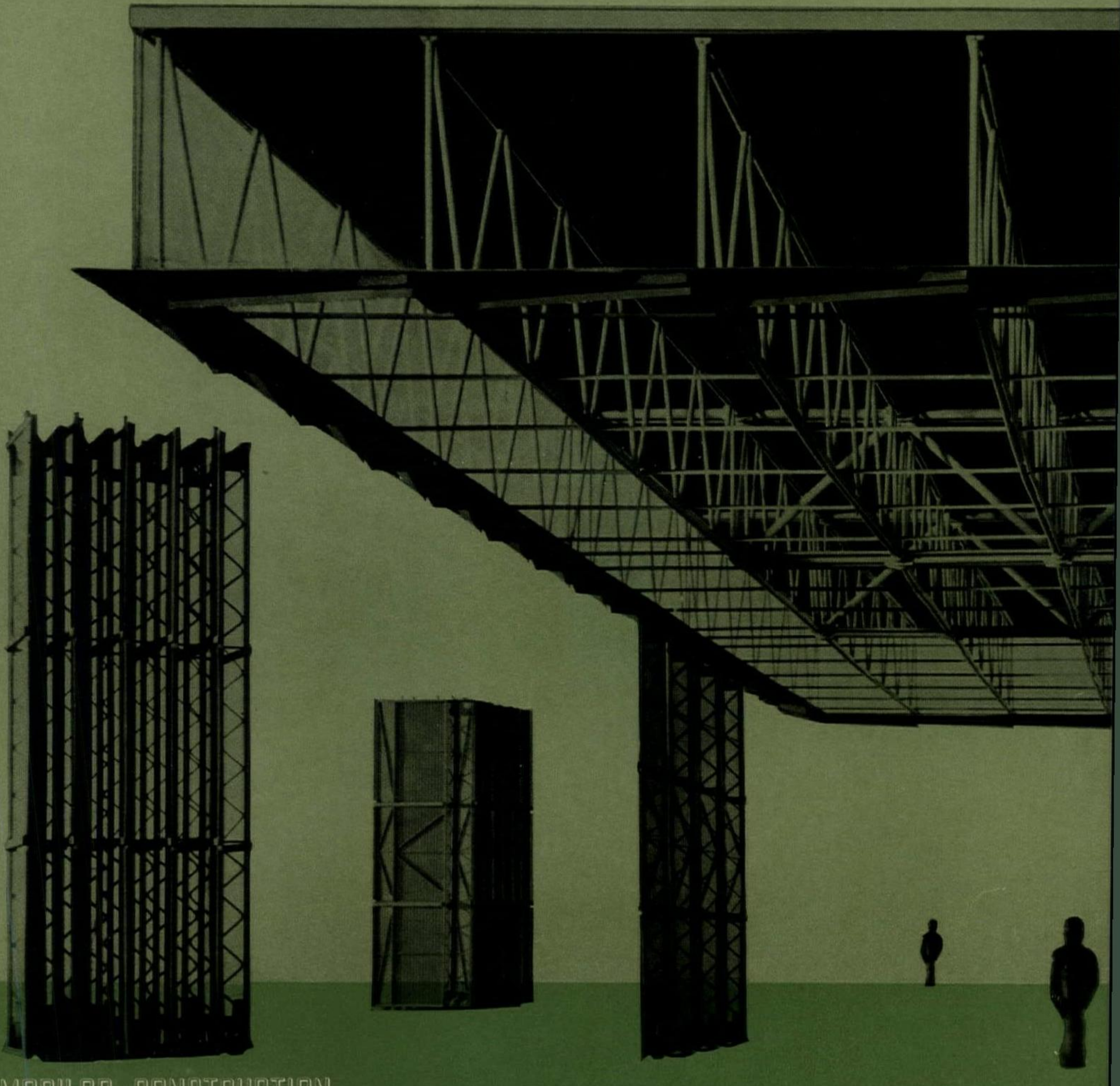
PROGRESSIVE ARCHITECTURE
PENCIL POINTS

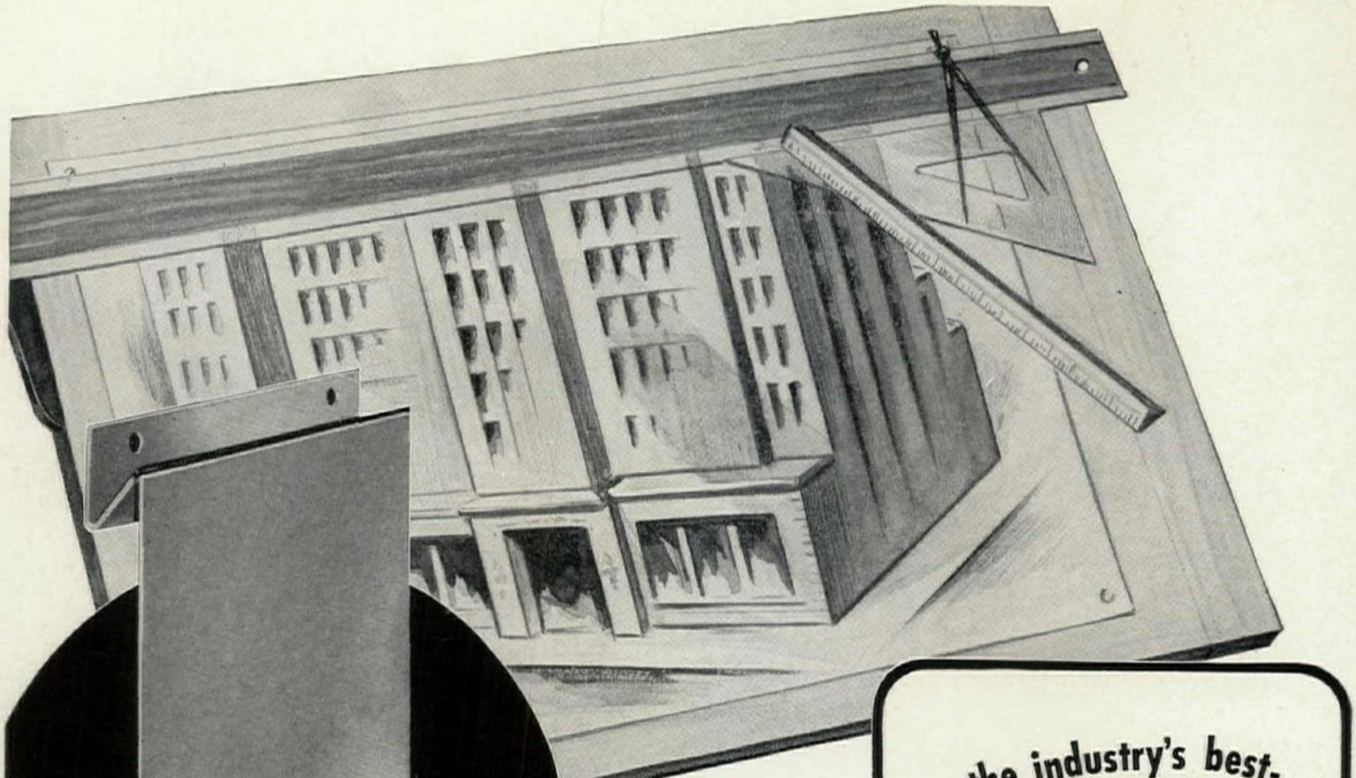


MOBILAR CONSTRUCTION

FAITH HOSPITAL

CO-OP COMMUNITY

MARCH 1946



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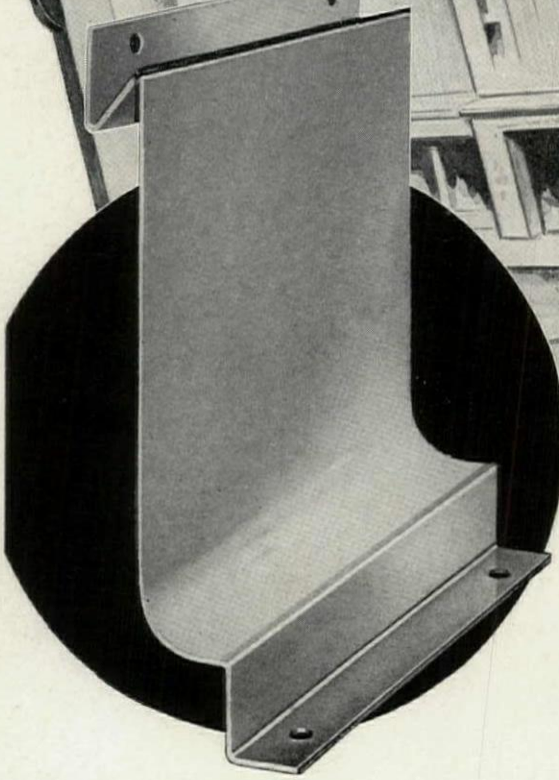

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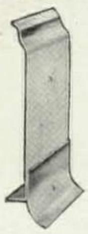

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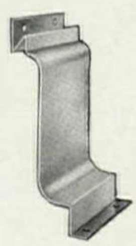

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Milcor Metal Casing No. 6

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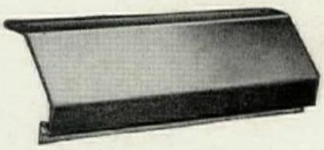

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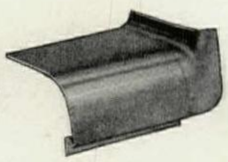

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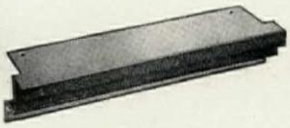

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PROGRESSIVE ARCHITECTURE
PENCIL POINTS

A HOME FOR THE UNO

Now that the question of a permanent home for the United Nations Organization has burst, literally in our own back yard (we live only a few miles from the favored site), we are more than ever conscious of the urgency of having the establishment properly designed by the most competent architect (or architects) that can be found in the world.

Surely, here is the most challenging architectural opportunity in all modern history. We cannot conceive of any disagreement on the point that the scheme for the United Nations Organization headquarters, both in general plan and in detail, must be the absolute best that the greatest architectural talents of our times can produce. But how can this laudable objective be attained?

To us it seems that the only practical and logical answer is an international architectural competition such as has already been talked of privately within A.I.A. councils and is now publicly proposed by the Museum of Modern Art in New York.

Even though the UNO establishment is to be in the United States, we must recognize that every one of the United Nations has a stake in the success of the organization and an interest in the determination of its physical environment. Also, since architecture is in a sense an international language, we should be willing to acknowledge the presence of a number of great architects in other countries, and we should be eager to set up the best we have to offer to be judged against the best that they can devise.

Manifestly, the holding of a competition presents many difficulties, not the least of which is to determine upon a competent jury to decide the results and a professional adviser and technical committee of sufficient caliber to write an adequate program. We believe, however, that these difficulties can be surmounted and we feel that the advantages of the competition method are so great as to warrant the attempt to surmount them.

One idea that has been proposed is to ask each Nation to designate a limited number of its top-flight architects to enter a single-stage international competition. How to pick its entrants would be left to each country to determine for itself. They could be chosen by national competition or elected by their fellow architects or selected by the heads of governments—whatever was considered appropriate. Then, in the final world-wide competition, every country would be on an equal footing and the total number of designs to be considered by the jury would be held to a reasonable number that would not be overpowering.

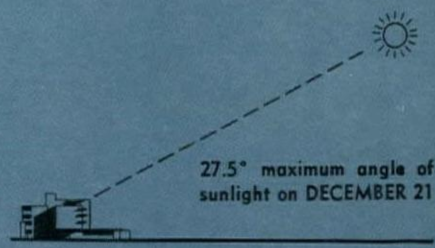
There are, undoubtedly, a variety of ways in which a competition could be set up, and since the question is of great moment to a large number of architects, we invite as many suggestions as our readers may be moved to send us. What do **you** think should be done?

While we wait for your recommendations, we are seeking active support for the competition idea among the leading professional journals of the world and among the professional bodies in every country. We think it is the only fair solution.

Kenneth Reid

FAITH HOSPITAL

ST. LOUIS, MISSOURI



WINTER

With the sun low in the sky, shown in the rendering at 27.5° (maximum angle on December 21), all patients' rooms lined along the south wall of the hospital receive maximum penetration of sunlight.

An Outstanding Example of Sound Basic Planning

The Faith Hospital project, as presented here, is a highly rational instance of over-all organization of a health-care facility, rather than a study of specific details. Sufficient space for the various departments, based on present day hospital-planning standards, has been allocated. The precise breakdown of these functional areas, however, has yet to go forward. This gives us and the reader a unique opportunity for a clear view of fundamentals, without being confused by minutiae. No hospital—no building of any type, indeed—can be any better than its basic organization permits. And, in our opinion, the preliminary planning of Faith Hospital; the interrelationship of departments, both horizontally and vertically; and the intelligent application of contemporary materials, techniques, and structural systems constitute a notable achievement.

JOSEPH DENIS MURPHY, Architect

ANGELO G. CORRUBIA, Associate

DR. A. J. SIGNORELLI, Medical Director

AIM

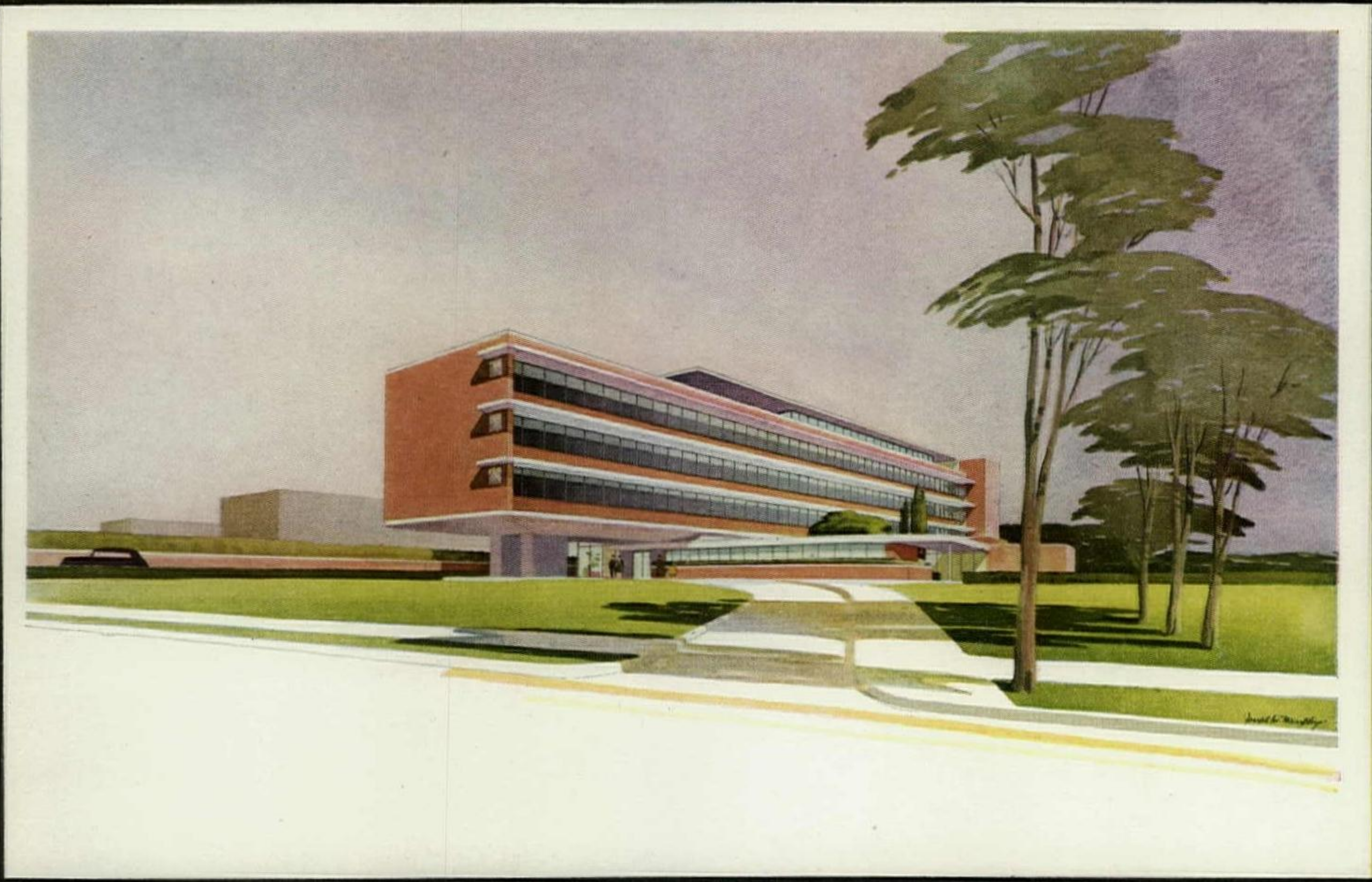
The invariable criterion used in the hospital design to date is the well-being of the individual patient. This humanitarian point of departure is based on Dr. Signorelli's conviction that the patient's well-being is the most important factor in his recovery. In the preliminary program, the ideal is summarized by the statement: "All functions of the hospital plan should be so related that each individual patient receives the maximum care, service, comfort and tranquility with the minimum of friction, duplication, and expense."

The architectural expression of this ideal, as shown in the color reproductions and subsequent details and plans, includes the southern orientation of patients' rooms, the resultant "solar wall" of the structure, and the relegation of service and operating rooms to the north side of the building, separated from the patients' rooms by both corridors and acoustical treatment.

BACKGROUND

The new Faith Hospital (125 beds; 40 bassinets) is a product of a proposed expansion program. The old 40-bed hospital, taken over in 1937 by Dr. Signorelli (the Medical Director) and a group of doctors, has not only weathered a depression and the war, but in its constantly expanding work, it has proved the need for an enlarged and thoroughly up-to-date institution. Like the older hospital, the new one is to be non-profit, non-sectarian, and operated by the more than 100 physicians and surgeons on its staff.

A two-acre rectangular site, with 165-foot frontage facing west on an important artery of the city and a depth of 542 feet, has already been purchased. The land was selected for its central location with respect to both the city of St. Louis and St. Louis County. Bordering the property on the south is an orphanage, a large, park-like tract which promises to remain in this pleasant condition permanently.



PROGRESSIVE MEDICINE—PROGRESSIVE ARCHITECTURE

Dr. Signorelli's thinking on the relationship between medical advance and modern hospital planning served as a guide to the architects of the new Faith Hospital, and it could with equal profit influence any hospital-design problem.

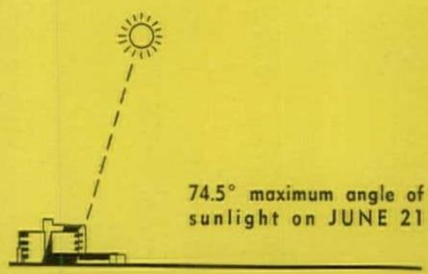
For hospital patients to gain the full advantage of advanced techniques of medicine, surgery, and science, Dr. Signorelli contends, use must be made of new techniques in the planning and construction of the hospitals themselves. In fact, he states that, in the past few years, the increased joining of modern hospital efficiency with contemporary treatment methods "has reduced the average length of stay in hospitals by more than one-half." He predicts that in the years ahead, in order to limit or reduce the rising cost of hospital care and to meet the demand for the more advanced curative techniques made possible by ever-improving methods of diagnosis and treatment, "many hospitals will have to replace their present deteriorating structures and equipment."

A survey by the American Hospital Association finds that approximately 80 percent of the hospitals in this country have an average daily census of less than 100 patients. Dr. Signorelli, therefore, argues that administrators and architects should concentrate on better solutions for hospitals of this size.

Editorial Note: A companion fact shows that in this 80 percent of hospital structures is contained only 20 to 30 percent of the total hospital beds. From this, one should judge, the trend has been toward fewer, larger hospitals where more costly services could be justified. Though, ideally, this might eventually solve the big-city hospital problem, in more rural areas—and even, still, in large cities, as witness the Faith Hospital project for St. Louis—there is need for the efficient smaller unit. The Faith Hospital plans indicate what is probably its greatest hope of solution—a design that concentrates on essentials and eliminates the "gold plate;" a plan that will help shorten the patient's hospital stay.

FAITH HOSPITAL

JOSEPH DENIS MURPHY, Architect
ANGELO G. CORRUBIA, Associate



SUMMER

When the sun is at an angle of 74.5° (maximum on June 21), the "solar wall" screens the rooms from sunlight, eliminating "78 percent in the solar radiation which might be transmitted through the window from direct sun effect."

HEALTH-GIVING ARCHITECTURE

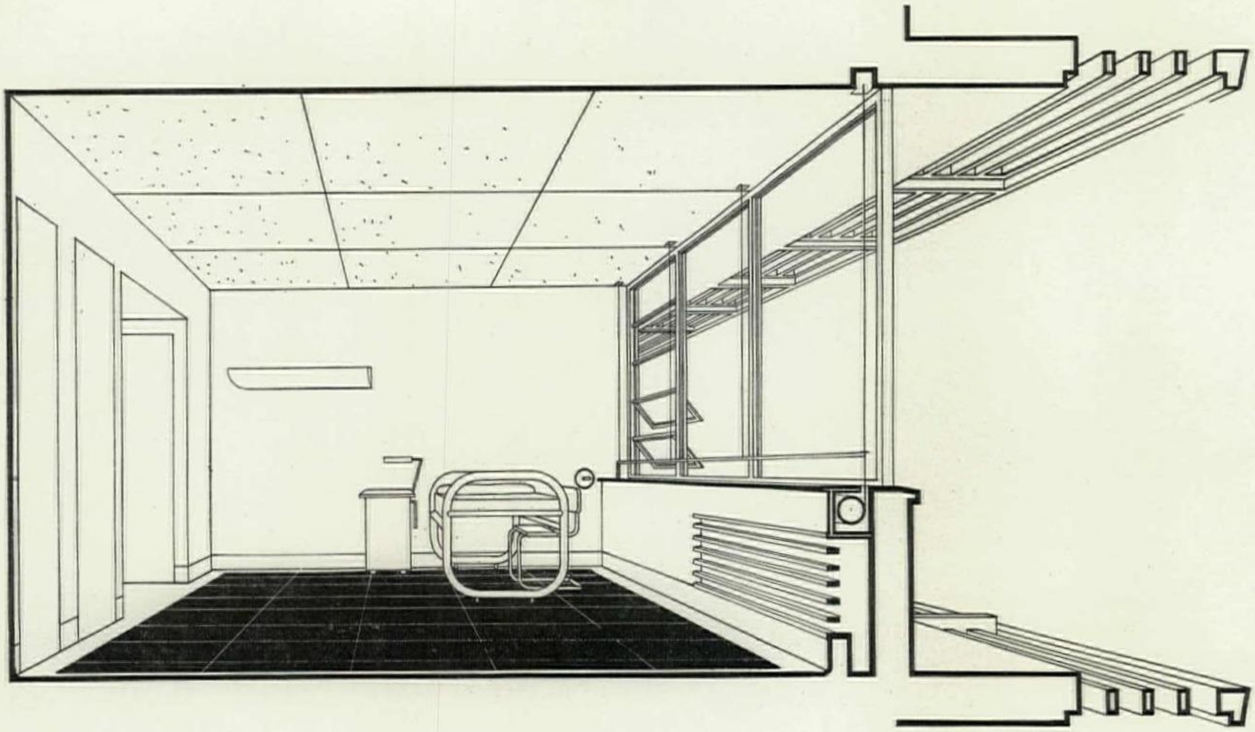
Continuing his discussion of hospitals and the new treatment methods that permit earlier ambulation and quicker discharge, Dr. Signorelli lists a few architectural improvements which assist doctors in their work and help the convalescent and ambulatory patient toward total recovery:

1. A cheery, warm atmosphere; color.
2. Large windows, to allow more sunlight in every patient's room; the advantages of solar warmth.
3. Soundproofing to decrease the annoyance resulting from hospital movement and traffic.
4. Air conditioning; newer forms of panel heating; air sterilization; improved call systems.

All of these, the doctor says, "aid in giving the patient greater sense of security and comfort." In addition, he recommends provision of special convalescent units, so that "the acutely ill and recently operated cases can be given the maximum care . . . (and) the convalescent, in turn, is benefited by being removed from the atmosphere of tension and apprehension that necessarily surrounds the acutely ill . . . The convalescent then requires less intensive treatment and feels better. The psychological factor in these cases is tremendous."

He also pleads for various design devices "that help the patient help himself"—such things as ramps in place of stairs, where possible, and rails along the walls of halls and in rest rooms. Nor does he overlook the increased efficiency to be gained by centralization of supply and service systems. By these and similar planning features, "the expensive machinery and personnel can be used chiefly in the first few days of acute illness or surgery. The capacity of the hospital will be increased without any additional beds or equipment."

The basic plans for the new Faith Hospital are a full-scale demonstration of how progressive design can achieve most, if not all, of these goals.



THE INDIVIDUAL PATIENT'S ROOM

Since the well-being of the patient is the chief reference point in the design of Faith Hospital, it is not surprising that the individual room received exceptional study and is, in fact, a major determinant in the design of the building as a whole.

Oriented along the southern wall of the hospital, these full-windowed rooms are bordered on the outside by projecting hoods or balconies of a depth such that they screen out the sun in summer and provide maximum penetration in winter. In addition, these balconies serve as platforms for window cleaning.

