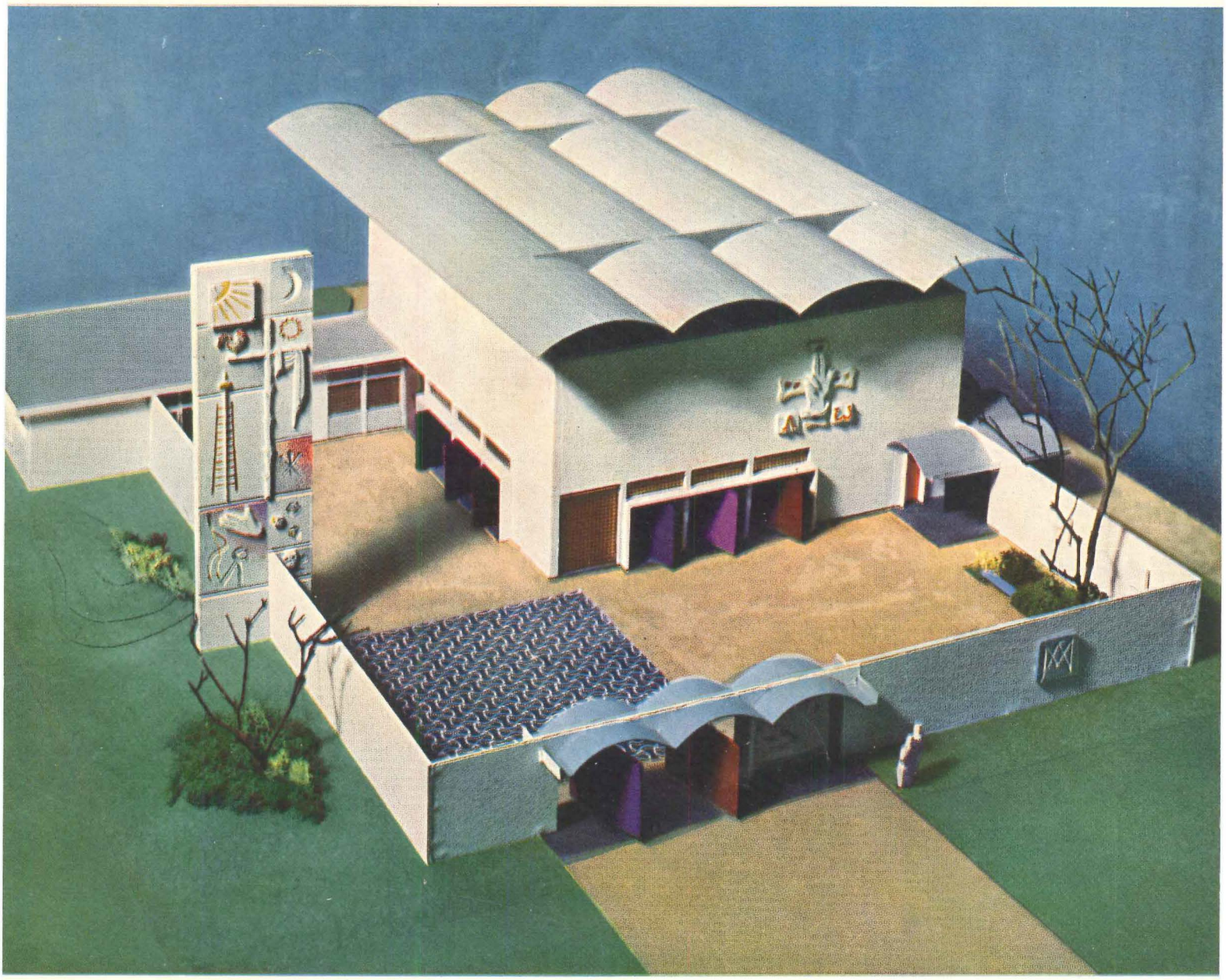
ARCHITECTURAL RECORD

DECEMBER 1953



BUILDING TYPES STUDY NUMBER 205

RELIGIOUS BUILDINGS

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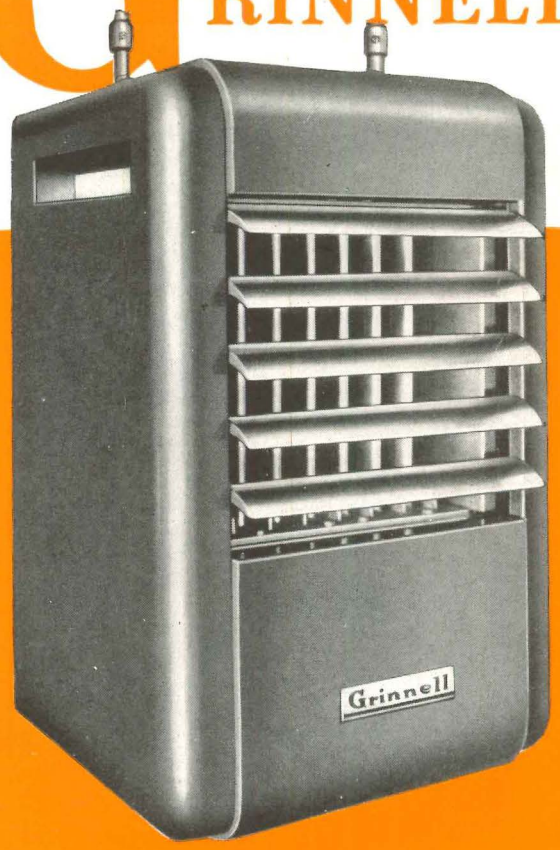
GRINNELL announces its new line of

GAS-FIRED UNIT HEATERS



Available in 7 sizes — with input ratings from 25,000 to 200,000 Btu's.

All parts readily accessible for periodic servicing.

AUTOMATIC! EFFICIENT! ASSURE YEARS OF DEPENDABLE SERVICE

Grinnell gas-fired unit heaters are easy to install, simple to operate and maintain. Efficient performance assured — with any type of gas — by modern design of burners and heat exchanger, proper motor and fan unit.

Automatic safety pilot operates to shut off main gas supply if pilot burner goes out. Flashback and extinction noise prevented by the burners' raised port design and proper port size for the gas used. Low speed motors have built-in thermal overload protection and automatic reset.

Additional features of Grinnell *gas-fired* unit heaters . . .

- Casing die-formed of heavy steel, with baked-on enamel finish
- Heat exchanger tubes and draft diverter of aluminized steel
- Combustion chamber of heavy steel, welded
- Burners of close-grained iron castings
- Adjustable louvers
- Burners and control assembly removable as a unit
- Hinged bottom pan permits cleaning interior of tubes
- Threaded pipe hangers for easy suspension
- Only wiring required is connection to room thermostat or manual switch
- Approved by the American Gas Association

WRITE FOR CATALOG

GRINNELL

UNIT HEATERS FOR STEAM, HOT WATER, GAS

Grinnell Company, Inc., Providence, Rhode Island • Coast-to-Coast Network of Branch Warehouses and Distributors

Manufacturer of: pipe fittings • welding fittings • forged steel flanges • steel nipples • engineered pipe hangers and supports
Thermolier unit heaters • Grinnell-Saunders diaphragm valves • prefabricated piping • Grinnell automatic fire protection systems

ARCHITECTURAL RECORD (Regular Edition) (Vol. 114, No. 6, December, 1953) is published monthly by F. W. Dodge Corp., 10 Ferry Street, Concord, N. H., with editorial and executive offices at 119 W. 40th St., New York 18, N. Y. $5.50 per year; Foreign, $20.00.

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ARCHITECTURAL RECORD

December 1953 Vol. 114 No. 6

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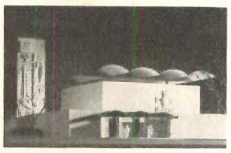

COVER: Model of church at Puerto Ordaz, Venezuela (pp. 124–127). Photo, R. H. Althoff

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ARCHITECTURAL RECORD

Continued from page 5

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PERSPECTIVES

HIGH FRECKLESBY: The impertinent cartoon here reproduced illustrated the principles set forth in a gravely particular article on how PLANNING could correct the problem of "rural sprawl" in the typical English village of Frecklesby, "a parish of three thousand acres and five hundred people approx., in a rural area infested with trees, wild flowers, vermin, birds and needlessly tortuous lanes."

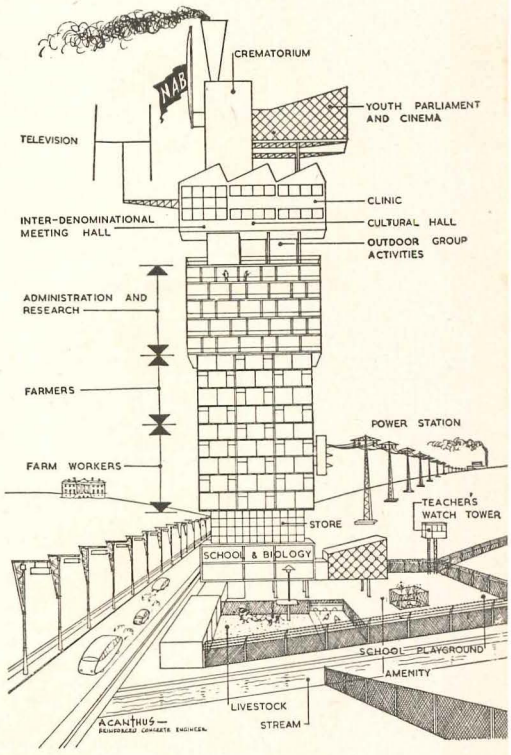
HOW MUCH ATOMIC DEFENSE can the nation afford? A study issued by the National Planning Association asserted the U. S. economy without undue strain can support a defense program costing from $70 billion to $75 billion a year. The study was made by a special committee headed by Ralph J. Watkins, research director for Dun & Bradstreet, Inc., of New York.

DRIVE-INS FOR TRAIN TICKETS: The Chesapeake & Ohio Railroad has opened drive-in ticket windows at two locations in Richmond, Va. — one suburban and one downtown. They are believed to be the first drive-in facilities established for purchase of train tickets. Five more are to be established in Richmond suburbs — all in cooperation with First and Merchants National Bank of Richmond — and in other cities in cooperation with local banks.

IKE AND ARCHITECTURE: Current installment — the President's reaction to the strictly contemporary Eisenhower Museum (ARCHITECTURAL RECORD, August 1952, page 22) which now shares the site of his old family home at Abilene. In sum, he had no comments on the architecture, but he thought the museum was terrific. Jack Beardwood of the office of Welton Becket and Associates, associate architects of the project, was at the President's elbow throughout the tour and he reports the President was enthralled with the exhibits — which range from a photo of his high school football team to the original of his message to the Chiefs of Staff advising them that the war in Europe had been won. He admired the lighting (there's no daylighting in display areas) and the deep green color of the walls. In the foyer he was intrigued by the SHAEF insignia in the terrazzo floor and, looking at the walls, asked: "Now, what are you going to do there?" Told there would be murals, he had some suggestions to make on the proposed designs — one is to be a tribute to the armed forces; the other a five-panel representation of the President's life. The museum will eventually have another wing — to be used perhaps for research on some special project; a firm decision hasn't yet been made. Architects are Cayton and Murray.

TEMPORARY: At the recent regional conference of the American Institute of Architects' Middle Atlantic District, William N. Denton Jr., president of the Washington Metropolitan Chapter, ruefully satirized the chronic confusion about the demolition of Washington's "temporary" buildings. He said he expected to see some agency building a temporary building to house an agency to discuss the possibility of tearing down the temporary buildings now (and since World War I) blighting the Washington landscape.

OWNER-OCCUPIED HOUSES are more numerous than rented premises in the United States today, according to the 1950 census figures, which showed an increase from 43.6 per cent owner-occupied in 1940 to 55 per cent in 1950. Now the National Association of Home Builders has completed a survey of the census figures which shows that Michigan leads the nation in percentage (67.5) of home owners. Minnesota (with 66.4) is next and North Dakota (with 66.2) is third. Other leaders (in order) are Indiana (65.5), Idaho (65.5), Oregon (65.3), Utah (65.3), Washington (65), Kansas (63.9), Wisconsin (63.5) and Iowa (63.4). Not surprisingly, New York — with more than half its population concentrated in a city of apartment dwellers — ranks lowest in percentage (37.9) of home owners, though in *number* of owner-occupied dwellings (1,638,860) it is outranked only by California (1,811,684) and Pennsylvania (1,739,833).



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TODAY'S ARCHITECTS DEBATE

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CONVENTION SNAPSHOTS— 1. Northwest: conference executive committee: Holman J. Barnes, Portland; O. J. Ballas, Missoula, Mont.; John S. Detlie, Seattle, vice chairman; Waldo B. Christenson, Seattle, chairman; Frederick C. Hummel, Boise; Thomas R. Adkison, Spokane; Charles T. Pearson, Tacoma. 2. Middle Atlantic: Regional Director Marcellus Wright Jr., Richmond; A.I.A. President Clair Ditchy; William Denton Jr., Washington-Metropolitan (host) chapter president. 3. Texas: new officers Grayson Gill, Dallas, first vice president; Edwin Carroll, El Paso, president; Albert Golemon, Houston, regional director nominee; and R. Max Brooks, Austin, second vice president. 4. Ohio: Retiring Ohio President Rollin L. Rosser and the peripatetic Mr. Ditchy. 5. Central States: Leonard Wolf, Iowa State College architecture head; J. Woolson Brooks, convention chairman; Julian Eckles, St. Louis; Kenneth E. Wischmeyer, St. Louis

THE GROWING STRENGTH of regional and state chapter programs in the American Institute of Architects and the increasing concern of architects with the broader problems that affect their practice were impressively demonstrated in the nine most recent A.I.A. meetings. At six regional conferences — Great Lakes, Northwest, Central States, Middle Atlantic, Texas and Sierra Nevada — open to A.I.A. members in 23 states, the total registration recorded or estimated was 2753, or well above the highest total ever recorded for an A.I.A. national convention.

The subjects chosen for the programs of this series of meetings offer an index to the current special concerns of architects across the country: public relations was discussed at every meeting; the architect's role in the community was a recurring theme; what clients think about architects was another; the architect's responsibility in city planning and civil defense still another.

Whither Cities?

A familiar problem that takes new urgency from current circumstance, both domestic and international, occupied some 800 architects meeting in Washington, D. C., October 21–23 for the A.I.A. *Middle Atlantic* Regional Conference on Urban Design and Redevelopment. A very wide range of views was expressed and intensely debated. At one pole, pleading the case for dispersal, was Tracy Augur, director of the urban targets division of the U. S. Office of Defense Mobilization and erstwhile city planner: "The defense factor, in my opinion, should come ahead of every other consideration in city planning" — but fortunately, said Mr. Augur, the same space standards that serve to reduce urban vulnerability to atomic attack also serve the civilian planner's goal of greater livability. At the other pole was Dean José Sert of Harvard's Graduate School of Design: "You cannot disturb the historical pattern of towns," he said. Although he enumerated some steps he thinks might be used to relieve congestion — shopping centers moved to the outskirts of cities and perimeter parking areas for city workers' cars, for example — Dean Sert did not think it feasible to plan for dispersion on a wide scale. The architect's big job, he said, is to redevelop central city areas.

Ethics — and the Atomic Age

Northwest architects met in Sun Valley October 9–11. Although no "public relations" session was on the program the subject was very much alive in both an address by John Detlie — "Making Ethics Work" — in which he outlined a project undertaken by the Seattle Chapter intended to improve comprehension and consequent use of the A.I.A. Standards of Practice; and a seminar "Opportunity for Community Leadership" led by Frank Roehr. A seminar on atomic energy brought B. E. Brazier, Salt Lake City architect whose firm has done much of the architectural work on the Los Alamos installations of the Atomic Energy Commission, and Engineer A. E. Dahl of Berkeley, Cal., to the rostrum to discuss architectural implications of the development of atomic energy.

Focus on the Client

That universal preoccupation of all architects everywhere — "That Human Being Called the Client" — was the theme of the eighth annual conference of the *Central States District* of the A.I.A. October 15–17 at Des Moines. The client point of view was explored in seminars on the physical sensations of the client as they affect architecture, sociological factors affecting "the archi-

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THEIR ROLE IN WIDER WORLD

tectural preferences of the Smiths and the Joneses," and — with three architects and three "clients" participating — the question "Has architecture progressed since 1900?"

For Better Buildings

California Council of Architects' convention at Coronado October 15–17 centered main program interest in an all-day seminar "Better Buildings and How to Get them" (see box, page 12). Sierra Nevada Regional Director Charles O. Matcham presided at the regional meeting, which presented a public relations discussion by a panel of five architects headed by Francis Joseph McCarthy, co-chairman of the A.I.A. national Public Relations Committee. Another group that met during the C.C.A. convention was the Women's Architectural League.

Focus on the Architect

The role of the architect in his community was the subject of the main seminar at the annual convention of the *Texas* Society of Architects at Austin November 4–6. After a summary of the architect's historical role, by George Bain Cummings, national A.I.A. secretary, and a "keynote" address by Philip Will Jr. of Chicago, architects had a chance to see themselves as others see them: six leaders in business and the professions gave 10-minute talks on how they view the profession of architecture. Architectural students of the state were invited to attend the convention and had one day of their own arranged by Harwell Harris, head of the University of Texas architecture department — a talk, "Architectural Imagineering," by O'Neil Ford; another by James Pollard on "Space Frames"; and an address by Willem Dudok, Dutch architect and town planner currently touring the U. S. under A.I.A. sponsorship. Architects were invited to attend the student sessions.

Dues and Advertising

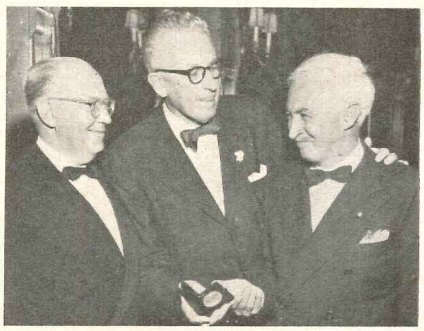
Great Lakes region council sessions, held at Detroit September 18–19, produced a lively discussion on A.I.A. dues and what members get for them and some suggestion that the $5000 ceiling on $25 dues ought to be raised. The troublesome question of advertising — when it is and when it isn't — was also raised.

Salute to History

Ohio architects' theme — Sesquicentennial of Ohio Architecture — made their annual meeting at Youngstown October 14–16 part of their state's year-long sesquicentennial celebration. There was a workshop on public relations and architectural historian and teacher Talbot Hamlin, F.A.I.A., of Columbia University's School of Architecture, was the main speaker at the annual banquet. John W. Hargrave succeeded Rollin L. Rosser as president of the society. Others elected: C. Melvin Frank, first vice president; Leon M. Worley, second vice president; John Macelvane, third vice president; Charles J. Marr, secretary; Eugene F. Schrand, treasurer.

Dual Responsibility

New York State architects held their annual convention at the Lake Placid Club, a setting conducive to recreation as well as deliberation. Subject of the single seminar, led by Carl W. Clark, was public relations. Harvey Wiley Corbett, F.A.I.A., made a major address "The Architect's Responsibility to His Client and His Community." Other speakers were Mr. Ditchy and Hugh Ferriss, president New York Chapter. New officers were elected (see photo).



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6. VIPs at Ohio luncheon: W. B. Huff, convention chairman; John Suppe, senior past president; John N. Richards, past Great Lakes Regional Director; George B. Cummings, A.I.A. secretary; C. Melvin Frank, Ohio vice president; Rev. P. W. Gauss; President Rollin L. Rosser; Talbot F. Hamlin; W. B. Damon, convention co-chairman: Facing camera in left foreground—Great Lakes Regional Director Raymond Kastendieck and new Ohio president John W. Hargrave. 7. New York's new officers: Harry M. Price, second vice president; Morton G. Wolfe, first vice president; John W. Briggs, third vice president; Adolph Goldberg, president; Trevor W. Rogers, secretary; Martyn Weston, treasurer. 8. Speaker Harvey Wiley Corbett. 9, 10, 11. Coronado, where Sierra Nevada Region, California Council and Women's Architectural League met at same time. 9. W.A.L. officers Mrs. Henry Wright, outgoing chairman; Mrs. Chester Root, new chairman; Mrs. Winfield Hyde, new secretary-treasurer; Mrs. Zimmerman, outgoing secretary-treasurer. 10. John Austin, "dean" of California architects; California Council President Charles Fry; Frank Hope, convention manager. 11. Sierra Nevada Regional Director Charles O. Matcham; A.I.A. Past President Glenn Stanton; 1953 A.I.A. Fine Arts Medal recipient, Sculptor Donal Hord

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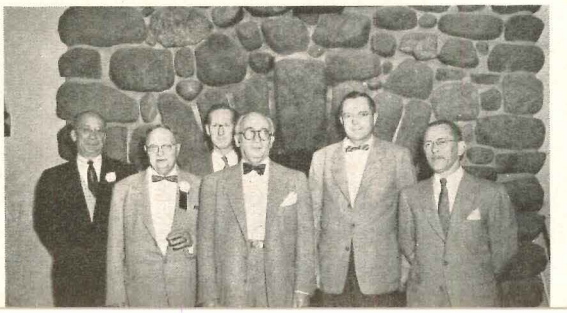

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PUBLIC RELATIONS: WHAT EVERY ARCHITECT SHOULD KNOW

New A.I.A. Handbook Offers Guide for Individual Action To Encourage Client-Public Understanding of Architecture

WHAT CAN THE INDIVIDUAL ARCHITECT do to increase public appreciation of architects and architecture? *A Public Relations Handbook for Architects*, to be published later this month as the latest in a series of "tools" developed for the public relations program of the American Institute of Architects, provides some very specific suggestions.

How do you reach the new building client, innocent of architecture and forever bombarded by advertising which boosts the package deal and production-line housing? The handbook says you can reach the new client by:

1. Explaining your services and how these services can contribute to your community.

2. Actively seeking leadership not only in the planning and building in your community, but also in the civic and social life of that community.

3. Improving client relations. "Public relations begins at home, in your own architectural office — in better design, better specifications, better administration, better supervision, better office atmosphere (employe courtesy, letterheads, etc.)."

How do you go about "explaining your services"? The handbook details several kinds of printed matter useful in client contact — a brochure or folder setting forth in simple, non-technical language what decisions are faced by the prospective client and what the functions and responsibility of the architect are; a folder giving specific information about you or your firm; on major jobs, the "presentation" brochure showing (and carefully explaining) the proposed scheme for the project. Other ways of "reaching the client" recommended by the handbook: architectural exhibits (at museums or art centers, at building shows, at conventions or conferences of "client" groups, at fairs), speeches before local civic groups, architect's signs on work in progress, color slides of your best work to show in initial interviews with the client, "neat and handsome" scrapbooks, postage "advertising," direct mail — reprints of suitable published articles sent to key members of your community.

How do you work toward making architectural leadership felt in civic affairs? The handbook suggests cooperation with community organizations in such areas as these:

1. Neighborhood planning, and every effort for better community planning, urban redevelopment.

2. Observing, formulating, checking on legislation such as building and zoning codes.

3. Offering general information on public problems and procedures — making architects authorities on *all* community building.

4. Studies of traffic, housing and recreational facilities.

5. Medals and awards to practicing architects to help create prestige for better planning and design.

The 92-page handbook, prepared by Ketchum Inc., A.I.A. public relations counsel, has been divided into ten major sections: Policy and Public Relations, Community Relations, Client Relations, Publicity, Press (newspapers), Magazines (popular and professional), Radio, Television, The Speech, and Advertising. It has been set up in looseleaf form so that more material can be added later; the present edition contains what is described as the "basic" material.

A good deal of the content may appear elementary to members of an A.I.A. chapter which has had a strong public relations program for several years; or to members of large firms which have elaborate public relations setups of their own. But for the great majority of A.I.A. members who belong in neither category, the handbook should offer both immediately applicable ideas or reminders and a useful source of reference.

(*More news on page 15*)

What Can Individual Do?

In his own community, the architect can encourage an atmosphere of good public relations for himself and his profession by—

1. Promoting the service of the architect in all personal contacts with clients, potential clients, friends and neighbors.
2. Joining community action groups.
3. Raising a voice for community betterment.
4. Giving active support to any assignment phase of his chapter's program.
5. Building a congenial relationship with such public opinion channels as the local press, radio and TV stations.
6. Enlisting the aid of others in obtaining well-deserved, tasteful publicity.
7. Combatting, by the written and spoken word, any public impression of (a) the *architect* as a "mere dispenser of blueprints"; (b) *architecture* as "an expensive luxury"; and (c) *the profession* as an "ivory tower."

— *A Public Relations Handbook for Architects*

ARCHITECT-CLIENT FORUM OFFERS ADVICE

An all-day forum on "Better Buildings and How to Get Them" held at the recent Coronado convention of the California Council of Architects brought forth six major recommendations from the joint architect-client panel:

1. Correct three public misconceptions about planning—(a) the architect is an embellisher; (b) the architect ought to be able to guarantee costs; (c) the architect's fee is "added" to building cost—a luxury, not a necessity.

2. Keep the public more closely advised on costs and how the cost picture varies with different kinds of buildings. The panel agreed that 60 to 90 per cent of clients are "first-time" building clients.

3. Teach the public how to help keep costs down—that changes cost money; that spending for accurate cost data pays.

4. Recognize building as a team operation; work for better organization of team.

5. Make the nature of architects' services better known.

6. Strive for an adequate total planning budget for buildings—present architectural fee allowances compare with allowances as high—in the aircraft industry, for example—as 33½ per cent for research and planning.

The panel was moderated by Douglas Haskell, editorial director of *Architectural Forum* and *House and Home*. Architect members of the panel were Robert Alexander, George Vernon Russell, Victor Gruen, William Koblik, Charles Luckman and Edward Fickett. Client members were Milton Brock, tract developer; Jack Hicklin, First National Bank, San Diego; J. K. Hull, president, Lockheed Services Company; John J. Pike, Republic Supply Company; David Slipher, Fritz Burns and Associates; Charles Wellman, Glendale Savings and Loan Association. Garrett Eckbo represented the landscape architecture profession; Stephenson Barnes, the structural engineers, and Paul Lowry, the interior decorators.

Gold Medal Competition

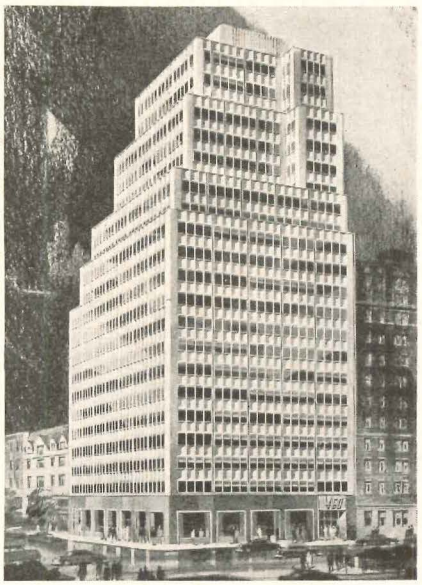
ARCHITECTS, landscape architects, engineers and artists throughout the United States are invited to submit entries for the Architectural League of New York's 1954 Gold Medal Exhibition of architecture, mural decoration, sculpture, design and craftsmanship in native industrial arts, landscape architecture and engineering. Gold and Silver Medals are offered in each category. Preliminary submissions are due December 31; exhibitors selected will then be asked to prepare displays for the competitive exhibit February 23–March 27. Entry blanks, which must accompany preliminary submissions, and a circular of information are available from the League, 115 East 40th Street, New York 16, New York.

What about the GM Fire?

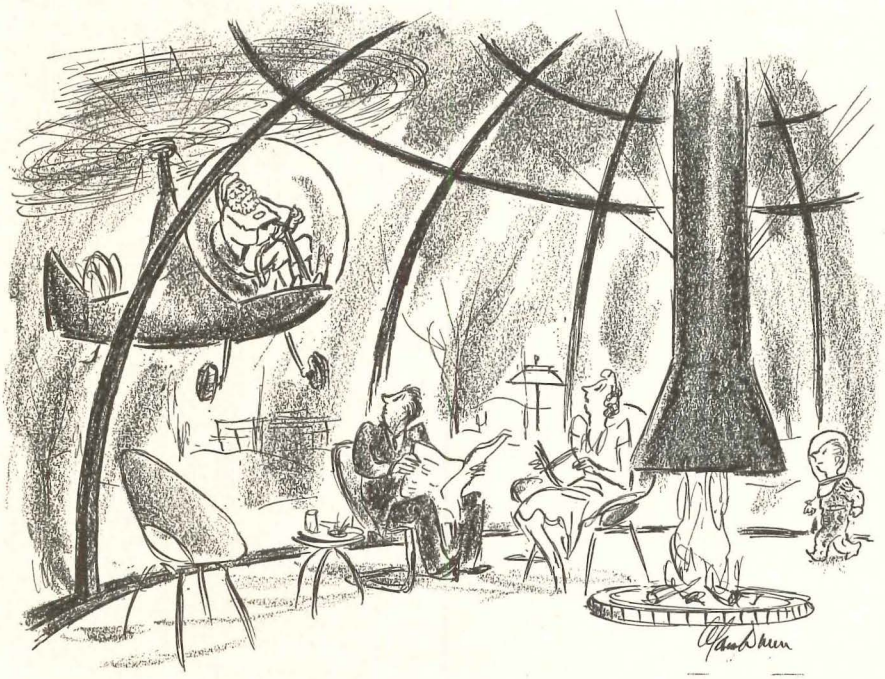
THE FIRE PROTECTION WEAKNESSES that contributed to the destruction of the huge General Motors transmission plant at Livonia, Mich., in a $50 million fire last August are well known: "the same old 'debbils' of fire safety," according to Chester I. Babcock, manager of the fire record department of the National Fire Protection Association. Addressing a regional conference of N.F.P.A. at Providence, R. I., Mr. Babcock enumerated principal fire protection weaknesses that combined to cause the GM fire and gave examples of the same weaknesses in large-loss industrial fires of last year: *failure to subdivide excessive fire areas; partial sprinkler protection* — less than 20 per cent in the GM plant; *incomplete protection of dip tanks containing flammable liquids* — the GM fire started in an unprotected drip pan; *steel construction without fire-resistive protection; use of an oxy-acetylene torch under unsafe conditions; lack of a properly-trained industrial fire brigade; delayed fire department notification.* Mr. Babcock said the General Motors fire should be viewed as "conclusive evidence that the N.F.P.A. and all others schooled in fire behavior and its control have not to date presented a convincing case for fire protection to those in industry in a position to put sound fire protection engineering principles into action."

Birthday

IN DETROIT this month, one of the nation's oldest and largest architectural-engineering firms will be celebrating its 50th anniversary. Smith, Hinchman & Grylls has designed and engineered buildings in Canada, South America, Europe and the Orient as well as the United States, and its projects have covered a wide range of types — including hospitals, aircraft test cells, penal institutions, public housing and factories among others. The firm was associated with Eero Saarinen & Associates, Architects, on the General Motors Technical Center, which won one of two Honor Awards in architecture at this year's national convention of the A.I.A.



Emery Roth & Sons are architects for New York's second aluminum-faced office building—a 22-story structure for Tishman Realty & Construction Company to be erected at 460 Park Avenue, northwest corner of 57th Street. It will be known as the Davies Building. Emery Roth & Sons were also architects of 99 Park Avenue, New York's first aluminum-faced building (ARCHITECTURAL RECORD, Oct. 1953, pages 336, 338), and the RECORD inadvertently contributed to the literature of "Architects Anonymous" by omitting to say so. Sackcloth and ashes for the editor responsible



—Drawn for the RECORD by Alan Dunn

"Business Woman of the Year"

MISS JUNE WICKER, 37-year-old Atlanta, Ga., architect, has received the first annual "Business Woman of the Year" award of the American Business Women's Association. Miss Wicker, a 1940 architecture graduate of Oklahoma A.&M., spent the war years doing architectural work for the Army Engineers and worked for several Atlanta architects before opening her own office three years ago.

School Awards Offered

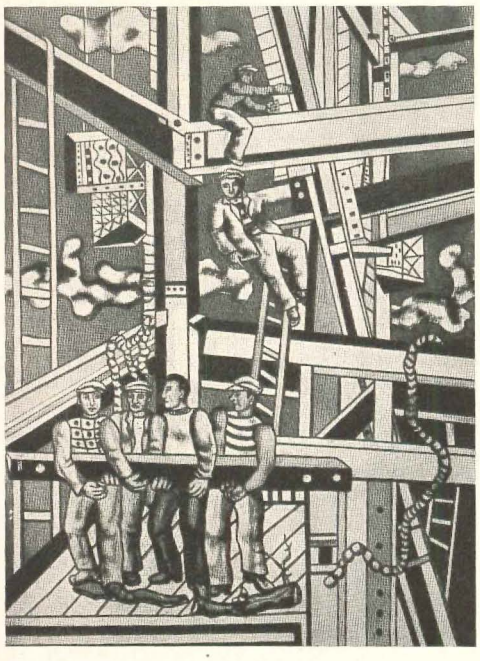
AN ARCHITECTURAL EXHIBIT OF SCHOOLS and awards for outstanding school projects will again be features of the national convention of the American Association of School Administrators at Atlantic City, scheduled for February 13–18. The exhibition is open to all registered architects. Complete information and entry blanks, which must be returned by January 11, can be obtained from Dr. Shirley Cooper, A.A.S.A., 1201 16th Street N.W., Washington 6, D. C.

THE RECORD REPORTS

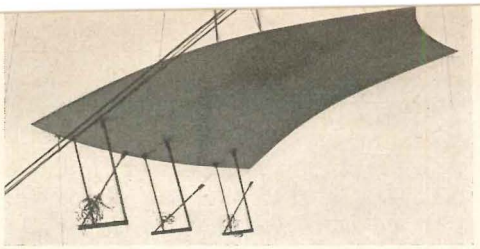
(*Continued from page 15*)

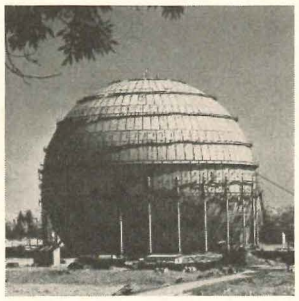
For the Central City

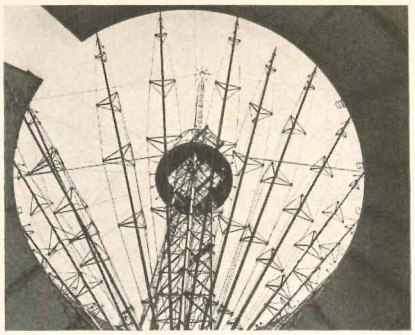
MORE VERTICAL GROWTH and greater centralization were among the prescriptions for New York City's congestion problems produced at a recent meeting of realty investors who own, or control, nearly $500 million in New York properties. The press was invited to a luncheon given by Col. Henry Crown, chairman of the Empire State Building Corporation, and Roger L. Stevens, Arnold M. Grant and William J. Keary, members of the Empire State Building Executives Committee, for William Zeckendorf, president of Webb and Knapp, who headed the group which recently purchased the Chrysler, Chrysler East and Graybar buildings, and attended also by Walter P. Chrysler, Jr., Lester Abberley and H. Hamilton Webber. New York's ills were diagnosed as "suburbanitis" and the realtors agreed on nine major points as "central to a program of preventive medicine for cities in general, and New York in particular." In addition to the one already mentioned, the points were: naming of a long range planning commission; development of mechanical parking, redevelopment and expansion of rapid transit systems; major concepts of redevelopment; a far greater use of condemnation powers by the city; a greater degree of cooperation among "civic thinkers," architects and real estate economists; a city wage tax, "to assign a fair share of the cost of the city's facilities to those who use them"; stronger laws for involuntary incorporation — "those suburbs which are economically part of New York City but which 'freeload' upon it should be annexed willy-nilly."



"BUILDERS"—1950 canvas (10 ft high) by Fernand Léger, one of the "great moderns" who, as Pietro Belluschi noted in his A.I.A. convention address last June, "have deeply affected our architecture in many unexpected ways." The first comprehensive exhibition of Léger's work of nearly 50 years was organized this year by the Art Institute of Chicago, the San Francisco Museum of Art and New York's Museum of Modern Art. It is now on view in New York till January 3 after earlier showings in Chicago and San Francisco







The largest structure of its kind in the world—225 ft in diameter and higher than an 18 story building—has been completed at the West Milton, New York, site of General Electric Company's Knolls Atomic Power Laboratory, to house a prototype atomic power plant for submarines to be tested by GE. A total of 682 steel plates (top) were welded together to make the sphere, which, with the steel columns that support it, weighs 3850 tons. Above: steel tower and booms used in erecting structure, a Chicago Bridge and Iron Company job that took 10 months

To Meet a Challenge

SPECIAL MILLWORK MANUFACTURERS of the United States and Canada — some 150 of them — held their first national convention in Chicago October 15–16 and organized the Architectural Woodwork Institute of America as a means of helping meet "the competitive challenge of rival building materials such as steel, aluminum and plastics." Charles A. Rinehimer of Rinehimer Bros. Manufacturing Company, Elgin, Ill., was elected first president of the Institute, which has established headquarters at 332 South Michigan Avenue, Chicago 4, Ill.

Plastering's "Better Deal"

CONTRACTORS AND LABOR UNIONS in the lathing and plastering industries have united to form a National Bureau for Lathing and Plastering designed to "give new home builders an all-round better deal" by improving practice, performance and quality within the lathing and plastering industries. A five-point "Standards of Performance" agreement between contractors and unions announced at a Chicago meeting of the new Bureau provides that: (1) materials and workmanship shall comply with nationally recognized standards; (2) costs shall be more competitive with other materials and contractors will charge only a reasonable profit, mechanics will work on a straight hourly pay basis, without bonus payments, and such practices as limitation of the mechanics' daily production and piecework will be eliminated; (3) contractors and labor will agree on reasonable time schedules for completion of work and local chapters of the Bureau will adopt apprentice training programs and increase the number of apprentices; (4) schedules and completed work of other trades must be respected and materials and equipment must be handled to assure normal progress of each project; (5) lathing and plastering must be kept attuned to an ever-changing construction industry — local chapters must cooperate in developing and using new materials, techniques and equipment.

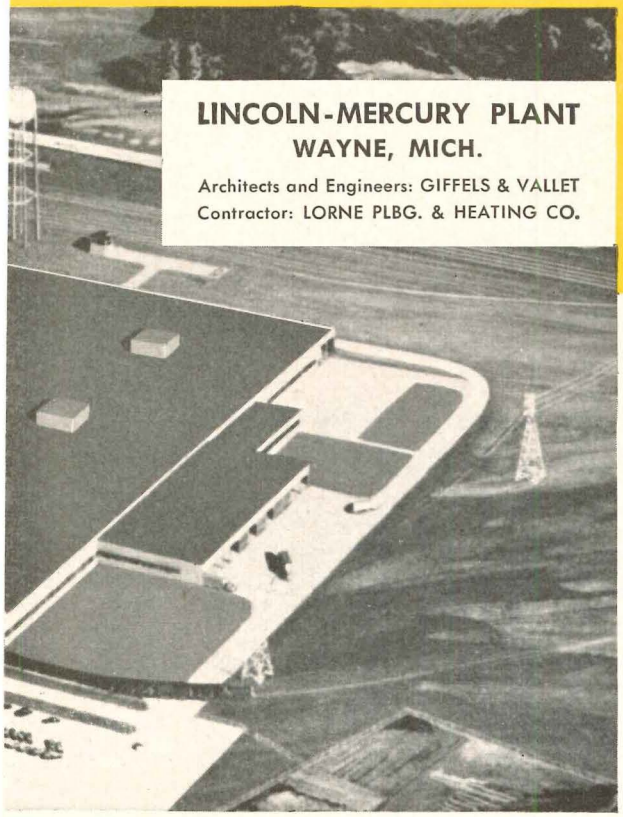
Antidote for Winter Doldrums

FOR A CAREFREE INTERLUDE between the Scylla and Charybdis of Christmas bills and income tax returns, some lucky architects will be making the "Architects' Trek 'Round South America" which has been "specially arranged for members and families of the American Institute of Architects" by the United States Travel Agency Inc., managers of some memorable earlier A.I.A. "treks" — to Mexico, Cuba, Europe et al. The 32-day plane tour January 19–February 20 will take the trekkers to Panama, Peru, Chile, Argentina, Uruguay and Brazil, with local architects alerted for their arrival all along the way. Trip leader will be Harold R. Sleeper, F.A.I.A., of New York.

(*More news on page 20*)

Auto Assembly Plant Equipped with a

POWERS Pneumatic System of TEMPERATURE CONTROL



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WAYNE, MICH.
Architects and Engineers: GIFFELS & VALLET
Contractor: LORNE PLBG. & HEATING CO.

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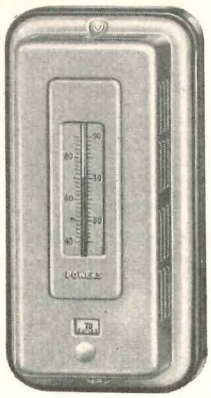


for each department helps improve efficiency of employees and results in

- **Increased Production**
- **Better Products**
- **Lower Heating Costs**

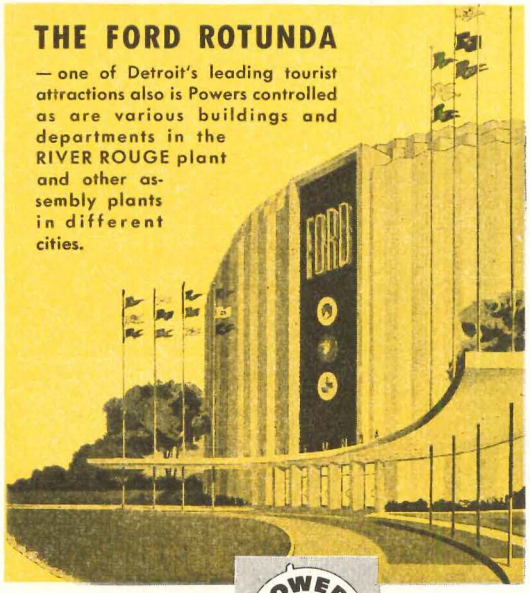
—these are some of the year after year dividends THE FORD MOTOR CO. will receive from its investment in Powers control.

With its almost 1,500,000 square feet of floor space, nine miles of conveyor lines and many advanced features this ultra modern LINCOLN-MERCURY plant is the last word in efficiency. It is a show place among assembly plants.

Into its receiving docks come some 4800 separate parts (with an entire engine as one part). Out of its delivery door, at the rate of 300 cars per 8 hr. day, go completed automobiles tested, checked and ready for driving.

Here a Powers pneumatic control system regulates the steam heating used in the assembly and manufacturing areas and the conditioned air in the paint spray department, first aid and hospital room, cafeterias and administrative offices.

Experience gained by Powers here and in many other important large and small buildings may be helpful to you. When problems of temperature or humidity control arise, contact our nearest office. There's no obligation.



THE FORD ROTUNDA
— one of Detroit's leading tourist attractions also is Powers controlled as are various buildings and departments in the RIVER ROUGE plant and other assembly plants in different cities.

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'53 (b27)

POWERS **PACKLESS** VALVES

. . . eliminate packing maintenance, leakage of water or steam, or loss of vacuum.

NEWS FROM CANADA *By John Caulfield Smith*

MEETING HELD IN OTTAWA ON BUILDING RESEARCH

CANADA'S first full-scale Conference on Building Research was held in October in the Sussex Street building of the National Research Council in Ottawa. The meeting was sponsored by N.R.C.'s Division of Building Research. The sessions included two seminars, one on building science, the other on housing research.

The building science seminar dealt with such topics as changes in concrete due to moisture, moisture content and capillary potential relationships, measurement of moisture content, moisture movement in unsaturated soils, potentials in moisture migration, and D.B.R. experiments in moisture migration due to a temperature gradient.

The housing research seminar included treatment of housing research in the United States, housing research and the National Association of Home Builders, housing research work of the Small Homes Council, housing research in Canada, technical aspects of Canadian housing research, and a study of basementless house construction in Canada.

D.B.R. Opens New Laboratory

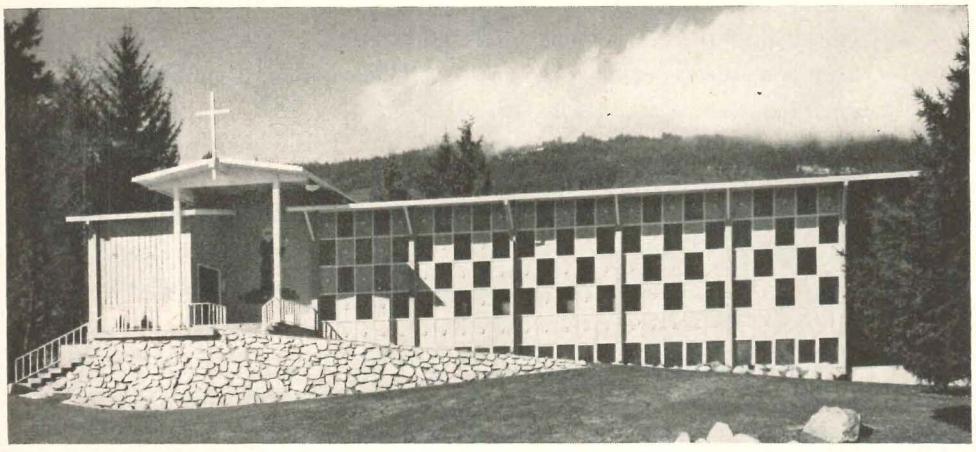
The Division of Building Research recently opened in Ottawa a new laboratory which the director of D.B.R., Robert F. Legget, calls "the most economical building of its type ever put up in Ottawa." Total cost of the one million cu ft building was $1,174,000; without laboratory equipment; the per cu ft cost was $1.35.

The Division, which has for the first six years of its existence utilized 10 separate buildings to house its staff of 125, believes its new building may be the first in the world designed exclusively for building research. The Division's major efforts have been focused on revision of the National Building Code; the new edition is expected to be ready for release next spring and will be available to all cities wishing to adopt it.

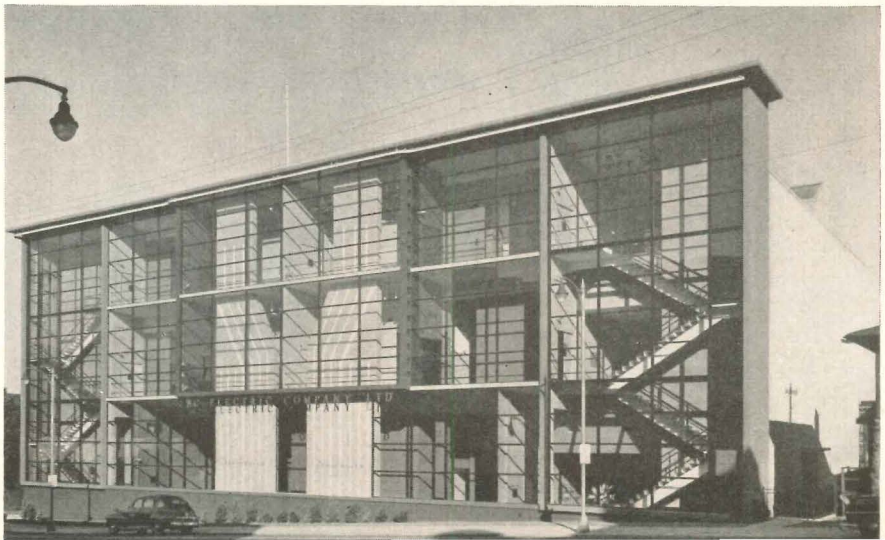
HOTEL TO BE FIRST UNIT OF CENTER IN MONTREAL

A $20 million hotel, planned as the first unit of the projected Montreal Center, may be started next year, according to an announcement by Donald Gordon, president of Canadian National Railways. The center, designed to create a modern transportation, hotel, business and shopping center in downtown Montreal, will be erected jointly by C.N.R. and private enterprise.

(*Continued on page 26*)



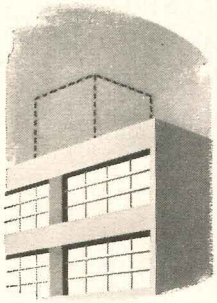
Panels of plywood were used to achieve the decorative checkerboard effect in St. Anthony's Church recently completed at West Vancouver, B. C. Gardiner & Thornton were the architects



The British Columbia Electric Company invites sidewalk supervision of the operations at the new Dal Grauer Substation in Vancouver. The building's glass front will, the company hopes, encourage members of the public to take a good look at the equipment which is housed in the $3 million structure. Passers-by are further enticed to stop and look by the use of planes of color on walls, stairways and equipment. Architects for the building were the Vancouver firm of Sharp & Thompson, Berwick & Pratt

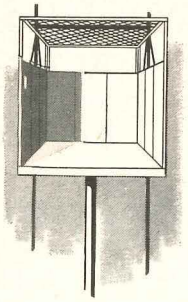
economy in freight elevators

Rotary Oildraulic Elevators have these architectural and operating advantages



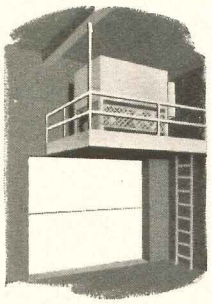
No costly, unsightly penthouse

Because it's pushed up from below, not pulled from above, the Oildraulic Elevator requires no unsightly penthouse. This permits a saving of several hundred to thousands of dollars, and improves the design of a building.



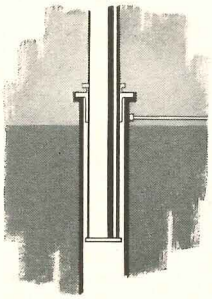
Lighter shaftway structure

There's no need for heavy, load-bearing sidewall supporting columns and footings to carry the car, counterweight, overhead machinery, and the load. Rotary's Oildraulic jack supports the entire system from below.



Flexibility in power unit location

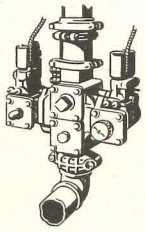
A machine room can usually be dispensed with because Rotary's compact power unit can be located at any convenient spot on any landing and on any side of the hatchway . . . or in an area with other equipment.



Low operating and maintenance cost

As the pump, all valves and the plunger operate in oil at all times, wear is negligible. Motor is used only when car rises—half the usual service. Smooth operation reduces shock and wear. No cables to replace periodically.

New Rotary Development



PATENTED OILDRAULIC CONTROLLER guarantees smooth starts, accurate landings

The revolutionary Rota-Flow oil-hydraulic power system gives velvet-smooth starts and cushioned stops. Oildraulic automatic floor leveling positions the elevator car to each landing with exactness . . . ¼″ accuracy guaranteed. The new Oildraulic Controller is a very remarkable device that handles the functions of seven separate control valves . . . simplifies adjustments and maintenance.

Rotary electric control systems are tailored to exact requirements and any desired type of operation can be furnished. For planning assistance call on our Engineering Department.

