# PROGRESSIVE ARCHITECTURE

10 october 1956

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## TEMPLE ISAIAH

Lower photo shows 500-ton concrete roof for main auditorium (upper center) of Temple Isaiah, Los Angeles, Calif. Archt.—Kenneth N. Lind, A.I.A.; Struc. Engr.—Brandow & Johnston; Contr.—Zimmer Construction Co.; Sub. Contr.—Vagtborg Construction Co.; Pozzolith Ready-Mixed Concrete supplied by Consolidated Rock Products Co.—all of Los Angeles, Calif.

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p a
PROGRESSIVE ARCHITECTURE







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Volume XXXVII, No. 10

202

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# *It's the Law* *by Bernard Tomson*

**P/A Office Practice** ***Article continuing a discussion of the revision and up-dating of the Standard AIA Contract Forms.***

The unrevised AIA form provides that the Architect is to be "equitably paid" for extra drafting or other expense "due to changes ordered by the Owner, or due to the delinquency or insolvency of the Owner or Contractor, or as a result of damage by fire." No formula for payment is included. The revised form provides:

"Extra expense is caused for the Architect if the Client orders revisions in drawings previously approved, if construction work is awarded on other than a single lump-sum basis, if construction contract time is extended by more than 25%, or if other extra services are required. Payment therefor shall be as provided in Article VI."

"**VI. PAYMENTS TO THE ARCHITECT**

B. Payments for Extra Services of the Architect—Payment for work included under Article II shall be made monthly in addition to the basic fee as follows:

"1. ——% of the cost of work let separately from the general contract or on a cost-plus basis.

"2. ——times the Direct Personnel Expense incurred by the Architect in rendering other extra services."

Although the above quoted clause could be more broadly formulated to protect the Architect's right to compensation for extra services, the establishment of an express formula (a multiple of direct personnel expense) for calculating the Architect's compensation is a marked improvement in the form.

Under the revised form the Architect's services are divided into four phases: "schematic design," "basic design," "construction document," and "construction phase." The Committee points out that a large proportion of the AIA membership thought that the statement of services in the form contract was inadequate. However, revision has not only detailed the Architect's services, but also has increased his obligations. For example, in respect to the cost of the work, the Architect is required under the schematic design phase to acquaint the Client with the probable cost of the work. Under the basic design phase, he is required to acquaint the Client "with any indicated adjustment in the probable cost of the work" and when authorized to "obtain a semidetailed estimate of the cost of the work." Under the construction document phase of the services, the Architect is required to "advise the Client of any indicated adjustment in previous estimates of cost due to known market fluctuations or changes in scope or requirements, and, when Client so authorizes, obtain a detailed estimate of cost of the work."

The revised form further provides:

"Estimates of probable Cost of the Work made by the Architect will be square and cubic foot or other computations at current costs based on what the Architect believes are similar projects in the area.

"Preliminary estimates shall be in semidetailed form computed on complete wall, floor, or other units of work in place.

"Detailed estimates shall be detailed take-offs of the material, labor, and equipment rental, and with current costs applied thereto, to which factors for overhead and profit shall be added."

Even though the form provides that the Architect does not guarantee his estimate of cost, the placing of this responsibility upon the Architect can be dangerous. Loss of compensation or a legal suit for damages, or both, may be the consequence of an Architect's misjudging the cost of a proposed structure (IT'S THE LAW, *February 1949 P/A*). The revised form although increasing the Architect's responsibilities in respect to estimating of cost, does not adequately protect the Architect from possible litigious clients.

The theory of the AIA Committee in comprehensively detailing the Architect's services, was stated by it as follows:

"A definite statement of services should protect the legitimate Architect from the marginal operator and service cutter. The detailed statement is much better public relationwise."

It is questionable whether the inclusion of a comprehensive and detailed list of the Architect's services in a form contract is desirable. The services to be rendered vary with the project and there is no reason why a form contract cannot be used in which the Architect's services can be especially expressed in a blank space provided for that purpose. In this way, rigidity in respect to the Architect's services can be avoided.

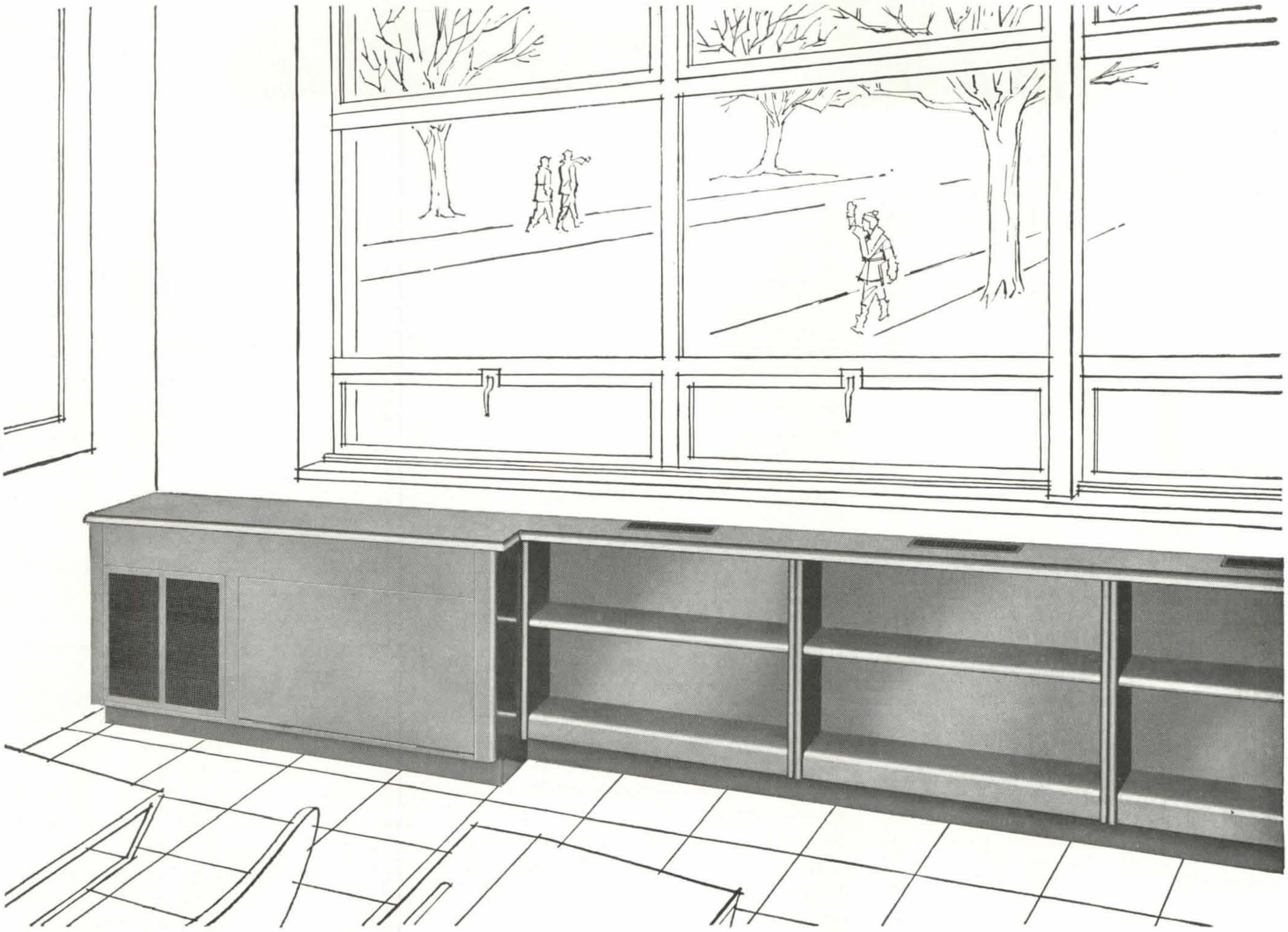
The suggested changes in the provisions of the Architect-Owner agreement relating to reimbursements to the Architect specifies in greater detail than the original the items which are to be reimbursed. Both the old clause and the revision provide that the Architect is to be reimbursed the cost of special consultants when authorized to retain the same by the Client. However, if an Owner fails to pay the fee of the special consultant because of dissatisfaction with his services or other reason, the Architect may find himself as a party defendant in a law suit instituted by the special consultant to recover his fee. A form contract could provide that the Architect, in retaining the special consultants, only acts as agent for the Owner and that any expenses or damages incurred in defending the Owner's interests shall be compensated by the Owner.

The revised form states that in the event of abandonment or suspension of the work "the Architect shall be paid the earned portion of the fee, reimbursements then due, and reasonable terminable expenses." It is often difficult to determine the appropriate compensation for an Architect when the abandonment or suspension occurs during the preliminary stage of the work. It is generally during this stage that the principal has spent substantial time on the project. It may be desirable to provide that, if the abandonment of the project occurs during the preliminary stage, the fee to be paid the Architect shall be based upon a multiple of direct personnel cost including the cost for the time spent by the Architect or any partner at a rate fixed in the contract (IT'S THE LAW, *February 1951 P/A*).

The responsibilities of the Client are set forth in the revised form. However, there is no provision to the effect that the Owner will bear the costs of any audit of the Contractor's books and records. Such an audit may be of great assistance to the Architect in supervising both the project and the Contractor (IT'S THE LAW, *September, October, and November 1953 P/A*). The cost of such an audit should be clearly stated as one of the Owner's responsibilities.

The revised form provides for arbitration of any dispute under the standard procedure of the American Institute of Architects "and the laws of the state in which the project is located." This clause does not improve the defects contained in the unrevised form contract (IT'S THE LAW, *March 1949, May 1956, and June 1956 P/A*). Further, by providing that the laws of the state in which the project is located shall govern, arbitration will be defeated if the project is located in a state which does not accept or enforce arbitration.

*Next month's column will include clauses, other than AIA form clauses, often used in a contract between Owner and Architect.*



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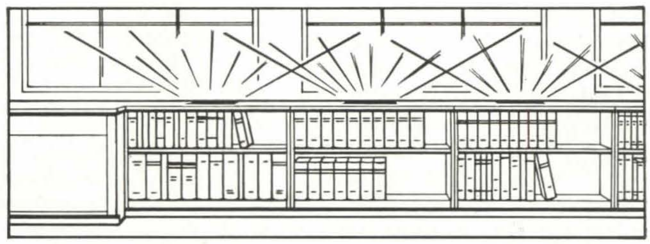

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# *Mechanical Engineering Critique*

*by William J. McGuinness*

**P/A Office Practice *column on mechanical and electrical design in architecture is devoted this month to the subject, "Wasting Hospital Money."***

A popular subject in family magazines is "Can you afford to be sick?" Medical fees and the efficiency of medical personnel are discussed. Hospital fees are frequently considered but the technical aspects of hospital maintenance costs are seldom mentioned. They are for the professional—the architect and the engineer. Our modern economy tends to transfer every possible burden to efficient equipment in order to free the time of staff members. In hospitals the relation of mechanical equipment cost to that of total structure is greater than in any other building type. Any reduction of initial cost is important. Far more vital, however, is a high level of operating efficiency which reduces fuel cost and the payroll for maintenance staff.

Leaders in the design of mechanical facilities for hospitals are Charles F. Neergaard, Hospital Consultant,* and Charles E. Daniel, Consulting Engineer. Recently these gentlemen were called away from a busy schedule to do a bit of trouble shooting for a Midwestern hospital that had been struggling for more than a year with an expensive and highly inefficient heating plant and with other mechanical difficulties. Their findings were quite startling and were the basis for a comprehensive article for hospital planners in last month's issue (September) of *Modern Hospital.*

In this 250-bed hospital and 160-unit nurses home, expansion of 100 percent was contemplated in future. Neergaard and Daniel found serious errors in design:

1. Thermally poor building materials.
2. Much too large a boiler installation.
3. Excessive radiation.
4. Unsuitable controls.
5. Excess heat in rooms above boiler.
6. Fluctuating Water Pressure.
7. Shortage of hot water in laundry.

They recommended some corrective measures which were taken. They appraised the excess first cost which, together with the cost of correction, represented the total capital extravagance. They compared the operating cost of the original faulty plant to that of an efficient one.

Exterior walls were 4-in. brick and 8-in. concrete block with plaster directly on the block. This is a bad wall for both leakage and condensation. It has a U-factor of .33 Btu/hr; Neergaard recommends .09. Double glazing would have been preferred to the single glass which was used—U-factor, single glass 1.13, double glazing 0.55. Heat loss through walls would have been reduced to about ¼ and through glass to about ½ of the loss through the poorer construction.

Two 500-hp steam boilers served the complex, with provision for a third. With 1000 hp available, it was found that under full load at critical conditions 300 hp would be sufficient, only 60 percent of the capacity of one boiler. During much of the year, under average conditions, 12 percent of the output of one boiler would suffice. Triple fuel consumption and deterioration of refractory lining due to intermittent firing resulted. Correction—a 150-hp package-type boiler was installed to carry the load during spring, fall, and summer. A new electric sterilizer stood by for use when no steam was on during part of the summer. In winter, one of the original boilers cuts in when required.

The radiation, excessive in many places, was 100 percent too much near the boiler room. If materials with the better U-factors had been used, 18,000 sq ft of radiation could have replaced the 33,000 which were installed.

Large radiators, served by a large boiler, were kept in check by thermostats in each room. Boiler controls were operative over a range of 20 to 100 percent of the 500 hp. Because the boiler operated far below the lower of these limits it was necessary to have an engineer on duty 24 hours a day to start and stop the burner by hand. This meant five full-time firemen on the payroll. Neergaard does not favor individual room controls and would have installed originally a hot-water circulating system, properly zoned. The boiler control problem was solved when the package unit was installed.

High temperature in and adjacent to the boiler room was caused by lack of ventilation in that room. A tiny areavent was supplemented by a 4500-cfm high-speed fan with exhaust through the area and the oversize chimney.

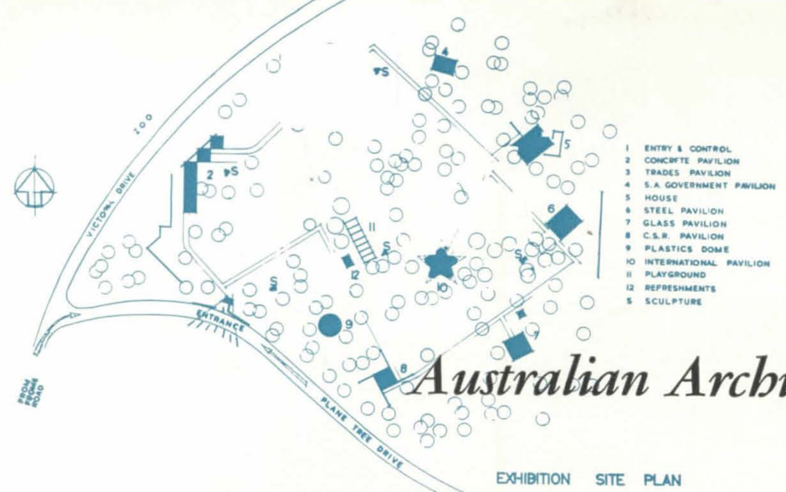
Water pressure, 60 psi at the main, dropped to eight in the laundry and varied from 30 to 60 in the hospital. Cause—a water softener of inadequate size. The very low laundry pressure resulted from the additional fact that a low-capacity instantaneous heater further reduced the pressure. Solution—the laundry hot-water supply was changed to draw on reserve tanks in the hospital plus a surge tank (reserve) for large, short-term demand. This reduction in peak demand facilitated the correct operation of the water softener.

Total cost of hospital plus nurses home was $4,325,000; excessive cost of original equipment $175,000, cost of corrective measures $32,000, total money wasted $207,000 or five percent of the total building cost.

In 1955 the fuel cost was $27,000 with oil at eight cents per gal. In cold Prince Edward Island, a 210-bed hospital complex, thoroughly insulated and with 260-hp boilers spent, in 1955, $13,059 for fuel at 10.36¢ per gal. At eight cents, the cost would have been $10,000, about ⅓ of the expense to the hospital under study.

A hospital board depends on its architect and engineer to produce a mechanical plant of good quality but at the lowest possible cost. Operating costs must be subject to the same economy. It should not be forgotten that these costs are borne largely by patients who are ill and sometimes in distress. Wall insulation and double-glazing generally used in modern residences are still not standard for hospitals. It is difficult to understand why, as their use can cut the yearly fuel bill in half. It is quite usual to measure the cost of wall insulation and double-glazing against annual fuel savings to estabish a period of several years over which the capital investment can be amortized. Often they can be paid for by the saving in the original cost of the plant!

* *Now retired from active practice.*




EXHIBITION SITE PLAN

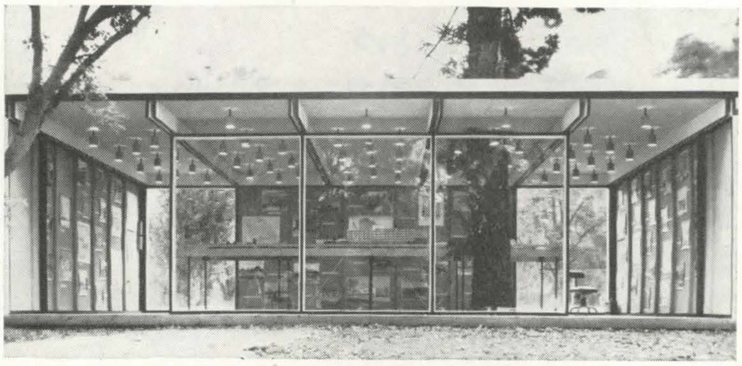
# Australian Architects Build Exhibit for Public

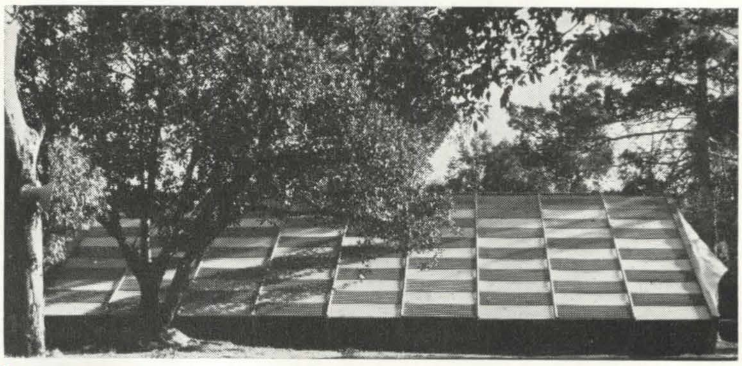
1

**Entrance Canopy (1)**, *gateway to the exhibition, led visitors under an aluminum-foil canopy, past porcelain-enameled steel panels used as letter posters.*

**South Australian Government Pavilion (2)** *was prefabricated, using floor and roof units designed for portable school classrooms. Within this inexpensive, salvagable space there was a photographic display of Government hospitals, schools, and public buildings.*

2





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**Trades Pavilion (3)** *was built of triangular three-hinged steel frames formed of open-web steel joists. Roofing was alternate sheets of transparent plastic and asbestos-cement boards. Since most materials used were salvaged, almost only cost was labor. Inside, 18 equal bays were used by various manufacturers, and rent from these exhibit spaces was major source of income for running expenses of the Exhibition.*

**International Pavilion (4)** *was built of wood and canvas, in shape of star hung from central timber mast. This building, the focal point of the Exhibition, contained photographic displays of architecture from other parts of the world. Wire sculpture in foreground, one of many such groups, was by Wladyslaw Dutkiewicz.*

Architectural conventions in the United States, from the annual national convention of the AIA to regional, state, and even more local meetings, increasingly reach for public attention through press coverage—and each year draw larger and better planned exhibits of building materials and products. This year in Adelaide, South Australia, the national architectural society (Royal Australian Institute of Architects) combined these activities in an unique and apparently very successful manner. The Sixth Australian Architectural Convention, as it was called, featured an Architectural Exhibition open to the public, arranged in a group of specially designed buildings pleasantly planned in Adelaide's Botanic Park.

More than 100,000 persons visited the Exhibition (there was no admittance charge) and wandered through not only the general exhibit spaces—a Trades Pavilion, a Government Pavilion, and an International Pavilion—but also a group of buildings designed and erected to demonstrate structural and visual possibilities of specific basic materials. For example, the Glass Pavilion—essentially a glass cube with a minimum of other structural materials—housed special exhibits showing the versatility of glass in building. Similarly, a Timber House and Pavilions—devoted to and built primarily of concrete, steel, and plastic—were part of the exhibition group. One large manufacturer of wallboard and flooring prod-


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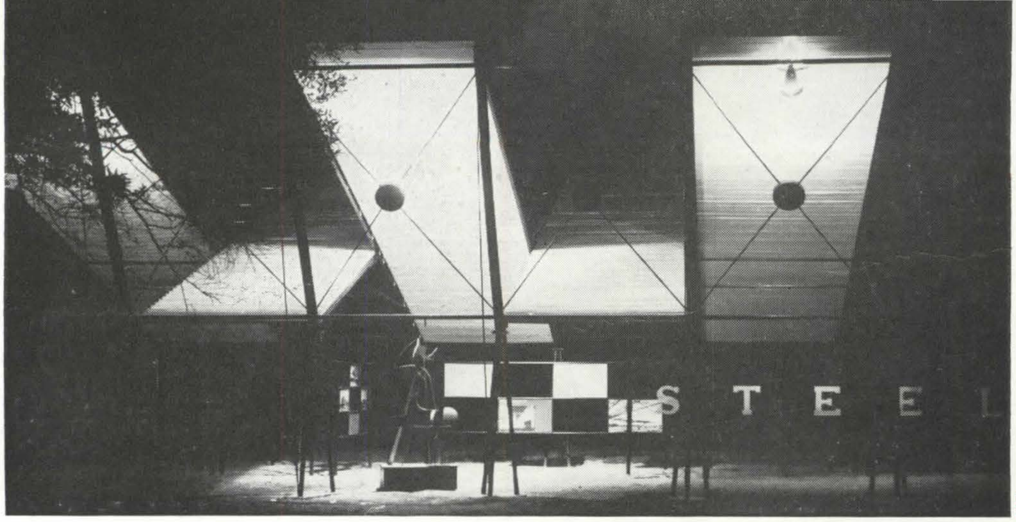


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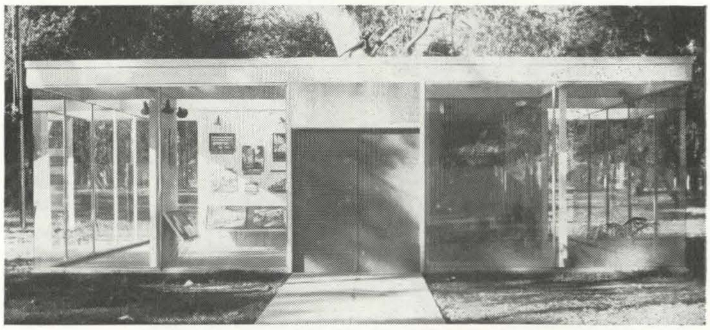

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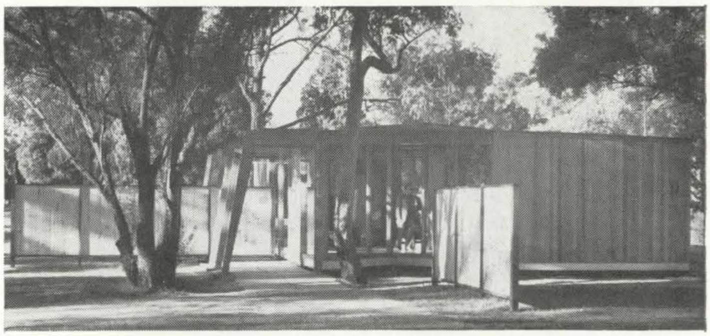

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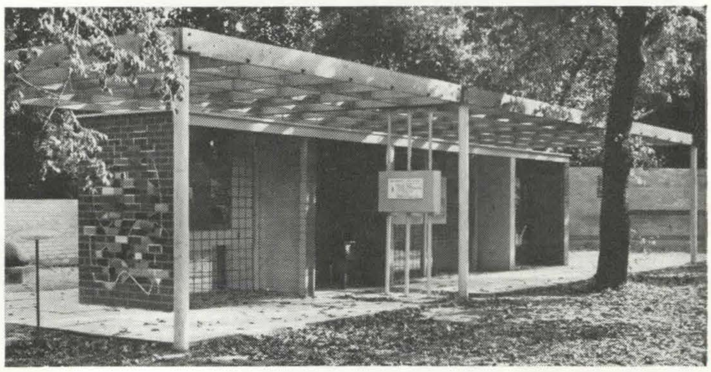

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**Steel Pavilion (5)** *consisted of six prefabricated frames supporting panels of steel decking, with cables designed to take tension forces. A "plastic theory" design technique allowed light members and produced an exciting structure, strong but visually light. On-site erection took only three days. Steel sculpture is by S. Ostoja-Kotkowski.*

**Glass Pavilion (6)** *was designed as transparent cube, with one wall almost entirely of 3-ft-wide glass louvre panels. Standard aluminum glazing sections were used; roof was corrugated sheeting made of a new Australian glass-fiber material.*

**Timber House (7)** *was spanned by laminated arches of Austrialian oak. Prefabricated wall panels were sheathed with different local woods inside and out; other woods were used for various purposes—even to timber bath and toilet fixture! House plan was kept simple and flexible.*

**Concrete Pavilion (8)** *was devised as six bays, each 18 ft sq. In each bay prestressed periphery beams carry a 3 ft-module grid of post-stressed beams, the bay being tied by stressing of tensile wires passing through the grid members, and being raised as a unit. Roof was of precast panels, display walls were masonry units arranged for color patterns.*

## *Australian Architects Build Exhibit for Public*

ucts—the Colonial Sugar Refineries Company—had its own pavilion.

Along with the buildings went landscaping and site design, and a nice disposition of related sculpture and mural screens. Lighting was carefully planned, both within the buidings and outside where (in addition to floods) beams and spots of light pointed the visitors' route. The structures were designed for temporary use, and materials employed were "recoverable" in almost all instances. The costs of the buildings were met by the exhibitors. Photographs were contributed from many countries; a number of U.S. architects sent exhibits of their work.

Accomplishment of the complicated and necessarily rapid design and construction job was by an Exhibition Committee of ten architects, who called on the services of other colleagues and students in the three areas of design, promotion, and administration. Structural designs of the Concrete, Timber, and Steel Pavilions were by Prof. F. P. Bull, of Adelaide University, a strong proponent of architectural-engineering integration.

Eight months' work preceded the beginning of construction, and actual site work took two months more—including, Committee members' report, four final weeks of "Adelaide's worst weather for more than half a century." Work was voluntary and part-time, except for the services of one of the Committee members during the last three months, when he acted as full-time organizer and site supervisor. Members of this hard-working Committee were Keith Neighbour, Richard L. Roberts, Brian Claridge, John Tulloch, A. Lawrence Brownell, John Morphett, Newell J. Platten, M. Bradbury Harris, Alan N. Godfrey, Ian D. Campbell, and Subcommittees drawn from the Contemporary Architects Group.


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## condensation of specification information praised

*New P/A editorial feature,* SPECIFICATIONS CLINIC *by Harold J. Rosen, begins a regular schedule in this issue, alternating with Ben John Small's* SPEC SMALL TALK. *Both columnists are members of The Construction Specifications Institute, Inc. We take this opportunity to offer readers of our* VIEWS *Section a variety of professional comment on Rosen's initial column of the new series, which appeared in April 1956 P/A.*

*Dear Editor:* The article, "Masonry Walls: Specifications Clinic," is a fine condensation of the important points in masonry specifications. The proposed series should be of great value to all persons concerned with specifications.

DOUGLAS E. STEINMAN, JR.
Beaumont, Tex.

•

*Dear Editor:* Just a word to compliment you on the new technical series started in P/A. Articles like the first one will contribute much toward good specifications and consequently good construction. JAMES C. BORT
Schmidt, Garden & Erikson
Chicago, Ill.

•

*Dear Editor:* "Masonry Walls: Specifications Clinic" by Harold J. Rosen, seems timely and well prepared by one possessing considerable knowledge and experience in technical design and construction of masonry walls.

We most certainly subscribe wholeheartedly to Rosen's comments and suggestions and, where such a specification is carefully adhered to, it would accomplish much toward alleviating future criticism of defective exterior masonry construction from clients.

We express a hope that future articles in this series will be as well prepared and ably presented.

FRANK L. COUCH
Smith, Hinchman & Grylls, Inc.
Detroit, Mich.

*Dear Editor:* I wish to state that in my opinion, the article on masonry walls which appeared in April P/A, would be of definite benefit to all specification writers, and a continuing of various articles would be of definite benefit to all specification writers, and a continuing of various articles on various sources of information in the construction field would be a distinct advantage.

JOHN J. PYLE
Construction Supervisor
Joseph Hoover, R.A.
Pittsburgh, Pa.

•

*Dear Editor:* I have read your article on masonry walls which appears in April P/A. This article brought out some very important points and I think similar articles should be continued.

I would like to add one suggestion which might be of value and this is that the requirements in California are for a high strength mortar with a high, very rich, cement proportion. Thus, shrinkage is apt to give trouble. The use of an admix and care in laying in very hot weather would be a help to avoid such shrinkage. VINCENT G. RANEY, President
San Francisco Area Chapter
The Construction
Specifications Institute

•

*Dear Editor:* The article in April 1956 P/A on masonry walls presents all the common problems encountered in obtaining walls that do not leak. So far, so good!

The real problem, which the architect cannot do much about in spite of good specifications, is the control of craftsmanship in laying up the work.

The architect, generally in large communities, has little voice in the selection of the craftsmen and can only recommend to the contractor the dismissal of incompetent ones. The contractor then has obvious difficulties.

(Continued on page 14)

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REINHOLD

(Continued from page 13)

To do the job with the high quality of craftsmanship necessary for tight masonry will, in my opinion, require considerable education among the craftsmen, who (I believe) do not always know the importance of their work and how it affects the owner, architect, and contractor. The architect and contractor should give serious talks, explaining their responsibilities to the owner, and then impress upon the craftsmen, particularly the apprentices, the responsibility they take on in becoming masonry craftsmen.

(Continued on page 216)



### Scandinavian imports

*Dear Editor:* Thank you for the copy of your excellent magazine which reached me only today: hence the delay in writing to thank you for the magnificent presentation you have given our arts and crafts (INTERIOR DESIGN DATA, *April 1956 P/A*).

There is a great number of firms importing Finnish objects for interior decoration, such as:

*Finland House Lighting Corp.*, 41 E. 50 St., New York 22, N.Y. (lighting fixtures);

*Finnware Trading Corp.*, 225 Fifth Ave., New York, N.Y. (copperware);

*Finsven, Inc.*, 508 E. 74 St., New York, N.Y. (furniture);

*Gematex*, 62-64 Hulsted, Harrison, N.Y. (inlaid trays);

*Imperial International Corp.*, 1776 Broadway, New York, N.Y. (knives);

*Georg Jensen, Inc.*, 667 Fifth Ave., New York, N.Y. (crystal and lighting fixtures);

*Knoll Associates, Inc.*, 575 Madison Ave., New York, N.Y. (furniture);

*Baldwin Kingrey, Inc.*, 105 E. Ohio St., Chicago, Ill. (furniture);

*Viking Trading Co.*, 5461 Kales Ave., Oakland 18, Calif. (stainless steel flatware);

*Waertsila Corp.*, 225 Fifth Ave., New York, N.Y. (crystal and china).

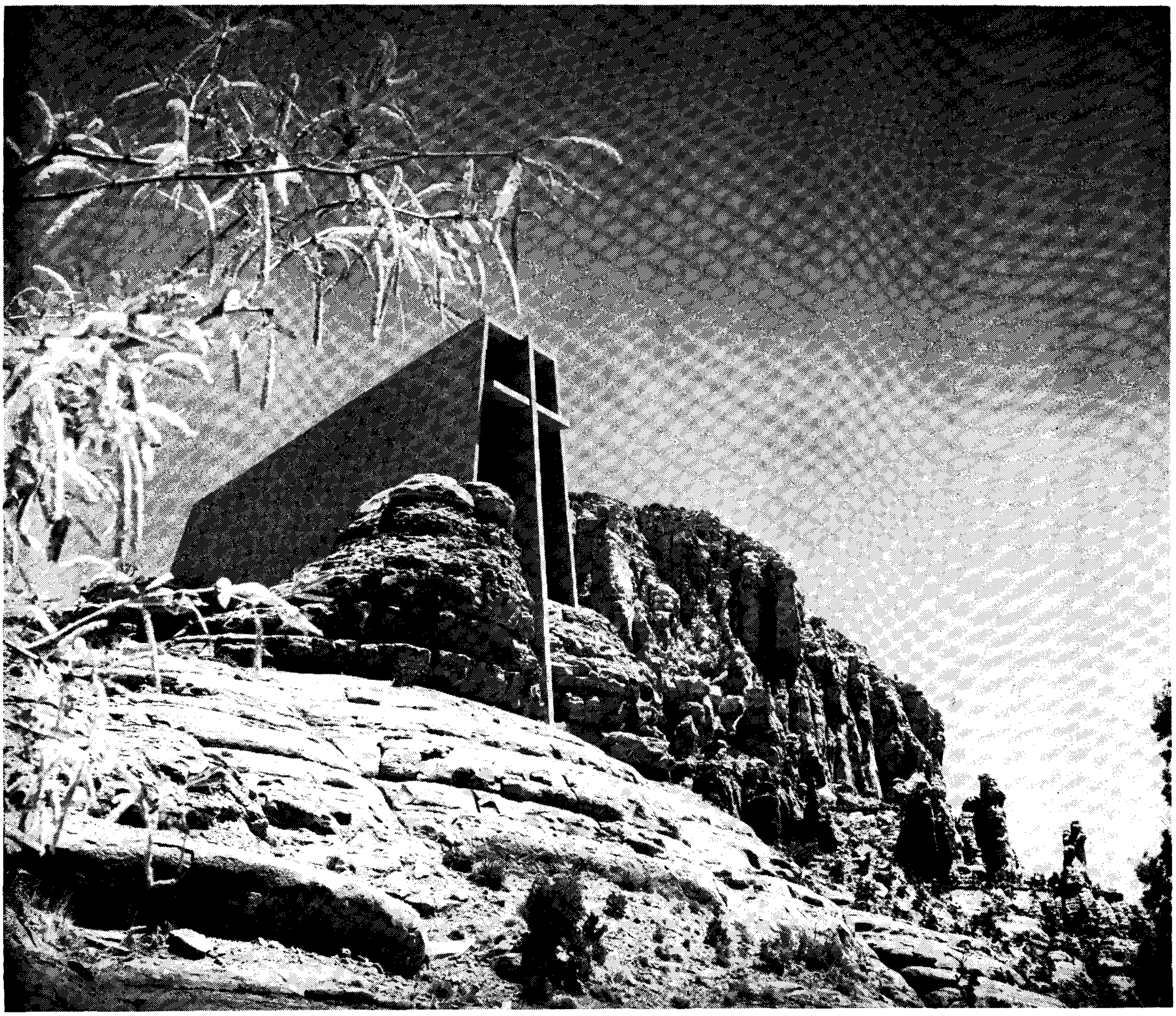
I am very grateful to you for your "Scandinavian Design Cavalcade" article, by Louise Sloane, which, I am sure, will help much in interesting the professional field in the creations of our artists and industry.

H. O. GUMMERUS
Helsingfors, Finland

### cause to reflect

*Dear Editor:* The fine article by Paul Chelazzi in July 1956 P/A is one of the most stimulating and thought-provoking discussions of basic structure that I have had the pleasure of reading. It may well give us all pause to reflect upon the validity and practicality of our somewhat rusty and time-worn methods

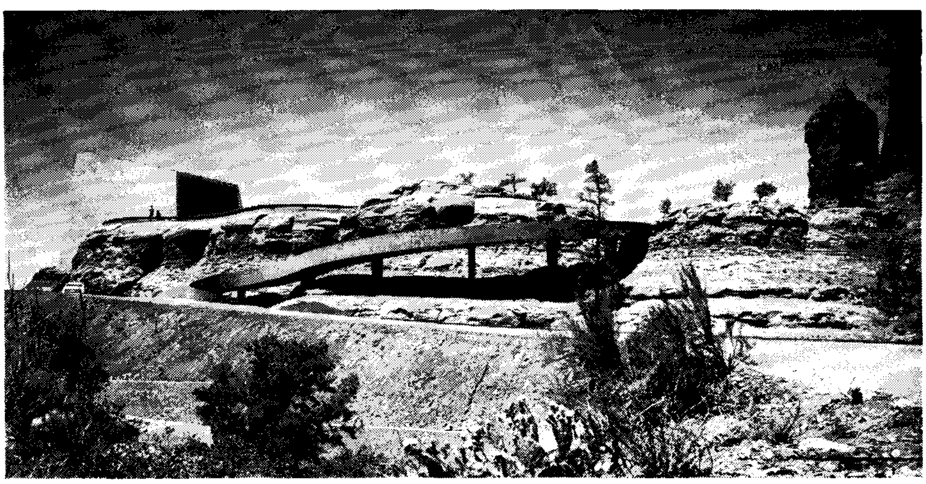
(Continued on page 16)



# CHAPEL CROWNS ARIZONA EMINENCE

SEDONA, ARIZ., Sept. 20—An Award Citation winner in P/A's First Annual Design Awards Program (1954), this remarkable Chapel, donated to the Roman Catholic Church by Marguerite Staude in memory of her parents, is fast becoming a tourist mecca. Located 150 feet above the Verde River Valley, the structure is a concrete shell 12 in. thick, its ends glazed with smoke-colored, glare-reducing glass. The great 90-ft cross plus projecting side walls produce a louver effect that screens out direct sun until mid-afternoon. From a car turn-around below, a concrete ramp curves up to the Chapel. Anshen & Allen, Architects; Robert D. Dewell, Consulting Engineer.

*Photos: Julius Shulman*



# NEW REGIME FOR CIAM

Any six people who attended the tenth congress of CIAM (held at Dubrovnik, Yugoslavia, from August 5-13, 1956) would probably give six very different versions of what took place there.

A CIAM Congress is not only called, but is, a "working congress." Usually from the first day the members divide up into small working parties, or Commissions, each of which has to produce a report before the end of the Congress. Exhibits are shown in a standardized form known as a Grille (or Grid). The comparative analysis of these Grilles is one of the chief tasks of the Congress.

On this occasion the Congress theme was the inter-relationship of elements of the human habitat. Four of the Congress working parties concentrated upon extracting material of a general nature from the information presented in nearly 40 Grilles from over 20 CIAM groups. The other three commissions devoted themselves to the study of different aspects of a book to be brought out by CIAM called, in French, "La Charte de l'Habitat" and in English, "The Human Habitat: First Propositions."

CIAM X had yet another task, which was to decide upon the future organization of CIAM, in view of the retirement from active participation of its founder members, which include the President, J. L. Sert, Vice-Presidents, Le Corbusier, Walter Gropius, and C. van Eesteren, and the Secretary General, S. Giedion. Their impending retirement had been announced in 1953, and, since that date, an active group of younger members, under the general leadership of J. Bakema of The Netherlands, has been operating under the name of Team X. After a full day of discussion, during which all working parties were suspended, it was decided, in effect, that the work of CIAM should be taken over by an enlarged version of this younger group, and a committee of reorganization was set up, consisting of 4 of its members, plus 3 others who have worked closely with CIAM for many years. This committee will report to a general meeting of group delegates (called a CIRPAC) early in the New Year and, if their report is approved, the new regime will then come into operation.

The conditions under which these results were achieved were fantastic. Yugoslavia is a country of dramatic landscapes and friendly faces. The long training of its peoples in retaining personal independence, under the rules of various foreign powers, has resulted in a very casual acceptance of its present form of political dictatorship, which is characterized by a tremendous amount of detailed paper work upon matters of small concern, and sudden arbitrary changes of decision upon matters of greater moment. After months of preparation, the Congress, which had been invited by the Yugoslav government in the first place, found upon arrival at Dubrovnik on the evening of August 5th, that the hotel in which a large number of its members had been scheduled to stay had been suddenly commandeered for some other purpose, as had also the Congress meeting place, the Palazzo Sorgo. This news came on top of two days spent in a boat with under 100 berths, that had picked up some 1000 passengers during its journey from Venice to Dubrovnik.

Luckily the retiring president, J. L. Sert, knows how to laugh, and he set the tone of the Congress. Laughter was needed, for it was decided to hold all Congress meetings at the Modern Art Gallery, some 8 kms (5 miles) away, on the far side of Dubrovnik from the hotels; but all meals had to be taken in the hotels. As a result, transportation—one way and another—consumed at least three hours a day, and the most vivid recollection of the Congress in the minds of many members will be tantalyzing glimpses from the bus of the fabulous walled city of Dubrovnik and the blue Adriatic coastline.

Everyone snatched some hours to visit Dubrovnik: a perfect Renaissance City still living; a city from which vehicles are excluded, where people walk with a proud freedom between great stone walls of exquisite masonry, and the dignified reticence of the town houses of wealthy merchants. Dubrovnik is more "perfect" than Venice could ever be, for it had the fortune to be rebuilt almost completely at one moment, after a devastating earthquake, at a time of great wealth and power—and of high civilization.