For the patient's privacy, a roll-up screen is provided that may be raised from the sill to any desired height, including complete coverage of the window. As shown in the cut-away drawing, this is designed integrally with the sill and the furred-out space beneath that allows for recessing of a heating unit (see discussion of heating and air conditioning, Page 61).

The typical double room is 13 feet by 15 feet in area, with the long dimension (3 times a 5-foot module) parallel with the window. Beds are placed at opposite ends of the room, instead of alongside, and the length of the room permits temporary screening between them. This bed placement further means that each is the same distance from the window, and neither patient has the more favorable view.

Window glazing is double-layer, insulating glass. John D. Falvey, consulting engineer, reports the advantages gained over ordinary single glazing. The coefficient of transmission, using "1/8-inch panes and 1/4-inch air space, is .62 Btu per square foot per degree difference, whereas 1/8-inch-thick single glazing has a coefficient of 1.1. The lower conductivity . . . will require less radiation [about 20 percent in the typical room], with a saving in the first cost of the heating system as well as in the fuel cost."

Should the rooms be air conditioned in summer (as is contemplated), "the low heat transmission will result in a smaller air-conditioning plant—a saving in installation, operation, and maintenance."

"We have disregarded the sun effect," Mr. Falvey says, "assuming that the balconies or projections will be installed in such a manner that the direct sun effect on the glass will be minimized in summer."

For night lighting, no final decision has been made. The architects know there will be no ceiling fixtures, and they hope to develop "a lighting source behind each patient's bed designed in such a way that if the patient is lying down, only the wall behind him would be illuminated; if the patient is sitting up, the wall behind him and a portion of the ceiling would be illuminated." To achieve this flexibility, they are speculating about some sort of fixture that is "movable vertically."

Every room is within 100 feet of the nurses' station, and each has access to a toilet room with bedpan units, as shown on the diagrammatic floor plans.

FAITH HOSPITAL

JOSEPH DENIS MURPHY, Architect
ANGELO G. CORRUBIA, Associate

BASIC ORGANIZATION

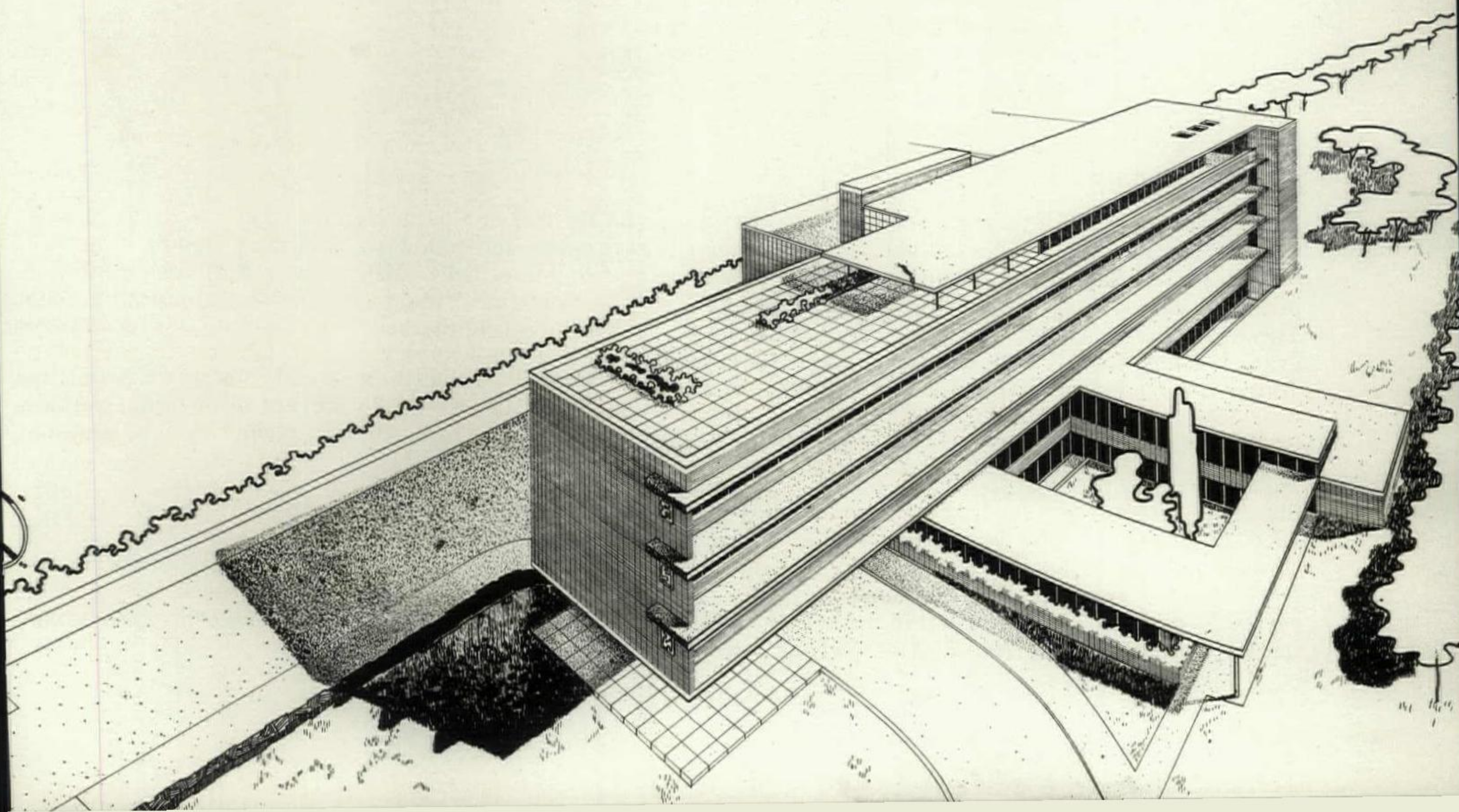
As has already been pointed out, the basic horizontal organization of the building consists of placement of patients' rooms on the south, corridors and service rooms in the center, and other service and operating rooms to the north. A ground-floor projection to the south contains the outpatient department, and this is reached along a covered walk without interference with the main entrance to the hospital. Patients and guests enter at the west end of the main block beneath a broad, sheltered area formed by the cantilevered overhang of the upper floors. The ambulance entrance (see plans) is at the rear of the building, out of sight of patients' rooms; and both staff and service entrances occur on the east, the latter being a ramp from the ground level to the basement.

Vertically, the organization of the building is as follows: the basement houses storage, food preparation, and laundry, in addition to the mechanical plant and attendant offices. The ground floor includes all administrative offices, the outpatient department, X-ray department, and emergency facilities; the second and third floors are surgical and general-hospital floors, including patients' rooms, and services. On the second floor are the operating rooms, and a pediatrics department is tentatively planned for the third floor.

The fourth floor is entirely devoted to maternity, and consists of patients' rooms, services, delivery rooms, and a nursery. The fifth floor is the convalescent area which Dr. Signorelli considers so vital to efficient hospital operation. Here recovering patients are moved and have the open roof as well as rooms with private terraces to enjoy.

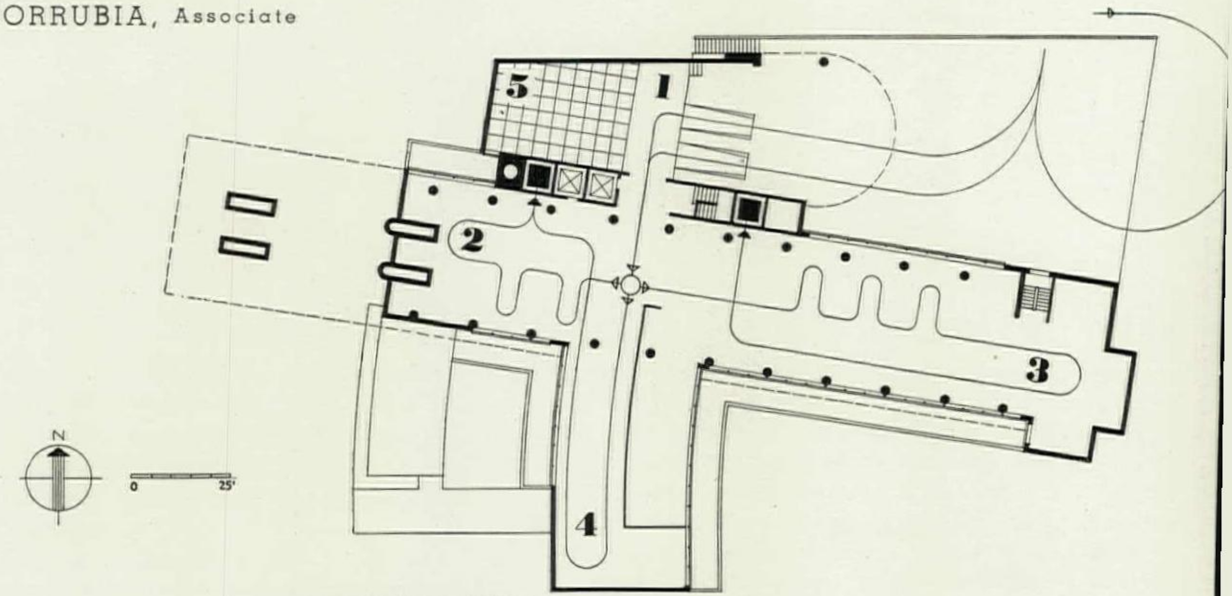
PROPOSED STRUCTURAL SYSTEM

The present plan is to use reinforced concrete construction up to the second-floor slab, with a structural-steel frame above; columns will occur at 5-foot spacing on exterior walls, this dimension becoming the module for window sizes and the length of rooms. The projecting hoods or balconies are to be of architectural concrete; sills, copings, and incidental trim, limestone. Since St. Louis is a brick center, the design calls for a local, light red brick to be used on exterior wall surfaces. Sash and frames will be either aluminum or steel.



FAITH HOSPITAL

JOSEPH DENIS MURPHY, Architect
ANGELO G. CORRUBIA, Associate



BASEMENT

Centralized control of all deliveries is desirable but, in this particular plan, question arises as to location of food storage space near active hub of circulation. Architects are now studying feasibility of locating food delivery and storage at east end of kitchen area. With this one exception, control and traffic flow to separate areas and to vertical distribution appear excellent.

SUPPLIES, SERVICE

1. **RECEIVING OF ALL SUPPLIES.**
2. **CENTRAL STORAGE:** central oxygen unit: surgical and medicinal storage, preparation, cleaning and sterilizing; office.
3. **FOOD PREPARATION:** storage; preparation; cooking; service; dishwashing; sterilizing; office; help's dining rooms.
4. **LAUNDRY AND LINEN SUPPLY:** receiving; cleaning; sterilizing; storage; office.
5. **MECHANICAL PLANT:** heating and air conditioning equipment; water; maintenance.

FLOOR PLANS

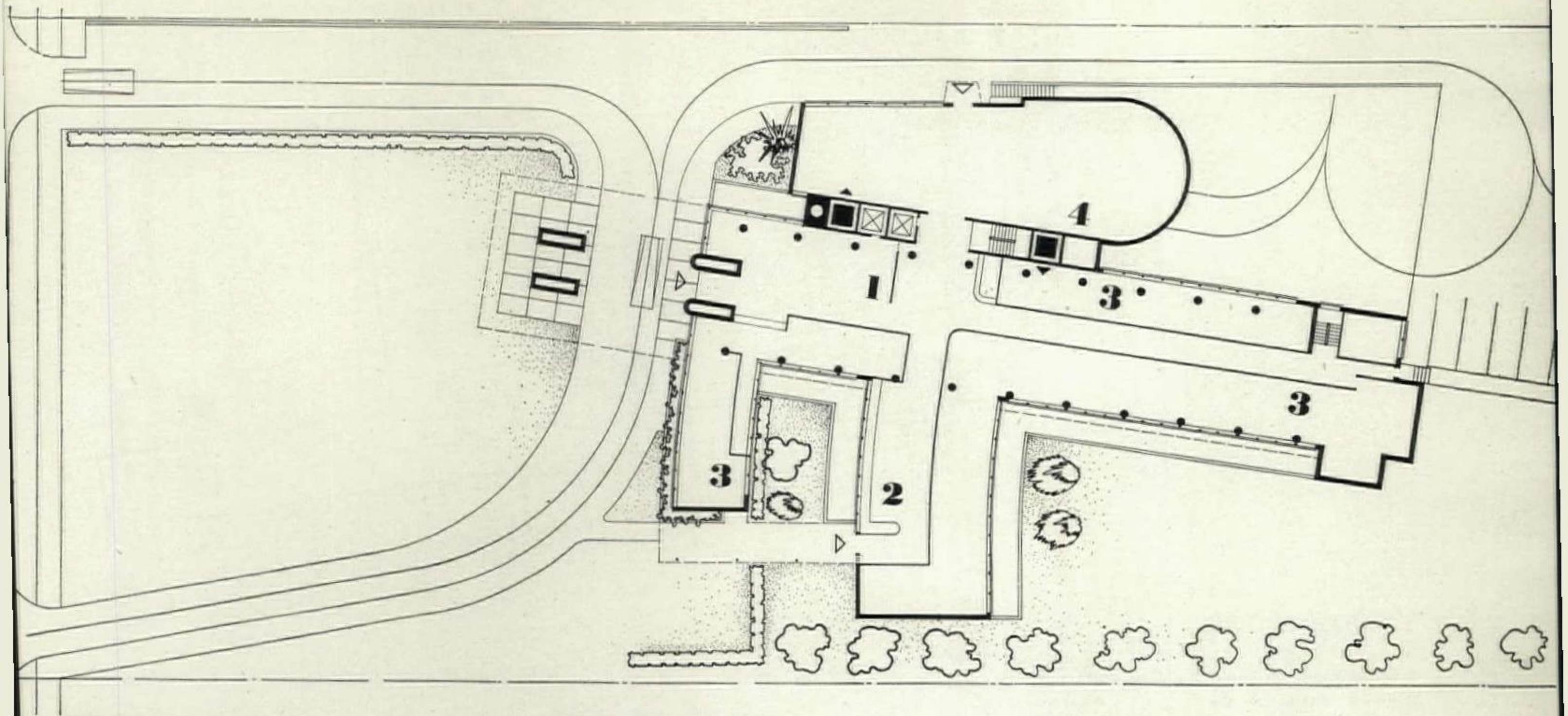
An extensive survey into space requirements for the various departments and subdivisions, based on a compilation of data about hospitals of similar scope, preceded actual planning of the Faith Hospital. These data are organized into a "preliminary program," consisting of a definition of the five main divisions — administration, service, nursing units, surgical, and outpatient—followed up by a minute listing of square footage needed, plus notations as to special equipment or planning elements.

Significant footnotes, in character much like penciled notations on the backs of envelopes, occur throughout the program. Typical are: "Administrative areas perform double function; first, the patient's or visitor's introduction to the hospital; second, an efficient control of plant and activities."

At the end of the portion on space needs for service areas are the following pertinent items: "Centralization of services. Minimum and direct circulation. The mechanical plant accounts for about 30 percent of initial building cost."

And again, concerning sound control: "Acoustical treatment to provide 75 percent absorption, particularly in corridors, diet kitchen, nurses' stations, toilets."

In addition to the studied consideration given to the individual patient's room, which we have already explored, there are several basic plan elements and relationships which determined the development of the diagrammatic floor layouts shown on these and subsequent pages.



FIRST FLOOR

Excellent separation of departments and entrances — main lobby, outpatient department, emergency (at rear) and ramp to basement services. OPD occupies all space within the south wing numbered "2." Pharmacy would be located at point (to the west) where OPD wing and main block of building meet, accessible to both main lobby and OPD.

ADMINISTRATION

1. **LOBBY AND BUSINESS:** information; business office; cashier; records; pharmacy.
2. **OUTPATIENT DEPARTMENT:** waiting room; administration office; social service office; medical records; consultation office; examination rooms; dressing alcoves; treatment rooms.
3. **ADMINISTRATION:** director's office; secretary; board room; staff lounge and lockers; nurses' lounge and lockers; registrar; special nurses' lockers; priest's or minister's room; auditorium (50 seats).
4. **X-RAY AND EMERGENCY:** receiving and treatment; ambulance entrance; bath and toilet; X-ray room and services; laboratory; cystocopy; splint and fracture room; dark room; autopsy room; utility and sterilizing.

SERVICES

All services are centralized and coordinated with the vertical circulation. Since all services and operating rooms are on the north and divided from the rooms by corridors, the rooms are well insulated from noise and activity of the service elements.

All supplies are received at a central platform in the basement, distributed directly to the three major services: food, linen, surgical. From these services, they are then distributed directly upward to the several departments on the upper floors.

ADMINISTRATION

Administrative offices are located on the first floor, between the central storage and supply areas in the basement and the patients' rooms and operating rooms on the floors above.

ENTRANCE HALL

The foyer or lobby is designed much as an attractive entrance to a hotel, completely separated from the administration and services.

OPERATING ROOMS

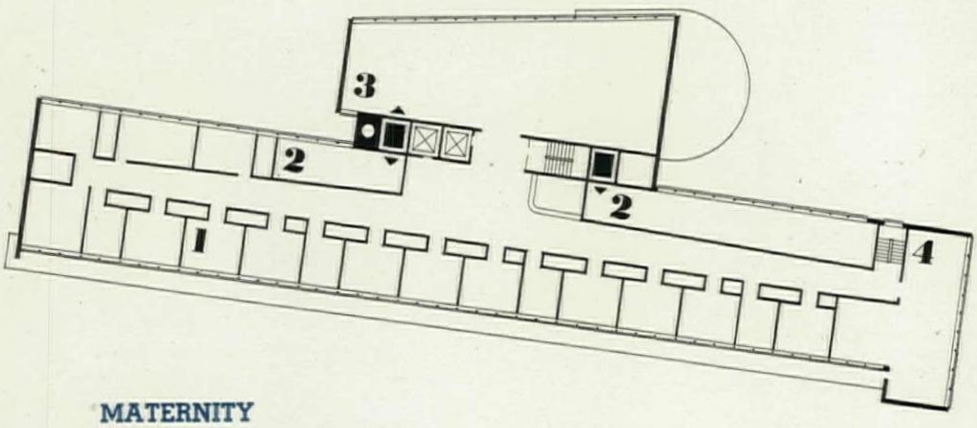
Operating rooms are all in a wing on the north side of the building. The principal operating rooms are on the second floor, along with rooms for the more critical surgical patients.

Emergency, operating, and X-ray rooms occur on the first floor.

Additional information and evaluations are given in the paragraphs accompanying the schematic plans shown on these and following pages.

FAITH HOSPITAL

JOSEPH DENIS MURPHY, Architect
ANGELO G. CORRUBIA, Associate

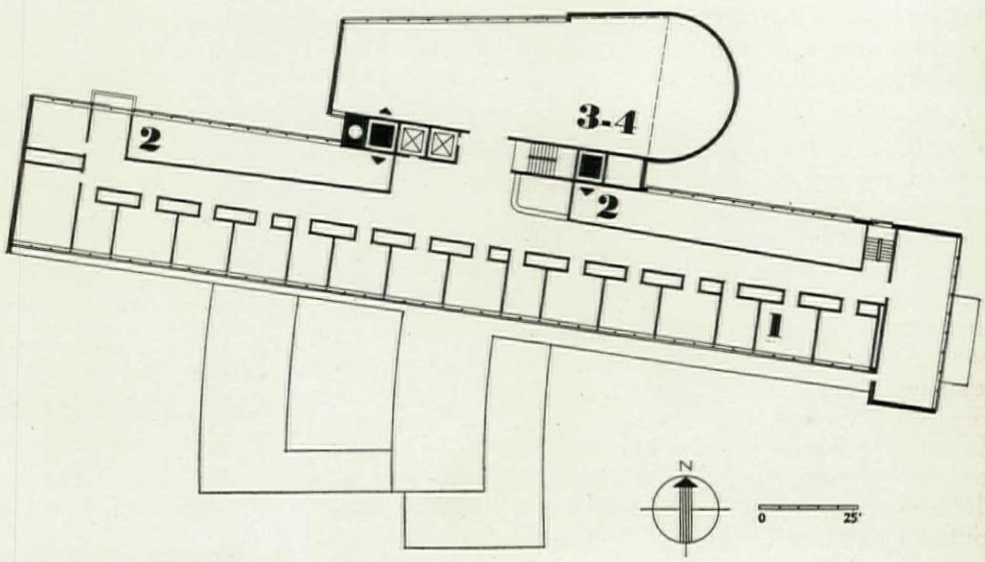


FOURTH FLOOR

Narrow shape of main building, with all patients' rooms on the south, is due to architects' wish to keep major mass as far to north of lot as possible, giving maximum open ground area toward the south. Note location of nurses' station (at right of passage to delivery area). As on all other floors, no patient's room is more than 100 feet away.

MATERNITY

1. **ROOMS (30 TO 35 BEDS):** 4 private; 4 private (possible double); 9 double; 1 ward; toilet and bedpan units between rooms.
2. **SERVICES:** nurses' station; chair closet; supply closet; linen storage; housemaids' closet; utility and sterilizing; diet kitchen; treatment and dressing.
3. **DELIVERY:** 2 labor rooms; utility; 2 delivery rooms; sterilizing; scrub-up; nurses' workroom; lockers and storage.
4. **NURSERY:** space for 20 beds; isolation; bath; formula.

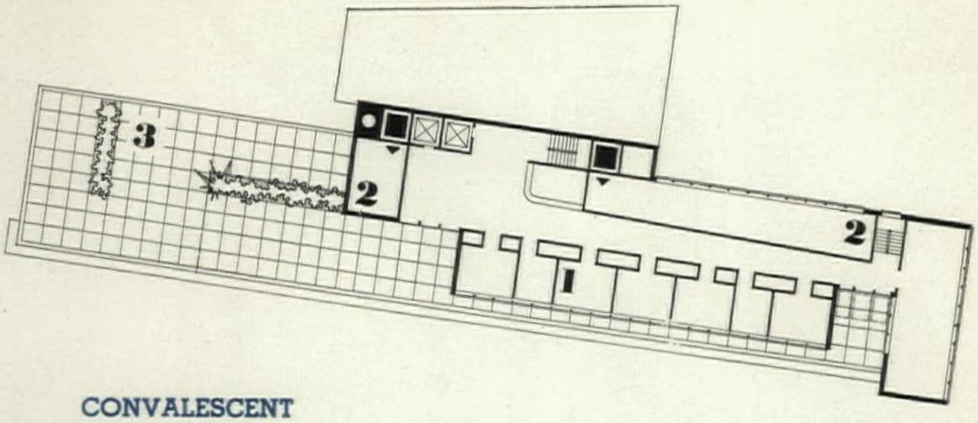


SECOND and THIRD FLOORS

Circular end of northerly unit (on second floor) indicates possibility of incorporating a round operating room, but "the pros and cons are still being weighed." At present, west wall of building nearest street is blank, partly to screen hot west light, partly for appearances' sake—"a solid vertical mass with which to complement the horizontal voids and solids." However, further study may introduce some openings, both here and in the north and south walls of ward.

SURGICAL AND GENERAL

1. **ROOMS PER FLOOR (30 TO 35 BEDS):** 4 private; 4 private (possible double); 9 double; 1 ward; toilet and bedpan units between rooms.
2. **SERVICES PER FLOOR:** nurses' station; chair closet; supply closet; linen storage; housemaids' closet; utility and sterilizing; diet kitchen; treatment and dressing.
3. **OPERATING (SECOND FLOOR ONLY):** two major operating rooms; minor operating room; sterilizing; scrub-up; utility; instruments; nurses' workroom; anesthetizing; lockers; equipment storage.
4. **(THIRD FLOOR ONLY).** Undetermined—pediatrics, physical therapy or?



FIFTH FLOOR

On this floor, the doctors feel that "some of the services of the usual nursing unit could be eliminated at a saving in cost to the hospital and the patient." This separated convalescent floor is also considered for its beneficial psychological effect on the patient, leading to a shortened hospitalization period.

CONVALESCENT

1. **ROOMS (14 TO 17 BEDS):** 2 private; 2 private (possible double); 3 double; 1 ward.
2. **SERVICES:** Nurses' station; supply closet, linen storage; housemaids' closet; diet kitchen; baths; utility; treatment and dressing.
3. **ROOF:** shaded and sunny areas.

HEATING AND AIR CONDITIONING

Several heating methods are under consideration, but the choice seems to be narrowing down to either a two-pipe vacuum system or one consisting of individual room units.

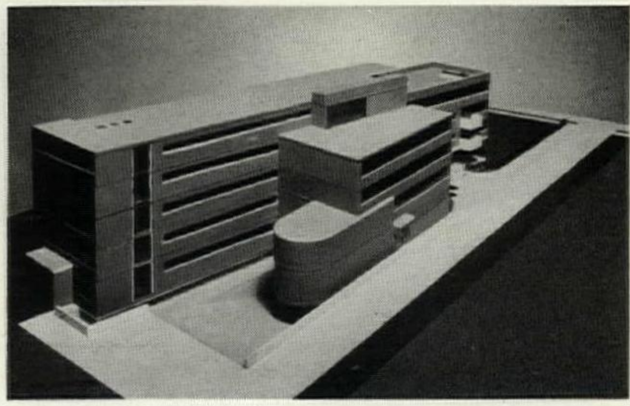
Discussion in favor of the two-pipe vacuum system centers around its flexibility, allowing temperature control by zones for exposures, with individual control of room temperature made possible by introduction of thermostats and controlling diaphragm radiator valves on each radiator. The architects very much hope, however, that budgets will allow for eventual use of summer cooling as well as winter heating. This possibility argues for the individual-room-unit system, which would consist of a central station apparatus to take air from the outside and control humidity, a distributive system, and the individual room units with temperature-regulating controls. At the moment, the discussion, as summarized by consulting engineer John D. Falvey, stands about as follows:

"The individual-room-unit system, without the cooling system, would probably cost 50 percent more than the two-pipe vacuum system. But the installation of the former would provide the bulk of the apparatus necessary for future cooling. If, therefore, we contrast these two systems on both a heating and cooling basis, the individual-room-unit system would cost 20 to 25 percent less than the two-pipe vacuum.

