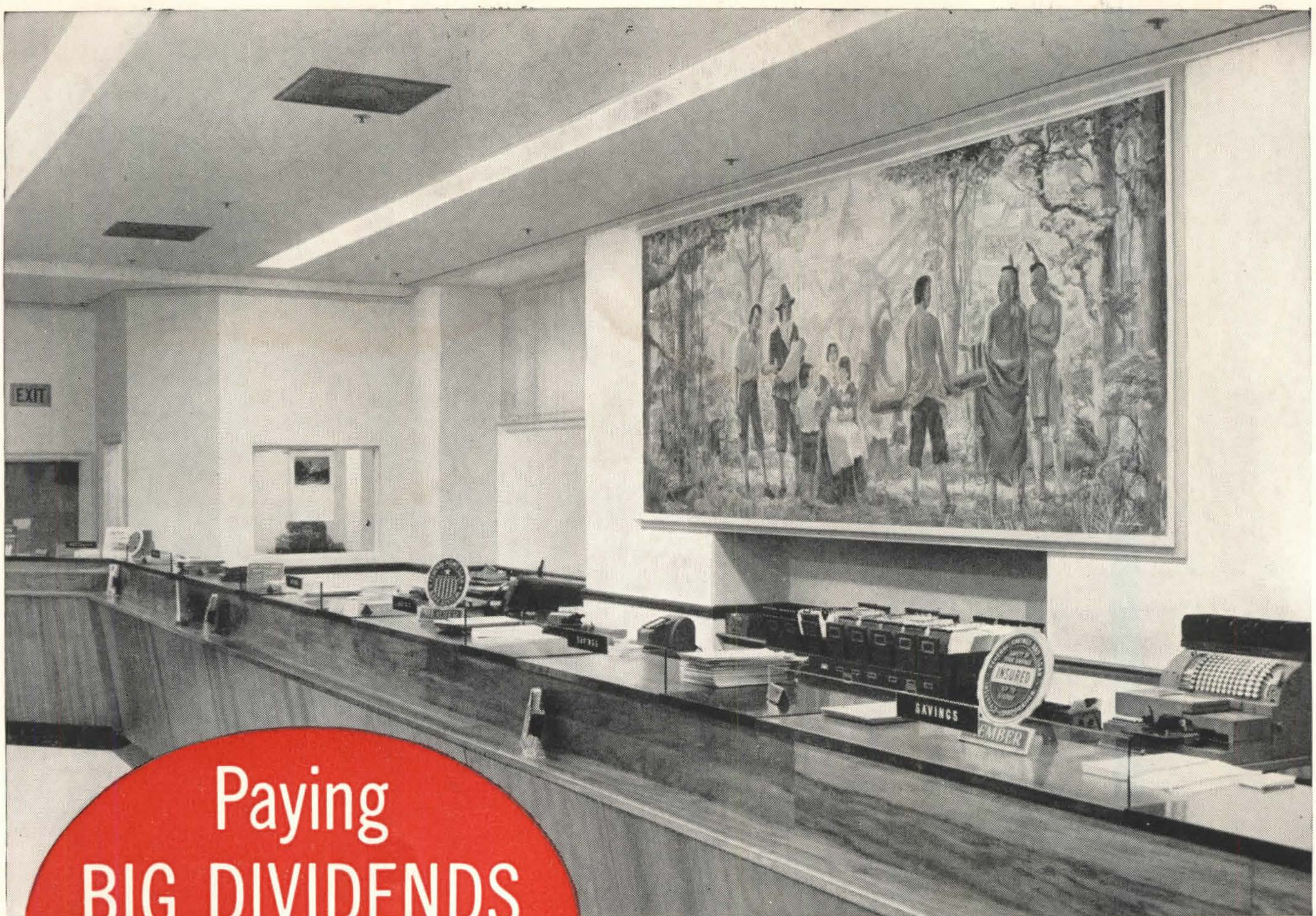
ARCHITECTURAL RECORD

BUILDING TYPES STUDY
SMALL MEDICAL BUILDINGS
225

AUGUST 1955



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THE RECORD REPORTS

PERSPECTIVES

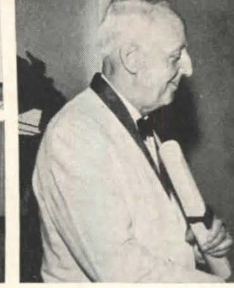
Designing for the community: "This seems to me to be the keynote of this keynote," said architect and planner Albert Mayer of New York in his opening address at the A.I.A. convention: "that instead of using great new tools for a great new life, we are using them to prolong and to deepen obsolescence, to painfully prolong what should be replaced." Mr. Mayer, who said a general frame of reference is badly needed in an era when a succession of single remedies is the popular approach to the problem of the community, drew a devastatingly detailed word picture of today's urban realities and then turned to consideration of "the way out." "The individual architect can add distinction and partially affect program in what he is permitted to do as an individual practitioner. But that can go only so far. It is the Institute corporately and the Chapters who should be able to influence what he is able to do, to make it more congenial, more significant, more a contribution to true urbanity, a contribution to and a part of a more valid environment." The vastness and complexity of the problem require a new approach and "combined operations and expertise" in the solution, Mr. Mayer declared, and he called on the Board of the Institute to search "in a new and creative way" for an effective program of action in which the efforts of all architects could be united. "Present approaches assume we must preserve our present structure. . . . Let us make an approach the other way: analyze and visualize what we would do if we could start from scratch now in the midst of our new technological opportunities, and see what we can salvage from what we have in the light of that."

Planning needs the architect, said John Tasker Howard, president of the American Institute of Planners, "in five ways: as a knowledgeable designer of buildings, as a specialist in civic design, as a potential recruit to the planning profession, as a member of commissions and boards that direct the public agencies engaged in planning, and as a citizen participant in planning affairs." Other members of the seminar on "Rebuilding Our Cities," all architects, acknowledged the architect's responsibility in all of these areas, but preferred a broader — if less specific — definition of his role. As Robert E. Alexander of Los Angeles put it, "The question is not 'How can the architect practice city planning?' — it is 'How can he practice architecture without planning?' Carl Feiss, former government planner, now a private consultant in Washington, D. C., reproached his colleagues for not accepting their responsibility for leadership in "the creative renewal of American cities." And Dean G. Holmes Perkins of the College of Architecture of the University of Pennsylvania noted that "it is the architect's first duty to put people back into the picture. . . . The shapes the community will take will depend on public preference but without the architect's imagination the citizen will be denied his rightful freedom of choice." . . . Approaches to the expansion problems of smaller and larger urban areas, development housing, and public and commercial facilities for new areas were discussed in the seminar on "The Architecture of Community Expansion." All architects must be concerned with community expansion, said Moderator Norman J. Schlossman of Chicago: "For although each of us may never have a community, a housing development, or a regional shopping center to design, everything we architects do is a form of expansion which never exists in a vacuum, but rather in relationship to its environment."

Willem Dudok, making the principal address at the annual banquet after receiving the 1955 A.I.A. Gold Medal, challenged American architects to the creation of "a new and really great city planning art." Their cities, he told them frankly, do not sufficiently reflect their great architectural abilities. "Of course it is only through teamwork that many facets of modern city planning get what they need. This makes us forget sometimes that the city as a whole after all forms an architectural form problem. And precisely because the efficient and beautiful form is of such great and lasting importance I am convinced the skillful architect is naturally and obviously the man who must create the harmonious synthesis of the various facets." Lamenting the "decay" of "the art of building cities," Mr. Dudok warned that "the architectural beauty of cities . . . is never the result of unbridled liberty but of a firm form-will" and added that perhaps modern architecture, "which in the separate building expresses itself so self-consciously," may find its effective development "when we see the problem large and apply it to the city-as-a-whole, realizing that we have to cooperate in the proper serving spirit." Mr. Dudok insisted that "we are living in a great time" and rejected the argument that "the chaotic aspect of our cities is the expression of our culture. . . . It is no characteristic variety that our cities show, but a characterless chaos; and I am too good a democrat to accept this as an expression of our beneficial form of government, a form of government which in so many fields has proved to understand that there is no liberty without reasonable restriction and no culture without order. . . . It is up to you to make your liberty-loving people more planning-minded." Americans, Mr. Dudok said, should turn the attention of their "Maecenasses who give fabulous sums for many good things" to the opportunity for creating "a new culture of cities which is of the New World." On the convention theme: "Designing for the community? It is not enough! Designing for the world."





Highlights of program were keynote address by Albert Mayer (far left) and banquet speech by 1955 A.I.A. Gold Medalist Willem Dudok (far right). There were four seminars: "Keeping the Client a Friend" featured panels on modular coordination and (left center, top) office practice—Austin W. Mather, Bridgeport, Conn.; Daniel Schwartzman, New York; Harvey Schwab, Pittsburgh; Moderator David Baer, Houston; Walter Taylor, A.I.A. director of education and research. "The Architecture of Community Expansion" had as moderator Norman Schlossman, Chicago; as speakers Park Martin, Allegheny Conference on Community Development executive director; Arch Winter, Mobile, Ala.; Thomas Coogan, N.A.H.B. past president; Victor Gruen, Los Angeles and New York; and (not pictured) L. Morgan Yost, Chicago. "Rebuilding the City" (right center, top) had Urban Renewal Administrator James W. Follin (opening luncheon speaker) and Chairman William Ballard, A.I.A. Committee on Urban Design and Housing, as platform guests; speakers John Tasker Howard, president, American Institute of Planners; Robert Alexander, Los Angeles; Miss Marcia Rogers, 23-year-old architect with Pittsburgh Regional Planning Association; Dean Holmes Perkins, University of Pennsylvania; Richard Perrin, Milwaukee Housing Authority executive director (moderator); Carl Feiss, Washington. "Chapter Affairs" session (bottom right) was conducted by Chairman Beryl Price, A.I.A. Committee on Chapter Affairs

1955 A.I.A. CONVENTION: FAIR WEATHER AT MINNEAPOLIS

More than 1600 architects and their guests were registered at the Hotel Radisson headquarters in Minneapolis for the 87th annual convention of the American Institute of Architects June 20–24 — some 600 fewer than the total for the Boston convention last year. The Institute's first Minneapolis convention since 1916 was favored with perfect weather, generally amicable delegates and a larger-than-ordinary interest in the business side of the agenda — this last mainly because this was the convention at which revisions in Institute policy and procedures stemming from last year's report of the Committee on Organization were to be considered. Several changes were voted at this convention — many not requiring convention action already had been made by the Board and staff of the Institute — and others were presented and voted down. Still others await the results of further studies now in progress.

This was one convention at which the annual banquet provided the undoubted high point — the provocative and moving address in which the A.I.A.'s 1955 Gold Medalist, 70-year-old Willem Marinus Dudok, the noted architect and city planner of Hilversum, The Netherlands, called on American architects to "build more beautiful cities than ever before" as "perhaps the only people that can create a new and really great city planning art." Keynote for the entire convention was sounded in the opening address by architect and planner Albert Mayer of New York, who challenged the profession to *use* the same technology which has made jungles of our cities to transform them into human and beautiful as well as efficient environments for living. The two major convention seminars also developed the official convention theme, "Designing for the Community." (For more on speeches and seminars, page 9.)

Election Results

George Bain Cummings, F.A.I.A., of Binghamton, N. Y., is the new president of the A.I.A., elected without opposition to succeed Clair W. Ditchy, F.A.I.A., of Detroit after two years as national A.I.A. secretary. The main interest in the balloting at this year's convention was centered in the two offices for which there were contests. In these, John N. Richards, F.A.I.A., of Toledo was named second vice president over Hugh A. Stubbins Jr., of Lexington, Mass.; and Edward L. Wilson of Fort Worth was elected over Ross Shumaker of Raleigh, N. C., as secretary. Mr. Richards succeeds Howard L. Eichenbaum, F.A.I.A., of Little Rock, Ark., who was not a candidate for reëlection. Officers reelected without opposition were First Vice President Earl T. Heitschmidt, F.A.I.A., of Los Angeles, and Treasurer Leon Chatelain Jr., F.A.I.A., of Washington, D. C. All officers are elected for one-year terms.

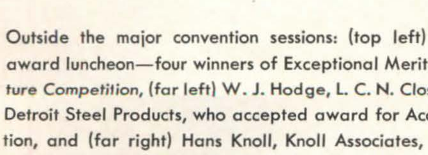
The four regional directorships falling vacant at this convention all were filled without contests. The new directors (with the names of their predecessors following in parentheses) are: *New England* — Austin W. Mather, Bridgeport, Conn. (Philip D. Creer, Providence); *Western Mountain* — Bradley P. Kidder, Santa Fe (W. Gordon Jamieson, Denver); *New York* — Matthew W. Del Gaudio, New York City (C. Storrs Barrows, Rochester, N. Y.); *North Central States* — Bryant E. Hadley, Springfield, Ill. (Edgar H. Berners, Green Bay, Wis.). Directors' terms are three years, staggered so that only four of the 12 directorships are filled in any year.

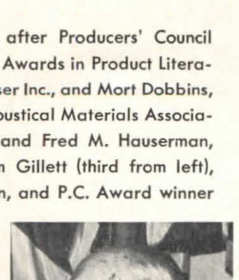
This Year's Awards

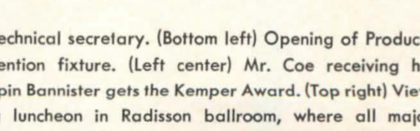
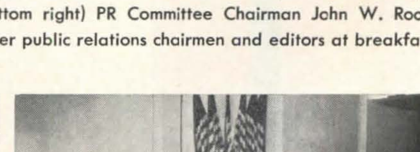
Presentation of the Gold Medal to Mr. Dudok at the annual banquet was the climax of the week's long list of honors

(*Continued on page 12*)

Outside the major convention sessions: (top left) after Producers' Council award luncheon—four winners of Exceptional Merit Awards in Product Literature Competition, (far left) W. J. Hodge, L. C. N. Closer Inc., and Mort Dobbins, Detroit Steel Products, who accepted award for Acoustical Materials Association, and (far right) Hans Knoll, Knoll Associates, and Fred M. Hauserman, E. F. Hauserman Co., with P. C. President William Gillett (third from left), M. Edwin Green, F.A.I.A., Jury of Awards chairman, and P.C. Award winner Theodore I. Coe, A.I.A. technical secretary. (Bottom left) Opening of Products Exhibition, now a convention fixture. (Left center) Mr. Coe receiving his award. (Right center) Turpin Bannister gets the Kemper Award. (Top right) View of convention's opening luncheon in Radisson ballroom, where all major sessions were held. (Bottom right) PR Committee Chairman John W. Root, F.A.I.A., addresses chapter public relations chairmen and editors at breakfast meeting





A.S.L.A. MEETS IN DETROIT FOR THREE DAY CONFERENCE

The American Society of Landscape Architects selected Detroit as the site for its 56th annual meeting, held June 27–29 at the Sheraton-Cadillac Hotel.

Arleigh C. Hitchcock, executive director of the projected Homestyle Center Inc., reported to the delegates plans for the $2 million housing research village being built at Grand Rapids by a Grand Rapids civic group and the National Association of Home Builders. The purpose of the village, Mr. Hitchcock said, will be "to inform the consumers, architects, interior designers, landscape architects, builders, manufacturers and suppliers interested in the home industry, and to raise the level of homes by researching and displaying the better design solutions, material combinations, structural methods and equipment that is available, or is in the experimental stage." The project, which is to include 25 display homes the first year, is scheduled to open in January of 1957.

The society awarded prizes in seven categories at its annual exhibits: for site planning — Harland Bartholomew & Associates, St. Louis, for Radford Terrace, Pearl Harbor; landscape planting — Eleanor Roche, Detroit, for the McMillan garden, Grosse Pointe, Mich.; estate layout — Raymond E. Page, Beverly Hills, for the Hills estate; civic center planning — Eugene R. Martini and Associates, St. Louis, for the Brown Shoe Co., Clayton, Mo.; public buildings — Simonds and Simonds, Pittsburgh, for Moon High School, Allegheny County; and city planning — the City of Grand Rapids, Mich., for Mulick Park.

Delegates reelected Leon Zach, Washington, D. C., to the presidency. New officers include: Arthur G. Barton, Glendale, Cal. — vice president; Hubert B. Owens, Athens, Ga. — secretary; and Norman T. Newton, Cambridge, Mass. — reelected treasurer.

Three new fellows to the society were also announced at the conference: Thomas H. Jones, of Cambridge, Mass.; Karl B. Lohmann, University of Illinois, Urbana; and Hubert B. Owens, University of Georgia, Athens.

SCHOLARSHIP ESTABLISHED AT NEW JERSEY CONVENTION

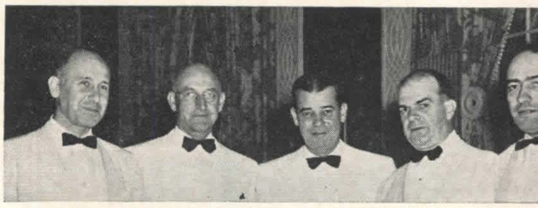
Delegates to the 55th annual joint convention of the New Jersey Society of Architects and the New Jersey Chapter of the American Institute of Architects elected to allot $10,000 from their general funds toward a scholarship in honor of their late president, J. Raymond Knopf. The scholarship fund, which will be distributed as loans rather than as grants, will be augmented by voluntary contributions from individual members.

Other highlights of the three-day conventions, which drew a record registration of 671 to the Berkeley Carteret Hotel in Asbury Park on June 9–11, were the three daily seminars. On the first day, a panel, moderated by Marcel Villanueva, A.I.A., and consisting of Oskar Stonorov, A.I.A., David M. Walker, Regional Director of the Housing and Home Finance Agency, and Arthur D. McVoy, Director of the Department of Planning for Baltimore, discussed "Urban Restoration." The second day's seminar, on the "Esthetic Sense of Architecture," was moderated by Seymour Williams, A.I.A., and discussed by Percival Goodman, A.I.A., and John Knox Shear, Editor-in-Chief of ARCHITECTURAL RECORD. In the final seminar, "Architects of Tomorrow," the difficulties faced by young architects were covered by Charles E. Krahmer, A.I.A., of the New Jersey State Board of Architects, and Simion Gulamerian, of the office of Paul Drake; the moderator was Neil J. Convery, A.I.A.

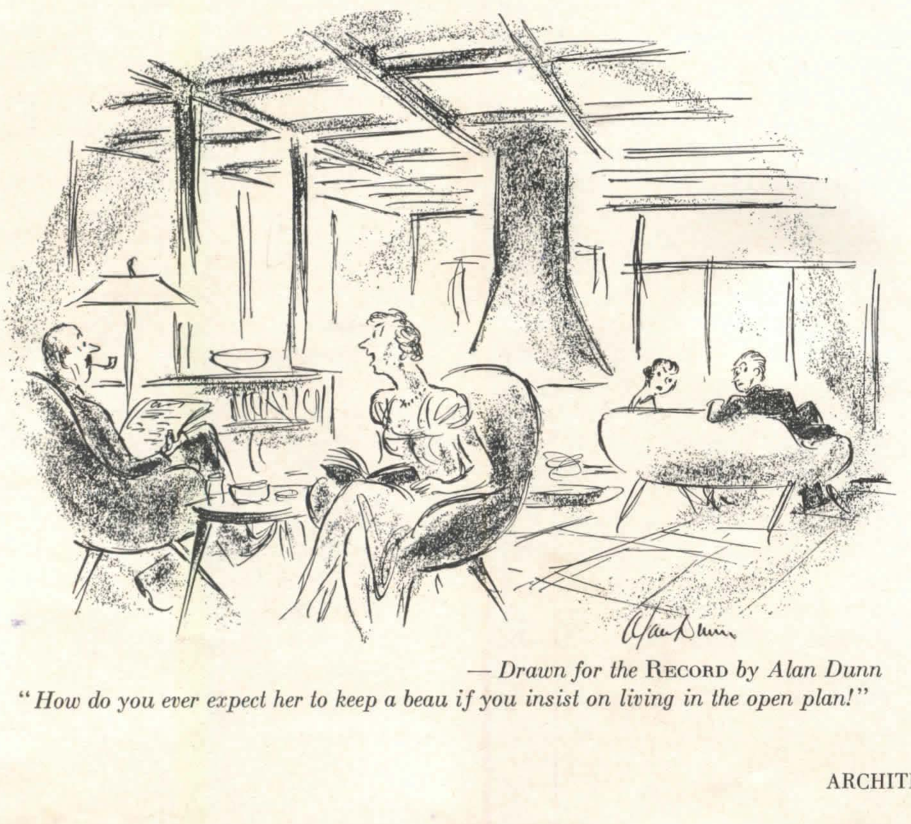
The major speaker at the architects' banquet was Roger Allen, F.A.I.A., of Grand Rapids, Mich.

No awards were made at this year's architectural exhibition; the convention committee had decided against them in an effort to induce a greater number of members to submit designs.

Delegates elected Romolo Bottelli Jr. to complete Mr. Knopf's unexpired term as president. Other new officers elected at the convention included Frederick A. Elsasser, first vice president; D. A. Hopper, Jr., second vice president; Eugene M. Dennis, treasurer; and Jacob Shteir, secretary.



NEW JERSEY A.I.A. officers at their convention banquet: (from left) Jacob Shteir, secretary; Frederick A. Elsasser, first vice president; Romolo Bottelli Jr., president; D. A. Hopper Jr., second vice president; Eugene M. Dennis, treasurer. (Below) Speakers on the "Esthetic Sense of Architecture" seminar, looking suitably serious: RECORD *editor-in-chief John Knox Shear, A.I.A., and Percival Goodman, F.A.I.A.*



— Drawn for the RECORD *by Alan Dunn*

"How do you ever expect her to keep a beau if you insist on living in the open plan!"

WHAT KIND OF CRITICISM HAS CONGRESS HEEDED IN

This Congressman, a Former Bricklayer, Asserted Design Is "Not American," Warned Against Use of Such "Experimental Materials" as Glass and Metal

(From *Congressional Record — Appendix*)

EXTENSION OF REMARKS

OF

HON. JOHN E. FOGARTY

OF RHODE ISLAND

IN THE HOUSE OF REPRESENTATIVES

Monday, June 20, 1955

Mr. FOGARTY. Mr. Speaker, my office has received a number of protests concerning the design of the new Air Academy as made public by the Air Force several weeks ago. Investigation of the situation leads me to bring this matter before the House. Unless Congress calls a halt to the present plans of the executive department, it would appear that the Secretary of Air and the Air Force are about to make a serious mistake, one with which we would have to live for many years.

Establishment of a national Air Academy as the Air Force counterpart of West Point and Annapolis was the lifelong dream of the late Gen. Billy Mitchell. This dream moved close to reality last year when Congress authorized an expenditure of $126 million for this purpose. Subsequently, the Air Force appointed as Air Academy architects a Chicago architectural firm which designed the Lever Brothers glass building in New York and a number of industrial structures throughout the country. The firm, Skidmore, Owings & Merrill, was appointed to design the Air Academy, coördinate the engineering services, and supervise construction. On May 14, models of the design were unveiled at Colorado Springs, Colo., the site of the new Academy.

What was seen by the congressional observers and the press caused considerable consternation. A spontaneous protest by churchmen throughout the Nation caused the Air Force to withdraw almost immediately the design for the chapel. This glass-and-metal creation was described variously as an accordion lying on its side and a line of telescoped Indian tepees. Outside this tin building, hanging from a metal rack in the fashion of the ice cream wagon we see in summer, were the church bells. The whole business sat on a terrace which one architect said was Egyptian and another said originated with the Incas.

The balance of the plan has not been altered, we are told. The over-all plan consists of a number of glass, aluminum, and steel buildings on stilts. When he first saw the design, Representative HARDY, of Virginia, commented that it looked like a cigarette factory. Congressman HARDY proved to be something of a prophet, because only a few days later, Frank Lloyd Wright, the famous architect, declared flatly that the Air Academy design is a violation of nature. He predicted that the Air Academy, if built as planned, would become known — not as the national shrine it should and must be — but as Talbott's aviary and a factory for birdmen. Mr. Wright said in a letter which was published in the Colorado Springs Free Press of May 27:

"The Air Force Academy looks to me as if another factory had moved in where it ought not to be."

Since that time, there seems to have been considerable confusion. According to the Air Force's Public Relations Department, work on the Air Academy is to begin this summer. Yet, Secretary of Air Talbott has been quoted in the press as saying the design is not yet in its final form.

My purpose in discussing this subject today is to urge its revision — in its entirety — for two basic and most important reasons. They are quite simple: First, the design is not American in conception and is unworthy of the tradition of this Nation; second, the taxpayers should not be saddled with an initial cost of $126 million for construction of the Academy and its supporting facilities, and heaven knows how much more for maintenance over the years, to build a monument to experimental materials.

Let us take these points one at a time.

The Air Academy should be a national shrine, as are the historic buildings of West Point, and the Naval Academy in Annapolis. Like its Army and Navy counterparts, the Air Academy should reflect our Nation's origins, its culture, represent its teachings, and symbolize its humanity. It should have warmth, and beauty, and an atmosphere of American history. The Air Force has stated publicly that, besides teaching our future airmen mechanical skills, its duty is to inculcate unimpeachable character, an unflagging sense of duty, and devotion to the best interest of the Nation.

Instead, we have a design and choice of materials reminiscent of a cafeteria. A knowledge of architecture is unnecessary in sensing the faults of this plan. It is difficult to find any trace of American heritage in the cold, impersonal, and mechanical appearance of these buildings. Several leading architects who studied the drawings and photographs of the models made several interesting observations. What they said can be compressed into two sentences. The design is not American. It is based on a hodgepodge of European and Near Eastern influences, and not even the best of those. When you examine the models, you find the Egyptian or Near Eastern terraces. The senseless elevation of everything on stilts, I am told, was popular in Europe — particularly in Germany — during the 1920's, but has since been discarded as outmoded.

The cold surfaces and lack of decoration follow the fad we have seen expressed principally in New York City. Last April, Bishop Fulton J. Sheen, commenting on so-called modern architecture, described the United Nations building and the new glass and metal buildings on Park Avenue as — and I quote — "illuminated cracker boxes or elongated shoeboxes on stilts." One of the Air Academy designers stated in unveiling the models that his was a timeless design and will be good 100 years from now. He is a brave man, and a wise one, too, to look so far into the future and tell us what it holds.

I wonder if some of our so-called modern architects, back in the days of the Civil War, were not saying the same sort of thing about the jigsaw architecture which became a craze for a brief span. You may remember the jigsaw architecture — the odd-looking cutouts and

(Continued on page 304)

DEBATE OVER AIR FORCE ACADEMY DESIGN CONCEPT?

Lay Critics Said It Wasn't Traditional; Wright Said He Had a Better Design

On July 14 the House of Representatives voted to refuse construction funds for the United States Air Force Academy. It did so on the recommendation of its Appropriations Committee, which felt "it would be most unwise to provide funds for construction until the design is more firmly established." The Committee added, "The new Academy should reflect the best traditions in American architecture; the design should inspire the confidence and respect of the American people." The Congressmen who were publicly quoted on the subject left little doubt that in their minds "modernistic" design could hardly achieve this. The only witnesses in addition to representatives of the Air Force and their architects to testify at Appropriations subcommittee hearings on the subject were Frank Lloyd Wright (see page 32A), who said he had a much better design "in the back of my head"; Adin M. Downer, legislative counsel, Veterans of Foreign Wars of the United States ("the proposed design does not reflect American history and tradition"); and Henry Hope Reed Jr., writer and member of the Municipal Art Society of New York ("our Jeffersonian tradition is the only one which offers a style so broad as to admit the best we can do in the arts, and to give room for history and memorials").

To introduce some "expert testimony" into the public discussion, the RECORD invited comments on one Congressman's views (across-page) from the president of the American Institute of Architects, a leading architectural historian, and the president of the Producers' Council, Inc. Mr. Wright, who is quoted in the speech, was also invited to comment.

Professional Views Sought by the RECORD

From the American Institute of Architects came a copy of a statement sent earlier to Secretary of the Air Force Harold E. Talbott:

It was called to the attention of The Board of Directors of The American Institute of Architects at its recent meeting held June 25th in Minneapolis, Minnesota, that the design for the proposed Air Force Academy for the United States, Colorado Springs, Colorado, is receiving a certain amount of adverse criticism and that this criticism has been widely publicized.

In view of the importance of this project historically and architecturally and in view of its significance to the American people, The Board of The American Institute of Architects felt it should state The Institute's position with respect to the engagement of and confidence in American architects. The Institute believes that matters of principle and policy are involved.

In arriving at a selection of architects and architect consultants for the design of this important work, the Secretary of the Air Force followed ethical and objective procedures that were in the public interest.

The architects and architect consultants selected by the Secretary of the Air Force are among the most distinguished of American practitioners. Their experience is extensive, their reputations are world-wide and the buildings and projects to their credit are among the most significant productions of the American professionals. It is understandable that any structure or work of art will find itself the target of criticism, sometimes voiced without a knowledge of the problems involved. Design is best accomplished by men who are trained and experienced. There is no question of the experience and ability of the professionals engaged by the Department of the Air Force.

The United States of America now leads the entire world in the excellence and progress of architectural design and construction techniques. The Department of the Air Force has chosen its architects through proper and ethical methods.

The American Institute of Architects is firmly convinced that the commissioned architects should continue with the further development of their plans and the Department of the Air Force should proceed with confidence knowing that the final result will be in the best interest of the American people.

The following statement is the response from Prof. Hugh Morrison of the Department of Art and Archaeology at Dartmouth College, a director of the Society of Architectural Historians and author of the book* Early American Architecture, *a standard reference in its field.

Representative Fogarty has made a skilful and plausible attack on the proposed design for the Air Force Academy at Colorado Springs. His chief point is that "the design is not American in conception and is unworthy of the tradition of this Nation." He seeks "an atmosphere of American history," comparable to that which he claims for the buildings of West Point and Annapolis.

As an historian of American architecture I am deeply disturbed by such an erroneous conception of architectural tradition.

All great ages have created architectural beauty in their own way and expressive of their own day. The succession of past architectural styles — Greek, Roman, Gothic, etc. — affords ample proof that while architectural beauty is permanent, it is not permanently the same. We admire the Parthenon and Chartres Cathedral, but too often forget that in their day they were daringly modern buildings.

The age which produced the U. S. Capitol had been immersed in several generations of a "classical" wave of style. It found itself unable to escape completely from these European precedents, yet it is clear that the great men sought to express a distinctively American spirit. Jefferson, behind his classical columns, was searching "the course of a nation looking far beyond the range of Athenian destinies." Latrobe, Jefferson's friend and a designer of the Capitol, strove valiantly to create an "American order."

Robert Mills, architect of the Washington Monument, the Patent Office and many other Federal buildings, aspired to an American beauty which he did not himself yet know how to create. "I say to our artists," he proclaimed, "study your country's tastes and requirements, and make classic ground *here* for your art. Go not to the old world for your examples. We have entered a new era in the history of the world; it is our destiny to lead, not to be led. Our

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(*Continued from page 17*)

vast country is before us, and our motto *excelsior.*"

Horatio Greenough, creator of the great statue of Washington, wrote feelingly: "I contend for Greek principles, not Greek things. . . . The men who have reduced locomotion to its simplest elements, in the trotting wagon and the yacht *America*, are nearer to Athens at this moment than they who would bend the Greek temple to every use." What new architectural inspiration might he not have found in the swift lines of modern planes?

Shall we, more than a century later, urge *imitation of the superficial forms of the past rather than work in the creative spirit of that past?* Shall we, with enormously greater advantages in knowledge and in technique, be less bold in vision than our forebears?

They told us clearly that by being ourselves we can best become great. European critics for the past half century have regarded our modern architecture as the only distinctively American style we have produced.

Mr. Fogarty fails to perceive the truly classic and enduring qualities of the proposed design for the Air Academy. Set on a series of rising plains high in the Rockies, and ascending to an impressive "acropolis," these buildings have a clean-cut, quiet and simple beauty that echoes the serenity of the Parthenon — and yet is American, not Greek.

He disparages them as "cold, impersonal, and mechanical" and deplores their lack of decoration. But what better decoration than the warmth and color of plants and flowers against these spacious terraces, what better ornament than the glistening glass walls, adorned by dark reflections of the great mountains and the shifting images of clouds and sky?

Preserve us, in this day, from going back to the knights-in-armor architecture of West Point. Impressive indeed are the frowning ramparts above the Hudson, but they speak of the age of Coeur de Lion and Godfrey de Bouillon. Cannot we speak, in dynamic modern beauty, of the realities and ideals of America in the air age? Tradition is of value only when it is behind us, pushing forward.

From William Gillett, president of the Producers' Council Inc., the major association of U. S. building materials manufacturers:

You have invited comment on the recent remarks in the Congressional Record by the Honorable John E. Fogarty of Rhode Island on "American Architecture and Building Materials".

Architectural styles of buildings, like art of all kinds, can evoke pro and con arguments and there are many in this land who will speak highly of the proposed design for buildings of the United States Air Force Academy. Regardless of the architecture selected, there will be a division of public opinion as to whether or not the appearance of the completed academy is appropriate. The same argument will hold as to the appropriateness of the choice of materials to be used. To say it is obvious that "Glass and metal, of course, are alien to American monumental design — even to European" is not too evident in the architectural effect gained by many architects in today's building designs.

If confidence is to be placed in our excellent American building designers then we should leave to them the choice of design as well as the choice of materials to carry out that design. If on the other hand debates are to be carried on in Congress to affect the choice of design and materials, it will cause endless discussion in which, by rights, proponents of all kinds of construction should be heard. This procedure would obviously delay the Air Force Academy for an indefinite period. If our capable architect President, Thomas Jefferson, is to be exemplified as furthering American art and architecture, it should be remembered that he tried many new things and through such trials made numerous contributions to American architecture. Why should we not further our American building art with new ideas?

Wright: "Mr. Fogarty Does Not Go Far Enough"

With Congressman Fogarty's criticism of the design for the Air-Force Academy, which I have just read in the Congressional Record, I agree almost entirely. But Mr. Fogarty does not go far enough. The scheme for the Academy now presented wholly ignores the great opportunity afforded American architecture by the noble character of the site and has no feeling whatsoever for the nature of the occasion. I suppose this is to be expected because expedient government would choose expedient architecture as expedient for the purpose. But what may be tolerated as an urban poster for soap is not tolerable as inspiration for the youth of America. This type of standardization in commercial architecture has already shown severe limitations now so clearly manifest in the mental confusion of this Academy Air-Force design. To execute it would only be to build into our national future a confession of the failure of the vital spirit of America. Our country has a spirit. We cannot afford to credit — much less build-in — any such victory of publicity-managed commercialism as this already dated cliché represents. These "composites" now omnipresent in the practice of Architecture should never be trusted with a concept. Their function is at best executive. Confine them there.

This exploitation would not only disgrace but establish a future spiritual and technical stumbling-block for the American spirit. The very expediency it exemplifies is bound, sooner or later, to defeat — as it has here overshot — itself. We have seen this sort of thing coming along for some time. On the record now is this depression of the greatest of the arts by planned expediency. But, that an already dated version of the cliché should become national, though feared, was hardly to have been expected. A fresh start with a worthy concept is now salvation but highly improbable: the great opportunity has been sold. Where the honor of a Nation is thus at stake a nominally paid competition is the only moral proceeding: say one hundred thousand dollars offered to no more than several architects selected for past experience in creative achievement (I should myself like to be one of them to show how practical American architecture, inspired by the site, could be) and these men be invited to submit their several schemes, in sufficient detail, to a proper tribunal composed (certainly not of already lost experts and specialists) but to the as yet unconditioned minds of American youth, say those now in the high-schools of these United States: the several designs to be incorporated in a suitable brochure and submitted to high-school principals to enable students to vote their preference. This Air-Force Academy will be theirs, for better or for worse. The Democratic process might be worth while. It would be educational at least. For all concerned?

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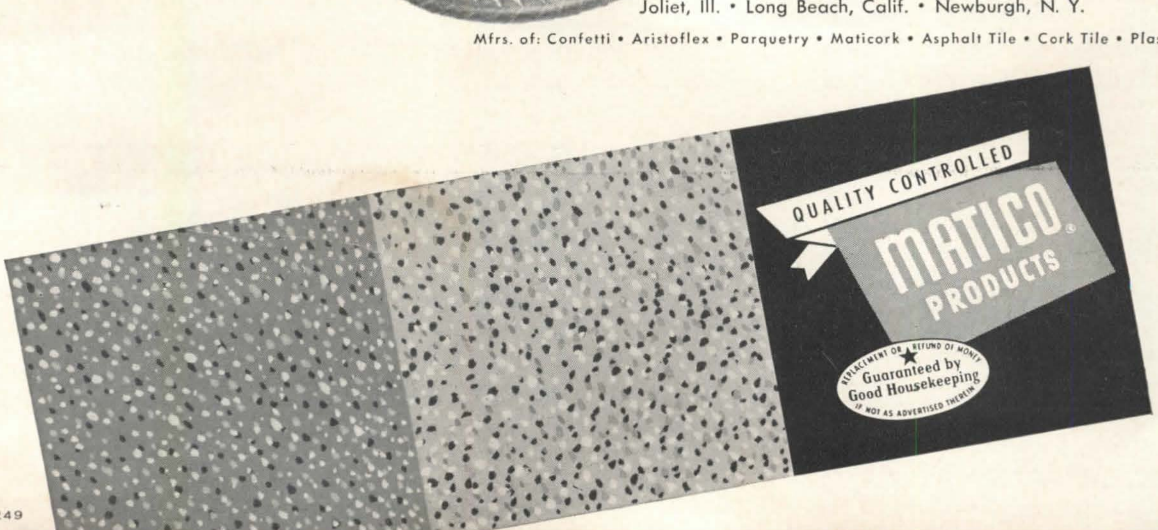

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MARSHALL SHAFFER LAUDED AT CONVENTION OF A.I.A.

The American Institute of Architects paused in the crowded final session of its 87th annual convention in Minneapolis to pay tribute to a great friend of architects, the late Marshall A. Shaffer, chief of the Technical Services Branch of the U. S. Public Health Service Division of Hospital Facilities. The appreciation was read by Wilbur A. Tusler, F.A.I.A., of the Minneapolis firm of Magney, Tusler & Setter. Only four years earlier, at the A.I.A.'s Chicago convention, Mr. Shaffer had received the Edward C. Kemper Award for Service to the Institute; the citation noted that he "insured the conduct of the hospital building program of the U. S. Public Health Service in accordance with the highest ethical standards of the Institute and thus secured for the public the greatest benefit from the service rendered by its architects."

Mr. Shaffer, who died unexpectedly on May 25 at his home in Wheaton, Md., at the age of 55, had headed architectural and engineering phases of the Public Health Service hospital construction program since 1941. With the launching of the Hill-Burton hospital construction program in 1946, his office became a research center for architects working on hospitals financed under the program; planning guides and criteria developed under his direction have by now become basic planning tools for any architect designing a hospital. These studies, and their application and architectural results, have been reported in ARCHITECTURAL RECORD's Building Types Studies on hospitals over the last several years; the material on public health centers in this issue is another installment.

As a bureaucrat, Mr. Shaffer was an unusual breed. He was responsible for approving designs for hospitals financed with Hill-Burton aid all over the country; actually he delegated this responsibility to local and regional offices whenever possible. He kept his Washington staff small and specialized. He encouraged state and local authorities to employ local architects in the design of Hill-Burton projects, and furthermore made it practicable by seeing to it that the necessary technical information was easily accessible to them. He wanted to be a catalyst rather than an oracle, although in the end he was that, too, almost in spite of himself.

Mr. Shaffer's consuming interest was better hospitals for the nation; his pursuit of information which might contribute to that end was passionate, unceasing and altogether exhausting to the observer. Hundreds of hospital architects and administrators from all over the nation — and all over the world — came to his office; they normally went away staggered — but immensely stimulated — by his compulsive energy, his restless, probing imagination and the enthusiastic gallop at which his conversation pursued it (often leaving the visitor far behind).

Mr. Shaffer was born in Hamilton, Ohio, and graduated in engineering from Pennsylvania State College in 1922. He worked as an engineer for several years before arriving in California to do graduate work in architecture and private practice for some years. There followed three years in Chicago — architectural practice and graduate study in the social sciences at the University of Chicago. Then New York; more private practice and lecturing in design at Pratt Institute. Finally, Washington.

Mr. Shaffer was a member of the A.I.A. and of the American Hospital Association. In 1952 he was American delegate to and president of the hospitals section of the Eighth Panamerican Congress of Acrhitects in Mexico City.

MAGNEL WAS EARLY ADVOCATE OF PRESTRESSED CONCRETE

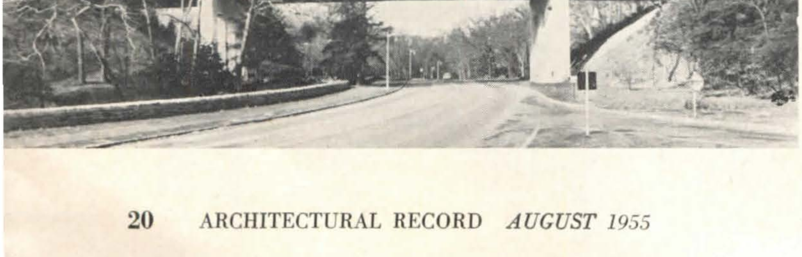
Gustave Magnel, the inventor of the Belgian system of prestressing concrete and proponent of the potentialities of that material, died July 5 at Ghent at the age of 65.

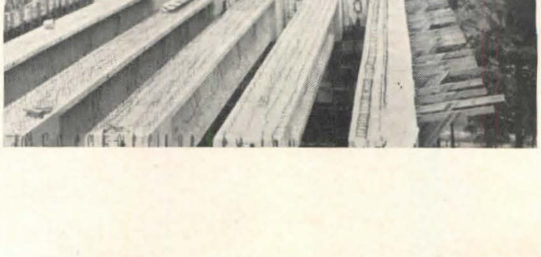
Professor Magnel, whose book *Prestressed Concrete* was considered one of the major works on this subject, had been professor of civil engineering at the University of Ghent since 1937.

Professor Magnel was one of the founders of the Belgian organization SECO — le Bureau de Contrôle pour la Securité de la Construction en Belgique. A cooperative society set up by the Union of Professional Organizations of Contractors, Architects and Civil Engineers, SECO undertakes to insure builders against their liabilities, with SECO having control over the engineering of the structure: to check calculations, drawings, etc.

In an address before the Concrete Industry Board in New York in February of last year, Professor Magnel delivered some observations on American problems in using prestressed concrete which he had gathered during a tour of the United States and Canada and from his work on the Walnut Lane Bridge in Philadelphia, one of the first major structures to be built of prestressed concrete in this country (see cuts below). Among these observations he deplored particularly the lack of high strength, no-slump concrete. He also blamed the inflexibility of U. S. building codes for the country's lag in developing the technique.

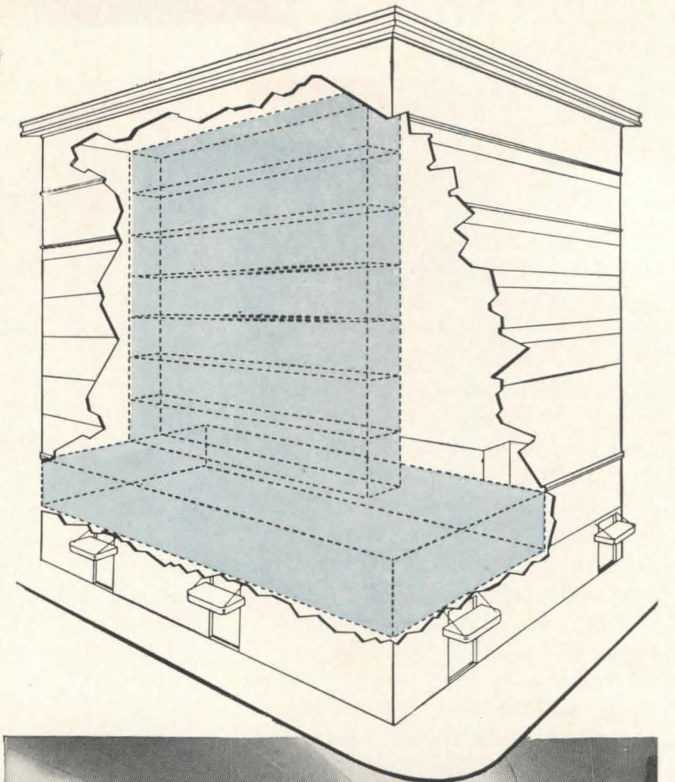
Among Professor Magnel's last projects was a radio-television-meteorological tower to be built for the Brussels World's Fair in 1958. Its proposed height of 2083 ft will make it, if it is built, the tallest structure in the world.





Complete air conditioning system increases available floor space more than 29%

Getting more usable space in their already cramped building was the situation which confronted the Wachovia Bank and Trust Company, Winston-Salem, North Carolina. Installation of a complete air conditioning system gave the bank an increase of more than 29% of available floor space in their 44-year-old, 8-story main office building. On the ground floor they made two floors out of one. The high-ceiling ground-floor banking area was cut in half horizontally by construction of a new second story. The conventional light and air shaft was floored over. This added approximately 1000 square feet of additional floor area per floor. All of the main banking area (picture below, left) has been air conditioned. The transit, bookkeeping and proof departments (picture below, right) were combined and relocated in new quarters on the mezzanine. Area marked in blue shows floor-space gains.



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AIR FORCE ISSUES FIRST OF NEW DEFINITIVES

The cause of better architecture as well as the stated objectives of increased efficiency and economy in design and construction seems likely to be served by new and revised "definitive drawings" for United States Air Force facilities which are emerging from a special program set up recently in the Architectural Branch of the Assistant Chief of Staff, Installations, HQ USAF. New definitives, which have been developed by two private architectural firms under contract with the Air Force, offer a far more detailed set of planning criteria, in terms of functional and structural requirements for the various building types, than those they are replacing; the intent is to eliminate duplication of effort formerly inherent in the need for supplemental research on similar facilities by field agencies and architect-engineer contractors; the result should be better guidance for architects undertaking Air Force work. There is, if anything, an increased emphasis on the opportunity for architectural initiative and design ingenuity in the adaptation of the basic schemes to local site, climate and culture.

The first of the new definitives, sent out in sheet form as soon as each set is approved, have already reached the Air Force construction agencies for projects under their jurisdiction. The present program calls for completion of the revised presentations for approximately 72 types of facilities by early fall; and the Air Force expects to continue the work of revision until all of its required facilities have been "reworked" in accordance with the new methods.