JAQUELINE TYRWHITT
*R.M.S. Caronia*

# ANNOUNCES PREFAB CERAMIC-VENEER CURTAIN-WALL PANEL

WASHINGTON, D. C., Sept. 19—"For the first time in the building industry, the time-proven advantages of high-fired glazed-masonry facing material are now made available for curtain-wall construction." So stated Albert E. Barnes, Chairman of the Architecural Terra Cotta Institute's Panel Development Committee and Manager of Architectural Products Promotion, Gladding, McBean & Co., San Francisco, at a two-day Modern Masonry Conference conducted here by the Building Research Institute.

Called CV Panelwall (prefabricated ceramic-veneer curtain wall), these units are of two general types. The first, designated as a *curtain-wall panel* and fabricated with lightweight-aggregate concrete backing, is 3″ to 5″ thick—

—and will be available in units up to 30 sq ft. Its ceramic facing unit, approximately 1″ thick, is a de-aired, extruded, precisely-finished clay body with an impervious glazed finish. The lightweight aggregate used in the back-up is of expanded-shale type and was selected to obtain concrete of both lightest weight and greatest strength. Vermiculite concrete can be added to provide required fire resistance or additional insulation. Reinforcing steel is a heavy, galvanized, welded-steel mesh with reinforcing bars or light channels used to supply more reinforcing. There is a permanent bond between the ceramic veneer facing and the concrete backing. According to recent tests made at the Ohio State University Research Laboratory, the fire resistance

Joint strips ½″ deep, used in casting the ceramic-veneer panel, are later removed so that the finished panel can be pointed with a dense mortar and tooled to provide water repellance. Since there are no through joints in the panel itself, the only seal required to prevent infiltration of rain is around the perimeter of the panel where it adjoins a metal mullion or other building element. These joints are designed of polyvinyl-chloride plastic. Due to minimum temperature movement of the panel itself, the adjusted compression against the polyvinyl gasket remains well within the modulus of elasticity of the material.

Regarding thermal conductivity, it was pointed out that in addition to the basic U-factor of the masonry panel—depend-

## Macy's Opens Doors In 2 New Shopping Centers

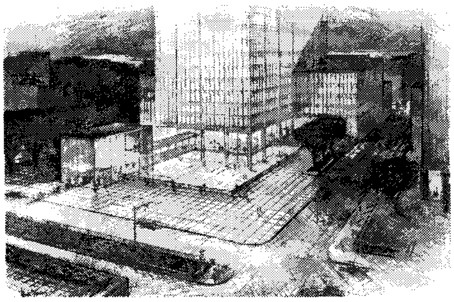
Two recently opened Macy's department stores—one in San Jose, California *(right)*; the other, at Roosevelt Field, New York—are the first completed units of new shopping centers.

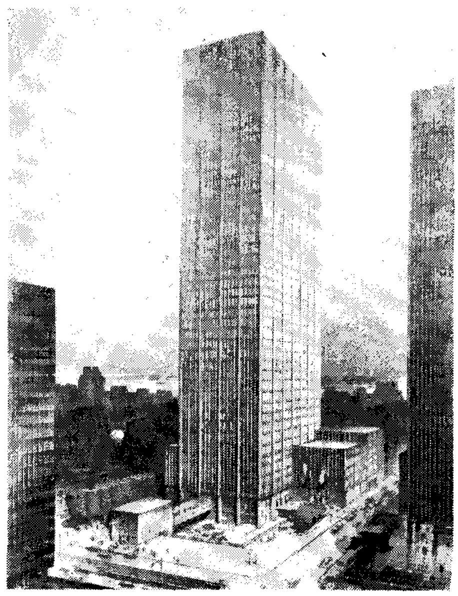
The one in California, called Valley Fair, was designed by Victor Gruen & Associates, Architects. Over-all design of the Roosevelt Field Shopping Center was handled by I. M. Pei & Associates. Skidmore, Owings & Merrill were Architects for the Macy's store there—with interiors designed by Meyer Katzman, Architect (basement); Amos Parrish & Co., Inc., Designers (street floor); and Copeland, Novak & Israel, Architects (second floor).

Photo: Morley Baer

## Astor To Build Park Avenue Skyscraper

NEW YORK, N. Y., Sept. 18—Announced here today by Vincent Astor were plans for Astor Plaza, a $75,000,000 office-building development for Park Avenue's new commercial Gold Coast—Lever House just across the Avenue; the House of Seagram arising immediately to the south. The project, to occupy the full block between 53rd and 54th Streets; Park and Lexington Avenues, will consist of a 46-story skyscraper set well back from Park Avenue and connected to it by an enclosed bridgeway leading across a sunken, landscaped garden to a two-story glass pavilion at the front, to be used for tenant displays. Roof of the skyscraper of metal and glass, designed by Carson & Lundin, Architects, will be a helicopter landing platform. Shops, restaurants, and a bank will border the sunken garden; a sub-basement garage will accommodate 400 cars; and underground tunnels will connect Astor Plaza with both neighboring buildings and subways. Associated with Astor in financing the fully air-conditioned complex are William S. Paley and Frank Stanton.



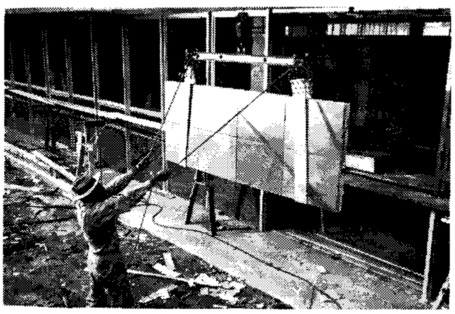


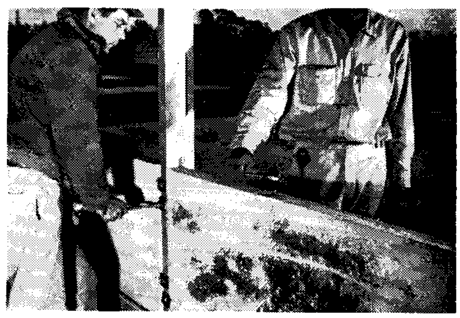
used—the panel has the additional benefit of heat lag: the recognized heat capacity of a masonry wall when intermittent heat loads, such as afternoon sun, are the main consideration.

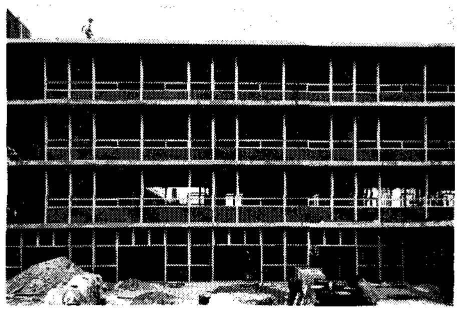
Panels of this type were first installed in the Methodist Hospital at Arcadia, California, designed by Neptune & Thomas, Architects (*see photos at right and November 1955 P/A*).

Work is now proceeding on the development of a much thinner panel, approximately 1¾", for use in *window-wall construction.*

CV Panelwall, 9'-0" x 3'-3" and 3" thick, is hoisted into position (*upper left*); bolts are tightened and lifting eye is removed (*upper right*); joints at concrete deck are calked to ½" depth and joints of panel will be filled with pointing mortar and tooled (*near right*); four-story elevation of hospital shows installation of both 9'-0" and 4'-6" panels (*far right*). BURTON H. HOLMES







# News Bulletins

• International competition for design of Enrico Fermi Memorial, cosponsored by The Chicago Joint Civic Committee of Italian Americans and Chicago Junior Association of Commerce and Industry, will close Feb. 1, 1957. For details write: John O. Merrill, 100 W. Monroe St., Chicago 3, Ill. . . . The Inc. Edwin Austin Abbey Scholarships for Mural Painting in U.S.A. will hold exhibition of mural designs by Walter Kelly Hood (Abbey Fellow of American Academy in Rome) at Architectural League, Pine Rm., 115 E. 40 St., Oct. 23-Nov. 2.

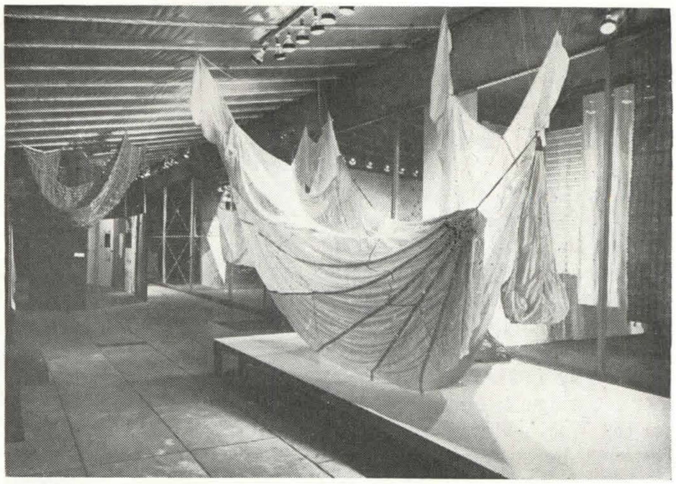
• For illegal copying and using without authority uncopyrighted building plans and specifications, Superior Court Jury in Los Angeles last month awarded damages of $50,000 to Bent H. Cardan, structural engineer and general contractor, whose construction job in West Hollywood was copied by another contractor.

• University of Michigan's College of Architecture and Design expects 350 architects and designers, largely alumni, to attend gala semicentennial on Oct. 24-25. . . . Admirers of Frank Lloyd Wright will honor him at $25-a-plate dinner at Hotel Sherman, Chicago, Oct. 17, as climax to three-day exhibit of his work. . . . Dedication ceremony of Titus Air Distribution Research and Development Laboratory, Waterloo, Iowa, Aug. 22, was opened by Don Titus, President.

• Architect Jean Driskel, Los Angeles, was elected president of Association of Women in Architecture at 1956 Minneapolis Convention.

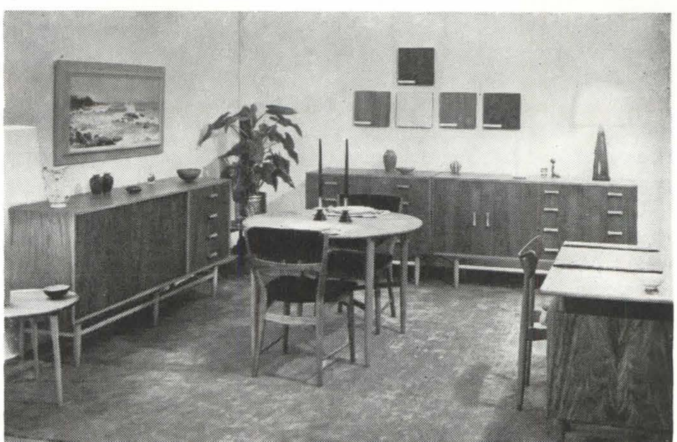
• Seventh Annual National Homefurnishings Show, at New York City Coliseum, Aug. 25-Sept. 9, abounded in designer-decorator room settings, most of them lushly expressive of show's theme, "Elegance in the Modern Manner." Some new merchandise was shown, such as Mills-Denmark's "Arkitekt Collection" (bottom right). Under egis of American Rayon Institute, Edward J. Wormley designed all-purpose room, brilliant with yellows and pomegranate reds (bottom left). Decorator Bertha Schaefer's setting, in discreet mutations of blue (top right) was enriched with paintings, ceramics, and mosaics from her Gallery.

American Rayon Institute Inc.



G. Barrows

• Museum of Modern Art, New York, has excited many with its first all-American textile exhibition, called "Textiles U. S. A.," Aug. 9-Nov. 4. One hundred and eighty-five examples of domestic fabric designs include industrial fabrics (mesh from radar targets, rayon tire cord); home furnishings fabrics (handwoven dried horsetails and cattails); dress fabrics (24-carat gold-coated acetate jersey). Organized by Arthur Drexler, Director of Museum's Department of Architecture and Design, with Greta Daniel, Associate Curator as Project Director, exhibition was designed by Bernard Rudofsky, who employed imaginative, original display techniques. Highlight: small fabric swatches tagged to stretched or draped fabrics carrying label: "Please touch." Photo (above) shows herculite-awninged terrace display of white-and-orange nylon Air Force parachutes. Entrance was marked by floor-to-ceiling ropes of polyethylene.



# Washington Report

**by Frederick Gutheim**

A zoning row of unprecedented dimensions has succeeded in raising fundamental questions about the kind of city Washington ought to be. Although these have received only local discussion, the fact that our capital is a national city, and the disenfranchisement of its citizens leaves Congress to attend to the work of local government, means that they desrve broader circulation. Indeed, since the issues are pretty typical of big cities everywhere, what is finally decided in Washington will reflect thinking elsewhere and influence what is done in other cities.

Thirty-five years ago Washington got its first zoning ordinance—drafted by Harlan Bartholomew, a St. Louis consultant, who now is Chairman of the National Capital Planning Commission. Amended from time to time, the ordinance and the zoning maps were thoroughly outdated. This was abundantly clear to architects, property owners, and everybody else who had to work with them. The job of devising a new ordinance and appropriate maps was given to Harold Lewis, an eminent New York planning and zoning consultant, who installed an exceptionally capable assistant, George Gatter, as his local representative. Nearly two years of work by the consutants were punctuated by excellent progress reports, in the course of which it became clear that the zoning men were operating without much direction from the planning commission. The so-called "comprehensive plan" was not only highly general; in many respects it was outdated. To make matters worse, the rezoning operation was not undertaken by the planning commission but by a wholly independent body, the Board of Zoning Appeals. That the proposed rezoning today reflects any planning considerations whatsoever is due, therefore, almost entirely to the consultants' belief that more than an administrative tidying-up was required.

To an extraordinary degree, what happened in Washington parallels the effort of Harrison, Ballard & Allen to revise New York City's zoning arrangements in 1950. In Washington, the consultants assumed from the beginning that a good measure of community education was a part of their responsibility. Their reports were extensively circulated. The consultants met frequently with local organizations. Full press coverage was received. The climax of this effort toward more active community participation in the rezoning work was a series of ten public meetings in different sections of the city, designed to lead to final revisions in the consultants' recommendations to reconcile them as nearly as possible with the public viewpoint. The consultants were also provided with a Commissioner's Zoning Advisory Committee of some 60 members.

Had there been a well conceived, up-to-date, comprehensive plan, upon which the community had agreed, these arrangements might have worked well. But it was painfully apparent, from the beginning, that the zoning consultants were drifting among such major unresolved questions as the role of the central business district, dispersion of government employment centers to suburban locations, the conflict between relatively open traffic arteries and streets clogged with shopping traffic and high residential densities, the need to develop commercial sub-centers, and many others. Lacking both the resources to create a substitute for a comprehensive plan, or even a consensus of opinion on any of these issues, the rezoning became a battleground in which interested parties contended with each other. Nowhere was this more apparent than in the work of the Zoning Advisory Committee, where the few members who represented the public interest were overwhelmed by those representing special interests.

Perhaps it is academic to suggest that without a better planning framework, or at least without a few decisions on the key points, comprehensive rezoning of this sort is impossible. The job was turned down by at least one firm precisely because such a context was lacking. Perhaps the consultants should have contented themselves with a less ambitious assignment, and refrained from raising questions that their professional consciences prompted them to raise. Such thought-control is not unknown among zoning experts: but such observations lead nowhere. The answer is that the difficulty lay not with the consultants, but with the failure of the community itself to appreciate that the job to be done was a basic planning job, not a minor question.

As matters stand, Lewis proposes to curtail downtown employment and further development by height and bulk regulations. Land owners, developers, many architects, businessmen, and others see this simply as a threat to specific projects they have in mind. To free the city's arterial streets and lessen congestion in the commercial center, stringent off-street parking regulations are proposed. These are objected to by private owners as an unwarranted development charge. New and fairly high standards of coverage are proposed, to which many private owners object because they consider it will lower the value of their property. While all of these proposals can be modified and compromises effected, the present political climate makes it unlikely.

What are needed here, as in many larger cities, are measures of regional planning and regional government which alone can provide the solution to housing, traffic, finance, mass transportation, water supply, and many other local problems. The situation disclosed by the zoning controversy is serious enough to lead one to propose the creation of a Presidential Commission to initiate such moves. It is clearly beyond the District Government, the National Capital Planning Commission, or any Congressional Committee. Given Washington's peculiar form of government, the complexity and urgency of its problems, and the present impasse in zoning, it is the only way out.

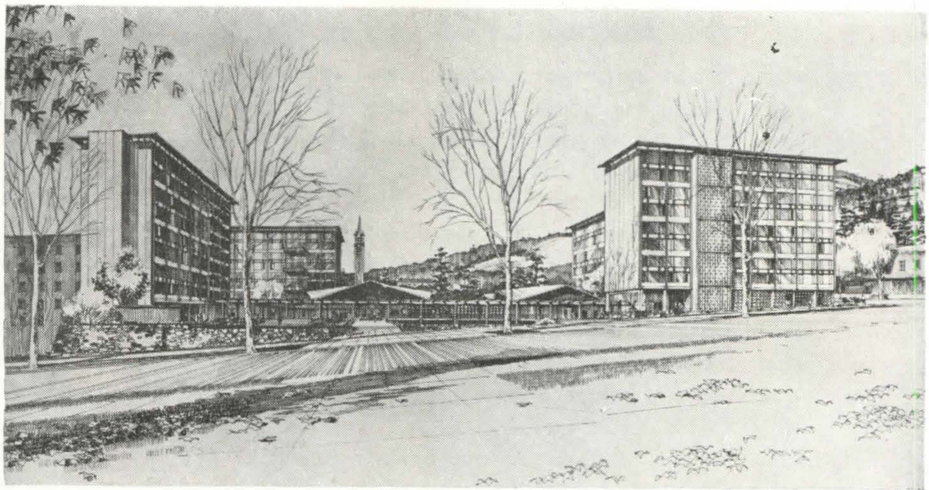
# WINNERS OF TWO DESIGN

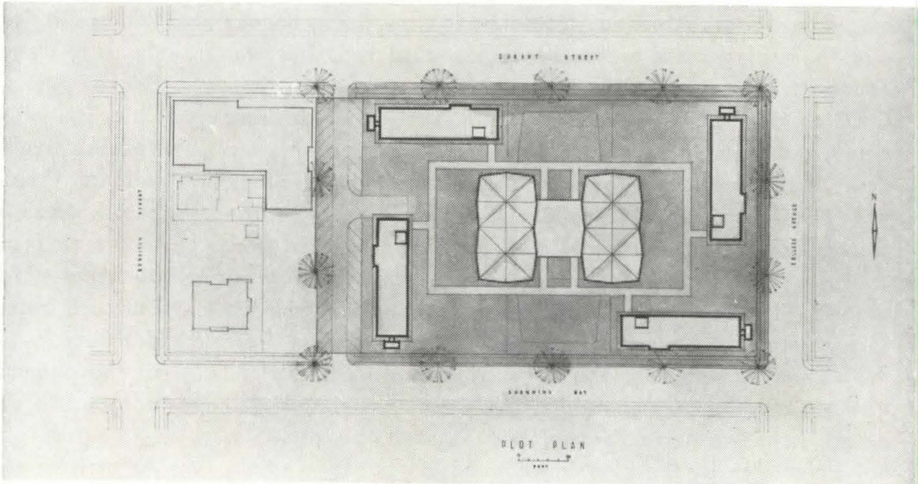
Two important architectural competitions have recently been concluded, with top awards in one going to Carl I. Warnecke & John Carl Warnecke, San Francisco, for the design of a new 800-student residence hall (*this page*); in the other to William Mann & Roy Harrover, Architects, and Leigh Williams, Associate, for the design of a Fine Arts Center *(across-page)* to be built in Memphis.

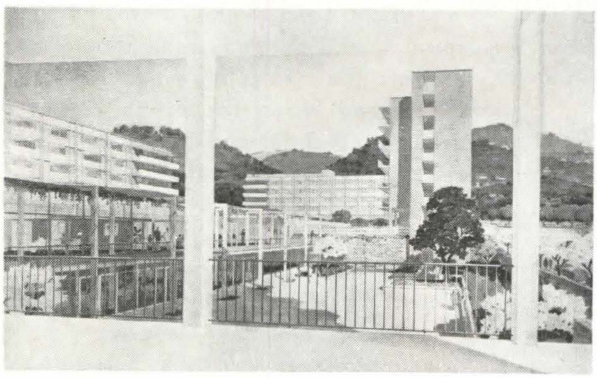
Seven architectural firms* competed in the design of the residence hall for the University of California. The winner was chosen by a Jury composed of Pietro Belluschi, FAIA, Dean of MIT School of Architecture; John Ekin Dinwiddie, AIA, Dean of Tulane School of Architecture; Paul Thiry, FAIA; Mrs. Dorothy B. Chandler, Regent; and Farnham P. Griffith, Regent Emeritus. John Lyon Reid was Professional Advisor.

The winning design for the Memphis Fine Arts Center was chosen from eight entries by Jurors Philip C. Johnson, Architect, New York; Paul Rudolph, Architect, Sarasota, Florida; and Thomas H. Creighton, Editor, PROGRESSIVE ARCHITECTURE. Paul Schweikher, Head of Department of Architecture, Carnegie Institute of Technology, was Professional Advisor.

* *John Funk, Kitchen & Hunt (Honorable Mention); Pereira & Luckman (Honorable Mention); Welton Becket & Associates; Gardner Dailey; Vernon DeMars, Joseph Esherick, and Ernest Kump; Weihe, Frick & Kruse.*

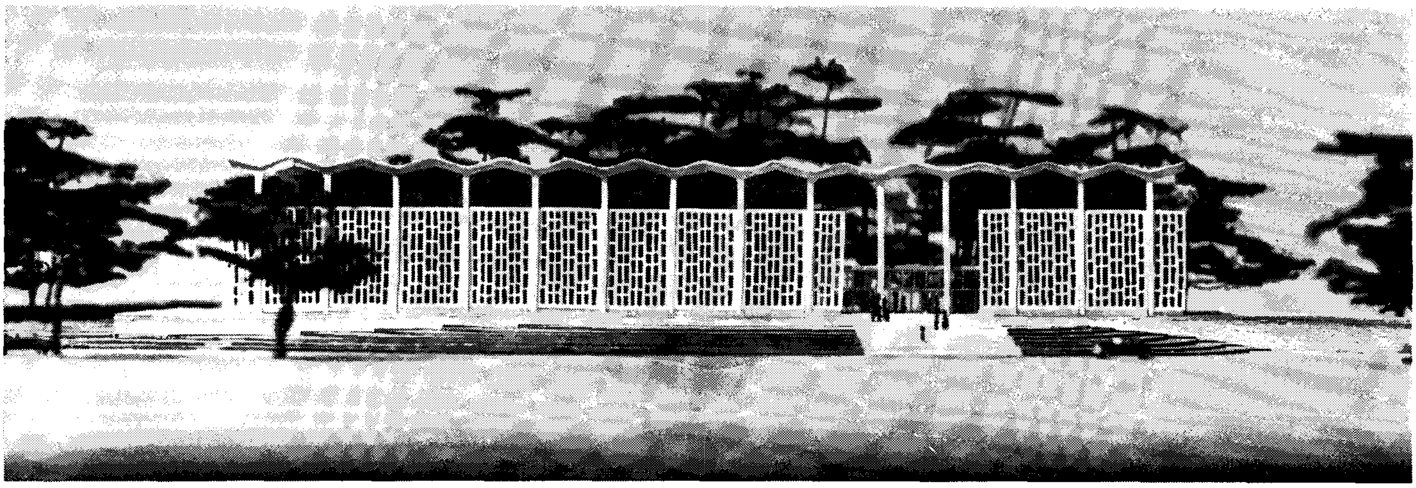


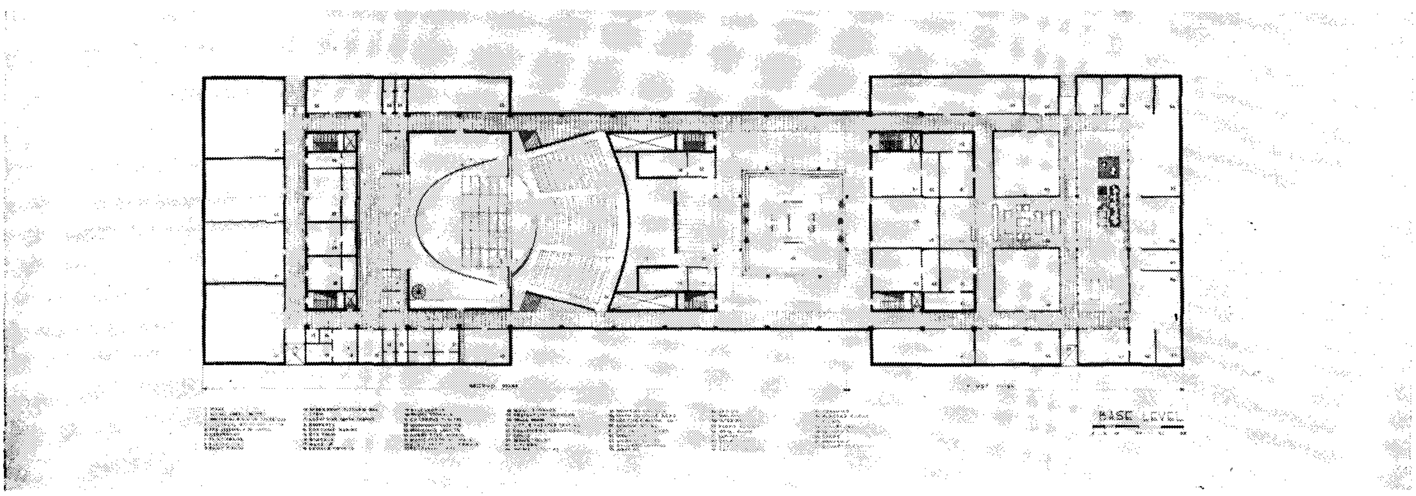


BERKELEY, CALIF., Aug. 15—Plan proposals for a new 800-student residence hall by Carl I. Warnecke & John Carl Warnecke were announced today by the University of California. The winning design *(above)*, selected by unanimous vote "managed to create a feeling of enclosed and comfortable space for the whole," according to the Jury, "and also intimate and friendly courts and gardens. Points of superiority in this design included: better relation to traffic to and from the campus for autos and pedestrians; more natural and inviting entrance to the whole and integration with interior rather than exterior circulation to the various elements; a more attractive informal and residential character for the central units; a better disposal of small courts off living and dining areas; a more convenient relation of the recreation room to the residential quarters; a better plan for the residential units, particularly in regard to placing of the service elements, stairs, and elevators." Honorable mentions went to Associated Architects John Funk and Kitchen & Hunt (*top left*); Pereira & Luckman *(bottom left)*.

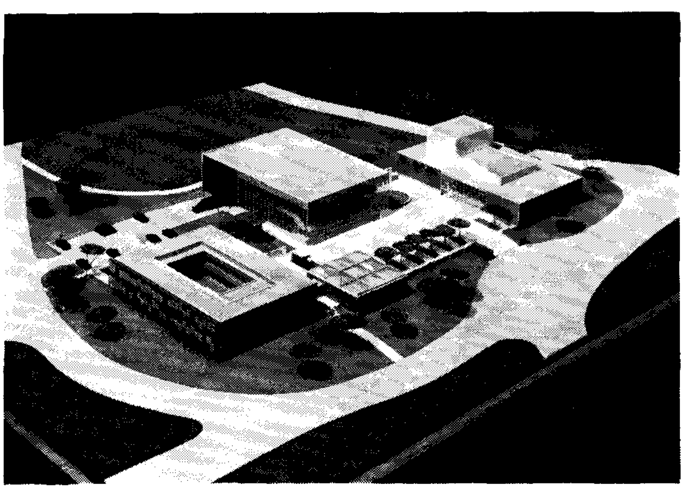
# COMPETITIONS ANNOUNCED

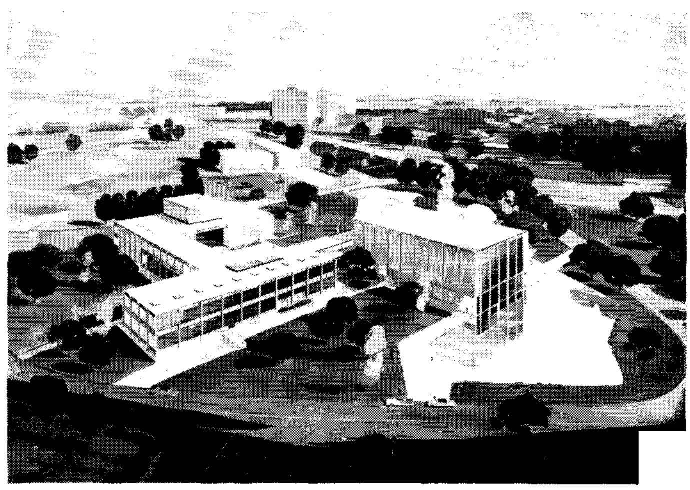




MEMPHIS, TENN., Sept. 7—Three young local Architects today received the first award of $7000 as well as the commission to build the proposed Fine Arts Center for this city. The winning design *(above)* submitted by William Mann & Roy Harrover, Architects, and Leigh Williams, Associate, places the three required functions—an art academy, theater, and concert hall—under one roof. "It is a unified design," reports the Jury, "simplifying the many functions and seemingly complicated program. It should be beautiful from any aspect and will form a visual image of a pavilion which will be remembered—complete both in first stage and final stage. Raised above the ground on a podium it is a truly classical concept."

Other noteworthy solutions were submitted by A. L. Aydelott & Associates *(below left)* winner of second award for a plaza scheme, an "excellent solution to the many functional problems"; third award went to a proposal with interconnected building elements *(below right)* by Thomas F. Faires & Associates.





# Financial News

## by William Hurd Hillyer

Many architects are about to re-enter college: this time to design more and better student living quarters. College Housing is the latest sector of construction to loom large on the architectural horizon. Title IV of the Housing Act, as amended, provides for direct Federal interim loans at interest rates as low as 2¾% to help institutions of learning in the development of student living quarters. Lest these facilities be overlooked both by bankers and borrowers, the American Bankers Association in its current official journal reviews a liberal policy statement released by the Community Facilities Administration of the Housing and Home Finance Agency. The statement deals with projects approved under the College Housing Program. Pending Government purchase of long-time bonds on a project, the college is encouraged to start building "at the earliest possible date" and short-time financing—three months to one year—is provided through co-operating banks. This subvention should greatly enlarge the college housing outlook, with consequent benefit to architects.

A major opportunity for the architect in a small- or medium-sized city is afforded by the remodeling wave that is refreshing the bank world in the wake of wholesale rebuilding. Example: Columbia Heights (Minn.) State Bank, presently undergoing its third remodeling since 1937. Modern and logical, the new design permits access to 42 parking stalls; drive-in teller window facilities are afforded without the creation of waiting car-lines on the street. Larson-McLaren of Minneapolis are the architects.

• Residential property owners are likewise potential improvers. Home remodeling will be a major industry during the next 12 months, a "Look-Politz" survey indicates, revealing 14,700,000 prospective undertakings. With a rough minimum average of $1000 each, these jobs should total some $15 billions—yielding a tidy $225 millions of architectural fees if only 10% of the work were professionally handled.

• Houses large and small are going to cost more next year than in '56, a venerable New England financial authority confidently predicts. This trend will be due partly to steel strike repercussions and partly because of irreversible inflation, that observer believes. No matter how many home buyers are brought into market by Government gambit, they will pay more. The large-house buyer will likely come back into being as the number of high incomes mount, thus restoring a gap on architects' drafting boards.

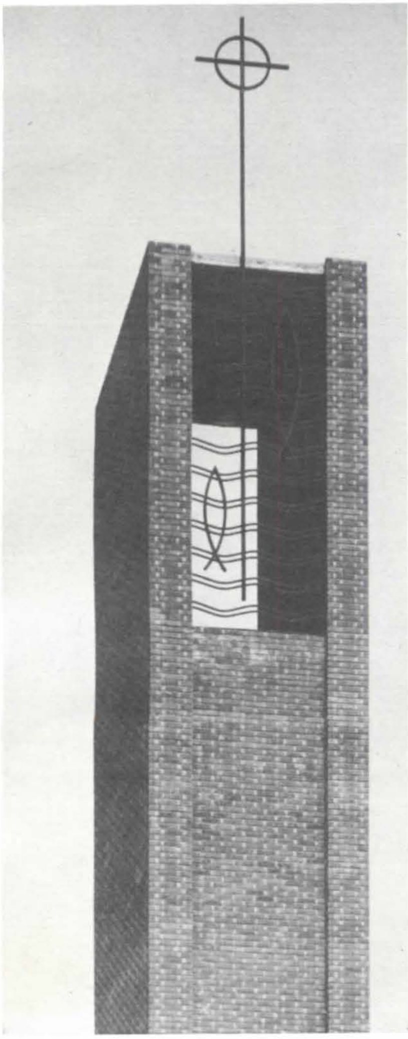
• Cost of money is likely to go up because of increasing tightness. The tension is objectively shown by the continued expansion of mortgage loan "warehousing," which mounted 8% during the 12 weeks ended Aug. 8, Federal Reserve sources reveal. This means that banks are increasing rather than diminishing their interim carry-over of mortgages for insurance companies and other important lenders whose funds are barrel-bottomed at this time.

• Enterprises wherein structural design plays a part but which suffer from lack of orthodox capital pattern will be more easily put together in future with the aid of business development corporations in the several states, if action by the recently organized New York Development Corp. is any criterion. The company's third loan was granted to a new St. Lawrence Valley "hotel-motel" hindered in its operations by debts incurred during the construction and development of the hostelry. It is in a fast growing area lacking adequate hotel facilities. Presumably, these burdens could have been handily disposed of, had the development company been in existence a little earlier. The loan is for $250,000 on first mortgage, New York State Bankers Association hears. State development corporations, pioneered in New England, are springing up nationwide, and should soon play an unique part as finders of quasi-equity capital.

• "A renewed cyclical upturn beginning in the autumn" is envisioned by the Guaranty Trust Company of New York, which believes that even with a moderate business decline the chances for such a recovery would be very good. To that authority, the expectation for measurably rising business in the early winter "looks reasonable."

• Money is still tight, with Federal Reserve taking steps to make it tighter through raising "discount" rates to 3% on funds borrowed by banks. Demand is far outstripping supply; inflationary fears are forgotten in the scramble for wherewithal to expand facilities and augment profits. Nevertheless, sober observers see creeping inflation as a relentless long-term hazard. Meanwhile banking authorities, conceding that '56 will ride to a prosperous finish, are assuming the role of haruspex for '57. Conceivably, they foresee, high interest rates could "aggravate the housing dip" or check the investment boom. In such case, says New York's largest trust company, Federal Reserve policy would doubtless be reversed in the direction of easier money. However, there is no certainty that declines once started could easily be arrested.

"Renewed confidence" is the phrase used by Federal Reserve Bank of Chicago to describe the attitude of American business toward the future as 1956 enters its last quarter. More significantly, the bank contends that current horizon-signs support this euphoric view. Despite home-sales weakness, employment and income are at record levels, as are retail sales. Paradox of the year: The steel strike impact has actually worked out to bolster confidence by reducing top-heavy inventories, the bank avers. Few firms, however, have had to reduce output because of insufficient steel. The construction industries will face higher prices, but the Federal Reserve Bank sees no threat of steel inadequacy in the foreseeable future.