"The operating costs of the two-pipe vacuum system for heating only would be 15 to 20 percent less than the individual-room-unit system, but the latter would be 15 to 20 percent cheaper to operate on the basis of heating and cooling than the vacuum system, plus a central cooling system for each floor."

The chief disadvantage found in the room-unit system is the space required for installation of fan, coil, filter, etc., either on each floor or on every second or third floor; also the bulk—again, a question of space consumption—of the heavy-duty outlets in the rooms themselves.

Here the matter stands, but the architects have noted in the margin of the engineer's report, "This is what we *hope* to use," alongside the description of the individual-room-unit system.



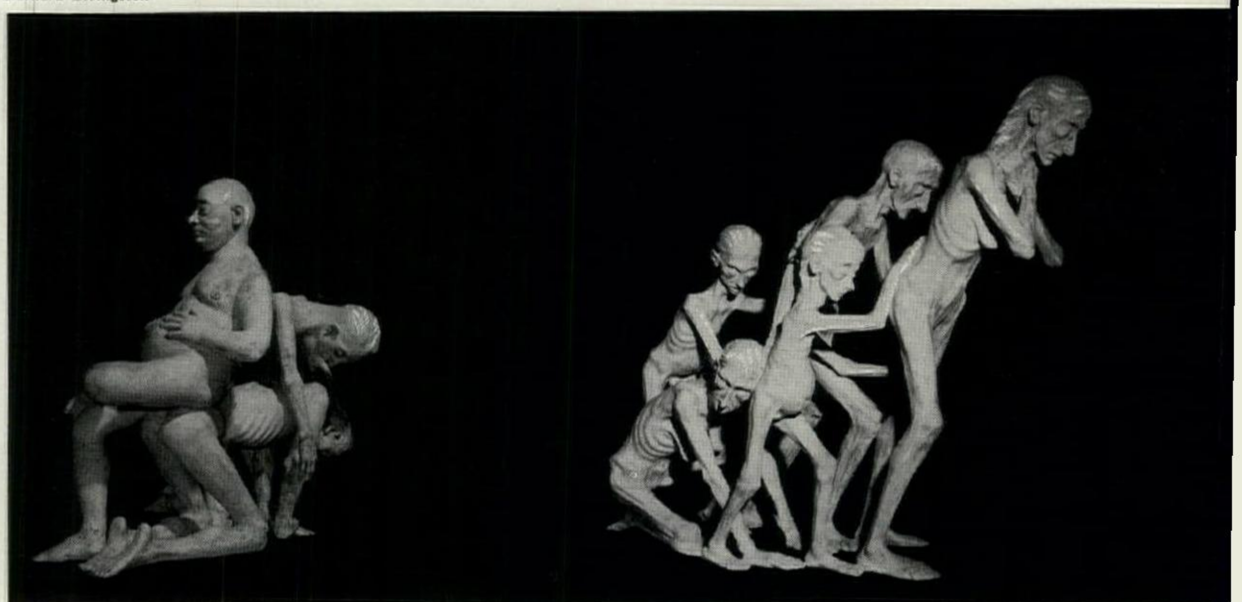
Model by Arthur Walters and David J. Nax

AN

HOW LONG?

Shall we have another world war and oblivion? Yes, unless we accept the simple code Christ offered 1946 years ago—equality of humans, the brotherhood of man, things of the spirit, like honesty, love, respect, justice, faith, and hope. We must clean away the parasites that keep us from seeing the simple truth. We must accept the one moral code as we are accepting the other "ones"—one world, one human race, one world government and, finally, one peace.

Bernard Livingston



AM I MY BROTHER'S KEEPER?

A diatribe against selfish accumulation of "things" as a goal in life—a goal the individual can reach only through economic slavery of others, a seedbed of war.

ESCAPE?

In times past, the inevitable refugee escaped the wrath and persecution o war; today, in a world all war, there can be no refuge. The lesson is know in foreign lands; we shall know it here in America if we are weak and stupi enough to allow World War III.

INDICTMENT OF WAR

POVERTY . . . THE WEAK LINK

"A chain is as strong as its weakest link." The link of poverty leads to war. The cure is to elimimate the disease itself, not to dose with drugs, like charity.

——— A "MEMORIAL" TO ITS CAUSES AND VICTIMS HARRY MARIINSKY, SCULPTOR

This shocking group grew out of the sculptor's outrage at the human tragedy of modern, total warfare, at the numbing fact that the bewildered and defenseless civilian is its most numerous victim. He suggests the stupidity that allows wars to happen and he includes a strong symbol of a brave alternative that men might choose.

As opportunity permits, it is our hope increasingly to report on progress in the arts, which, along with architecture, constitute our culture. This particular work, it seems to us, carries the unmistakable imprint of honesty that is basic to any vital creative effort.

The photograph captions are paraphrases of the sculptor's own interpretations.

OUR CROWN OF THORNS

What we are, perhaps we cannot change, but we can make that change in the child—our natural resource out of which can grow a fearless world at peace.

FEAR

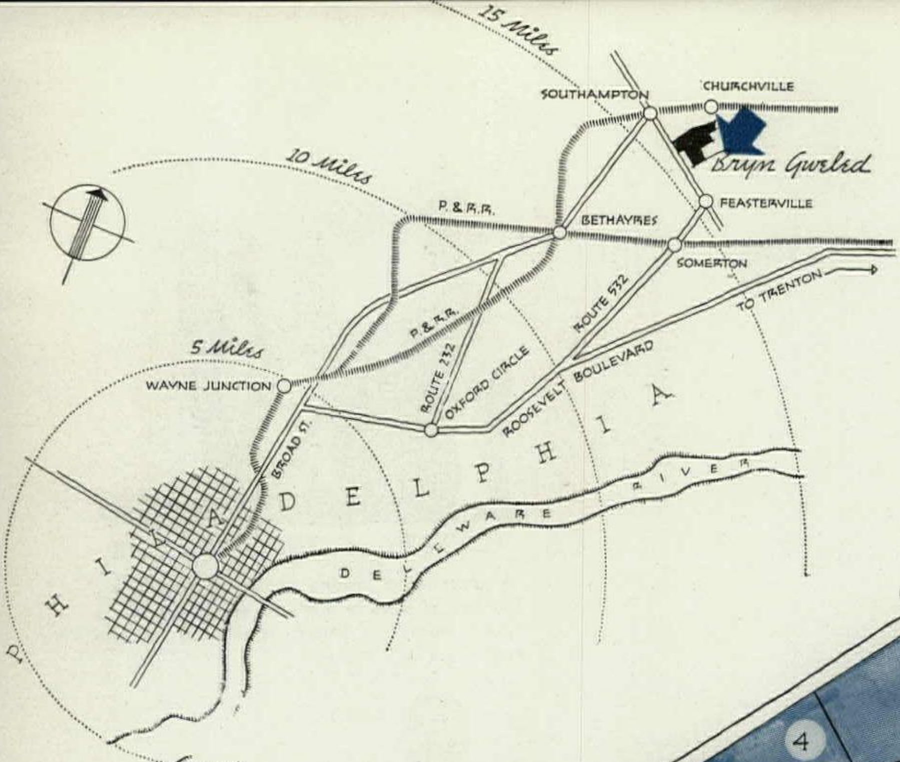
Insecurity, hate, and war are inevitable in a world where fear prevails. Personal fears, fear of starvation, economic fears, superstition, all must be destroyed or cured.

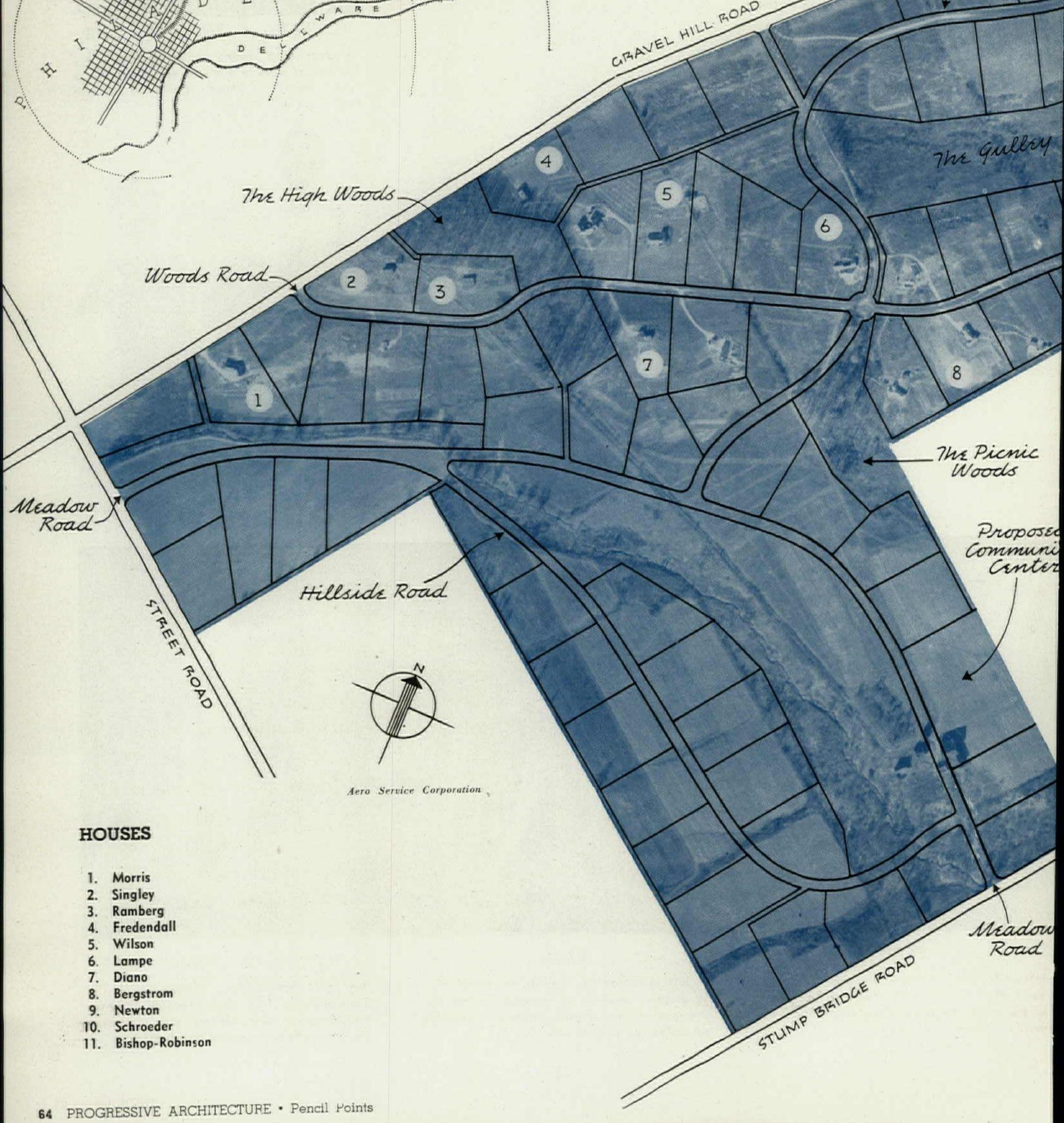
RAPE

Society is ravaged by war as an individual is by disease, resulting in increased crime, destruction of the family, morally weakening psychological disturbances.

VICTOR OR VANQUISHED?

War only impoverishes; conquerors are indistinguishable from the conquered. Our interdependence demands we stop destroying our best natural resources and humans.

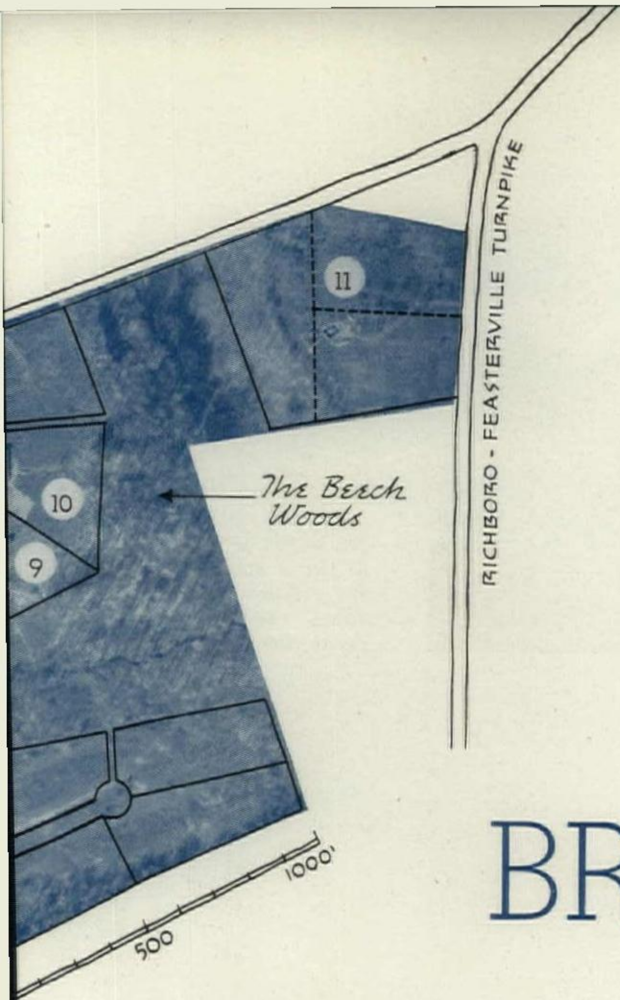




Aero Service Corporation

HOUSES

1. Morris
2. Singley
3. Ramberg
4. Fredendall
5. Wilson
6. Lampe
7. Diano
8. Bergstrom
9. Newton
10. Schroeder
11. Bishop-Robinson




SITE PLANNING COMMITTEE (left to right): Willard Hastings, M.D.; Thomas Michener, Engineer; Robert F. Bishop, Architect; Alfred Schroeder, Television Engineer.

BRYN GWELED

A Cooperative Homestead Development in Pennsylvania

Analysis and Discussion by RITA DAVIDSON and WILLIAM SMULL

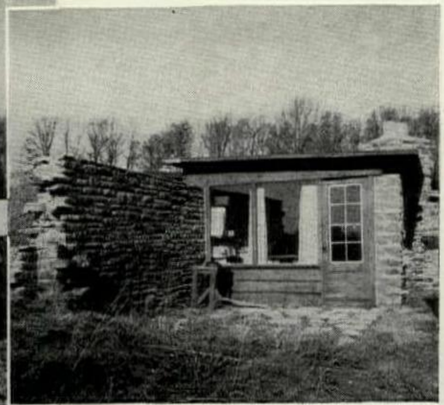
INTRODUCTION

Megalopolis is disintegrating. Dissatisfaction with the increasing discomfort of metropolitan life has forced individuals to flee the city. Urban redevelopment, society's solution for all practical purposes, is yet unrealized, and the individual, with his limited means, feels undeveloped land the only hope.

Residential developments beyond the city's borders, stemming basically from similar reactions to present urban living, take diverse forms. The upper-class suburb produces the "country-club" type of neighborhood, a protest of fashion rather than economics. The less well-to-do must be contented with jerry-built homes on diminutive, fenced-in lots. The homesteaders, most ideological fugitives from the city (some of whom continue to work in town), seek the spaciousness of rural living and the security part-time farming affords.

Bryn Gweled should be appraised as part of this widespread "flight from the city."

The Authors



240 ACRES of rolling farmland—81 lots of about 2 acres each. In 1945, there were 12 completed houses and 3 cellar dwellings (photo above).

BRYN GWELED HOMESTEADS

THE FOUNDING

Bryn Gweled (Welsh for Hill of Vision), a new community in Bucks County near Philadelphia, is a cooperative homestead development which resulted from the efforts of several families who shared a dislike of the tensions of city living. In 1939 they discussed possibilities of cooperative rural housing and gravitated toward Ralph Borsodi's ideas. After visiting his "productive homesteads" at Suffern, N. Y., they were convinced that the solution to their problem was a community of the Borsodi type. However, they disagreed markedly with the Borsodi idea that the community should be self-sufficient and discourage outside work. At Bryn Gweled members are required to have a source of income which is *not* based on farming.

These original families formed a tentative organization to purchase a large tract of Bucks County farm land and in 1940 incorporated as a non-profit organization. Work on the roads and utilities was started immediately and by 1941 the first family moved into its home. As of 1945 there were 12 completed houses and 3 cellar dwellings (roofed-over cellars of houses stopped by war shortages). Lots were leased to 12 other families who were unable to build at all during the war—27 families in toto.

LEGAL FRAMEWORK

Fundamental to Bryn Gweled ideals is the prohibition against individual land ownership. This restriction prevents land speculation and misuse of the lot. It also perpetuates the community's aims by making it impossible for land to be held by families with dissimilar social beliefs.

The community is Rochdale* in type with each member entitled to one vote, but it lacks "the final characteristic of Rochdale cooperative housing procedure—permanent retention by the association of the title to land *and* dwellings. In a thoroughgoing cooperative, the member would hold shares of stock in the association to the value of his house and land. The construction of dwellings would be carried on by the association, and the member would never receive the title to the land he occupies, but only a lease running indefinitely for as long as he was acceptable to the other members." ("Cooperation in the Building of Homes." *Monthly Labor Review,* February 1941.)

In Bryn Gweled each member holds his land on a long lease from the community; the houses, however, are privately financed, constructed, and owned. Monthly assessments which range from $8 to $11, depending on land holding, include county taxes on the common land, interest on community indebtedness, and amortization of the capital.

The assessment varies annually with the budget. Originally the group hoped to have common financing and construction of homes, but financial limitations and wartime restrictions made both impossible. Each family has title to its own home subject to restrictions on subletting, sale, and inheritance.

Houses may not be sublet for any period exceeding a year without community permission; nor may they

**Rochdale cooperatives are patterned after the British prototype founded in 1844 from which the whole of British Cooperation and much of that in other lands, has grown. Its principal characteristics are democratic government with one vote to a member, return of surplus earnings in proportion to each member's patronage, and political religious neutrality.*

All photographs, except air view, by P. A. DEARBORN.

GROUP PARTICIPATION in various activities is an important aspect of life at BRYN GWELED. Above, members of the Planting Committee (Mrs. Robert F. Bishop, chairman, center) work on a roadway intersection.

Mrs. SCHROEDER plays for a children's sing.

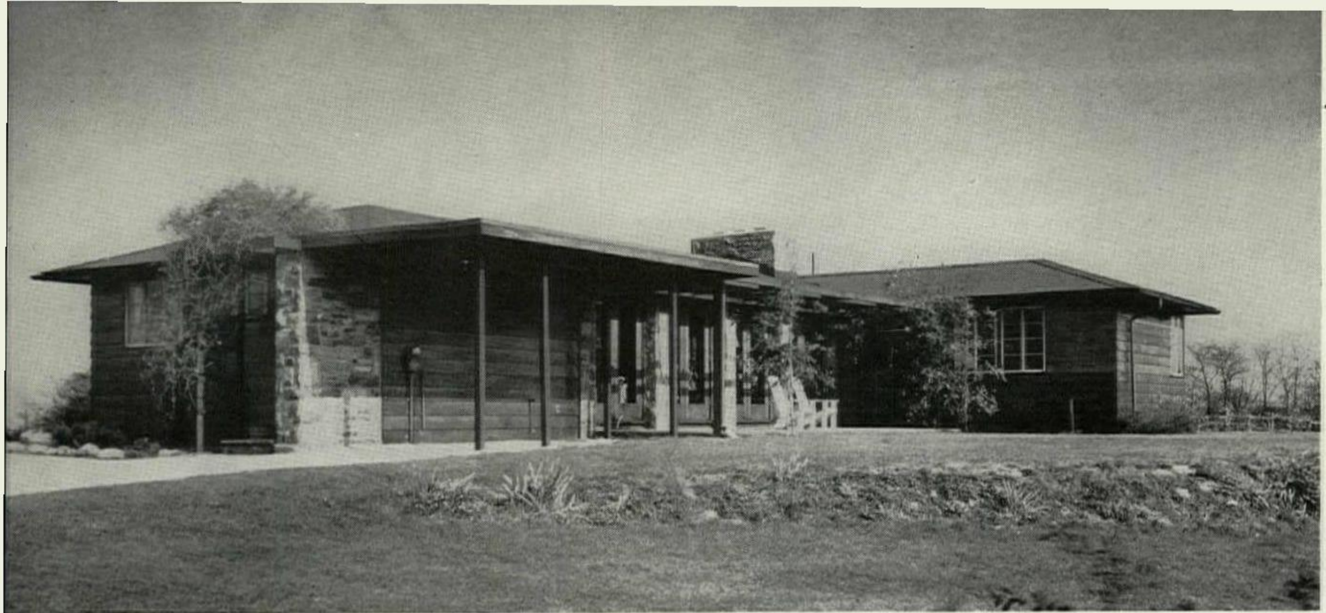
Mr. and Mrs. LAMPE organize a square dance.

be sold to or inherited by non-members. Should a member die or wish to sell, or should a bank foreclose on a building loan, the community has prior rights to purchase the house at a fair price or to accept a new owner in membership. Children are not members automatically and cannot "inherit" a house in the usual sense. They may be voted into membership should they desire to continue in the community. Bryn Gweled believes it will always have sufficient capital to enforce the provisions regarding succession of house ownership. The prohibitions are somewhat similar to those in several other cooperative housing ventures in America (for example, Crestwood Community at Madison, Wis., and the St. Paul Housing Project in Minnesota) where title to the homes is held privately, but the organization exercises control over future residents.

FINANCING

Land purchase and development were financed by issuance of certificates of indebtedness at 4 percent interest which are held by community members and interested outsiders. Each member pays an admission fee of $50 and is encouraged to invest in the 4 percent certificates which are redeemable upon six months' notice. To date, expenditures total $25,000, of which land cost accounts for $18,000, site development and utility installation, the remainder. The very low cost of the latter was due to the efforts of community work parties which, in the spirit of frontier "house raisings," provided fun for the members at the same time that they helped develop the site.

Mr. DIANO built the children's carousel.



THE BERGSTROM HOUSE

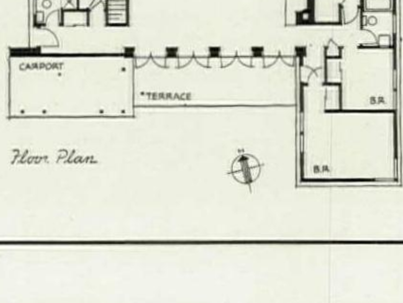
WALTER T. ROBINSON, Architect

FAMILY: Social worker; wife (teacher); grade-school-age son.

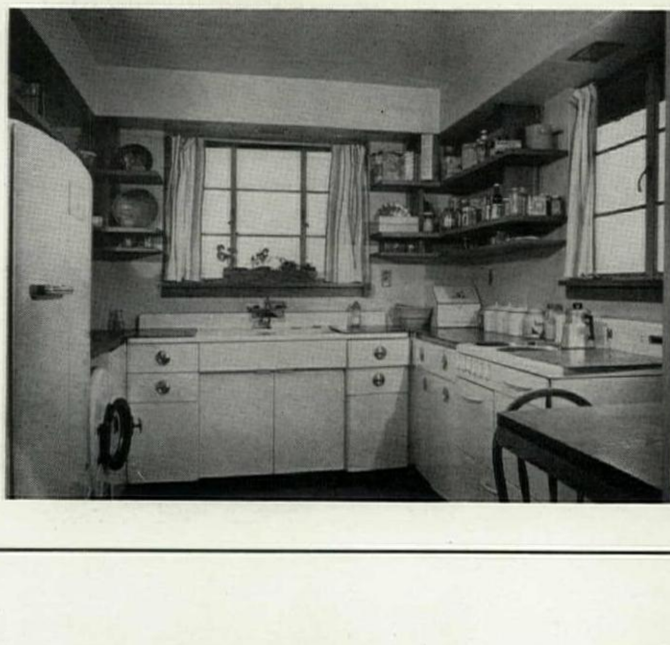
SITE: Near woods bordering development; slopes away to the south.

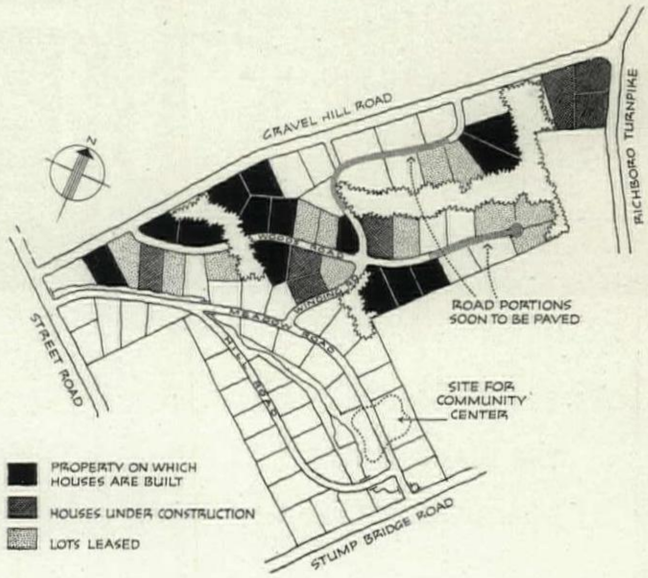
PLAN: House oriented so that living-room wall of glazed doors faces south and most-favored view. Root cellar occurs beneath kitchen and entrance-hall space; storage and heater room, under dining-living room; otherwise, unexcavated. Living room must be used as passage, but planning keeps traffic to one side; corner windows in bedrooms provide good wall space for beds. Entrance centralized, whether approach is on foot or by automobile. Cross ventilation in all major rooms.