In its present approved form, a typical set of definitives may include in the original four 40- by 28-in. sheets, distributed in half and quarter sizes, of which the first gives the functional layout along with section, perspective, equipment list and "programming and master planning guides" (specification references, area and utility requirements, heating requirements, etc.); the second provides design data and details on functional, structural, mechanical and electrical requirements, along with reference sources; and the third and fourth are detailed schedules listing required characteristics of equipment — general, mechanical and electrical —

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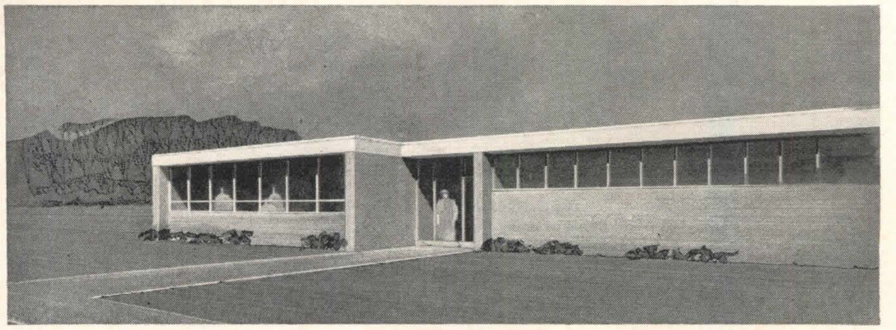

Illustrations show some of the studies made for USAF by the private architect-engineer contractors to indicate the variety of results possible with the new definitives. Above: flight simulator building, entrance; Giffels & Vallet, Inc., L. Rossetti, associated engineers and architects. Below: studies by Daniel Mann Johnson & Mendenhall, Architects-Engineers, for (1) ballroom terrace; (2) NCO open mess, entrance; (3) 400-man dining hall; (4) 800-man dining hall

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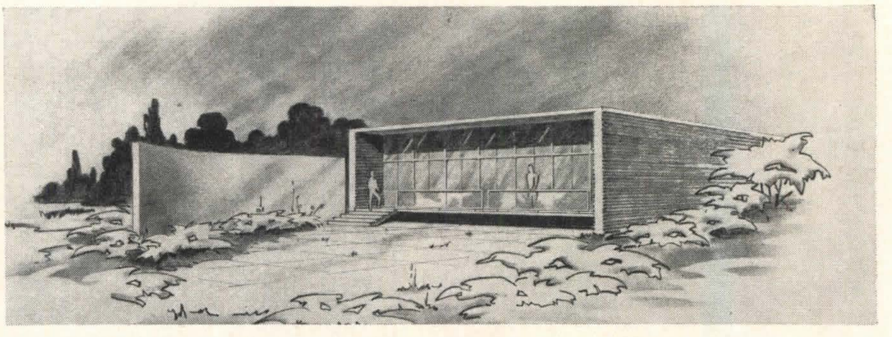

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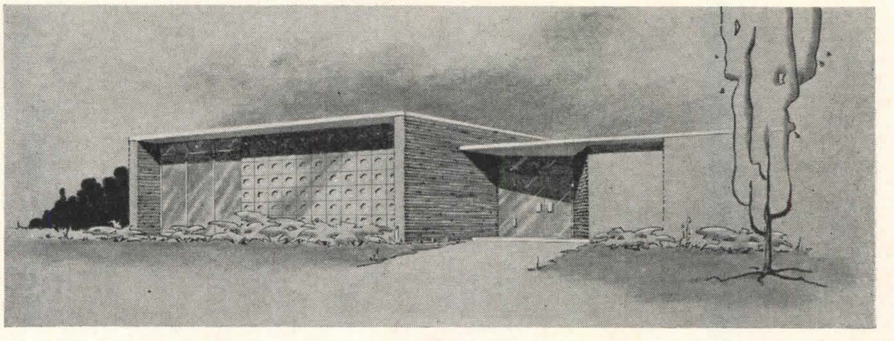

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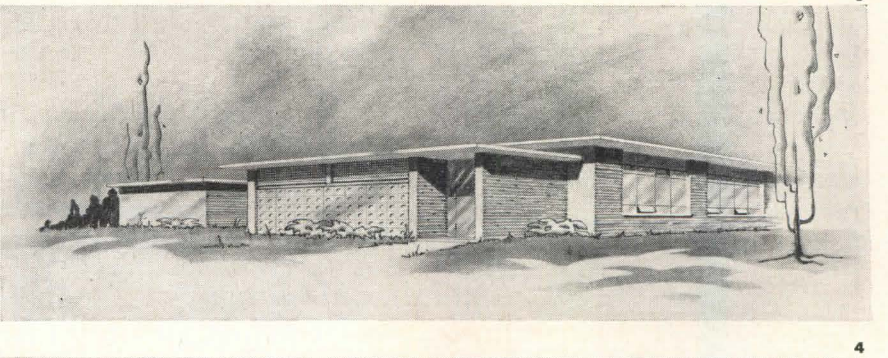

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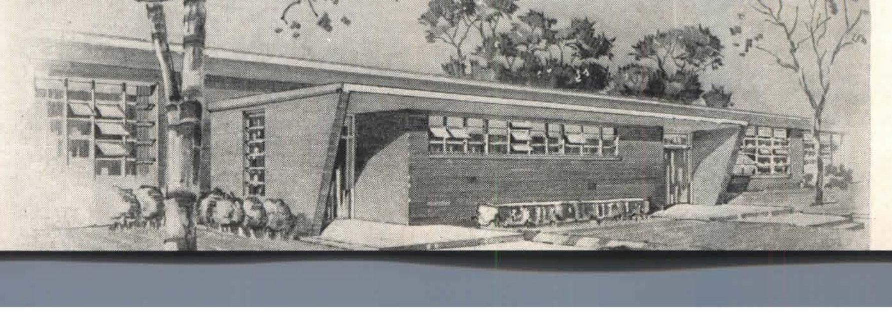

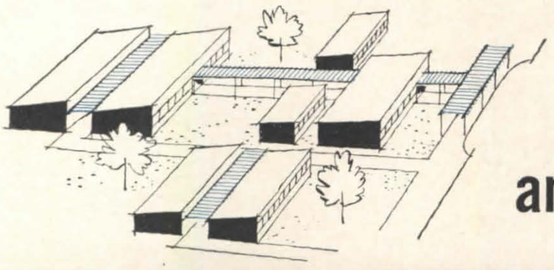

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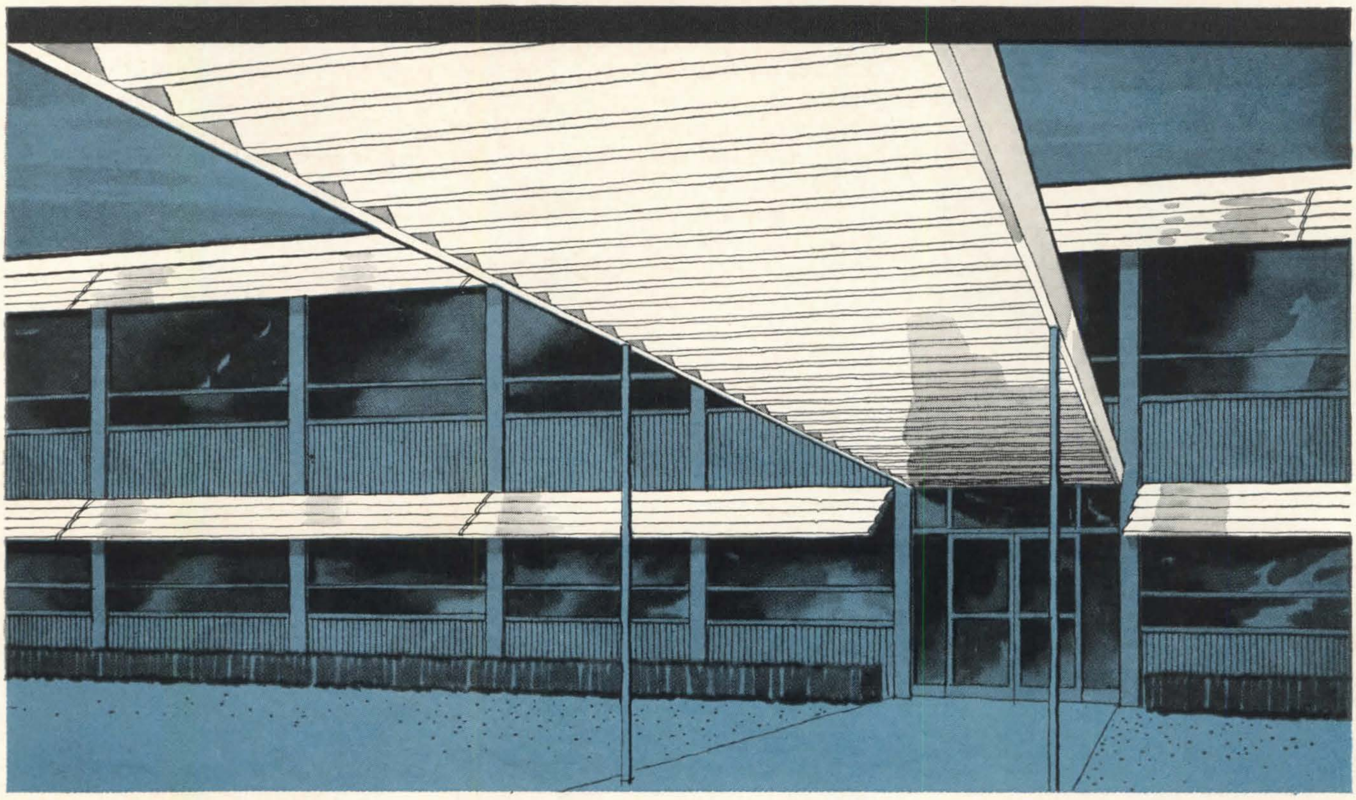

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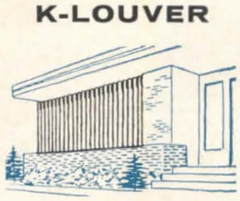
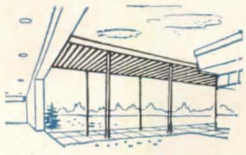


window protection



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ARCHITECTS VISIT HALIFAX FOR R.A.I.C. CONCLAVE

Masonry the Main Topic at 48th Annual Assembly


Old Town Clock, Halifax


R.A.I.C. officers for 1955–56: A. E. Priest, second vice president; W. Bruce Riddell, first vice president; A. J. C. Paine, president; Douglas E. Kertland, honorary treasurer; and Maurice Payette, honorary secretary


Donald Mackay, at right, receives the Institute's Allied Arts Medal from the Hon Alistair Fraser, Lieutenant Governor of Nova Scotia; also shown at annual dinner, Premier Henry D. Hicks (seated) and president Paine

A search for ways and means of extending the life of buildings, particularly in the maritime climate, highlighted technical discussions at the 48th annual assembly of the Royal Architectural Institute of Canada, held at the Nova Scotian Hotel, Halifax, June 1–4.

The two-day symposium on masonry, which got underway on the third day of the assembly, was conducted by C. A. E. Fowler of Halifax. Neil M. Stewart of Fredericton introduced the panelists, all from the Division of Building Research of the National Research Council in Ottawa: Dr. Neil B. Hutcheon, assistant director of the division, Donald B. Dorey, Gordon Plewes and Thomas Ritchie.

The panelists agreed that Canada has one of the most severe climates in the world as far as its effects on buildings are concerned. While deterioration of masonry in the maritime provinces may be somewhat more rapid than in other parts of the nation, they said, the same condition exists to a greater or lesser degree throughout the entire country.

Three main reasons were cited for failure of building materials to resist the climatic rigors of the Maritimes:

(1) Penetration by water: in a laboratory test, a 12-inch brick wall subjected to the equivalent of a three-day rainfall, was saturated in 20 minutes. Serious damage results if a sharp drop in temperature follows a rain storm or thaw because of the expansion of freezing water.

(2) Efflorescence: this disfigurement, caused by chemical action which deposits crystalized salt on masonry surfaces, is hard to avoid in localities where there is no choice but to use salt water sand in mixing mortar.

(3) Corrosion of metals in contact with masonry.

In a discussion which formed part of the symposium, R. F. Legget, director of the Division of Building Research, N.R.C., said that extensive studies were being made by the division. The experience of architects, engineers and contractors in all four Atlantic provinces would be drawn upon in the hope of solving the building problems peculiar to this part of Canada.

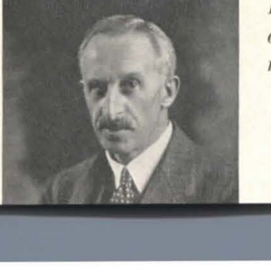
R.A.I.C. president A. J. C. Paine praised efforts being made in the laboratories, but stated that in his opinion more rigid inspection of construction was necessary. Masonry skills had shown a decline, he said, and architects could assist in seeing that a higher standard of competence was maintained.

A New Research Station

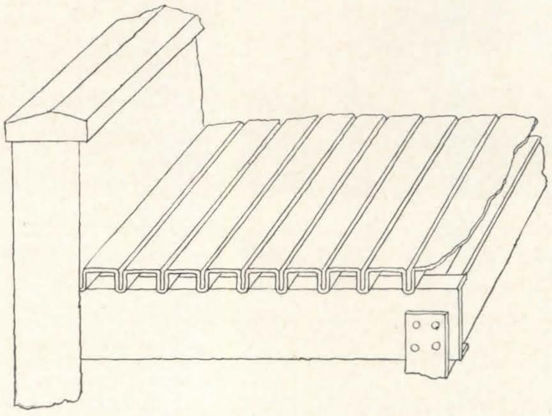
At the close of the symposium, Mr. Legget announced the establishment of a research center in Halifax to probe the effects of the maritime climate on building materials, particularly masonry.

(Continued on page 28)

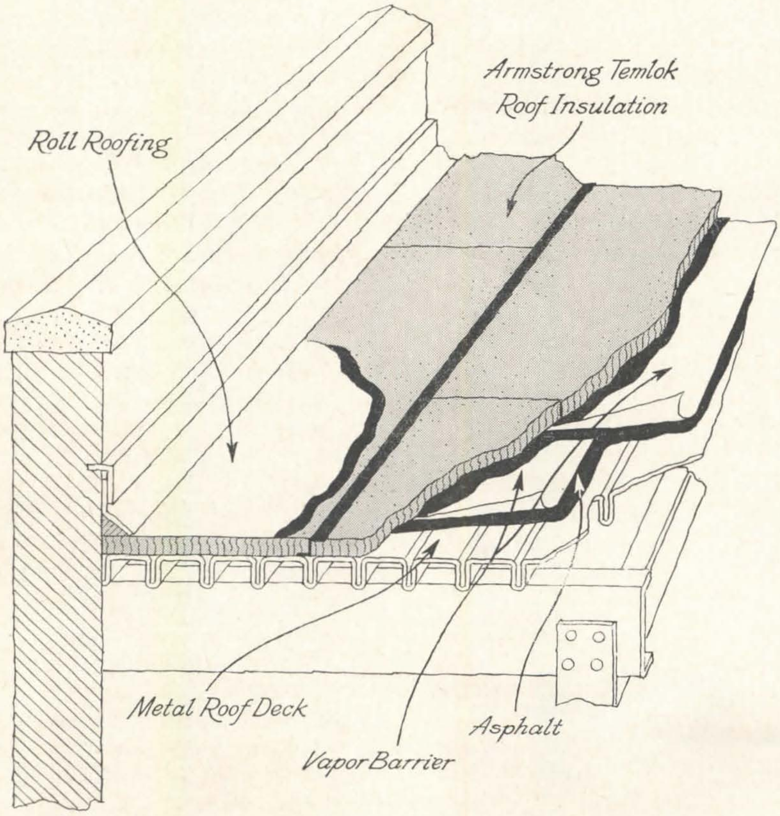

Participants in the masonry symposium included Charles Fowler, vice president, Nova Scotia Association of Architects; Chairman N. M. Stewart; Dr. N. B. Hutcheon, National Research Council; R. Stirling Ferguson, also of N.R.C.; and Donald Tibbetts, of the new Maritime research station


Officers and new members of the College of Fellows include (seated) A. T. Gall Durnford, dean; Forsey Page, retiring chancellor; W. Bruce Ridell, registrar; (standing) Alvin R. Prack; Gordon Bridgman; Burwell R. Coon, incoming chancellor; E. A. Gardner; and Walter Moorehouse. Below: new Honorary Fellow, Professor Percy E. Nobbs

How would you insulate this printing plant roof?



A printing plant is being located where the outside design temperature is minus 10° F. In the large pressroom for multicolor offset lithography, interior temperatures will be held between 75° and 80°, with a relative humidity of 46% to 48%. A central heating and air-conditioning system is to be installed. With metal roof deck construction, what type and how much roof insulation would you specify over the pressroom?



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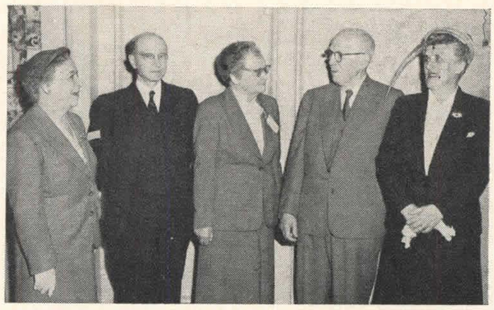

Left: President Paine confers with the secretary of the Institute, C. J. G. Carroll. Center: at the Institute's annual Andrew Cobb Memorial Dinner, from left to right — Mrs. A. J. C. Paine, Alderman J. G. DeWolf; Mrs. Cobb; Mr. Paine; and Mrs. DeWolf. Right: A. Edwin Priest of Halifax, honored for his service to the Nova Scotia Association of Architects, receives an engraved cigar box from W. M. Brown; Allan Duffus, president of the Nova Scotia association, and Mrs. Priest, look on

The center is to be known as the Maritime Regional Station, Division of Building Research, and will be located in N.R.C.'s existing regional laboratory on the campus of Dalhousie University.

Mr. Legget stated that the station would be in operation by July, and by the end of this year would be dealing with problems of masonry construction arising from maritime climatic conditions. Work already done in this field by the Nova Scotia Technical College, with support from the Nova Scotia Research Foundation, will be supplemented by the station, and close cooperation has been arranged with the Meteorological Division of the Department of Transport, and the Halifax regional office of Central Mortgage and Housing Corporation.

Paine Opens Assembly

About 100 delegates — bad flying weather delayed the arrival of others until later — heard R.A.I.C. president Paine open the 48th annual assembly on Thursday morning, June 2. The previous day had been spent in pre-assembly meetings, topped by a "get acquainted" reception that night.

Mr. Paine announced that for the first time the Institute was operating under its new bylaws. The Revised Act of Incorporation was passed at the last session of Parliament. He reported that the financial position of the Institute was strong, and that consideration might soon be given to obtaining larger premises than those currently occupied in Ottawa.

Reporting on R.A.I.C. public relations activities, Mr. Paine said that the Council had decided not to employ a public relations counsel for the present, and that the feeling was that individual architects could contribute "publicity of high quality and with lasting effects" by "volunteering for service on committees, and Service Clubs, by teaching, by membership on building code and town planning committees, and the like."

Mr. Paine also announced that the Legal Documents Committee had completed revision of the "Cost Plus" contract, and that the changes had been approved by both the R.A.I.C. and the Canadian Construction Association. The form will be printed, and a French translation is planned.

Discussing the recent disagreement between contractors and subcontractors on bidding procedures, the president said that the Institute had ruled that the architects' position in the controversy was a matter for decision by the individual provincial architectural associations.

Following the opening session, the City of Halifax entertained the delegates and their wives at luncheon, and in the afternoon gave them a tour, conducted by the Royal Canadian Navy, of Halifax Harbor.

In the evening, the Andrew Cobb dinner was held, with Mrs. Cobb as guest of honor. The late Mr. Cobb, a

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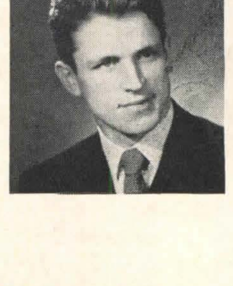
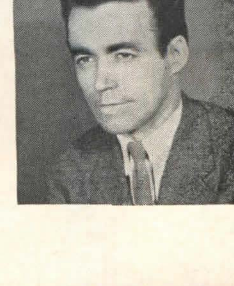
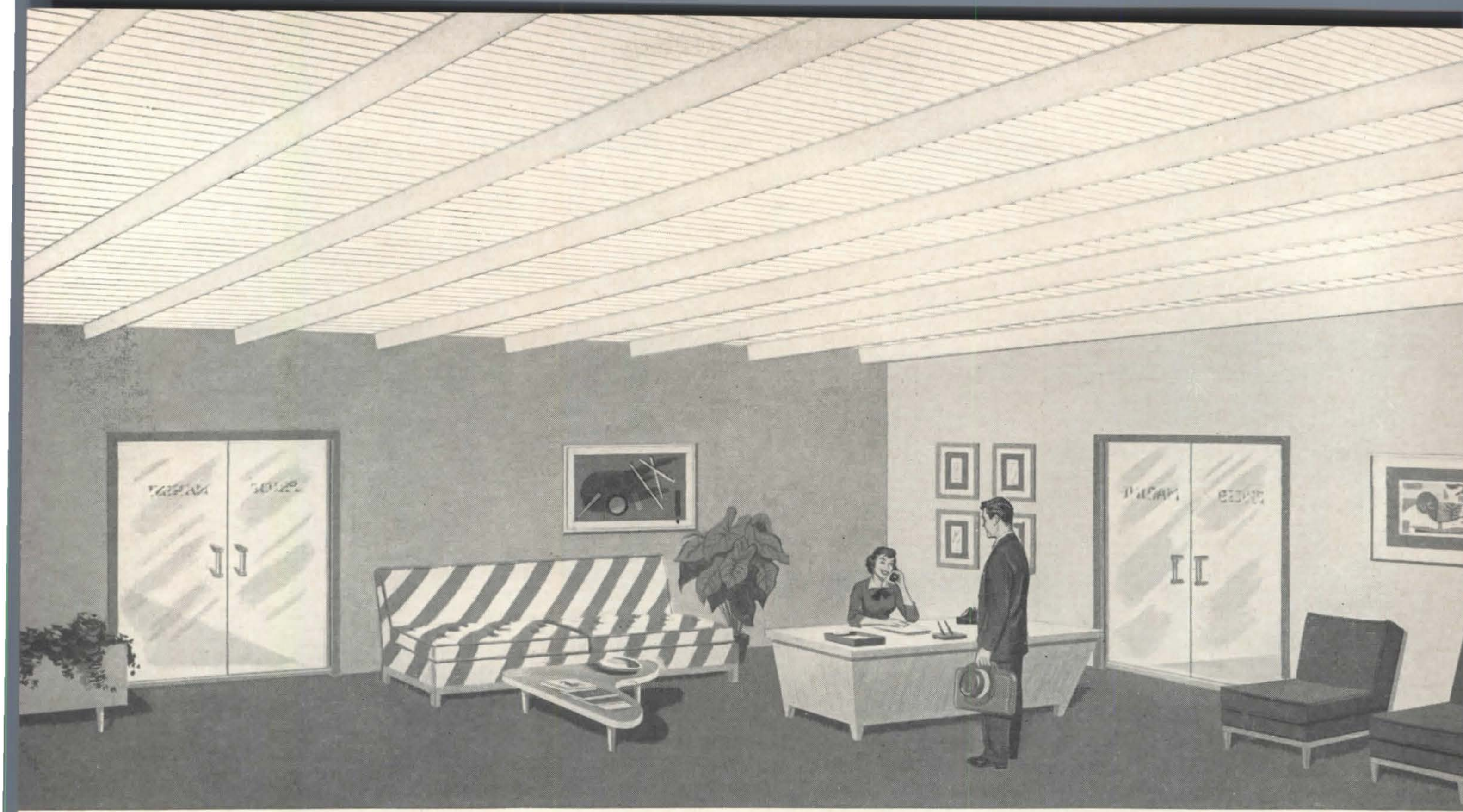




Left: judges for this year's Pilkington Traveling Scholarship included W. S. Goulding, Dan Dunlop, C. E. Trudeau, John C. Parkin and Edouard Fiset. Winners were: first prize, R. B. Archambault, University of British Columbia; second, Ojars Biskaps, University of Toronto; tied for third, Fernand Tremblay and Evans St. Gelais, Ecole des Beaux Arts



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THE RECORD REPORTS NEWS FROM CANADA

(Continued from page 28)

noted Halifax architect, is honored annually by the Institute at a memorial dinner.

Earlier, members of the Nova Scotia Association of Architects had honored A. E. Priest, of Halifax, who helped found the provincial organization. He was presented with a leather-bound engraved cigar box "in grateful recognition of his 23 years of devoted effort on behalf of the Association."

Friday was given over to the masonry symposium in the morning, golf in the afternoon and a lobster supper at the Shore Club, Hubbards, about 30 miles from Halifax.

On Saturday the masonry symposium continued, and the delegates took a tour of the city in the afternoon.

Arts Medal Presented

A highlight of the annual dinner, held Saturday night, was the presentation of

At Friday night's lobster supper, from front to back: at left — Mrs. R. S. Morris, Toronto; Mr. and Mrs. Pierre C. Amos, Montreal; Mr. Morris; and Mrs. E. C. Morgan, Toronto. At right — Mr. and Mrs. Forsey Page of Toronto; and Mr. and Mrs. W. Bruce Riddell, of Hamilton, Ont.

From left to right: Mrs. Mary Holmes of the R.A.I.C. staff; Roy Sellors, Winnipeg; J. P. Dumaresq, Halifax; Mrs. Rolf Duschenes and John R. Disher, both of Saint John

the R.A.I.C. Allied Arts Medal to Donald Cameron Mackay, Halifax painter and muralist. This award is made each year for outstanding performance in the arts related to architecture.

Four of the six new members of the College of Fellows were present at the dinner to receive their diplomas. They were L. Gordon Bridgman of London, Ont., A. E. Gardner of Ottawa, Walter N. Moorehouse of Oakville, Ont., and Alvin R. Prack of Hamilton, Ont. The other two new Fellows, C. Davis Goodman of Montreal and James M. Stevenson of Calgary, were not able to be present.

The election of Prof. Percy E. Nobbs as an Honorary Fellow was also announced. Professor Nobbs, a past president of the Institute, was formerly the head of the School of Architecture at McGill University, and was honored for his "unrivaled contribution to the scholarship and high standing of the architectural profession in Canada."

Exhibitions held in conjunction with the assembly were housed in the Halifax Memorial Library. On display were com-

(Continued on page 32)

THE RECORD REPORTS
NEWS FROM CANADA

(Continued from page 30)

petition drawings for the Ottawa Police Administration Building and the Vancouver Civic Auditorium, as well as the prize-winning drawings in the students' competition for the Pilkington Traveling Scholarship in Architecture.

A full schedule of activities was provided for the wives of delegates during the assembly. Included were a coffee party on Thursday and luncheon at the club house of the Royal Nova Scotian Yacht Squadron on Friday.

Left to right: Neil M. Stewart, president of the New Brunswick Association of Architects; G. Paul Brassard and Pierre Morency, both of Ecole Des Beaux Arts; John Bland, McGill University; John A. Russell, University of Manitoba; Fred Lasserre, University of British Columbia; A. T. Galt Durnford, Montreal; and W. G. Raymore, Toronto

Reviewing the masonry symposium — C. A. E. Fowler, Halifax; E. A. Gardner, Ottawa; Ronald M. Peck, Wolfville; W. W. Downie, of Halifax

In closing the assembly, Mr. Paine announced that the 1956 assembly would probably be held in Banff.

Officers for 1955–56

Since they serve a two-year term, officers of the Institute remain: president, A. J. C. Paine; first vice president, W. Bruce Riddell; second vice president, A. E. Priest; honorary secretary, Maurice Payette; and honorary treasurer, Douglas E. Kertland. C. J. G. Carroll continues as secretary.

Members of the Council for 1955–56 are: Alberta — K. C. Stanley, H. L. Bouey, W. G. Milne and T. A. Groves; British Columbia — J. Lovatt Davies, John Wade, F. W. Nicolls, Peter M. Thornton and Fred Lasserre; Manitoba

(Continued on page 36)

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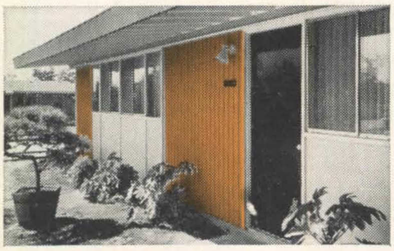

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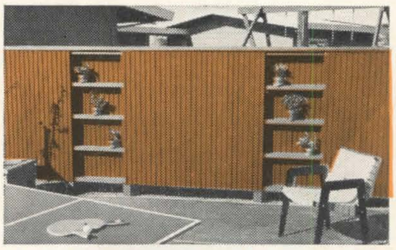

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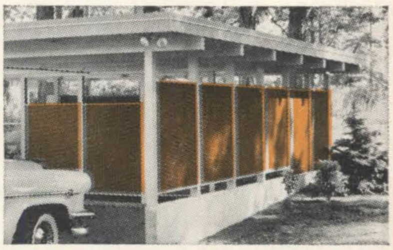

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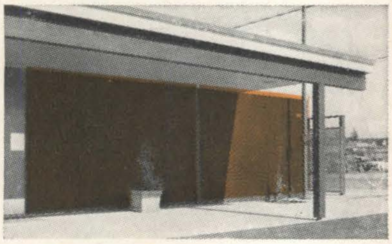

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THE RECORD REPORTS NEWS FROM CANADA

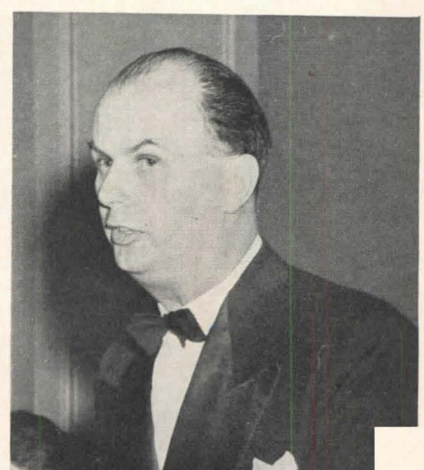
(Continued from page 32)

— Cecil N. Blankstein, Earle G. Simpson, H. H. G. Moody and E. J. Smith; New Brunswick — Neil M. Stewart and H. Claire Mott; Newfoundland — F. A. Colbourne and J. E. Hoskins; Nova Scotia — A. F. Duffus and A. E. Priest; Ontario — A. J. Hazelgrove, H. Gordon Hughes, W. Bruce Riddell, Hugh P. Sheppard, Douglas E. Kertland, F. Bruce Brown, R. Schofield Morris, Earle L. Sheppard, L. E. Shore, Harland Steele and Victor J. Blackwell; Quebec — A. J. C. Paine, P. C. Amos, John Bland, R. E. Bolton, Lucien Mainguy, Maurice Payette, Henri Mercier, E. J. Turcotte and H. Ross Wiggs; and Saskatchewan — Frank J. Martin and R. B. Ramsay.

Burwell R. Coon of Toronto has succeeded Forsey Page as chancellor of the College of Fellows, while A. T. Galt Durnford continues as dean and W. Bruce Riddell as registrar.

(More news on page 38)

To head the new Maritime research station for the National Research Council: Donald Tibbetts (center) and Donald Dorey (right). J. P. Dumaresq joins their conversation



John Lovatt Davies of Vancouver, president of the Architectural Institute of British Columbia, delivers his address at annual dinner

"A time to cast away stones, and a time to gather stones together"

Ecclesiastes III: 5

On Thursday, July 7, 1955 Frank Lloyd Wright appeared in Washington before the Subcommittee on Department of the Air Force Appropriations of the House of Representatives.

There he spoke at length of the incompetence of the design for the Air Force Academy, its architects and the architectural advisers to the Secretary of the Air Force.

That he did not like the design will come as a surprise to exactly no one. His massive contempt for literally all save his own efforts is one of his best known and least noble characteristics.

This contempt, added to his early and continuing eagerness to do the job himself, suggests that his criticism may be virtually free of objectivity. Although it may be suggested also that the tentative nature of the presentation makes his criticism premature as well, few will question his right to criticize.

Many will be saddened at the manner of the criticism and at the seeming irresponsibility in his deliberately disdainful evaluation of the architects and architectural advisers.

Of architects Skidmore, Owings and Merrill he said, among other derisive things, "I think they have five or six hundred draftsmen, and the two men at the head of it, what do they know about architecture?" In reply to a question about their stature as architects: "I would not use that word stature in regard to them." And later: "If you want something that represents feeling, spirit, and the future, they have not got it."

Of the advisers he had this to say of architect Welton Becket: "I do not know him but I know of him. I wish that something would happen to him soon. I would hate to see his things going as they are going now."

Of architect Eero Saarinen, only: "His father wanted me to train him architecturally. That is the young boy."

Of architect Pietro Belluschi: "He is a teacher. He has done some very nice little houses, but he has had no experience as a builder."

When the foregoing were further identified to Mr. Wright as the consultants, he had this to say: "I could not imagine anything that would make a bad matter worse."

And finally, as a clincher to his appeal that he be given the opportunity to prepare preliminaries for the design, he said of the whole group: "None of those men that you have mentioned to me could ever conceive a thing, so what is the use of monkeying along with it?"

This is the man who has so proudly proclaimed — and did so again to the subcommittee — that he has "never joined the architectural profession because they have never lived up to their so-called ethics."

Someone must dare to suggest that in his public utterances it has been a long time since Mr. Wright has served well the cause of architecture; and that in this appearance he has rendered a distinct disservice to his country as well.

We need an Air Force Academy. We do not need the divisive, disruptive delays that this back-biting will bring. We will get an Air Force Academy. It may very well fall short of our dreams; most buildings do. But we need buildings and must continue to build them; always as effectively and often as swiftly as we are able. And to do this and to bring to bear all our developing technology on increasingly complex problems, architects and engineers must work patiently with each other and with their clients and between them there must exist the greatest sympathy and understanding and mutual confidence. Everything must be done to achieve this goal. Anything which is done to frustrate it — deliberately or unwittingly, in malice, in blind egoism, or in the name of an art which will be honored only as its artists are honored and honorable — must be identified as frustrating the welfare of the country.

The nature of architecture changes but the need for sincere and sympathetic architects remains. Those who deride and demean their fellow artists risk rendering the art trivial in the eyes of all. For those who wonder why the architect is often suspect in the public eye read the full transcript of Mr. Wright's testimony and reflect that for fifty years he has been telling the people of America that their architects are foolish, grasping, charlatans. And like fawning dogs, too many architects have continued to whimper their pleasure at even being mentioned.

Year after year he has been invited back to the lecture halls of our schools and museums where in a curious variation of masochism our faculties and students have bared themselves to his lash. Those not whipped into discouraged despair at his gloomy prediction of their ultimate failure may, under this tutelage, actually come to believe that braggadocio and scornful intolerance are the proper attitudes for the truly gifted artist. It is not an inspiring leadership for young people of talent whose greatest purpose in the schools Mr. Wright so despises may be to discover that men set apart by their God-given talents must labor the more to identify themselves with their fellows in order that those talents may come to fullest fruition.

The great contributions of Frank Lloyd Wright are inevitably being matched by those of other great artists. His achievements in abuse may yet, and tragically, become more distinguishing than his achievements in building.

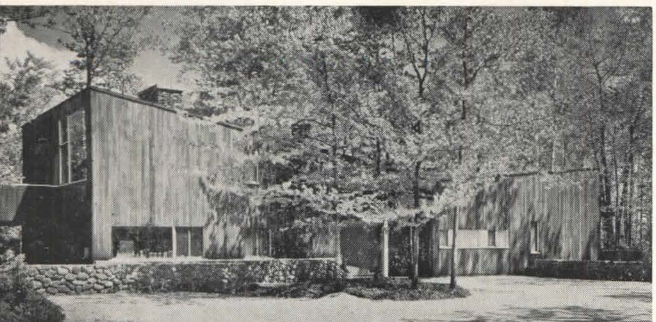
John Knox Shear

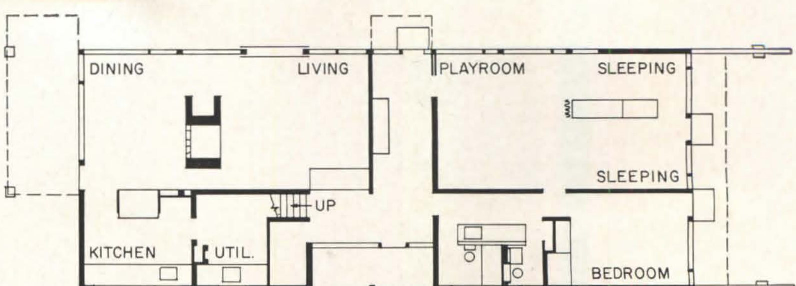
VACATION HOUSES

House for Mr. and Mrs. Herbert M. Agoos, East Andover, N. H.

Charles Burchard and William Lyman, Architects

Joseph W. Molitor





GROUND FLOOR PLAN

Joseph W. Molitor

VACATION HOUSES

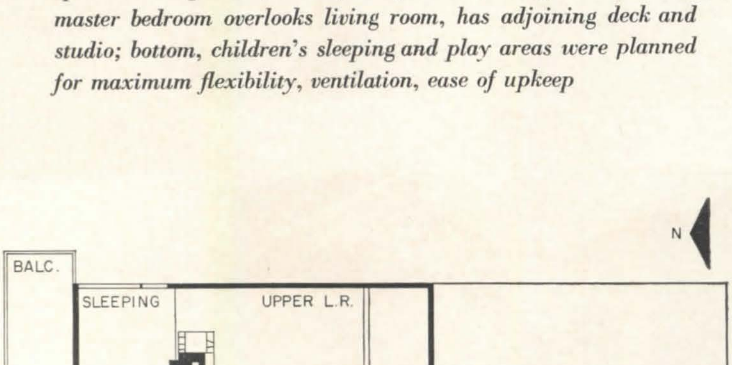
Herbert M. Agoos (continued)

THIS HOUSE, on the shore of a New Hampshire lake, was originally planned for weekend use only and for building in two stages. Before the first stage had been completed the owners had changed their final plans to an all-summer residence equipped for possible future use the year 'round. The completed house, therefore, has aluminum foil and glass fiber insulation and a hot air furnace in the newer bedroom wing, plus radiant electric heating in the ceilings of the original wing.

The owners are particularly pleased with "the quality of the interior space" — the combination of openness and privacy achieved by the two-story living room, the partially-enclosed dining area, the balcony bedroom, and the versatile children's quarters. Every room in the house has cross ventilation and quick access to the outdoors.

Construction is wood frame on a concrete foundation. Exterior walls are fir. Floors are flagstone or rubber tile over concrete. Cost is difficult to estimate because of two-stage construction, but first stage cost approximately $13,000 and second stage about $18,000, excluding utilities and masonry work.

Opposite: size of living room is visually extended by two-story height, glass wall, and flagstone floor merging with terrace flagstones. Right: top, living room walls are waxed fir; upper center, dining area is well protected from entry, but partially open to living room, adding to spacious feeling; lower center, master bedroom overlooks living room, has adjoining deck and studio; bottom, children's sleeping and play areas were planned for maximum flexibility, ventilation, ease of upkeep

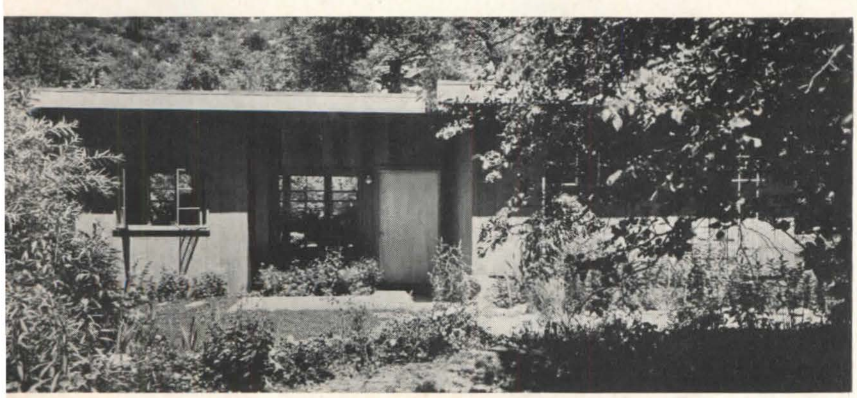


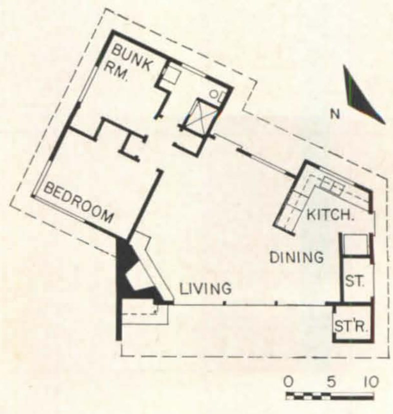
UPPER FLOOR PLAN

VACATION HOUSES

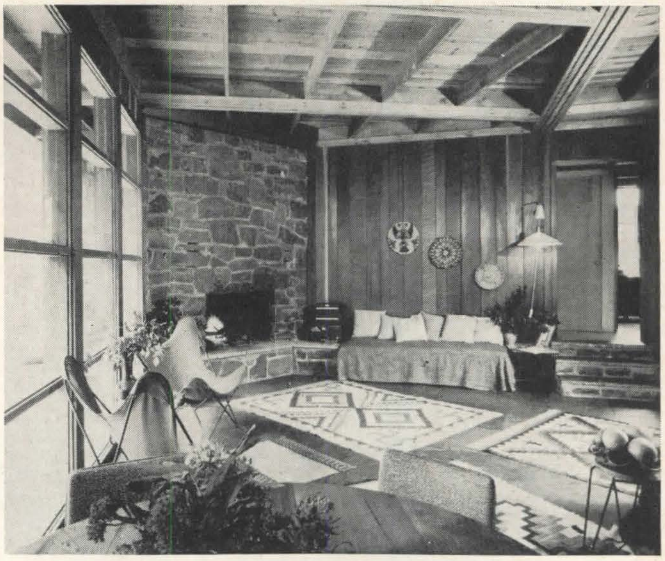
House for Mr. and Mrs. John Girand, Oak Creek Canyon, Arizona

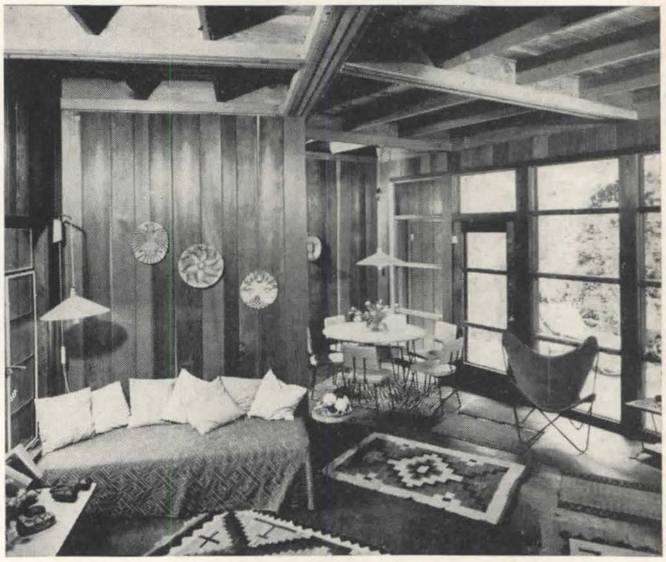
Harold Ekman, Architect





Stuart Wiener



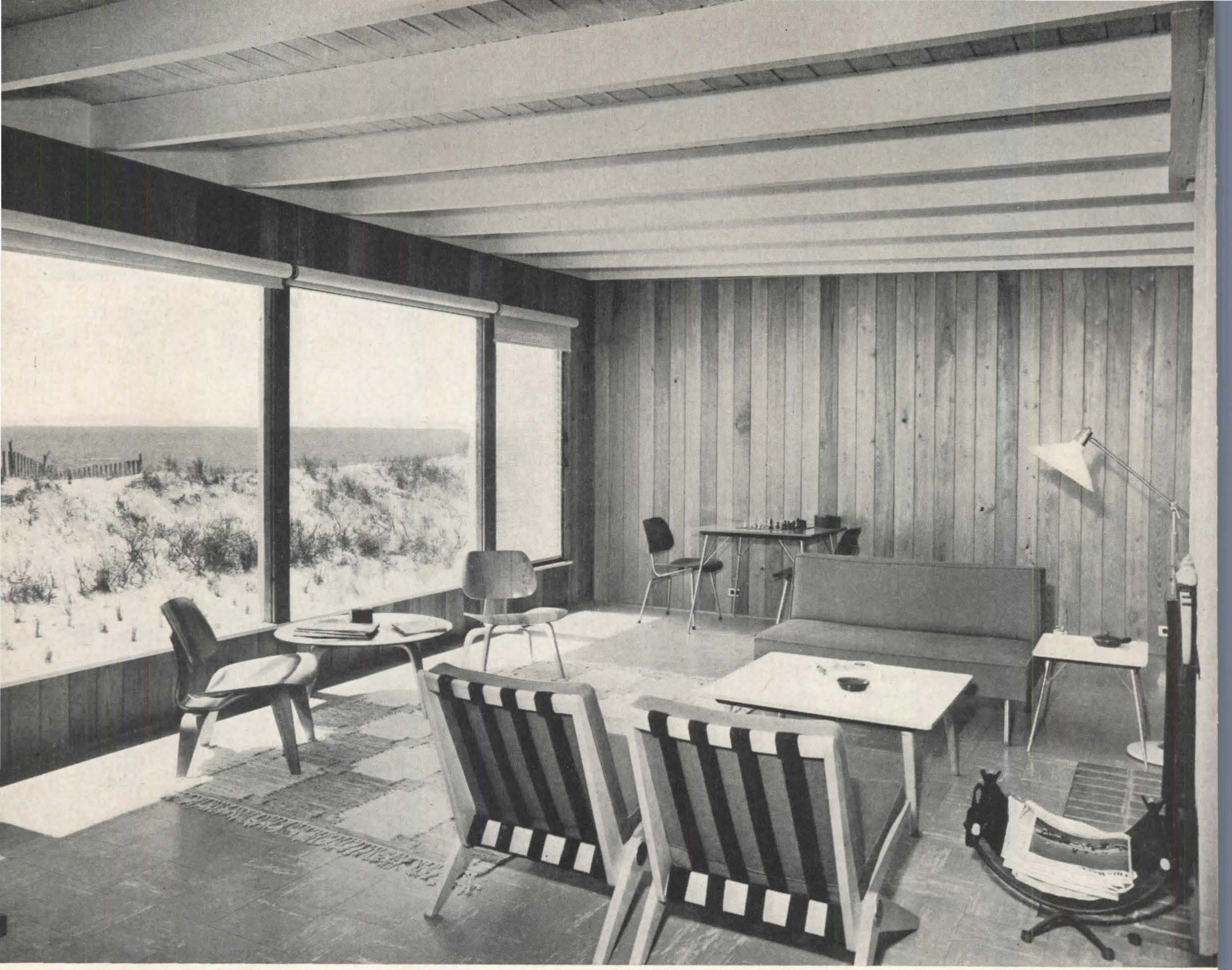


THE OWNER of this mountain cabin is a consulting engineer with a literary flair. "I have worked for, with and against architects for lo! these 20 odd years," he writes, "during which time I have become thoroughly convinced that subdividers can provide four walls and a roof, but it takes an architect to design a home. I didn't have to tell mine anything. He knew we had two boys, who can catch fish with dough-balls (a bait made of soggy bread kneaded with dirty little hands, a truly most unsavory mess) while their elders with expensive dry flies come home with empty creels. He provided the boys' room with bunk beds and a wall with a 'secret panel' to hide such treasures as a rusty jackknife and an old top and a real live 'horny toad' and a Boy Scout compass. I didn't have to tell him the cliff across the creek was there; he saw it and put the glass front in the living room. I didn't have to tell him that the sun comes up north of east in the summertime — he skewed it (not the sun, the house) around on the lot so breakfast is sun and luncheon is shade and dinner is moonlight and roses.

"The site sloped towards the creek, hence the two-level arrangement between sleeping and living areas. The front door is in back (away from the creek, I mean), with a terrace and more steps up to a large car-parking area woven between quince bushes and an old apple tree. In front, the living room floor continues through the glass wall with a flagstone patio overlooking a tranquil pool below a waterfall.

"It's just about as perfect a summer home as could be found this side of Valhalla."

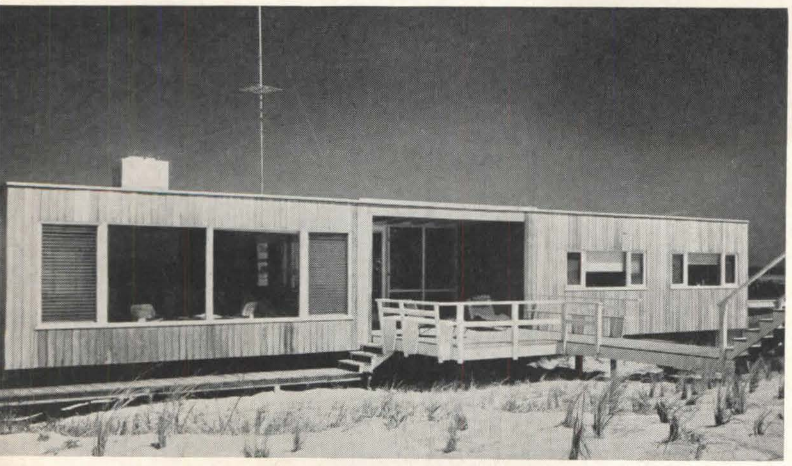
Exterior of vertical random width redwood siding "makes the place look like it's been there all the time," the owner says. "The living room interior is also vertical redwood, waxed, except the ceiling which is exposed pine beams under pine sheathing. Bedrooms are exposed studs and beams and the kitchen is sheet rock, painted blue, with rustic pine cabinet work; counter tops are coral. Floors are flagstone, and thereby hangs a tale. In this part of Arizona many of the native artisans are Hopi or Navajo Indians, and they are as skilled in masonry as they are in silver. Each flag in the floor was cut by an artist's hand and laid in the cement grout sub-floor with an artist's touch and tapped into place with an artist's feeling for beauty"

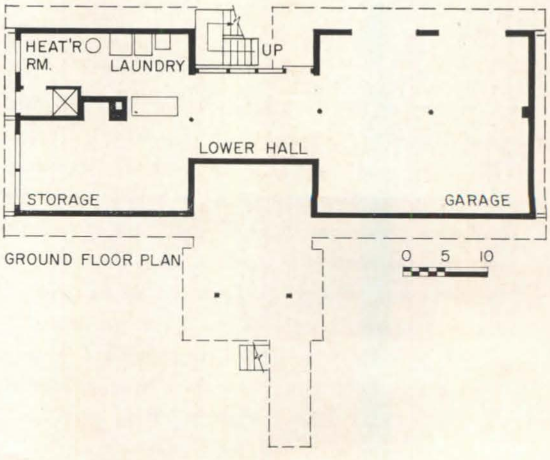


VACATION HOUSES

House for Mr. and Mrs. Mortimer M. Denker, Westhampton Beach, N. Y.

Huson Jackson, Architect; H. Seymour Howard, Jr., and Harold Edelman, Associates



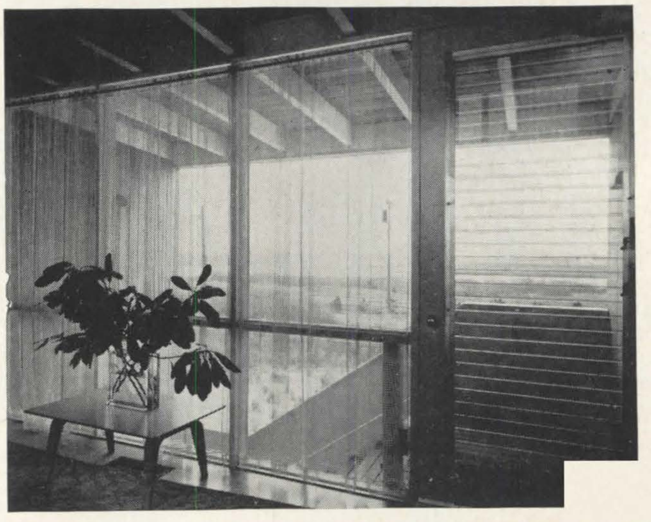


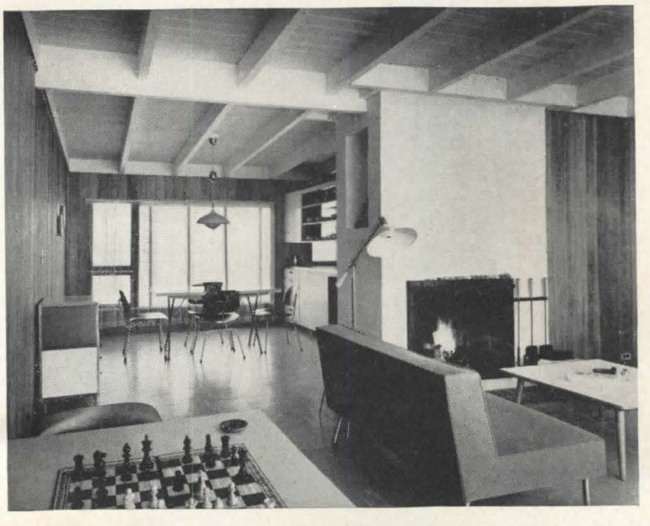
GROUND FLOOR PLAN

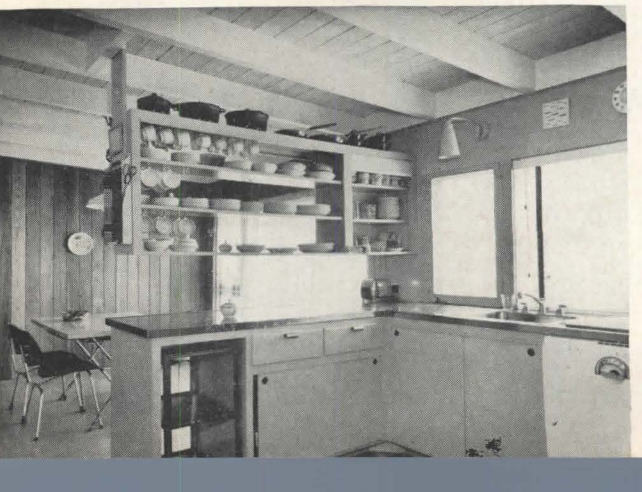
A SLOPING SITE facing the ocean to the south and a bay to the north made a two-story plan the logical one for this beach house. All main rooms are on the upper level, with the living room and two of the three bedrooms on the south side where they have a clear view over the dunes to the ocean. The deck, too, is on this side of the house, located to take advantage of the best view and still be partially sheltered from the wind. Dining area, kitchen and the third bedroom face the entrance driveway and the bay; a story above ground level, they have complete privacy despite their relatively large glass areas.

