major lectureship, or a Lay School of Theology, for extended periods dur-

ing the year. Some churches are employing full-time directors of adult education. Libraries of religious books are increasingly a central feature in adult education programs. Perhaps the most significant adult education conducted by Protestant churches is the training provided for Sunday School teachers. Through teacher training the church helps to form the patterns of faith of the coming generation.

A fourth new emphasis is the serious attempt being made by many churches to implement the conviction that *the family is the primary religious educator of children.* The fact that parents are their children's principal and most important religious teachers—for good or bad, and whether they intend to be or not—has been asserted for many years by religious educators. No church has yet taken so radical a step as to require that all parents teach their own children, with the church providing education for parents only. In the new education programs of the Presbyterian and Episcopal churches, however, the parents play a much larger role than before, and are provided with monthly materials to use with children in the home which include text books that are permanently bound so they may become part of a family library. Activities are planned which enable the parents to assist the teachers. The new plan of the Episcopal Church provides for a family service each Sunday morning, conducted by the rector or priest of the parish, with children and parents going from this service to their individual classes.

Other churches are experimenting with a variety of family-centered plans. One form is family classes —where parents attend the Sunday School class with their child for part of the year. In another pattern, parents and children of a department attend together a common presentation period and then go into separate groups for discussion and projects. Family nights are common in many churches. No church expects to fulfill its educational responsibility only through family activities. Dependence upon a stereotyped, traditional Sunday School program to perform the total educational ministry of the church is no longer valid, however. The immediate future will see more and more variety in the patterns and structures of educational programs, and one of the most important will be the emphasis upon home teaching and participation by family groups.

## THE CHURCH SCHOOL AND THE ARCHITECT

The basic assumption of the Christian educator is that God is not limited, in speaking to man, to the acts of worship. The nave, therefore, is not the only essentially Christian portion of the church building. The Biblical injunction of Jesus Christ to His disciples was not to go out and conduct worship services! It was "Go ye therefore and teach all nations, baptising them in the name of the Father, and of the Son and of the Holy Ghost; teaching them to observe all things whatsoever I have commanded you." If education is, in principle, separate from the organic life of the church, that separation should be expressed structurally. Such is obviously the case with most Protestant church buildings. Education may be in the basement, in the "education wing" or the "education building." But if the Sunday School is organic, if both preaching and teaching are Scriptural and essential, then the church building should express that integrality. To do this, Protestant church architecture will have to develop a new form.

The distinctive feature of Protestant church architecture, then, must be the duality of focus. Teaching *and* preaching; education *and* worship. The difference in function should not imply a difference of intent or content. The difference in pattern should not imply a difference of direction, or symbolism, or relation to historic Christianity, or relation to God. If architecture is to express both the theological nature and the practical situation in Protestantism, then the educational facilities must be as clearly and explicitly "the church" as the nave. There are particular difficulties in this for the architect because most Protestant churches being built in America today require much more square-footage for education than for worship, fellowship or administration. This means that the architectural expression of the education facilities will and should influence the form and character of the whole building.

Now the educational portions of the church are most frequently copies of the local public school. The fact that the main educational medium of a Protestant church is its Sunday School should not lead the architect to the superficial assumption that all schools are alike. "School" is changed in its meaning when it is in a Christian church. Not only must the difference in program between a public school and a Church School be obvious in the architecture, but just as important the form should have a Christian meaning which is relevant to contemporary man. It must say "Christian faith" and "God was in Christ" to the child who comes Sunday by Sunday, as well as to the passer-by. It must declare its spiritual purpose not only as it houses teaching, but must itself, as a building, be a teacher of the Christian faith.

The architect who attempts to take seriously the whole challenge of Protestant church architecture must recognize that what he does will reflect his own faith. Rudolf Schwarz, in "The Church Incarnate," rightly points out that "the architect must believe that God has revealed his own being in the sacred history and he must believe that therefore even God himself is not something or other but rather a clear form, and also that, glorifying him, one gives him back his own message when, in the building of a church, one forms creation to sacred body. He must believe that there is truth in the fantastically bold word about the birth of God among men—

and likewise in that other word that man is the measure of all things: he is, but only because he has been measured by the measure of God." [2] The building expresses the faith of the architect just as teaching reflects the faith of the teacher and preaching the faith of the preacher. Through the understanding of his own faith the architect discerns the faith of a congregation and builds a "temple" to God which reflects that faith.

A new integral church form will speak through the symbols of space, light, and explicit content.

*Height.* Prosperous Protestantism has been prodigal in its use of land and has accepted the present one-story fad without "Christian criteria." Without meaning, and with little concern for esthetics, one-story "additions" have sprouted as "wings" around old buildings. They may be comparatively inexpensive to build, and may have provided desperately needed classroom space, but they have made it more difficult for the next generation to find a church building that witnesses to the faith for which it was built.

Educational wings and buildings have been particularly guilty of being symbols of the man-centeredness of so much popular religion. There is nothing within the souls of those who build or pay for such structures which demands either that the building express man's reaching up or God's transcendence and reaching down. Height has been lost as a dimension of much modern Protestant architecture. Even the steeple is often brought down and set on the ground beside the church building. Economy, not faith, dictates every artistic decision. The symbols of earth-bound, man-centered religion are everywhere, and they cannot for long feed the spirits of people who are rediscovering the God of Abraham, Isaac, Jacob, of Jeremiah, Jesus, Paul, Luther and Calvin.

Protestant architecture can no longer allow its building for worship to point God-ward and its building for education to point man-ward. It may be that as our land becomes so filled with people and the cost of ground becomes too great that our churches may once again look upward.

*Light.* Contemporary architecture has freed the church from cramping limitations of trying to adapt old styles to new functions, but contemporary patterns have smuggled in their own inherent symbolism. One of these is the use of light, of glass, of openness, of freedom. Light and openness can imply that all that Christianity means is obvious, only to be seen to be understood. No mystery, distance, judgment and demand are left. Yet darkness has positive meanings for which light cannot be substituted. The church is not all "light." It, too, is an arena of the struggle between light and darkness, of the contention between God and man. The form of the church should be as true to man's situation vis-à-vis God, as it is of God's situation vis-à-vis man. God is not known fully by even the "spiritual" man. All is not openness and clear rationality in Christian faith. There is length, breadth and height and depth to the Christian faith which every Christian church building should reflect.

*Simplicity.* Some contemporary church architecture is almost as iconoclastic as were the eighteenth century Puritans. Simplicity has become barrenness, starkness, plainness. Ornate decoration has little spiritual value, but there is a richness and variety to the Christian church with its long spiritual heritage which should enrich any contemporary church building. Stark simplicity can symbolize a profound disregard for the past and for other Christian traditions, it can dehumanize life, it can mean emptiness and ignorance. The new form should be a "teaching" church throughout, in which the building itself not only asserts in all its parts the basic relationship between man and God, but also reflects the content of Christian history and conviction.

The corollary of the problem of simplicity is the use of new symbols. Sentimentality and superficiality are having their hey-day in Protestant churches when flowing springs are installed to "symbolize" the Water of Life, and boxes of plantings are scattered around to "symbolize" the Living Hope, and modernistic fish are hung on the wall to "symbolize" the Fisher of Men.

These are not symbols. A Christian symbol is a product of the Christian community and must partake of the truth it symbolizes. We do not "design" new symbols. Christian symbols are Christo-centric, and though many old symbols do not speak to modern man, it is hardly significant to try to create new symbols which modern man may understand but which he cannot identify with the inner meaning of the Christian faith. Symbols, too, share the teaching ministry of the church and can help make the building itself a channel of that teaching.

Protestant church building committees so seldom recognize that the art and symbolism of the church is expressed in the basic form, in the rationale of the building. It is here that the building should be "Christian." Instead, most churches try to apply the "Christian element" in decoration. Christianity which is only a surface decoration is as false in architecture as it is in personality.

The roots and the expression of a new integral Protestant architectural form must grow from a deep understanding of Protestant Christian faith in all of its vitality, variety and complexity. A new day should be dawning in American church architecture.

1. *What Present Day Theologians Are Thinking*, Daniel Day Williams, 1952, Harper & Brothers, New York, p. 86f.

2. *The Church Incarnate*, The Sacred Function of Christian Architecture, Rudolf Schwarz, Henry Regnery, Chicago, 1958, p. 228.

# *Architectural Engineering*

## How-To-Do-It Book of Curves

In spite of the current controversy over their merit (or meretriciousness), curvilinear forms, not only for roofs but for entire buildings, are evidently here to stay. At least Pratt Institute seems to think so. Its School of Architecture has this fall reprinted and introduced as a text a collection of papers by Associate Professor H. Seymour Howard, Jr. on "Useful Curves and Curved Surfaces," which have appeared in ARCHITECTURAL RECORD over the past four years. As Professor Howard points out, "The forms most suitable for the solution of many structural problems require facility in drawing and using curves," and he has here made readily available information on the characteristics and methods of developing curves and curved surfaces ranging from the homely catenary and the ubiquitous hyperbolic paraboloid to the exotic trochoid. There is also a lucid discussion of geodesic domes, the geometry of which has been sparsely documented in spite of the familiarity of the domes themselves. The publication is available for $2 from the School of Architecture, Pratt Institute, Brooklyn, N. Y.

## Broadway 1960: "20 Degrees Cooler Inside"

By next summer, seven legitimate theaters in New York's Times Square theater district, each a member of the historic Shubert chain, will be linked to a refrigeration plant hidden away in an abandoned boiler room beneath famed Shubert Alley. The master air conditioning system will operate at about one-tenth the cost of the delightfully anachronistic system it replaces—an ice-chilling system that consumed about $6,000 worth of ice every week. It will also improve the old control system whereby an usher, noting the moist brows of the patrons, simply told the manager who told an operating engineer who threw in another chunk of ice. However, the new controls will preserve the autonomy of the theaters: an empty theater can be bypassed entirely; and a packed theater with its dials set for full cooling can re-adjust its climate for reduced occupancy if there is a sudden exodus during the second act. Its advantages as a cooling mechanism aside, the new system would seem to offer all sorts of dramatic possibilities. What stage manager could resist turning the air conditioning full on for a South Pole epic —or full off for a South Seas idyll?

## Less Is Not Enough

The concept of functionalism as the *sine qua non* of modern architecture is by now so firmly entrenched that, while no one will doubt that "in many cases (it) is only partially realized," the notion that even our most streamlined buildings are, by definition, non-functional comes as a bit of a shock. However, this intriguing theory is not only propounded but thoroughly documented in *Adaptable Buildings*, the most recent in a series of tri-lingual publications put out by the Institute for the Development of Lightweght Structures, which is captained by Dr. Ing. Frei Otto. In a piece called "Flexibility in the Planning and Design of Structures," Antony Herrey develops the thesis that since "no structure is functional unless it can . . . potentially fulfill any function at any time . . . it is actually a mockery of the doctrine of functionalism to erect structures which conform to functional requirements at the time of construction but rapidly thereafter become obsolete." Not content with decrying the lack of flexibility—and hence of functionalism—in our architecture, he goes on to outline the "general directions for achieving [internal, external and regional] flexibility" and to cite a surprising number of proposals that attack the problem head on—from Fuller's "Dymaxion" house to the "Uni-strut" framing system.

Dr. Otto has expressed his hope that the Berlin-issued publication will stir up discussion on "a subject of general interest." If Herrey's piece, which was the longest this uni-lingual reader could decipher, is representative, it will.

## This Month's AE Section

# PRECAST, PRESTRESSED WALLS FOR A HIGHWAY HOTEL

1.

The Treadway Inn, St. Davids, Pa.

*Architects:* Wise • Burke • Scipione, A.I.A.; *Structural Engineers:* Garfinkel & Marenberg; *Mechanical Engineers:* Garber & Cohen; *General Contractor:* Fleming Co.

In the course of precast concrete's development from a new import to a structural staple, many attempts have been made to venture away from the tried and true column-girder systems in which precast units simply replace more conventional framing members, and to move toward systems in which large precast panels are themselves the columns and girders.

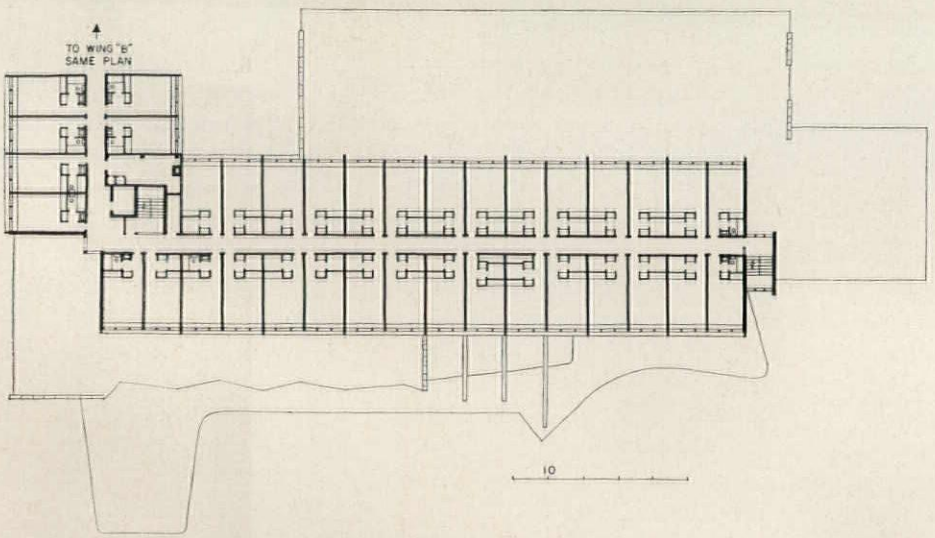
A recent and promising step in this direction was made in the design of the highway hotel shown on these pages. The precast floor and wall panels that serve as both framing and enclosure for its 145 bedrooms were assembled in much the same way as a giant house of cards, by stacking the floor slabs and wall panels. However, to prevent the structure's succumbing to wind loads as a card house would succumb to a sneeze, the walls were stiffened and made continuous by post-tensioning (see details page 158).

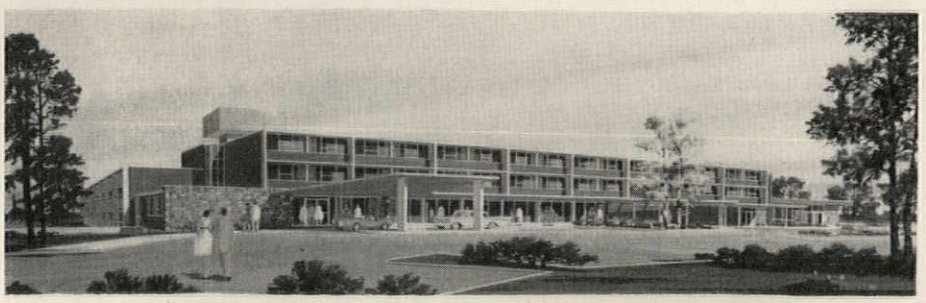
Although the Treadway Inn, an L-shaped building with all of a three-story wing and two floors of a four-story wing made up of identical-size rooms, must in any case have offered a tempting opportunity for prefabrication, the real impetus for the development of the "honeycomb" framing system was provided by the owner's insistence on better-than-adequate soundproofing. After studying the relative costs of several alternate ways of meeting this requirement, the structural engineers concluded that, since the common means of soundproofing is sheer mass, 6-in. load-bearing walls of solid concrete would perform this function and give the added advantage of built-in fire resistance.

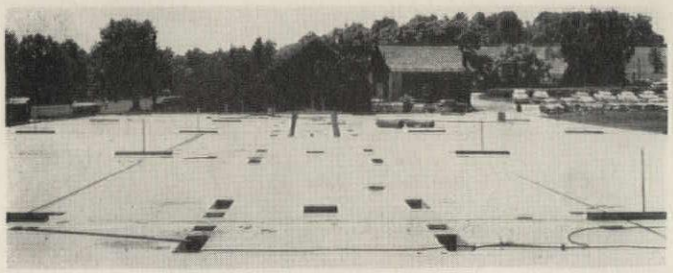
Moreover, although the precast panels were used only for the bedroom floors, the irregular bays in the public and service areas being conventionally framed of reinforced concrete, they made possible substantial savings in overall construction time and costs. The guest rooms were framed in about two months; the precast walls eliminated the need for additional soundproofing and fireproofing; and the concrete surfaces needed no finish treatment other than painting. It was also possible to extend the precast slabs at each floor to provide a horizontal sunshade over the room windows and to extend every other wall to the edge of this sunshade to provide fixed vertical louvers, thus forming at very little added cost the shadow-box facades that are a principal feature of the building exterior.

The precast floor slabs and wall panels used for the guest room floors in both wings of the Treadway Inn were precast on the site in stacks of as many as twelve units (1), a procedure that saved on formwork and time, and also assisted in proper curing since the stacks formed ready-made curing rooms with slabs sealed at top and bottom. Although all the panels are not identical (the plans show, for instance, nineteen different types of wall panels), the variations in dimensions and detailing—openings, conduit, and so forth—were minor enough to be taken care of by modifying the forms between pours.

Essentially, there are only two types of wall panels—the full-length prestressed walls that define each two-room bay, and the shorter intermediate panels; and only two types of floor slabs (2)—solid slabs along the outer rims of each floor, and a center strip of pierced slabs that per-





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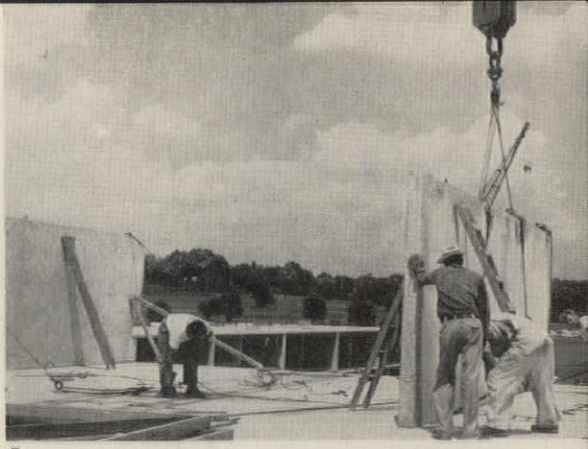
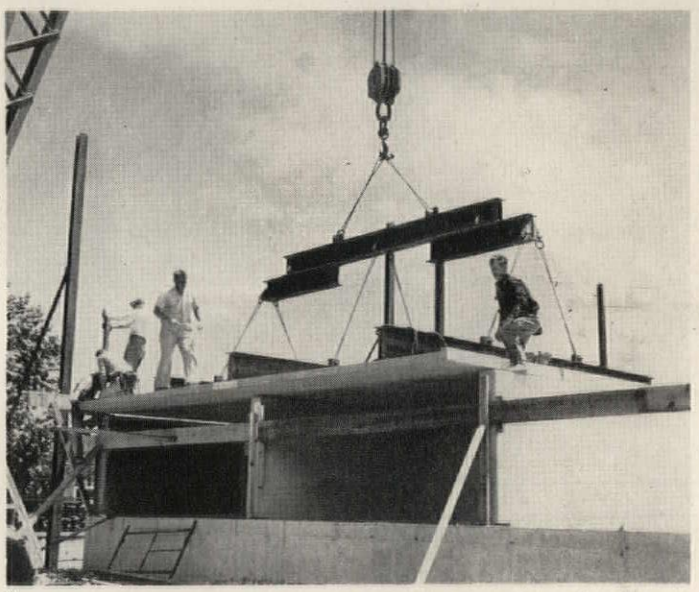


3.

Photos by Michael P. Marcelli



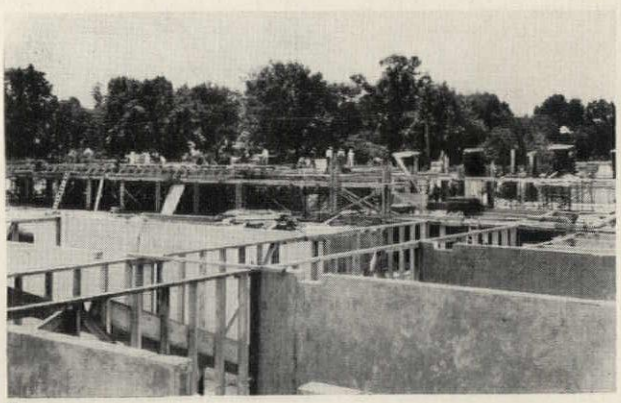
4.

mit passage of service piping for the baths along the corridor.

The floor slabs, which were hoisted flat by means of cables that, spread by I-beams, ran from the crane to eye-bolts screwed into threaded inserts in the concrete, were simply laid across the walls, meeting at the center line of the long walls and resting on the shorter walls at midpoint in each bay. The wall panels, though handled in much the same way, were lifted vertically (3) and set one atop the other at the joints and midpoints of the slabs. To brace them until they were capped by the floor slabs of the next story (4), the contractor used the corridor stud walls, which he preassembled on the site (5). Those that braced the outer ends of the walls were removed once the slabs had been placed, and set up elsewhere in the building, either again as bracing or in their final position as corridor partitions. As shown (6), the outer ends of the walls were alternately pierced and cut out to permit passage of the piping for fan-coil air conditioning units in each room.

After the wall and floor panels had been placed (7), the "house of cards" was made stable by threading continuous high-strength prestressing rods through galvanized tubes embedded in the long walls, and stressing them with a jacking load of some 20 tons. According to the engineers, it was both quicker and less costly to achieve continuity by post-tensioning than by field welding conventional reinforcement. The rods were inserted through the walls and jacked in less than half an hour each.

Another time-saver, not so easy to calculate, was the technique of erecting the wall and floor panels on steel shims which left a ¼-in. joint, later grouted with a very dry mix, between the concrete units. This not only assured uniform bearing over the full length of the walls, but also made it possible to take up small tolerances at the joints, so that time-consuming precision in forming and erection was unnecessary.



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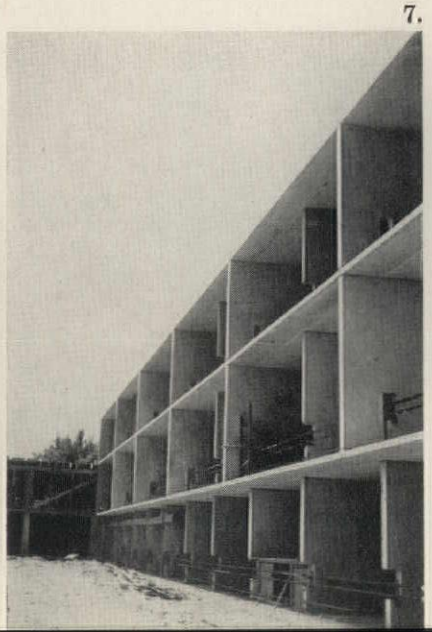
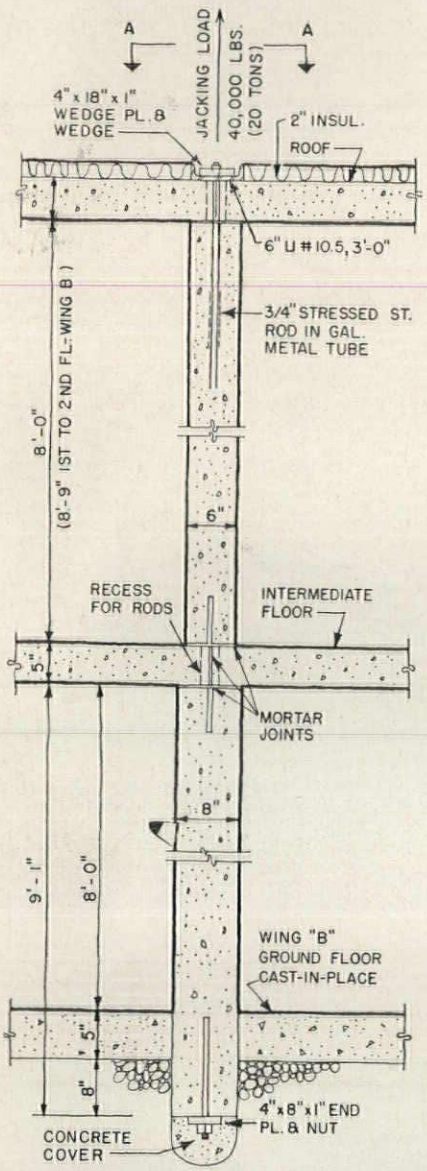
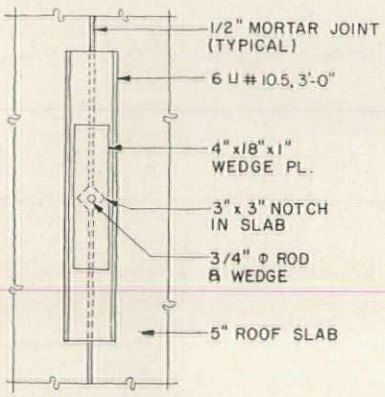
6.

7.

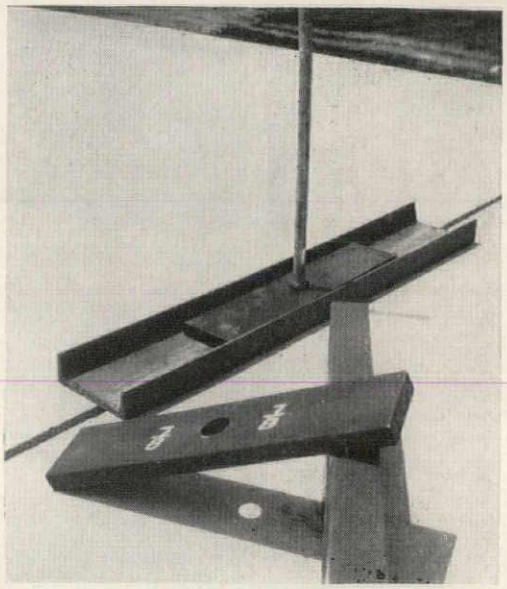


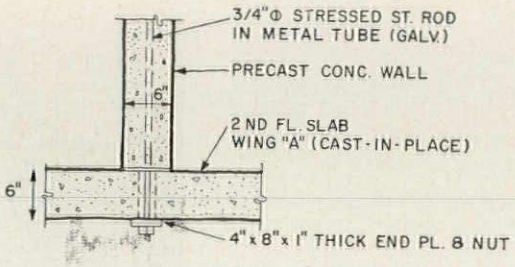



TYPICAL SECTION PRECAST CONCRETE WALLS & SLABS

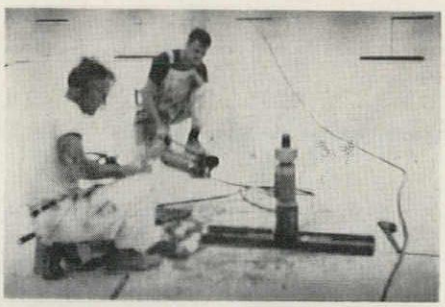



PLAN A-A

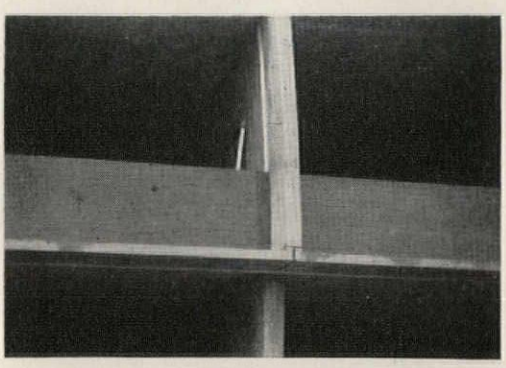


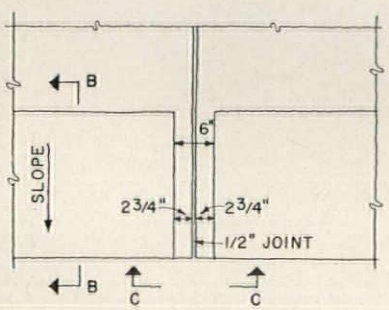



BEARING WALL ANCHORAGE

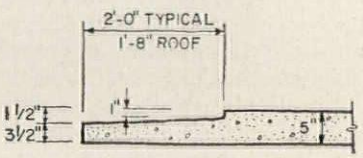


As shown in the details above, the method of anchoring the prestressing rods varied slightly from Wing B, where all the walls were precast, to Wing A, where the two lower floors were framed of reinforced concrete. Note that only the intermediate floors, one in Wing A and two in Wing B, and the roof were precast, and that the first floor walls in Wing B are 8 in. rather than 6 in. thick. The photos show the upper anchorage used for the three rods in each prestressed wall (see also Plan A-A) as well as the process of inserting and jacking them

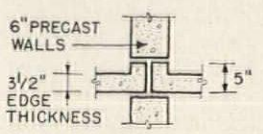





PLAN OF PRECAST PANELS AT EXTERIOR JOINTS




SECTION B-B




SECTION C-C

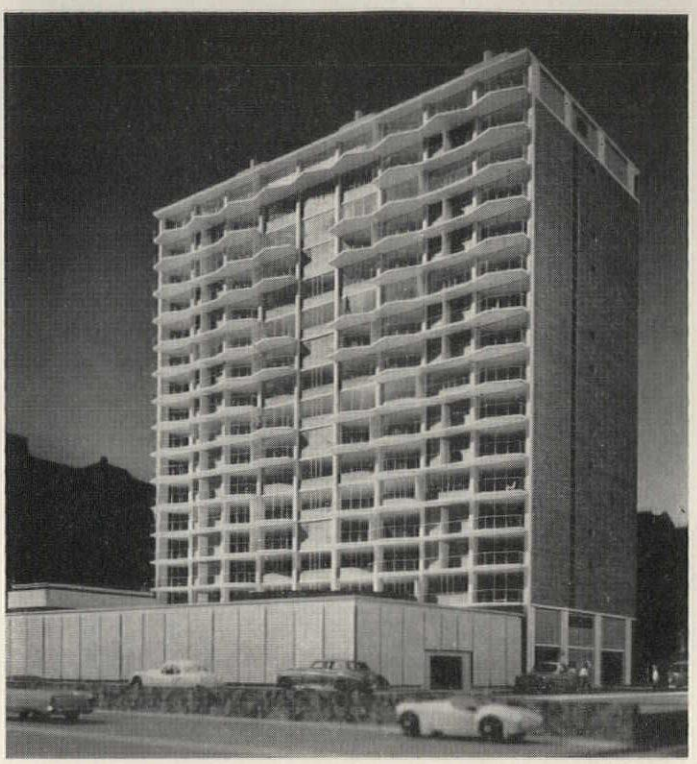
To prevent water's collecting on the horizontal slab projections outside the room windows, the slabs were cast with a downward slope from the spandrels to their slim outer edges. These details of the exterior joints between the slabs and the walls show how this was done without the need for a corresponding slope in the wall panels

# AIR CONDITIONING FOR LUXURY APARTMENTS

*330 Beacon Street, Boston, Mass.*

*Hugh A. Stubbins, Associates*
*Architects*

*Fred S. Dubin Associates*
*Mechanical and Electrical Engineers*



*Attention to thermal comfort is as careful in its own way as that given to the elegance and amenities of design. In the central air conditioning system, each major room has individual control, and one side of the building can be heated while the other is cooled*

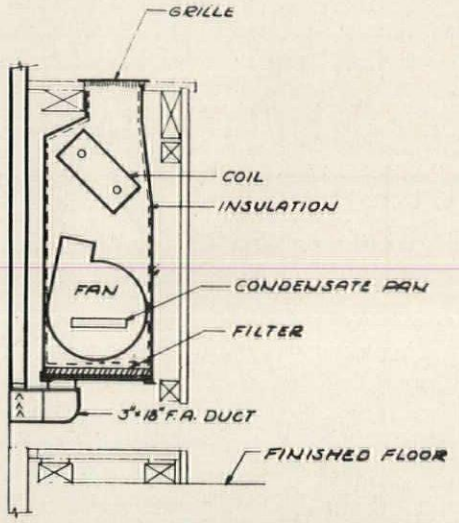
In a visual sense, apartment air conditioning brings to mind a myriad of window units creating a haphazard and disturbing pattern in otherwise carefully designed façades. But as air conditioning for commercial buildings has become more sophisticated in matters of appearance, comfort and all-round performance, so has it for apartment buildings. Nowadays, apartments are air conditioned by either through-the-wall units or central systems. (Five years ago, choice of a central system for an apartment building was exceedingly rare.)

There were many reasons—a number architectural—why a central system was chosen for the 17-story luxury apartment building, shown at the top of the page, which is going up on Boston's historic Beacon Street, overlooking the Charles River. Here are some of the conditions which led to the choice of central hot water-chilled water and fan-coil units:

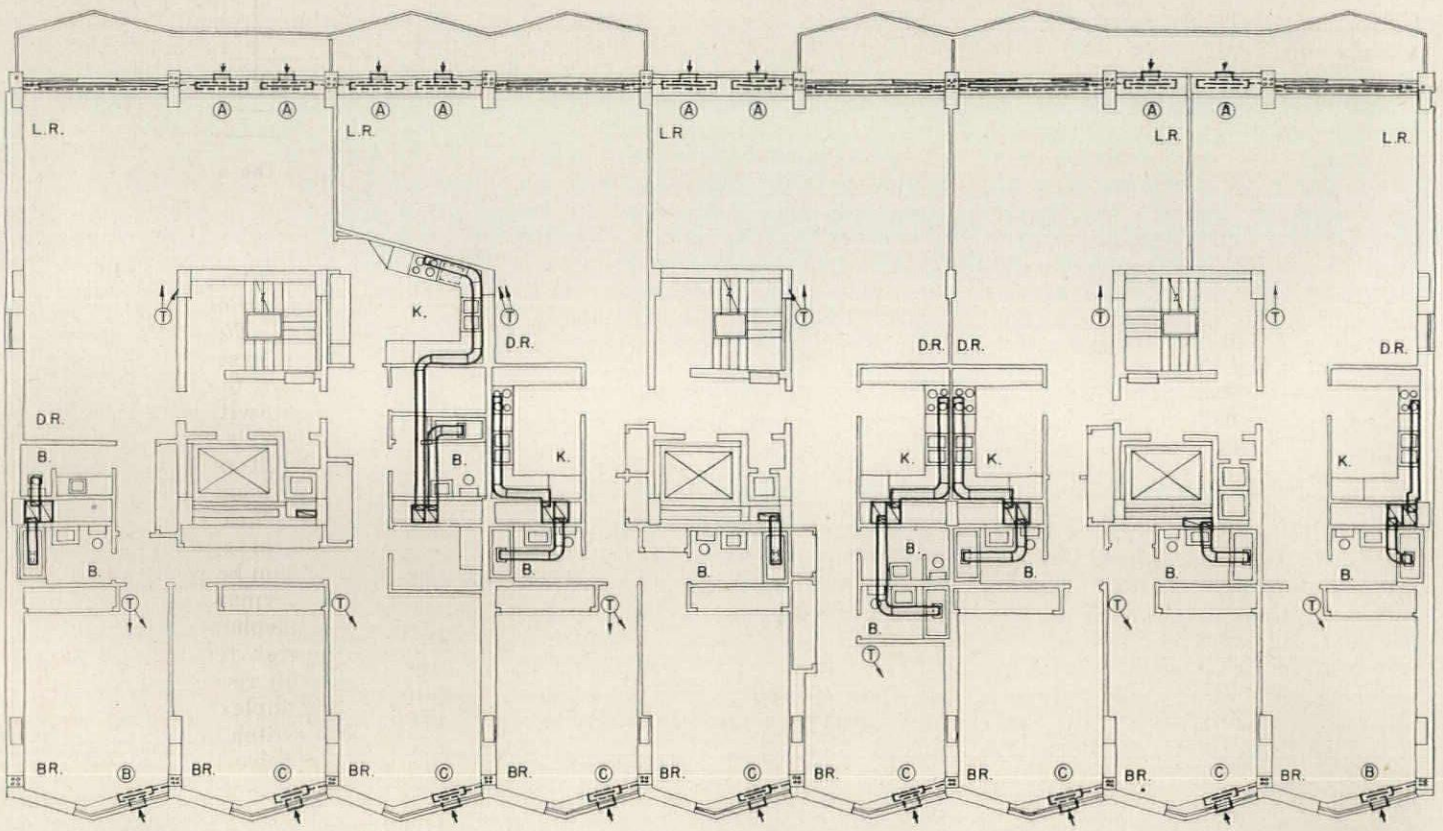
1. All kitchens and bathrooms are inside rooms, requiring mechanical exhaust and a source of outdoor make-up air. (This must come from either a supply duct or from through-the-wall vents; the latter was used here.)
2. Glass extends from floor to ceiling for a large portion of many of the exterior walls. This had several ramifications: There would be a greater than average demand for heating in winter and cooling in summer. The large apartments extend through the building from front to back so that each apartment has rooms with both northwest and southeast exposures. The large exposures necessitated individual room temperature control rather than a zone per apartment system, since one side might need heating while the other needed cooling. (*See plan following page.*)
3. There was no space for a central duct system to be located between the ceiling and the floor above because of the number of stories that had to be provided within building height limitations imposed by zoning laws. Also good engineering practice prohibits the circulation of return air from one apartment to another.
4. Equipment life must be reasonably long because it is expensive to replace.
5. Air distribution should be draft-free, and there should be provision for directing warm air at large glazed areas to control downdrafts in winter.
6. Noise level should be unobtrusive.

*This was the engineers' solution:* A fan-coil unit containing a coil for chilled or hot water, blower, filter and fresh air intake was located in each living room and bedroom. The fresh air intake pierces either a porcelain enamel spandrel (SE side) or a brick spandrel (NW side). The air discharge from the fan-coil units is deflected to cover the window areas. Chilled or hot water is pumped to each unit depending on the demand of master outdoor thermostats.