CONSTRUCTION: Frame on stone foundation; insulation in walls and roof.



Floor Plan





THE SITE AND COMMUNITY LAYOUT

About 20 miles northeast of Philadelphia, Bryn Gweled is almost equidistant (about 1½ miles) from Southampton, Feasterville, and Churchville, small towns where the bulk of the marketing is done.

The site reflects the basic desire of the homesteaders to get away from the small vistas and cramped quarters of town life. Their 240 acres, obtained through a real estate agent, consist of rolling farm land with small wooded patches, some marshland near a winding brook, and some very steep land quite unsuitable for building or farming. Much of the land slopes away to the southeast and affords a pleasant view of the surrounding countryside.

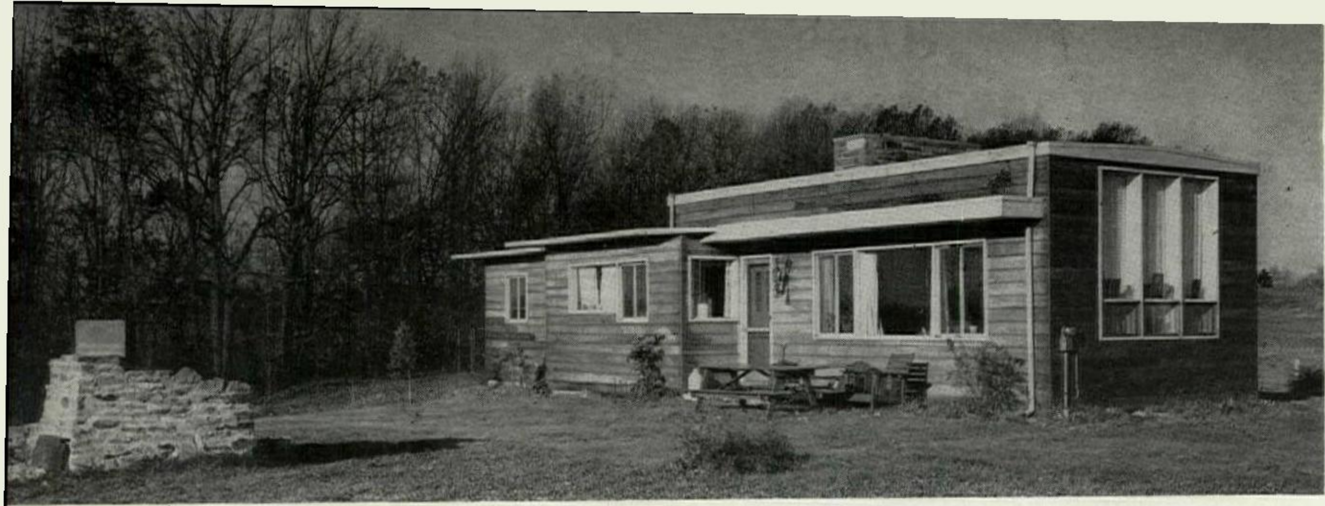
A macadam road system (still incomplete) is planned to tie together the three sections of the T-shaped site. Part of the basic road construction was done by the homesteaders with the help of a rented bulldozer, but the specialized surface work was contracted. This construction was financed by notes for $5,000. Immediate plans call for completion of Woods Road and Winding Road; development in the southeast section awaits the leasing of lots there.

The Homestead investigated the possibility of having community water and sewage systems and generating its own electricity. None of these was practicable: electricity is purchased on an individual basis and each home has its own well and disposal system. A feature that adds considerably to the community's appearance is the underground wiring for telephone and electricity; for the section now developed this difficult installation cost only $2,000 since the homesteaders did much of the work themselves. There are scenes of this construction project in the Bryn Gweled documentary color film which the Publicity Committee prepared.

Preservation of the best building land was the chief reference point used by the Committee which sited the lots and planned the road system. The flat and rolling land was platted into 81 lots of approximately 2 acres each, leaving 80 acres to be used in common as park and road. This common land is particularly picturesque with trees, streams, and views. The generous lot size, together with the common land weaving through the community, affords to each house the privacy of an estate and permits fairly extensive household farming. Of the 81 building lots, 33 have been leased to date: 19 families have one lot each, 4 families have 2 lots each, and 4 have 1½ lots each. The remaining 48, largely in the southeast section, are yet to be leased.

It is difficult to predict the eventual population of Bryn Gweled, for this is a factor of both the number of lots each family will hold and the individual family size. At present the community believes that from 40 to 70 families will occupy the Homestead when it is fully developed. This wide span results from indecision about the number of lots each member may lease. The more ambitious homesteaders feel that 4 acres are not too great for staple farming and the maintenance of livestock. Others are well satisfied with only 2 acres, since, in addition to not sharing the interest in subsistence farming, they want the community to become as large as possible. Assuming an average of 3.8 persons per household,* the community therefore might have as few as 150 persons or as many as 275. Even with a maximum of 70 families this would mean only 1.15 persons per gross acre!

** This is the present figure, but the families are all quite young and a higher figure will prevail eventually.*



THE DIANO HOUSE

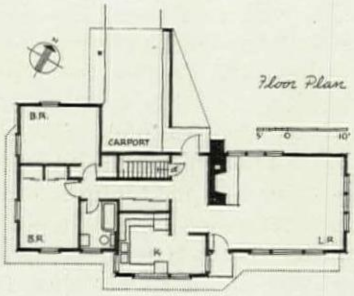
ROBERT MONTGOMERY BROWN, Architect   CORNELIUS VAN R. BOGERT, JR., Designer

FAMILY: Stained-glass artisan; wife; 2 small children.

SITE: Comparatively level; best outlook to east and south.

PLAN: Central entrance hall, accessible from both car shelter and front door, provides good circulation and privacy. High-ceilinged living-dining room, also used as studio; large kitchen, arranged in efficient U plan, equipped with sizable view windows. Basement, under whole house except bedroom wing, where crawl space is provided.

CONSTRUCTION: Frame, on stone foundation; slight pitch of roof over living-studio, provided by cutting 2" x 10" joists to desired angle; roof over rest of house, dead level with interior downspouts. Sun-control overhang on south and west: 2" x 6" tongue-and-groove roofers laid diagonally. Contractor took house to framed and sheathed stage; owner set steel sash and applied exterior siding and interior finish.



SOCIAL STRUCTURE

Bryn Gweled has no intention of becoming a middle-class suburban enclave. Selection for membership is based upon similarity of interests rather than the traditional identifications of race, religion, or economic class, and there is a positive effort to encourage a representative distribution.

The community belief in slow growth is reflected in the procedure for admitting members. Prospective homesteaders are invited to visit the families on the Homestead and to become thoroughly acquainted with the community and its way of life. Each applicant has a face-to-face relationship with almost every member and, if and when accepted, the new family is already a part of the social group. It is not surprising that most of the members are professionals, considering the intellectual basis of the Homestead. Among others, there are engineers, teachers, social workers, *three architects*, a minister, and a craftsman.

The 15 families now living on the Homestead have 26 children; except for 2 girls at college, all are below fourth-grade age. There is no organized nursery for the pre-school children, but the mothers take turns in conducting an informal nursery in their homes. Since the public school at Southampton, which includes high school, has no kindergarten, most Bryn Gweled children of 4-6 years are driven to a private kindergarten in Somerton (3 miles away). A school bus transports the grade-school children to Southampton. The parents are pleased with the public school facilities, and probably most of the children will be educated by the local system.

Bryn Gweled does not desire isolation from its neighbors and the homesteaders take an active interest in the affairs of neighboring communities. Their activities include the Chamber of Commerce, the school association, the county zoning committee, and public library work. Two Bryn Gweleders belong to the volunteer fire company.

COMMUTING

As with many suburban communities, living at Bryn Gweled involves a considerable amount of traveling for its wage earners. Most of the men have to commute at least an hour, going to either Philadelphia or Princeton, N. J.

Philadelphia may be reached by train or bus and train on the Reading Railroad and of course by car. Either way the trip takes more than an hour (for those who travel to the far side of the city, up to an hour and three-quarters). The Princeton trip is more complicated, costly, and time-consuming. There is car pooling for trips to the station and trips to town. Foreseeable technological change, helicopters excepted, probably will not affect commuting time or convenience.

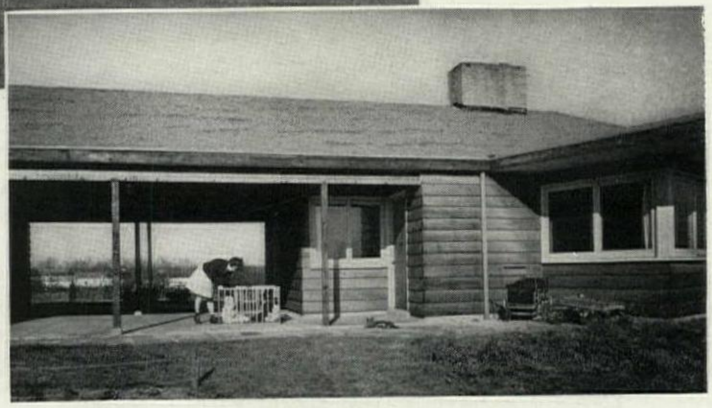
COMMUNITY FACILITIES

The Homestead depends largely upon the automobile since markets, schools, the mail, churches, and entertainment are beyond easy walking distance. The nearest stores are at Southampton. Delivery trucks and farming only partly compensate for the inaccessibility. Usually the husbands pick up necessary supplies and mail in the course of commuting. Clothing and household shopping is rare and awaits the occasional trip to the city.

The distance to the nearest movie house at Hatboro (about 5 miles away) is not significant since there is little interest in such entertainment. This is due partially to the two television receivers at the community. Neighbors drop in frequently to spend a television evening at the homes of the two engineers who have sets. The time-demands of homesteading as well as interest in the homely entertainments compensate in part for the lack of nearby commercial entertainment facilities. Of course the children are not yet of "movie age." (Query: does the Bryn Gweled experience indicate that television will eventually displace the movie house?) Although the homesteaders consider themselves within the Philadelphia metropolitan area, home tasks, raising children, and farming allow only infrequent trips to the concerts, theatres, and other cultural resources of that city. There are some cultural activities at the Homestead, however, and the community may justly be proud of the pipe organ which Mr. Fredendale is building and the celestial telescope of the Robinsons.

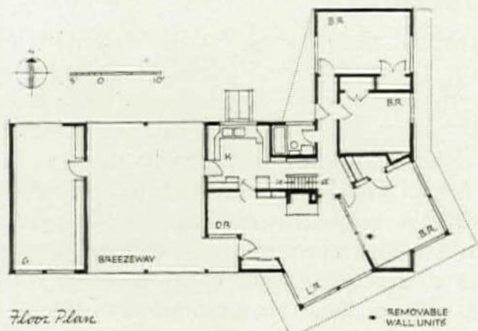
The homesteads are definitely year-around homes, and they afford more natural amenities than do most resorts; many recreational facilities are at hand. There is a temporary swimming pool, and a more permanent one is planned. For the time being, a barn serves as a community building, but a permanent center that will house a nursery, guest rooms, and a dance hall is contemplated on the same site.

The cooperative concept extends beyond land ownership. Much farm equipment is owned in common; there are community deep-freeze lockers; produce is exchanged among members; and there is a plan for cooperative farming, to be done by a hired farmer. The Homestead dances and parties also exhibit the community spirit, and a guest of one family often is a guest of the entire Homestead.



THE WILSON HOUSE

PAUL BEIDLER, Architect



Floor Plan

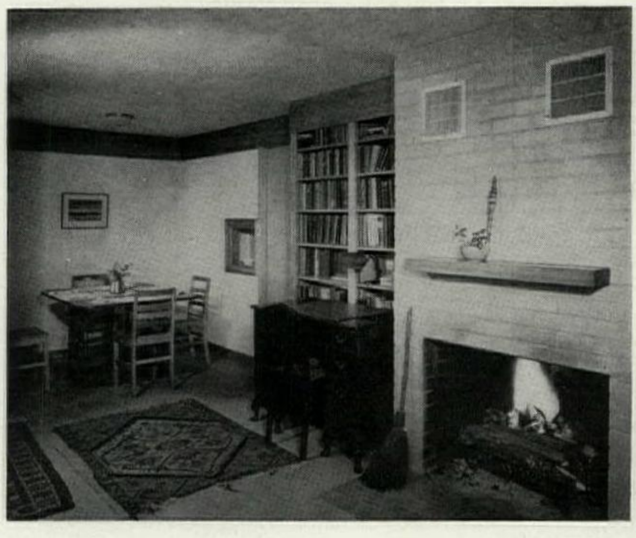
FAMILY: Social worker; wife; 3 school-age children (2 boys, 1 girl).

SITE: Top of hillock with broad views, particularly to east and south. Owners wanted flat land for lawn and flower gardens.

PLAN: Main living rooms face south. The owner tells us that the covered breezeway is "the coolest place on the Homestead; the favorite playground of the children of the neighborhood; a very usable outdoor workroom in canning time; a protected clothesyard, etc." Outside door near bathroom makes it so that one can come in from outdoors without going through rest of house. Large window areas with special bays take advantage of views. Attic space, used for storage; basement, under the kitchen-bath area. Dual-purpose rooms: kitchen-laundry; living room-dining room; study-library-bedroom.

CONSTRUCTION: Frame, on a concrete slab. House is heated by combination radiant and warm-air systems. Warm-air ducts run through the slab warming the floor en route to baseboard grilles.

The owner states: "With the help of a good architect, we feel that we got 98% of what we wanted for happy and comfortable living . . . We are tremendously enthusiastic about our house."



EVALUATION

Though the rustic setting provides a wholesome rural environment for the offspring of Bryn Gweled, it may not be a permanently satisfactory solution. Charles Ascher's article, "What Are Cities For?," in the November 1945 issue of the *Annals of the American Academy* makes an interesting point. He maintains that suburban life, offhand the easiest way to achieve the desired balance between the advantages of the city and the values of the farm, actually is the most artificial of all. Ascher suggests that "the suburban trend is really a series of cyclical movements. Young married couples move thither for the decade or more during which the growing youngsters benefit most by the country-like surroundings; but by the time they are of college age, both parents and children seek values that the suburbans do not afford." Inasmuch as most of Bryn Gweled's children will not be of college age for almost a decade, whether or not this thesis applies here cannot now be weighed.

In fleeing the complexities of city life the homesteaders have substituted sizable distances in the countryside. Their widely scattered homes set in an already isolated location tend to mitigate against the human scale they set out to achieve. Inability to reach by foot essential facilities (stores, an elementary school, a post office, church, or auditorium) prevents Bryn Gweled from becoming a complete neighborhood. Within the Homestead itself, which, unfortunately, is more a subdivided tract than an over-all community plan, the distances from one end to the other and from one house to another are considerable. It is difficult for an adult to get about the grounds without car or bicycle, and for a small child, almost impossible—an important factor for a one-car commuter family.

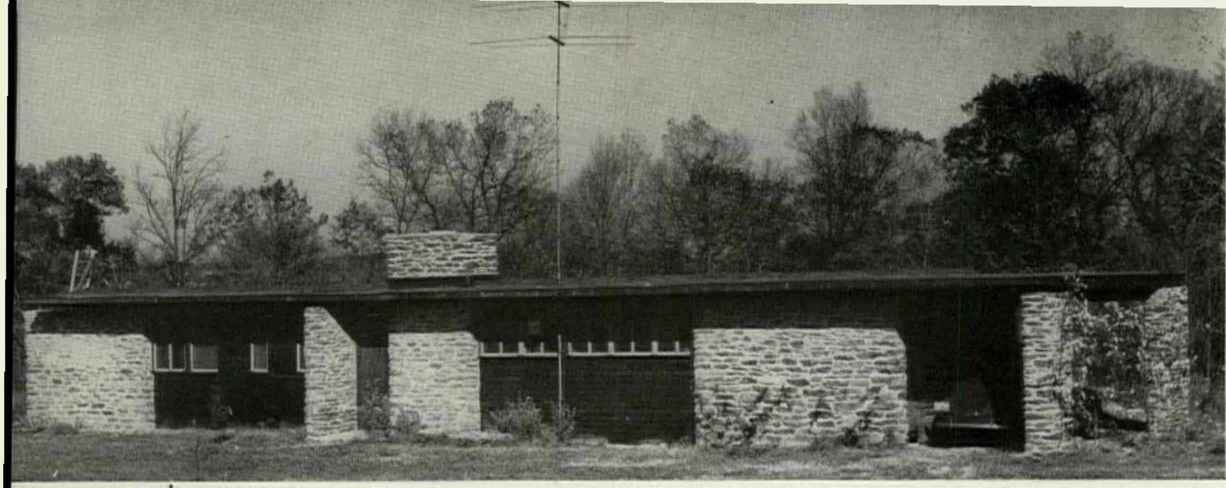
A more cohesive and rational site plan with one-acre lots might have preserved the country while guaranteeing room enough for members so that basic neighborhood facilities could be established on the Homestead. In our opinion, one-acre lots provide sufficient privacy around any house, especially when set in a park, and are about the maximum an employed person can maintain properly. Even at Bryn Gweled only one of the two acres usually is set aside for farming. Smaller home sites grouped about a green would have made it possible to set the community within a greenbelt of park and farm land. Cultivation could then be far more efficient than the present tillage of individual patches, and the community would be preserved from encroachment. Under the present plan many of the homes are right on the public highway unprotected from roadside nuisances. The more compact arrangement would have given Bryn Gweled the three-dimensional sense of community so lacking now.

Its fundamental aims put the community in a near-Utopia class but, unlike most Utopias, it is likely to succeed. Promising indications are the joint land ownership, the security the productive homes on two or more acres afford, the actual participation of the members in the physical development, the promotion of better race relations, and the lively interest in the consumer cooperative movement. Certainly the families' living standard is far higher than generally could be achieved on their incomes.

APPLICABILITY

Unfortunately, the mechanics creating Bryn Gweled are such that the community does not readily serve as a prototype for other similarly inspired groups. Aside from land ownership, the Homestead is a cooperative primarily in the social sense; savings through wholesale purchasing and building have not been generally possible. The homesteaders here were usually able to finance their homes privately or could afford the time to build for themselves, a situation not too generally prevalent. The density is too low to develop economically most land that is available, and the isolation it creates is unattractive to many cooperatively-minded individuals. Communities starting de novo generally cannot afford to hold many undeveloped tracts while waiting for amenable new members, nor is Bryn Gweled's population representative, for the children are very young and have not yet asserted "teen age" demands. Homesteading does not make sufficient savings possible to send the children to out-of-town college which is almost imperative in a community of this location and type.

Bryn Gweled as an individual community is an admirable experiment in cooperative living. However, it depends too much upon the technology, organization, and accumulated wealth of the very society it is escaping. Yet, if people are to achieve a balanced life, they have little recourse but to migrate from the towns until those who plan can make the central city sufficiently attractive to capture the initiative and energy of people like the homesteaders.



THE SCHROEDER HOUSE

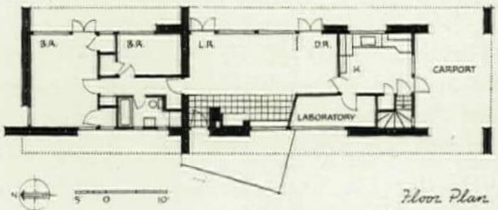
PAUL BEIDLER, Architect

FAMILY: Engineer; wife; 1 young daughter.

SITE: Fairly level; cool adjoining woods and brook provide privacy on east toward which house is oriented.

PLAN: One of the two houses at Bryn Gweled equipped with television equipment. Entrance directly into living room; bedrooms on one side, kitchen on other; workroom behind television mechanism. Whole east wall in bedrooms and living room open to terrace.

CONSTRUCTION: Built on stone foundation walls, this house has exterior walls of both masonry and frame; windows are steel sash; wood-framed roof, sheathed and finished with built-up roofing; roof construction forms a tray to hold rain water and help summer cooling.

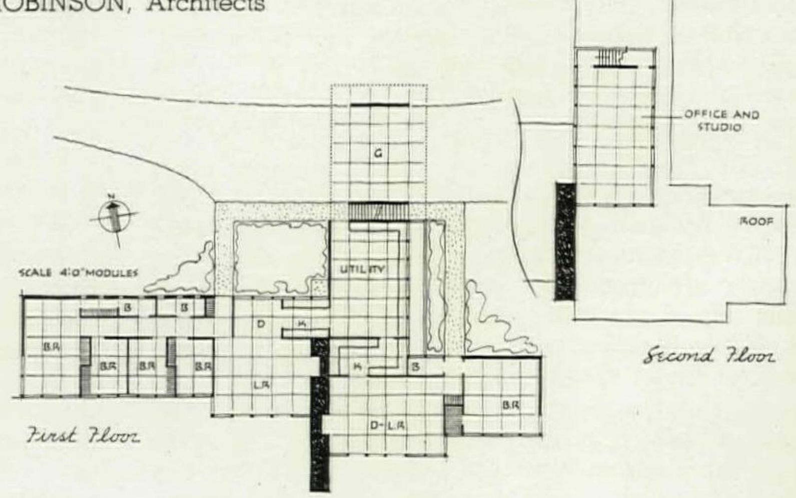


Floor Plan

THE BISHOP-ROBINSON HOUSE

ROBERT F. BISHOP and WALTER T. ROBINSON, Architects

A joint project of two of the architect-members of the Homestead group; planned for privacy of each family combined with economies of centralized utilities, maintenance, etc. The upper floor will be the architects' drafting room. The projecting masonry wall and the step-back arrangement of the two dwellings appear to be as effective as they are simple in providing the desired privacy. No visualization of the appearance of the house has as yet been made.



First Floor

Second Floor

THE ARCHITECTURE

When the original families of Bryn Gweled first discussed their Homestead development, most were thinking of typical Pennsylvania Dutch farmhouses. Paul Beidler, Robert Bishop, and Walter Robinson, architects who joined the group as members, lectured on and showed color slides of famous modern homes and finally convinced most of the homesteaders to have their houses designed "from the inside out." The community's realization that progressive social ideals merit progressive architecture gave their architect-members a rare opportunity.

Community control of design, through the Site Planning Committee, consists simply of reviewing the location of the house, full freedom being permitted in design. There is at present one large "Colonial" house, and at least one other traditional house is planned for the future. The effect of a community of contemporary homes, however, has created a general pattern to which most of the new members intend to conform.

The ten houses, designed severally by four architects —Beidler, Bishop, Robinson, and Cornelius Bogert —and built individually, possess a unity based on their fitness to the land. Though there is little similarity in roof lines, or in specific proportions of glass, wood, stone, or cinder-block, the consistently high quality of design, and the appropriateness of materials create a bond more interesting and significant than standardization could produce. A street scene in Bryn Gweled, if the present trend continues, will give a unique and reasonable glimpse into the future —each house according to its owner's and architect's tastes but in harmony with its neighbors.

The contemporary homes at Bryn Gweled were created without any preconceived images; simply out of the client's requirements for living. The homesteaders are proud that in many cases they had no clear idea of the house exterior before it was built, the *plan* and the functioning furnishing the bases for discussions with the architects.

The owners are almost invariably enthusiastic in their appreciation of their homes and the only frequent "if I did it over agains" are: less petty economy, even more rigid attention to functioning (especially circulation and furniture grouping), and more freedom for the architect. They regret especially the penny-pinching which wartime conditions necessitated—reduced dimensions, substitute materials, small entrance halls (if any), too few doors.

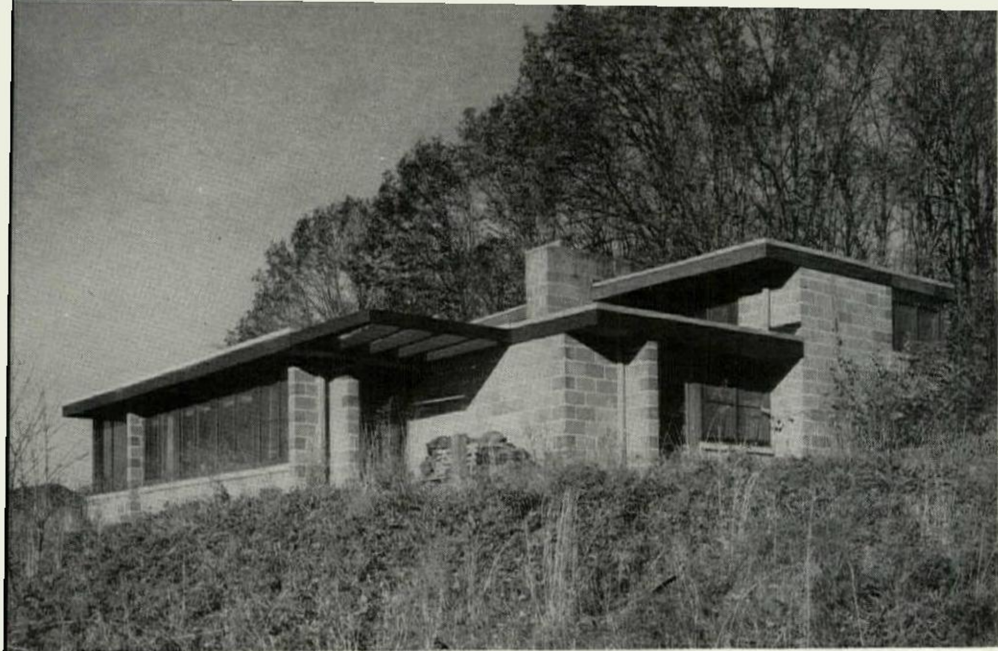
Contracting troubles, the chronic disease of contemporary architecture in the East, were particularly acute at Bryn Gweled due to the war. Some members served as their own contractors and met the problems of unsympathetic subcontractors directly. In one of the two panel-heated houses a separate contract had to be let or the Fredendalls would have had to change to hot-air heating (which their contractor "understood").