Rotary® OILDRAULIC®

Freight Elevators

THE MODERN ELEVATOR FOR MODERN BUILDINGS

Engineered and built by Rotary, world's oldest and largest maker of oil hydraulic lifts

SEE OUR FILE IN SWEET'S—For catalog and complete architectural data, write ROTARY LIFT CO., 1012 Kentucky, Memphis 2, Tenn.

CANADA

(*Continued from page 26*)

in a recent address before the Canadian Association of Real Estate Boards, blamed the shortage on heavy spending for bonds, consumer goods and new industrial expansion. He said that last year, out of every housing construction dollar spent, owners raised 56 cents, the government raised 15 cents and mortgage lenders raised 29 cents. Mr. Mansur also said that there had been stability in this pattern of lending during the last three years, but "at present loan levels and rates of mortgage interest the available equity money in Canada could absorb substantially more mortgage money than is forthcoming."

St. Joseph's Hospital, Toronto, has recently added this frankly contemporary nurses' residence to its old building. Architects were the Toronto firm of Brennan & Whale

The availability of mortgage money by lending institutions, Mr. Mansur continued, depends in the long run on year-to-year access of cash and the non-mortgage demands that must be met out of this cash. "These demands depend largely on the requirements of the country's economy such as municipal services, industrial plants, schools, hydro development and like projects.

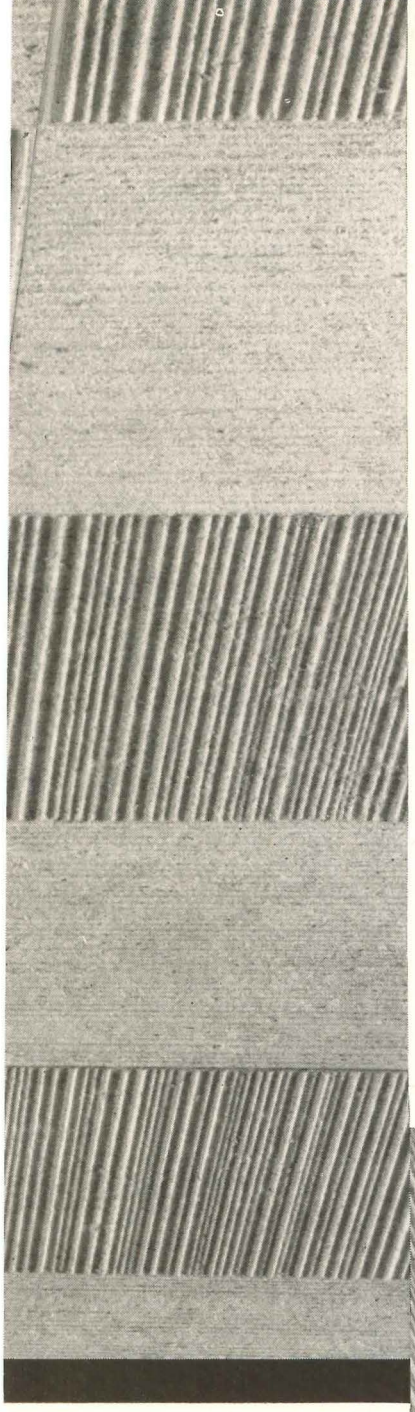
"While many housing enthusiasts will insist that there is too little mortgage money, fewer will accept the equal valid claim that there is too much bond money, or too high a level of consumer expenditure."

AWARDS TO BE PRESENTED FOR ENGINEERING THESES

The Canadian Construction Association has announced that it will again award prizes for the best theses on construction subjects prepared by senior engineering students at Canadian universities. Terms of the competition are as follows:

(1) Theses prepared in conjunction with normal graduation requirements are eligible for entry in the competition. Preference will be given to those deal-

(*Continued on page 32*)

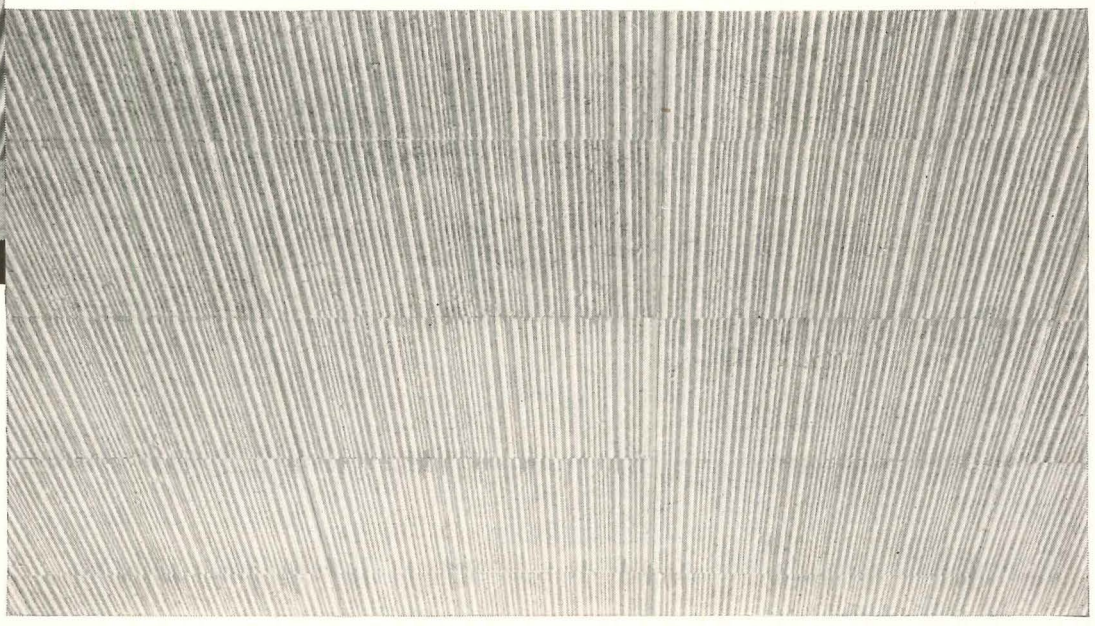


Another outstanding achievement from Owens-Corning:

New FIBERGLAS

acoustical tile

As an exciting addition to the complete line of Owens-Corning Sound Control Products, Fiberglas Stria* offers many unusual and practical advantages. Its decorative possibilities are unlimited. On the practical side, Stria sets a high standard for quality: dimensional stability, fire safety, low cost and exceptionally high acoustical value. Samples are available now. And a new brochure, complete with design details, will be sent upon request. Contact your nearest Fiberglas Branch Office, or write: Owens-Corning Fiberglas Corporation, Sound Control Products Division, Toledo 1, Ohio.



OWENS-CORNING FIBERGLAS

SOUND CONTROL PRODUCTS

FIBERGLAS TEXTURED, PERFORATED, SONOFACED* & STRIA ACOUSTICAL TILE • FIBERGLAS TEXTURED & SONOFACED CEILING BOARD • FIBERGLAS SONOCOR* PADS FOR METAL PANS • FIBERGLAS NOISE-STOP* BAFFLES

*Fiberglas, Sonofaced (Reg. U.S. Pat. Off.) Stria, Sonocor and Noise-Stop are trade-marks of Owens-Corning Fiberglas Corporation.

CONSTRUCTION COST INDEXES

Labor and Materials

United States average 1926–1929 = 100

Presented by Clyde Shute, manager, Statistical and Research Division, F. W. Dodge Corp., from data compiled by E. H. Boeckh & Assocs., Inc.

NEW YORK

Period	Residential Brick	Residential Frame	Apts., Hotels Office Bldgs. Brick and Concr.	Commercial and Factory Bldgs. Brick and Concr.	Commercial and Factory Bldgs. Brick and Steel
1930	127.0	126.7	124.1	128.0	123.6
1935	93.8	91.3	104.7	108.5	105.5
1939	123.5	122.4	130.7	133.4	130.1
1940	126.3	125.1	132.2	135.1	131.4
1946	181.8	182.4	177.2	179.0	174.8
1947	219.3	222.0	207.6	207.5	203.8
1948	250.1	251.6	239.4	242.2	235.6
1949	243.7	240.8	242.8	246.4	240.0
1950	256.2	254.5	249.5	251.5	248.0
1951	273.2	271.3	263.7	265.2	262.2
1952	278.2	274.8	271.9	274.9	271.8
July 1953	283.6	280.0	282.8	288.3	284.9
Aug. 1953	283.1	279.2	283.4	288.7	285.2
Sept. 1953	284.7	279.2	288.5	295.3	291.3
	% increase over 1939				
Sept. 1953	130.5	128.1	120.7	121.4	123.9

ATLANTA

Period	Residential Brick	Residential Frame	Apts., Hotels Office Bldgs. Brick and Concr.	Commercial and Factory Bldgs. Brick and Concr.	Commercial and Factory Bldgs. Brick and Steel
1930	82.1	80.9	84.5	86.1	83.6
1935	72.3	67.9	84.0	87.1	85.1
1939	86.3	83.1	95.1	97.4	94.7
1940	91.0	89.0	96.9	98.5	97.5
1946	148.1	149.2	136.8	136.4	135.1
1947	180.4	184.0	158.1	157.1	158.0
1948	199.2	202.5	178.8	178.8	178.8
1949	189.3	189.9	180.6	180.8	177.5
1950	194.3	196.2	185.4	183.7	185.0
1951	212.8	214.6	204.2	202.8	205.0
1952	218.8	221.0	212.8	210.1	214.3
July 1953	226.5	227.8	224.3	226.0	226.0
Aug. 1953	225.7	226.6	224.8	226.4	226.2
Sept. 1953	225.6	226.5	225.8	226.8	227.0
	% increase over 1939				
Sept. 1953	161.4	172.6	137.4	132.9	139.7

ST. LOUIS

1930	108.9	108.3	112.4	115.3	111.3
1935	95.1	90.1	104.1	108.3	105.4
1939	110.2	107.0	118.7	119.8	119.0
1940	112.6	110.1	119.3	120.3	119.4
1946	167.1	167.4	159.1	161.1	158.1
1947	202.4	203.8	183.9	184.2	184.0
1948	227.9	231.2	207.7	210.0	208.1
1949	221.4	220.7	212.8	215.7	213.6
1950	232.8	230.7	221.9	225.3	222.8
1951	252.0	248.3	238.5	240.9	239.0
1952	259.1	253.2	249.7	255.0	249.6
July 1953	264.2	257.0	260.7	269.3	263.2
Aug. 1953	264.9	257.5	261.9	271.0	263.9
Sept. 1953	266.8	261.0	262.2	270.8	264.0
	% increase over 1939				
Sept. 1953	142.1	143.9	120.9	126.0	121.8

SAN FRANCISCO

1930	90.8	86.8	100.4	104.9	100.4
1935	89.5	84.5	96.4	103.7	99.7
1939	105.6	99.3	117.4	121.9	116.5
1940	106.4	101.2	116.3	120.1	115.5
1946	159.7	157.5	157.9	159.3	160.0
1947	193.1	191.6	183.7	186.8	186.9
1948	218.9	216.6	208.3	214.7	211.1
1949	213.0	207.1	214.0	219.8	216.1
1950	227.0	223.1	222.4	224.5	222.6
1951	245.2	240.4	239.6	243.1	243.1
1952	250.2	245.0	245.6	248.7	249.6
July 1953	257.2	250.8	258.3	263.1	261.8
Aug. 1953	256.6	249.8	259.0	263.7	262.2
Sept. 1953	258.7	251.3	263.8	270.7	266.1
	% increase over 1939				
Sept. 1953	145.0	153.1	124.7	122.1	128.4

The index numbers shown are for combined material and labor costs. The indexes for each separate type of construction relate to the United States average for 1926–29 for that particular type — considered 100.

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

index for city A = 110
index for city B = 95

(both indexes must be for the same type of construction).

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

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

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

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

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

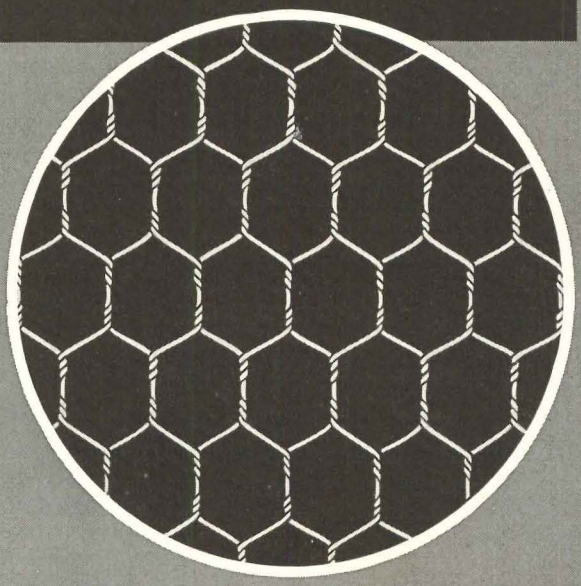
Material prices and wage rates used in the current indexes make no allowance for payments in excess of published list prices, thus indexes reflect minimum costs and not necessarily actual costs.

These index numbers will appear regularly on this page.

3 KEYS TO STRONGER PLASTER

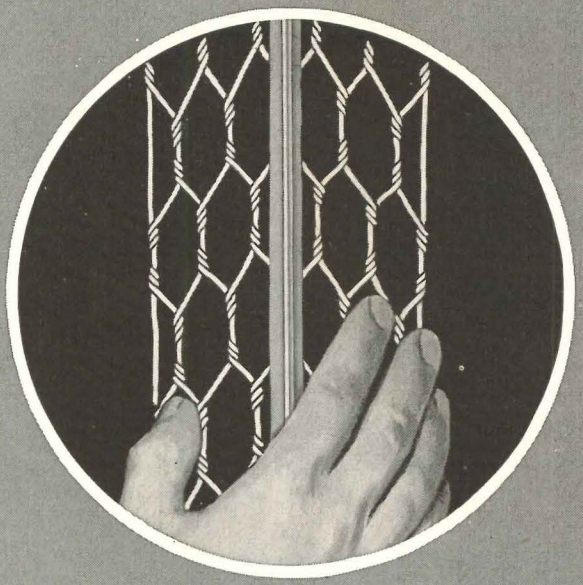
1. KEYMESH

Keystone's woven wire galvanized reinforcing lath—applied directly over the gypsum or insulating lath on the entire ceiling. This network of multidirectional reinforcing increases the strength of ceilings. It assures a uniform thickness of plaster and guards against cracks. Where ceiling radiant heat is installed, Keymesh accelerates uniform heat distribution as well as reinforcing the plaster.



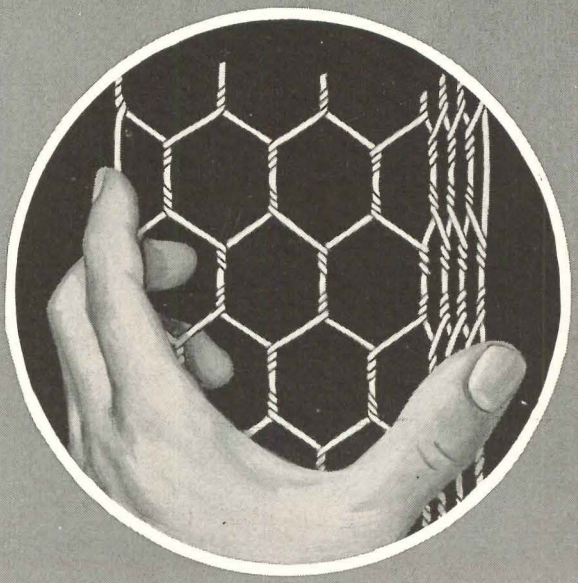
2. KEYBEAD

Keystone's woven wire galvanized reinforcing lath with the precision-formed bead—applied at all outside corners. The open mesh of Keybead wings permits plaster to completely embed the steel wires, adding strength. Full, solid corners result. Keybead is available in standard lengths; is easy to splice when required.

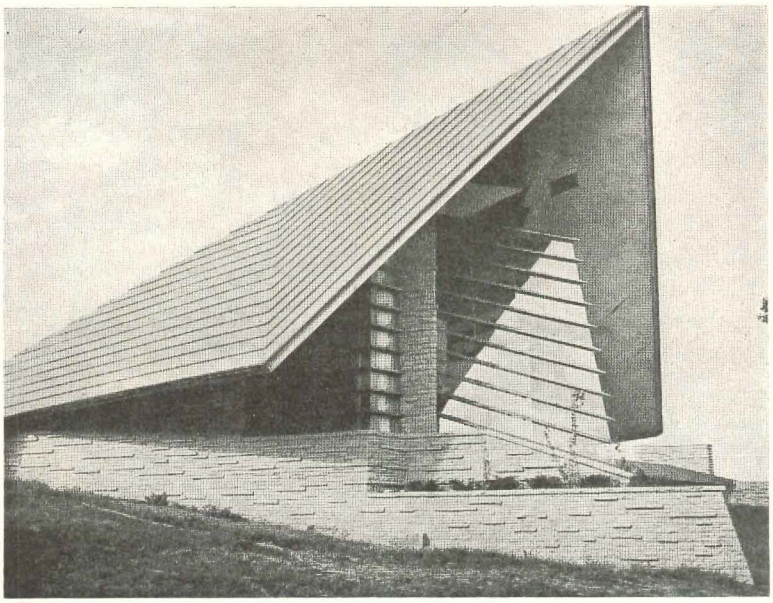


3. KEYCORNER

Keystone's preformed-for-corners, convenient width, woven wire galvanized reinforcing lath—applied at corners, joints and ceiling-wall junctures. It fits snugly in corners when you flex it. It lies flat, too, for stripping wherever required. It has the same multidirectional reinforcing as Keymesh for maximum crack resistance. It doesn't rust . . . and eliminates waste.



REQUIRED READING



In Unity Church, designed to express Unitarianism's unity of all things, the triangulation (aspiration) of the roof expresses "reverence without recourse to the steeple." From "The Future of Architecture" by Frank Lloyd Wright

WRIGHT LECTURES ON ARCHITECTURE

The Future of Architecture. By Frank Lloyd Wright. Horizon Press (220 W. 42nd St., New York, N. Y.) 1953. 8¼ by 10½ in. 326 pp., illus.

REVIEWED BY EMERSON GOBLE

THOSE WHO KNOW WRIGHT in his recent era sometimes have trouble remembering how long he has been on his jet-propelled course. It is easy to forget where he started, how many different times he has cut across the sky, or in the instance of this book, what he said along the way. This is not to suggest that he has zigged and zagged in conflicting courses, but as everybody knows he has had different phases, and the differences are just as apparent in his writings as in his work.

Though the book is entitled, "The Future of Architecture," its real merit is that most of its selections from his writings go back pretty far. Back when his rhetoric, though always picturesque, was less fiery. Even the chapter which gives the book its title is dated 1937, and deals largely with the truly wonderful story of the design and construction of the Imperial Hotel. And who is to say that this story isn't after all closely related to the future of architecture?

In any case, the book is in the main taken up with now-old lectures — the Princeton lectures, 1930; the Chicago Art Museum lectures, 1931; the London lectures, 1939. What is important is that these series are Wright at his rightest. They are coherent and inspiring, also scholarly — he manages to cover quite well the philosophies of ancient architectural cultures in a very short course in history. Incidentally, some fairly recent references to his sympathy for Mayan forms are thoroughly explained, and this portion of the book alone makes it well worth while.

The hands of Frank Lloyd Wright illustrate "tenuity" — a principle of organic architecture. From "The Future of Architecture"

Perhaps I should add something about the poetic quality of these historical references. For example, he says of the ancient Persians:

"The quality of a man's work was then still his honor. These noble buildings were made of and made for well-made bodies, tall of stature, fine minds. Black heads and deep dark eyes were the perfect complement for this poetic sense of building and the garden, and of blue. So the Persian of old made his god of Beauty and passionately dreamed his life away godward."

This section of the book, dated 1937, also contains this little nugget:

". . . we may now see wherein architecture is to be distinguished from mere building. Mere building may not know 'spirit' at all. And it is well to say that the spirit of the thing is the essential life of that thing because it is truth. Such, in the retrospect, is the only life of architecture.

"Architecture is abstract. Abstract form is the pattern of the essential. It is, we may see, spirit in objectified forms. Strictly speaking, abstraction has no reality except as it is embodied in mate-

(Continued on page 48)

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Refrigerated Food Warehousing

by L. R. ST. ONGE, *President of V. C. Patterson & Associates, York, Pa.*

L. R. ST. ONGE—Since graduating from M. I. T. in 1926, the author has been actively engaged in the refrigeration field. Head of York Corporation's Engineering Dept., for Mid-Atlantic District from 1936-46. Today, Mr. St. Onge is President of V. C. Patterson & Associates, Inc., Consulting Engineers of York, Pa., who specialize in the engineering, design and operation of cold-storage warehouses and frozen-food plants.

METHODS AND CURRENT TRENDS IN FOOD REFRIGERATION

There are two basic methods of food preservation by refrigeration: (1) cooler facilities, which protect fresh foods at temperatures usually above 32°F., and (2) freezers, operating under 32° to prevent spoilage. Until recent years, freezer storage covered almost any temperature below 32°F., but today it is recognized that frozen foods should be kept between 0° and 5°F., with the trend toward temperatures of about -10°F.

The amount of space devoted to freezers has increased rapidly. In 1930, for example, freezers accounted for only 29% of the 310 million cu. ft. of public refrigerated warehouses, while in 1952 they represented 54% of 430 million cu. ft. During the same period, cooler space actually dropped.

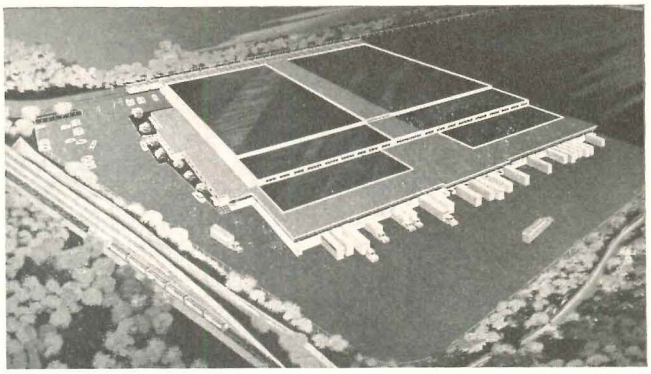
SPECIFIC STORAGE CONDITIONS

Proper temperatures for most foods held in coolers above freezing fall between 32° and 40°F., although some products, such as melons and peppers, require special temperatures (best stored between 40° and 50°). Others, like apples and eggs, must be maintained in temperatures slightly under 32°F. With few exceptions, storage conditions for frozen foods range from 0° to -10°F.

Relative humidity is also very important. The normal range is 75%-85%, but some goods need higher humidities (celery, 95%), while requirements for others fall well below 75%.

REFRIGERATION ON WHEELS

The rapidly expanding consumption of frozen foods has greatly increased the number of processing and freezing plants. The large volume transported in mechanically refrigerated carriers has made national distribution economical from almost any locality. Volume shipments must be packed and handled quickly, systematically and safely. Storage warehouses are needed at: 1. point of processing; 2. intermediate points for long-term storage; 3. the distributor's warehouse.



Modern freezer warehouse built by Merchant's Terminal Corporation, Baltimore, Md., offers storage facilities of over 2,000,000 cu. ft. . . . has full-length railroad and trucking docks.

Palletized handling of product is another current trend in food warehousing. Some manufacturers palletize at processing, the product remaining in palletized loads until it reaches the distributor storage. Here, it is portioned into commercial and consumer deliveries.

BASIC TYPES OF STORAGES

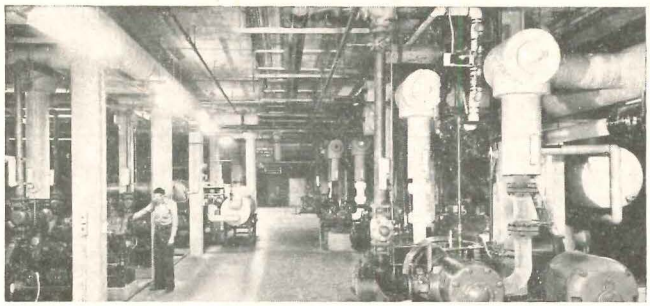
The three types are classified as to functions:

ITEMS	PROCESSING STORAGE	GENERAL OR LONG-TERM STORAGE	DISTRIBUTOR STORAGE
Temperature	-5°F.	-5°F.	0° to -5°F.
Stacking Height	14′	17′	12′
Building Construction	Semi-permanent	Permanent	Semi-permanent
Trucking Platform	—	Large	—
Rail Siding	Yes	Large	Yes
Quick-Freezing Facilities	—	Yes	No
Multi-Rooms	—	Yes	No
Inter-Traffic	Important	Important	—
Fire Protection, Mechanical Failure, Product Safety, etc.	—	Major	Secondary
Fully Automatic Refrigeration Control	Yes	Semi-automatic	Yes

All types must be adaptable to future expansion without major interruption to the operation.

Processor's storage should be located adjacent to production line. This is usually a single-purpose building of simple design. Incoming and outgoing products should pass through different doors for better inventory control. Stacking pallets systematically simplifies handling.

The long-term storage contains a great number of items which must be accurately placed for quick, efficient receipt and shipment. Loading and unloading



Machine room in Merchant's Terminal warehouse. Refrigeration equipment of *York* manufacture totals 245 tons capacity and uses "Freon-12" refrigerant.

should be under constant observation of checkers. Products should move promptly from carrier to storage and vice versa to prevent spoilage. Quick-freezing facilities should be available to handle incoming shipments, to freeze some processed goods (depending on locality) and refreeze items which may have partially thawed on the carrier. Close stacking in storage prevents adequate freezing without quick-freezing equipment.

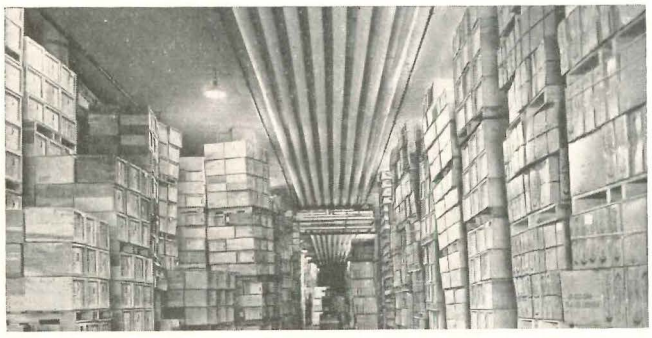
Distributor's storage is used for receiving merchandise in bulk shipments and dividing these into orders for delivery. A bulk storage with one or more "breakup" rooms makes it possible to store bulk efficiently, and regularly move pallet loads to "breakup" rooms for shelving or grouping.

CONSTRUCTION PROBLEMS

To house a -5°F. storage, a building must be designed to minimize dangers of expansion and contraction strains, as well as ground freezing under the refrigerated storage. Column spacing should be at least 30′ to assure efficient usage of space. Live floor loads on single-floor structures range from 300-500 lbs. per sq. ft., depending on function of building. Where large roof areas are involved, expansion sections, large cant strips and carefully designed flashing are needed to meet quick changes in outside weather and sun conditions, with accompanying expansion and contraction. It is imperative to realize that the internal structure (foundations, etc.), remain in near-constant temperatures, while outdoor conditions are continually changing, causing structural stresses which must be compensated for in the original design.

The insulation material may be of any permanent type with good "U" coefficient, but it must be permanently protected with a vapor barrier on the warm side. This requires special treatment at expansion joints, to prevent voids of any type. Heavy floor insulation does not prevent under-floor freezing and resultant floor heaving. The fill under the floor structure will ultimately chill down to 32°F., and the soil will freeze. Some soils expand when freezing, so a heat source (warming pipes in the under slab or air ducts in the fill beneath) should be positioned below the floor insulation.

Metal-clad doors are preferable for cold storage. They should be kept to a minimum, and positioned to facilitate handling of traffic.



Direct-expansion system in one of plant's 1,000,000 cu. ft. storage rooms provides proper temperatures for huge quantity of perishables. Big job efficiently handled by modern refrigeration!

REFRIGERATION SYSTEMS

There are two types of refrigeration systems: brine and direct expansion. With the trend toward lower temperatures in frozen-food warehouses, the latter are gaining in popularity. This is especially true in "quick-freezing" warehouses, where temperatures as low as -40°F. are common. Although refrigerant compressors in most plants use single-stage compression, it is now recognized that two-stage systems, with modern booster compressors, are more efficient.

Actual air cooling is accomplished by: (1) ceiling-hung bare or finned pipe with gravity air circulation; (2) forced air circulation with or without ducts; or (3) small multiple units. For some buildings, forced air circulation is most popular. In the larger warehouses, all three types are utilized. Fan units require frequent defrosting (sometimes daily), but have a lower primary cost than pipe coils, which are defrosted once or twice a year. On the other hand, air units demand costly power, which, in turn, generates heat, requiring additional refrigeration.

For small freezer warehouses, refrigeration loads range from 7,000 to 12,000 cu. ft. per ton of refrigeration (larger structures, 12,000-16,000 cu. ft. per T). Thus, a warehouse of two million cu. ft. volume requires about 150 tons of refrigeration.

* * * * *

Modern refrigeration has been an outstanding factor in the spectacular growth of practically every branch of the food industry. Today's huge refrigerated food warehouses are but one example.

As Mr. St. Onge outlines in his paper, the refrigerated storage of foods presents specific requirements common to all such installations. In discussing these requirements with your clients, you can render helpful refrigeration service by recommending equipment designed to operate with Du Pont FREON® fluorinated hydrocarbon refrigerants . . . suitable for food warehouses of any size and purpose. These refrigerants provide maximum protection because they are safe . . . nonflammable, nonexplosive, virtually nontoxic . . . and are manufactured under laboratory supervision assuring both purity and uniformity . . . essentials that promote efficient, economical machine performance over long periods of time. In addition, "Freon" refrigerants comply with building-code requirements everywhere. E. I. du Pont de Nemours & Co. (Inc.), "Kinetic" Chemicals Division, Wilmington 98, Delaware.

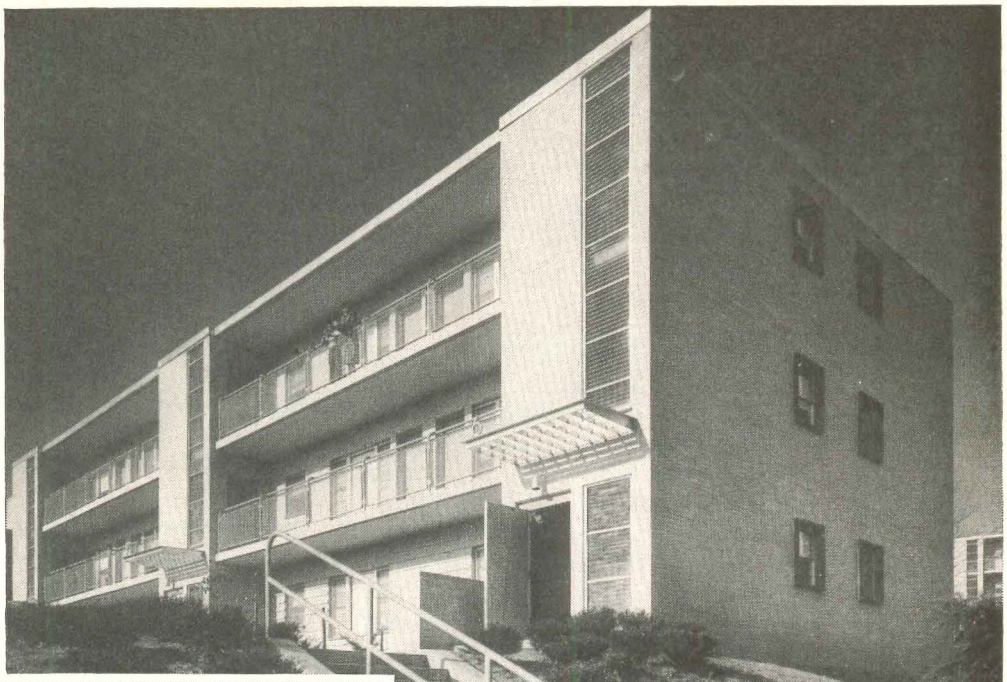
"Combines the Esthetic and the Practical . . ."

THIS description aptly fits both the ultra-modern housing project shown here and the U·S·S NATIONAL Steel Pipe used in its construction.

In the recently completed Armstrong Court in Greenwich, Connecticut, NATIONAL Pipe is used not only in the central forced hot water steam plant which heats the huge project but in decorative hand rails and porch railings to carry out the trim, clean cut, modern appearance of the structure.

For over 60 years, U·S·S NATIONAL has been the standard pipe for conventional hot water and steam heating systems, fire control, and plumbing lines. And today it is the first choice, too, for modern radiant heating and snow melting installations. Long experience, the result of thousands of varied applications, has proved to architects that they can put their full confidence in the uniform, dependable, trouble-free performance of NATIONAL Pipe.

Whenever you plan your installation, regardless of the type of service called for, plan on using U·S·S NATIONAL Steel Pipe. Large or small, simple or complex, NATIONAL can fill your every pipe need.



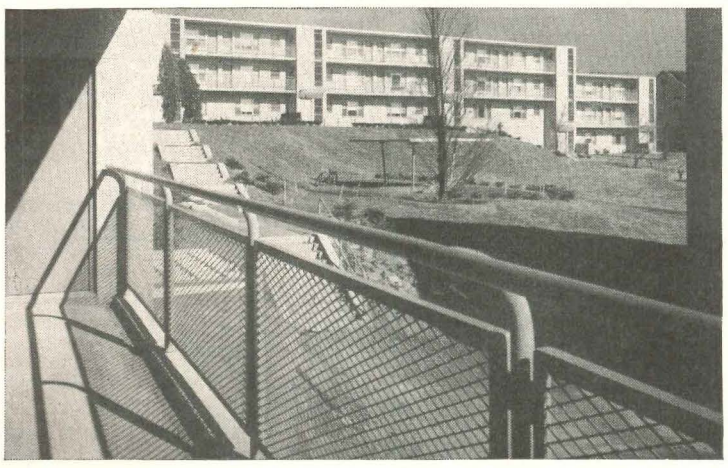
Armstrong Court—Dramatic design in light gray brick.

Architect: Holden, McLaughlin and Associates.

Associate Architect: Joseph G. Weir

General Contractor: Frouge Construction Company

Engineering Firm: Winfield S. Bondy



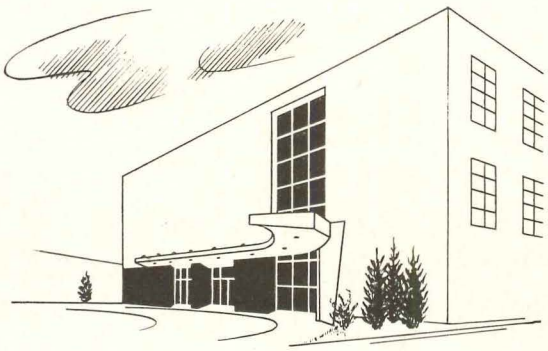
THE STURDY, HANDSOME NATIONAL PIPE porch railings carry out the modern motif of the three-story structures. These different-level buildings are cleverly disposed on a hilly site to make the most of the relation of the various blocks to green areas.

NATIONAL TUBE DIVISION, UNITED STATES STEEL CORPORATION, PITTSBURGH, PA.
COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO, PACIFIC COAST DISTRIBUTORS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

U·S·S NATIONAL Steel PIPE

UNITED STATES STEEL

STATE TIMES AND MORNING ADVOCATE BUILDING, Baton Rouge, Louisiana

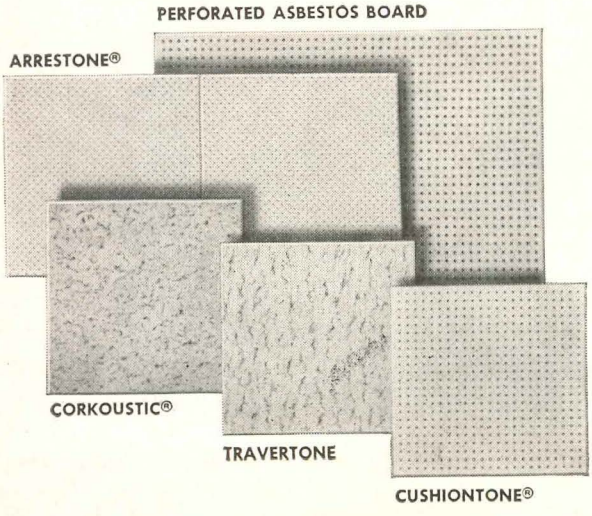


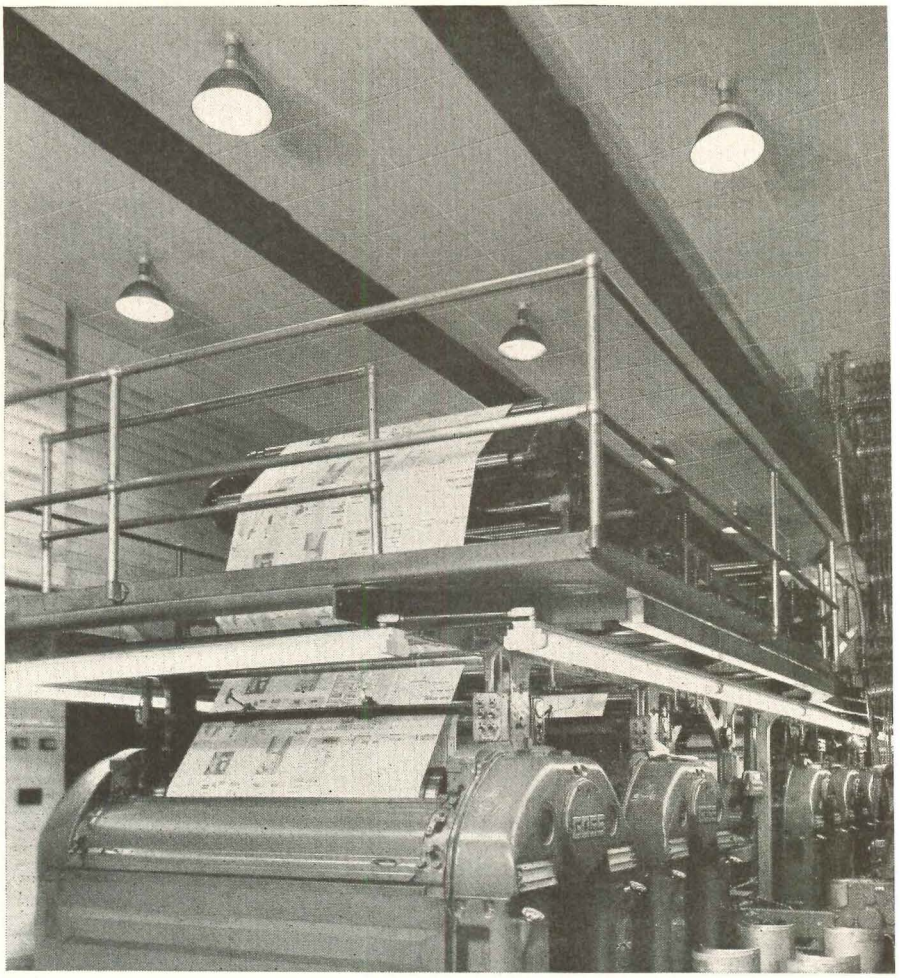
Architect: Bodman, Murrell & Smith, Baton Rouge, La.
Acoustical Contractor:
Clifford A. King, New Orleans, La.
General Contractor:
Pitman Construction Co., New Orleans, La.

Even at press-time, there's comfortable quiet in the offices and work areas of Baton Rouge's State Times and Morning Advocate Building. The roar of presses, the rattling of Linotypes, and the clatter of teletypes are greatly subdued. In selecting the proper material for each area of the building, three of Armstrong's acoustical materials were chosen.

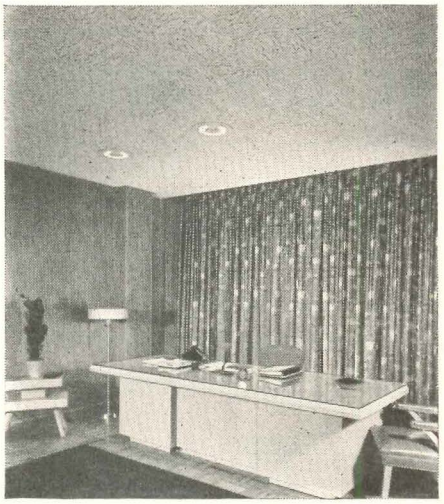
In the newspaper's composing room, a ceiling of low-cost Cushiontone soaks up as much as 75% of the noise. Armstrong's Perforated Asbestos Board backed up by a glass-wool blanket was used in the press-room. In the lobby, private office, and corridors where appearance is especially important — a fissured mineral wool ceiling of Armstrong's Travertone complements the ultra-modern décor.

As this building demonstrates, no single material can solve every sound-conditioning problem. That's why Armstrong offers you a variety of acoustical materials, each with its own special features. For full details, call your local Armstrong Acoustical Contractor. And for the free booklet, "How to Select an Acoustical Material," write direct to Armstrong Cork Company, 4212 Rock St., Lancaster, Pennsylvania.

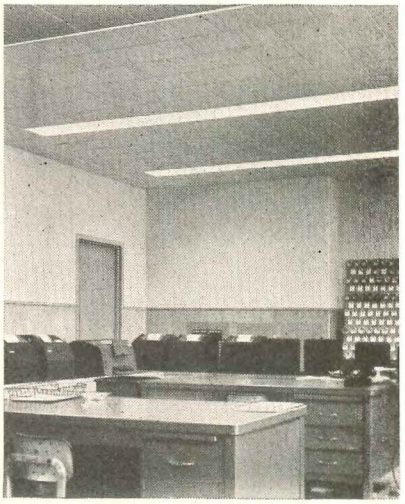




Grease and ink spray present no cleaning problem in this press-room. The fire-safe acoustical cei of Perforated Asbestos Board can be readily washed or repainted whenever necessary.



A ceiling of Armstrong's Travertone adds distinctive beauty and comfortable quiet to this private office. A fissured mineral-wool tile, Travertone is completely incombustible.



13 teletype machines operate continuously ir alcove adjoining the newspaper's city room. Cushiontone ceiling over both areas, how prevents the build-up of disturbing noise le

ARMSTRONG'S ACOUSTICAL MATERIALS

ARCHITECTURAL RECORD'S BUILDING TYPES STUDY NUMBER 205

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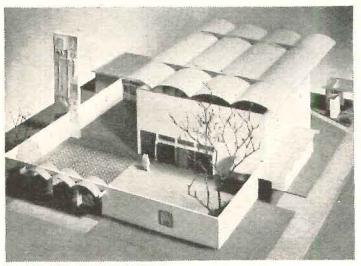
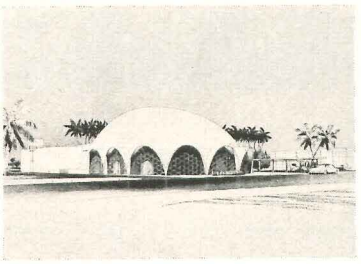
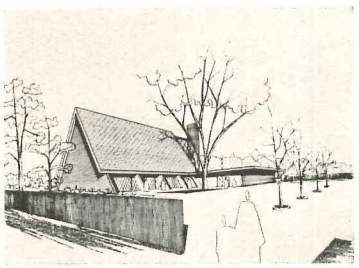
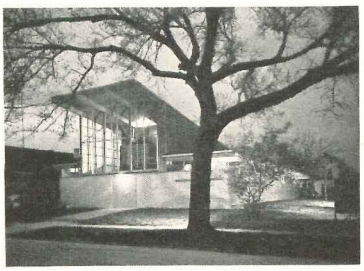
RELIGIOUS BUILDINGS





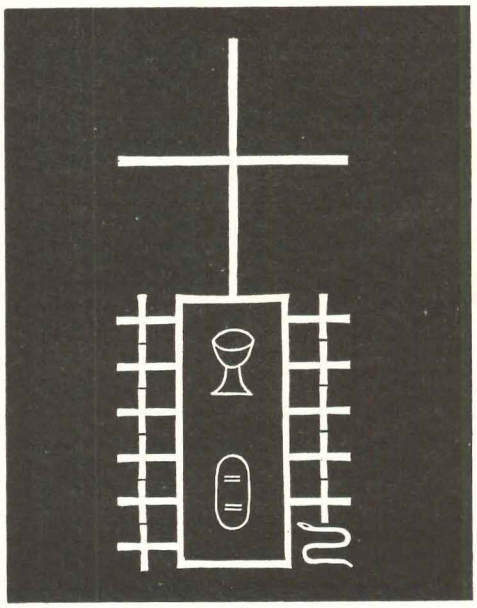
At a time when religious building activity is engaging the attention of many architects and engineers, ARCHITECTURAL RECORD takes satisfaction in presenting its ninth major study on this subject within the past ten years. Unlike earlier studies, this one is introduced by the thoughts of three men prominent in religion.

Tradition and Today's Ethos

by Reinhold Niebuhr

A noted theologian and well known author, Dr. Niebuhr is Dean of Union Theological Seminary.

ARCHITECTURE, as every artistic discipline, requires the forming power of a great tradition and sufficient vitality to insure the adaptation of that tradition to current interests. Without adaptation the tradition becomes archaic. Church architecture is particularly dependent upon these two factors, and both of them are more complex than the requirements of architecture in general. For the tradition must combine religious and artistic



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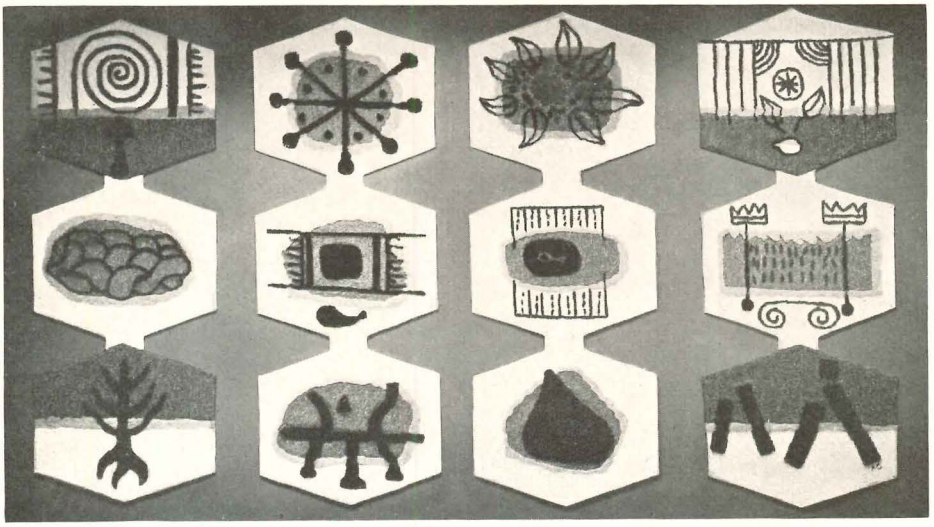

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elements and the current interest must include not only the general cultural situation but specific religious ethos.

The "great tradition" in church architecture has been the Gothic one, first elaborated by the monastic architects of the Middle Ages. Many have questioned whether Gothic architecture is the most perfect expression of the ethos of the Christian faith or whether it mirrors the ethos of the Middle Ages too much to express contemporary Christianity adequately. It has a supreme position because it satisfies some very fundamental needs of church architecture. Gothic vaulting and the church spire are fitting symbolic expressions of the yearning of the religious spirit for the ultimate beyond the immediate concerns of life. The broken lines of Gothic are moreover perfect expressions of the Christian concept of the discontinuities of life; of the contrast between man and God, between sin and grace. The classic temple cannot be an adequate expression of the Christian faith; its rounded columns and vaults express classical complacency rather than Christian tensions. The fact that Gothic has survived the Middle Ages and is found so satisfactory by many Protestant churches is proof that it expresses something more universal in Christianity than the ethos of a bygone age. On the other hand, efforts to adapt Gothic architecture frequently suffer from archaism. When this happens it proves there is insufficient vitality in the religious or architectural tradition to adjust and apply the tradition to contemporary interests, i.e., to the temper and functional requirements of a technical age, more particularly an age of steel.

In addition to the Gothic, America has only one other religious architectural tradition; that of the New England meeting house, in which the simplicities of the Puritan faith come to an expression as contrasted to the complexities of medieval faith. The meeting house may be regarded as a distinctively Protestant form of architecture which unfortunately existed in its purity only in the small New England village. When wealth came to town and city and when new skills and technical powers were developed in our industrial centers, there was not enough force in the religious tradition to discipline all these new powers and potentialities. As a result, many churches were built which distinguished themselves from grain elevators primarily by the amount of gingerbread added to the building. The prevailing "style" on the Eastern seacoast came to be a combination of bungalow and campanile in which the squatness of the building was accentuated by the majestic dimension of the campanile. The churches built in the General Grant period shared and accentuated all the atrocious motifs which supposedly conveyed an idea of grandeur in private, civic or ecclesiastical building. Happily these days are past.

The new church architecture which is emerging in recent years, and of which the buildings of such architects as Pietro Belluschi are striking exemplars, seek to combine the virtues of Gothic with the simplicity of the New England meeting house. In America this represents the union of two great architectural traditions, and in Western civilization it represents a vital adaptation of a great architectural tradition to the ethos of a technical age. At its best the new style seeks to preserve the suggestions of aspiration and of concern for the ultimate with chastity of form, and may suggest the ascetic tendencies in the Christian life.

3

1 The Last Supper, from the book *The Life of Jesus*, designed by Rudolph Koch, European type designer. Reproduced by courtesy of Devin-Adair Co., N. Y.

2 Wall decoration by Adolph Gottlieb for Congregation Beth El, Springfield, Mass., Percival Goodman, Architect. Photo courtesy of Kootz Gallery, N. Y.

3 A fine example of a medieval Catalonian Breviere, 15th cent., as done for Martin le Vieux, last king of Aragon in the Catalonian line

An American Synagogue for Today and Tomorrow

by Rabbi Maurice N. Eisendrath

Dr. Eisendrath was recently made lifetime president of the Union of American Hebrew Congregations and is as well an author and theologian.

THE SYNAGOGUE has had, throughout the centuries, three major functions, and each of these has given the synagogue one of its Hebrew names: Bet Ha'Tephilah, House of Prayer; Bet Ha'Midrash, House of Study; and Bet Ha'Knesset, House of Sociability. Today, the synagogue institution, as the center of Jewish living, whether orthodox, conservative, or reform, still conforms to this triple functional pattern. Consequently, the synagogue building must, in the first instance, be erected so it will fulfill all three needs.

Above all, the synagogue structure must create an atmosphere which will inspire *worship*. In Jewish tradition, there is no one or preferable form the synagogue must take in order to accomplish this lofty goal. We Jews have had a tendency through the centuries to build our houses of prayer in conformity with the architecture of our environment: Moorish mosques in Spain, Romanesque and even Gothic buildings in Central Europe, Colonial meeting houses in Colonial America. Until half-a-generation ago, synagogue architecture in America was a melange of styles. A few miles apart in Cincinnati, center of Reform Judaism for three generations, we find the old Plum Street Temple and the Rockdale Avenue Temple. The former is an impressive example of Byzantine architecture, the latter an imposing 19th century adaptation of a Greek temple. New York City's world renowned Temple Emanu-el is architecturally a Romanesque cathedral, imaginative and magnificent, but still a Romanesque cathedral. The thousands of tourists who annually visit the national shrine of Congregation Yeshuat Israel in Newport, R. I. are struck by the similarity of that simple meeting house to the Colonial churches of New England.