Finishes were kept simple and easy to maintain. Walls are covered with vertical siding both outdoors and indoors. Ceilings are open joists, floors are asphalt tile. Foundation is cement block.

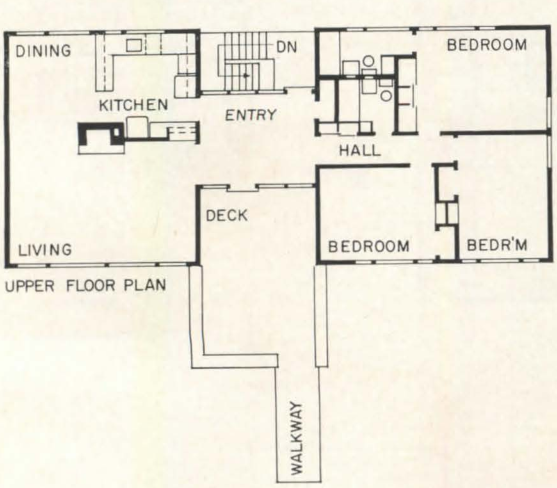
Louis Reens

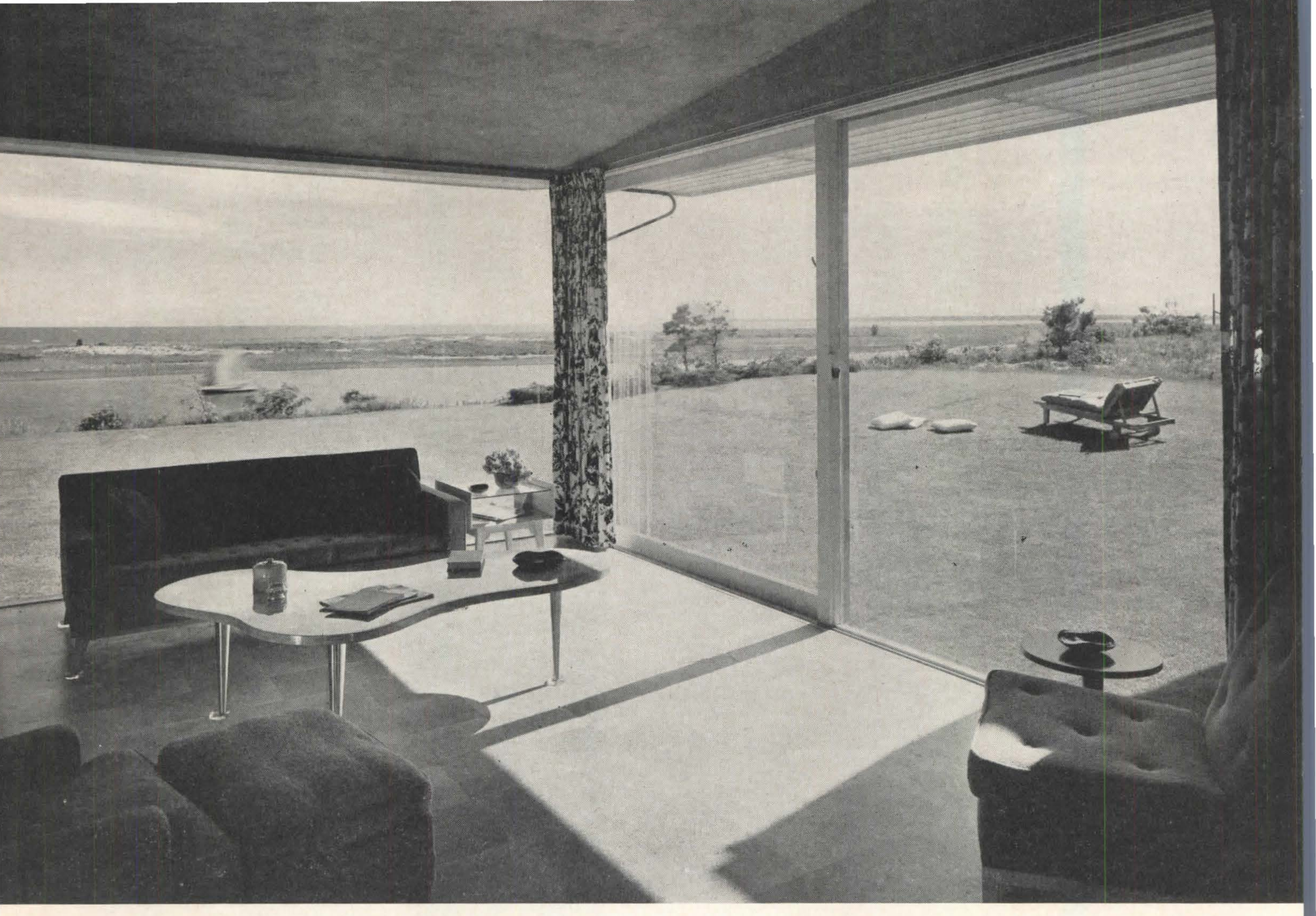






Opposite page: living room floor is plastic tile; exterior siding is cypress. This page: top, all rooms on upper level have direct access to beach by stairs on one side, deck on other; top center, stairs from entrance driveway lead up to entrance hall with glass walls on both long sides for enjoyment of the double view; lower center, dining area is virtually a separate room although open to living room at one end; bottom, kitchen is readily accessible from all parts of house, has large pass-through to dining area and ample storage space, plus bay view

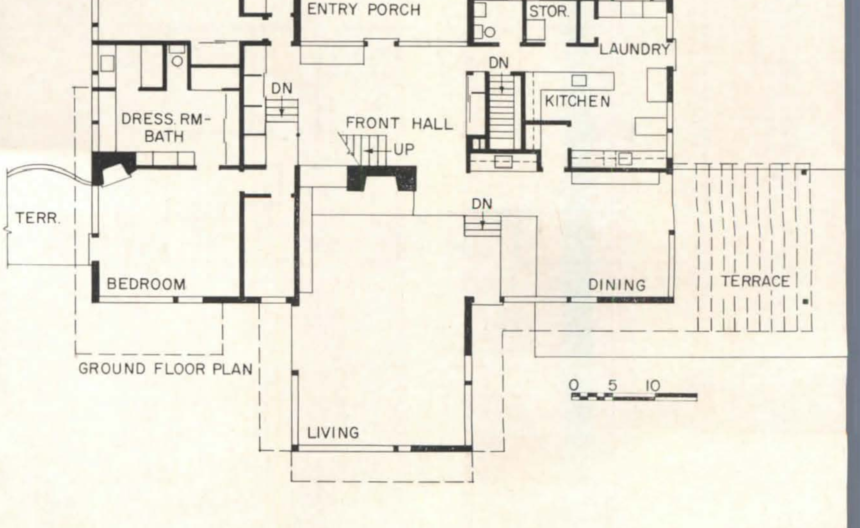




VACATION HOUSES

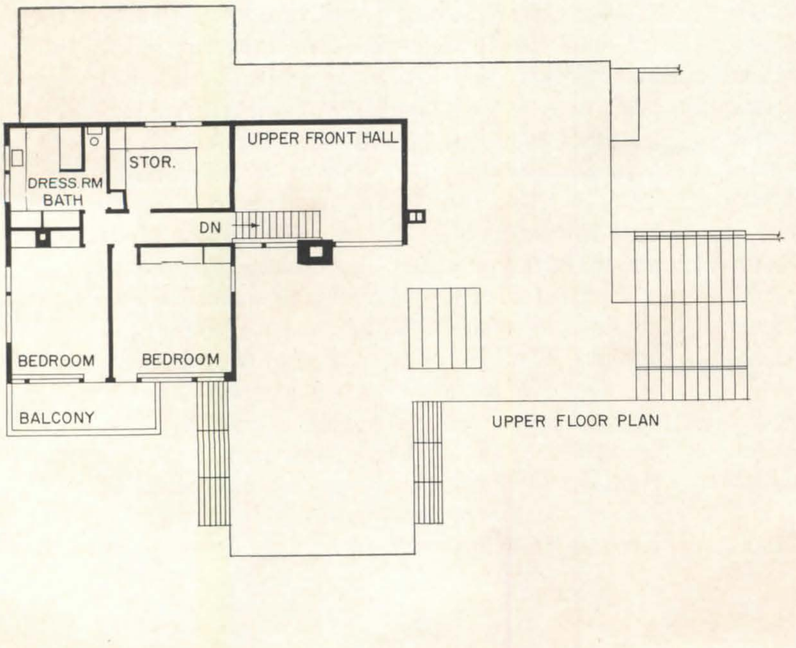
House for Mr. and Mrs. Thomas Estes, Oyster Harbor, Massachusetts

Carl Koch & Associates, Architects; Frederic L. Day, Jr., Associate

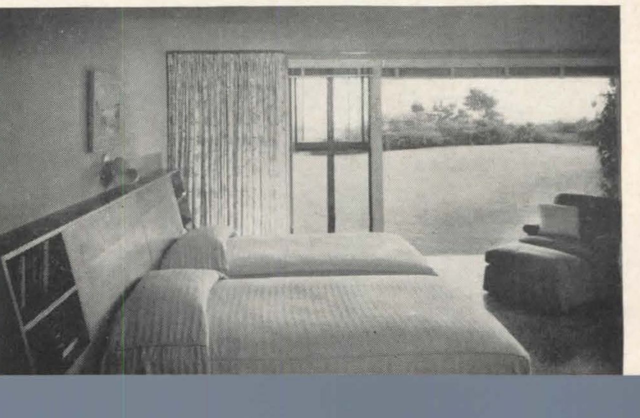


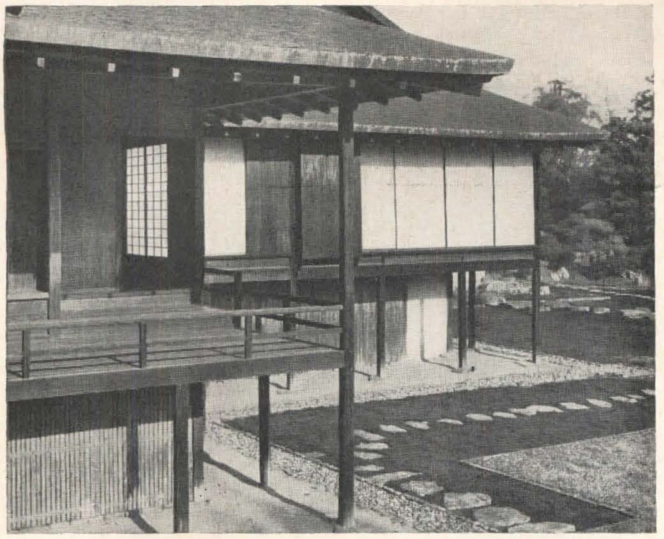
Cape cod — particularly that part of it on which this house is situated — is a combination of sand dunes, ocean and beautiful lawns; the views usually are best toward the ocean but very pleasant in every direction. This house, on a waterfront site typical of its locale, was planned to take full advantage of all the varying aspects of the Cape. It is set well back from both water and road, with generous lawn areas on both sides; its living room projects outward toward the ocean, almost entirely walled in glass for enjoyment of the view; the main entrance is through a landscaped garden to an entrance hall which carries the landscaping into the interior; the second-floor bedrooms share a balcony overlooking the ocean, and the ground-floor master bedroom suite opens directly to the lawn and beach.

Foundation is poured concrete, framing is pine board and batten. Exterior walls are cavity brick, interior walls painted brick, unpainted plaster, or board and batten. Roof is rolled asphalt. Floors are covered in cork tile, linoleum or oak. Ceilings are plastered (some with acoustic plaster). Heating system is hot water floor-radiant, equipment is mostly electrical



UPPER FLOOR PLAN





By Minoru Yamasaki

TOWARD AN ARCHITECTURE FOR ENJOYMENT

THE STATE OF ARCHITECTURE today can be described as wonderful. We are in an ascending period, in possibly one of the most important and challenging eras of architectural history. Architects throughout history who similarly lived in the years leading to the culmination of an architectural era must have enjoyed the same kind of creative inspiration we have in the profession today.

Yet in the excitement and undue haste characteristic of such times, we find little opportunity to pause and take stock of what we have accomplished and where we do go from here. Though the necessity of such soul searching is significant to any creative effort, our hectic lives and the overpowering rush of our industrial economy generally force us to stay within the ruts of the more established patterns of our contemporary architectural thinking.

The opportunity to travel in Italy, India and Japan, experiencing for the first time their wonderful architectures of the past, gave me pause to review in my mind my architectural thinking and to crystallize a few thoughts about the future.

Before looking ahead at hopes for our architecture of tomorrow, it might be in order to review the present, since the future is largely dependent on our resolution of today's problems.

Some of the problems with which we struggle include: exaggerations of important and basic qualities of architecture such as function, economy, originality; the respect for the great men of our profession; and the respect for history. These exaggerations I will list as fallacies.

The *functional fallacy* is the overimportance placed on function, the natural reaction from the ignoring of function by our immediate predecessors.

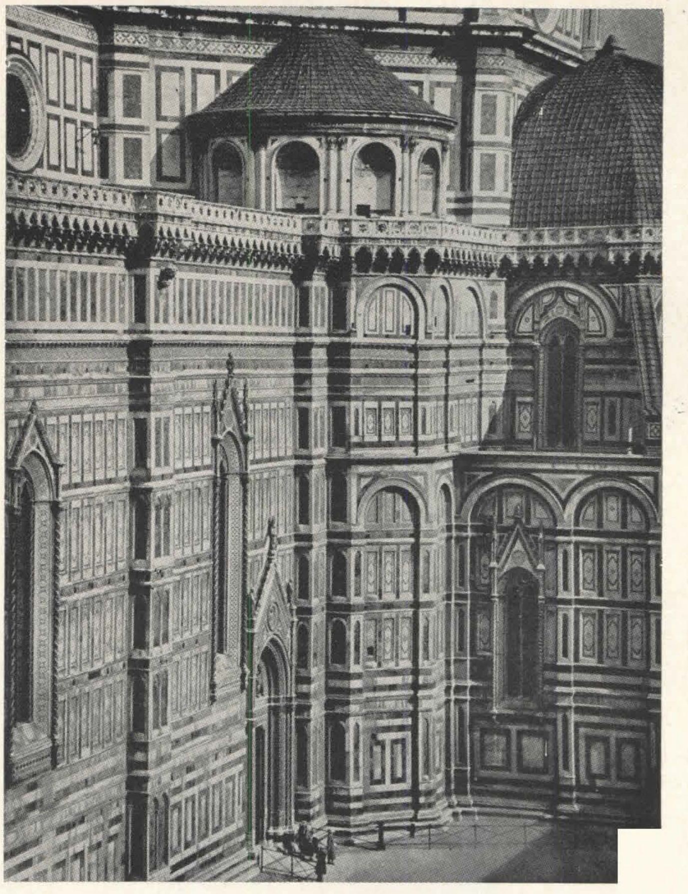
Is it so difficult to understand that there are so many solutions which function and so few which have souls?

Commodity and firmness are expected requisites of any responsible building. Does not architecture only begin here? If we stop at function and function only, we have not even commenced with architecture.

Is not architecture the effort of mankind to instill into his constructed environment the quality of aspiration toward nobility which will inspire him in the pursuit of happiness which he so urgently seeks?

We must work for the uplift, the emotional quality of architecture which is man's physical expression of his nobility. If we could attain this quality in every building, in every walk of life, no matter to how small a degree, then we will have achieved with the tools of our architecture, the kind of environment that we so desperately need as a framework for our civilization.

Such an environment could only serve to lift the ideals of people today, much as the great cities of the



"Is it so difficult to understand that there are so many solutions which function and so few which have souls?"

Renaissance must have provided inspired backgrounds for their tremendously creative effort in the arts.

Another impediment to the growth of our architecture today is what I call the *economic fallacy*.

It is obvious that architects have the responsibility to work within the overall economic framework of society. But to use the excuse of economy as a crutch for bad or unimaginative architecture is a crime of irresponsibility.

We are all guilty of this crime. The excuse for lack of perseverance in design or for mistakes in judgment and direction is the low budget. Whether the low budget is in the funds for the building or in the degree of will and energy within ourselves is open to question.

The best wood and paper architecture of Japan was conclusive proof to me that spiritual quality was not irrevocably tied to precious materials.

With the struggle for originality, basic in any new movement, are concomitant misconceptions in judgment. Originality only for its own sake and limitation of design to new or experimental materials, I will call the *originality fallacy*.

Originality is marvelously heady stuff. It unlocks doors to new avenues and excitement in architectural thinking. Without it, architecture or any creative field would die. Yet, originality only for the sake of originality has blotched our horizon with many excesses.

And it's not only the extremists who err in this respect. All of us have made errors in judgment, following dictates of originality.

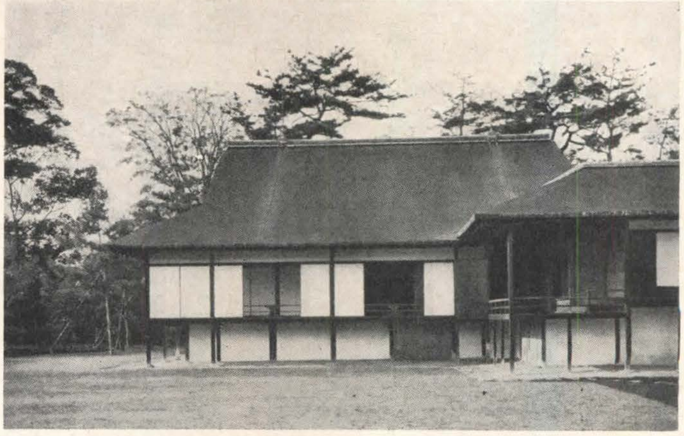
The responsibility of the architect can be said to be far greater than that of the painter or sculptor, simply because his judgment affects the labors of many others, while the painter or sculptor can destroy a canvas or a piece of sculpture without having wasted anyone's time but his own.

We have been guilty of restricting ourselves to the newer and experimental materials, and it has hurt us. But the elimination of materials simply because they have been used before gives us only a flat and uninteresting palette to paint our bright new world.

The fine environment toward which we work and hope must be fashioned with every good thought and every good material available. We must find new and old ways to use new materials, and new and old ways to use the old.

The uncertainty of where to go in architecture is sufficient to force many to retreat subconsciously to the seeming safety of established thought. This I call *fallacy of hero worship*.

The fate of the reactionary in architecture is quite obvious. It needs no discussion here. The hero worshipper needs more concern. In immaturity, he imagines himself in the top ranks of a crusade. He disdains the



efforts of others outside his immediate realm, without realizing how mired he is himself in the rut of complete imitation.

Others, not counted in the elite circle, are working in possibly less glamorous circumstances, but with more sincerity and creativity.

We have too many little Wrights, little Mieses, little Corbus and little Buckies, who might well have become bigger Smiths and bigger Joneses and bigger Browns on their own. We can do nothing in imitation that Mies or Wright or Corbu could not do better.

Influence in architecture, or in any creative field, is important and necessary, but pure imitation can well be eliminated.

The modern schools of architecture established by Wright, Corbusier and Mies have undoubtedly played the vital roles in advancing contemporary architecture to the threshold of an era that promises true greatness. Of these, Mies and Corbusier have had by far the greatest direct effect on modern buildings. Most of our best examples in the past twenty years fall into the realm of influence of one school or the other. These masters, one reviving the philosophy of structural integrity in buildings, the other revealing to us the sculptural and plastic possibilities in modern materials, have been twin beacons which have helped guide us from the morass of cluttered thinking which was our inheritance from the previous architectural generation.

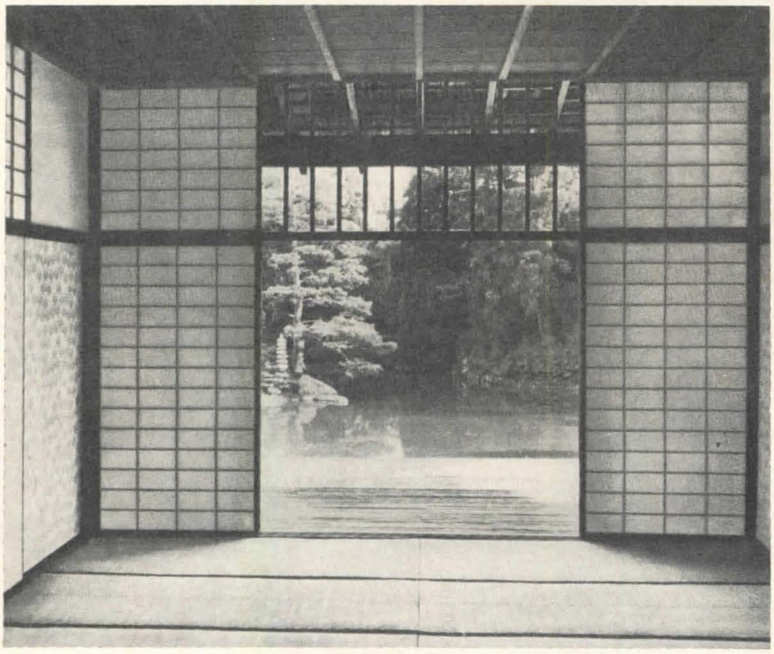
Yet as great as is the heritage that these two masters have given architecture, it can be seen that to remain permanently within the orbits set by their architectural thinking would be to stifle and restrict the future of architecture.

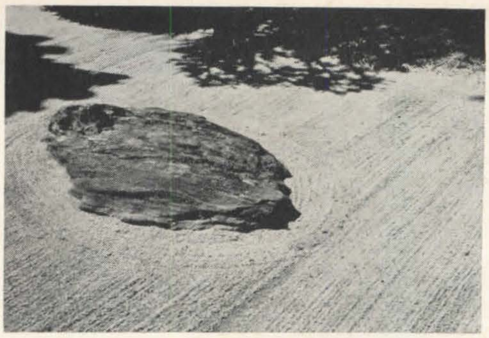
It may be that it is time now to look backward to look forward.

We seem to be emerging from our self-conscious era where everything old was to be ignored. Today we are again becoming aware that many past civilizations in their architecture reached emotional and spiritual heights which we in ours have yet to attain. An examination of the qualities of these historical architectures might well give us fresh insights into our architecture.

I will attempt to look backward then and recount the experience of my recent travels. On this trip through Europe and Asia, there were three architectures which made deep impressions on me, in Japan, in India and the Renaissance in Italy.

In Japan as in India the architecture is by no means all wonderful. The attendant ills of unplanned and overcrowded cities, confusions of people and automobiles, has hit Japan possibly worse than it has most Western countries. The war, the lack of importance of the individual, the high density of population and the general poverty combine to make Japanese cities





". . . to use the excuse of economy as a crutch for bad or unimaginative architecture is a crime of irresponsibility."

low on a theoretical list of pleasant communities.

Yet in the midst of this disorder can be found many cases of incredibly lovely architecture and gardens. The great heights to which the preindustrial culture of Japan reached is everywhere revealed in these buildings built in the Japanese tradition, ancient and new.

The modern architect in Japan, like ourselves, is desperately trying to find a vocabulary within today's materials which will permit him to approach the spiritual qualities of the architecture of his past, but thus far has met with little success.

His search may be more difficult than ours because of the economic instability of the country, but he has an advantage, too, in having this elegant architecture so close at hand.

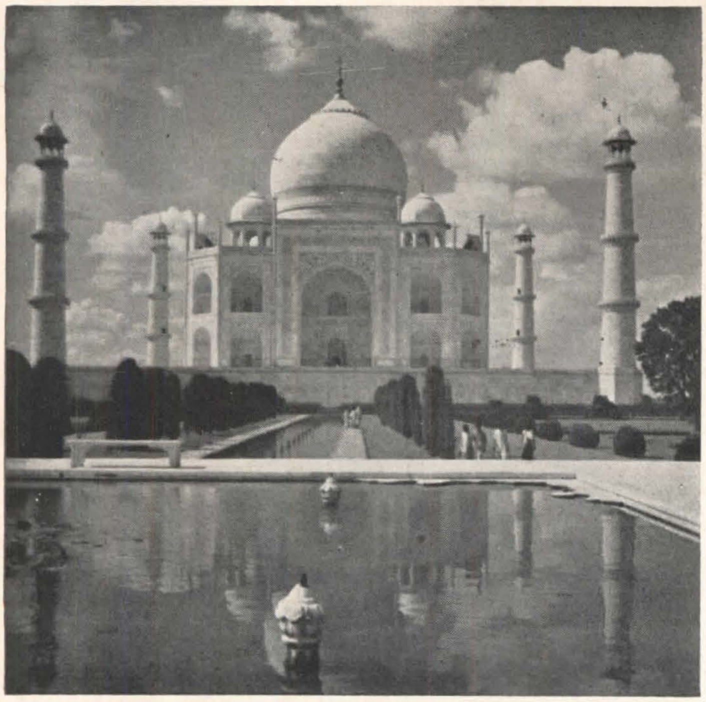
The regard for nature, the elegant detail and the understanding of material in this architecture has been the source of much inspiration.

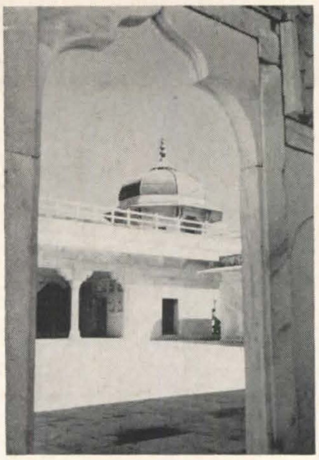
There are other qualities possibly more subtle but equally important. The element of surprise as used in Japanese architecture is a source of constant delight. It must have been in Japan that Wright learned the impact of surprise in architecture which he uses so masterfully in his buildings. The pleasure of surprise is found in many buildings, large and small.

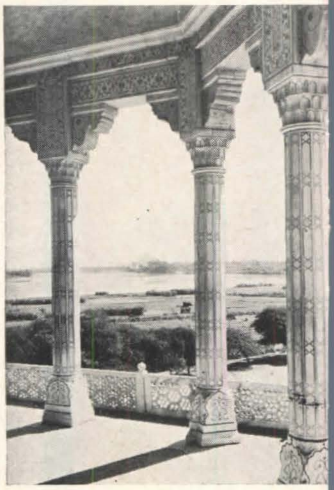
I remember vividly a visit to a traditional restaurant in Ginza, the principal shopping area of Tokyo. In the typically Japanese restaurant, each party is given a separate room. This room has the tatami or straw mats on the floor. The walls are plastered with a brownish Japanese plaster set between structural wooden posts which are polished to a lovely natural luster. The windows and doors are delicate wood and paper screens called shoji. In the center of the room is a table about fifteen inches high around which are placed cushions upon which the guests seat themselves. On one wall is the tokonoma, or the artistic focus of the room in which is placed, in careful composition, a Japanese hanging and an exquisite flower arrangement. Even the food is beautifully arranged and served in interesting dishes on lacquer trays. Altogether, the experience of dining in such a room is one of pure delight.

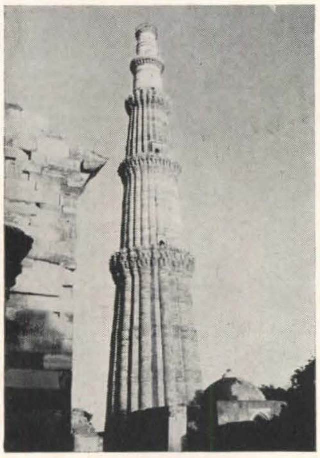
My first visit to one of these restaurants was to a particularly beautiful one. A Japanese architect friend and I entered a quiet graceful vestibule and were greeted by a charming lady. After we had removed our shoes and put on slippers, we were escorted up a stair into a superb room.

I spent my first moments breathtaken in admiration at the overall beauty of the room and the exquisite detail. After a time, my friend turned to open the shoji since it was a warm evening in late May and I had a momentary wish that he wouldn't since I thought that the usual city scheme of roofs, poles and crowded









"The silhouette of the white domes and minarets against the sparkling blue sky is a completely satisfying experience — an experience that we direly need to counter the boredom of our flat roof rectangular architecture."

streets might spoil the quiet beauty of the room in which we sat.

To my surprise and pleasure, we looked down on a lovely garden about four feet wide with stones, moss and branches beautifully arranged.

The ability to achieve such visual pleasure in limited space was an entirely new and wonderful experience.

In the best of the larger scale traditional buildings in Japan, the use of visual surprise in architecture is carried to its ultimate heights. In some of the palaces and temples, the experience of surprise mixed with pleasure accumulates with a kind of rapturous disbelief that such happiness is possible from mere buildings.

To arrive from the bustle of the city into the quiet of the walled compound of the temple is a great relief. Then to remove your shoes and walk in stockinged feet through the hush of a beautiful temple building and to turn a corner and find an open court of white gravel all raked in careful pattern. The gasp of delighted surprise is soon replaced by a sense of utter inner peace.

Then after moments of a kind of meditation to wander through another temple to find another garden — this time just filled with lush and beautiful plants and trees, then to proceed and find another of moss and stones and water. This is a kind of architectural experience we know little about in our modern architecture.

The question of the emotional or spiritual quality of architecture in relation to scale had troubled me for some time. The feeling of uplift I generally associated with large scale structures.

I did not remember any small buildings from which I experienced the surge of feeling that comes from great architecture. My feelings of uplift had come from Mies' Lakeshore Apartments from the drive, the interiors of great hangars, the Johnson Wax factory, and in Europe the cathedrals. There were Wright's houses but even there it was in the lofty living areas.

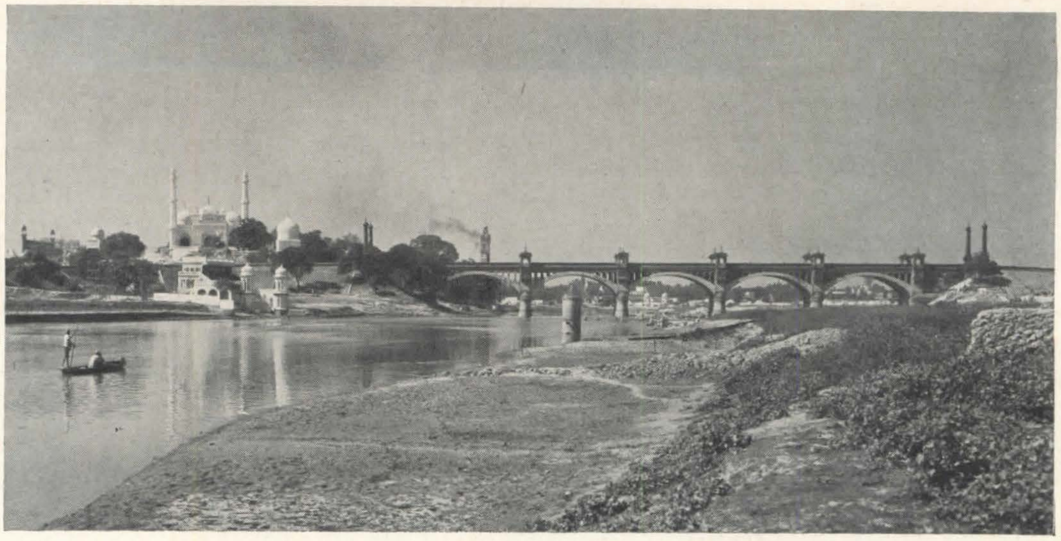
In Japan I found this feeling repeatedly in small scale structures. If the feeling was different, it was only that mixed in it was a little less awe and a little more peace.

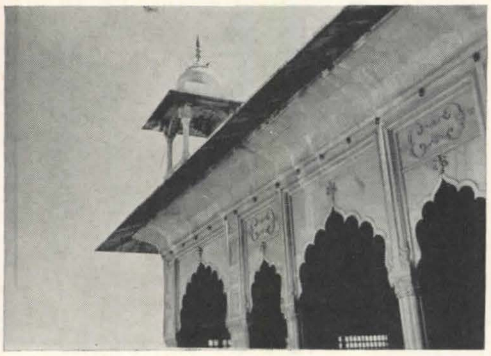
Another quality of Japanese architecture which impressed me was the submergence of the individual — or the architect. Nowhere was the stamp of the individual architect impressed on details or concept as it is so often in the best of our modern buildings. This abstract quality, I believe, exists also in the best of Greek architecture or even the Gothic.

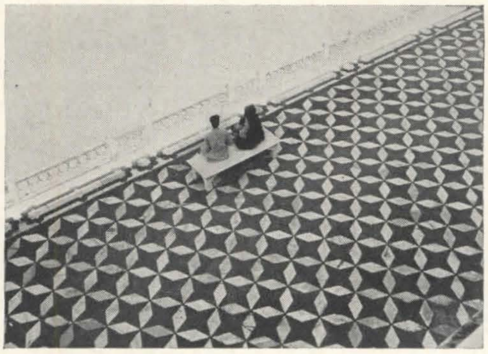
I wondered if the signature of the architect, written boldly on buildings which are the effort of many, is not a kind of arrogance.

In India, I saw the Taj Mahal.

In the realm of proportion and the symphony of beautiful detail to perfect concept, I believe it is without







peer. A kind of sculpture, a building without utility, but as a monument, it is nevertheless pure joy to behold. Structural honesty, the lesson we hold so dear in modern architecture is ignored. The walls are fifteen feet thick. The inner dome and outer dome have no relation.

The Taj is in a completely controlled environment. The walls, the buildings and the river which surround it shut out all view of the city which is around it. Passing through the outer gate after leaving throngs in the hot and dusty streets of Agra and seeing the Taj standing before me in brilliant sunshine was a stunning sensation.

I sat for hours, wondering what could be changed. What could be added or removed, but I found nothing. The silhouette of the white domes and minarets against the sparkling blue sky is a completely satisfying experience — an experience that we direly need to counter the boredom of our flat roof rectangular architecture.

Throughout Delhi and Agra the sky was pierced by frequent minarets and domed buildings, making the horizon of the flat countryside infinitely more enjoyable. The steeples of the churches in New England serve much the same purpose.

Sometime ago in the suburbs outside of San Francisco I wondered why the same dreary builder's-house-and-telephone-pole-scape was not as offensive as some I have known in the Detroit area. Then I realized that the usual monotonous silhouette was lost in the strong dark contours of the hills in the background. This in contrast to the Detroit scene where every architectural misdemeanor is indelibly carved against the sky.

The skyline in New York is wonderful landscape, though completely unintentional and disordered. The natural scene is best with hills or mountains or trees or rocks against the sky. Our architecture, too, must ever learn new forms and new dimensions to give richness to our skyline.

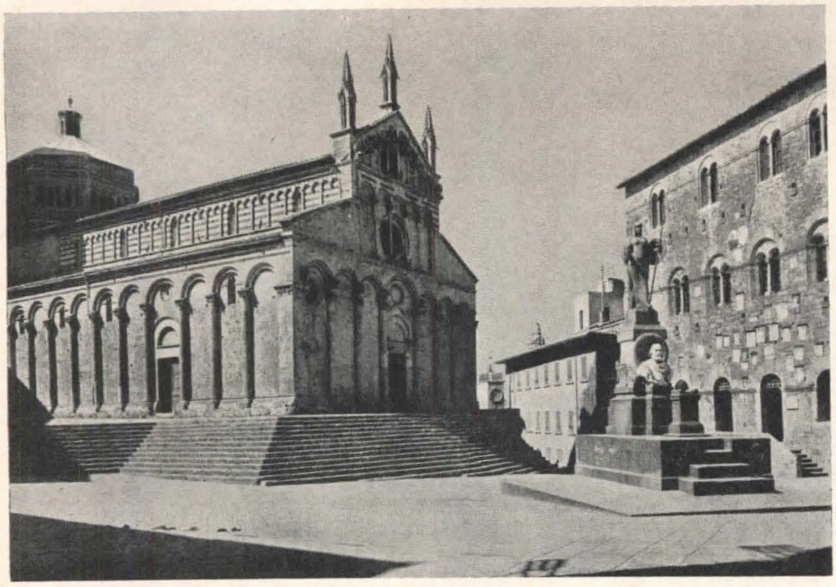
Nervi in Italy and Candela in Mexico bring inspiring direction with their diversified shell structures. Eero Saarinen's fine new Lutheran college campus will bring new interest to the American architectural skyline.

So perhaps our architecture of the future will with purpose bring back the pleasure and drama of form against the sky.

The detail in Indian buildings, particularly in the Taj Mahal, is subtle and beautiful. The elegant inlays so enrich the walls and yet do nothing to obscure the simple strong form of the architecture.

In our architecture, too, some detail, carefully conceived and executed, could enhance our buildings. The simple strong forms of our architecture can gain richness in detail.

This I believed as I sat looking at the wonder of the Taj Mahal.



So the discovery of the means of adornment without resorting to the type of handicraft used in ancient buildings becomes one of the significant problems of our age. That handicraft which so enhanced the buildings of the past is today nostalgia and we have little regret that it is so.

The unbelievable enrichment of the buildings, like the cathedrals and the Indian mosques, was accomplished with close to or actual slave labor. We have neither the time, the desire nor fortunately the political or economic conditions for such treatment of our buildings.

What the future will bring in the way of ornament, we can only guess. We have seen the sparkle that artists like Bertoia can add to buildings. We have seen lacy sculpture on the undersides of Nervi's great shells achieved by the expression of structure and the arrangement of formwork. Here again we experience the pleasure of shadow within shadow, much as in the subtle carvings in the great niches of the Taj.

The enrichment we bring to buildings must fit within the framework of our mechanized society. The detail we achieve must be both expression and fruit of our way of life. The task looks difficult but the genius and strength of our present day architecture will surely find a way.

Among my recollections of architectural wonder, I count the Renaissance City of Rome as one of the finest.

I walked through the narrow streets and open squares immersed with the thought of how wonderful they must have been during the height of the Renaissance. I was struck with the joyousness of the architecture, the great exuberance with which it was consummated.

The design of buildings, the color of stone, the play of water, the interpenetrating spaces — all were contrived to make Rome a happy and wonderful place to live.

The vigor and energy of the civilization that produced such heights in the arts were so well reflected in the buildings and cities, yet, in turn, these same surroundings must have provided the background against which the inspired creations of the Renaissance in literature and the arts were made possible.

Today we have a civilization which, in many respects, is far ahead of the Renaissance. Our scientific and mechanical achievements are beyond comparison with any age of the past. Yet in the building of our cities we are far behind those of the Renaissance. We have almost abandoned beauty in our scramble to be practical and to reap the ultimate in short-term profit.

The lesson that the people and architects of the Renaissance understood so well, our people and architects are just beginning to learn — that cities and

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buildings, the environment in which we spend the greatest part of our lives, play an integral and important part in the achivement of our dreams of a happy life.

Architects today so admire the Gothic, but is it not too true that in the finest Gothic cathedral, the end to be achieved was the building itself, a monument to God with no relation to a daily environment for people?

The structural qualities of Gothic architecture are marvelous almost beyond belief, but when we seek to translate the uplift or spiritual quality of Gothic cathedrals into our buildings of today we can only court confusion.

We need buildings which can be flooded with the joy of bright sunlight in which the impulse is to dance rather than be awed.

We need buildings which are warm with the security of beauty in clear light — buildings which we can touch and love.

This the people of Rome and Florence and Venice, during the Renaissance, understood so well as evidenced by the environment which they created. Walking down the streets of Venice, I heard so many people singing at the tops of their voices. The only music we hear as we walk our streets are the roars of trucks or hot rodders.

In the democratic atmosphere which we are so fortunate to enjoy, there is little room for the kind of emotions generated by these monumental qualities.

In the elementary school field, we are making our greatest strides in designing buildings as relaxed, friendly and enjoyable places, the very qualities of the democracy which we hold dear.

When factories, office structures and civic and public buildings begin to evidence these qualities then we shall be creating architecture which symbolizes our democracy.

In a universal environment such as this, our inclinations might be less toward fear and war and insecurity and more toward the advancing of the cultural aspects of man in which lie our greatest happiness.

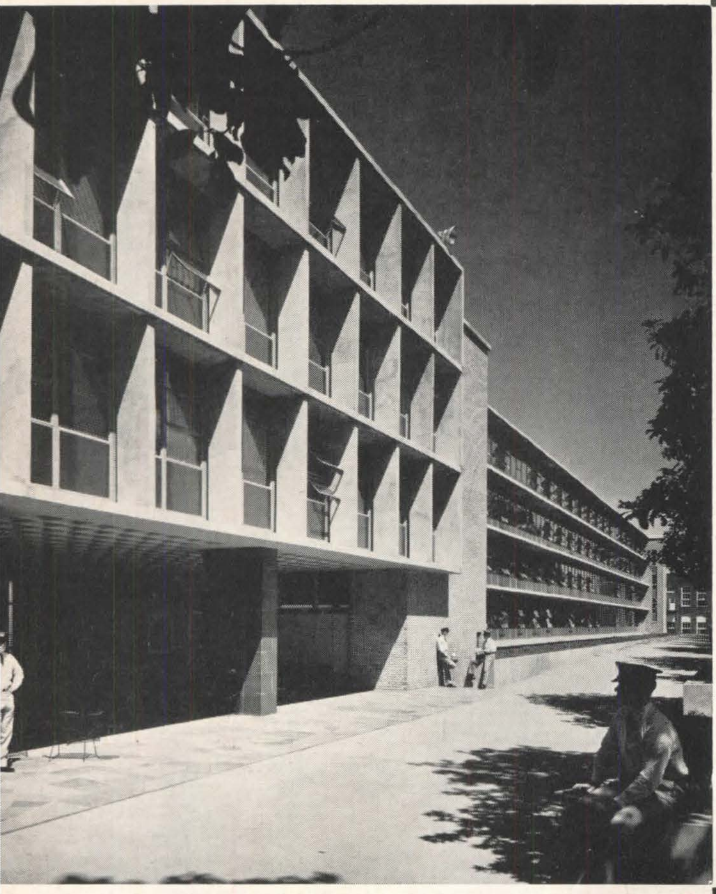
So again I repeat, the state of architecture is wonderful.

In our dreams of the future, are buildings which will be symbolic of the democracy in which we so deeply believe. The enjoyment of buildings, the designs, will be enhanced by our never resting search for beauty. The buildings of the future will bring more variety to our surroundings through diversity of forms against the sky, through the excitement of surprise in architecture and the richness of well conceived and ever changing ornament.

For it is in the design of the community of well being that we will truly serve our peoples and with the fulfillment of these responsibilities take our rightful place.

NEW DORMITORIES AT CLEMSON COLLEGE

Site, structural system, budget and college customs determine design of dormitory quadrangle at Clemson, S. C.



CLEMSON'S NEW DORMITORIES, familiarly known as the "Barracks" and in use now since the fall of 1954, show in their design the positive influence of a number of easily identified factors. One is the site, which is restricted, was encumbered with inefficient old buildings (including some dormitories which it was cheaper to raze and replace than to remodel) and which drops off about 35 feet in its width.

Another factor was the necessity for speed; although some design preliminaries had been undertaken before the state appropriated construction funds (Clemson is a land-grant college), final design, working drawings and actual building all had to be compressed into less than two years. The architects determined upon lift-slab construction as the speediest construction system, with movable metal interior partitions, prefabricated

Architects: Lyles, Bissett, Carlisle & Wolff; G. H. Rowe, Structural Engineer; F. H. Franklin, Mechanical Engineer; Daniel Construction Co., General Contractors

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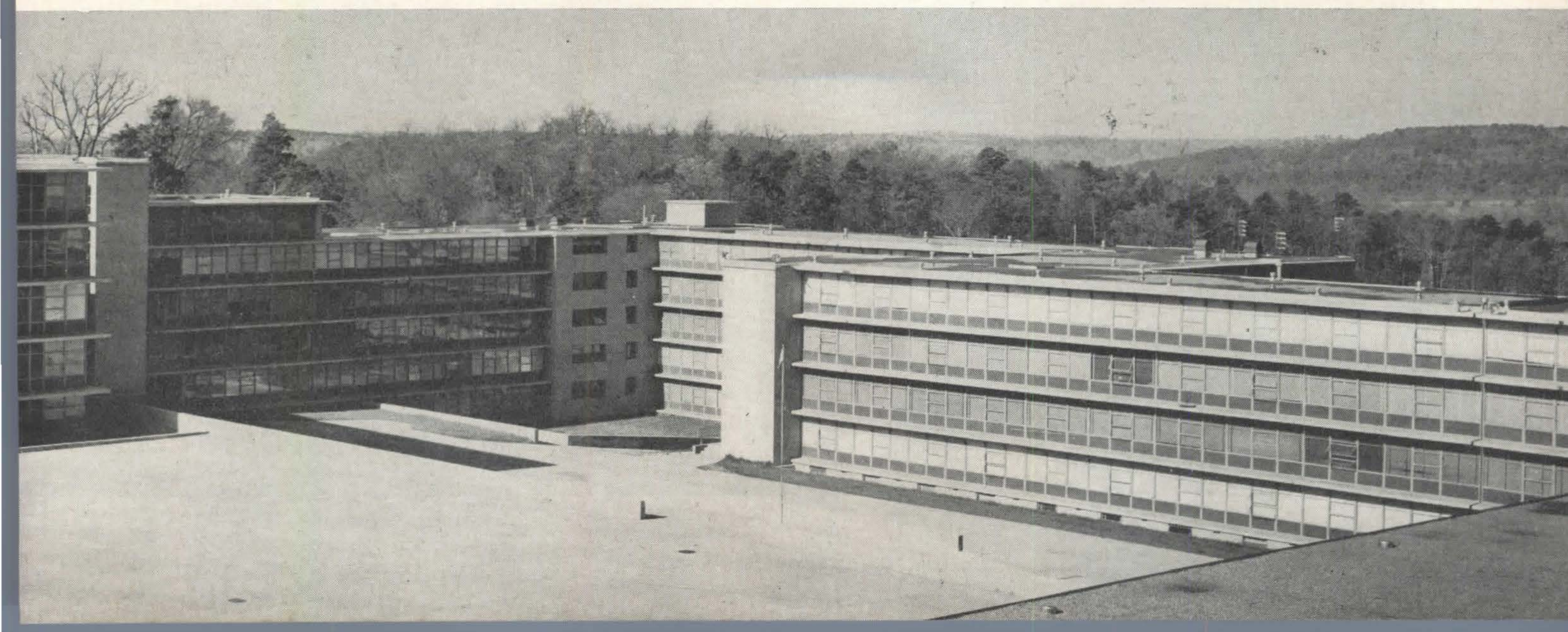
cabinet walls between pairs of dormitory rooms, and exterior walls of steel sash members filled partly with windows, partly with insulated metal panels.

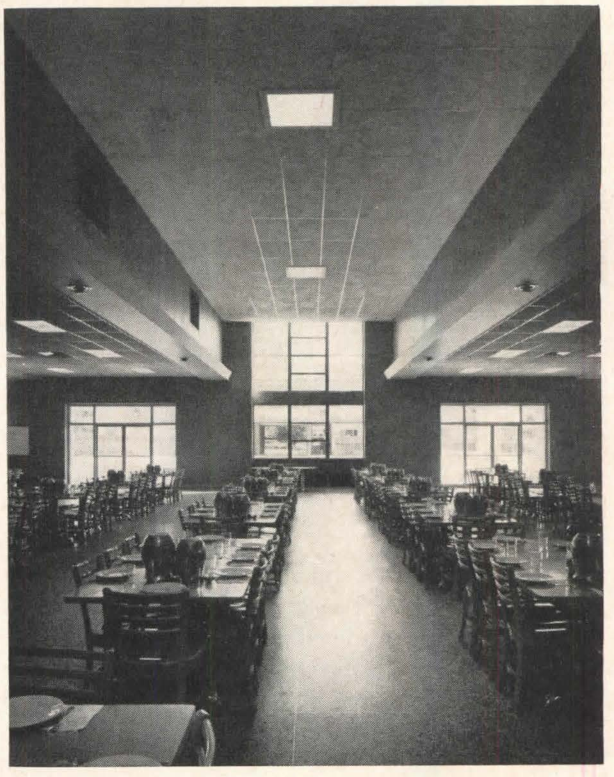
These structural decisions also met the requirements of the very strict budget, although a few items had to be cut out of the final design. For instance, air conditioning for the large Mess Hall which was an essential part of the group could not be installed under the original contract. However, ductwork, space for equipment, etc., was installed for a future air conditioning plant.

Since Clemson is a military school, military formations and drills had to be provided for. Halls in the dormitories are wide enough for this, the plaza which the buildings surround is a parade ground, and the entries into it through many of the buildings are in effect sally ports, wide enough for formations to pass through.