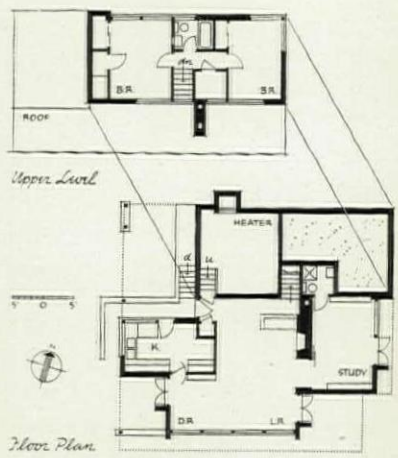
The great amount of labor which the owners themselves put into building their homes, contracting, supervision, actual construction, and site development, makes cost comparisons difficult. The completed houses ranged in cost, including the owner's estimate of his own work, from $7,000 for the smallest and most economically planned house (Singley) to $13,750 for the Morris house which originally (1941) was contracted for $7,000!

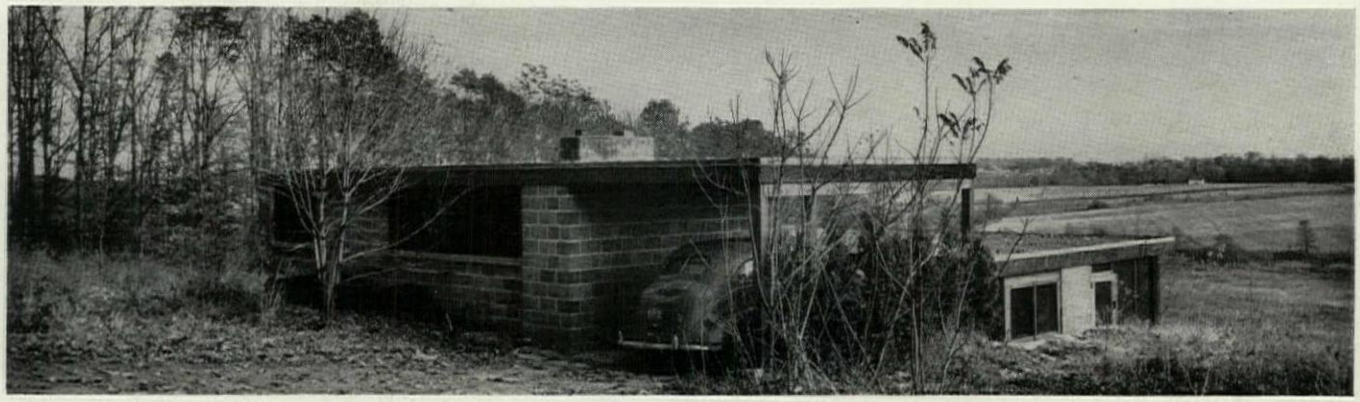
Very little site development is included in the cost figures because in most cases the owners built their own driveways, set out their gardens, and leveled their lawns after moving in. Moreover, except for four houses, there is no formal landscaping and the fields come right up to the front doors.

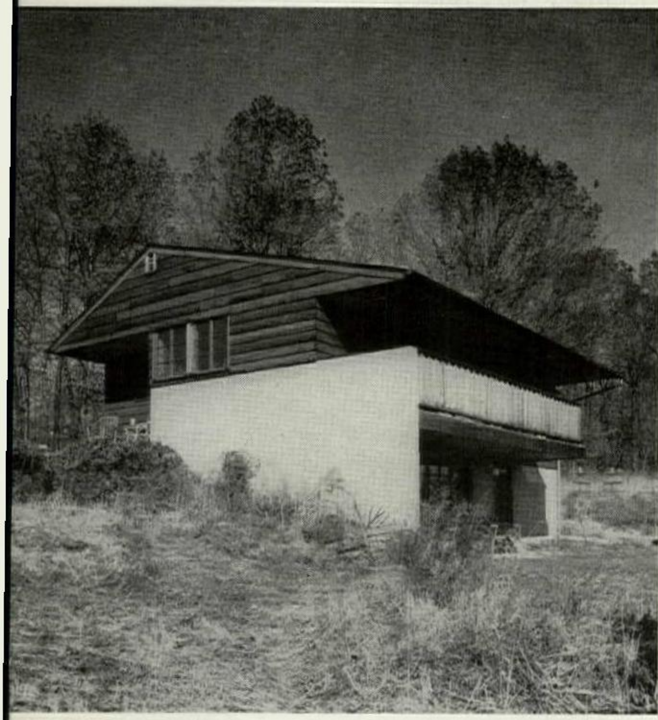
Although the community had hoped to help in the financing of the houses, it was impossible to create a large enough revolving fund. Because of the banks' need for foreclosure rights (two houses were bank-financed), the constitution of Bryn Gweled was altered to permit seizure of the house and its own lot should the community itself be unable to buy the mortgage. In both cases, the banks (unlike contractors) expressed more disapproval of the community organization than of the architecture!

The community's experience is a good indication that people unused to modern architecture can be educated and completely "sold" on it by reasonable architects who understand what a family wants. In this case, too, the unusually fortunate situation of close personal connections with the architects may have been partially responsible for the successful results.









THE SINGLEY HOUSE

ROBERT F. BISHOP and PAUL BEIDLER, Architects

FAMILY: Minister; wife; 1 daughter, in art school; 1 daughter, at college; 1 youn daughter.

SITE: A hillside sloping to the south; access road on the north. Closeness to pu road, important for a minister, who may be called out during bad weather.

PLAN: Easy maintenance and low cost were guiding plan factors; over-all dimensi determined by economical use of stock lumber sizes; flue provided for living-room place, which will be built later. House arranged on two levels, living and ma bedroom face south and open onto deck running full length of house. Large kitc offers exceptional storage and work space. On the lower level, two bedrooms and stair hall line south wall. Heater and utility room, built into the hill at rear.

CONSTRUCTION: Lower floor walls, cinder block; above, construction is frame, horizontal wood siding. House is thoroughly insulated.

THE RAMBERG HOUSE

ROBERT F. BISHOP, Architect

LIVING ROOM

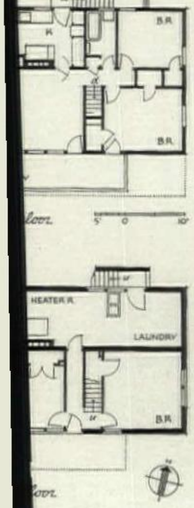
FAMILY: Physicist; wife.

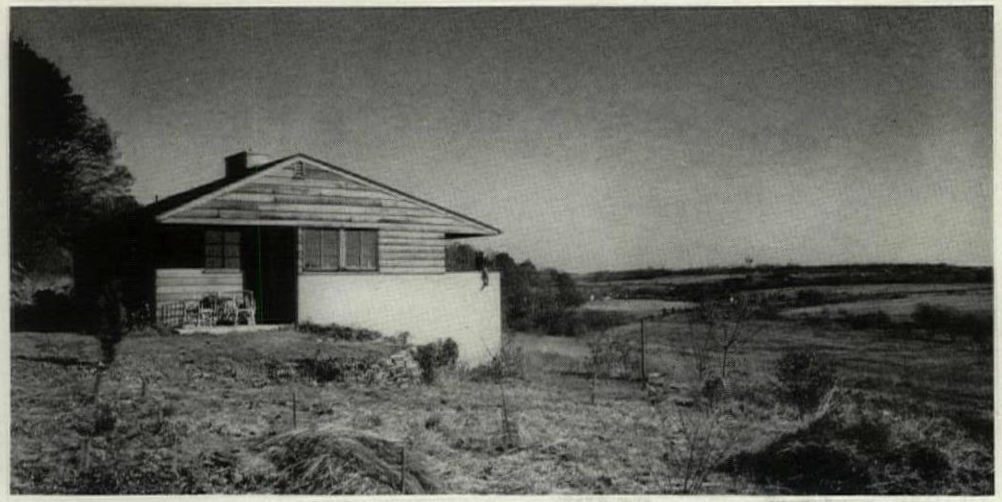
SITE: Hillside sloping to the south, naturally protected from the north.

PLAN: Arranged on two levels to conform to site slope; bedrooms with cross ventilation on upper level; main living space, study, and kitchen on view side of lower level. Chief design wish was to integrate house with its site; terrace doors on side occur at points where floor level and grade meet. Plan for developing site is to use only indigenous materials that will yet further tie house with site.

CONSTRUCTION: Cinder block walls, unfinished except for water-proofing. Panel heating system in concrete floors. Roof, wood-framed and insulated, surfaced with built-up roofing.

DINING AREA





THE MORRIS HOUSE

THE FREDENDALL HOUSE

ROBERT F. BISHOP, Architect

FAMILY: Engineer; wife; 2 young children (boy and girl).

SITE: Gentle hillside, sloping to the north and best view; woo

PLAN: Main rooms oriented to north and view; southern s light, and cross ventilation come from pairs of glazed doors end of living room (under open trellis) and from clerestory tending from kitchen wall across width of living room. Lo kitchen and big storage closet, typical Bryn Gweled featu Heater basement, under kitchen-dining space. Like the Schroe house, this house is equipped for television. Mr. Fredendal constructing a pipe organ in space formerly occupied by car

CONSTRUCTION: Concrete block. Heating is a floor-panel sys

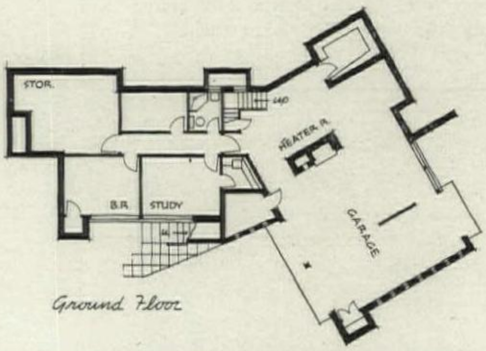
PAUL BEIDLER, Architect

FAMILY: Husband; wife; 3 boys; 1 girl.

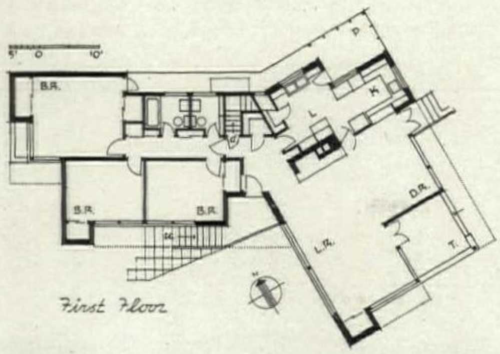
SITE: Slope toward south; adjoins a brook and woods.

PLAN: Floor area shaped to conform to existing contours; also to bring major rooms into most favorable orientation. Slope allows above-grade garages and two family rooms on south side of lower level. Upstairs, the big L-shaped living-dining room opens onto protected southeastern terrace-porch. Central entrance hall provides privacy and good separation between living and sleeping areas. Clerestories give added light and cross ventilation. A rather extravagant detail is projection of closets outside normal building envelope to form, on the exterior, piers of masonry.

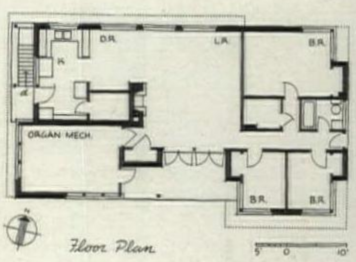
CONSTRUCTION: Concrete block, except for portions around windows, where frame with wood siding is used.



Ground Floor



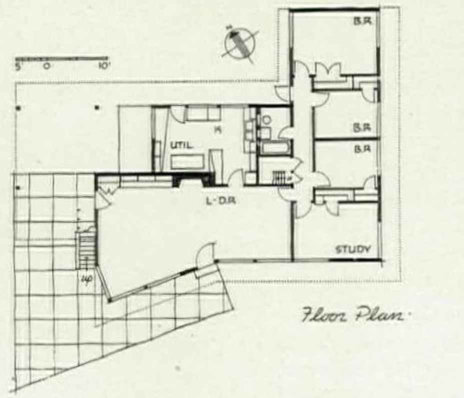
First Floor



Floor Plan


LIVING ROOM


DINING AREA



THE NEWTON HOUSE   PAUL BEIDLER, Architect

FAMILY: Social worker; wife; 2 young daughters.

SITE: Woods to northeast; pleasant country views in every direction.

PLAN: Second-story porch with fireplace, an unusual requirement, worked out here to be reached by outside stair. Attic includes both general storage and dormitory space for outdoor sleeping. Living-dining room, angled out to catch the sun and view. Combination workroom, utility room, and kitchen. Bedroom hall serves study. 3 bedrooms and bath; also large storage closet from which a ladder gives access to attic. No basement.

CONSTRUCTION: Frame, with exterior surfaces of siding applied both horizontally and vertically; wood sash.

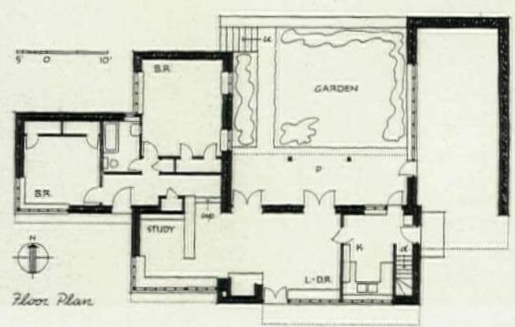
THE LAMPE HOUSE   PAUL BEIDLER, Architect

FAMILY: Teacher; wife (dental technician).

SITE: Gradual slope up to north; most agreeable outlook to south; selected to incorporate existing old stone walls into house; also for good picnicking grounds.

PLAN: In describing this and other of the houses he designed for Bryn Gweled, the architect states: "South walls were opened to the sun and view; it never occurred to me that I was designing solar houses, although this appellation might be used." Big general living room is partially divided by projecting partition around study area, which also shields old upright piano from view. Placement of entrance door in bedroom hall gives dual use to space usually restricted to bedroom access. Windows in one of the bedrooms, the living room, and kitchen look out on walled, sunken garden at rear.

CONSTRUCTION: Walls chiefly of stone; portions above windows framed and finished with boarding. On the interior, all masonry portions are left exposed; framed portions are plastered.

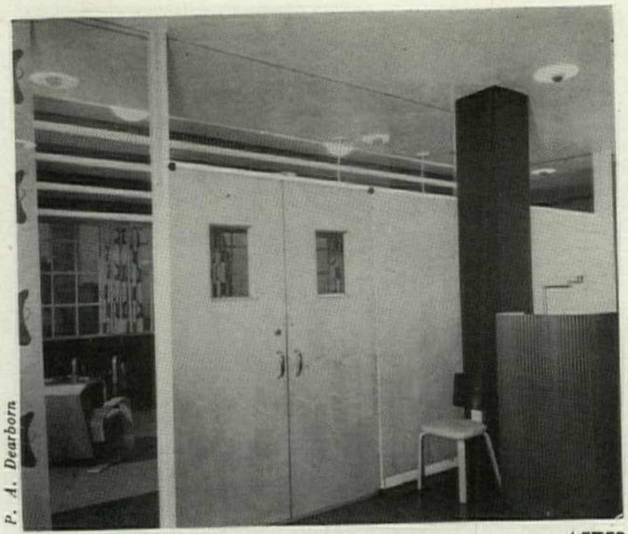


P. A. Dearborn

DISPLAY PARTITION

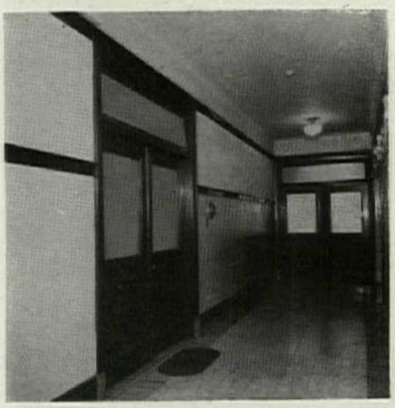
(DETAILS on next page)

ARTEK-PASCOE, Designers
JEDD STOW REISNER, Architect Associated



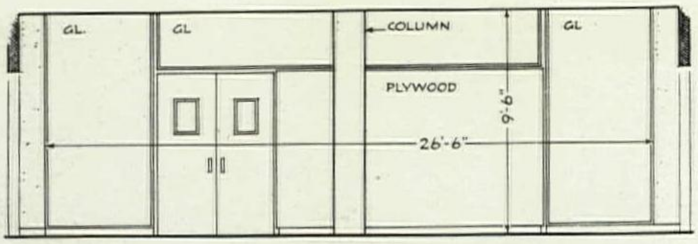
P. A. Dearborn

AFTER

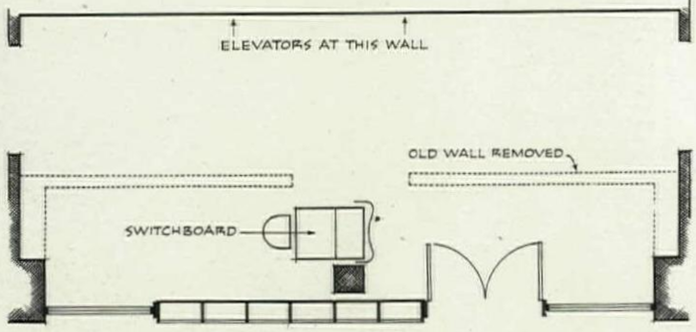


BEFORE

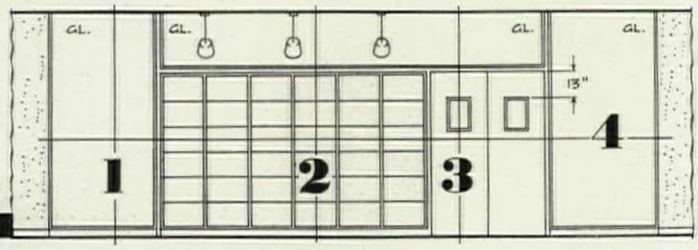
ARTEX-PASCOE *Designers*, JEDD STOW REISNER *Architect, Associated.*



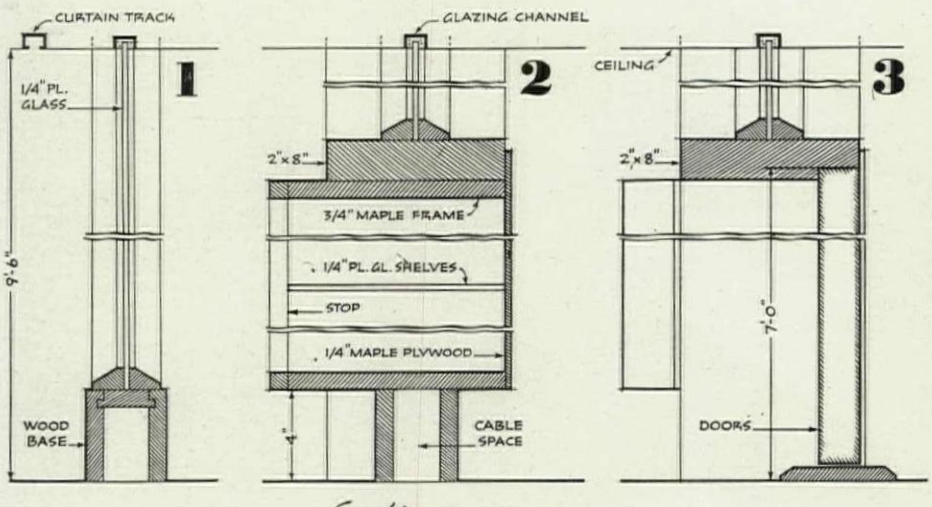
Lobby Elevation 1/8" SCALE



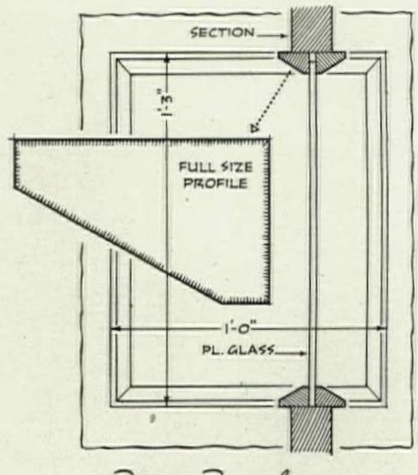
Plan 1/8" SCALE



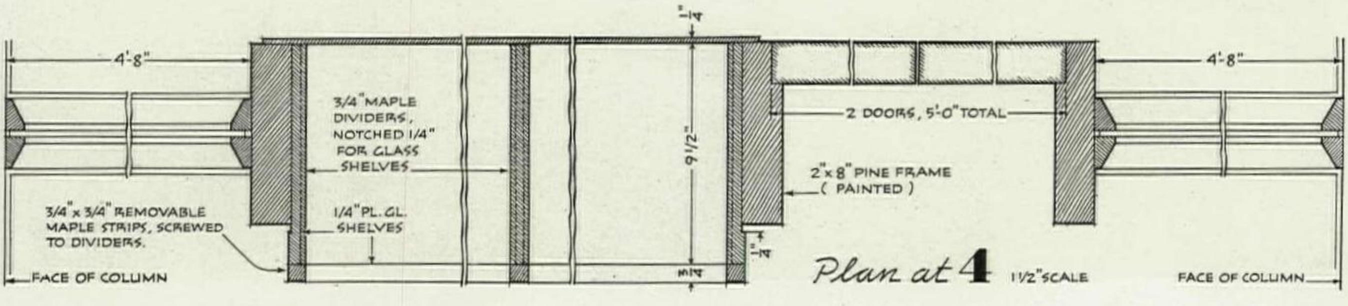
Elevation 1/8" SCALE



Sections 1 1/2" SCALE



Door Panel 1 1/2" SCALE



Plan at 4 1 1/2" SCALE

DISPLAY PARTITION

(PHOTO on preceding page)

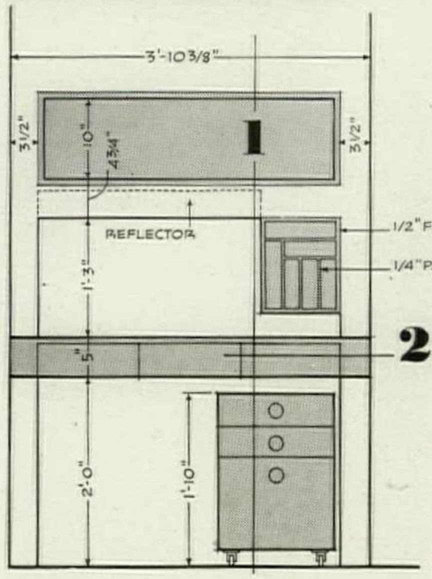
Rodney McCay Morgan

STUDY CORNER

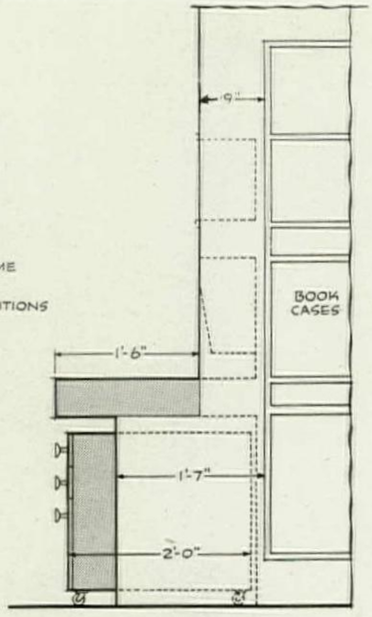
(DETAILS on next page)