Today there is a clear trend in our congregations to prefer contemporary architectural forms. The members of the Synagogue Architects Consultant Panel of our Union, which consists of nearly 40 architectural firms, are committed to the belief that 20th century American Jews can be most suitably inspired to worship God in daily services, on Sabbaths, festivals, and holydays in temple sanctuaries that incorporate the clean lines and untrammelled spaces of contemporary architecture. This conviction is clearly expressed in the definitive new volume, "An American Synagogue for Today and Tomorrow," (UAHC 1953). Large or small, the sanctuaries now being built mirror the oneness of the Jew with this unique and beloved land.

Consequently, one of the significant new developments in synagogue architecture is the expansible

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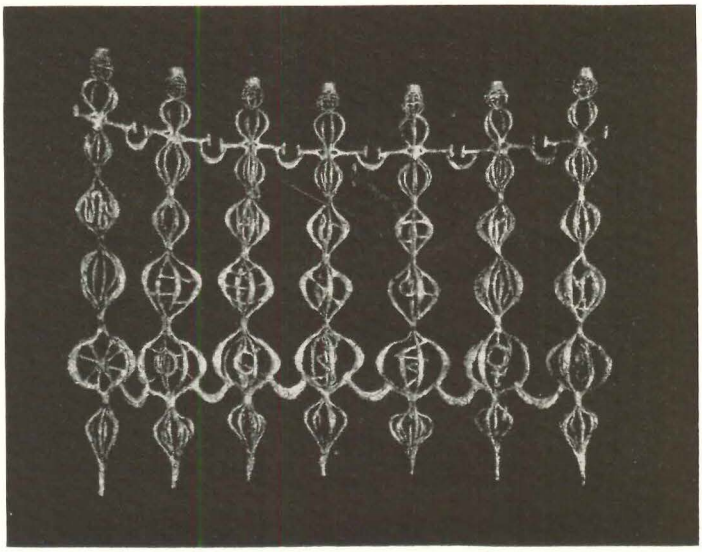


sanctuary — a relatively small permanent sanctuary connected by some form of movable partition to a larger space, usually the congregation's social hall. Efficiency and worship are enhanced by such multiple space use.

One of the most widespread untruths about the synagogue decries its lack of beauty in ornamentation, color, the use of the plastic arts and the dramatization of Judaism's noble heritage and ideals in visible symbols. Ancient synagogues currently being excavated in Israel dispel this misapprehension beyond question. At Beth Alpha, at Dura Europos, at Caesarea, synagogues over 1500 years old have come to light with murals, floor mosaics, and all manner of magnificent ornamentation and symbolism.

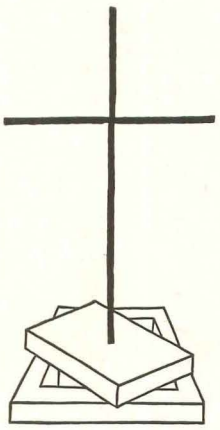
Judaism itself is rich in symbols. In addition, the identification of our religion with the living experiences of the Jewish people, past and present, makes for an infinite variety of possible decorative motifs. The Hebrew alphabet itself has been demonstrated to be an excellent springboard for artistic expression. Thanks to the influence of our voluntary, tireless architectural panel, craftsmen and serious artists are working with architects all over America to bring to the synagogue increasing richness, deeper religious meaning and potential, and a significant opportunity for artists and craftsmen to achieve a degree of artistic immortality in the stone, wood, stained glass, walls, and sacred equipment of the new synagogue.

It must be emphasized that neither the inspirational quality of the house of worship nor its beautification can be achieved in an historical vacuum. Even as Judaism is a continuity of belief, life, thought and inspiration, even so the synagogue contains timeless and unchanging elements. The Torah scroll, containing the Pentateuch, is still the core symbol of Judaism. It is always covered with a beautiful mantle, and usually with breastplate and crowns of worked silver, or other precious metal. The Ark, in which the Torah scrolls are housed, must be the visual focal point of the sanctuary. Over the Ark must be found the Ner Tamid, the Eternal Light. The light may be oil, gas, electric or any other form of flame. The lamp may take any form; it certainly need not be copied from medieval church incense burners, as has been so often done. But some kind of Eternal Light must be provided to signalize the need of the pious individual to shed light on the lives of God's creatures.

Any relevant form of symbolic decoration is permissible in reform synagogues, and in most conservative synagogues. (In orthodox synagogues, the use of the human form is prohibited, among other limitations.) Relevance applies to any form, and style, any technique — so long as the subject matter expresses some valid idea or ideal, person or incident, object or objective in Judaism's long history.

The Jews of the 20th century wish to "worship God in the beauty of holiness," in sanctuaries which are conducive to consecrated prayer in their atmosphere, beauty and symbolism; in sanctuaries which are consistent with the finest architectural achievements of 20th century America.

Study of all kinds has always been a positive religious commandment of Judaism. From early childhood to the last day of his life, the Jew has the responsibility of



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1 The Last Supper, tempera by Mark Tobey. Collection: The Metropolitan Museum. Photo courtesy of the Willard Gallery, N. Y.

2 Bronze candelabra by Ibram Lassaw for Congregation Beth El, Springfield, Mass., Percival Goodman, Architect. Photo courtesy of Kootz Gallery, N. Y.

3 The Resurrection, from the book *The Life of Jesus*, designed by Rudolph Koch, European type designer. Reproduced by courtesy of Devin-Adair Co., N. Y.

4 Chapel du Rosaire des Dominicaines de Vence, by Henri Matisse. Photo by courtesy of *Illustration*

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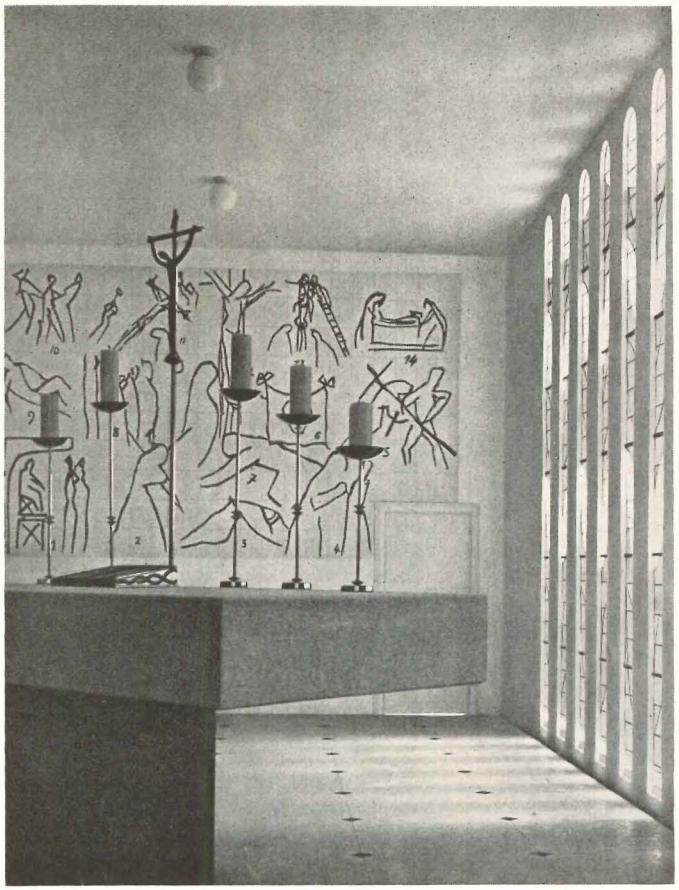

learning more about his God, his world, his faith, and his people, through both formal and private study. As a consequence, every synagogue must be, not only a Bet Ha'Tephilah, a House of Prayer, but also a Bet Ha'Midrash, a House of Study.

Increasing numbers of Jews are coming to the synagogue for a variety of educational activities. The synagogue school must, consequently, be as flexible as possible. Multiple use of space is essential and the latest techniques of schoolroom construction are recommended, together with the most mobile and durable kinds of furniture and equipment. Space must be made available in most synagogues for arts and crafts, music, youth activities, library and museum, a Judaica or ceremonial objects sales shop, in addition to a number of classrooms which can be used both by children and adults. Nursery and Kindergarten rooms are used not only on Saturday and/or Sunday, but weekday nursery schools are increasingly required. Club groups, Boy and Girl Scouts, all kinds of extra-curricular activities are also housed in synagogue schools.

Using every good 20th century educational technique, Jews are continuing to fulfill the ancient Talmudic dictum that "The study of Torah is the most important religious commandment." We must have synagogue buildings which facilitate every form of study.

The social program of the synagogue (the Bet Ha' Knesset) is no less important in many ways than the worship services and the educational activities carried on in synagogue buildings. Every synagogue has auxiliary groups: Sisterhoods, Men's Clubs, Young Married circles, youth groups in various age brackets, and specialized interest clubs. Meetings, dances, dinners, cultural programs of all kinds, dramatic performances, and the like, take place in our synagogues, and the building must contain suitable facilities for all of them. The problems involved are not peculiar to the synagogue, of course, but are intensified by the fact that the synagogue, particularly in smaller cities, so frequently serves as a social center for the entire Jewish community. The social facilities of the synagogue building must be adequate, flexible, attractive, and durable.

The synagogue institution has survived and is flourishing as the place where Jews can come close to our God in worship, celebrate festivals and holydays, learn more of Judaism and the Jewish people, and join in social fellowship and relaxation. To build a structure to house all these functions is no simple task. To build the synagogue not only functionally but beautifully so that it imparts inspiration is even more difficult. Since the end of World War II more than 250 synagogues have been built. Most of them prove that no difficulties are insuperable if competent architects join with talented artists and devoted and understanding synagogue leaders to plan and build synagogue buildings which simultaneously reflect imaginative architectural form, meaningful and aesthetic symbolic expression, careful planning of space utilization to fulfill the purposes of the structure, and the most creative spirit of American life. Permeating the American synagogue for today and tomorrow is the clear determination of our people to build houses in which truly the spirit of God may dwell.

1

1 Job, 1947, by Milton Horn. Photo by courtesy of the American Union of Hebrew Congregations.

2 Interior of church at Oosterbeek, by Architects F. A. Eschauzier, F. Eschauzier, Jr., & B. van Kasteel. Photo by R. Melchers, reproduced by courtesy of the Netherlands *Forum*.

3 Valance of Ark Curtain by Adolph Gottlieb for the Congregation Beth El, Springfield, Mass., Percival Goodman, Architect. Photo by courtesy of the Kootz Gallery, N. Y.

4 The Loaves and the Fishes, from the book *The Life of Jesus*, designed by Rudolph Koch, European type designer. Reproduced by courtesy of Devin-Adair Co., N. Y.

5 Medieval head of a "Devot Christ," wood, painted, for the cathedral of Saint Jean de Peripignan.

2

The Church as Instrument and Expression

by John LaFarge, S.J.

Father LaFarge has, for more than 20 years, been both associate editor of the Catholic review America *and Chaplain of the Liturgical Arts Society.*

LET ME SAY AS INTRODUCTION that I am offering the following observations not as an expert in architecture, which I am not, but simply as a former parish priest and as an observer of contemporary trends. To the question, "What general suggestions would you make to someone commissioned to design a church who was not particularly familiar with the needs of ecclesiastical architecture?" a few simple remarks may help to avoid some confusion.

A religious building, be it Protestant or Catholic, church or synagogue, may be looked at from two main points of view: as an *instrument* of religious worship, and as an *expression* of religious conviction and sentiment.

The term "instrument" as well as the term "worship" covers a great variety of concepts. The first thing an architect would naturally investigate would be the *nature* of the worship conducted in the structure he is to build. If it consists chiefly of Bible reading, preaching and hymn singing, his building will give special prominence to lecturn, pulpit, choir and organ. On the other hand, if a Catholic church is contemplated, he will need to acquire at least an elementary knowledge of the requirements of the Catholic liturgy, of which the central act is the celebration of the Mass (or the Divine Liturgy, as it is called in churches of the Eastern Christian rites.) He will familiarize himself with the construction of the altar and its various appurtenances, mobile and permanent — such as the sanctuary or chancel — and will make sure that it is given proper prominence and space. (I recall a "model" Catholic church constructed by a very prominent firm of New York architects which reproduced a wealth of exquisite details from old French parish churches but placed the altar in a sanctuary so small that the full ceremonies of the Mass were almost impossible to execute.)

Such information is readily available. The Liturgical Arts Society, for instance (7 West 42nd Street, New York City), is glad to indicate standard sources of information. The dignity and integrity of religious worship are immensely aided by familiarity with the needs of the more obvious functional requirements of a church (I am taking the Catholic church as an example). Consider: the proper construction of the baptistry; of the confessionals or confession boxes — for privacy, accessibility and the comfort of all concerned; the location of choir and organ according to the Church's prescriptions on church music (no more choir lofts in the rear of the church!); the location and structure of side altars, where desired for devotional purposes; the relation of pulpit or reading desk to the sanctuary, and so on. Last but not least is the layout of the sacristy or sacristies.

Provision for worship means also provision for worshippers: their distribution and relation to the ceremonies in which they take some part as well as to one another, to the preacher, etc. This means obviously

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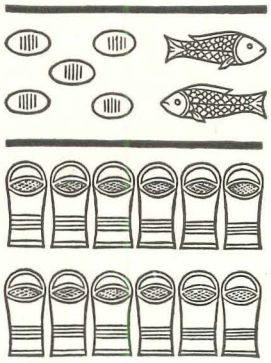

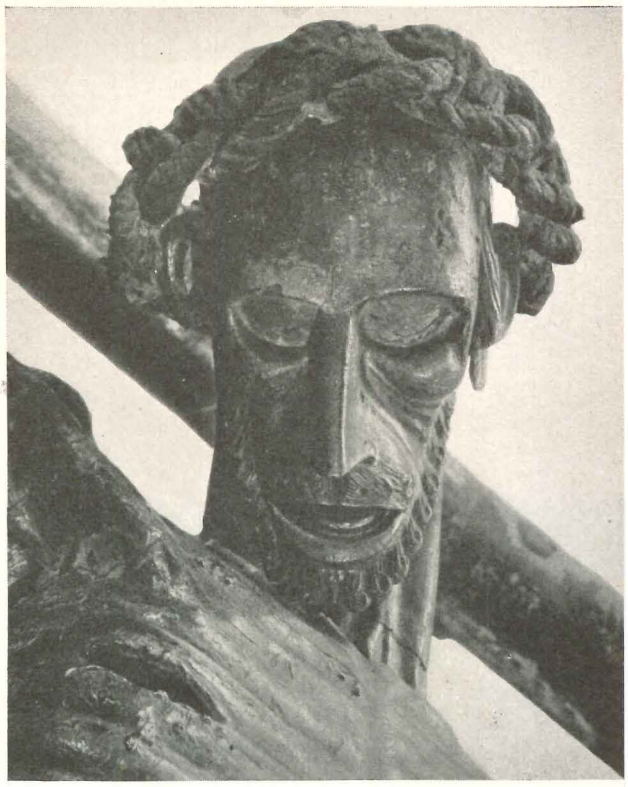

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their comfort and convenience, proper lighting, acoustics, heating, ventilation, entrance and exit, and other human needs.

Two or three current trends in church building are helpful to keep in view. Today there is a tendency to *differentiate* more carefully between the various types of church buildings. The requirements of an edifice devoted exclusively to the service of a monastic community, with its special provision for chanting the daily office, for instance, would be quite different from those of a parish church, where the emphasis is upon its strictly pastoral and congregational character. These, in turn, intended for daily, indeed for hourly use, would differ from a pilgrimage shrine, fitted for special occasions and large crowds, and featuring some particular local object of veneration. Along with this greater attention — quite in accordance with our times — to a building's particular function comes also a tendency to greater *simplicity*, especially in decoration. An interesting example is afforded by the restoration of many of the bombed-out churches in Europe. Buildings once highly ornate, such as the St. Michaelskirche in Munich, or the lovely Liebfrauenkirche in Trier, are restored with a simpler decorative scheme, and in some cases with a more distinctively pastoral character. Where special climatic conditions prevail, as in tropical or sub-tropical countries, much freer use is made of opportunities for special types of construction and fenestration. The trend to greater simplicity is seen also in less profuse decoration — sculpture or painting — and more attention to strong and impressive featuring of those basic indispensable elements prescribed by the liturgy. (I doubt if we shall see in the future many such *tours de force* as the chapel of Leland Stanford University in California!). Parallel to this is greater attention to the *symbolic character of the building itself* (cross, tower, etc.) and the rich possibilities in its development.

Provision for purely social features will vary according to the customs of different religious organizations. In Catholic churches, care is taken to keep such facilities quite distinct from the actual place of worship, whether in an adjoining building or in the basement.

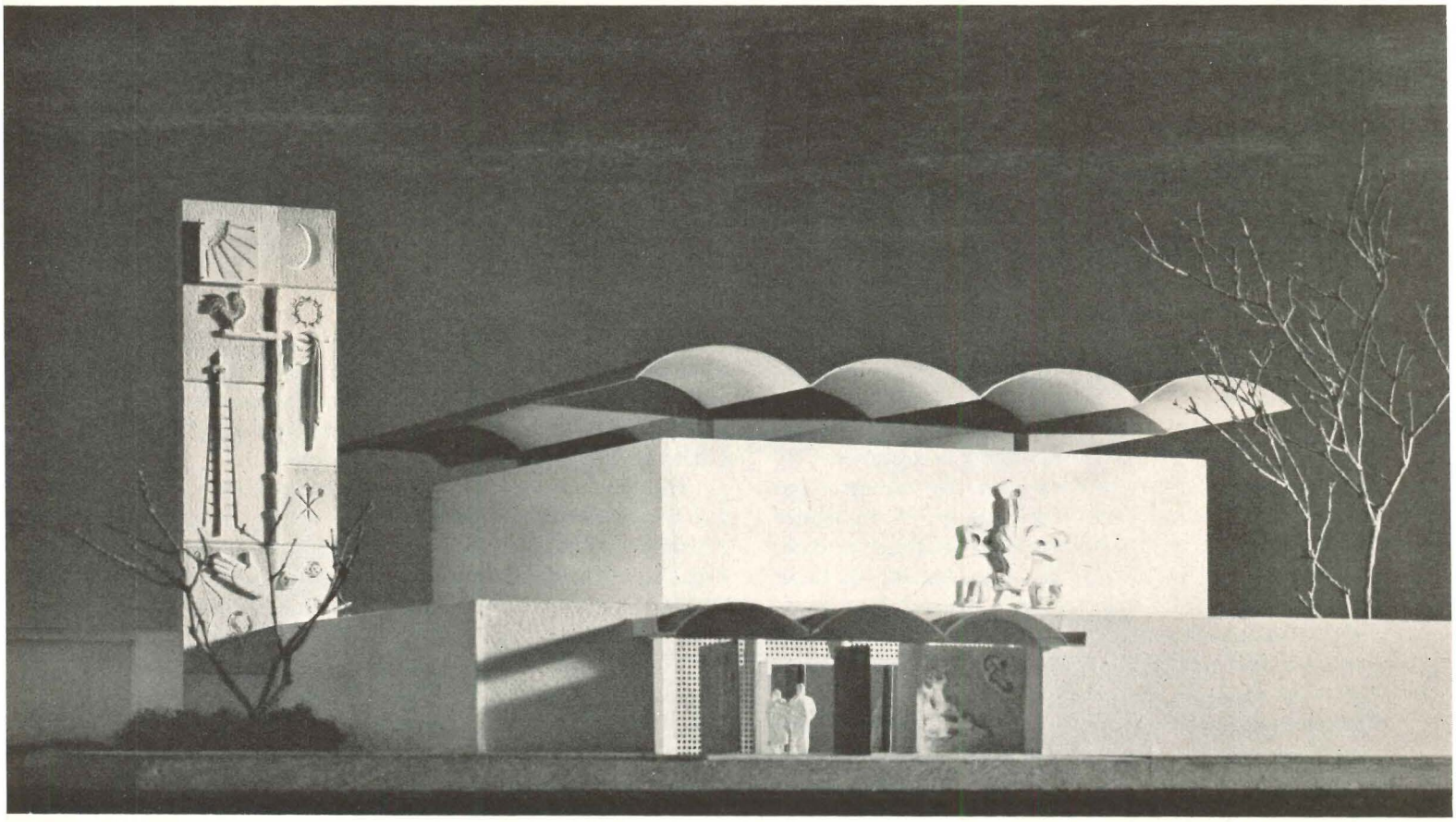
The need for some fitting expression of religious conviction and sentiment does not, of course, lend itself to precise suggestion. However, much of the uncertainty that might seem to affect these less tangible requirements is avoided if the church's functional character is *adequately and imaginatively* understood. Since the church's liturgy is itself an eloquent expression — in word and symbol — of religious sentiment, an edifice clearly related to its performance shares in the imaginative overtones of corporate worship. The same remark would apply to the church's other functions, that of a home for hearing the Word of God, and for collective prayer and individual meditation.

A church traditionally is a place of seclusion and interior recollection, a refuge from the noise and disturbance of the surrounding scene. In a Catholic church its *sacral* character is strongly emphasized by a style and furnishing tending to produce a sense of reverence, culminating in the reverential elements of the altar, with its tabernacle and reserved Sacrament. At the same time, the church building also emphasizes the joy, the hope, the upward *elan* of religious belief. People retire into their church in order to go out from church and bring new life and hope to the world around them. It is oriented in both directions; to the mysteries of the unseen world beyond, and to the spiritual needs of struggling humanity. The history of church architecture shows varying emphasis upon one or the other of these two great poles of attitude. But in some way or another neither of them can be ignored. One of the most interesting features of the best contemporary church architecture is to observe how skilfully they have been combined.

Preliminary Design for Two Churches

Puerto Ordaz and Ciudad Piar, Venezuela

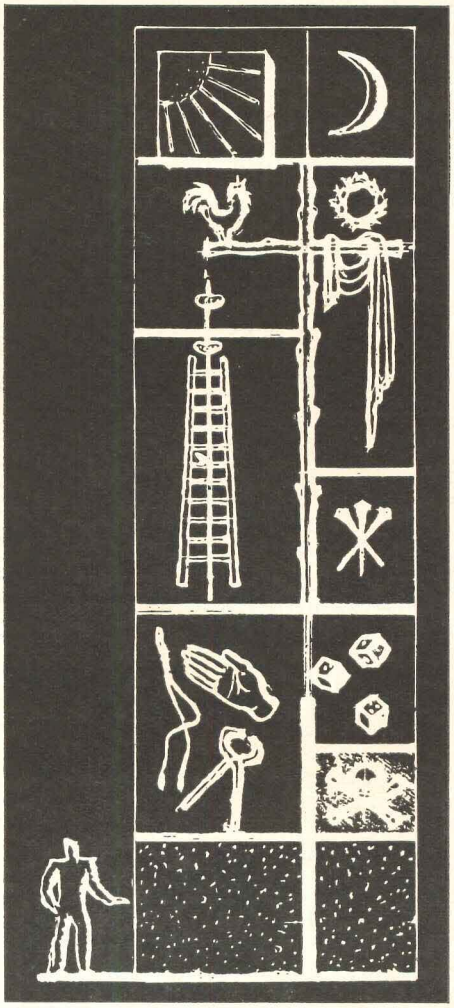
Architects: Francisco Carrillo Batalla, Carlos Guinand, and Moises Benacerraf—all of the Oficina Planificacion y Vivienda, Caracas. Consultants: Paul Lester Wiener and José Luis Sert

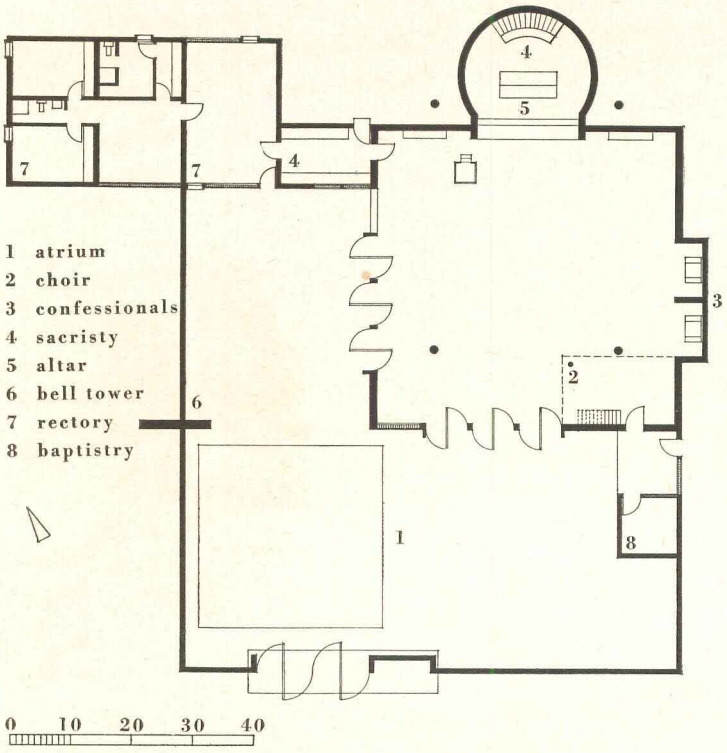


IN ACCORDANCE WITH LOCAL TRADITION, each of the two towns U. S. Steel is now building near the ore mines of Cerro Bolivar will have a community center with a promenade flanked on three sides by civic and commercial buildings and on the fourth by the church.

Although the scheme may change with development and actually be built in different fashion, this preliminary visualization is presented as a design idea. Similar forms for each church are envisioned, with elements differently disposed. The free interpretation of decoration by local craftsmen should yield further variety.

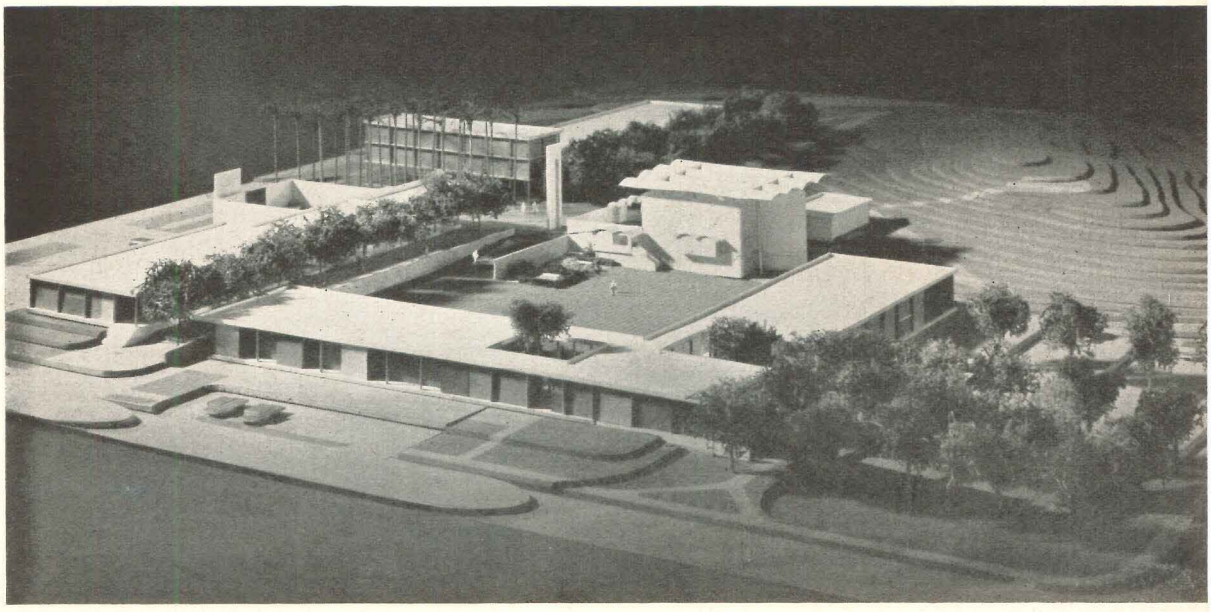
José Sert says, "We have attempted a design that avails itself of modern engineering and materials but have tried to avoid the sensationally 'new look'. The proportions of old structures were carefully considered, and *scale became the main concern*. This small church will look spacious, because doors and other elements are kept small, walls continuous and unbroken, materials unchanged, accents in decoration few and powerful, color accents at strategic points, with white and gray the predominating tones."



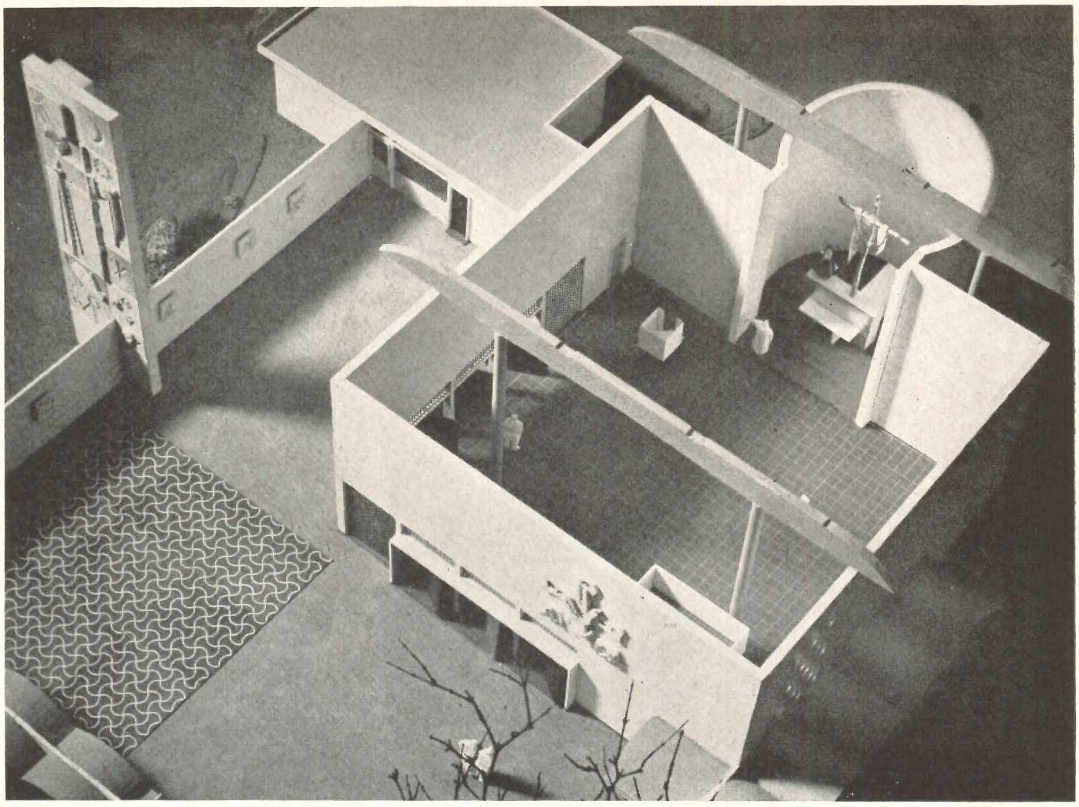


Design for the bell tower is a 12 meter high slab, above, with colored bas-relief decoration symbolizing Christ's Passion

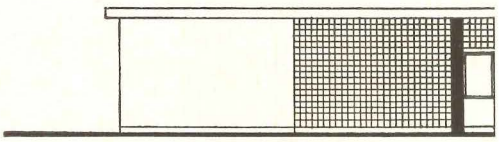
Proposed plan for Puerto Ordaz, left, is a square within a square with a more than semi-circular apse. Such a shape facilitates concealment of artificial lighting

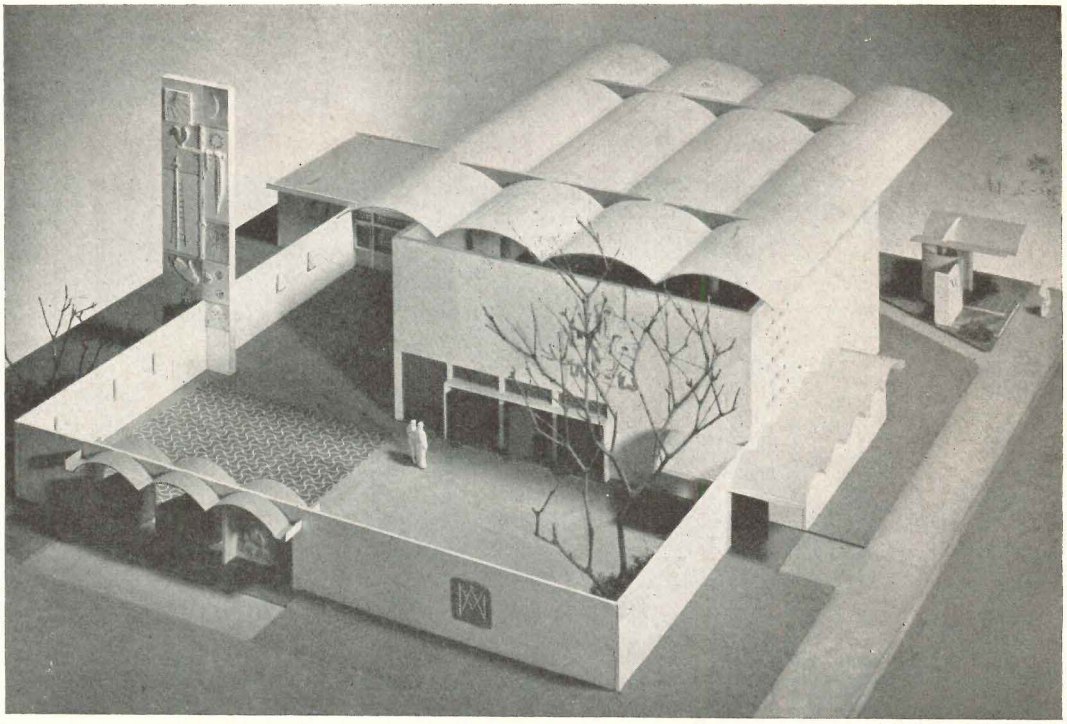


Richard H. Althoff



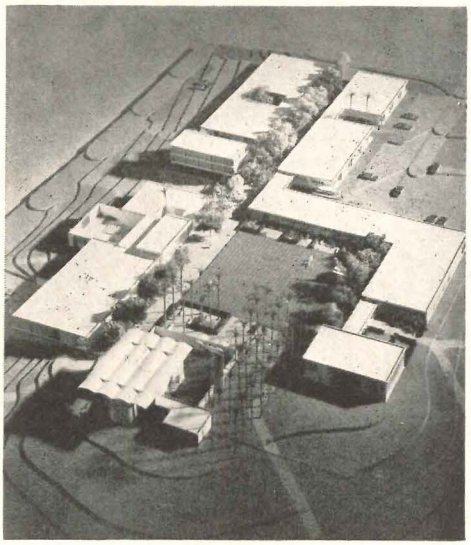
Main structural feature of the design is the "floating" roof, removed above and shown in place below. The thin, shellike structure is a series of four membrane vaults, poised on only four columns, which acts as umbrella and sunshade, casting cooling shadows on walls. The vaulted soffit will be painted soft blue

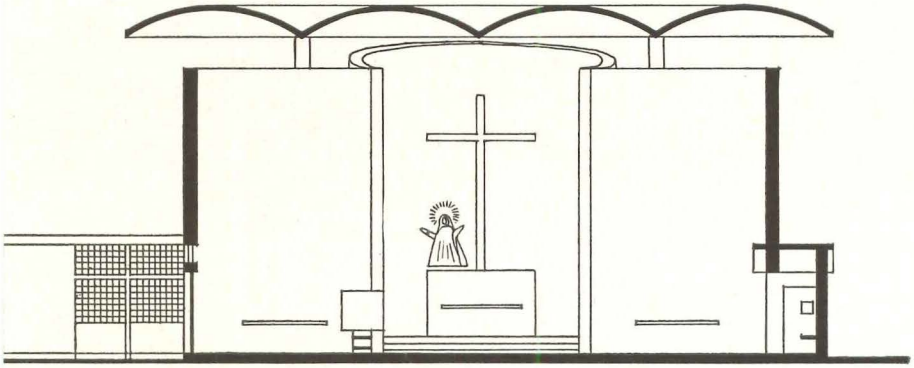




RELIGIOUS BUILDINGS

Puerto Ordaz & Ciudad Piar

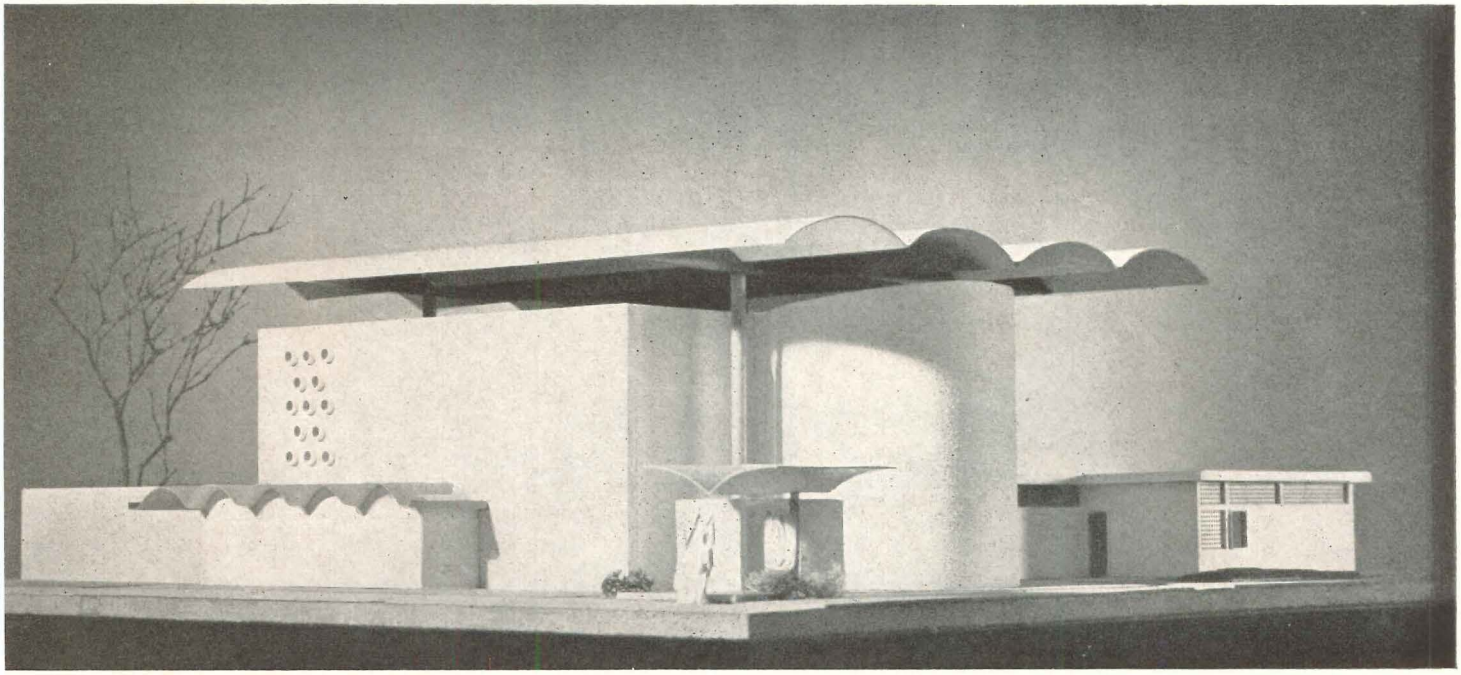




Preliminary design model for the community center of Puerto Ordaz, above, shows the church in the foreground facing the square. Other buildings flanking the proposed promenade are civic or commercial in character

Eye level view of the church model from the side, below, shows the strong sculptural form of the circular apse, the rectory wing at right, the lateral confessionals at left, the small detached chapel in the foreground

Richard H. Althoff

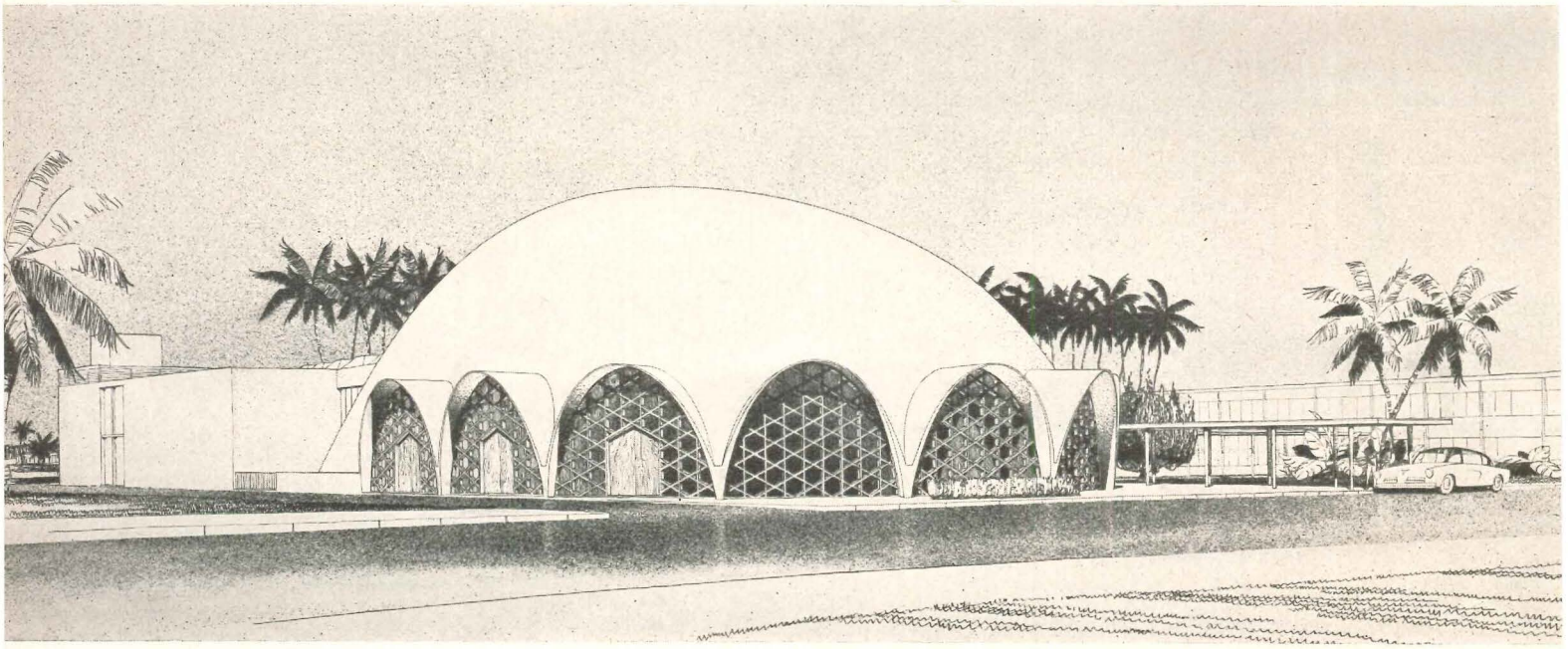


Temple Beth Sholom, Miami Beach

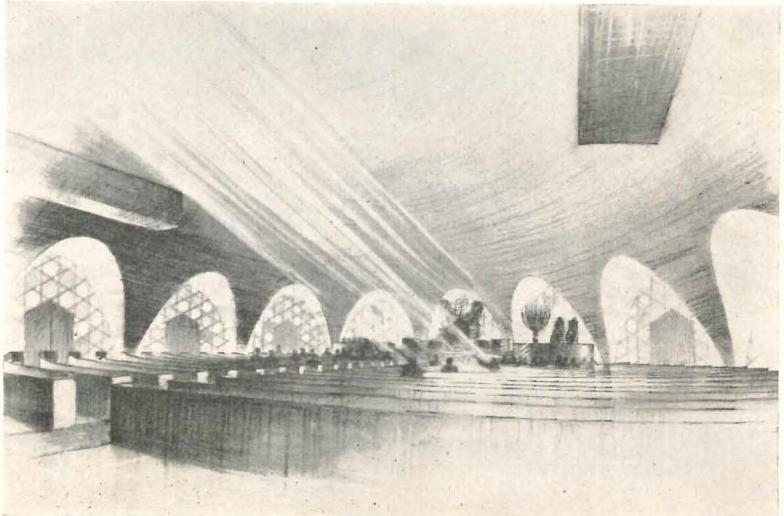
Percival Goodman, Architect; A. Herbert Mathes, Resident Architect;

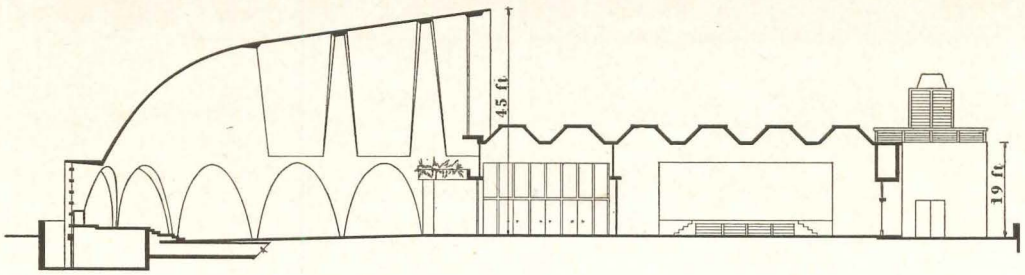
Amman & Whitney, Structural Engineers

THIS SYNAGOGUE DESIGN holds both structural interest and esthetic appeal. The handsome and peculiarly fitting form for the main sanctuary is a thin shell concrete quarter-dome, 3 in. thick at the top, which spans 100 ft. A rhythmic succession of parabolic dormers glazed in color will pierce this shell at its baseline. Roof framing for the remainder of the building will consist of a 4 in. thick concrete "hipped plate" system much like a giant corrugated board, which spans 80 ft. and each corrugation of which measures 4 by 14 ft. Roofing material for the entire structure will be a sprayed-on cocoon plastic, which is available in several colors. The entire building will be air conditioned.