At the same time the group could not have a forbidding, fortress-like look. Originally it had been hoped that no unit would have to be more than four stories high. The number of students to be accommodated — 2000, in double rooms — made five stories necessary at some points. Certain characteristics of lift-slab construction and the slope of the site were turned to advantage in this connection. A single lift-slab console (control unit) can handle a 12-column lift; two together can handle 24 columns, and this determined the size of units into which the group is divided. The units step down across the slope, following the contours, and are separated by fire stairs. The fact that some units are set back from the others lessened the need for lateral

In an irregular U-plan, buildings surround a 2-level plaza used for military formations





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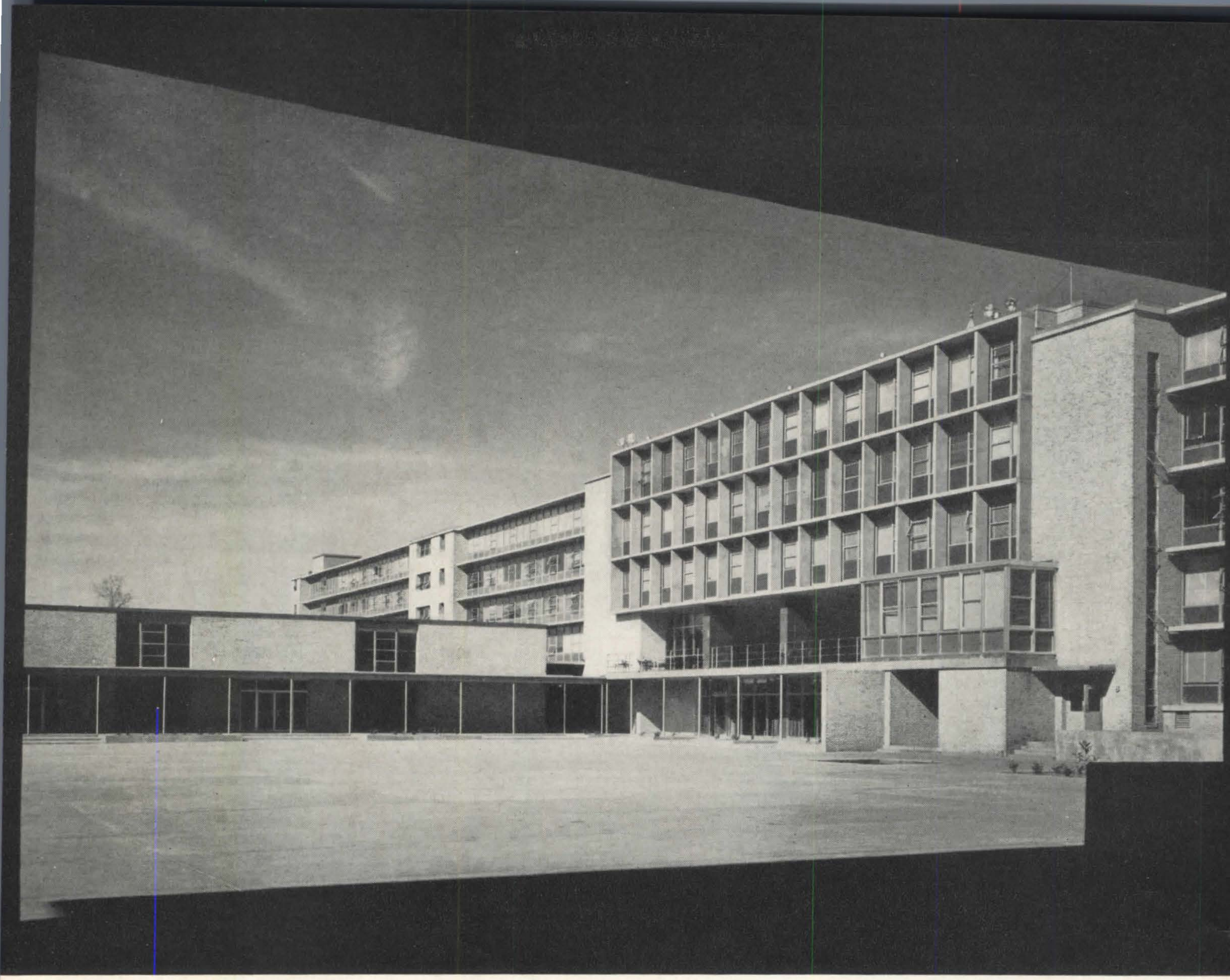
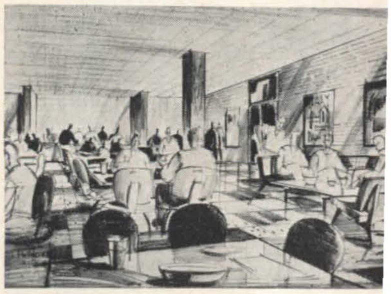
bracing, reduced expansion problems, and has kept the parts of the group in human scale.

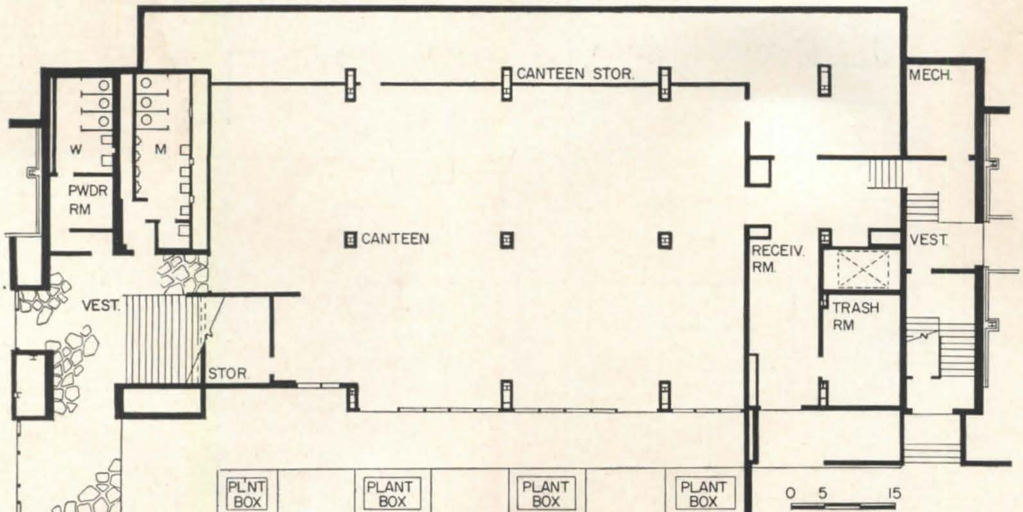
As one of the few five-story lift-slab jobs in the country, Clemson Barracks' construction posed some unusual problems. The columns, H-sections in bays 25 by 24 ft, would be too tall for their unbraced height if the top slab were lifted the full five stories at once. Instead, fourth and fifth floor slabs were lifted slightly above third floor level, on columns extending only that high, and were there anchored temporarily. Second and third floor slabs were then lifted and secured permanently, additional column sections were welded to the lower sections, and the top floor slabs were lifted to their final position.



Central block in photo above is the College's Student Union; the low structure to its left is the Mess Hall, which can be reached without going outdoors — a necessity in inclement weather

Below, canteen interior





MESS HALL LEVEL: Mess Hall and its kitchen facilities are designed to accommodate 3500 students, and for banquets, etc. To keep within the strict budget, air conditioning was omitted but ductwork, space, etc., were provided for future

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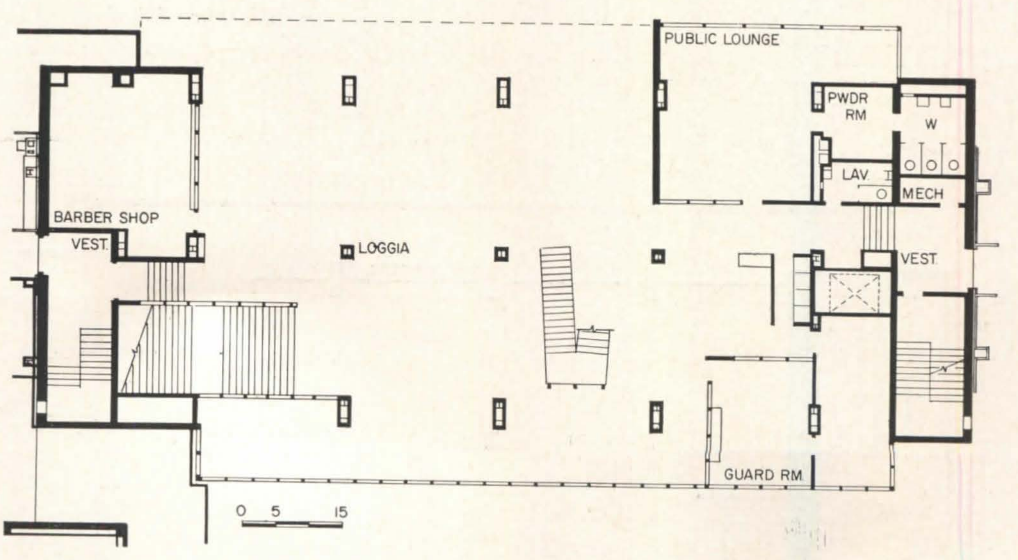
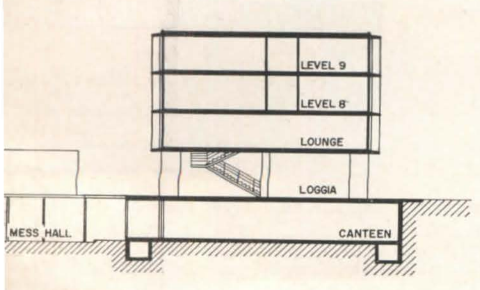
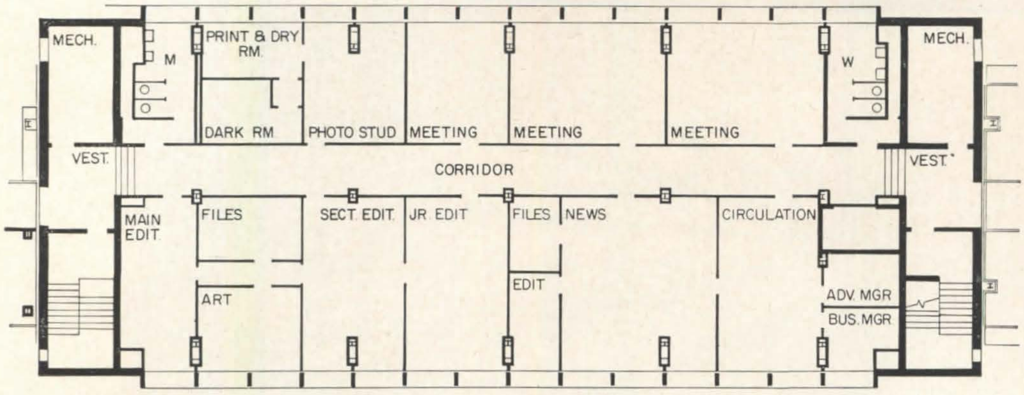
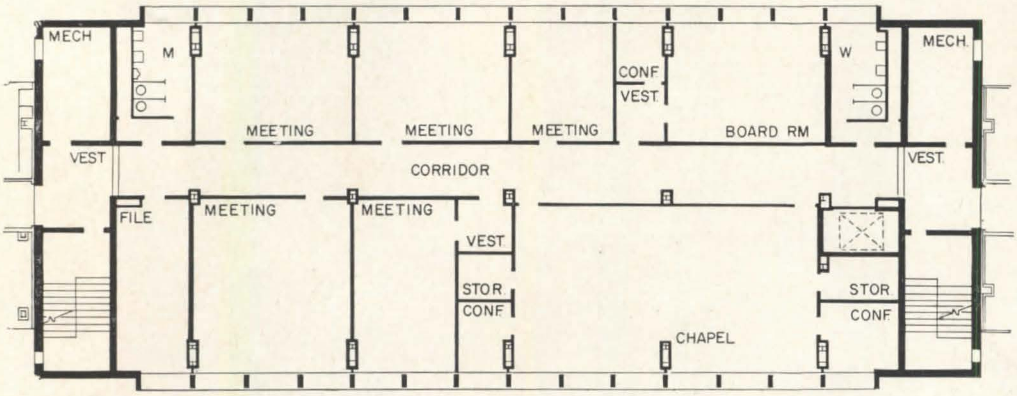
Central block of the group, originally offices and meeting rooms, has actually developed into the Student Union shown on these two pages. Section below shows how grade changes were utilized to provide entrances at several levels



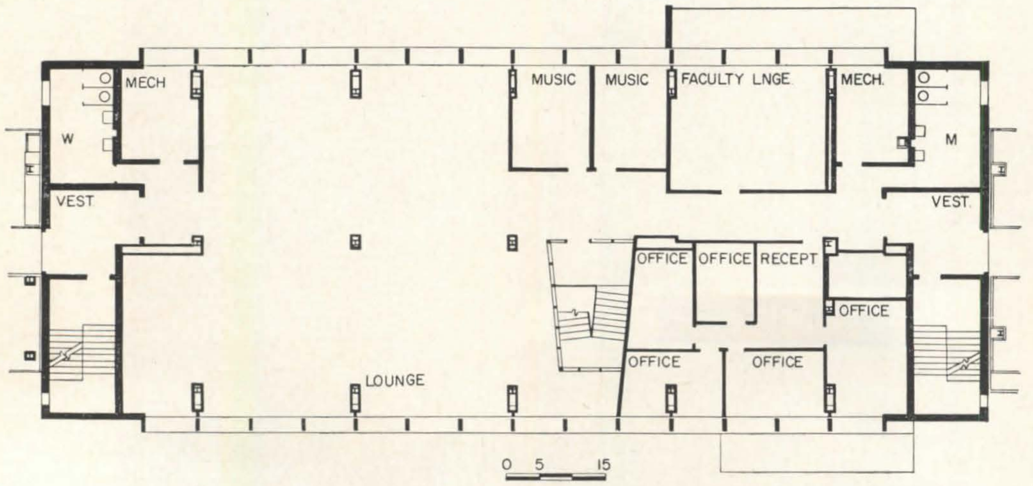




LEVEL 9: While there are nine floor levels in all, at no place is the building more than five stories. Above, sketch of a meeting room as originally designed



LEVEL 8: Religious as well as social activities are provided for in the Student Union, as the photograph of the Chapel Altar, above, indicates

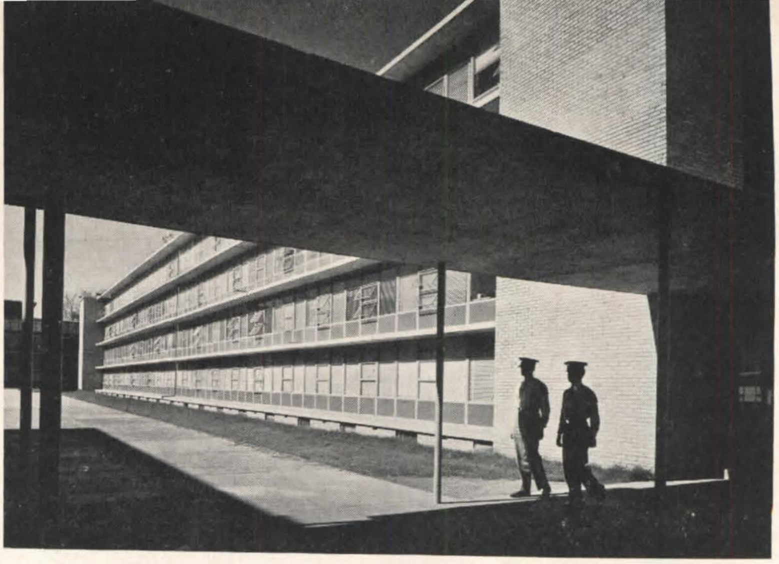


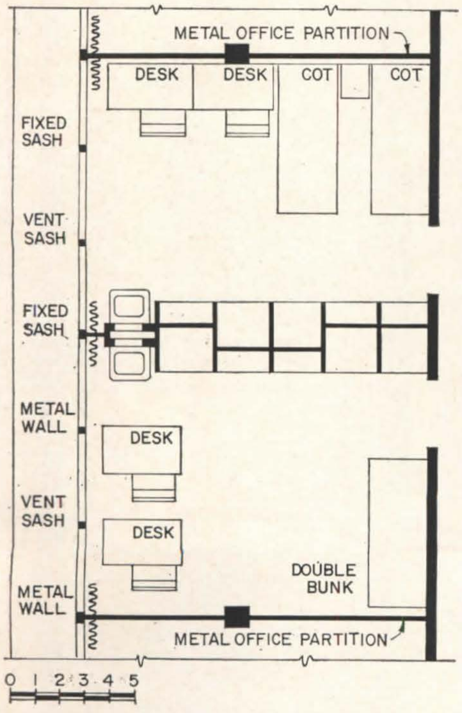
LEVEL 7: Above is one of the lounges in the Student Union. Because a heavy floor load existed in this section, a "waffle" slab poured over plastic pans was used

DORMITORIES FOR CLEMSON COLLEGE

CLEMSON DORMITORIES

The design module, a dormitory room for two men, was studied carefully, even to making full-scale mock-ups (see ARCHITECTURAL RECORD, *June 1953). Rooms 12 ft wide were chosen. Column bays 12 by 12 ft were at first thought most economical, but 24-by-25-ft bays meant larger slab units, etc., and so were used. Partitions between pairs of rooms were initially cinder block; however, for a job this size the higher material cost of movable metal partitions was more than offset by their lower installation costs. Closet partitions were only slightly modified as design progressed; plumbing chase was carefully located for least interference with flat slab reinforcing. Exterior walls are curtains of steel sash members filled with either windows or insulated metal panels, with a continuous heating element at sill height*





Joseph W. Molitor

VOCATIONAL TRAINING SCHOOL FOR DEAF STUDENTS

California School for the Deaf
Berkeley, Calif.

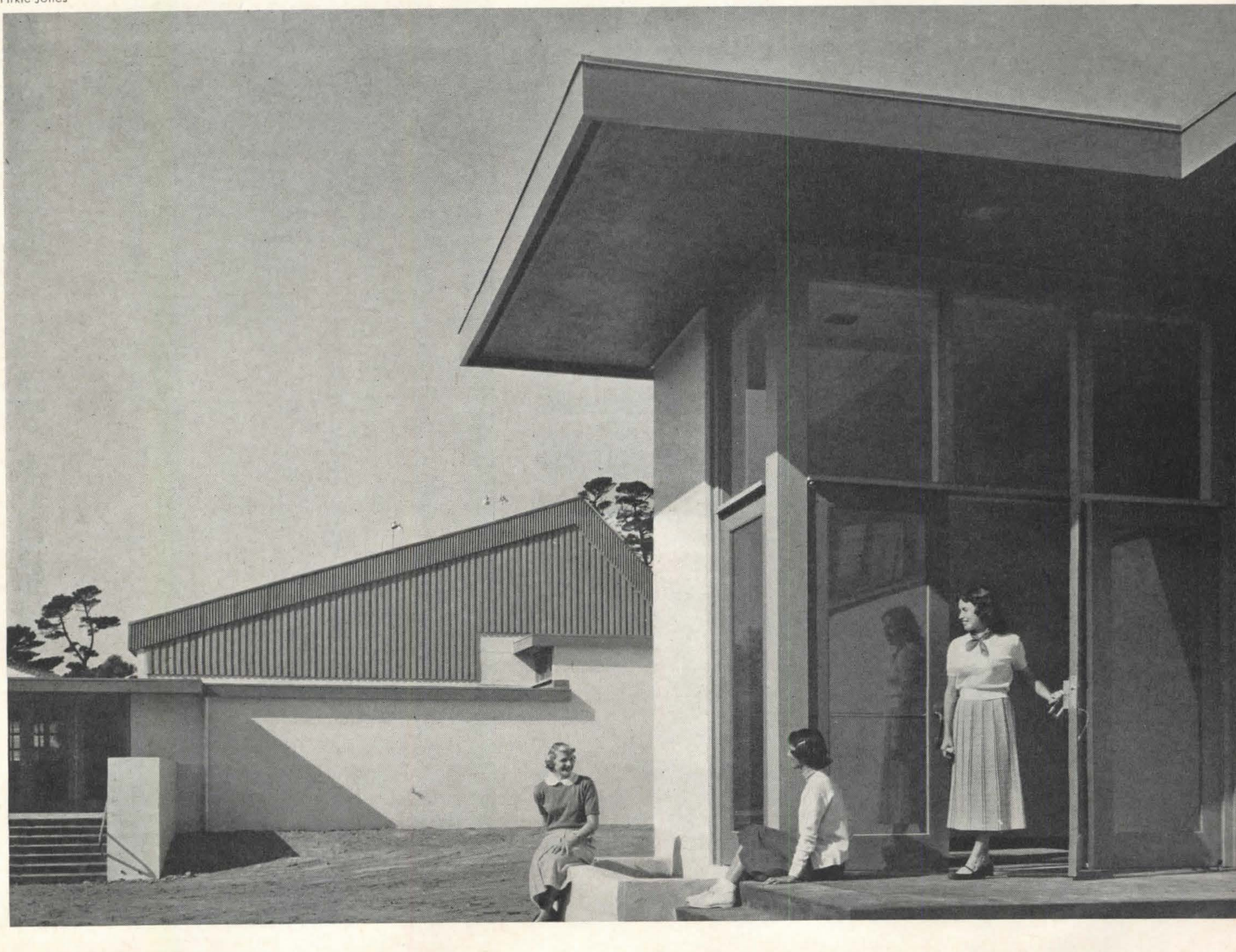
Fred Langhorst,
Donald Beach Kirby,
Thomas B. Mulvin,
Associated Architects

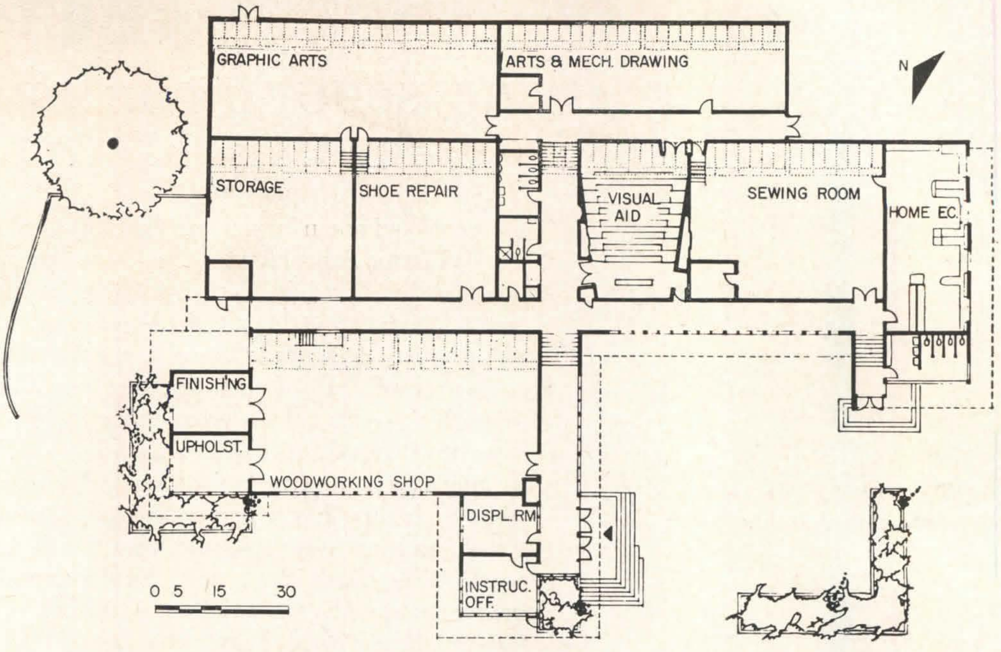
This vocational secondary school building is part of the expanding facilities of the California School for the Deaf, which shares a campus with the state's School for the Blind in Berkeley. Such buildings for deaf pupils are not common; there was little precedent, and considerable research was necessary as the program developed. The plan consists of a number of special shops — graphic arts, mechanical drawing, shoe repair, sewing, home economics and woodworking — irregularly grouped around a central visual aid theater.

The site slopes down to the southwest, and the shops are laid out with their long axes paralleling the contours. Pitched roofs are used over the shops so that each shop has a north skylight. Pitched roofs are metal surfaced, flat roofs built-up — a departure from the tile roofs of the remainder of the campus. Wide overhangs protect all doors and windows. The structure is poured concrete, like the adjoining buildings.

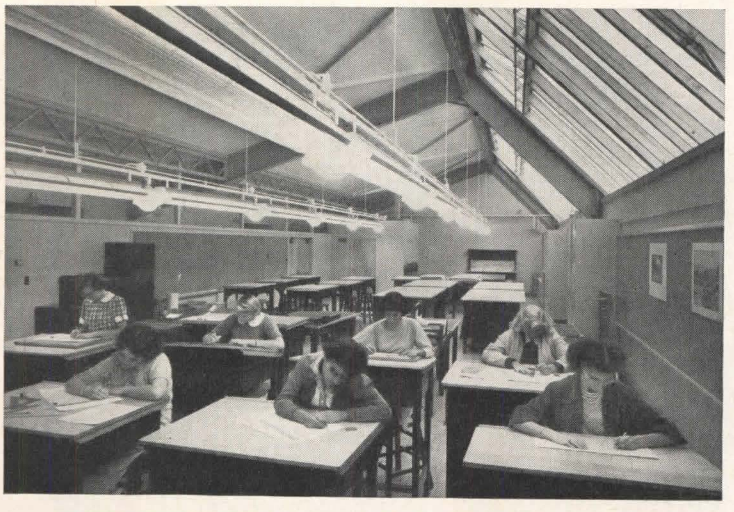
Construction of the building was started late in 1951; it was previewed in ARCHITECTURAL RECORD's Western Section for August, 1951.

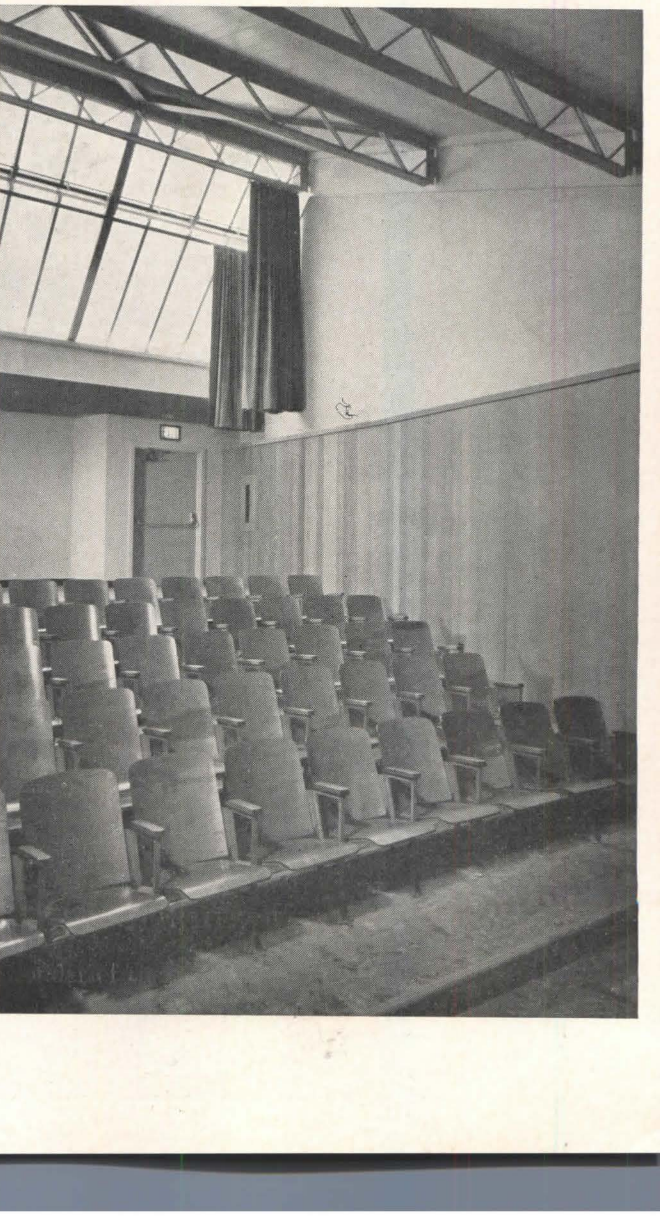
Pirkle Jones





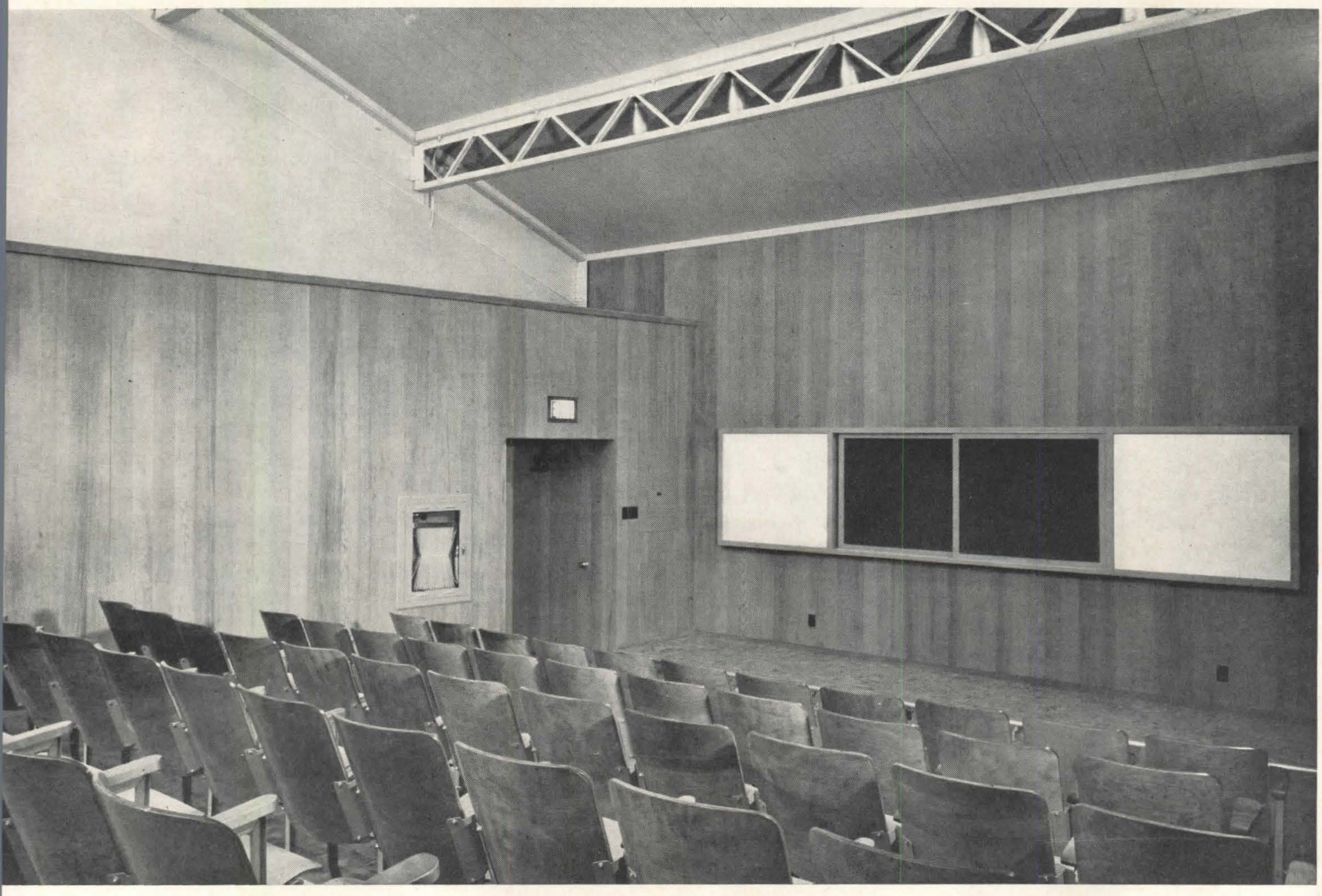
Below, Arts and Mechanical Drawing; bottom, Shoe Repair Shop; right, Visual Aid Theater

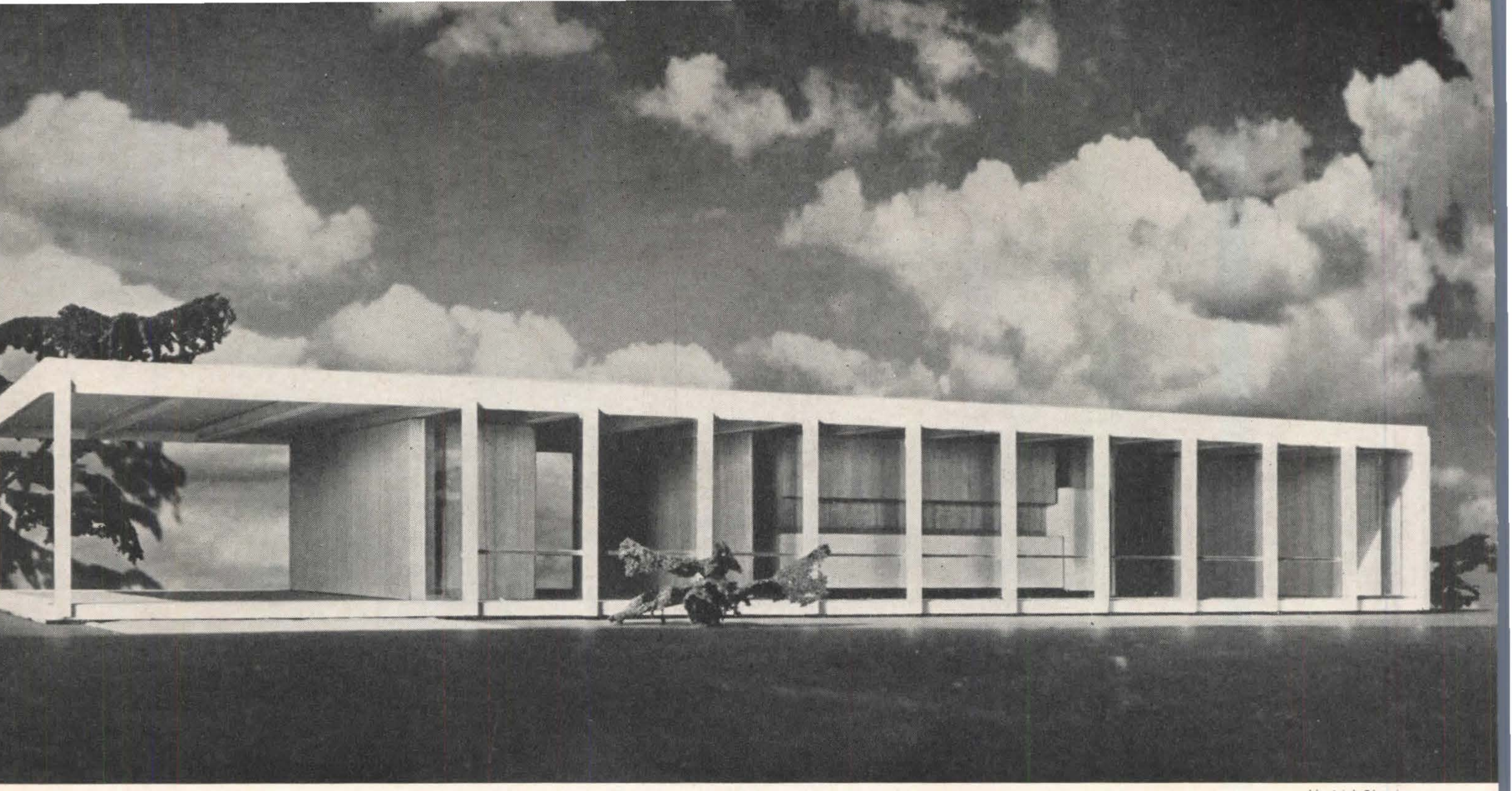




Pirkle Jones

Visual aids are particularly useful in a school for the deaf; this room, designed like a theater, has a skylight which can be darkened when a projector is used. Its walls are wood; most other rooms have plastered walls except in office and display areas where birch plywood is used. Floors are either asphalt tile or maple





Hedrich Blessing

MIES VAN DER ROHE DESIGNS A SMALL HOUSE

The man who is in many eyes the most influential architect today has designed a standard house for American family living. The architect of the German Pavilion at Barcelona, the Tugendhat and Farnsworth Houses, the Chicago lakefront skyscraper apartments, and the Illinois Institute of Technology campus has proposed a 72 by 28 ft house in which his passion for glass and steel and masonry, and for simple shapes and the precise ordering of clearly expressed parts is everywhere evident.

The characteristics which for over 25 years have won international admiration and inspired both conscious and sub-conscious imitation are apparent in this house. It is a visually simple building; it uses a large sampling of the materials and techniques of our time; and it is rigorously methodical. In these respects it may be expected to appeal in great degree to the minds and in some degree to the senses of many of us. That the spatial organization of this house will make an equivalent appeal is at least debatable.

It is possible that the arrangement of this house, when measured in terms of the demands and habits of normal family living, may be for many something less than convenient. Provision for human circulation, storage, sound and sun control are at least open to *question*.

Particularly debatable are: the access from master to children's bedrooms; the through-kitchen circulation from one end of the house to the other; service access through what appears a crowded utility area entrance; storage of bicycles, sleds, baby carriage, trunks, outdoor furniture, lawn mower, garden equipment and the multitude of paraphernalia standard for American families today; direct entrance into the dining area with its view of the kitchen beyond; the control of sound from kitchen and work-play area to either end of the house; and the control of glare and solar heat.

The architect was questioned on these matters. In a cooperative but only partial explanation, a statement from his office pointed out that "the basic idea of this house is directed toward maximum flexibility in the use of space since family requirements vary over a period of time." The elimination of interior supports and the organization of a concentrated mechanical core were cited as permitting "the placing of walls at any point," since as requirements change these panels can be easily removed or relocated.

This kind of flexibility has long been sought, but in this house it does not appear to have been conspicuously achieved. Generally speaking, changing family requirements within any fixed volume involve at one time or another increasing the number of bedrooms or decreasing them. The discipline of the 5½ ft module used here makes such changes very difficult.

Within the ten bays of the model here illustrated there is possible some elimination of partitions, a little relocation and no addition. This kind of flexibility can hardly be said to distinguish this house from many others, and for many will hardly balance the loss of day-to-day convenience.

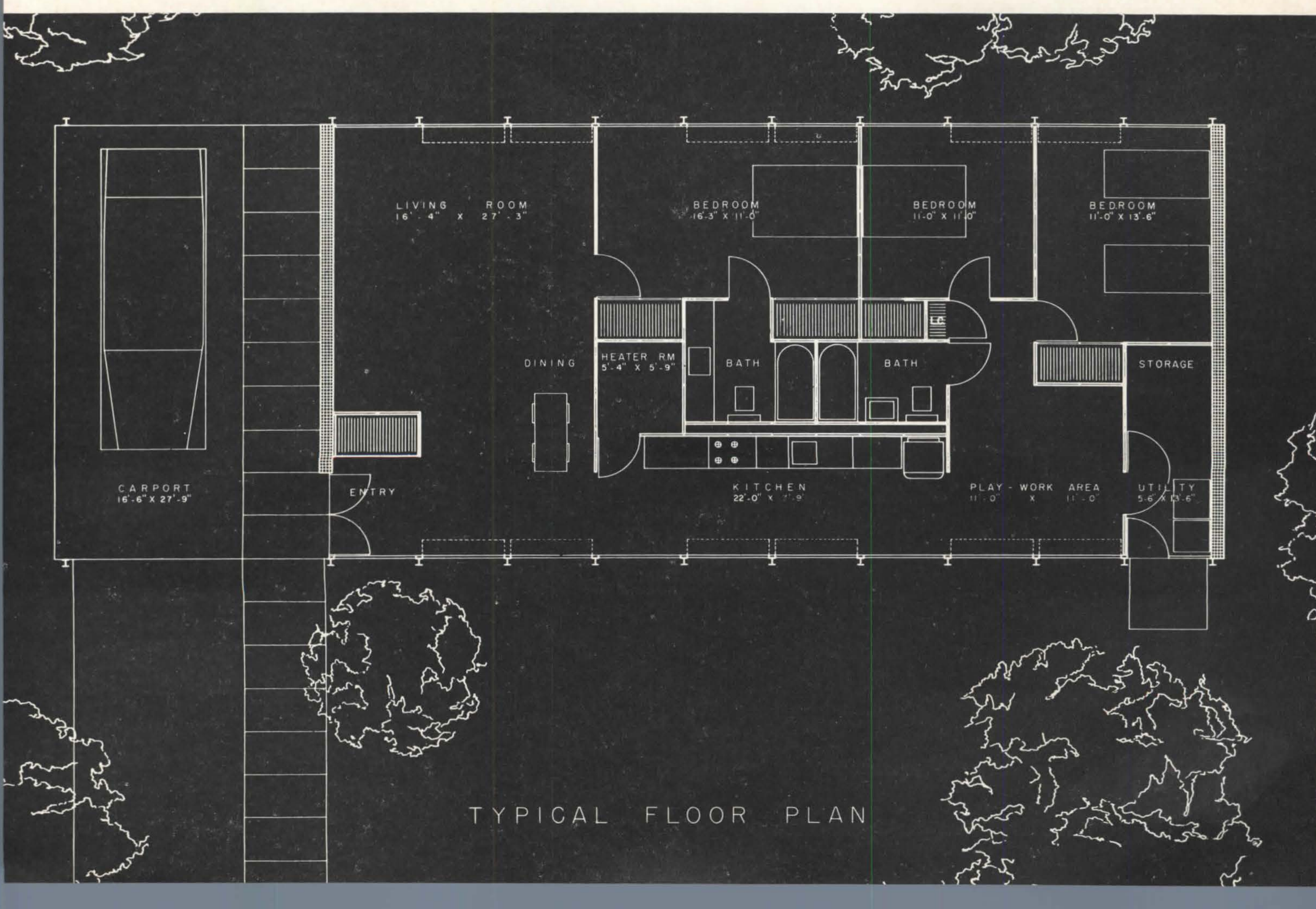
More fully achieved, perhaps, is the intention of a design in which as long an exterior wall as practicable of the 5½ ft panels could be shop fabricated, trucked to the site, set on the foundation and tied across to the opposite long wall. Some appreciable saving may be realized through this in the effort to sell this model for $35,000 including a 100 by 160 ft lot, air conditioning, curtains, range and refrigerator.

Based on a prototype dwelling built in 1952 in Elmhurst, Illinois for Robert H. McCormick, Jr., partner in the current promotion with Herbert S. Greenwald, this three-bedroom design will first be carried out in four houses near Elmhurst.

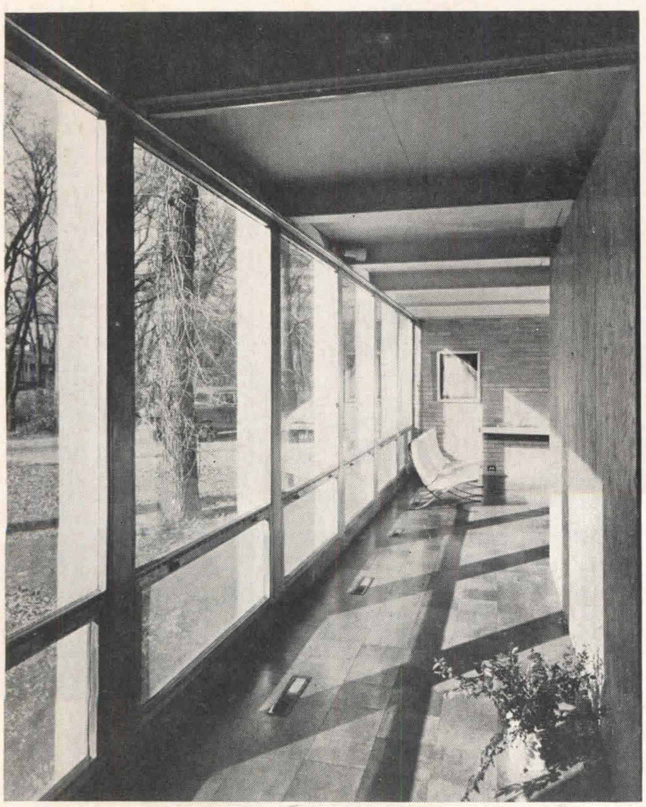
These units will serve as an introduction to a long-range development plan, with the same houses being offered for delivery on any site. Plans also call for similar houses in various sizes and price ranges.

Construction consists of reinforced concrete slab, 10 in. cavity walls of face brick inside and out, light steel columns and beams, built-up roof on a plywood deck with glass fiber insulation; asphalt tile floors; painted plywood ceiling; prefabricated interior wall panels in paint or plastic finish; steel sash, fixed above the horizontal mullion and operating hopper type below; ¼ in. polished, tinted plate glass; double exterior doors; plastic counter tops; heating and cooling by water circulated to individually controlled room units with fan and dehumidifier.