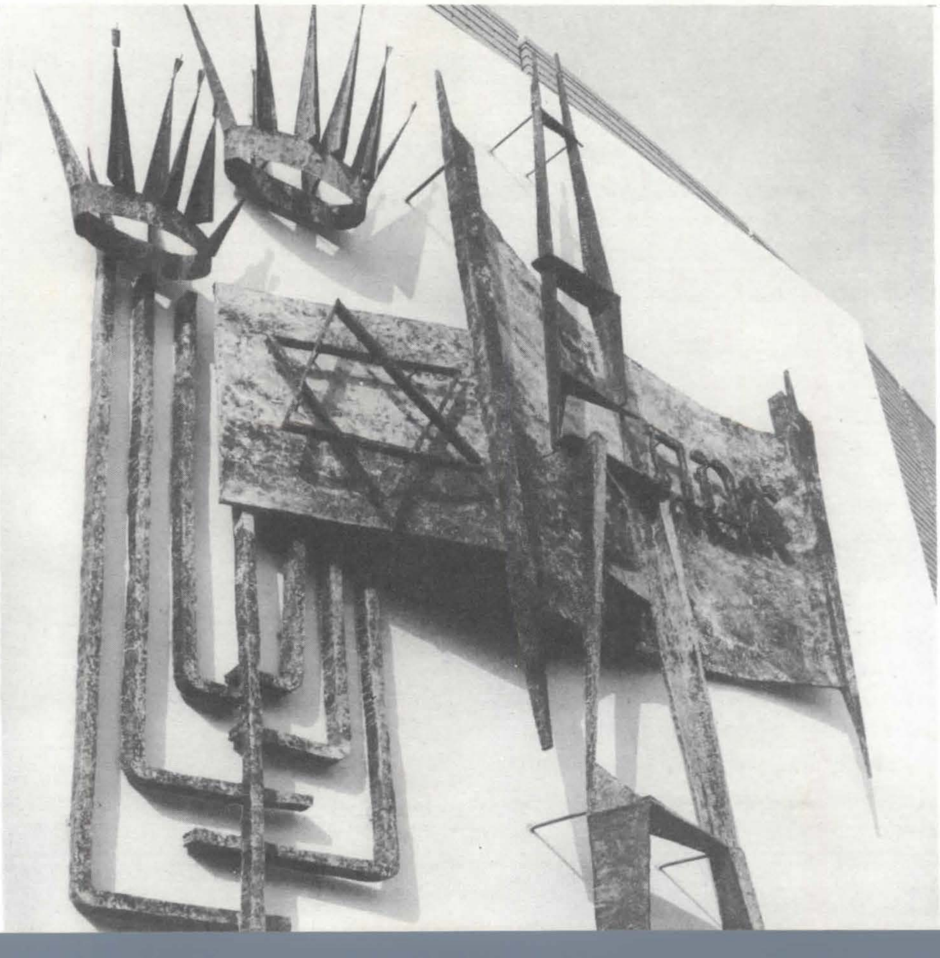
# *Churches and Temples*

**Design expression is the most formidable hurdle that the architect for a house of worship confronts. Comparatively simple is the matter of providing sufficient seating and the sensible placement of ritualistic elements. Acoustical and lighting engineers can work out good functional solutions to these factual problems. Any number of structural systems and materials can be soundly joined to provide proper shelter. But what design quality should one reach for in a church or a temple? How should it differ in aspect from any other communal building? The examples shown here surely prove that there is no simple or single answer. These buildings could hardly vary more widely in character and appearance. Yet, clearly evident in all of them is the effort each architect has made to reach the common goal of creating an atmosphere that is conducive to worship.**

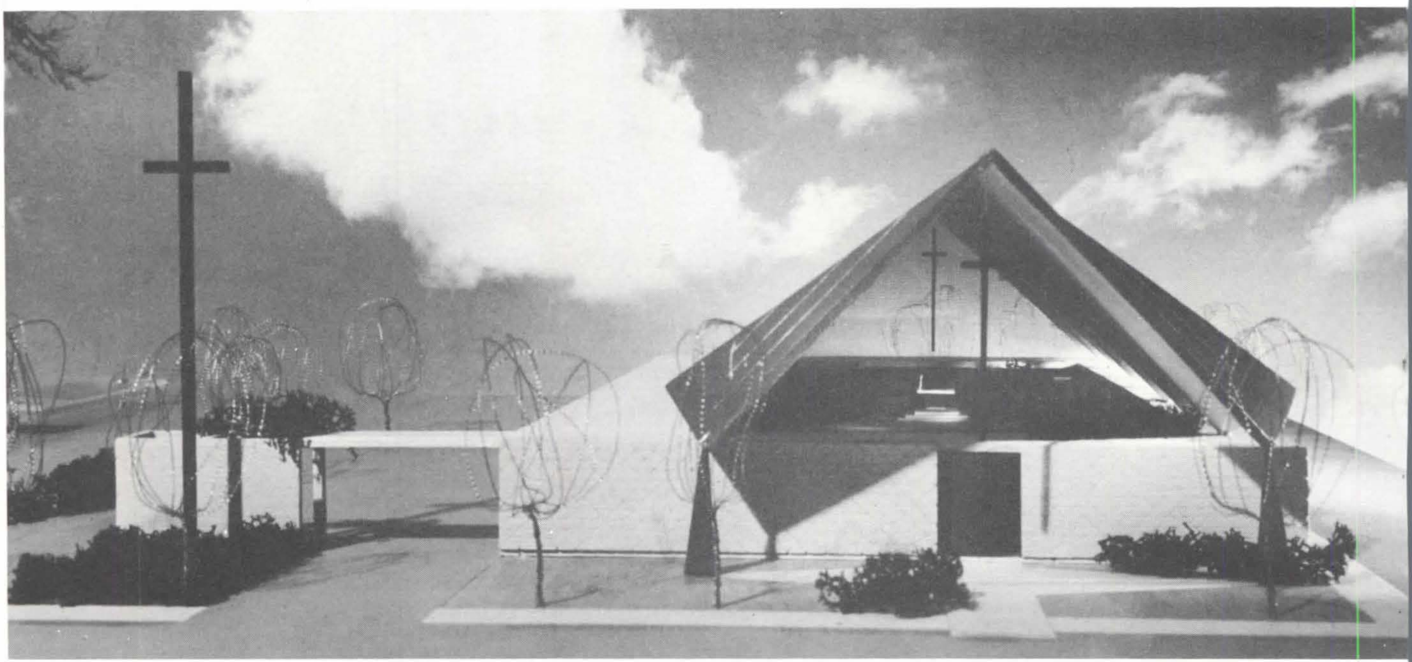
*Design of religious symbols is a striking instance of the way old and new may be joined. The symbols themselves derive from the most ancient conventions; yet their design expression today may employ wholly contemporary materials and art concepts.*

*The belfry screen for St. Peter's Episcopal Church, San Pedro, Calif.* (above), *was designed in steel by Hudson Roysher (Carleton Monroe Winslow, Architect); while the 26-ft-high "Jacob's Ladder" for Temple Emanuel, Beverly Hills, Calif.* (right), *is a Bernard Rosenthal sculpture in bronze and brass (Sidney Eisenshtat, Architect).*

Photos: Erwin Lang
Bernard Rosenthal



# Churches and Temples

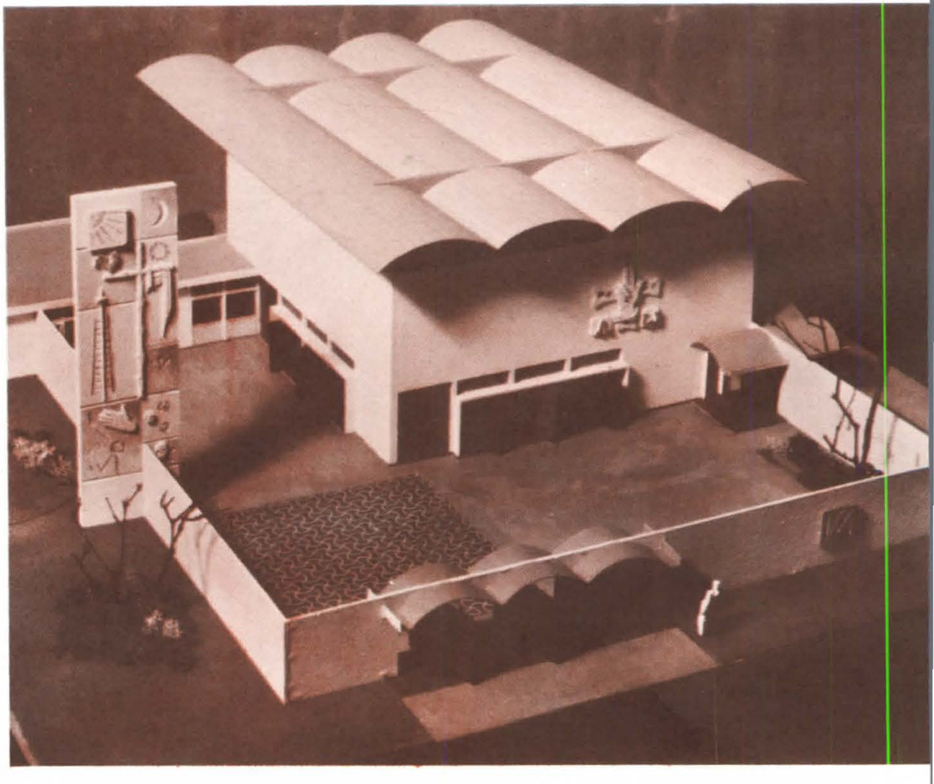


*The Immaculate Conception Church* (above) *is now under construction in Marrero, La.; Curtis & Davis, Architects. For the walls a specially cast concrete tile is used; the roof surface is a mastic-base, built-up roofing with exceptional insulating qualities.*
Photos: Frank Lotz Miller

*For Puerto Ordaz, Venezuela, a Roman Catholic Church* (below) *is designed as part of the community center of a new town for the Orinoco Mining Company.*

*Both walls and roof of a church for Tumaco, Colombia,* (acrosspage) *are serpentine in section.*

*Architects: Town Planning Consultants Paul Lester Wiener and José Luis Sert.*

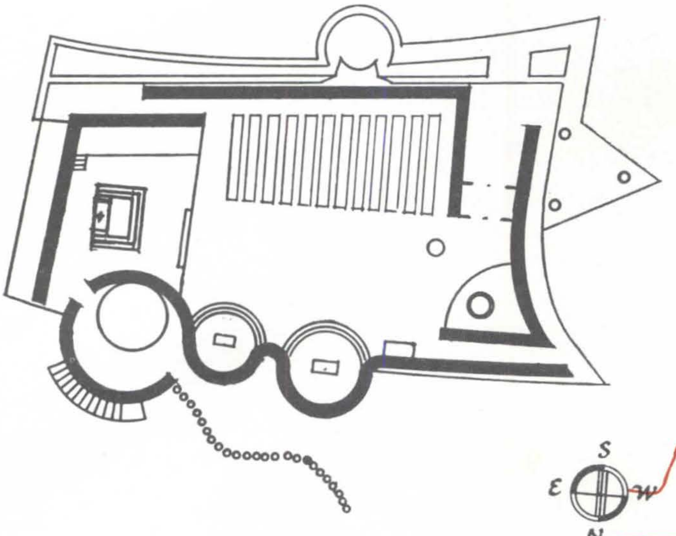


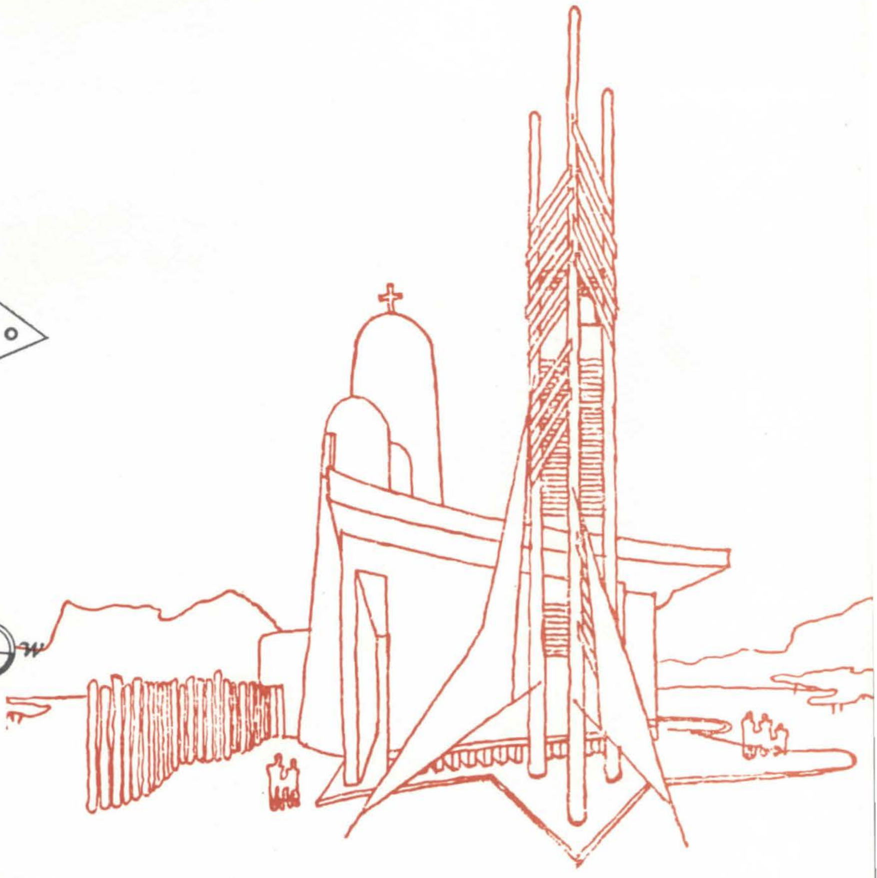
While a church or temple clearly serves a worldly community, its message offers the promise of a transcendent community. Should it not, therefore, at least be as beautiful as talent can contrive; be serene and inspiring in the midst of confusion; suggest symbolically the highest standards?

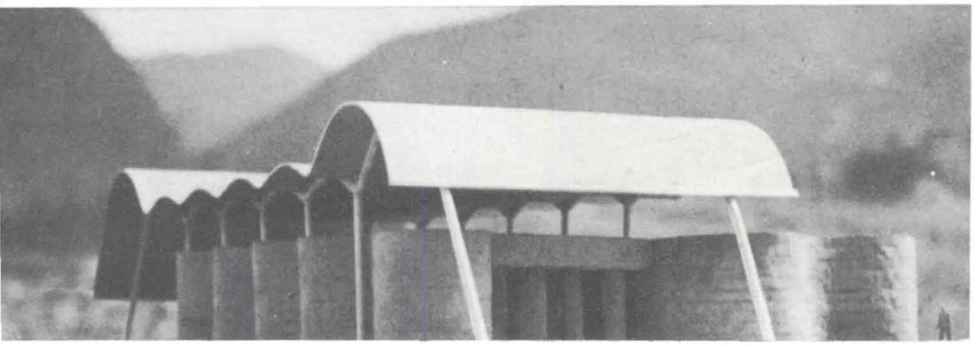
Within the walls of a house of worship, the loftiest thoughts and hopes are expressed. Perhaps this suggests that the organization of space should receive the most careful consideration—room for the lofty thoughts;[1] the design somehow combining appreciation of the beauty of the physical world with confidence in considering the after life.

Religion confidently maintains that, whatever the meanness and inhumanity of man to man that thrives in the mun-

[1] *Gerald F. Weary, Minister*





*In designing this church for a community in Central Africa, Architect Oscar Nitzchke paid special attention to control of wind currents. Openings at the four corners as well as along the base of the building are provided to induce air circulation. The roof is developed in a double-layer or "parasol" system for the same reason.*

Courtesy: Liturgical Arts

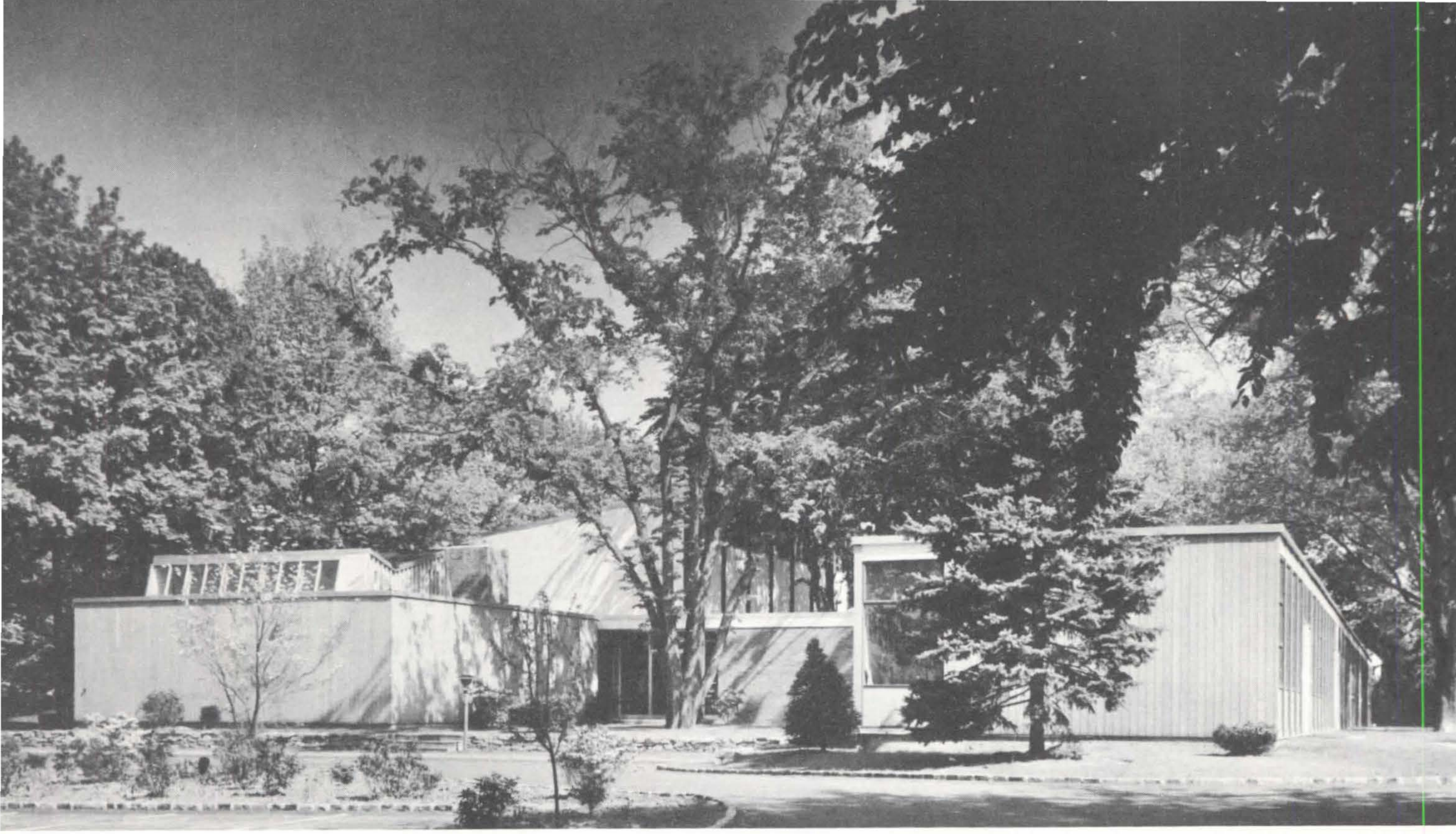
dane world, something far better is possible. The buildings should then, it seems, be beacons within the community; stand proudly forth; and not, as one critic has said, "squat down too acquiescingly . . . slip too smoothly into the formal mores . . . slide too slickly into what the community already believes. . . ."[2]

Most religions deal with the mystery of and hope for the after life, at the same time encouraging the greatest individual fulfillment in the here and now. So, concern ranges from joy to sorrow; lightness to darkness; life to death. How might these facts be symbolized in building design and structure? Much would depend on which aspects of the gamut a particular congregation, priest, or rabbi wishes emphasized. The building might be created as the brightest, lightest, most gladsome design—witness Lloyd Wright's "Wayfarer's Chapel" south of Los Angeles, wherein a light frame and panes of glass are all that distinguish enclosure from out of doors; or one could emphasize austerity, apartness, mystery, and drama and come up with something as solemn and impressive as the fortresslike Chapel for MIT, by Eero Saarinen, where the semigloom of the interior is broken by a bright and shimmering shaft of light that blazes down on the ceremonial table.

Or, one might attempt a design that, in varying moods and aspects, would echo the total dialectical range of religion's concerns—a building with areas of total openness; yet with harbors of cavelike protection and retreat; of brightness and gladness, on the one hand; of solemnity and dignity, on the other.

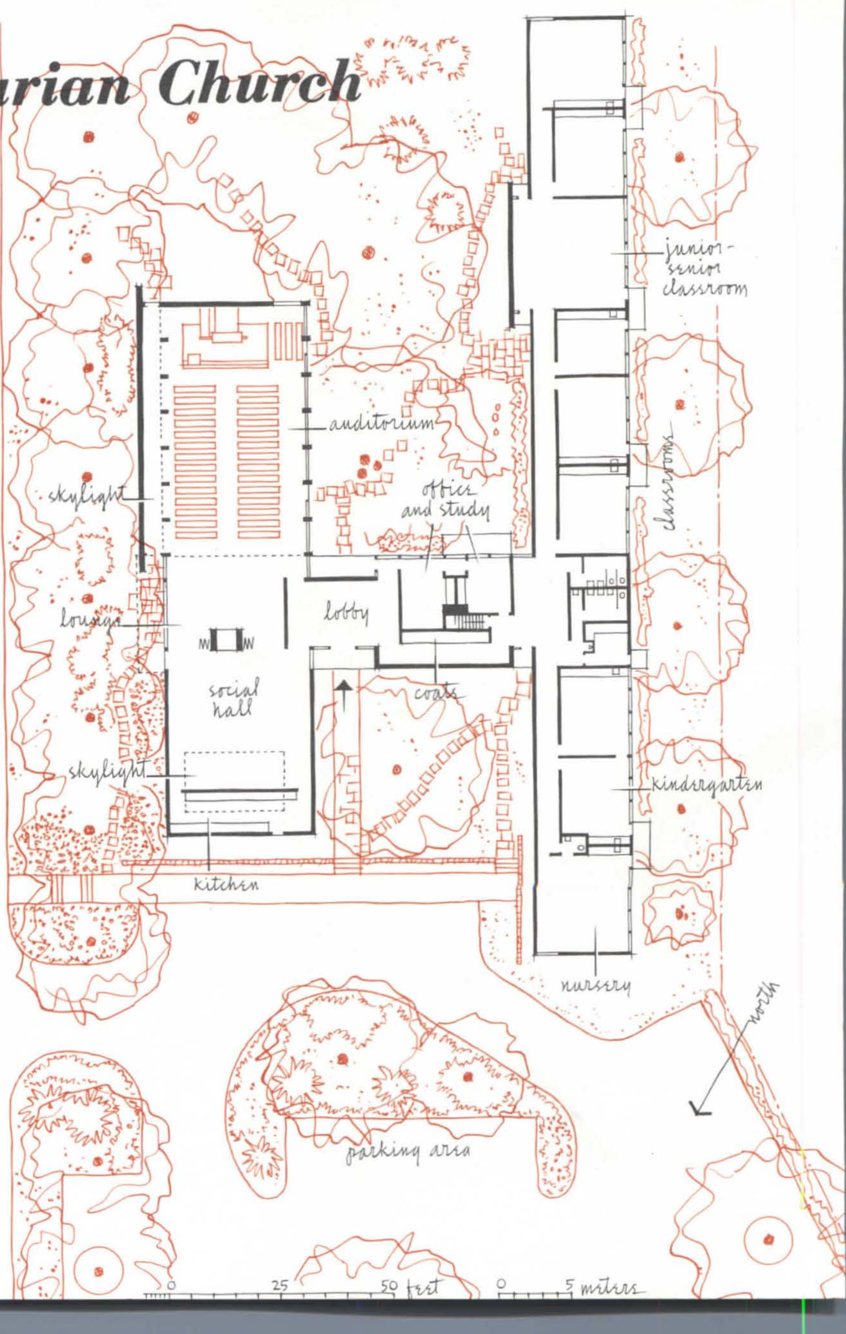
This general approach would appear to be the one to which most architects of churches or temples today apply their talents, and—in varying degrees—the buildings shown in this issue are clear examples. Most, if not all, join man and nature, either through garden extensions of interior spaces or introduction of plant materials within the rooms for worship. And they all have an atmosphere that would seem to allow quiet contemplation, if not adoration. And they all have central focal points to which the eyes and ears of the congregation are directed for concentration on the unworldly ceremonies and services that are conducted. And each architect obviously has strived—with more or less success, depending on his ability—to produce a building of beauty, serenity, and welcome.

[2] *The Rev. Joseph Sittler, Jr.*

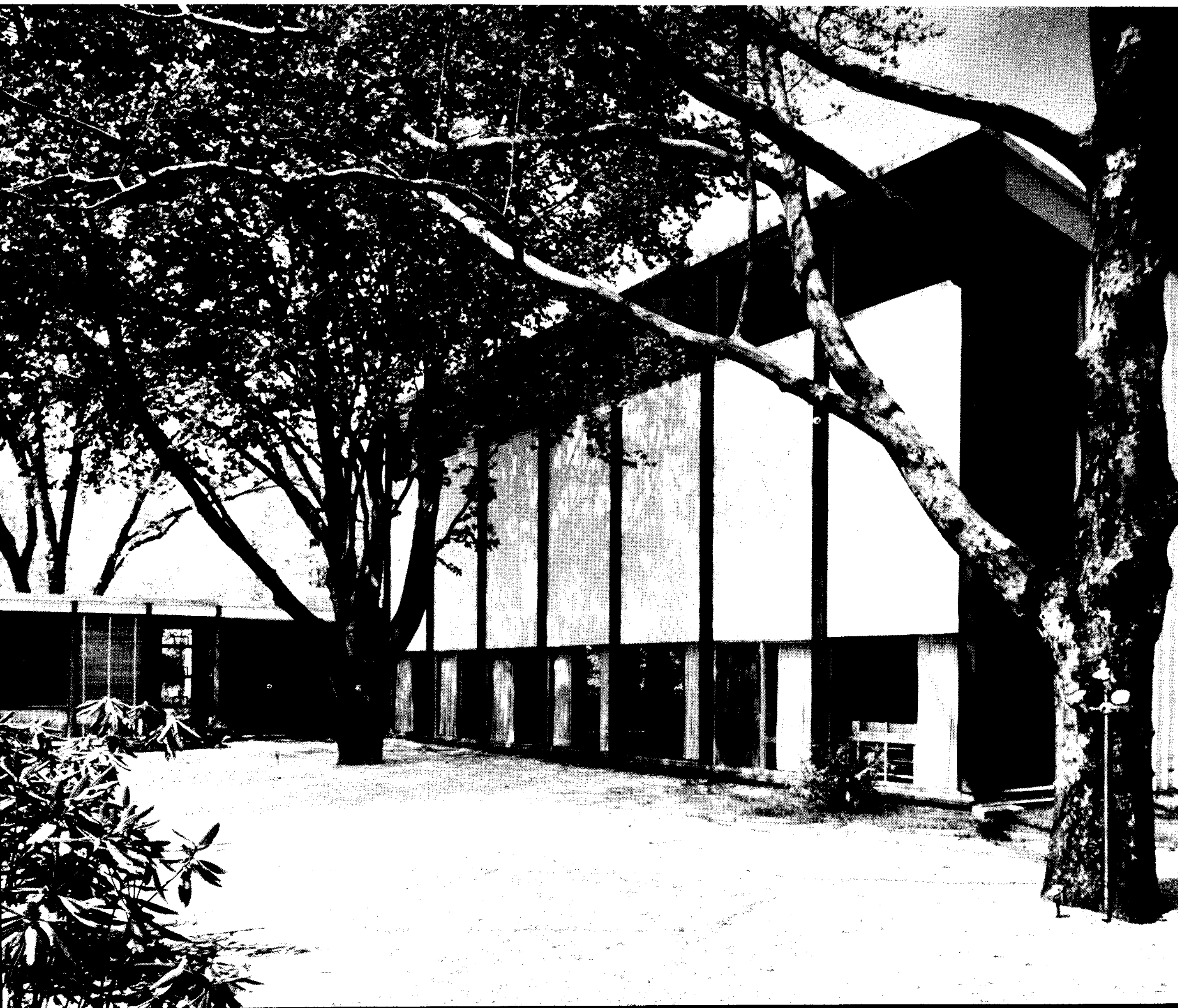


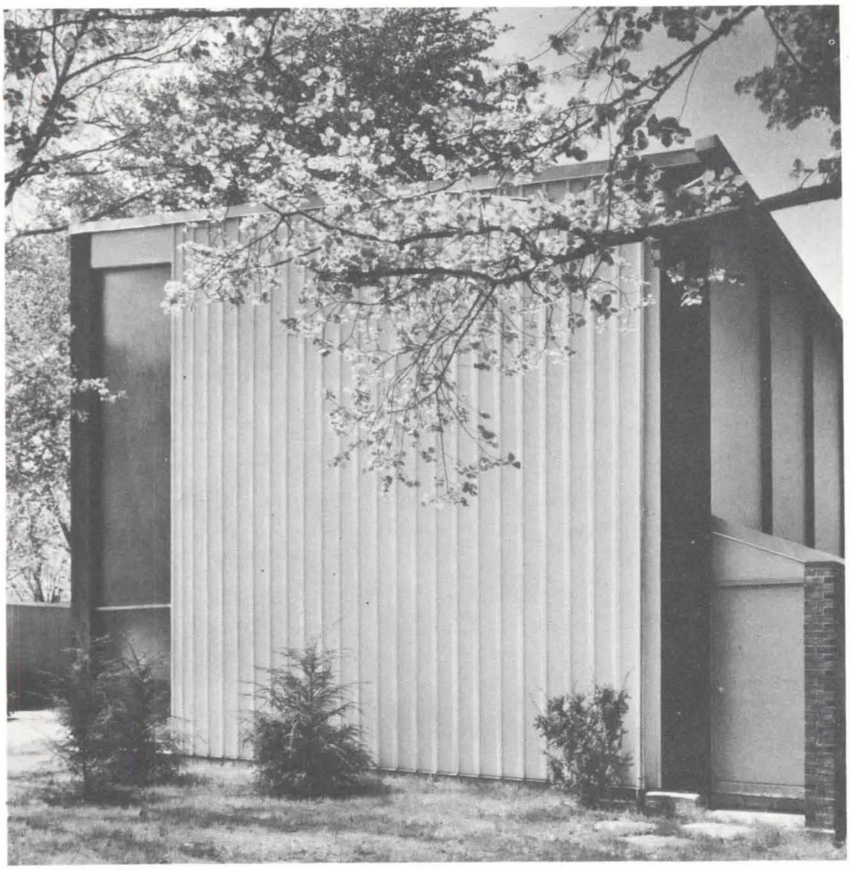
# Unitarian Church

| | |
|---|---|
| location | Plandome, New York |
| architect | Charles H. Warner, Jr. |
| consulting designer | Harold Eliot Leeds |



It was desirable in the basic planning of this church to turn away from the main thoroughfare which borders the property on one side. To accommodate the numerous existing trees on the property a two-court scheme was adopted, giving the visual effect of almost total penetration by nature. The first of the courts, an inviting square with shrubs and trees, borders the main approach and parking area. The second, a secluded court pleasantly sheltered by a magnificent copper beech, serves as a visual extension to the worship room. Major element of the H-plan is the "worship room" of which Minister Gerald F. Weary says: "You are drawn irresistibly to the worship room . . . a room that is spacious and that incorporates into itself an unusual amount of sunlight, of soil, and growing things . . . it is conducive to spacious and lofty thinking." In contrast, the adjoining lounge, which is also valuable as occasional overflow space for the "worship room," offers, with its fireplace and informal furnishings, the necessary warmth and intimacy. "The perfect religious conscience is a conscience that worships a God who both transcends the world and is in the world, who is both lofty and practical, far and near, austere and intimate. It is nice to have both of these elements combined and symbolized in the worship room by the device of the lounge and fireplace." A skylighted social hall, on the opposite site of the fireplace wall, may be used independently or in conjunction with the "worship room" and lounge. Church-school classrooms are distinctly separated from this adult area. A block, consisting of minister's study, church office, main lobby, and coat storage, forms the link between the two major building elements. Others who contributed to the success of this noteworthy structure were Robert Burns, Suzanne Sekey, Andrew Mitropoulos, Shoso Kagawa, and Eleanor Larrabee—all members of the architect's staff. Winley Builders, Inc., was General Contractor.



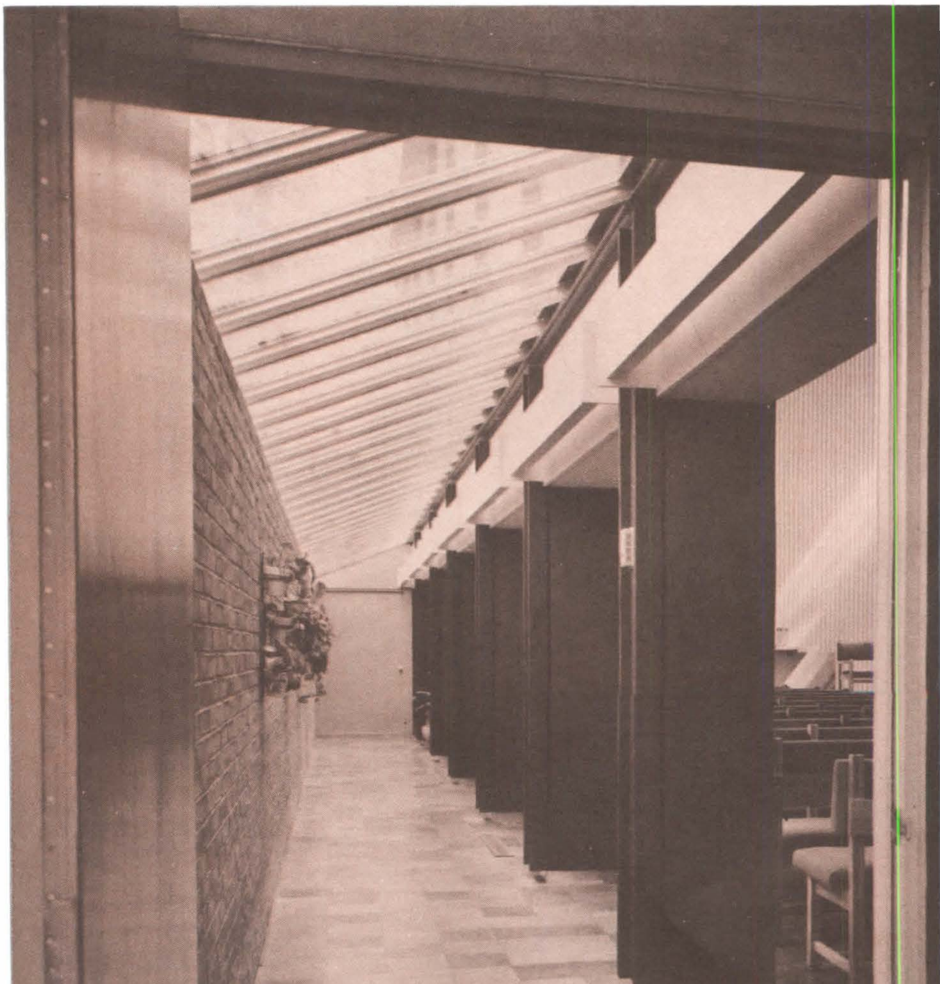


*Exterior of the chancel wall* (above) *is surfaced with bleached-wood siding and battens, recalled again on the interior face* (acrosspage below) *in a more highly refined manner by spline-battened plywood—painted white.*

*Wherever practical, wood construction has been used throughout the building. In the "worship room," joists rest on laminated-wood girders, tied with moment connections to wood columns. Structural supports have been stained a dark brown, providing the strong framework for side walls of bleached-gray vertical boards, red-brown brick, and neutral-gray metal window frames. Benches are upholstered in warm-russet material, chancel carpet is rich green.*

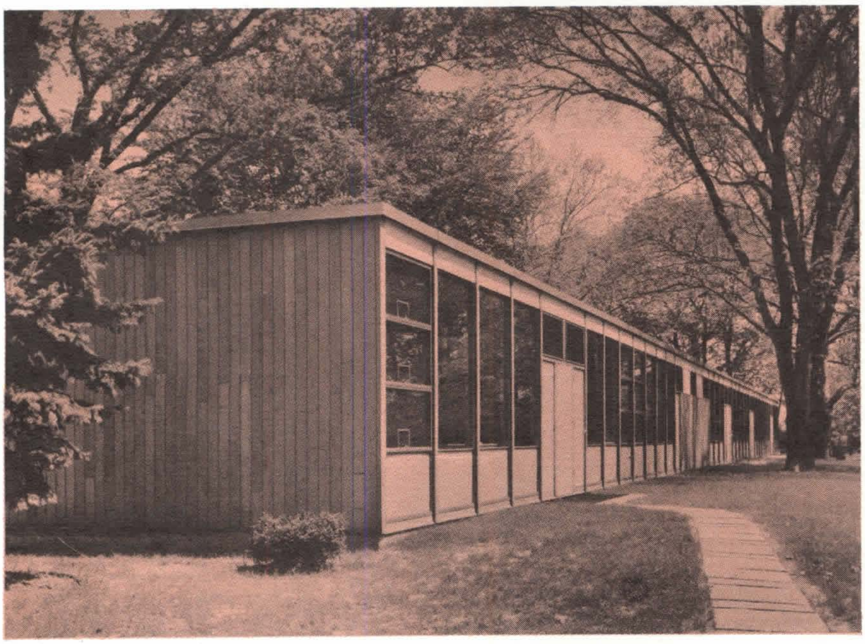
*Gallery* (right) *has unpierced brick cavity wall toward street, but is skylighted for view into tree tops. Fluorescent strips are intended to simulate and complement the natural light in this area.*

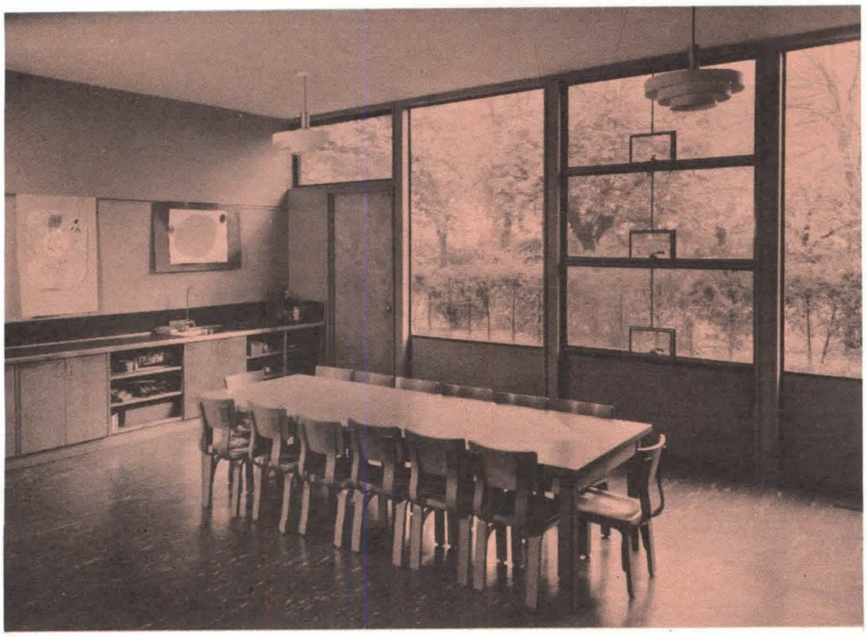
Photos: Gottscho-Schleisner



## Unitarian Church

*Street façade of church* (left) *is windowless except for glass wall of lounge* (below). *Informally furnished area is appropriate for small meetings and before- and after-service gatherings. Walls on either side of fireplace may be folded back to allow free circulation to and from social hall. Flooring is buff-gray quarry tile; rug, moroccan in natural colors. Accent colors are supplied by upholstery fabrics.*





*Window wall of church-school wing* (below) *opens away from adult worship area onto parklike landscape. Three-ring silver-bulb incandescent fixtures augment daylight from window walls. Each classroom has its own individual color scheme.*

## Materials & Methods

### construction

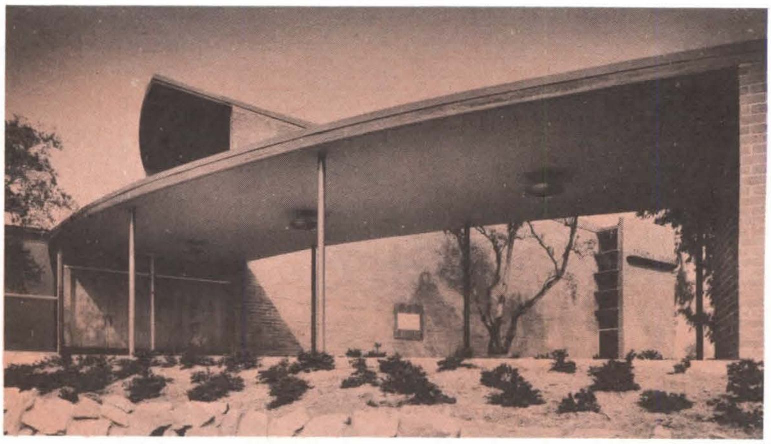
**Foundation:** reinforced concrete. **Structure:** walls: wood stud; floors: slab on grade; roof: wood joists, steel beams, laminated-wood girders (auditorium)—Roof Structures, Inc. **Wall surfacing:** brick—Glen Gery Shale Brick Corporation; western red-cedar vertical siding; plasterboard—United States Gypsum Company; wallboard—Homasote Company; cork tackboards—Armstrong Cork Company; cloth wall covering—The Chandler Manufacturing Company, Inc.; rest rooms, toilets: ceramic tile—The Mosaic Tile Company. **Floor surfacing:** vinyl asbestos and cork (auditorium)—Kentile, Inc.; wood block (social hall)—E. L. Bruce Company. **Ceiling surfacing:** plasterboard; sprayed asbestos (auditorium). **Roof surfacing:** built-up roofing with slag surface—Philip Carey Manufacturing Company; aluminum gravel stops—Aluminum Company of America. **Waterproofing & dampproofing:** asphalt mastic for wall dampproofing. **Insulation:** acoustical sprayed asbestos (worship room)—Sprayon Insulation & Acoustics Inc., fissured mineral-wool tile (children's worship room)—Armstrong Cork Company; thermal: aluminum-foil-air-space insulation (ceilings)—Infra Insulation, Inc., blanket insulation (sidewalls)—Johns-Manville. **Roof drainage:** aluminum gutters and downspouts; cast-iron drains—Josam Manufacturing Company. **Partitions:** metal toilet partitions—Sanymetal Products Company, Inc. **Windows:** intermediate projected steel sash—Bogert & Carlough Company; plate glass—Pittsburgh Plate Glass Company; rough hammered glass—Mississippi Glass Company; aluminum skylights—Fisher Skylights, Inc. **Doors:** tubular-aluminum entrance—The Kawneer Company; exterior aluminum sliding doors—Glide Windows, Inc.; soundproof folding partition—John T. Fairhurst Company, Inc. **Hardware:** lock sets—Schlage Lock Company; floor checks—Oscar C. Rixson Company; hinges—The Stanley Works and Oscar C. Rixson Company; panic exit—P & F Corbin Division of American Hardware Corporation. **Paint & stain:** creosote bleaching oil stain—Samuel Cabot, Inc.; oil-base paints—Pratt & Lambert, Inc.

### equipment

**Specialized equipment:** built-in gas oven and range—Chambers Corporation; organ—Allen Organ Company; architect-designed benches (worship room)—J. G. Furniture Company; architect-designed chancel furniture and classroom cabinets—B & S Store Fixtures, Inc. **Lighting fixtures:** Century Lighting, Inc.; Gotham Lighting Corporation; Northcraft Lighting Company; Kurt Versen Company; architect-designed chandeliers—Howard Nostrand. **Electric distribution:** service-entrance switch and multibreaker—Bulldog Electric Products Company; wiring devices—Harvey Hubbell, Inc. **Plumbing & sanitary:** water closets, urinals, and lavatories—American Radiator & Standard Sanitary Corporation; toilet seats—C. F. Church Manufacturing Company; soap dispensers—American Dispenser Company, Inc.; incinerator—A.P.W. Products Company, Inc.; classroom and kitchen sinks—Legion Stainless Sink Corporation. **Heating:** type: forced hot air; furnace—MaGirl Foundry & Furnace Company; fuel—oil; ducts—galvanized sheet metal under slab; floor grills—Barber-Colman Company; exhaust fans—Hunter Fan & Ventilating Company; controls—Powers Regulator Company.