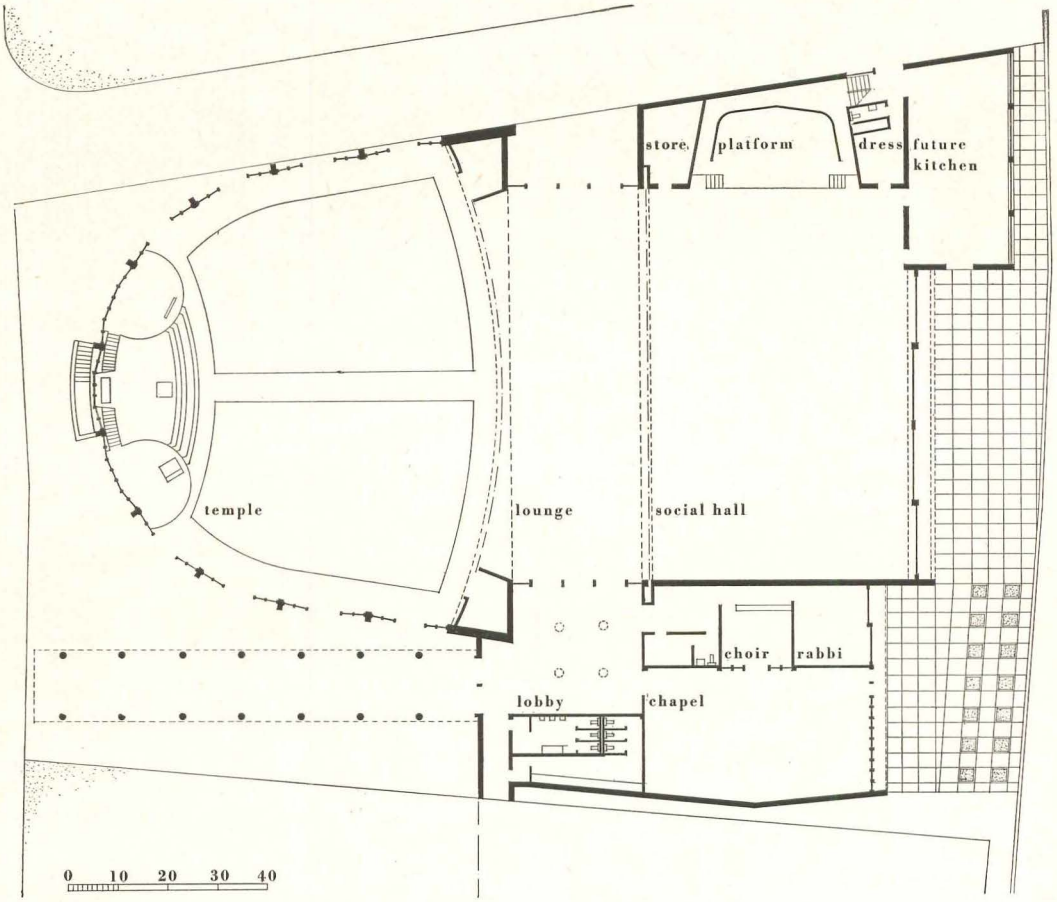


Delicate character of the structure is apparent from the street, above. Grillwork in the dormers is concrete. The covered entrance walk leads to a skylighted lobby which will connect temple with future school, shown in right background

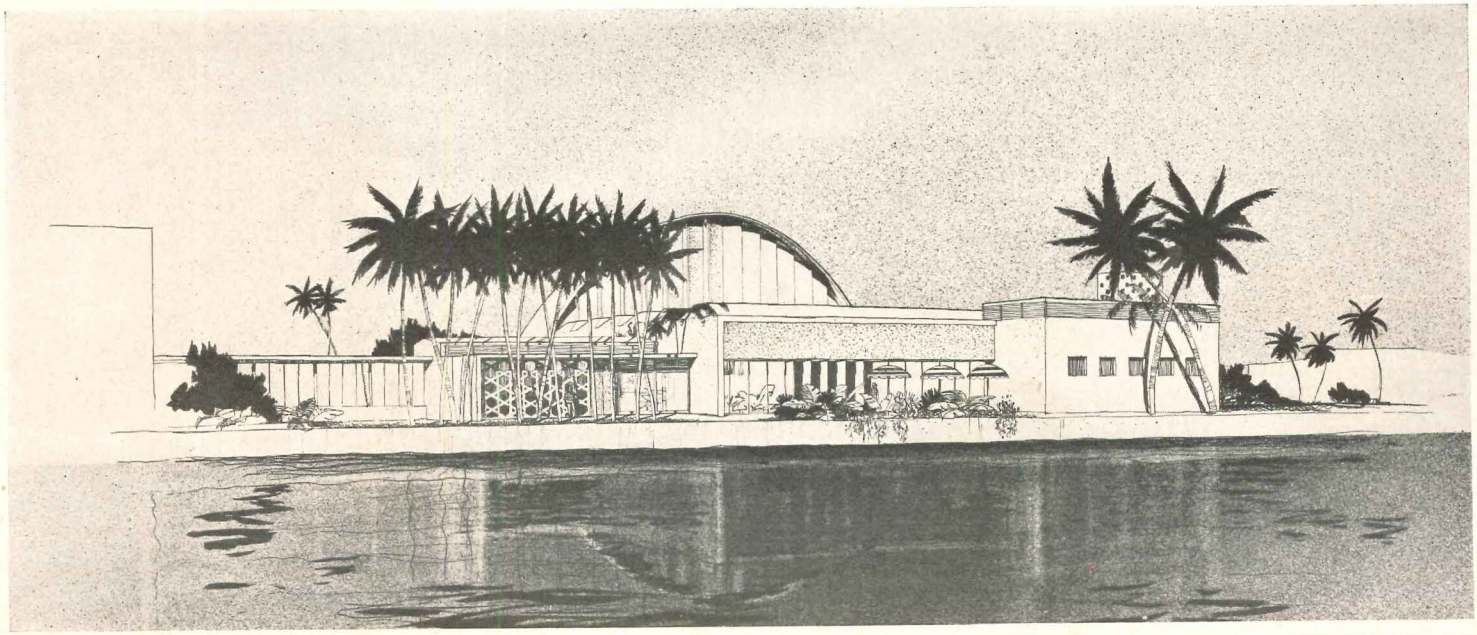




Flexible, multi-purpose space for both religious and social use characterizes the plan, below. On holy days, the sanctuary, which seats 750, can be expanded to take care of 1800



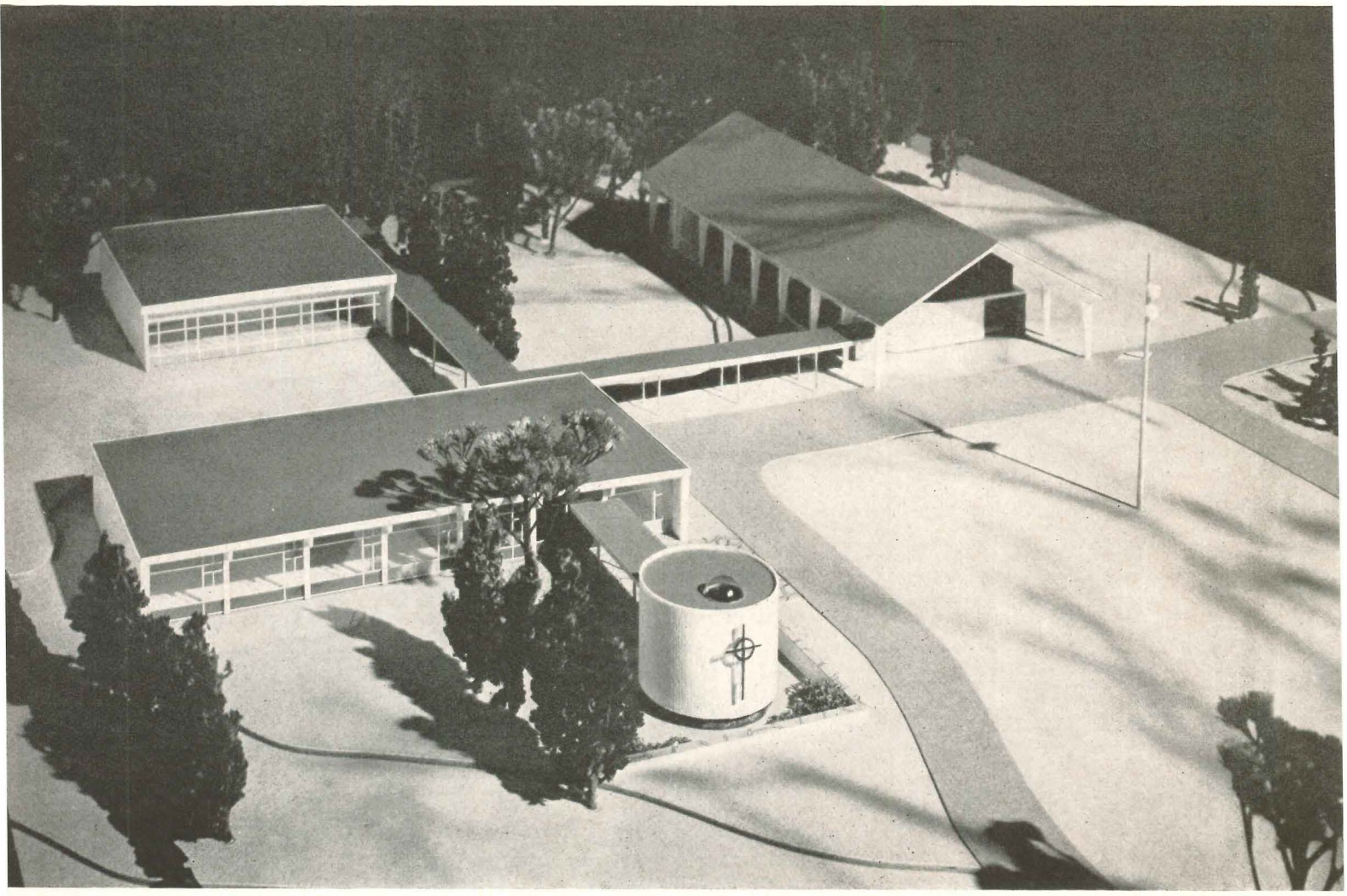
There will be a terrace for the social hall and a religious garden for the chapel, both of which face the Biscayne waterway, below. In favorable weather, chapel services can be held outdoors in the garden, shown at left in architect's sketch



Trinity Church, Presbyterian, Natick, Mass.

Architects: The Architects Collaborative and R. S. Morehouse, Associate

Minister: Rev. John D. McDowell



Robert D. Harvey

Springing from a new residential development and officially organized as a Presbyterian congregation only in December 1952, the new group acquired a 5½ acre wooded plot near the school and retained TAC as architects for their neighborhood Christian center. The old farmhouse on the site was relocated and is now the Sunday school; services are temporarily being held in the country club.

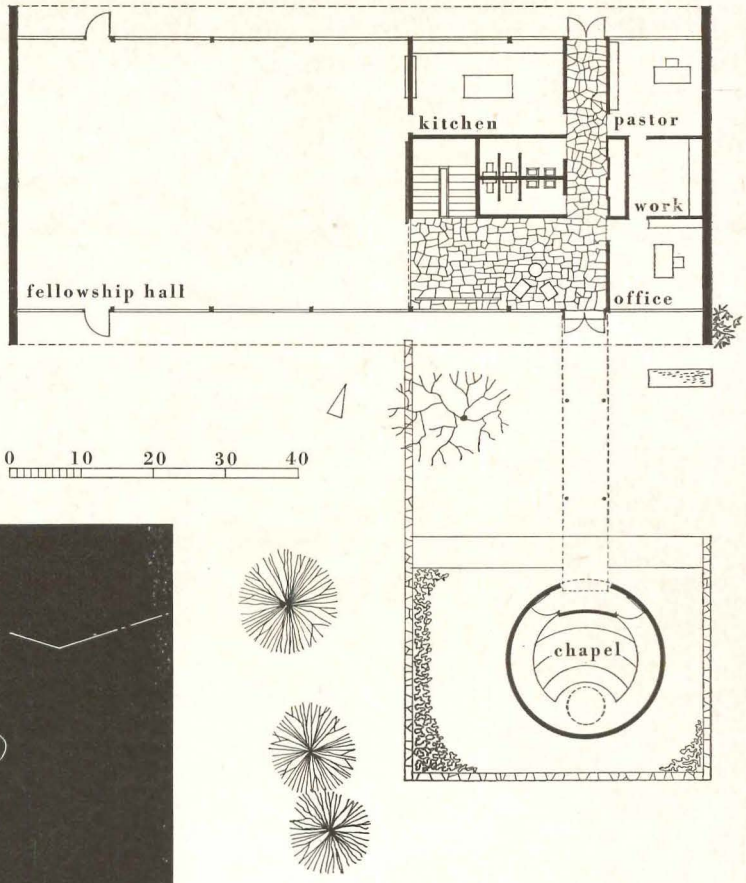
The master plan and model as shown call for a center comprising five elements (see plan, right page) which are to be constructed as separated units joined by covered walkways. Such a scheme makes possible more favorable orientation and adaptation to the site, as well as an interesting variety within its parts.

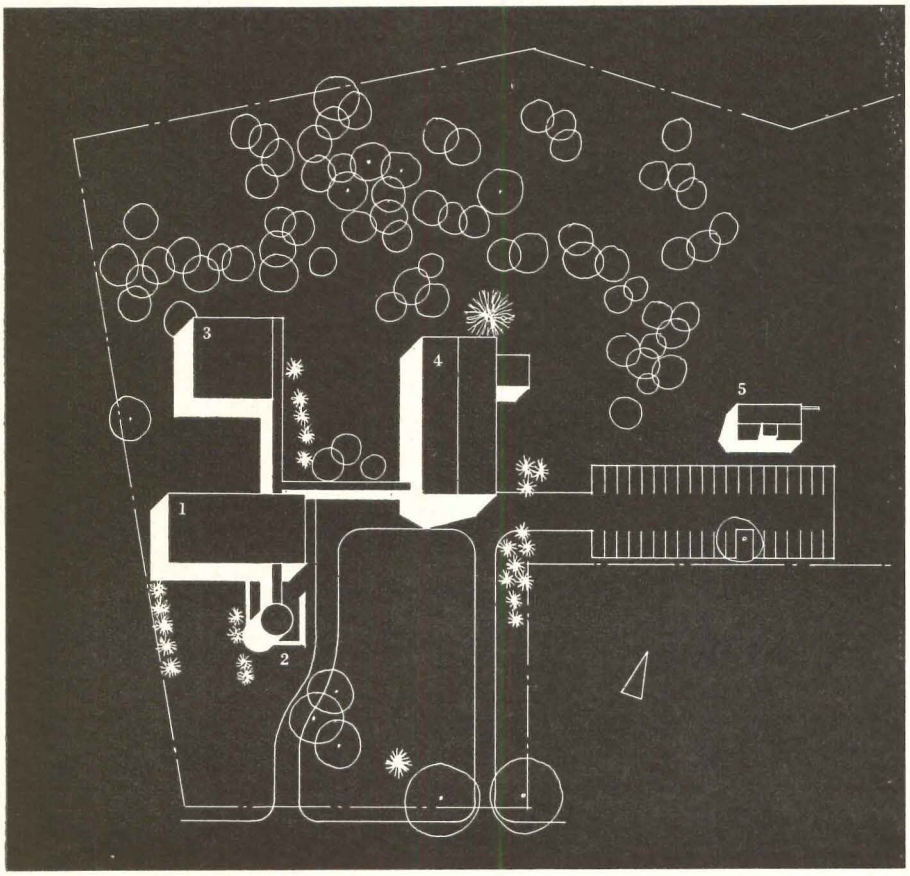
The Fellowship Hall and cylindrical chapel will be built at once. The former is a large multi-purpose room served by kitchen and offices and will be constructed so the end wall can be moved outward should future expansion be necessary. The basement will be developed for scout and other activities.

As shown in the plot plan below and in the photo, left page, the five elements of the center are as follows:

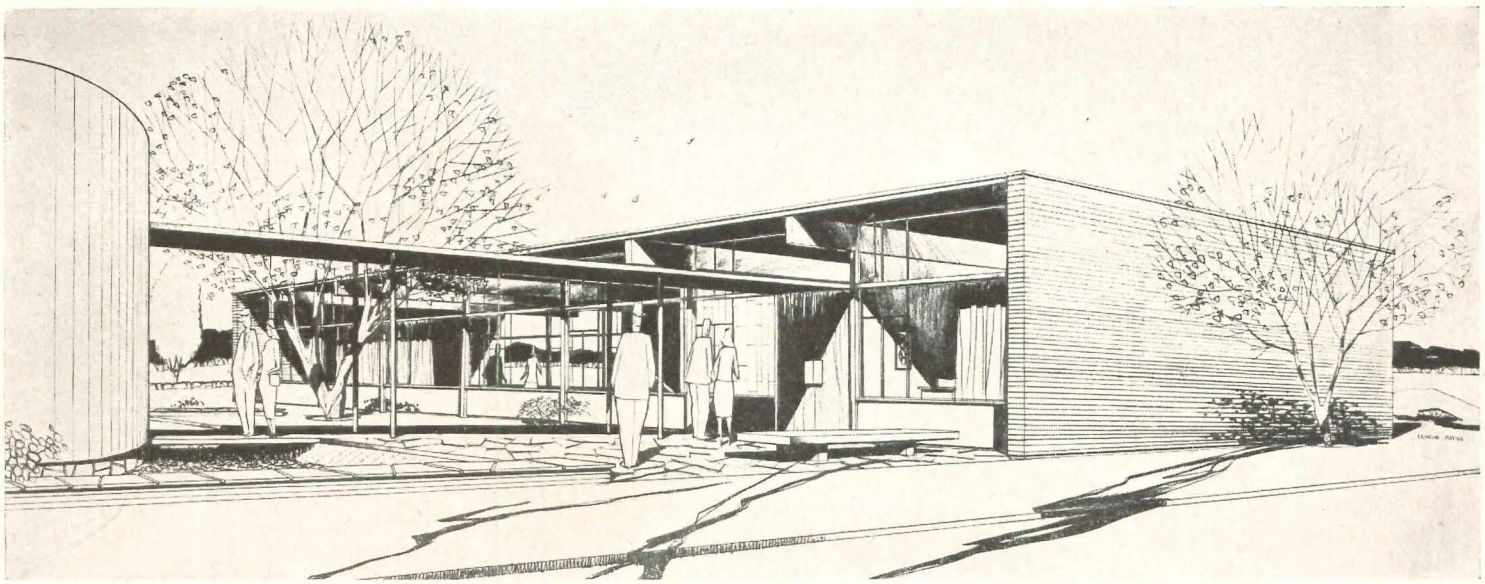
1 Fellowship Hall
2 Chapel
3 Christian Education
4 Church
5 Parish House

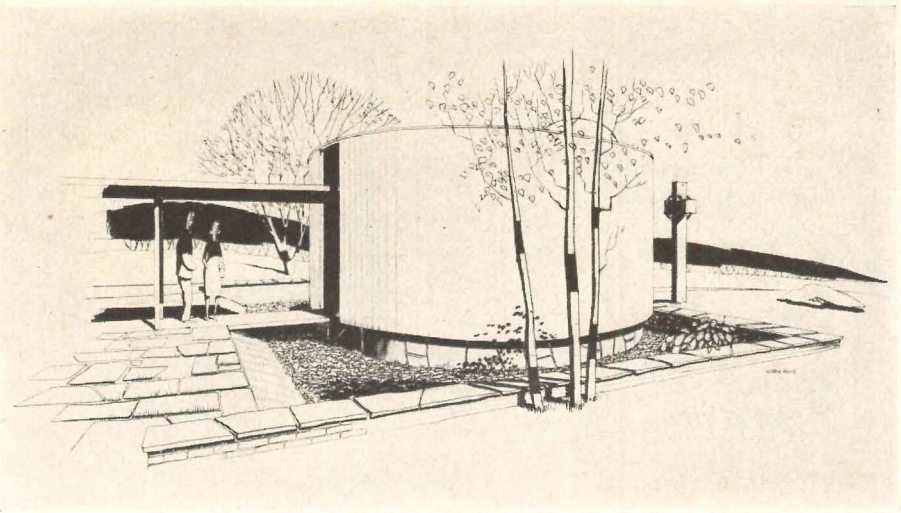
Detail Plan of Fellowship Hall at right





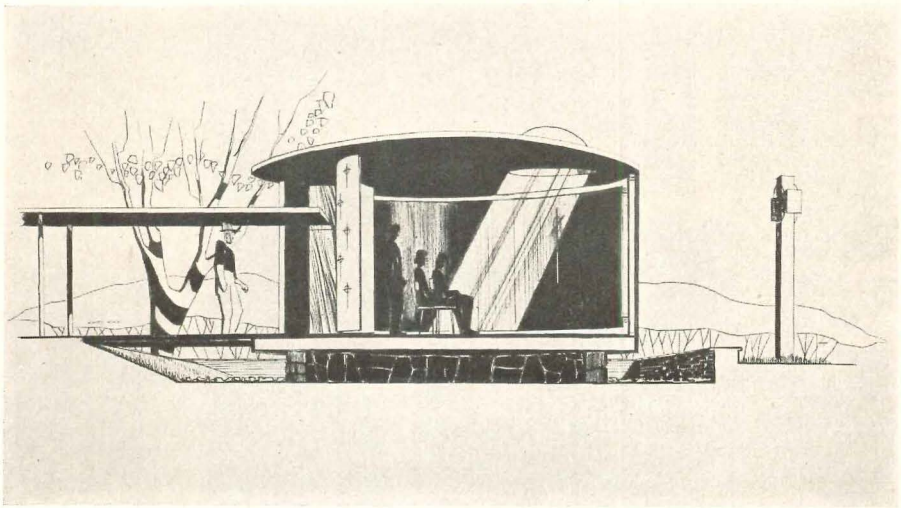
Drawing by Morse Payne



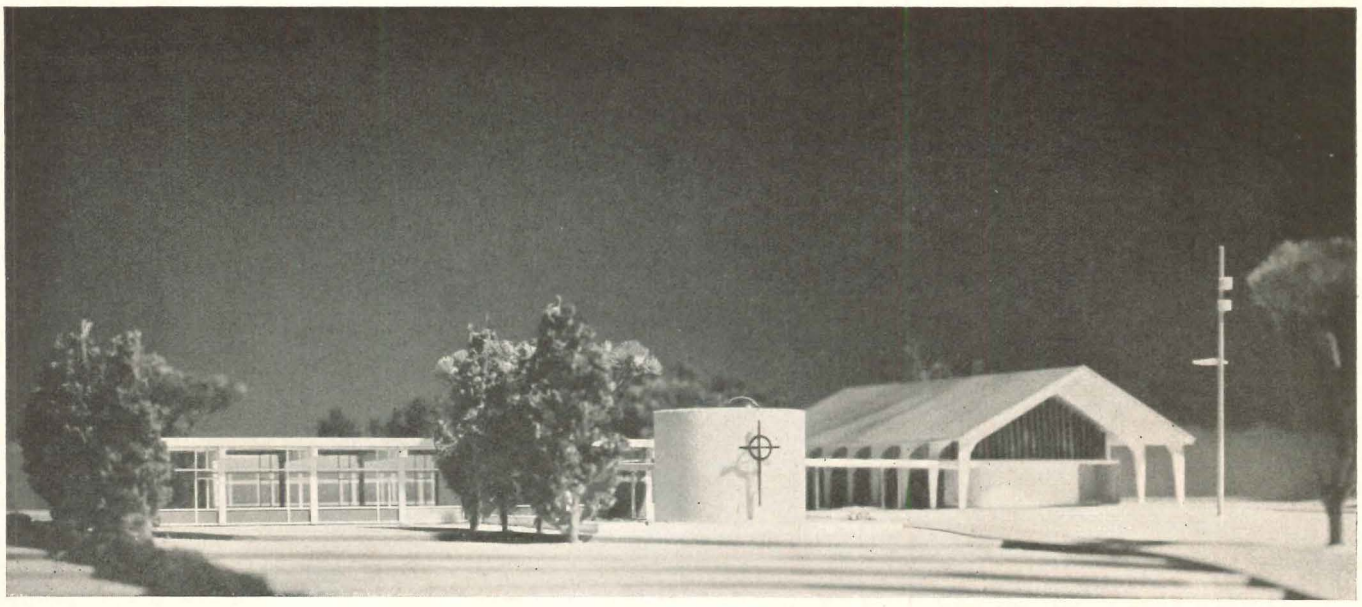


Drawings by Morse Payne

The meditation chapel is intended for quiet prayer, private christenings and weddings. Its unaffected interior is enclosed by a drum of painted boards and lighted by glass over the entry and a plastic bubble in the roof. The pastor says, "Its roundness and vertical line against the horizontal line of Fellowship Hall speak to everyone that God is all encompassing and not only above, as the spire would have us think, but in our own and our neighbor's backyard."



Robert D. Harvey

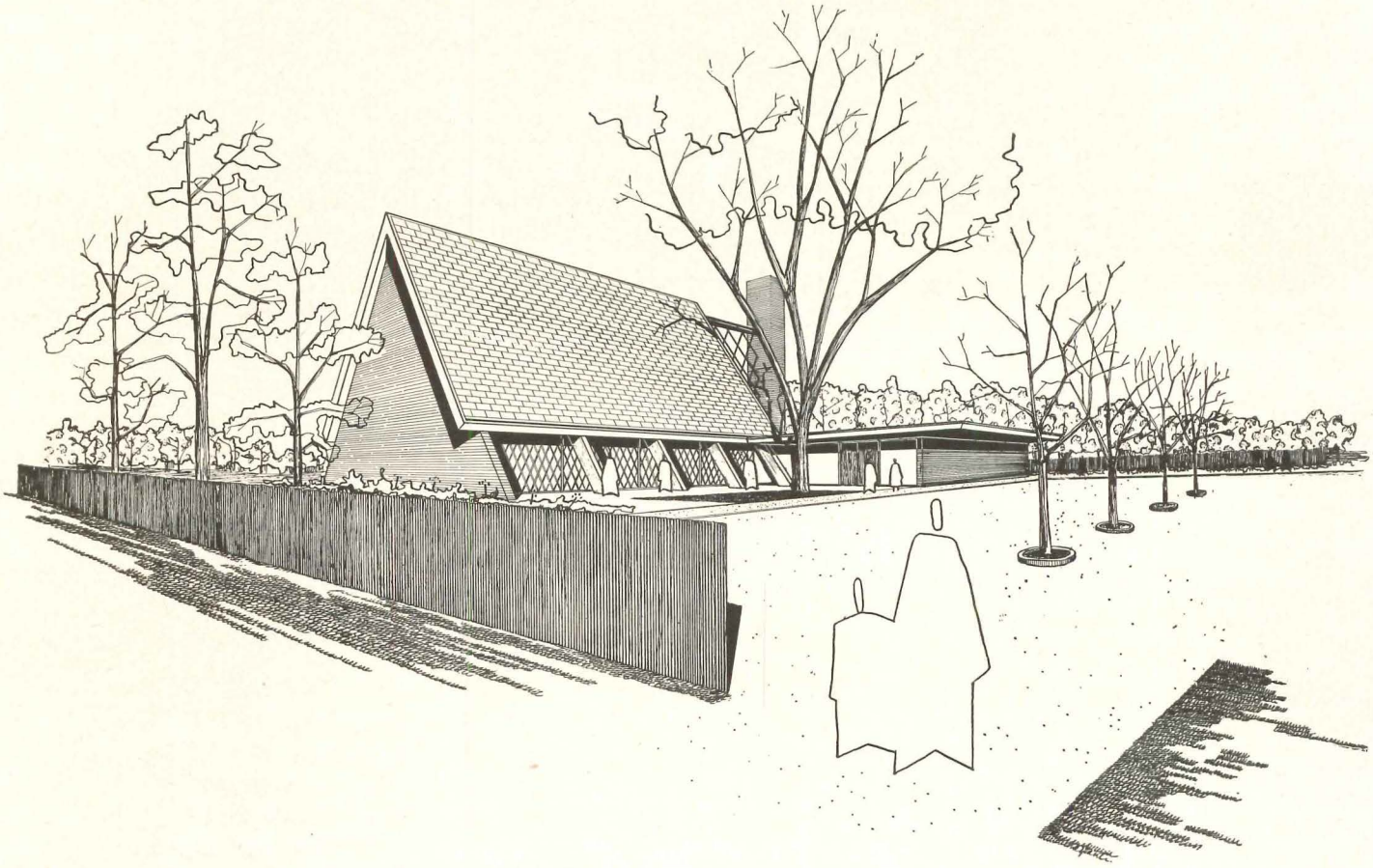


Unitarian Church, Plandome, L. I.

Architect: Edward D. Stone

Associates: Karl J. Holzinger, S. N. Torkelsen, J. D. Tuttle

Structural & Mechanical Engineer: Peter Bruder

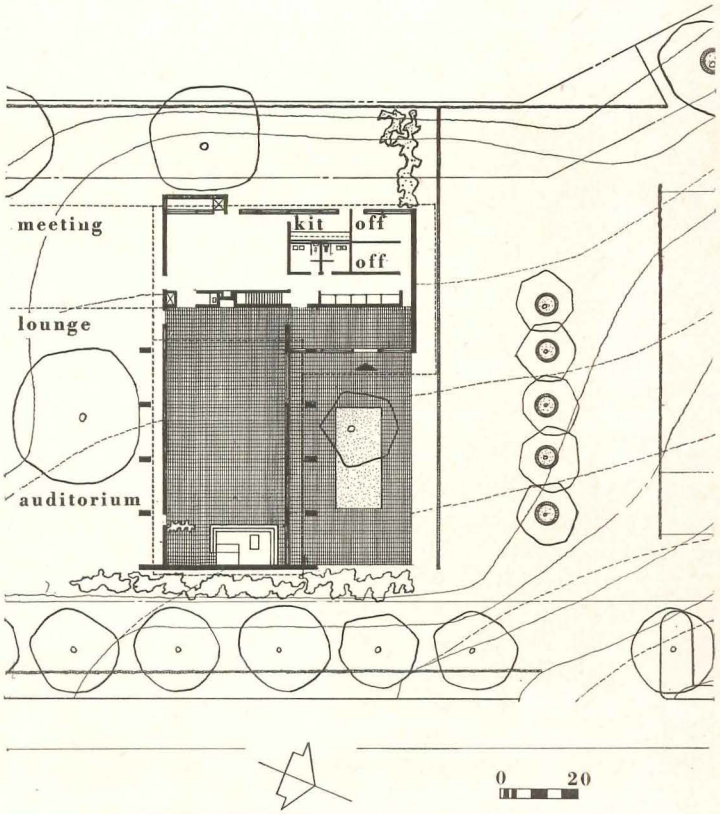


Drawing by Pat Raspante

SEEKING both a characteristic church form and an economical method for enclosing a large space, the architect decided upon a wooden tent-like structure which will be supported on 12 by 24 in. California fir post-beams 45 ft long, which will be spaced 14 ft on centers and have a 60 degree cant. These will in turn be anchored by buried tie rods to prevent lateral spread at the structure's base.

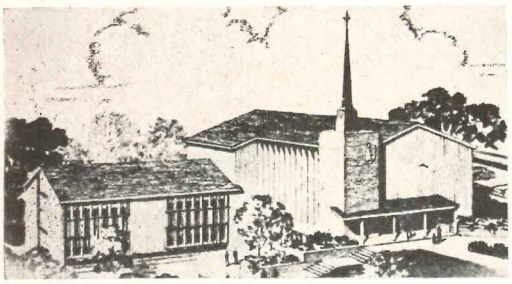
The plan for the first and second stage work, right, is a simple L shape, with the meeting hall and ancillary services in a low skylighted wing running perpendicular to the auditorium. Future construction of Sunday school classrooms will extend this wing and complete the final T shaped scheme.

The design incorporates several interesting ideas, such as the double fireplace opening into the church proper as well as into the meeting hall, the polished brick floor for the auditorium, and the fine sense of scale and unity throughout which is achieved in part by the repetition of the 60 degree angle motif in exterior and interior grillwork.



Central Lutheran Church, Yakima, Wash.

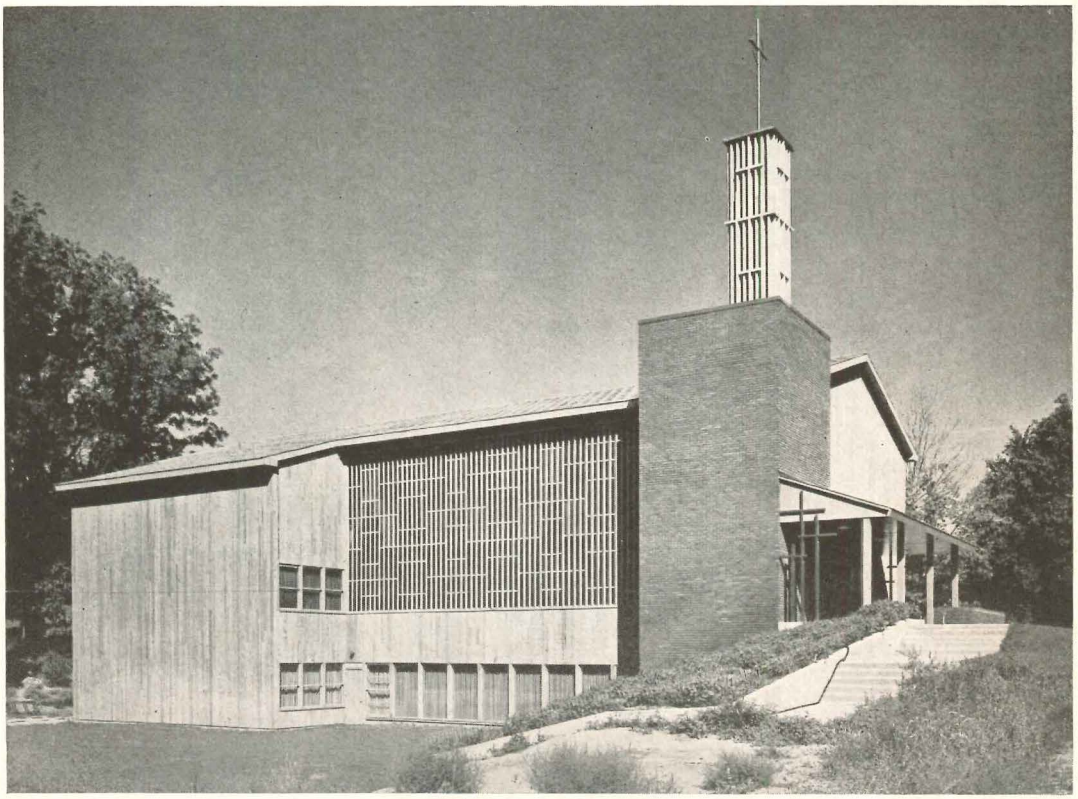
Maloney & Whitney, Architects



EXECUTED in the Pacific Northwest idiom, this pleasing church typically enough makes use of wood for structure, protection and decoration. Designed for a rather sharply sloping site, the scheme takes advantage of natural contour to provide both natural light and at grade access to the lower level. The small picture at left shows the future two-story wing which will house additional area for Sunday school classrooms and kindergarten.

Upper level wing to the right houses office group; a large fellowship room and its kitchen occupy the space below the main nave.

Willard Hatch

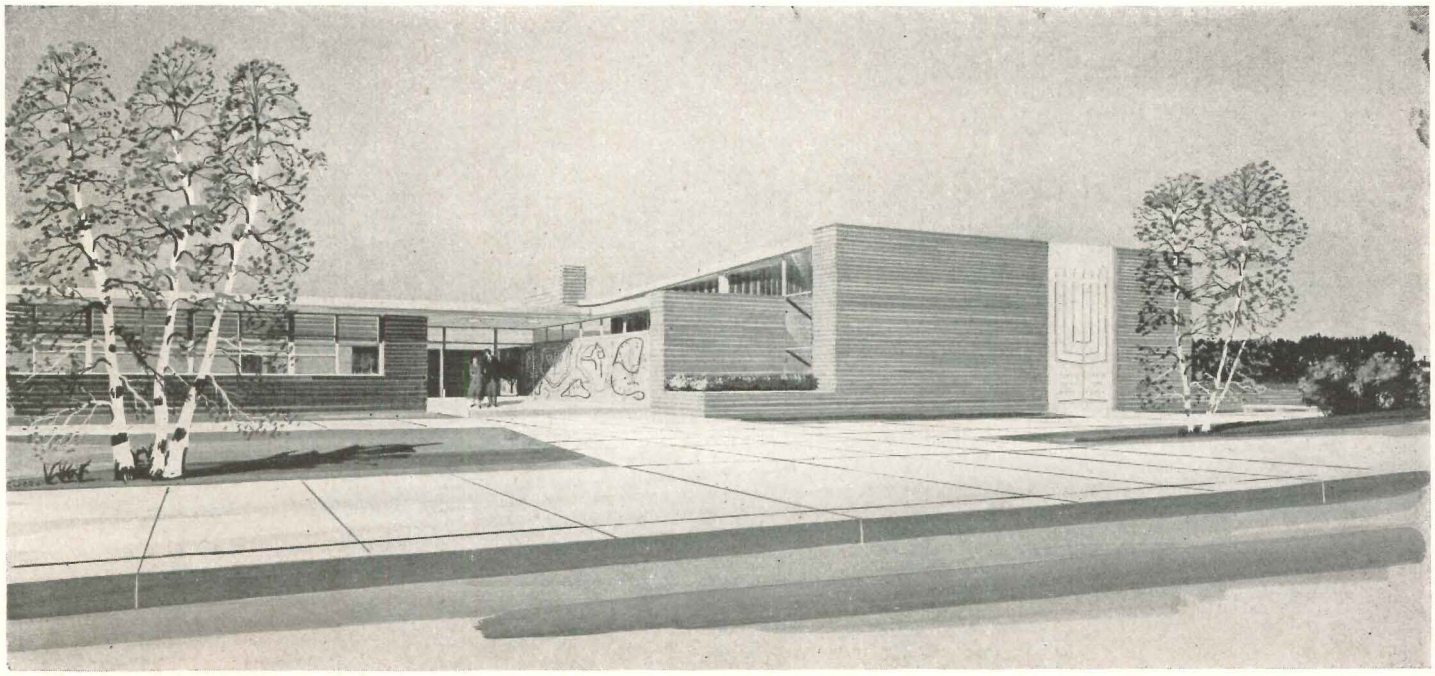


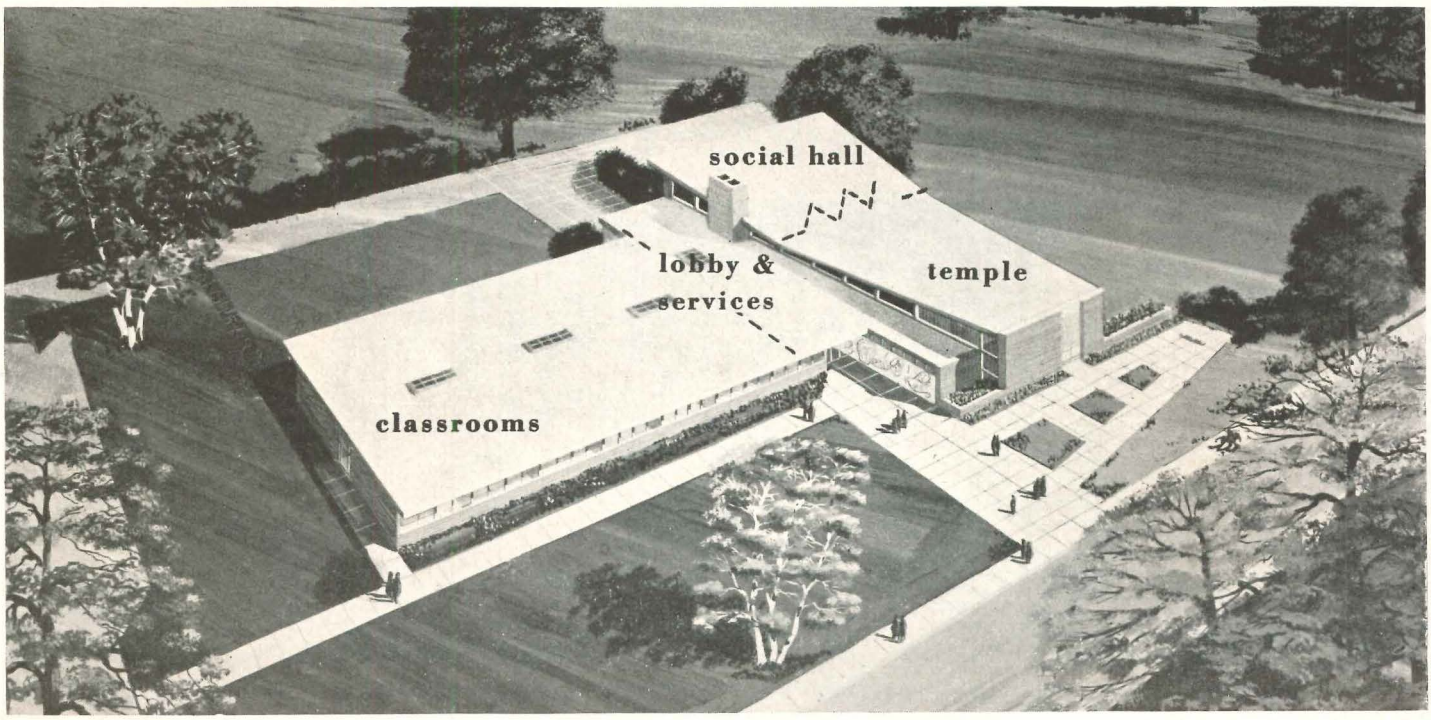
Levittown Reform Temple, Levittown, L. I.

Aarnio & Hibner, Architects, and
Lawrence H. Singer, Designer

AT LOW COST, this structure achieves attractive design and a workable plan. The temple, seating 260, can be opened on occasion to the social hall to accommodate an additional 300. A kitchen at the lobby rear will serve both social hall and outdoor terrace.

Construction is under way on a sub-contract basis with clerk-of-the-works administration. The total cost of $75,000, including architect's fee, is a remarkable $6.50 per sq ft. All exterior walls are brick both sides; roof is exposed 2 x 6 redwood plank on either steel beams or a wood post and beam system; floors are asphalt tile on slab; building is heated by forced warm air.



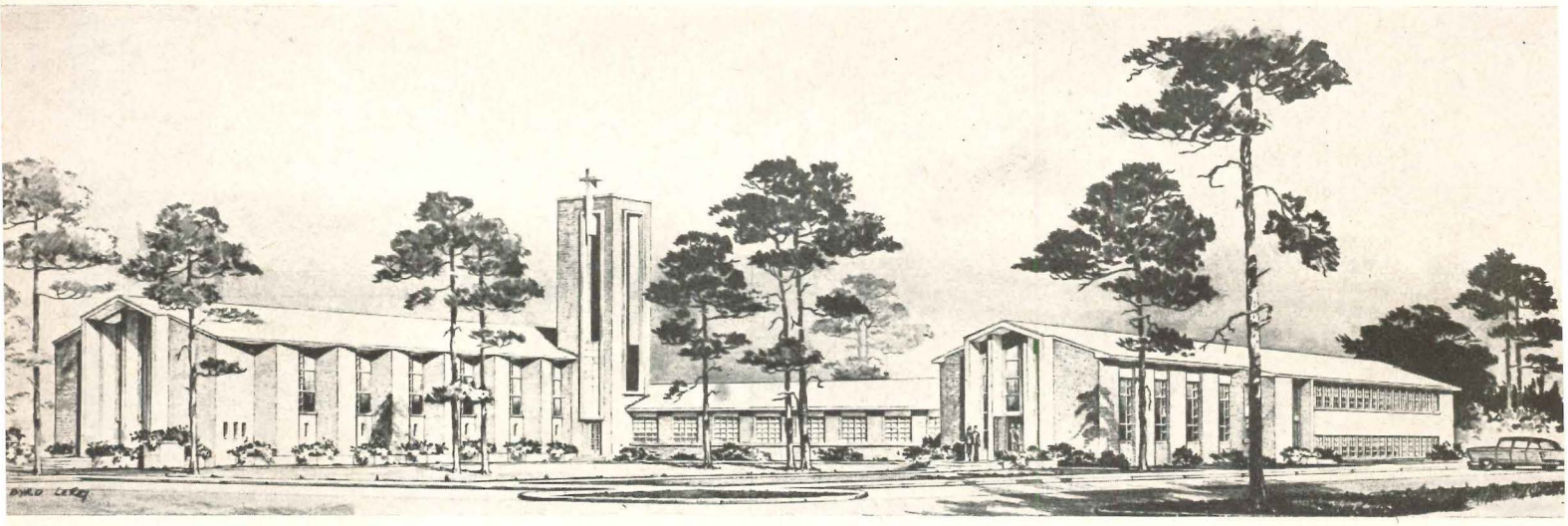


First Methodist Church, Panama City, Fla.

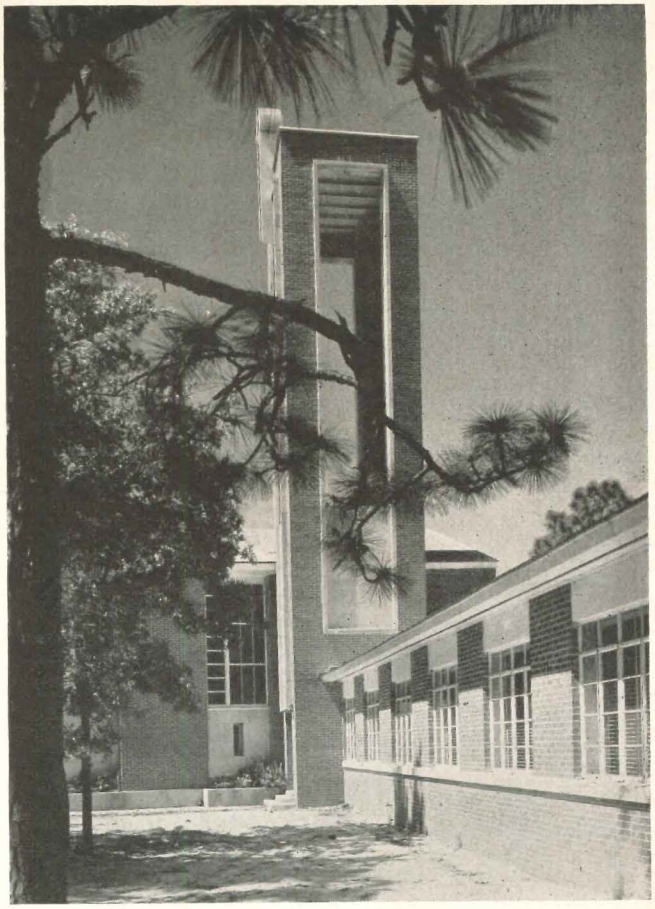
Pearson, Tittle and Narrows, Architects

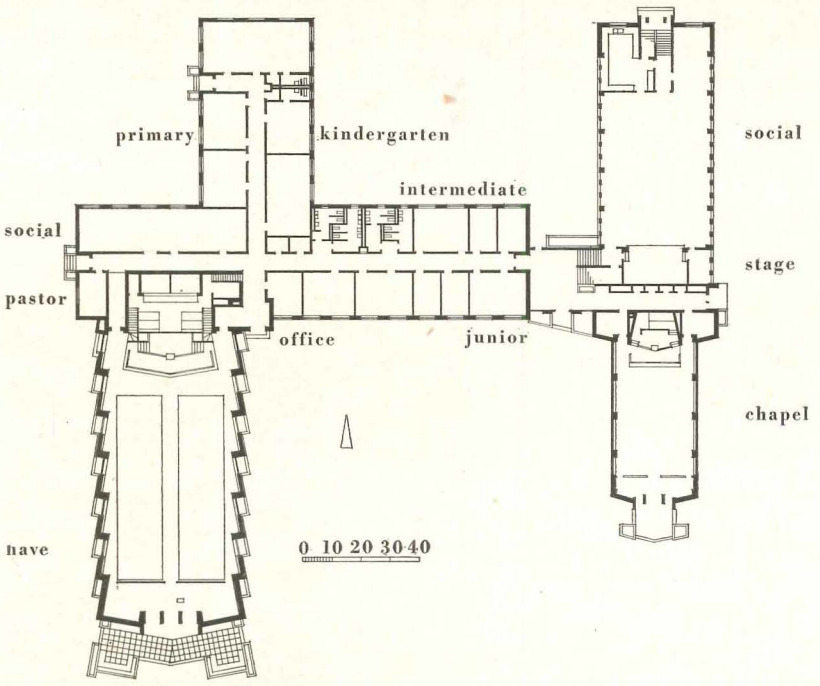
DESIGNED for a site comprising an entire city block bounded on opposite sides by a state highway and a city street, the problem was to create a structure offering access and attractive appearance from all angles, since there were no "front" and "rear" in the usual sense. Maximum off-street parking was provided.

Although the committee started with the idea of constructing a monumental pseudo-Gothic building, architectural advice proved the impossibility of such a scheme within the budget, and the more contemporary, straightforward design shown was the result.



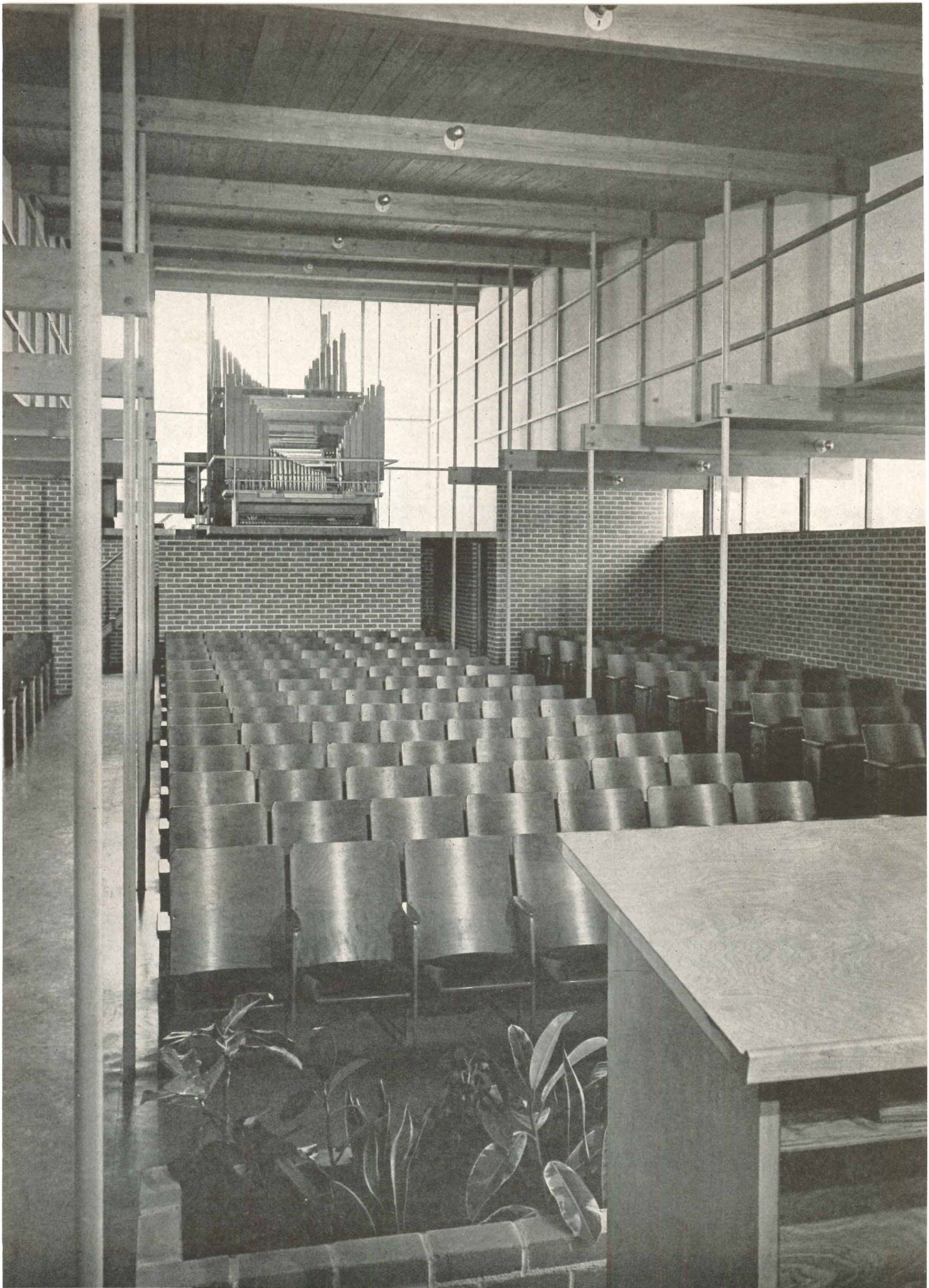
The project was built in two stages, the social hall, chapel and classroom wing being added two years after completion of the main church and sunday school portion. View below shows entrance to church, with bell tower in background

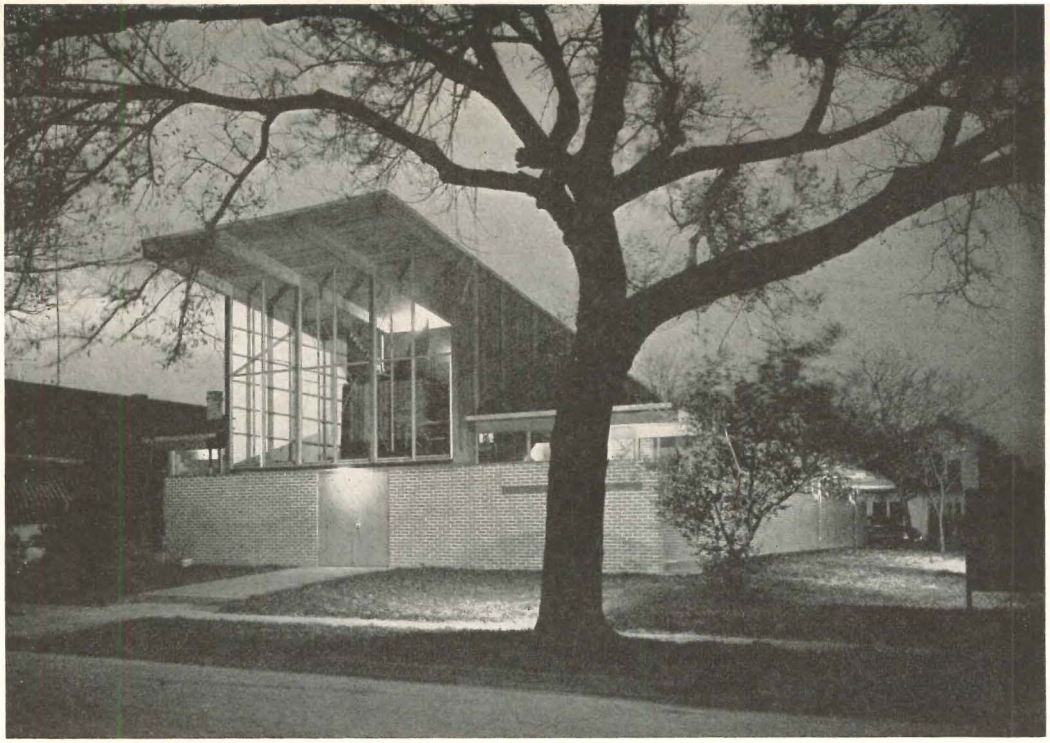




Construction, at a cost roughly one half that of the proposed pseudo-Gothic scheme: Floors, slab on grade finished with asphalt tile; exterior walls, brick cavity with 2″ air space, plastered inside; interior partitions block, plastered; roof, exposed wood trusses, purlins and beams in church and chapel, otherwise trussed rafters; all roofs covered with white cement shingles; all sash steel, either casement or awning type

Joseph W. Molitor





Ulric Meisel—Dallas

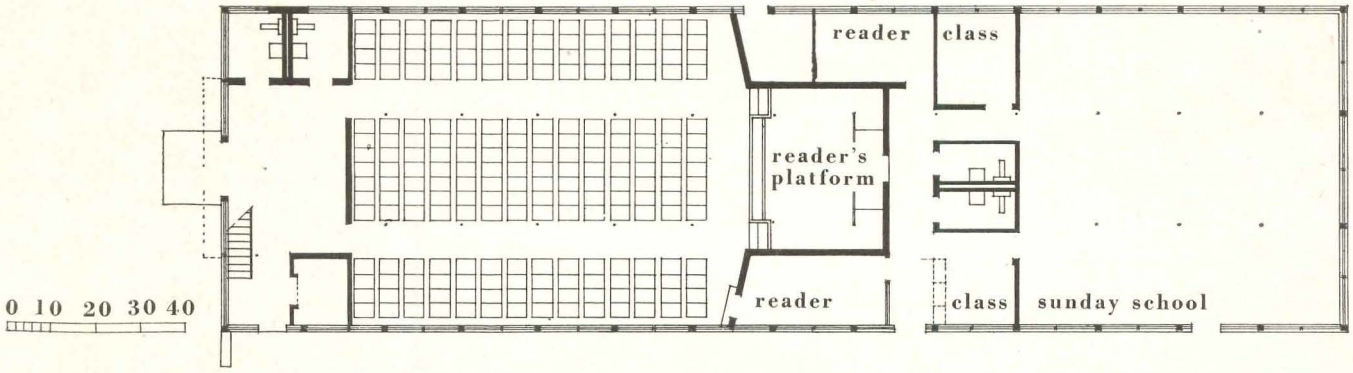
The view above shows the glass-ended organ dormer as it appears from the principal street. Note particularly the cross-bracing (welded ½ in. sq bars) placed in the column line immediately behind the glass. Visible at ground level is the main entrance, through which one enters the vestibule at the rear of the auditorium

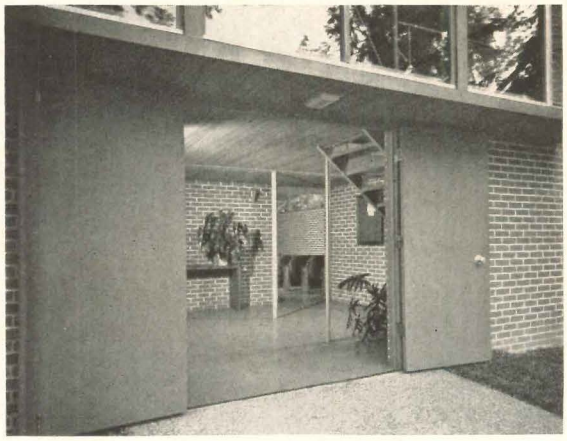
First Church of Christ Scientist, Victoria, Texas

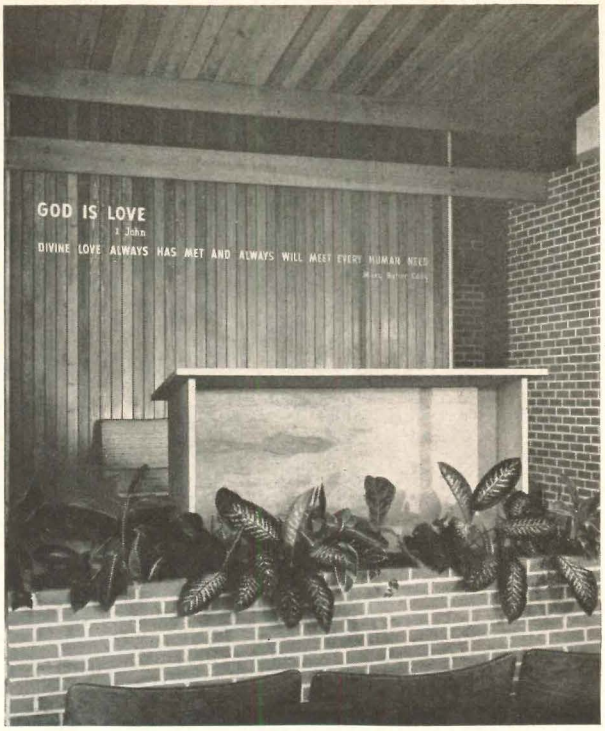
Milton A. Ryan, Architect
R. Marvin Shipman, Structural Engineer
Walter E. Bowden, Builder

THIS CHURCH, top award winner in the "Texas Architecture — 1953" exhibition, is a splendid example of how common materials, structural ingenuity and good design can be combined to produce an attractive result at low cost. The three principal materials employed are common brick, glass and wood. The columns are the only surfaces painted. The resulting interior achieves a quiet, simple dignity quite in keeping with its use.