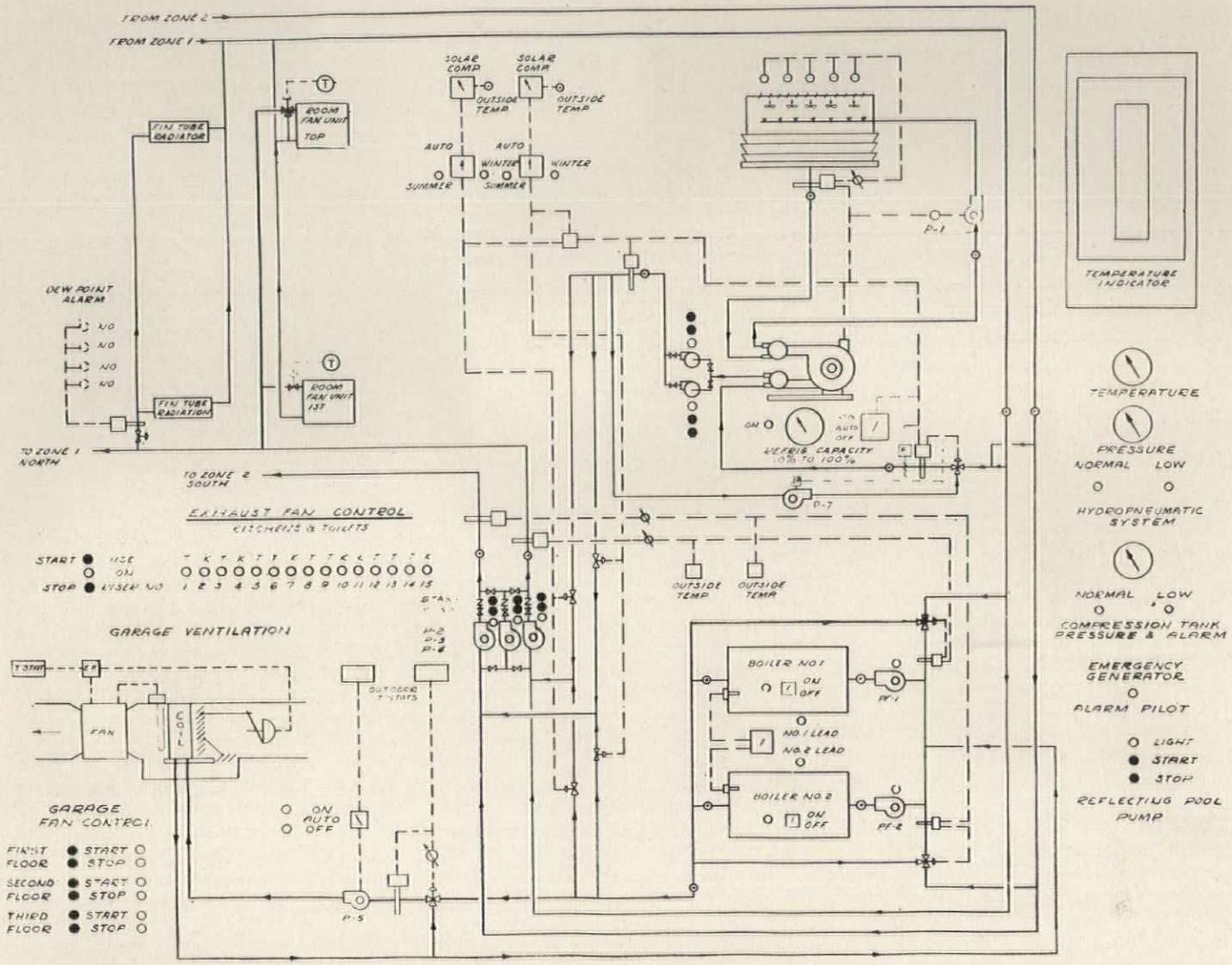
The temperature control system was designed to provide fully automatic operation summer and winter. Solar and wind compensating controls change the system from heating to cooling, allowing one zone to heat and the other to cool simultaneously if required. Northwest side can heat while the southeast side cools in the winter. It is not possible, however, for one fan-coil unit to heat and another to cool on the same side of the building. The controls also modulate water temperature according to outside conditions. Final space temperature in each room is controlled by a heating-cooling space thermostat which modulates a 3-way water valve on the fan-coil unit. Each fan-coil unit has a fixed fresh air intake which provides make-up air to replace that exhausted from kitchens




Above: the fan-coil unit on the southeast side of the building is concealed from outside view by a porcelain enamel panel. A louver in this panel lets in fresh air. The drawing here indicates a wood enclosure. Fan-coil units on the opposite side of the building are behind brick spandrel walls




Circled letters "A", "B" and "C" indicate different capacity fan-coil units. "A" units provide 58 MBH heating, 25 MBH cooling; "B" units, 46 MBH heating, 14.7 MBH cooling; "C" units, 29 MBH heating, 9.4 MBH cooling. On either side of "A" units is fin-tube radiation with 6.6 MBH heating capacity. Letter "T" designates room thermostat locations. Note exhaust ducts for bathrooms and kitchens




This is the diagram that appears on the control center panel. At a glance the operator can tell how the system is operating

and bathrooms. Fans operate continuously.

To supply the hot water for heating, both a low pressure steam boiler and a high temperature hot water boiler were considered. In order to install the boilers in the basement, which had a maximum permissible height of 8 ft due to a sub-surface water condition, the system was designed using compact high temperature water boilers pressurized with nitrogen.

A centrifugal chiller was selected as the primary cooling source, and was connected by 3-way valves to the main water circulating system. The circulating system was split into two zones to accommodate the building's large glass areas having northwest and southeast orientations. Three circulating pumps, one for each zone, plus one standby, provide continuous water circulation through vertical risers at each column.

One of the not-too-usual features in the design was the use of a reverse return in the circulating system. Return lines run from bottom of the building to the top and then to the bottom again. The purpose of this is to have the same length of pipe (or friction loss) for any one fan-coil unit. Such an arrangement makes balancing easier.

*Cost.* The net result of all the design studies was a completely automatic heating and air conditioning system for the 17-story apartment building and an adjoining three-story garage at a cost of approximately $2.25 per square foot of floor area.

*Control Center.* To decrease maintenance costs and increase operating efficiency, a central control panel was designed. It contains pilot lights, flow switch lights, multi-position temperature indicator and start and stop pushbuttons. At a glance the operator can analyze the functioning of the entire system and control any phase of it from one location.

*Plumbing and Electrical Features.* The plumbing system includes such features as two to three bathrooms per apartment with non-clog water closets, built-in lavatories, showers and wall-to-wall mirrors. Infra-red lamps in bathroom ceilings provide supplementary heat.

The electrical system includes a private intercom between each apartment and doorman and garage attendant, a telephone outlet in each room, a master television antenna, and two-circuit receptacles with one-half of the duplex outlet connected to the light switch and the other half on constant power.

A natural gas-operated emergency generator, located within the cooling tower enclosure, ensures uninterrupted operation of the heating and cooling systems, and provides power for lighting and elevators.

*Constructions to Isolate*

# HIGH INTENSITY NOISE

*by Laymon N. Miller*

*Bolt Beranek and Newman, Consultants in Acoustics, Cambridge, Mass.*

*Highly disturbing noise is generally associated with such things as riveting, freight trains, engine test cells and the like. It is not uncommon, however, to have noise problems in many building types due to mechanical equipment, manufacturing operations—or band practice rooms in schools. This article gives information for the solution of room-to-room noise problems such as the ones just mentioned—illustrating the method with an example.*

Removal of noisy areas, such as factories and busy commercial activities, from quiet areas, such as hospitals and residences, is capable of solving many noise problems. It is usually impossible, however, to move far away from internal noise generation, i.e., noise of equipment necessary to run a building or to carry on the function of the business or industry that occupies the building.

No matter what type building an architect designs, internal noise generation may be a problem: School buildings may have band rooms situated near classrooms and auditoriums; office buildings and municipal buildings may have mechanical equipment areas located near conference rooms and private offices; hospitals may have air conditioning equipment near sick rooms and convalescent areas; hotels may have rooms and suites beside elevator shafts. Factory buildings have many, many noise generators and related noise problems.

There are methods, and fairly economical ones, for isolating noise generators so that adjacent areas can be used without interference from noise. First, the architect may plan the layout of the functions carried on within the building in such a way that the noisy areas are removed from the quiet areas. Second, he may specify adequate noise and vibration control measures to reduce the transmission of airborne and structure-borne noise from the noisy area into other parts of the building. These measures include (a) proper vibration isolation of mechanical equipment, (b) adequate enclosures of noisy areas taking into account proper floor, ceiling, wall and door construction, and (c) the use of suitable noise reduction devices to control the transmission of noise by such leakage paths as pipes, electrical conduits, and ventilation ducts. Third, when properly used, acoustic absorption material is capable of achieving small amounts of noise reduction in rooms having noise problems.

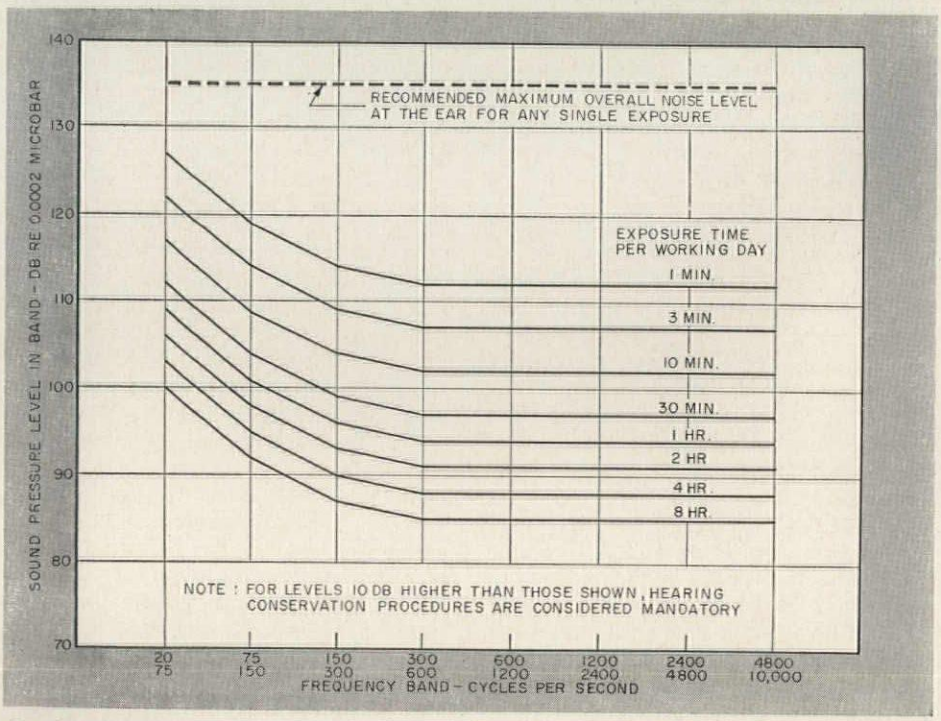
Since it is seldom necessary or economically feasible to isolate a sound generating source so completely that little or no sound is transmitted to the receiving room, attention should be given both to the noise levels generated by various types of noise sources and to the noise levels desired for various types of work or functional areas.

Obviously, noise is only one of the factors which dictates building layout; nevertheless careful consideration of the noise aspects of the layout can do much to produce habitable areas with acceptable acoustic environments. And further, noise control in the design stage is much less expensive than corrective treatments after the building is completed.

Major problems in acoustic isolation occur when it is necessary to achieve 40 db to 60 db noise reduction between adjoining rooms or areas. The smallest opening in a wall or a poorly fitted door can spoil the sound insulating qualities of a complete wall. The following data are presented for use in solving some important room-to-room noise reduction problems. (In this paper we will not go into control of vibration of machinery or structure-borne transmission of noise and vibration.)

## Acceptable Noise Levels

In considering noise and noise levels, we are interested in essentially the full frequency range of hearing—20 to 10,000 cycles per second (cps). Since acoustical problems and acoustical requirements are different for low frequency and high frequency noise, it is necessary for engineering purposes to subdivide the full frequency range into smaller divisions. It has been standard practice to divide this frequency range into eight frequency bands: 20 to 75, 75 to 150, 150 to 300, 300 to 600, 600 to 1200, 1200 to 2400, 2400 to 4800, and 4800 to 10,000 cycles per second. For engineering calculations, it is necessary to specify noise levels and




In the extreme, noise can cause hearing loss; more often it is annoying. A person could stand on a street corner (80 db) 8 hr a day for 25 yr without danger. A riveter using a gun (over 100 db in high frequencies) 2 hr a day for 25 yr might receive some hearing loss

## HIGH INTENSITY NOISE: 1—Noise sources, Criteria

### TYPICAL OVERALL NOISE LEVELS ASSOCIATED WITH VARIOUS WORK OR LIVING AREAS

| OVERALL NOISE LEVEL* | TYPE OF NOISE |
|---|---|
| 120 | At operator's position due to pneumatic riveter or hammer<br>Outside near air hammer tearing up street paving |
| 110 | Wood cutting and finishing machines<br>Large punch press<br>Inside press room of large newspaper<br>Passenger compartment of large propeller-driven airliner |
| 100 | On busy street with heavy truck traffic<br>Noisy industrial area<br>Inside subway train at normal speed<br>Auto horn at 20 ft distance<br>In typical mechanical equipment room for air-conditioned building |
| 90 | In railroad coach or sleeper at normal speed<br>Due to a 1000 KVA transformer in a transformer room<br>Typical industrial area<br>Outside, 20-30 ft from 40-HP cooling tower<br>Inside residence due to airplane flying over at 1000 ft |
| 80 | In 1st or 2nd floor office on street, heavy truck traffic<br>75-piece concert orchestra in concert hall<br>In kitchen or laundry-room due to automatic washing machine, dryer, garbage disposal unit, etc.<br>Stenographic work in large office<br>Inside residence with auto traffic at 50 ft |
| 70 | In 10th to 20th floor offices above busy street in large city, with windows partly open<br>In hotel room adjoining elevator shaft, elevator passing |
| 60 | Noisy office, department store or restaurant<br>In living room with TV set in operation<br>Normal voice level at 3 ft |
| 50 | Quiet restaurant<br>In bedroom with air-conditioner in operation<br>Quiet private office<br>Quiet residence with oil or gas furnace in operation<br>Soft radio music in apartment |
| 40 | Quiet residence at night with no outside noise |
| 30 | Leaves gently rustling in a breeze |
| 20 | Whisper at 4-5 ft |

*Decibels relative to the reference of 0.0002 microbar as measured on the "C" scale of a standard sound level meter. Includes all audible noise in frequency range of 20 to 10,000 cycles per second (cps). Specific situations may vary 5 to 10 db from these values.

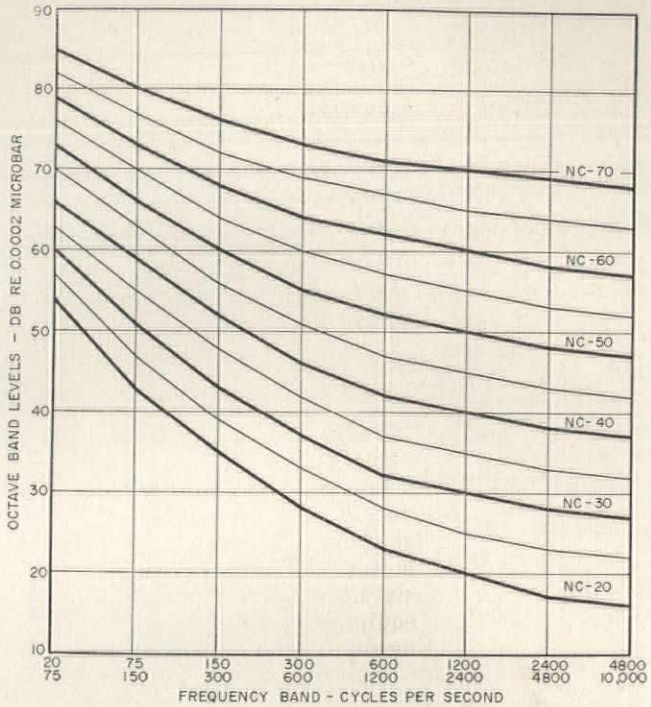



FIG 1: Noise criteria for different types of spaces

| NC Curve | Typical Applications |
|---|---|
| NC-20 to NC-30 | Executive offices and conference rooms for 50 people |
| NC-30 to NC-35 | Private or semiprivate offices, reception rooms, and small conference rooms for 20 people |
| NC-35 to NC-40 | Medium-sized offices and industrial business offices |
| NC-40 to NC-50 | Large engineering and drafting rooms, etc. |
| NC-50 to NC-55 | Secretarial areas (typing), accounting areas (business machines), blueprint rooms, etc. |
| Above NC-55 | Not recommended for any type of office |

USE CURVE NUMBER INDICATED IN THIS TABLE FOR APPROPRIATE $S_T/S_W$ AND ACOUSTIC TREATMENT

| RATIO $S_T/S_W$ | SURFACES OF RECEIVING ROOM COVERED WITH 1 IN. (OR MORE) ACOUSTIC ABSORPTION MATERIAL | | |
|---|---|---|---|
| | NONE | CEILING ONLY | CEILING PLUS 1/2 TOTAL WALL AREA |
| LESS THAN 3.6 | 1 | 3 | 5 |
| 3.6 - 5.6 | 2 | 4 | 6 |
| 5.7 - 8.9 | 3 | 5 | 7 |
| 9.0 - 14.0 | 4 | 6 | 8 |
| MORE THAN 14.0 | 5 | 7 | 9 |

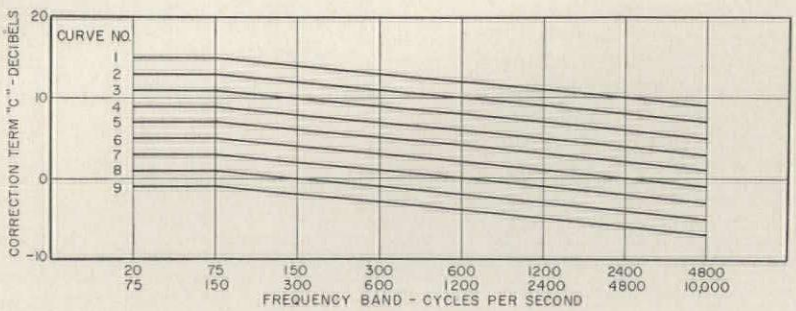



FIG 2: Correction terms to account for size and shape of sound receiving room and amount of acoustic treatment in it. $S_t$ is total surface area of walls, ceiling and floor. $S_w$ is area of wall common to sound generating and sound receiving rooms

## HIGH INTENSITY NOISE: 2—Wall and Door Constructions

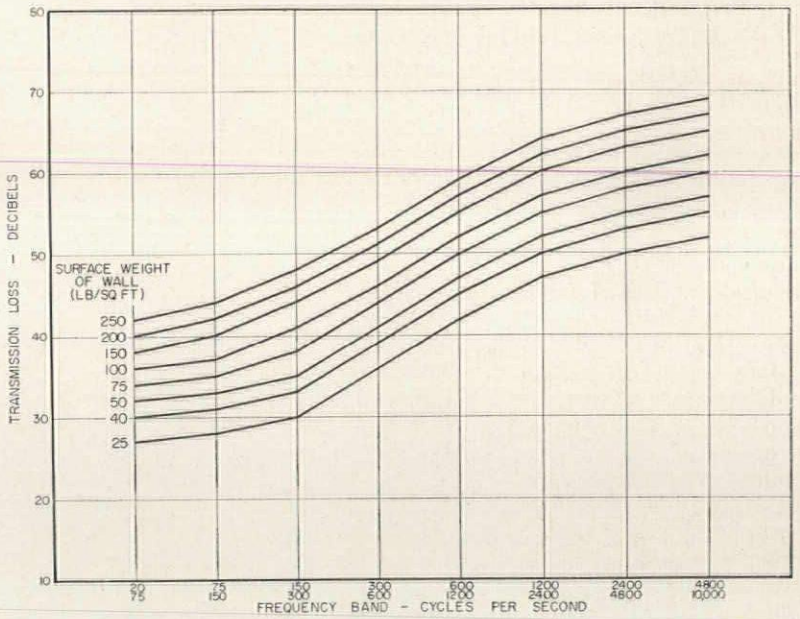



FIG 3: In order to cover transmission loss for a wide range of materials, the walls are specified by their surface weight rather than thickness. For example a 50 lb per sq ft wall is achieved with 4 in. of dense concrete. Note that for doubling of surface weight, transmission loss increases only by about 5 db. For more efficient use of material, double walls are used (see Fig 4)

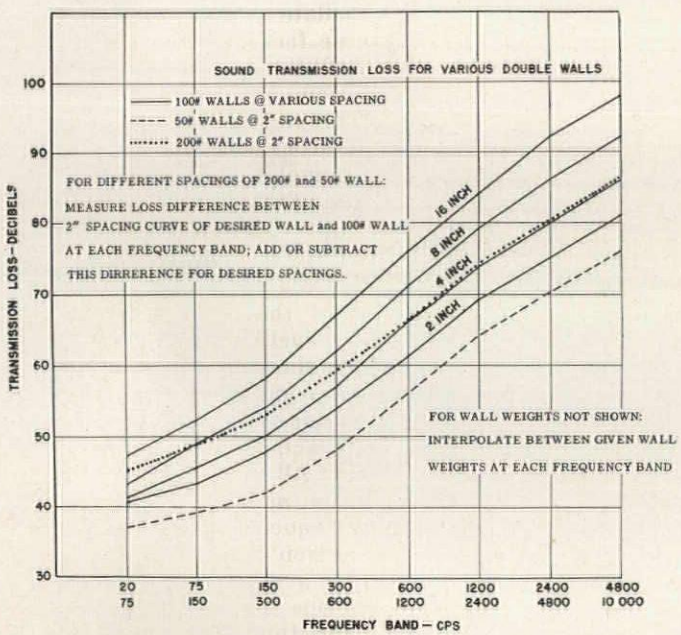



FIG 4 *(above)*: Sound transmission for various double walls with different spacings

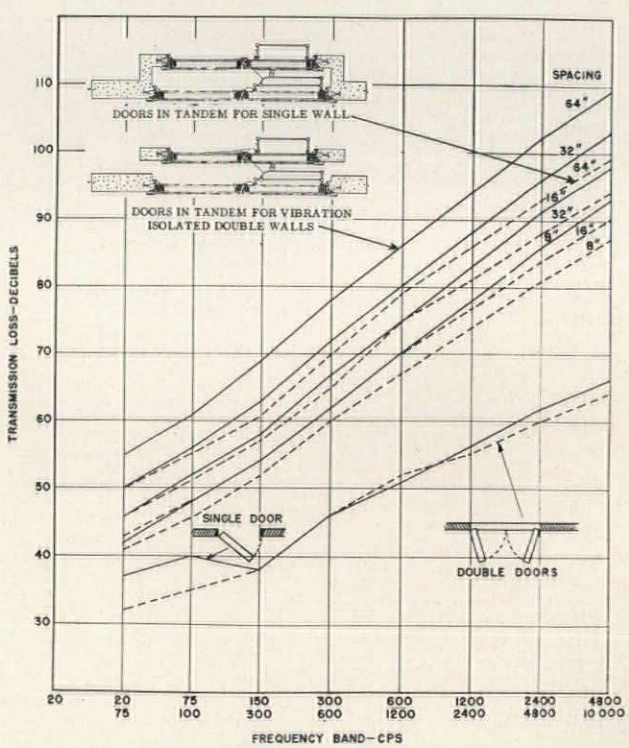



FIG 5 *(right)*: Sound reduction doors for single and double walls. These data were taken at the National Bureau of Standards for the Jamison Cold Storage Door Co., Hagerstown, Maryland

various acoustical values in terms of these frequency bands.

Experiences with many different types of offices and working and living areas has led to the development of noise level criteria[1]* which can be used quite satisfactorily is setting up desirable noise levels in various areas. A family of noise criterion ("NC") curves is given in Fig 1. These curves show noise levels in each of the eight frequency bands which go together to make up an acceptable balance of low frequency and high frequency noise levels for typical occupancy areas.

In nice private executive offices, noise levels due to external causes, such as outside traffic noise or building ventilation system noise or nearby business office noise should not exceed the noise levels given by the NC-25 or NC-30 curves. In private or semi-private offices, occupied by only one or two persons, noise levels should not exceed the NC-35 curve. For large office areas, occupied by several persons performing quiet types of work, the noise levels due to external causes should not exceed the NC-40 or NC-45 curves. For large office areas, occupied by several persons performing work involving typewriters, business machines, telephones, etc., the noise levels due to external causes should not exceed the NC-45 or NC-55 curves. For special purpose rooms, such as radio studios, auditoriums, control rooms adjoining engine test cells, and special areas in manufacturing plants, it is necessary to select noise criterion curves based on the special acoustic needs of the rooms. It is, of course, apparent that the more noise made within a room by its own occupants, the less stringent the noise criterion for noise from outside the room.

Three acoustical problems are associated with noisy working environments: (1) the effect of noise on hearing loss, (2) noise as a work deterrent and (3) interference with speech communication.

### Hearing

The effect of noise on hearing is a function of both exposure time and noise intensity. As noise intensity increases, the amount of daily exposure a person can stand without impairing hearing must necessarily decrease.

The graph on page 162 gives levels in the eight frequency bands and exposure times which should not be exceeded if the average person is not to receive some degree of hearing loss from longtime exposure, say 25 years, to these noise levels. For noises containing discernible discrete frequencies such as a generator whine, the noise level values of these curves must be reduced by approximately 10 db as the ear is more sensitive to single tone noise than to broad band noise.

To illustrate use of these curves, a person could stand on a street corner exposed to 80 db overall noise 8 hours a day, five days a week for 25 years without auditory injury, but might well receive some hearing loss from two hours' use of a pneumatic riveting gun (where noise levels may reach 100 db to 110 db in the high frequency octave bands) repeated each working day for 25 years.

### Work Deterrent

Contrary to popular belief, steady-state background noise does not appear to affect significantly the ability to perform either simple or involved work, although high noise levels do produce feelings of annoyance and irritation and result in reduced alertness and increased fatigue.[3,4] Intermittent noises with a high peak, such as from a riveting gun, and the single tone noises are, in general, more annoying than steady-state broad band noises.

### Speech

While high intensity noise may not adversely affect work or hearing, it does directly affect speech communication. As such communications sometimes have a bearing on output, noise will directly affect productivity.

Most intelligibility in our voices is contained within the frequency bands 600 to 1200, 1200 to 2400, and 2400 to 4800 cycles per second. When noise levels in *these* bands are too high, they interfere with speech communication.

With a noise background having an average noise level of 45 db in each of the above three frequency bands, normal conversation can be carried on at a distance of 6 to 12 ft. When this average noise level rises to 55 db, raised voices must be used at distances of 4 to 8 ft, and normal voices can only be used at distances of 2 to 4 ft or when in telephone communication. At 65 db or higher (in the three frequency bands), conversation becomes difficult to the extent that raised voices must be used at all times and conversation tends to become uncomfortable and intermittent.

Thus, we see that background noise levels place certain limitations on the type of work that can be done in a given noise environment. The magnitude of the noise levels and the frequency distribution also determine the amount of noise reduction that must be provided between noise generating areas and work areas receiving the noise.

### Noise Reduction Between Rooms

Walls and doors are used as barriers to separate noisy and quiet areas. The effectiveness of these barriers is known as the sound transmission loss (TL). If noise reduction is to be achieved by closing off the noisy area with a wall, the transmission loss of that wall must usually be somewhat greater than the amount of noise reduction desired. This is true, generally, because when a noise source is confined, the noise levels inside the enclosure build up to higher values than if the enclosure were not there. Of course, the use of acoustic absorption material may help reduce the noise level build-up in the enclosure; and the area of the radiating wall will influence the amount of noise energy that is transmitted through the wall. It is possible to calculate thoroughly the effects of these factors,[2] but with the following equation we can simplify the calculation for most practical purposes. The required transmission loss must equal or exceed the desired noise reduction plus a correction term in accordance with the equation:

$$TL = NR + C$$

where TL is the transmission loss, in decibels, of the particular wall, NR (noise reduction) is the difference between the *average* noise levels in the noisy and quiet rooms, and C is a correction term to account for the geometry and acoustic treatment of the layout. All units are decibels.

This relation must apply for each of the eight frequency bands.

The correction term C has been calculated for a reasonable range of room conditions and is plotted in Fig 2 as a function of the eight frequency bands. Two things influence this correction factor: (1) the ratio $S_t/S_w$ where $S_t$ is the total surface area of all interior surfaces (walls, ceiling, and floor) of the sound receiving room; and $S_w$ is the wall surface area which is common to both the sound generating and sound receiving rooms; and (2) the amount of acoustic absorption material used in the receiving room.

The correction term may be small, or even negative, for a large receiving room well covered with sound absorbing material and having a small wall area in common with the noisy room.

*continued on page 169*

*Numbers indicate references at the end of the article.

## Plant-Applied Waterproofing Tested for Effect on Brick's Bond Strength

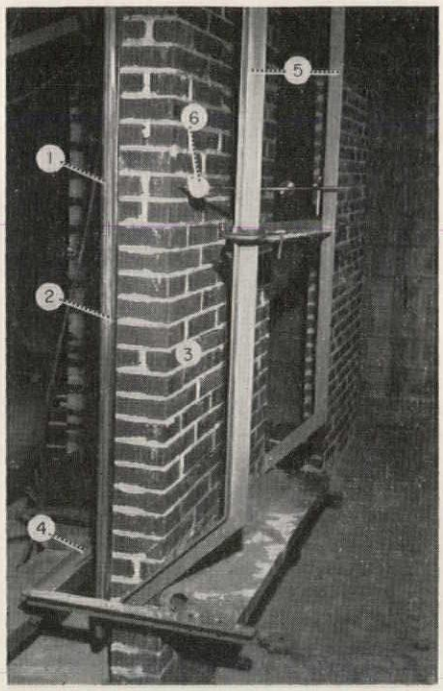
When Dow Corning first introduced its new *Silaneal* treatment, in which a dilute sodium siliconate solution is applied directly to brick as it leaves the kiln (AR, Jan. 1959, p. 181), it cited a number of advantages for the "invisible" protective surfacing: the elimination of efflorescence and dirt pickup, the improvement of handling and laying qualities, and the elimination of the need to soak brick before layup. All of these benefits stem from the treatment's ability to reduce the initial rate of water absorption of the brick. However, while the advantages of such a water repellent for exposed surfaces are obvious, the plant-applied treatment necessarily affects the bedding surfaces as well. Since it could be expected to reduce the absorption of water from the mortar, there was some question as to the effect it might have on bond strength.

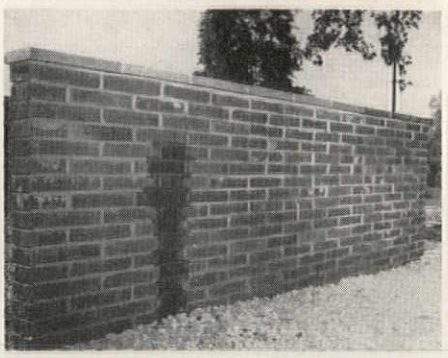
This was determined by testing a series of 4- by 6-ft walls built of seven different types of brick, with and without the *Silaneal* treatment. After being allowed to age for 28 days, the test walls were subjected to transverse loading (simulating wind loading), as shown at right, until they failed.

The test results showed that, for highly and moderately absorptive bricks (suction rates above 20 grams per minute), the bond strengths obtained with the treated bricks were greater than those of untreated bricks laid without soaking, and only slightly less than those of the same untreated bricks laid wet. (It should be noted that the test bricks were soaked under carefully controlled conditions that would seldom be duplicated on the job.) With less absorptive brick, the bond strength decreased as the concentration of the *Silaneal* solution increased.

Two conclusions were drawn: that the treatment should be used only on the weathering surfaces of low absorption brick; and that for other types of brick, the increase or decrease in bond strength is so slight as to be negligible in comparison with the other benefits the treatment offers.

In this last regard, it is interesting to note also the recorded comments of the mason who laid up the test walls. He found that the *Silaneal* treated brick were easier to handle in all cases, that complete walls could be built from them without striking the joints, and that the walls made of treated brick were significantly cleaner after layup than the untreated walls. *Dow Corning Corp., Midland, Mich.*



Left: Front detail of wall strength tester shows castor-mounted frame to which vertical sheet of plywood (1) is bolted. Air pumped into plastic bag (2) applies uniform transverse pressure against wall (3). Reaction arms (4) restrain wall at top and bottom; deflection support arms (5) support deflection gauges (6)
Right: Three shower nozzles were used to simulate driving rain against this 6-in. "SCR brick" wall. Right-hand third of wall was laid up of untreated brick; left-hand third was treated after layup; rest is of *Silaneal* treated brick. Lower photo shows backside of wall after 7 hrs' testing. No water has penetrated treated portion

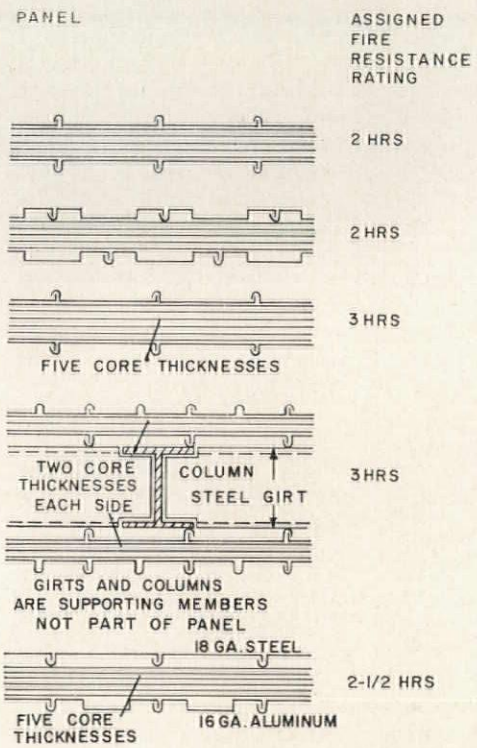
## Metal Clad Panels Win Two-, Three-Hour Ratings

Designers using insulated metal curtain walls can now look to the steel or aluminum faced wall panels shown at right for assistance in meeting fire insurance requirements. The five basic designs, which have UL-assigned fire ratings of up to three hours, make use of a core consisting of four or five layers of ½-in. gypsum board, with the fire resistance determined by the number of layers employed. Four layers gives a 2-hour rating; five layers, a 3-hour rating.

All the panels are assembled on the job with mechanical fasteners, and all are suitable for use as nonbearing fire barriers.

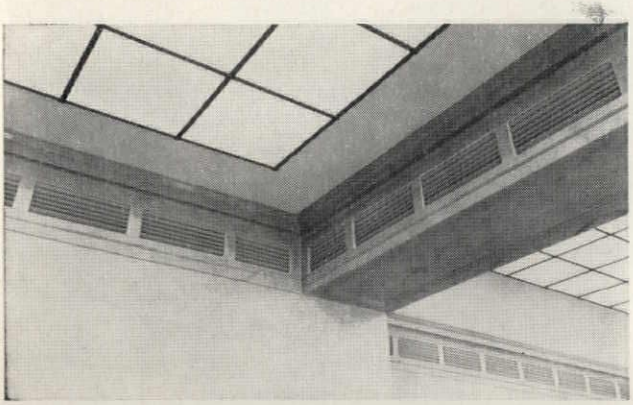
In several designs, various steel configurations may be used for either or both faces, with ribs and flutes placed inward or outward. In the design employing aluminum on one side, special provisions are made to "beef-up" the fire resistance of the non-ferrous material, while the double wall system can be produced to meet either 2 or 3-hr fire resistance requirements, depending on the loads imposed on the frame. *Building Products Div., R. C. Mahon Co., Detroit, Mich.*

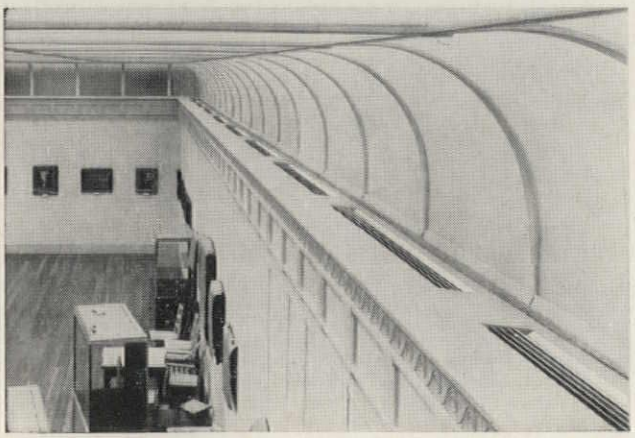
*more products on page 178*




Note: Three-hour rating for double panel system applies when columns support panels only. Otherwise, assigned rating is 2 hrs.

# Draftless Anemostat Air Diffusers at Sterling and Francine Clark Art Institute





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

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 *continued from page 165*

### Types of Wall Construction

Many different wall designs and materials may be utilized to obtain any specific sound transmission loss. Walls can be either single or double. Materials can be poured, dense concrete, well-mortared brick, solid concrete block, hollow dense concrete block filled with sand, mortar or cement—or others. The use of lightweight aggregate concrete is ruled out as it is usually quite porous internally even when the exterior surfaces appear to be sealed. To cover a wide range of material, walls are specified herein by their surface weight, rather than thickness. For example, a 50 lb per sq ft wall can be achieved with 4 inches of dense, solid concrete. Single wall sound transmission loss (TL) values are shown in Fig 3.

It may be seen from these curves that for each doubling of the surface weight of a single wall, the transmission loss of the wall increases only about 5 db. This leads to impractical wall design when the wall surface weights become 200 to 400 lb per sq ft (corresponding to 16-in. to 32-in.-thick concrete walls).

In order to achieve large values of transmission loss at reasonable wall weights, it is necessary to use "double wall" construction. Two walls, structurally isolated and separated by an air space, can provide greater transmission loss than a single wall having the total weight of the two walls. The approximate TL of a few double wall combinations is given in Figure 4. The bottom curve of each of these families of curves gives the TL of a single wall (from Fig 3) having the same total weight as the double wall combination. The effect of the structural isolation and the separation of the double walls is thus compared to the TL of the single wall. For larger air spaces than shown in Figure 4, the TL might be assumed to increase approximately 4 to 6 db for each doubling of the air space; but when the double wall separation becomes large enough to give the effect of a corridor or another room, a different approach must be used.

Excellent workmanship and attention to details are required to achieve the TL values plotted for the walls in Figs. 3 and 4. This is especially true with double wall construction. Two general qualifications apply to these double wall structures. First, it is not necessary that each wall of a double wall be exactly the same weight. For example, two 75 lb per sq ft walls would have approximately the same sound insulation qualities as a 100 lb per sq ft and a 50 lb per sq ft wall combination. Reasonable combinations such as this can be permitted as long as one wall is not more than twice the surface weight of its neighboring wall.

The second qualification is that double walls be vibration isolated from each other. The two walls should be mounted on separate footings. If this is not possible, one or both walls should be supported on cork pads and resiliently joined to vertical columns or overhead beams *without* rigid ties. No rigid ties should be permitted to connect between two isolated walls. Careful specifications and inspections should be made to assure that no excess mortar or building trash is dumped into the air space between the two walls as this will negate the effect of the isolation mounting.

With double walls as *completely separate structures* constructed with extraordinary precautions to reduce structure-borne or earth-borne vibration transmission, it is possible to achieve values as much as 5 to 15 db higher than those given in the curves. But since this is not common the curves in Figure 4 will apply for a majority of cases.

### Door Construction

Although an architect has many choices of wall construction [5] to enclose high intensity airborne noise, his choice is seriously limited when it comes to doors. Wood doors of various types of construction provide only 20 to 35 db average transmission loss.* To achieve 40 to 50 db transmission loss it is necessary to use sound reduction doors of special construction with sills and jams especially engineered to such doors. Figure 5 illustrates the construction of doors of this nature and shows some of the different mountings possible to achieve the maximum amount of transmission loss.

The sound transmission loss for both single and double doors of this construction has recently been measured by the National Bureau of Standards and the results of these tests are plotted as a function of octave frequency bands in Fig 5†. For these measurements the doors were installed in their own door frames using their own gasketing to provide the door seals. The large values of transmission loss found in the high frequency region is evidence of very good acoustic seals.

Where the area of a door is only a small part of the area of the wall in which it is installed, it is possible to permit the door to have a somewhat lower TL than the wall without significantly affecting the total effectiveness of the wall. If the door area is 25 per cent of the wall area, the TL of the door may be 2 db lower than that of the wall; if 10 per cent, 6 db lower; and if the door is only 5 per cent of the wall area, the door TL may be 10 db lower than the wall TL. For these conditions the total effectiveness of the wall would be decreased by less than 1 db, which can be considered negligible for most practical installations. In situations where the door TL is permitted by this means to be lower than the wall TL, it is suggested that the door be located away from the area in the receiving room which should be the quietest.