# *Temple Isaiah*

location | Los Angeles, California
architect | Kenneth N. Lind

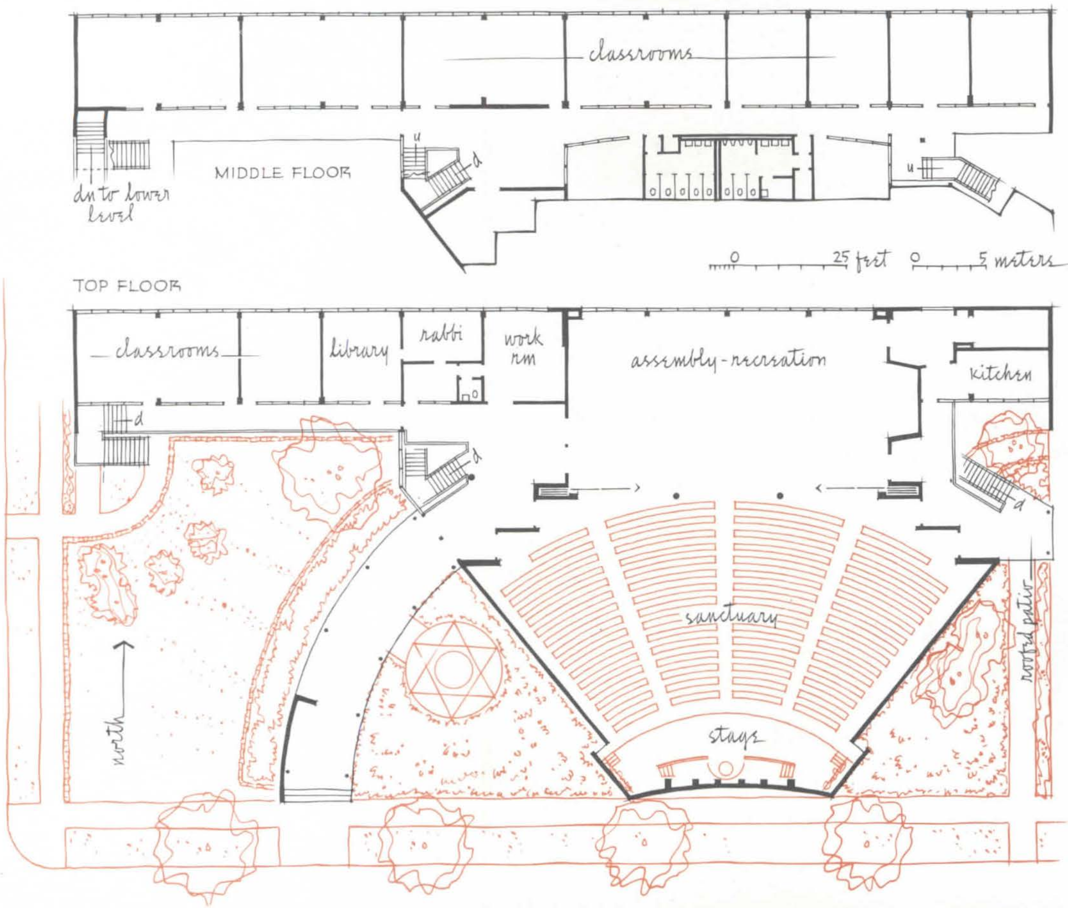


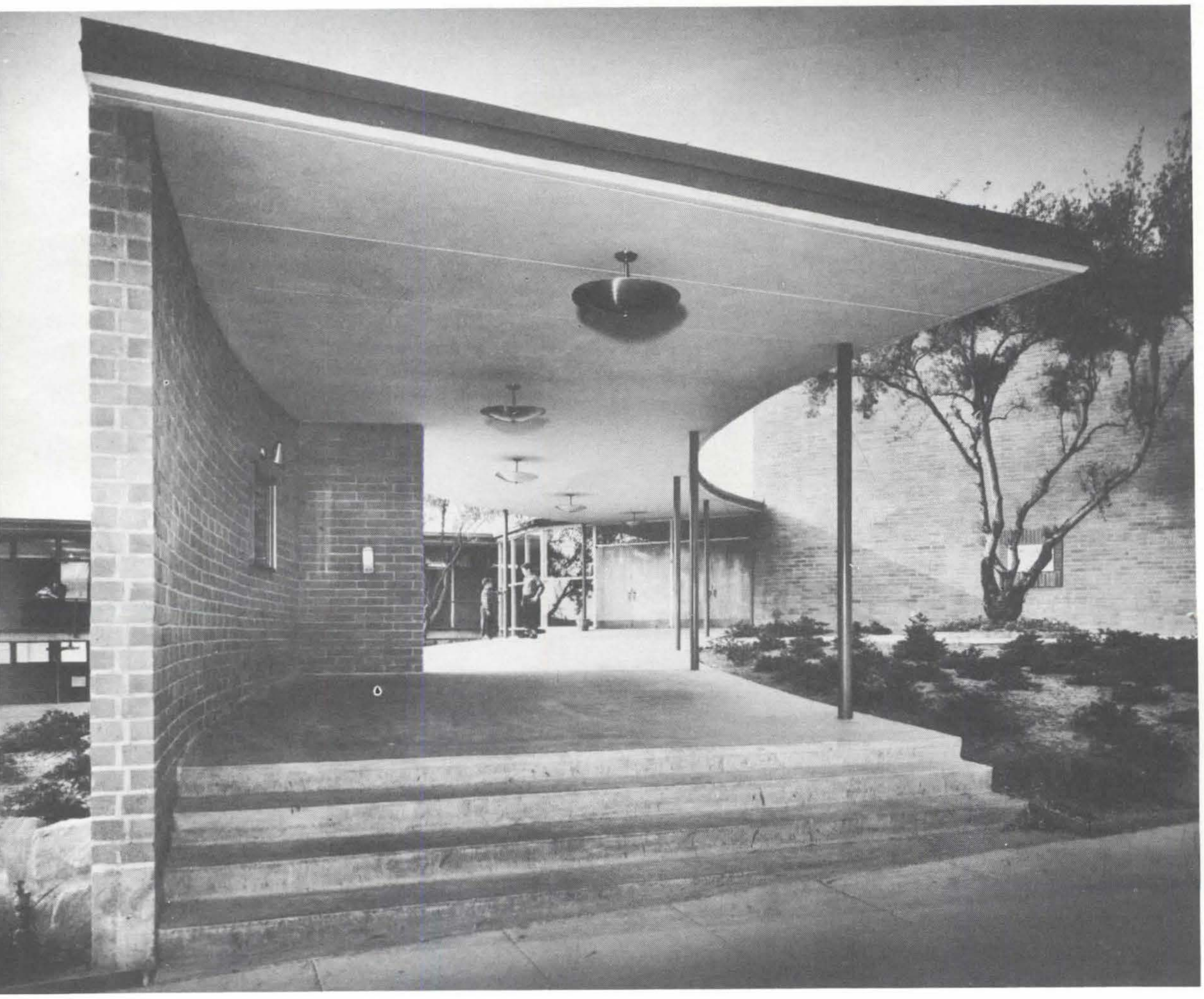
In design and construction of this temple, the architect worked to echo the progressive attitude of the particular congregation for which it was built. The program called for a sanctuary, assembly-recreation hall, offices, and classrooms.

The site faces south on a busy boulevard and slopes down quite steeply to its northern boundary. To shield the temple from the sound and fury of traffic, the scheme turns its back on the street, and a solid masonry wall constitutes the boulevard front. A curved, sheltered walk leads well back into the site to reach the main entrance, and, by taking advantage of the site slope, a three-level structure was feasible at the north end of the group to house the classrooms and offices, with the top floor occurring at the level of the main entrance to the building.

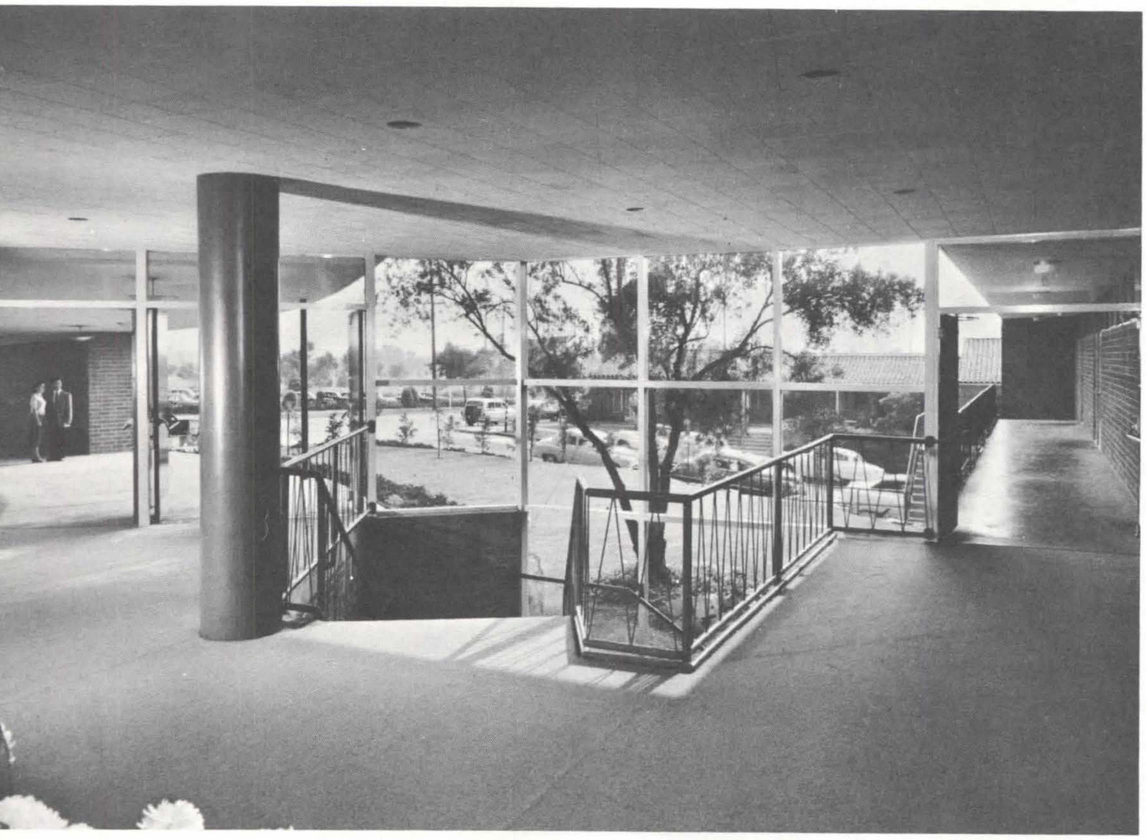
The 600-seat, pie-shape sanctuary is roofed by a remarkable, 1,000,000-pound lifted slab developed for the job by the Vagtborg Lift Slab Corporation. The Architect tells us that this resulted in a saving of about 12 percent, while the elimination of form work speeded construction time. The over-all span of the sanctuary is 75′x100′. The roof slab was poured to the same contour as the seating contour slope of the sanctuary. Having an area of 6000 sq ft, it was lifted to a position 3 ft above the floor and then tilted 3 ft and lifted on structural steel columns another 25 ft into roof position.

Associated with the architect in achieving the building were Brandow & Johnston, Structural Engineers; Paul Veneklasen, Acoustical Engineer; Zimmer Construction Company, General Contractor.


classrooms
dn to lower level
MIDDLE FLOOR
u
d
0 25 feet 0 5 meters
TOP FLOOR
classrooms
library
rabbi
work rm
assembly-recreation
kitchen
sanctuary
stage
north
roofed patio



# Temple Isaiah

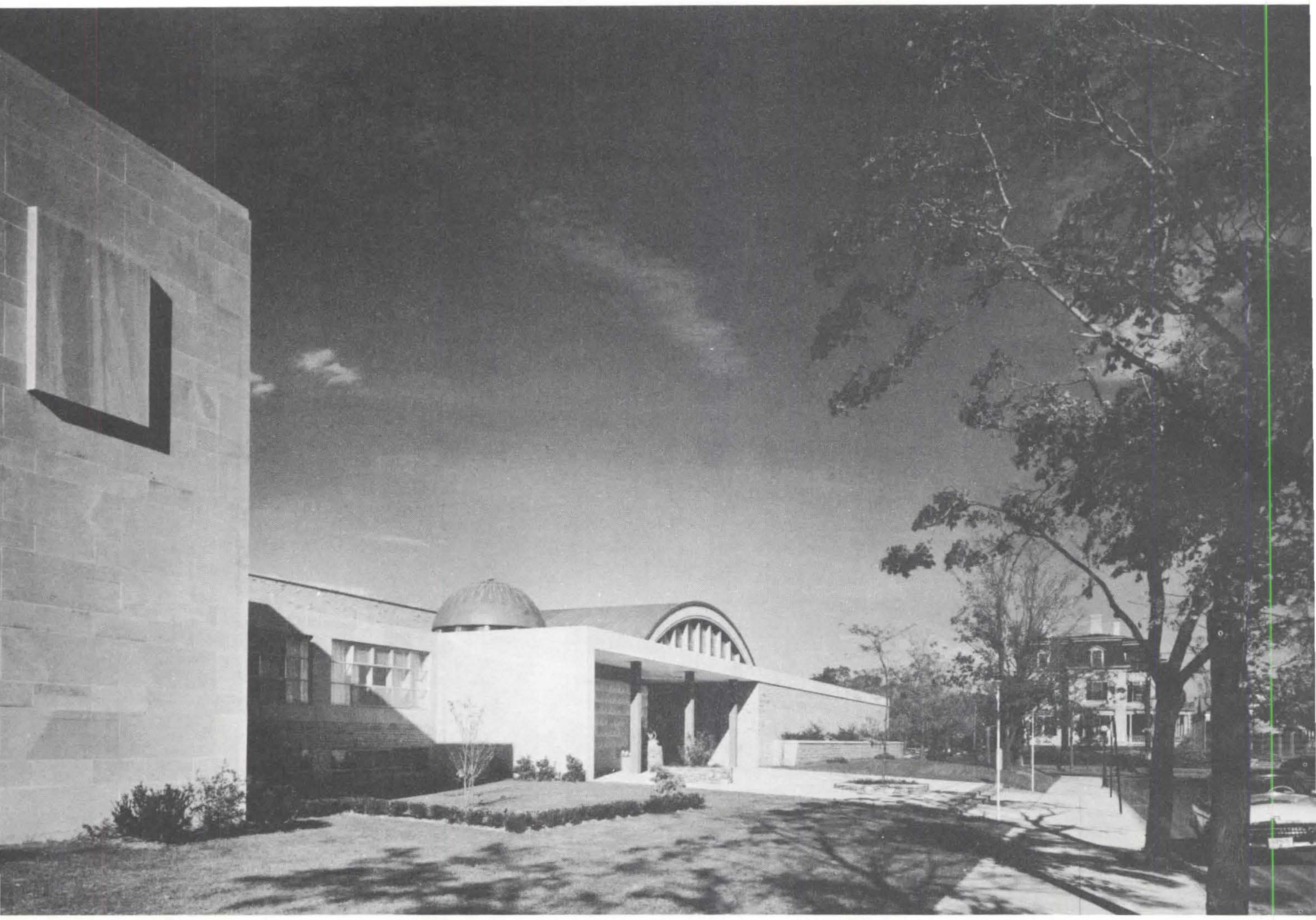


*From the main lobby, one has glimpses of the entrance walk (left of photo); stairs to lower classroom floors; and the balcony corridor for the upper floor.*

*To accommodate large attendance, the assembly hall (foreground,* bottom photo) *may be joined with the sanctuary by opening a sound-insulated, folding partition. Acoustics of the sanctuary were designed to achieve a high degree of sound diffusion and freedom from disturbing echoes. Seating was selected to furnish absorption equivalent to that of a person, even when the seat is vacant.*

*At the rear of the sanctuary stage* (acrosspage), *insloping, lacquered, bleached-oak doors slide back to reveal the Ark.*

Photos: Julius Shulman



# *Temple Beth-El*

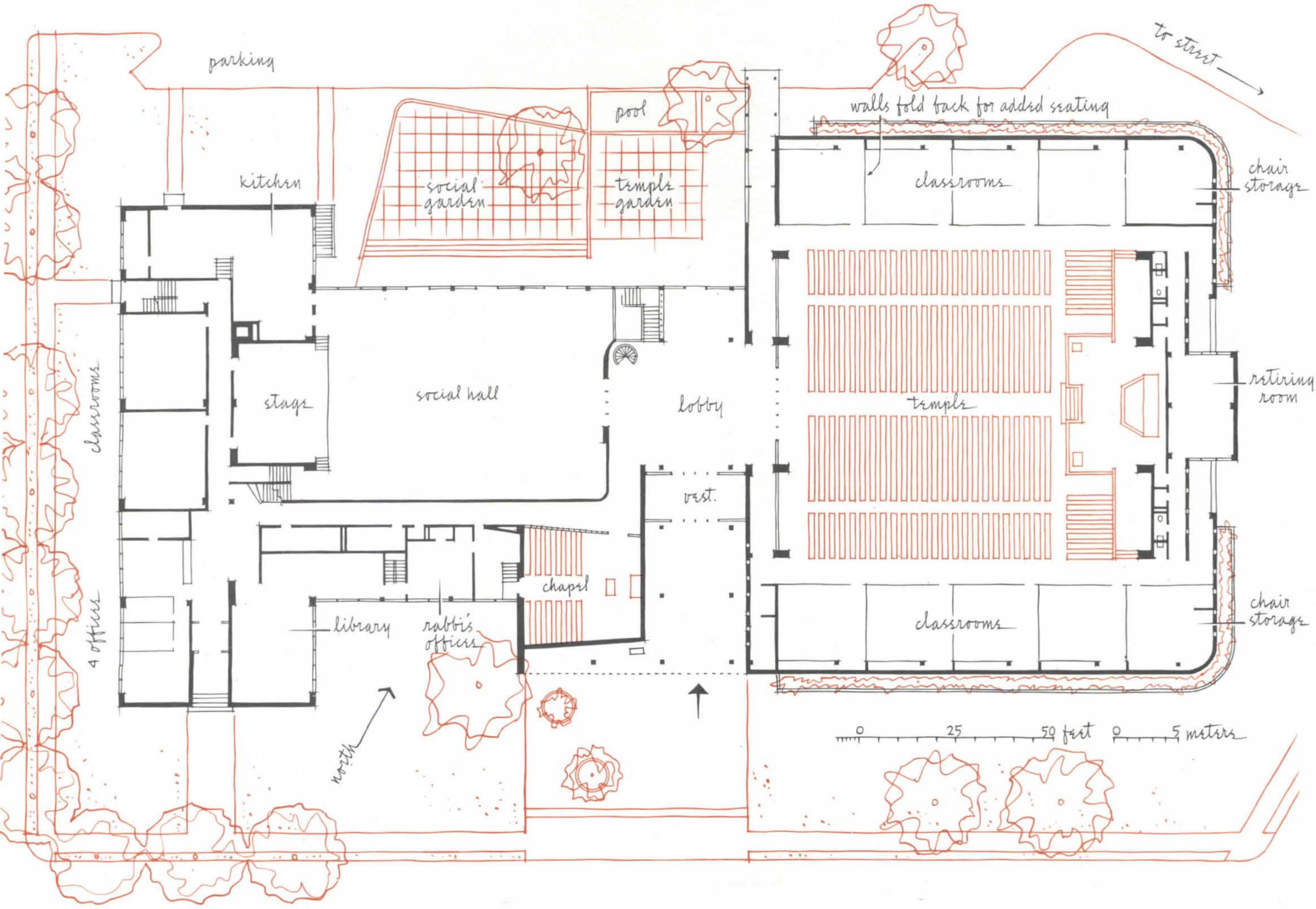
location | Providence, Rhode Island
architect | Percival Goodman

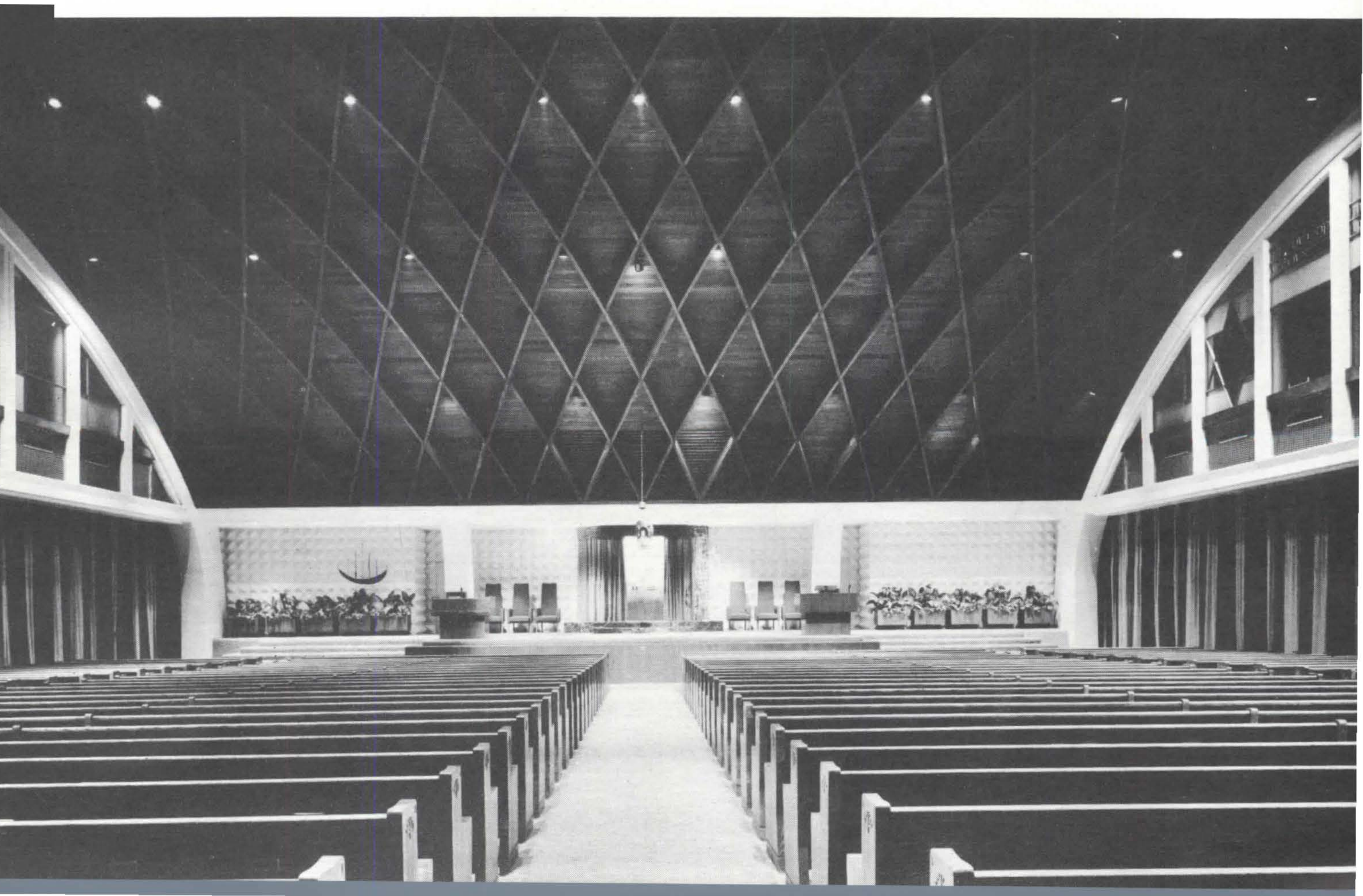
The temple for a congregation of as many as 1600 worshipers on High Holy Days, this individual building has qualities of exceptional drama and elegance, as well as aspects of peace, repose, and dignity. Throughout the spacious building, the original work of sculptors, mosaicists, and other contributing artists is generously employed.

Most dramatic single element of the reinforced-concrete structure is surely the lamella-arched wood roof (surfaced with copper) that soars to a height of 32 ft above the 80'x93' area of the main portion of the temple. The four classrooms at either side are opened up to accommodate overflow seating for the larger gatherings. The 70-ft-long, 13-ft-high arched windows above are decorated with Biblical quotations in lettering specially designed by Ismar David. Exterior walls of the temple are cavity brick, with limestone trim.

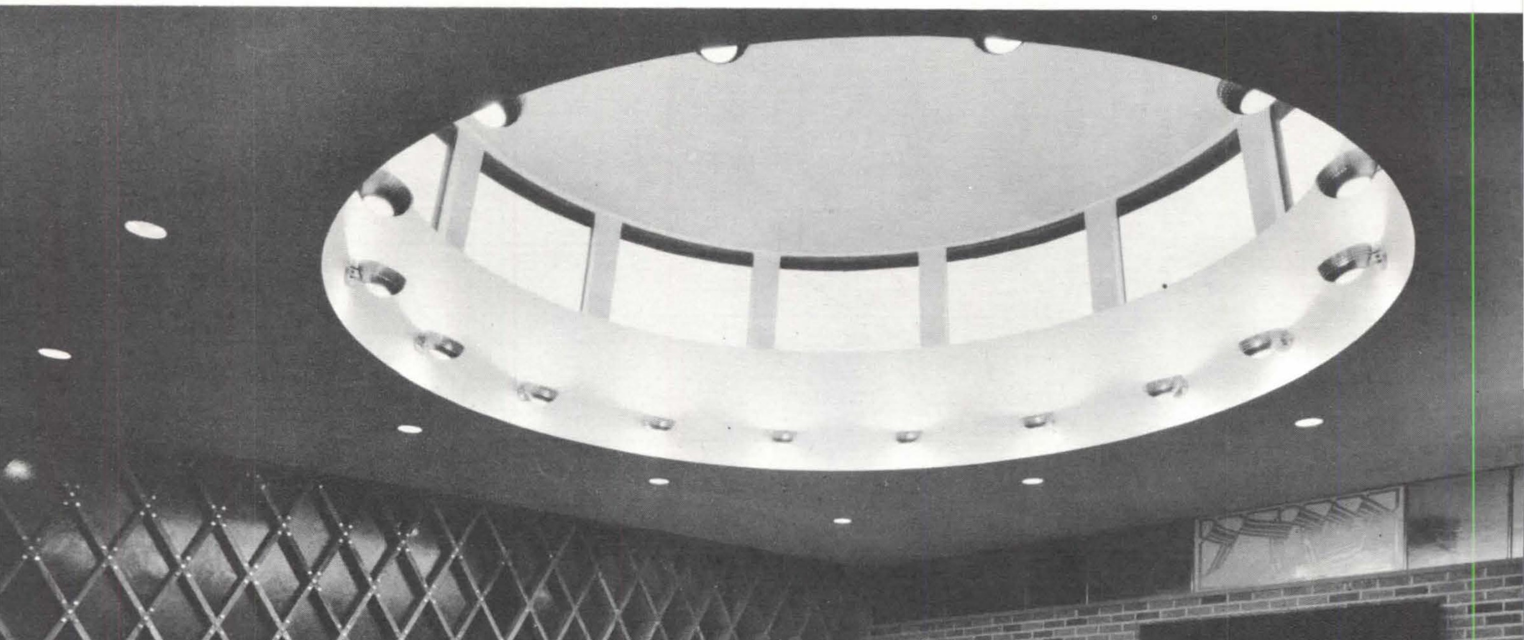
At the opposite end of the building is a two-story classroom and office wing, while a social hall to accommodate up to 350 for dinner or 600 for lectures, plays, etc., occurs at the center and adjoins a landscaped social garden. The 30'x30' chapel, seating 100, is lighted from a 15-ft, copper-surfaced dome. The temple is equipped with a complete mechanical-ventilating system that can readily be converted to air conditioning by the addition of compressor units.

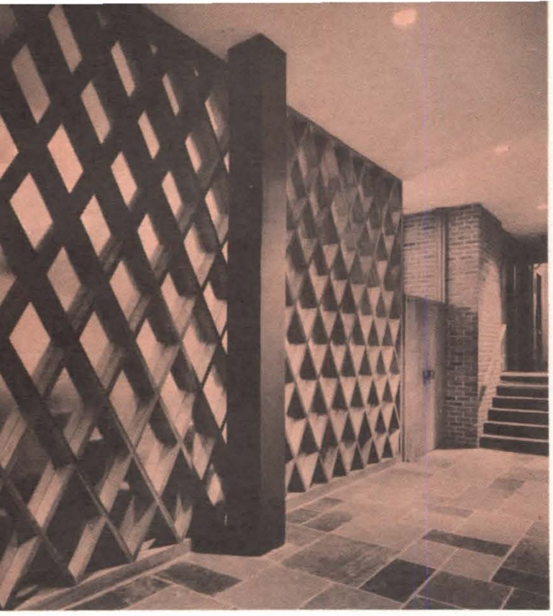
Working with Goodman to create the structure were Severud-Elstad-Krueger, Structural Engineers; Levy & O'Keefe, Mechanical Engineers; James Douglas Graham who did the Landscaping; and E. Turgeon Construction Co., Inc., General Contractor.

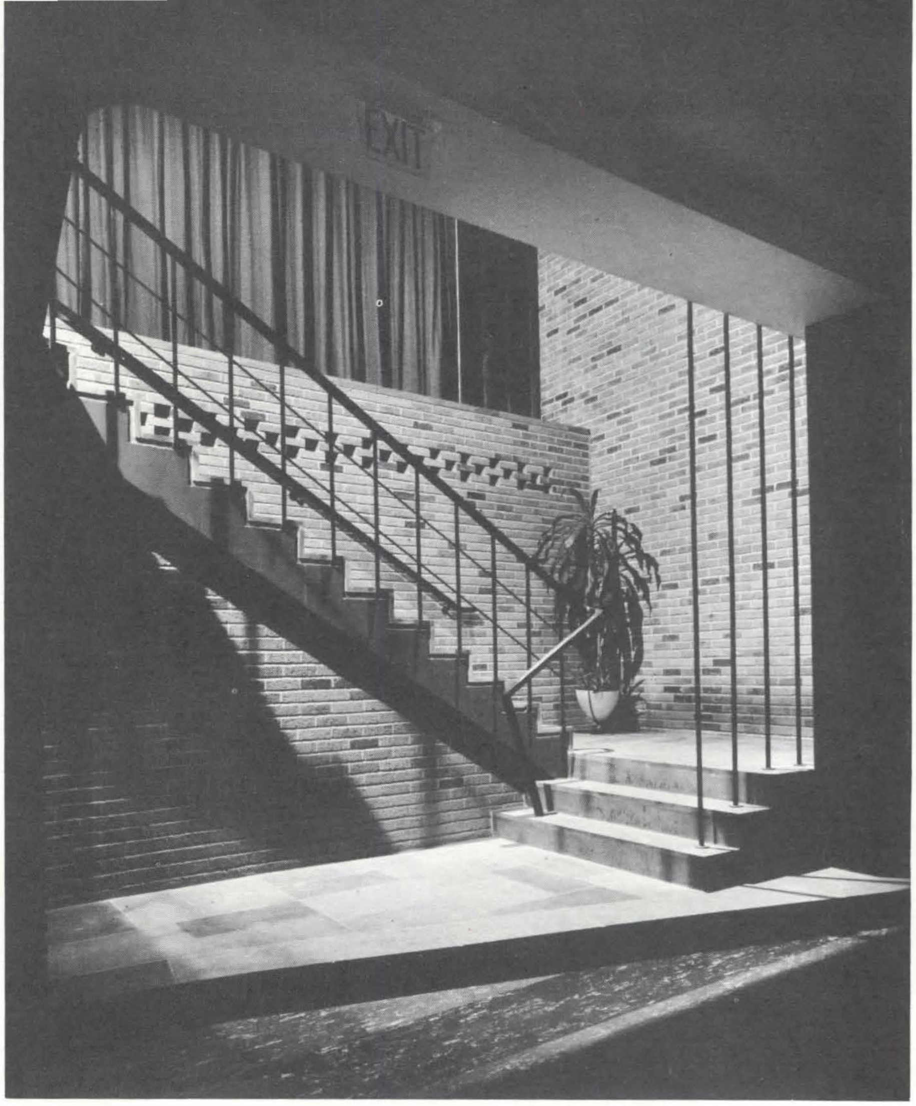

parking
to street
pool
walls fold back for added seating
kitchen
social garden
temple garden
classrooms
chair storage
stage
social hall
lobby
temple
retiring room
classrooms
vest.
chapel
library
rabbi's offices
classrooms
4 offices
chair storage
north
0 25 50 feet 0 5 meters



*Temple Beth-El*



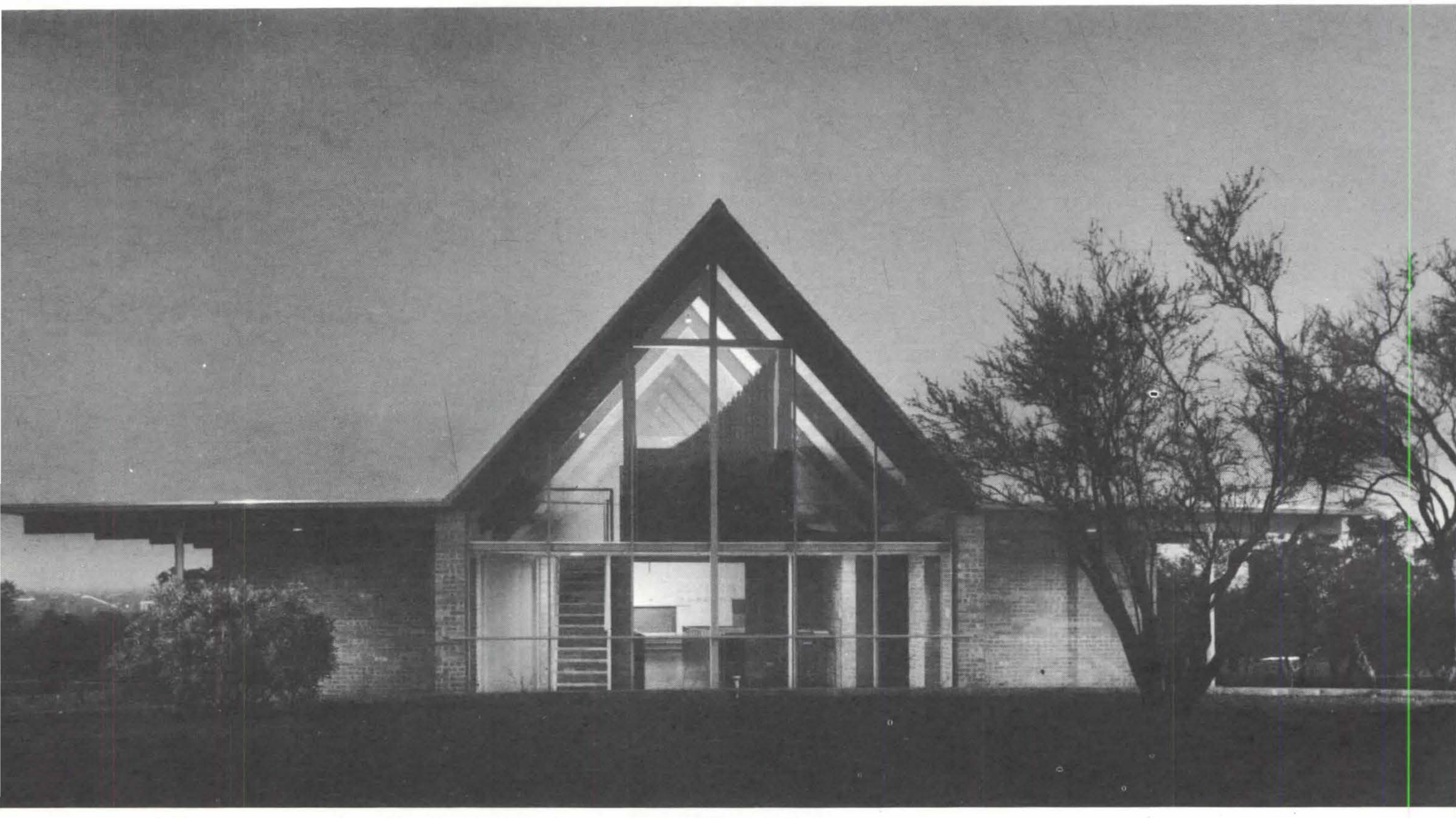




*In front of the sanctuary doors in the slate-paved main lobby* (top acrosspage) *are three mosaic insets designed and executed by Walter Feldman. Doors are birch. The curtaining at the Ark and along side walls is the work of Dorothy Leibes.*

*The corridor side of the chapel* (bottom acrosspage) *is a grillage of wood, with amber glass. The Ark is of cedar wood; the table, limestone; the reading table, rosewood and bronze.*

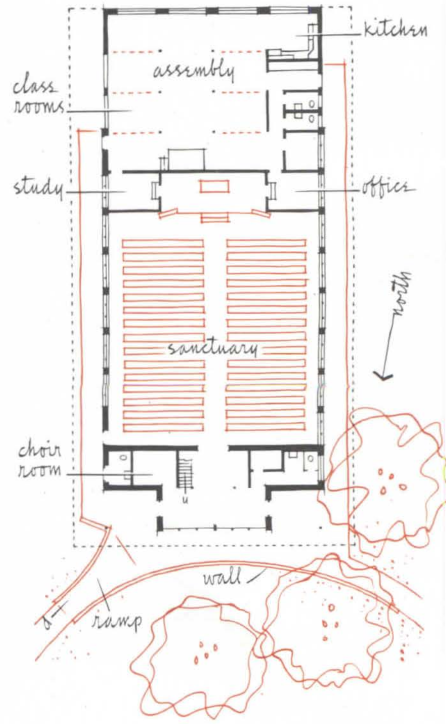
*In the lower lounge, a history of the Beth-El Congregation, is to be depicted on a 28-ft-long panel. Other artists that the architect would like to have credited are Pearl Braude, for draperies designed for the rabbi's suite; and (through the Kootz Gallery) sculptures by Herbert Ferber (for the Menorah on a rough stone base, on the entrance terrace); David Hare (Eternal Light in sheet-steel and copper, and Menorah in sheet-steel and bronze, both in the sanctuary); and Ibram Lassaw (sculptured decorations in the sanctuary representing the Pillar of Fire and Pillar of Cloud).* Photos: Alexandre Georges



# *Presbyterian Church*

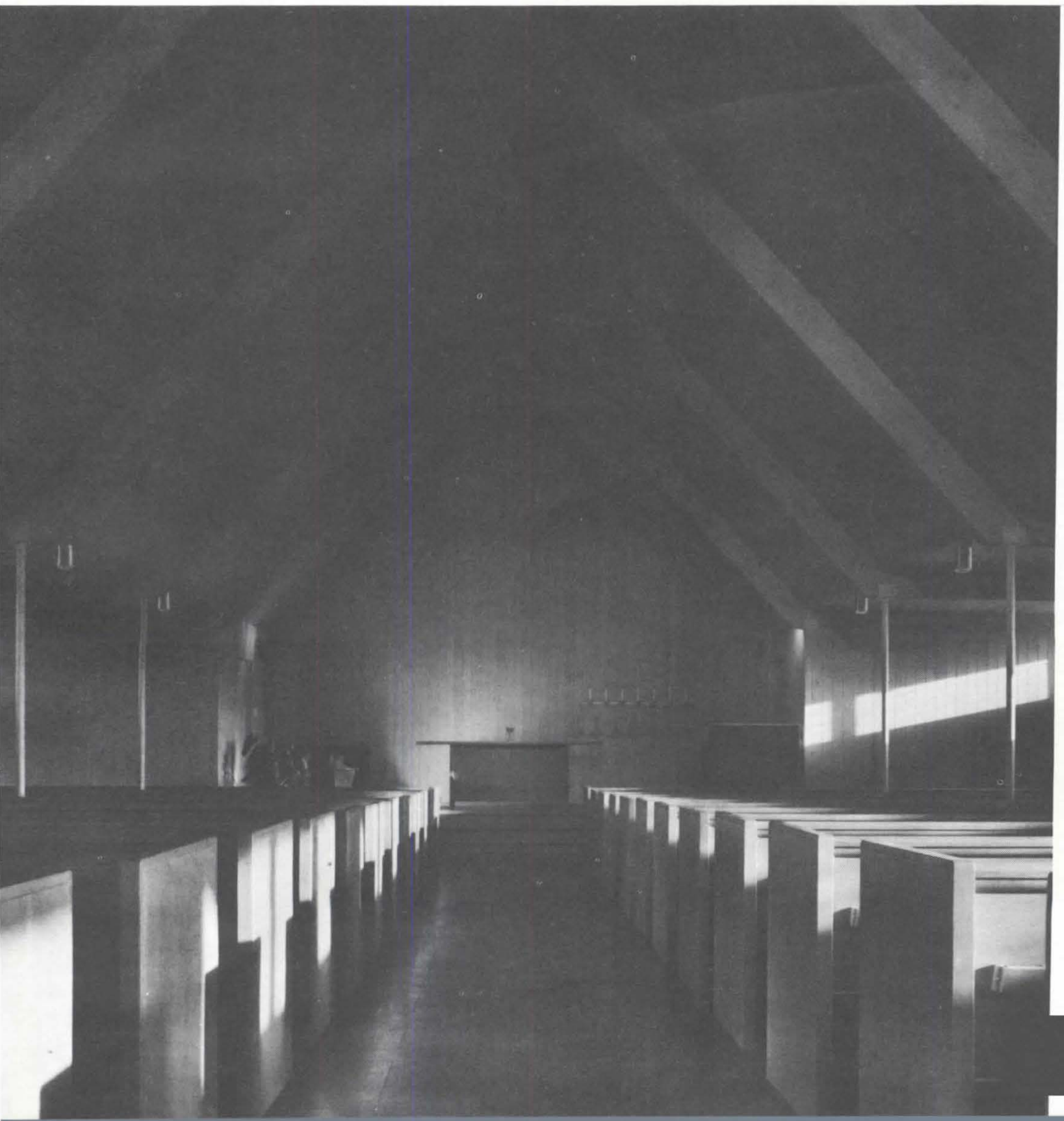
| | |
|---|---|
| location | San Antonio, Texas |
| architect | Milton A. Ryan |

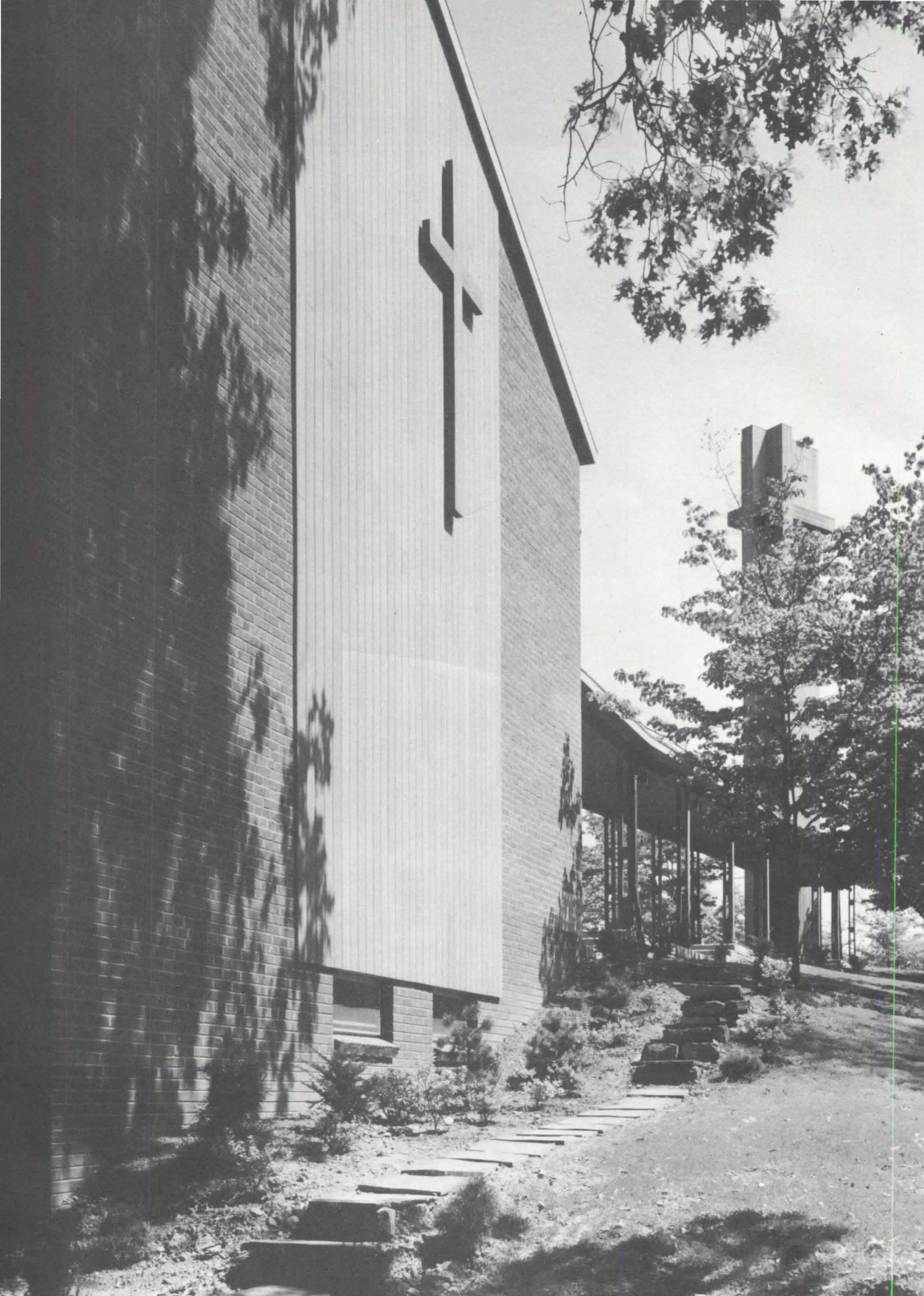
This small church adjoins a university campus and is attended by a number of students, in addition to its regular congregation numbering about 125. It is planned to expand the sanctuary another 9 or 18 ft by moving the chancel wall back into the space now occupied by the church school—as soon as a separate education building can be erected. The following requirements had to be met: a sanctuary to seat at least 300, with balcony for choir and an exposed organ; kitchen and dining facilities to serve 200 (this space also to be made adaptable with flexible space dividers for Sunday-school services); complete air conditioning; landscaping of the grounds; and off-street parking for 100 cars. Solid limestone at the sloping site and a small number of trees discouraged bulldozing and pointed to the use of a reinforced-concrete floor, partially on grade, partially on concrete piers and steel joists. The heating and air-conditioning equipment is located in the crawl space. Exterior walls are of brick cavity construction; interior wall surfaces of brick and vertical wood paneling. Roof beams and decking of wood are supported on metal pipe columns. Marvin R. Shipman was Structural Engineer; Walter E. Bowden, General Contractor.