The construction, as described by Architect Ryan: "First, the slab containing radiant heating pipe was placed, then the 3 in. columns were set, the wood beams erected (these are 2–2 x 10s), roof deck laid (2 x 6 T&G plank), and roofing applied. When the slab was dry, brick was erected in one operation, openings were glazed, doors hung, and the building was virtually complete."

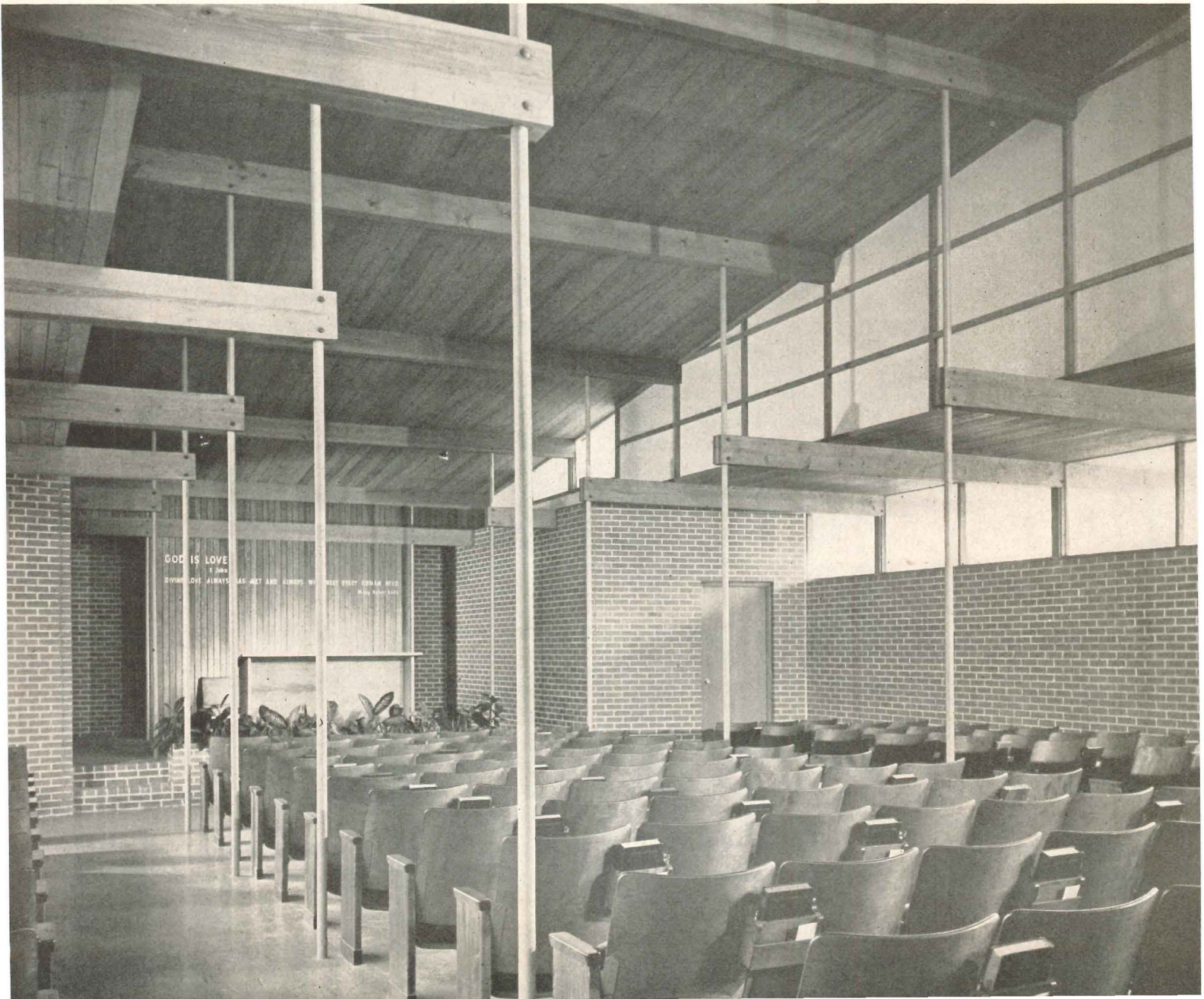






A preference of the creed is for a sounding board to be placed to deflect the readers' voices forward; this inspired the idea of sloping the entire ceiling structure both forward and upward

Ulric Meisel—Dallas



Joseph W. Molitor

W. Stuart Thompson and Phelps Barnum, Architects

Partner in Charge: Edwin A. Horner

Structural Engineers: Severud-Elstad-Kreuger

Mechanical Engineers: Jaros, Baum & Bolles

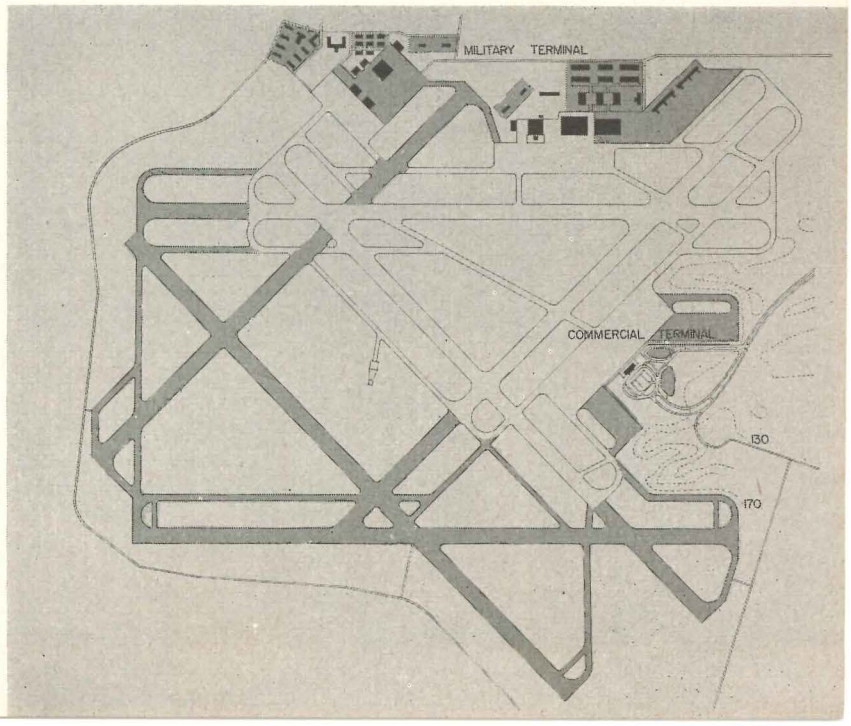
Electrical Engineers: Smith & Silverman

Landscape Architect: Alfred Geiffert, Jr.

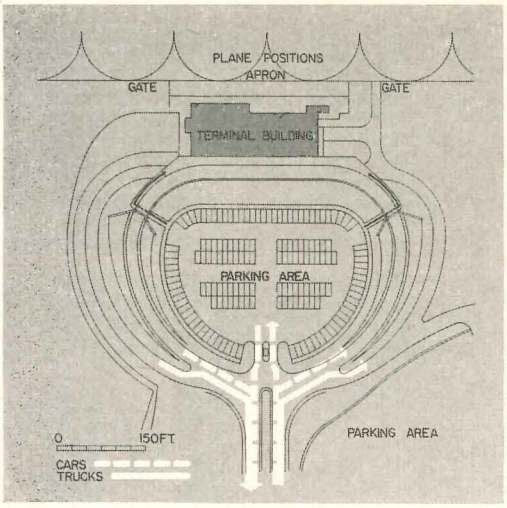
Consulting Engineer: John J. Mozzochi

AIR TERMINAL AND FIELD CIRCULATION SOLVED

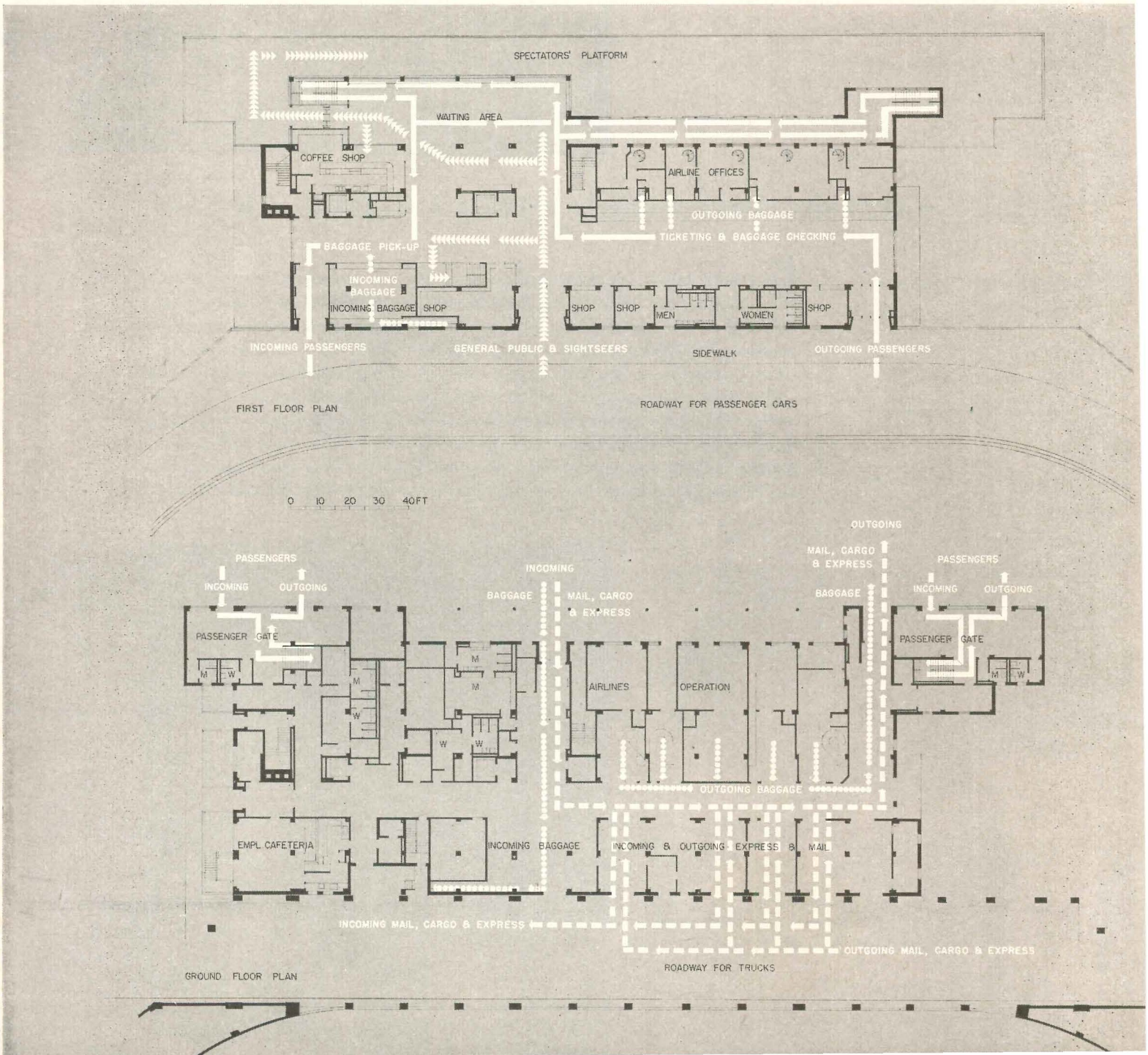
BRADLEY FIELD, AT WINDSOR LOCKS, CONN., is a former military airfield and training base. In 1948 the Federal lease on its 1600 acres expired; it was returned to the State of Connecticut; and shortly work began, in a series of planned stages, on converting the facility into what will eventually become a Class V, express-service, dual-runway airport, with a civilian terminal for local and transocean passengers and air freight; maintenance hangars, shops, etc.; and provisions for the Air National Guard. The civilian terminal, now in operation, serves Hartford, Conn. and Springfield, Mass. The Connecticut Aeronautics Commission initiated the program. Both the long-range master plan for the airport and the two-level terminal were designed by the architects.



Master plan, right, shows eventual and present development. North-south runway is normally used most; passenger terminal (top of page) is located to eliminate cross-traffic of taxiing planes and separate military and commercial traffic. Maximum use was made of existing facilities



MURPHY TERMINAL, named for Francis S. Murphy, Chairman, Connecticut Aeronautics Commission, is a "two-level" terminal. That is, people enter at an upper level via the upper roadway of a double-decked entrance drive; baggage is chuted to the lower level where it joins air mail, cargo and express, which enter via the lower road. Several floors of offices and equipment, above, culminate in the control cab. Site of the terminal, left, was irregular and easily adapted to the two-level scheme. Note ample parking spaces, present and future; and tunnels under drives permitting people to reach upper level without crossing traffic.



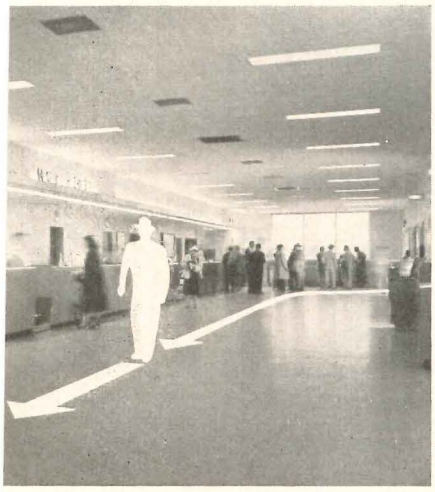
MURPHY TERMINAL, BRADLEY FIELD, CONN.

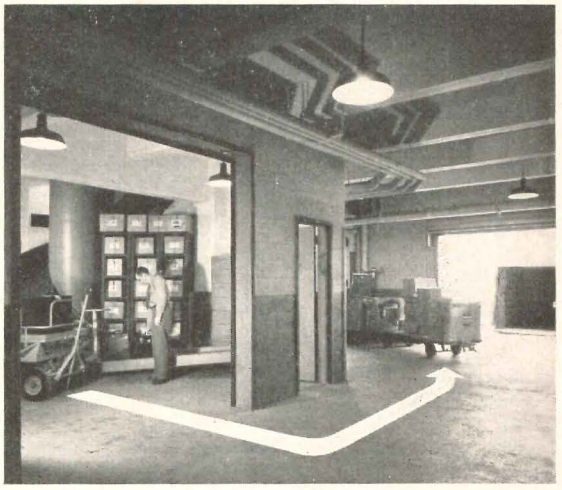
E OF EMPLANING PASSENGERS photos directly below): top, ıger entering building must pass ing and baggage-checking coun- Center, he proceeds through e. Bottom, he descends to one of nclosed, field-level waiting rooms ıecessity for this climate. More ıg rooms can be added. Visitors ıot enter ticketing area.

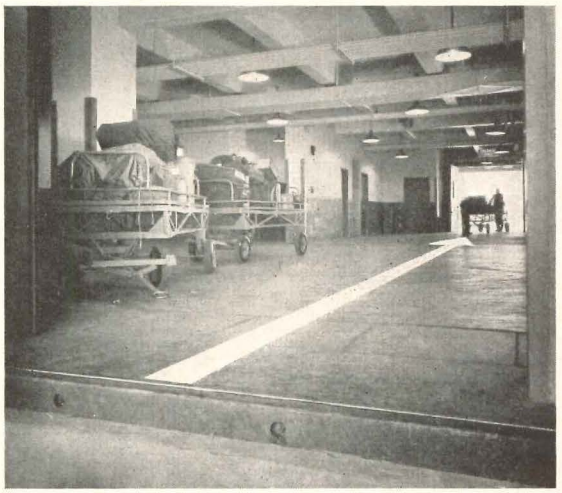
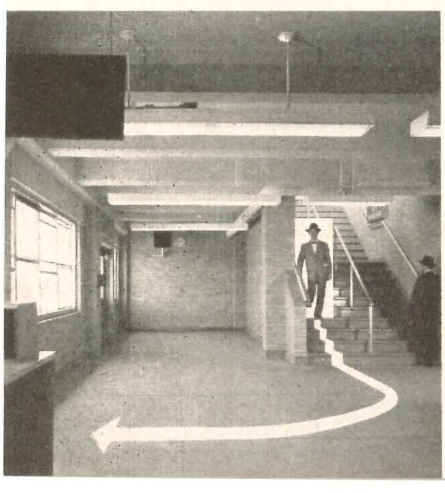
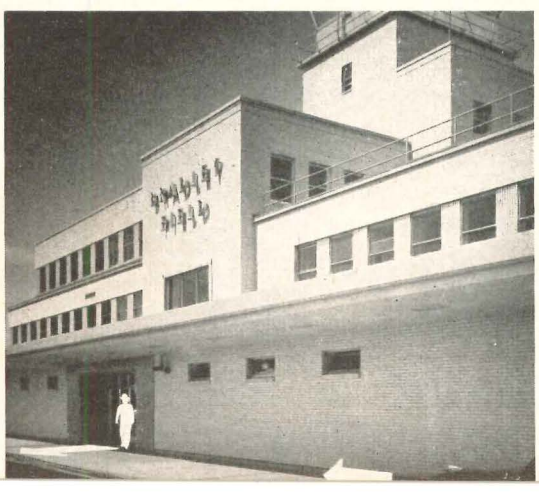
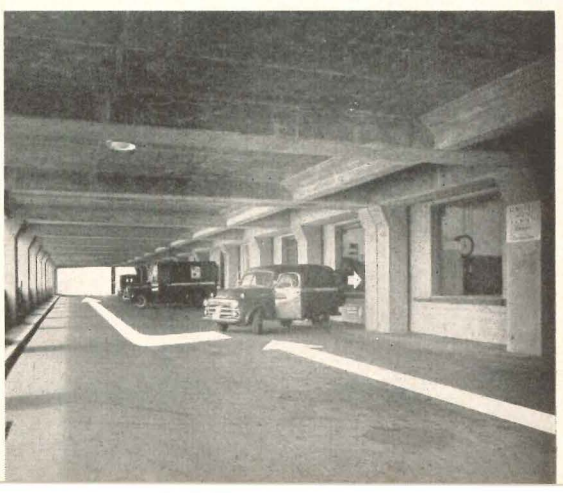
ROUTE OF DEPLANING PASSENGERS (three photos center, below): top, passenger coming up through waiting room passes through lounge and center lobby area directly to baggage pick-up desk (center photo). His baggage arrives here by conveyer from floor below. Having gotten his baggage, passenger goes out, waits under marquee (bottom) for conveyance to destination.

BAGGAGE, MAIL, CARGO, EXPRESS are loaded on planes (and unloaded) from the lower level only. Photos below show: top, baggage coming down by chute and being trucked out to field; center, direct route of mail, cargo, express from truck dock through building to field; bottom, one-way traffic on the truck roadway. Careful organization of all traffic assures smooth operation.

Joseph W. Molitor





Roger Sturtevant

NEW CHAPTER IN STORES STORY

JOSEPH MAGNIN STORE IN STONESTOWN

Branch Store for Joseph Magnin
Stonestown, San Francisco

Welton Becket and Associates
Architects

L. F. Robinson
Structural Engineer

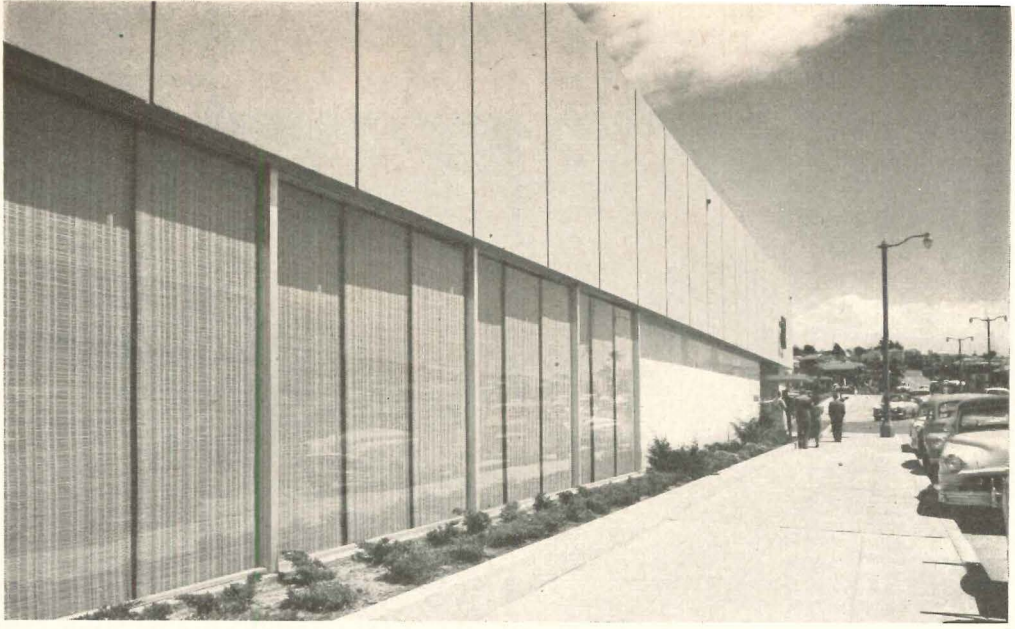
Deane & Hill
Mechanical Engineers

DESIGN OF LUXURY STORES and shopping centers by the Welton Becket office has come to be a modern success story. This Joseph Magnin store is the latest of a group that includes Bullock's Pasadena, Bullock's Westwood, in southern California, Stonestown Shopping Center, and Hillsdale and Stanford shopping centers. This latest product inevitably takes on the added significance of considerable momentum in store design and decorating. Incidentally, the architectural group executed the interior design and decor including all furnishings, fixtures and appointments from ash stands to monogrammed wallpaper.

The building, of reinforced concrete with exterior facing of Travertine, consists of a main floor, basement and mezzanine. All merchandise deliveries are made through a tunnel which terminates at a truck loading dock adjacent to the store's basement.

One of the interesting features is the dual-purpose display and selling rooms, of which there are four. During the selling hours these rooms serve as sales and fitting rooms; in the evening a series of sliding doors converts them into sidewalk display rooms.

While the building is contemporary in concept and expression, there is no dedicated dogma in it. One of the display-selling rooms, for example, is done in "fantastic Victorian," another in "Louis XVI." Interiors throughout the store exhibit wide variety of styling and a good deal of glamorized grandeur, all carefully calculated to capture feminine interest and to arouse that never-underestimated power of a woman.

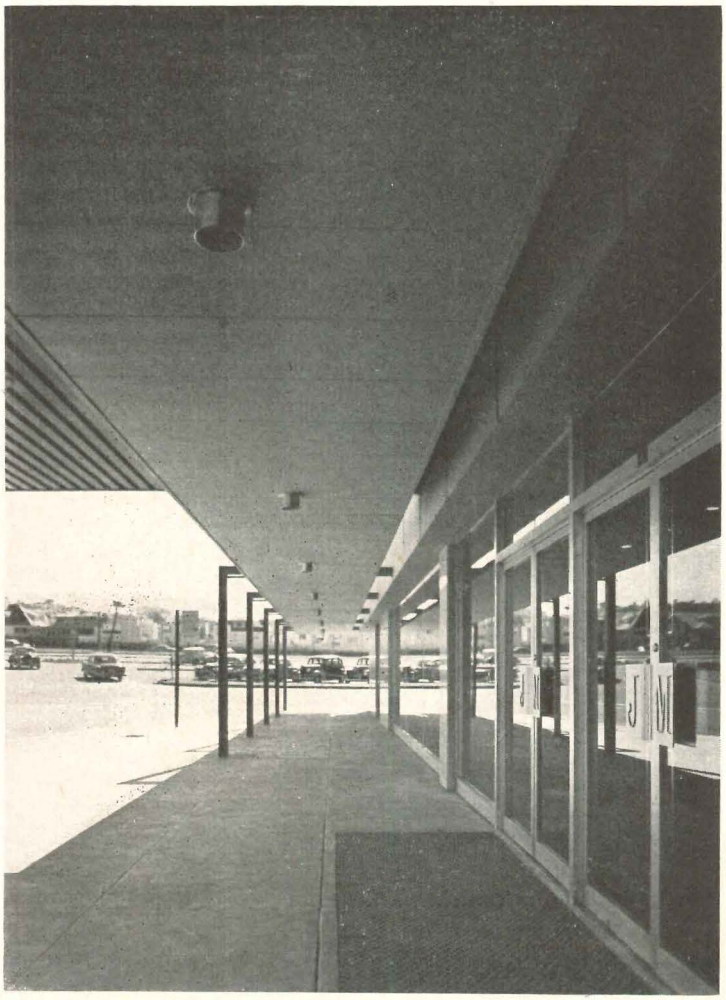


Sidewalk frontage is used for display purposes only at night. In store hours the spaces are curtained off for sales rooms

Lower walls are of Travertine marble; upper walls in painted concrete with wide grooves delineating a modular pattern

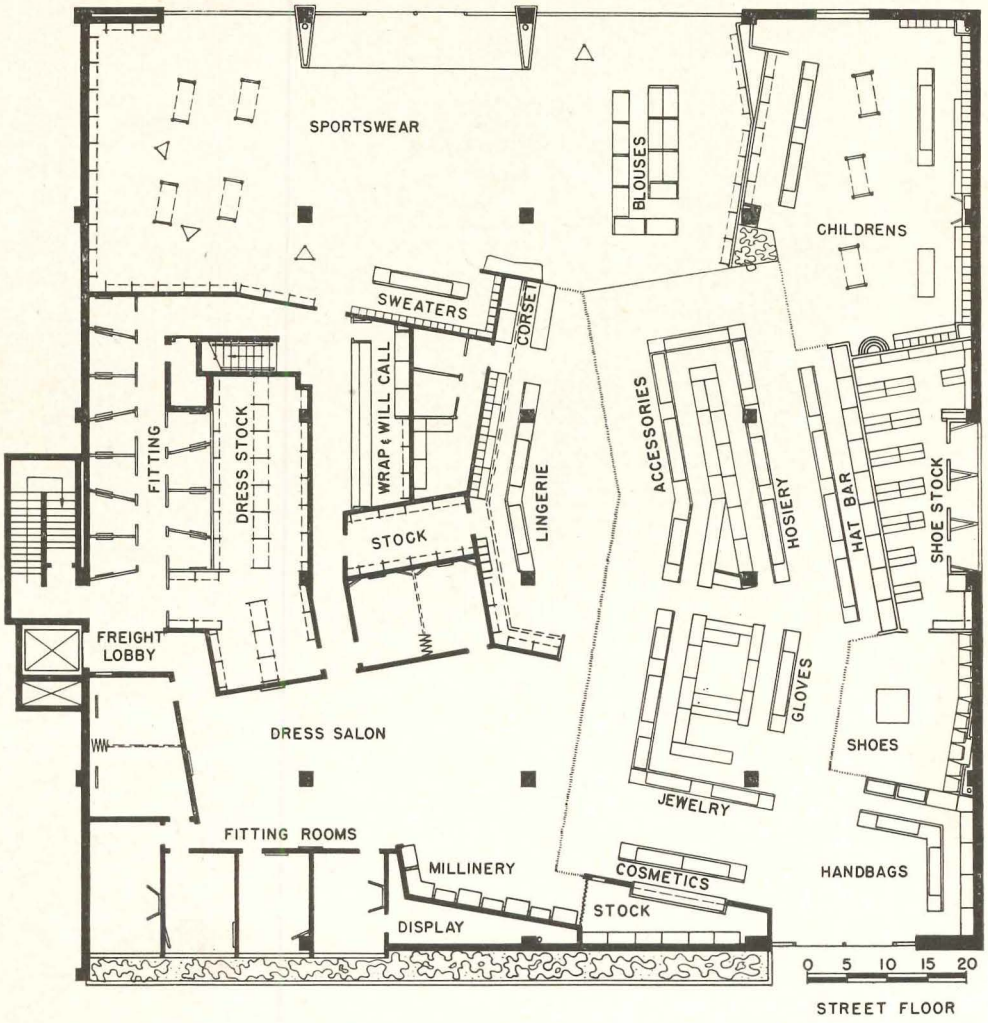
JOSEPH MAGNIN STORE

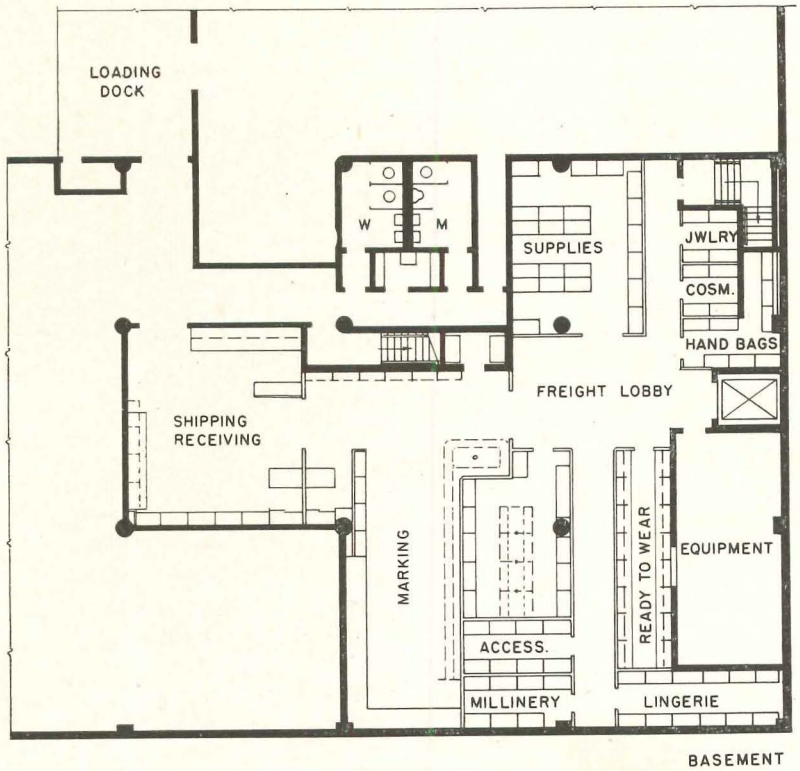
Welton Becket and Associates

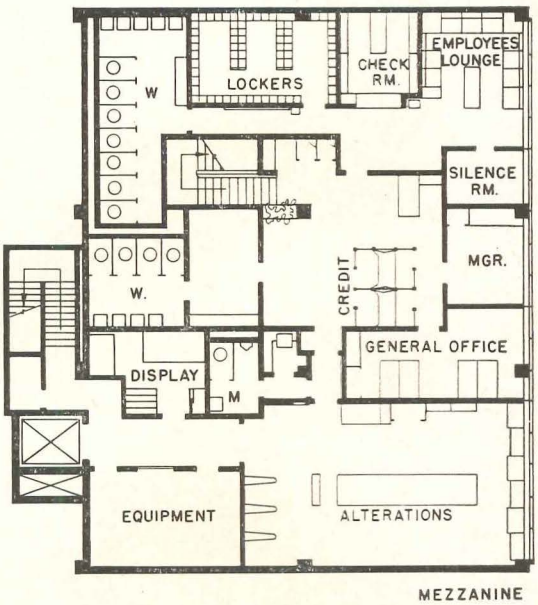


Roger Sturtevant

Large entrance canopy gives store identification in the shopping center without the usual huge sign. On the wall facing parking lot the sign is also restrained but still has sufficient prominence on the sheer wall


SPORTSWEAR
BLOUSES
CHILDRENS
SWEATERS
CORSET
WRAP & WILL CALL
FITTING
DRESS STOCK
STOCK
LINGERIE
ACCESSORIES
HOSIERY
HAT BAR
SHOE STOCK
FREIGHT LOBBY
DRESS SALON
GLOVES
SHOES
JEWELRY
FITTING ROOMS
MILLINERY
COSMETICS
STOCK
HANDBAGS
DISPLAY
0 5 10 15 20
STREET FLOOR


LOADING DOCK
W
M
SUPPLIES
JWLRY
COSM.
HAND BAGS
FREIGHT LOBBY
SHIPPING RECEIVING
MARKING
ACCESS.
READY TO WEAR
EQUIPMENT
MILLINERY
LINGERIE
BASEMENT


W
LOCKERS
CHECK RM.
EMPLOYEES LOUNGE
SILENCE RM.
W.
CREDIT
MGR.
GENERAL OFFICE
DISPLAY
M
EQUIPMENT
ALTERATIONS
MEZZANINE

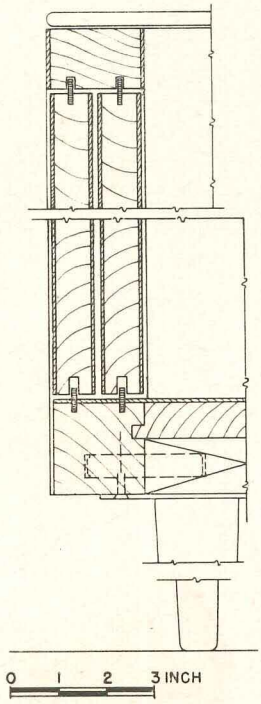
JOSEPH MAGNIN STORE

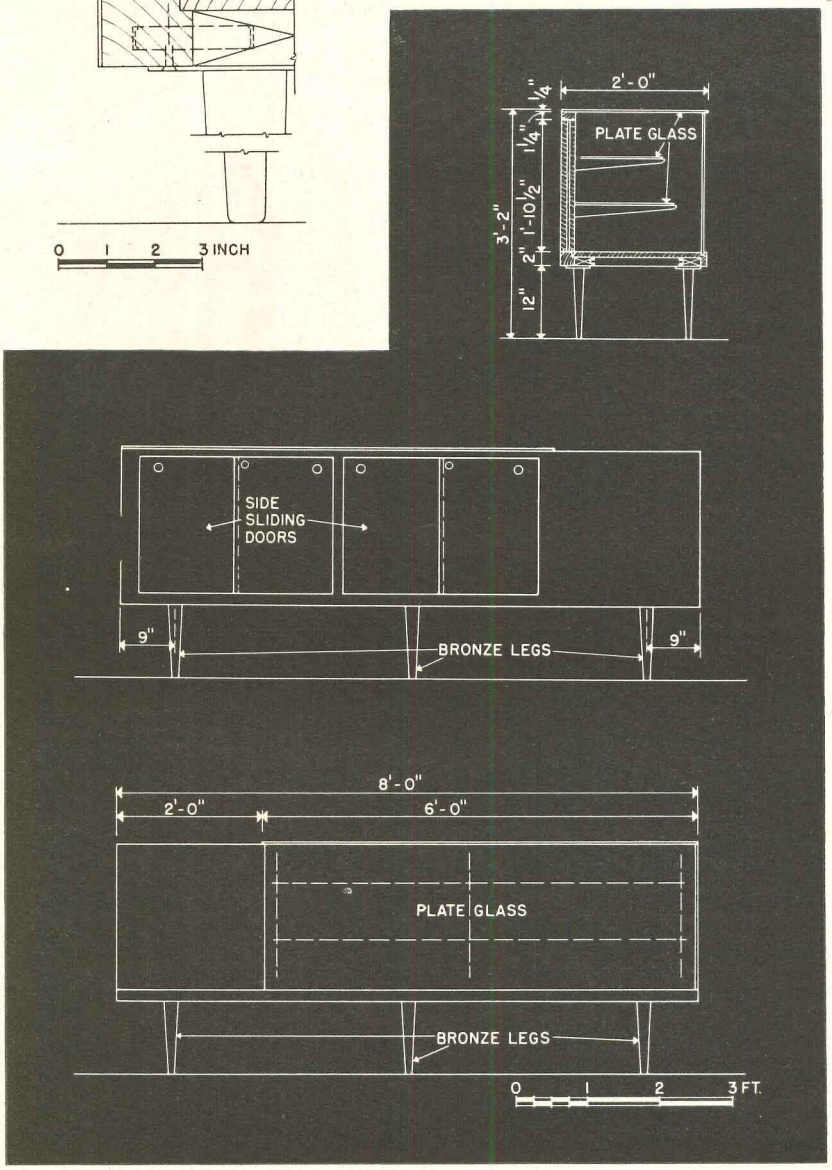
Welton Becket and Associates

ARCHITECTURAL INTERIORS

Design | *Details* | *Materials* | *Equipment*

Roger Sturtevant

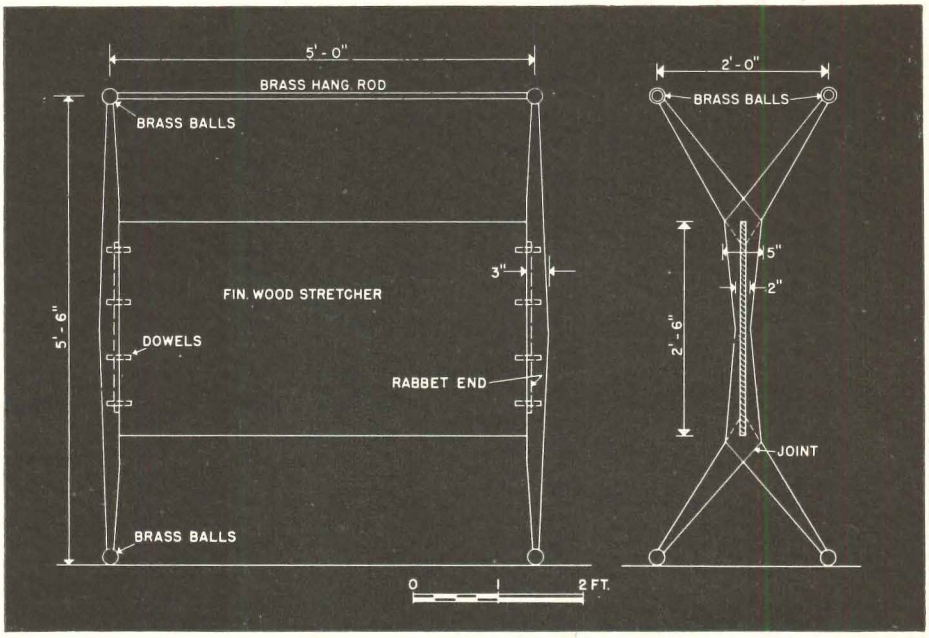


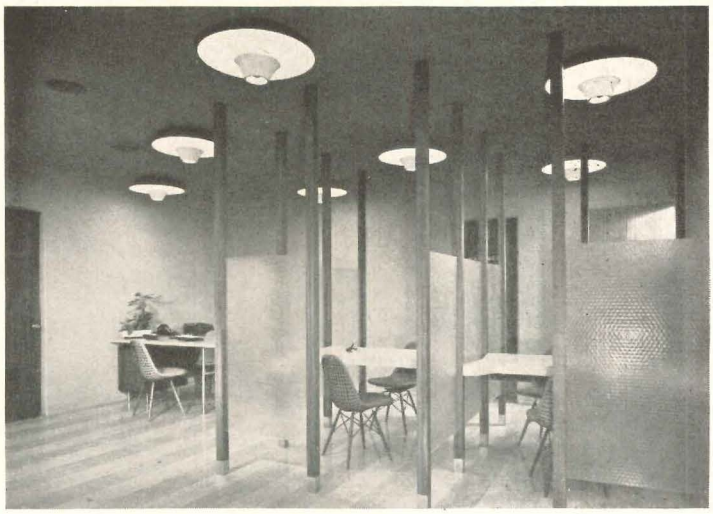


Cosmetics department (above) uses typical open-end showcase detailed at left, also recessed wall case. Mural above case is done in cast fragments in entarsia and scraffitto, by Mary Bowling. Hat bar (top of opposite page) is just about the longest straight line in the store. This and view below it show typical lighting, also the pattern of terrazzo floor

JOSEPH MAGNIN STORE

Welton Becket and Associates





Sportswear (opposite page, top) is largest area, has Danish cork floors and specially designed hanging racks, shown in details. Children's section (bottom of opposite page) uses smaller version of this rack, has carpeting of honey colored wool grospoint. Note, in background, Victorian bear hat rack for window display

ARCHITECTURAL INTERIORS

Design | *Details* | *Materials* | *Equipment*

Roger Sturtevant

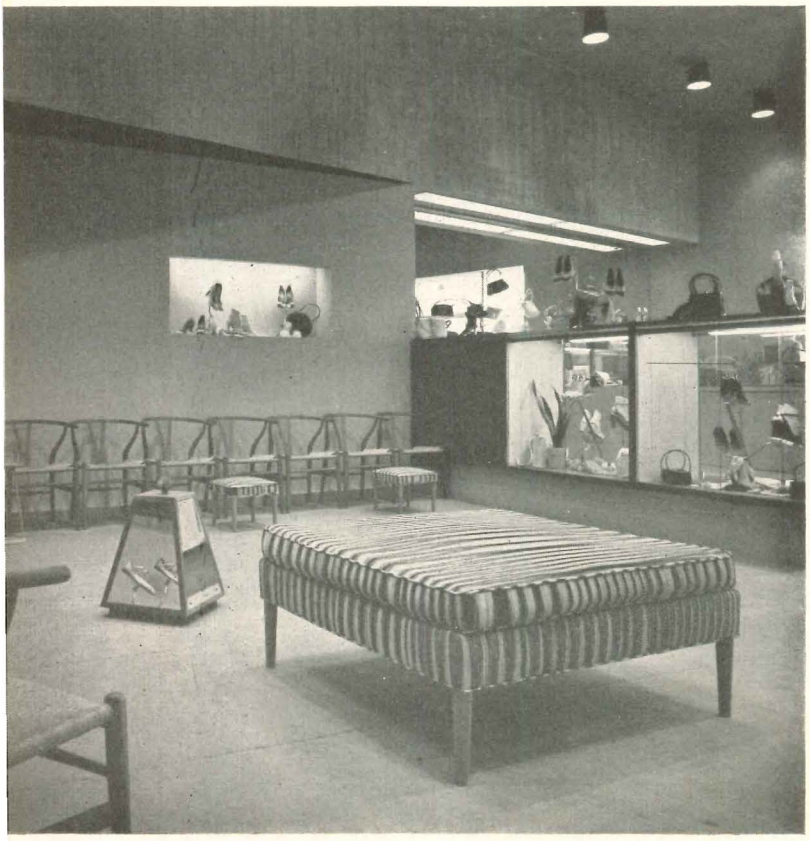
This page, top corner: booths in credit department on mezzanine floor. Above: main entrance doors are of glass in aluminum frames. Interior walls in plaster, wood or cork, in various colors in different departments. Right: carpeted flooring helps to delineate sections

JOSEPH MAGNIN STORE

Welton Becket and Associates

ARCHITECTURAL INTERIORS

Design | Details | Materials | Equipment



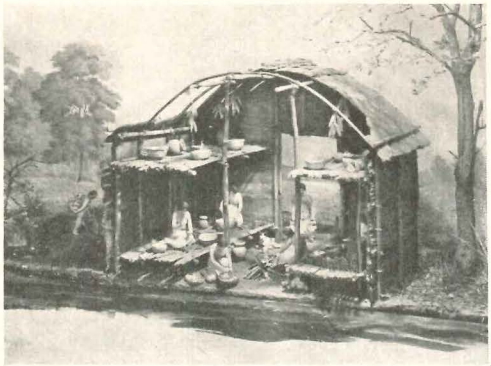
Dress salon (above) has wallpaper designed by the architects with JM monogram pattern, in gray on tan, or tan on gray. Chairs are Italian, covered with thaibok silks from Siam. Love seats have Indian silk tweed covering. Shoe department (below) has Danish oak chairs, hassocks covered with striped fabric designed by the architects

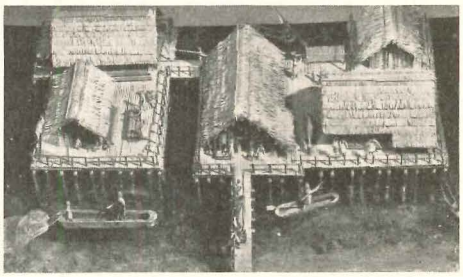
Shown here are the dual-purpose display and fitting rooms — display windows at night, sales rooms by day. Here the architects pulled out the stylistic stops. One (right) is modern, with blue glass cloth wall covering, plastic table, collage on wall. The one at the bottom of the page is called fantastic Victorian, and George Wright, designer in charge, had fun in the antique shops picking up the wicker furniture and the whatnot. Another fun-and-games item is the Cupid chandelier. Sofa here, as in the other of the four rooms, is in thaibok silk

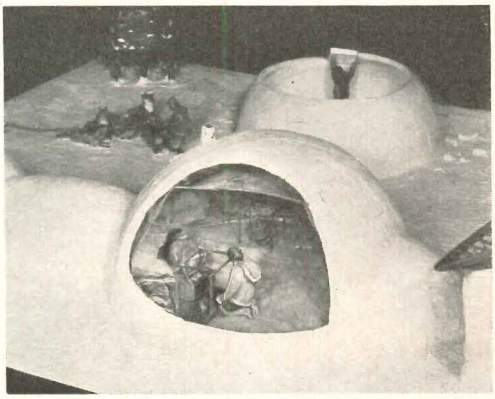
Roger Sturtevant

FREEDOM IN HOUSE DESIGN

Ingeniously handled structure contributes to the familiar open interior





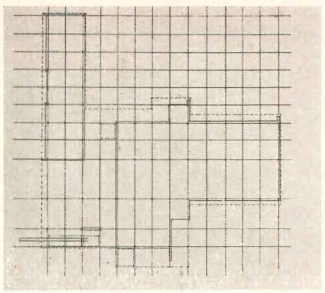


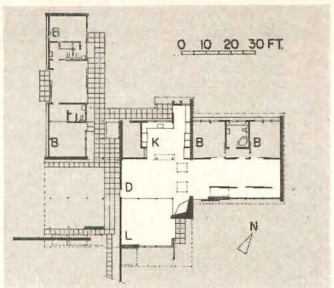
Top, Swiss Lake Dwelling; center, Iroquois Indian Long House; bottom, left, Mandan Indian Earth Lodge; right, Eskimo snow house. Photos courtesy N. Y. Museum of Natural History

HISTORICALLY the design of houses has been a search for economical ways to enclose space of maximum utility, to afford protection from climate and to use available materials appropriately. Generally speaking, until the time of the Renaissance — which of course persists today in reminiscent "Colonial" derivatives — structure was unashamedly exposed. The most obvious examples may be the primitive structures shown above; but in French chateaux, Italian palazzi and Tudor mansions, which were neither primitive nor unsophisticated, what held the building up was satisfyingly visible.

At one time, perhaps, a desire for something more genteel, or the need to cover up poor workmanship, led to the concealment of structure; and nowadays there is complex, usually ugly mechanical equipment to worry about. Whatever the reason, the habit of hiding strength has gripped us strongly and is being broken only slowly. Another custom, too, is changing as we begin to realize what modern structural techniques can accomplish: the concept of each activity area in the house as a separate cube, which may have originated in the necessity of employing many interior bearing walls, is disappearing.