### Example

The following example illustrates the solution to a typical problem:

The front end of a building is to be used for an engineering design department 40 ft wide by 100 ft long with 15-ft walls, joined to a testing laboratory along the 100-ft wall. The common wall must contain doors for the passage of personnel and equipment. Typical noise levels measured in the laboratory are as follows in the eight frequency bands: 95, 97, 102, 101, 100, 99, 98 and 96 db respectively. For easy reference, the data pertaining to this problem are listed in the table on page 171.

The desired background noise level curve for a large office such as this engineering department is the NC-45 criterion curve as indicated in table 1. The desired noise levels for each octave frequency band of the NC-45 curve are obtained from Fig 1 and tabulated in columns 3 of the table on page 171. The required noise reduction (NR) between rooms is then the difference between the noise levels in the laboratory area and the desired NC-45 noise levels in the office area. This required NR is given in column 4 of the table.

Multiple calculations should now be made—with and without absorption material—so that the final decision of wall construction can be based on the most economical design.

*continued on page 170*

*"Average transmission loss" values are the arithmetic average of the TL measurements, in decibels, for selected pure tone frequency measurements between 125 and 2000 cps.

†National Bureau of Standards report on "Sound Transmission Loss of Sound Reduction Doors" to Jamison Cold Storage Door Co., Hagerstown, Maryland. Copies of this report are available upon request to Jamison Cold Storage Door Co.

The room area ratio $S_t/S_w$ is the ratio of the total surface area of the engineering department ($S_t$) (all walls plus floor and ceiling) to the area of the common wall ($S_w$), or:

$$S_t/S_w = \frac{\text{Total Surface Area}}{\text{Common Wall Area}} = \frac{12{,}200}{1{,}500} = 8.1$$

This room area ratio falls between 5.7 and 8.9 and therefore the room correction term (C) is found in Fig 2 to range from 11 db down to 5 db without absorption material and from 3 db to −3 db with complete acoustical treatment. These respective values are listed in column 5.

Using the 300-600 cps frequency band as a sample, the required TL of the wall is either of the following values:

For acoustic absorption material on the ceiling and on one-half the side walls of the engineering department:

$$TL = NR + C$$
$$TL = (101-50) + 1 = 52 \text{ db}$$

For acoustic absorption only on the ceiling:

$$TL = (101-50) + 5 = 56 \text{ db}$$

For no acoustic absorption material:

$$TL = (101-50) + 9 = 60 \text{ db}$$

The required TL values tabulated in column 6 can be met by several wall designs, as can be seen by referring to Figures 3 and 4, depending on amounts of absorption material used in the engineering department, individual wall weights and possible spacing between double walls.

The only single wall that would completely satisfy the requirements is a 250 lb per sq ft wall with the engineering department fully covered with absorption material. More logical would be the choice of a double wall made of two isolated 75 lb per sq ft walls with 8-in. air space and with acoustical treatment only on the ceiling area of the receiving room. This and a few other alternates may be worked out from Figure 4 or by interpolating between lines for other wall weights. Because of various accumulated tolerances in this method, a total tolerance of 1 to 3 db is generally permissible in one or two frequency bands in selecting a final design to meet a given requirement. In other words, if the TL of the wall selected fails to meet the required TL by 1 to 3 db in only 1 or 2 frequency bands but exceeds the required TL in all other bands, that wall will probably be satisfactory if it is constructed properly.

Selection of communicating doors can be made from Figure 5. Suppose that the total area of one or more doors in the common wall is less than 5 per cent of the wall area, i.e., less than 75 sq ft. For this door area, the door TL may be as much as 10 db less than the wall TL values given in Column 6 of Table II. If the single 250 lb per sq ft wall is selected, the door TL of Figure 5 would be acceptable. If a suitable double wall is selected, doors may be placed in each wall (called "doors-in-tandem") in order to preserve the TL of the double wall. With such an installation, the doors-in-tandem would easily meet or exceed the required door TL and might even exceed the required wall TL, depending on the air space between the doors-in-tandem.

From the above sample calculation and the data contained in the enclosed graphs, we see that it is possible to determine some of the basic designs required to give adequate noise reduction in rooms adjoining high noise level areas. To review the method, it is first necessary to decide on the noise levels desired in the receiving room (select the appropriate noise criterion "NC" curve), it is next necessary to measure or to estimate the average noise levels in the noisy area (these noise levels to be determined in each of the eight frequency bands), and finally it is necessary to calculate the required transmission loss of the wall and to select the possible wall designs which will meet the requirement. Associated factors such as room geometry, wall and ceiling acoustic treatment, and door TL requirements are accounted for in the calculation process.

This method can be applied to many types of conventional noise problems involving high intensity airborne noise. For very complex noise problems and for predominantly structure-borne vibration problems more sophisticated methods must be used, however. [6] It is emphasized that for both simple and complex noise problems, systematic engineering approaches and many readily available materials are in widespread use in noise control.

REFERENCES

1. "Revised Criteria for Noise in Buildings," Leo L. Beranek, *NOISE Control*, Vol. 3, No. 1, pp. 19-27, January 1957.
2. "Acoustics," Leo L. Beranek, McGraw-Hill Book Company (1954), pp. 324-330.
3. "The Effects of Noise on Man," Karl D. Kryter, *Journal of Speech and Hearing Disorders*, Monograph Supplement No. 1, September 1950.
4. "Does Noise Affect You and Your Work?", Laymon N. Miller, *Safety Maintenance and Production*, June 1956.
5. National Bureau of Standards, Building Materials and Structures Report 144 and Supplements.
6. Noise Control for Offices Located near Production Machines and Mechanical Equipment Spaces," Laymon N. Miller and Ira Dyer, *NOISE Control*, Vol. 3, No. 2, pp. 70-75, March 1957.

**ILLUSTRATION OF CALCULATION OF REQUIRED TRANSMISSION LOSS OF A WALL** *(see example in text)*

| 1 | 2 | 3 | 4 | 5 | | | 6 | | |
|---|---|---|---|---|---|---|---|---|---|
| FREQUENCY BAND (cps) | NOISE LEVEL IN TESTING LABORATORY (db) | DESIRED NOISE LEVEL IN ENGINEERING OFFICE (NC-45) | REQUIRED NOISE REDUCTION IN OFFICE (db) | ROOM CORRECTION TERM "C" | | | REQUIRED TRANSMISSION LOSS OF WALL | | |
| | | | | A[1] | B[2] | C[3] | A[1] | B[2] | C[3] |
| 20-75 | 95 | 69 | 26 | 11 | 7 | 3 | 37 | 33 | 29 |
| 75-150 | 97 | 62 | 35 | 11 | 7 | 3 | 46 | 42 | 38 |
| 150-300 | 102 | 56 | 46 | 10 | 6 | 2 | 56 | 52 | 48 |
| 300-600 | 101 | 50 | 51 | 9 | 5 | 1 | 60 | 56 | 52 |
| 600-1200 | 100 | 47 | 53 | 8 | 4 | 0 | 61 | 57 | 53 |
| 1200-2400 | 99 | 45 | 54 | 7 | 3 | −1 | 61 | 57 | 53 |
| 2400-4800 | 98 | 43 | 55 | 6 | 2 | −2 | 61 | 57 | 53 |
| 4800-10,000 | 96 | 42 | 54 | 5 | 1 | −3 | 59 | 55 | 51 |

[1] No acoustic absorption material in receiving room. [2] Acoustic absorption material on ceiling of receiving room. [3] Full acoustic treatment (ceiling plus one-half of all walls).

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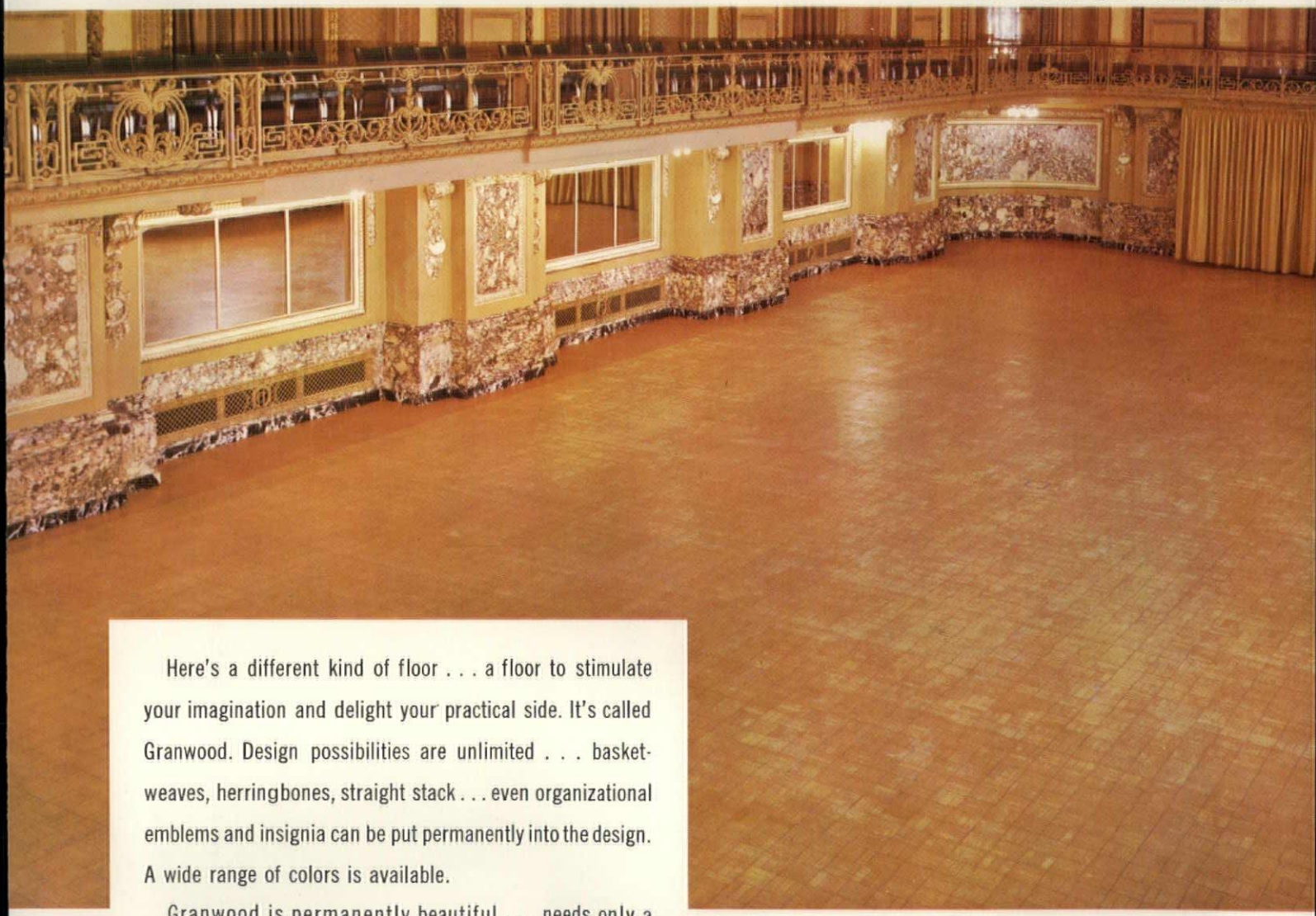

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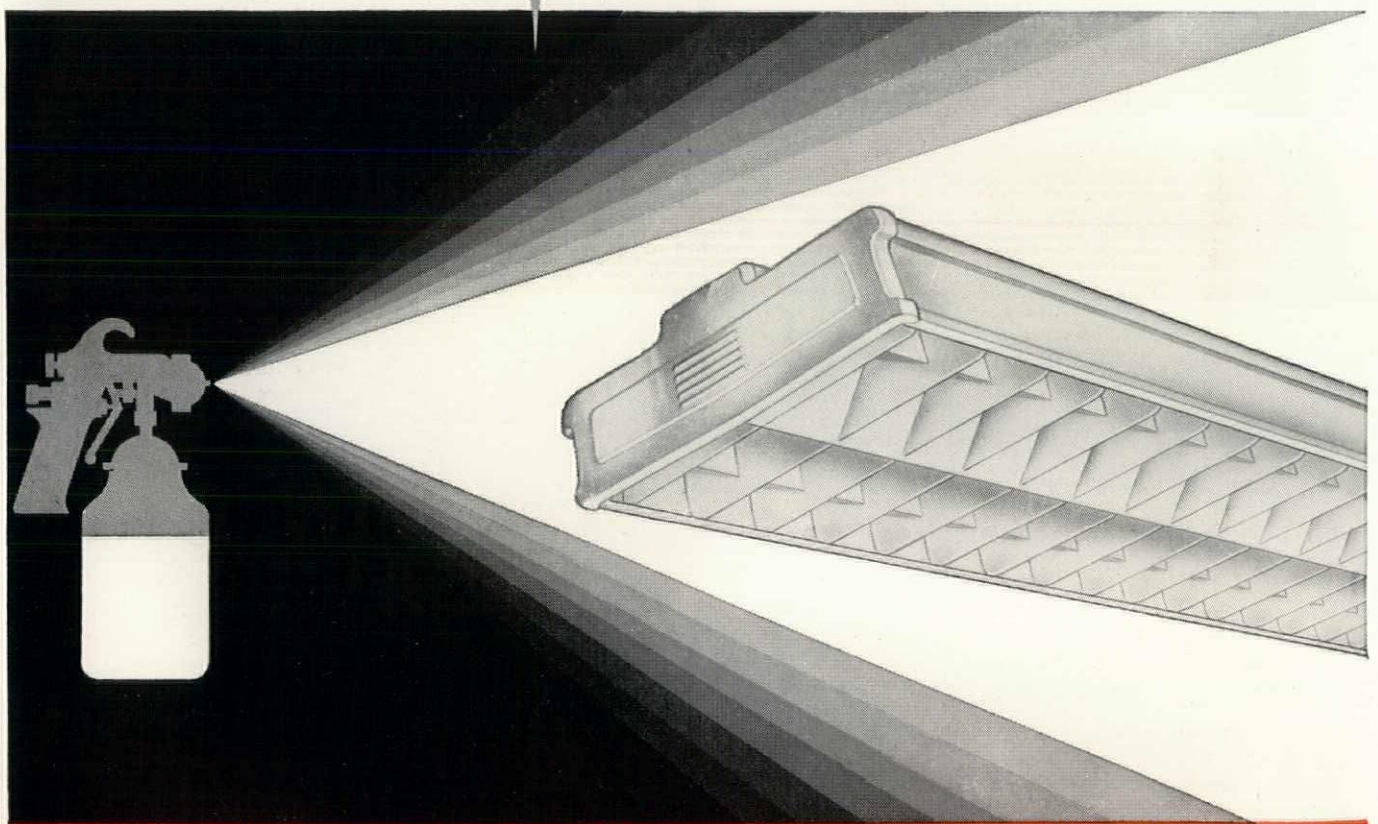

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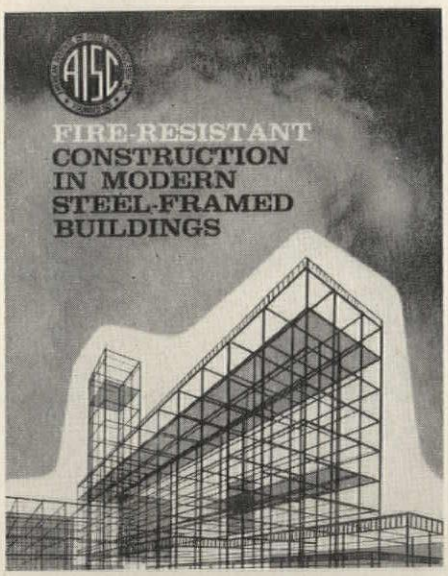


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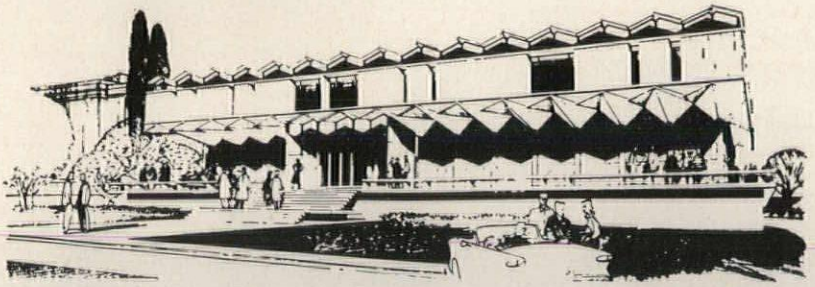

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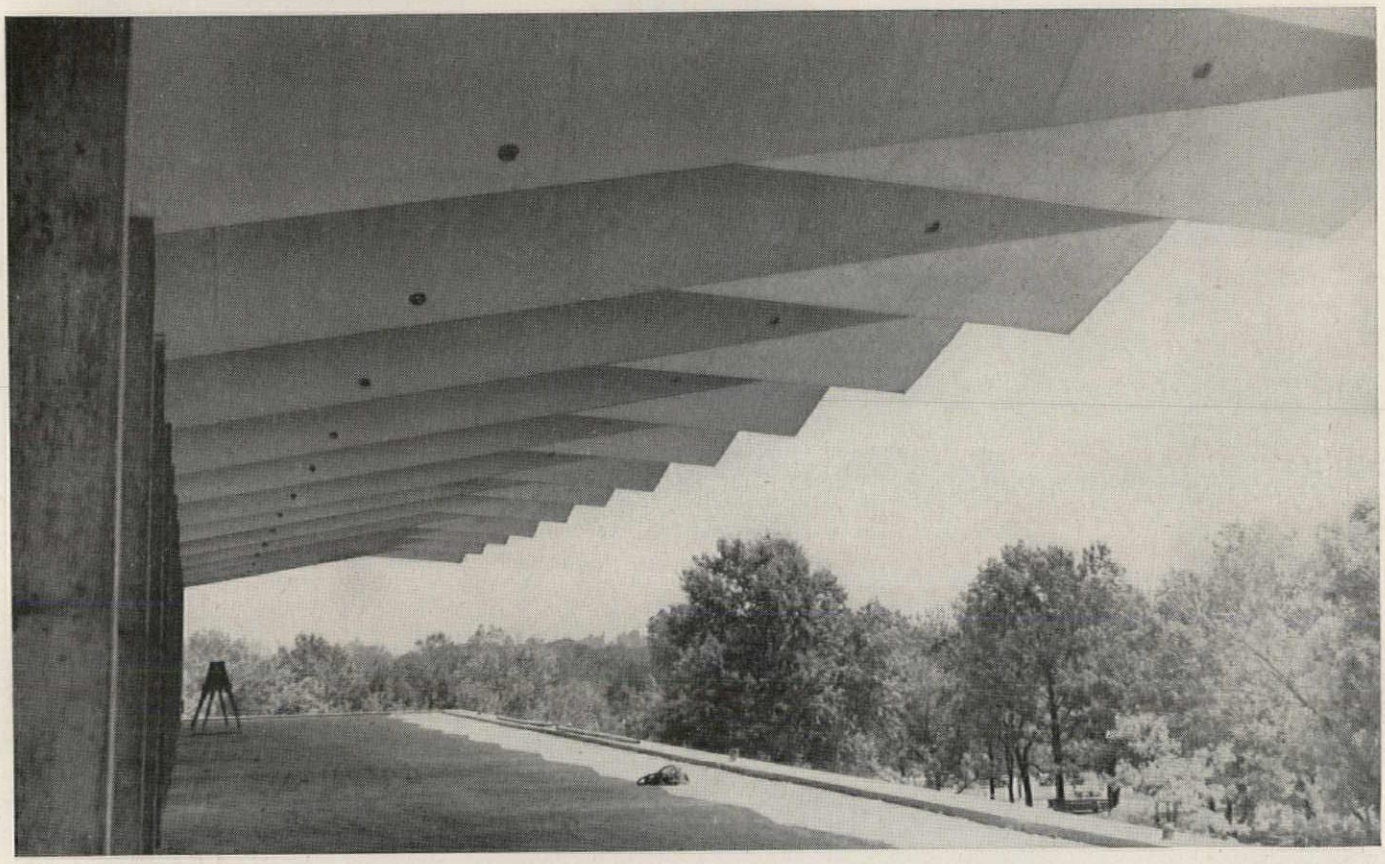

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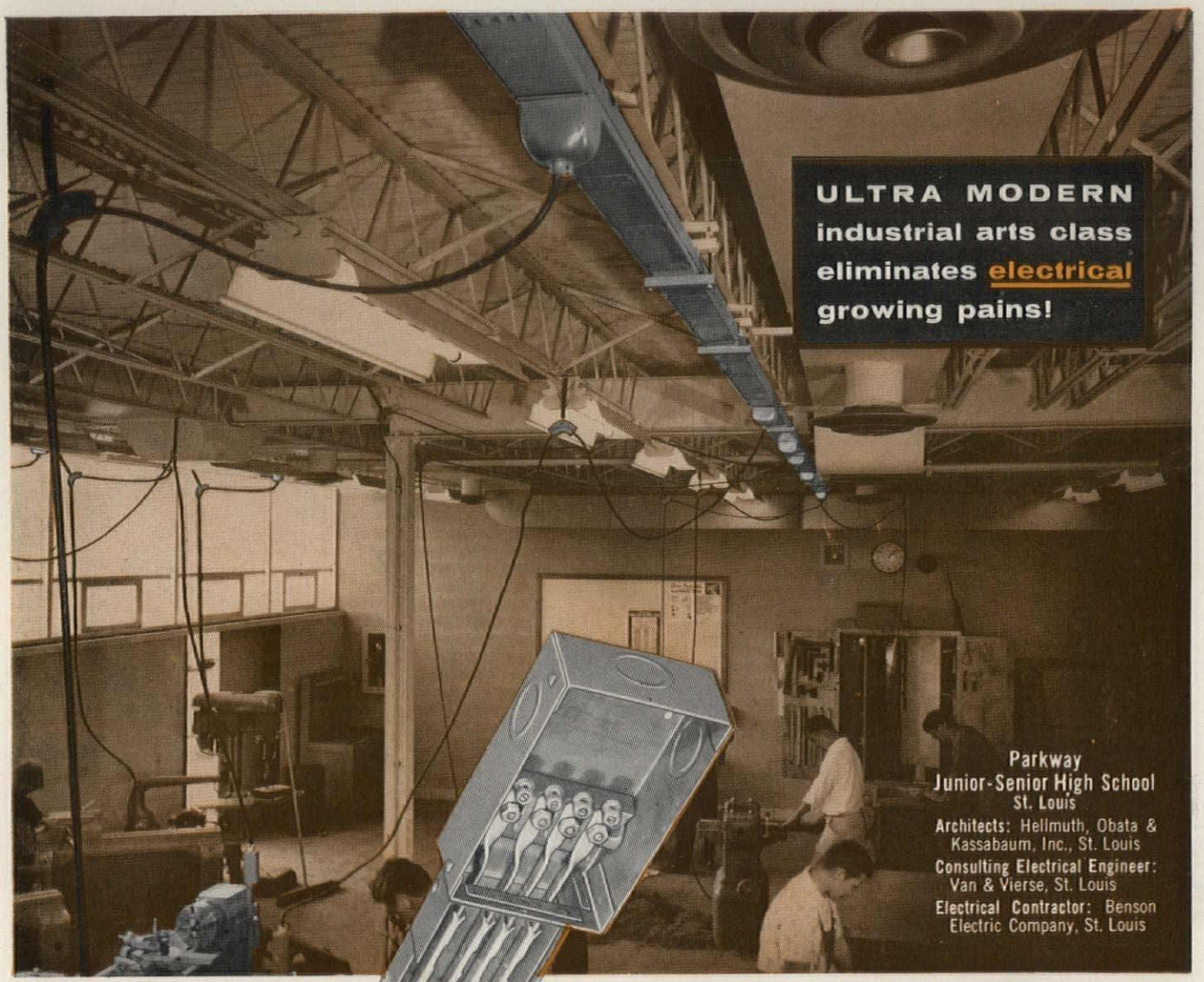


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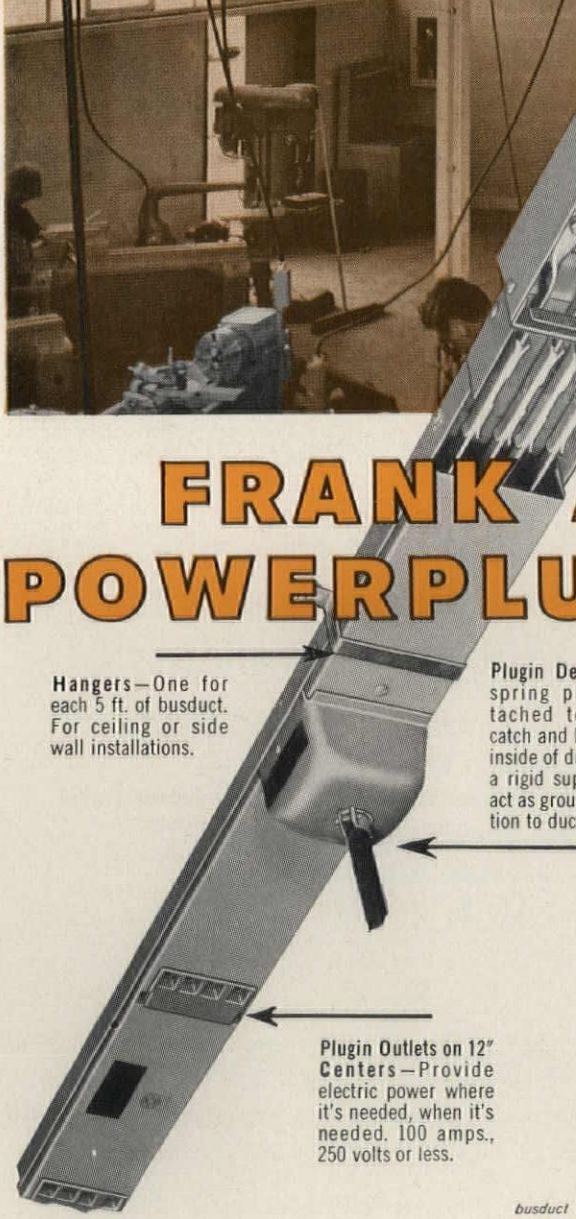

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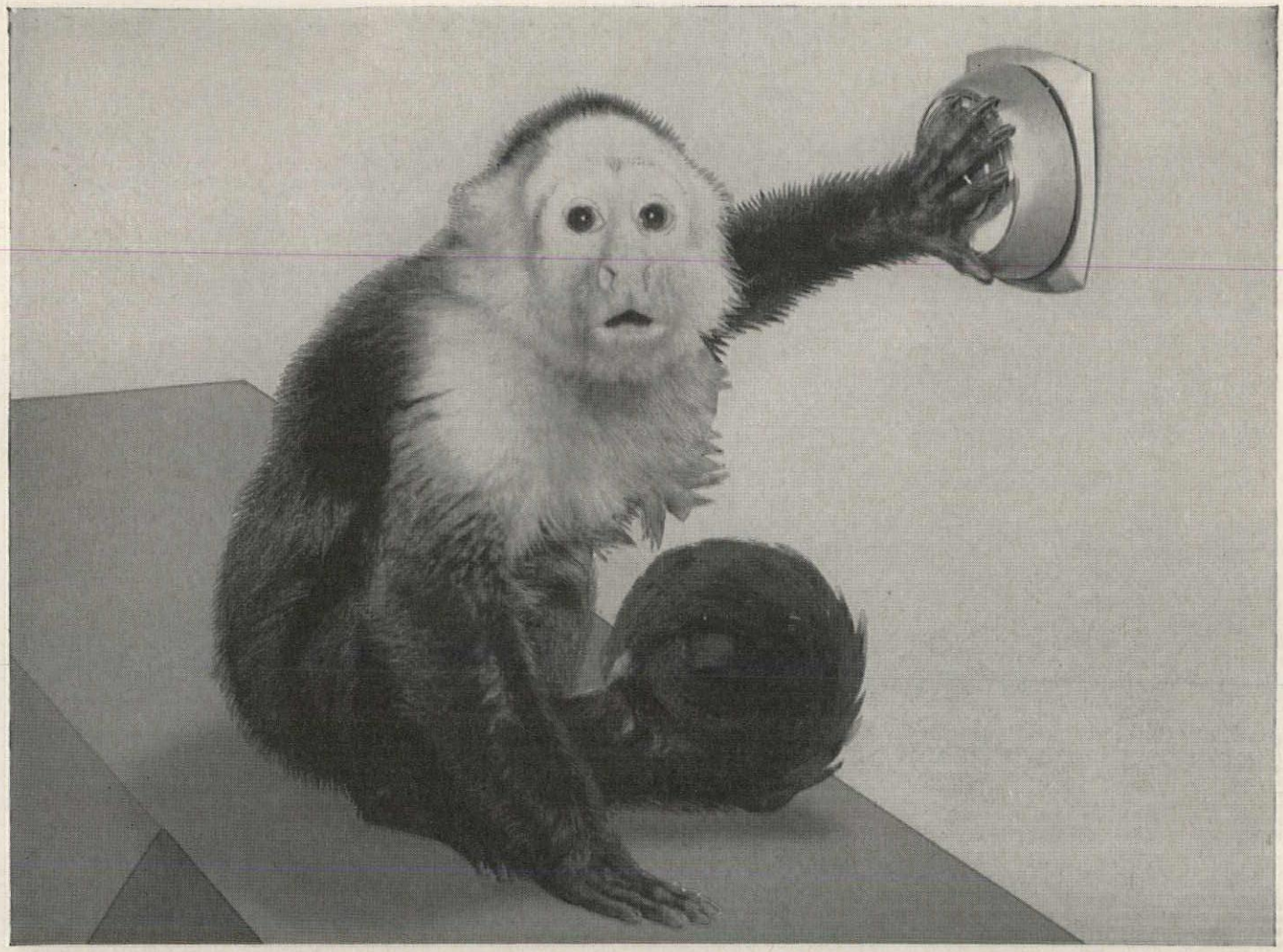

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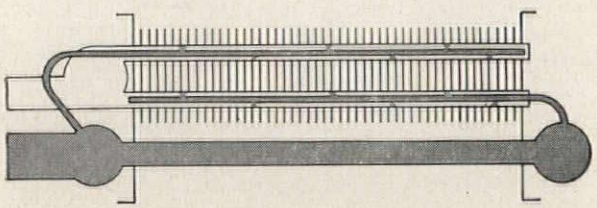

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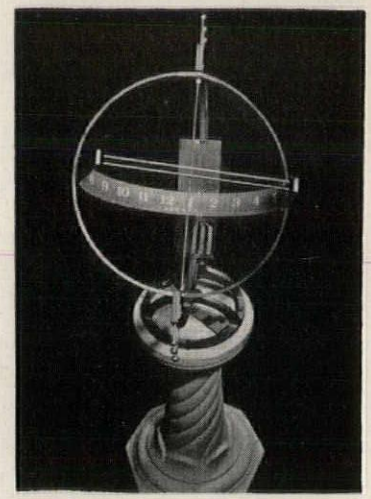
SAINT LOUIS 11, MISSOURI

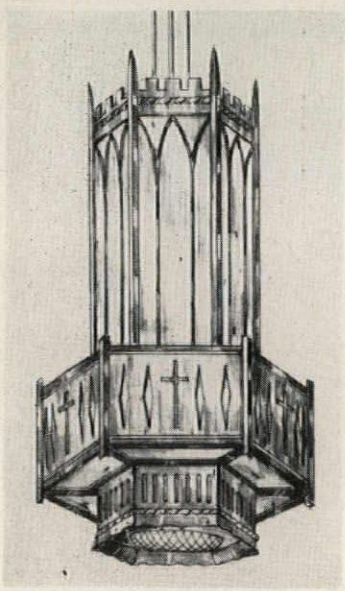
**Quality Air Conditioning and Heat Transfer Equipment Since 1925**

*continued from page 166*



**Contemporary Sun Dial**

Although it is intended primarily as a focal point for landscaped areas, the *Solar Dial*, a modern sun dial based on the first patent issued on such an item in over 50 years, is also said to be a more accurate time-piece than an electric clock. Preset at the factory for the latitude and longitude where it will be installed, the *Solar Dial* reportedly will not deviate more than two minutes in a quarter century, but it can be easily adjusted from daylight time to standard time and back again. Its overall height, including the base, is about 53 in. *Modern Sun Dials, Inc., Room #200, 17 S. Cherry St., Akron, Ohio*



**Loudspeaker-Lighting Fixture**

The *Audio-Lite*, a new unit that incorporates a loudspeaker baffle in a church lighting fixture, is made possible by designing light and sound sources so that identical placement patterns can be obtained. As a result, when the lighting fixture is properly placed, the baffle hidden in it is also in the correct position for maximum low-level sound coverage, while the lighting fixture itself, through its volume, allows the use of acoustical devices that are not suitable for the small commercial baffle. The *Audio-Lites* come in a wide range of standard models which may be modified or re-designed as required. *Soundolier, Inc., P.O. Box 3848, St. Louis 22, Mo.*

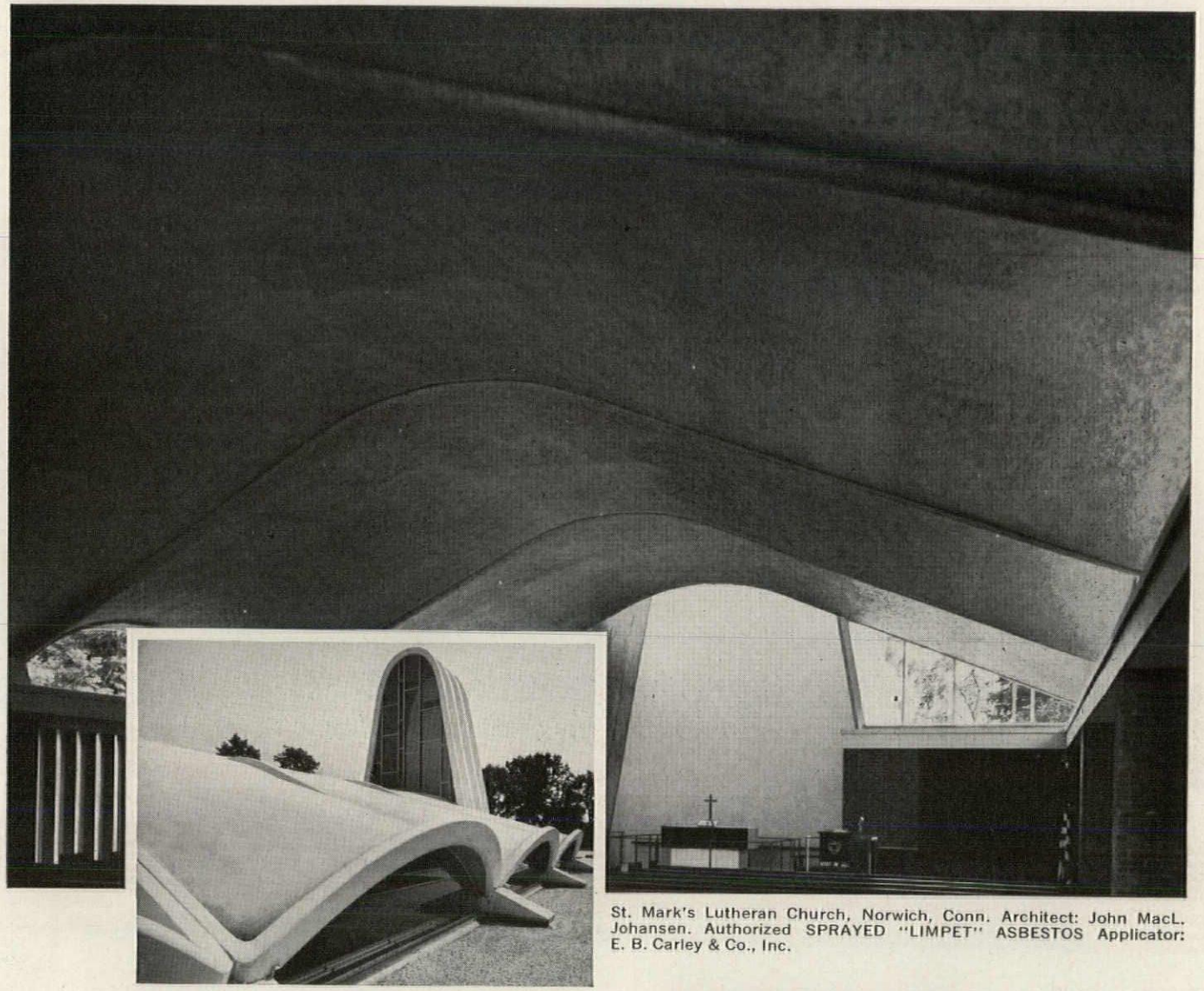
**Self-Curing Zinc Coating**

Savings of up to fifty per cent in application time are predicted for a new inorganic zinc coating which cures to full hardness without a separate curing solution. Although it may be used wherever galvanizing is appropriate, *Zinkote* has the advantage of being applicable to bare steel structures or members of any size, before or after erection. Regular painting equipment may be used, and film thickness is not critical. A single coat is said to give full protection against water, weathering, salt spray and abrasion. *Amercoat Corp., 4809 Firestone Blvd., South Gate, Calif.*

*more products on page 186*


*Brief Description on Opposite Page*

LCN CLOSERS, INC., PRINCETON, ILLINOIS



St. Mark's Lutheran Church, Norwich, Conn. Architect: John MacL. Johansen. Authorized SPRAYED "LIMPET" ASBESTOS Applicator: E. B. Carley & Co., Inc.

# SPRAYED "LIMPET" ASBESTOS

*A 100% Asbestos blanket insulates a strikingly modern house of worship!*

As you can see above, the 1⅝" coating of SPRAYED "LIMPET" ASBESTOS faithfully follows the contours of the vaulted nave . . . pre-cast, re-enforced concrete shells. But, there's more than flexibility to the credit of this sprayed-on-with-a-gun insulating material. It has a "U" factor of heat transmission of .17 BTU/hr/ft²/°F. plus a sound absorption quality—in terms of noise reduction coefficient—amounting to .85. And, the high capillarity of the asbestos fibers provides condensation control and prevents dripping.

A multi-jet, gun-type applicator combines asbestos fibers and an inorganic binder with water during the spraying-on. In only one operation, you have the desired thickness. At application's end, you have a seamless, crackless blanket . . . pale beige in color . . . that accurately reproduces the architectural design. All this, and less structural stress, too! SPRAYED "LIMPET" ASBESTOS only weighs one pound per square foot.

Find out why more and more modern structures are turning to this marvelous material for thermal insulation, condensation control, acoustical treatment, and fireproofing.

Just write to us today for more information.

*Insulates steel, aluminum, and concrete • For floors, ducts, beams, and all structural elements • No forms or shoring required • Goes on in all kinds of weather—as long as temperature at point of application is above 40°F. • Minimum clean-up • Takes paint beautifully • Adheres with strength of 100 lbs. per sq. ft.*

K•M BEST IN ASBESTOS

**KEASBEY & MATTISON**
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PLEXIGLAS *dome skylights at East Grand Rapids Jr. High School, Michigan. Architects: Perkins and Will and J. & G. Daverman Co.*

# PLEXIGLAS

One name stands out when you consider dome skylights for buildings of every type. PLEXIGLAS® acrylic plastic is the *original* . . . and still the best . . . material for domes. This superiority has been demonstrated conclusively in the Rohm & Haas Daylighting Laboratory, using standard IES tests and special procedures developed with the American Society of Heating and Air Conditioning Engineers.