FELIX AUGENFELD, Architect

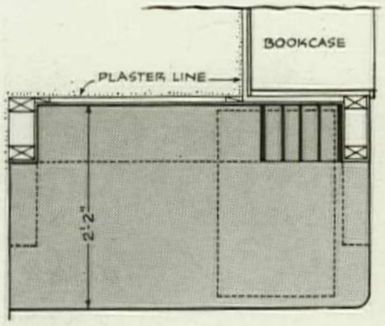
FELIX AUGENFELD *Architect*



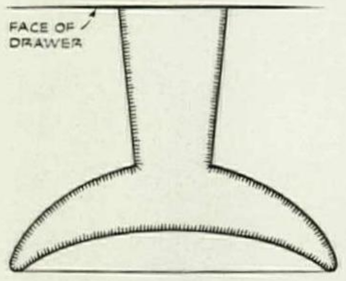
Front 1/2" SCALE



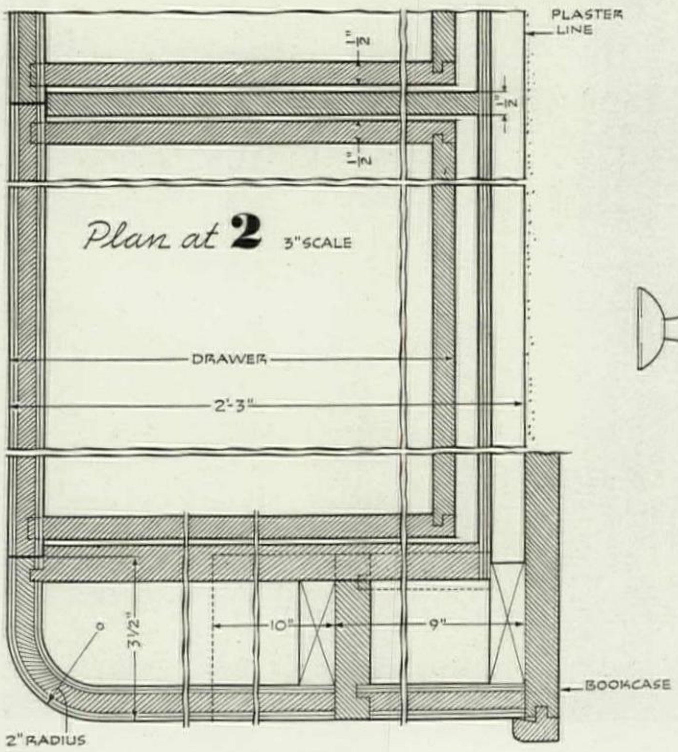
Side 1/2" SCALE



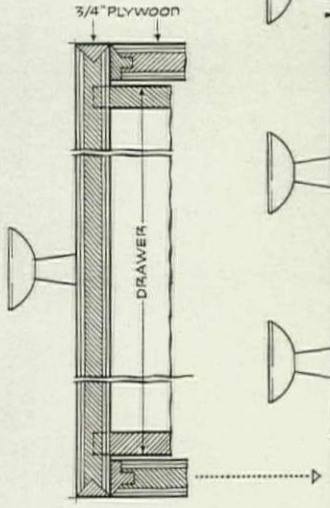
Plan 1/2" SCALE



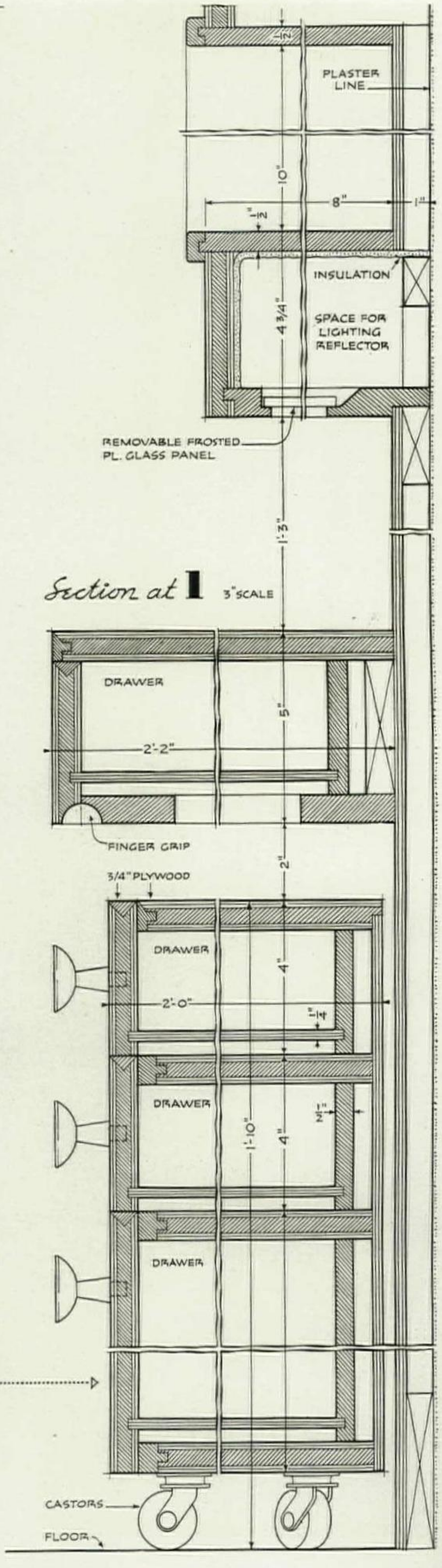
Drawer Pull FULL SIZE



Plan at **2** 3" SCALE



Plan



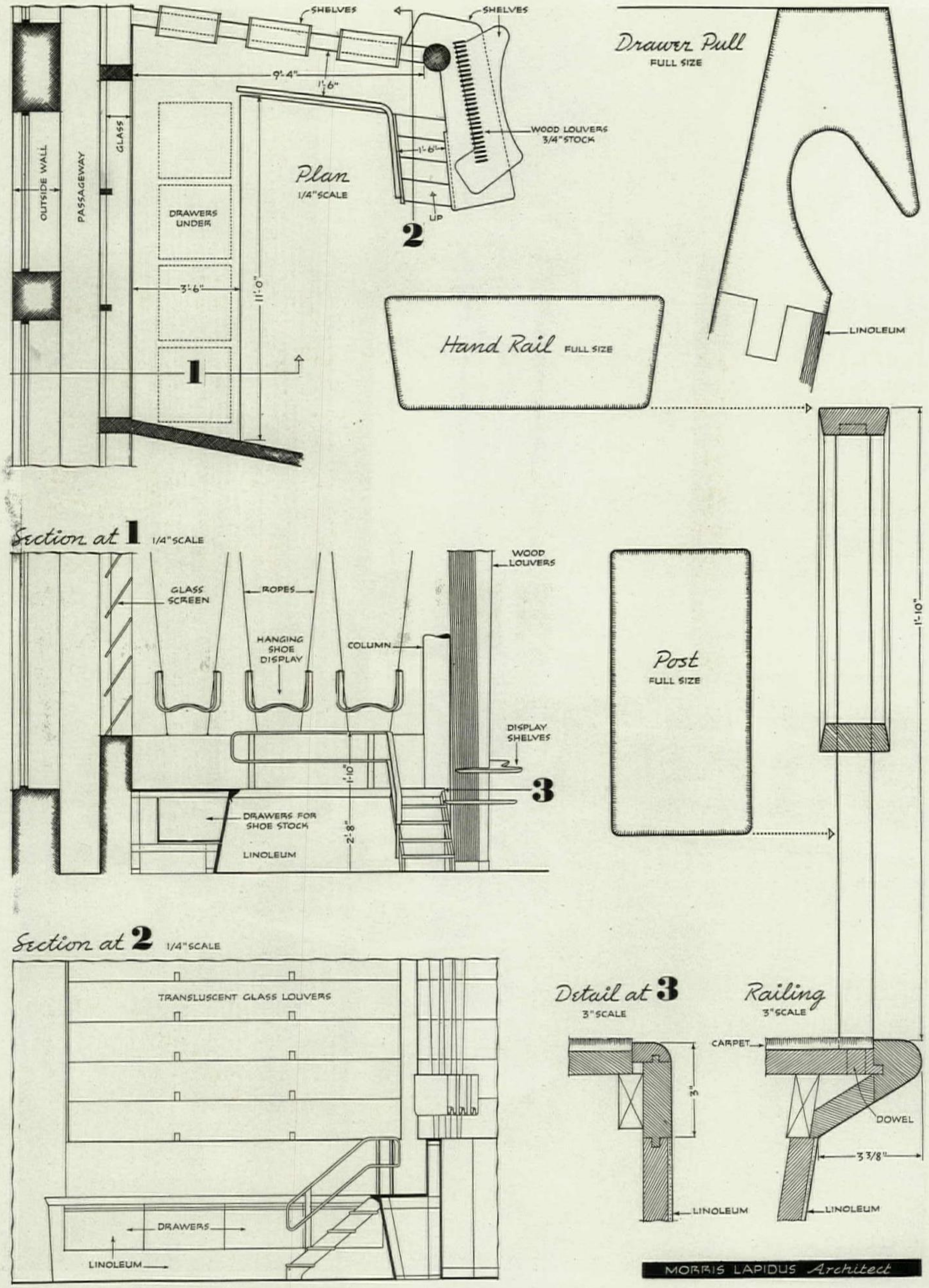
Section at **1** 3" SCALE

STUDY CORNER

(PHOTO on preceding page)

CHILDREN'S SHOE SALES UNIT

(DETAILS on next page) **MORRIS LAPIDUS, Architect**

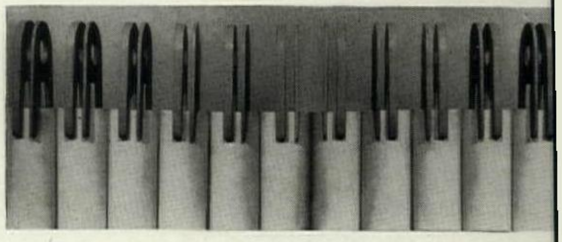


MORRIS LAPIDUS *Architect*

CHILDREN'S SHOE SALES UNIT *(PHOTO on preceding page)*

MOBILAR STRUCTURES

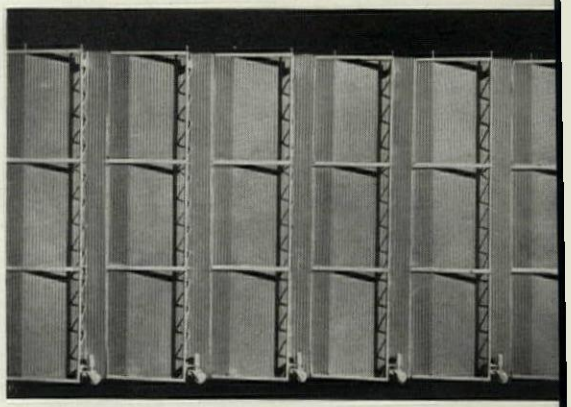
KONRAD WACHSMANN invents a structural system employing standardized tubular structural members and movable walls



STRUCTURAL ELEMENT

+

MOVABLE WALLS



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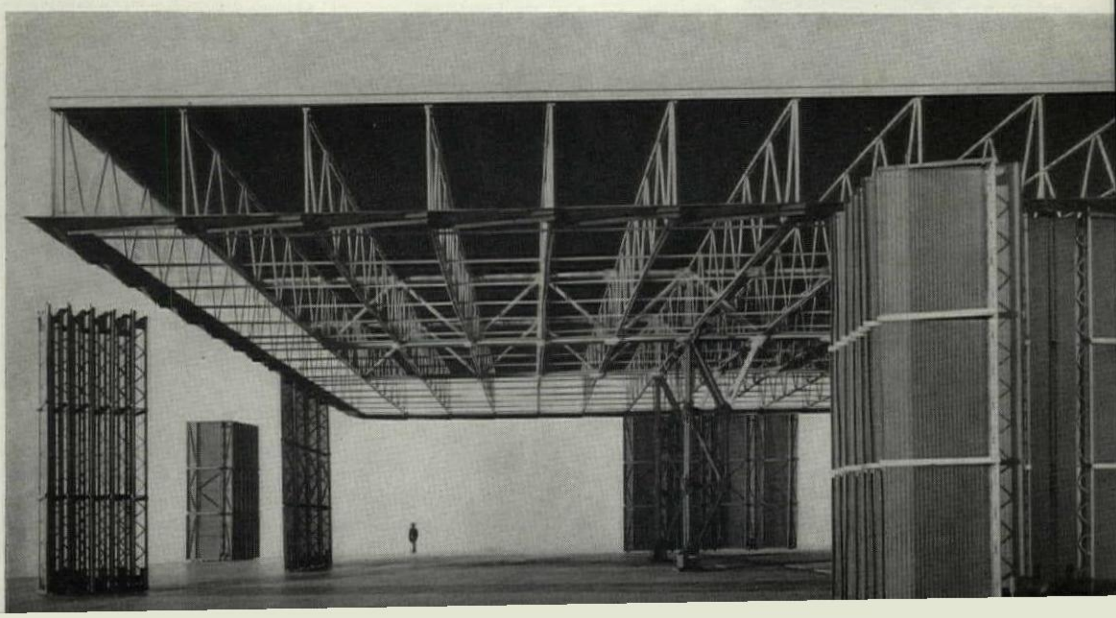
MOBILAR STRUCTURES

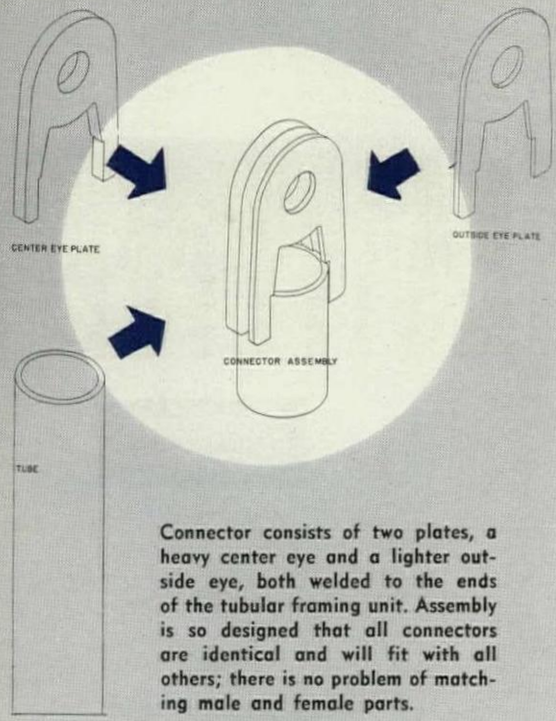
The search for the most economical method of construction is more essential now, in a period of complex mechanical development, than it was in the past. We in America learned that even before the late hostilities began. We are learning it again as we reconvert to peaceful pursuits: building materials are scarce; our normal activities are cramped by existing fixed enclosures and by column spacings designed for alien purposes; new construction is costly.

Konrad Wachsmann, architect, inventor of "The Packaged House" (see New Pencil Points, April 1943), founder and now president of the General Panel Corporation, was in Grenoble, France, in the winter of 1938. Dissatisfied with current methods of utilizing materials to span large floor areas and wall them in, he there conceived the basis for Mobilar construction. The system has two parts: standardized framing members consisting of steel tubes of constant outside diameter with simple connectors welded to both ends; and mobile wall panels which can be detached from or secured to the structure at will. For the last year and a half Mr. Wachsmann and two partners, Charles and Albert Wohlstetter, have had a force of engineers and designers at work perfecting the system, under the aegis of Atlas Aircraft Products Corp. Paul Weidlinger, brilliant young engineer who has been, among other things, Chief Engineer for a department of the Bolivian Government, was in full charge of engineering development. The system has been carefully checked by independent engineers.

Patents pending on Mobilar Structures and all components.

Photos by ANNA WACHSMANN





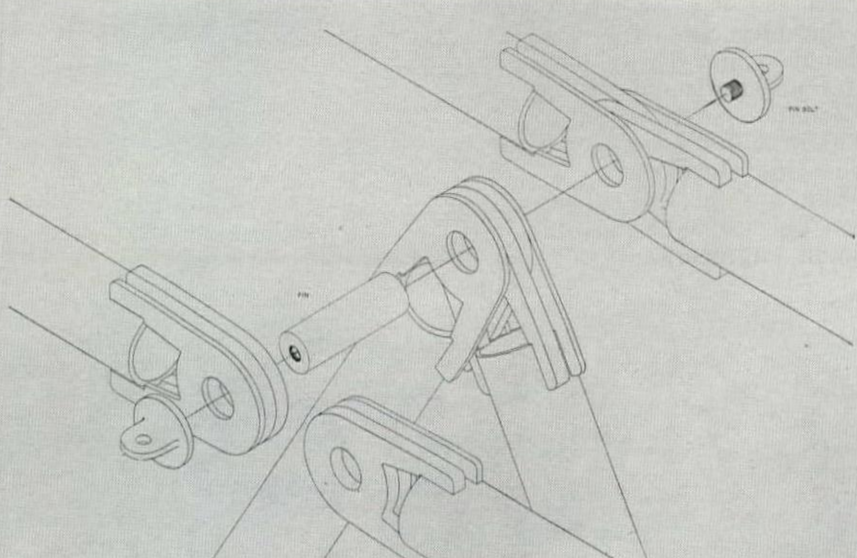
Connector consists of two plates, a heavy center eye and a lighter outside eye, both welded to the ends of the tubular framing unit. Assembly is so designed that all connectors are identical and will fit with all others; there is no problem of matching male and female parts.

MOBILAR CONNECTORS

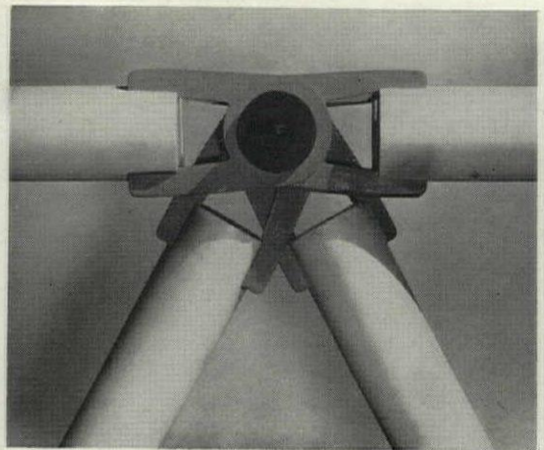
Tubular members were chosen as the basis of Mobilar construction because the tubular shape is extremely efficient; a comparatively thin-walled tube will withstand great compressive stress. The design problem centered around a new type of connector; neither threaded nor welded joints met requirements.

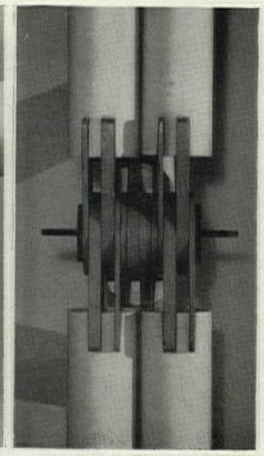
In designing the system, the aims were to obtain a structural element of standardized size and shape, with a high strength-to-weight ratio, capable of being assembled, erected, or disassembled simply with a reasonable minimum of technically skilled labor, and of such nature that comparatively few mass-produced types would be required to erect even a very complex structure. From an engineering standpoint there appear to be no limitations on the shape or size of structures built of Mobilar units.

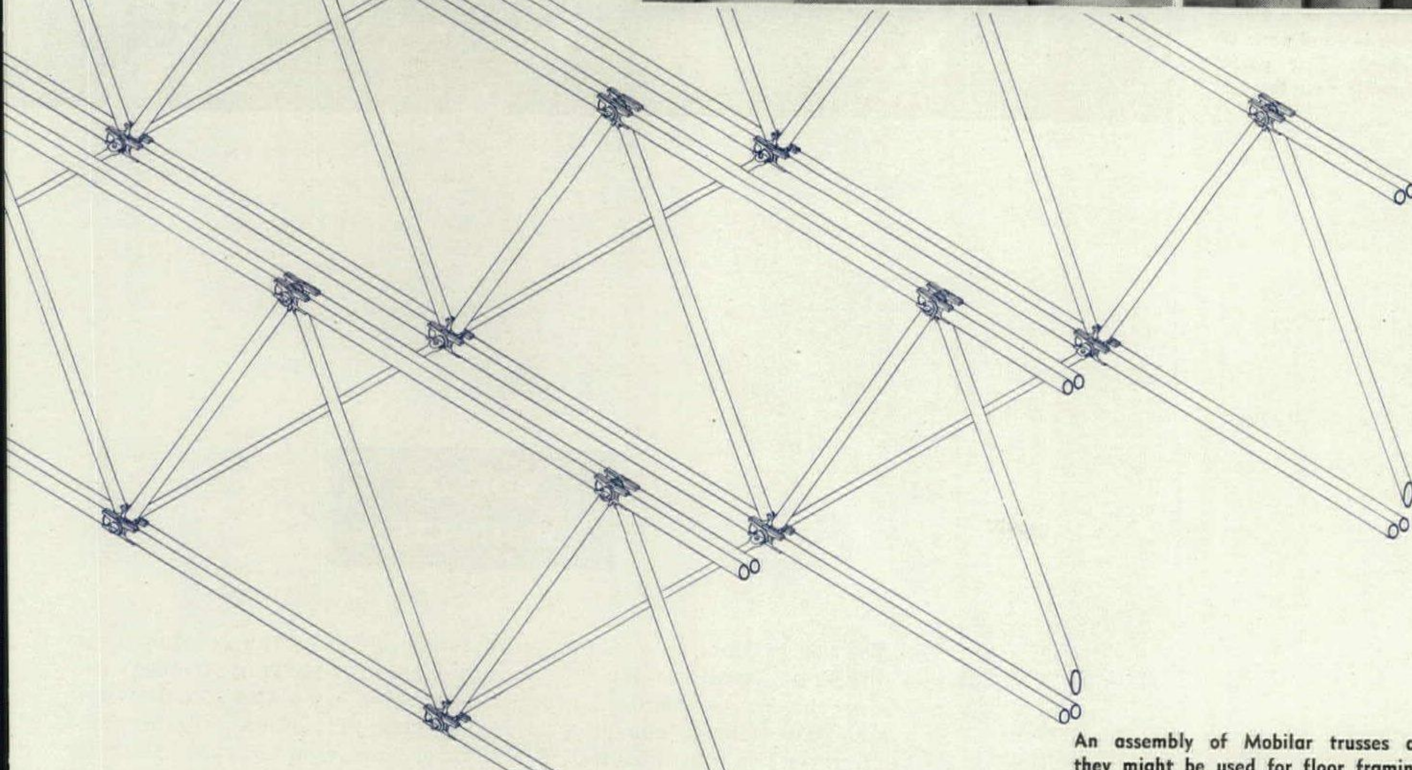
Connectors are so placed that inner face of "center" eye is on diameter of tube; this causes stresses to be transmitted directly along the tube's axis, eliminating eccentric loads.



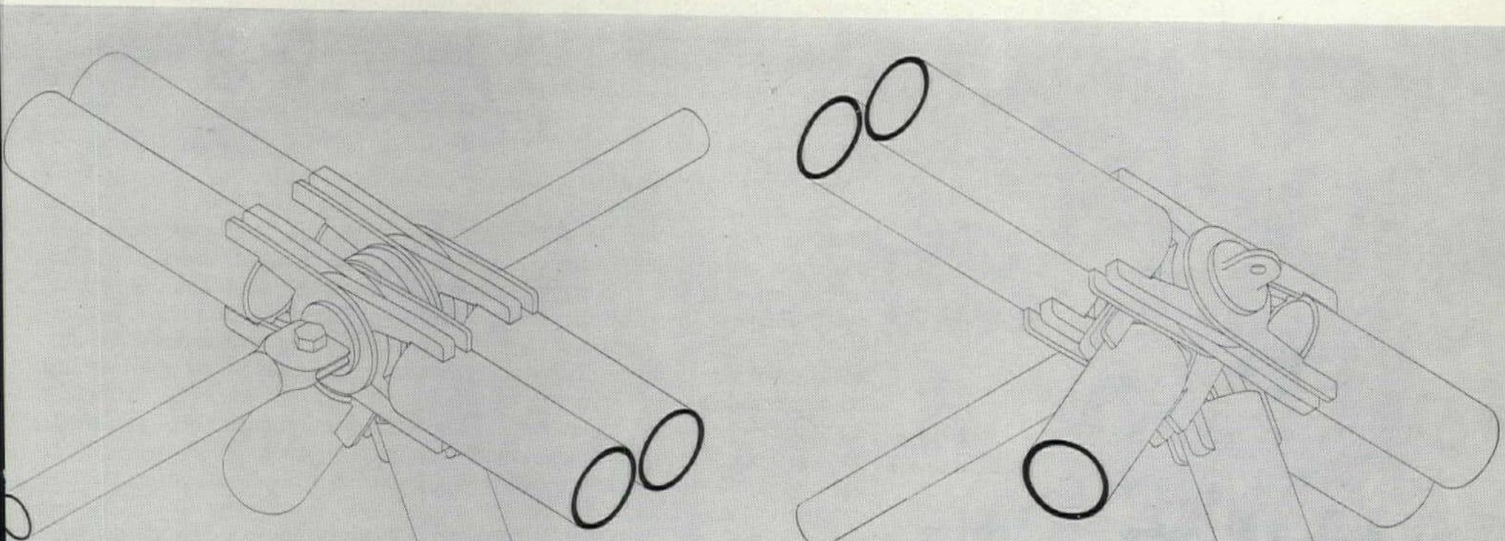
Pin-connected assembly allows wide choice of geometric shape of trusses. Pins act as beams held in equilibrium by uniformly distributed loads of varying intensities, transmit increment of stresses from one truss member to the next. Joints symmetrical in the plane of the truss, as above, are desirable to produce symmetrical pin loading.