No doubt these changes are being accepted by the public partly because they have been touted as economy measures; through them an owner can "get more house for his money." Economies they decidedly can become, as experience with the telescoped interiors of the average builder's house demonstrates. It is doubtful, however, if that is a really important reason; the great architects have always employed wisely the elements which, assembled, form an orderly, beautiful structure. In the following seven examples there are few designed by architects whose names are widely known. Most of the houses are unpretentious; but to some degree all display this common characteristic: the construction of contemporary American houses is again becoming satisfyingly visible.



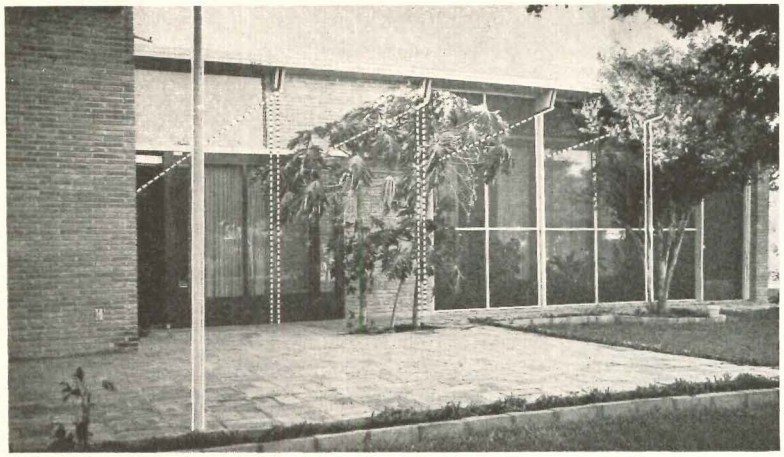


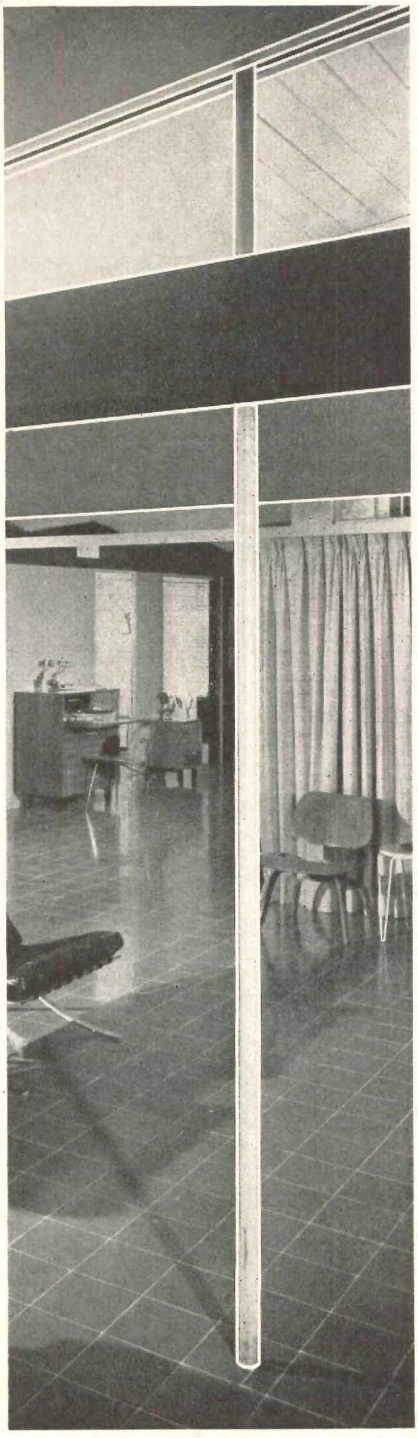
1

STEEL POSTS, WOOD BEAMS AND DECK

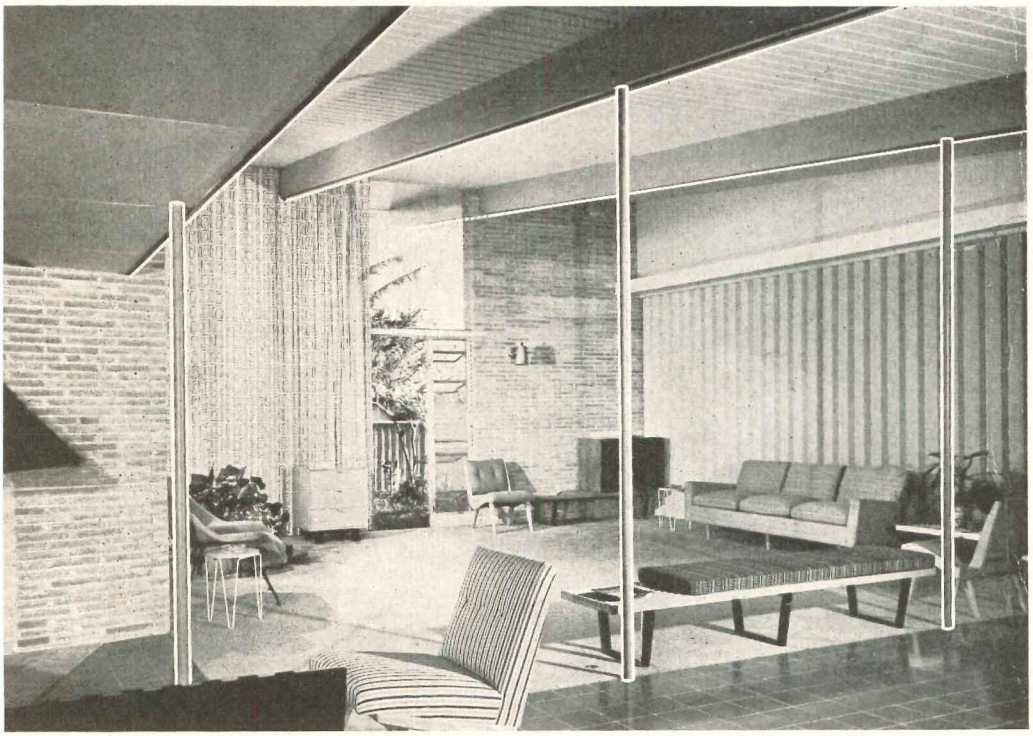
McKelvey House, Harlingen, Texas

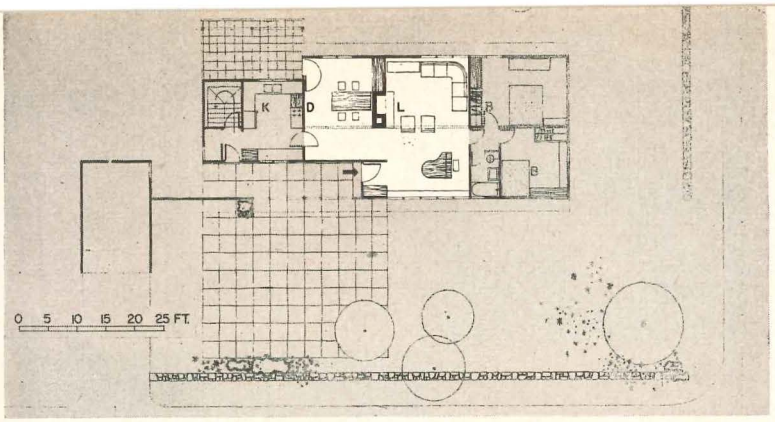
Cocke, Bowman & York, Architects, have used slender lally columns in 7-ft-wide bays to which are bolted paired wood beams supporting an insulated wood plank roof. Variations in height not only emphasize parts of the open interior but also admit light through shaded clerestories. In addition, skylights (between dining and porch), casework (between kitchen and dining) and changes in floor surfacing, help define areas. Structural bays vary in length from 14 to 21 ft; many of the thin columns are exposed in both bedrooms and living areas.

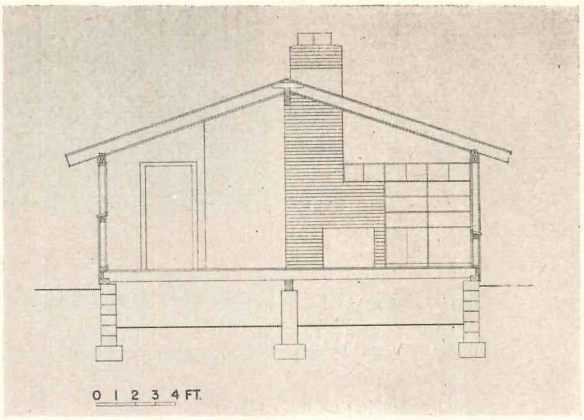


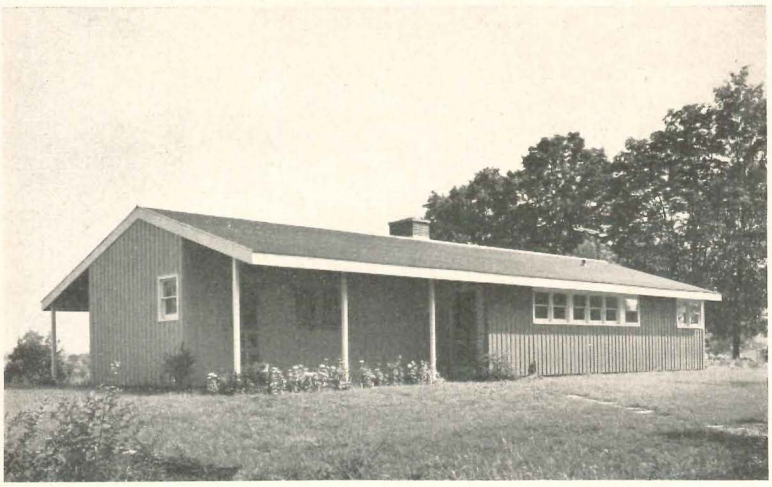


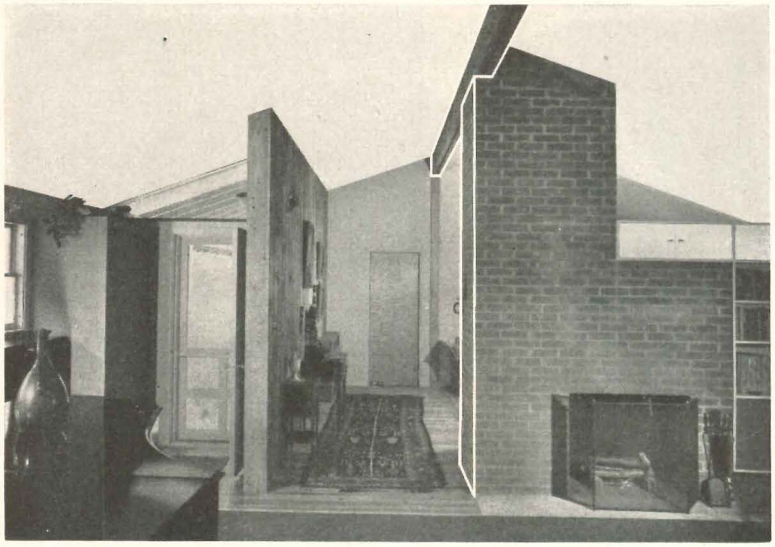
Ulric Meisel











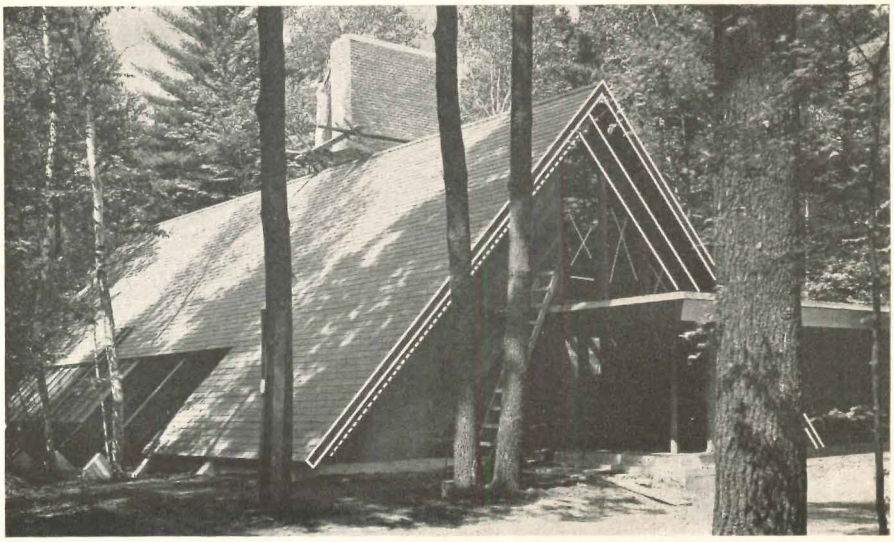
Joseph W. Molitor

2 WOOD BEAMS AND GIRDER

Golbin House, Bennington, Vt.

Bernard Kessler, Architect (left and above) and **Alden Dow, Architect** (below), both have developed the familiar pitched roof in ways which, though not new, are departures from average practice. In the Golbin house the roof framing, pitched low and supported by a ridge girder over the open dining-living area, had to be figured as a series of beams; with thrust eliminated, collar beams could be omitted and simple ties at the ridge used instead. Alden Dow's apparently simpler solution, among whose forbears are the pre-Roman-arch structures of stone slabs slanted against each other, requires heavier framing lumber and could be considered less economical in terms of cubage.

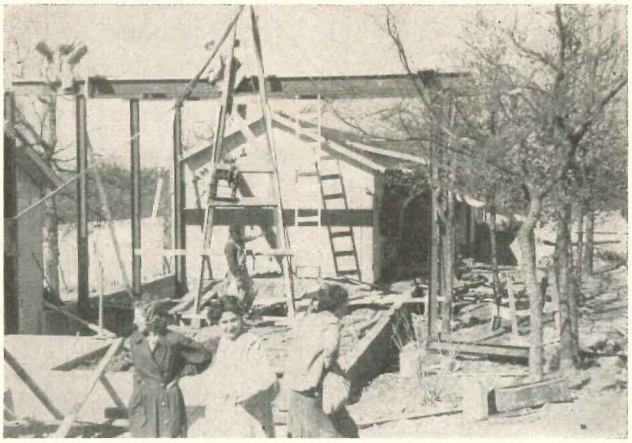
3 WOOD WIGWAM *Midland, Mich.*

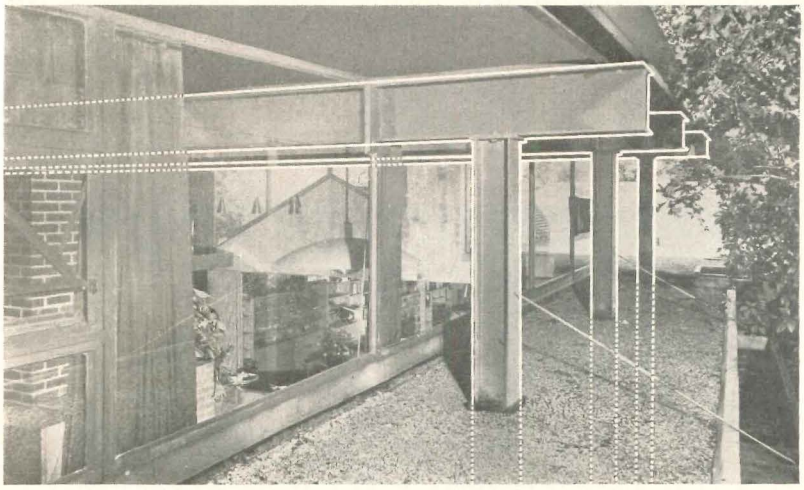


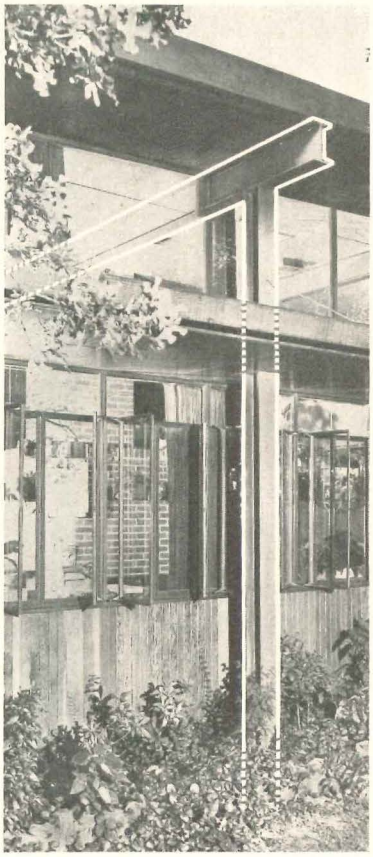
4

STRUCTURAL STEEL, EXPOSED

House in McAlester, Okla.

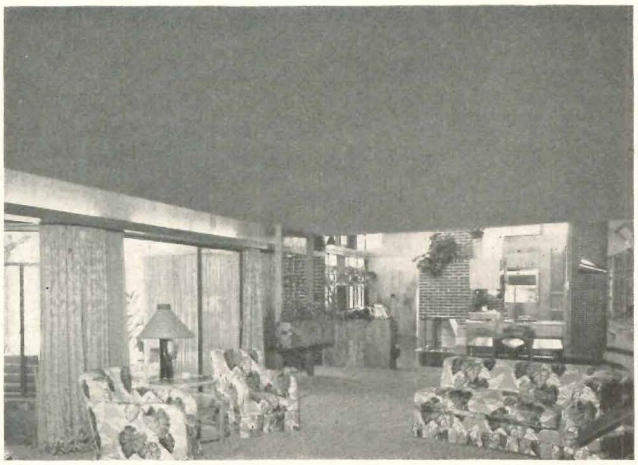


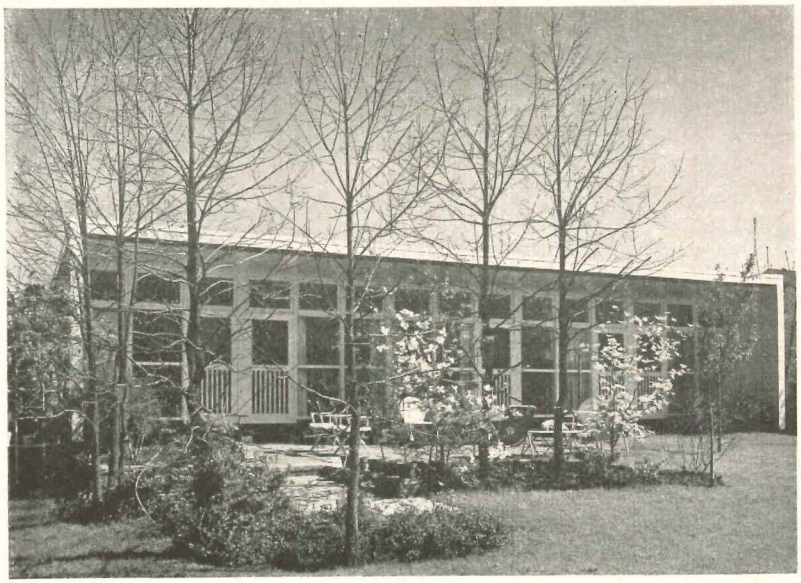




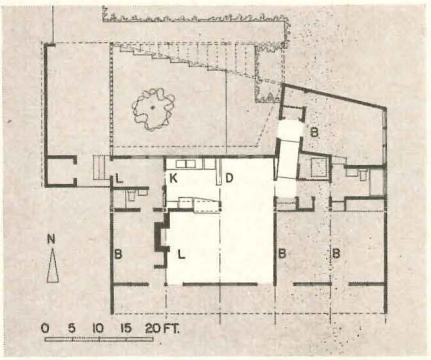
Vahlberg, Palmer & Vahlberg, Architects. This house incorporates an extensive addition to an existing, rather nondescript dwelling (photo at top, right). In order to obtain the freedom desired in the addition, steel columns and beams were employed. These support roofs and overhangs; the walls proper — hardly more structural than movable partitions — sit well inside the columns. Living and kitchen areas (photo bottom, right) flow into one another, and in the ample height of the kitchen the steel frame is visible though unobtrusive.

A. Y. Owen





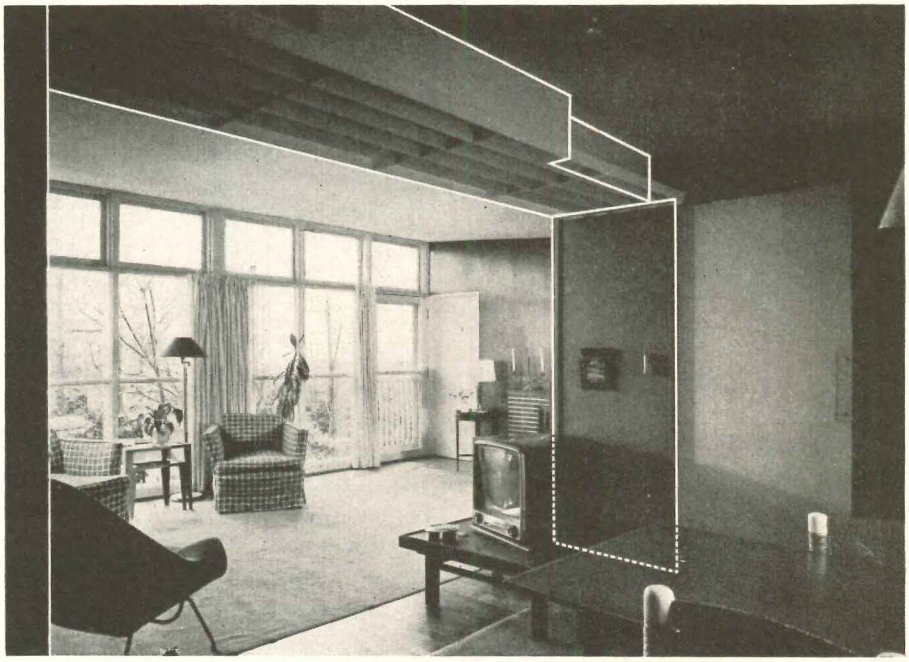
Joseph W. Molitor



5 WOOD POSTS, BEAMS, PURLINS

McKinnie House, Memphis, Tenn.

Eason, Anthony, McKinnie and Cox, Architects. A line of partitions and built-in cases down the center of the plan contains a series of 4 by 6 in. posts which support the main roof beams; these in turn carry light wood purlins. Air supply ducts also follow the central spine. Emergency restrictions on materials when the house was built influenced plan and structure.

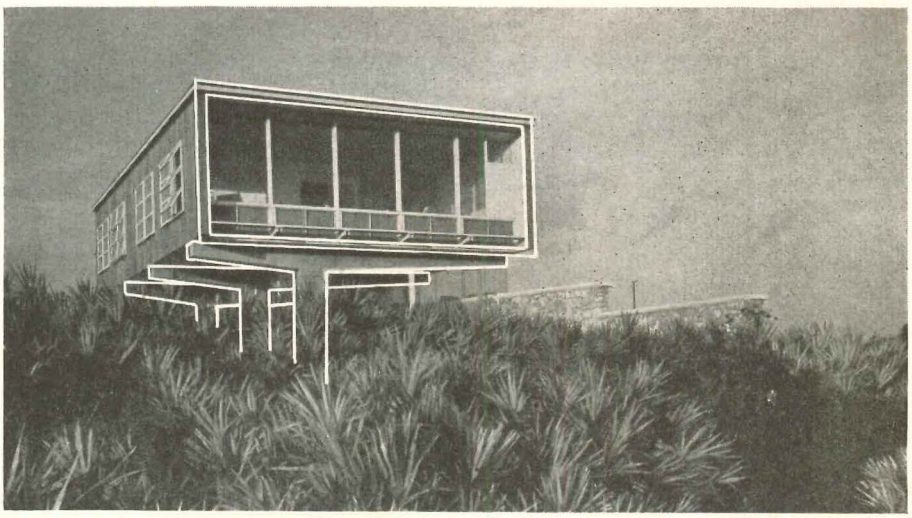


Joseph W. Molitor

6 BOX ON CONCRETE FRAMES

Walton House, Daytona Beach, Fla.

Francis Walton, Architect. The site is a dune, somewhat inland from the beach. Elevated on a series of cantilevered concrete frames to improve the view, the house is a simple, open box, cross-braced by interior partitions and with only entrance and service area below.

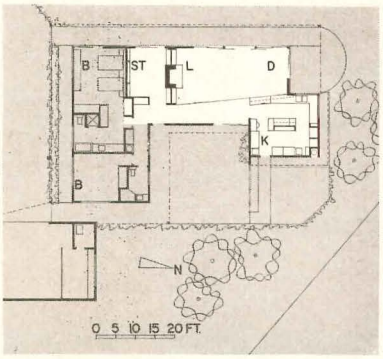


Jack Holmes

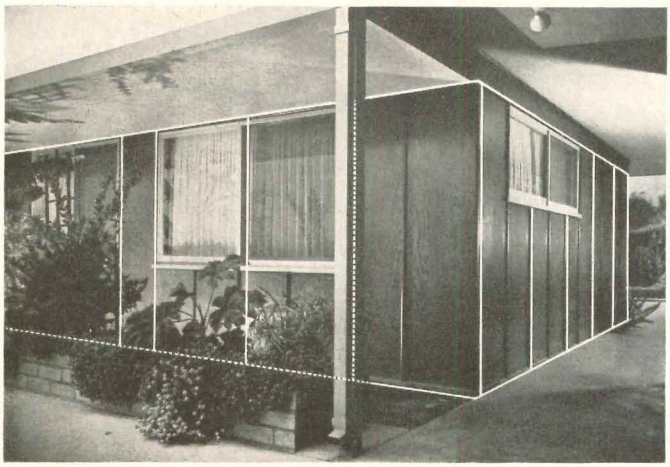
7

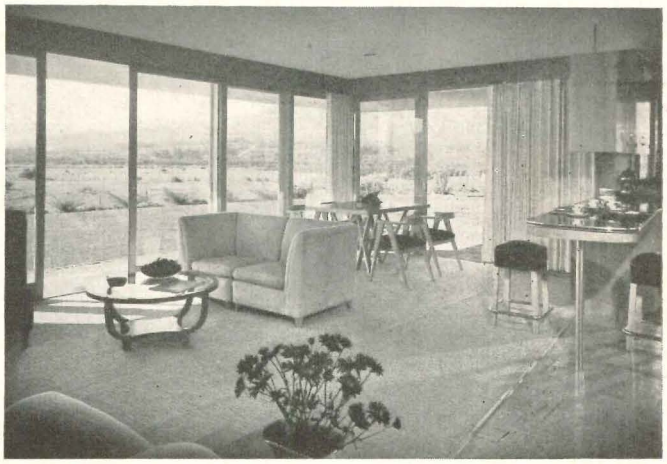
MODULAR STRESSED PLYWOOD, WOOD FRAME

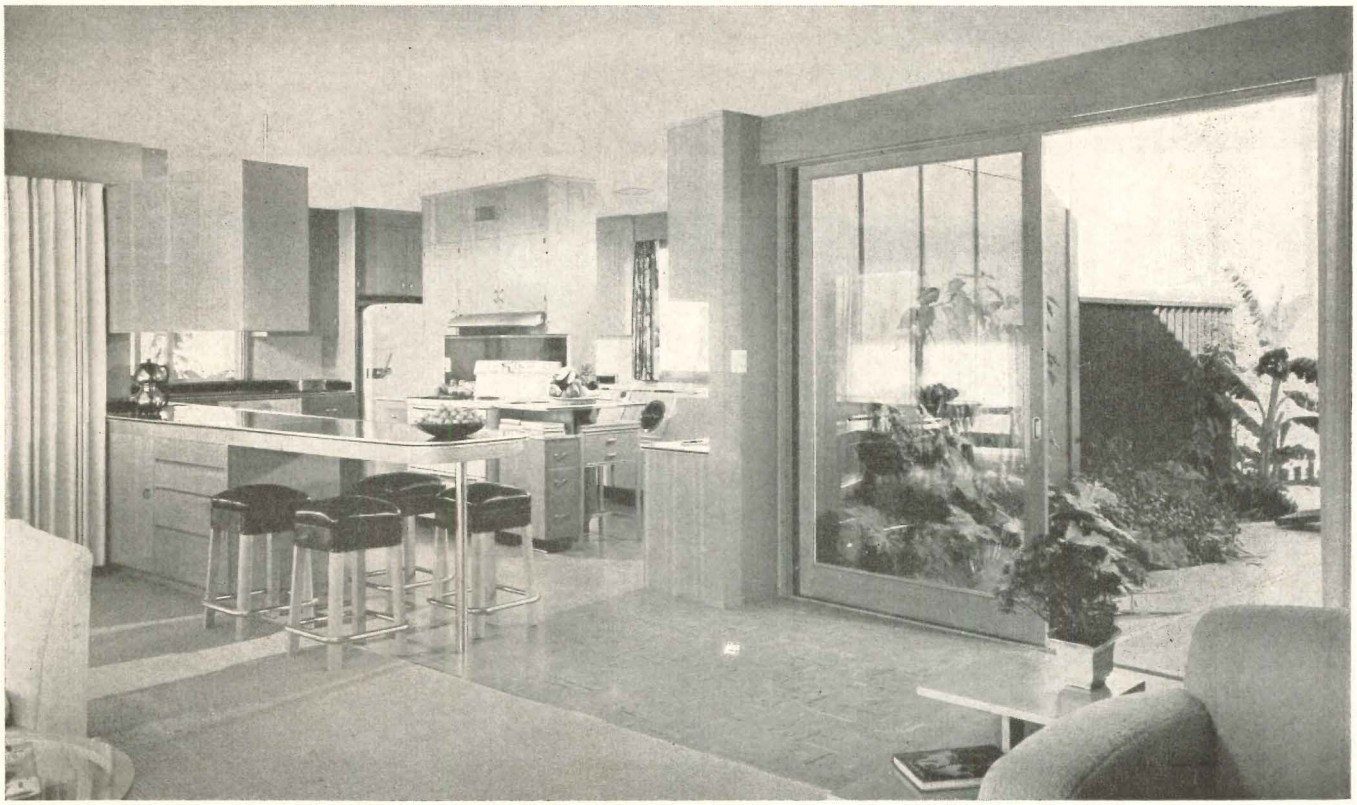
Bryce House, Fillmore, Calif.



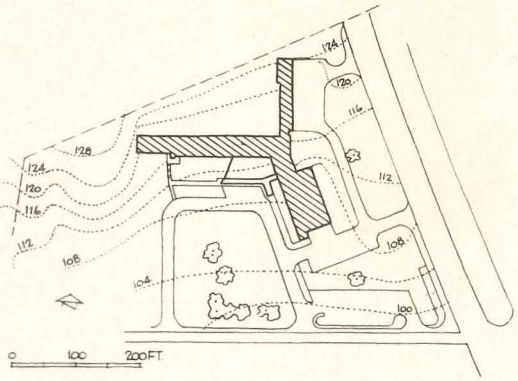
Chalfant Head, Architect. The wood frame, covered with stressed plywood panels 4 ft wide, has studs 2 ft on centers. A 4-ft module determined the plan. Construction is drywall with an acoustical ceiling covering the heavy beams which span the open living areas; these are partially subdivided by non-structural casework. The glass wall, oriented to a southwest view, has large sliding sections which unite the free interior and the outdoor terraces.







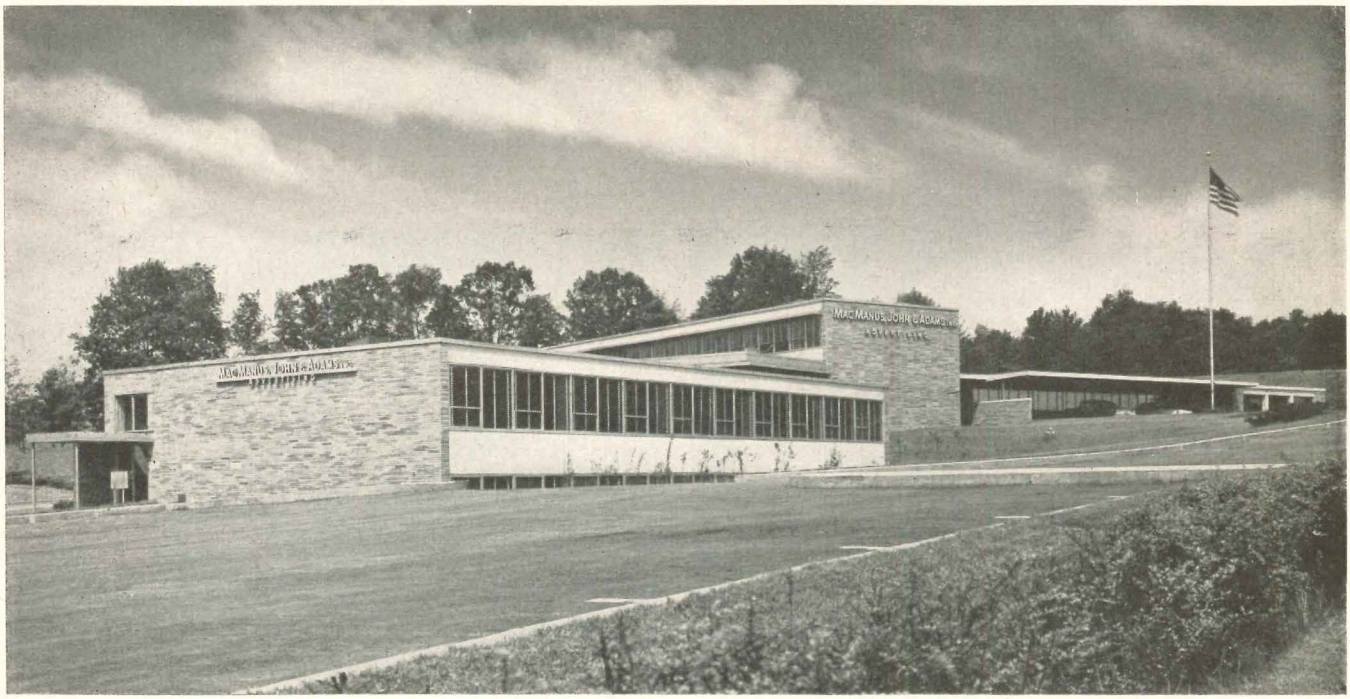
Robert C. Cleveland



ADVERTISING AGENCY GOES SUBURBAN

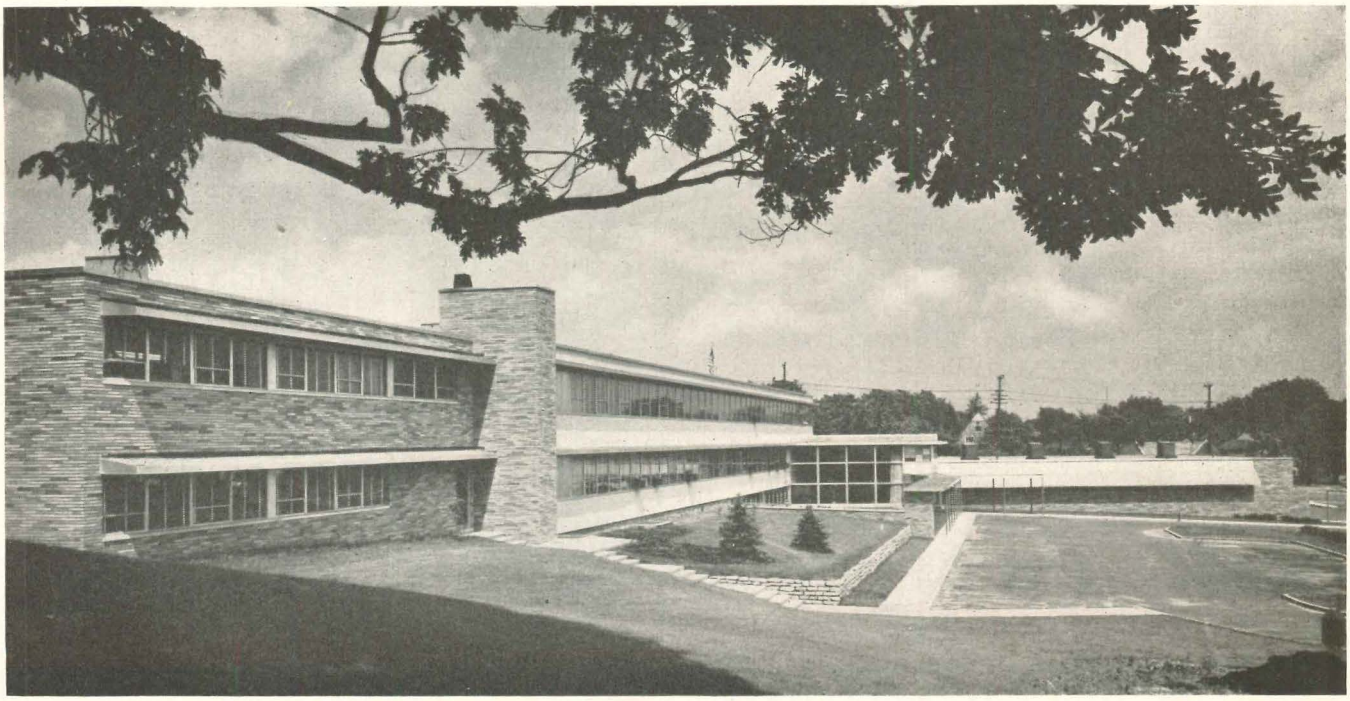
Offices of MacManus, John & Adams, Inc.
Bloomfield Hills, Michigan

Swanson Associates, Architects
Wilcox & Laird, Landscape Architects



Richard Shirk

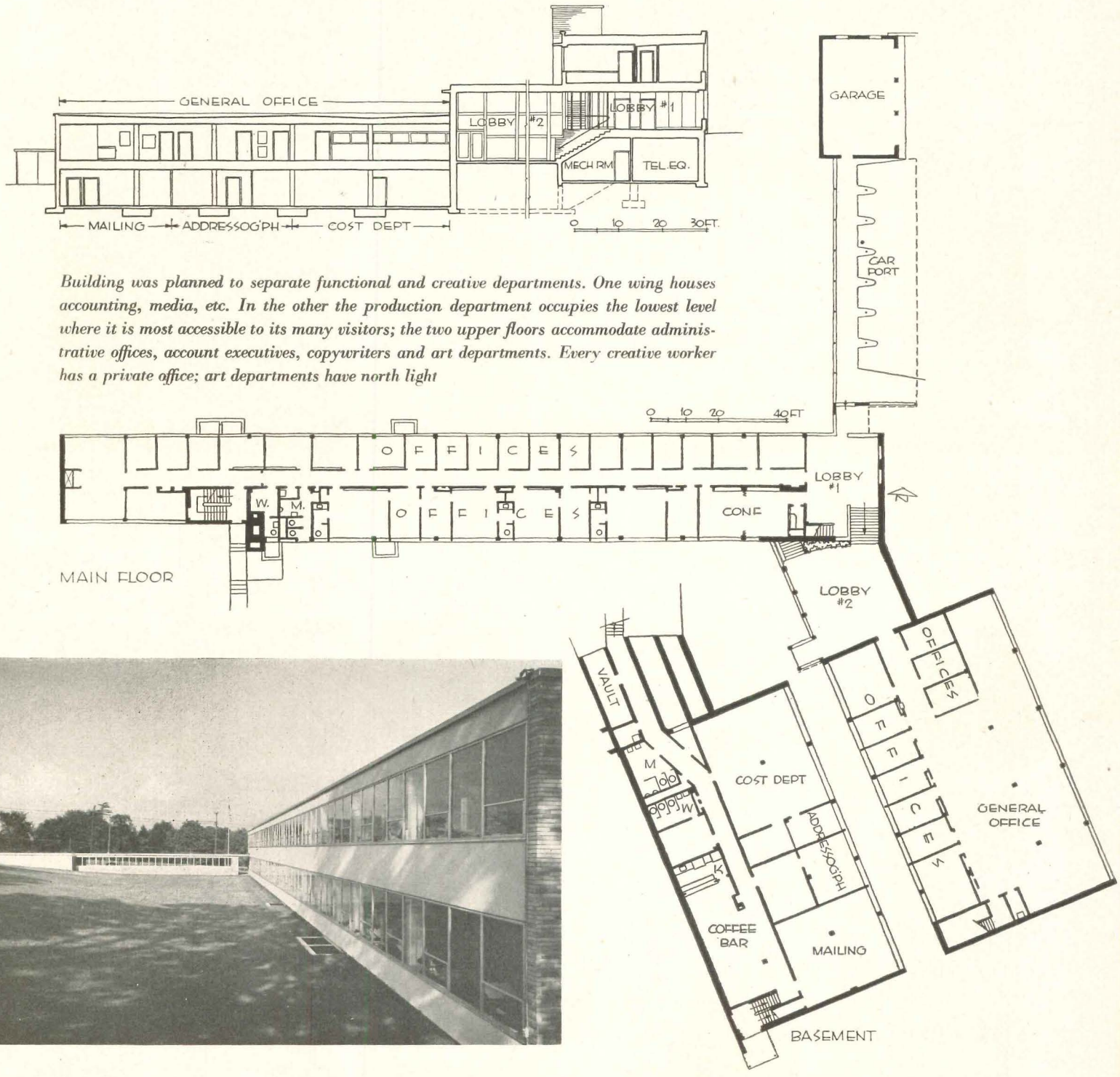
No parking problem here: 4-acre site permitted wide driveways, parking area, carport, and garage (extreme right in photo above). Main entrance and lobbies are at base of open V formed by building's two wings (below)



—AND LIKES IT

LONG BEFORE THE GOVERNMENT began to urge decentralization as a defense measure, business and industry were eyeing the suburban magnet of lower land costs, lower taxes, and more room. Here and there a firm yielded to the magnetic pull, with varying results. The suburbs grew (as they would have grown anyway), department stores opened branches to serve the increasing population, and shopping centers began to sprout. Outlying villages became small cities, but the bustling metropolis continued to bustle. The fact of the matter seems to be that business and industry can thrive equally well in or out of the city, given a sensibly-chosen location.

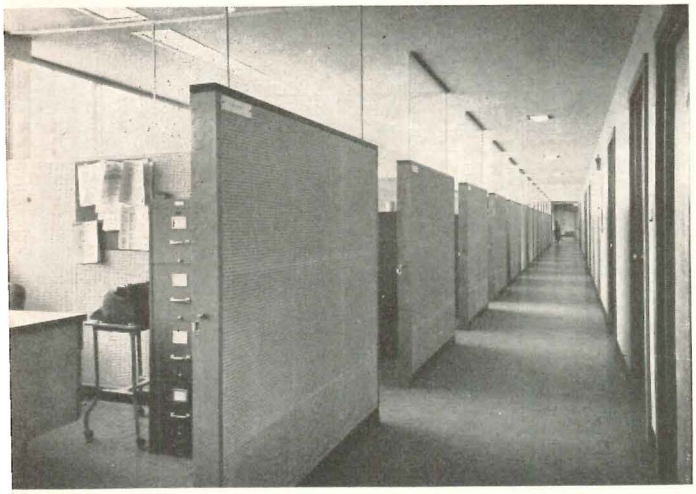
It is still news, however, when a large advertising agency moves its headquarters to a site some 25 miles from the center of the nearest city. MacManus, John & Adams had had its offices in Detroit's Fisher Building for a quarter-century when it pulled up stakes and moved out to Bloomfield Hills. The agency had grown so much since the end of World War II that it needed

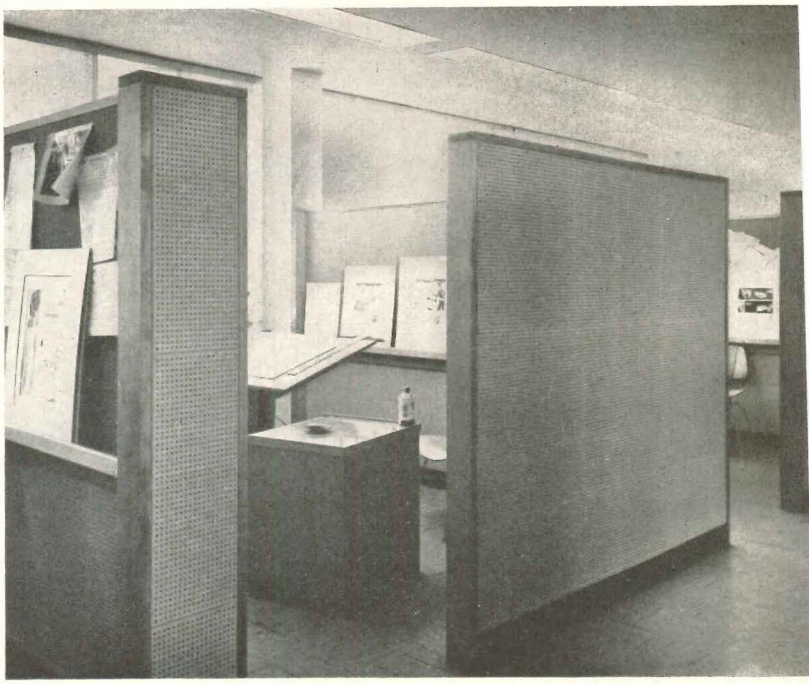


Building was planned to separate functional and creative departments. One wing houses accounting, media, etc. In the other the production department occupies the lowest level where it is most accessible to its many visitors; the two upper floors accommodate administrative offices, account executives, copywriters and art departments. Every creative worker has a private office; art departments have north light

Richard Shirk

Two-level main lobby has floors and stairs of Vermont slate, large windows of insulating glass. In east wall, near stairs, are two small slabs of limestone from old White House in Washington. Below: offices for copywriters and layout men have specially designed furniture and sound-deadening perforated cement board partitions





almost 50 per cent more office space, which simply was not available in the Fisher Building. The logical thing to do, the agency decided, was to build its own quarters. But where? High land values in the city proper would necessitate a vertical structure, which meant high building costs. A suburban site would make possible a more convenient horizontal building, less expensive to construct and easy to expand — but would a suburban site be practical?

Various sites in and around Detroit were considered before the Bloomfield Hills location was suggested. At that point a survey of agency personnel uncovered the encouraging fact that 65 per cent of the employes lived north of the city limits, in the general direction of Bloomfield Hills. Even more encouraging, many of the firm's major clients were situated north of the city. Offices in that area, it was estimated, would save agency principals as much as 80 minutes a day in travel time and would result, all clients queried agreed, in improved client relationships and in increased operational efficiency. The suburbs had won.

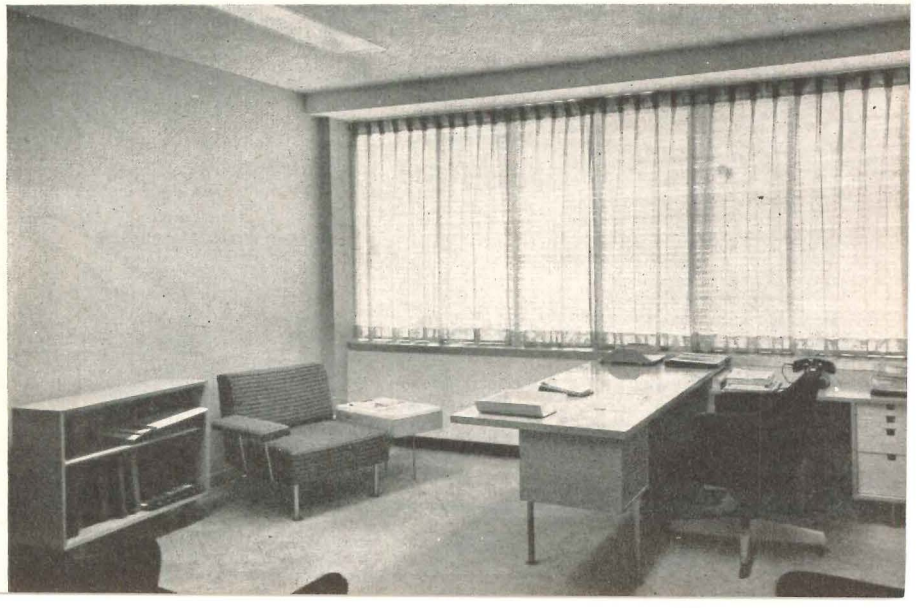
The site selected consisted of about 19 acres, only four of which would be occupied by the agency (the balance was restricted to residential use). Several building placements were possible, and one in particular — the one chosen — not only would permit the future addition of a whole new wing (now already in the planning stage), but also would take full advantage of the expected business expansion in the vicinity.

An early concern about necessary services quickly vanished: automatic telephone switchboard service was available; a teletype and a teleprinter were installed; the Bloomfield Hills Post Office just across the street was increased in grade and proved able to handle the heavy mail load. Printers and other suppliers banded together to employ a Detroit delivery service which makes four round trips daily between a central warehouse in the city and the agency offices. A leading art studio has opened a branch office to serve the agency, and in the same building a new photographic and photostat studio has been established.

There has been almost no turnover in personnel because of the move; on the contrary, the lighter, airier and roomier quarters have resulted in a noticeable lifting of spirits and a greater communal feeling among employes. Tardiness has been almost eliminated. The agency is glad it made the move.

Interior trim is white birch, floors are asphalt tile, ceilings acoustical plaster. Overhead fluorescent lighting was designed to eliminate shadows, need for desk lamps

Move to suburban site permitted unusual spaciousness in every section of building, including general offices and corridors. Executive offices are luxuriously large



STUDIES ON NATURAL LIGHT AND VENTILATION IN SCHOOLS

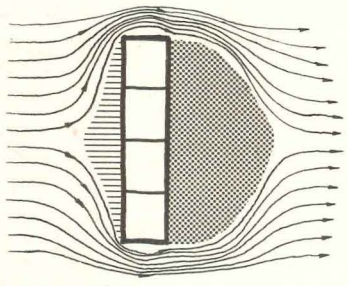
Condensation of a chapter from a forthcoming book to be published by F. W. Dodge Corporation

by William W. Caudill

EACH ENCLOSURE (or envelope) for classrooms provides a particular environment in terms of heat, light and sound. But there are an infinite number of possible arrangements, shapes and constructions of walls and roofs for the envelope. So the school planner cannot help being troubled by the difficulty of selecting a combination of structural elements that will give an optimum environment, particularly when he considers that each solution greatly depends on local conditions (location, size and contours of the site; weather; location and proximity of surrounding buildings, fences and trees; availability of certain materials; budget limitations; and a great many other factors).

Answers are needed to such questions as: Where should windows be located, and how large should they be? What effects do overhangs have on light and air flow? How do landscaping elements affect daylight, air flow and sound?

For answers to these questions, the Texas Engineering Experiment Station started an architectural research project in 1949, the research team consisting of architects, physicists, a landscape architect and an aeronautical engineer. Most of this article is based on their tests.



Above: wind flowing past a building sets up a high pressure area on the windward side and low pressure on the leeward side (called wind shadow)

Right: maximum air speeds within a building are achieved when the outlet is larger than the inlet. This is analogous to a lake (which never seems to move) flowing at a high velocity over a spillway

How Air Behaves Within a Classroom

In order to show the behavior of air flow within classrooms let us assume one set of conditions as in Case 1 across page, left. Then, by changing the individual parts, we can see the corresponding changes in air flow pattern. By virtue of the solid area at "a," combined with the ground, there will be a strong upward pressure which will cause the incoming air to flow towards the ceiling.