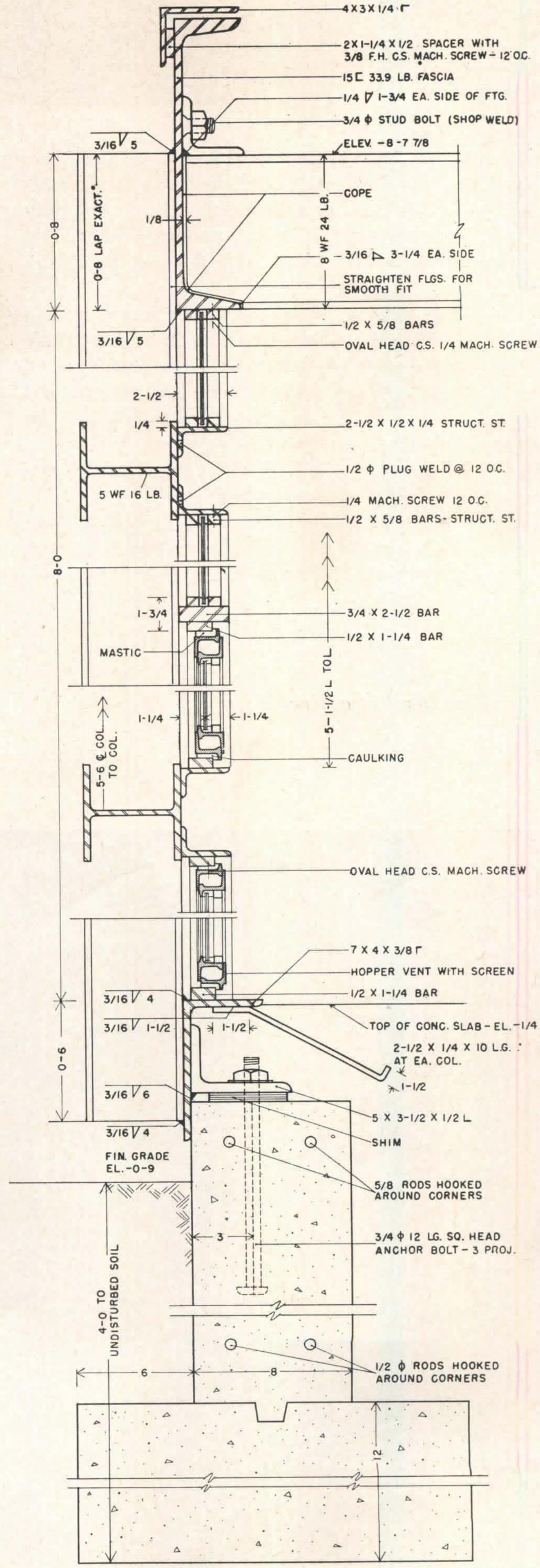
Mies Van Der Rohe, Architect



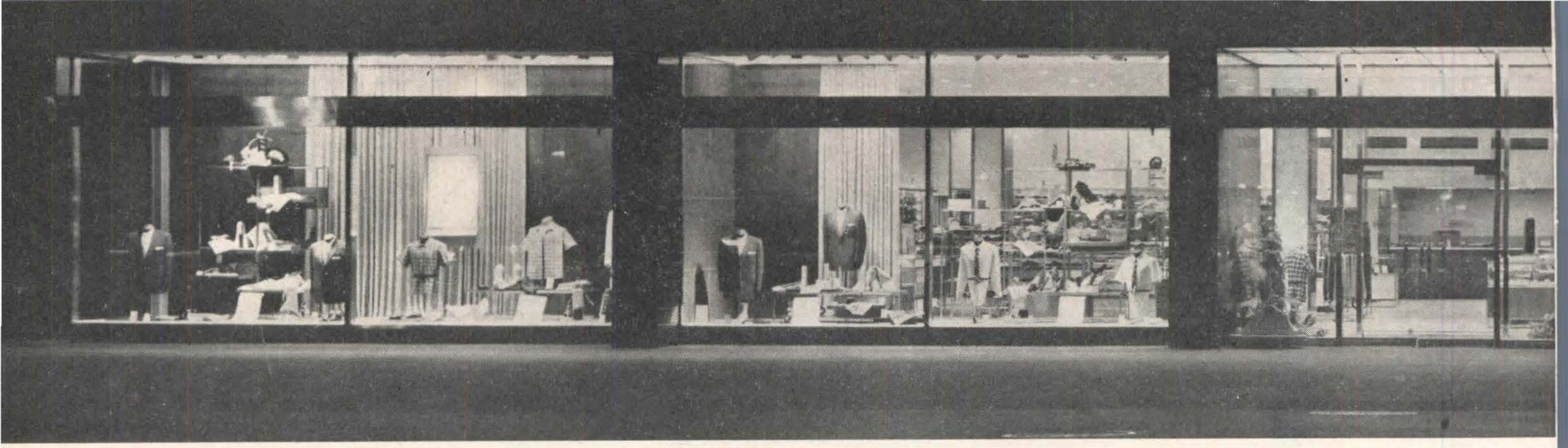
The views above and below are of a prototype house in Elmhurst, Illinois, built in 1952 for Robert H. McCormick, Jr., who, with partner Herbert S. Greenwald, is promoting the development



Hedrich Blessing

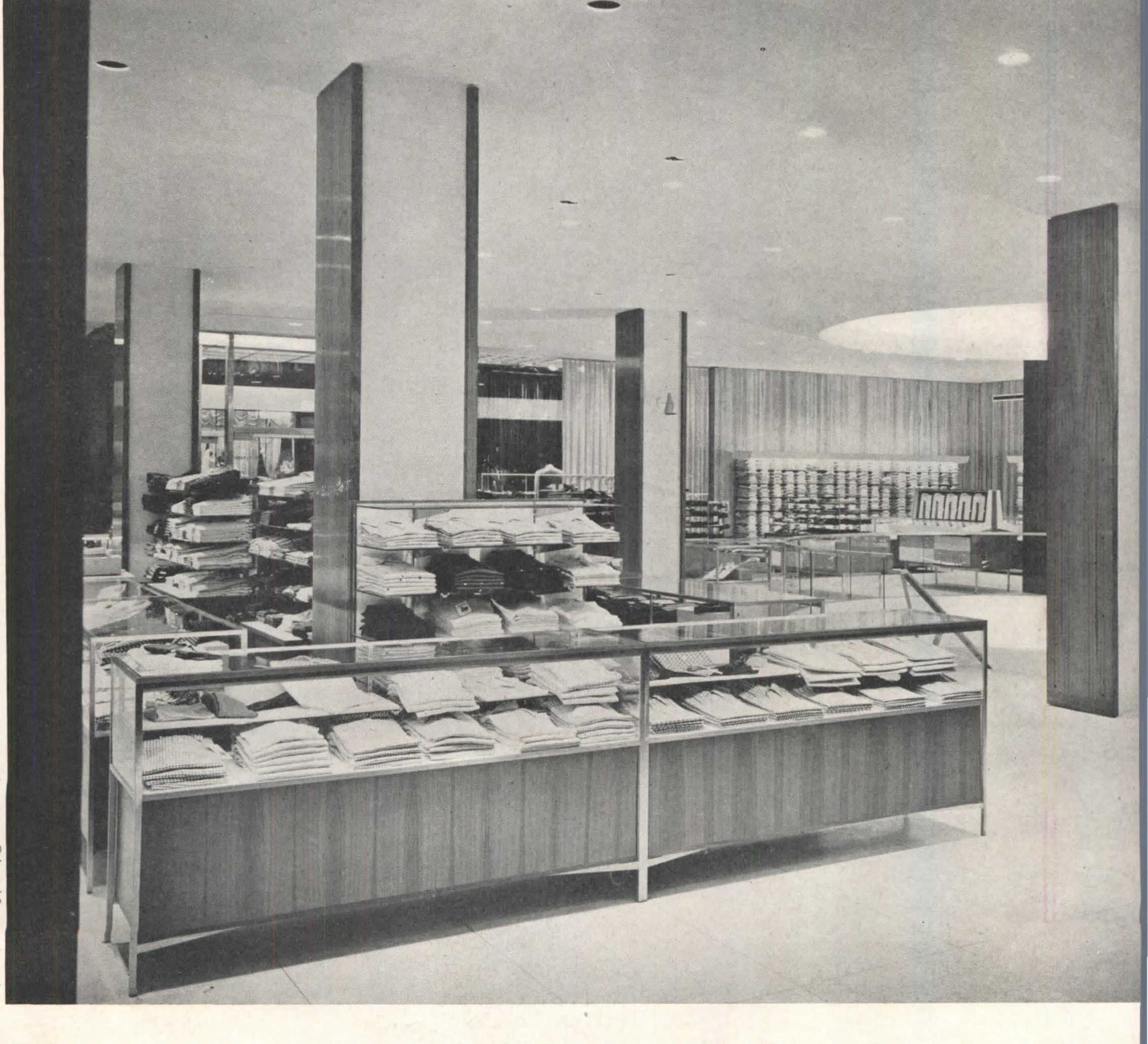


WALLACHS—see next page

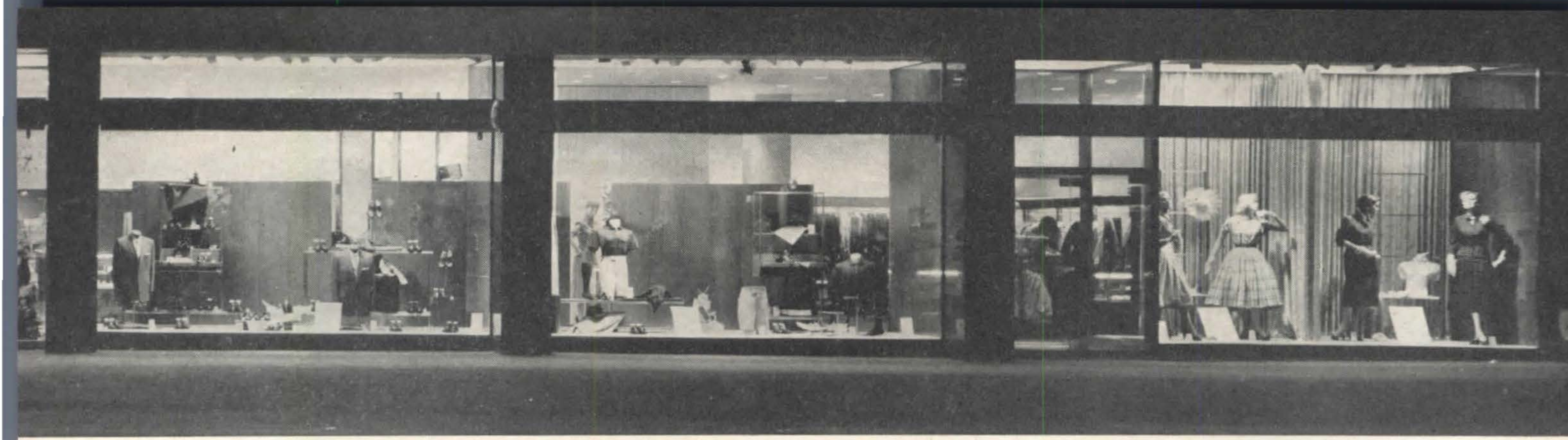


ON UPPER 5TH AVENUE, SOMETHING FOR THE MEN: THE

Ketchum, Giná & Sharp, Architects Syska & Hennessy, Engineers Hinzmann & Waldmann,



All photos, including p. 163, © Ezra Stoller



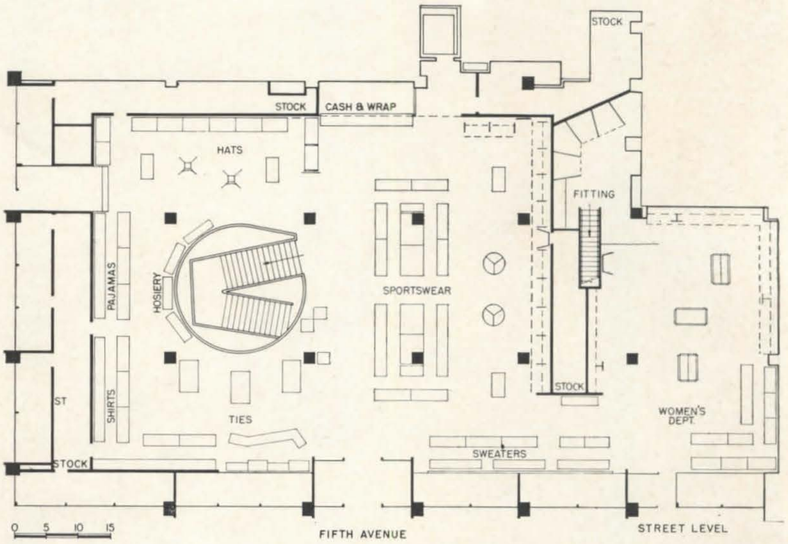
NEW WALLACHS

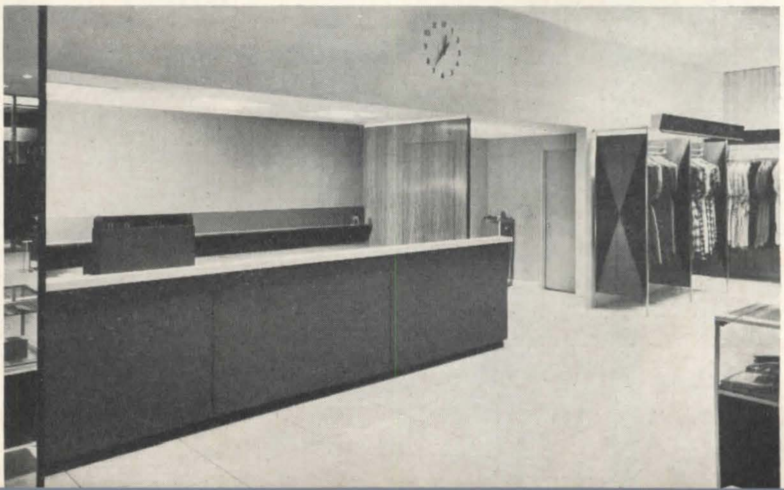
General & Fixture Contractors

FOR THIS — the largest and most elegant of Wallachs eleven men's stores — several ideas guided the design. Their soundness has been demonstrated by large sales volume.

THE FRONT was made open by floor-to-ceiling glass and free-standing displays. After tramping over most of mid-town Manhattan to observe men's shops, Architect Frank Giná decided such a scheme (more common to women's stores) would be good business for Wallachs. The 125 ft spread — longest of any 5th Avenue men's store — creates an impressive effect, both by day and night.

COLOR is the big news in men's clothing so why not make the merchandise the center of attraction, the store itself a neutral foil? This was done by using gray terrazzo, off-white painted plaster, and natural woods for floor, ceiling, walls, fixtures. The only color plane at street level lies behind the cashier's desk (bottom) where there is no merchandise display.





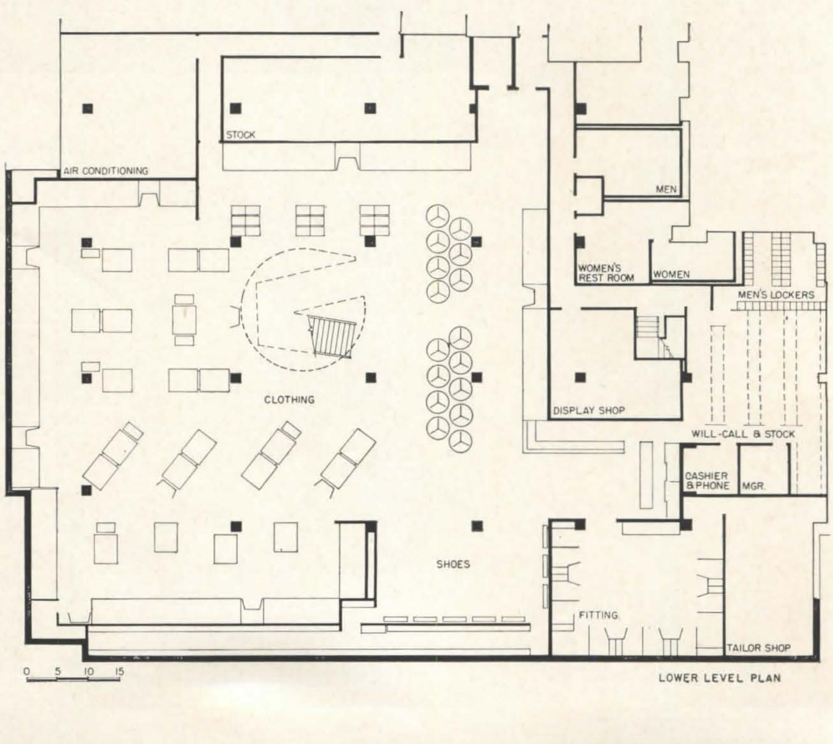
© Ezra Stoller

WALLACHS

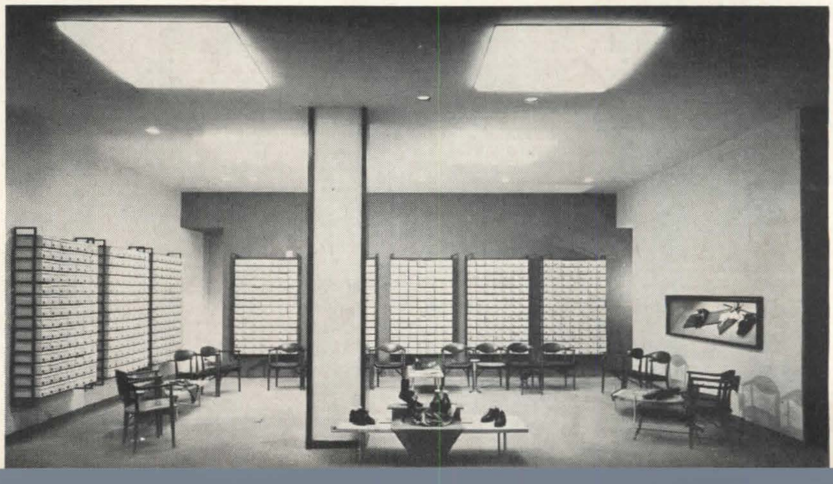
THE WAY SPACE IS HANDLED unites ground floor and lower level, thus removing from the latter the old-fashioned "basement" implication and making it first rate sales area. The interesting central stair, architectural feature, is designed to that end; the tying-together effect is furthered by the flat-domed lighting recess above.

Visual unity stems also from the free arrangement of the low fixtures, which do not create directional aisles and which nowhere rise above eye level to block one's view of the entire area.

FIXTURES were designed to bring merchandise into the open, free for customer inspection — calculated to spark impulse sales. They are typically of plastic, glass, or natural wood, supported by slender metal frames. Similar frames, wall hung, decoratively serve as stock shelves in the lower level shoe department (bottom photo).



LOWER LEVEL PLAN



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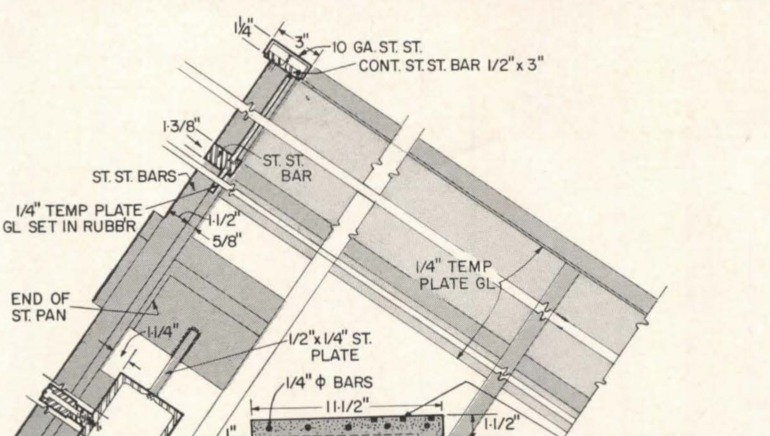


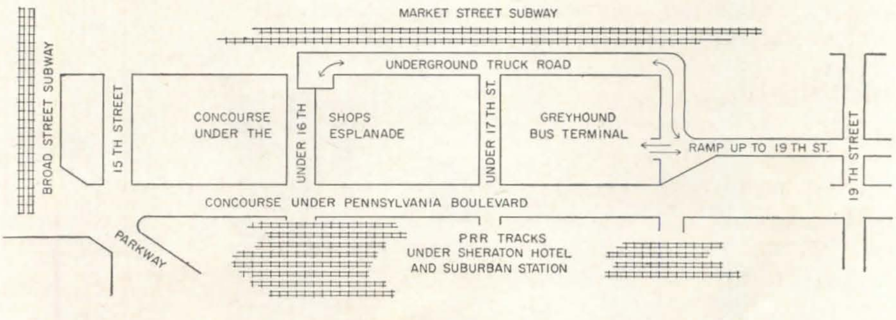
WALLACHS

THE DOG BAR—for city water only—creates conversation; practically forces those strollers exercising canines to pause beside the inviting entrance.

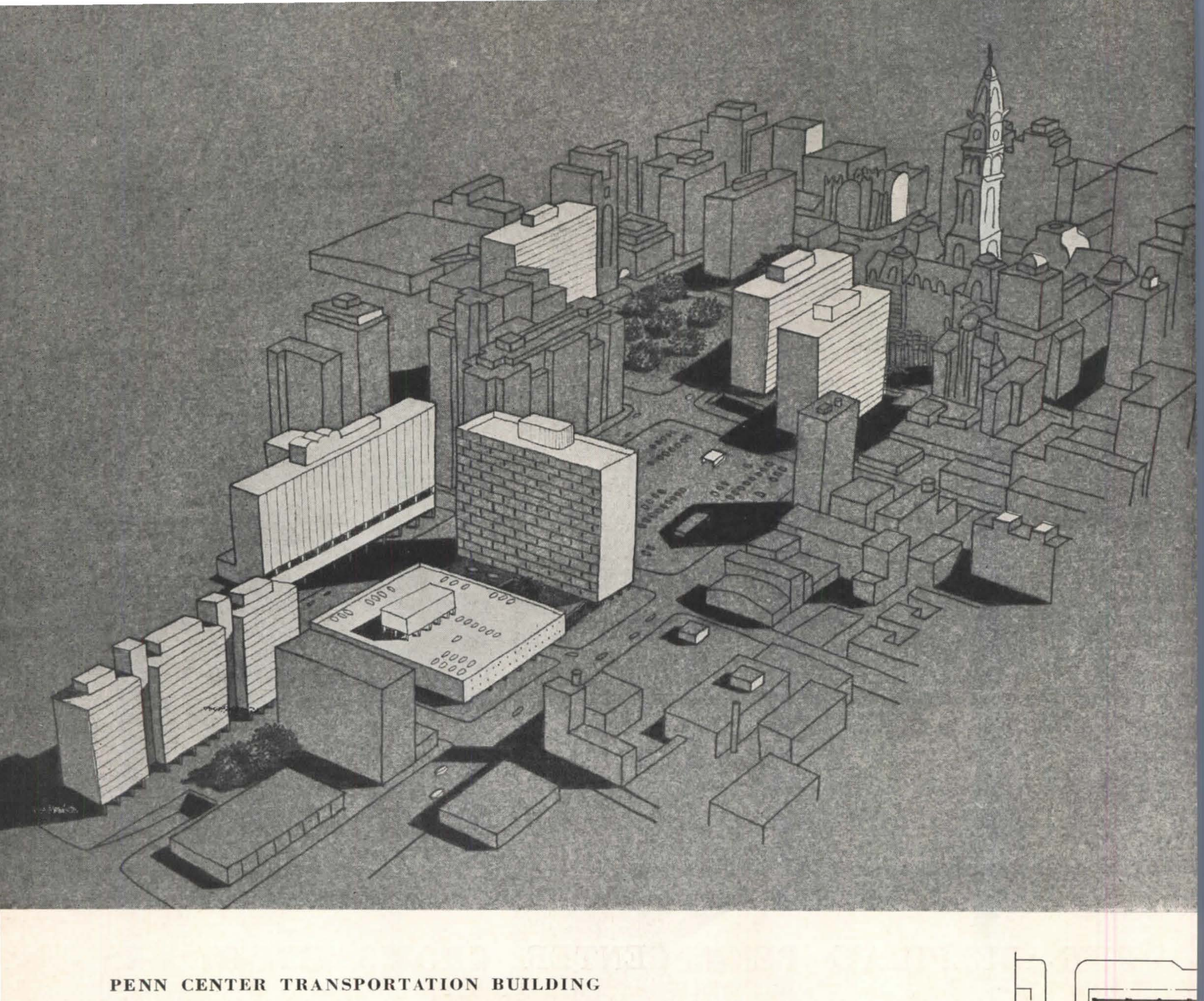
THE STAIR, shown in detail, links the two levels in sprightly fashion. The light gray precast terrazzo treads (with non-slip inserts) are supported by lemon yellow *painted steel runners*. The ¼ in. tempered glass balustrade is topped by a stainless steel handrail. At lower level the flight lands on a square of vinyl tile, the remainder of this area being carpeted.

PHILADELPHIA'S PENN CENTER GROWS BY STAGES

On July 8, as ground was broken for Penn Center's Transportation Building (Vincent Kling, Architect), the most publicized of Philadelphia's redevelopment projects moved another step nearer completion. When Broad Street Station, the "Chinese Wall" that once surrounded the Pennsylvania Railroad's tracks, and many obsolescent structures on the multi-block site were razed in 1953, the first physically visible stage — demolition — was reached. In succession came construction of Uris Brothers' office building (Emery Roth & Sons, Architects), which is being occupied now; and the start of the Penn-Sheraton Hotel (Perry, Shaw & Hepburn, Kehoe & Deane, Architects). The Transportation Building, designed by Vincent Kling for McCloskey & Co., Builders, is perhaps more significant because concurrently with it a portion



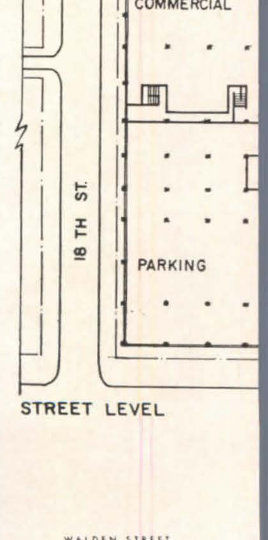
Schematic plan: trucks and buses enter from 19th St. to level beneath Penn Center



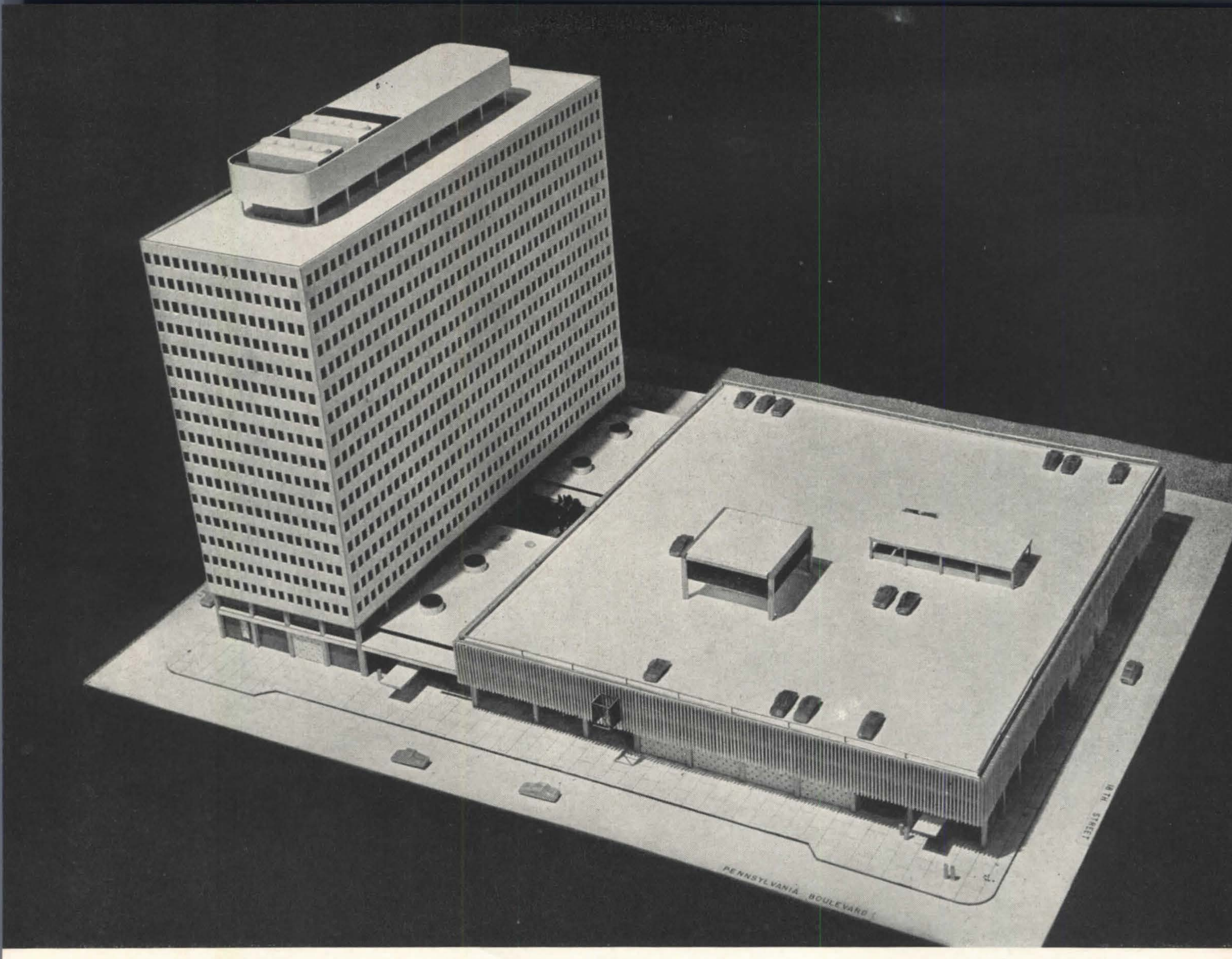
PENN CENTER TRANSPORTATION BUILDING

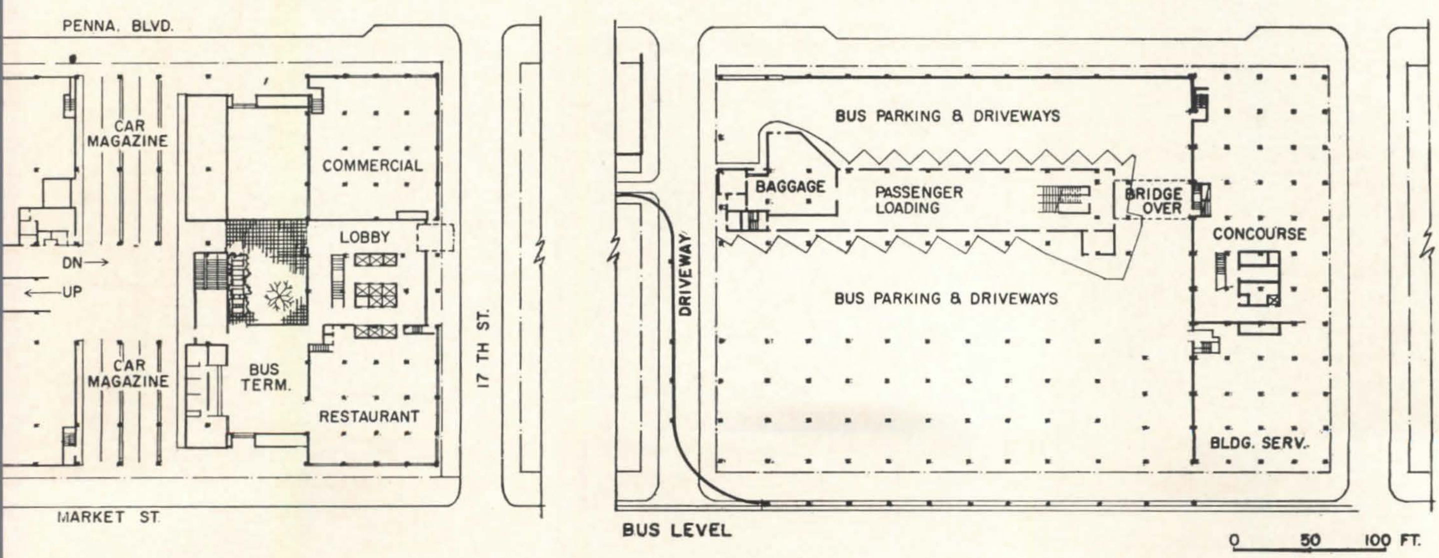
of the projected underground Concourse is being determined. How the Concourse develops, how open space is combined with commercial towers above, and how courts may be used to link, three-dimensionally, the street and Concourse levels are matters of serious concern to interested Philadelphians.

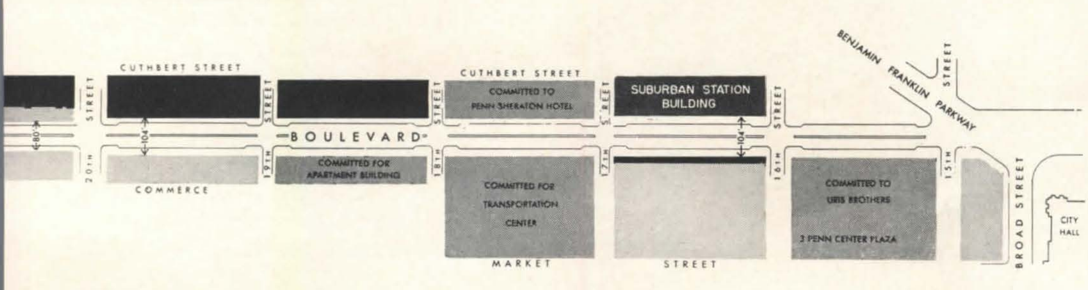
Buses and trucks enter the lower level by ramp from 19th St.; buses to saw-tooth loading docks in a terminal beneath the Transportation Building, trucks to a circumferential drive, from which they can service future Concourse shops and the entire Center. Above ground the Building is in two units: a 3-story, 1000-car parking garage (to be operated by the Penn-Sheraton Hotel) and an 18-story office building to which the Pennsylvania's general offices are



Last March Philadelphia's Mayor Clark suggested Penn Center might be extended both sides of Market St. from City Hall clear to the Schuylkill River; see below



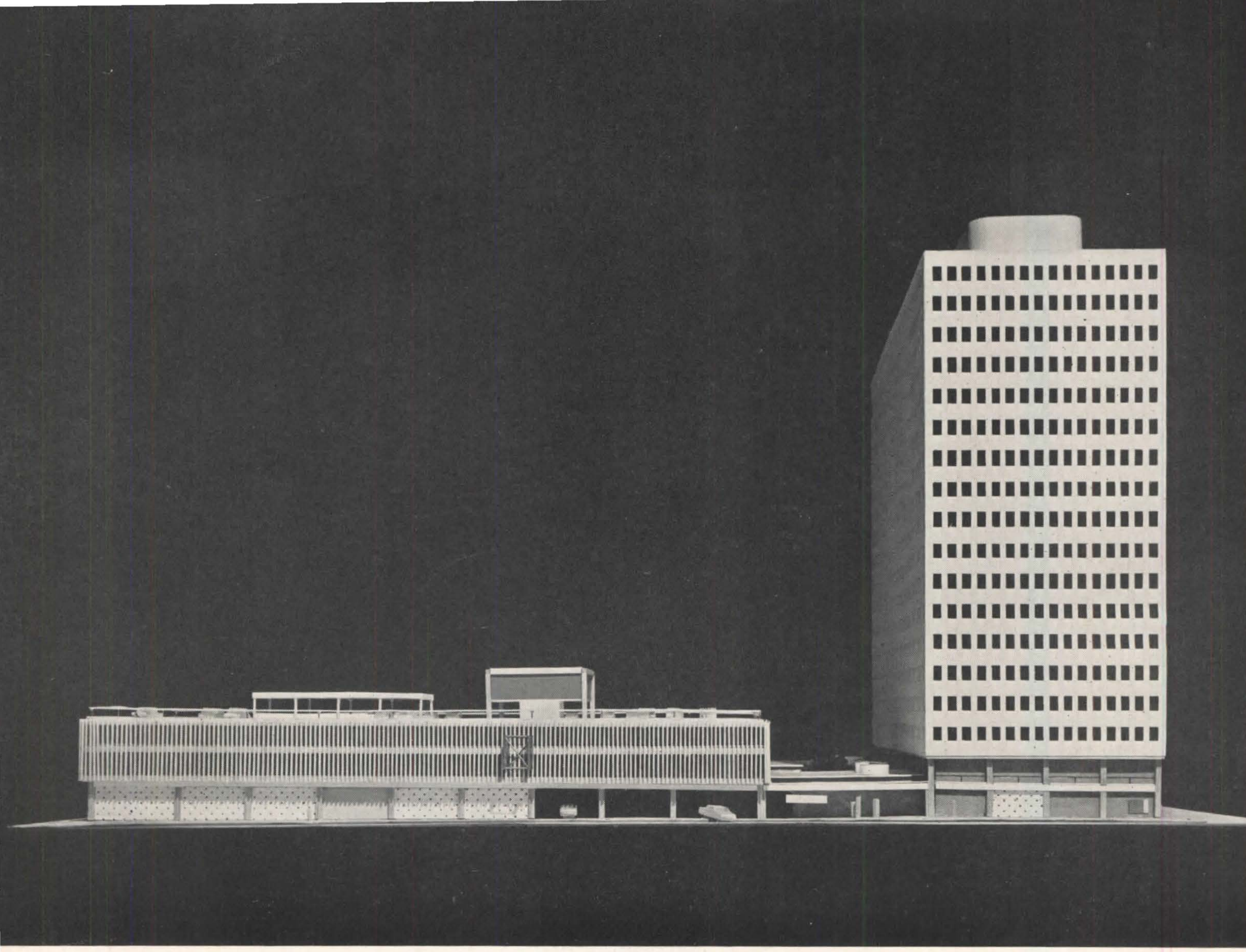




Property available for lease or sale—fee title.

Areas for which air rights only are available for lease or sale; subsurface rights reserved for railroad facilities.

Property committed for development.



PENN CENTER

TRANSPORTATION BUILDING

scheduled to move from the existing Suburban Station building. In a low link between the units will be the Greyhound bus waiting room, restaurant, and ticket office, and an airlines ticket office, with an open-air landscaped court separating them. The Hotel and the Transportation Center will be connected underground.

Reversing what has seemed to be a nearly universal trend, the upper 16 stories of the office tower will be of buff limestone rather than the fashionable metal skin. Why? Simple economics, the architects say: the long faces of the tower have east and west exposures; masonry walls and small windows were deliberately selected as practical, least expensive means to offset glare and heat gain. The offices will have high-velocity air conditioning; fluorescent light fixtures will be set in acoustic ceilings so they can be shifted as layouts require; there will be adjustable air conditioning outlets, underfloor electrical ducts, two banks of five automatic elevators each. Parking garage will be reinforced concrete with vertical exterior louvers to screen the floors; high-capacity ventilation for the underground bus terminal and truck drive will exhaust through the parking garage roof.

Development of the design is apparent when sketches, left, are compared with model photo above. Sketches, done early this year show entrance to airlines ticket office, virtually unchanged in present scheme; and a concept of the tower which included strip windows and vertical members strongly emphasized — an idea which was discarded as being less practical, all things considered, for a tower with long sides east and west, than small openings

PUBLIC HEALTH CENTERS

TOWARD BETTER HEALTH FACILITIES

By Leonard A. Scheele
Surgeon General
Public Health Service

In the period since the end of World War II many local health units have been moved out of substandard and inadequate facilities into functionally designed modern Public Health Centers. The major share of the credit for this must be apportioned between the local health officer who sought and acquired facilities commensurate with the importance of his work and the architect who provided the design for the building that was needed.

The Public Health Service has viewed this transformation with interest and satisfaction. We have seen the impetus given to health facility construction provided by the Lanham Act during the years of World War II, extended by the Hospital Survey and Construction Act since then. As is well known, this Act provides financial aid for the construction of health facilities including public health centers. Every local health officer working in substandard quarters is encouraged to look into the possibility of obtaining aid through the designated State Agency for the construction of appropriate facilities in order to more adequately serve his community.

THE ROLE OF THE PUBLIC HEALTH CENTER

By John W. Cronin, Medical Director
Chief, Division of Hospital and Medical Facilities
Public Health Service

The Architectural Record, by publishing material on health facilities in recent years, has made an important contribution to improving the quality of planning for hospitals and public health centers. In this issue it carries on with the publication of additional material on public health centers.

In the promotion, maintenance and conservation of the individual's health, public health centers provide facilities for preventive services and thus assume a role of first line importance. Health programs vary with each community but the basic services of control of communicable disease, public health nursing and sanitary engineering are fairly constant throughout the country. Add to these, maternal and child health clinics; mental hygiene and dental programs; classes of health education and nutrition; milk, food and water inspection; and, health examinations for food workers, then the tremendous contribution made by this phase of medicine becomes readily apparent.

To do this work, the health officer should have a building in which distractions due to shortcomings of the physical plant are reduced to a minimum. The provision of a well-planned building in which patient traffic flows effortlessly to properly sized and equipped examination and treatment areas is an obligation which the community owes to itself and its health officer. Appropriate and modern diagnostic and laboratory equipment as well as adequate administration space, are essential in order to permit the health officer to undertake his important duties in the public interest.

Such a building comes about only through the closest kind of collaboration between the health officer and the architect. The health officer has to determine the kinds of services he can offer and think ahead to a possible expansion of these services and the addition of new ones. These professional conclusions should be included in the document presenting the total program. A schedule of the clinic sessions also should be included. Sitting down with the architect, the health officer should discuss in minute detail the operation of the various clinics, the space requirements for each and the nature of the equipment which will be used. The requirements of the administrative areas, record keeping, public health nursing activities, sanitary engineering, health education and all other activities that might be undertaken must be made plain to the architect. The result will be a building of which the community can be proud and one in which the health officer may effectively do the work required of him in maintaining the total health of the community.

HOUSING THE HEALTH DEPARTMENT

By Reginald M. Atwater, M.D., Dr. P.H.
Executive Secretary
American Public Health Association

IT WAS Victor Hugo who spoke of the power of an idea whose time has come. That power can readily be seen in the new construction of public health centers since an earlier edition of these studies in the ARCHITECTURAL RECORD in 1942. Twelve years ago it was possible to report that health center projects developed under the Hill-Burton federal program had been approved in 92 communities, involving a total estimated cost of almost 5 million dollars. By March 31, 1955, a total of 438 health centers and related facilities had been approved, representing an investment of not less than 358 million dollars. These health centers are part of related projects mostly for hospital construction, involving almost 2 billion dollars of building funds and an addition of more than 116,000 beds.

The coöperation represented by these achievements between health authorities and architects and other planners for the better community of the future is noteworthy. It is also unprecedented in the United States. For much too long the health department was usually the poorest housed municipal service and, even with this marked improvement, there remain at least 75 per cent of the health departments in the United States which ought to be rehoused.

It undoubtedly is true that many of these unsuitably housed local health departments have a narrow concept of their functions and duties. These departments frequently perform only the routine tasks of inspection, abatement of nuisances, and enforcement of quarantine along with some other activities that have been handed down from the early days of public health organization. On the other hand, and as another has said, when a modern health department is really concerned with the total health problem of the community, it is actually doing something about it — if it is operating clinics, maintaining nursing services, giving real protection with regard to water, milk and food, assisting in civilian defense and carrying on a health education program which reaches *the* people — then it certainly has a right to expect consideration from the community, and it usually gets it.

The United States has been fortunate in having a well staffed division in the United States Public Health Service, Department of Health, Education and Welfare, under the supervision of Dr. John W. Cronin and with the able assistance of the late Marshall Shaffer, for the study of hospital facilities. Utilizing medical and public health and architectural skills, this division has brought together the experience and imagination of the leaders to whom the public is largely indebted for the serviceable units now in operation. The projects approved for federal construction funds under the Hospital Survey Construction Program have been guided into more productive channels so that this federal assistance has rarely been used contrary to the public interest. Much credit is due to the Surgeon General of the Public Health Service, his associates and the Advisory Board.

It can fairly be said that the task of building public health centers (and what are called auxiliary health centers) has only begun. Of the public health centers, only 30 of the states have so far taken advantage of the opportunities afforded by the federal sharing, and in 15 of these states, fewer than 5 health centers have been approved. Among the 10 states and one territory which have built auxiliary health centers, in only 2 instances has the number of projects exceeded 40. The task is only well begun.

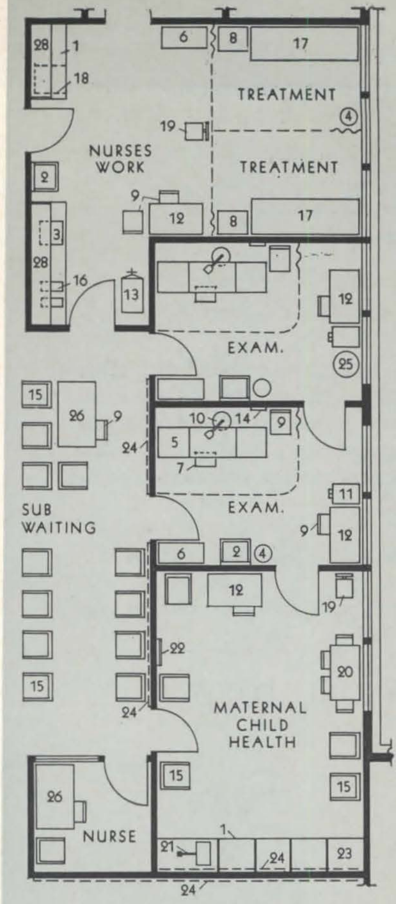
It certainly is in the public interest for those responsible for health department housing to recognize the current opportunities to rehouse this vital community service. The experience of the last decade reflected in these health center studies will give the planners and the architects full scope in developing facilities well adapted to the local needs. Especially to be commended are those communities which recognize the vital link between the health department and the dozens of voluntary health organizations, like visiting nurse associations, which can operate most effectively when they are housed conveniently to the health department, to the laboratory and to the services provided by the modern health center and hospital to make diagnosis and prevention much more precise. Here indeed is an idea whose time has come. The next decade should see new construction in this area at least three times that of the ten years just passed.

ELEMENTS

Plans of Principal Departments of the Type B Public Health Center, with Equipment Indications

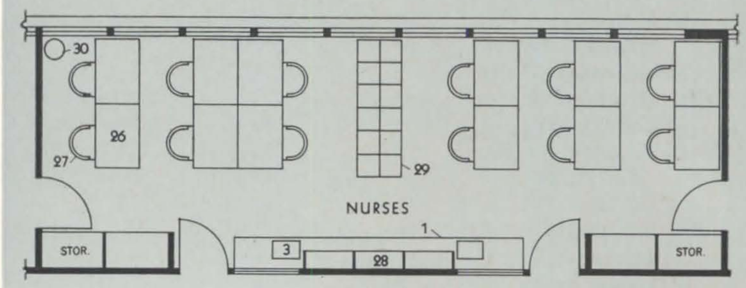
EQUIPMENT LEGEND

1. Work counter with cabinets below
2. Lavatory with gooseneck spout and knee or elbow control
3. Sink with gooseneck spout and knee or elbow control
4. Sanitary waste receptacle
5. Examination table
6. Instrument cabinet
7. Operator's footstool
8. Instrument table
9. Straight chair
10. Gooseneck examination light
11. Mayo table
12. Nurses' flat top desk, 20" x 36"
13. Pressure sterilizer on stand, 12" x 20"
14. Hook strip
15. Armchair
16. Microscopes, 1 ordinary and 1 dark field
17. Treatment table
18. Refrigerator, under counter
19. Clinical scale
20. Children's table and chairs
21. Infant scale
22. Pamphlet rack
23. Baby dressing bins
24. Educational display
25. Laundry hamper
26. Single pedestal desk
27. Executive chair
28. Wall cabinet
29. Clothes locker, 15" x 15" x 60"
30. Wastepaper receptacle
31. Filing cabinet, letter size, 4 drawer
32. Film filing cabinet, 3 drawer
33. Control unit
34. Film storage bin
35. Developing tank, with thermostatic mixing valve
36. Film loading counter, 36" high, cabinets, cassette bins and film storage bins below
37. Wall hung film drier, water cooler below
38. Towel bar
39. Safe light
40. Timer
41. Mirror
42. Executive type desk
43. Combination radiographic, fluoroscopic unit
44. Cassette changer
45. Lead lining (size and extent varies)
46. Leaded glass view window
47. X-ray film illuminator
48. Lightproof shade



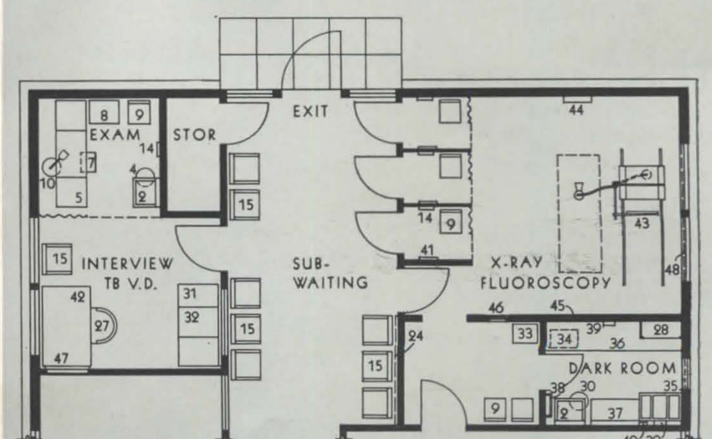
MULTIPLE USE CLINIC

GRAPHIC SCALE 0 2 4 6 8 FT.



NURSES OFFICE AND WORK ROOM

GRAPHIC SCALE 0 2 4 6 8 FT.



TUBERCULOSIS AND X-RAY CLINIC

GRAPHIC SCALE 0 2 4 6 8 FT.

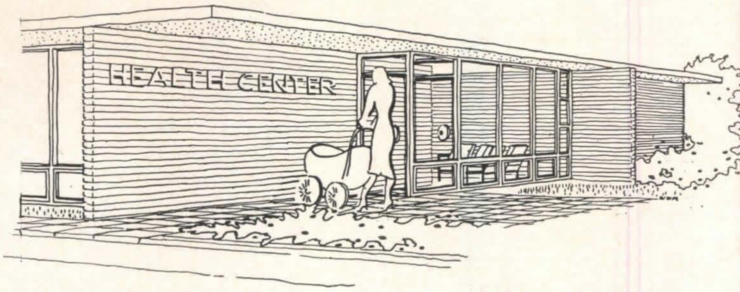
CLINIC SCHEDULES

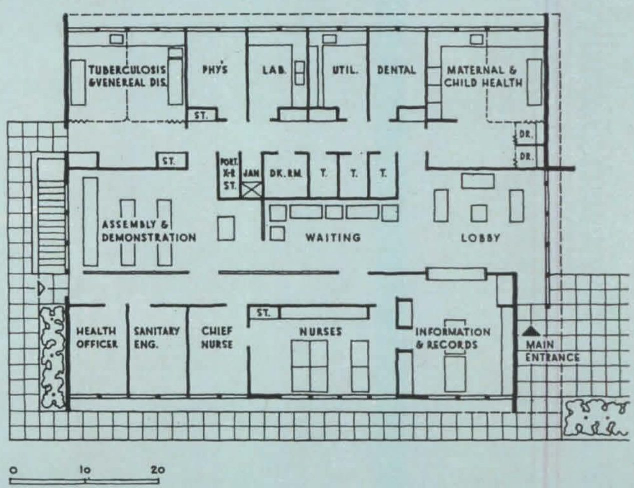
Possible clinic-use schedules based on analyses of clinic loads in public health centers (revised)

In determining space requirements for health centers a clinic schedule and personnel roster will be found helpful. Case loads and personnel requirements may be estimated according to standard practice and local vital statistics. In view of possible expansion, maximum rather than minimum standards should be used.

Session / Clinic	Type A (Revised) 35,000 Pop. Visits	Type B-1 60,000 Pop. Visits	Type C (Revised) 100,000 Pop. Visits
Monday			
A.M. Prenatal	10	12	—
Dental	7	7	—
Mental Hygiene (Child Guidance)	—	—	20
P.M. Prenatal	—	12	12
Child Health	—	—	16
Venereal Disease	22	—	—
Eve. Venereal Disease	—	25	25
Mental Hygiene	—	—	20
Tuesday			
A.M. Prenatal	—	—	12
Dental	7	7	14
Child Health	16	16	16
P.M. Prenatal	10	—	—
Dental	—	—	14
Child Health	—	16	16
Eve. Dental	—	—	14
Venereal Disease	—	—	25
Wednesday			
A.M. Dental	—	7	14
Child Health	—	16	16
P.M. Prenatal	—	12	12
Child Health	—	16	16
Thursday			
A.M. Prenatal	—	—	12
Dental	—	7	—
Child Health	16	16	16
P.M. Prenatal	—	—	12
Child Health	16	—	16
Mental Hygiene (Child Guidance)	—	20	—
Eve. Venereal Disease	—	—	25
Mental Hygiene	—	20	20
Friday			
A.M. Dental	7	7	—
Child Health	—	—	16
Tuberculosis	16 [1]	20 [2]	—
P.M. Dental	—	—	14
Venereal Disease	—	25	25
Mental Hygiene	—	20	—
Tuberculosis	—	—	23
Eve. Venereal Disease	22	25	25
Tuberculosis	16 [3]	20 [4]	23 [5]
Total visits per week	**145**	**306**	**477**
Total visits per year	**7,540**	**15,912**	**24,830**
Total sessions per week	**10.75**	**20**	**27.5**
Total sessions per year	**559**	**1,140**	**1,430**
	[1] (2/mo.) [2] (1/mo.)	[3] (3/mo.) [4] (1/mo.)	[5] (2/mo.)

TYPE PLANS FOR





TYPE A HEALTH CENTER

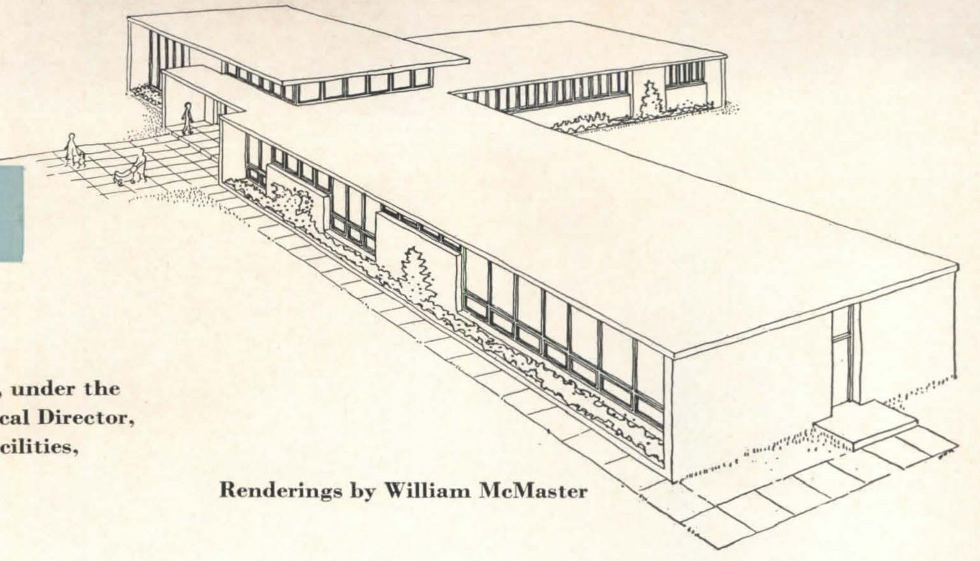
This basic one-story health center, with floor area of 3000 sq ft, is designed for a community of approximately 35,000 population.