*Foyer and main entrance* (right *and* SELECTED DETAILS) *rest on a slab foundation about 12" below the natural exterior grade, in order to eliminate steps and to adjust the structure more suitably to the sloping site. Exterior covered walks, permissible in this climate, connect sanctuary and church school, thus eliminating the need for interior corridors. Gabled roof* (below) *gives proper emphasis to the sanctuary, affords space for the organ loft, aids in achieving good acoustics, and distinguishes this house of worship from other, horizontal structures of the university.*

Photos: Mears Photography

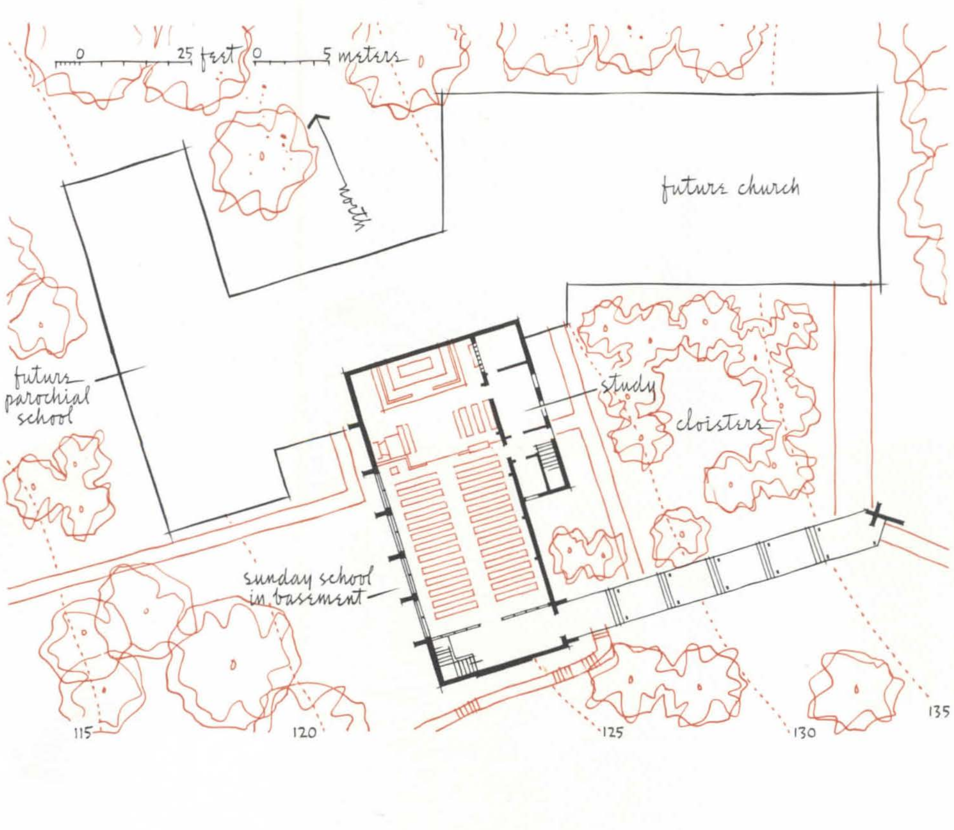




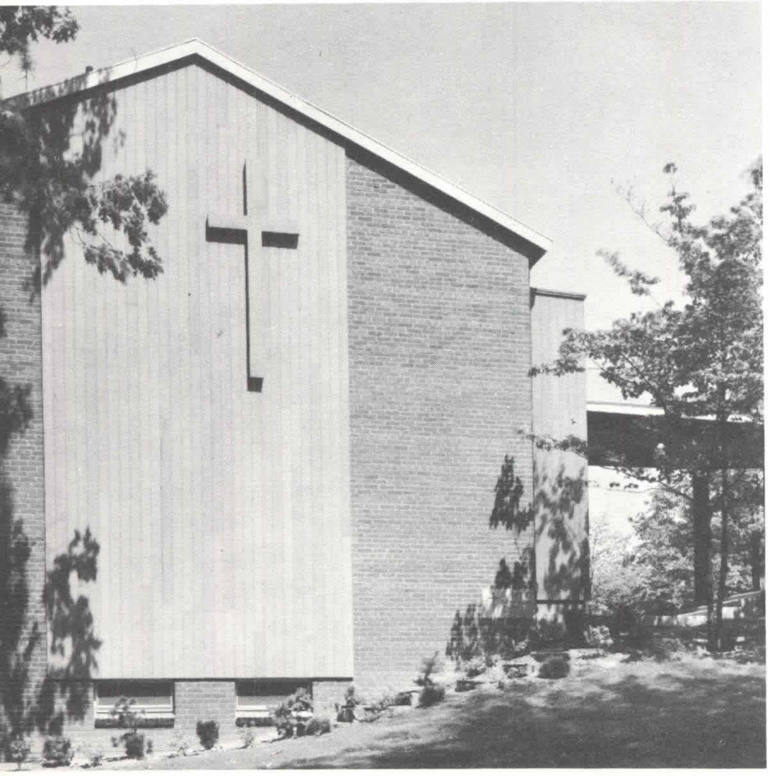
# *Lutheran Church*

location | Paramus, New Jersey
architects | Shreve, Lamb & Harmon Associates

This chapel for the Lutheran congregation of a growing suburban community forms the first portion of a building complex which will include later a church and a parochial school. "It was necessary to consider this first unit as an architecturally balanced unit," write the architects, "which would readily become part of the complete, co-ordinated plant." To attain this objective, the building was placed a considerable distance downhill and away from the street, preserving the dominant location for the future sanctuary. A free-standing redwood tower serves as focal point for all structures, and a system of covered walks will unify the various plan elements. When the main sanctuary is built, the present chapel for 150 worshipers will become the parish hall. Because of the steeply sloping site, it was possible to open the Sunday-school rooms, on a floor below the chapel, directly onto the grounds. The west wall of the chapel also faces the lovely wooded site—however, deep fins of brick were introduced on this side of the building to limit glare and undue distraction. These brick members serve also structurally as buttresses for the laminated-wood bents which span the nave. The roof arches, supporting a wood-plank and asphalt-shingle roof, are modified three-hinged trusses. Interior corbels may later be hand-carved to a more refined form. The blank east wall of exposed, concrete block was introduced as sound barrier between the chapel and the future church. A forced-hot-water system supplies heat to the separately zoned chapel and Sunday-school rooms. All lighting is incandescent, using low-voltage relay switching throughout. Herman H. Kahman was General Contractor.

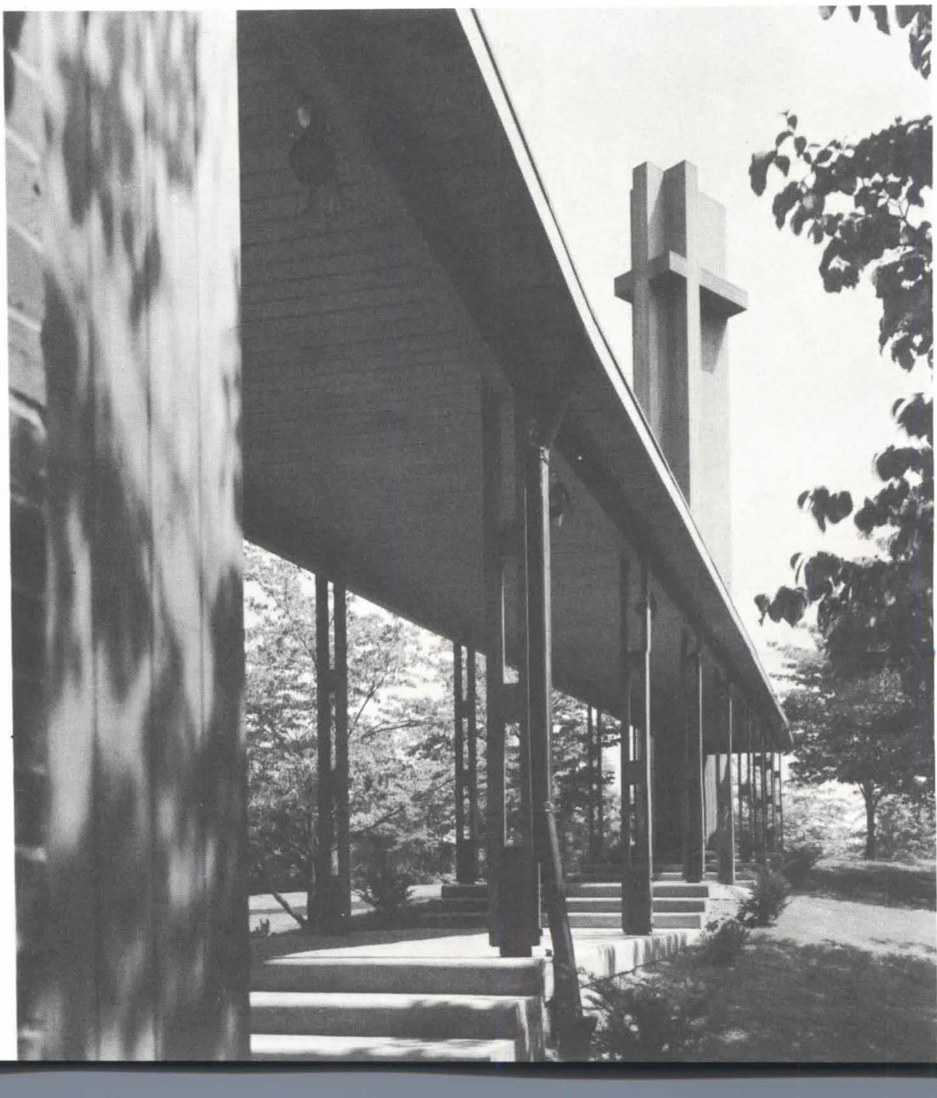


## *Lutheran Church*



*The south wall* (left) *is almost entirely without openings and faced on the exterior with brick and 2"x6½" T&G wood planking. Covered walk from church to tower and street at high point of the site* (below) *will eventually link with another portico to the main sanctuary. Chancel wall behind altar* (acrosspage) *is of concrete blocks painted a dark plum red, to set off a suspended gold cross. Wood trusses and underside of roof planking are treated with a heavy, gray, oil stain. Other materials have natural finish.*

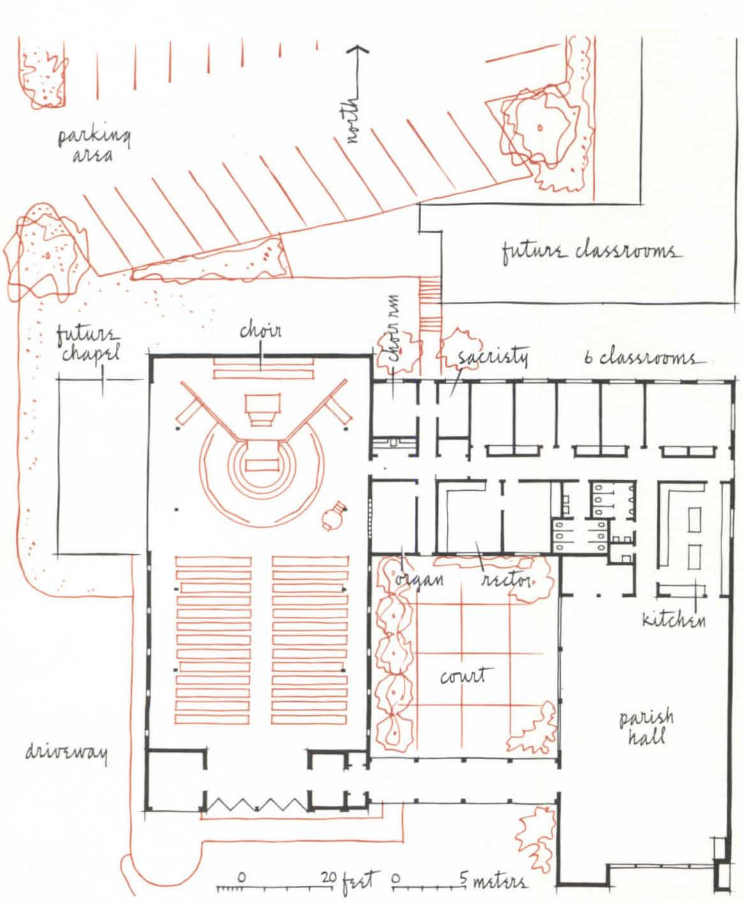
Photos: Joseph W. Molitor

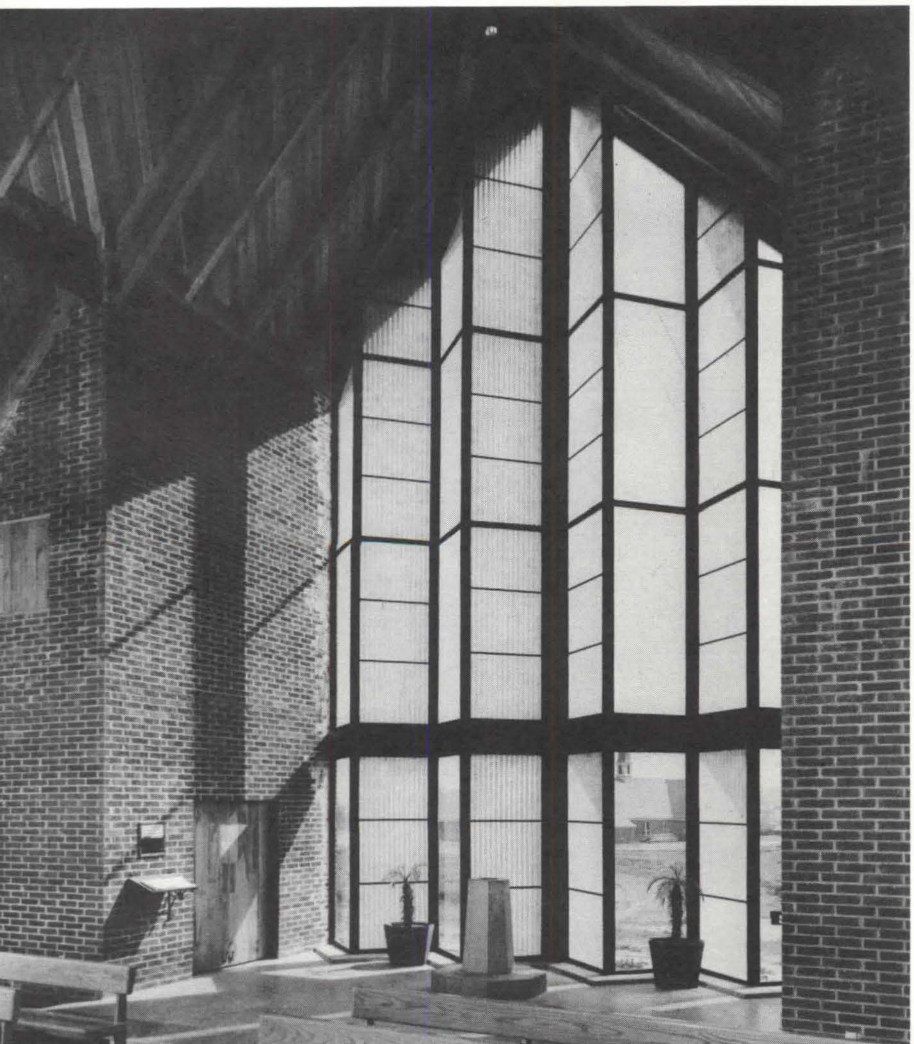


# *Episcopal Church*

location | San Pedro, California
architect | Carleton Monroe Winslow

The dramatic possibilities of this site, high above street level and overlooking the harbor of San Pedro, have been strongly exploited—the eminence further accentuated by the dominant verticals of the building. Requirements of the building program included a sanctuary for 300 persons with provision for later expansion in the transept; an administrative center with two offices; six Sunday-school classrooms; a kitchen and parish hall to accommodate 200. The two major elements—the church and the social hall—are parallel. Offices, robing room, and six small classrooms connect the two structures in U-form. When present classrooms become inadequate, a new education wing will be added at the rear of the property—making the present small classrooms available for additional office space, choir vesting rooms, and sacristy space. Of interest structurally are the laminated wood arches visible on the inside of the sanctuary. These members stand independently of the side-walls, touching only at the floor, the ridge pole, and the purlin. Since the largest bending moment occurs in the center of the span the arches are tapered at the extremities, thus imparting a lofty and light quality to the interior of the church. Flat, laminated beams with a slight camber were used to span the parish hall. The building is heated by hot water radiant heat. Artificial lighting is entirely by cove lighting. The Structural Engineer was Eugene D. Birnbaum; Glen D. Brockman was General Contractor. Hudson Roysher designed the church furniture and most of the liturgical ornaments.

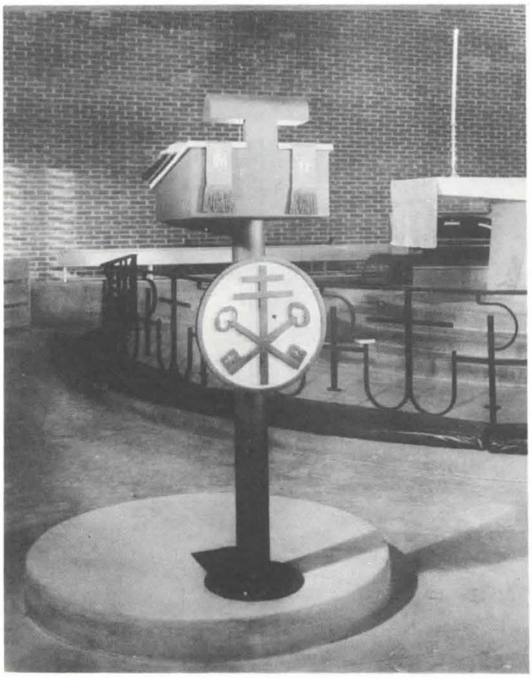


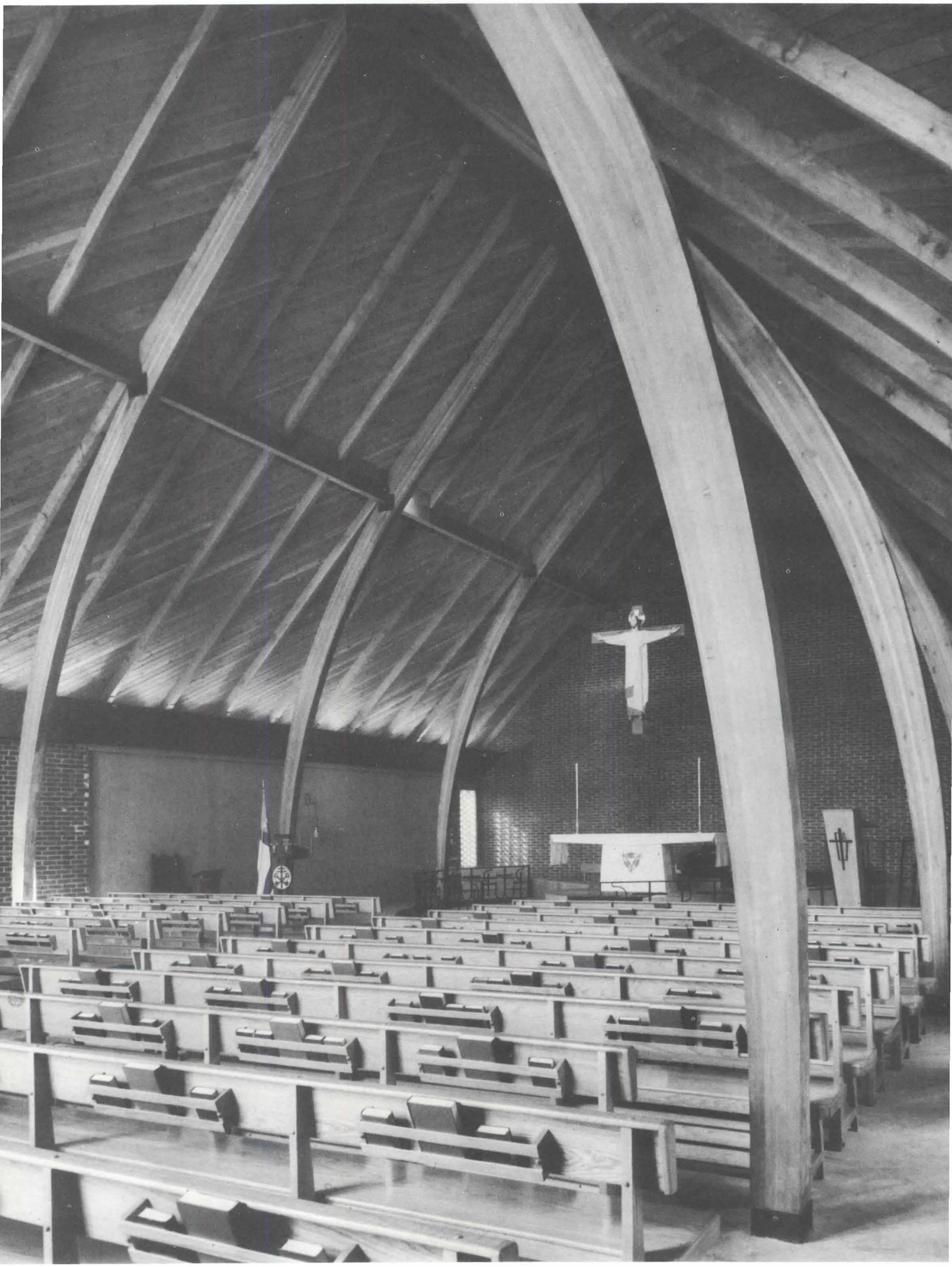
*Free-standing altar* (above) *has been placed at the intersection of nave and transept near north wall of brick. The south wall* (left) *is a large window in which clear glass and aquamarine-colored plastic panels are used alternately in saw-tooth fashion* (see SELECTED DETAILS).

Photos: Douglas M. Simmonds

## *Episcopal Church*

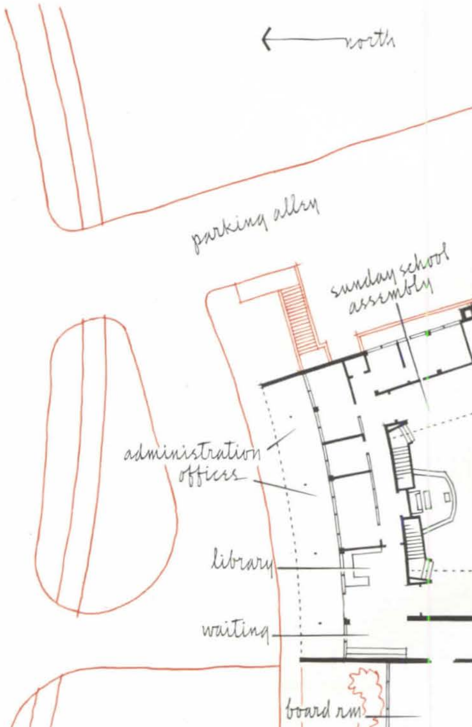


*Lectern* (left), *pulpit* (above), *communion rail, chalice, and patton were designed by Hudson Roysher. Albert Stuart designed and executed the polychromed Christus Rex above the altar* (below).



# *Christian Science Church*

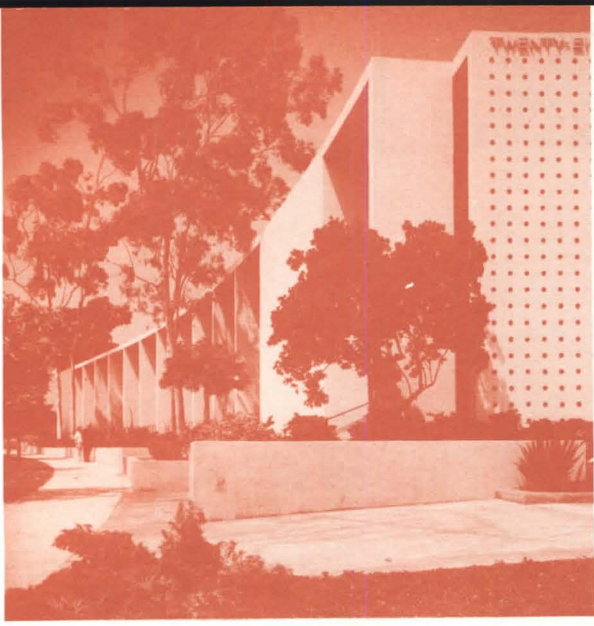
location | Los Angeles, California
architect | Maynard Lyndon



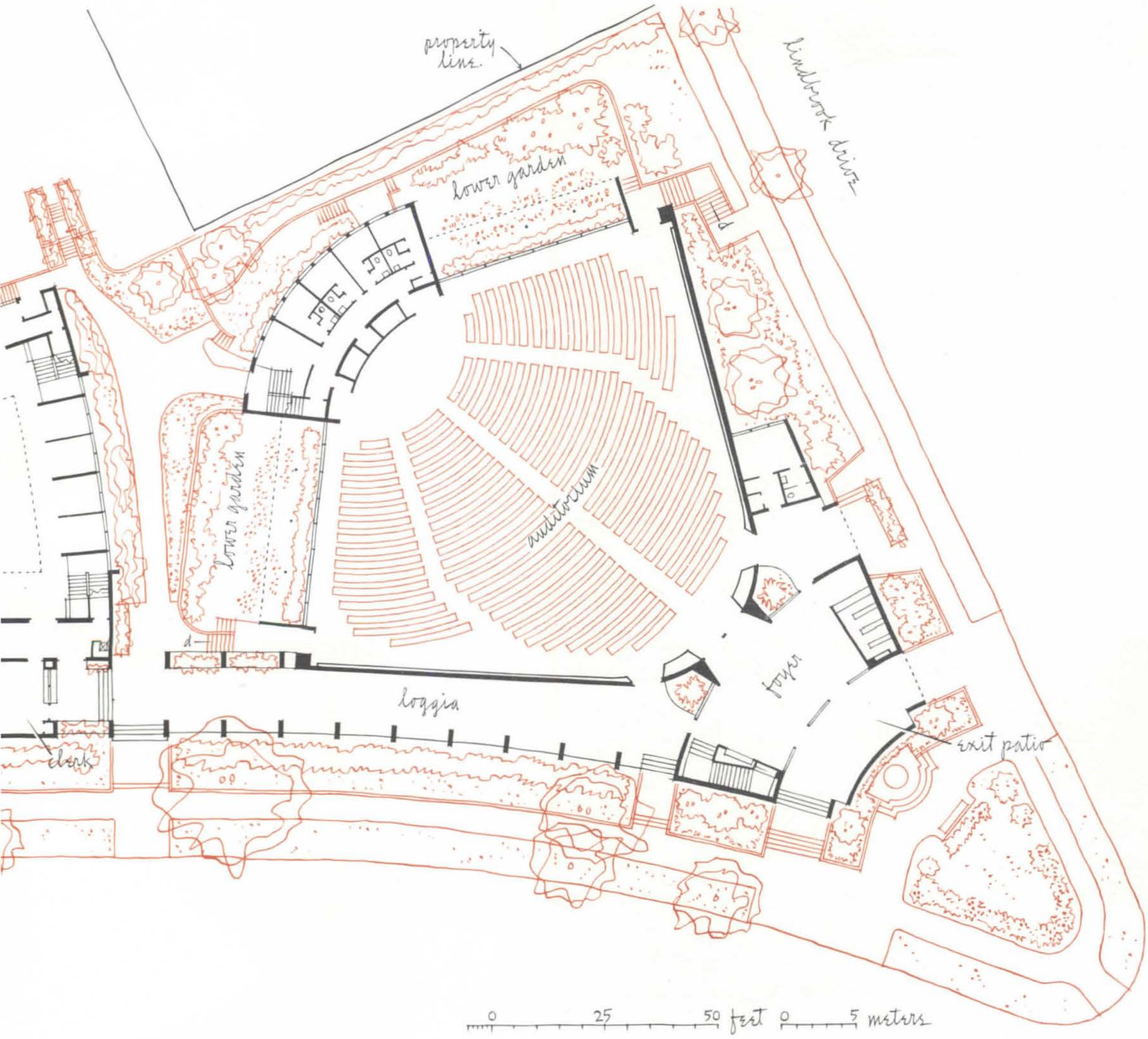

Design of the Twenty-Eighth Church of Christ, Scientist, in the Westwood Village district of Los Angeles presented the very specialized problems typical of churches for this faith. There would be no ceremonies, weddings, funerals, processional, etc.; nor does symbolism of any sort play a part. The requirements included an 800-seat auditorium, with attendant rooms; and space for offices, classrooms, and Sunday-school assembly hall. All elements, except the auditorium, are organized at the north end of the odd-shape site, in a remodeled building that had formerly served as the church.

Four types of meetings occur in the auditorium—Sunday services conducted by Readers, with reading, responsive reading, and music, but no sermon; Wednesday night services that consist almost wholly of testimonials given from the floor; public lectures by visiting lecturers; and membership meetings. Hence, in addition to providing a comfortable meeting hall with an atmosphere of repose, two paramount design factors were to emphasize the "audience to Readers' desk" relationship and to lay out the seating so that a speaker at any point in the audience could be readily seen as well as heard. Ingenious use of an existing site slope produced peaceful walled gardens, which are seen through windows at either side of the forward part of the auditorium.

The auditorium is of monolithic-concrete construction, with steel roof trusses and poured-concrete deck. Interior air is conditioned by a forced-air-heating system using gas-fired furnaces, washed air, and automatic controls. Artificial light, required at all times, derives from recessed ceiling fixtures with lens control of distribution.



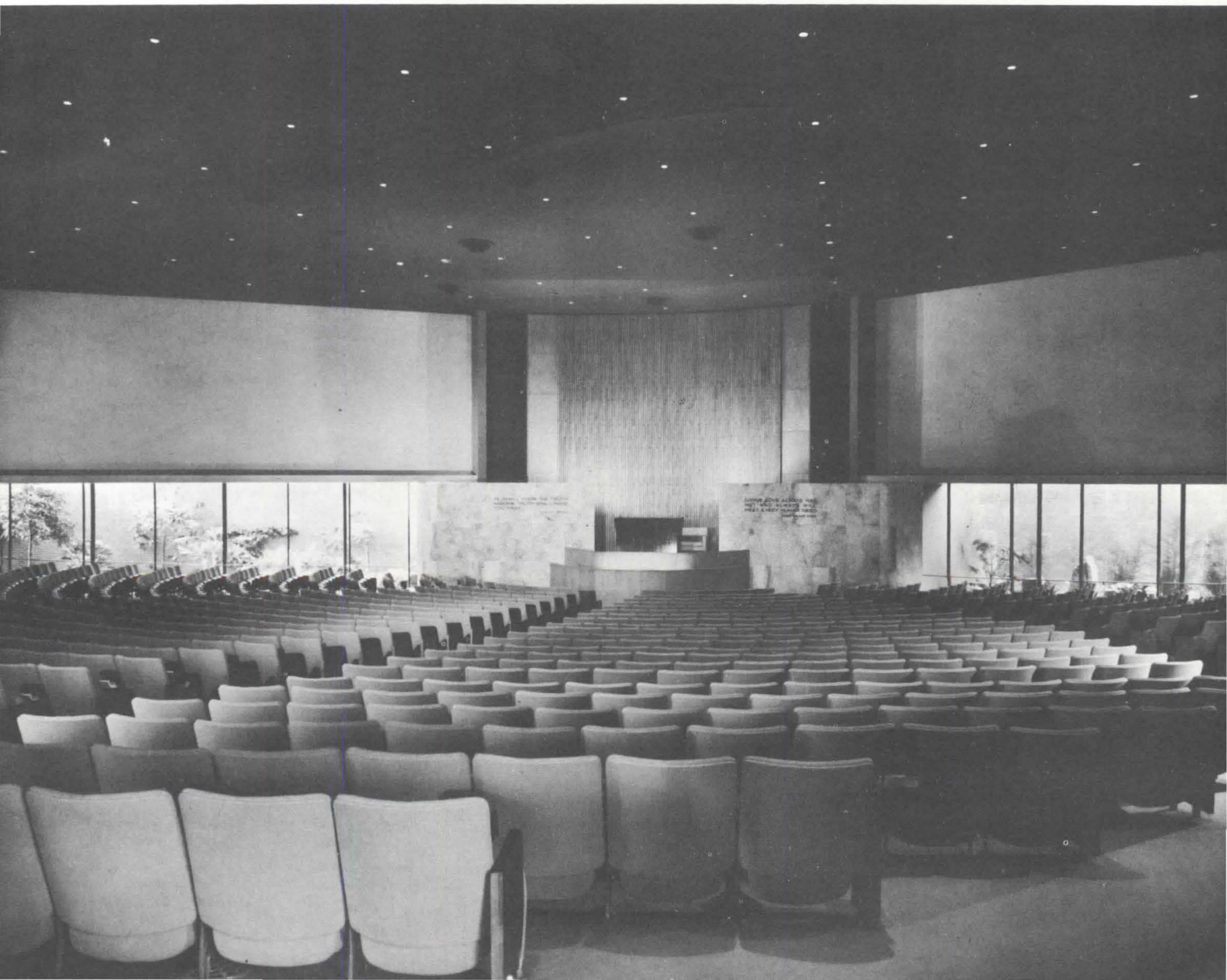
*A pierced screen and landscaped area protects the foyer and portico from the distractions of traffic at the street-intersection. Exterior walls are exposed concrete.* Photos: Julius Shulman



## *Christian Science Church*

*The sunken, walled gardens at either side of the auditorium* (acrosspage) *are hardly noticeable from sidewalk level; but from within they are an important element of the auditorium design. They are floodlighted at night.*

*At either side of the macassar-ebony Readers' desk are marble panels with the traditional quotations. The walnut organ grill is made of removable sections, for possible removal or replacement of organ at some future time. Walls and ceiling are of dark, receding colors, to control visual dimension of the auditorium and enhance the apricot color of seats and carpeting.*

## *Christian Science Church*

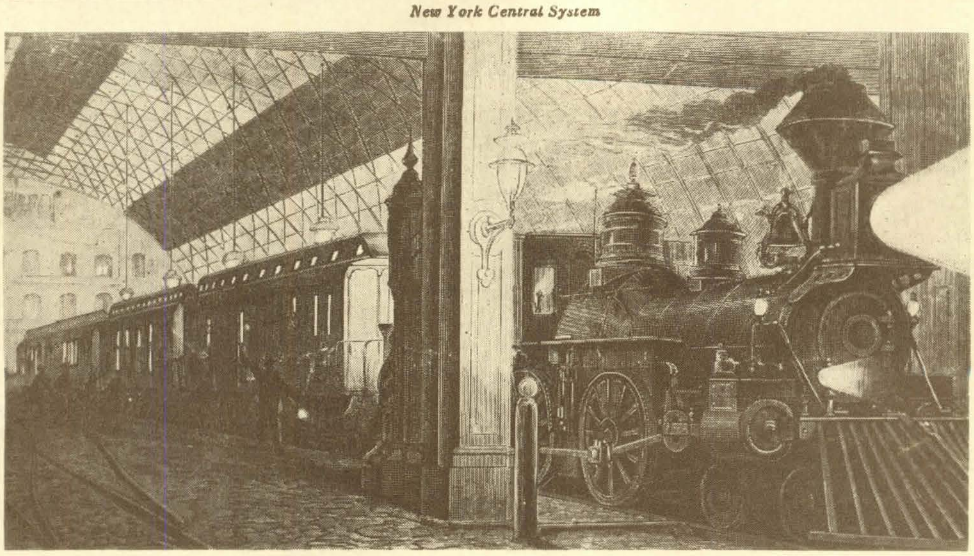
*Connecting the remodeled portion of the building with the new auditorium is a broad loggia, curved to follow the line of the bordering street* (below).