The next Case shows what happens to the interior air flow when an overhang is added at "b." The addition of the overhang causes the air to flow downward because of the higher pressure above the opening than below it.

Now consider Case 3. Everything is the same as 2 except the inlet opening has projected type sash "c." The air now shoots upward.

Case 4 is exactly the same as 3 except that the outlet has been changed from the ceiling to the floor. Note that the pattern across the room is essentially the same. It is the inlet that determines the air flow pattern, not the outlet.

In Case 5 the overhang has been removed and the inlet has been lowered on wall "e." The opening has no vanes. The air flow pattern is downward, caused by the air flowing along the large wall area "e" which gives the air a strong downward component when it enters the opening.

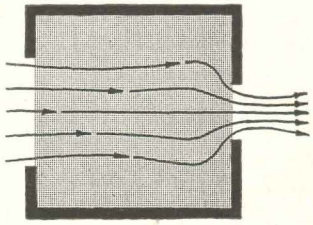
In Case 6, an overhang "f" has been added immediately over the opening, similar to the sun shades in typical glass block fenestration. The overhang stops the downward component and the air flow is upward again. But if a louver type arrangement is added at "g," Case 7, then the air can be made to flow downward again. Now if the louvers are removed, Case 8, the air flow still is upward regardless of whether the outlet on wall "h" has been lowered.

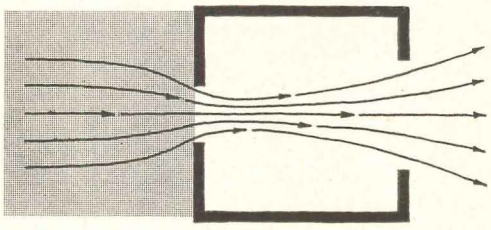
How Light Behaves Within a Classroom

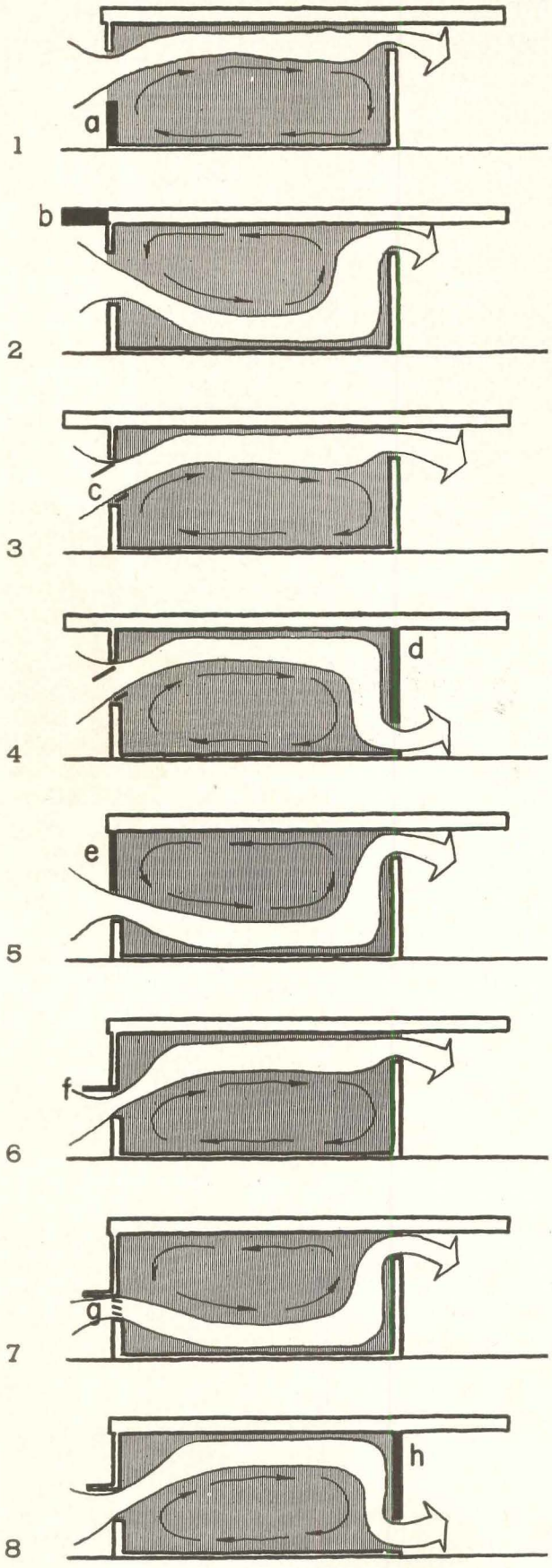
The cross-sectional diagrams at right across page show how light behaves within a classroom when certain shapes, materials, and reflectivities are changed. First, let us start with a unilaterally lighted classroom in Case 1. The window at "a" allows a certain quantity of light to enter the room giving an illumination curve as shown. Now look at Case 2. Here the reflectivity of the ceiling "b" has been substantially increased. The distribution curve flattens out somewhat, since the increased reflectivity does the most good near the windowless wall. The dotted line is the original light curve.

Let us now assume that the illumination needs to be brought up near the windowless wall still more. What can we do? For one thing we can introduce an opening at "c" in Case 3. Another way is to install some sort of skylight, as "d" in Case 4.

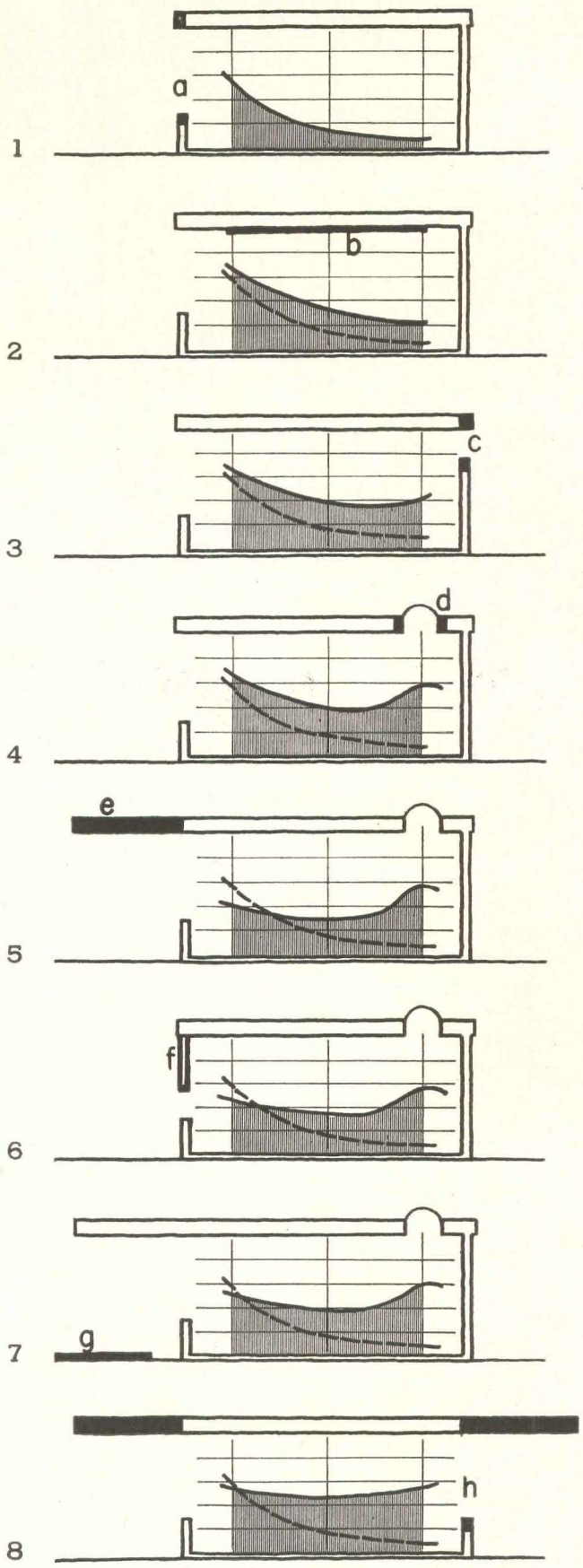
Next assume that we need to straighten out the illumination curve still further. One way is by providing an overhang "e" as in Case 5. Another way is by introducing some material like glass block or a device like louvers at "f" as in Case 6. At this point, assume that although we straighten out the curve somewhat, we would like to increase the intensity a little bit more. By increasing the ground reflectivity at "g" the light within the classroom will also be increased somewhat, see Case 7. As a final experiment, assume that we want a high level of illumination, evenly distributed. One good way is to open up both sides, then to install overhangs.



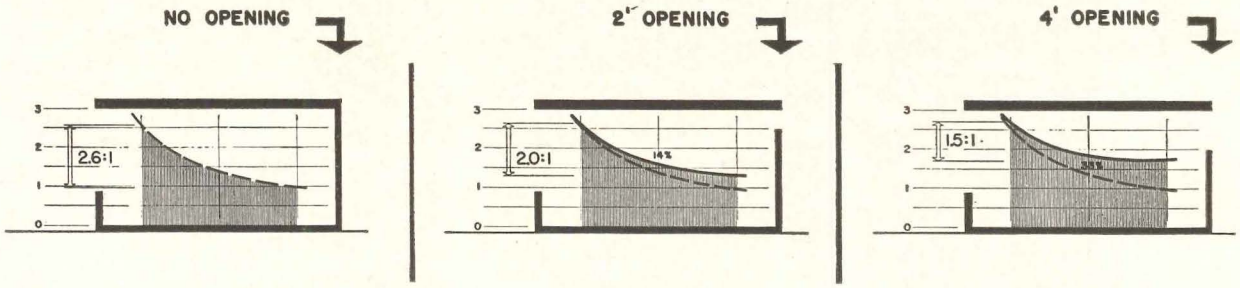




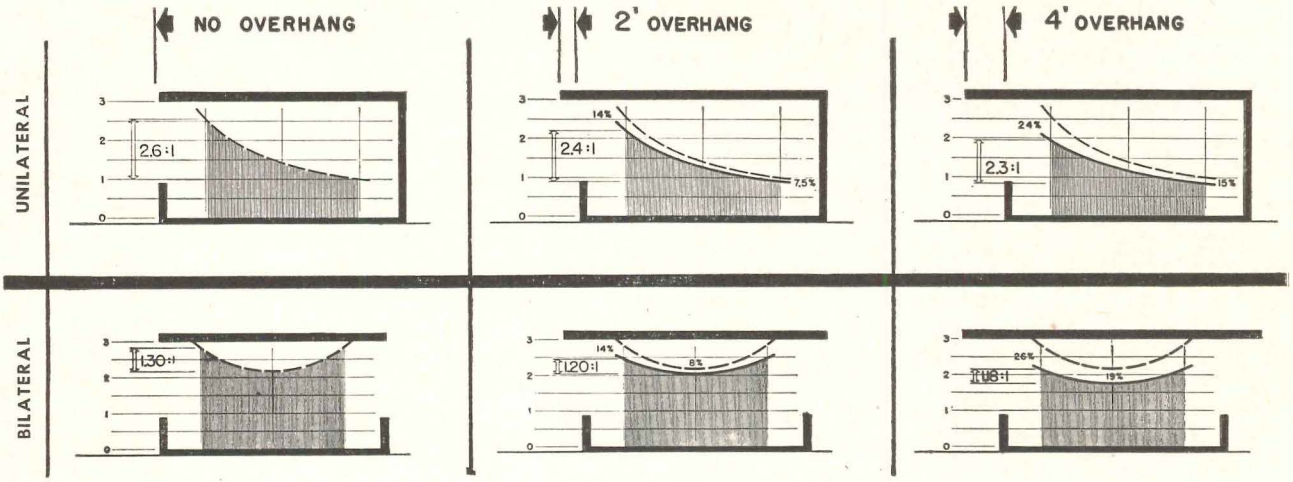
VENTILATION: in the examples above, room shape is kept constant, but window sizes, types and locations are varied, and in four cases overhangs are used on the windward side to demonstrate their effect on natural ventilation



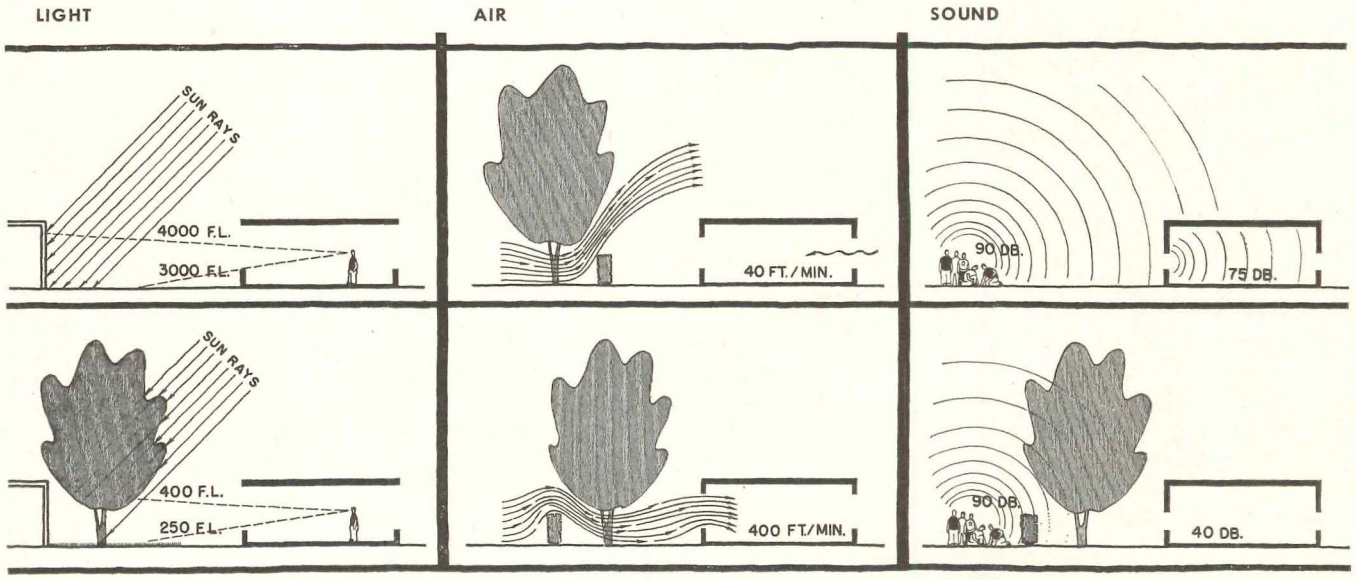
DAYLIGHTING: as with the examples on ventilation, the room shape is constant, but fenestration, surface reflectances and overhangs are varied to show how illumination can be increased and evened. Dashed curve is that of Case 1



EFFECT OF BILATERAL DAYLIGHTING: a study of these diagrams will show that if a classroom has large windows on one side, supplemented by smaller ones on the other side, intensity is increased and illumination is more even. Small numbers are increases in illumination; larger numbers are the ratio between maximum and minimum; dashed curve is the illumination from the first case



EFFECT OF OVERHANGS ON UNILATERAL AND BILATERAL DAYLIGHTING: these studies show that with unilaterally lighted classrooms, overhangs may decrease intensity seriously, although illumination is more even. With windows on both sides, however, distribution is improved and light is decreased only slightly. Numbers are used as in the top illustration to indicate the degree of change in illumination



EFFECT OF TREES ON LIGHT, AIR AND SOUND: the top left sketch shows excessive brightness caused by reflections from an adjacent building and a paved area; in the sketch below, trees and grass have remedied this. The two center sketches show how location of trees and a hedge can help or hinder natural ventilation. The two right sketches show they can reduce noise

PROTECTING WOOD FROM DECAY AND FIRE

A survey of what materials are used and how they are applied

By George M. Hunt*

WOOD, when it is properly used will give good service for centuries. This is exemplified in innumerable ancient buildings built of wood and still standing. The long life of these buildings has not resulted from using timber of superior durability, for the wood in most of them is not outstanding in this respect. Their durability has resulted, rather, from the fact that conditions within the buildings were not favorable to rapid deterioration, and from a steady process of repair and correction wherever disintegration was found.

THE WOOD DESTROYERS

Wood constitutes the food of certain plants (wood inhabiting fungi) and animals (insects and marine borers), and when conditions in a building are favorable to the growth of these pests, they can destroy its usefulness, sometimes within a year or two.

In the design and construction of a building, much can be accomplished to prevent deterioration of the wood by fungi and insects. The most important precautions are to insure that the wood remains dry in service and does not contact the soil. At moisture contents of 20 percent or less (based on its oven-dry weight) wood does not decay.

In a normal-occupancy dwelling in good repair, the moisture content of all of the interior woodwork and furniture remains substantially below this figure and the wood is safe from fungi. However, leaks from roofs or plumbing, condensation within walls or on windows, penetration of moisture through concrete floors or masonry walls, collection of rain water in joints and crevices, and direct contact of wood with the soil can provide enough moisture to permit decay.

There are also certain fungi that, once established in a piece of damp wood, can conduct water to dry wood and thus accomplish its destruction. Fortunately, these so-called "dry-rot" fungi cannot stand the temperatures commonly maintained in our heated buildings and they are not so plentiful in the United States as in western Europe. Furthermore, if the wood is kept dry, the "dry-rot" fungi do not get started.

Ground-nesting (subterranean) termites also have the capacity to destroy dry wood by bringing water to it from the soil. Since these insects must always have plenty of moisture, their attacks can be prevented or their depredations stopped by interposing barriers between the wood and the soil.

The first precaution, however, is to remove all old stumps, decaying wood, and building debris from the building site, for these tend to attract termites and help them build up their colonies until population pressure forces them to seek new sources of food.

Dry-wood termites cannot be excluded from buildings by barriers between the soil and the wood, since they do not live in the soil and require no water other than that found in normally dry wood. A pair of them can light on a dry board or in a joint or crevice in a building and soon bury themselves from sight to start a new colony. Fortunately, they are found only in a narrow belt of territory around the southern border of the country. They also work slowly. In the territory where they are found, they are not easy to keep out of buildings. Screening, painting, and sanitation are helpful, and, of course, the insects cannot attack well-treated wood.

Another pest that sometimes attacks dry wood is the Lyctus powder-post beetle. These beetles are occasionally found in the hardwood flooring, doors, and trim of buildings. If they are left undisturbed, they can in time cause great damage. The Lyctus beetles confine their activities to the sapwood portions of the hardwood species woods and do not work in the softwood species. They are not found in kiln-dried lumber unless it has been stored near infested material for a long time after drying. The best defense against them is to make certain that the hardwood lumber used in the building contains no insects at the time of installation. For the country as a whole, powder-post beetles do not constitute a major menace to buildings and their control is usually not difficult but in individual cases their eradication may prove costly.

There are a number of other insects which are occasionally found to damage wood in buildings, but generally they are of less importance than those cited above. The excellent government publications (listed at the end of this article) relating to the control of termites, other insects, and wood-destroying fungi give detailed information about how to avoid the attacks of these pests or how to eradicate them when found in a structure.

WOOD PRESERVATIVES

When the design of the building or the nature of the occupancy make it necessary to use wood under conditions favorable to the growth of fungi or insects, the use of wood preservatives properly applied will provide long life. Wood preservatives protect wood by making it poisonous to its potential destroyers. So long as enough preservative is present in the wood contacted by an insect or a fungus, it cannot digest it, but when too little preservative is present, or when there are breaks through the protective zone, damage is possible. Thus, not only the preservative used, but its amount and distribution in the wood are important. Attention to these details is necessary for successful protection.

Wood preservatives may be classified in various ways, according to particular characteristics considered to be of major importance for different purposes. For use in buildings, for example, they may be divided into two main types, each with two subclasses. These are not standardized types, but are useful for

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the present discussion. Other groupings might be used for other purposes:

Type A. Clean and paintable
1. Applied in water
2. Applied in oil solution

Type B. Oily and not readily paintable
1. By-product oils and oil mixtures
2. Toxic chemicals dissolved in non-volatile oils

Each of the foregoing subclasses can be subdivided further, according to color, odor, degree of paintability, and other characteristics.

Preservatives not Readily Paintable

The oily preservatives of Type B include coal-tar creosote, creosote-coal-tar solution, creosote-petroleum solution and petroleum-pentachlorophenol solution. These have only limited suitability for use in buildings because of their color and odor and the oily surfaces they impart to treated wood. They have been used to a small extent in the foundation timbers of houses and they are finding increasing use in "pole" barns and similar structures. Their greatest usefulness is for the protection of railway ties, bridges, posts, poles, foundation piles, and other products where the treated wood is exposed to the weather or is in contact with the soil or fresh water. Wood piles and lumber used in salt water pose a special problem for which only coal-tar creosote and creosote-coal-tar solutions can be recommended.

By far the greatest amount of wood processed by the commercial wood-preserving industry is treated with preservatives of Type B, and no preservatives are known that will give greater protection to wood which must be used under conditions favorable to the growth of fungi and insects. The architect should not ignore these preservatives but, for many buildings, he will probably find them of limited utility.

Clean Paintable Preservatives

The clean preservatives grouped in Type A are usually chosen for buildings designed for human occupancy, storage of foodstuffs, and similar "sensitive" purposes, because of their general freedom from offensive characteristics. Even these preservatives, however, have their individual differences and limitations which should be understood in order to choose among them wisely. There is no perfect, fool-proof preservative.

Water-Borne Preservatives

Preservatives in water solution leave the wood clean, odorless, and paintable, but the large amount of water injected with the preservative swells the wood nearly to its green dimensions and must be dried out after treatment until the wood reaches a moisture content appropriate for its intended use. The redrying is, of course, accompanied by shrinkage, which should take place before the wood is built into the structure. The wet wood may be kiln dried or air dried according to the requirements of the job and the time available. This characteristic of water-borne preservatives imposes no serious hardship for most uses but requires foresight in ordering, to allow sufficient time for drying after treatment.

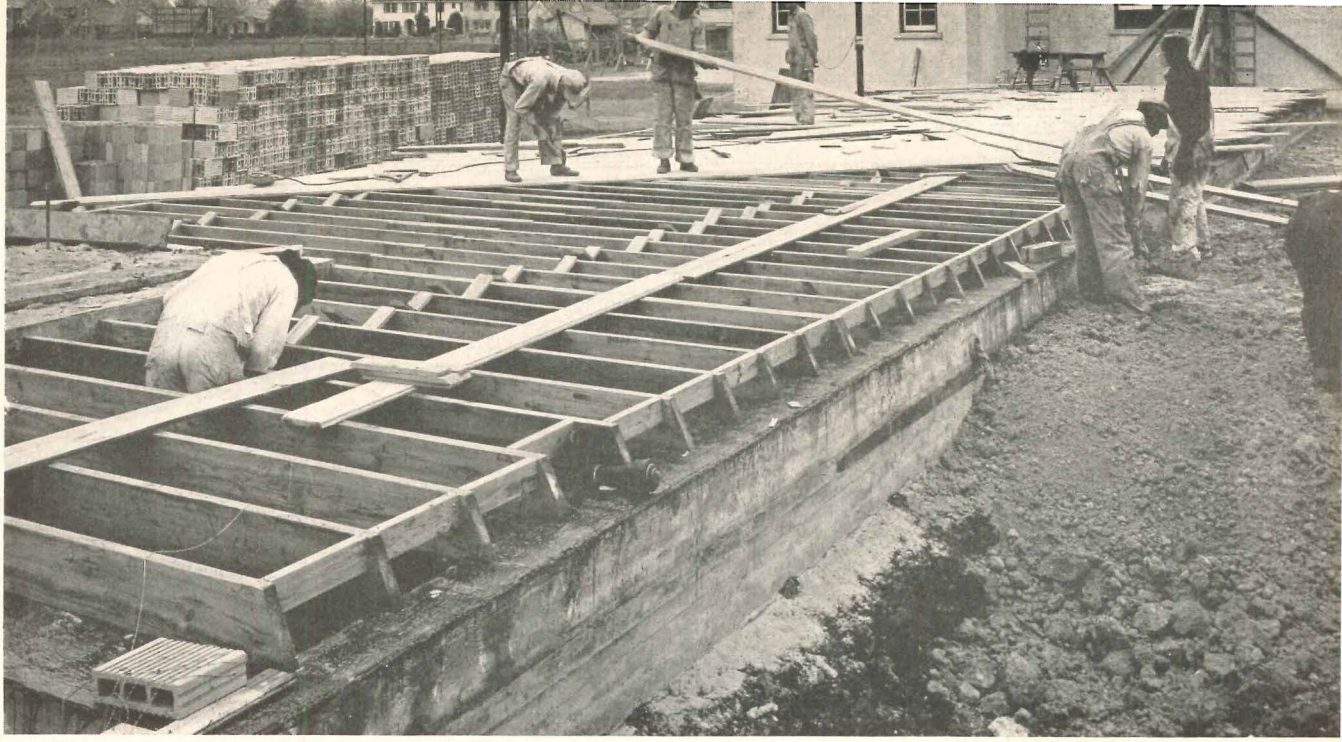
The swelling and shrinking of the treated wood cause roughening of planed surfaces and sometimes a moderate distortion of cross-grained wood or wood that was not properly dried originally. As a result, light resurfacing after treatment and redrying may be required for some uses.

Some water-borne preservatives leave the treated wood practically unchanged in color. Preservatives containing cop-

TABLE 1. Water-Borne Preservatives *(Now Included in Standards of the American Wood-Preservers' Association)*

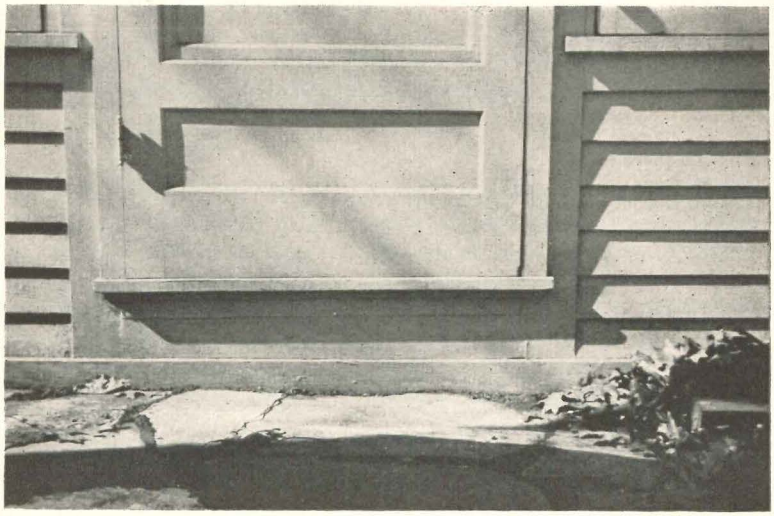
PRESERVATIVE		RECOMMENDED MINIMUM RETENTION (Lb per cu ft)			
		A.W.P.A. Standards or reports		Federal Specification TT-W-571c	
Chemical designation	Proprietary or trade name	Above ground	In ground contact	Above ground	In ground contact
Acid copper chromate	*Celcure*	0.5	1.0	0.5	0.75
Ammoniacal copper arsenate	*Chemonite*	0.3	0.5	0.3	0.45
Chromated copper arsenate	*Erdalith, Greensalt*	0.35	0.75	*	*
Chromated zinc arsenate	*Boliden salt*	0.5	1.0	*	*
Chromated zinc chloride	CZC	0.75	1.0	0.75	1.15
Copperized chromated zinc chloride	Copperized CZC	0.75	1.0	*	*
Fluoride, chromate, arsenate, phenol mixture	*Tanalith*	0.35	0.50	0.35	0.55
Zinc chloride	*Zinc chloride*	1.0	1.25	1.0	1.5
Zinc meta arsenite	ZMA	0.35	0.50	0.35	0.55

* *Not yet included in the Federal Specification.*



TREATED: in the structure above, the floor joists, bridging and sub-floor were pressure-treated with a water-borne preservative for protection against termites and decay. Since water swells the wood during processing, it must be dried before use.

UNTREATED: an easy prey for wood destroyers is untreated wood in contact with the ground; in any case, however, siding should not be brought down against the soil.



per, chromium, or dinitrophenol leave it more or less colored by the predominating colored components. This color is helpful in identifying treated wood and in indicating the depth of penetration. In most of the lumber in a building, the color is unimportant, and it can be hidden by paint, if the wood is properly dry. When the wood is to receive a natural finish, however, the color will have to be taken into consideration.

Water-borne preservatives impart no odor to the wood, which makes them especially suitable for food storage structures or other buildings where odor would be objectionable. They are also nonvolatile and do not vaporize from the wood into the air, to contaminate nearby materials. All preservative chemicals, like most household chemicals, would be poisonous if ingested in sufficient quantity by humans or animals, but the wood treated with them is not dangerous to occupants of buildings, to those who handle the treated wood in constructing the buildings or who come into contact with it later. In the machining of treated wood, however, a good dust-collecting system is required, so that workmen will not breathe contaminated dust.

The practicability and usefulness of the water-borne preservatives is evidenced by the fact that some 6 million lb of them were used by the commercial wood-preserving industry in 1952, presumably these were employed mostly in buildings. If wood is well treated with an adequate quantity of a good water-borne preservative, and if it is not cut into after treatment so that the untreated interior is exposed, it should resist decay and insects for hundreds of years — unless it is exposed to wet conditions. Even when the service conditions are so wet that the preservative is gradually leached from the wood, many years of life can be expected, particularly from the growing number of newer preservatives which are formulated to resist leaching.

Zinc chloride solution was for many years the chief water-borne preservative in commercial use. It was a useful preservative and still is but it has been almost entirely replaced in recent years by preservatives containing no zinc or in which other compounds are added to the zinc salt. The addition of chromium salts, for example, provides what is known as chromated zinc chloride and the further addition of copper salts gives copperized chromated zinc chloride. Other good water-borne preservatives, that are sold under proprietary names, contain various combinations of copper, chromium, arsenic, zinc, and other ingredients.

There is practically no limit to the number of usable formulations that could be developed, but a considerable

TABLE 2. Treatments for Various Applications

Wood products and use conditions	Preferred preservatives	Minimum retentions	Applicable treating conditions and specifications*
Window sash, window frames, exterior doors, finish lumber, for use in buildings of ordinary occupancy and protected by paint or other finish	Type A2 (Usually a 5 per cent solution of chlorinated phenols with water repellent added)	No minimum retention specified	3-minute immersion or equivalent vacuum treatment. Both preservative and method of treatment to meet the standards of the National Woodwork Manufacturers' Association
Sills, floor joists and framing, and other lumber for dwellings where conditions will favor decay and insect attack but wood is not in contact with the ground; nailing strips and subfloors over concrete floors in ground contact	Type A1	0.30 to 1.0 lb dry chemical per cu ft according to specific preservative used	Pressure treatment according to A.W.P.A. standard C2 or Federal Specification TT-W-571
	Type A2	6 lb of solution per cu ft	Pressure treatment according to Federal Specification TT-W-571
All sash, frames, lumber, and plywood in buildings of wet occupancy or where high humidity will prevail; building lumber in contact with the ground or wet surfaces	Type A1	0.45 to 1.50 lb dry chemical per cu ft according to specific preservative used	Pressure treatment according to A.W.P.A. standard C2 or Federal Specification TT-W-571
	Type A2	10 lb of solution per cu ft	Pressure treatment according to Federal Specification TT-W-571
Outdoor structural material in ground or fresh water contact where cleanness and paintability are not required	Type B1	6 to 12 lb per cu ft according to species, size, and use conditions	Pressure treatment according to A.W.P.A. standard C2 or Federal Specification TT-W-571
	Type B2	10 lb of solution per cu ft	Pressure treatment according to Federal Specification TT-W-571

** Although hot-and-cold bath treatment is not mentioned, it will give acceptable protection if and when the retentions and penetrations specified for pressure treatment are obtained.*

amount of costly experimental work, observation, and commercial experience is required with any new formula in order to demonstrate its practicality, dependability, and economy.

Table 1 shows the water-borne preservatives that are now covered by A.W.P.A. specifications. The detailed formulas for these preservatives are given in the specifications of the Association. All of these salts will give good protection when properly used. In general, individual wood-preserving plants are prepared to treat with only one or two of these preservatives, and for this reason the available salts vary from plant to plant.

Toxic Chemicals in Volatile Oils

The Type A preservatives applied in oil solution theoretically could consist of any acceptable toxic chemical dissolved in a volatile solvent which would subsequently evaporate, leaving the toxic chemical in the wood. Actually, they consist mainly of pentachlorophenol and other chlorinated phenols dissolved in a volatile petroleum oil, such as Stoddard solvent. Other solvents and toxicants could be used, but thus far they are at a general disadvantage in respect to cost, color, odor, permanence, or some other characteristic when compared with volatile petroleum solvent solutions of pentachlorophenol. Nevertheless, solutions of copper naphthenate and of phenyl mercury oleate find some use, and eventually other toxic organic compounds may prove useful and acceptable.

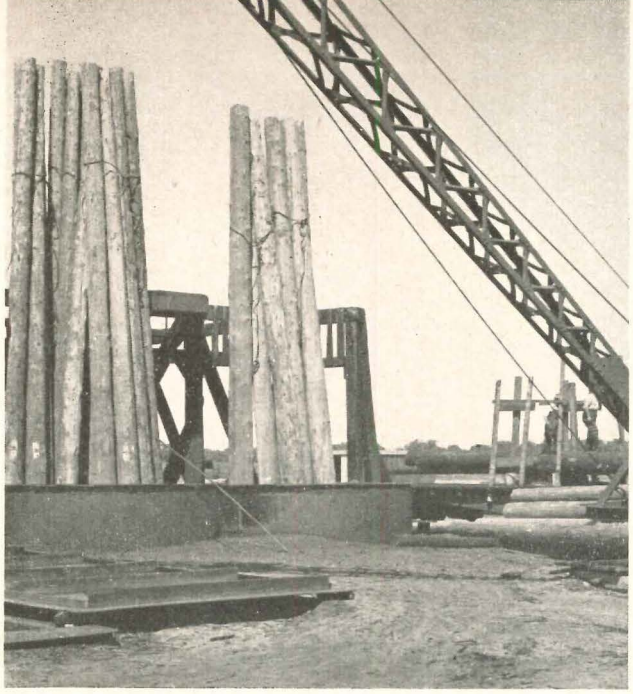
Pentachlorophenol solutions of Type A usually contain 5 per cent of chlorinated phenols, of which at least 3 per cent must be pentachlorophenol. They may also contain certain other additives to prevent the crystallization or "blooming" of the pentachlorophenol on the surface of the wood and, frequently, to give the treated wood some degree of water repellence.

One such preservative in wide use contains 3 per cent pentachlorophenol, 1½ per cent tetrachlorophenol, and ½ per cent chloro-2-phenylphenol, with or without the addition of water repellent, as desired. Pentachlorophenol is a crystalline organic chemical with moderate odor, low volatility, and low solubility in water. The oil solution of the pentachlorophenol does not cause swelling of the wood treated with it, and there is no shrinkage or swelling after treatment, except that caused by changes in moisture content of the wood.

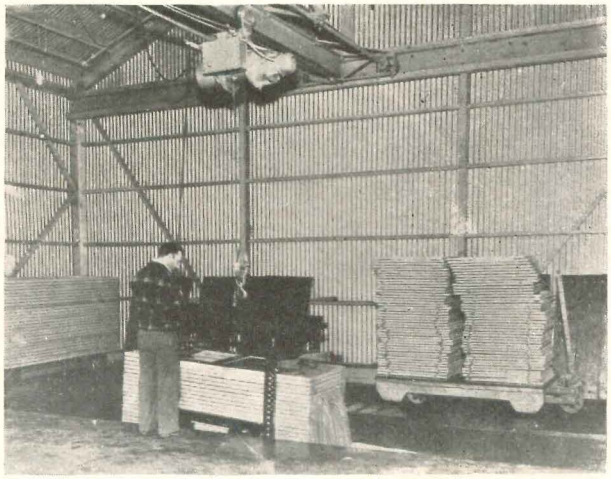
The presence of the water repellent in the solution makes the treated wood less subject to changing moisture conditions and consequent changes in dimensions, but it does not actually moisture-proof the wood or make it immune to dimension changes. The moisture repellent also has a favorable influence upon the preservative effectiveness of the solution.

The pentachlorophenol solution is highly flammable, because of the nature of the solvent used, and the freshly treated wood will ignite and burn readily. After the solvent has evaporated, however, the treated wood has substantially the same fire properties as before treatment.

Pentachlorophenol is used in both Type A and Type B preservatives, the difference and the field of usefulness depending upon the character of the solvent used. In treating poles, posts,



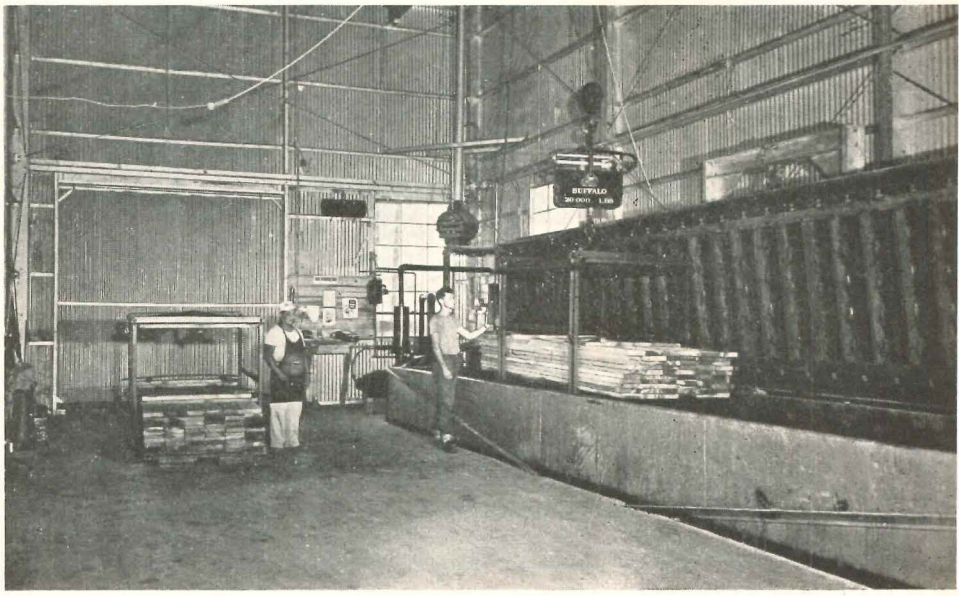
1. HOT AND COLD BATH



Courtesy Pacific Mfg. Co

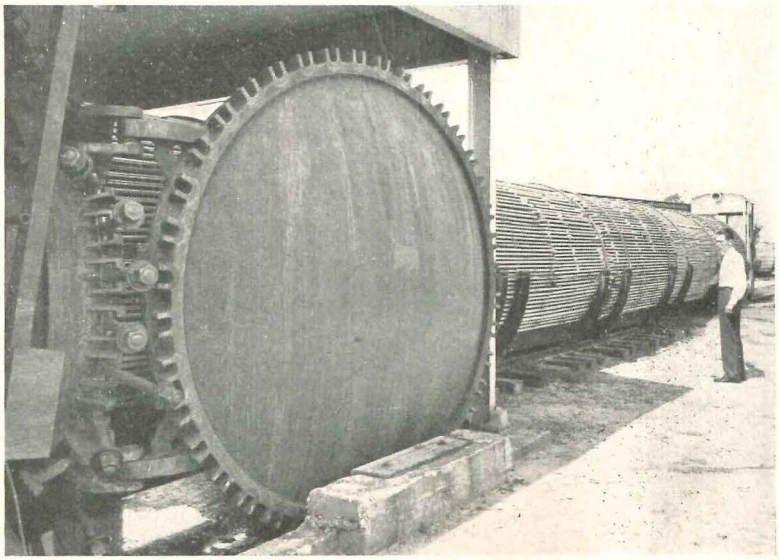
2. THREE-MINUTE IMMERSION

1. cedar poles are dipped first in hot and then a cold bath of Type B preservative oil. 2. millwork being withdrawn after a 3-min immersion in pentachlorophenol solution. 3. large tank has a tight-closing lid for treating millwork with pentachlorophenol by the vacuum method. 4. a charge of lumber is being inserted in this tank for pressure treatment with a water-borne preservative



3. VACUUM

Courtesy Protection Products Mfg. Co.



Courtesy American Lumber & Treating Co.

4. PRESSURE

and rough construction lumber, for example, Type B preservatives are most often employed, with a nonvolatile fuel oil employed as the solvent. Here paintability and cleanness are usually less important than long life under severe conditions. In buildings, however, where cleanness and paintability are paramount and the service conditions are less severe than outdoors, the Type A preservatives are appropriate.

Over 4 million lb of "penta" were used in Type B preservatives in 1952. Clean, Type A "penta" solutions find extensive use in the millwork industry for the treatment of window sash by three-minute immersion or by equivalent vacuum methods. The amount so used is undoubtedly large, but statistics are not available.

Type A copper naphthenate or penta solutions are sometimes applied by pressure methods, which provide more complete control of retention and penetration. Such light treatments would not be sufficient for wood used in contact with the ground or under other severe conditions, but they are giving

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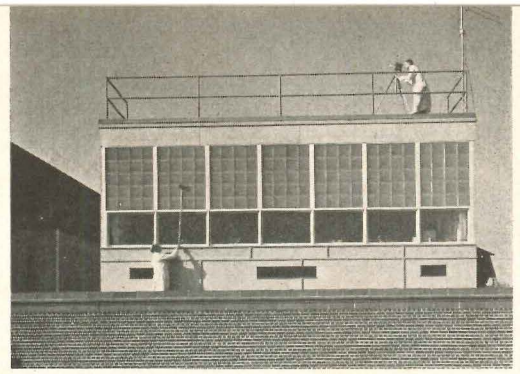
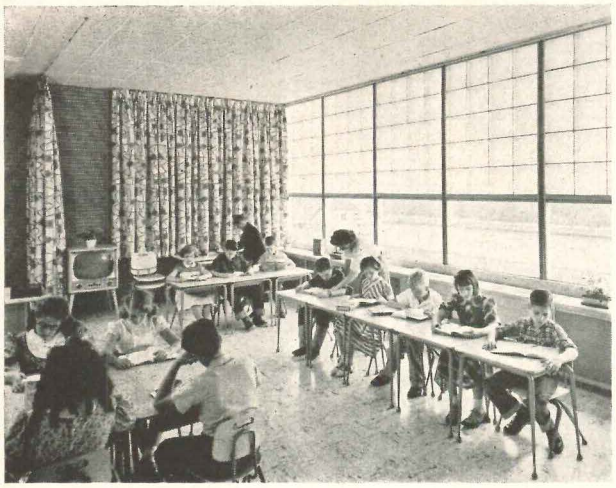
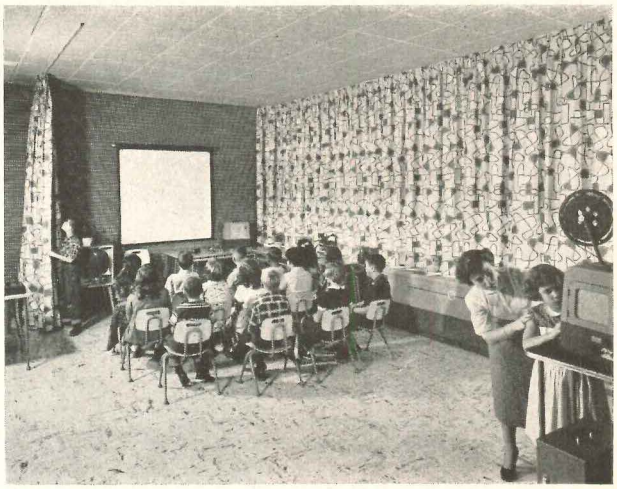
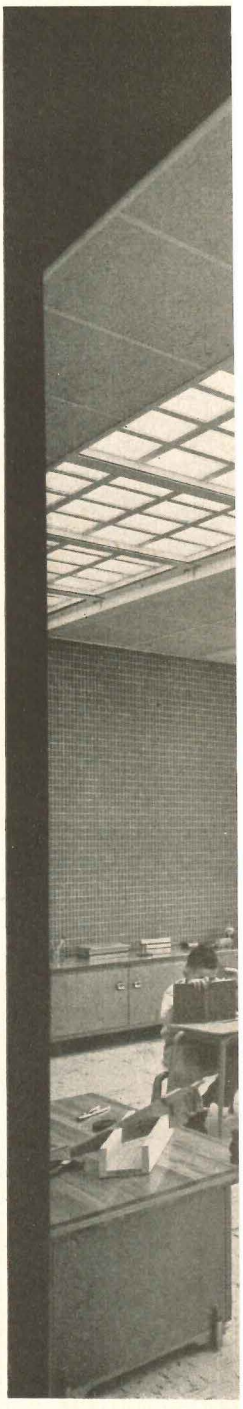


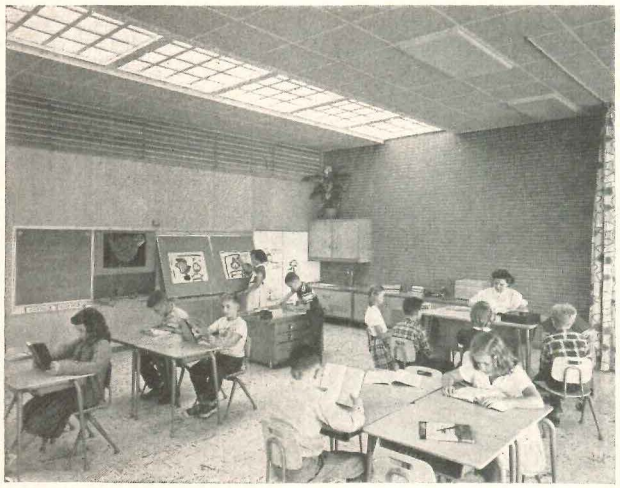
NEW DAYLIGHTING SYSTEM BRINGS COLOR,

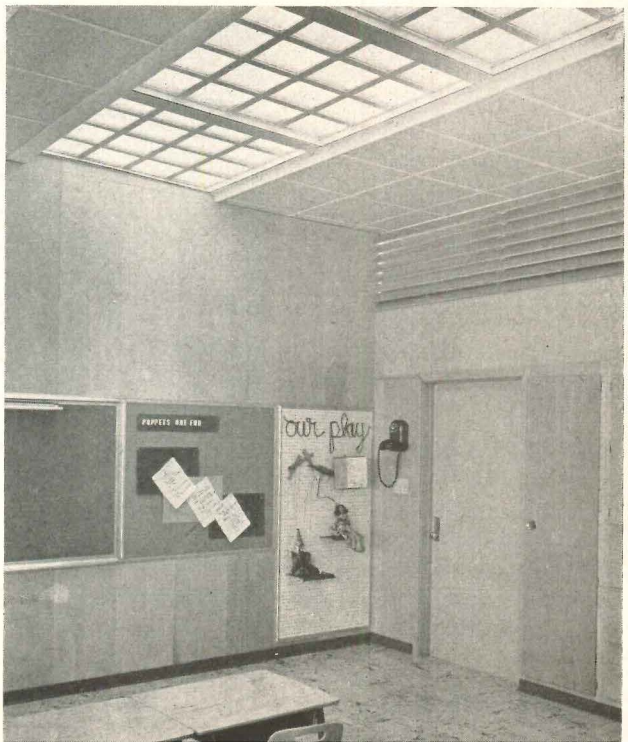




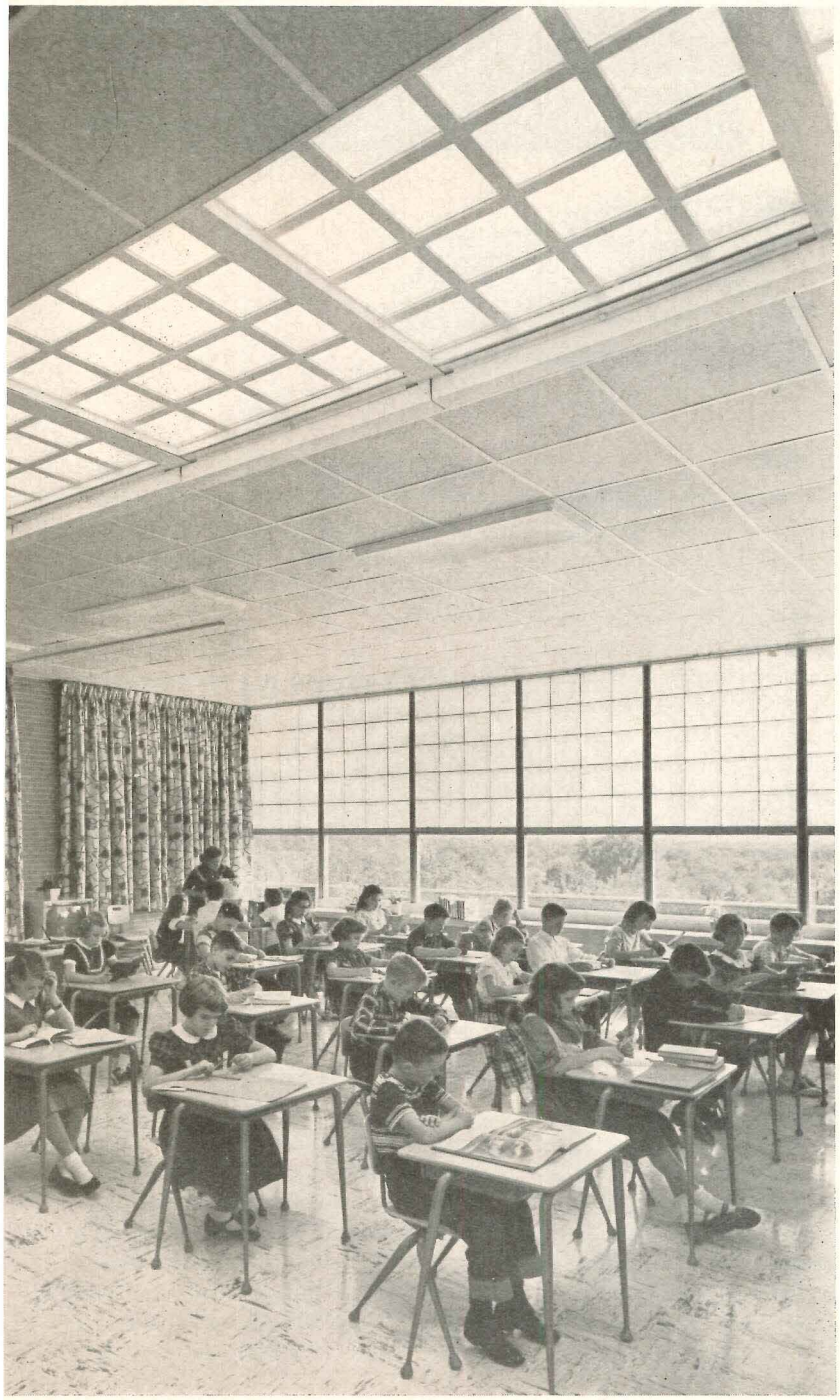


Experimental classroom in operation: Top of page, exterior of structure showing south wall; Above, left and right, audio-visual section as it is used for ordinary activities and for television and movie projection. Note how drape retracts to east wall, secondary room-divider drape; Right, overall view of room, facing south-east. Note skylight blocks, acoustical tile ceiling and framing. Window mullions are painted bright colors; Below, left, view toward north-east corner of room with easel boards, glass painting board and sinks; Below, right, northwest corner of room, showing entrance, display board





FLEXIBILITY IN CLASSROOM DESIGN



AN impressive set of ideas and potentialities for design of schoolrooms has achieved concrete application recently in an experimental classroom developed at the University of Michigan's Daylighting Laboratory. Capping 12 years of research directed by Dr. Robert A. Boyd under the sponsorship of the Kimble Glass Co., the classroom scheme has taken a giant step toward a long-sought goal of American educators — the breaking down of the institutional character of the classroom and the substitution for it of a more homelike atmosphere for young students.