Two clinic rooms are supplemented by a utility room, a laboratory, a consultation room and a dental room along one side of an extra wide corridor, which serves as lobby, waiting and assembly room.

On the opposite side of this light and open corridor are the administrative offices. The staff will include 1 health officer, 1 chief nurse, 6 public health nurses, 1 or 2 sanitary engineers and 2 clerks.

A part basement (not shown) contains storage for equipment, supplies and dead records, a maintenance room and the boiler and fuel room.

About 7600 patient-visits can be handled per year.



HEALTH CENTERS

Planning by O. B. Ives, Hospital Architect, under the general direction of John W. Cronin, Medical Director, Chief, Division of Hospital and Medical Facilities, Public Health Service

Renderings by William McMaster

TYPE B-1 HEALTH CENTER

For a community with a maximum population of about 60,000, this one-story facility with floor area of 5960 sq ft, provides separate sections for clinics, administration and assembly, all opening off a main waiting room. The clinic wing provides facilities for tuberculosis control (including X-ray), dental hygiene and a multiple purpose area. Prenatal and child health clinics, immunizations, venereal disease treatments and test and diagnostic clinics for some chronic diseases can make use of this multiple purpose area.

The administration wing contains information counter, records room, laboratory and offices for public health nurses, health officer, health educator, medical social service worker and secretaries, plus staff toilets.

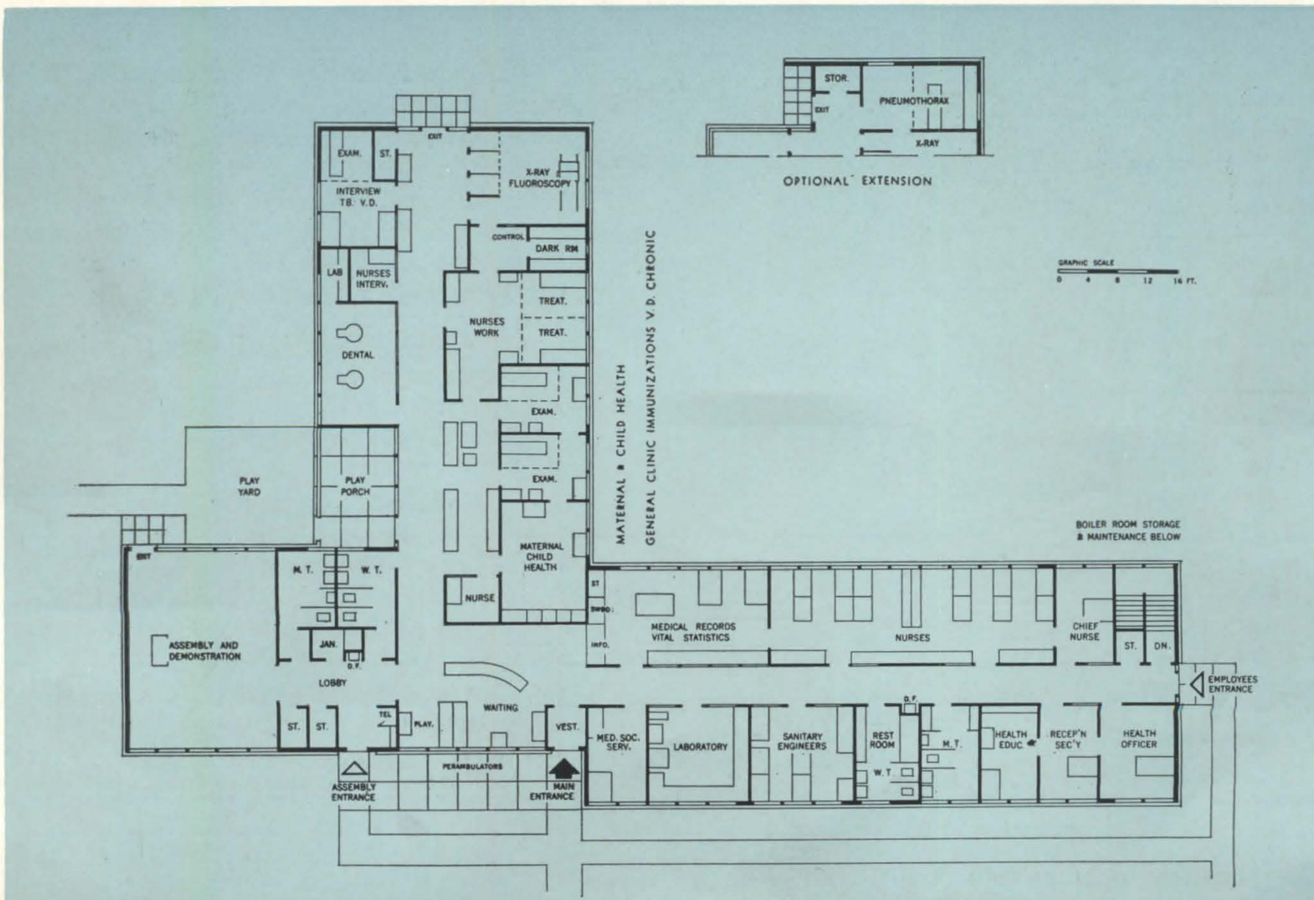
The assembly room has been provided for meetings, conferences, educational lectures and demonstration classes. This wing can be locked off separately.

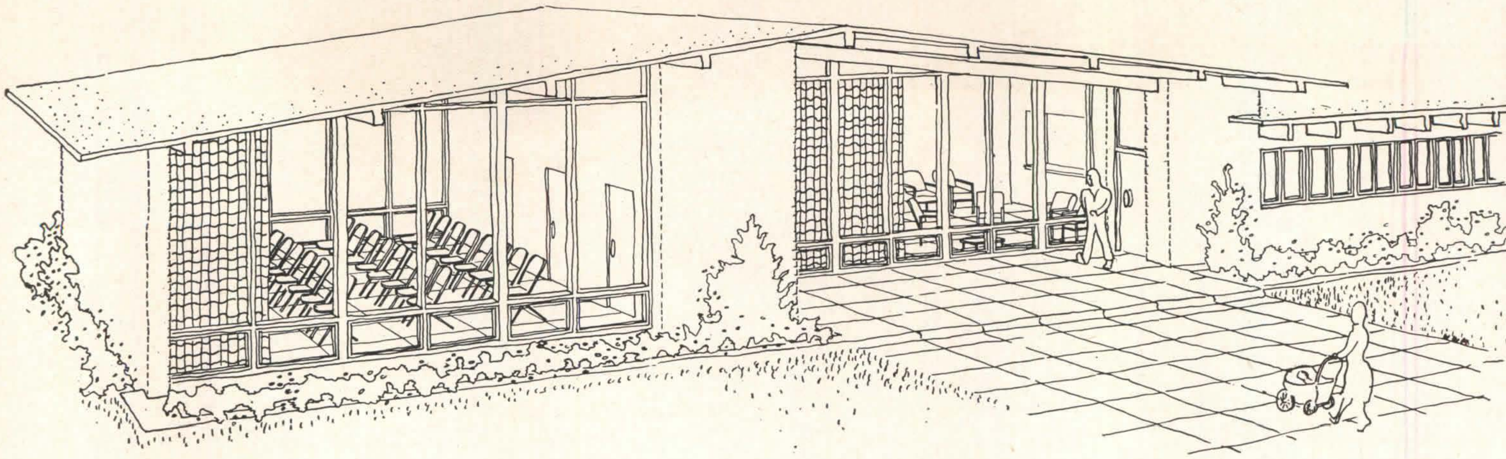
A part basement (not shown) contains storage for equipment, supplies and dead records, a maintenance room and the boiler and fuel room.

Minimum full-time staff includes 1 health officer, 1 chief nurse, 1 assistant chief nurse, 12 public health nurses, 4 sanitary engineers (including the chief engineer), 1 health educator, 1 medical social service worker, 1 laboratory technician, 2 secretaries and 3 clerks.

Part time staff may include clinic physicians, a venereal disease investigator, mental hygiene personnel, dentists, and volunteer clerks and aides.

Some 16,000 patient-visits can be handled per year.





TYPE C HEALTH CENTER

For a community with a maximum population of about 100,000, this one-story facility, with floor area of 9570 sq ft, provides separate sections for clinics, administration and assembly, all opening off a main waiting room. The clinic wing has facilities for tuberculosis control, including X-ray, dental hygiene, and a multiple purpose area. Prenatal and child health clinics, immunizations, venereal disease treatments and tests and diagnostic clinics for some chronic diseases can use this area.

The administration wing contains separate counters for clinic information and for health certificates or vital statistics in the records room. Offices for public health nurses, health officers, sanitary engineers, health educator, medical social service worker and secretaries, as well as a staff room and library and a laboratory are also provided. A rest room for female staff, staff toilets and necessary storage closets complete this wing.

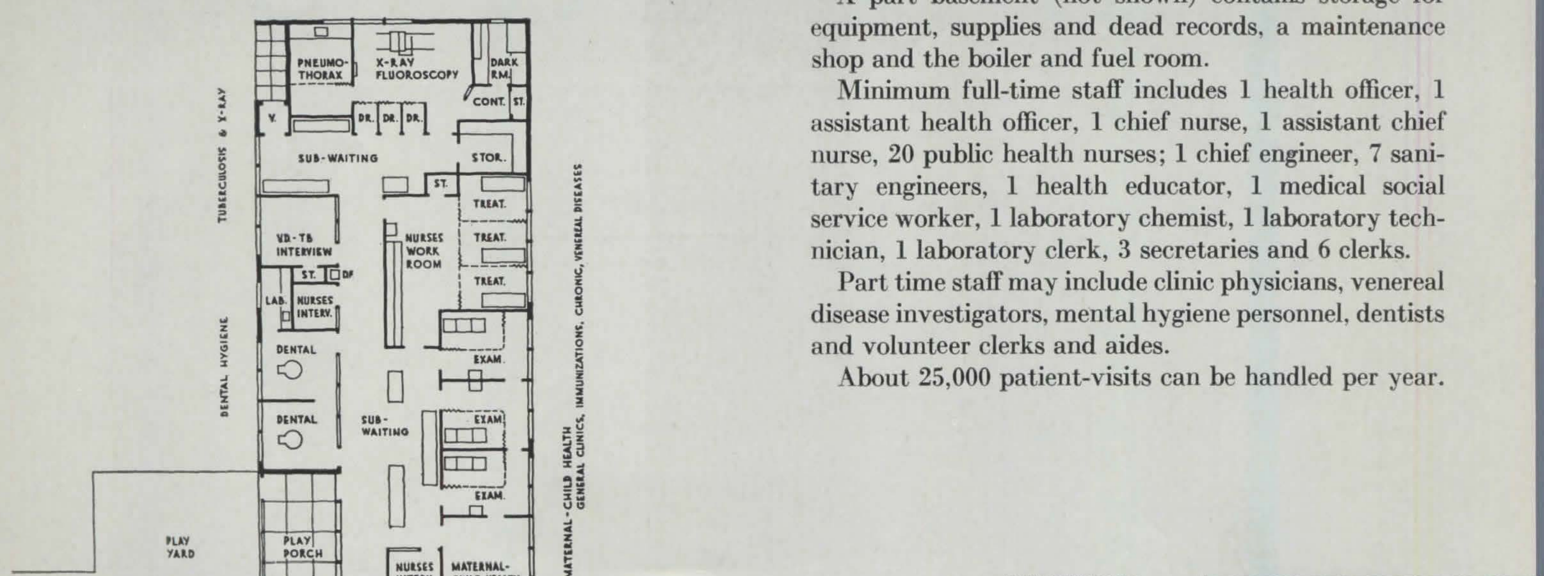
The assembly room has been provided for meetings, conferences, educational lectures and demonstration classes. This wing can be locked off from the rest of the building.

A part basement (not shown) contains storage for equipment, supplies and dead records, a maintenance shop and the boiler and fuel room.

Minimum full-time staff includes 1 health officer, 1 assistant health officer, 1 chief nurse, 1 assistant chief nurse, 20 public health nurses; 1 chief engineer, 7 sanitary engineers, 1 health educator, 1 medical social service worker, 1 laboratory chemist, 1 laboratory technician, 1 laboratory clerk, 3 secretaries and 6 clerks.

Part time staff may include clinic physicians, venereal disease investigators, mental hygiene personnel, dentists and volunteer clerks and aides.

About 25,000 patient-visits can be handled per year.



PLANNING THE PUBLIC HEALTH CENTER

HEALTH CENTERS under the Hill-Burton program, range in size from 1000 to 20,000 sq ft in area. The national median size is about 5000 sq ft, but the most common size is the health center with about 3000 sq ft. The latter is considered a small health center, capable of serving a rural area population of up to 35,000.

Desirable minimum or basic functions of a local health department include vital statistics, sanitation supervision, communicable disease control, laboratory services, maternal and child health, dental hygiene and health education. To these has recently been added control of chronic diseases, which promotes case finding and diagnostic services for arthritis, cancer, cardiac, or diabetes cases among others. Rehabilitation for these and other types of cases is very often available. Accident prevention, the hygiene of housing, industrial hygiene, school health services, and hospital and medical care are other areas of service which are being incorporated into many local health programs. Most state governments have established within their official health agencies consulting services which are prepared to assist in organizing these health services at the local level. Fitting the new service into the local health program must be carefully planned after thorough studies have been made. Such studies must aim at improving the whole field of public health.

Space requirements may be determined largely from the clinic schedule and the list of personnel. The clinic schedule is an arbitrary allotment of hours to accommodate estimated case loads for the several health services outlined in the program. Case loads are estimated from a study of local statistics, pertinent to each of the proposed health services. Type health center plans and schedules have been developed, using national averages and standards. It is suggested that these schedules be used only as patterns into which local statistics are substituted. Some services, such as dental hygiene, are quite variable in different areas and, as a result, solid standards are not available. Consultation with local health officials is then advisable. Provision for maximum rather than minimum loads is recommended in view of future expansion.

The general architectural plan can now take shape in a schematic drawing showing the arrangement and relationship of the five main areas of a health center. These are:

1. Waiting, including the main entrance.
2. Administration, including offices and record space.
3. Clinic, including sub-waiting, exam, treatment and consultation rooms.
4. Assembly, including storage for projector, film, etc.
5. Service, including heating, storage and maintenance rooms.

The size of the health center laboratory will be determined by the size of the community and the amount of work done by other laboratories in the area or at the state level. The laboratory serves the clinician, the epidemiologist, the nurse, the milk inspector or the sanitary engineer, in examining submitted specimens. Today's standards indicate about 6000 such examinations a year per 100,000 population. Space and equipment for conducting bacteriological, microscopic, physical and chemical examinations and analyses must be calculated, keeping in mind possible expansion of services in these fields. Proper storage space for biological products, drugs, and antibiotics, to be drawn upon by private physicians and by disease prevention services, should be studied and provided. The laboratory is usually located adjacent to the sanitary engineers, as it largely serves them.

In designing the clinic area a certain freedom of use of some areas should be considered. Most of the services provided in health center clinics today may safely share common areas and facilities. Multi-use of clinic space should be exploited in the interest of economy, not only of expensive space but of valuable personnel. Careful scheduling can accomplish much in this direction. In small health centers, general clinics are not uncommon.

The specialized rooms such as dental and X-ray rooms, are not adaptable to use by other clinics. Crippled children, multiple screening programs, cardiac or cancer clinics, are some which might use the X-ray room. The dental room might also serve cancer clinics or multiple-screening programs for oral inspections.

It is suggested that a type of examination-consultation room be developed wherein the physician can do a complete examination, consultation and write-up on each patient. This is facilitated if the usual dressing cubicle is replaced simply by a draw curtain about the examination area of the room. Concern over the safety of their belongings is relieved and any tendency to dawdle is discouraged.

Such exam-consultation rooms should be arranged in groups of two or more intercommunicating rooms to permit the physician to work most efficiently. While the patient prepares for examination behind the curtain, the physician can be checking his medical record or attending the patient in the adjoining room. Consultation may proceed during examination and continue while the patient dresses.

It is possible then to place sub-waiting areas and nurses' work stations for one or more clinics with the bank of exam-consultation rooms. The nurses' work stations may be within the sub-waiting area, in the waiting room for maternal and child health or in a kind of utility-treatment room, set up for injections, in connection with venereal diseases and other contagious diseases and for minor emergency treatments, blood tests, etc. A toilet facility is also necessary in this area.

These exam-consulting rooms are adaptable to many uses by the nurses. Private consultations with patients, private phone calls in connection with patients, and write-up work can be done by them in these rooms. In case there is no room provided for venereal disease interviews one of these rooms might well be used.

Though separate interview and examination facilities are still desirable for the tuberculosis clinic, with proper scheduling and technique, these rooms could be utilized where space restrictions make it necessary.

Case-finding, diagnostic and post-hospital cases comprise the bulk of the tuberculosis clinic work. Pneumotherapy requires weekly treatments, so special arrangements, such as referral to a specialist or to a hospital, may be expedient. Pneumotherapy in the health center is said to have diminished to an average of only 10 per cent of the regular tuberculosis clinic load today.

The tuberculosis clinic should provide facilities for at least 16 cases per session, to justify the mustering of the one medical specialist, one technician, two nurses experienced in interviewing, and one clerk-receptionist, needed to operate this clinic efficiently. The physician will need an exam-consultation room, with facilities for reading and interpreting X-ray films. The technician will operate the X-ray room where a combination unit for radiography and fluoroscopy should be provided. This will provide for 14 in. by 17 in. plates as well as a quick method of checking chest conditions with the fluoroscope. The fluoroscope is also needed for the pneumotherapy process.

If photo-fluorographic (35 and 70 mm. film) case-finding programs are planned for the health center for an average of 50 or more per session, they may warrant the increased cost of equipment and increased room size entailed in the more powerful unit and the supplemental equipment, such as a hood and camera. Usually case-finding is more economically provided by mobile X-ray units which visit schools, health centers and other local meeting places in most states. Many hospitals are also providing this service for each patient coming through their receiving departments.

Pneumotherapy will require a special treatment room, adjacent to the X-ray room. This room should provide a work counter with sink and cupboards under. At least three dressing cubicles between the X-ray room and sub-*waiting* are required in connection with this treatment, as well as for the regular radiographic work.

Two nurses will be needed to interview patients, to advise them, according to the physician's findings and to mobilize their courses of treatment, hospitalization, social welfare and rehabilitation. For this purpose, each nurse should have a small semi-private room or cubicle adjacent to sub-waiting and to the physician's exam-consultation room. The clerk-receptionist's station may be set up adjacent to the sub-waiting area where control of the patients and their medical records will be maintained.

Demonstration work in the maternal and child health clinic has expanded to include fathers in many areas. This, coupled with crowded clinic sessions, has often resulted in formation of special instruction classes which must be held in the assembly room or other larger meeting places.

The provision of dental facilities in the health center is decided in the program. In a community of 50,000, for example, dental care for only those school children who cannot pay will justify a full-time dentist and a fully equipped dental facility. Dental examination of school children is provided in most of the schools of the nation. The large majority of those needing care are referred to family dentists. Indigent cases, through local dental societies, are cared for in private offices, hospital clinics, health centers, etc. Many health departments are also providing dental care for pre-natal, pre-school, venereal disease and tuberculosis patients and these clinics are very often synchronized in health center schedules.

Nutrition programs will seldom require space in the average health center. They are usually part of the health education program and are integrated into the work of the health educator, the public health nurses and the clinic physicians. In a large urban or district health department, office space should be provided for a nutritionist or nutrition supervisor. This specialist will inform and train the nurses in good nutrition for use in their everyday field work.

It is estimated that one full-time mental health clinic per 50,000 population should be provided as a minimum need. Mental health programs are still in an early developmental state and standards are quite undetermined. A full-time clinic is defined as one with at least one professional staff member on duty 35 hours or more per week. A fully effective mental health service should have the skills of a multi-discipline team, made of a psychiatrist, a clinical psychologist, two psychiatric social workers and a clerk-typist.

In the average health center, where a part time mental health clinic might be set up, common use areas and multi-purpose examination rooms might suffice, with careful scheduling. A mental health clinic should hold at least two sessions per week, preferably three. Although child guidance predominates in these clinics it is recognized that mental hygiene has much to contribute in the field of chronic diseases and geriatrics.

In the field of chronic diseases the efforts of health departments are still concentrated on education of the public in improved health habits, leading to prevention or early diagnosis of heart disease, cancer, diabetes or other similar long term incapacitating diseases. Mass case-finding programs seem not far in the future. The health center should be planned accordingly, for adaptation of existing space and coördination of extensions.

CHECK LIST ON HEALTH CENTER PLANNING

■ Multiple use of clinic rooms is considered practical if proper technique is enforced. General clinics, wherein a variety of health services are rendered in one area at one session, are common. However, where certain individual clinic loads are heavy, it is practical to limit the clinic use to that one health service.

■ Dressing cubicles for examination rooms are not recommended. If draw curtains are provided around the examination table area, dressing and undressing is expedited.

■ Assignment of patients to several sub-waiting areas reassures the patient of more personal and prompt attention. Location of these areas on an exterior wall makes them more cheerful and inviting. Lightweight metal armchairs permit a variety of arrangement. They are more comfortable than fixed or built-in benches.

■ Counters and cabinets are not feasible in examination rooms. Rooms equipped with a lavatory, an examination table, an instrument table or cabinet and an examination light are adequate. Examination rooms should be at least 9 ft wide, however.

■ Toilets should always be provided within or directly accessible to the clinic area.

■ The dental clinic should be located close to the main lobby to minimize interference with other clinics. It should be arranged as an optional area, readily omitted as the program dictates.

■ The pneumotherapy room should also be planned as an optional area.

■ Photoflurography (small-film mass case finding) should be provided in the X-ray room only if 50 or more cases are processed per clinic session. This entails extra space and cost to provide for the more powerful unit and supplemental camera, hood, etc.

■ X-ray film files for 5 years are usually stored in the tuberculosis interview room. Dark rooms are often too small even for occasional use. A minimum inside dimension of 6 ft by 6 ft is recommended. The door width should be determined by the size of the dark room equipment.

■ Outdoor play area, located off the clinic wing, should be enclosed and a portion of it covered and screened.

■ Provide appropriate and properly sized storage closets in convenient locations in the clinic wing.

■ In the nurses' workroom instruments and materials used in the clinics are cleaned, sterilized and set up. Here, also, blood samples and smears are taken and stored or examined. Injections and immunizations are given and entries are made on patients' record cards. This room is also adaptable to use by diagnostic clinics for cardiacs, diabetes, arthritis, etc.

■ Assembly rooms are valuable not only for providing health education programs but for other community use. Facilities for movies, microphones and storage of supplementary equipment such as film projectors, film, display racks, folding chairs and tables as well as posters, pamphlets and other printed matter should be provided. Air conditioning will also increase the value of the assembly room. A built-in kitchenette including a range, a sink and cupboards is often provided for demonstration work in connection with some clinics.

■ Staff toilets should provide a few lockers to accommodate the volunteer workers. Rest rooms are also recommended at least for the female members of the staff.

■ The offices of the health officer and his staff are preferred at a distance from the public lobby and near a separate staff entrance.

■ The laboratory is equipped to serve the clinic and the sanitary engineers in performing bacteriological, microscopic, physical and chemical examinations and analyses of specimens submitted or collected. It is located adjacent to the sanitary engineers, whom it largely serves. Proper storage space is provided for fresh supplies of biological products, drugs and antibiotics, which are distributed to physicians and disease prevention services, according to policy established by the State Agency supplying them.

■ Where play areas are assigned in waiting rooms, a cabinet for storage and display of toys should be provided.

■ A covered terrace for parking of perambulators is much appreciated.

■ Avoid entering public toilet rooms directly from waiting areas. Water closets should be separated from lavatories by stall partitions wherever possible.

■ Future extensions to all wings should be considered in anticipation of new health programs and added services.

■ It is suggested that high window sills be avoided in administrative offices and waiting areas, in the interest of better ventilation and view.

■ Air conditioning of the entire health center building is desirable, wherever possible.

■ Acoustical treatment of ceilings to reduce sound transmission must be considered, especially in clinic examination and interview rooms and in conference or assembly rooms. Better insulation against transmission of heat should be provided in roof spaces, especially where flat roofs are used.

The nurses' work room should be located adjacent to the medical records for convenient reference. Where space permits, the area should be subdivided into rooms of four nurses each.

MECHANICAL AND ELECTRICAL SYSTEMS

THE mechanical work consisting of: plumbing, heating, ventilation, and in the warmer climates, cooling systems, requires careful study to achieve efficient service at a minimal operating cost.

Plumbing. Fixture placement and service piping should be so planned as to permit future room changes with a minimum of disturbance. The selection of fixtures and fixture trim for the clinical areas is of particular importance. Hand washing facilities used by doctors and nurses in the examination and treatment areas should be trimmed with elbow, knee action or foot action valves as required.

Non-corrosive water heater storage tanks and hot water piping systems are recommended.

Heating. Hot water heating with thermostatically controlled zones provides an economical system for this type of structure where intermittent use of the clinical section may occur and where evening meetings utilizing the assembly room are not uncommon.

In warmer climates where air cooling is essential, a warm air heating and cooling system utilizing the same duct system may reduce installation costs.

Where a separate air cooling system is contemplated, consideration should be given to individual systems for administrative and clinical areas.

Automatic firing is recommended to provide for weekend and unsupervised heating service.

Ventilation. As mass clinics are the order rather than the exception, ample ventilation is recommended for assembly and waiting rooms which will often be overcrowded. Ample ventilation is also required for the X-ray rooms which may be tight areas because of light proof shades and ray protection required. The exhaust from film dryer and the dark room should be discharged to the outside.

Electrical. The minimum standards recommended for electrical work in health centers is that of the National Electrical Code. Where movable partitions are installed, wiring should be arranged for minimum interruption of service when such partitions are relocated.

X-ray equipment and wiring should conform with the applicable requirements of article 660 of the National Electrical Code, and the National Electrical Manufacturers Association's "wiring data and minimum power requirements." As a minimum, the power feeder to the X-ray unit should be direct from the main distribution panel or from a separate transformer. Where portable X-ray is used, polarized receptacles on one circuit are recommended to minimize the probability of other loads being plugged in on the circuit and causing voltage fluctuations while the X-ray unit is being operated. Rooms or areas containing fixed (nonportable) X-ray equipment should have ray protection as recommended in National Bureau of Standards' Handbook 41. (See also Handbook 50, "X-ray Protection Design.")

For supplying power to mobile or ambulatory bus X-ray units, two weather resistant (raintight) receptacles on separate circuits, located outside the building convenient to parking area are recommended: One 60A., 220 V., 1-phase, 3-wire, 3-pole for X-ray, and one 30A., 110 V., 1-phase, 2-wire, 3-pole for lighting, heating and other utilities.

Proper lighting is conducive to efficient work, influences better housekeeping, accentuates architectural beauty and is economical. Fixtures should be of a type, or so located, as to avoid objectionable glare. To encourage proper maintenance, fixtures should be easy to clean and to relamp. Parking lots should be lighted. Lighting intensities for comparable areas are given in "Recommended Lighting Practice," as published in the March 1955 issue of *The Modern Hospital.*

A signal system, either buzzer or intercommunication type, should be provided which will permit the health officer to originate calls to other principal areas.

Catastrophes. In case of a major disaster such as that of enemy use of nuclear weapons and biological warfare, health centers located in or near target areas would be vitally needed to relieve overcrowded hospitals of some of the ambulant casualties. This would involve treatment and facilities somewhat different from those commonly required in health centers. As an example, decontamination would become an important and serious problem in treating people who have radioisotopes or deleterious biologicals on their person or clothing. For this service, washing or shower facilities would be needed at some segregated location so as to minimize the possibility of scattering these contaminants in other parts of the building. Disposal of contaminated clothing and a supply of other clothing should also be considered.

In view of the remote possibility, or infrequency, of such a disaster and the high cost of construction, it is recommended that health centers be designed to meet ordinary peacetime needs but that in probable target areas consideration be given to an arrangement whereby certain areas may be easily converted to such emergency use, either inside or outside the building.

COST EXPERIENCE

National average cost figures for Public Health Centers participating in the Hospital and Medical Facilities Survey and Construction Program, U. S. Department of Health, Education and Welfare:

Building and Fixed Equipment	Project Cost
$15.98 per Sq. Ft.	$19.02 Sq. Ft.

The cost information that follows is also derived from the same source material. Additional cost information may be obtained from The Division of Hospital and Medical Facilities, Public Health Service, U. S. Department of Health, Education and Welfare, Washington 25, D. C.

PUBLIC HEALTH CENTER COST INFORMATION

Expressed as A Percentage of Average Project Cost.

General Construction	60.8%
Mechanical	15.1%
Electrical	6.2%
Contingency	2.3%
Total Construction Contracts	84.4%
Group II & III Equipment	9.2%*
Site Survey and Soil Investigation	.2%
Architect's fee	variable
Supervision & Inspection at Site	1.2%

* In many projects this equipment cost figure represents only the cost of equipment purchased to augment serviceable equipment on hand. Public Health Centers equipped with new Group II and III Equipment may be as much as 100% higher than this figure.
† variable.

PRELIMINARY COST ESTIMATES

Public Health Center Type	A	B-1	C
for community with a maximum population of	35,000	60,000	100,000
Approximate Gross Floor Areas:			
Basement S. F.	692	1,840	2,550
1st Floor S. F.	3,008	5,960	9,570
Total S. F.	3,700	7,800	12,120
Project Cost:			
Construction Contract	$59,130	$125,070	$194,395
Equipment (Group II & III)*	6,500	13,630	21,185
Site Survey & Soil Investigation	150	300	400
Architect's fee†	3,500	7,400	11,500
Supervision & Inspection	840	1,600	2,550
Acquisition of Site	variable	variable	variable
Other	180	200	250
Total	**$70,300**	**$148,200**	**$230,280**

Project cost per S. F. (site not included) $19.00.

NOTE: The Construction Contract figures include an amount normally required for contingencies and Group I Equipment.

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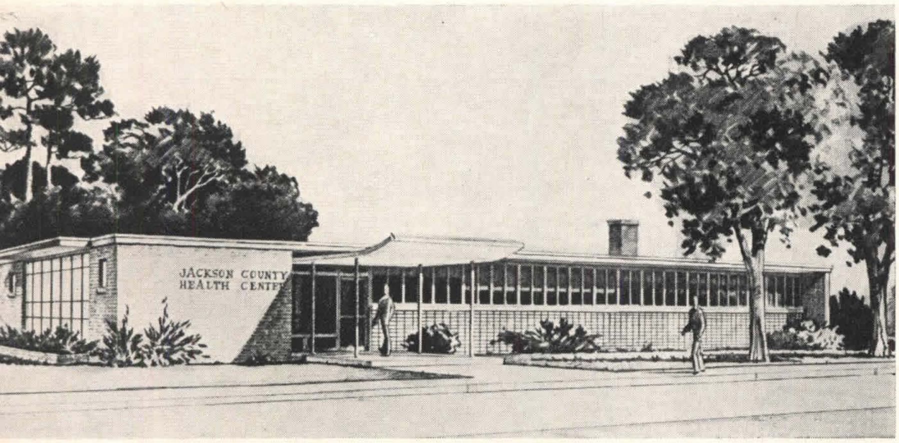
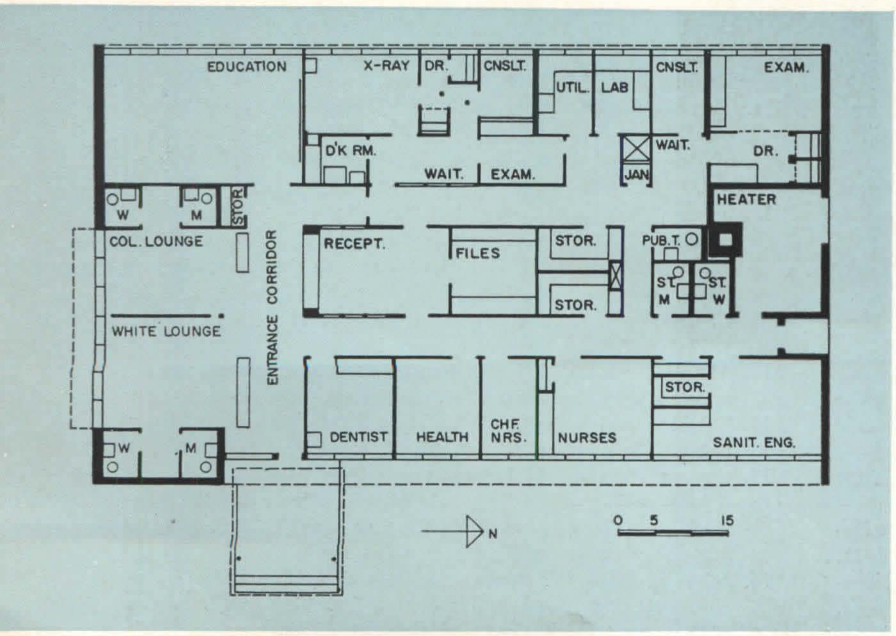
HEALTH CENTER PROJECTS

1. Jackson County Health Center
Marianna, Florida
Sherlock, Smith & Adams
Architects and Engineers

THIS one-story health center serves a county with a population of approximately 20,000. It is conveniently located within one block of the Jackson Hospital. The plan separates offices from clinic areas, with storage space between them. There are the usual offices for health officer, dental officer, nurses and sanitary engineer. The clinic serves for venereal disease, tuberculosis, maternity and child health. VD and TB clinics use the spaces nearest the X-ray department; maternity and child health are isolated in separate rooms.

Construction is concrete slab on grade. Exterior walls are brick, with aluminum awning type windows. Tile wainscots are used on walls of clinics, examining rooms, utility rooms, darkrooms; other interior walls are of plaster. Summer-winter air conditioning is used throughout the building. The building contains 5000 sq ft; cost something less than $75,000.





TWO PUBLIC

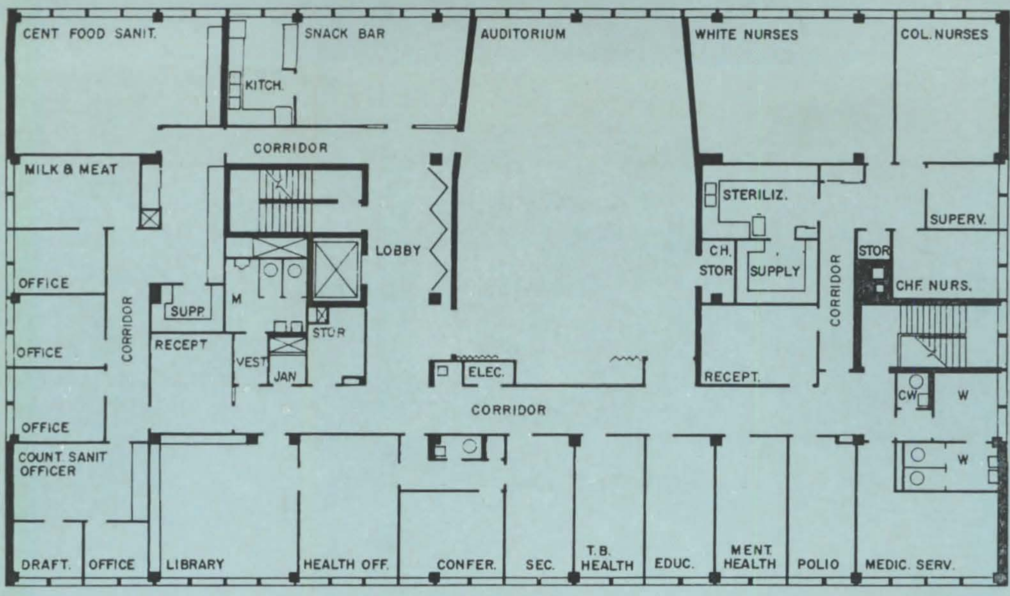
2. Montgomery County Health Center
Montgomery, Alabama
Sherlock, Smith & Adams
Architects and Engineers

ONE of the larger county health centers, this one goes to two stories, contains 24,000 sq ft, and cost almost $500,000.

It houses the usual public health activities and facilities plus some of those not found in smaller centers. There is a mental health clinic, and clinics also for polio therapy and immunization. Educational sessions are correspondingly increased, X-ray facilities are more comprehensive, and the work and activities of many charitable organizations are accommodated in the building.

The general office quarters are on the second floor, clinics and related activities on the first.

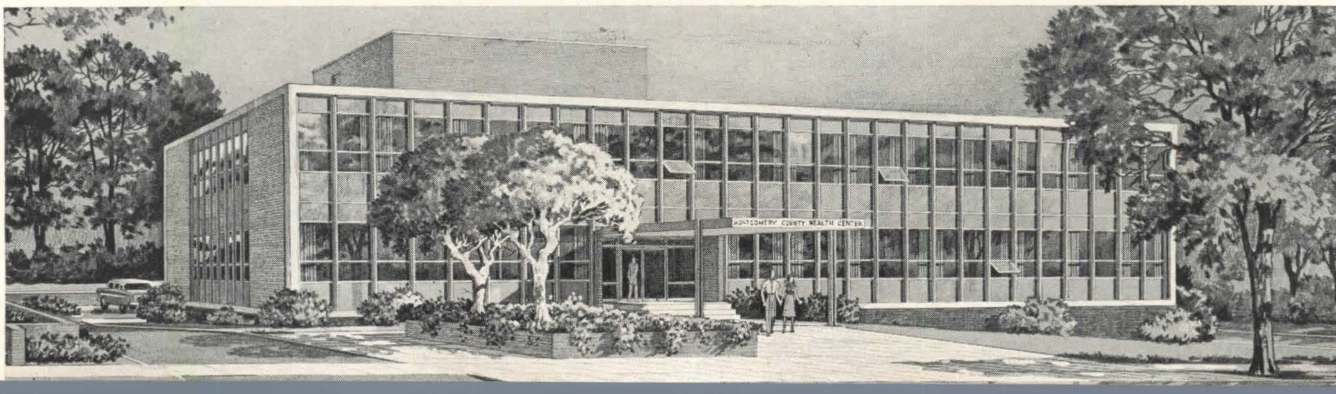
Construction uses aluminum wall panels with tile back-up at spandrels, and porcelain enamel panel inserts. Windows are of heat resisting glass, and the building is fully air conditioned.

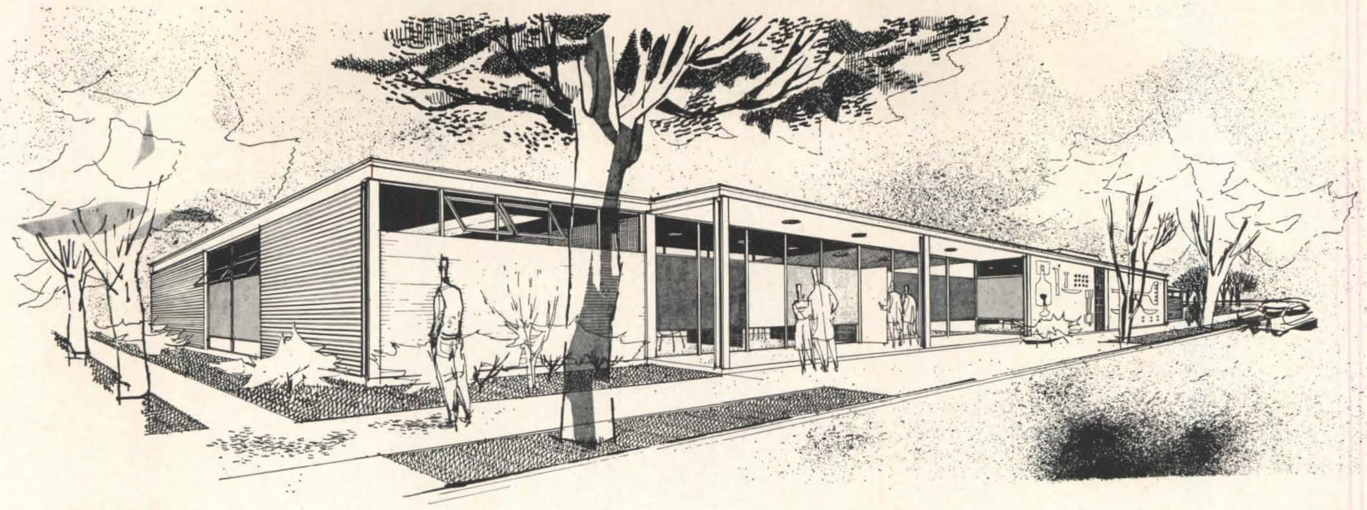


SECOND FLOOR PLAN

HEALTH CENTERS FOR COUNTIES IN THE SOUTH

FIRST FLOOR PLAN

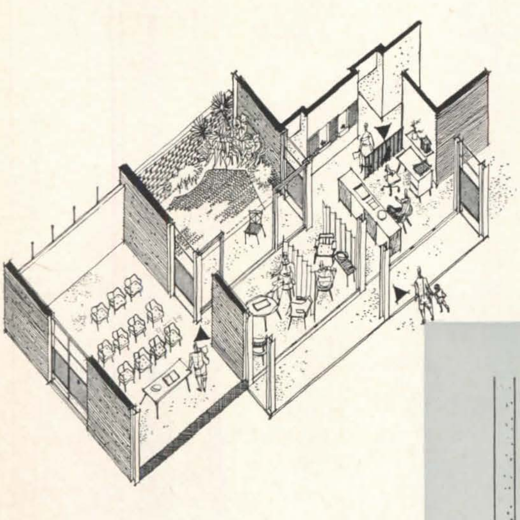


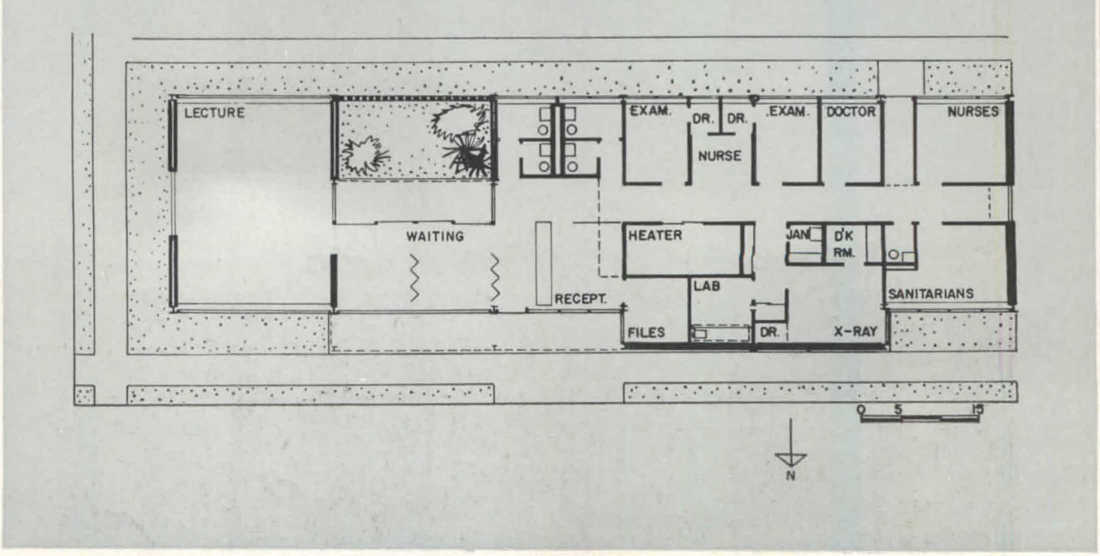


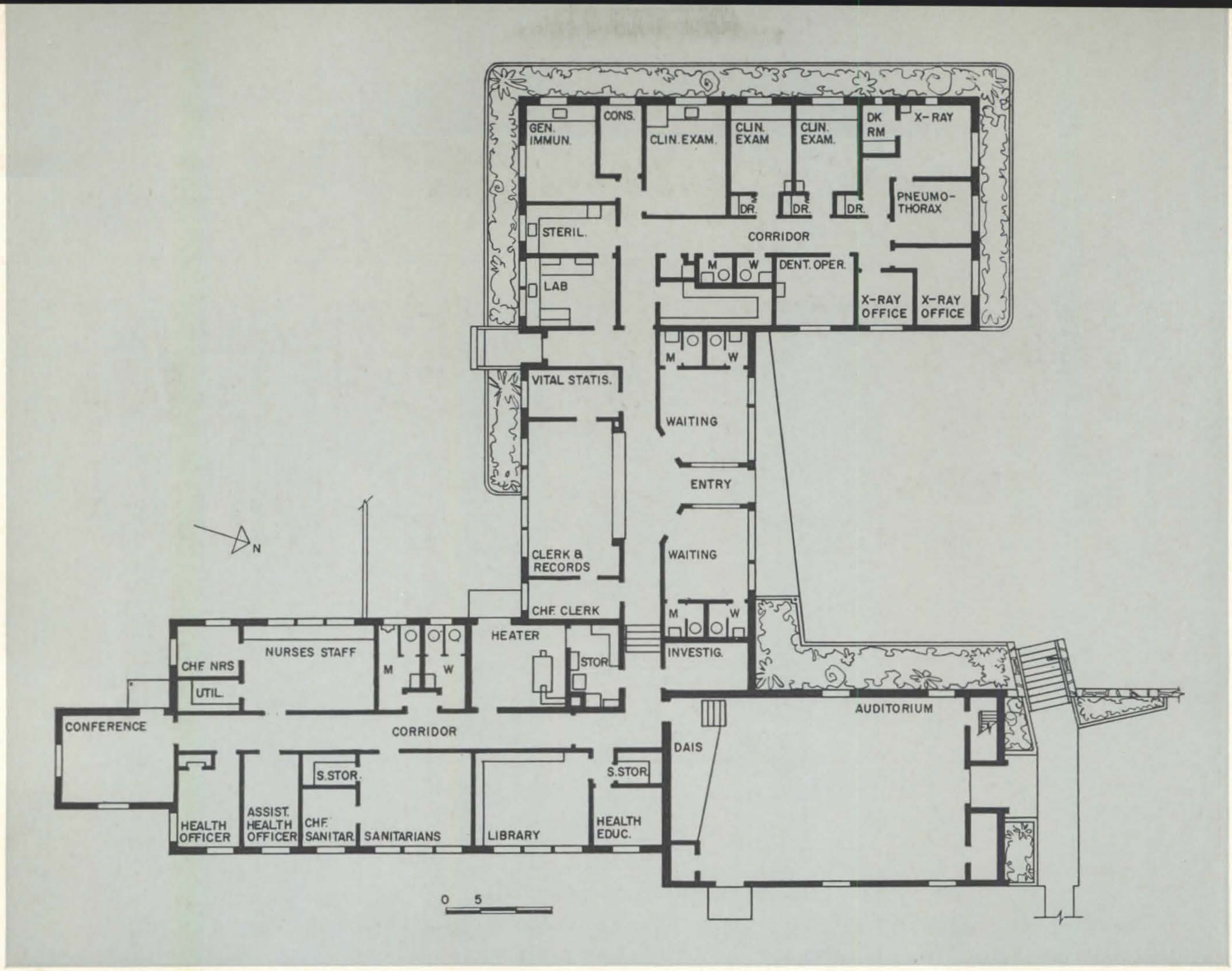
SMALL HEALTH CENTER FOR A RURAL TOWN

Washington Parish Health Clinic
Bogalusa, Louisiana
Burk, Le Breton and Lamantia
Architects and Engineers

HERE is another health center built close to (two blocks from) the local hospital, which can readily extend its diagnostic work. So the center's functions are on the minimal side — offices for the sanitarians and nurses, who really occupy the building only for report-writing and conferences; and clinic space for shots and vaccinations and pre- and post-natal care to mothers. Again the principal planning precepts are observed — separate entrance for staff, public, and for the auditorium. The building is air conditioned by a heat pump installation. Construction is light steel frame on concrete spread footings; exterior walls of 10-in hollow tile, exposed brick on two sides, steel sash and enameled steel panels. Floor is concrete slab on fill. A nice feature is a small controlled courtyard at the waiting room, which offers both a pleasant view and a place for children to play.