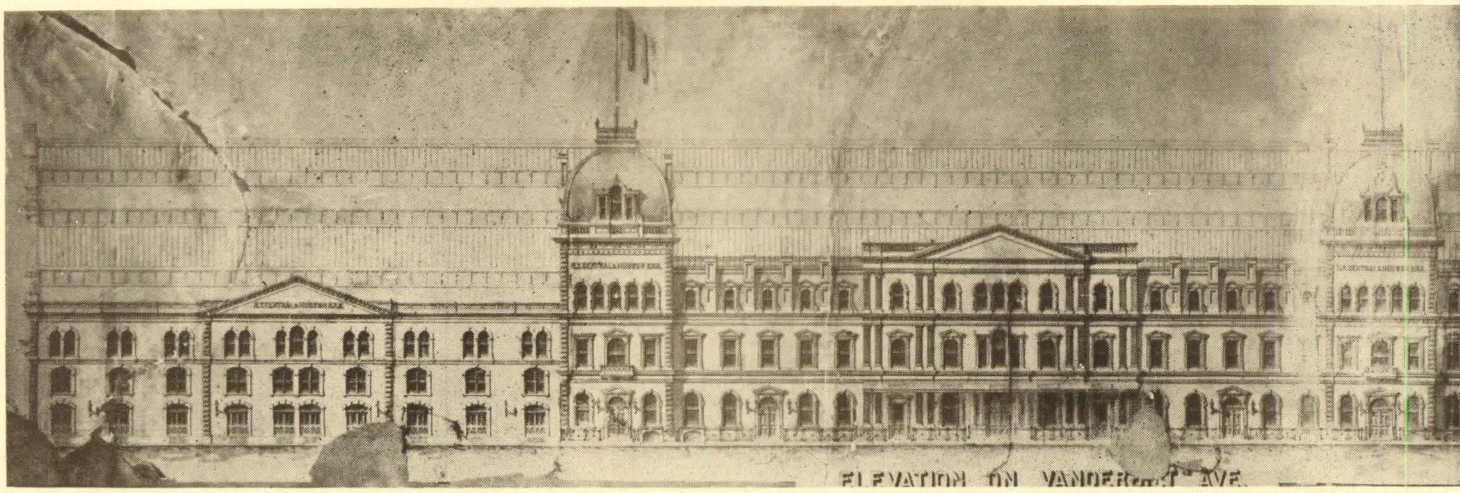
*From a side entrance* (right), *one looks through the large, south portico and to the pierced screen wall beyond.*

# PROGRESSIVE ARCHITECTURE IN AMERICA

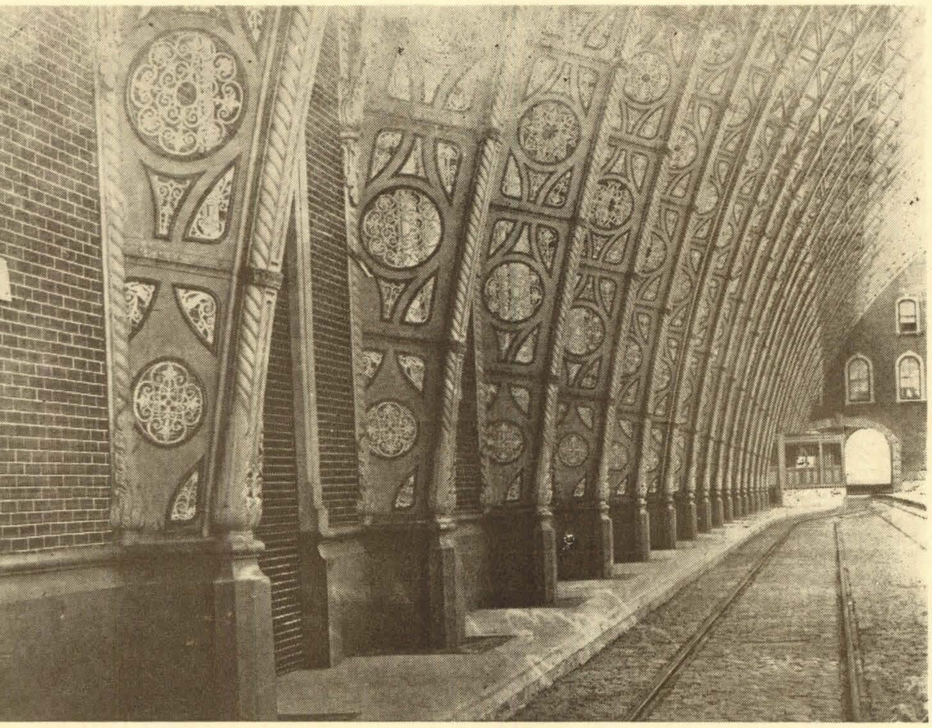
*GRAND CENTRAL DEPOT—1869-71*
*New York, New York*
*John B. Snook, Architect*
*R. G. Hatfield, Architect-Engineer*

*New York Central System*



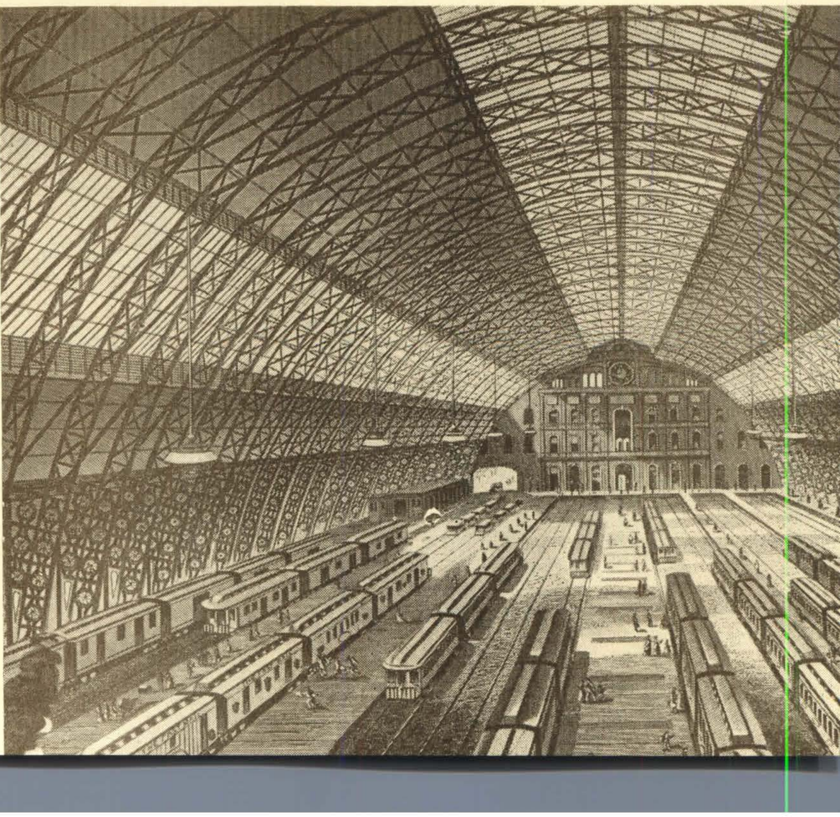


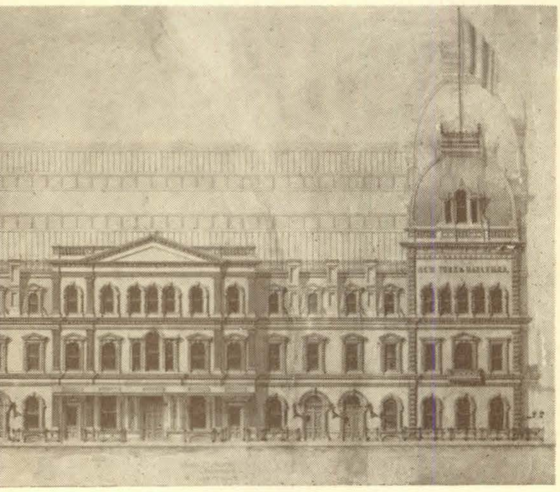

*New York Historical*



*New York Central System*

*New York Public Library Picture Collection*

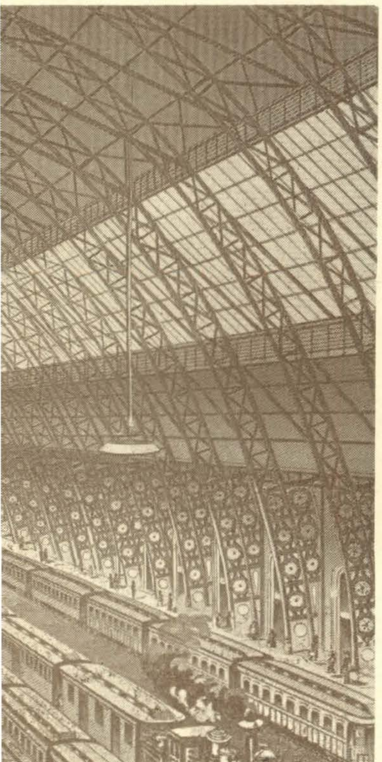


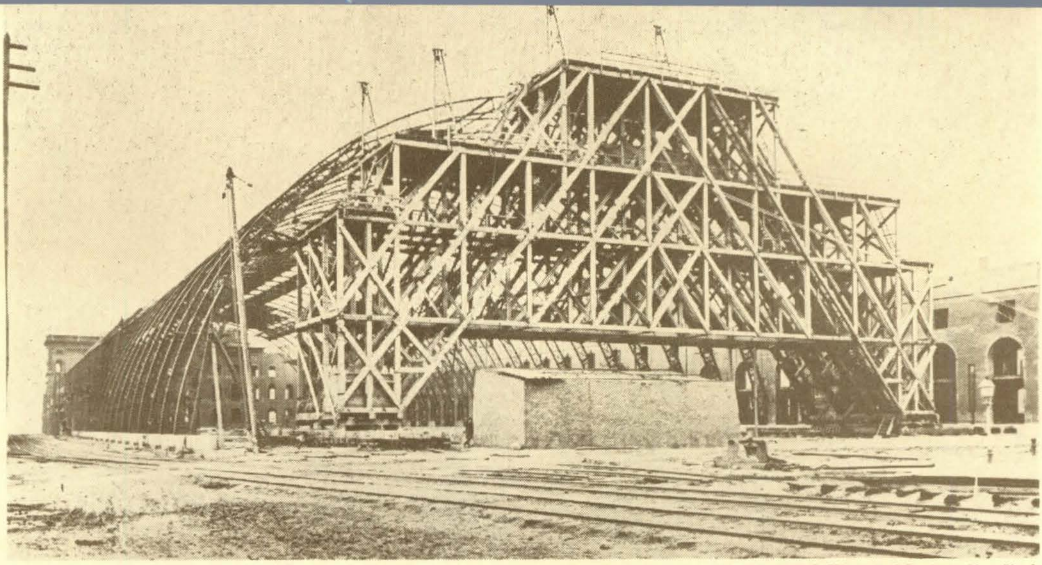


*Society, New York*

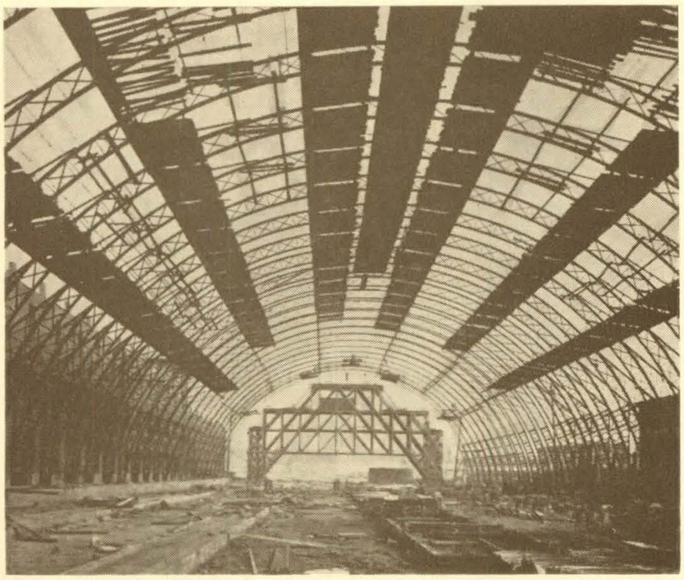
*Second only to the Capitol at Washington in popular esteem at the time that it was built, New York's Grand Central Depot provided equal gratification for the two predominant Victorian tastes: love of progress and desire for pretentious display. The iron-framed train shed that formed the building's functional core represented one of the 19th Century's most important advances in building design. This spectacular structure was faced with the elaborate, conventional exteriors of the day, exuberantly embellished with mansard roofs and cast-iron trim.*


*New York Central System*





*New York Historical Society, New York*



*Museum of The City of New York*

As transportation helped shape 19th Century American civilization, it also contributed to the country's architecture. No form better symbolizes the period than the railroad station. The iron-arched spans of the great train sheds were the product of the new industrial technology, their dramatically exposed, unadorned engineering the foundation of a new esthetic. Much of the phenomenon that is America today grew out of the steam and soot of the trains and terminals that characterized the Iron Age.

One of the most important of the new stations was the first Grand Central Depot in New York City, constructed at a cost of about $3 millions by that fabulous railroader, Commodore Cornelius Vanderbilt. Built on the site of the present Terminal, its impressive façades extended 249 feet along 42nd Street and 698 feet on the newly created Vanderbilt Avenue. A spectacular train shed (approximately 530 feet long, nearly 200 feet wide, and about 90 feet high) was enclosed by an L-shaped building on the south and west sides, which contained the separate functions of New York's three main lines: the Harlem, the New Haven, and the New York Central railroads.

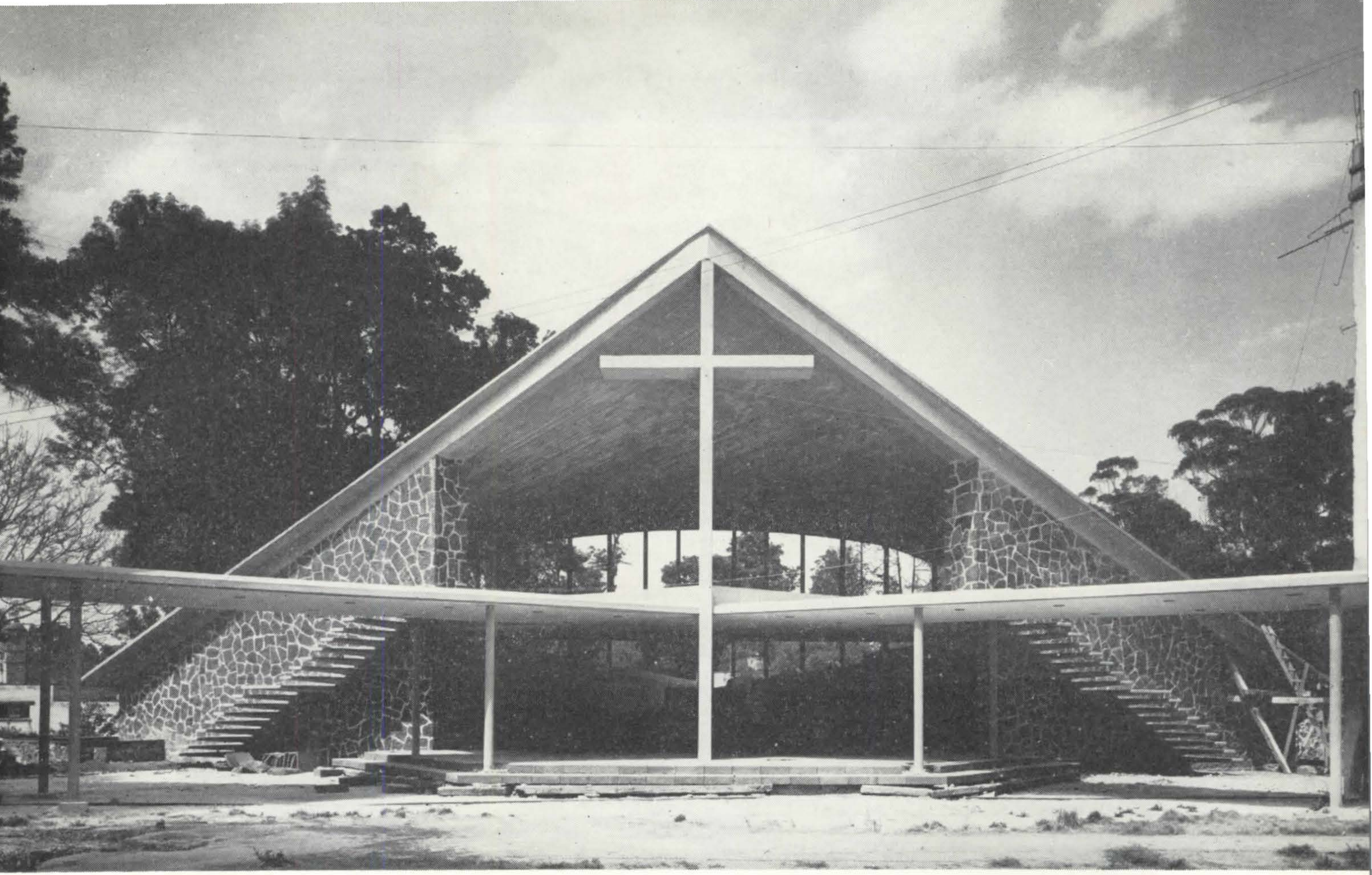
Preceded by the vast train sheds of Europe and the pioneering designs of England in particular, Grand Central Depot was by no means the most daring or progressive of the new railroad structures. For this type of building, American architects and engineers had learned most of their lessons abroad. Grand Central's span was 10 feet less than the 210 feet of London's St. Pancras, built in 1866, which it so closely resembled, and its passenger facilities were so poorly organized that a major remodeling of the administration building was necessary in 1898. In spite of these limitations, however, the Grand Central train shed was unique in America, a modern structural marvel that was the Commodore's pride and the talk of the country. According to Carroll L. V. Meeks, it was the largest interior in the United States at the time, successfully establishing the style for most of the huge single-span sheds that followed until the end of the century. Its handsome trusses were in the form of complete semi-circular arches springing directly from the ground, tied at the bottom by a rod enclosed in a pipe under the surface of the tracks. Designed by R. G. Hatfield, the structural frame was executed by the Architectural Iron Works of New York.

In addition to the trend-setting shed, the prevalent practice of bringing together several major lines in one central terminal was of increasing importance for growing American cities. The first Grand Central not only achieved this unification for New York, but also helped solve the problem of feeding the lines into a heavily populated city, by using depressed tracks along most of the length of Park Avenue. This was accomplished by lowering the grade from 49th Street on, a project begun belatedly just after the station opened in 1871 and not completed until 1876. The resultant system of tunnels and viaducts, eliminating street crossings, foreshadowed the underground planning of the present station, when complete lower-level enclosure became practicable with the introduction of the electric locomotive, permitting the tracks to be continued under the Terminal itself.

Stylistically, Grand Central Depot mirrored the great 19th Century schism between architect and engineer. As was so often true of new types of buildings, technical progress, though much admired, was carefully provided with an academic disguise. Utility, efficiency, and the new technology were well expressed in the impressive train shed, while formal architectural design was lavished on the rest of the building. Nothing could show this popular dualism more clearly than John Snook's elegant rendering of the Vanderbilt Avenue front, with the functional precision of the shed rising delicately behind the fussy Second Empire façade. In the taste of the day, these exteriors were of rich, red brick with generous, white-painted, cast-iron trim—imitating marble. By far the most interesting stylistic treatment was the vaguely exotic pattern of decorative tracery on the lower part of the arches of the shed. This detailing is strangely reminiscent of the unique forms developed by Matthew Digby Wyatt for London's Paddington Station in 1852, a self-conscious search for original ornament considerably preceding Sullivan's studies. It is in the structure itself, however, behind the conventional façades, that we feel the unmistakable vitality that was characteristic of the best architecture of the Victorian Age.

ADA LOUISE HUXTABLE

*Pictorial and research assistance: Museum of The City of New York; New York Central System; New York Historical Society, New York; New York Public Library Picture Collection.*



# doubly-curved, thin-shell concrete slab for chapel

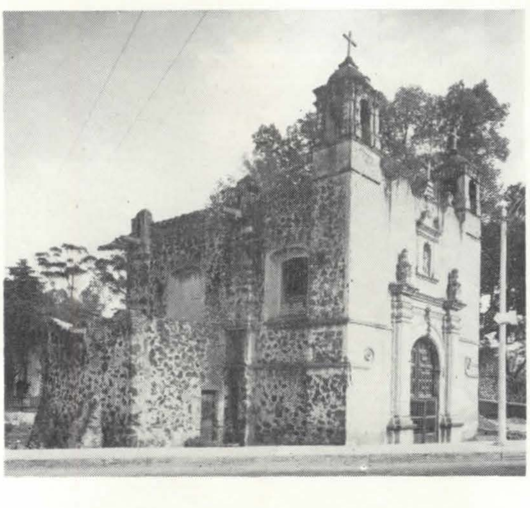
A new chapel—La Capilla de Nuestra Señora de la Soledad—for the seminary of La Orden de los Misioneros del Espiritu Santo[1] has almost been completed. Rhomboidal in shape, its plan was designed to accommodate participation of the entire congregation which during worship is aligned to the altar while executing Gregorian chants. This unusual form of structure is roofed by a graceful doubly-curved, thinshell concrete slab which is 118 ft in length and 95 ft in width.

In the base of the rhomboid, 350 individuals may be seated; a choir of 100 (composed of seminary students) flanks both sides of the altar in groups of 50. An elevated platform above the entrance—reached by steps flanking the exterior walls—supports an organ and choir.

Interior floors are uniformly laid with a variety of black volcanic stone known as "recinto." Exterior walls are also of volcanic stone but are of a rougher and not so black character. The window area behind the altar will be stained-glass and, eventually, indirect artificial lighting will be played upon the glass from both inside and out. No additional color will be applied to the interior.

Buildings adjacent to the chapel house other components of the seminary built in an earlier period. At a future date, some will be resurfaced in order to reduce the existing contrast in appearance between them and the chapel.

[1] *This is a young religious order, founded December 25, 1914, during a period of persecution of the Church in Mexico. The chapel is located at San José del Altillo, Coyoacan, Mexico, D.F.*

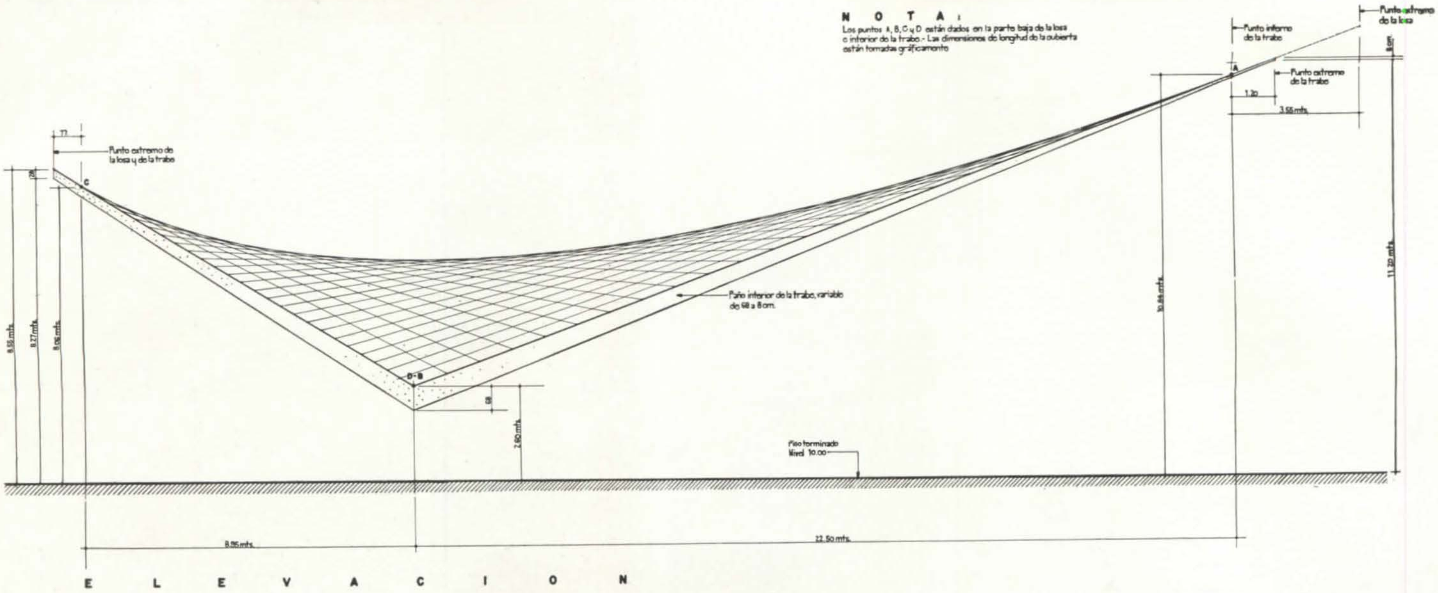


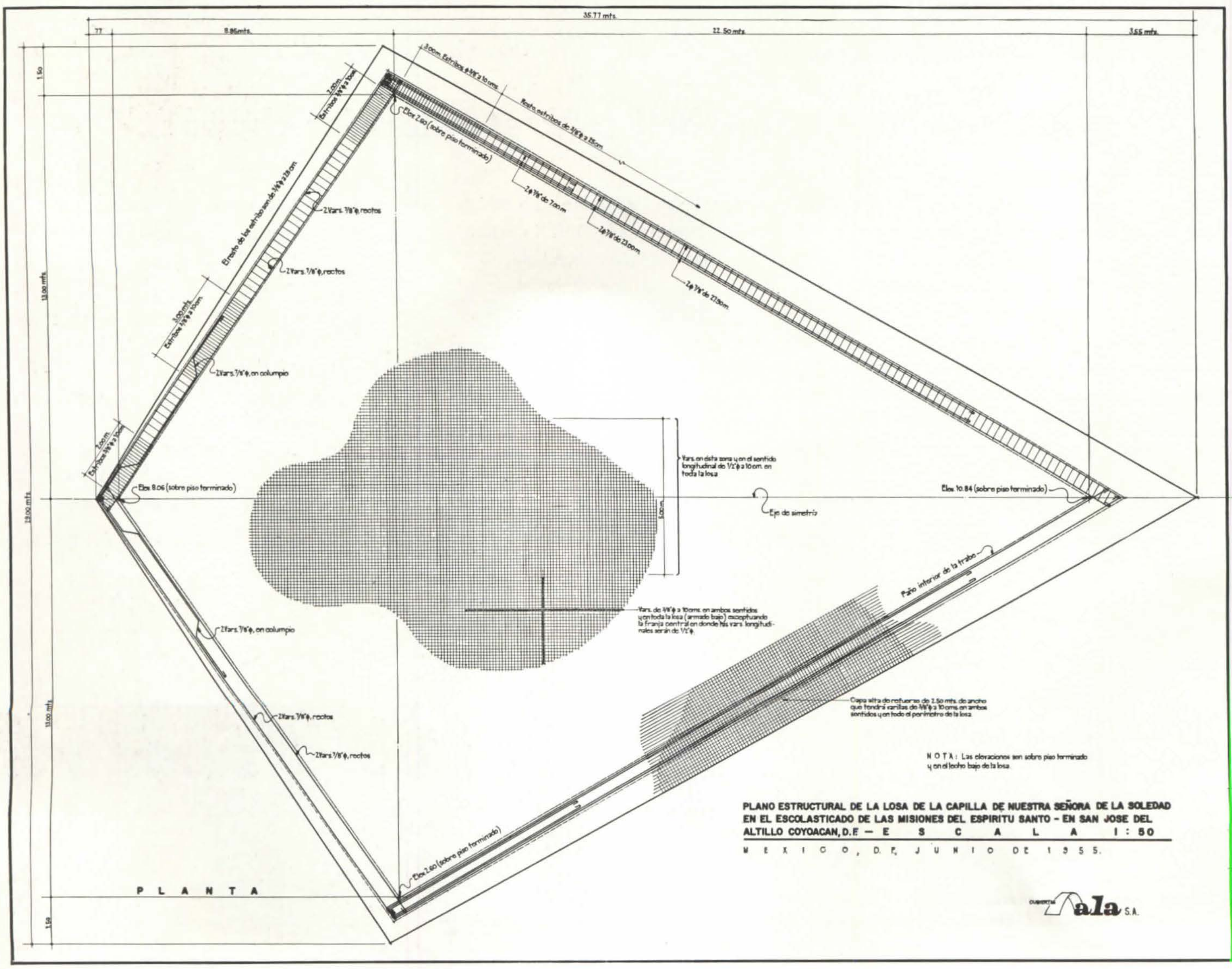
*Typical of earlier structures in the vicinity is the baroque Iglesia de San Antonio which the seminary used formerly as its chapel.*

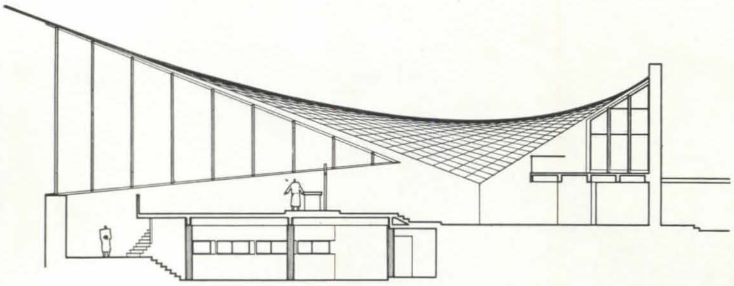
Photos (except as noted): Erwin Lang

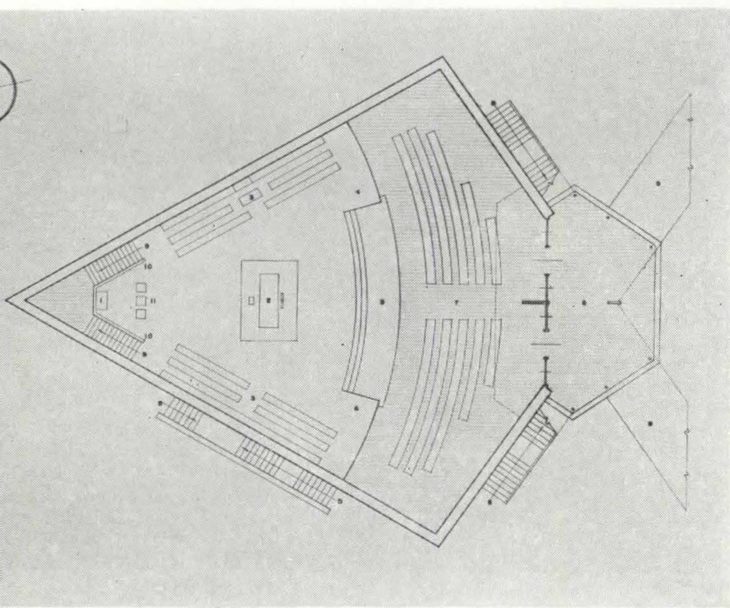
## concrete slab for chapel

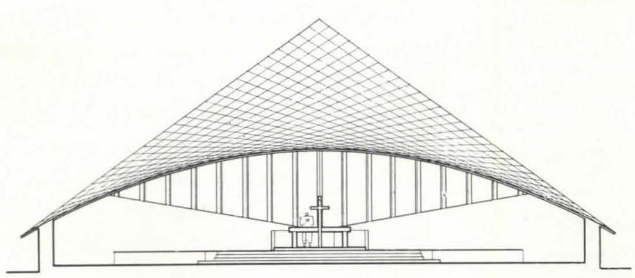
*Elevation and structural plan of hyperbolic paraboloid drawn by Francisco Fuentes of Felix Candela's office.*

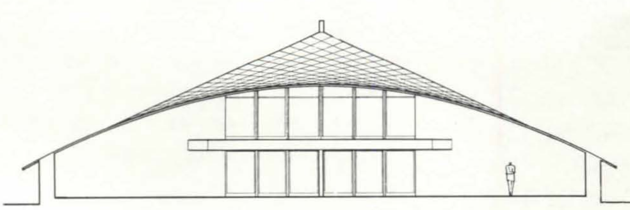


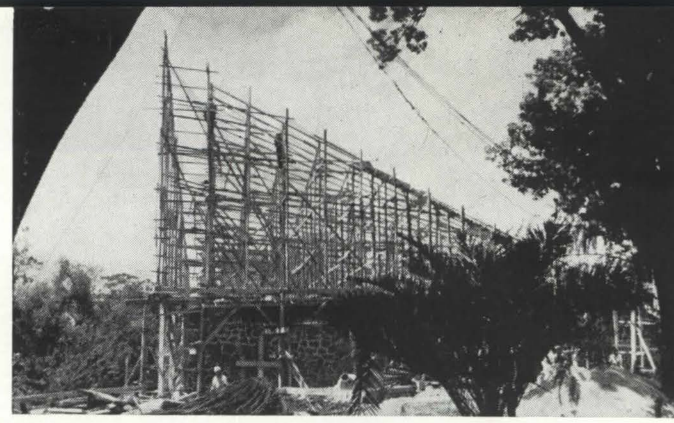



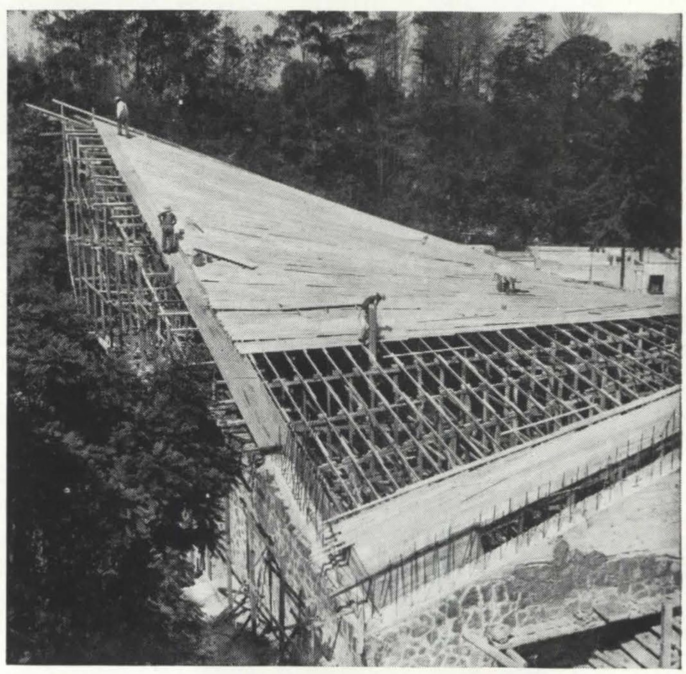


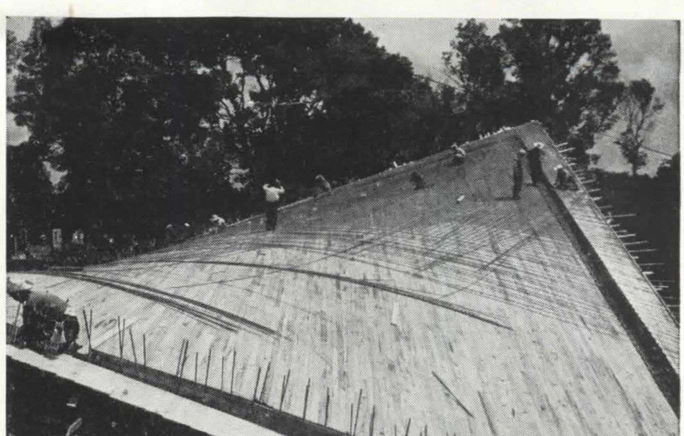










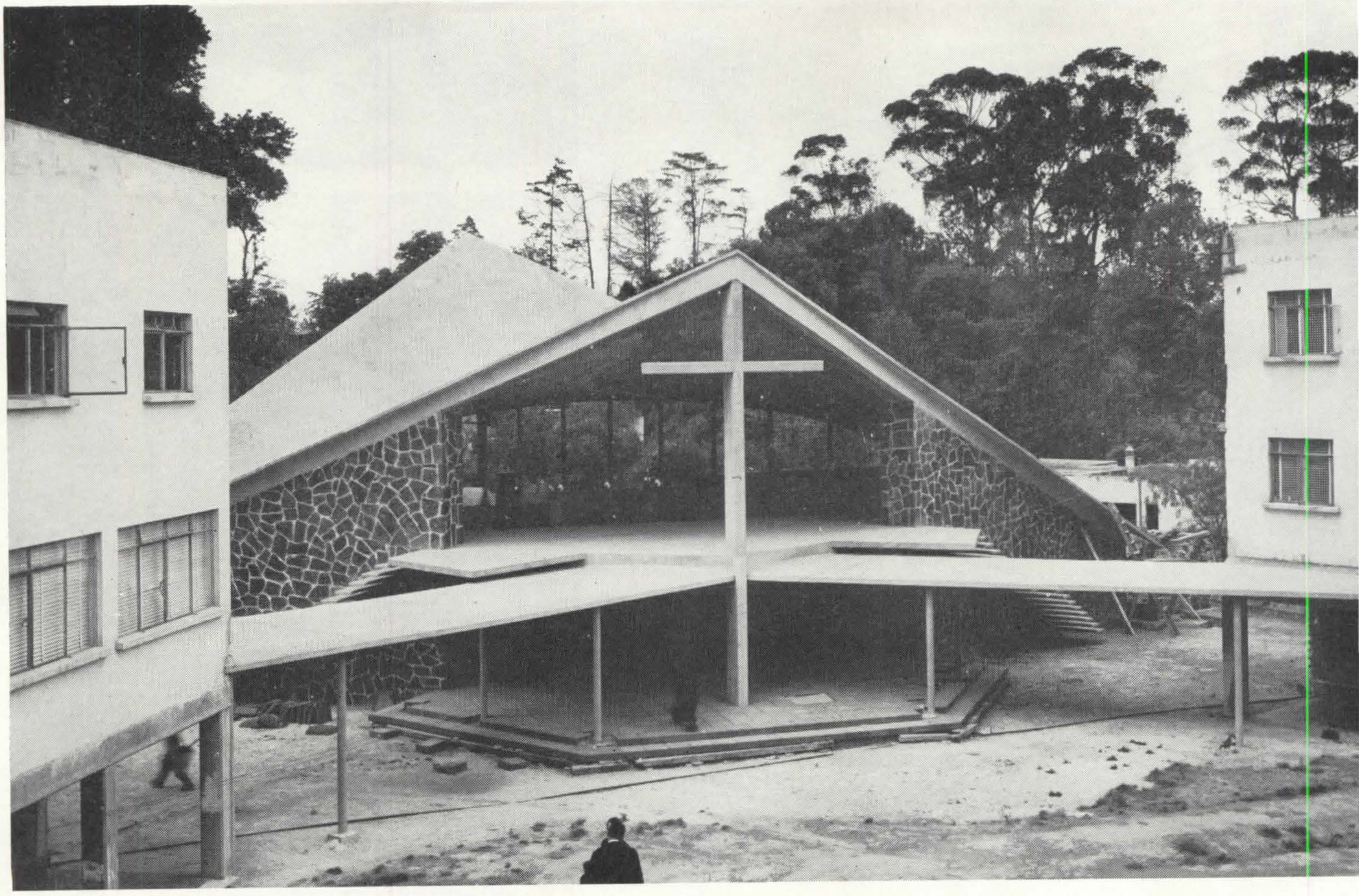


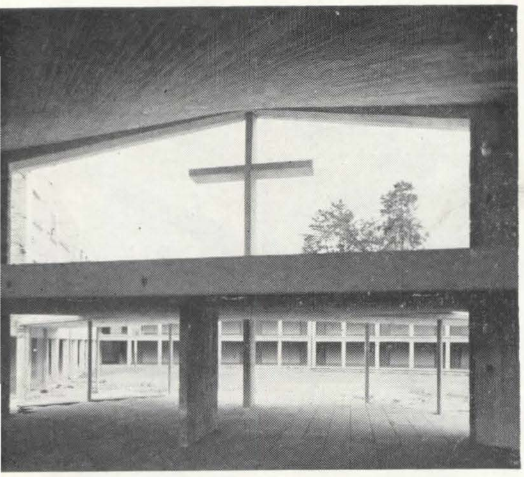
*Sketches, prepared by Architect Enrique de la Mora y Palomar, indicate plan and various sections of the chapel: longitudinal section, looking east* (top) ; *plan; transverse section to north; and transverse section to south* (above).