At the heart of the scheme is a new system of daylighting which extends natural light into the deepest corners of the room and obviates the necessity for employing light-colored walls, white ceilings, and furnishings with high reflective values. In place of these conventional elements in classroom planning, the new scheme uses warm wood paneling, colorful drapes, colored mosaic tile, and other similar materials. In addition, the even distribution of natural light permits greater flexibility in planning for varied activities, since it is no longer necessary to confine close detail work to areas nearest windows. It is also easier with the new system to plan for multiple simultaneous activities, including audio-visual techniques.

The daylighting system which permits all this consists of a conventional south wall installation of light-directing glass block and clear vision strip, used in combination with ribbon panels of Kimble's prismatic "Toplite" blocks, installed in the ceiling, parallel to the main fenestration and 5 ft in from the opposite wall. The "Toplite" blocks (reported on in detail in ARCHITECTURAL RECORD, July, 1953, pp 187, 198, 202) are hollow glass units with a prismatic design which admits light but reflects heat and glare, the bugaboos of many previous skylight systems. These blocks are set in prefabricated aluminum grids for simplified installation. They are designed to provide optimum daylighting throughout the year, and to average

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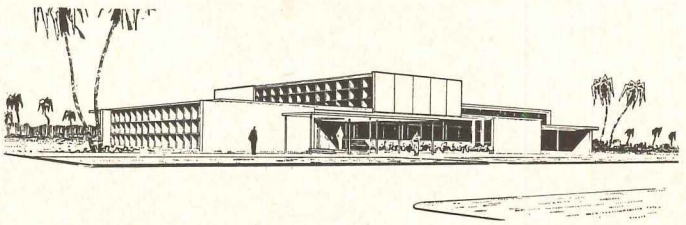
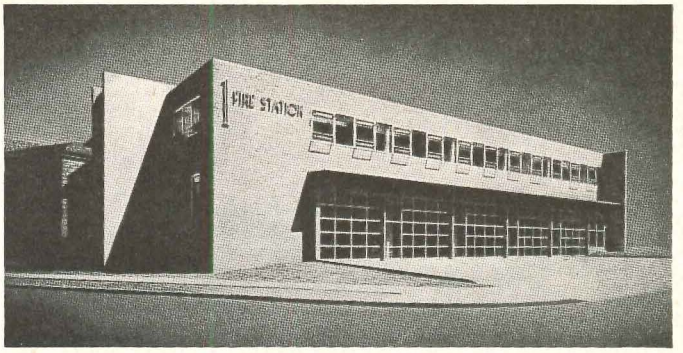
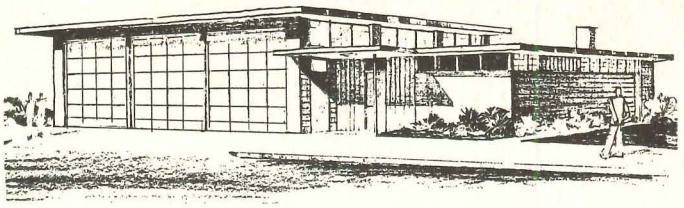


FIRE STATION DESIGN GUIDE

Three new firehouses shown in book: Above, Sinton, Texas Municipal Building and Fire Station, E. Dexter Harmon, Architect; Right, Toledo, Ohio Fire Headquarters, Bellman, Gillett & Richards, Architects; Below, Marysville, Wash. Fire Station, Harold W. Hall, Architect





• *Fire Station Design.* Volume 4 of biennial publication is the largest in the series of reference books for chiefs, city officials, architects, architectural students and others interested in housing facilities for the fire service. The book depicts plans and perspective drawings of about 70 of the newest stations in the United States and Canada, with editorials by technicians, architects and the National Board of Fire Underwriters. It will be sent gratis to all who request it. 60 pp., illus. *Circul-Air Corp., 575 E. Milwaukee Ave., Detroit 2, Mich.*

AIR CONDITIONING

Heating and Cooling Your Home. Booklet discusses the principles of blended-air heating and blended-air conditioning, pointing up the many economies which may be realized by the home owner when installing summer cooling. Diagrammatic sketches illustrate how the Blend-Air system works, and also how it looks in the home. Answers to questions which have arisen on heating and cooling are included. 22 pp., illus. Coleman Co., Inc., Wichita, Kan.

FLOOR REPAIR

Floors. . . . Booklet describes importance of good floors in industrial, institutional and public buildings. The result of many years of research in flooring problems, it explains differences between floor requirements for various industries. It lists the manufacturer's floor resurfacing and repair products, describes outstanding qualities of each material, and recommends the uses to which each should be applied. It also contains a sample of a floor analysis form which assists maintenance superintendents in determining their floor requirements. Methods of application of each product are also described. 20 pp., illus. *The Monroe Co., Inc., 10703 Quebec Ave., Cleveland 6, Ohio.**

PLASTICS

Extrusion Injection Fabrication. Bulletin No. 150. Brochure includes information on the following: extrusion injection fabrication; company facilities; plastic tubing for all purposes; extruded gaskets for metal buildings, refrigerators, appliances, storm windows, etc.; plastic shapes for profile extrusions; extrusions for belting and trims, and flat strips for stamped products; injection molding and fabrication for pipe fittings, vacuum wands, and custom fabrications; and pipe and fittings. Tables and definitions and easy-to-read specifications on hard-to-understand plastic terms and applications are included. 8 pp., illus. *Yardley Plastics Co., 142 Parsons Ave., Columbus 15, Ohio.*

RUBBER FLOOR MAINTENANCE

Approved Maintenance Methods for Rubber Floors. Booklet gives information on approved methods of maintaining rubber floors, and contains detailed instructions on how to clean and wax rubber floors. A list of cleaners and waxes, tested and found to meet specifications set up by the Association, are included. 10 pp., illus. Rubber Flooring Div., *The Rubber Mfgrs. Assoc., Inc., 444 Madison Ave., New York 22, N.Y.**

PICTURE WINDOWS

Beautiful Picture Windows. Booklet contains sketches of 82 picture windows shown in different room settings, illustrating how aluminum framed picture windows can enhance rooms by affording maximum light and ventilation. Some of the standard shapes available are also given. 31 pp., illus. 25 cents. *Fleet of America, Inc., 470 Dun Bldg., Buffalo 2, N.Y.**

(Continued on page 250)

**Other product information in Sweet's Architectural file, 1953*

ANEMOSTAT®

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Leadership means integrity, quality, superiority and progress. To maintain leadership you must protect your good name.

When Anemostat Air Diffusers are in sight the system is right. This was true yesterday, is true today and will be true tomorrow.

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DRAFTLESS *Aspirating* AIR DIFFUSERS

ANEMOSTAT CORPORATION OF AMERICA

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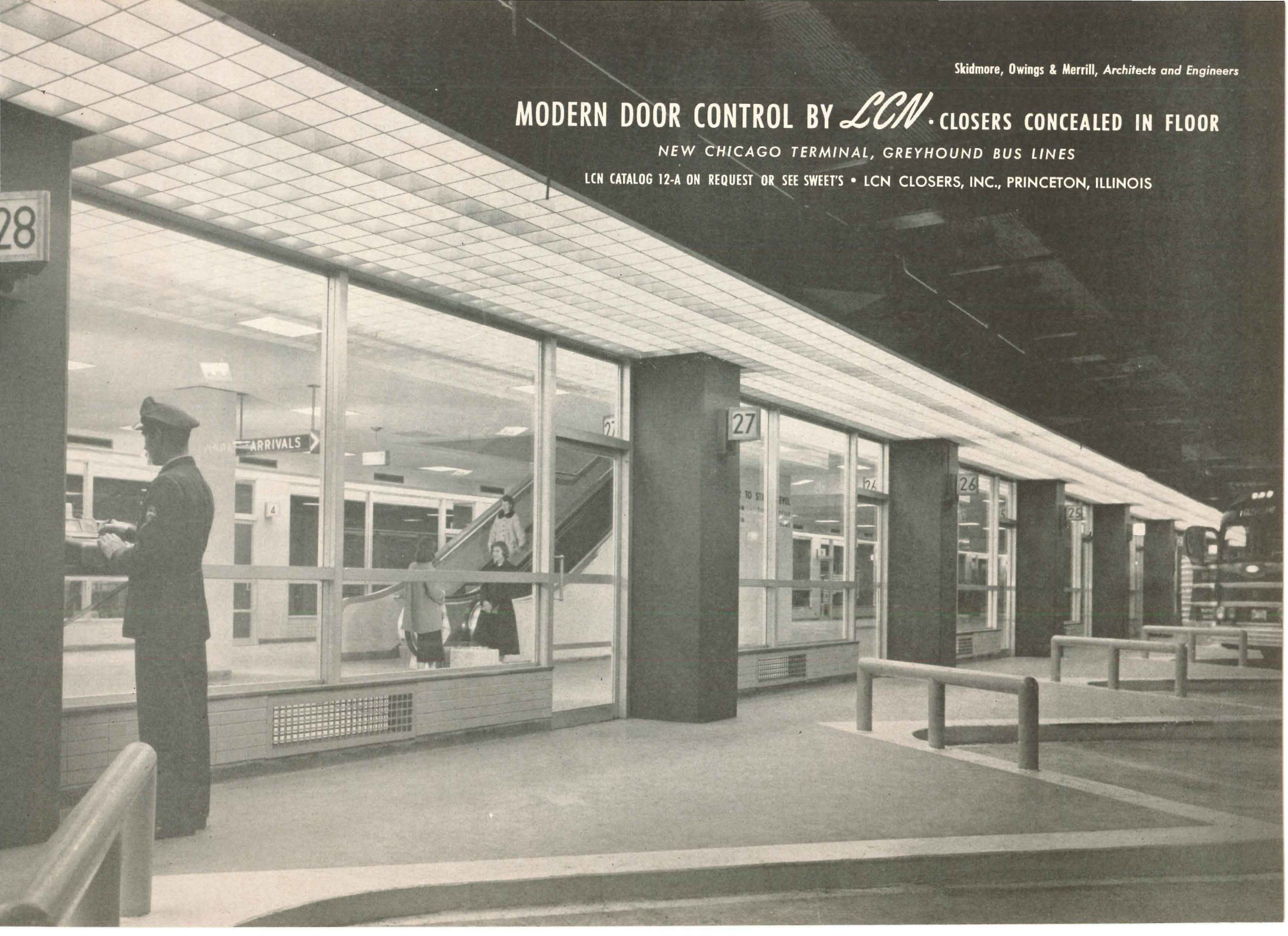
"No Air Conditioning System Is Better Than Its Air Distribution"

AC1316



Skidmore, Owings & Merrill, *Architects and Engineers*

MODERN DOOR CONTROL BY *LCN* · CLOSERS CONCEALED IN FLOOR

NEW CHICAGO TERMINAL, GREYHOUND BUS LINES

LCN CATALOG 12-A ON REQUEST OR SEE SWEET'S • LCN CLOSERS, INC., PRINCETON, ILLINOIS

GYPSUM PLASTER IN RADIANT HEATING SYSTEMS: 3

Presented Through The Courtesy of The Gypsum Association

"Check Points and Job Practices"

1. The construction should be inspected closely to make certain that the weight of the heating elements is supported by permanent attachment to the structural framing members.
2. The circulation elements of the system should be checked for leaks and operating efficiency before plastering.
3. Grounds for plaster should be thoroughly checked to insure a minimum plaster coverage of ⅜ in. beneath the heating elements.
4. Care should be exercised that the plaster is mixed and applied according to ASA specifications for the type of plaster specified.
5. The radiant heating system should never be used to heat the building during plastering operations. If the plastering is done in cold weather, it is recommended that heat be furnished by temporary, portable heat circulators, with ventilation. Care must be taken to avoid a concentration of heat on the ceiling, which may result from use of salamanders. The building should be uniformly heated in a range of 55 to 70 F.
6. When the heating system is put in operation the temperature rise should be gradual. It is recommended that the increase in temperature does not exceed 5 degrees F in 24 hours until the maximum temperature within the heating element has been reached.
7. Decoration, including sizing or sealing, should not be started until the heating system has operated at maximum temperature for at least 24 hours. Decorating of the gypsum materials should not be performed while the heating system is in operation.
8. It is also recommended where textures or tinted finishing plasters or decoration begins. The decoration should be allowed to set and dry thoroughly before resumption of heating operations through the embedded elements.
9. Be certain the job specifications are being followed. For example, the substitution of one aggregate for another would change the rate of heat flow, which may give results that would make the entire installation unsatisfactory.

DESIGN DATA GYPSUM MATERIALS.

The following Conductivities (k) Conductances (c) and Resistances are recommended for use in calculating Heat Transmission Coefficients (U)

HEAT TRANSMISSION CHARACTERISTICS

	C		R	
	k	c	1/k	1/c
Air Spaces				
* Bounded by ordinary materials (Horizontal or Vertical)		1.10		0.91
* One air space faced with aluminum foil				
Heat Flow Upward or Horizontally		0.46		2.17
Heat Flow Downward		0.15		6.51
Gypsum lath ⅜″		3.1		0.32
Gypsum lath ½″		2.82		0.35
Gypsum board ⅜″		3.1		0.32
Gypsum board ½″		2.82		0.35
Gypsum lath ⅜″ with Plaster ½″		2.4		0.42
Metal Lath and Plaster ¾″		4.40		0.23
Gypsum Concrete 87½% Gypsum: 12½% Wood chips	1.66		0.60	
Gypsum Tile 3″		0.61		1.64
Gypsum Tile 4″		0.46		2.18
Gypsum Sheathing ½″		2.82		0.35
Expanded Vermiculite	0.48		2.08	
Perlite	0.48		2.08	
Sand (Ottawa)	10.0		.10	
Plastering Mixes				
Gypsum sand				
100:200 lbs	4.32 to 5.55		0.18 to 0.23	
100:300 lbs	4.24 to 5.77		0.17 to 0.24	
Gypsum Perlite				
100 lb: 2 cu. ft.	1.52 to 1.68		0.60 to 0.65	
100 lb: 3 cu. ft.	1.23 to 1.35		0.74 to 0.81	
Gypsum Vermiculite				
100 lb: 2 cu. ft.	1.78 to 1.84		0.54 to 0.56	
100 lb: 3 cu. ft.	1.44 to 1.63		0.61 to 0.69	

* — ¾″ or more in width

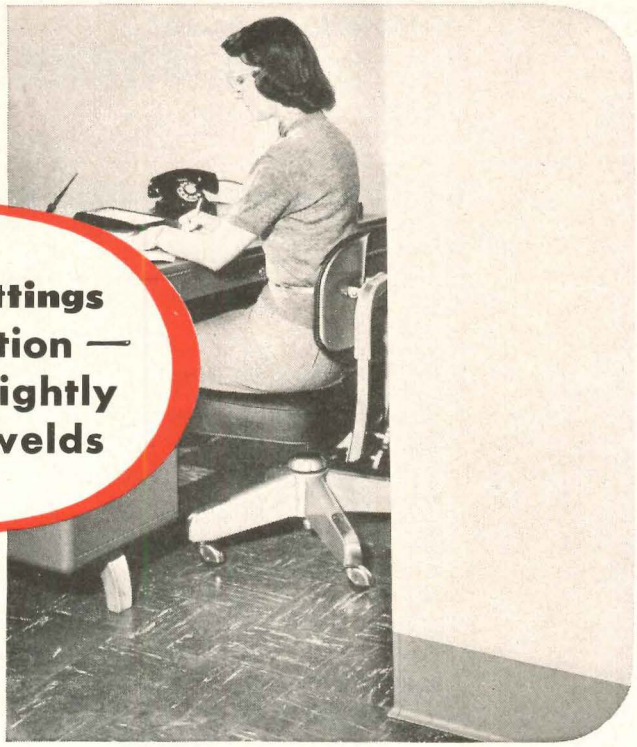
THERMAL EXPANSION COEFFICIENTS

Type of Plaster	Inches per Inch per Degree Fahrenheit
Gypsum Sanded Plaster Gypsum Vermiculite Plaster Gypsum Perlite Plaster	0.000005 to 0.000009
Gypsum Wood Fiber Plaster	0.000009 to 0.000015
Specific Heat of Gypsum ($C_aSO_4.2H_2O$)	0.26

DENSITIES

Plaster Mix Set and Dry *(1 part gypsum: 2 parts aggregate to 1 part gypsum to three parts aggregate)*	
Gypsum—Sanded Plaster	105 to 115 pounds per cu. ft.
Gypsum—Vermiculite Plaster Gypsum—Perlite Plaster	40 to 50 pounds per cu. ft.

Friction-Fit Fittings speed installation — eliminate unsightly screws and welds



This is MILCOR* 605 Metal Base

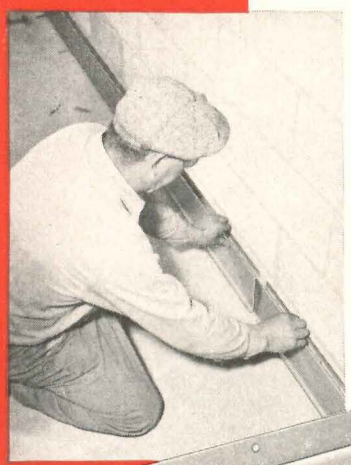
Tap It Together . . . It Lasts a Lifetime

Just tap it together — that's all there is to it! Thanks to friction-fit fittings, no punching or screws are needed. Installation is faster and you get a better looking job as well as a substantial savings in construction time. The illustration, at the lower right, shows how easy it is to use.

Sanitary, fire-safe, and durable, Milcor No. 605 Metal Base is ideal for use with asphalt, rubber tile, or linoleum floors. It has a prime coat for easy finishing to match or contrast with wall color. Moreover, it does not pull away from the wall — does not crack or splinter. That's why you find Milcor No. 605 Metal Base in your most modern buildings, such as hospitals, schools, hotels, apartments, office and industrial buildings.

No. 605 is representative of a complete line of Metal Base available for all types of installation. If you need further information, just write us and we'll take care of your request immediately.

Sections are neatly joined by use of a flat splice or aligning plate. No punching is required and there are no exposed screws.



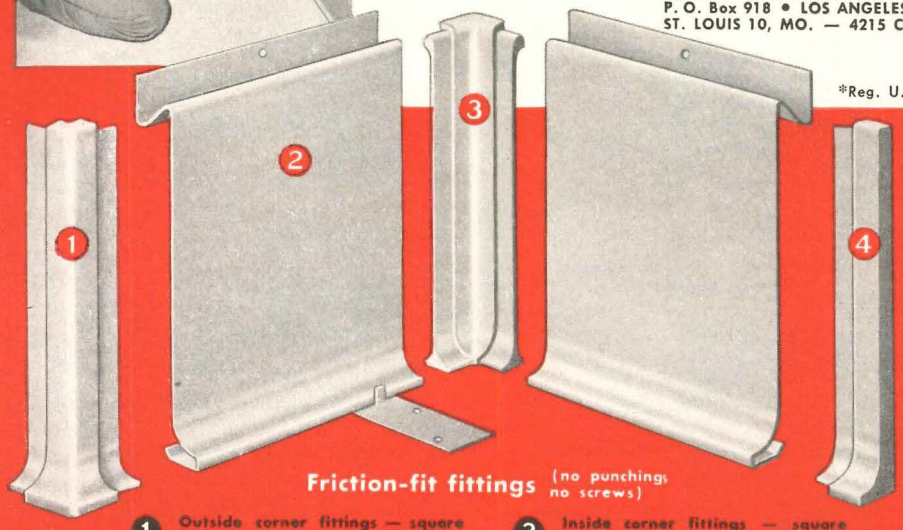
<INLAND> STEEL PRODUCTS COMPANY

4035 WEST BURNHAM STREET • MILWAUKEE 1, WISCONSIN

BALTIMORE 5, MD.—5300 Pulaski Highway • BUFFALO 11, N. Y.—64 Rapin St. • CHICAGO 9, ILL.—4301 S. Western Avenue Blvd. • CINCINNATI 25, OHIO—3240 Spring Grove Ave. • CLEVELAND 14, OHIO — 1541 E. 38th St. • DETROIT 2, MICH. — 690 Amsterdam Ave. • KANSAS CITY 41, MO. — P. O. Box 918 • LOS ANGELES 58, CALIF. — 4807 E. 49th St. • NEW YORK 17, N. Y. — 230 Park Ave. ST. LOUIS 10, MO. — 4215 Clayton Ave

*Reg. U. S. Pat. Off.

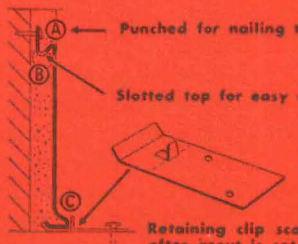
M-126



Friction-fit fittings (no punching, no screws)

1. Outside corner fittings — square or ¾" radius, cast.
2. No. 605 Metal Base Section—4" and 6" heights in standard 10-ft. lengths.
3. Inside corner fittings — square or ¾" radius, cast.
4. End-stop — left and right hand, cast.

Flush-type, plastered-in design



SIMPLIFIED WALL FRAMING METHODS—1

Presented through the cooperation of the N.A.H.B. Research Institute

The following pages are extracted from "Trade Secrets Report No. 1" prepared for the National Association of Home Builders Research Institute under the direction of Leonard G. Haeger, with Lee Frankl Consultant. The Report seeks to present basic tools of rationalization which can be used by members of the building industry to reduce costs for the framing of exterior walls in small houses. It was the opinion of the editors that these findings would be of interest to architects doing work in that field. The series will be continued in January.

Basic Principles

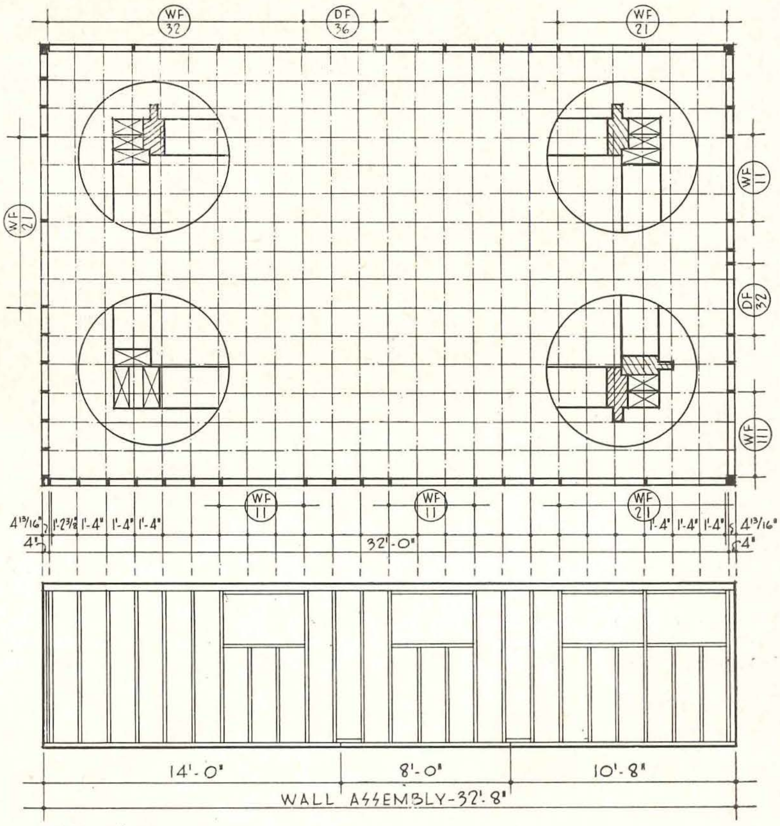
1. *Pre-cutting* all framing members.
2. *Pre-assembly* of window and door units and of framing sub-assemblies.
3. *Use of standard sizes* of materials to minimize cutting and fitting. These standard sizes are simple to apply when wall dimensions are "modular."
4. *Assembly of exterior walls*—jigs are the important assembly tools, economically useful for a single wall section, as well as for several projects. Jigged wall sections may include only framing members or any or all of the following: sub-assemblies of framing members; window frames; window units; fixed glass; louvers; door frame; door unit; sheathing; exterior finish.

Problems

Building costs are not based on materials, site labor costs plus overhead alone:

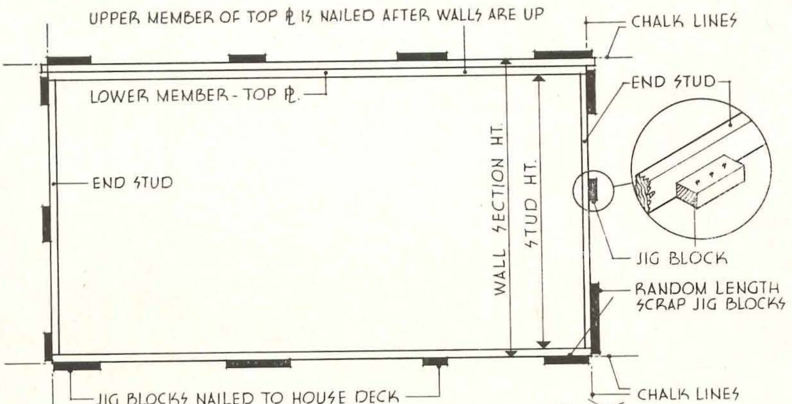
1. *Pre-cutting*—The handling of framing lumber bought by carload—from freight car—to truck—to central site—to milling operation or

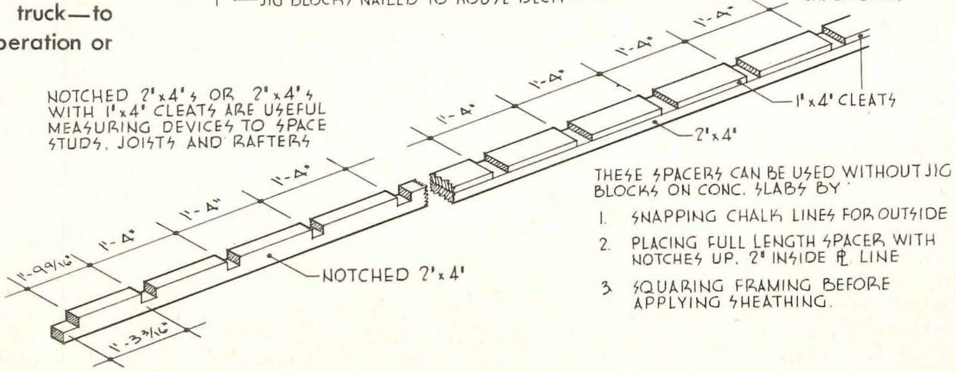
Modular Planning Reduces Time and Waste



WALL ELEVATION

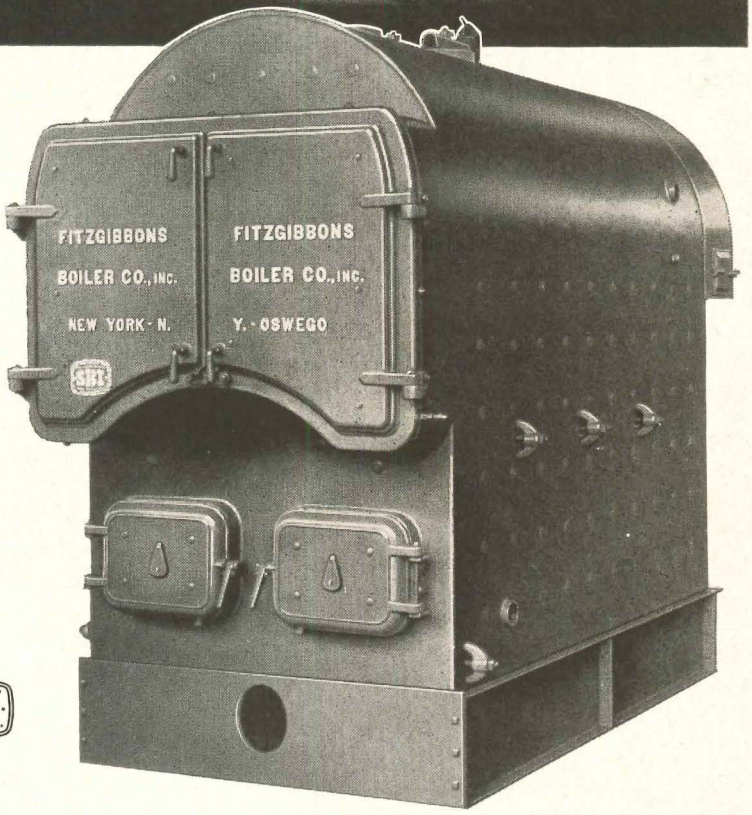
Use of Jigs Speeds Construction





FITZGIBBONS "D" TYPE STEEL BOILERS

now serving thousands of large buildings everywhere, have long passed the need for proof of their unsurpassed performance and fuel economy. Apartment owners, office building operators, management staffs of schools, churches, institutional buildings and large department stores of national fame—all acclaim it. The Fitzgibbons "D" Type boiler meets or exceeds ASME Code requirements in all details of construction, as certified by a resident Hartford inspector and is S.B.I. rated. Sixteen sizes from 3,650 to 42,500 sq. ft., steam.



SINCE 1886 MOST ECONOMICAL IN THE 1886 THE FITZGIBBONS BOILER

The "D" Type Catalog gives all facts and data. On request from the Fitzgibbons Boiler Company, Inc., 101 Park Avenue, New York 17, N. Y., Dept. AR-12.

SBI

THE FITZGIBBONS BOILER®

SIMPLIFIED WALL FRAMING METHODS—2

Presented through the cooperation of the N.A.H.B. Research Institute

individual house site—can be more costly than buying framing lumber from a local lumber yard. A few progressive lumber yard operators cut timber to exact size. Each board is charged as an even foot length with no cutting charge. Some builders limit carload buying to framing members (such as studs) cut to exact length.

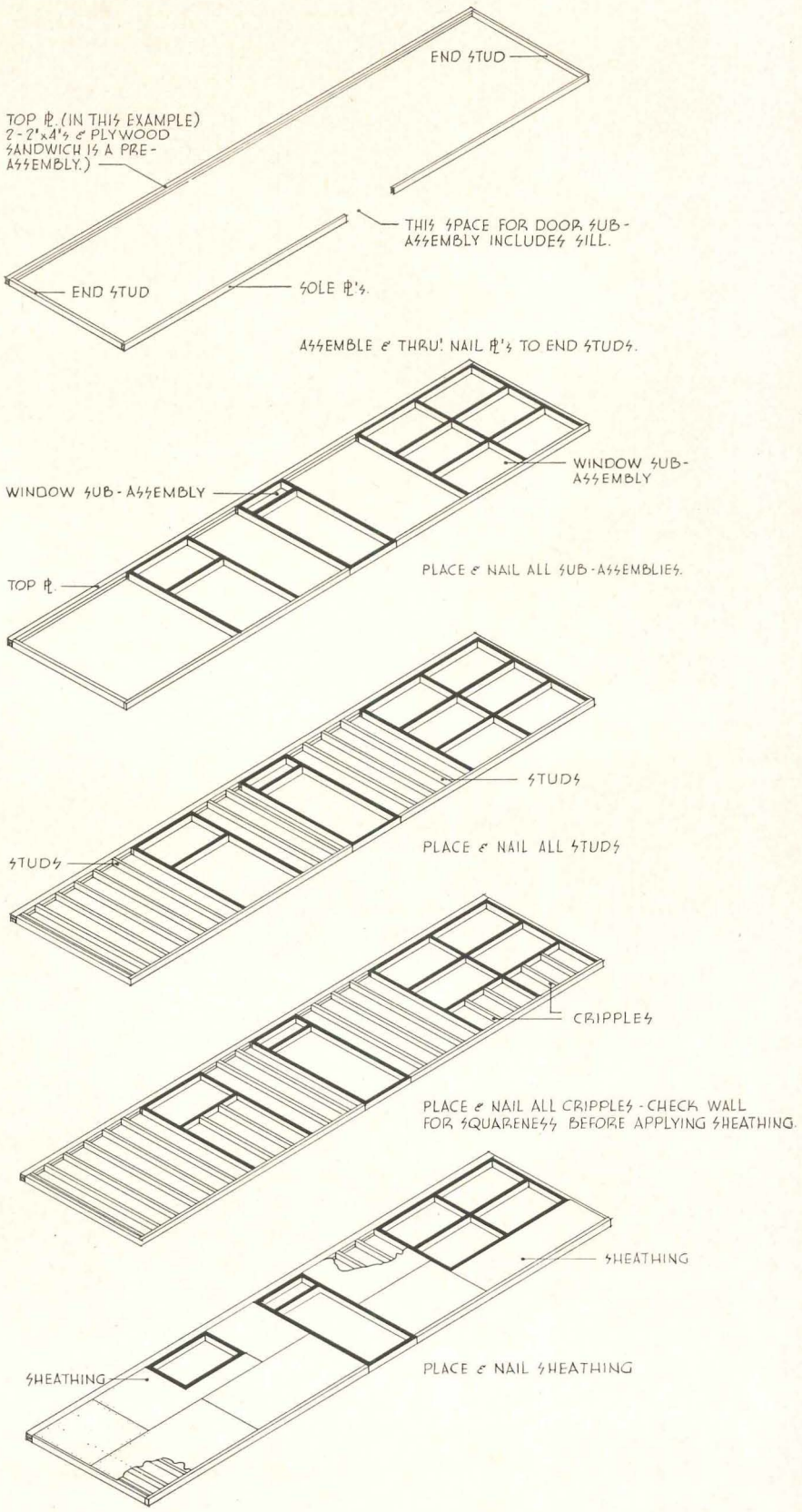
2. *Pre-assembled* window and door units may be purchased from manufacturer, . . . assembled by local mill, or parts are site assembled by the builder. Local mills will make a door unit complete with hardware, including lock. Example: A Knoxville, Tenn. mill's labor charge for 8 complete door units (the door is locked and the keys are stapled to the door frame) equals a local builder's cost for hanging one door. The same mill provides all door and window trim assemblies. Miters are glued and joined with metal splines. Labor time is 10 per cent of that required for conventional cutting and fitting.

3. *Use of standard sizes*—simplified framing systems based on standardization result in labor savings when installing sheathing and exterior and interior finish. This dimensional standardization (modular coordination) is based on 4 in. multiples. Its use in planning aids the builder to accurately pre-assemble large sections of the house quickly and economically for either single units or large developments.

4. *New methods* create new labor problems—when introducing new methods, do not overlook the hammer and saw man's skill in applying these methods to your advantage.

5. *Builders' problems* include sales as well as construction. Any method which speeds construction helps sales. If a packaged sub-assembly increases cost slightly, it may still be a good investment if its speeds construction and sales.

A Planned Order of Assembly Also Reduces Construction Time



* "YOUR WINDOW UNIT

PHONE CARMEL R-5611

CHARLES E. WALTER

BUILDING CONTRACTOR

•

R. R. 1, Carmel, Indiana

Rusco Prime Window Co.
3810 E. Sixteenth St.
Indianapolis, Indiana

April 21, 1953

Gentlemen:

This is to advise that we are now in the process of drawing Rusco Prime Windows into the plans for the next group of apartments on 14th and West Sts., known as Ransom St. Apartments, Inc.

After using Rusco Prime Windows with Metal Casings throughout the above project and also, on our Rolling Acres development in Carmel, we can say, truthfully, that your window unit is without an equal. Ease of installation, lack of field labor, elimination of many window "extras", such as painting and trimming have all added up to a lower "in the wall" cost for our company.

Inasmuch as we are required to maintain the apartment project, we, naturally, are delighted at the elimination of this expense in regards to your windows.

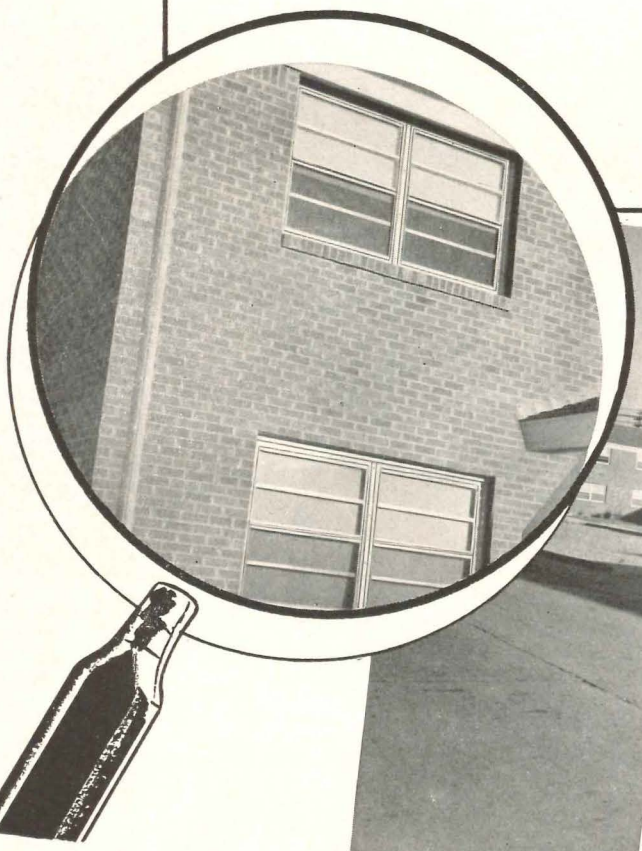
Incidentally, our response to your Fulvue unit on our Rolling Acres development has been most gratifying.

Very truly yours,

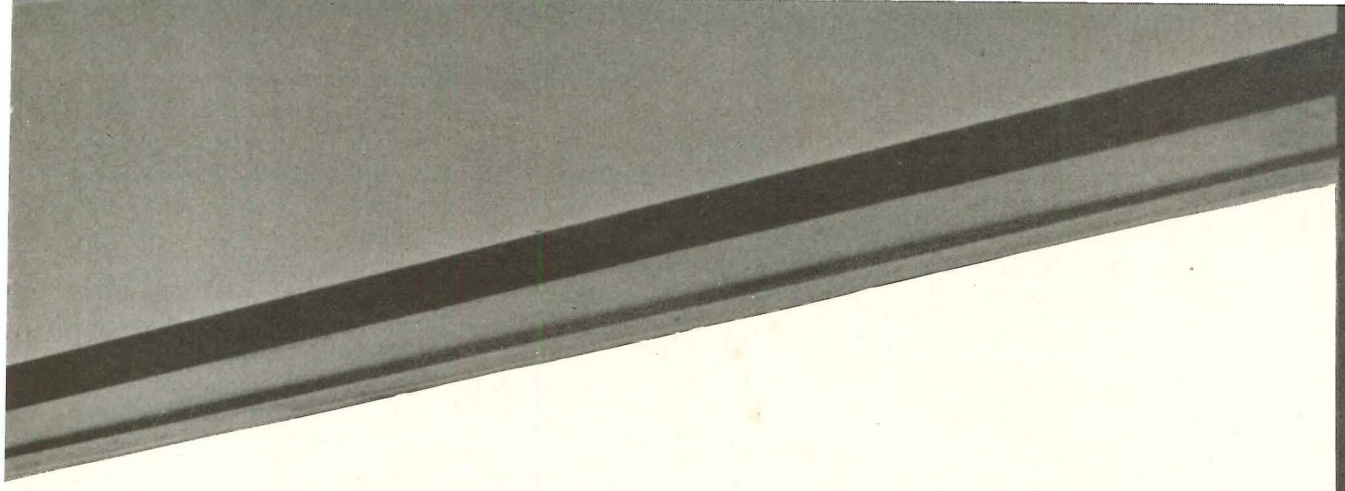
A. & W. Construction Co.

Charles E. Walter

Charles E. Walter, Pres.



RANSOM ST. APARTMENTS, INDIANAPOLIS, INDIANA is a 1,000-apartment project being built by the A & W Construction Company, and now partially completed. Photo above shows one of the completed units. At left is close-up of the Rusco Type P-22 Vertical Slide Prime Windows installed on unit. *ARCHITECT: Paul Cripe • BUILDER: A & W Construction Company*



In 1953, over 500 building product advertisers (two-thirds of all advertisers using one or more of the three leading architectural magazines) are putting Architectural Record ahead of the field by more than 1,000 pages of advertising.

However, advertising leadership is but one clue to media value. Equally important to buyers of advertising are the *reasons* for the Record's leadership in advertising volume month after month, year after year:

1. Editorial content designed 100% for architects and engineers: Architectural Record is the one magazine edited in its entirety for the architects and engineers who control 80% of today's building dollars.

2. Editorial anticipation of market activity: the Record's editorial content is *timed* and *balanced* accurately by means of *Dodge Reports of building planning activity* to be of constant maximum value to architects and engineers in terms of the work on their boards . . . and to advertisers in terms of their market opportunities.

3. Editorial breadth: The Record's editorial service takes in the full range of building design—residential and non-residential, small and large—which constitutes the practice of architects and engineers.

4. Reader preference: architects and engineers have voted Architectural Record their preferred magazine in fifty out of fifty-six readership studies (sponsored by building product manufacturers and agencies) for which results are available—and in all sixteen such studies since January 1952.

5. Dodge-documented market coverage: Dodge Reports of building activity—available exclusively to Architectural Record—document the Record's coverage of the architects and engineers responsible for over 85% of all architect-designed building—residential and non-residential, small and large.

6. Largest total architect and engineer circulation: Architectural Record serves the largest audience of architects and engineers ever assembled by a technical magazine.

7. Lowest cost: you reach the largest architect and engineer audience in Architectural Record at the lowest cost per page per thousand.

You will be *right* with the *Record* in 1954.

F.W. DODGE CORPORATION

Architectural Record

"workbook of the active architect and engineer"

119 West 40th St., New York 18, N. Y. OXford 5-3000

(Continued from page 173)

nearly double the recommended minimum of daylight on dark days, in all areas of the room.

With the development of this daylighting system and the removal of perhaps the major obstacle to less-institutionalized planning and decoration of classrooms, Dr. Boyd and his associates set about to exploit the new freedom to the fullest. With the cooperation of some two dozen interested manufacturers, they began to plan and equip their classroom along the lines they had envisioned. Their results are shown in the photographs reproduced here.

The classroom was planned as a self-contained fifth-grade schoolroom and all furnishings and equipment are designed and scaled for children of this age. The room is 29 by 29 ft, with a 10½-ft ceiling. The entire east wall is covered with 1- by 2-in. rectangular mosaic tile in a rich cocoa color. In contrast, the north and west walls are of natural finish birch plywood. One section of the north wall is covered with a panel of milk-white glass on which children can draw and paint. Another portion is occupied by surface-mounted green chalkboards which can be reversed to provide cork tackboards. The wood-paneled west wall has permanent green chalkboards and a strip of peg-board for displays. The ceiling is off-white plastic-faced acoustical tile set on T-bars. The floor is white rubber tile with mottled green veins. Desks and chairs are contour moulded and have metal tube legs set at angles to permit easy stacking. Color-splashed non-inflammable drapes mounted on tracks can be drawn to cover the entire south wall fenestration, and another drape track-mounted halfway into the room can be drawn parallel to the window drapes to provide a darkened area for audio-visual operations without disturbing other classroom activities. Artificial lights in the ceiling are controlled by a photo cell and turn on automatically when daylighting falls below minimum requirements, as on stormy days. Comfortable year-round temperatures are provided by a heating and ventilating unit beneath the window sill.

Manufacturers whose cooperation helped in the development of the classroom include in addition to Kimble Glass Co. (subsidiary Owens-Illinois Glass Co):

ARCHITECTURAL MATERIALS AND EQUIPMENT

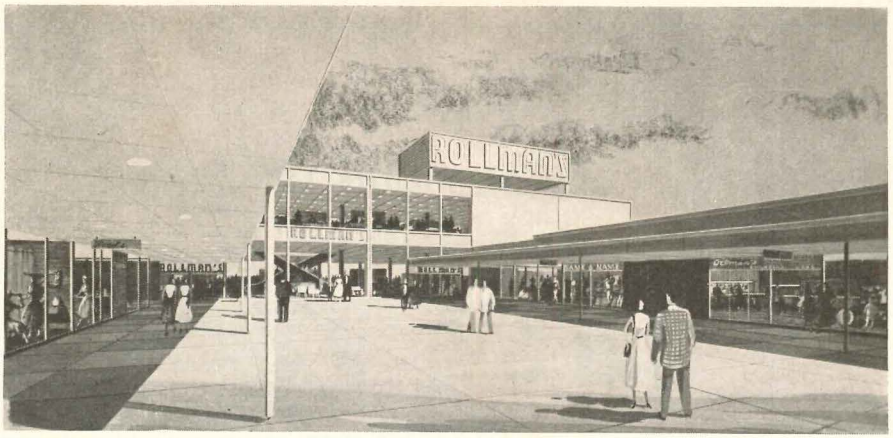
- *Adjustable Cabinets, Inc., 400 Scajquada St., Buffalo 11, N. Y.*, Wall cabinets, floor cabinets, carpenter bench, reading benches
- *Austrial Sales Co., 101 Park Ave., N. Y. C.*, Easel boards
- *Automatic Electric Sales Co., 1033 W. Van Buren St., Chicago, Ill.*, Telephone system
- *Brunswick-Balke-Collender Co., 623-633 So. Wabash Ave. Chicago 5, Ill.*, Tables, chairs, teacher's desk, students' desks, folding stage
- *Congoleum-Nairn, Inc., 195 Belgrove Dr., Kearny, N. J.*, floor covering
- *Lok Products, 5109 San Fernando Rd., West Los Angeles 39, Calif.*, Supports for ceiling tile
- *Minneapolis Honeywell Regulator Co., Director of School Activities, Minneapolis, Minn.*, Temperature Controls
- *Mosaic Tile Co., Zanesville, Ohio*, Mosaic tile
- *Herman Nelson Unit Ventilator Sales, American Air Filter Co., Inc. Louisville 8, Ky.*, Unit ventilator and cabinets

(Continued on page 218)

(*Continued from page 262*)

CINCINNATI STORE PLANS SHOPPING CENTER BRANCH

The major store in Cincinnati's projected $12 million Woodner regional shopping center will be a branch of Rollman & Sons Company, Cincinnati department store of Allied Stores Corporation. In addition to Rollman's, the center will have 54 other stores on the 41-acre site, as well as such services as a post office and a playground and nursery.



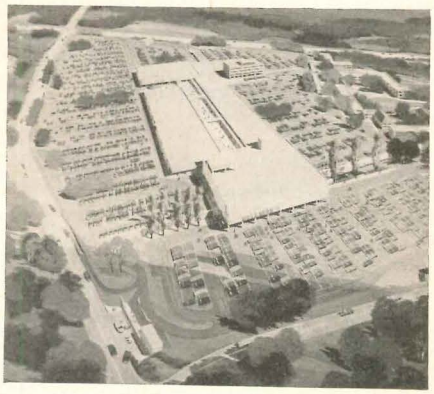
In its position at the southern end of the mall Rollman and Sons branch store will be the "main draw" in the projected Woodner shopping center, soon to be built near Cincinnati

The three-story department store will occupy a position at the south end of a mall which will run through the center of the building, and will contain 125,000 sq ft of store space, with provisions for expansion in the future. The entire shopping center building will have an area of 625,000 sq ft, and the parking area will cover 1,150,000 sq ft, space enough to handle an estimated 12,000 cars daily.

Plans for the Woodner Center were developed with the advice of the Urban Land Institute's Community Builders' Council, a group of 25 builders, architects, realtors, investors and insurance men which serves to pool information and experience in the shopping center field.

Architects for the project are the New York firm of Ketchum, Giná and Sharp.

(*More news on page 266*)

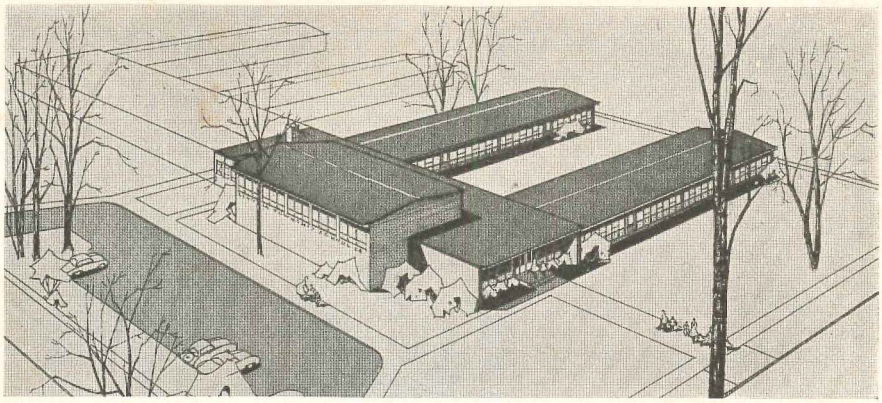


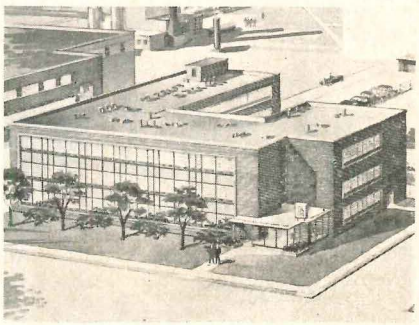
Apartment buildings on the right are part of the Swifton Village development; Reading Road, which is shown on the left, is the main thoroughfare between Dayton and Cincinnati

(*Continued from page 264*)

"CORRIDORLESS CLASSROOMS"

Perspective view of Livonia, Mich., Elementary School—the two constructed classroom wings to the right and contemplated future expansion indicated in the background. Large multi-purpose room (left) serves for sports, auditorium and cafeteria purposes; adjoining is kitchen with complete food preparation facilities. Also provided are offices, teachers' rooms, boys' and girls' locker and shower rooms, a library, a book storage room and a clinic





NEW LAB DESIGNED FOR BASIC PAINT RESEARCH

Pittsburgh Plate Glass Company has construction under way on a new building to house its basic paint research program. Hoffman and Crumpton of Pittsburgh are the architects; preliminary design was by specialists of the Pittsburgh paint division.

The three-story building will be of reinforced concrete construction with brick facing, and has been designed to harmonize with the company's adjacent paint manufacturing plant. Facilities will include a library and lecture room in addition to approximately 68,000 sq ft of laboratory space. Basement space will be utilized for housing mechanical equipment and for storage. The building will be completely air conditioned.

The laboratory will be staffed by about 60 people, many of them highly skilled technicians to be transferred from Pittsburgh's present research laboratories in Milwaukee. The technical group will be augmented by local labor.

(*More news on page 270*)