Only PLEXIGLAS gives you completely successful performance on each of these counts:

- LIGHT TRANSMITTANCE
- DAYLIGHT CONTROL
- HEAT-LIGHT RATIO
- SURFACE BRIGHTNESS
- OUTDOOR STABILITY

*Don't take chances with other materials. Insist on* PLEXIGLAS *. . . the time-proved plastic for domes . . . made only by Rohm & Haas.*

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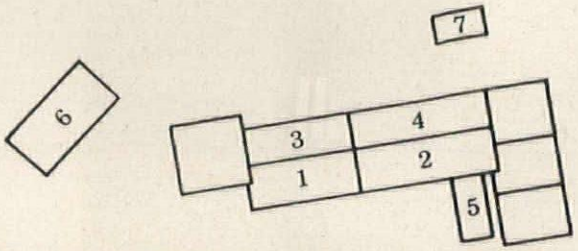
**ROHM & HAAS COMPANY**

**WASHINGTON SQUARE, PHILADELPHIA 5, PA.**

**In Canada:** *Rohm & Haas Company of Canada, Ltd., West Hill, Ontario*

PLEXIGLAS DOME SKYLIGHT MANUFACTURERS • BOSTON, Mass., E. Van Noorden Co., 100 Magazine St. • COLUMBIA, S. C., Mid-South Industries, Inc., 6000 Main St. • DALLAS, Texas, Plastics Products of Texas, 5115 E. Grand Ave. • DENVER, Colo., Plasticrafts, Inc., 2800 No. Speer Blvd. • HOUSTON, Texas, Plasteco, Inc., 2102 69th St. • Southwestern Plastics Co., Live Oak and Jefferson Sts. • PHILADELPHIA, Pa., Bohem Mfg. Co., Inc., 12 Water Street, Bryn Mawr, Pa. • PORTLAND, Oregon, The Pam Co., 1951 N.W. Wilson St. • TULSA, Oklahoma, Plastic Engineering Co. of Tulsa, 3128 E. Admiral Pl.




The Wheaton Plaza Regional Shopping Center, Wheaton, Maryland
Arthur L. Anderson, Architect. Lathrop Douglass, Consulting Architect
J. Gibson Wilson, Jr., and Beall & LeMay, Consulting Engineers

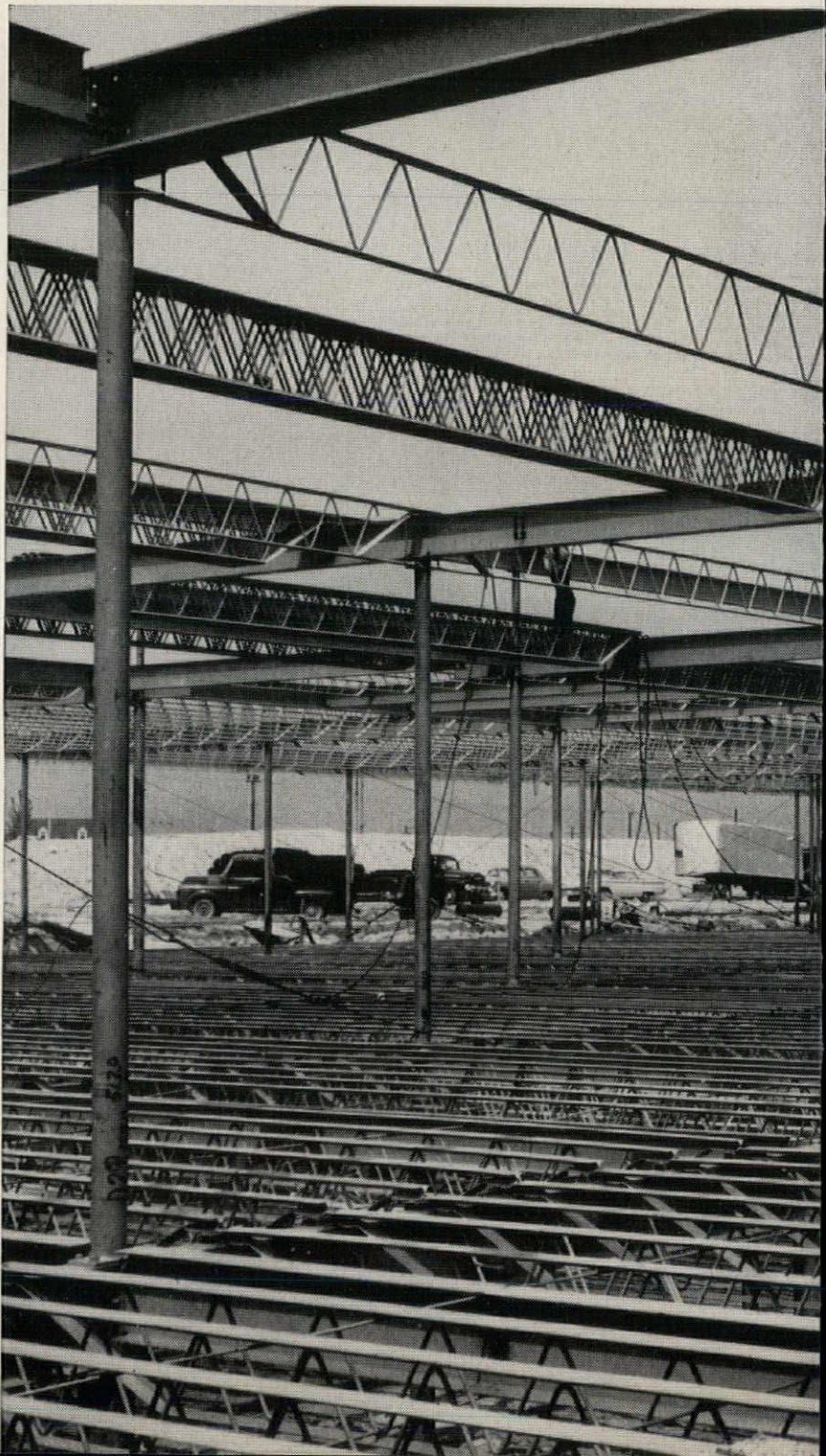
# 7 out of 11 constructed with USS AmBridge Steel Joists

Convincing examples of the trend towards steel joist construction are the new shopping centers springing up throughout the country. For example, 985 tons of USS AmBridge Steel Joists were used in 7 of the 11 buildings in the vast Wheaton Plaza Regional Shopping Center now being completed at Wheaton, Maryland.

USS AmBridge Steel Joists provide rigid, economical and light-weight construction suitable for most types of roofs, ceilings and floors. Their ease and speed of erection cuts installation time, helps get the structure under cover sooner, and makes schedules easier to meet. And when steel joists have been erected and properly bridged, they immediately form a safe working platform for other trades.

When you specify USS AmBridge Steel Joists you are sure of getting the finest open-web steel joists available anywhere. AmBridge Joists are quality controlled through every step of the manufacturing process—from furnaces through fabrication. They are consistently uniform and completely reliable. For detailed information, contact our nearest Contracting Office.

*USS is a registered trademark*



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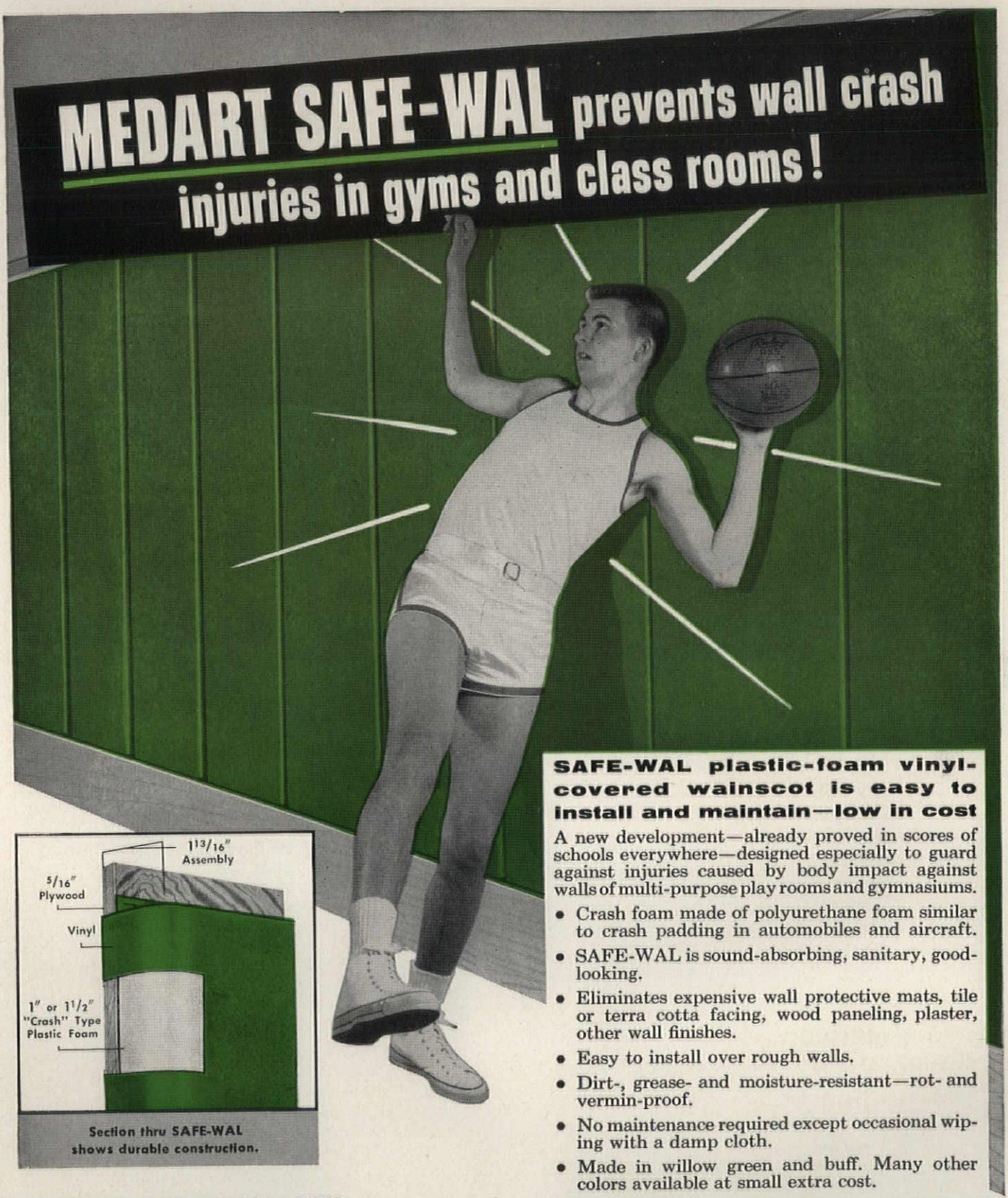
# MEDART SAFE-WAL prevents wall crash injuries in gyms and class rooms!






Section thru SAFE-WAL shows durable construction.

**SAFE-WAL plastic-foam vinyl-covered wainscot is easy to install and maintain—low in cost**

A new development—already proved in scores of schools everywhere—designed especially to guard against injuries caused by body impact against walls of multi-purpose play rooms and gymnasiums.

- Crash foam made of polyurethane foam similar to crash padding in automobiles and aircraft.
- SAFE-WAL is sound-absorbing, sanitary, good-looking.
- Eliminates expensive wall protective mats, tile or terra cotta facing, wood paneling, plaster, other wall finishes.
- Easy to install over rough walls.
- Dirt-, grease- and moisture-resistant—rot- and vermin-proof.
- No maintenance required except occasional wiping with a damp cloth.
- Made in willow green and buff. Many other colors available at small extra cost.

*Write for brochure*

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Telescopic Gym Seats
Basketball Backstops
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*SPECIFY the best, then INSIST on it!*

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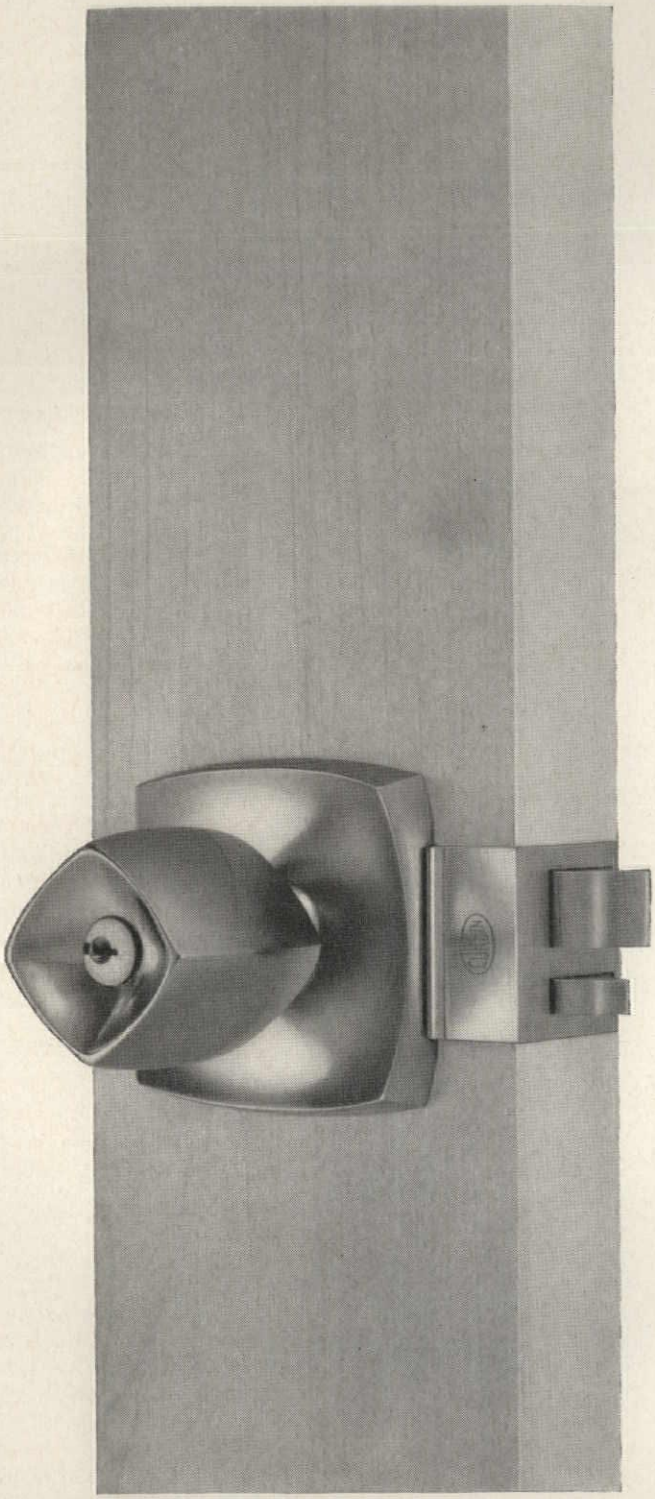


Vegas design #913

# To help you settle your locking problems with assurance

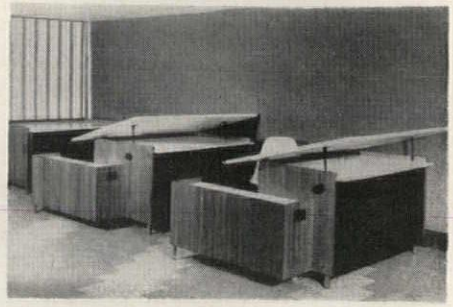
The lock designed with *you* in mind . . . the Corbin Unit Lock!
Its styling is smooth, imaginative, striking. Designs are superbly simple . . . built to wear and conceived with flair . . . in cast brass, bronze or aluminum metals. Available in all popular finishes.

Completely assembled and aligned on a rugged, one-piece extruded frame. Simple to install. Corbin Unit Locks are, indeed, the last word in function . . . in styling. P & F Corbin Division, The American Hardware Corporation, New Britain, Connecticut.

CORBIN

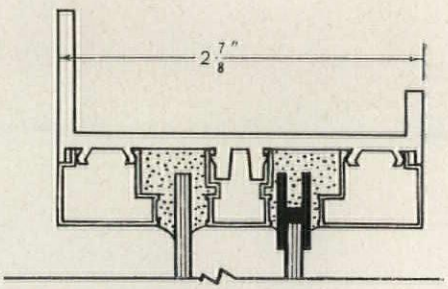
# corbin unit locks

## *Product Reports*



### Furniture-Styled Drawing Desk

The "Landmark", a new drawing desk designed for use in individual offices or in multiple installations where appearance is considered important, has three basic components: a front table with an adjustable drawing board but no storage area in front, a basic table with both drawing and reference areas, and a rear reference desk. All units have walnut-paneled sides, off-white work surfaces and satin chrome trim, and can be used singly or in combination. Matching auxiliary side units offer extra storage and work space at right or left of tables. *Drafting Equipment Div., Hamilton Mfg. Co., Two Rivers, Wis.*




### Double-Glazed Church Window

A new church window made of 2⅞-in. deep aluminum extrusions has been designed to answer the need for an extra-strong window which can accommodate double-glazing and still conform to the unusual shapes so often required in church design. It is expected to solve a number of problems inherent in leaded stained glass installations: the air space between the two sections of glass will create an effective thermal barrier and prevent drafts; the clear glass on the outside will protect valuable stained glass from breakage and keep it clean. Each window in *Vampco's* 3000 series is individually engineered to fit the desired opening and comes with screw-on glazing beads for the curved sections, snap-in beads for the straight sections. *Valley Metal Products Co., Plainwell, Mich.*

*more products on page 194*

St. Benedict's Church, Seattle, Washington. Architect: John W. Maloney, Seattle. Contractor: A. W. Robertson, Bellevue, Wash.

*Seating capacity:* 860. *Structural framing:* glulam Tudor arches of 61'-6" span spaced at 15'-6"; glulam purlins. *Exterior walls:* brick veneer over concrete. Limestone tower. *Interior walls:* plaster. *Heating:* oil-fired hot water. *Ventilation:* gravity exhaust system. *Lighting:* incandescent. *Roof surface:* slate over heavy timber decking. *Floors:* terrazzo in all public areas. *Miscellaneous:* altar, reredos, communion rail, pulpit and side altars of marble. Bronze canopy. All millwork rift grain oak. *Area:* 14,423 square feet. *Volume:* 375,672 cubic feet. *Cost:* $22.52 per square foot, 86½ cents per cubic foot.


At O'Hare Field, Chicago's jet airport, the United Air Lines Baggage Center handles baggage for 65 flights daily. The installation of 12 Barber-Colman OVERdoors permits fast, efficient handling of nearly 6,000 pieces of baggage a day. The OVERdoors—three-section flush doors, 8′ wide by 5′4″ high—provide continuous efficient operation, even during peak-load hours. Through a variety of weather and humidity con-

# EFFICIENCY... 6,000 TIMES DAILY

ditions, the OVERdoors continue to operate efficiently, helping United Air Lines maintain its reputation for "Extra-Care" passenger service. Barber-Colman manufactures OVERdoors for almost every conceivable commercial, industrial, institutional, and residential use—Electric Operators and Controls for overhead, swinging and sliding doors, and sliding gates. Write for complete data file now.

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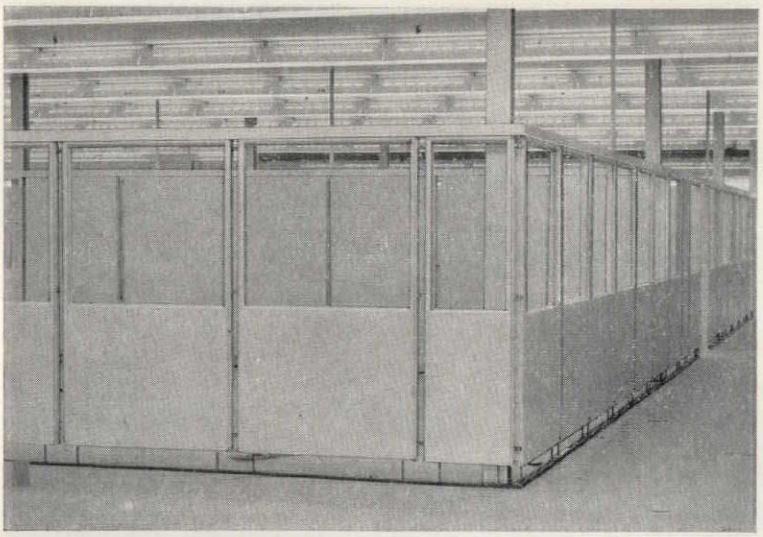
BARBER COLMAN

BARBER-COLMAN COMPANY
Dept. P912, Rockford, Illinois

# Why design around movable partition wiring problems?

The flexibility and unique construction advantages of GR Movable Partitions and Walls is obvious in the provisions made for wiring. The wiring can go through the base, between the panels, behind the pilasters and along the crown or cornice. When ceiling high partitions are specified, there is room to run wiring in the U-channel. Switch boxes and outlet boxes are put in the pilasters or base or they can be put in the panels. Ordinarily pilasters are recommended because they are expendable and can be easily replaced or moved to another location. Cut-outs for wiring in a particular size panel might be difficult to adapt in another location. However, cut-outs in panels can be made at the plant or in the field, if desired. GR's functionally designed movable walls and partitions solve wiring problems for you easily, quickly.

# Ease installation with GR



From the standpoint of saving time, of saving on labor, of making the office available for occupancy faster . . . the accessibility of wiring raceways for the electrician . . . is a factor to consider in movable wall and partition installation. Sometimes extremely low-priced movable (without pilasters) walls are specified which appear on the surface to offer big dollar savings. Almost always such "price" buys are an illusion. The inherent poor design and construction of "price" type movable walls increases the electrical contracting cost far beyond the anticipated savings. If the purchaser is to get full value for his dollar, *overall* costs must be carefully weighed and evaluated. In your next job specify GR Movable Walls and Partitions and take both wiring "headaches" and "hidden" costs out of your building picture. The complete GR line . . . Portable Partitions, the Richland Movable Wall System and Metal Walls will accommodate the wiring requirements of any office regardless of size.

# A complete line for design continuity regardless of decorative demands

One of the problems facing architects is the specification of different types of movable walls and partitions for different functions on the same floor or various floors throughout a building. If metal walls are designated for the second floor, wood walls for the tenth floor and portable partitions — both steel and wood — on all floors, maintaining a uniformly, attractive interior appearance must be given prime consideration. Specifying GR Movable Walls and Partitions is the way out of this dilemma since the complete line has a family resemblance.

**GR | PRODUCTS INC.**
*2417 Eastern Avenue S. E.. Grand Rapids. Michigan*

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☐ Please send me color swatches

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Company_____

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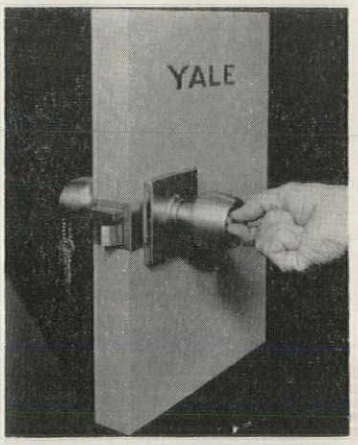
## *Product Reports*

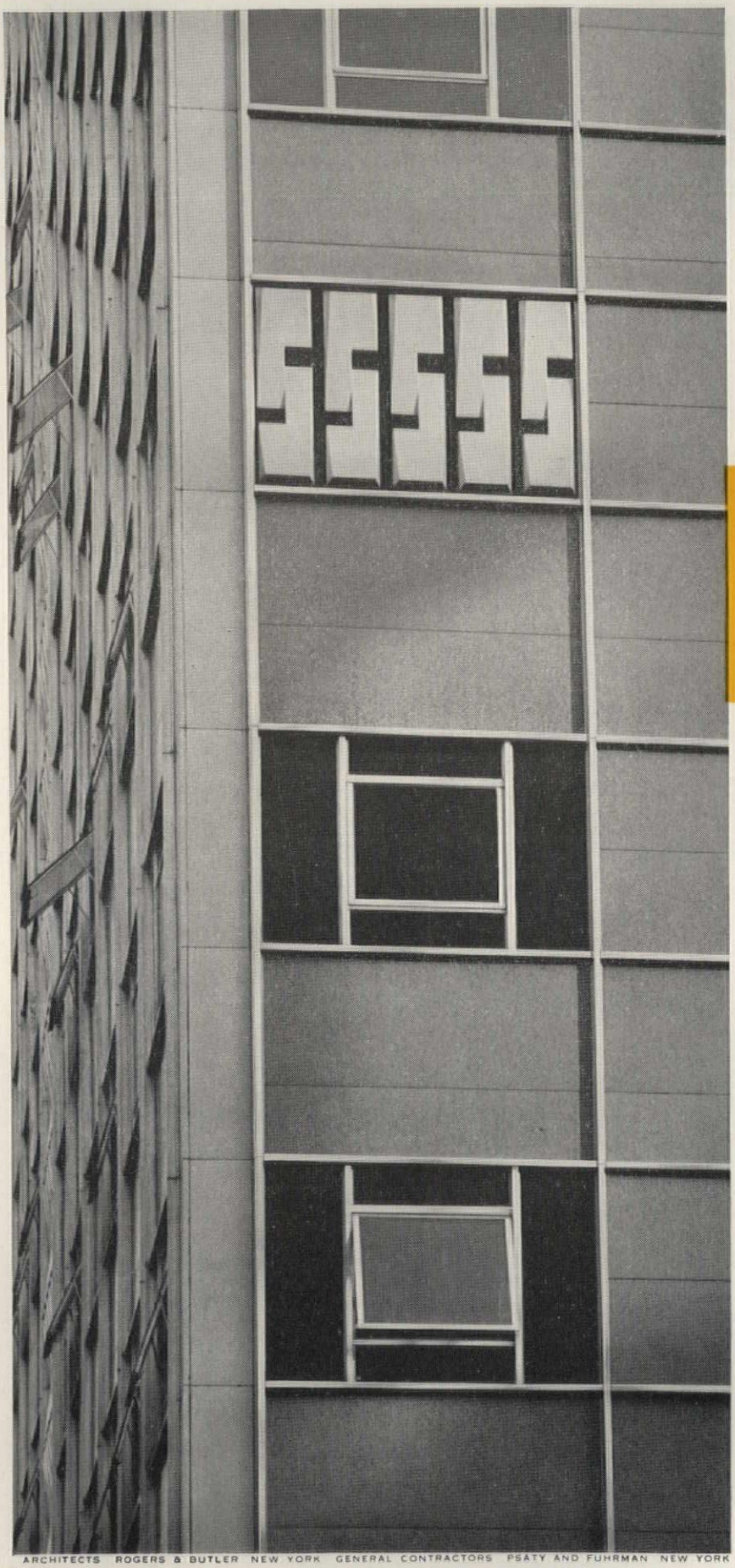
**Epoxy Roofing Compound**
*CS 2720,* a flexible, two-part epoxy compound designed primarily to provide low-cost, permanent protection for plywood or concrete roof surfaces, is also said to be an excellent protective coating for exterior masonry. Though it is flexible enough to expand or contract with surface materials, it is tough enough to withstand even heavy automobile traffic (as in commerical parking garages), and has excellent resistance to weather and chemicals. Standard colors are white and light gray, but others can be had on special order. *Chem Seal Corp. of America, 12910 Panama St., Los Angeles 66, Calif.*




**Easily-Installed, Heavy Duty Lock**
Designed to withstand continuous hard usage in institutional, commercial and public buildings, the new Yale line of *Mono-Locks* features rugged construction, attractive appearance and ease of installation. (They are installed by simply sawing a rectangular opening in the edge of a door, drilling holes for the attaching screws, and then applying the lock.) The line includes a wide variety of designs in all standard finishes and in 29 different locking functions to meet specialized requirements. *Yale & Towne Mfg. Co., Chrysler Bldg., New York 17, N. Y.*

**Versatile Latex House Paint**
Formulated for wood surfaces as well as masonry and asbestos, new *Gold Bond* "Exterior Velvet" latex house paint allows moisture to escape through the paint film to prevent blistering and peeling, but at the same time gives excellent weather protection. The sixteen available colors are said to be exceptionally long-lasting, and the paint itself is easy-to-apply, durable and quick-drying. *National Gypsum Co., Buffalo 2, N. Y.*

*more products on page 202*



ARCHITECTS ROGERS & BUTLER NEW YORK GENERAL CONTRACTORS PSATY AND FUHRMAN NEW YORK
ARCH METAL FABRICATOR BROWNE WINDOW MFG CO DALLAS

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# OLIN ALUMINUM ADDS BEAUTY AND DIGNITY TO MANHATTAN'S LENOX HILL HOSPITAL

NEW LENOX HILL HOSPITAL PAVILION USES OLIN ALUMINUM FOR ECONOMY, CORROSION-RESISTANCE, EXTRUDABILITY AND DECORATIVE VALUE.

A handsome new landmark is almost finished on New York's famous Park Avenue. The Patients' Pavilion of the Lenox Hill Hospital displays shimmering pink panels within a gleaming grid of Olin Aluminum. This facade is further enhanced by sculptured forms, combined in decorative patterns, that give unique depth to the curtain wall.

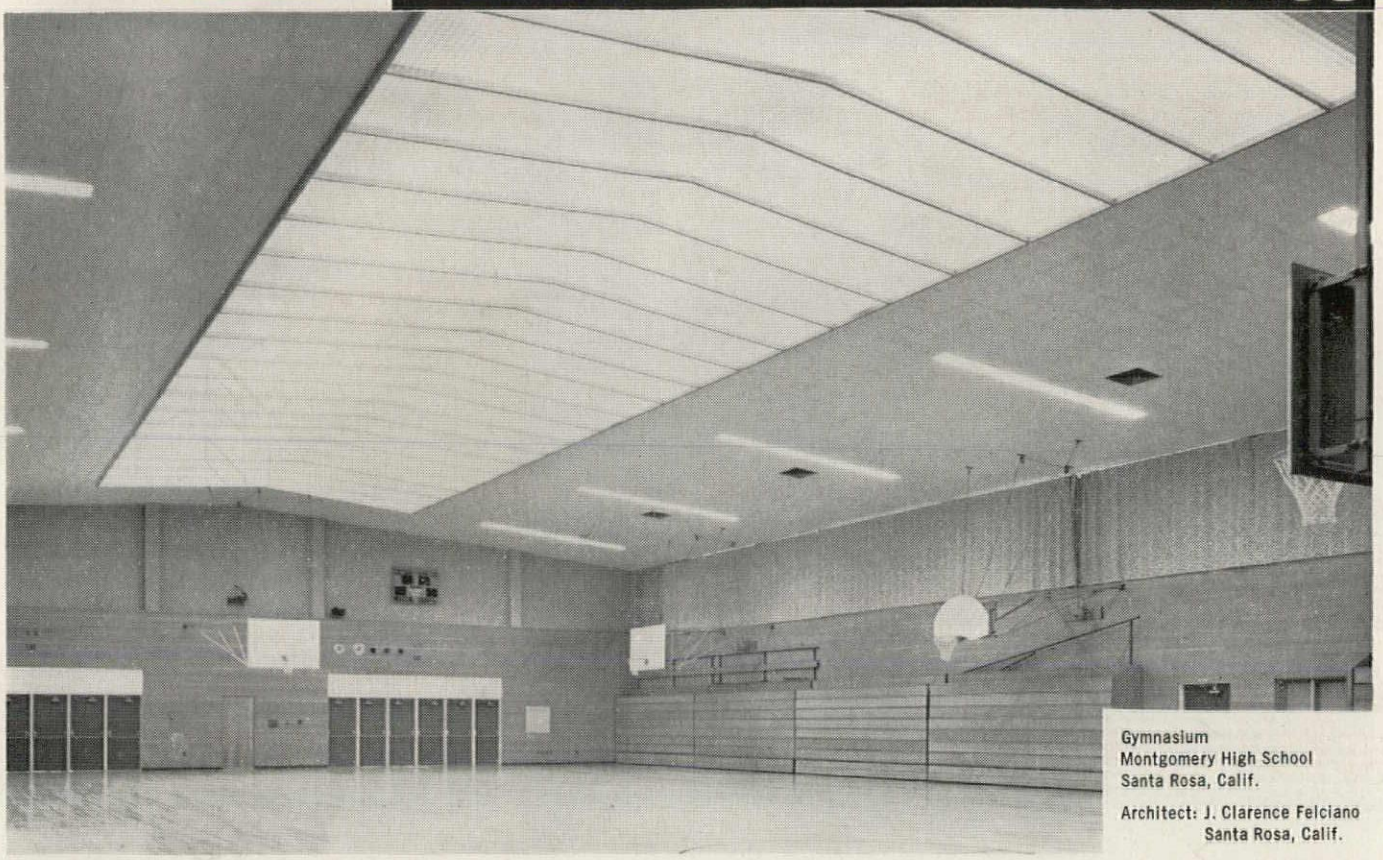
Yet, this distinguished design has provided unusual construction economies. For example, the aluminum grid of the curtain wall has been fully integrated with the reinforced concrete frame. This has permitted wide spacing of the mullions, which, in turn, has resulted in major savings in the entire curtain wall.

Record-size sections—10′x13′—were shop-assembled, using interlocking welded extrusions of Olin Aluminum. Olin Aluminum extrusions are also found on the operational windows, which feature a simple, economical new design and can be cleaned from inside.

OLIN ALUMINUM®

# HIGH SCHOOL GYMNASIUM SPECIFIES: QUALITY*

## SELECTS: NEO-RAY LOUVRED CEILINGS



Gymnasium
Montgomery High School
Santa Rosa, Calif.

Architect: J. Clarence Felciano
Santa Rosa, Calif.

**ANOTHER PROBLEM SOLVED BY NEO-RAY ENGINEERS:**

**A unique impact resisting illuminated louvred ceiling for high school basketball court. Aluminum louvres are secured against displacement by impact, yet are easily removable for maintenance.**

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*Gentlemen:

The Neo-Ray Louvered Ceiling was chosen for this particular application in that we wished a quality product that would be the proper size of grid for this application.

Very truly yours,

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- . . . ½" x ½" x ½" cells.
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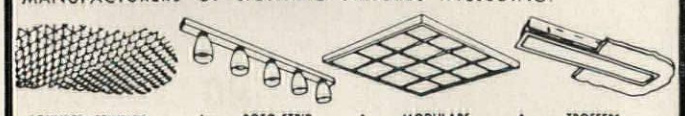

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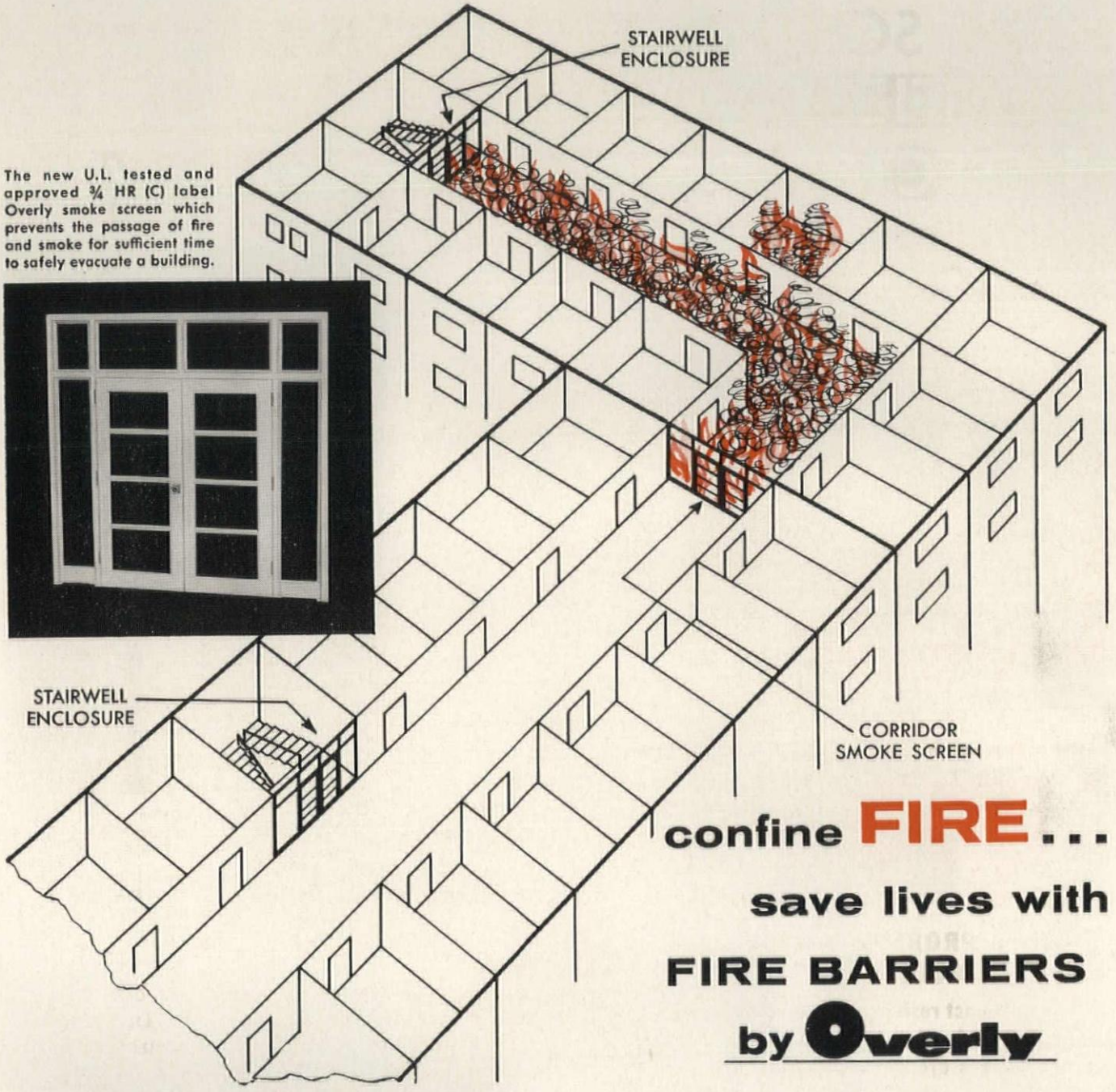


The new U.L. tested and approved ¾ HR (C) label Overly smoke screen which prevents the passage of fire and smoke for sufficient time to safely evacuate a building.

# confine FIRE . . . save lives with FIRE BARRIERS by Overly

A careless smoker . . . a frayed wire . . . an oily rag . . . a trash pile . . . can cause a fire that, if left unrestricted, can swiftly become a disaster.

To prevent a holocaust once a fire has started, you must *confine* it to provide sufficient time for safe evacuation. Unobstructed, a fire with its superheated air and suffocating smoke can race from floor to floor with unbelievable speed. The inevitable result is panic and loss of life.

Overly has developed and obtained Underwriters' Laboratories approval on a fire door and frame assembly that will deter the spread of fire for a minimum of 45 minutes—more than twice the expectancy of survival time in a burning building. This assembly, referred to as a smoke screen, is shown strategically located in the sketch above. It can be used to subdivide long corridors and to enclose stairwells.

Properly installed, smoke screens should enable you to secure a rate consideration from your insurance carrier. Only Overly smoke screens can give you this dollar savings because they are Underwriters' approved.

Other U.L. approved Overly fire door and frame assemblies of new and more economical constructions may be used in openings in fire walls, boiler and electrical equipment rooms where 1½- and 3-hour fire resistance is required. Consult your architect about the vital need for adequate fire barriers in your buildings and write us today for our new fire door literature. *A new eight-minute color film — Fire Barriers by Overly — is available for group showings. We will be happy to arrange a presentation.*

**OVERLY MANUFACTURING COMPANY**

GREENSBURG, PENNSYLVANIA • LOS ANGELES 39, CALIFORNIA

Architect: Ward Thomas, A. I. A.