*Progress construction photos* (right) *illustrate several steps in the erection of formwork and placing of reinforcement for thin-shell concrete leaf that will roof the chapel.*

Photos: Antonio Candela

# concrete slab for chapel





### the shell

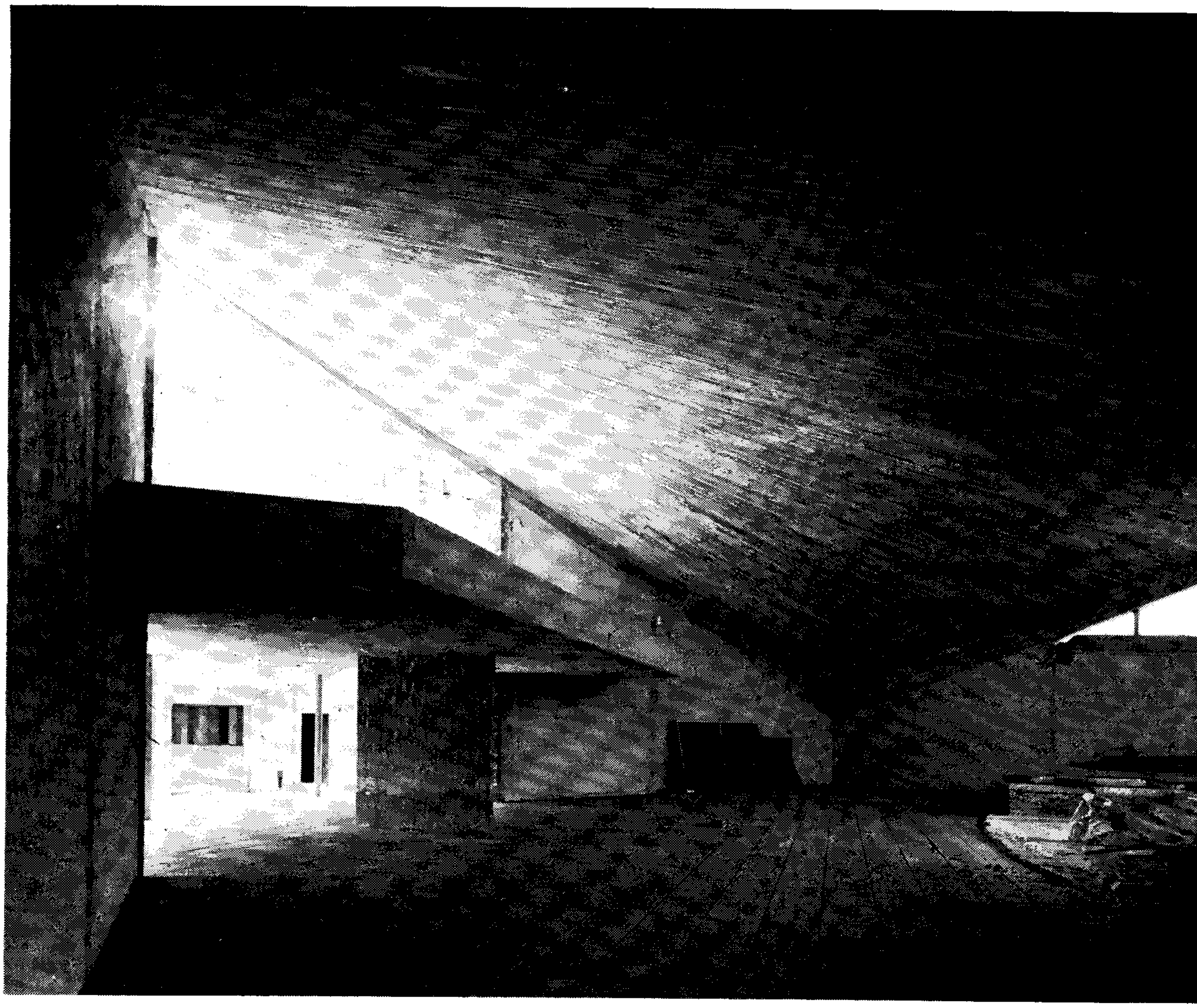
Calculations for the doubly-curved roof have been quoted by the designer as being "easy but complicated." No unusual problems were encountered with the construction itself and the normal sequence of forming, placing of steel, pouring, and removal of formwork proceeded without complications. (*See construction photos and July 1955 P/A for additional discussion of method.*)

Colin Faber, an associate of Cubiertas ala S.A., designers and erectors of the roof, describes its structural system as follows: "The structure is a single hyperbolic parabolodical leaf, limited by straight generators. In this case the paraboloid's axis is not vertical (due to the rhomboidal plan), since the horizontal projections of the generators are not parallel. Therefore, the loads have components along three axes (that is the paraboloid's axis and the two generators intersecting at the crown), and this resulted in a more complicated analysis and longer expressions for the stresses. The problem was to annul normal stresses along both sides of the part in cantilever, there being nothing to counteract them there. As each generator acts like a tie-rod, it was possible to transfer these stresses to corresponding points in the opposite edge where they are resisted by the concrete wall working in bending. In other words, the structure is an asymmetrical double-cantilever supported at the two lower corners, and due to the unequal thrust of each cantilever, the shorter arm must be fastened to the wall. The only function of the vertical struts along the lower edges is to provide secondary support to prevent either upward or downward deflection, such as may be induced by temperature changes."

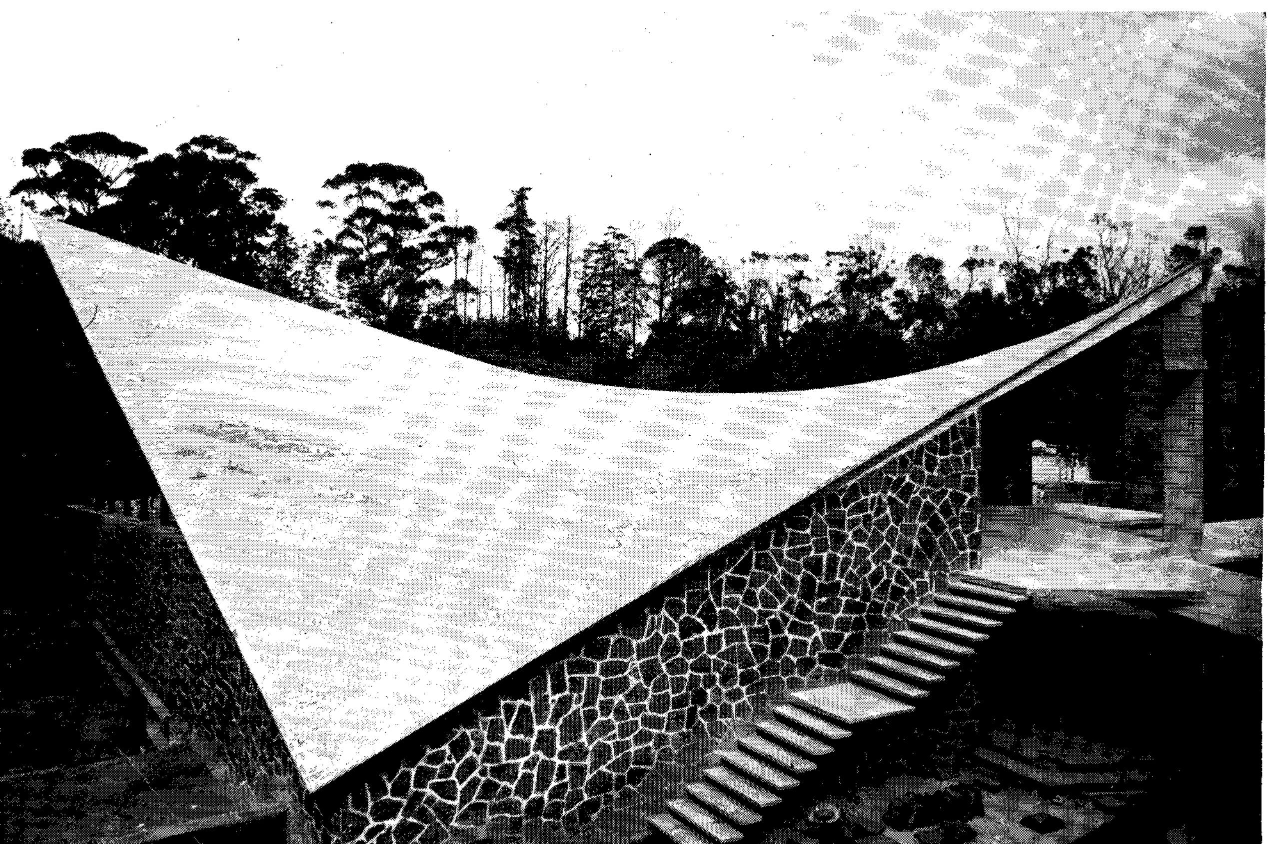
### designers

Architect: Enrique de la Mora y Palomar; structural design and calculation of shell: Felix Candela; design and execution of substructure: Wolfram Oehler; sculpture and windows: Herbert Hoffman Issenburg.

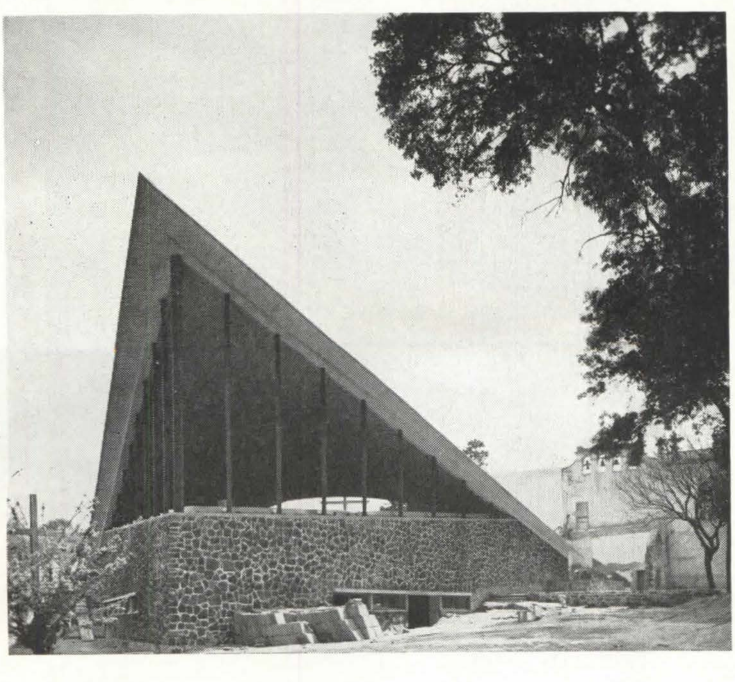
*Elevated platform (right) supports choir and organ.*



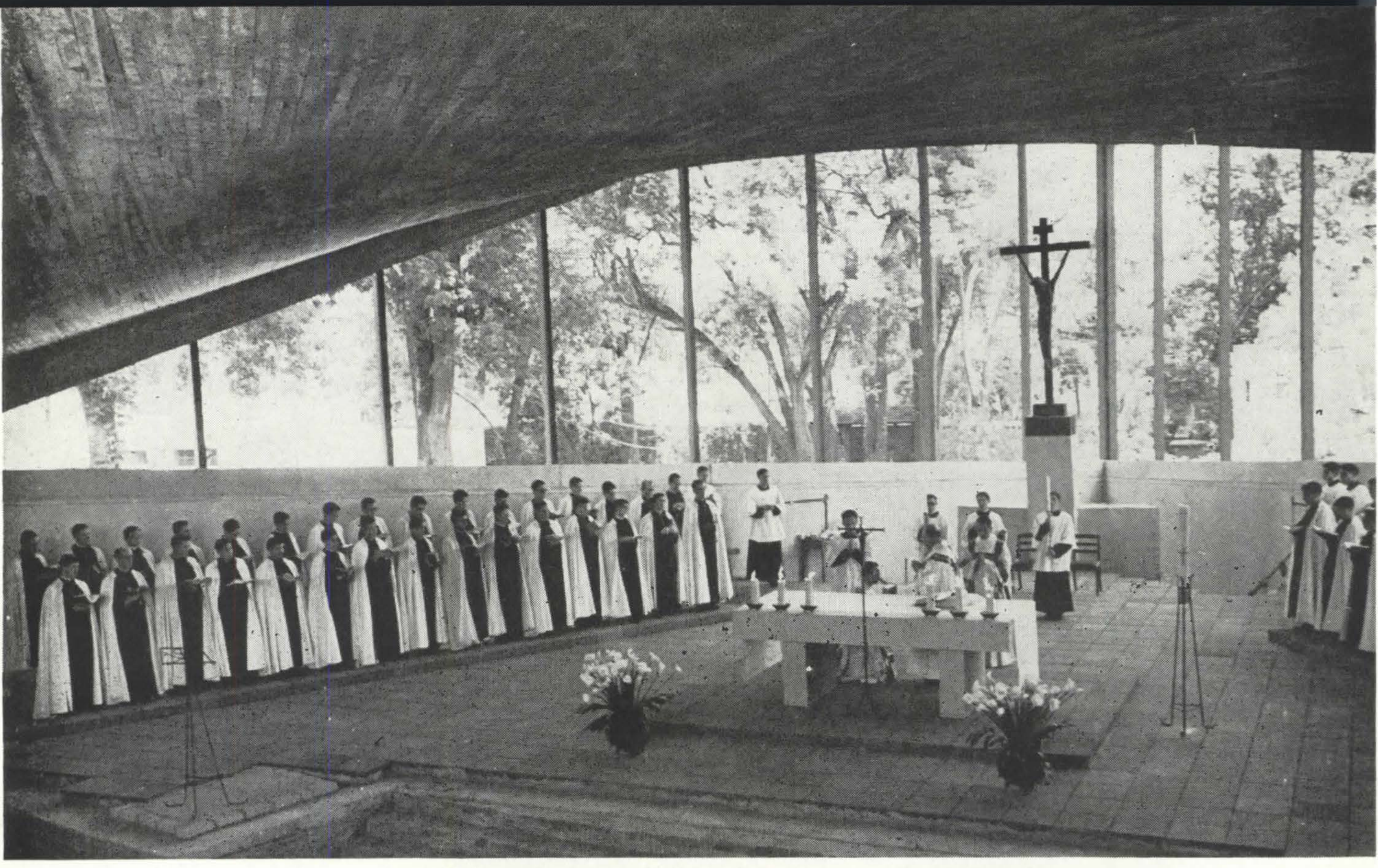
*Herringbone pattern on roof (below) is made by waterproofing tile. Each brick-red tile lays parallel to one of the systems of generators.*



## concrete slab for chapel



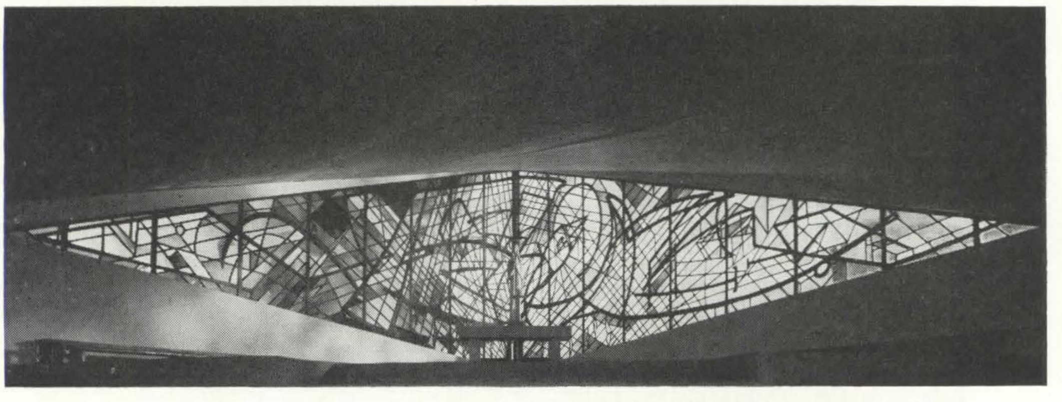
*Struts only provide secondary support to prevent upward or downward deflection that might be caused by temperature changes.*

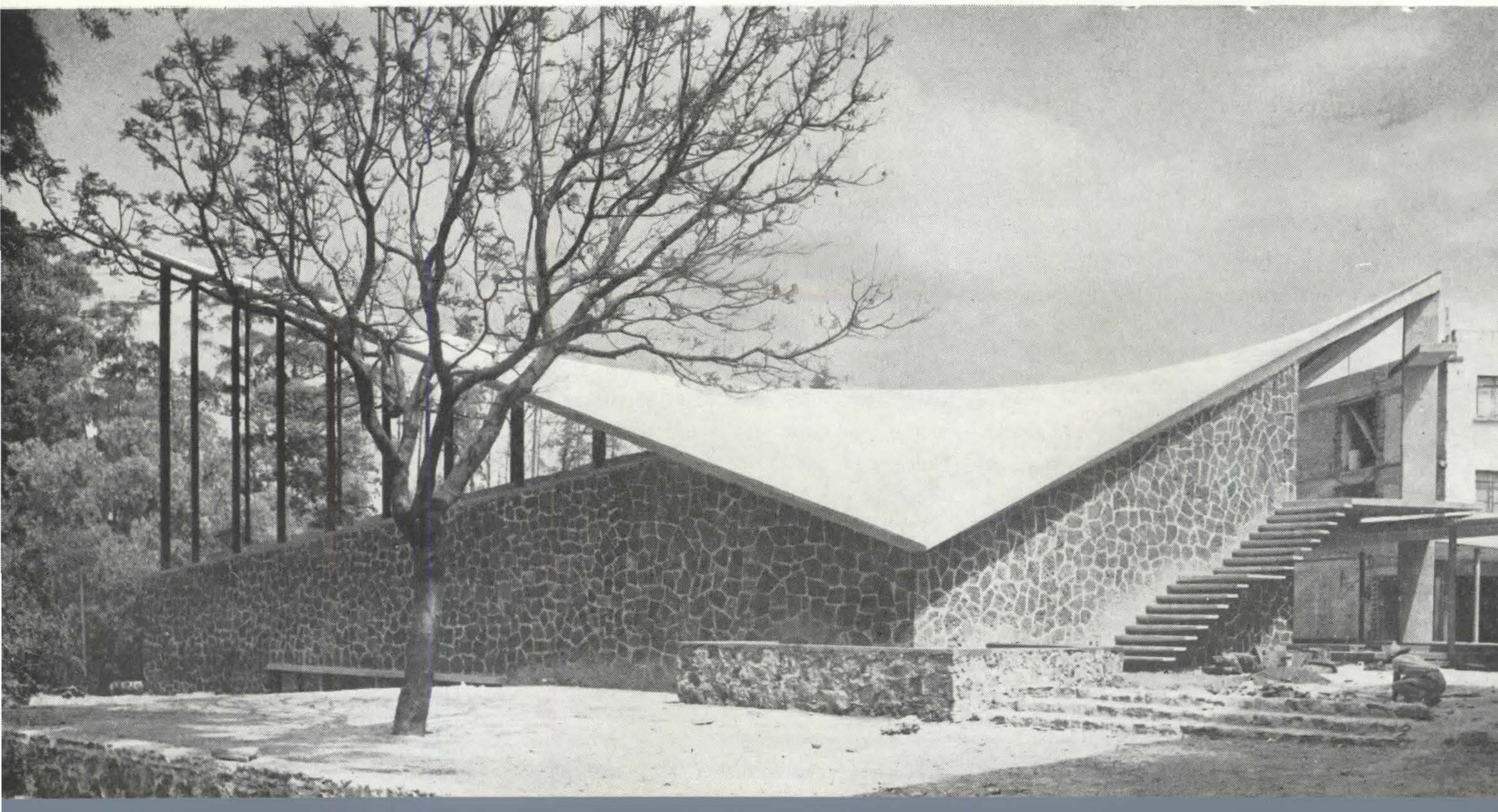


Services at High Mass last Easter Sunday (above).

*Acoustic tests, made at current stage of construction, proved the interior to be very satisfactory for good hearing conditions; further experimentation is contemplated after installation of stained-glass.*

*Model of stained-glass window behind altar* (right).





# cold-glazed cement finishes

by Guy G. Rothenstein*

After the appearance of a variety of excellent plastic wall finishes during the past 10 years, one now observes the comeback of the age-old material "cement" in the form of a cold-applied, colorful, glazed, surface finish. This development has become possible through advanced cement chemistry, combined with the use of contemporary tools, and these finishes are available factory-applied to cinder or concrete blocks as well as site-applied to almost any surface.

Cold-glazed cement finishes consist essentially of portland cement, graded silicas, mineral pigments, and special organic hardeners which create a surface glaze[1] under the physical action of the application process. The glaze is rendered permanent by retarding the curing with the application of a very thin temporary sealer which retains moisture in the concrete until ultimate curing is attained. Thus, the only function of this sealer is to help cure the mixture under ideally slowed-down conditions, and the result is a glazed finish of maximum hardness. The sealer eventually disappears with no change in appearance of the finished surface.

The application involves a series of steps which will be described later. The end product obtained is a highly decorative, extremely hard, wall finish with tile-like qualities and monolithic appearance; which, besides factory applications to blocks or panels, can be applied in the field to surfaces of any size and shape.

### history

Cold-glazed cement finishes are relatively new in the Western Hemisphere, although they have been used for decades in Europe in a somewhat less-perfected form than they are now available here.

The process actually originated with the manufacture of cement tiles, which were competing on the European market with ceramic or vitreous-type "fired" tiles. Through the process of making cement tiles it was learned that the natural glaze, which occurs often in a spotty manner in any troweled cement finish, can be evenly controlled and rendered permanent with the aid of chemicals and proper techniques. Patents on the cold-glazed process were issued as early as 1908 in Germany, and the last patent for an improvement to it was issued in 1949.

Installations on this continent date back to 1932, the oldest being in Canada. Up to the present time, these have all been site applications and recent examinations have indicated that their freshness of color and glaze are equivalent to the original condition and that the hardness and durability have improved with age.

This finish has been used extensively in hospitals, schools, dormitories, and industrial and commercial buildings.

### properties

Inasmuch as the materials used are essentially cementatious mixtures, manufacturers apply the principal well known cement-performance data. Specific data compiled from field and laboratory tests which apply equally to glazed blocks are shown (*Table I*).

The factors influencing the appearance are: texture of the base material (if any); texture of the cold-glazed cement —its sheen, its color, and the quantity, shape, and size of the spatter-color particles and their degree of fusing with the base color. The number of combinations of these influencing factors is almost infinite to create extraordinary decorative effects and, while research in this field had been somewhat neglected, one manufacturer is presently engaged in a thorough program to improve available pattern and color combinations. The monolithic appearance permits interesting architectural treatments and the possibility of color change for base or spatter coat for different walls within one area adds to the decorative qualities of the material. While plain colors are available, the spatter or multiple-color patterns may be considered as almost necessary to give the material the desirable quality of "depth," and hide imperfections. If the material is field applied to masonry, the joints, while completely covered, can still be seen and form a rather subtle pattern on the wall.

### field-applied uses

Techniques of field application vary with the different systems on the market. All, however, involve a series of steps ranging from wall preparation to single or multiple-color brush and spray applications. In addition to the hardening agent used, water-spray applications are required, the number depending on the humidity conditions. The last step is the application of a sealer or impregnator coat, spray applied in order not to upset the reaction after the particles have been deposited on the surface. Bonding is obtained both chemically and mechanically, depending on the nature of the surface.

The initial curing to make an installation usable is a matter of 24 to 48 hours after completion of the application which itself takes from two to four days, depending on the system used and atmospheric conditions. The complete cure to obtain maximum performance takes from weeks to months—as a matter of fact the properties of the finish keep improving, often during periods of several years.

Since the material is monolithic in structure, it cannot be separated from its base. It can be applied on wall surfaces of any size and shape, and will last as long as its base. Areas up to 3000 sq ft have been covered without expansion joints and no cracks have appeared on the surface.

Cold-glazed cement can be applied to any type of wall surface which is of a solid-rigid construction and in which

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** Designer, New York, N. Y.*

*[1] In the cold-glazed cement-finish industry the glaze is described by one manufacturer as a natural one—the result of a controlled process whereby the water of crystallization and cement particles appear on the surface; another manufacturer defines his glaze as a colloidal film of the cement, itself, as a result of the chemical action of the compounds used in the mix.*

there is a normal amount of expansion and contraction. A great number of materials such as concrete, all types of masonry, stucco, plaster, fiberboard, and even wood and metal can be used as a base surface for the material. The fact that the thickness of the finish is only 1/16 in. will save up to 2 in. of floor area compared with other facing materials.

Outdoors, cold-glazed cement finishes have very interesting possibilities when applied to structural concrete or other materials as protection and as a decorative finish. While this finish will not prevent settlement cracks from occurring in the concrete, it will prevent damage by early exposures of concrete to the effects of weathering before the concrete has reached its maximum strength and resistance.

Since cold-glazed cement breathes, water under hydrostatic pressure presents no problem. This would seem to indicate that glazed block will be suitable for underground applications such as tunnels, subways, etc., where few materials have stood up previously.

**Table I: Properties of 1/16" Thick Cold-Glazed Cement Finishes**

| | |
|---|---|
| **Adhesion:** | The material forms a monolithic structure with other cement-based base materials, such as concrete (especially if green), concrete masonry, stucco, etc. On noncementatious surfaces a base coat containing chemical neutralizers and a silicate bond material is required. |
| **Elongation: Tensile strength: Flexibility:** | Same as cement. |
| **Abrasion:** | Surface gloss was removed in a Taber Abrasion Test, but no loss of color or pattern was noted. The opinion of the testing laboratory was that the product would be satisfactory for foot traffic, although use as flooring is not proposed by the manufacturer. |
| **Shock resistance:** | Same as high-strength cement. |
| **Water absorption:** | Bricks covered with a cold-glazed cement finish immersed in water absorbed 0.3 percent in 24 hours; no increase for longer immersion. |
| **Accelerated weathering:** | A cement slab covered with cold-glazed cement finish was placed in an Atlas Weatherometer for a period of 2500 hours (equivalent to 18-20 months of outdoor exposure). No effect, except for removal of the temporary sealer. |
| **Light fastness of different colors:** | Good. |
| **Heat resistance:** | No effect at 120F after exposure of several days. |
| **Fire resistance:** | Incombustible. |
| **Chemical resistance:** | Excellent for acetone, methanol, xylene, butanol, caustic soda five percent, soda ash five percent, trisodium phosphate five percent, sodium metasilicate five percent, sodium hydroxide six percent.<br>Very good for sodium hydroxide 30 percent.<br>Fair to good for acetic acid 10 percent.<br>Fair to poor for acetic acid 50 percent.<br>Fair for hydrochloric acid 10 percent.<br>Poor to fair for hydrochloric acid 50 percent.<br>Poor for nitric acid five percent, sulphuric acid five percent, lactic acid five percent. |
| **Washability:** | No effect after more than 100,000 cycles of washing in a washing machine with bristle brush and an alkaline soap solution. |

#### factory-applied uses

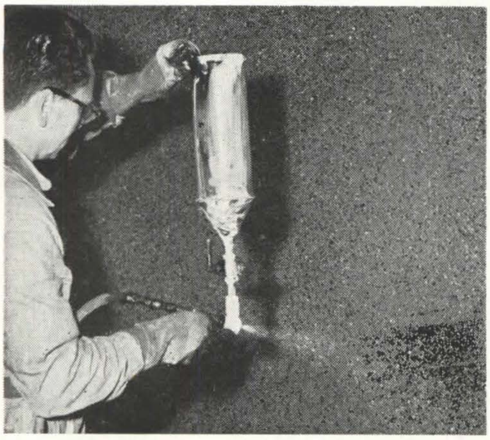
Of various possible factory-applied uses of cold-glazed cement finishes, the first one available is concrete-masonry blocks of various standard thicknesses and sizes. While the field-applied finishes, especially on vertical surfaces, always have a slightly textured surface, factory-applied cold-glazed cement finishes may be rendered smooth through vibration in the horizontal position. This also produces a very dense and extremely hard finish after curing under controlled thermal conditions. A greater degree of color control is also possible in factory applications on block or panels.

Unlike various kinds of blocks on the market which have natural or synthetic "laminated" finishes, the cold-glazed finish forms a monolithic structure with the block itself, with a slight return of the glaze at the edges. These blocks are easy to handle during shipping and very easy to set. Their cost installed is lower than that of any finished block or tile material.

Among the blocks available with this integral finish is an 8-in. thick "cavity-wall block" glazed on the outside. This block permits laying up a cavity wall in a single operation with a highly decorative and colorful glazed finish. Plaster can be applied on the inside directly to the block without furring because of the excellent insulation factor of this block and the watertightness of the finish.

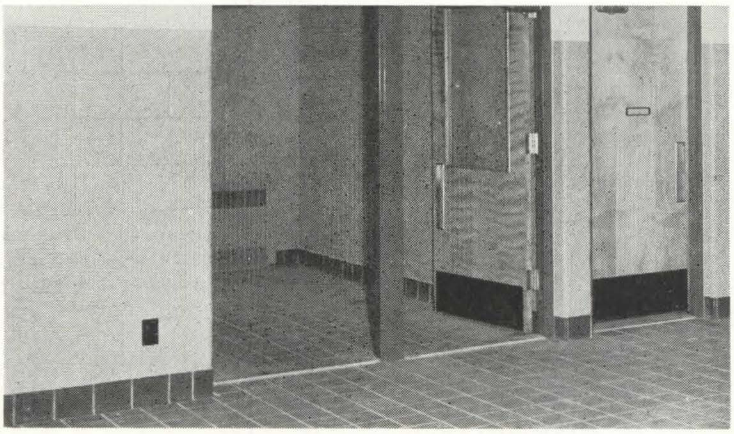
#### cost

As indicated earlier, the prime usage has been and will increasingly be in the area of interior-wall finishes. Generally, cold-



*Application of "splatter" coat of cold-glazed cement with gravity-fed spray gun* (left). Photo: Vitricon Corp.

*Cold-glazed cement field applied to block in school corridor* (below). Photo: Cement Enamel Development, Inc.



glazed cement finishes have been used in areas subject to hard wear, moisture, and where frequent washing of walls is desirable. These areas include lobbies, corridors, swimming pools, bath and shower rooms, work areas, and the like.

Cold-glazed cement finishes are priced at 60 to 80 cents per sq ft installed which puts them approximately half way between the cost of paint and tile.

From the point of view of performance they are very close to that of tile with the advantage that joints may be concealed.

Therefore, this material has been used mostly in lieu of tile with resultant savings that have enabled architects to provide permanent, hard-wearing wall finishes on reduced budgets. In many cases, architects have obtained floor-to-ceiling height installations rather than wainscotes without any increase in cost. Cold-glazed cement finishes can also be applied to ceilings and soffits.

Now that finishes are available on concrete block, the cost of a finished wall will be even less. The major use anticipated initially is for partition block. The cold-glazed finish will only add about 25 cents per sq ft to the cost of the block, as marketed by several block manufacturers producing such blocks under a licensing arrangement.

This can be compared with plastic-faced concrete blocks of various types which add from 50 to 80 cents per sq ft to the cost of the block, and the cost of ceramic tile which adds as much as $2.00 to $2.50 per sq ft.

**equipment and application**

The application of cold-glazed cement finishes is a new craft, although the process itself is not new. Field work is contracted for by applicators licensed by the manufacturers, and franchises for many areas in the U. S. are still open. The work is performed by specially trained union-affiliated mechanics.

Used as an interior-wall finish, it is desirable that the material be applied to walls after all construction work has been completed and before heating grills, radiators, and plumbing fixtures are installed. Decorating—such as painting, varnishing, and paperhanging—should be carried out after the installation. Permanent-type floors such as concrete, terrazzo, and tile should be completed before the installation, but floor coverings, including linoleum, rubber, and mastic tile should be installed after application. All terminating edges should be masked and the usual precautions taken to protect the work of other trades.

Used outdoors, one limitation may be the prevailing weather condition at the time of the application. The material should not be exposed to rain for at least 12 hours.

The mechanical equipment used in field applications consists of compressor, hoses, gravity-fed spray guns, etc. This is compact, inexpensive, low-power equipment.

**future**

Unlike many new finish materials which have appeared in recent years, this one has the virtue of not attempting to imitate the appearance of other materials. (Architects are weary of metals made to look like wood, wood treated to look like metal, and plastics trying to look like any conceivable material under the sun, except plastics.) While small sample panels of cold-glazed cement finishes have a certain resemblance to mottled tile, the effect on the wall is quite different through the absence of joints which gives the material a warm and "uninstitutional" appearance. The material follows all shapes and contours, opens interesting design possibilities for curved, rounded, concave, or convex surfaces.

Economies in wall and partition construction can be obtained if the designer takes full advantage of all properties of this material in the selection of the materials to which the finish is to be applied.

Undoubtedly in the future cold-glazed cement finishes will be put to many more interesting and imaginative uses in the hands of architects, engineers, and designers.

*The author wishes to acknowledge the assistance of the following organizations which furnished technical data for this discussion: Vitricon, Inc., Long Island City, N. Y., for Vitricon; Cement Enamel Development Inc., Detroit, Mich., for Cement Enamel.*

# floodlighting for buildings

by A. H. Clarke*

It's almost axiomatic that an interesting building deserves floodlighting. The greater its architecture, or the more important its use or purpose, the more effective it will be when illuminated. The attractive byplay of lights and shadows over a building's surfaces—so evident in bright daylight—can be heightened even more at night.

Most architects recognize this axiom but haven't fully investigated the means by which it can be applied. The purpose of this article is to cover those means by (1) determining what esthetic effects floodlighting has upon building exteriors, and (2) to discover how these effects are produced.

It is not just because floodlighting is within the architect's province that he needs to know more about it; exterior floodlighting of buildings is a new chore for many architects today. Increasingly, owners of both public and commercial structures are employing floodlighting as a dignified means of advertising. It has become profitable to emphasize to customers or the public the daytime activities within a building, by calling attention to it at night.

Actually the first technique—determining the over-all effect of floodlighting on the structure—may already have been perfected by the architect. By designing a building to fit a particular need, or to occupy a certain terrain, he creates a particular emotion and visible meaning that is instantly obvious. As a work of architecture, therefore, the building dominates its setting by exemplifying its true form and purpose. Yet, because the building is bathed in light during the day, it normally vies to some degree with its surroundings for the notice of passers-by.

Adequate floodlighting achieves the revelation of this form and purpose under conditions that illuminate only the building. By successfully funneling a limited amount of light upon a structure, floodlighting produces intense brilliance—almost theatrical in effect—which emphasizes the façades of the building far more than anything situated next or near.

But this effect is not obtained just by highlighting the building. Faulty illumination can destroy the basic form and depth of the structure. To prevent this, recognition must be given not only to the use of correct floodlighting techniques but also to suitable floodlighting equipment.

### illumination levels

The problem of floodlighting a building multiplies if the building ill affords the means by which floodlights can be mounted and concealed. When determining the lighting level, the designer should follow this simple rule: the over-all impression of the floodlighting must often reveal the actual texture of the building surface. This measurement generally is based upon the nature of the building's surface material and the amount of light surrounding it. A guide in selecting specific levels of illumination is shown (*Table I*). Footcandles recommended should be maintained in service. For average conditions a depreciation factor of .75 is allowed. This factor is higher in grimy locations or where maintenance is infrequent. Percentage utilization of the light produced by the floodlights is still another factor; this can vary from 80 to 50 percent, depending where the floodlights are located with respect to the area lighted.

Layout design and selection of floodlight reflectors and lenses should provide multiple, overlapping, light beams. At least 100 percent and greater overlap creates completely uniform illumination and prevents the failure of one or two lamps from affecting the over-all lighting pattern.

If a building has a series of setbacks, it's considered desirable to illuminate the top brightly and permit the light to diminish progressively downward to the lower levels. This crown-of-light effect is impractical, however, for tall buildings that must be lighted from narrow ledges or setbacks. Better total effect is always the result of highlighting the building's architectural features as efficiently as possible.

* *Vice-President of Engineering, Crouse-Hinds Co., Syracuse, N. Y.*

**Table I: Recommended Illumination Levels for Floodlighting****

| Surface material | Reflectance (percent) | Surround bright (ft-c) | dark (ft-c) |
|---|---|---|---|
| Light marble, white or cream terra cotta, white plaster | 70-85 | 15 | 5 |
| Concrete, tinted stucco, light-gray and buff limestone, buff face brick | 45-70 | 20 | 10 |
| Medium-gray limestone, common tan brick, sandstone | 20-45 | 30 | 15 |
| Common red brick, brownstone, stained-wood shingles, dark-gray brick | 10-20 | 50 | 20 |
| Poster panels and bulletin boards | Light | 50 | 20 |
| | Dark | 100 | 50 |

**Illuminating Engineering Society Lighting Handbook.

**mounting locations**

One word describes the ideal placement of floodlights—inconspicuousness. Besides prime esthetic reasons, this feature eliminates the possibility of glare within the viewing field of persons observing a floodlighted building. It is mandatory that floodlights be concealed by artful landscaping, fences, or walls. Besides ground mounting there are three other locations that cover most floodlighting installations: (1) on poles; (2) on adjacent buildings; or (3) on building ledges or setbacks.

Pole-mounted floodlights fit only certain situations. Besides having a distinctive appearance, they must be integrated with the general design of the strucure they illuminate. Such units should also be located so as to highlight the building as the dramatic center of attention.

There are a number of advantages to using the roofs of adjacent buildings as mounting locations: lighting units are obscurely located, ample space is usually available for floodlight equipment, and, because aiming angles are more favorable from such locations, fewer floodlights cover greater areas and provide more uniform illumination.

Where none of the preceding locations is practical, equipment can be mounted on portions of the building itself—such as marquees, setbacks, ledges, or tiers.

**selecting equipment**

Floodlighting equipment mounted on buildings is the "heavy-duty" type. Floodlight housings and mounting accessories are usually noncorroding cast-aluminum alloy. Designed for long life with a minimum of maintenance, these floodlights are available in a wide range of reflectors and lenses. Incandescent searchlights should be kept in mind for accenting distant, important points of structures. Also of cast aluminum, searchlights for buildings are available in sizes from 12-in. to 36-in. mirror diameters.

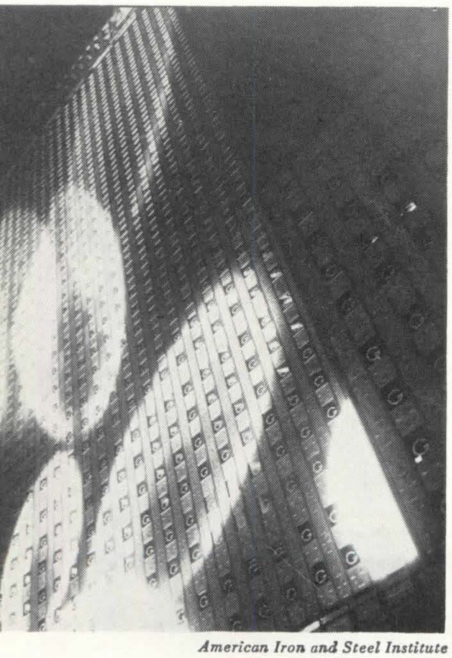
For applications requiring special fixtures, there are several practical types on the market. Ornamental lanterns, closely resembling a street lantern, have an inner-floodlight optical system which can produce either narrow- or wide-beam lighting patterns. Another special fixture is flush mounted in ceilings and walls.

**lighting patterns**

Patterns of floodlighting are created by a combination of two optical elements —reflector and lens. The reflector produces symmetrical patterns that can be either narrow or wide. The lens or cover glass merely modifies this basic pattern.

But further modifications are obtained by using particular types of lamps. "Floodlight-service" lamps, which have the greatest filament concentration, provide narrow beams for long-range projection. Equipped with larger filaments, "general-lighting-service" lamps provide short-range projection.

Lamps for floodlighting must be clear, not frosted inside. Such lamps provide a

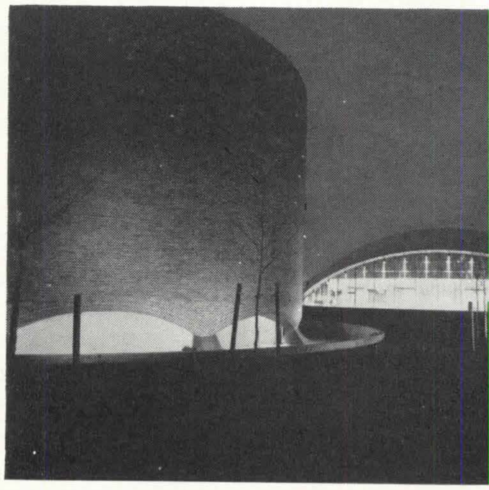


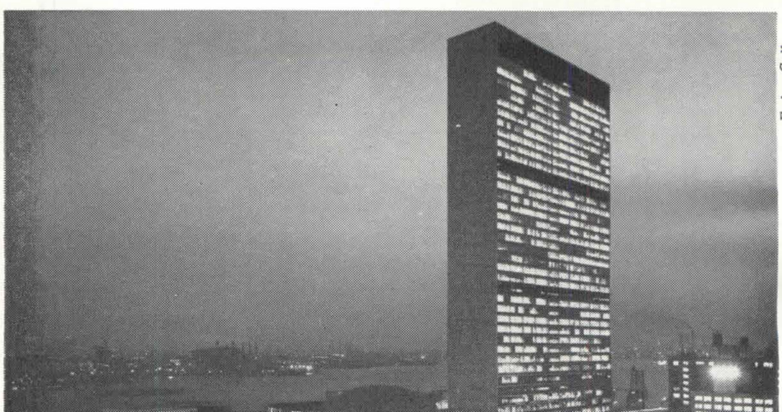
*American Iron and Steel Institute*

*During Christmas week last year, both fixed floodlights and giant searchlights were played on New York's Socony Mobil Building* (left)*. The 10-billions-candlepower light on the stainless-steel facets was softened and divided into myriad small lights when reflected on walls of surrounding buildings.*

*Night view of the United Nations Buildings shows floodlights on marble walls of General Assembly Building. Fixed floodlights can also illuminate glass-surfaced entrance walls of this building.*

*Gradation of light on brick surface of MIT Chapel accents the reposeful character of the structure. Mullions in glass façade of auditorium (background) are defined with downlights.*





*Ewing Galloway*

much larger and more diffuse light source and enlarge the beam pattern. The following five lenses meet most floodlighting needs:

1. *Plain,* used where a concentrated beam is needed.

2. *Smooth beam,* produces a uniformly bright but narrow beam.

3. *Diffusing,* illuminates large areas at relatively short range, spreading a beam both vertically and horizontally.

4. *50-degree spread,* forms asymmetric pattern with wide spread in one direction and minimum spread in the other.

5. *100-degree spread,* produces a light pattern as much as twice the width of a 50-degree-spread lens.

### floodlights—how many and how big

The best way to determine the number and sizes of floodlights required is to lay out the building to scale and calculate the lighting from distribution curves. These curves are obtainable from a floodlight manufacturer for the asking. By superimposing curves on the building, the proper amount of light for each part can be earmarked.

As an approximate guide in determining load required, the wattage per sq ft of building surface for each footcandle of illumination under varying operating conditions is shown (*Table II*).

### light sources

The most widely used floodlighting source for building is the incandescent lamp. Although mercury-vapor and fluorescent lamps are used on a limited scale, they have certain disadvantages. The mercury arc is a relatively large light-source and, as such, is difficult to shape into normally required beam patterns. Also, its bluish-green light is not suitable for some building materials.

Like the mercury lamps, fluorescents are large sources of light, factors which make them more diffcult to control. But for lighting long, narrow areas from short ranges—such as the tops of buildings—or to highlight a building along one elevated, yet narrow, ledge so as to create a "coronet" effect, while leaving the rest of the building in darkness, fluorescents are extremely practical.