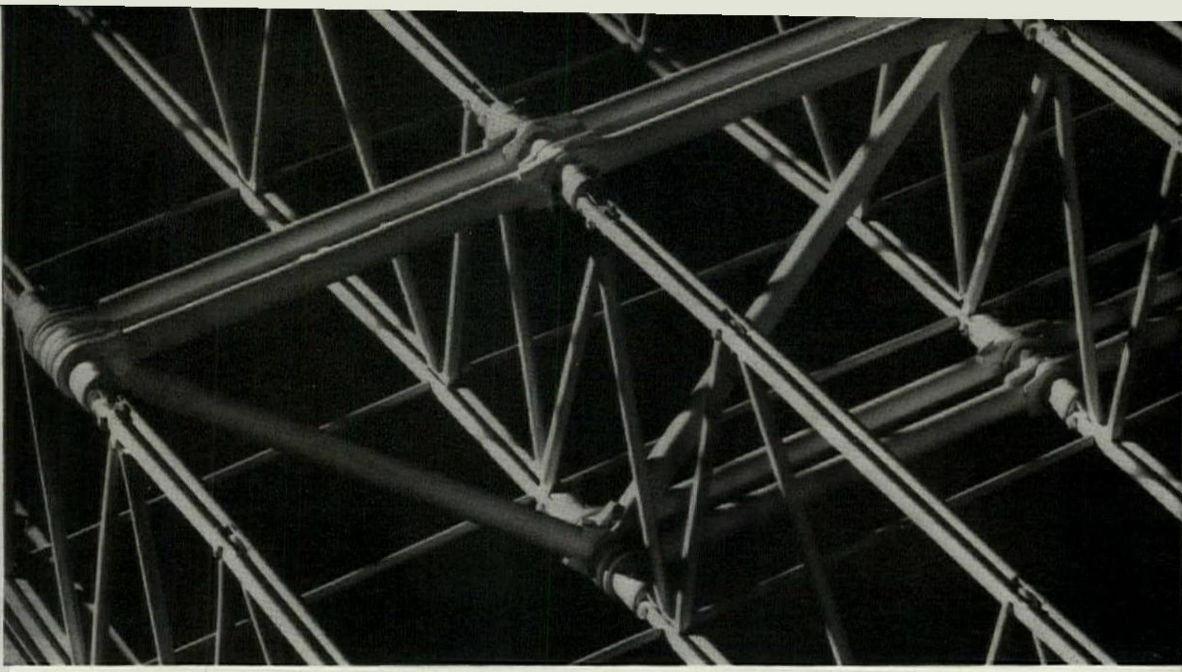




An assembly of Mobilar trusses as they might be used for floor framing or roof purlins, with bridging between.



The assembled truss-joint shown in the two drawings above has a chord composed of two identical, parallel, Mobilar units; web members are single units of the same outer diameter. Additional strength is provided where needed by thickening the wall of the tube rather than by increasing its diameter. Eyes in bolts at ends of joint pins are for attachment of other materials to the structure; for example, the bridging pieces shown at left above.



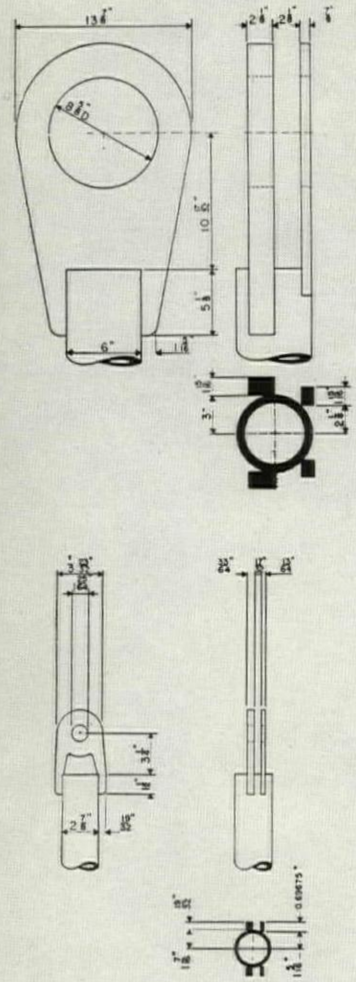
Photographs of a scale model of a Mobilar assembly show heavy main trusses, with chords consisting of two, three, or more large-diameter tubes, and lighter purlin trusses. At present, tubes of two outside diameters, 2⅞ in. and 6 in., appear to satisfy all conditions; further refinements may lead to adoption of a single diameter for all purposes. Note that main truss-joint pins become integral parts of purlin truss chords, that purlin trusses thus literally pass through main trusses.

MOBILAR CONSTRUCTION

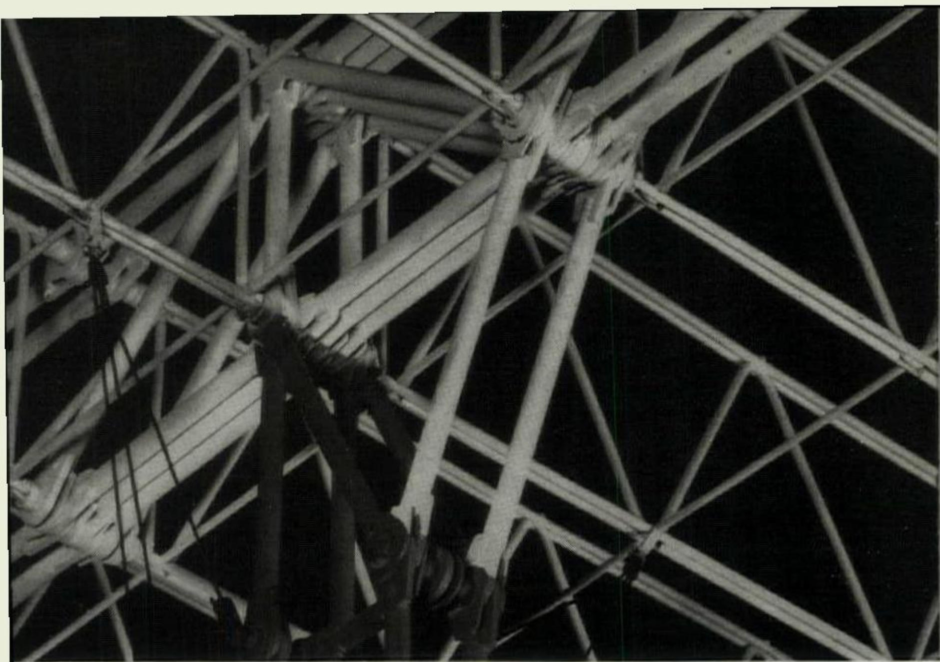
The use in Mobilar construction of tubes in one or two constant outer diameters (with varying tube wall thickness for varying stresses) permits the use of standard types of connector eye-plates, secured with standard welds to members having varying properties. Furthermore, wherever the wall thickness of a member cannot be increased to transmit the required load, it can be reinforced with similar, parallel members (see drawings and photographs on these and preceding pages). Such a design approach implies a high degree of standardization in both manufacture of the elements and their actual use in construction.

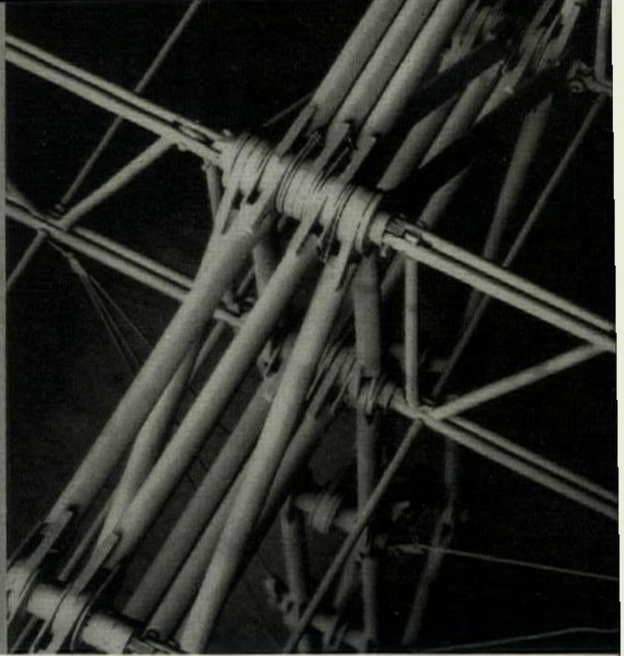
In practice, the connectors might be die-stamped or forged; assembly of structural units from a length of tubing and two pairs of connectors might be done in a shop, or the parts might be stocked, shipped to the job, and pre-assembled in the field. Whatever the method, manufacture of such parts is a simple repetitive process and their fabrication into structural units, likewise standardized, would require only a few simple jigs, fixtures, and techniques.

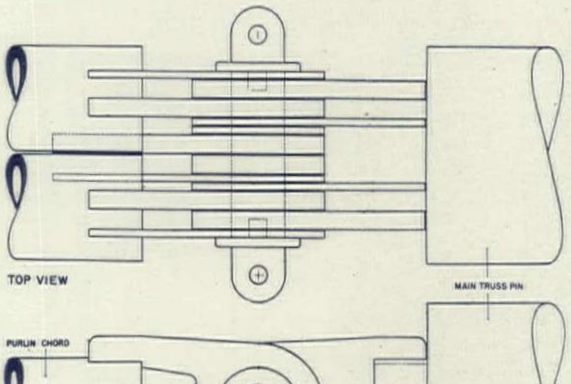
The system also requires a standard length of unit: 8 ft, which thus becomes a module. Because, in comparison to accepted framing methods, Mobilar construction is extremely light for the loads carried, long spans, extensive cantilevers, etc., become practicable; the system becomes suitable for any type of structure in which such considerations are a factor—for example, large buildings, hangars, factories, assembly halls, storage warehouses, railroad stations, sports arenas, or any building where a large unobstructed area is required; also engineering structures such as bridges, towers, grandstands, etc. In addition, many variations are possible if some of the fundamentals are modified; for instance, in certain cases members may be used, as at the ends of pin assemblies, with single instead of double eye-plates; or eccentric eye-plates may be employed for special joints; or stirrups, U-plates, etc., may be used to assemble units in differing planes or to attach conventional framing or walling materials, roofing, decking, and the like.



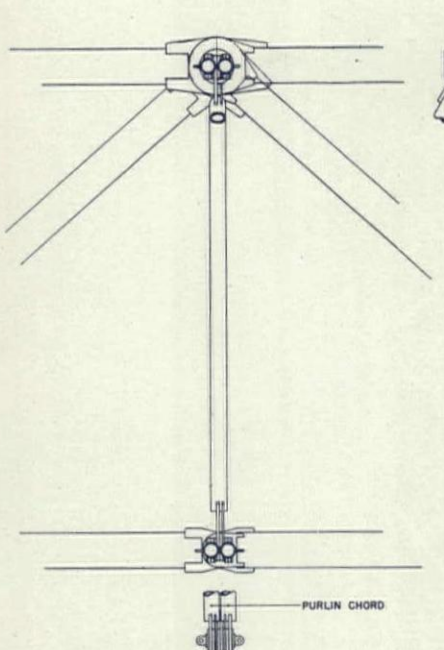
Two of several variations possible in design of connectors for different conditions.

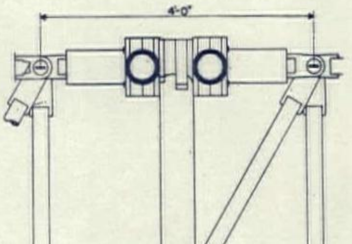




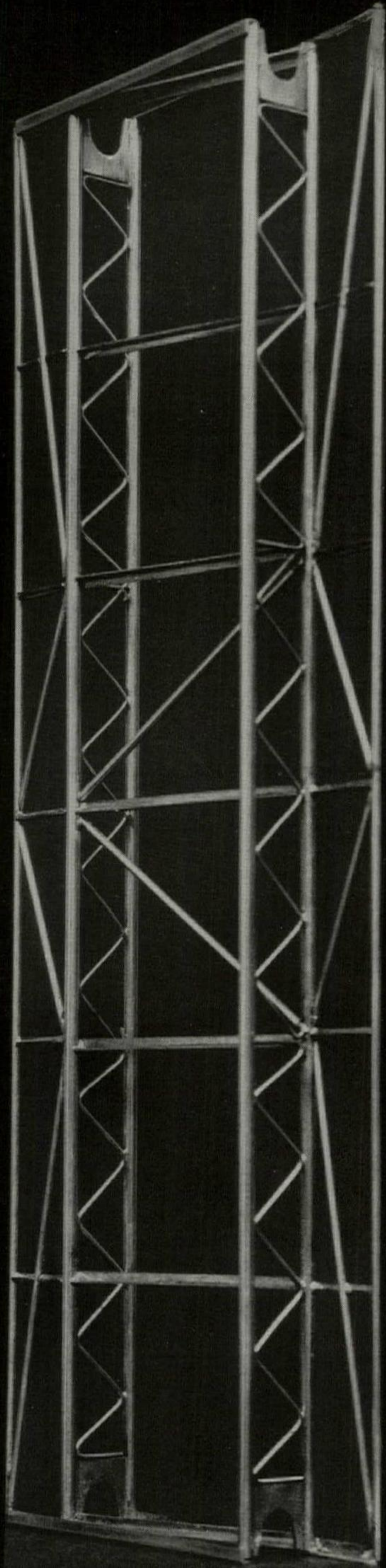


Top and side elevations of a joint of the heavy main truss (see photograph of model) show it to be no more complex in principle than the joint of a light truss which appears on preceding pages. Also demonstrated is the method of joining tubing of different diameters.



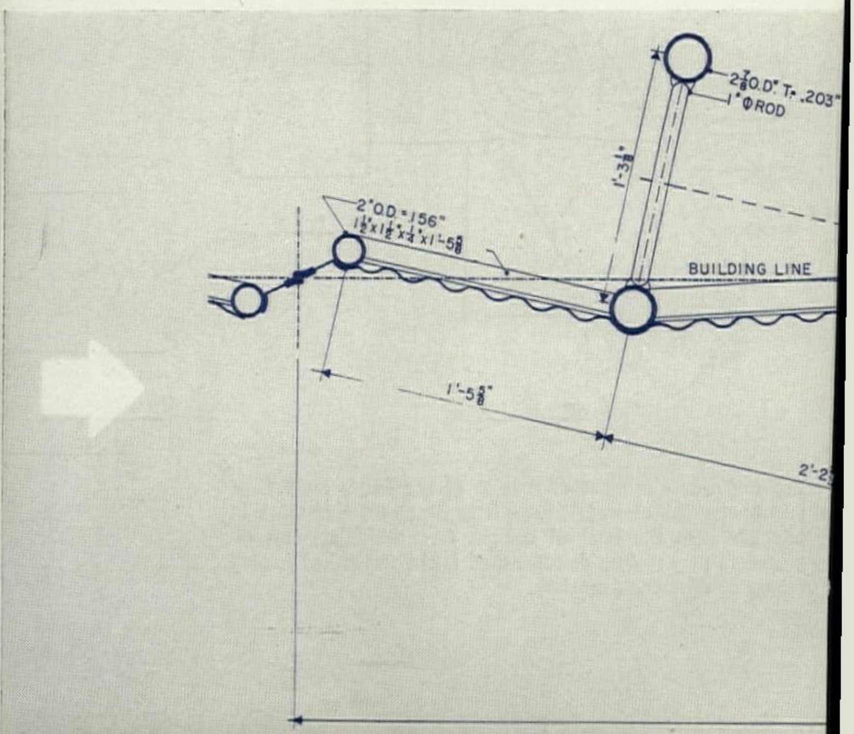


Plan, elevation, and section at the intersection of main and purlin trusses show the joint detailed above used in an assembly.

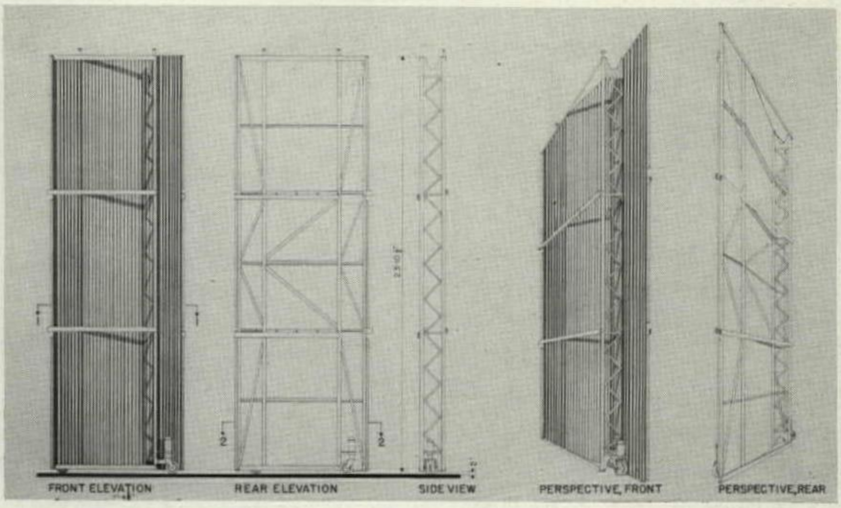


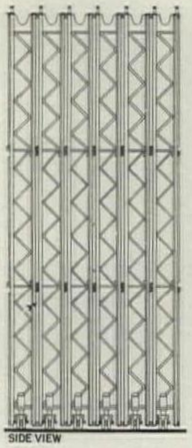
MOBILAR WALLS

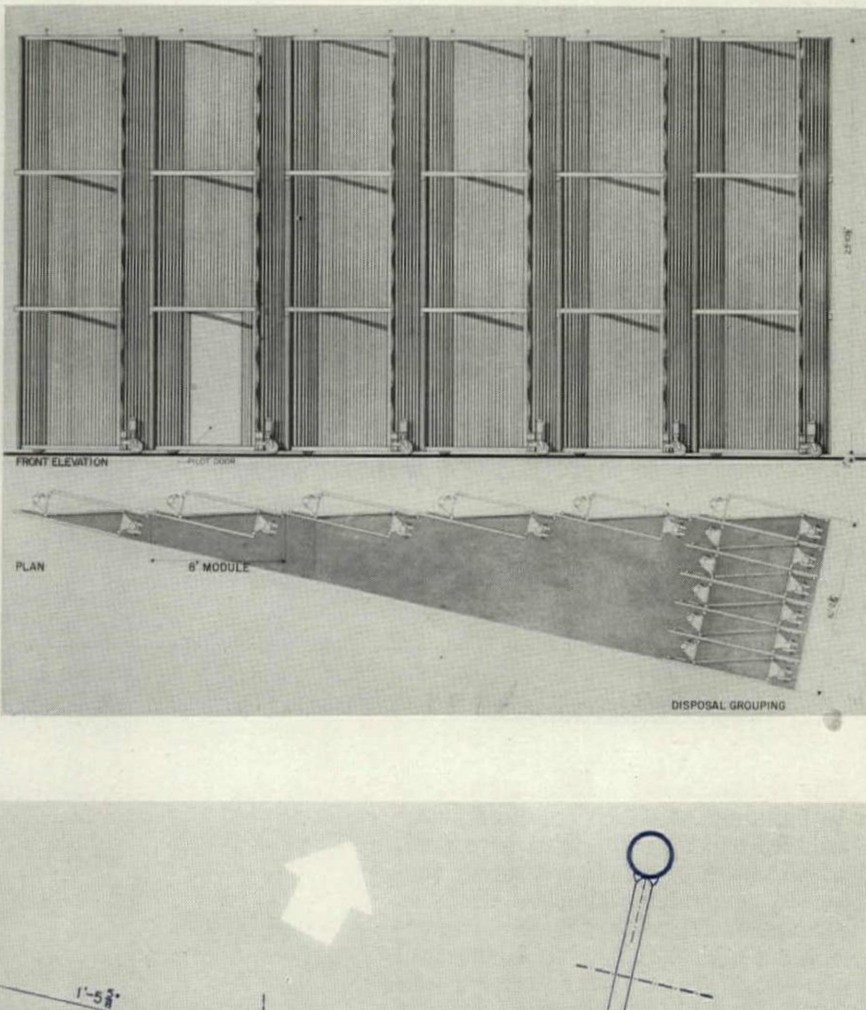
The walls which enclose and complete Mobilar Structures are, like the structural system, a departure from the conventional, although they have been approached in principle in many door-assemblies, notably for hangars. But no such approach has yet completely solved the problems of mobility, of expanding or contracting openings at will even to the extent of complete removal of walls, or of storing the opened wall sections. Because the Mobilar structural system, as previously explained, is so light, columns can be placed well back from the exterior of a building. The Mobilar wall unit in turn contributes to the lightness of the framing because it is vertically self-supporting, is not hung from the roof, and transmits only horizontal wind loads to the roof trusses. When in place, the units are rigidly interlocked with one another and with the roof; yet they are easily disengaged and moved away to a storage place which may be completely independent of the building.



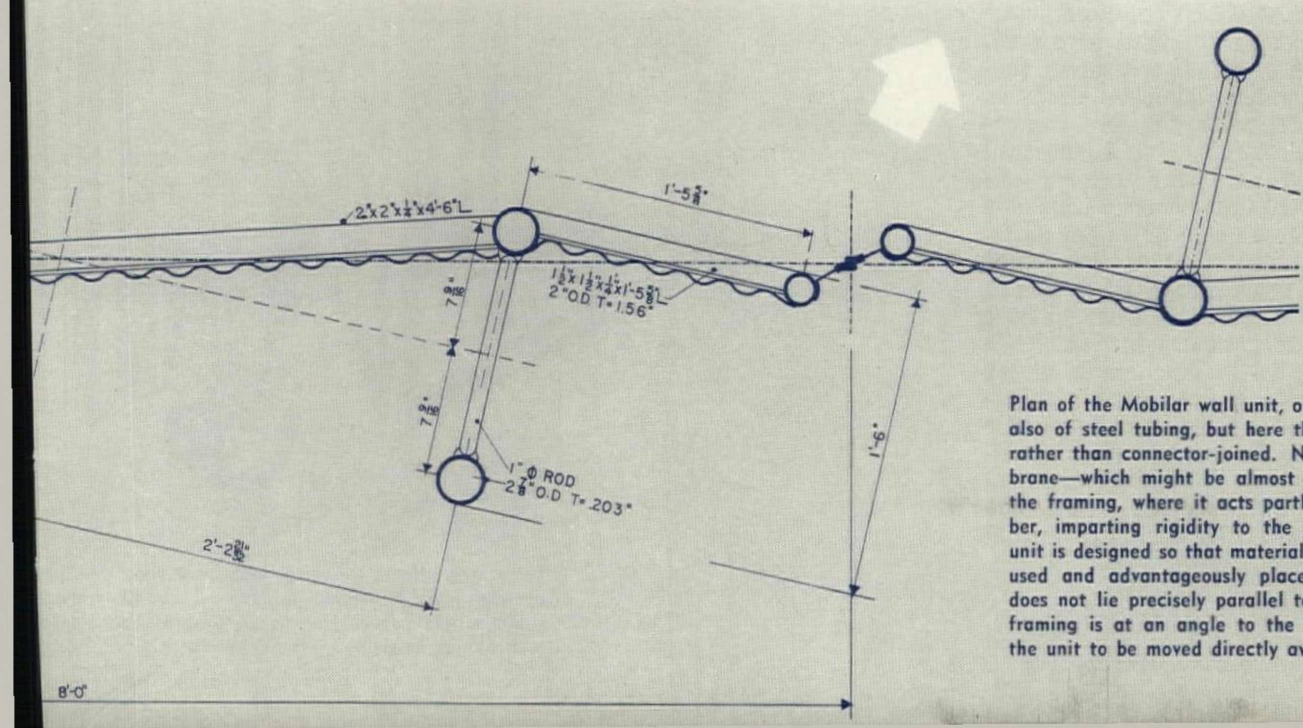
The photo on the facing page shows the frame of a single wall unit; at right is the complete unit. Dimensions at present derive from practical considerations; 8-ft width is the maximum for highway transportation; 24-ft height is suitable for hangar construction. Size can be varied as needed. Units can be turned upside down, location of wheels and motor changed to suit any building requirements. Unit can be laid flat, mounted on a dolly, hitched to a power unit, loaded (as a trailer) with other building parts for transport to building site.