THE STRIKING BEAUTY OF REDWOOD is recognized by the architect as a vital element in the overall design of the interior. Here the rough-sawn, tongue-and-groove siding was left unfinished to reveal all the fascinating detail in the grain patterns and swirls of the natural wood.

CRA

*All the wonderful warmth of wood*
*is best expressed in redwood*

CALIFORNIA REDWOOD ASSOCIATION

576 SACRAMENTO STREET • SAN FRANCISCO 11

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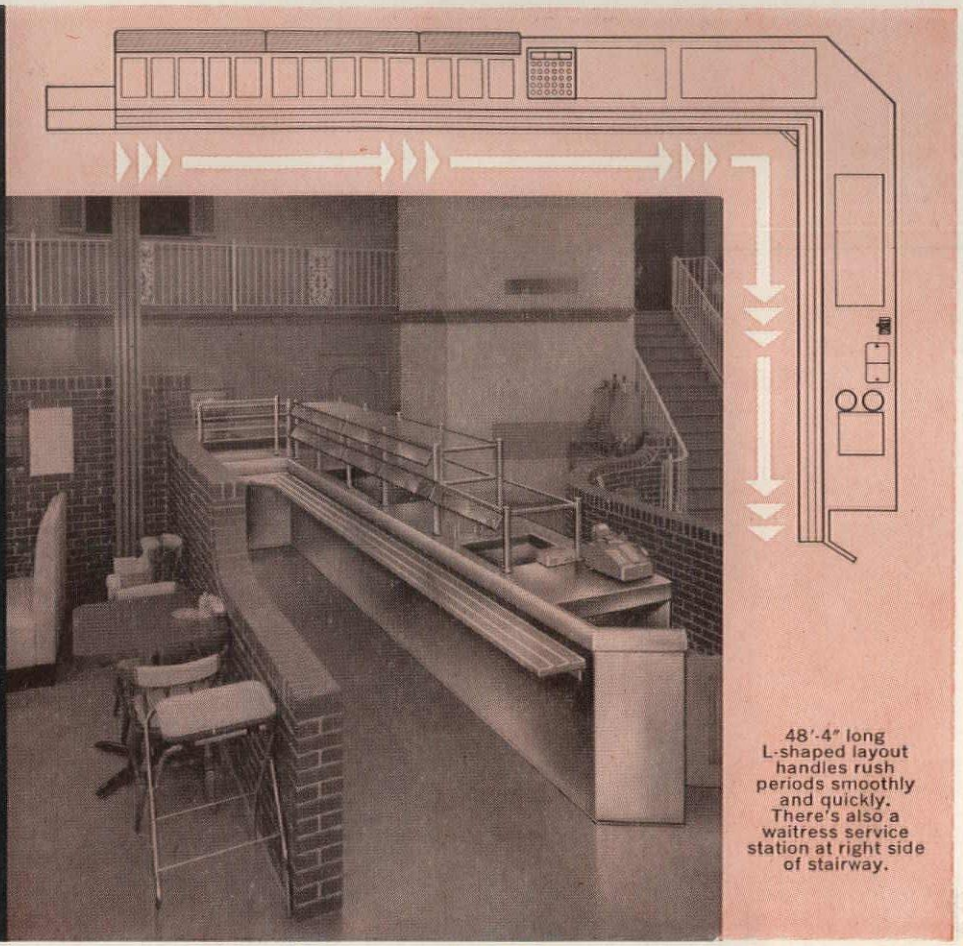
convenience!
efficiency!
eye-appeal!

*at Oklahoma City's*

*NEW*

*Hart's Cafeteria*



48'-4" long L-shaped layout handles rush periods smoothly and quickly. There's also a waitress service station at right side of stairway.

## see the beauty of CUSTOM MODULAR* value and styling

With its three VaporMatic† food warmers, three refrigerated cold pans, two pass-through refrigerated display cases with self-closing doors, and everything else that speeds work and traffic, Hart's new Custom-Modular cafeteria by Bastian-Blessing makes mealtime a pleasure for 1000 patrons daily. Open for lunch and dinner—from eleven 'till eight. Hartzell Maentnich is the owner.

"Custom-Modular" is Bastian-Blessing's entirely new approach to cafeteria equipment design—a continuous custom top of heavy 14-ga. stainless-steel with mass-produced modular units beneath. Decorative front is crafted of Formica, plastic laminate, or popular metal . . . in continuous lengths. You get skilled integration of specialized units . . . *without* a "custom" price penalty.

### VAPORMATIC® keeps foods kitchen-fresh —the *only* automatic moist-heat food warmer

Eliminates the steam heat and fog of conventional steam tables. Eliminates the roasting-oven heat of ordinary dry-type food warmers. 1" water depth is always maintained *under* 212°F *automatically*. Foolproof Dial-a-Food controls permit amateurs to select the *right* heat for *each* food in *each* compartment. With compartment and food always under 212°, food can't burn. Taste, texture, color and aroma of food are saved. Five models, four sizes, electric or gas operation—and *only* in Custom-Modular cafeterias by . . . The Bastian-Blessing Co., 4205 W. Peterson Ave., Chicago 46, Illinois, Dept. 4-L.


*Listed under "Restaurant Equipment and Supplies" in all cities over 10,000 population.*

**BASTIAN-BLESSING**

*World's largest manufacturer of fountain and counter food-service equipment.*

*Trade-Mark
†Pat. Pend.

# TOUGH BUYERS DEMAND REZNOR FIVE-WAY HEATERS

## to project heat where needed on "difficult" jobs... with no waste!

When cranes, production machinery or huge inventory stacks require abnormally high heater placement, you *have* to be a "tough buyer" to do a proper heating job! You have to specify a unit that gets heat right where it's needed . . . with no waste of fuel *or* heat. That's why so many architects and engineers now demand the new Reznor Five-Way Heater, which projects heat downward, even from a height of 40 feet, to the spot where heat is needed, and (with the optional 5-way diffuser) in as many as five directions at once!

LOWER FUEL COSTS—By spotting heat accurately, the Five-Way Heater maintains complete comfort with less fuel; keeps fuel bills low.

LOWER INSTALLATION COSTS—The entire assembly installs quickly, requiring only gas, flue and power connections.

Available with aluminized or stainless steel heating elements and gas modulation. Electric ignition is optional.

For information, phone your Reznor distributor, or write Reznor Manufacturing Co., Dept. 62C, Mercer, Pa.

*The heating world is full of tough buyers; that's why Reznor is the world's largest selling direct-fired heater!*

# REZNOR HEATERS

"THE TOUGH BUYERS' LINE"

FROM THE NATION'S LARGEST MANUFACTURER OF COMMERCIAL AND INDUSTRIAL LIGHTING EQUIPMENT...

# NEWS about lighting's most versatile design elements

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recessed incandescent lens box line

by

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**DAY-BRITE**
LIGHTING FIXTURES

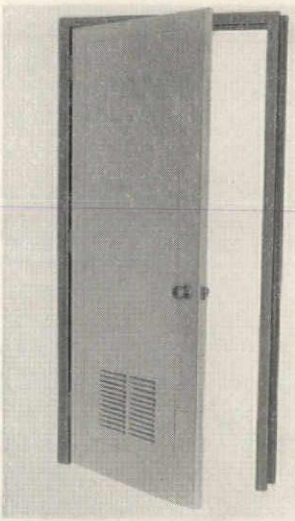
A-636

New smaller size for 100-150 watt lamps at lower price!
New diffusing glass bowl!
New matching splay trims!
New application ideas!
You'll find full details in this attractive UNI-FRAME booklet. Available from your Day-Brite representative listed in the Yellow Pages. Or write Day-Brite in St. Louis for Catalog OD-1036.

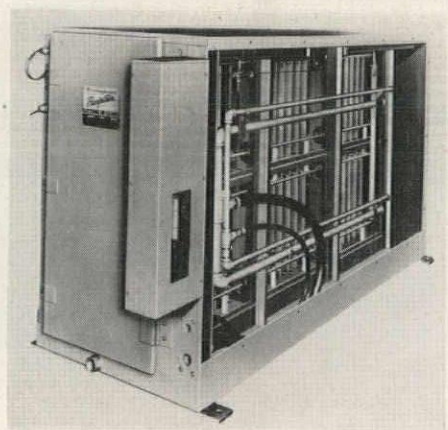
## ...and IDEAS on "how to" use them


*Day-Brite Lighting, Inc. St. Louis, Missouri Santa Clara, California*

## *Product Reports*



**Soundproof Louver Door**
Of special interest for air conditioned rooms where wall or door louvers are required is a rated soundproof louver door which restricts sound transmission to 32 decibels. The louvers are incorporated in a quality hollow metal door. *Pioneer Fireproof Door Corp., 811 S. Fulton Ave., Mount Vernon, N. Y.*



**"In-Line" Electronic Air Cleaners**
*Precipitron* electronic air cleaners are now being made in styles and dimensions that match those of Westinghouse air distributing units, so that they can be bolted directly to them to become an integral part of the central air conditioning system. Installation is simplified because the cleaners are ready for floor, platform or ceiling mounting, with duct and piping connections conveniently located and much of the high voltage wiring eliminated. Since the cleaners are only 25½-in. deep in the direction of the air flow, "in-line" assembly also makes the over-all system more compact. *Westinghouse Sturtevant Div., Dept. T-262, 200 Readville St., Hyde Park, Boston 36, Mass.*

*more products on page 208*

# Great new things are shaping up in concrete block


Photo courtesy of National Concrete Masonry Association

## Atlas Masonry Cement provides the right mortar

"Shadowal" concrete block has often been described as "the block with a thousand faces." Used here in combination with square blocks by Architect Mario J. Ciampi, San Francisco, this unit has created a striking and distinctive example of the role concrete block plays in today's building plans. And to lay up the new concrete masonry units, Atlas Masonry Cement continues to be the preferred cementing material for mortar. It helps produce a smooth, workable mortar . . . assures a stronger bond . . . gives weatherproof joints that are uniform in color. And Atlas Masonry Cement complies with ASTM and Federal Specifications. For information write: Universal Atlas Cement, Dept. M, 100 Park Avenue, New York 17, N. Y.

M-78

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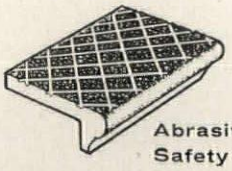
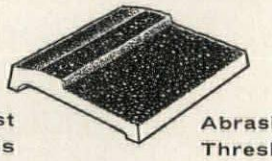
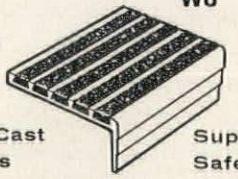
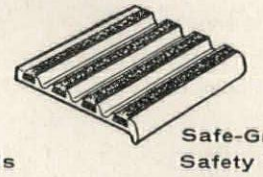

Abrasive Cast
Safety Treads


Abrasive Cast
Thresholds


Super-Grit
Safety Treads


Safe-Groove
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New steels are born at Armco

# COLORFUL PORCELAIN ENAMEL

## Banishes that "Institutional" look

**Crestview of Ohio, Inc., Sylvania, Ohio**
**Resident Apartment Building "A"**
Slated for completion in January, this residential unit is the first of several structures planned for Crestview.

Architects: **Samborn, Steketee, Otis & Evans, Toledo, Ohio**
Contractor: **F. W. Entenman, Inc., Toledo, Ohio**
Curtain Wall System: **Fenestra, Incorporated, Detroit, Michigan**
Porcelain Enamel Panels: **Davidson Enamel Products, Inc., Lima, Ohio**

This is the first unit of Crestview of Ohio, a project to provide luxury apartment living for the retired. It isn't completed, yet it's obvious that it won't have that "institutional" look. By skillfully combining rich brown and contrasting cream panels in an interesting pattern, this residential unit for retired folks looks more like a contemporary apartment for modern young couples.

Besides achieving a distinctive colorful facade and providing the necessary large window areas with porcelain enamel curtain walls, the architects achieved other important advantages. The combination of curtain wall construction and porcelain enamel on Armco Enameling Iron helped keep first cost within a limited budget, and assures low maintenance costs. The rich warm colors they selected from porcelain enamel's rainbow palette won't fade, and the smooth-surfaced panels will rain-wash to keep the colors bright.

For *all* types of structures, explore the design advantages offered by curtain walls of porcelain enamel on Armco Enameling Iron. Your clients have the choice of a rainbow of weather-proof colors in bold hues or pastels; a full range of formed, embossed and textured surfaces; panel shapes, sizes and forms that defy monotony. Write Armco Steel Corporation, 3489 Curtis Street, Middletown, Ohio, for data on Armco Enameling Iron and its use in architecture.

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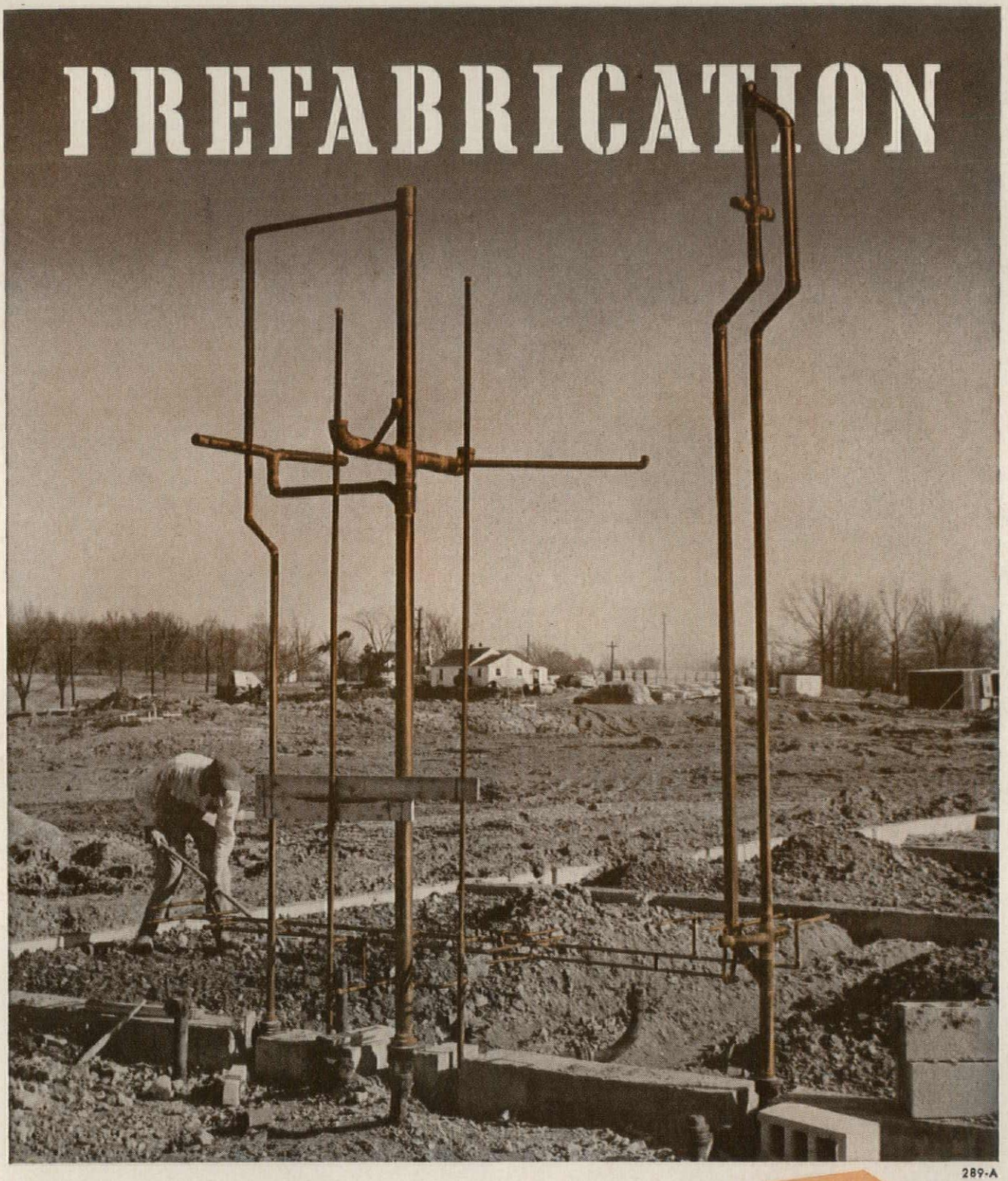


289-A

. . . another way **STREAMLINE DWV COPPER TUBE AND FITTINGS** save time and money . . . prefabrication is just one more advantage in addition to all the well known qualities of copper for drainage, waste and vent lines.

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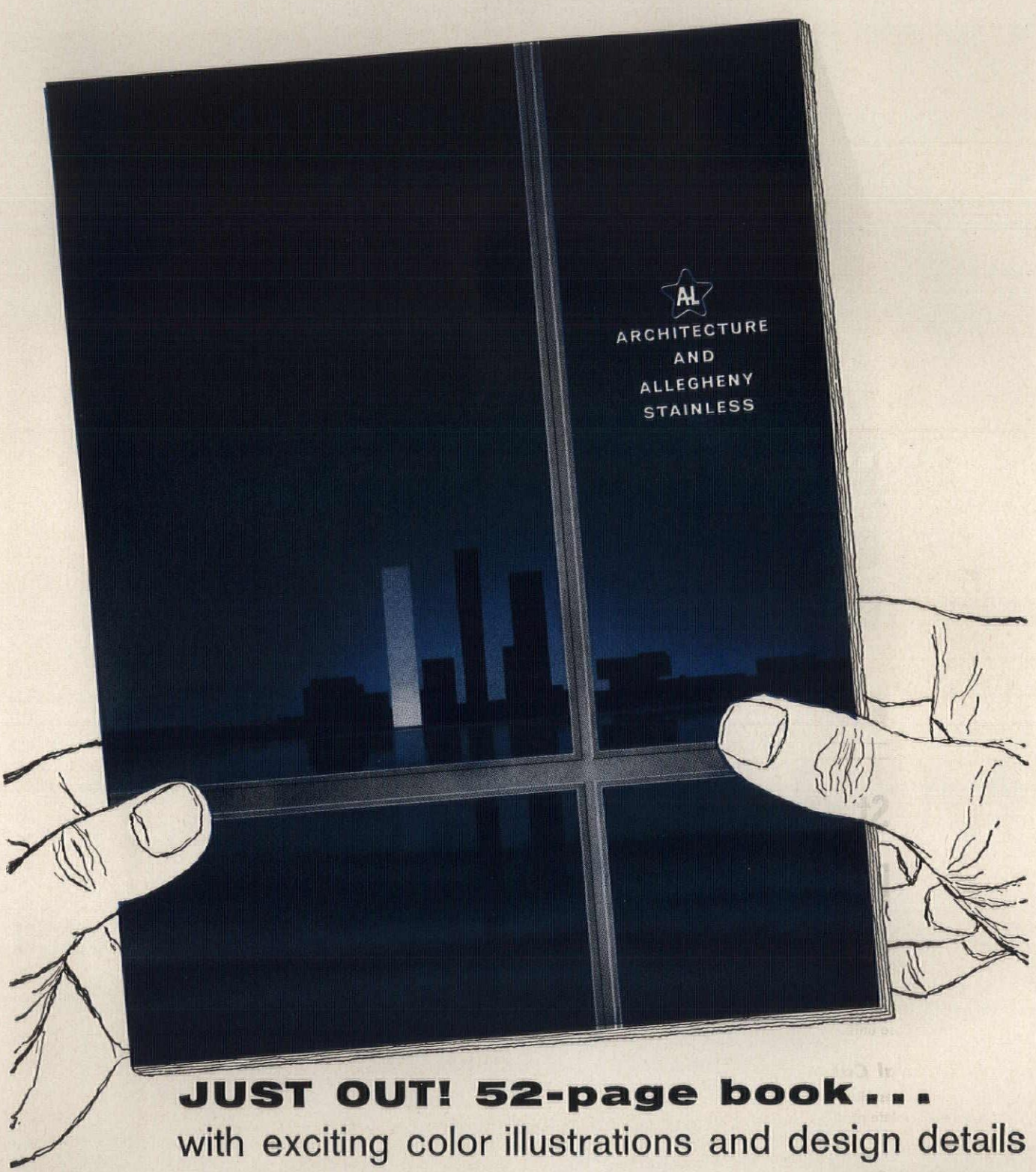


# JUST OUT! 52-page book...

## with exciting color illustrations and design details

Here's a book that offers new design ideas, new uses for stainless steel in building. "Architecture and Allegheny Stainless" brings you up-to-date on the latest professional developments . . . with full-color illustrations of buildings just completed or still under construction.

Specific data, with pictures and design details, illustrate such stainless applications as curtain wall construction, store fronts and entrances, windows, hardware, roofing and others.

Evidence enough that modern architecture's demands are more than matched by the strength, quiet beauty and corrosion-resistance of Allegheny Stainless.

"Architecture and Allegheny Stainless" is filled with facts vital to everyone concerned with architecture and buildings. Write today for your free copy. *Allegheny Ludlum Steel Corporation, Oliver Building, Pittsburgh 22, Pa.*

*Address Dept. R-24.*

WSW-7513

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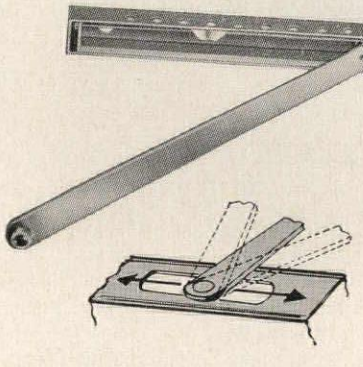
a door installed closer with NO PROTRUDING ARM!

# MULTI·CHECK®

FOR INTERIOR DOORS

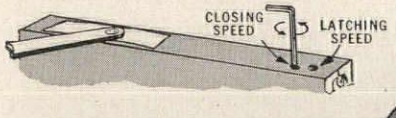
## one-piece arm "hides away" when door is closed



**HOLD-OPEN** quickly adjustable to any one of 7 points.

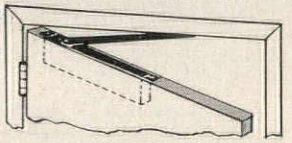
**FLOATING ROLLER** in arm rides freely to adjust to door sag or improper hanging.

**TRAVELING SPINDLE** moves with arm to relieve leverage stress on hinges and door frame.

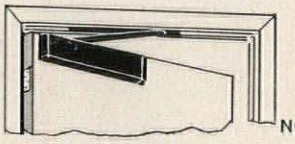



**TWO CLOSING SPEEDS** independently adjustable.

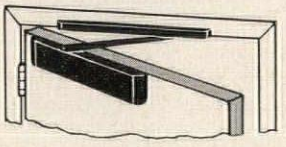
**MOUNTS ANY WAY YOU LIKE . . .**



**mortised in the door** (right or left hand)



**push side—surface mounted** (right or left hand)
NO SPECIAL BRACKET NEEDED



**pull side—surface mounted** (right or left hand)

**one set of fixtures for all surface mountings**

*write for complete details and installation templates*

MULTI·CHECK

**THE OSCAR C. RIXSON COMPANY**
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CANADIAN PLANT: 43 racine rd. (rexdale P.O.) toronto, canada

# it's Textured

Detroit's most modern bank features

*new* GE Textured Textolite®

for cafeteria table surfacing...that looks and **actually feels** like linen

NATIONAL BANK OF DETROIT main office
*Architects-Engineers:* Albert Kahn Associated Architects & Engineers, Inc.
*Interior Designer:* W. B. Ford Design Associates Inc.
*Tables:* Harlow Stahl & Co.

Reflected light is softly diffused from these cafeteria tables surfaced with General Electric Textured Textolite, the high-pressure plastic laminate with a new dimension. Textured, exclusive with General Electric, is pleasing to the eye . . . warm to the touch . . . shows less noticeable wear than any conventional laminated surfacing.

*Write for samples*:
General Electric Company, Coshocton, Ohio

GE Textured Textolite®
LAMINATED SURFACING
*Gray Linen TT-1101-T*

*Progress Is Our Most Important Product*

GENERAL ELECTRIC

*complete range of textured patterns and colors shown on next page* →

# REVOLUTIONARY NEW LAMINATE FINISH!

A. I. A. File Nos. 35-C-12 and 23-L

## Textured Textolite®

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### NOW AVAILABLE IN THESE DECORATOR PATTERNS AND COLORS

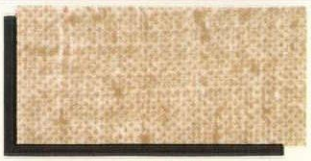
You'll find unlimited design application possibilities for this new and different textured high-pressure plastic laminate. With a finish that reduces noticeable wear and eliminates objectionable glare, General Electric Textured Textolite is ideal for store and restaurant fixtures, walls, partitions and room dividers, school and office equipment, fine furniture, and many other applications requiring functional beauty plus durability.

Selected woodgrain patterns have the warmth and feel of natural wood. Solids and mists add a real luxury note to any decor.

*See* the difference . . . *feel* the difference. For free textured samples and information on the complete G-E Textolite line, contact your local distributor (listed under "Plastics" in the Yellow Pages) or write: General Electric Company, Department TT-1, Coshocton, Ohio.

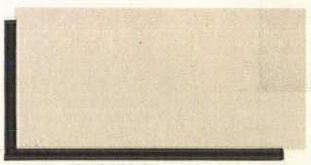
*See our catalog in Sweet's Architectural* (14a/Ge) *or Light Construction* (9a/Ge) *Files*


Gray Linen TT-1101-T

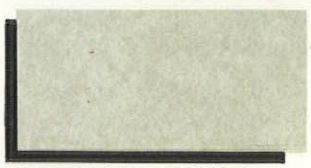

Tan Linen TT-1119-T


Cocoa TT-1478-T


Beige TT-1479-T


Gray TT-1471-T


Gray Desktone TT-3601-T


Green Desktone TT-3605-T

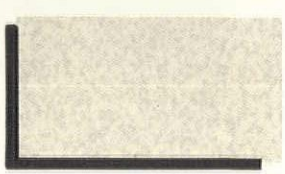

Tan Desktone TT-3609-T

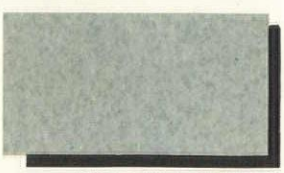

Cocoa Mist TT-4378-T


Rūban Mist TT-4380-T

*pattern shown ½ original size*


Yellow Mist TT-4374-T


White Mist TT-4300-T


Green Mist TT-4375-T


Beige Mist TT-4379-T


Spice Cherry TT-9103-T


Birch TT-9401-T


Silver Birch TT-9402-T

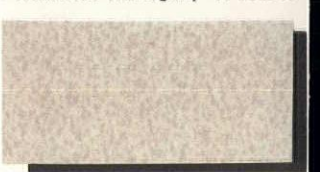

Maple TT-9303-T


Frosted Walnut TT-9502-T


Brown Walnut TT-9503-T


Softone Oak TT-9706-T

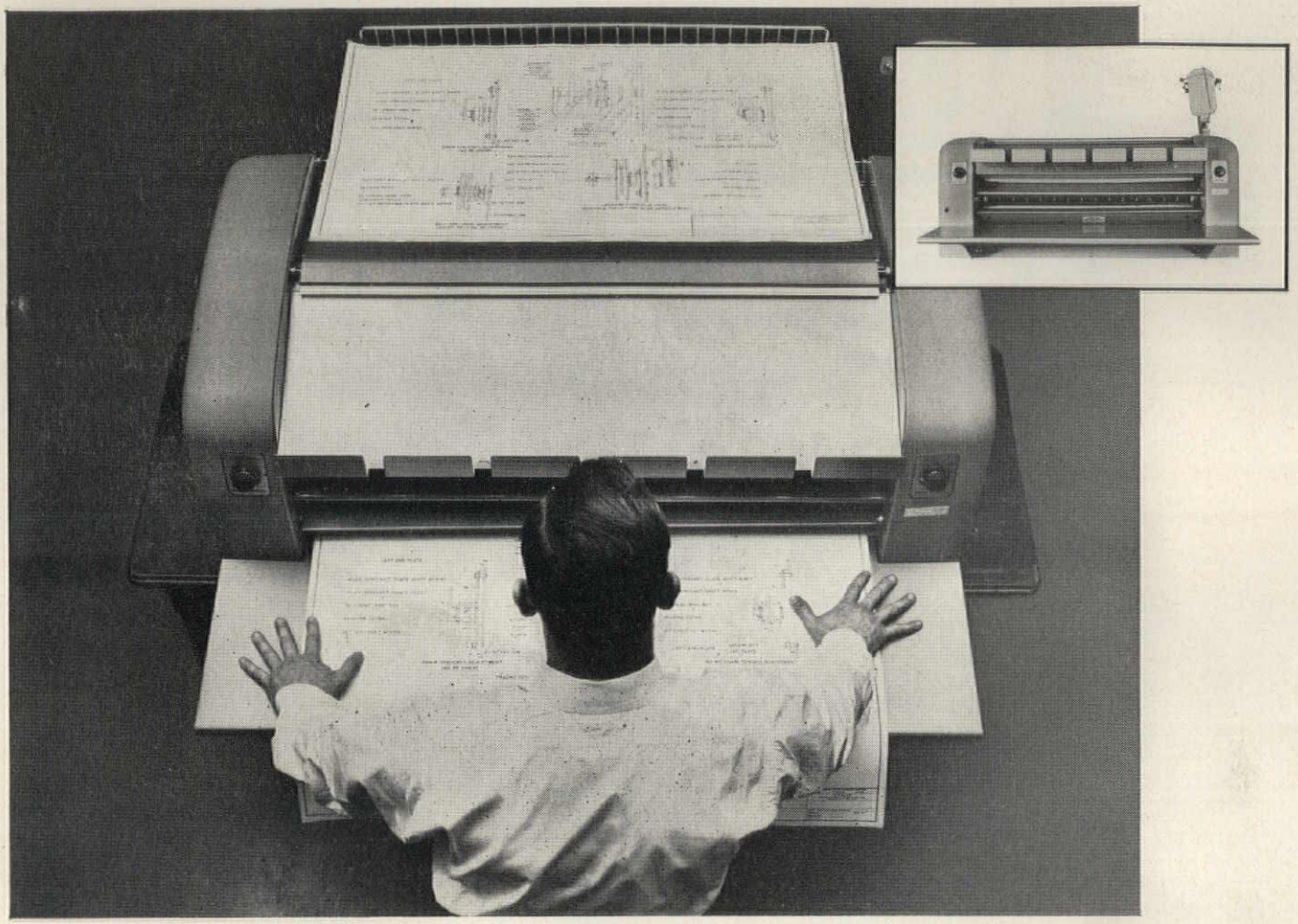

Honduras Mahogany TT-9806-T


Gray Mist TT-4371-T

White TT-1400-T also available.

T-CDL-495TA

GENERAL ELECTRIC



*Announcing . . .*
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# STREAMLINER 100

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

- Makes prints up to 30" wide by any length
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And the versatile Streamliner 100 handles the whole range of Ozalid sensitized materials . . . lets you turn out gum-backed labels, photographs, cloth maps, or color transparencies!

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

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Company_____

Position_____

Street_____

City_____ Zone_____

State_____

# *Office Literature*

*continued from page 173*

**Range Hood Ventilator**
*. . . for Commercial Kitchens* (A.I.A. 35-C-11) contains specifications and dimensions for basic models and special units in the *Filtaire* line of packaged range hood ventilators for commercial kitchens. A step-by-step procedure for engineering *Filtaire* installations is included. Catalog 1201, 8 pp. *Morrison Products, Inc., 16816 Waterloo Rd., Cleveland 10, Ohio*

**Customized Partitions and Walls**
(A.I.A. 35-H-6) File folder presents catalog-specification sheets on customized aluminum curtain walls and partitions. *Aluma-Wall Partition Co., 859 East 108th St., Los Angeles 59, Calif.*

**Copper Fitting Catalog**
Lists and illustrates wrought and cast fittings for copper water and drainage tube in both flared and solder joint types, with data on types of solders and working pressures, dimensions of copper water tube, and flow capacities and friction loss allowances for both tube and fittings. Catalog SF-59, 42 pp. *Chase Brass & Copper Co., 40 East Farm St., Waterbury 20, Conn.**

**Air Entrainment Meter**
Describes and gives operating instructions, illustrations, and information on maintenance and recalibration of a precision air entrainment meter for use in testing and designing concrete mixes. *Soiltest, Inc., 4711 W. North Ave., Chicago 39, Ill.*

**Steel City Lighting Supports**
(A.I.A. 31-F-290) Describes and gives mechanical details and selection information on channel type lighting supports for installing wiring and electrical fixtures in industrial and commercial buildings. Bulletin G-2, 8 pp. *Steel City Electric Co., 1207 Columbus Ave., Pittsburgh 33, Pa.*

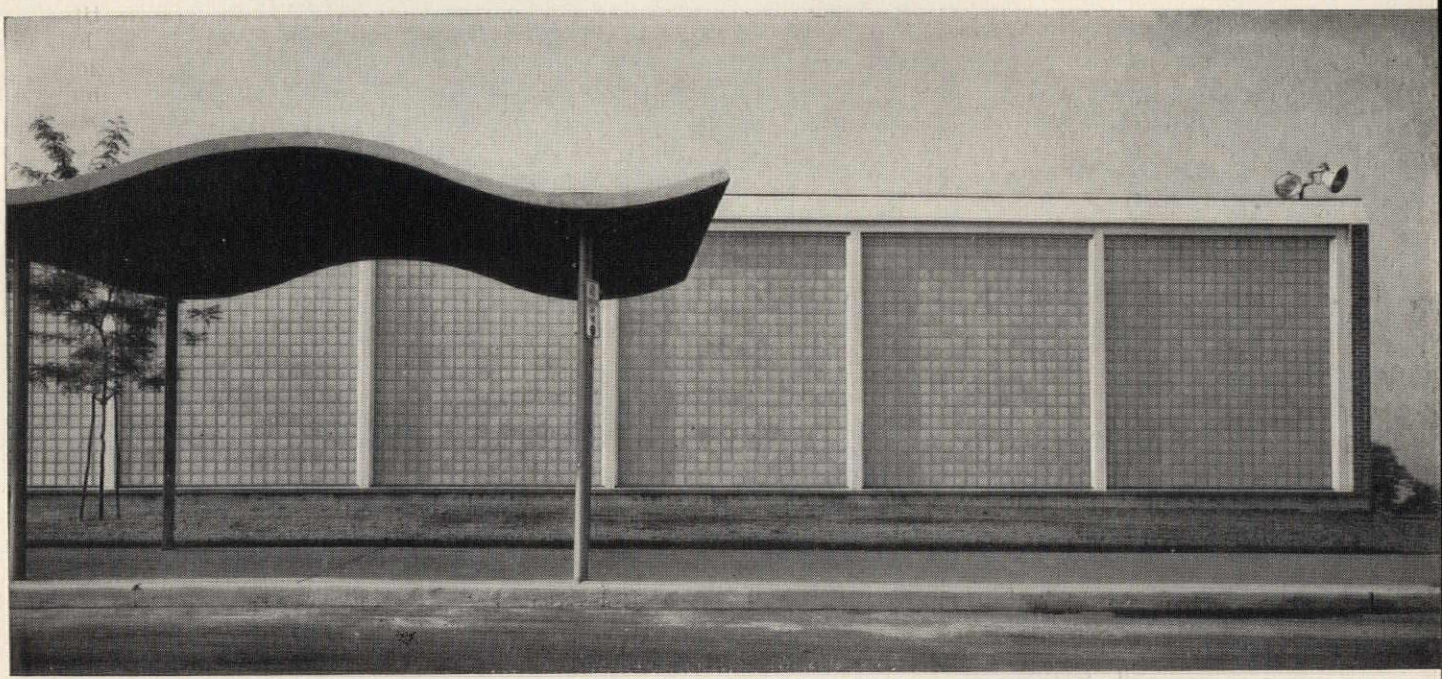
**Louverdrapes Vertical Blinds**
Gives complete information, specifications and scale drawings for each model in the *Louverdrape* line of vertical blinds. A special section on "problem windows" is also included. 8 pp. *Vertical Blinds Corp. of America, 1936 Pontius Ave., Los Angeles 25, Calif.**

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

*more literature on page 224*

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

# example:



Jewish Community Center, Camden, N.J. Architect: Vincent G. Kling, A.I.A., Philadelphia, Pa.

**PC Glass Blocks to provide maximum diffused daylight inside while preserving privacy at this community center.**

Architect Vincent G. Kling found that PC Glass Blocks provided a four-way answer to an important design problem at the Jewish Community Center, Camden, N.J. The floor of the Center's gymnasium is set below grade with one outer wall facing the entrance drive and highway. Good design called for a material able to admit as much softly diffused daylight as possible without sacrificing privacy . . . and without breaking up the broad planes of the elevation. Because of the location, it was also desirable to have a material rugged enough to withstand substantial abuse. The wall of PC Glass Blocks pictured above met the architect's design need on all counts.

Here you see an excellent example of PC Glass Blocks used with authority to insure that the material serves the design. This preservation of the architect's authority over design is inherent throughout the full line of PC Glass Blocks: in the sweeping variety of functional and decorative patterns; in the new **4 x 12** block; and in the broad spectrum of architecturally oriented face colors available. *(Continued)*

PITTSBURGH PC CORNING

# example:

**An ounce of wate**

Most thermal insulations absorb literally gallons of water in a surprising short time. FOAMGLAS insulation doesn't. What's that do to insulati value? Think back to a time when you were caught on a bitter cold d with your feet freezing in wet socks. Your socks should have served insulators. But they were wet and couldn't insulate. An absorbent insulati soon reaches the point where it's no more effective than your wet socks.

And remember: most materials claiming to be waterproof do abso airborne water vapor. When that vapor condenses inside the material, ins lating value goes out the window.

**P I T T S B U R G**

**r 100 gallons . . . the difference shows why**
**OAMGLAS® insulation guarantees constant k-factor and nothing else can**

OAMGLAS, on the other hand, is 20,000 times less permeable than the ext most effective insulation. Thus, in the time it would take a given nount of FOAMGLAS to pick up an ounce of condensed water vapor, an entical quantity of any other insulation would pick up over 100 gallons. his contrast demonstrates why FOAMGLAS maintains its original effec- veness long after other materials have become too wet to insulate.

This illustrates why it is so important for you to compare all insulating aterials. High Voltage Engineering did and selected FOAMGLAS. See hy on the next page.

*(Continued)*

CORNING

# example:

**FOAMGLAS Roof Insulation . . . comparison tested to prove its superiority for this High Voltage Engineering Corp. roof.**

Time and again, when insulations are carefully compared, FOAMGLAS gets the nod. High Voltage Engineering Corp. made a point by point comparison of roof insulations . . . and they picked FOAMGLAS for the roof of their new $1½-million plant at Burlington, Mass.

They found no other roof insulation could deliver as valuable a combination of benefits as FOAMGLAS. The combination? First, moisture resistance. As pointed out on the preceding page, FOAMGLAS stays dry, thus insuring constant insulating efficiency. And strength. The average ultimate compressive strength of FOAMGLAS is over 7 tons per sq. ft., so it forms a remarkably solid base for built up roofing. Easy to cut and fit, it slashes roof installation time and money. It's light in weight and it can't burn.

And High Voltage Engineering found that the dependability of FOAMGLAS promised to cut their heating costs by some $8,500 a year *every year*. Why not make your own comparisons?