But the big advantage which the incandescent lamp enjoys over mercury or fluorescent lamps is its concentrated filament. Where light must be projected to a distance and confined to a limited area there is still no substitute for the incandescent lamp.

**Table II: Watts Per Sq Ft of Building Surface for Each Ft-c of Illumination**

| | |
|---|---|
| Average conditions—short or medium range; medium- or wide-angle projection | .2 to .25 |
| Less favorable conditions—long range, narrow or small areas; medium- or narrow-angle projection | .25 to .33 |

*Where glass becomes a major part of the curtain wall, high illumination level within building—as at General Motors Technical Center* (below)*—can be successfully employed to call one's attention to the structure.*

*G. M. Photographic*

### color floodlighting

Floodlighting's inherent dramatic effects are heightened by the addition of color. The eye-catching attractiveness of a floodlighted building is much greater and its advertising effect more effective if floodlighted in attractive colors. Sometimes color is used only on special holidays. To do this, the original installation must have sufficient units, wattages, and provisions for the addition of color screens. Color screens absorb a high percentage of light and while complete allowance for the percentage of absorption is not necessary the following wattage multipliers must be used to obtain the equivalent advertising effect to an already determined level of white lighting:

| | Multiplication factor |
|---|---|
| Amber | 1.5 |
| Red | 2 |
| Green | 4 |
| Blue | 6 |

When choosing a color, remember that it must accentuate the color of the building. Only a white surface can be floodlighted in any color and it is usually the best surface over which to play the beams of a color-cycling device. A red-brick structure should be illuminated only by a red light and at a high level. Buff-colored buildings of brick can be highlighted in red or amber. Gray-hued buildings can be lighted with green or blue.

With or without color, good floodlighting techniques should strive for a pleasing total effect. To do this, a floodlight must make a building appear as beautiful at night as it does in the day, and bring about this extension as economically and practically as possible.

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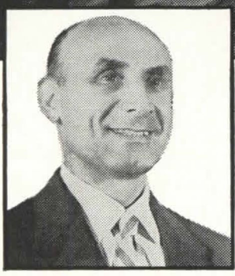

Jean Vafiades of Marseilles, France, is respected throughout Europe as an outstanding artist in floor design and installation. One of his best known achievements is this exquisite wood parquet floor in the reception room, prefecture of the administrative district of the Rhone Delta.

After installation, M. Vafiades carefully chose treatments which would bring out the floor's beauty and preserve it under heavy foot traffic — such as you would expect in any local government building. He selected Hillyard Wood Primer and Hillyard Star Wood Finish. As a special treatment, he then applied Hillyard Super Onex-Seal for a high natural finish, and buffed it to add depth and richness.
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# *Finishing Concrete Floors to Receive Resilient Flooring*

*by Harold J. Rosen*

In an effort to reduce construction costs in these times of spiraling prices, it might be well to analyze more carefully some of the traditional construction practices to determine whether they have any merit and whether other solutions might not be more practical and economical.

How do you prepare structural-concrete slabs to receive resilient-type flooring? Acres of resilient-type flooring materials—such as asphalt tile, linoleum, rubber tile, vinyl asbestos, homogeneous vinyl, etc.—are specified to be laid on structural-concrete floors. In many instances, separate cement toppings (varying between ½″ and 1½″ thickness) are placed over the structural-concrete slabs and then troweled to receive the resilient-type floor coverings. Many arguments are advanced to perpetuate this costly construction operation. Some of the reasons given for this method of construction are as follows:

1. If the concrete floor slab is to be finished immediately, it might be damaged by other trades before the floor covering is applied.
2. Cement finishers might have to be paid overtime, in order to finish concrete floors the day the concrete is placed.
3. Protective coverings might have to be used in rainy weather in order to protect finished concrete floors.
4. Separate cement toppings are necessary in order to allow for recessed sanitary-cove bases, such as terrazzo, ceramic tile, glazed structural facing tile, or architectural terra cotta.
5. Steel-troweled surfaces are necessary, in order to provide a proper base for resilient-type floor coverings.

The cost of providing separate cement toppings over a structural-concrete floor slab may be as high as 20 or 25 cents per sq ft. In addition, for a 1″ topping, about 12 lb per sq ft of dead load are added to the structure, which might be reflected in larger beams, columns, and footings. Occasionally, no bond is developed between the cement topping and the structural slab, causing hollow sounds. Overtime for cement finishers can be reduced by grinding concrete surfaces with a terrazzo-grinding machine during regular working hours. Protection from weather can be avoided by scheduling the placing of concrete and by leaving it to the discretion of the contractor to use such protective measures as may be necessary to provide a sufficiently smooth floor.

Steel troweling of the concrete floor to provide a smooth surface to receive resilient-type flooring materials is debatable, while a smooth surface is achieved in this manner, a level surface is not necessarily obtained. Uneven pressure of the trowel produces slightly uneven surfaces. Although this unevenness is not noticeable to the eye, it becomes apparent when the resilient floor finish is applied and waxed. The highly reflective waxed surfaces at the rises and dips in the troweled floor cause the light to be reflected from the uneven surface, exaggerating the unevenness of the surface. It is true, however, that where a set-in type of sanitary-coved base is required, the cost of providing screeds for depressing the slab to accommodate the recessed base might be considerable, especially where the area is divided into a number of small rooms. Where a set-in type of coved base is used for a large, open area, the additional cost of screeds would be offset by the savings in the omission of the cement topping.

•

The following alternative methods for preparing the structural slab for reception of resilient floor coverings are offered and may be specified as follows:

"1. *Monolithic Finish:* Strike off and screed the structural-concrete slab to a true surface at the required elevation. After the surface water has disappeared, the concrete shall be thoroughly compacted with floats or tampers to force the coarse aggregate below the surface.

"2. *Dust-Coat Method:* The structural slab shall be struck off reasonably true to the required floor level and excess water or laitance removed. A mixture of dry materials consisting of one part of portland cement and two parts of coarse clean sand shall be dusted on the unhardened concrete in a uniform layer not over ⅛″ thick. When the dry materials have absorbed moisture from the slab and the concrete has hardened sufficiently to allow finishing, it shall be floated to unite the dust coat with the base slab to produce an even surface.

"3. *Float Finish:* The structural slab shall be struck off to true planes, at required elevations, and then screeded and floated to a smooth surface.

"4. *Grinding:* Wood-float the structural slab to the required elevations. Grind the concrete surface with terrazzo-grinding machines, prior to the application of resilient flooring."

Grinding of the wood-floated structural-concrete floor with terrazzo-grinding machines has several advantages. First, there is no necessity for finishing the slab by troweling, on the day it is placed, and thus the need for paying overtime to cement finishers is eliminated. Second, protection of the floor from other trades is not necessary and cleaning prior to application of resilient floor coverings is not required, since the grinding operation will prepare the floor and clean it at the same time.

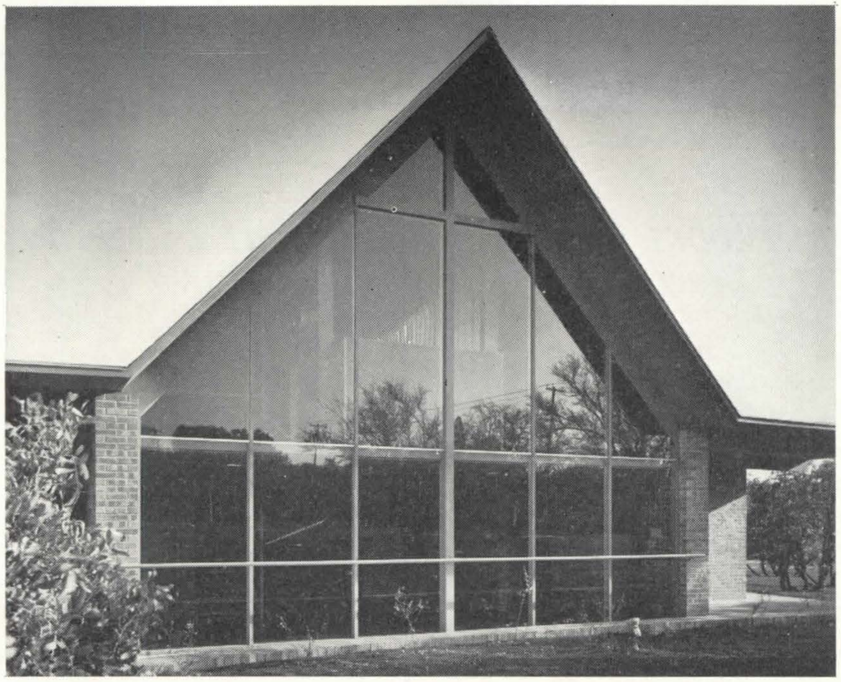
It is suggested that all of the foregoing alternative methods be specified giving the contractor the option of preparing the structural concrete slab to receive the resilient-type flooring by any of these methods he elects.

•

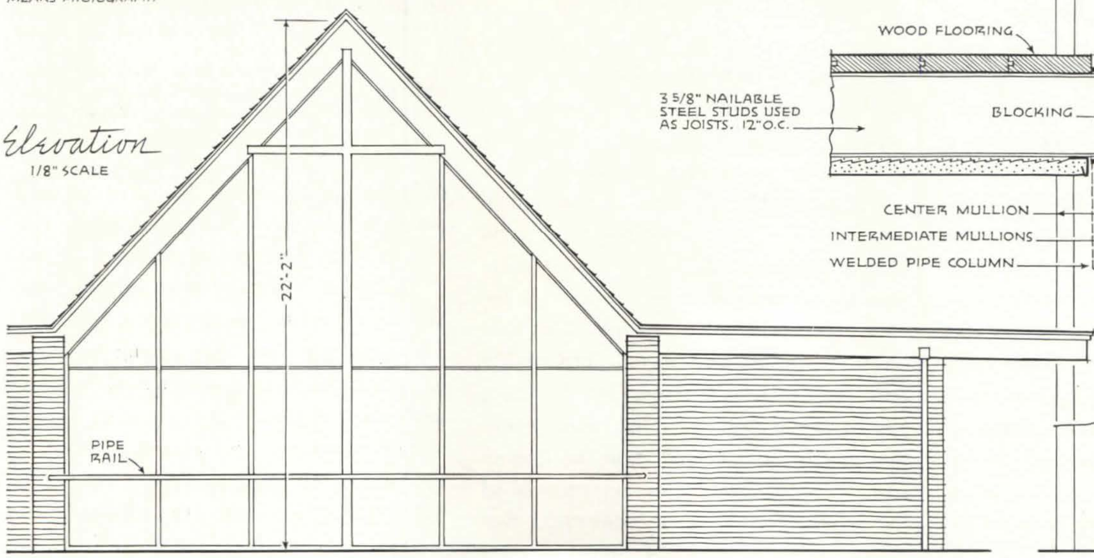
While we are on the subject of concrete floors and resilient floor coverings, one more word of caution might be stressed. Membrane-type curing compounds are being specified for curing of concrete floors. Some of these curing compounds have a deleterious effect on adhesives used for laying resilient floor coverings. *Ask the manufacturer* of the floor covering material whether the adhesive he recommends will be affected by the membrane type of concrete-curing compound you propose to use.

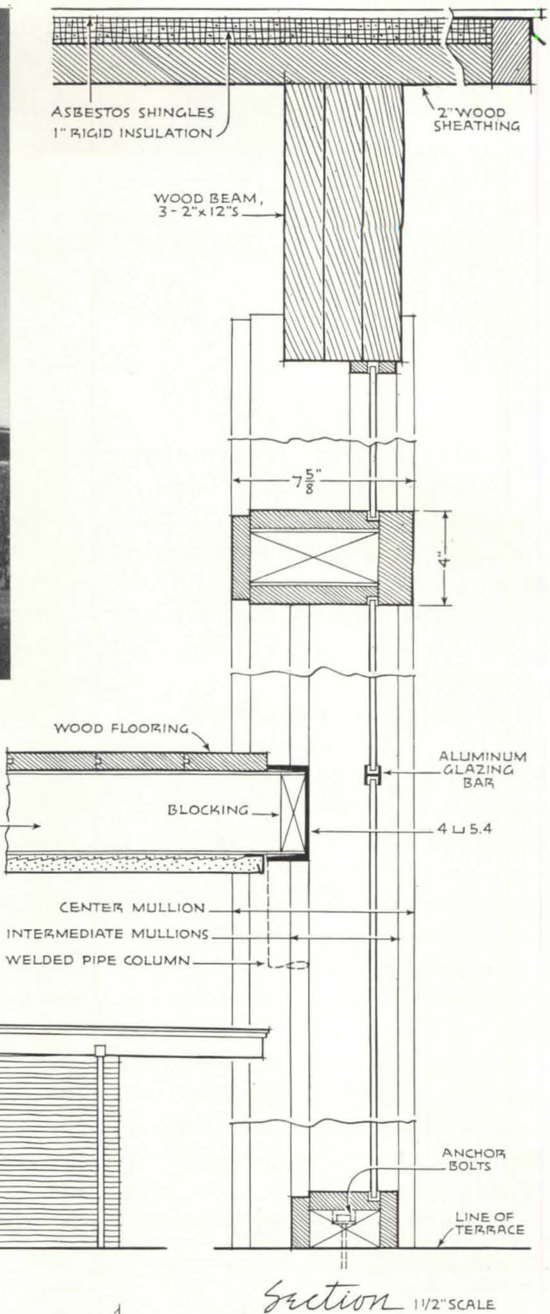
# p/a selected detail

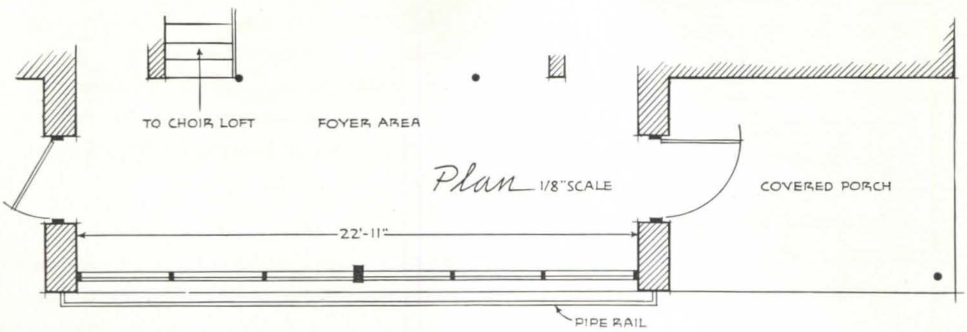
## gabled window

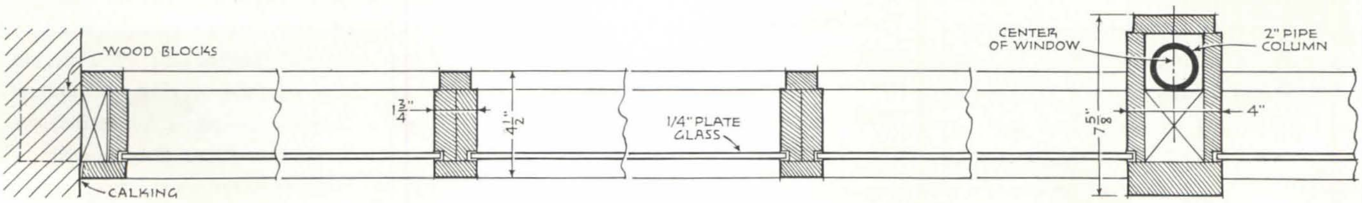


MEARS PHOTOGRAPHY



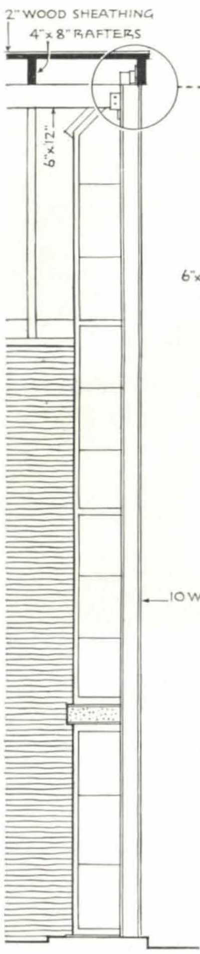



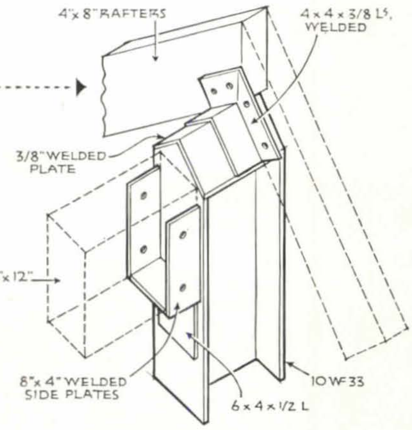

**CHURCH, San Antonio, Tex.**
**Milton A. Ryan, Architect**

# p/a selected detail

## gabled window

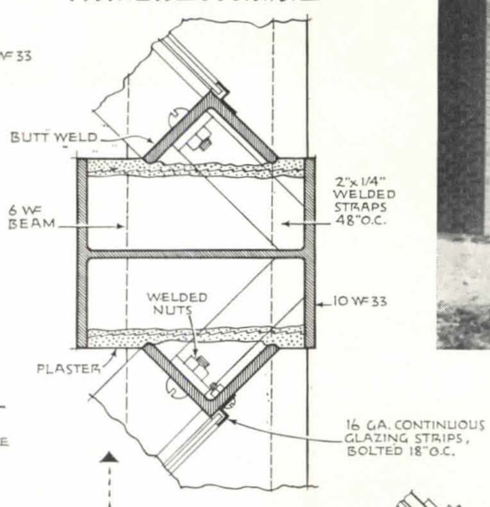


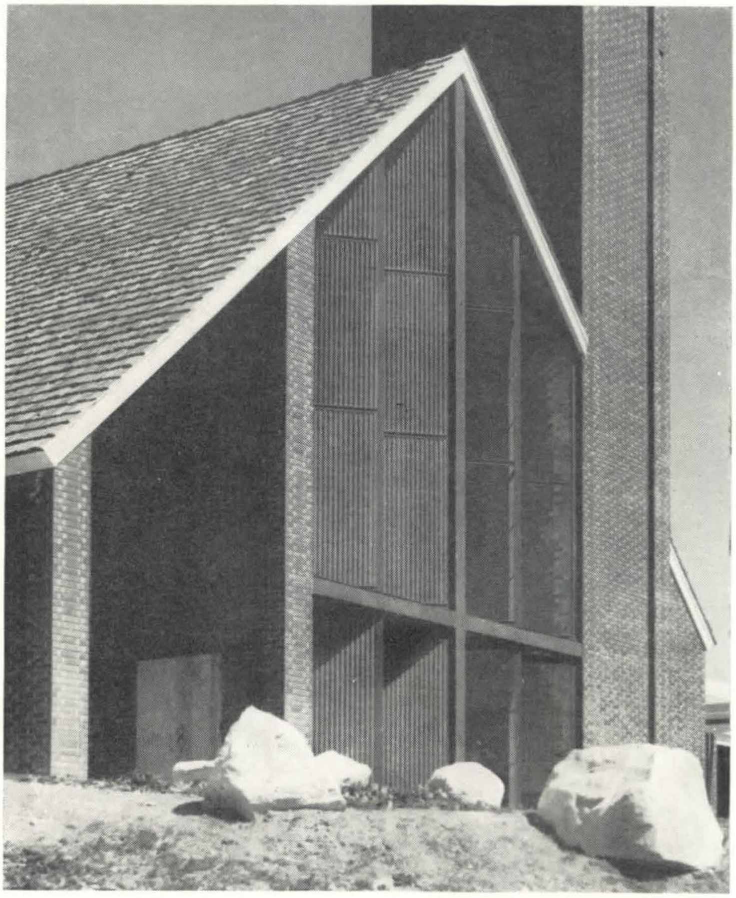

Section 1/8" SCALE
( AT CENTER COLUMN )



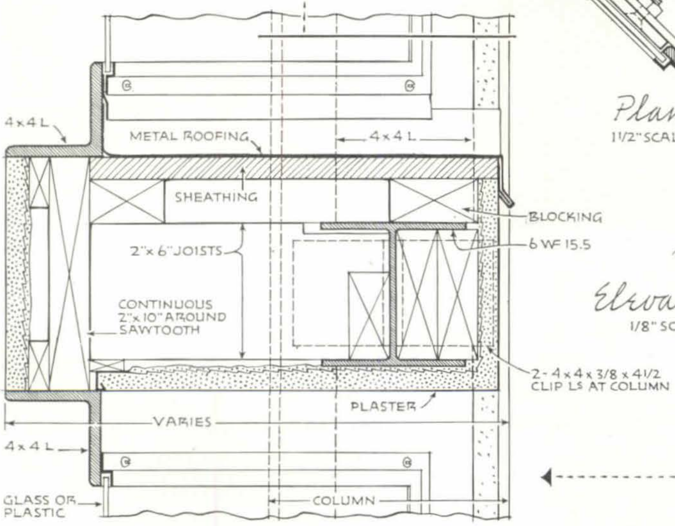

Detail at Ridge

Plan at Column

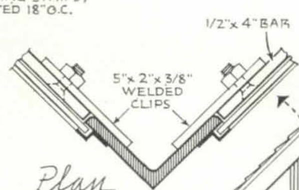


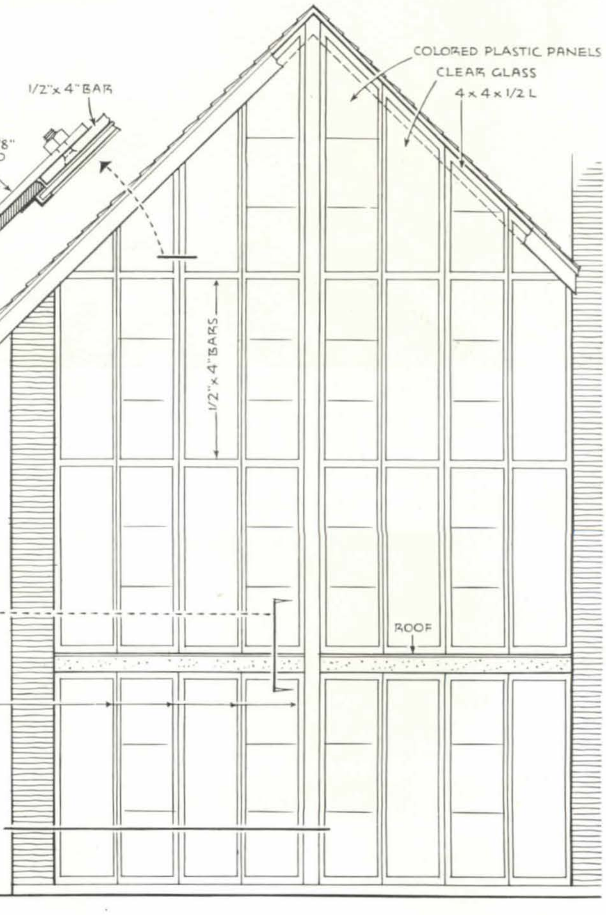
DOUGLAS M SIMMONDS




Roof Section 1 1/2" SCALE

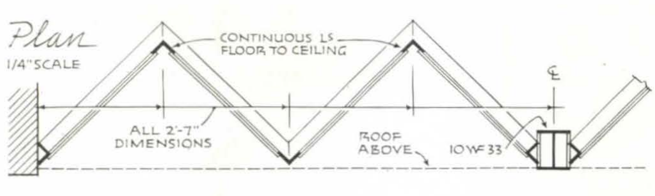



Plan
1 1/2" SCALE




Elevation
1/8" SCALE

Plan
1/4" SCALE




CHURCH, San Pedro, Calif.
Carleton Monroe Winslow, Architect

Louise Sloane

# room settings

**The architect, despite his special knowledge of materials, construction, and layout, is not too often called upon to design interiors whose sole purpose is to sell. Yet the fast-growing use of exhibition rooms for displaying merchandise, ideas, a service, or works of art, could legitimately open to the architect an additional field of practice.**

**Designing the room setting for exhibition demands, *per se*, a skilful blending of varied tehniques–some stagecraft, some sensitivity to human engineering, some feeling for display. No one will live in these rooms; yet if they do not invite living in, they fail of their purpose. If they are too fanciful or too theatrical, their appeal is removed from reality. If they are too pedestrian or too familiar, their appeal is nil.**

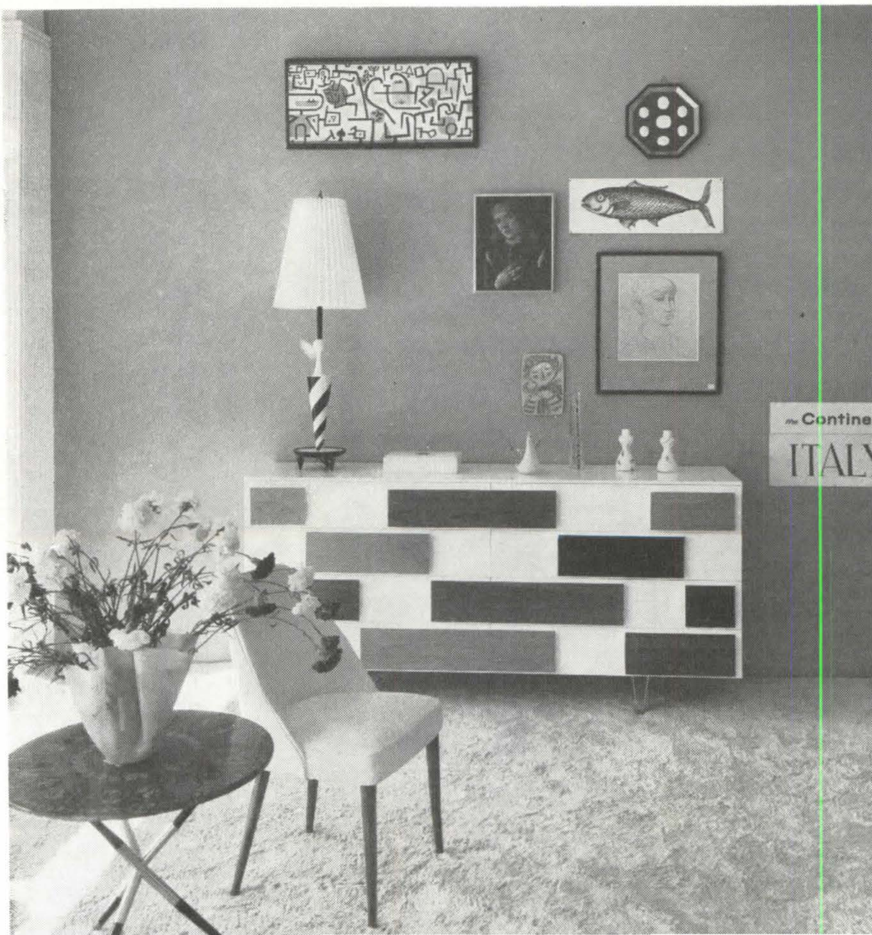
**We have chosen ten examples of room settings—all designed for public exhibit during the past six months—each with a sales reason for being. All have in common the solution of a single problem: to create, with minimum expense, an interior dramatic enough to catch the public eye and arouse interest in the key subject, at the same time believable enough for personal identification on the part of the consumer. Four of the rooms were shown in retail stores, two at a decorators' conference, two in a manufacturers' display of textiles, one at a builders' show, one at a joint artists'-decorators' show. In their respective uses of background, color, and furnishings, each achieves its special purpose.**

*Setting by the Oakland Municipal Art Museum at the American Institute of Decorators' San Francisco conference, offering a preview of the Museum's "California Designed" exhibition. Contemporary furniture is used in an Oriental atmosphere, accented by screen, Bonsai tree, and shimmering foil room divider.*

# room settings


**client: Frank Newman's**
**location: San Francisco, California**
**designer: Paul Palmer**

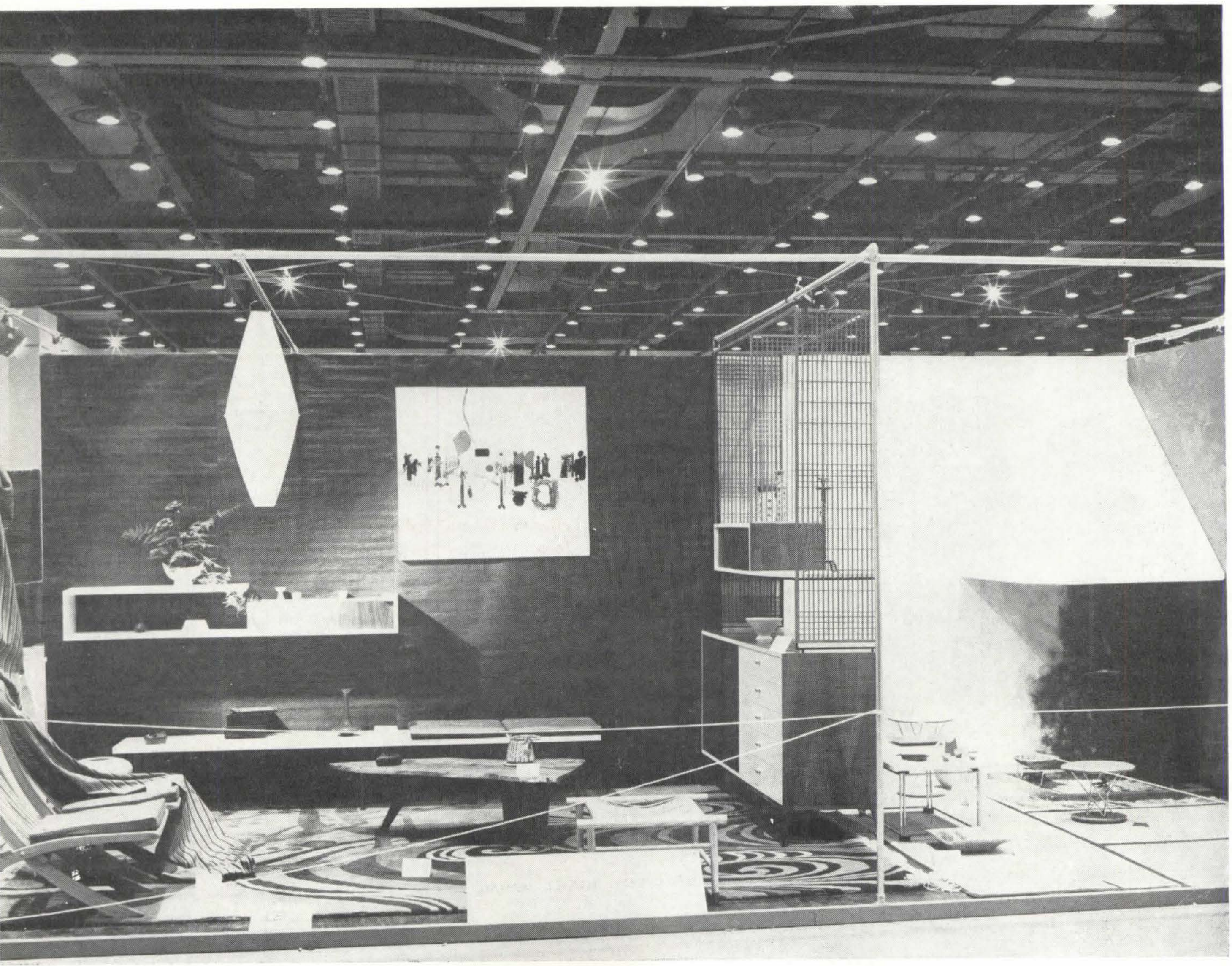
*Three settings* (this page *and* top across-page) *were designed for a furniture store's co-ordinated public showing combining interiors, women's fashions, and automobiles in "The Continental Look." Palmer's interiors soundly promote merchandise sold by the store through settings that are imaginatively dramatic, yet conceivably livable. Furniture in "Sweden" is designed by Folke Ohlsson for Dux. In "Italy," white lacquered chest with rare wood panels is custom-made in store's own shops; chair is by Singer; tripod table by Fornasetti. Contemporary Italian sculpture and paintings contribute importantly to the atmosphere. "Japan" combines antique furniture with black - lacquer - and - walnut contemporary pieces designed by Paul Palmer for Dependable Furniture Manufacturing Co. Tatami matting on the floor, shoji screens, and Japanese accessories from Dean Trimble Imports, add authentic color.*




**client: Bloomingdale's**
**location: New York, New York**
**designer: Henriette Granville**

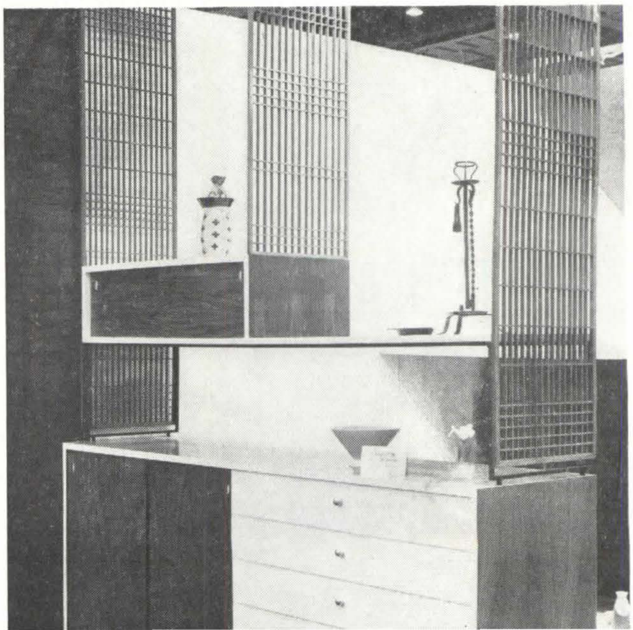
*Bold and original use of color, thoughtful accessorizing, furniture arrangement clearly related to living habits, combine to lift Miss Granville's display interiors far above the ordinary department store "model room" design. In this setting, the colors are a strong, sharp green and a vibrant, deep blue, used in upholstery and drapery fabrics against white walls, ceiling and brass-striped white vinyl floor. Caned chairs, by George Tanier, contrast texturally with fine-checked Boris Kroll fabric on the sofas, geometric drapery print, and Formica-and-walnut tables and cases.*

# room settings



**client: Japan Trade Center**
**location: New York, New York**
**designer: René d'Auriac**

*Four floors of display at the International Home Building Exhibition in the giant New York Coliseum produced but a handful of successful interiors, of which this is one. In "Inspiration House," d'Auriac has designed an apt setting demonstrating the adaptability of Japanese decor to Western use, thereby stimulating public interest in Japanese products available in the American market. The bamboo back chairs, silk fabrics, rug, grasscloth wallpaper, lanterns, tatami mats, and pottery are all Japanese imports. The Noguchi-designed toppling stools are from Knoll, the coffee-table a Nakashima design. Separating the living area from the traditional Japanese cooking-dining area is a d'Auriac-designed room divider, made by Interior Elements. Detail shows its graceful, functional elements.*



**client: "Decorators' Big Show"**
**location: San Francisco, California**
**designer: Jens Risom**

*In creating this room setting, Risom had both a professional and a consumer audience to reach, for it was one of some 200 displays presented in conjunction with the 25th Anniversary Conference of the AID, the first exhibit of its kind opened to the general public. Risom's study, that doubles as a guest-bedroom, effectively shows off furniture of his own design and manufacture in a setting that does not hesitate to use such architectural adjuncts as offset paneled walnut sections, a raised fireplace. A color scheme of white, orange, and gold warms the walnut of the furniture. Textures are introduced in the Moroccan Cabincrafts rug, the linen-and-cotton sheer casement curtains by Boris Kroll. With five pieces of furniture (convertible sofabed, pair of chairs, revolving coffee table, single-based storage and television cabinets) Risom has deftly established an interior of believable character and interest.*

# room settings

**client: Celanese Corporation of America**
**location: New York, New York**
**designers: John and Earline Brice**

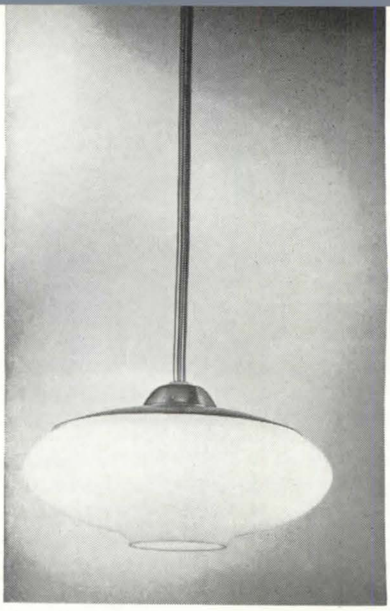
*For a month-long exhibit, open to the public, occupying more than 11,000 square feet, and displaying one of the largest collections of decorative fabrics ever to be assembled, the Brices designed both full room settings and vignettes. Knoll Textiles' "Triad" print in a geometric pattern of red and white against black on a Fortisan and spun rayon ground* (left), *is used as the major decorative statement in a room. Simple frame margins, painted glossy black, are applied around the window areas. Knoll furniture completes the clean-lined setting.*

*The client's product is skilfully displayed* (below and acrosspage top). *Through the use of the same sheer printed Fortisan fabric, "Tree Shadow," in both draped and stretched treatments, strength and stability of the fabric are pointed up. The soft amber tone of the Alexander Smith rug holds together the burnt orange of the sofa, and the silver, brass, and blue of the chairs, all upholstered in Fortisan and rayon "Desmond," a fabric specially treated for upholstery use. Fabrics are by Cheney Greeff; furniture by Harvey Probber; table top and lamps by Inlay Arts.*

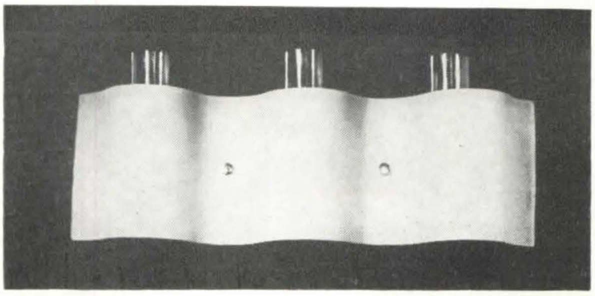
**client: Silvermine Guild of Artists**
**location: New Canaan, Connecticut**
**designer: Richard Wookey**

*This room setting* (right) *is one of a group of twelve, each designed by a member of the Interior Designers Associates of the Silvermine Guild of Artists, for a month-long public exhibit in the Guild's galleries. Called "Make Room for the Arts," the show was designed to focus public attention on the integration of fine arts with interiors. In Wookey's setting, the midnight blue and black values of Petardi's painting are repeated in ceiling, walls, and floor. Black vinyl tile, blue-bordered, covers the floor and extends up to cover one wall. Another wall is covered in the same plaid linen as the bench upholstery. Dunbar chairs; antique table, chess set, candelabra; built-in shelves for books and* objets d'art *create character for the room. Plaid fabric is by Cheney Greeff; vinyl floor and walls by William Gold.*

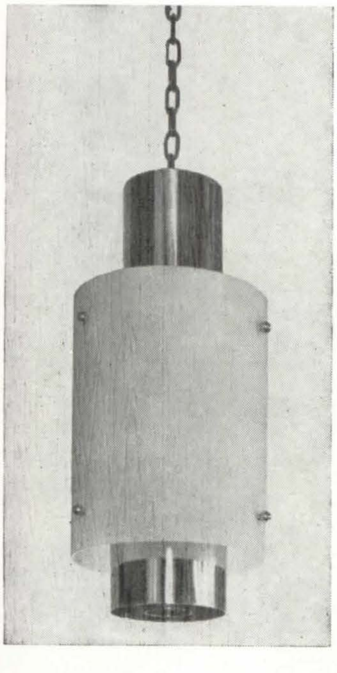
# p/a interior design products



**Reversible:** bathroom fixture (below)/ **curved strip of ribbed** glass/ conceals three light bulbs/ **polished-brass sockets/ socket** covers may face up to throw light **on wall**, or down to throw light downward/ designed by Maurizio Tempestini/ **retail:** $19/ **Lightolier, Inc., 346 Claremont Ave., Jersey City, N. J.**



**Pendant:** one of 26 fixtures (above) in new "Royal Line" collection/ white, etched, diffusing glass and polished brass/ also available with reel/ designed by Leon Gordon Miller/ **Timely Lighting Products Co., 4501 Perkins Ave., Cleveland, Ohio.**



**Dropped Light:** chain-hung cylindrical combination (above)/ opal glass and brass/ 22½" long, 10" diameter/ **retail:** $87/ **Finland House Lighting Corp., 41 E. 50 St., New York, N. Y.**

**"Continental":** two units (below) from a broad new collection of fixtures for residential and commercial use/ #G6037, 6-light fixture/ luster-brass with mat, ebony trim/ each light separately adjustable in desired positions/ 40" diameter, 15" body depth, 34" over-all depth with 22" stem; #G6083, suspended accent light/ "Flex-Stem" suspension device that conceals wires and chains is entirely adjustable and available in multiples of four-inch sections/ polished brass, combined with mat white/ 6½" diameter, 9¾" body depth, 32" over-all depth/ **Globe Lighting Products, Inc., 16 E. 40 St., New York, N. Y.**