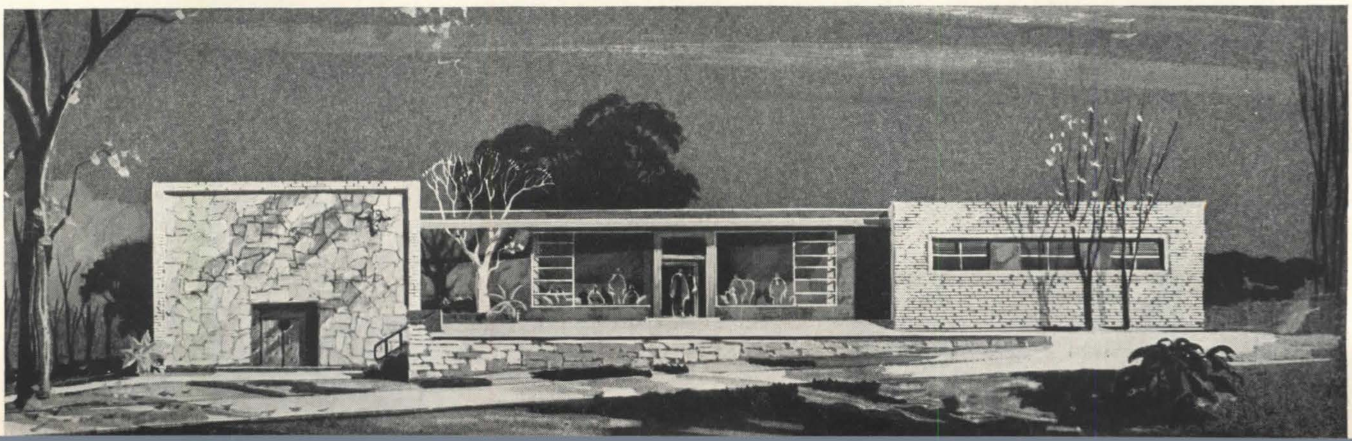


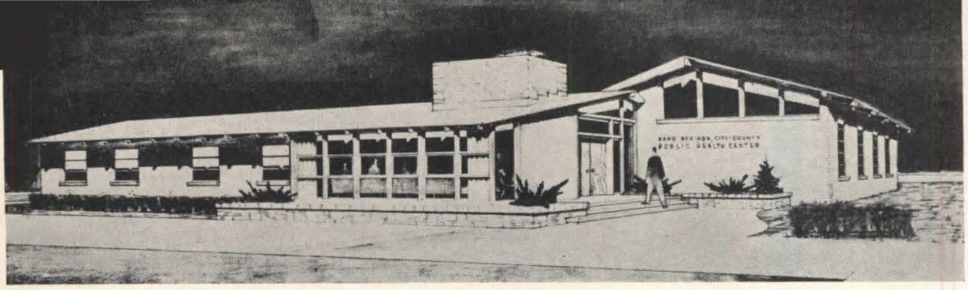


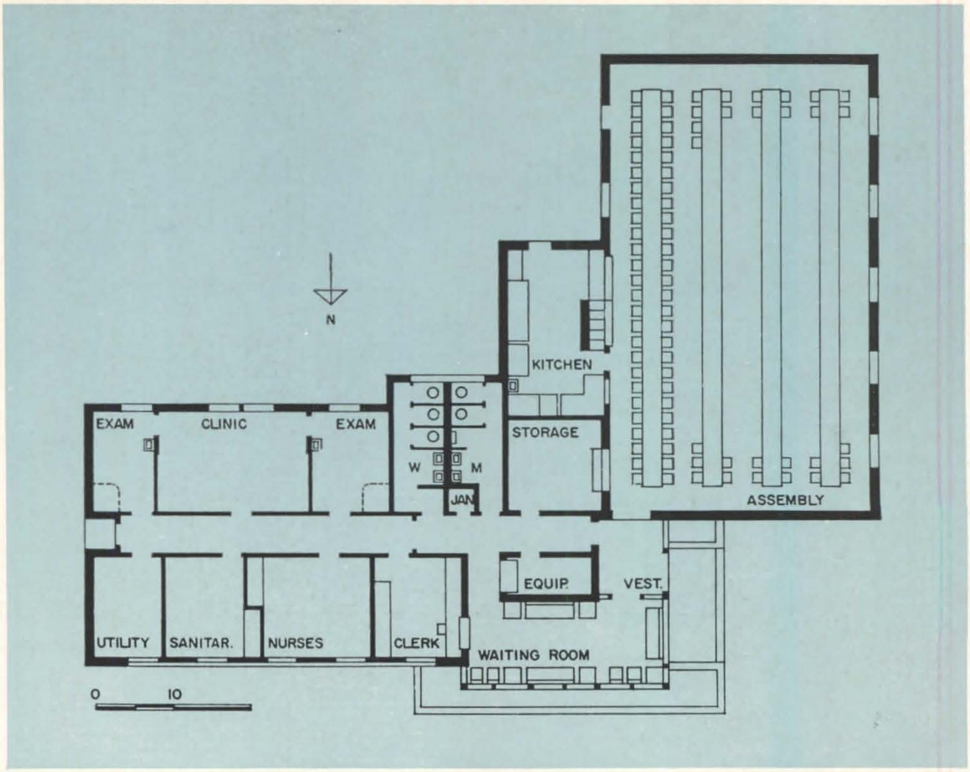
MEDIUM-SIZED HEALTH CENTER FOR THE SOUTH

Laurens County Health Center
Laurens, South Carolina
Lyles, Bissett, Carlisle & Wolff
Architects and Engineers

It has often been observed that the preventive techniques of the modern public health center are especially useful where a large proportion of the people are by no means wealthy, it being good economics to minimize the need for full hospital treatment. This health center is rather typical in that respect — good diagnostic, immunization and educational facilities, good quarters for the official guardians of local food, water and sanitation, a large auditorium for health programs. The building separates the two classes of space by taking natural advantage of a sloping site, with the office space in a separate wing at a level a bit lower than that of the clinic portion. The auditorium has its own entrance, can be shut off from the rest of the building.



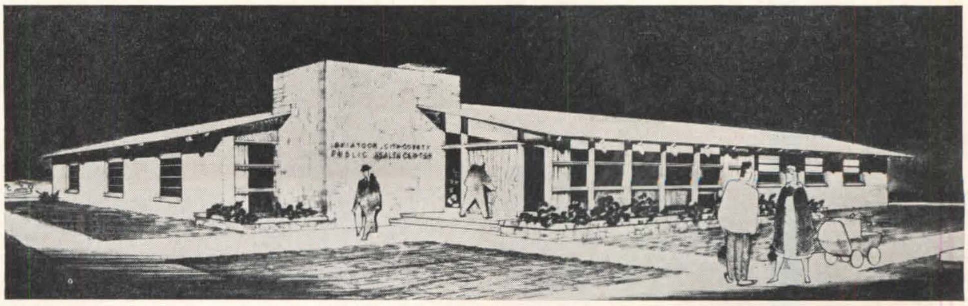


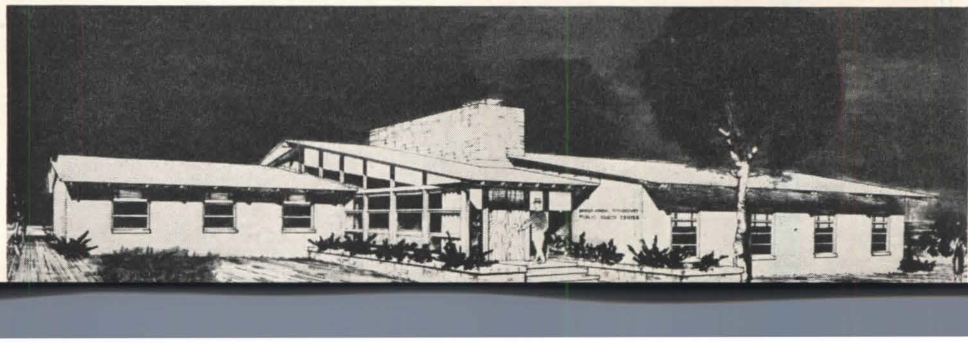


TULSA BUILDS SEVERAL HEALTH CENTERS

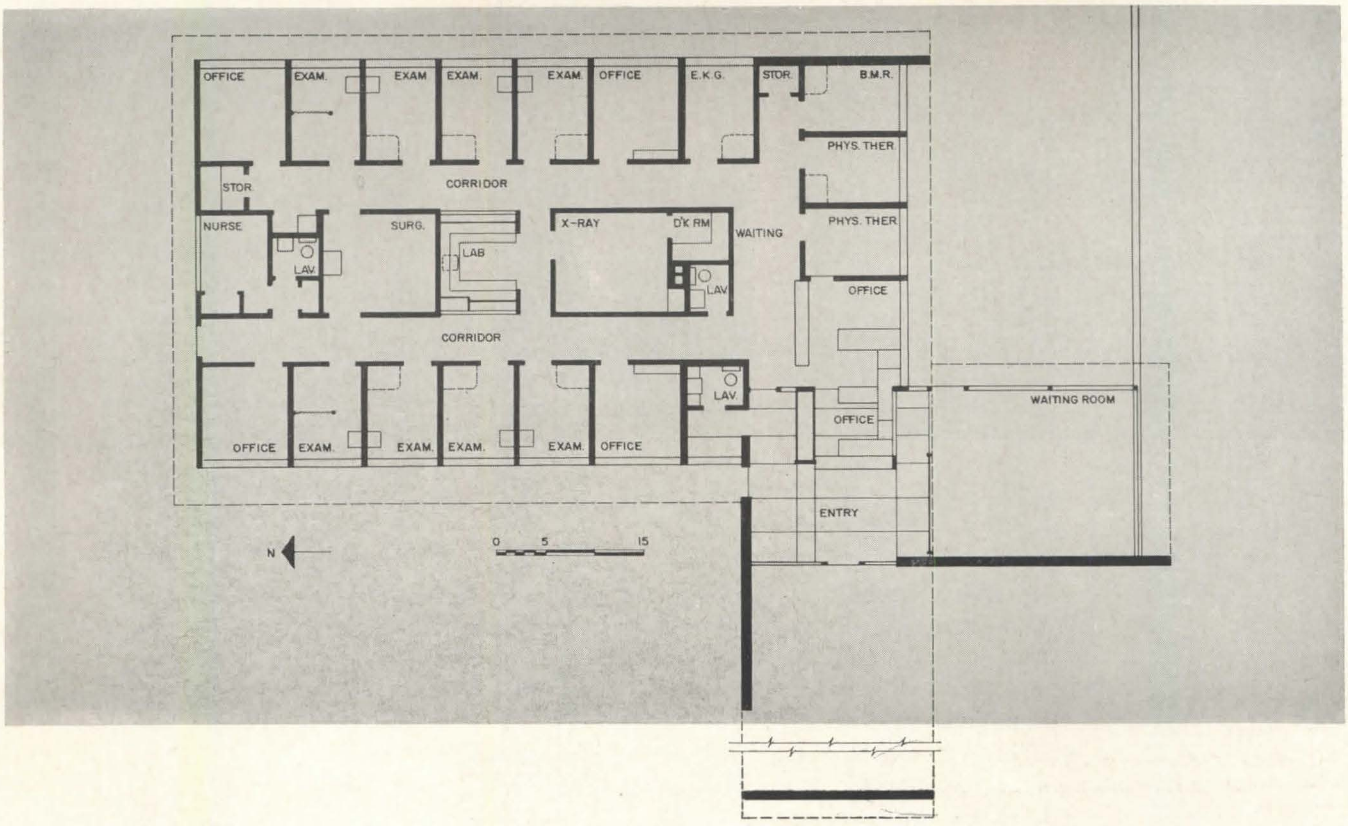
Outlying Health Centers for Tulsa County
Tulsa, Oklahoma
McCune, McCune & McCune
Architects and Engineers

HERE are three of five outlying public health centers, by the same architects, for a forward-looking program by Tulsa County. All five have similar plans (the one above is typical), and all were designed for a friendly, residential character. Health education is strongly stressed hence the larger assembly room, with kitchen for demonstrating food handling techniques. These facilities prove useful also for group luncheons and conferences in connection with health programs. The clinic department works on daily schedules for different health problems. The outlying centers operate in conjunction with a large downtown center, from which the program is administered.





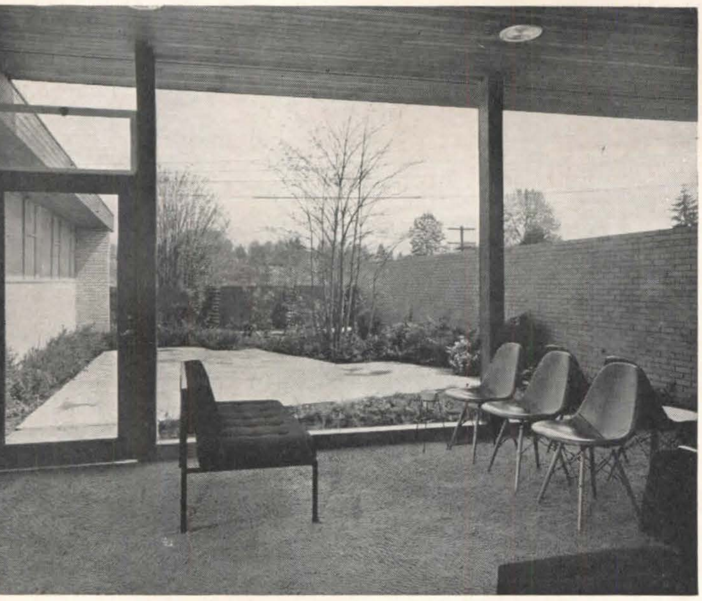
DOCTORS' OFFICES FOR GROUP PRACTICE



1. Doctors' Clinic
Lake City, Washington
Paul H. Kirk, Architect

When doctors want their own buildings, for a more or less clinical type of practice, they commonly pose just such a problem as this one. In this instance two doctors wanted accommodations for themselves and two additional doctors to be brought in as assistants. The strip of four examining rooms separates the two principals on opposite sides. Common facilities — X-ray, laboratory and surgery — form a sort of mechanical core. Rooms for BMR, therapy and shots by nurses are grouped along the front. Patients in the waiting room do not see other patients enter or leave, an idea of the doctors

Dearborn-Massar

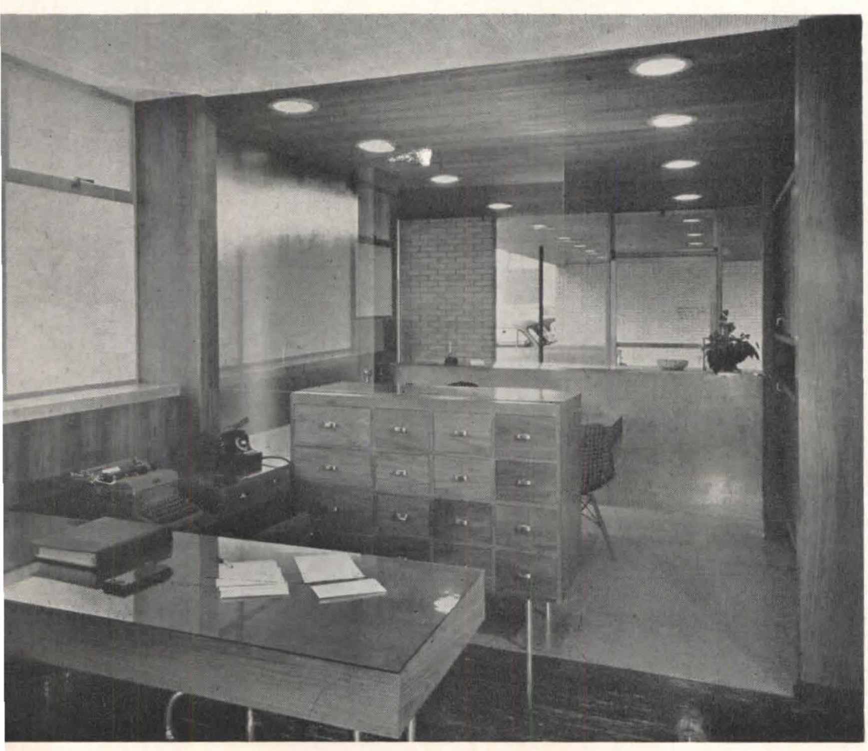



Clinic in Lake City, Wash.

to obviate impatience in case some patients, say for shots, are ushered in and out quickly. One of the nicest features is the open court beside waiting room (picture on cover), which is bound to induce some relaxation in patients waiting.

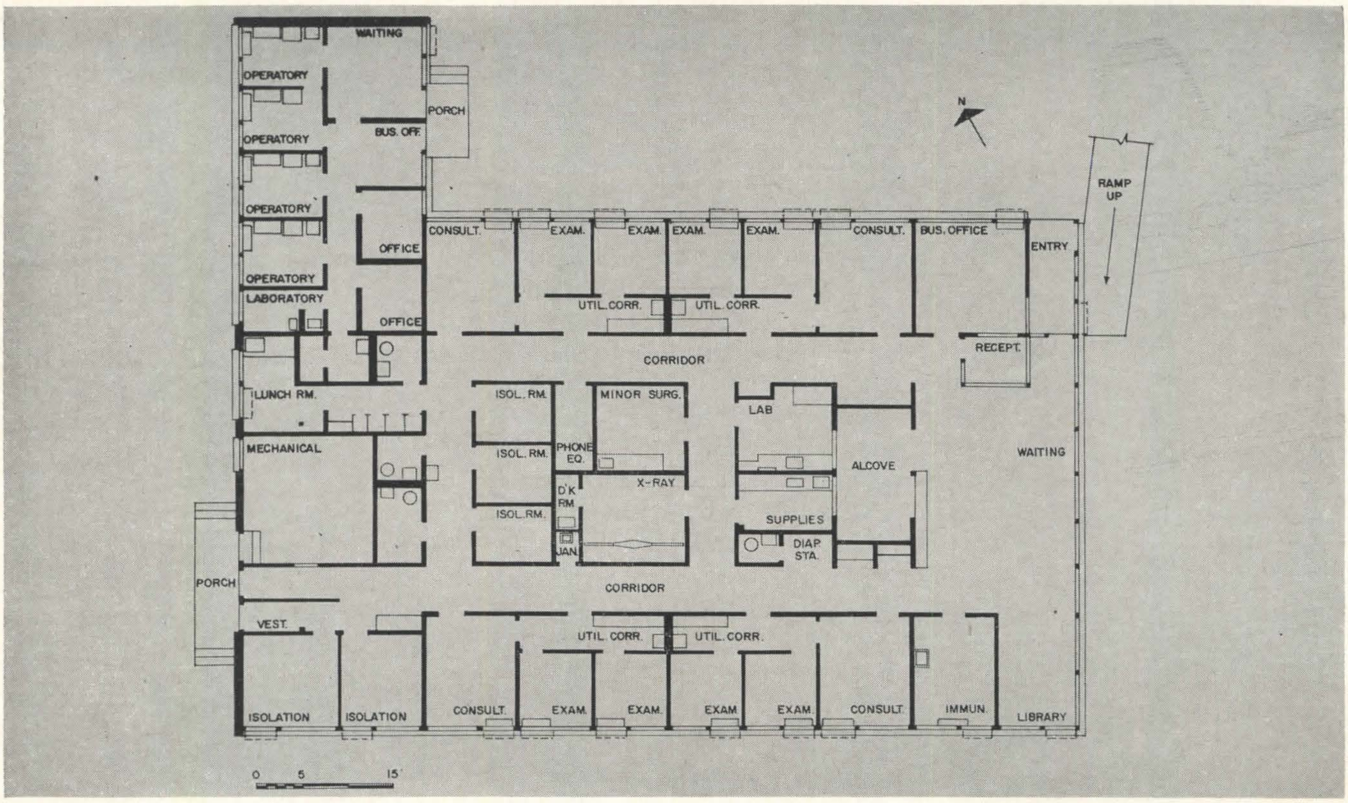
The exterior is of smooth "clinical" face brick in a light cream color with dark manganese spots, this brick setting the color note for the whole building. Interior woodwork is walnut, matching the dark of the brick. Corridors were painted a brownish-beige. Even the landscaping was chosen to contribute bronze-green or copper tones.

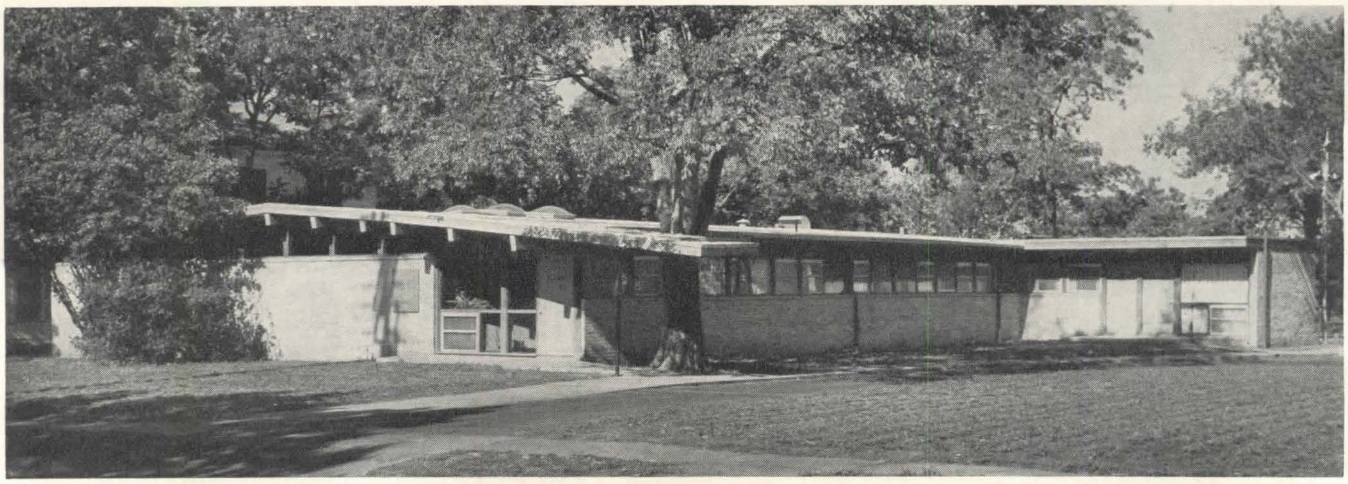
Dearborn-Massar




2. Children's Clinic
Dallas, Texas
Wiltshire and Fisher, Architects

Perhaps the nicest thing about this children's clinic, though the architect doesn't mention it, is the scaling of the building for its small patients, plus the quiet sheltered note its roof lines achieve. The architect stresses three principal planning points: (1) the arrangement of the doctors' suites so that each has a sub-corridor connecting two examining rooms and private office, making it possible for the doctor to circulate without appearing in the public corridor; (2) a back waiting room for the reception of children with a temperature, where they can be kept isolated until a doctor has examined them for contagious disease; (3) the air conditioning system, which circulates hot or chilled water to individual cabinet units in the various rooms, making




Ulric Meisel

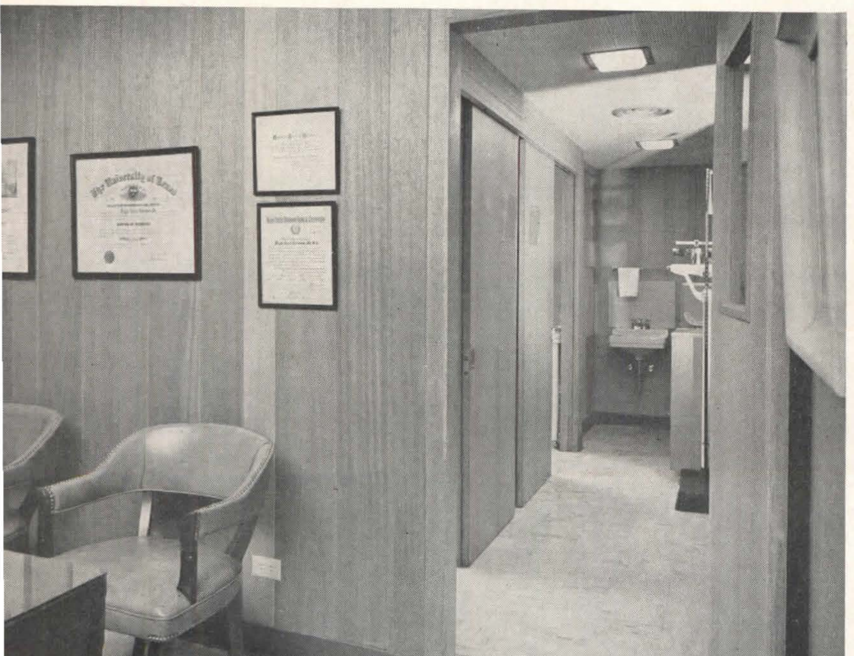
Children's Clinic, Dallas

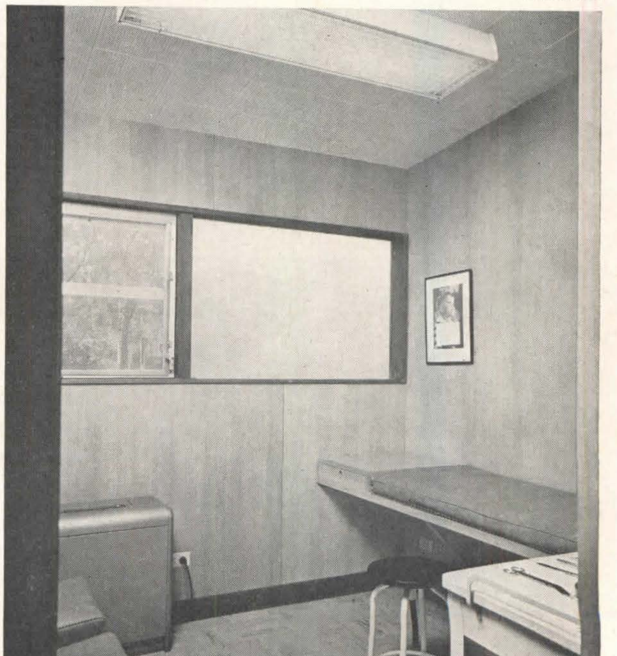
it possible to control each room to the needs of unclothed children, if that should be advisable, rather than a set temperature which might be harsh for the sick child.

The building is occupied by four pediatricians and two pediodontists, the latter occupying the rear wing shown on the plan, with separate entrance. Each doctor in each group practices independently, but each has use of common facilities in the two sections of the building.

After the building had been in operation for a couple of years a questionnaire was circulated among the staff people which asked for recommended changes in case the building were to be rebuilt, but the results turned up only two minor suggestions for changes.

Ulric-Meisel





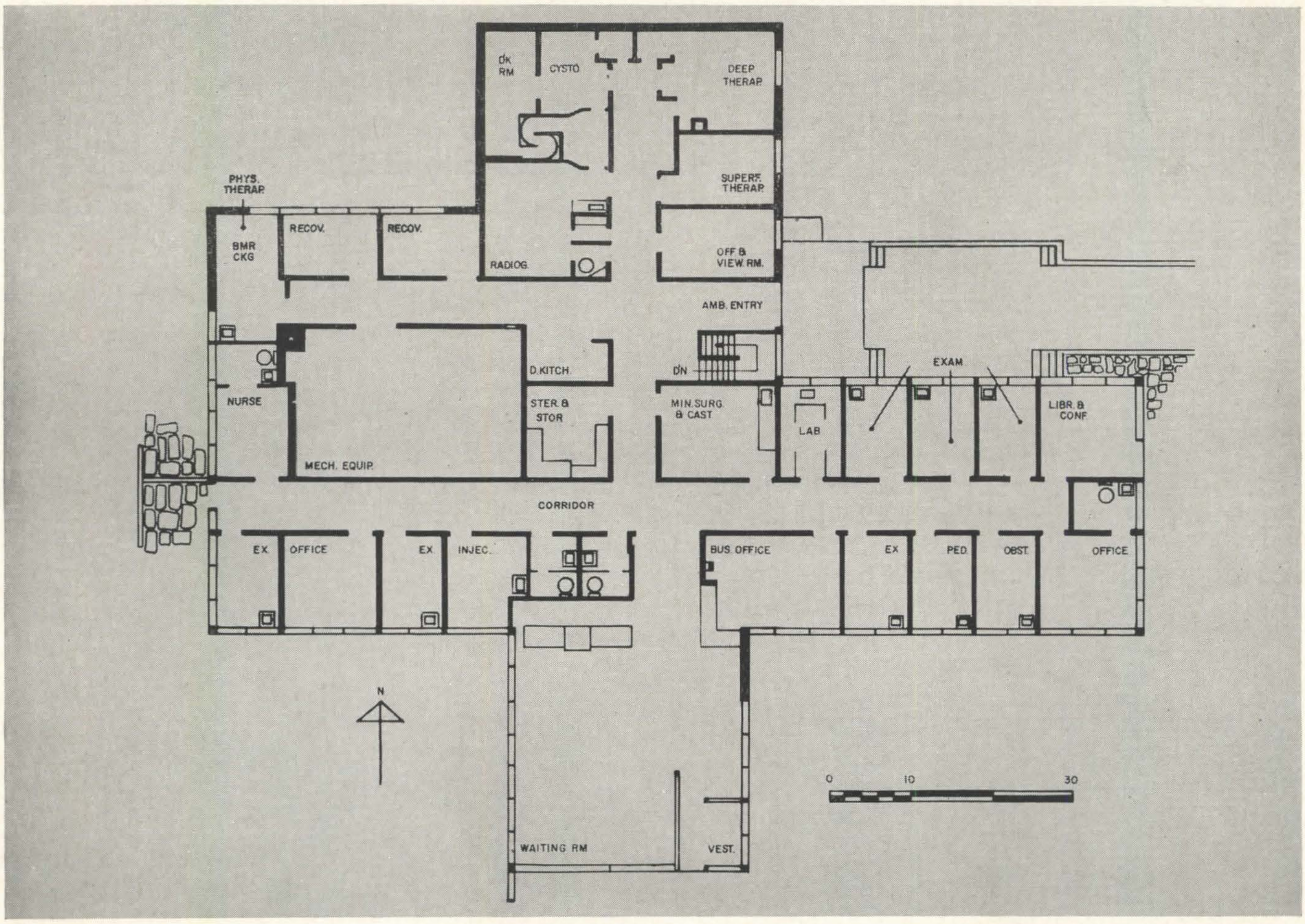
3. Dr. Clifford M. Bassett Clinic

Cushing, Oklahoma

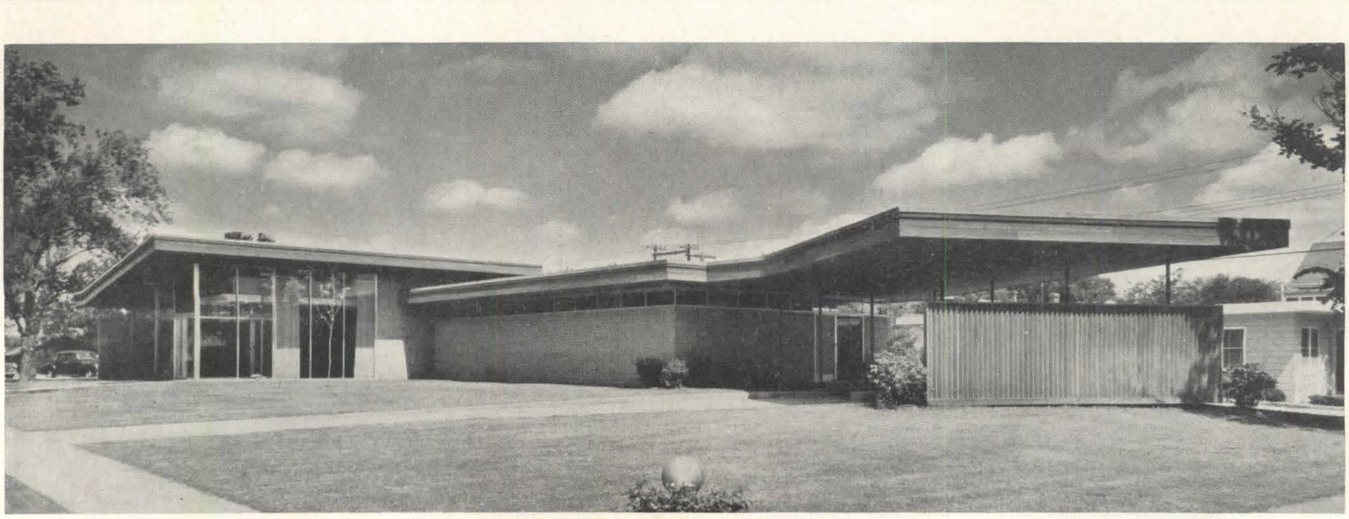
Coston-Frankfurt-Short,

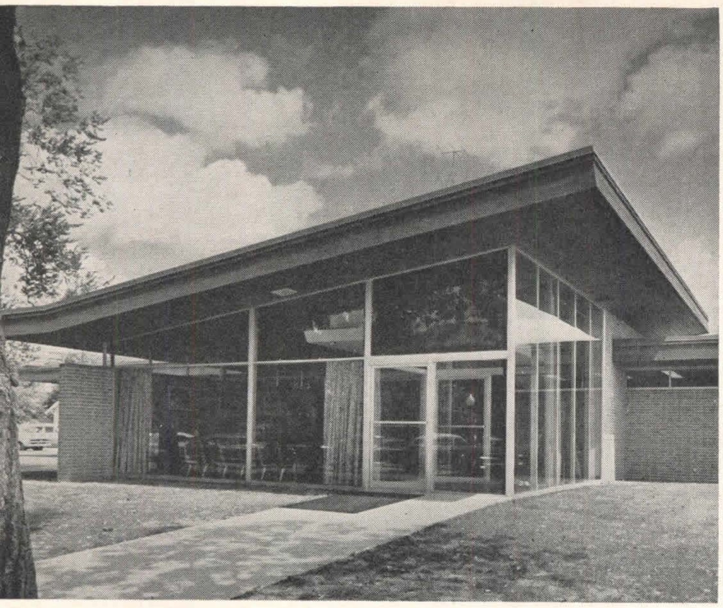
Architects and Engineers

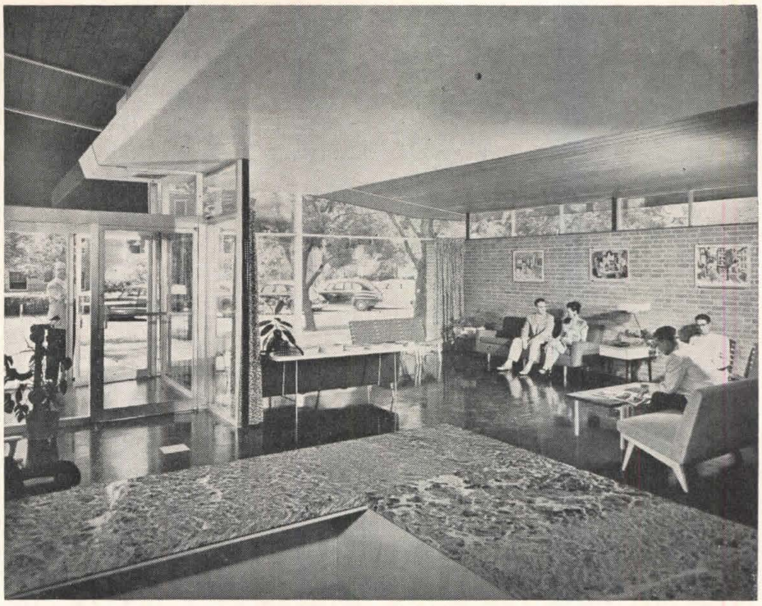
Though a single doctor built this extensive office building, it was designed for an essentially staff operation with the addition of two or more doctors as assistants. The building probably sets some sort of record for its facilities and equipment. The X-ray installation runs to deep therapy; there is television in the waiting room; piped music; extensive signal system; full air conditioning; piped oxygen; not to mention the diet kitchen. Indeed the good doctor told the architects that he wanted to equal or surpass the facilities available to big-city doctors. Red brick and redwood give the building its main color scheme, though heavy use of tinted



Julius Shulman





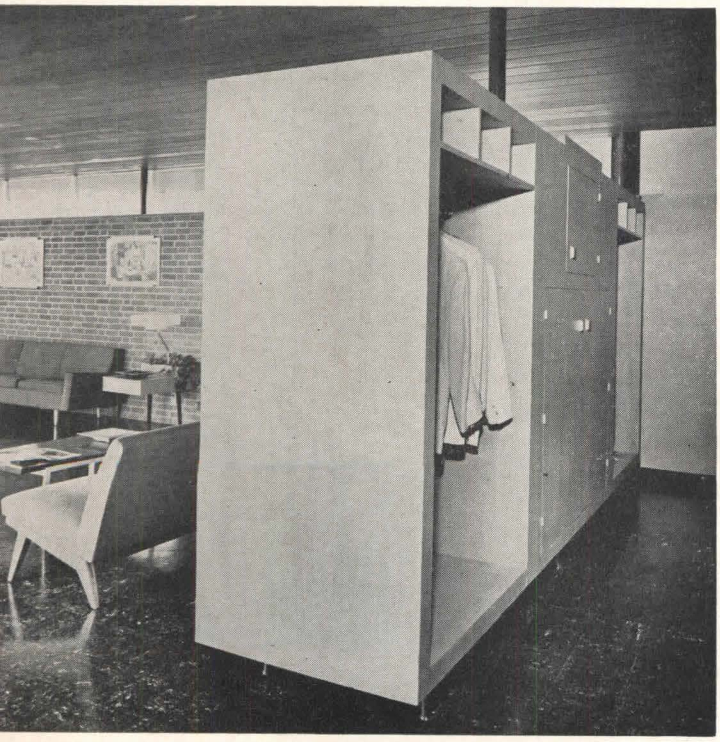


Bassett Clinic, Cushing, Okla.

glass produces some strong contrasts. Inside the color schemes are fairly lively, and according to the local newspaper, there is "modern art with just enough whimsy and humor to contribute toward mental therapy of patients."

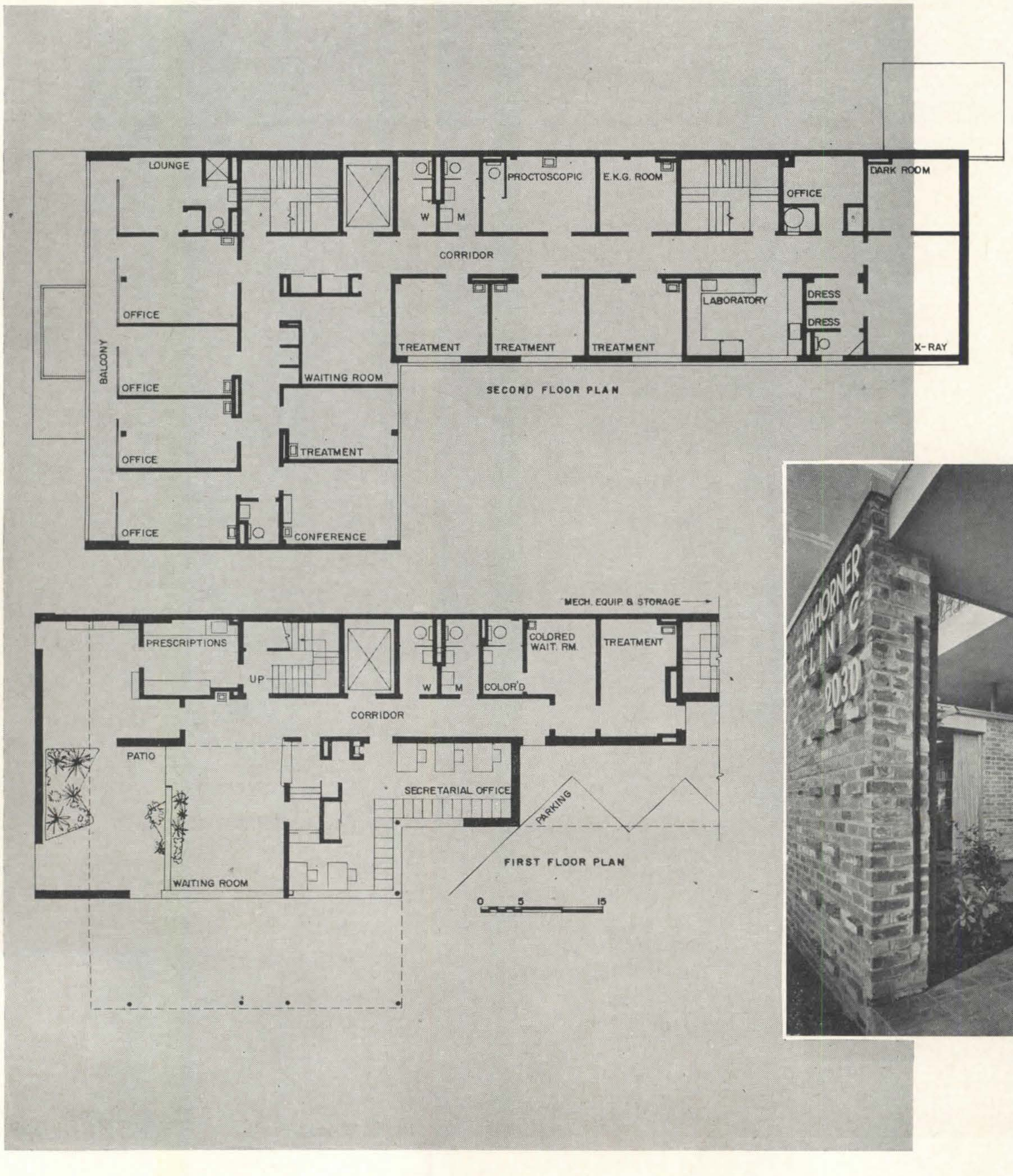
Ceramic tile was used for all corridor walls; here the color is gray. In examining rooms, however, and generally throughout the interior, the colors are anything but "medical," with greens, suntan, blues and a cocoa brown for the fabric wall covering that has been extensively used in many of the rooms. Woodwork is mainly walnut, in blonde finish. Even the metal cabinets avoid the clinical white, with lively color schemes. All ceilings are of acoustic tile.

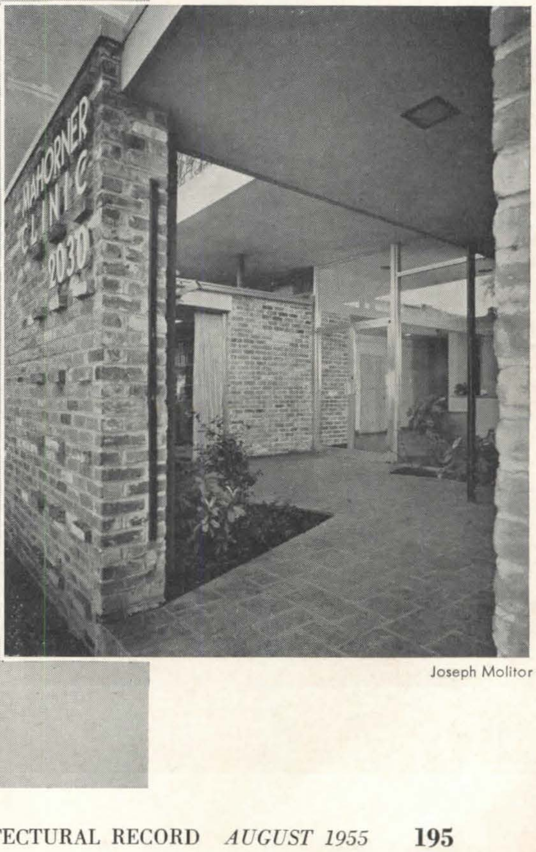
Julius Shulman



4. Mahorner Clinic
New Orleans, Louisiana
Curtis & Davis, Architects

IT HAS been said rather frequently of late that a few purely nostalgic touches in decoration might not be amiss, and it has been implied that architects who indulged in something of that sort would not be stricken from the favored lists, but it still is worthy of note when one does nerve himself to do it. As a matter of fact, these architects are inclined to point with pride to the little New Orleans patio in this building, and to the decorative wrought iron balcony railing, adding that this softening of their contemporary leanings has produced much favorable comment. The patio should be especially commendable for a doctors' clinic in a busy city neighborhood, establishing a note of calm and quiet, and the balcony "has proven very useful in our climate." However pleasant the shaded balcony, it probably proves useful in the strict functional sense, for





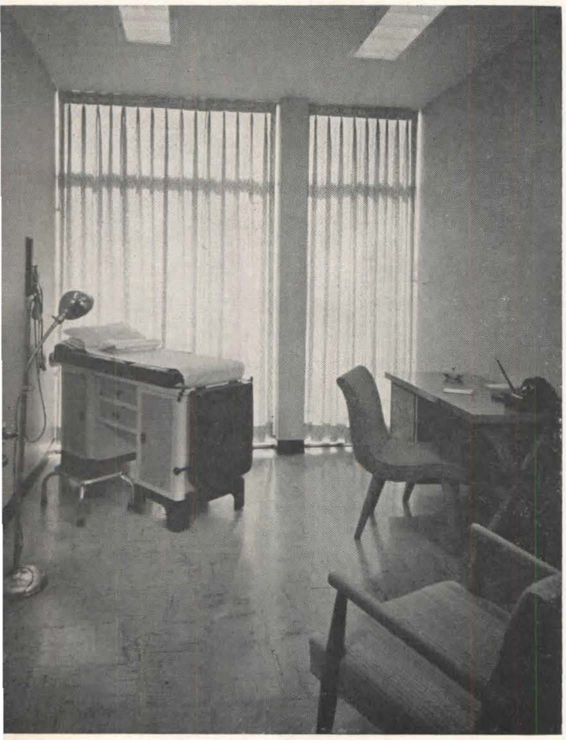
Joseph Molitor

Mahorner Clinic, New Orleans

one can imagine the doctors using it as a private passage when some particularly garrulous client is known to be in the corridor.

The structural system consists of a rigid steel frame and bar joists. Roof and floor decks are lightweight concrete. Exterior walls are second-hand common brick, concrete block and stucco. The brick walls and slate floor of the patio extend into the waiting room on the ground floor. The entire building is fully air conditioned.

Joseph Molitor



APPLICATIONS OF

PLASTICS

IN BUILDING

By Albert G. H. Dietz *

In this sequel to his outline last April of the characteristics of plastics in building, Professor Dietz evaluates the specific applications of plastics and their relation to the more traditional building materials — in structural walls, floors and roofs, insulation and vapor barriers, illumination and daylighting, interior finishes, piping and ductwork, electrical and hardware components and forms for concrete. In many of these applications plastics are pretty generally accepted, but in others they are just beginning to overcome "architectural shyness." A rational consideration of costs, which are high initially but low when spread over the entire use life, will put plastics on a competitive plane with other building materials. And the facility with which they can be used will often be a balancing factor

* Professor of Building Engineering and Construction and Chairman, Plastics Committee, Massachusetts Institute of Technology, Cambridge, Mass.

PLASTICS, as they relate to building, are no different from what may be called the "more conventional" building materials in the degree to which they are influenced by the major trends in building. A corollary can also be stated: as these materials develop, they in turn have a definite effect on these building trends, either directly or indirectly.

The trends today include the increasing use of shop-fabricated units to reduce expensive field labor and erection time; large clear spans to permit the greatest possible freedom in the arrangement of space; open walls providing maximum daylighting and making use of lightweight curtain walls; and the markedly increased proportion of the total building budget devoted to mechanical and electrical equipment. They all offer opportunities for intelligent and imaginative use of plastics and at the same time delimit and set forth the requirements for those uses.

Costs. Plastics compete directly with other materials for the building dollar in many specific applications, such as insulation and daylighting. In others, such as formwork for concrete, they make possible new solutions to building problems and have properties not available in other materials. In any event, cost is a major consideration. Compared with wood, steel and concrete, the raw material cost of plastics per pound is not low. It ranges from perhaps 15 to 80 cents per pound for customarily used molding materials up to several dollars per pound for the expensive types. However, the low density of plastics, approximately half that of aluminum and double that of wood, makes a pound go much farther than many heavier construction materials. In order to be competitive though, the fabricated and installed cost of plastics parts must be comparable with other materials — unless, of course, the plastics have unique advantages.

The ready formability of many plastics often provides a competitive edge. Vacuum-forming equipment for thermoplastic sheets, and simple molds for reinforced plastic parts of considerable size are relatively inexpensive compared with the large presses and expensive dies required for metal forming.

Whatever the application, though, the relative merits and costs of plastics and other materials must be studied thoroughly. Fabrication methods for plastics are still evolving, and the field has hardly settled into a routine pattern. Costs consequently may range from perhaps 25 cents to several dollars per pound for finished pieces.

Maintenance. In any discussion of costs, the long-range factor must be considered as well as the initial material and installation costs. Plastics may very well offset high first costs by offering reduced maintenance costs. Examples are the superior mar and solvent resistance of the surfaces of high-pressure laminates; the toughness of vinyl floor and wall coverings; and the resistance to shatter hazard of acrylic or reinforced plastic sheet.

Codes. In a rapidly growing field like plastics, the legal provisions of building codes are bound to lag behind the building applications, with attendant demands on building code officials and boards of appeals to rule on numerous specific applications. Efforts are being made by the plastics industry on one hand and by building code groups on the other to find logical bases on which to write building code provisions and to find realistic practical tests to evaluate the various plastics, particularly with respect to flammability and fire spread. Organizations like the Building Officials Conference of America, the Pacific Coast Building Officials Conference and the National Board of Fire Underwriters; and cities like San Francisco and Los Angeles are formulating code provisions.

A good deal of mutual education between the plastics industry and the building industry is needed before each fully understands the requirements, capabilities and limitations of the other. In the meantime, imaginative but sensible uses of plastics will help to establish the fields of usefulness and the limitations of these new materials.

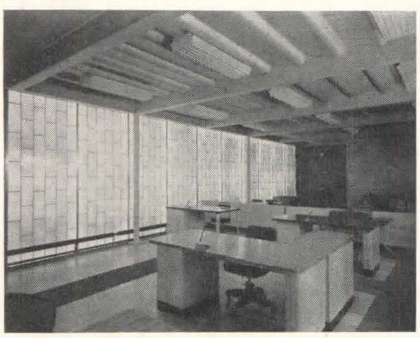
STRUCTURAL: WALLS, FLOORS, ROOFS

As direct replacements for wood, steel or concrete beams, joists, studs, arches or other familiar structural members, plastics have no present significant use, and such direct replacement seems unlikely to occur on any appreciable scale. The usual application of plastics is semi-structural. In this respect it combines enclosure, light transmission or both. Their most completely structural use is in combination with other materials.

The principal present structural or semi-structural application of plastics

Alsynite Company of America

"The structural function (of corrugated reinforced plastic sheets) is combined with enclosure and light transmission, often simultaneously meeting a shatter hazard as in industrial buildings."



Keller Products, Inc.

"All-plastic and light-transmitting sandwiches have been developed mostly for walls in which the load-carrying requirements have been combined with enclosure, decoration and resistance to the wear and exposure normal to walls."

Dow Chemical Co.

"Foamed polystyrene . . . has been used as an insulating back-up for concrete block walls, where it also formed the plaster base, thus eliminating furring, lath and vapor barrier."

is in so-called "sandwiches" and in corrugated sheets. In both these forms there is a combined function of structure and enclosure, and there may be light transmission as well. The relative importance of each function varies.

In sandwiches the role of plastics may range from that of a relatively minor constituent to sandwiches made completely of plastics. A few examples will illustrate:

1. *Completely plastic.* Reinforced plastic faces are bonded to foamed polystyrene cores with one of the high-strength, resin-based adhesives such as epoxy or resorcinol. If the faces are unpigmented and the adhesive is semi-transparent or transparent, some translucence in the sandwich is achieved. Faces are strong and tough, and the insulating value of the foamed core is the equivalent of other low-density foams and bulk insulating materials. The low permeability to vapor of the facings and of the polystyrene should act as a vapor barrier.