(*To be continued*)

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- ☐ FOAMGLAS Roof Insulation
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Name_____

Company_____ Title_____

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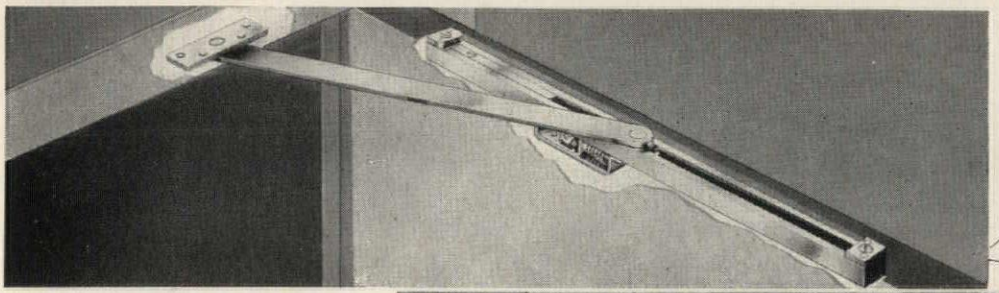
PITTSBURGH PC CORNING

# GLYNN·JOHNSON

## *the complete line of* OVERHEAD DOOR HOLDERS

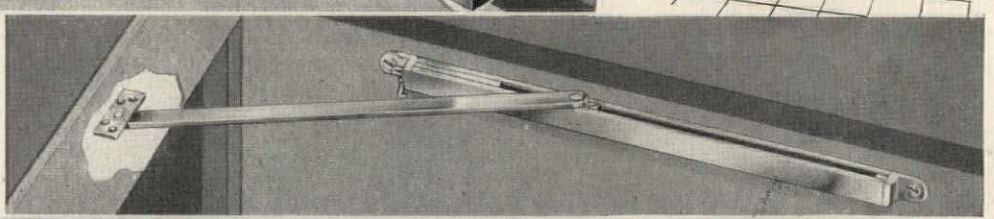
*overhead means out-of-the-way...

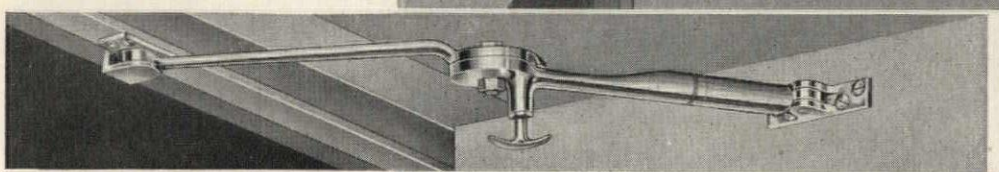
no stumbling hazards—no interference with cleaning



▲**GJ 100** **concealed (non-handed) for single and double acting doors.** The finest in appearance and long, trouble-free wear.

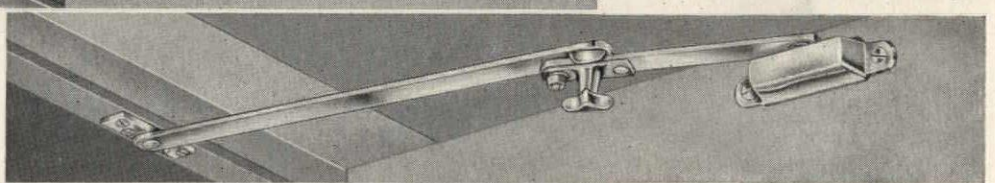
**GJ 90▶** **surface type (handed)**

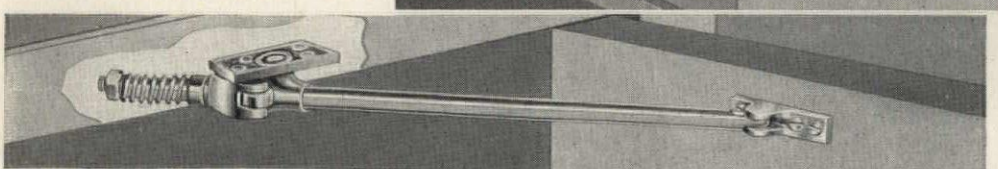




◀**GJ ARISTOCRAT (non-handed) for single acting doors.** Ruggedly built for hard, practical usage.

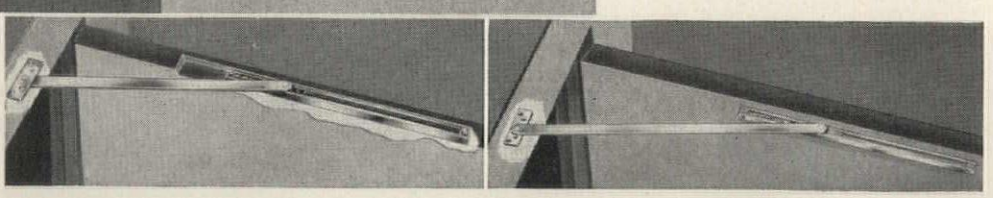
**GJ 80▶ (handed) for single acting doors.** For moderate cost installations.





◀ **GJ 70 (non-handed) for single acting doors.** Inexpensive for low-cost installations.

**GJ 300 and GJ 500 series▶** **(non-handed)** concealed for single and double acting interior doors. Surface type for single acting doors. Spring cushion types and friction holder type.



**CUSHION THE STOP...** silently absorbing the shock of violent openings.

**HOLD THE DOOR...** hold-open engages silently... holds firmly... releases easily.

*"Life of the building"* GJ Overhead Door Holders are made of highest tensile strength alloys requiring minimum maintenance or replacements. They have built-in shock absorbers to cushion the stop and are made in various sizes for any width door.

*Write for complete details and templates.*

**GLYNN·JOHNSON CORP.**

**4422 no. ravenswood ave. • chicago 40, ill.**

## *Office Literature*

**Fab-Form**
(A.I.A. 13-G) Describes *Fab-Form* permanent steel forms for concrete floor and roof slabs, lists load tables and accessories, and gives suggested specifications. 4 pp. *Pittsburgh Steel Products Div., Pittsburgh Steel Co., Grant Bldg., Pittsburgh 30, Pa.**

**Technical Tips**
Contains helpful hints and suggestions on the proper fabrication of *Panelyte* decorative laminates. 16 pp. *Sales Promotion Dept., St. Regis Paper Co., 150 East 42nd St., New York 17, N. Y.**

**School Lighting Fixtures**
Includes detailed descriptions and illustrations of Smithcraft's "engineered economy" fixtures for classroom and other school lighting areas. 4 pp. *Smithcraft Lighting, Chelsea 50, Mass.**

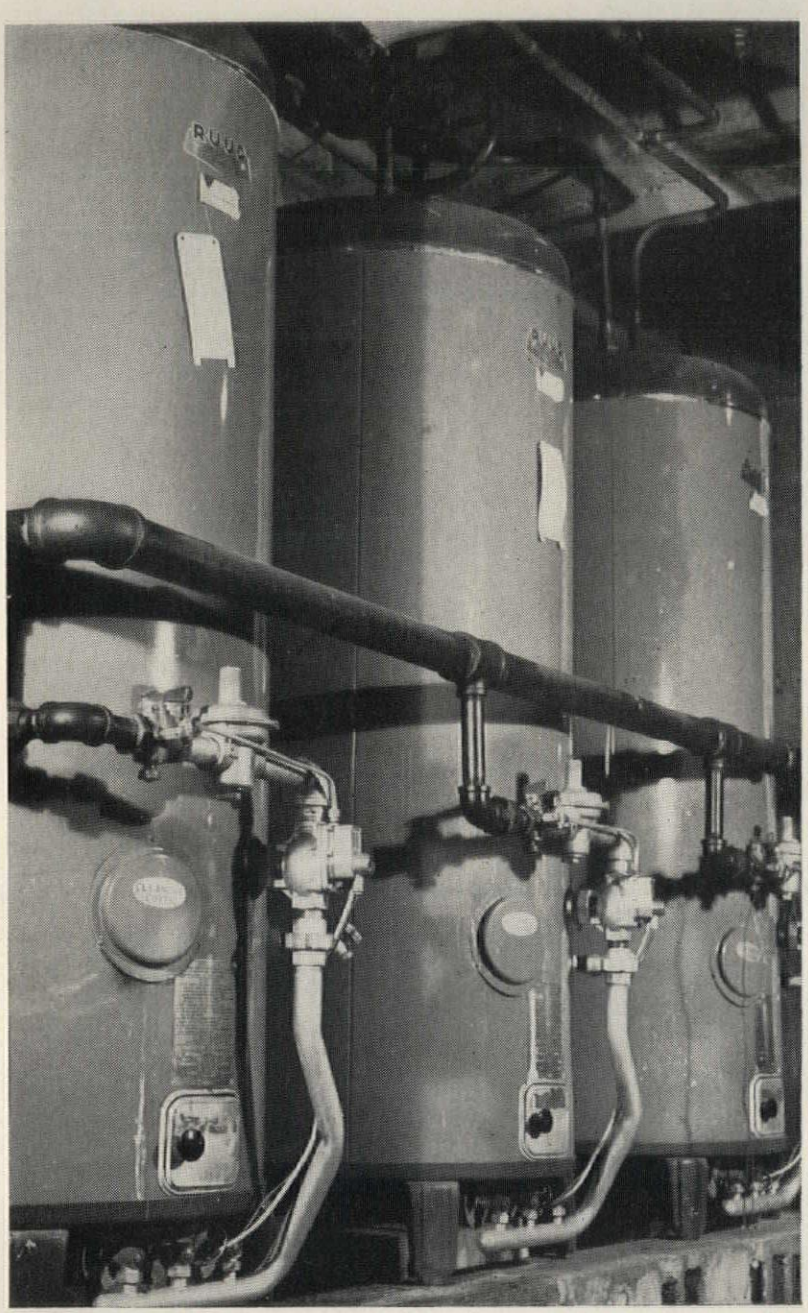
**Zone Control Systems Handbook**
Includes sections on construction, installation, dimensions, specifications and features of zone control hot water baseboard heating for residences, supplemented by a detailed section on air conditioning. 70 pp. *Edwards Engineering Corp., 1 Alexander Ave., Pompton Plains, N. J.*

**Absorption Cold Generator**
Describes product features, operational cycle, hermetic pump operation and purge design of absorption cold generator, and gives roughing-in dimensions and specifications. Bulletin S-435. *Trane Co., La Crosse, Wis.*

**Three-Pass Power and Heating Unit**
Describes and illustrates mechanical and thermal features of the *Titan*, a 3-pass power and heating unit with all wet back construction. Bulletin B-3240, 8 pp. *Titusville Iron Works Div., Struthers Wells Corp., Titusville, Pa.*

**Performance of Type B Gas Vents**
. . . *for Gas-fired Appliances,* Research Bulletin No. 51, reports an investigation conducted to provide information and definite technical data on the performance of Type B gas vents when used in systems to vent appliances. It also surveys available information on the ignition of wood exposed for long periods of time to moderately elevated temperatures. *Public Relations Div., Underwriters' Laboratories, Inc., 207 E. Ohio St., Chicago 11, Ill.*

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



# WATER HEATERS WITH ALCOA ALUMINUM STOP COMPLAINTS IN MICHIGAN APARTMENT BUILDING

Three Alcoa alloy gas water heaters put a fast stop to complaints about lack of adequate hot water in the Goldine Apartments, Highland Park, Michigan.

The three Ruud-Alcoa units are used as automatic storage water heaters for the 74 apartments and nine stores located in the single building, but they can easily be connected to auxiliary storage tanks and used as circulating water heaters. They take up a minimum amount of space in a small basement room that is often flooded from water seepage. All three units have provided trouble-free, fast-recovery, year-round service since they were installed in October, 1956—even though water often comes up over the burners.

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

*Your Guide to the Best in Aluminum Value*

For Exciting Drama Watch "Alcoa Theatre," Alternate Mondays, NBC-TV, and "Alcoa Presents," Every Tuesday, ABC-TV

ALCOA ALUMINUM

Aluminum Company of America
1899-M Alcoa Building
Pittsburgh 19, Pa.

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

Name_____ Title_____

Company_____ Street_____

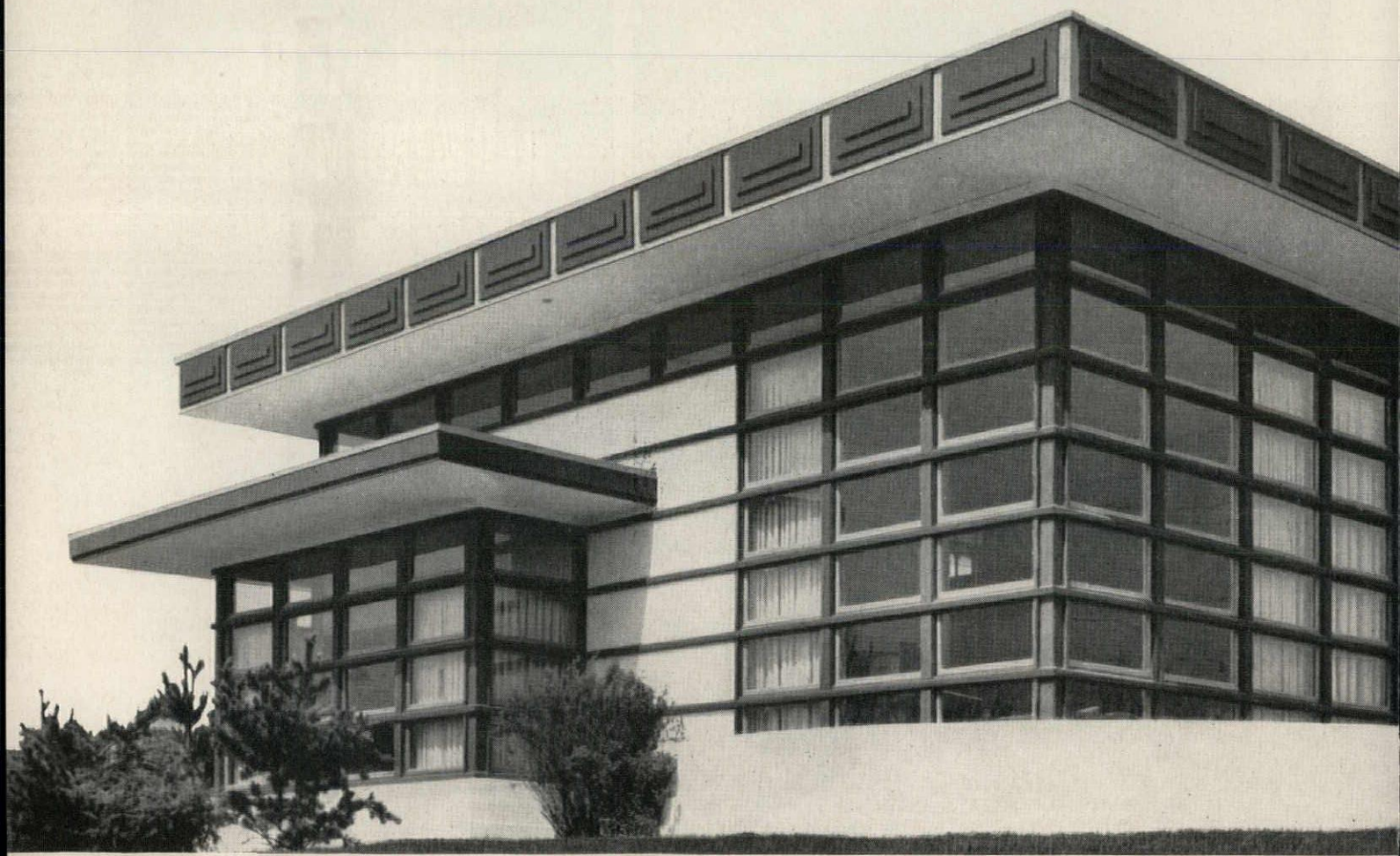
City_____ Zone_____ State_____

# 132 Andersen Flexivents® in this manufactured house by Frank Lloyd Wright

THIS SECOND of three houses designed by Frank Lloyd Wright for prefabricated construction is manufactured by Marshall Erdman and Associates, Inc., in Madison, Wis. The 2-story house, on a 2′ by 4′ module, makes liberal use of Andersen's versatile Flexivent Windows with fixed and operating sash.

Builder Erdman reports: "I get a lot of satisfaction, as a designer, engineer and manufacturer of quality homes, out of using a top quality window unit. Out of more than 500 homes with Flexivents, we've adjusted windows on only two complaints."

For all the facts on all *seven* of Andersen's complete window units, see your Sweet's File, or write Andersen direct.



**Window Bay** provides space added by Mr. Wright after original plans (on facing page) were drawn. Exterior color is cream ocher on pressed hardboard siding. Horizontal battens and ornamental facia stained redwood. Window trim Chinese red.

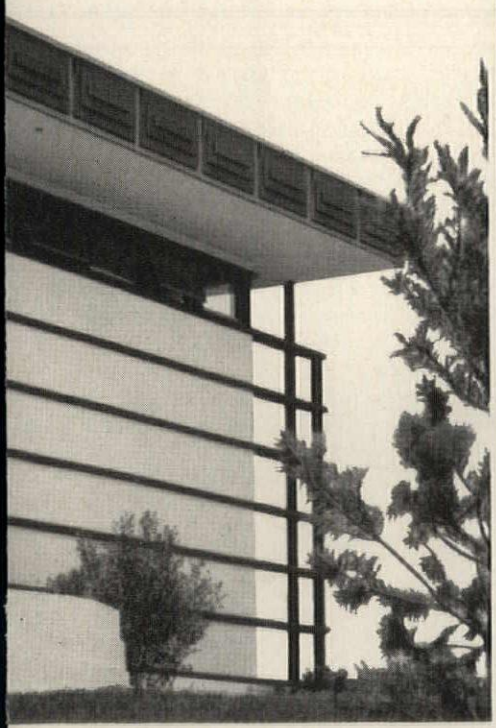
Andersen Windowalls

Trademark of Andersen Corporation

ANDERSEN CORPORATION • BAYPORT, MINNESOTA

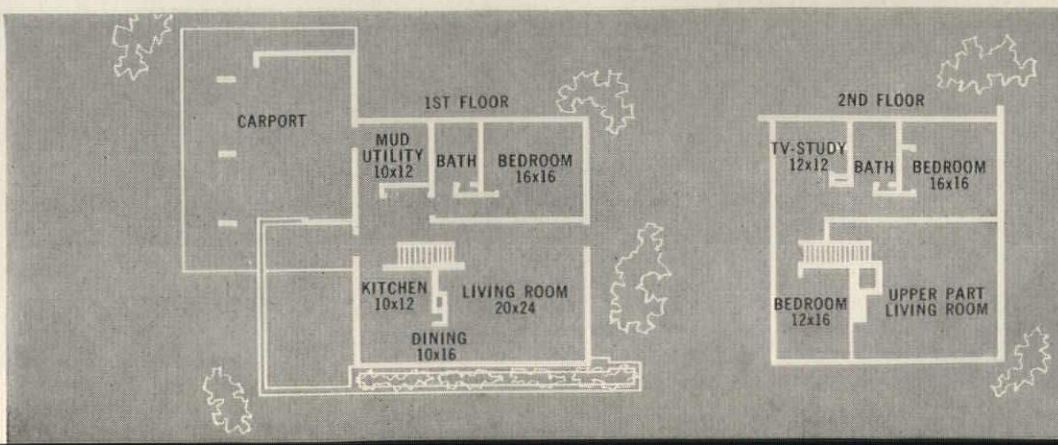
AW

# designed



(Above), **Corner WINDOWALLS** in 2-story living room give feeling of immense spaciousness. Operating sash of Flexivents are installed in awning position. Upstairs rooms form "gallery" overlooking living room.

**FLOOR PLAN** shows house is almost square. 2,912 sq. ft. of space. Walls of upstairs "gallery" are waist high; folding doors give privacy. $28,000 to $35,000 depending on inclusion of basement and built-ins.



**On the Calendar**

*December*

1-4 Annual Convention, National Warm Air Heating and Air Conditioning Association—Chase Park-Plaza Hotel, St. Louis

11-15 Third Annual National Swimming Pool Exposition and National Convention of National Swimming Pool Institute; theme, "Pools for Better Living"—The Coliseum and Statler-Hilton Hotel, New York

*January*

12-15 16th Annual Technical Conference, Society of Plastics Engineers—Conrad Hilton Hotel, Chicago

17-21 16th Annual Convention and Exposition, National Association of Home Builders—Conrad Hilton and Sherman Hotels and The Coliseum, Chicago

25-28 11th Plant Maintenance and Engineering Conference and Show—Convention Hall, Philadelphia

*February*

1-4 Semi-Annual Meeting, American Society of Heating, Refrigerating and Air-Conditioning Engineers—Baker Hotel and Memorial Auditorium, Dallas



**Office Notes**

*Offices Opened*

Winston Cordes, A.I.A., has opened an office for the practice of architecture and planning at 649 S. Olive St., Los Angeles 14.

Warren Gilbert, A.I.A., has opened an office for the practice of architecture at 1807-B Prune Ridge Ave., Santa Clara, Calif.

Irwin Luckman and Burns Cadwalader announce a new partnership, Luckman and Cadwalader, Architects, at 4241 Piedmont Ave., Oakland, Calif.

*Firm Changes*

Bellman, Gillett & Richards, Toledo architectural and engineering firm, announces the appointment of Dean L. Lashbrook as acting chief structural engineer. Mr. Lashbrook formerly was with Burns & Roe.

Comparetto & Kenny, Architects and Engineers, is now the name of the firm formerly known as Mascolo, Masumian & Comparetto and Comparetto & Associates. Address: 880 Bergen Ave., Jersey City 6, N. J.

Charles L. Hendrick announces that Donald O. Phelps has been admitted to partnership and that the firm is now Hendrick and Phelps, Architects. Address: 407 Rutland Bldg., Orlando, Fla.

Charles Luckman Associates announces that Marvin G. Sturgeon has been advanced to vice president and director of engineering and that Victor A. Cusack, A.I.A., has rejoined the firm as chief designer. Addresses: 9220 Sunset Blvd., Los Angeles 46, and 24 E. 51st St., New York 22.

Nelson, Goldberg and Heidt, engineers and architects, announces that Eugene W. Schmieder has been admitted as a full partner. Address: 1215 Baldwin Bldg., Erie, Pa.

Skidmore, Owings & Merrill announces the appointment of E. Alfred Picardi as chief structural engineer. Mr. Picardi formerly was with Bellman, Gillett & Richards. Address: 30 W. Monroe St., Chicago 3.

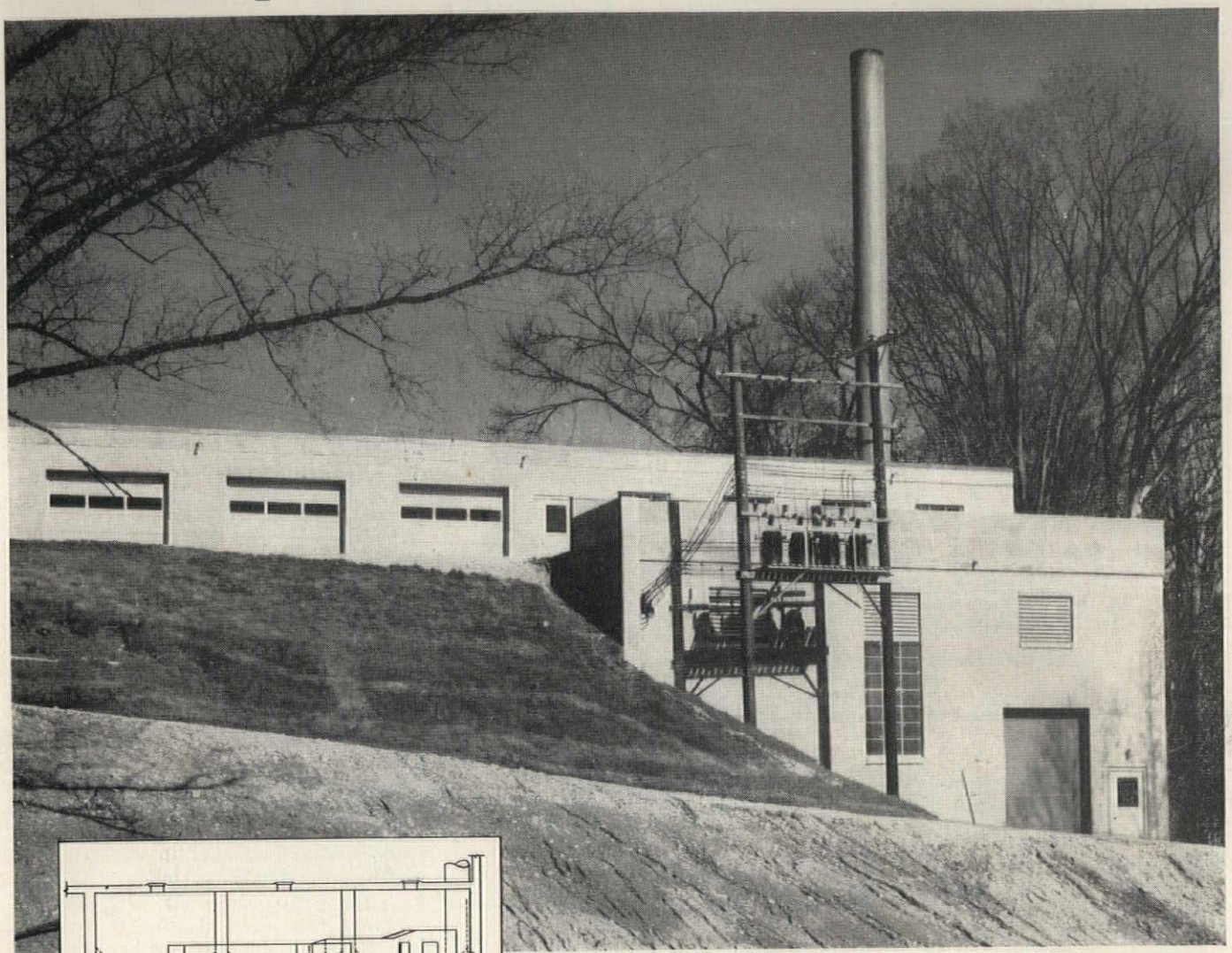
Thomas E. Stanley, Architects-Engineers, announces the opening of an office at 507 Turtle Creek Bldg., Dallas.

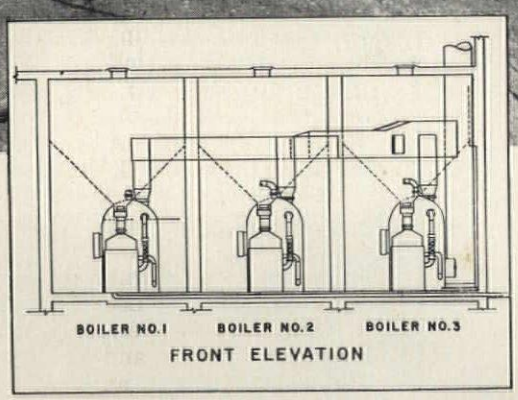
*New Address*

De Leuw, Cather & Brill and Brill & Gray, Engineers-Architects, 220 E. 42nd St., New York 17.

*more news on page 232*

# Modern plants burn coal the modern way






## HILLSIDE POWER PLANT SIMPLIFIES OPERATION, DOES DOUBLE DUTY AT OTTERBEIN COLLEGE

When an engineering survey at Otterbein College, Westerville, Ohio, indicated the need for increased steam facilities, plans for a new heating plant were drawn up by the firm of Benham, Richards and Armstrong.

The new building was designed for a hillside location to take advantage of gravity in coal handling. Coal is carried by truck to the concrete slab that forms the roof of the boiler room and is delivered directly to the hoppers inside. It is gravity-fed to International-BCR Coal-Pak Automatic boilers, flows through combustion to ash residue . . . an unusually simple, economical operation. In addition, the upper level of the plant is the college maintenance building, housing college cars and trucks as well as plumbing, painting and other shops. This "split-level" design has fulfilled its function admirably: creating an efficient, easily-handled heating plant as part of a practical, multi-purpose structure.

*District engineers of the Bituminous Coal Institute have detailed information on how coal-burning plants lend themselves to modern architectural design. If you have a problem in power plant design, write for the name of the BCI man in your area.*

SEND COUPON FOR GUIDE SPECIFICATIONS, with complete equipment criteria and boiler room plans:

BITUMINOUS COAL INSTITUTE
Southern Building, Washington 5, D. C.

Gentlemen: Please send me:

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

Name_____

Title_____

Company_____

City_____ Zone____ State_____

AR-12

## BITUMINOUS COAL INSTITUTE

Dept. AR-12, Southern Building, Washington 5, D. C.

*See our listing in Sweet's Files:* A-30J/Bi; PE-4a/Bi; IC-18b/Bi

# There's a General Electric Underfloor Wiring Syste to meet every electrical requireme ...for any type of floor constructi

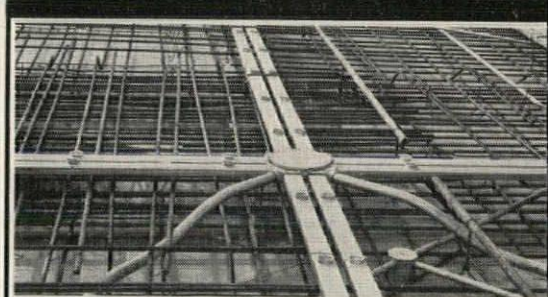
In planning an underfloor wiring system for a new building, you have to consider several factors. First, you must specify a duct of sufficient capacity to accommodate the building's probable electrical requirements. Next, the duct system must be one that can be incorporated into the specified floor construction. Finally, you may have to consider budget limitations. All of these factors can affect your choice of an underfloor wiring system.

You can solve these problems by basing your specifications on a General Electric underfloor wiring system. Each of G.E.'s four underfloor wiring systems has its own advantages to help you satisfy the requirements of the job.

General Electric underfloor wiring systems are designed for easy installation plus long-term reliability. The components are made to close tolerances so that they fit together without trouble out on the job.

All four G-E systems are listed by Underwriters' Laboratories, Inc., and meet Federal Specifications.

**G-E UNDERFLOOR WIRING SYSTEMS ARE EASY TO INSTALL**



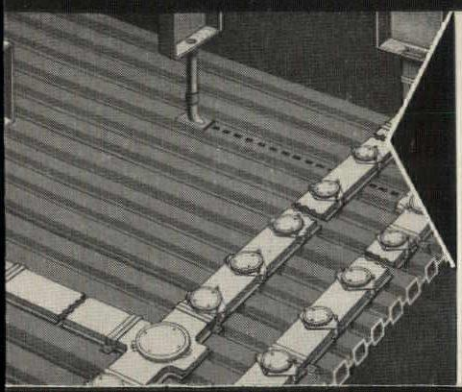
All G-E underfloor wiring systems are easy install. For example, with the G-E single-lev systems all duct runs may be fed through condu openings in the corners of the boxes—no need f field adaptations to feed center duct runs.

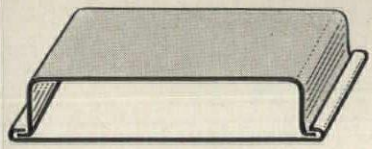
Another important point: screws in the levelir ring of all G-E single-level junction boxes perm fine adjustments to bring the box level with th fill—without need of removing the box cover.

*Progress Is Our Most Important Product*

GENERAL ELECTRIC

# FOR CELLULAR-STEEL FLOORS



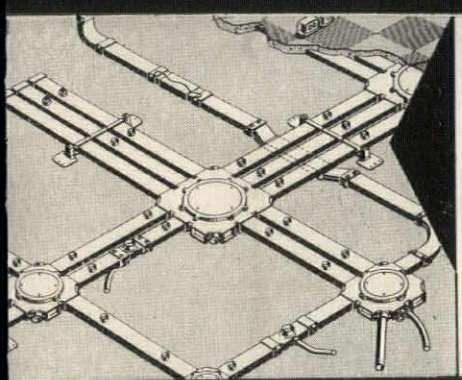


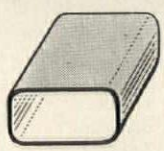
G-E HEADER DUCT
9.03 SQUARE INCHES
INTERIOR
CROSS-SECTIONAL AREA

**The G-E cellular-steel floor wiring system** makes it possible to locate outlets in every 6 inches of floor area. A special capped header allows you to provide for future expansion at low initial cost.

G-E header duct offers 9.03 square inches interior cross-sectional area to provide for ever-increasing electrical needs, will accommodate 110 No. 14 Awg wires in accordance with the National Electrical Code.

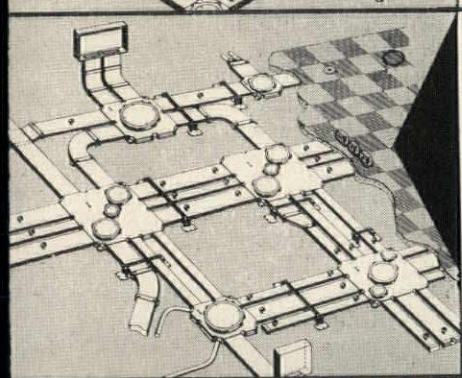
# FOR CONCRETE FLOOR CONSTRUCTION

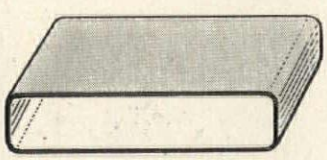




SINGLE-LEVEL
STANDARD DUCT
3.357 SQUARE INCHES
INTERIOR
CROSS-SECTIONAL AREA

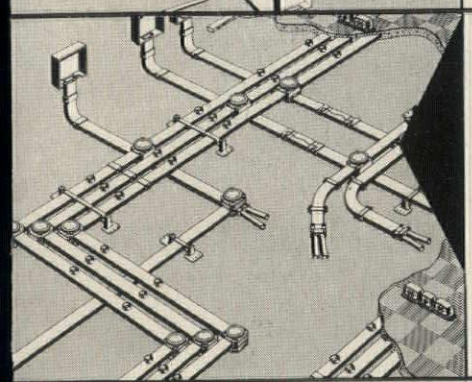
**In standard layouts**—The G-E single-level steel standard duct system offers up to 3 services. Supplementary feeding through conduit is possible through corners of durable, cast-iron junction boxes. These boxes afford easy leveling and cover adjustment, and provide large openings for wire pulling. Compartments are available to separate services in double and triple boxes. Can be installed in fill as shallow as 2½". Duct will accommodate 41 No. 14 Awg wires, in accordance with the National Electrical Code.

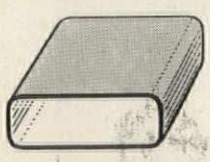




SINGLE-LEVEL BIG DUCT
8.414 SQUARE INCHES
INTERIOR
CROSS-SECTIONAL AREA

**For greater feeding capacity**—G-E single-level steel BIG DUCT system with an 8½" cross-sectional area will accommodate 102 No. 14 Awg wires. System includes boxes, components, and accessories necessary to use BIG DUCT either by itself or with G-E single-level standard duct. Can be installed in any type of floor that has a minimum fill thickness of 3 inches.





TWO-LEVEL DUCT
4.007 SQUARE INCHES
INTERIOR
CROSS-SECTIONAL AREA

**For difficult feeding problems**—The G-E steel two-level duct system is recommended for fills of 3½" and over, particularly where feeding must be accomplished from many locations. It allows complete separation of services. All feeding is done by duct on the lower level, distribution on the upper level. Ducts bypass intervening junction boxes; need for conduit home-runs is eliminated. Will accommodate 49 No. 14 Awg wires, in accordance with the National Electrical Code.

**For valuable manuals containing complete layout, design, product, and installation data, mail the coupon today**

**The General Electric Company**
**Conduit Products Department, Section CU-88-125**
**Bridgeport 2, Connecticut**

☐ Please send me your bulletin on single- and two-level steel underfloor wiring systems.

☐ Please send me your bulletin on cellular-steel floor wiring.

☐ Enclosed is a description of my underfloor wiring problem. What do you suggest?

Name _____ Title _____
Company _____
Address _____
City _____ Zone _____ State _____

## U.I.A. ASSEMBLY

*continued from page 10*

French through the U.I.A. office in Paris, but M. Abrossimov told me that if the architects of the U. S. wished it, a copy in English would be made for them.

The U.I.A. will continue to sponsor a summer school for architectural students, in Portugal, under the auspices of Professor Carlos Ramos; and a seminar, for architects, in Warsaw.

The 1960 meetings of the various Working Committees have been set up as follows: first week in May—Urbanism, in Majorca; second week in May—Professional Practice, in Madrid; June (date not set)—Sports Construction, in Rome; July 4-9—School Construction, in Bulgaria; July 10-16—Housing, in Hungary; July 18-24—Health, in Russia; Sept. 1-3—Research, in Rotterdam; Sept. 5-11—Executive Committee, in Copenhagen; Sept. 12-17—Urbanism, in Stockholm; second two weeks of September and beginning of October—Professional Practice, Formation of the Profession, and a Regional Conference, in Chile; October—a colloquium on the Theater, in Berlin; December—International Competitions, in Yugoslavia.

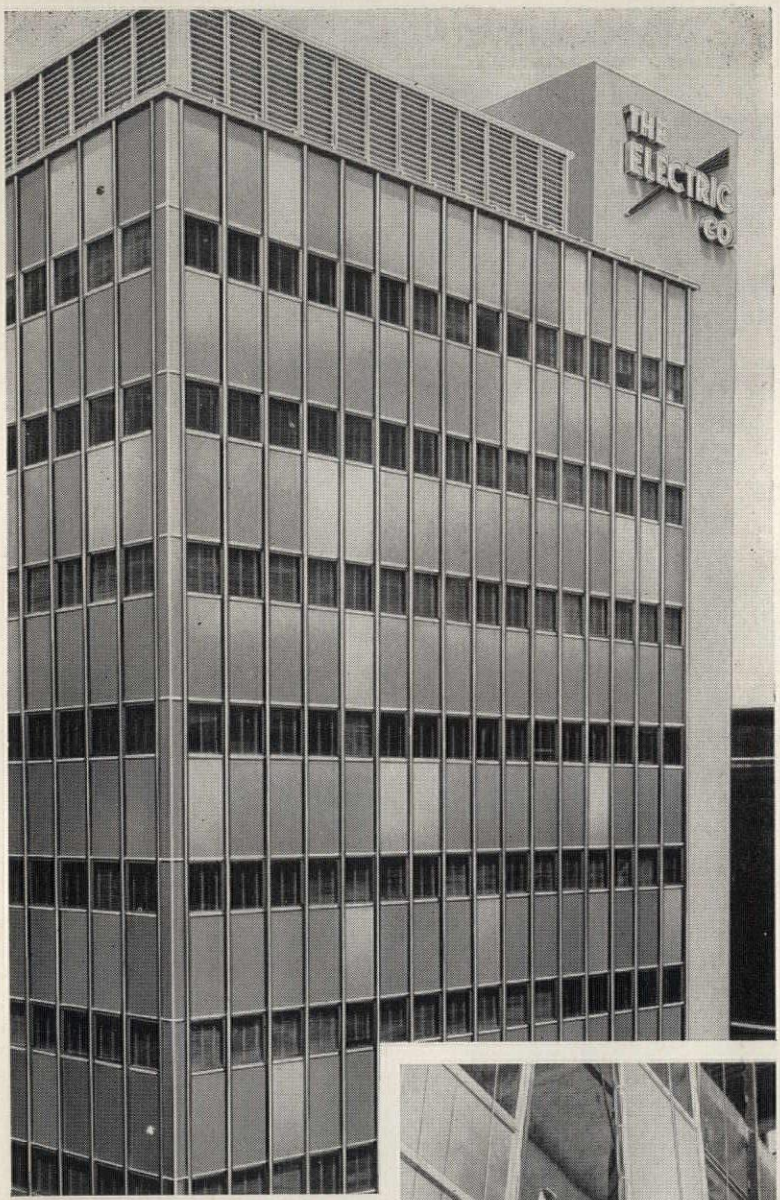
The VIth Congress and Assembly will be held in London, 22 June to 7 July 1961. There will be one plenary session at which three papers will be presented, by specialists, on the general theme of "New Techniques and Materials, their Impact on Architecture."

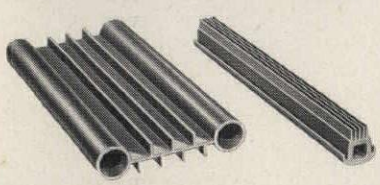
The Delegates and Executive Committee were delightfully entertained by the Portuguese architects and officials. There was a dinner at the ancient Castle of St. George, magnificently overlooking the city and the estuary of the Tagus, at which the Mayor of Lisbon presided. A dinner at the Hotel Avis gave the architects a chance to chat with the Minister of Public Works. The Syndicat d'Initiative turned over its delightful rooms and terrace in the Palacio do Foz to the U.I.A. as a headquarters. There was lunch at the remarkably beautiful Hotel Seteis, in Sintra, tendered by the architects' association of Lisbon. Everyone was taken to a "rodeo" and local dancing at Ribetajo, and a final dinner at the Ritz for the members of the new Executive Committee. And, perhaps, the highlight—at least for the Executive Committee—the evening at the home of Carlos Ramos, with fine Portuguese music and fine hospitality.

—HENRY S. CHURCHILL, F.A.I.A.
U.I.A. Executive Committee

***Another new development using***

# B.F.Goodrich Chemical *raw materials*



*Columbus and Southern Ohio Electric Company building at Columbus, Ohio, uses window wall supplied by Universal Corporation, Dallas, with seals of Geon extruded by Western Textile Products, St. Louis. B.F.Goodrich Chemical supplies the Geon polyvinyl material only.*

## Geon seals satisfaction into window wall construction

Between each of the factory-fabricated, stainless steel window sections of this new Columbus, Ohio, building is a double gasket extruded of Geon polyvinyl material. In addition, each sash is separately protected by weather seals made from Geon.

These seals will remain springy and weathertight even at extreme temperatures of 40 below or 200 above. Independent tests have proved that seals of Geon have a service life several times that of conventional material.

Geon can make many other products impervious to water and weathering. In extrusions or moldings, Geon provides accuracy to meet tight specifications . . . is already in use in dams, bridges and commercial and residential building to provide new, long-lasting seals of satisfaction. Geon is also available for coatings, films, foam, and rigid profiles.

Geon is the versatile plastic material that can open the way to a new product or new application. It is available in literally hundreds of types . . . resins, compounds, latices and polyblends. Our technical specialists will help you select the form of Geon that can help your product best. For information, write Dept. AW-6, B.F.Goodrich Chemical Company, 3135 Euclid Avenue, Cleveland 15, Ohio. Cable address: Goodchemco. In Canada: Kitchener, Ontario.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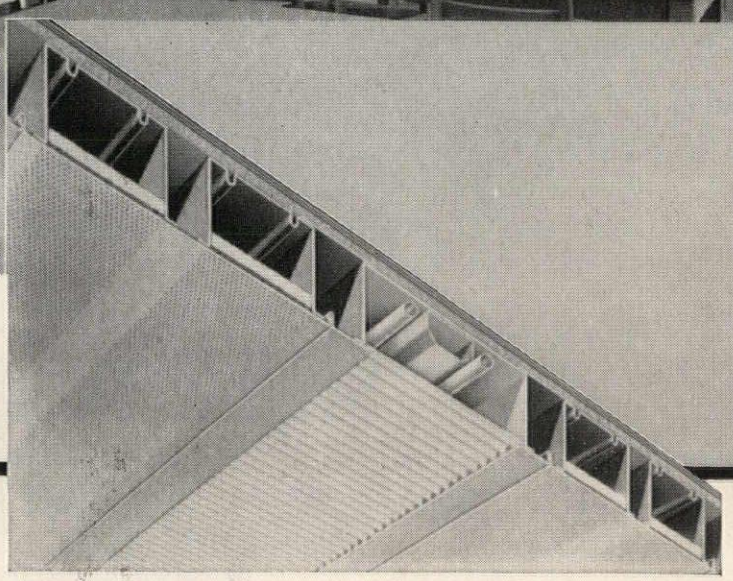
# M-DECK Provides Roof Structure



M-Deck Acoustical Ceiling in the Library of the Bonlee-Goldston Consolidated High School recently constructed for the Board of Education, Chatham County, North Carolina. The school has Sixteen Classrooms, an Auditorium, Cafeteria and Shop in four buildings. Mahon Long Span M-Deck provides the Roof Structure and Finished Ceilings for the entire project, including covered, connecting walkways. **Architects:** Simpson & Savage. **General Contractor:** Hunt Construction Company.

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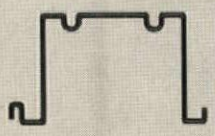
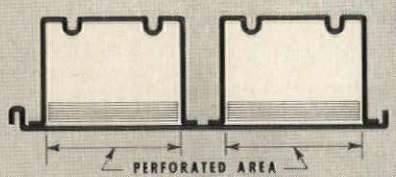
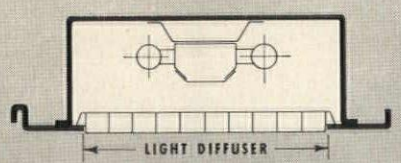


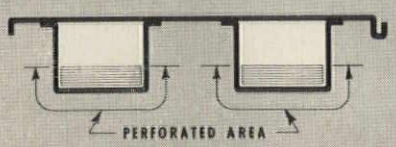
**SECTION M1-OB**
OPEN BEAM DEPTH 3", 4½", 6" or 7½"




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




**SECTION M1T** (Troffer)
DEPTH 6" or 7½"




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

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

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# MAHON

## *Washington Topics*

*continued from page 54*

recently was elevated to three deg at Los Angeles.

The proposed rules also would require all jets to take off to the west between the hours of 10 p. m. and 7 a. m. except when such take-offs would involve a downwind of 10 knots (11.5 mi per hr or more). This means take-offs under most wind conditions would be made over open water instead of residential areas.

Finally, en route aircraft not intending to land in the Los Angeles area would be prohibited from operating within the airport traffic pattern area unless specifically authorized by air traffic control.

In addition to the Los Angeles airport, nearby Hughes, Hawthorne, and Santa Monica airports would also be required to conform to special airport traffic pattern rules.

CAA delayed further action on the proposal until mid-December, after which all invited comments were to be considered by Mr. Quesada before any decision.

### OCDM Reports on First City Surveyed for Fallout Shelter

The Office of Civil and Defense Mobilization now has determined that there is significant protection from radioactive fallout in existing structures.

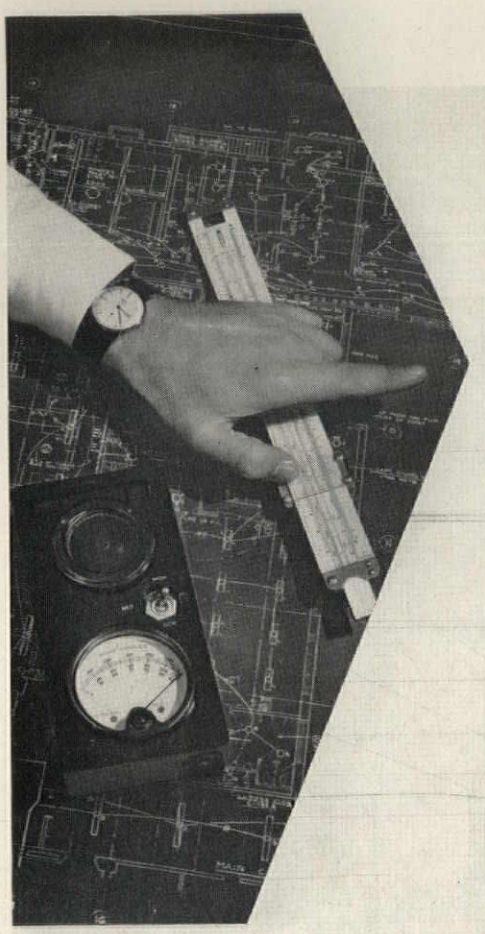
Last month it published the initial findings in its survey of standing buildings and on the basis of a close look at facilities in Tulsa, Okla., concluded that:

1. Existing business district shelter capacities can be increased at modest cost.
2. There is need for additional higher-grade shelter.
3. Added shelter can be developed at least cost in areas of greatest need.
4. Shelter surveys can be made in larger cities at reasonable cost.

In the case of Tulsa, OCDM surveyed 3444 structures for both existing and potential fallout protection. Daytime population of the area is 73,000; nightime population, 18,000. The results were projected to Tulsa's metropolitan area with its total population of 323,000. An estimated 95,000 structures stand in this larger area.

The OCDM is convinced that as its building surveys continue, wide variations will be evident in the percentages of the qualities of pro-

*continued on page 240*



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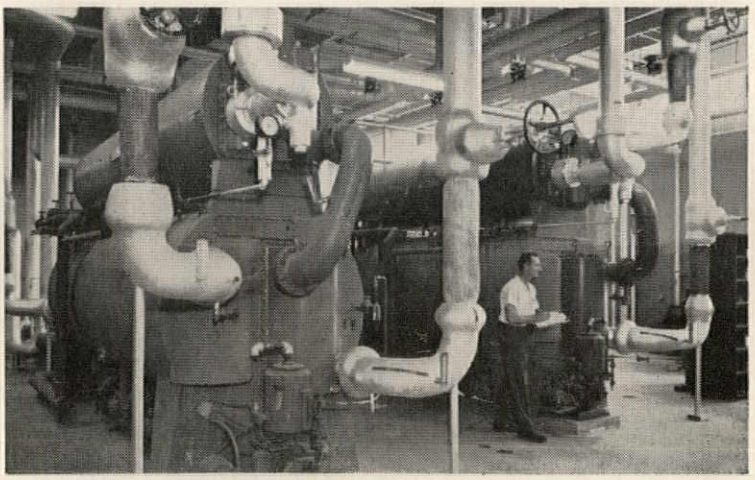
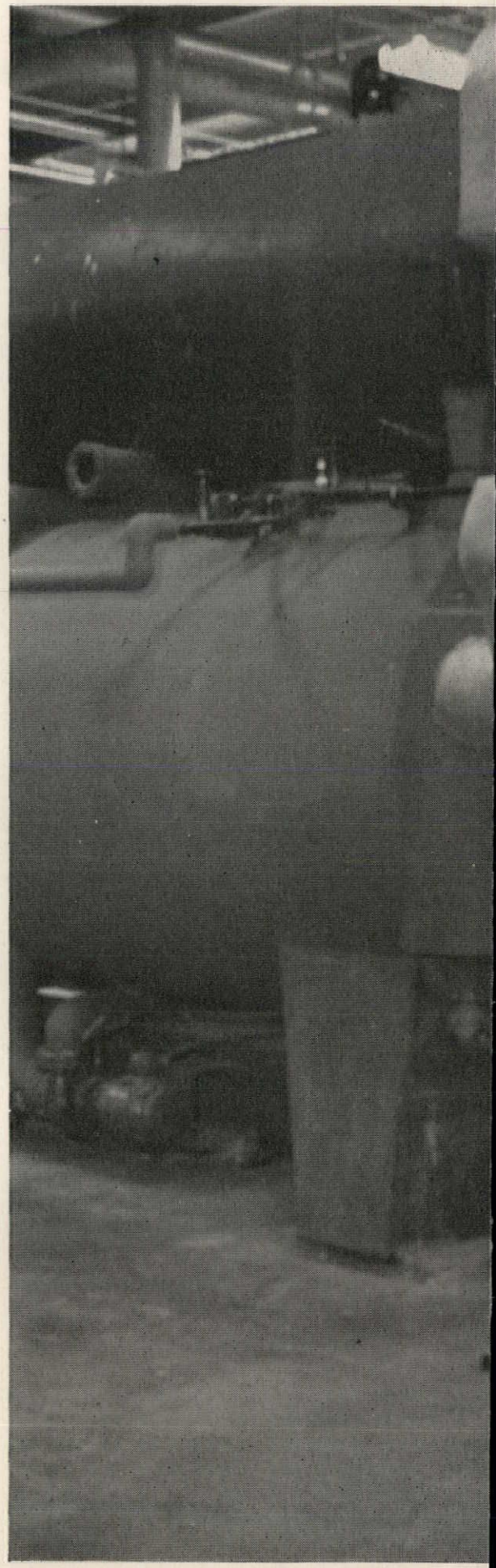
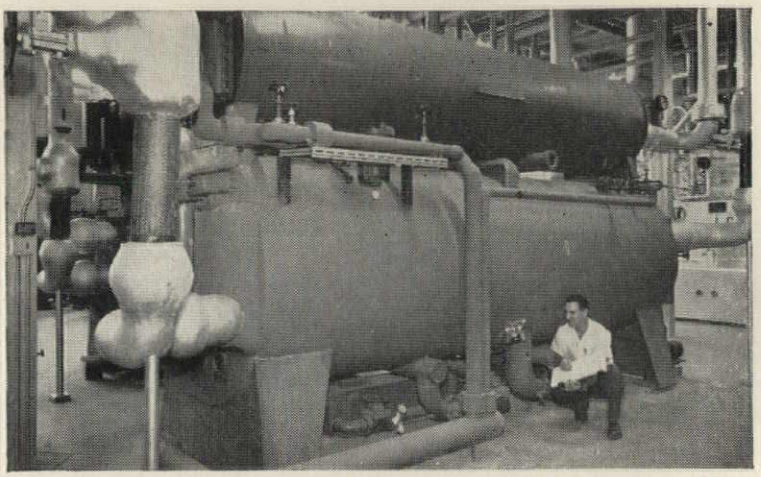


**THE UTMOST IN FLEXIBILITY** The units are cross-connected so that each operates independently if necessary.





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tection. Findings are being completed on surveys in Montgomery city and county, Ala., and Contra Costa County, Cal. Major conclusions are thought to be valid, however, and further checks will be made in comparisons with a fourth survey to be made in Milwaukee and others in chosen locations.

In the Tulsa results, protective quality grades were based on the single improvement of closing exposed basement windows with material equal to wall mass thickness. The six categories with number of buildings in each and shelter spaces calculated for each category: A, 56 buildings, 11,064 spaces; B, 39 and 6646; C, 51 and 51,812; D, 224 and 160,153; E, 804 and 154,122, and F, 2270, with spaces not calculated.

It was estimated the first three categories could cover 69,522 of the 73,000 daytime population of Tulsa.

A single element—improvement of ventilation—would make it possible for all 73,000 inhabitants to have A, B, or C shelter, OCDM said.

A second requirement of the survey was to determine what, if any, shielding improvements could be made to raise the structures below A, by one category, with an expenditure of $125 per space. Also sought was the cost of habitability improvements necessary to meet minimum OCDM standards for ventilation, light and sanitation.

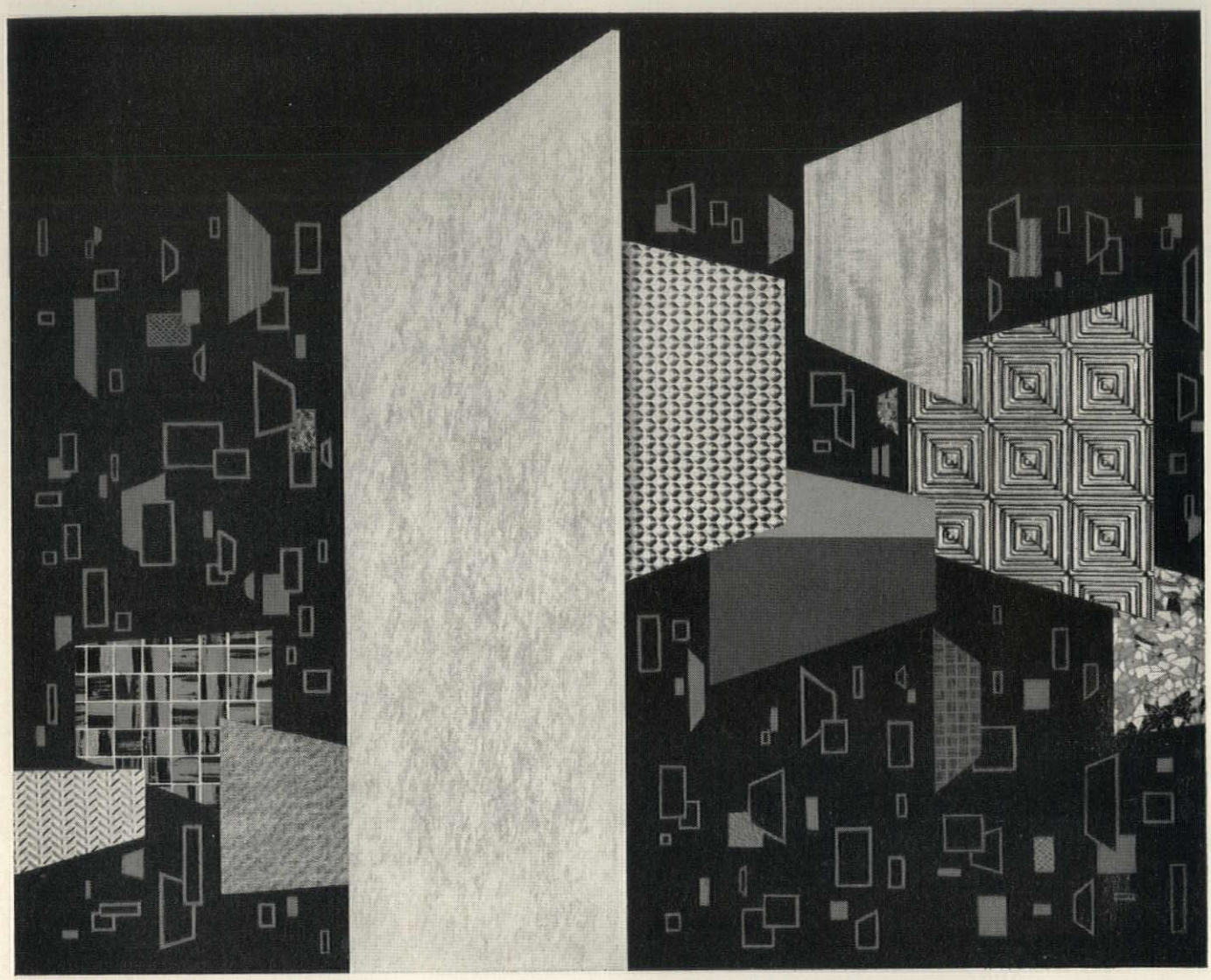
The habitability improvements, it was found, would cost around $25 per shelter space but only $3 per space could be used to improve shielding. It was deduced from this that in most instances it would not be feasible to attempt shielding improvements.

Projecting the downtown area findings to the metropolitan section, it was found that the entire population of Tulsa would have at least ABCD quality shelter. To accomplish this, however, almost all D shelter would have to be used. Average D shelter radiation accumulation was placed at 166 roentgens in a zone of 1000 r at one hr. However, those required to be in shelters with the lowest D protective factor (10) could accumulate 500 r, leading to sickness, incapacitation, and some deaths, OCDM reported.

An old problem was found to exist in Tulsa: location of the people to be sheltered does not coincide with the site of the shelter.

Said the OCDM report: "For

*continued on page 248*



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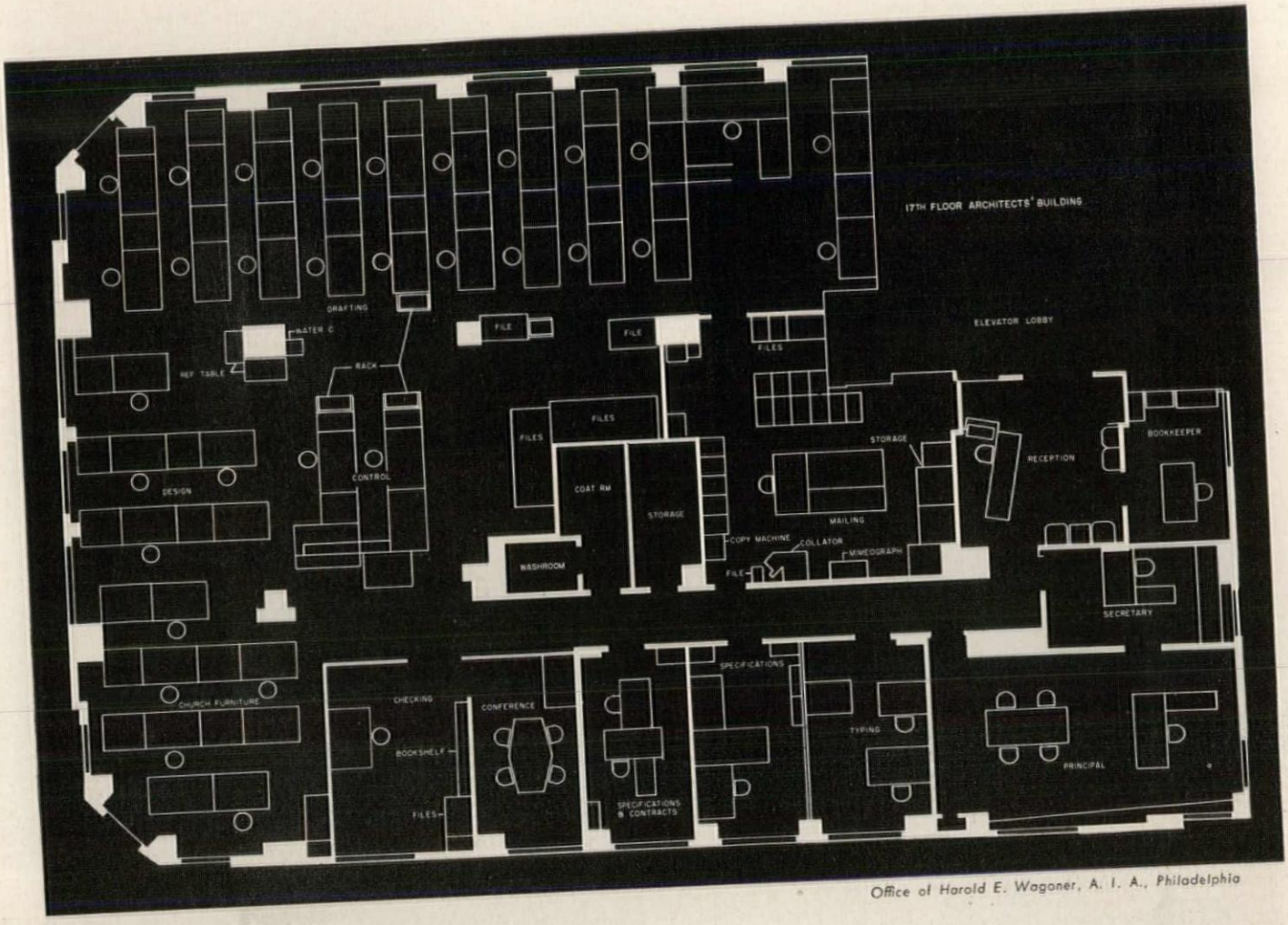


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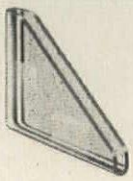

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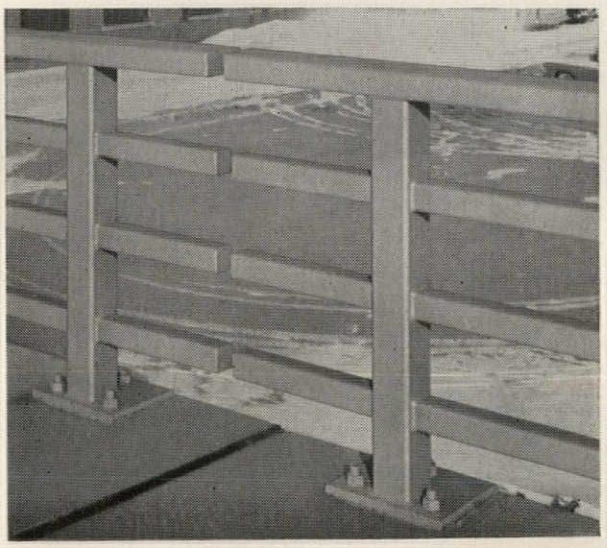

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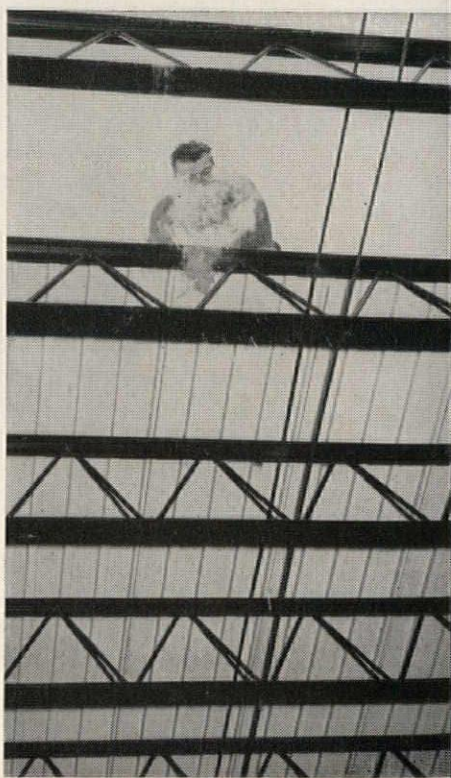

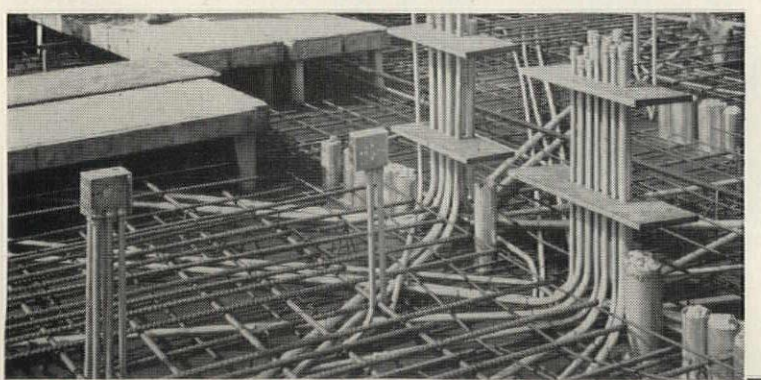

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Illustration: Memorial Hospital, Albany, N. Y., featured in The Modern Hospital as the "Hospital of the Month" in August 1958. This 235-bed, $3.5 million hospital replaces an older building a few blocks away. Architects: Curtin and Riley, Boston. The architects subscribe to The Modern Hospital; the hospital has three subscriptions in force: one in the name of the hospital, one to the business manager, one to the chief dietitian.

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## *Washington Topics*

terior has adopted the standards established for the Inter-State Highway Program.

The new controls have as their minimum standards the highest standards set up by the Bureau of Public Roads of the Department of Commerce and by state governments, Interior explained. They are sufficiently flexible, however, to permit the department to raise the safeguards in cases where the minimum controls prove inadequate to protect scenic or other recreational values.

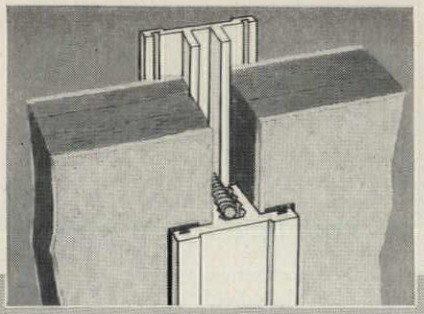
Applications for billboards or advertising on public lands are handled by Interior's Bureau of Land Management. Permit procedures involve the issuance of a special land-use permit which, under the regulations, incorporates the necessary standards. These permits may be revoked at any time.

Director Edward Woozley of B. L. M. said it was necessary to adopt the new regulations to expand previous coverage of the old system and to make it more comprehensive and flexible to meet the needs arising under the Federal highway program and acceleration of public recreational programs.

### Report on Highway Program Watched for Impact on Spending

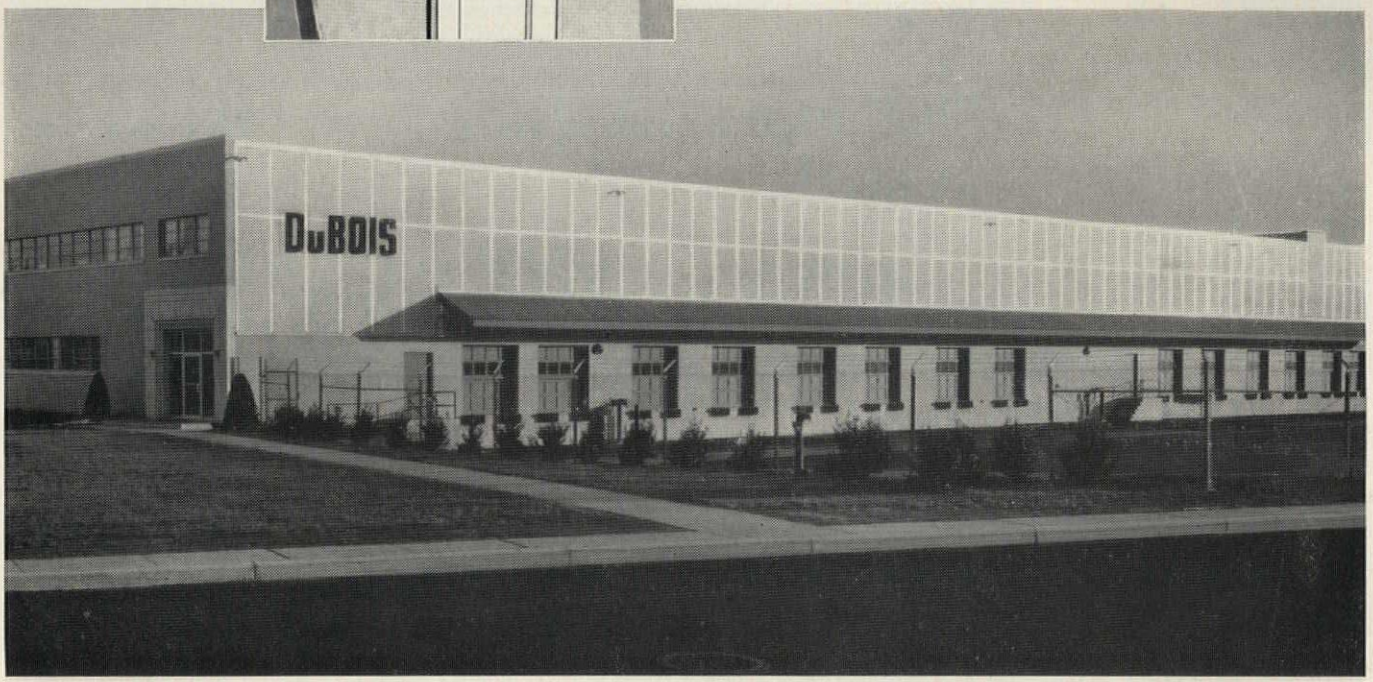
The report of Federal Public Works Coordinator John S. Bragdon to the President in the spring will be watched with interest by architects and engineers for its possible effects on expenditure of highway construction funds. Major-General Bragdon was asked to look into the issue of urban versus rural outlays as a result of the question being raised in Congressional hearings on the highway financing program. Excessive design and other wastes in the highway program have been targets of Congressional committees and others.

As originally announced, General Bragdon was put to work studying the relative expenditures for Federal highways constructed in cities and those in rural areas. There had been criticism that the spending was top-heavy on the side of metropolitan centers. The report is expected also to go into the question of whether or not Uncle Sam, generally, is getting enough out of his highway dollar.



The H&B System, used on this job, has been engineered to combine economy of materials and minimum erection costs.

New Du Bois building, East Rutherford, N. J. The Du Bois Co., Inc., are manufacturers and distributors of institutional, industrial and commercial cleaning and processing compounds.




## Asbestone Panel Curtain Walls give Du Bois plant insulation, plus an interior and exterior wall...all in one!

The architect who designed this modern building, specified Gold Bond ASBESTONE Panels because he was delighted with the results he had achieved with ASBESTONE Panels on previous jobs. They go up fast and provide 1-2-3 construction in one application: an inside wall; an outside wall *and* insulation.

The versatility of the ASBESTONE Panels System give architects and engineers complete latitude in design. The materials used are standard components and can be adapted to fill most curtain wall requirements.

A 2-inch thick ASBESTONE Panel has a U-Value of up to .17. Three other thicknesses are available for lower insulation requirements.

The Asbestos-Cement facing on both sides of ASBESTONE Panels furnish weather-proof, maintenance-free exterior walls, plus attractive interior walls which never require additional finishing...and they are non-combustible.

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Analyzes and evaluates the walls, their functions, their component parts, materials and installation. Lists and tables give all the known data about insulation, fire resistance, dimensional stability. Amply illustrated with drawings and photographs.

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by Thomas H. McKaig, B. Arch., C.E.

A practical office manual containing simple, standardized procedures for solving structural design problems. This unique handbook had its inception as a series of notes used by the author in his instruction of architects and engineers preparing for state licensing examinations. Strictly a practical work, with no attempt made to develop theory.

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A guide to the supervision of construction for architects, engineers, and field inspectors which charts a clear path through the maze of owner-architect-contractor-subcontractor relations and responsibilities. Defines responsibilities for such matters as quality of materials and workmanship, coordination of work by different trades, safety precautions, safeguarding of work in place, and many more.

Outlines the pitfalls the inspector should avoid, and gives him guidance in safeguarding the owner's interest against a variety of contingencies, without exposing him to charges and possible claims for interference or delay.

**384 pages, 6 x 9, $9.35**

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In response to numerous requests for information on this building type, the editors of *Architectural Record* have selected 48 superior examples of apartment houses, college residence halls, and other multiple dwellings, designed by some of the world's leading architects. The buildings range in size from two-family houses to vast housing projects.

In addition to the buildings, there is a section containing useful technical information, and a series of studies on trends in apartment buildings and community development. Over 250 illustrations.

**238 pages, 8¾ x 11⅝, $8.95**

## MOTELS, HOTELS, RESTAURANTS AND BARS (Second Edition)

by the editors of Architectural Record

This revised and expanded book presents, in one place, an up-to-date, detailed study of physical designs in motels, hotels, restaurants, and bars. The important relationship between good design and good business is graphically shown in over 700 photographs, drawings and plans of successful establishments.

The well-planned, practical design has — in each case studied — paid off in flourishing trade and satisfied clientele. The clear text gives expert answers to the hundreds of questions asked by owners and prospective architects, designers and investors in this important type of building.

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by Richard L. Nelson

A new book which provides the newest trends and techniques in site selection and potential volume analysis for stores, shopping centers, banks, restaurants and other establishments. The author is a noted real estate economist.

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## BUILDINGS FOR RESEARCH

by the editors of Architectural Record

This timely book analyzes in detail a wide variety of research facilities built by industry, government agencies, and universities during the past seven years — 44 separate projects. The installations shown are in these fields: Nuclear research, Industrial engineering, Biological research, Electronics and electrical engineering, and Institutional laboratories.

Opens with a general discussion of the principles of laboratory design, with emphasis on the ingredients common to all laboratories. Every point is made clearer by the inclusion of numerous photographs, plans, diagrams — over 500 illustrations in all.

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Presents 35 new religious buildings, each of which is the work of a gifted architect collaborating with a clergyman and building committee who were not afraid to break with the architectural past. Protestant, Catholic, and Jewish buildings are shown, from all parts of the United States as well as Europe and Asia. Each is shown in brilliant photographs, and plans and drawings.

There are several other sections. One is called "Worship and the Arts." It explores the relationship between eternity and the present, as it pertains to the design of churches. There follow six articles on worship and the arts in different traditions — Jewish, Catholic, Orthodox, Episcopal, Reformed, and Lutheran. Also contains cogent studies by leading architects, clergymen, and secular authorities. Over 300 excellent illustrations.

**184 pages, 8¾ x 11⅝, $7.95**

## TIMBER DESIGN AND CONSTRUCTION HANDBOOK

prepared by Timber Engineering Company

The complete master handbook of timber design and construction written and edited by 34 engineers and timber specialists. Serves two purposes: it is a comprehensive timber design reference, and it is also a practical field handbook. Offers every bit of essential information needed to develop and construct the best wood structures.

The first portion covers the fundamental structural characteristics of wood. Lists types, grades, and ways of preservation. The next ten chapters analyze preliminary design considerations, design details, fabrication and erection. The final chapter presents 129 pages of design and engineering specifications and precise tabular data allowing easy conversion for particular grades and species.

**622 pages, 6 x 9, $12.75**

## HOW TO BUILD MODERN FURNITURE (Second Edition)

by Mario Dal Fabbro

Clear, easy-to-follow instructions for building your own professional quality furniture, plus step-by-step plans for 53 contemporary pieces, by a famous furniture designer.

The first section gives instruction in basic woodworking operations, selection of materials, joints, assembly, wood finishing, and upholstery. Standard measurements of all furniture pieces are listed. The second section presents 53 separate pieces: hi-fi cabinets, chests, tables, chairs, beds, and many others. Text is brief and clear — unique exploded diagrams do most of the teaching. Each project contains a list of materials and directions for assembly. Over 1200 diagrams and drawings.

**224 pages, 7⅛ x 9¾, $4.95**

## BUILDINGS FOR INDUSTRY

by the editors of Architectural Record

An outstanding selection of new industrial buildings, together with a series of informative studies on trends and factors in present-day industrial building design. 74 projects from all over the United States, as well as a few from overseas, are completely analyzed Explains choice of site, plan, lighting, colors, loading docks and rail spurs, employee facilities, and many more features. Over 700 illustrations.

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DODGE BOOKS

## TIME-SAVER STANDARDS (Third Edition)

by the editors of Architectural Record

Architects, engineers, designers, builders, and other specialists in the building field consider this book the one indispensable reference to every question of building principle, practice, and procedure. As a daily working tool on construction projects of every size and description, *Time-Saver Standards* has saved endless hours of research time, immeasurable extra work, and many costly mistakes, as well as millions of dollars on construction costs.

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an autobiography of engineering accomplishment

Eduardo Torroja, famous Spanish architect-engineer, has written a book which illustrates, describes, and explains the 30 most significant accomplishments of his career. These structures include bridges, dams, hangars, sports arenas, factories and churches. Many are of reinforced concrete — for Torroja's most unusual engineering feats are in prestressed and post-tensioned concrete — but wood, brick, and steel are used as well.

The book shows the author's reasoning in arriving at the design of each structure, and reveals his unusual building philosophy. Engineering details are given. There is a profusion of photographs, plans and drawings — over 275 in all.

**208 pages, 7 x 9¾, $8.50**

## STRUCTURES

by Pier Luigi Nervi

Pier Luigi Nervi of Rome draws on over 30 years of experience as architect, engineer, and builder. Contains much valuable information on the properties of Ferro-cemento, which is a type of reinforced concrete developed by the author and used by him in the construction of some of the largest and most beautiful thin-shell concrete structures in the world.