2. *Reinforced plastic faces with grid core.* One example of this construction utilizes interlocking, extruded aluminum rib sections faced with translucent reinforced plastic facings bonded to the grid with epoxy adhesives. The sandwich is highly translucent, showing the grid pattern of the opaque ribs when light shines through. In another example the core is honeycomb.

3. *High-pressure laminates with honeycomb core.* Decorative laminates of wood veneer or printed paper surfaces overlaid with melamine can be bonded with adhesives such as resorcinol and epoxy to honeycomb-shaped cores of paper impregnated with resin, usually phenolic, to provide strong, lightweight sandwich panels for partitions, doors, furniture tops and similar applications.

4. *Non-plastic faces with honeycomb cores.* Sandwiches with plywood, porcelain-enameled steel, aluminum and other non-plastic faces, resin-bonded to honeycomb cores, have found use in housing and commercial buildings. The plywood itself, if waterproof, is resin-bonded too.

Evidently many combinations can be developed. Among the materials which have been employed are hardboard faces with resin-based coatings such as phenolic, alkyd, epoxy and melamine; balsa-wood cores with the end grain perpendicular to the faces; high-pressure laminate sandwiches in which the core is a formed high-pressure laminate cellular structure; a variety of resin-impregnated-paper cellular arrangements for the core; plywood with phenolic resin-impregnated paper faces; and resin-bonded wood-waste cores. Many other combinations are possible.

All-plastic and light-transmitting sandwiches have been developed mostly for walls in which the load-carrying requirements have been combined with enclosure, decoration and resistance to the wear and exposures normal to walls. Light-transmitting sandwiches have also been used in roofs for top-lighting. Sandwiches for floors utilize plywood and other non-plastic materials for the relatively heavy facings required and resin-impregnated paper honeycomb for the cores.

Corrugated reinforced plastic sheets have become well known in building applications such as skylighting, roofing, sidelighting in industrial and other buildings, and as light-transmitting partitions. In roofs the structural requirements such as snow loads may be appreciable; in other applications the load-carrying requirements may be nominal. In any event the structural function is combined with enclosure and light transmission, often simultaneously meeting a shatter hazard as in industrial buildings. When the corrugated plastic sheets are integrated with corrugated metal or cement-asbestos board, they can be attached continuously with the other sheets, if the corrugations are the same, and require no special frame. The relatively high cost of the plastic sheet is thereby at least partially offset.

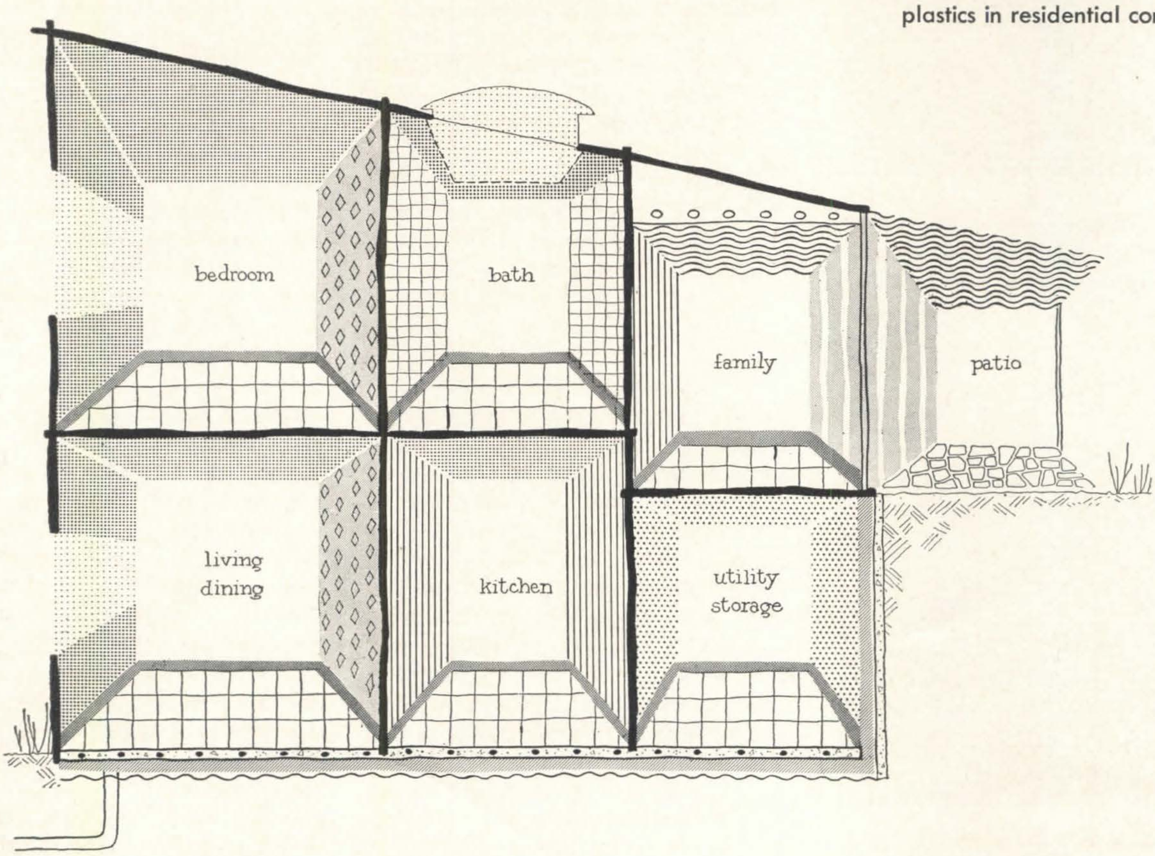
Use has been made of sprayed plastic film on the exteriors and roofs of buildings, utilizing a technique similar to the "mothballing" of naval vessels. Flexible vinyl chloride or its copolymers are usually employed. Pigmentation helps to reduce penetration and breakdown of the plastic by the sun's actinic rays.

A few roofing installations have employed acrylic emulsions incorporating chopped glass fibers, pigments and fine crushed stone. The acrylic is similar to that employed in transparent acrylic sheet for aircraft glazing, bubble-shaped skylights and similar exterior applications.

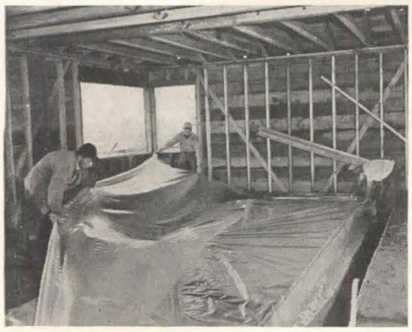
First costs of plastics sheets — flat, corrugated or incorporated into sandwiches — must be balanced against first and maintenance costs of other systems.

PLASTICS CAN PROVIDE STRUCTURE, SERVICES AND DECORATION

This is purely a hypothetical house, conceived simply to illustrate the possibilities of plastics in residential construction

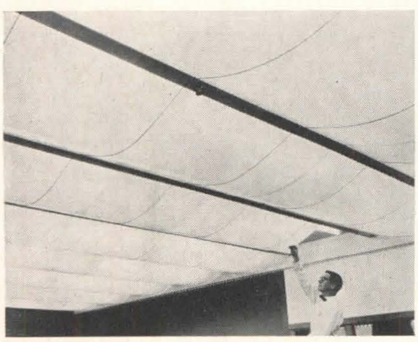


- CORRUGATED REINFORCED PLASTIC SHEETING
- STRUCTURAL SANDWICH, TRANSLUCENT
- STRUCTURAL SANDWICH, OPAQUE
- HIGH-PRESSURE LAMINATES, EITHER SANDWICH FACING OR WALL COVERING
- FOAMED POLYSTRENE INSULATION ON CONCRETE
- POLYETHYLENE FILM (AS VAPOR BARRIER)
- ACRYLIC SKYLIGHT AND ACRYLIC GLAZING
- POLYSTRENE WALL TILE
- VINYL WALL COVERING
- RESIN-TREATED WALLPAPER
- VINYL FLOORING
- SPRAYED-ON PLASTIC COATING
- FLEXIBLE POLYETHYLENE PIPE IN CONCRETE SLAB (FOR RADIANT HEATING)
- RIGID VINYL PIPE (FOR GAS LINE)
- EXTRUDED PLASTIC ELECTRIC OUTLET STRIPS



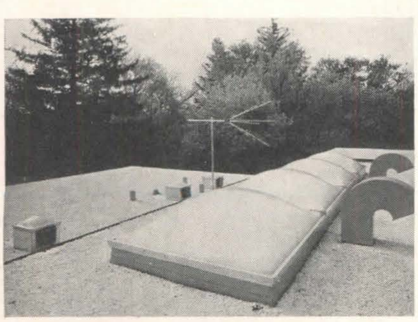
The Visking Corp.

"Some use has been made of polyethylene film as a vapor barrier in walls and ceilings and under poured concrete slabs."



Rohm & Haas Co.

"One ingenious method (of ceiling illumination) is to allow thin sheets to hang in their natural catenary between ribs and to support them on fine chains hanging in the same catenary form."



Wasco Products Co.

"Vacuum-forming techniques . . . have made possible the popular bubble-shaped skylights of transparent or translucent acrylic."

At prices in the vicinity of $1 per square foot, the flat or corrugated reinforced plastic sheets are not inexpensive. Sandwiches may also be relatively costly on a square foot basis. However, ease of installation and possible reduced maintenance costs must be considered as factors which will offset high initial costs. Uncertain factors are the aging and weathering characteristics of some plastics materials.

As was pointed out in the previous article, thermal expansion and contraction of plastics sheets may be large, and allowance for this must be made in design.

FOAMS, VAPOR BARRIERS

Of the various available foamed plastics, foamed polystyrene has the greatest use in building. Polystyrene inherently has low water absorption and vapor transmission, and the cells in the foam are not interconnected; consequently, its resistance to passage of water is good. Its K factor is about the same as other lightweight bulk insulating materials, such as cork. It has been used as an insulating backup for concrete block walls, where it also formed the plaster base, thus eliminating furring, lath and vapor barrier; as an insulating layer under concrete slabs on grade; as perimeter insulation for similar slabs; as the insulating core in sandwich slabs with thin reinforced concrete faces; and as roof insulation. For a given installation the attractive insulating value, water resistance and resistance to decay must be balanced against cost of comparable materials. If exceptionally high temperatures are to be encountered, the thermoplastic may not be suitable.

The foamed-in-place plastics like the isocyanates have not been attractive in building because of high cost. However as production is increased, costs may be reduced to the point where building uses may develop. They can be rapidly foamed in place in difficult spots and help to support adjacent faces like thin metal or plastics. They are strong and tough in the rigid form, but are also made as soft, tough foams for upholstery, mattresses and cushions.

Some use has been made of polyethylene film as a vapor barrier in walls and ceilings and under poured concrete slabs. The flexibility of the film is helpful in installation. Again, cost must be compared with that of other vapor barriers.

As plastics costs decrease, other vapor barriers to be considered are plastic film carriers such as polyester coated with very thin aluminum foil. Exceptionally good toughness is combined with minimum vapor transmission.

ILLUMINATION, DAYLIGHTING

With the trend toward large unobstructed spaces in buildings has come a parallel trend toward over-all ceiling illumination. Translucent diffusing plastic sheets combined with fluorescent lights have helped to make such ceiling illumination feasible and have been at least partly responsible for the rapid increase in the number of such installations. There are two major reasons for the success of this system: (1) Equipment and functions can be rearranged at will without requiring extensive changes in lighting installations. (2) Brightness at working levels can be markedly increased without glare at the light source when that source is spread over the entire ceiling.

Several different plastics find use in over-all ceiling illumination. Thermoplastics are chiefly acrylic, vinyl chloride and polystyrene; thermosets are reinforced polyesters. To keep the thickness of plastic sheet to a minimum, and hence to reduce costs, sheets are customarily corrugated, coffered or otherwise shaped to provide strength and rigidity. One ingenious method is to allow thin sheets to hang in their natural catenary between ribs and to support them on fine chains hanging in the same catenary form.

On a per square foot basis, plastics used for over-all ceiling illumination are not inexpensive, but they make possible offsetting economies. The sheets are light, shatter-resistant and require only lightweight supports. The space above them can be utilized to run exposed ducts, conduits and other mechanical equipment at a cost much lower than if they had to be concealed. Sheets of plastic are easily moved aside to make the pipe and duct space readily available. They are also easily removable so that from time to time they can be cleaned of dust which accumulates on the upper surfaces. If they tend to creep and sag a little with time, they can be turned over occasionally when being cleaned. Lighting fixtures can be plain and utilitarian.

One argument advanced for the thermoplastic sheets is that sprinkler heads can be installed above them — economically and out of sight. The sheets will soften and fall if the air temperature becomes unduly high, thus exposing the sprinkler heads for normal action. It is claimed that thin plastic sheets are too light to cause any particular damage when they fall. Thermosetting sheets, on the other hand, do not have the same tendency to soften, and so sprinkler heads are best situated under them.

Vacuum-forming techniques, used originally to make aircraft canopies and blisters, have made possible the popular bubble-shaped skylights of transparent or translucent acrylic. They are easily and quickly installed; there are no obstructing bars; and the dome shape makes the thin plastic exceptionally strong. Edges are customarily covered with metal angles to reduce the ease with which fire can take hold. With some attention to fastening details, the bubbles can be made to pop out in case of explosion or increased internal air pressure. Bubble-shaped skylights are inherently expensive, but the ease and speed with which they are installed on the job make them competitive with other skylights.

Plastic glazing is customarily acrylic or reinforced plastic. Acrylic may be transparent or translucent; reinforced plastics are translucent. Plastic glazing is usually resorted to where resistance to breakage is more important than resistance to scratching or to crazing or fogging by chemical fumes.

The readiness with which sheet may be formed recommends its use in shapes other than flat, particularly if clear vision is not important. Heavy corrugations, for example, serve to make relatively thin sheets strong and stiff enough to span considerable distances. When the corrugations are horizontal, the upper outstanding portions of the corrugations may be made reflective to prevent excessive penetration by direct sunlight.

INTERIOR FINISHES

Plastics have a longer and more extensive history as interior finishes than as any other type of application. These finishes include wall and floor covering primarily, and to a lesser extent extruded moldings and trim.

Wall coverings are exemplified by high-pressure decorative laminates, wall tile, flexible film and sheet and sprayed-on coatings. High-pressure laminates, in spite of their relatively high cost, find extensive use where resistance to wear and tear is particularly important, as on corridor walls in public buildings and enclosures around baths. Resin-finished hardboards are also extensively employed. As is true of any wallboard, care must be taken to protect and seal the edges.

Injection-molded polystyrene wall tiles are widely used in baths and kitchens. They are usually made in sizes and shapes similar to familiar ceramic tile, but some are made with interlocking edges for self-alignment and spacing. Tiles are usually cemented to plaster walls. The quality of the installation is therefore highly dependent on the quality of the bond, watertightness of the joints and resistance of the back-up surface to any moisture which may find its way through the joints. Many colors and textures are produced, but surface hardness is inferior to that of glazed tile. Fumes generally found in buildings should have little or no effect, but chemical-industrial fumes and certain cleaners may attack the plastic.

Plastic wall tiles are usually lower in installed cost than ceramic tile because of the lightness of the supporting structure and the ease with which they are applied. A commercial standard on polystyrene wall tile has recently been promulgated through the Department of Commerce as one of its series of Commercial Standards on building and other products.

Flexible film and sheet cemented directly to walls, much like wallpaper, are increasingly popular. Vinyl chloride and its copolymers are favored. In some instances the pattern and color are formed on the back of a thick, tough, transparent film which therefore protects the decorative layer from harm. Most applications are in areas where resistance to hard wear is desired or where the rich figure and color available recommend the plastic. In another wall application, standard wallpapers can be made stain-resistant by a thin resinous surface treatment.

Tough, wear-resistant surfaces are also provided by vinyl chloride and copolymers made into solution and sprayed directly onto walls. The solution has been sprayed on concrete, plaster, stucco, metal and other surfaces, both exterior and interior. Its ability to conform to difficult shapes is an especial advantage.

In comparison with painted surfaces and untreated wallpapers, vinyl film and sheet, sprayed vinyls and resinous-surfaced wallpapers are definitely more costly. However, the increased cost can be balanced against reduced maintenance and longer life to justify their selection.

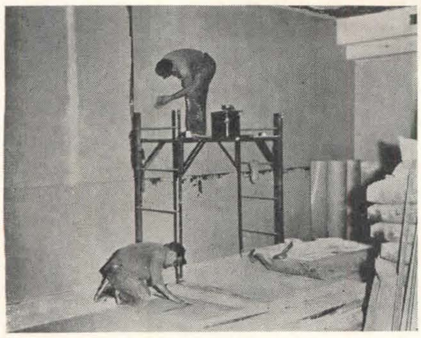
Plastic flooring in the form of tile or rolls of flexible sheet is widely used in building. Wear resistance and toughness have been amply demonstrated. Flooring may be full-thick, usually of vinyl chloride, with varying amounts of filler and pigment, or it may be a thin surface on a felt base. Many patterns and forms are available. If necessary, the thermoplastic can be heated and bent into coves or around nosings, but with the more rigid types the installation must be carefully executed to avoid immediate or subsequent cracking. Costs of plastic flooring are in the same range as other comparable tile and sheet materials.

Thermoplastics, like the cellulosics, polystyrene and the vinyls, are easily extruded into architectural trim of almost limitless color ranges. The cellulosics, because of their toughness, have been favored for such items of trim as table and counter edgings.

PIPING, DUCTWORK

Both flexible pipe, especially polyethylene, and rigid pipe, exemplified by unplasticized vinyl chloride, are finding increasing use in buildings. Cellulose acetate-butyrate is widely used as gas pipe, especially buried in the ground. Industrial pipe also includes glass fiber-reinforced rigid pipe, phenolic based pipe and tubing, and plastic-lined pipe, such as vinylidene chloride-lined steel pipe. Polyethylene is largely confined to cold water lines if it is not restrained, especially water-supply lines from street to house. It has also been used buried in concrete both for radiant heating and for refrigeration in skating rinks. Thermal conductivity through the pipe wall is less than through metal, but flexibility and ease of installation coupled with corrosion resistance recommend it.

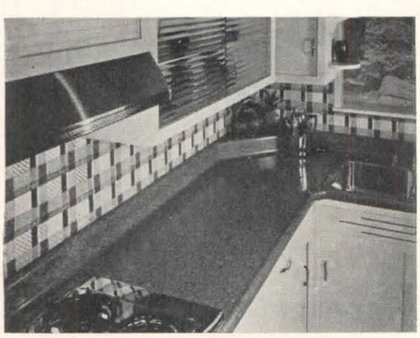
Costs per foot of pipe are in some instances higher and in others lower than metal pipe. Installation cost of flexible pipe is usually moderate. Installation


Bolta Products

"Flexible film and sheet cemented directly to walls, much like wallpaper, are increasingly popular."


Eastman Chemical Products, Inc.

"Plastic ducts have found use where corrosive fumes are to be carried off."


Formica Co.

"Thermoplastics, like the cellulosics, polystyrene and the vinyls, are easily formed into architectural surfaces and trim."

cost of rigid pipe with threaded couplings should be comparable to similar metal pipe once workmen become familiar with it. Plastic pipes and tubing are likely to require more supports than their metal counterparts, especially if they are used at elevated temperatures.

Plastic ducts have found use where corrosive fumes are to be carried off. Here rigid vinyl chloride has had successful use. The higher cost and more difficult installation are more than offset by the greatly increased service life.

For highly corrosive conditions, such as are found in chemical plants, the fluorinated plastics are favored for piping, valve lining, gaskets, and similar parts. They are particularly effective at elevated temperatures ranging to 450 F or sometimes higher.

ELECTRICAL AND HARDWARE COMPONENTS

Manufacturers of electrical equipment have long used plastics for insulation in a large variety of parts. Vinyls and other plastics are extruded as color-code insulation on wire; punchings of high-pressure laminates form a myriad of insulating layers in switches and similar parts; molded plastic switch plates and plugs are familiar in buildings. In illumination, transparent and translucent plastics, plain, reinforced, and with decorative inlays such as grass and butterflies, are commonly employed. Recently continuous outlet strips have appeared with copper conductors molded into extruded plastics. Electrical contact can be made by plugging in at any point, usually by means of a separate molded unit into which a standard pronged plug can be inserted.

Molded plastics items are becoming increasingly common in hardware. Familiar components are knobs, pulls and buttons of phenolic and cellulosics. Molded nylon is being used increasingly for small bearings, rollers, parts of latches and for other purposes where toughness and wear resistance coupled with minimum noise are desirable.

FORMS

The fluidity of architectural and engineering structures inherently possible in concrete is often not fully utilized because of the cost of forms. Slabs are used instead of ribs; when ribs are used, they are rectangular grids instead of the patterns demanded by loads and stresses; and efficient curved shapes are avoided because of the cost of forming. These limitations can be overcome to a degree by imaginative use of reinforced plastics, which can be given relatively complex shapes by fairly simple means and are inherently tough enough to allow for a number of re-uses if handled properly. The relatively high cost per pound might, therefore, be spread over a sufficient number of re-uses to make them economical. Also, the more efficient concrete structures made possible by their use could result in an over-all reduction in cost. This field is almost entirely unexplored, but it looks promising.

TRENDS

As plastics become more familiar in building, some of the present uses may be expected to increase as they prove their worth, while others will disappear. New uses undoubtedly will develop as the plastics field itself unfolds and as the ingenuity of architects, engineers and builders evolves new applications.

One new type of enclosure which may find use in building is a dome-shaped housing originally developed for large radar installations. It consists basically of a triangular network of framing members supporting an enclosing skin. The entire structure is reinforced plastic. Prototypes have withstood hurricanes as well as the high winds and cold weather found on Mt. Washington.

The perennially vexing problem of gasketing for exterior wall panels may be assisted by silicone rubber, especially if the cost of this material is reduced. Its proved durability and ability to retain flexibility under temperature extremes far more severe than those met in building structures recommend it for this purpose. Experimental installations have been highly successful.

In an effort to determine how plastics might fit into dwelling house design, a continuing evaluation is in progress at the Massachusetts Institute of Technology under a project sponsored by the Monsanto Chemical Co. By studies such as this, by experimentation and judicious use in buildings, by growing awareness of their potentialities and limitations, plastics will find their place in building together with already established materials of construction and will thereby extend the range of media at the disposal of architects, engineers and builders.

USEFUL CURVES AND CURVED SURFACES—1

By Seymour Howard

Assistant Professor Pratt Institute, Architect associated with Huson Jackson and Harold Edelman

The forms most suitable for the solution of many structural problems require facility in drawing and using curves. Many good designs have never been carried out because information has not been readily available on curve characteristics and methods for laying them out. These and subsequent sheets will provide such information, not only on the familiar curves, but also on curves used for geodesic surfaces and thin shells.

Simple, direct methods exist for drawing some curves. Most, however, require the setting of points by calculation or by geometrical construction. Great care must be taken in connecting the points to obtain a "fair" curve.

A fair curve is one in which there are no local undesired irregularities. The easiest way to judge fairness is to look along the curve as nearly as possible in the plane of the curve.

When a large number of similar curves must be drawn it is economical to use special machines.

Plastic or wooden templates are available in many types for joining points in a smooth curve. Sets of railroad curves are arcs of circles of varying radii and different arc lengths. Copenhagen ship curves are based on the most usual curves found in hull design. Small circle and ellipse templates are often an aid in drafting. Parabolic templates would be a great help for making structural analysis drawings. The usual French curves can be manipulated to join points by smooth curves, but they must be used carefully when they do not fit the curve exactly.

For drawing curves which do not lend themselves to simple mathematical analysis, the best method is to use wood splines or battens, held in position by lead weights called ducks.

It is not always necessary or desirable that a curve be one for which a simple equation can be written. The curves which determine the shape of a ship's hull, for example, are developed by eye on the basis of experiment and past experience.

Curves developed purely by drawing should be drawn on a material unaffected by changes in temperature or humidity, or the temperature and humidity should be kept constant in the drawing room. Marble slabs are sometimes used. If paper must be used, check points or grid lines can be marked for subsequent verification.

Such curves can be reproduced by measuring offsets from a baseline or preferably from the nearest gridline. Once a table of offsets has been made the curve can be redrawn easily at any time and at any scale.

Remarks on Curves Included

Each curve on the following sheets is accurately drawn, and its most characteristic relationships are shown. In architectural design and layout, direct geometrical methods of constructing the curve and finding tangents, etc. are the most useful and are shown where possible. For use in checking points and for engineering calculations the formulas may be more useful.

The *standard form* of the equation of a curve is one based on rectangular Cartesian coördinates in which the y ordinates are given as a function of the x intercepts. It is the form most often used in the building field.

The *parametric* equation is also based on rectangular coordinates but both the y ordinates and the x intercepts are expressed in terms of a third variable. (Such as $x = a \cos t$; $y = b \sin t$.)

The *polar equation* of a curve gives points as measured along a line from a central point or pole. The distance from the pole is expressed as a function of the angle between the base line and the line along which the distance is measured. Curves such as spirals are best given in this form.

In field layout the polar equation can be used to find points on a curve by chaining out from a centrally located transit, measuring off angles from a base line.

Tangents and normals to a curve at various points are necessary in order to work out neatly the intersections of straight lines or curves with the particular curve under consideration. The tangent and normal at any point on a curved structure such as an arch or a shell also give the directions along which forces should be resolved in order to analyze their effect on the structure most easily.

If the centers of curvature for all points on a curve are plotted, a new curve will be generated called the *evolute,* which is useful in visualizing the curvature of the curve. In engineering analysis the curvature of a deflection curve is the link by which deflection and bending moment (and therefore shear and loading) can be related.

From the evolute the original curve can be generated as indicated in Fig. 2.

Lengths of curves are given where convenient expressions exist. For practical drafting room use the length can be found most quickly by measuring along the curve with a strip of paper. By ticking off points as this is done the work can be done accurately and can be checked. For other purposes, such as determining lengths of cables for cutting, the exact formulas must be used, with allowance for stretch due to loading and temperature.

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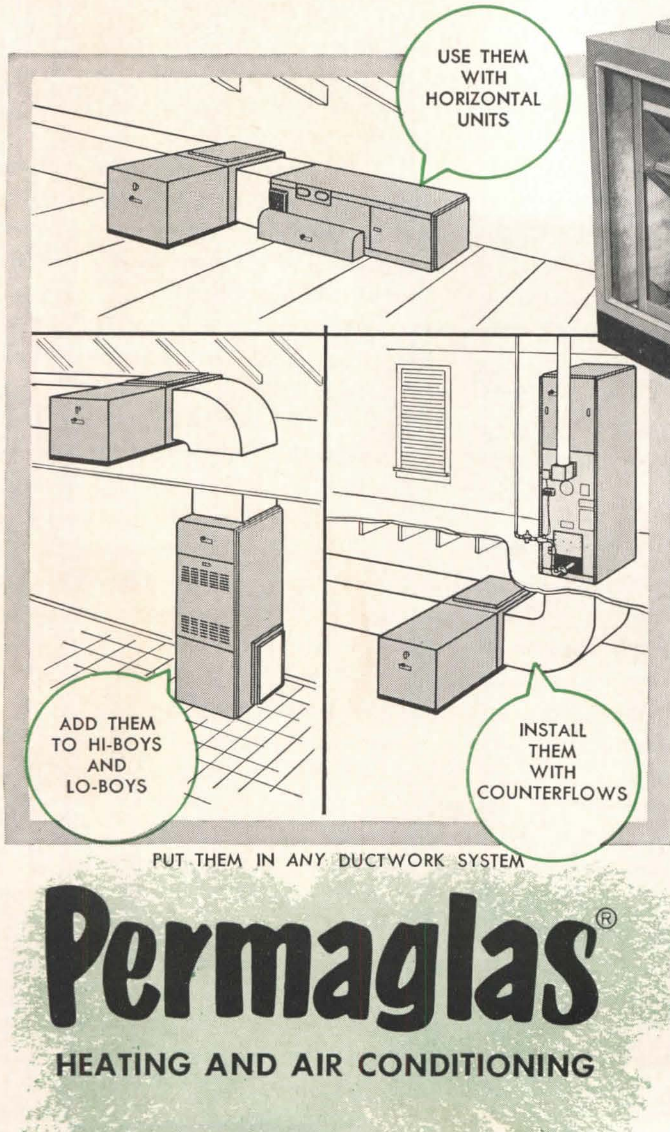

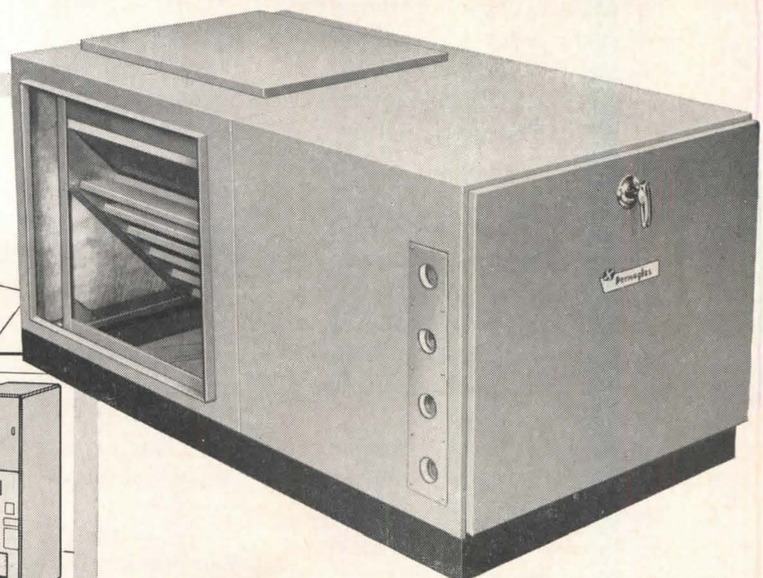

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USEFUL CURVES AND CURVED SURFACES — 2

By Seymour Howard
Assistant Professor Pratt Institute, Architect associated with Huson Jackson and Harold Edelman

can be useful for long thin barrel shell structures in which the cross section of the shell (basically only a curved line) corresponds to the cross section of a beam.

The *areas* under certain curves and their centroids or centers of gravity are given and can be used for calculating the cubages and surfaces of parts of a building. They may also be useful in calculation of deflection (the moment-area method).

Conic Sections

Curves formed by the intersection of a plane with a right circular cone are all of the class called *conic sections.*. The relationship between the plane, the cone and the conic section can be seen by the construction in Fig. 1.

A right circular cone is shown with vertex at V, cut by the plane of a conic. The plane is tangent at F to a sphere which lies wholly inside of the cone and which is tangent to the cone along a circle (like a latitude circle on the earth). The center of this tangent circle is at M; the center of the sphere is at C. The centerline of the cone lies on the line VNMC, in which N is the intersection of the centerline or axis of the conic section with the centerline of the cone.

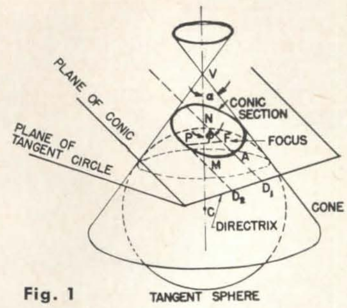


Fig. 1

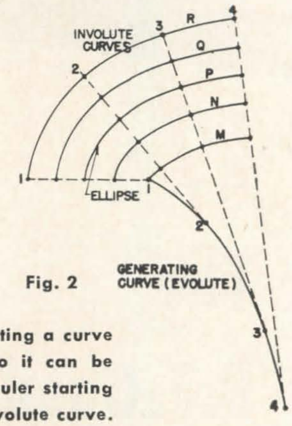


Fig. 2

Right: The use of an evolute curve in generating a curve such as an ellipse, and curves parallel to it can be visualized by imagining a flexible, elastic ruler starting at point 1 on curve R and lying along the evolute curve. As it springs away from the evolute, its straight portion would be 2-2, 3-3, 4-4, etc. In this sketch only curve P is a true ellipse, other curves are parallel
Left: Basic relationships of a conic section

In all conic sections (ellipse, parabola, hyperbola) the focus is the point of tangency between the plane of the conic with the tangent sphere; and the directrix is the line of intersection of the plane of the conic with the plane of the tangent circle.

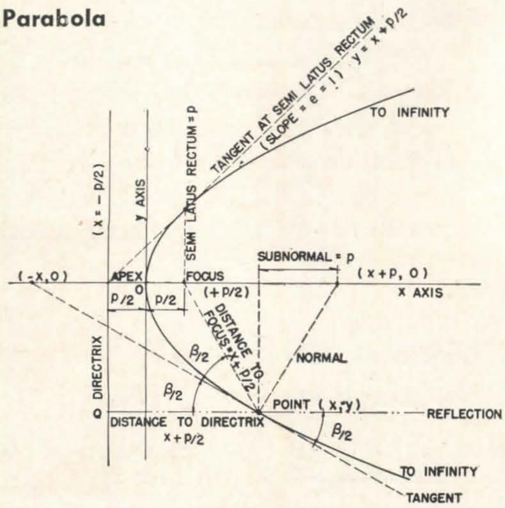
If α is the angle which the axis of the cone makes with the side of the cone and ϕ is the angle which the plane of the conic makes with the axis of the cone.

$$\frac{PF}{PD_2} = \frac{\cos\phi}{\cos\alpha}.$$

This is called the eccentricity of the conic.

Note that the same shape of curve can be generated on cones of different slope (α) by varying the angle of the plane of the conic (ϕ). For the same shape of curve only $\frac{\cos\phi}{\cos\alpha}$ must have the same value.

Parabola

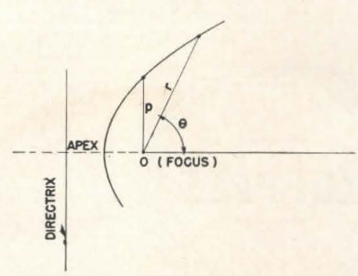


Definition:

$$\frac{\textbf{Distance from any point to focus}}{\textbf{Distance from point to directrix}} = \frac{PF}{PQ} = 1 = \textbf{eccentricity (e)}$$

Equation (standard form): $y^2 = 2px$

Note from characteristics of tangent, that a line from the focus (a ray of light, for example) to any point on the parabola will be reflected parallel to the axis of the parabola



Equation (polar form, pole at focus): $r = \dfrac{p}{1 - \cos\phi}$

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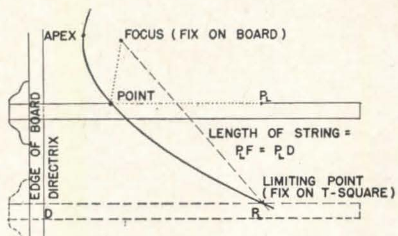
USEFUL CURVES AND CURVED SURFACES — 3

By Seymour Howard

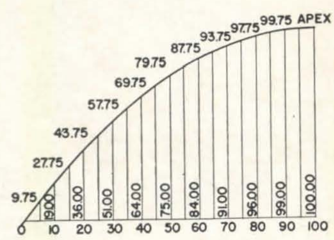
Assistant Professor Pratt Institute, Architect associated with Huson Jackson and Harold Edelman

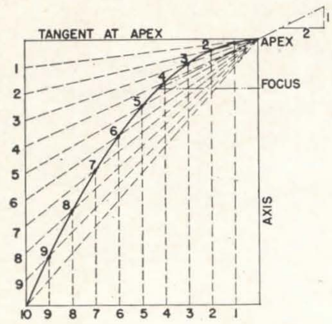
METHODS OF DRAWING A PARABOLA



Above: attach a string (length equal to distance from limiting point on parabola to the focus) to the edge of the T-square and to the focus; hold string taut against T-square with a pencil and slide T-square.

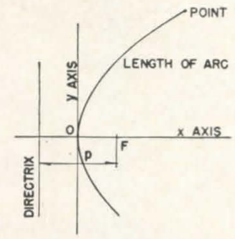
Below: the parabola also can be constructed by knowing the heights of ordinates expressed as a ratio of the apex height (in this sketch 100.0). All parabolas have the same shape, differing only in scale





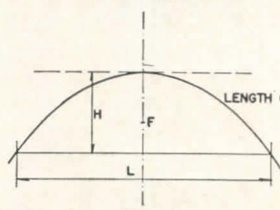
To draw a parabola knowing apex, axis and one point: divide distance from point to axis in any number of equal parts; divide distance from point to the tangent through the apex into the same number of parts; draw lines parallel to the axis through points in the first line; draw lines from points in second line to apex; intersections of corresponding lines are points on the curve. To find focus, draw line through apex with slope = 1/2; from intersection with parabola drop perpendicular to axis

LENGTHS OF ARCS



Length of arc from origin to point x_1, y_1

$$\frac{S}{2} = \frac{y_1}{2p}\sqrt{y_1^2 + p^2} + \frac{P}{2}\log_e\left[\frac{y_1 + \sqrt{y_1^2 + p^2}}{2}\right]$$



Length of parabola

Let $\frac{H}{L} = n$

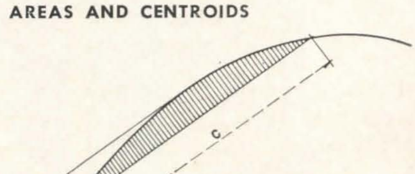
Exact formula:

$$S = 2L\left\{\sqrt{n^2 + \frac{1}{16}} + \frac{1}{16n}\left[\log_e\left(n + \sqrt{n^2 + \frac{1}{16}}\right) + \log_e 4\right]\right\}$$

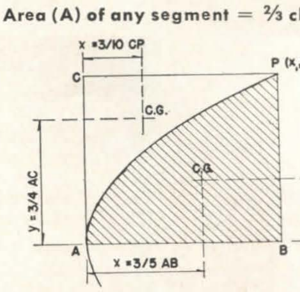
Approximate formula:

$S = L\left(1 + \frac{8}{3}n^2\right)$, **sufficiently accurate for construction purposes up to $n = 1/8$**

AREAS AND CENTROIDS



Area (A) of any segment = ⅔ ch



Area of half segment (APB) = 2/3 AB × BP

Area of spandrel (ACP) = 1/3 AC × CP

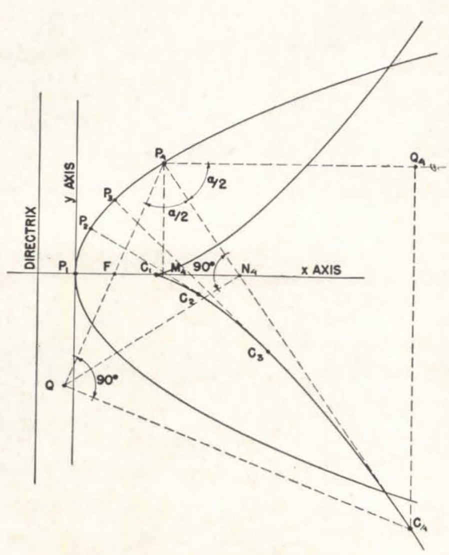
CENTERS OF CURVATURE

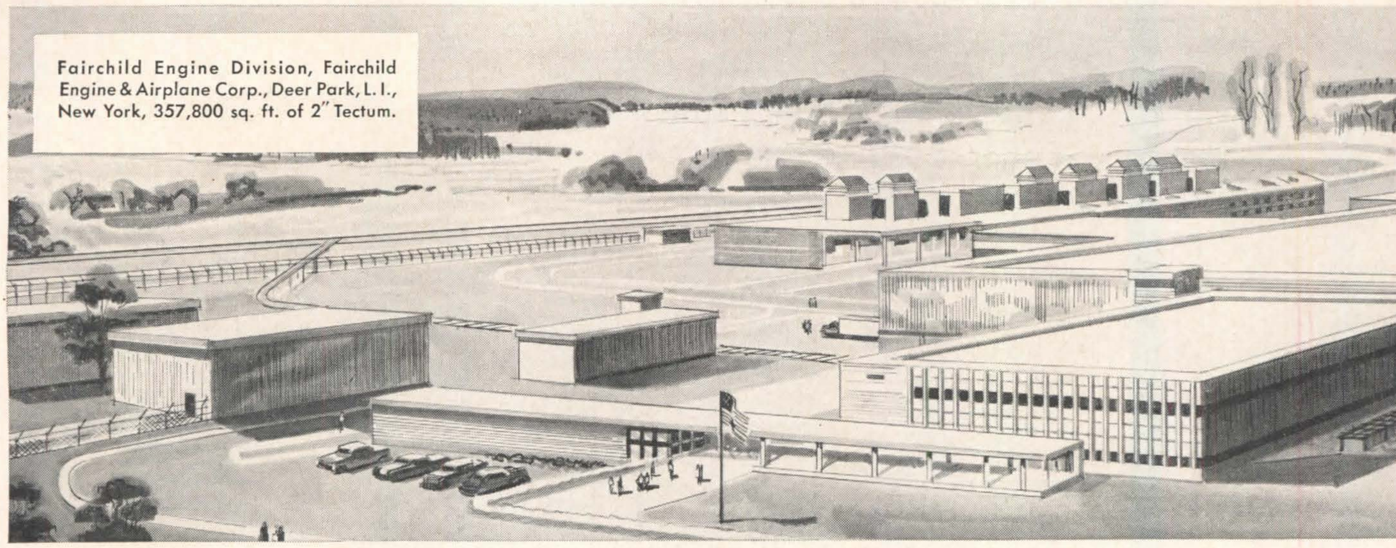
Radius of curvature: $R = \frac{(p + 2x)^{3/2}}{\sqrt{p}}$

Equation of evolute: $y^2 = \frac{8}{27p}(x - p)^3$ **(curve of centers of curvature)**

To find center of curvature C_4 for a point P_4, draw a line through P_4 parallel to x axis; set off $P_4Q_4 = 2P_4F$ and draw perpendicular through Q_4; draw normal P_4N_4 to P_4 by setting of subnormal M_4N_4 = p, and extend to meet perpendicular from Q_4 at C_4

Radius of curvature at apex, $P_1C_1 = p$; ($P_1F = p/2 = FC_1$)





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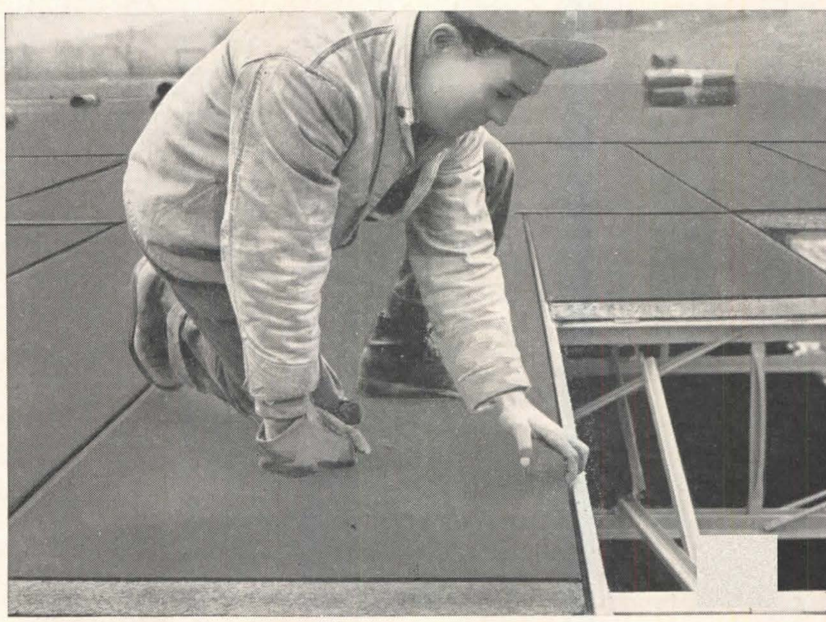
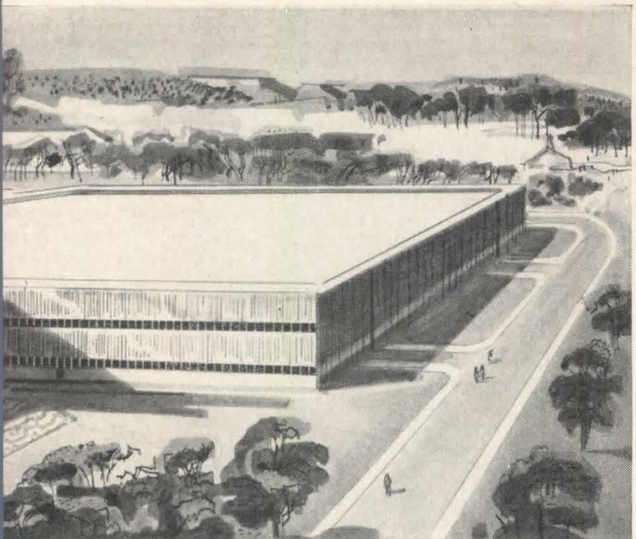


(above) Tectum wall insulation erected with any of several fastening methods conceals girts. Available in 2" x 30" and up to 120" long. Interior and exterior walls can be erected simultaneously.

(right) Tongued and grooved Tectum deck with factory applied roofing felt can be quickly laid on any type of framing. Built-up roofing may be applied immediately. Available in four thicknesses and eleven standard sizes.

Tectum®

THE NINE-VALUE BUILDING MATERIAL



TECTUM . . .

Austin-designed plants

The Austin Company, pace-setters in design and construction of industrial plants used nearly 1 million sq. ft. of Tectum for roof decks and wall insulation in these six buildings.

Why? Because Tectum provides a combination of properties in a single material which raise quality, comfort and convenience while keeping costs low.

Noncombustible Tectum has insulating and acoustical treatments built right in. Its textured surface adds a decorative note to building interiors which may be painted time and time again without decreasing acoustical efficiency. Lightweight and ease of handling speed erection.

Find out how this versatile product may be used in your next building. Mail the coupon below today for application details, or call your Tectum distributor.

TECTUM DIVISION
105 South Sixth Street, Newark, Ohio

Please send Technical Data

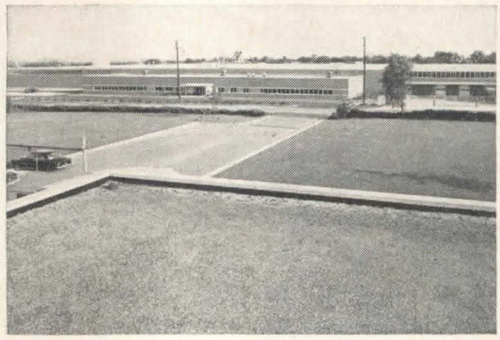
☐ I am interested in roof decks
☐ I am interested in wall insulation

Name ______________ *Title* ________

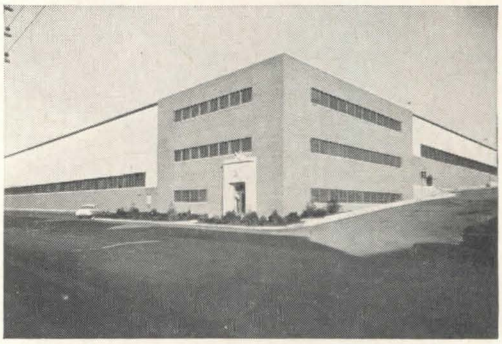
Address ______________

City ________ *Zone* ____ *State* ________

The Wesleyan University Press Inc., Columbus, Ohio, 125,883 sq. ft. of 2" Tectum plank for roof deck.

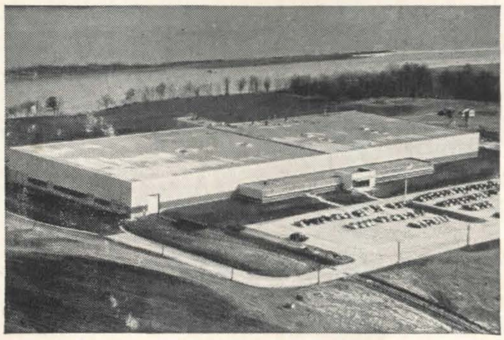


Simmons Mfg. Co., Columbus, Ohio, 222,243 sq. ft. of 2" Tectum plank and 16,302 sq. ft. of 3" Tectum plank for roof deck.



Parish Pressed Steel Division of Dana Corporation, Reading, Pa., 19,244 sq. ft. of 2" Tectum plank for wall insulation.

Clark Equipment Company, Construction Machinery Division, Benton Harbor, Mich., 45,630 sq. ft. of 2" Tectum plank for wall insulation.



Worthington Corporation, Decatur, Ala., 49,632 sq. ft. of 2" Tectum plank for wall insulation. 13,955 sq. ft. of 3" Tectum plank for roof deck.

THEY LOOK ALIKE...

*One door is hung on a RIXSON offset style closer—
the other is hung on a RIXSON offset style pivot set*

RIXSON PIVOT SETS

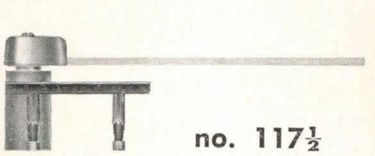
match the pivotal hanging style and general appearance of doors hung on RIXSON concealed floor closers. Provide a trim, secure hanging for doors not requiring a closer.

Pivot sets are furnished complete with matching top pivot.

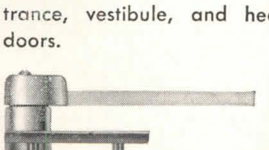
4 *offset hung types for doors of varying sizes and styles*

no. 117
Fastened to floor. Offset type for light interior doors.

no. 117¼
Fastened to jamb. Offset type for light interior doors.

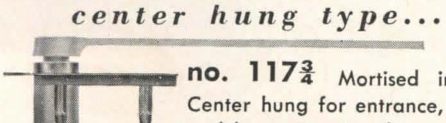


no. 117½
Mortised into floor. Offset type for entrance, vestibule, and heavy interior doors.



no. L117
Mortised into floor. Offset type for extra heavy or lead-lined doors.

center hung type...



no. 117¾ Mortised into floor. Center hung for entrance, vestibule, and heavy interior doors.

write for complete details and templates

THE OSCAR C. RIXSON CO.
9100 w. belmont ave. • franklin park, ill.