Alternately practical and philosophical, the book considers such varied subjects as architect-client relations, training of designers and builders, theory of structures, and building in reinforced concrete. Contains photographs of all of Nervi's major works, as well as numerous sketches and plans.

**118 pages, 7¼ x 9⅞, $6.95**

## ADVENTURE IN ARCHITECTURE

by Whitney S. Stoddard

The exciting story of the rebuilding and expansion of 100-year-old St. John's monastery in Minnesota. The client is the Benedictine order of monks. The architect is Marcel Breuer. How he was selected, the rapport established between him and the building committee, and the flexible master-plan they drew is all explained here. The text has a narrative quality, and the 100 photographs and drawings cover every phase of the project.

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by the editors of Architectural Record

The fourth annual volume of the year's outstanding contemporary houses. After considering hundreds of architect-designed houses, the editors of *Architectural Record* selected the 20 presented here. Representative of many new directions in house design, the projects featured come from all regions of the continental United States and cover a wide range of prices. They are described fully in text, photographs, plans and drawings. There are several valuable editorial features, plus 8 pages in full color.

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## THE SECOND TREASURY OF CONTEMPORARY HOUSES

by the editors of Architectural Record

A magnificent collection of 44 contemporary houses superbly described by text, photographs, drawings, and plans. They are examples of the spirit of originality and individuality that is becoming ever more important in mid-twentieth century architecture, and they are distinctive in the success with which they meet the physical and esthetic requirements of their owners. Selected from the outstanding *Record Houses* annuals of 1956, 1957, and 1958. Ranging from the inexpensive to the luxurious, and representing the various climates of this country, these houses will furnish a genuine treasury of ideas to architects, contractors, and laymen alike. 8 pages in full color.

**232 pages, 8¾ x 11⅝, $7.75**

## A TREASURY OF CONTEMPORARY HOUSES

by the editors of Architectural Record

Here are 50 contemporary houses designed by some of the world's leading architects; the ultimate in quality contemporary design. Most of the houses are depicted in 10 or more photographs, plans and drawings. The story behind each house is presented simply in its essentials, with no involved technical language

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selected from Architectural Record

82 of the finest houses published in *Architectural Record* in recent years. Each house is depicted in superb interior and exterior photographs which dramatize its design and convey its originality. These houses represent a wide range of localities, living habits, personal tastes, and sites. The last 100 pages contain special Time-Saver Standards data for houses.

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## THE ART OF HOME LANDSCAPING

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Here is the book which helps the user recognize his landscaping needs, plan them on paper, substitute pencil work for shovel work, and eventually provide useful, beautiful outdoor space to the limits of his lot. Especially valuable to the new home buyer or builder, who cannot afford the services of a landscape architect, and cannot afford to make costly mistakes in his basic planning.

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## PLANNING HOMES FOR THE AGED

by Geneva Mathiasen and Edward H. Noakes

The first comprehensive planning guide on the problems of designing and building homes for the aged and the infirm. The editors — an expert in the problems of the aging and a noted institutional architect — provide written and graphic assistance in the physical planning of such homes. Included are chapters prepared by eleven specialists on such topics as site planning, the residence unit, health needs and the infirmary, construction materials and costs, design and the function of the architect.

Complementing the authoritative text is a collection of award-winning contemporary designs selected in national competition sponsored by the National Committee on the Aging, in conjunction with *The Modern Hospital* and *Architectural Record* magazines. Contains much new thinking on principles, methods, and ideas which are applicable to all types of related institutions.

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## NURSING HOME MANAGEMENT

by R. C. Williams, M.D. and others

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Eight chapters include establishment and organization, business management, medical and nursing care, recreational facilities, food service, housekeeping, buildings and grounds, and safety. Well illustrated with photographs, checklists, and informative appendices.

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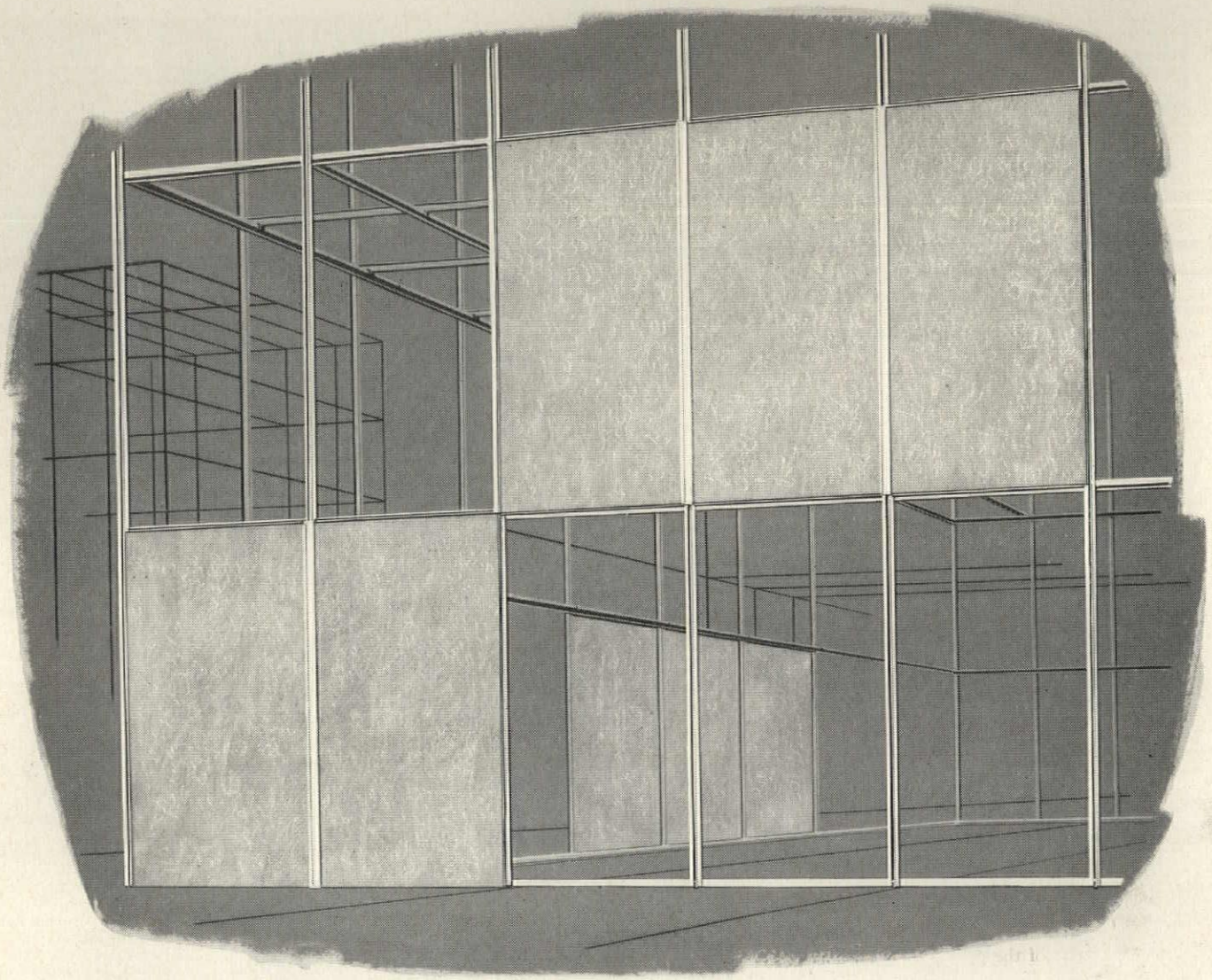

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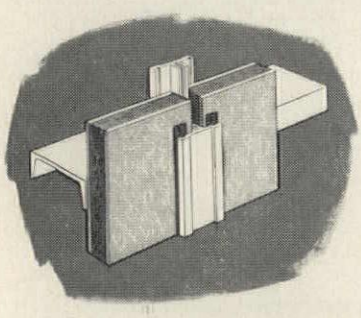

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## *Required Reading*

*continued from page 70*

*Stones*—the story of the arch. The legend says that in the year 600 or thereabouts, a beautiful little church just completed was visited by M. Down—and, you guessed it—it came tumbling to the ground. The disheartened congregation took refuge in a cave with only a small hole in the top for light and air. They were amazed and delighted to discover that their singing and prayers seemed lovelier and stronger than ever in the arched stone cave—so they prayed and sang louder and longer. M. Down was enraged, to say the least, and began to shower boulders on the roof of the cave. You can imagine his complete frustration when two of the boulders stuck in the hole. This miscalculation eventually led to the discovery of the keystone and the defeat of the little monster. This delightful and simple explanation of the arch is beautifully illustrated by the author. Although the reported age bracket is listed as "seven to 10," readers of all ages interested in art and architecture will be captivated.

Little Blue and Little Yellow are the main "characters" of the Lionni book. They are blobs of solid blue and solid yellow that take on great personality as they romp through this most imaginative tale involving color and form. They are the children of Mr. and Mrs. Blue and Mr. and Mrs. Yellow. The children go to the park one fine day and play ring-a-ring-a-rosy and hide-and-seek with other children (blobs of other colors). Then, in childish glee, Blue and Yellow hug each other, and the darndest thing happens—they become one green blob! Things get pretty bewildering and confusing when they (or it) aren't recognized by Mr. and Mrs. Blue and Mr. and Mrs. Yellow, but everything ends happily ever after. May we suggest to the reader who may think this approach to color and form too sophisticated or too subtle for the young that he read the book aloud to the children? Besides proving that favorite characters don't necessarily have to have cute faces and saccharine attire, *Little Blue and Little Yellow* is truly fun and educational.

—MARJORIE BLAKE NOYES

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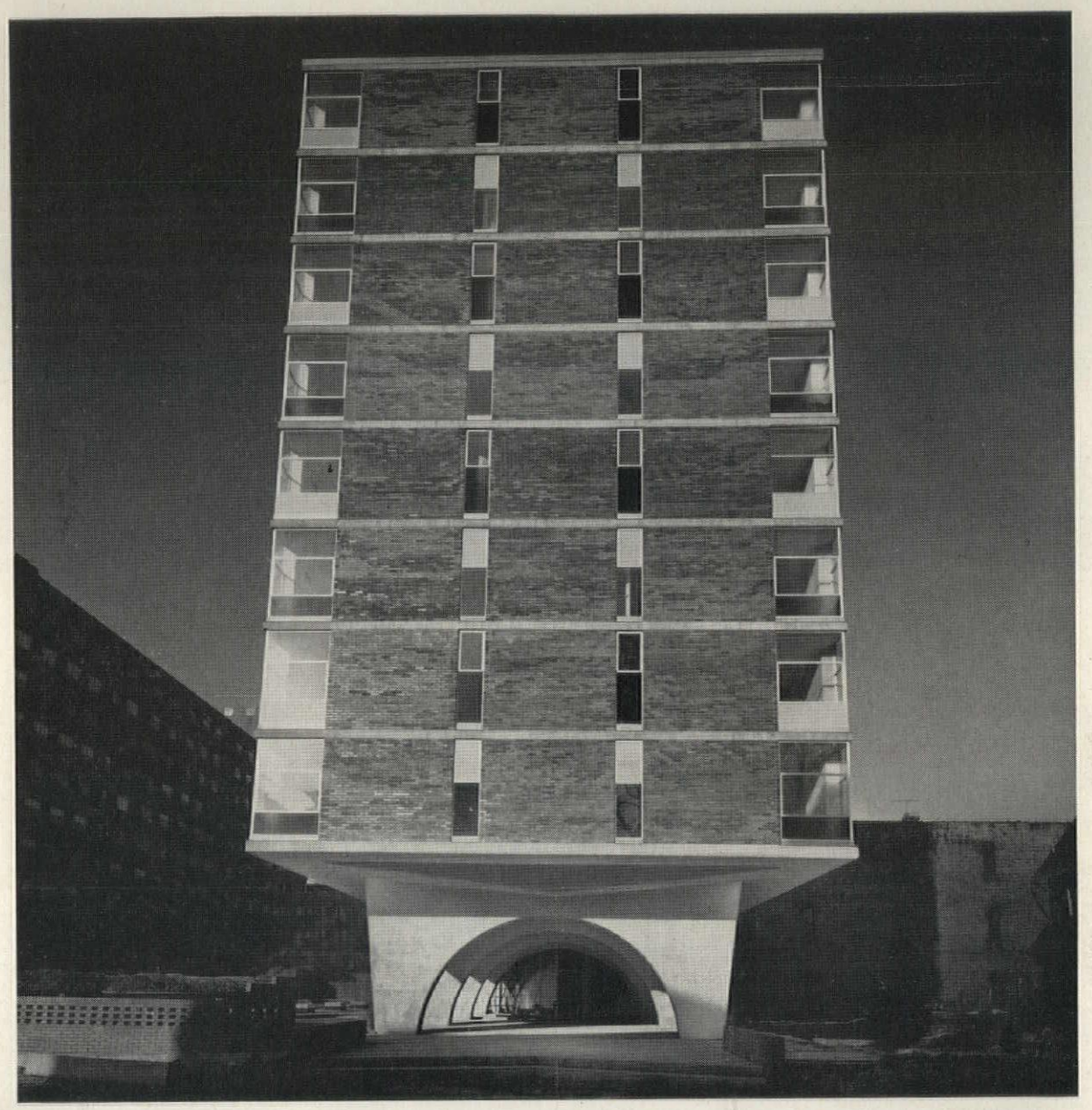
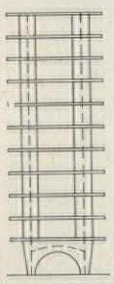
A SYNOPSIS OF THE PLANNING LEGISLATION IN SEVEN COUNTRIES. *By Stephan Ronart. (The countries: Belgium, France, Germany, Great Britain, Netherlands, Switzerland, United States.) International Federation for Housing and Planning, Alexanderstraat 2, The Hague. 130 pp. $2.70.*



# Reinforced CONCRETE Arches

## *Support Luxury Apartment Building*



Proving that you can do the unusual with reinforced concrete is this luxury apartment building designed by Tasso Katselas. In this design, the entire first floor is supported directly on reinforced concrete arches which serve as an open colonnade leading to stairways and elevators. At ground level, the arches also support reinforced concrete columns extending the full height of the building, from which flat slab floors with continuous cantilevers extend around each side of the structure.

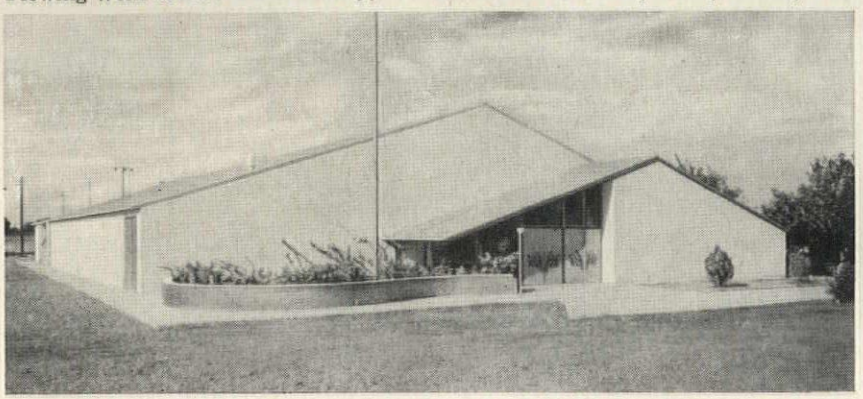
Only with reinforced concrete can you achieve such freedom of design. Before you build any type of building, investigate this more flexible medium of construction.

Concrete Reinforcing Steel Institute
38 South Dearborn Street, Chicago 3, Illinois

Neville House Apartments, Pittsburgh, Pa.
Architect: Tasso Katselas, Pittsburgh, Pa.
Structural Engineers: Gensert, Williams & Associates, Cleveland, Ohio
Contractor: Gratziano Construction Company, Pittsburgh, Pa.
Photos by Jay-Bee Studios

# Butler "packaged" buildings– friend or foe?

Flowing Wells School–Pima County, Arizona–*Scholer & Fuller, A.I.A., Tucson, Ariz.*



## A "packaged" building manufacturer asks architects not to judge it by association

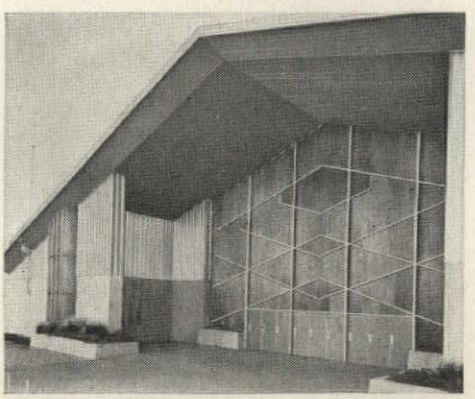
Are "packaged" buildings a threat to the architect, and to what he stands for? It seems that architects think so–and Butler received this news with considerable dismay. We can't testify for others, but we wish to make our position and intentions clear.

Yes, our Builder organization constructs buildings that are not architecturally designed. So do many contractors and engineering firms. A substantial number of these structures would never have involved or interested an architect in any case.

Architects have pointed out limitations in our building system to us, and we take these criticisms to heart. We are confident that we will eliminate these objectionable elements as our technology develops. Nor do we expect that the Butler "packaged" building will ever be the "grammar" of all low-rise construction.

But the fact remains that our Builders have constructed thousands of buildings *designed by architects*. Where the structure calls for it–that's the way we want it, and we help and encourage our Builders to work through architects. Conversely, architects have called on our Builders for assistance. Under these circumstances, the "package" we offer consists of coordinated structural and roof systems, and metal wall systems–both factory and field insulated. The architect takes what is useful and adds what collateral material creates the pleasing finished product.

From our experience with many architects, we have good reason to suggest that the Butler system can, on occasion, serve you better than anything else you could substitute for it.

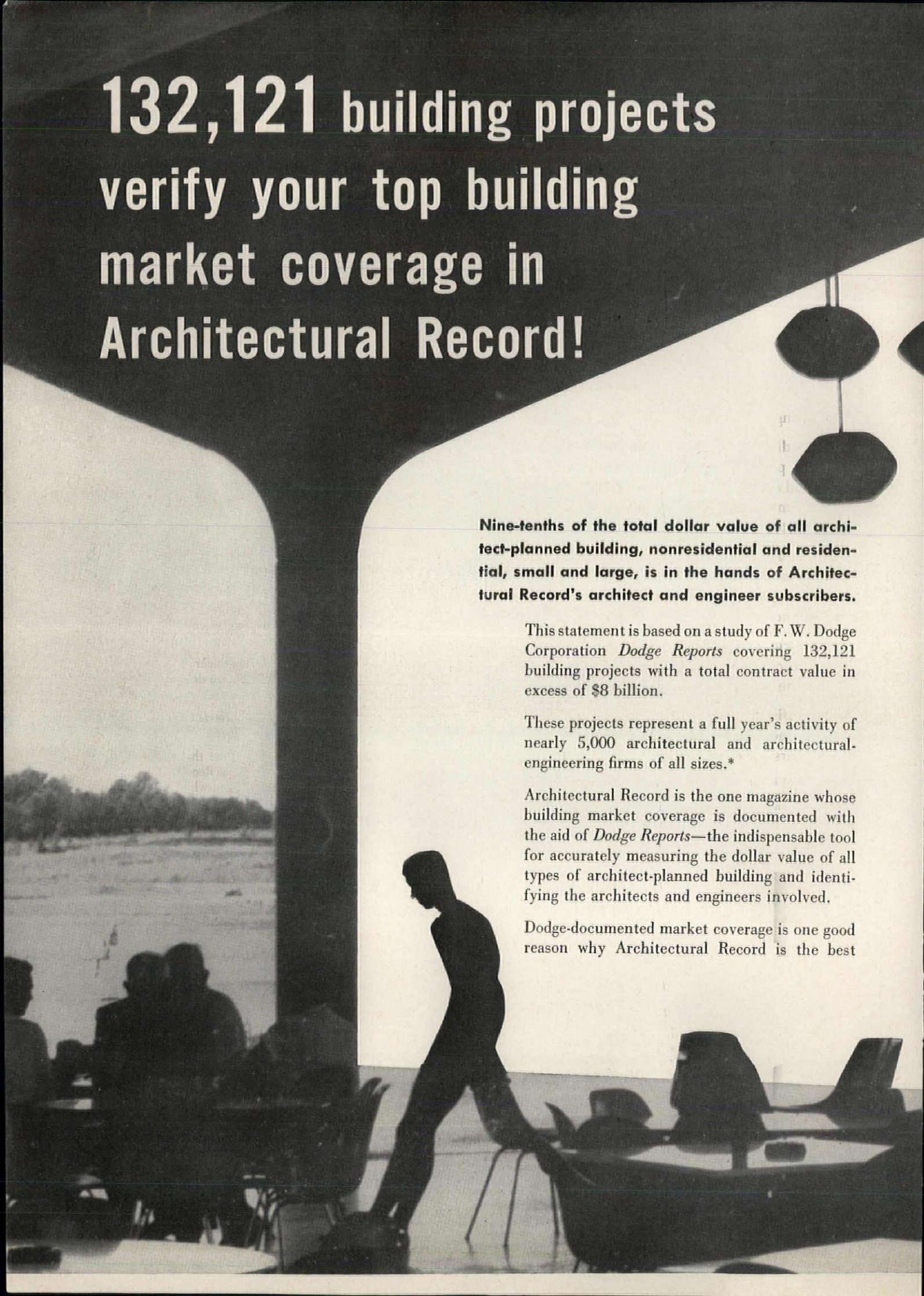


Oklahoma State Fair Grounds
*Sorey, Hill & Sorey, A.I.A. Architects & Engineers*
*Oklahoma City, Oklahoma*

O'Rielly Motor Co.
*Starkweather & Cain, A.I.A.*
*Tucson, Arizona*

Why not contact your nearest Butler Builder. Have him call and explore the practical merits of this system further. He can often help with building financing, too. Or write direct to Butler Manufacturing Company, 7427 East 13th Street, Kansas City 26, Missouri.

# 132,121 building projects verify your top building market coverage in Architectural Record!



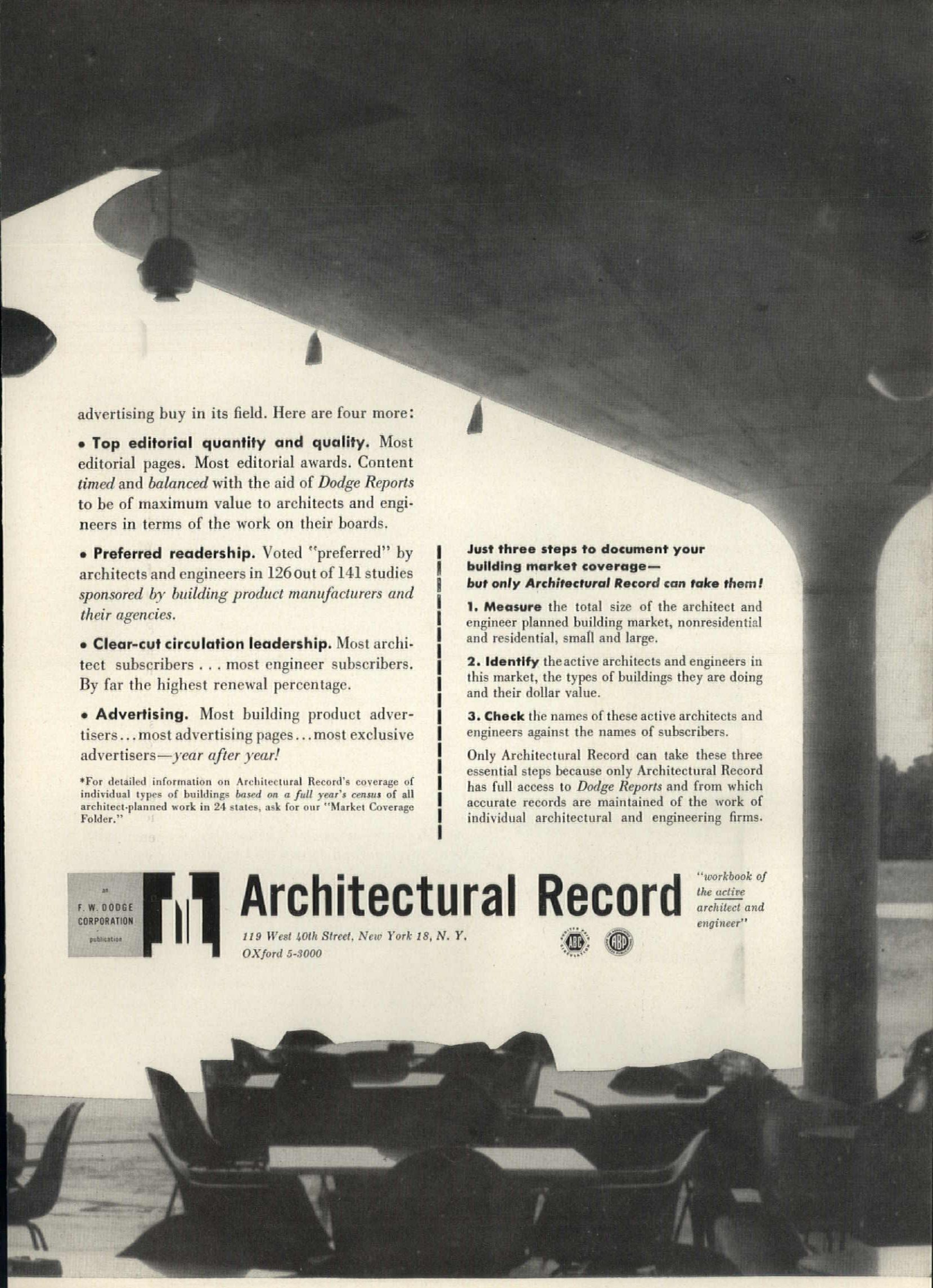
**Nine-tenths of the total dollar value of all architect-planned building, nonresidential and residential, small and large, is in the hands of Architectural Record's architect and engineer subscribers.**

This statement is based on a study of F. W. Dodge Corporation *Dodge Reports* covering 132,121 building projects with a total contract value in excess of $8 billion.

These projects represent a full year's activity of nearly 5,000 architectural and architectural-engineering firms of all sizes.*

Architectural Record is the one magazine whose building market coverage is documented with the aid of *Dodge Reports*—the indispensable tool for accurately measuring the dollar value of all types of architect-planned building and identifying the architects and engineers involved.

Dodge-documented market coverage is one good reason why Architectural Record is the best



advertising buy in its field. Here are four more:

• **Top editorial quantity and quality.** Most editorial pages. Most editorial awards. Content *timed* and *balanced* with the aid of *Dodge Reports* to be of maximum value to architects and engineers in terms of the work on their boards.

• **Preferred readership.** Voted "preferred" by architects and engineers in 126 out of 141 studies *sponsored by building product manufacturers and their agencies.*

• **Clear-cut circulation leadership.** Most architect subscribers . . . most engineer subscribers. By far the highest renewal percentage.

• **Advertising.** Most building product advertisers...most advertising pages...most exclusive advertisers—*year after year!*

*For detailed information on Architectural Record's coverage of individual types of buildings *based on a full year's census* of all architect-planned work in 24 states, ask for our "Market Coverage Folder."

**Just three steps to document your building market coverage—**
***but only Architectural Record can take them!***

**1. Measure** the total size of the architect and engineer planned building market, nonresidential and residential, small and large.

**2. Identify** the active architects and engineers in this market, the types of buildings they are doing and their dollar value.

**3. Check** the names of these active architects and engineers against the names of subscribers.

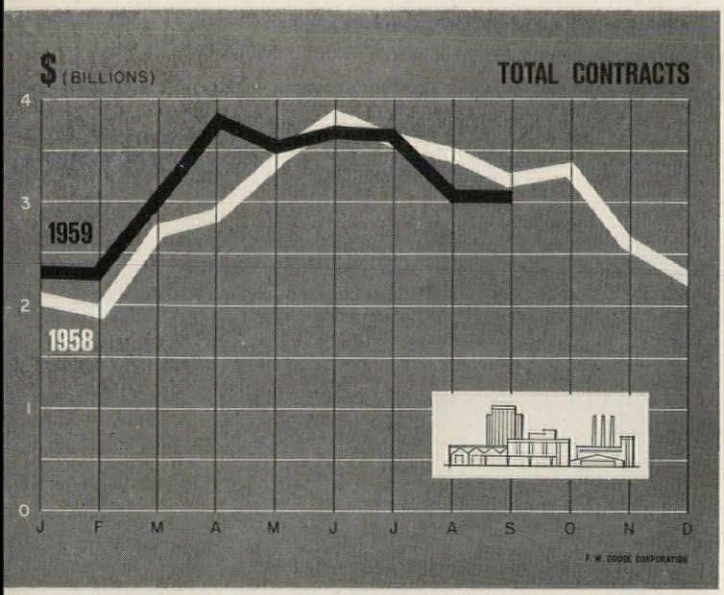
Only Architectural Record can take these three essential steps because only Architectural Record has full access to *Dodge Reports* and from which accurate records are maintained of the work of individual architectural and engineering firms.

an F. W. DODGE CORPORATION publication

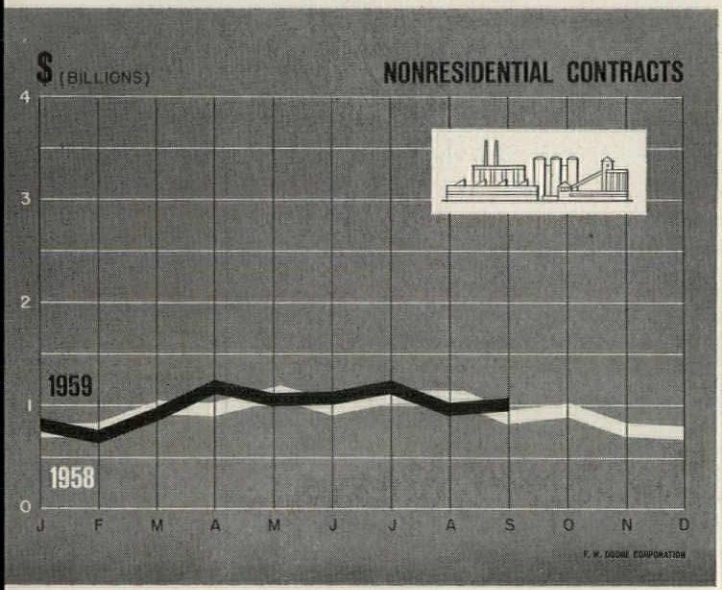
# Architectural Record

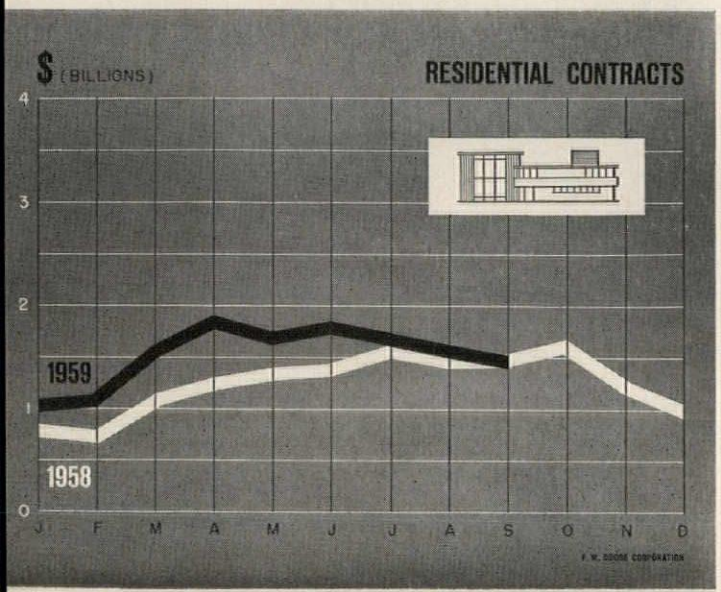
*"workbook of the active architect and engineer"*

*119 West 40th Street, New York 18, N. Y.*
*OXford 5-3000*




*Total contracts include residential, nonresidential, heavy engineering contracts*




THE BOOM in religious buildings is one of the more impressive phenomena of the postwar period. Total contracts reported by Dodge in 1959 for religious buildings (churches, Sunday schools, parish houses and the like) will run somewhere around 750 million dollars. Because that is too large a sum to grasp handily, a few comparisons may show just how big, economically, the church building boom has become. Total church contracts this year will not be far behind contracts for electric utilities and for hospitals; they will be substantially higher than contracts for public buildings; and they will be double the contracts for hotels and motels combined. This may be a poor way, in the opinion of some, to measure the value of religious buildings—but it is at least a measure of sorts. Perhaps it would be more revealing to point out that church construction is outstripping the building of jails and penitentiaries this year by a ratio of about 14 to 1. Surely some significance can be read into this. In any case, religious building is headed for a new all-time record in 1959, some 10 per cent ahead of the previous record set last year.

AS 1959 ENDS, there are some mushy spots in the construction landscape. They seem to result principally from the great uncertainty—the steel strike—and the great certainty—tight money. The strike, at this writing, is still up in the air. The mills are back at work under the uneasy truce of Taft-Hartley, and what will come next, we don't really know. We rather suspect that steel production will continue, somehow; if it doesn't, we are faced with a situation serious beyond words. As for tight money, it doesn't offer much element of certainty. Until home-building adjusts to the situation, as it will eventually, prospects are for some dampening of the housing boom.

THESE, and quite a few other factors, make forecasting a particularly risky business. The usual yardsticks are broken, or badly bent. We did the best we could with the tools at hand, and came up with the estimate in the outlook statement, "Sighting the Sixties," which was carried in the November RECORD. But we couldn't help thinking of our experience some years ago in building a bookcase. We worked on this project for a week, and tried to be very careful about it. But no matter how much we measured and re-measured, the shelves were always turning out a half inch too short or too long. After going through several hundred bd ft of lumber, and being just about ready for the psychiatrist, we discovered that through some fantastic accident, the six-ft rule we were using was lacking a half in. Not at the end, mind you, but between the 4½- and 5-inch marks. In one direction, it worked pretty well; in the other, it didn't. Any resemblance to the present situation is startling.

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

# ARCHITECTURAL RECORD

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## SEMI-ANNUAL INDEX

VOLUME 126
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ABBREVIATIONS: BTS—Building Types Study; AE—Architectural Engineering; TSS—Time-Saver Standards.

## D



## E



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## X Y Z

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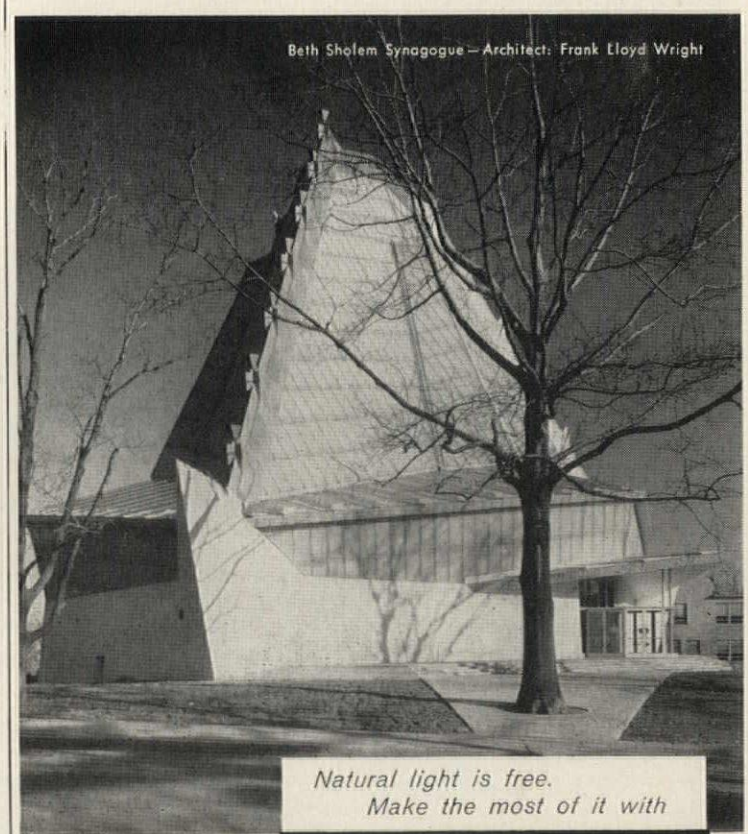
## structoglas brings inside the light of all outdoors

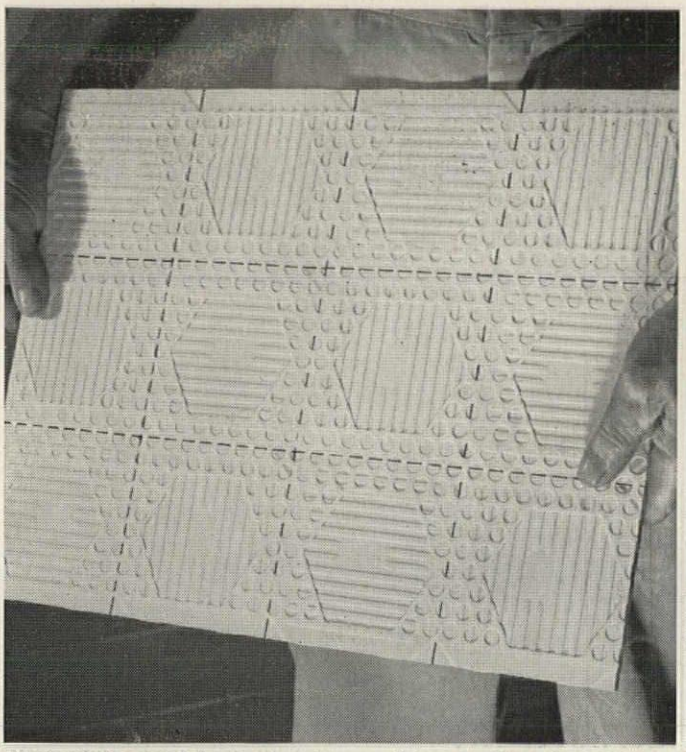
Beth Sholem borrows its light and mood from the shifting patterns of sun and clouds—filtered through a tent-like ceiling of Structoglas fiberglass reinforced panels. These corrugated, translucent panels promise a lifetime of maintenance-free beauty. Shatterproof Structoglas never needs refinishing; its acrylic polyester resin provides exceptional strength and resistance to fading. And because Structoglas is press-molded, its uniform corrugations match perfectly.




*Natural light is free.*
*Make the most of it with*

**structoglas®**

Structoglas Inc., Cleveland 9, Ohio



Master-Set's specially developed paper-thin mounting sheet holds tiles rigidly in place—fits snugly with a tight bond, conforming smoothly to wall contours. Individual tiles are easily cut or snapped from sheet.

Master-Set sheets go from carton to wall in one motion with no soaking needed—can be installed with adhesives, thin-set mortar, or conventional cement mortar with self-curing bond coat.

# The fastest, most economical way to set glazed tile—

# NEW *MASTER-SET** TILE

## with 75% open area for better bonding

American Olean's new Master-Set* Mounted Tile cuts glazed tile installation costs substantially—especially on long corridors and large wall areas.

With Master-Set, as many as twelve 4¼" tiles are set as one unit, covering up to 1½ sq. ft. at a time.

At the same time, Master-Set assures good appearance—thanks to American Olean's precision sizing which provides straight, even, uniform joints throughout the job without the need for trowel adjustment.

Now available in all standard glazed tile sizes—in bright, matte and Crystalline glazes—and in some Scored Designs.

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CERAMIC TILE

American Olean

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