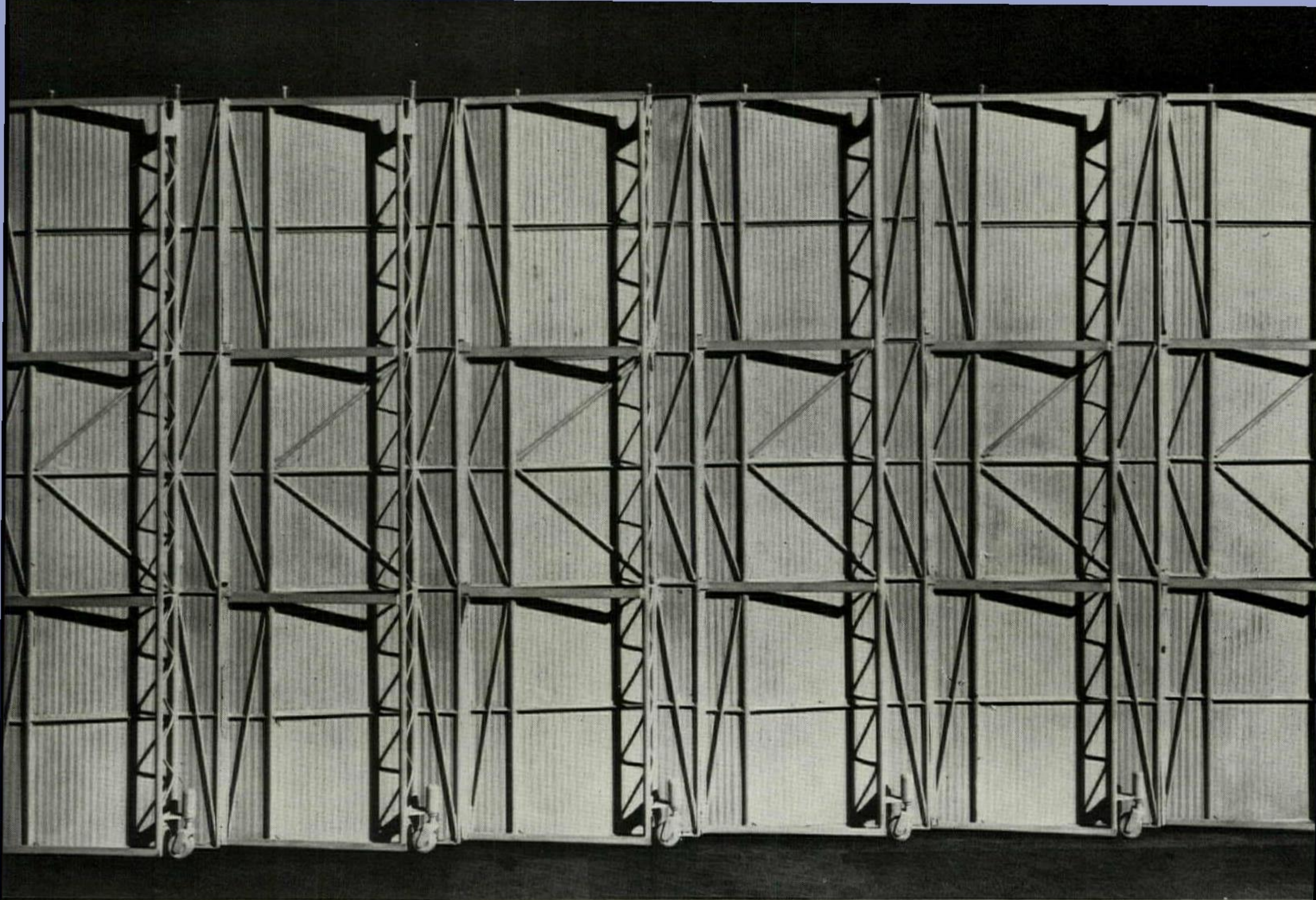




Each wall unit is mounted on two sets of wheels (lowered when the unit is to move, raised when it is placed as a wall) with a small electric motor powered from the building supply. In groups of at least four, preferably six or more, units will stand alone, can be completely detached from building.

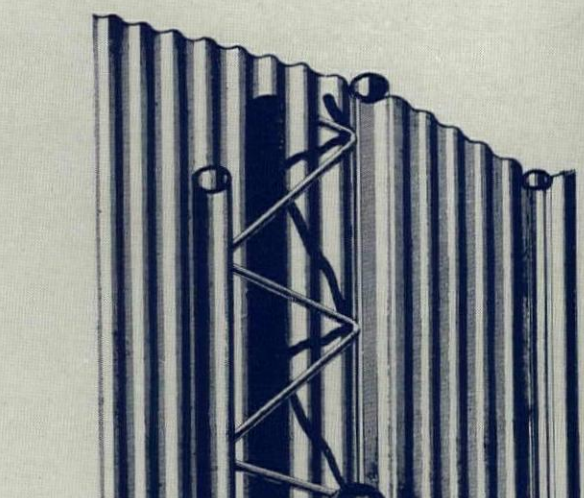


Plan of the Mobilar wall unit, or "door," shows framing also of steel tubing, but here the members are welded rather than connector-joined. Note that the wall membrane—which might be almost any material—is inside the framing, where it acts partly as a structural member, imparting rigidity to the assembly. Because the unit is designed so that materials are most economically used and advantageously placed, the wall membrane does not lie precisely parallel to the building line; the framing is at an angle to the building line to permit the unit to be moved directly away.

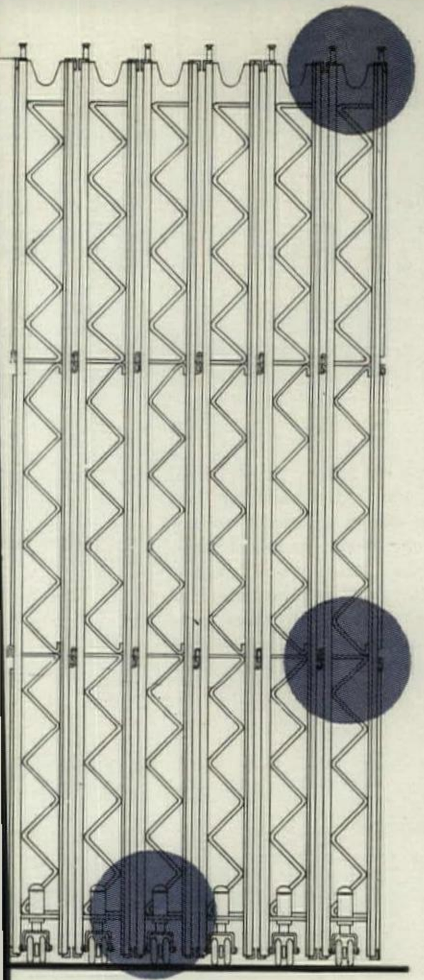


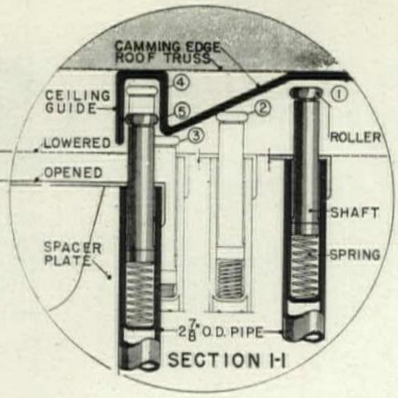
MOBILAR WALLS

The Mobilar wall is particularly suited to buildings in which bulky or heavy articles are manufactured or stored, or to places of public assembly: factories, shipyards, hangars, wharves, storage warehouses, theaters, assembly halls, armories, etc. Light wall units can be used as interior partitions. Present unit design withstands wind pressures up to 30 lb per sq ft. It requires no floor guides—important not only in reducing costs but also in factories, hangars, etc., where a floor obstruction might cause inconvenience or wear on tires. Each unit of the type illustrated weighs 2000 lb and is easily moved by the 1/3 hp motor contained in its undercarriage. Although each door's push-button control system has many functions, only one relay is needed, wiring is simple and relatively inexpensive.

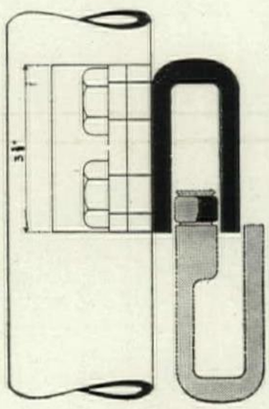


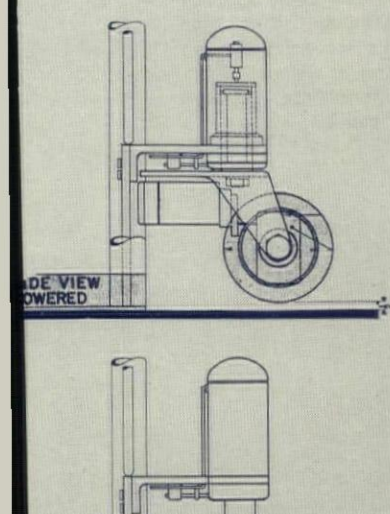
Perspective shows undercarriage assembly. Air to operate jacks is stored at approx. 100-lb pressure within vertical tubular framing, can be replenished automatically or manually by the drive motor.



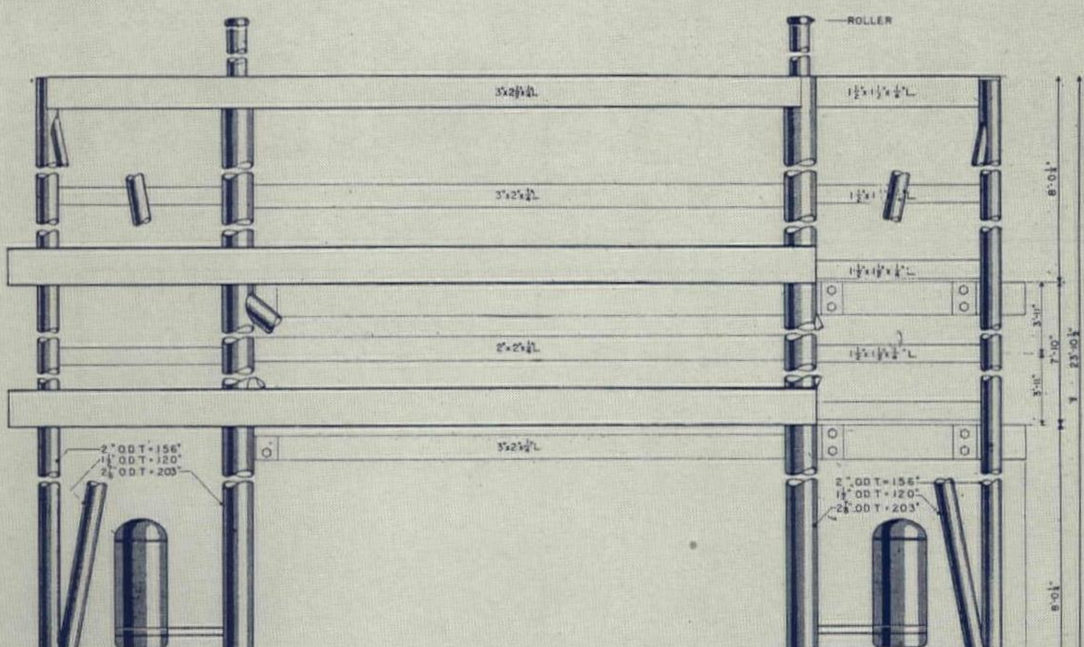


Each unit has a pair of plungers (detail at left) at the top, which engage in a ceiling guide fastened to the structure and so designed that misalignment of the unit is almost impossible. There are also two sets of lateral guides per unit, female on one side, male on the other (see detail), by means of which adjacent units are locked to one another when all or part of a wall assembly is being opened or detached from the building. Depth of both kinds of guides allows for raising and lowering units the necessary 2 inches and for deflection of the structure. When wall is opened, as overhead plungers leave the ceiling guide, lateral guides on the moving unit engage those on the next unit. Prior to this the jacks have raised the first unit; during the first unit's motion the second is being raised, etc. When the last unit is reached the sequence stops. To close, motors are reversed. Power cables run from unit to unit through a group with a single connection to a power outlet. To disengage a group, it is rolled out until plungers disengage from ceiling guides, power connection is broken, undercarriage swivels are unlocked to permit turning, and a tractor can pull the group away.



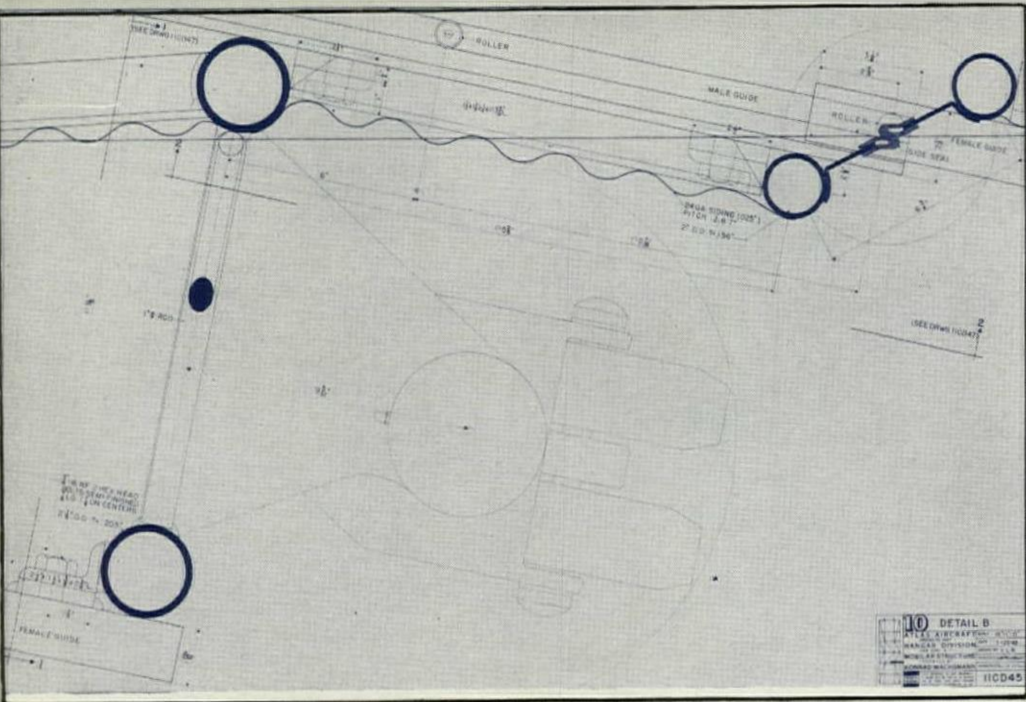


dercarriage consists of 9-in. rubber-d wheels, drive-gear box, motor, actuated jack.

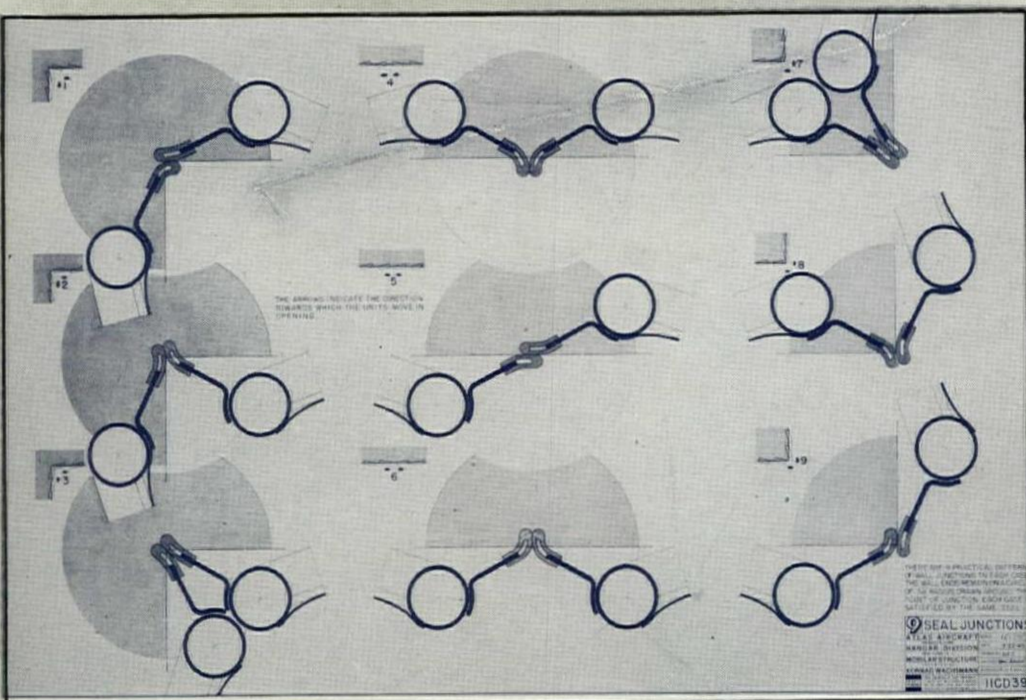


Side elevation of frame and undercarriage (2 per unit) shows unit in wall position, wheels raised. Wheels swivel freely while unit is detached from building and moving, lock in proper position while unit is being detached or re-engaged.

MOBILAR WALLS



Part plan of wall unit, at left, shows design to permit undercarriage wheels to swivel freely; also closure details (upper right). Joint between units is sealed by flexible rubber gaskets like those used in trolley-car or bus doors.



Design of closure elements permits wall units to be placed at almost any angle to each other. Diagram shows nine placements for units opening in the same or different directions; intermediate positions are also possible.

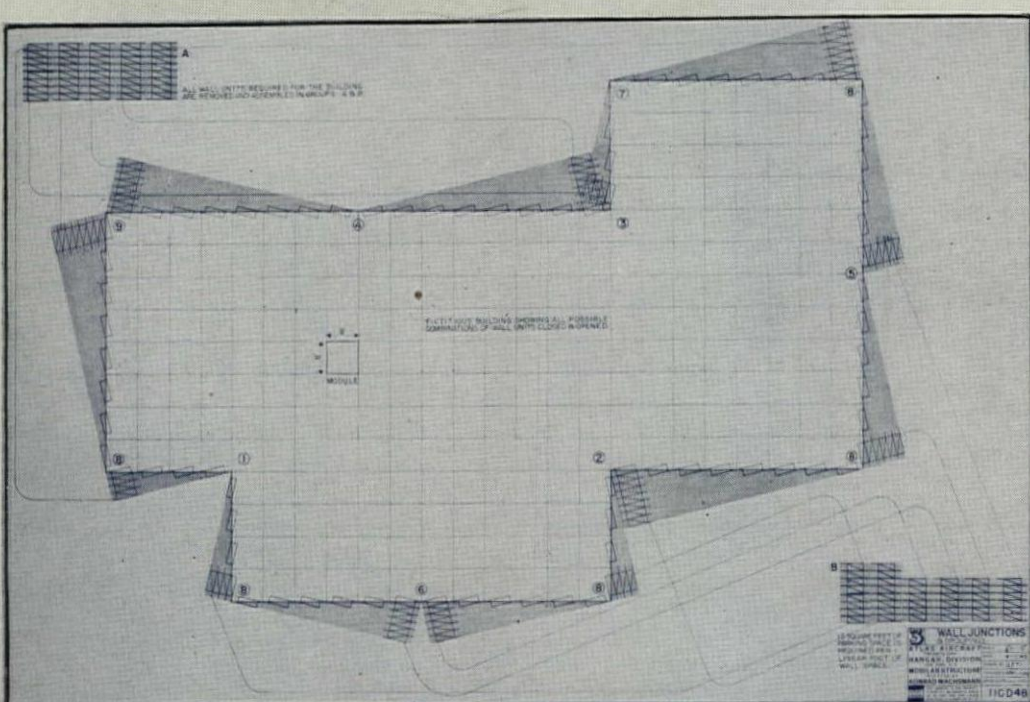
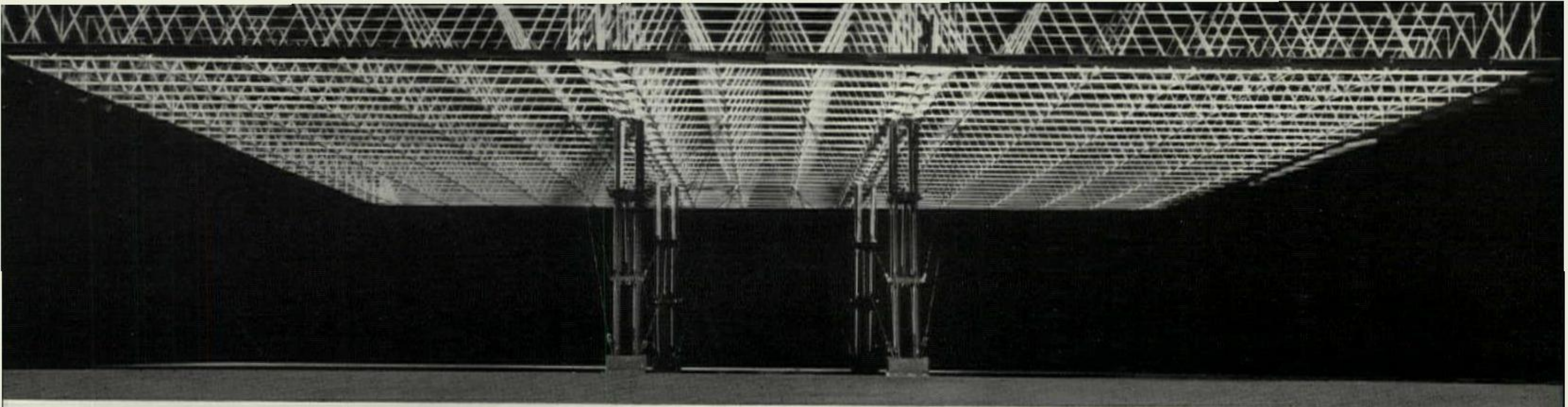
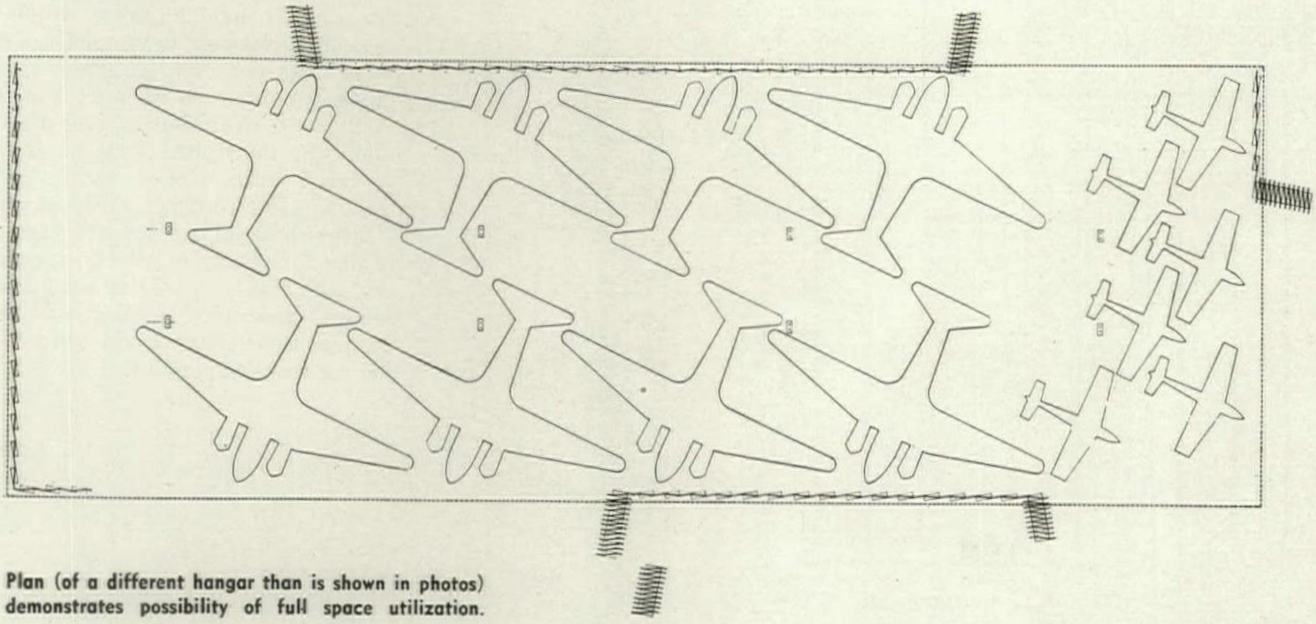


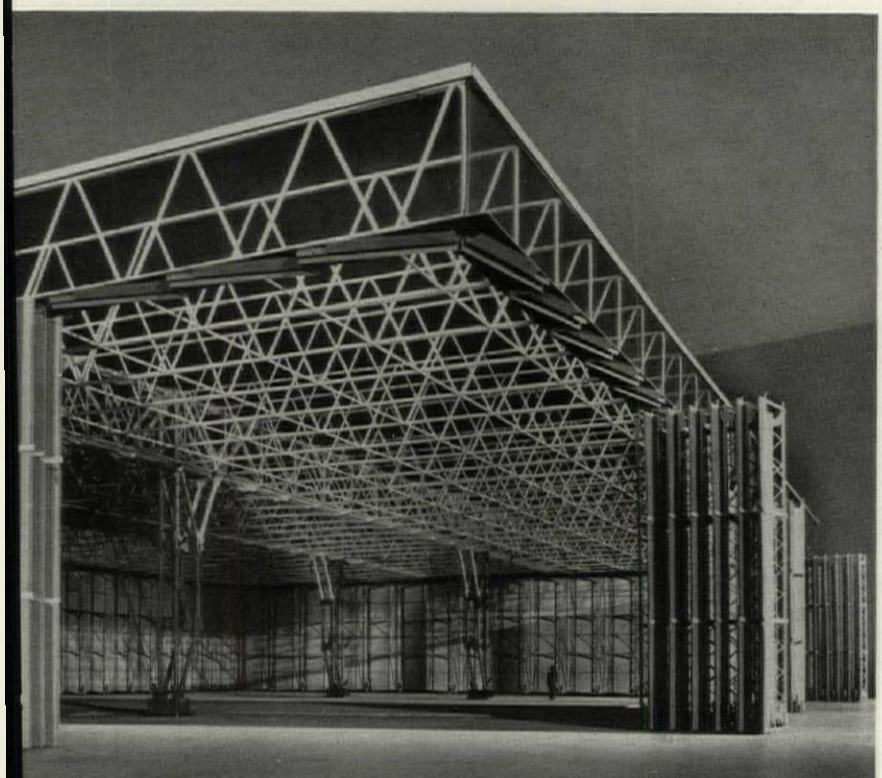
Diagram of a hypothetical building shows how principles shown above might be applied, explains use of all nine types of closures. When removed from building and stored in groups, Mobilar wall units require 1.5 sq ft of parking space for each linear foot of wall.



Scale model of Mobilar hangar, wall units removed. Photo below shows same model, walls partially closed. Note the simple method of opening up a corner of a Mobilar building.

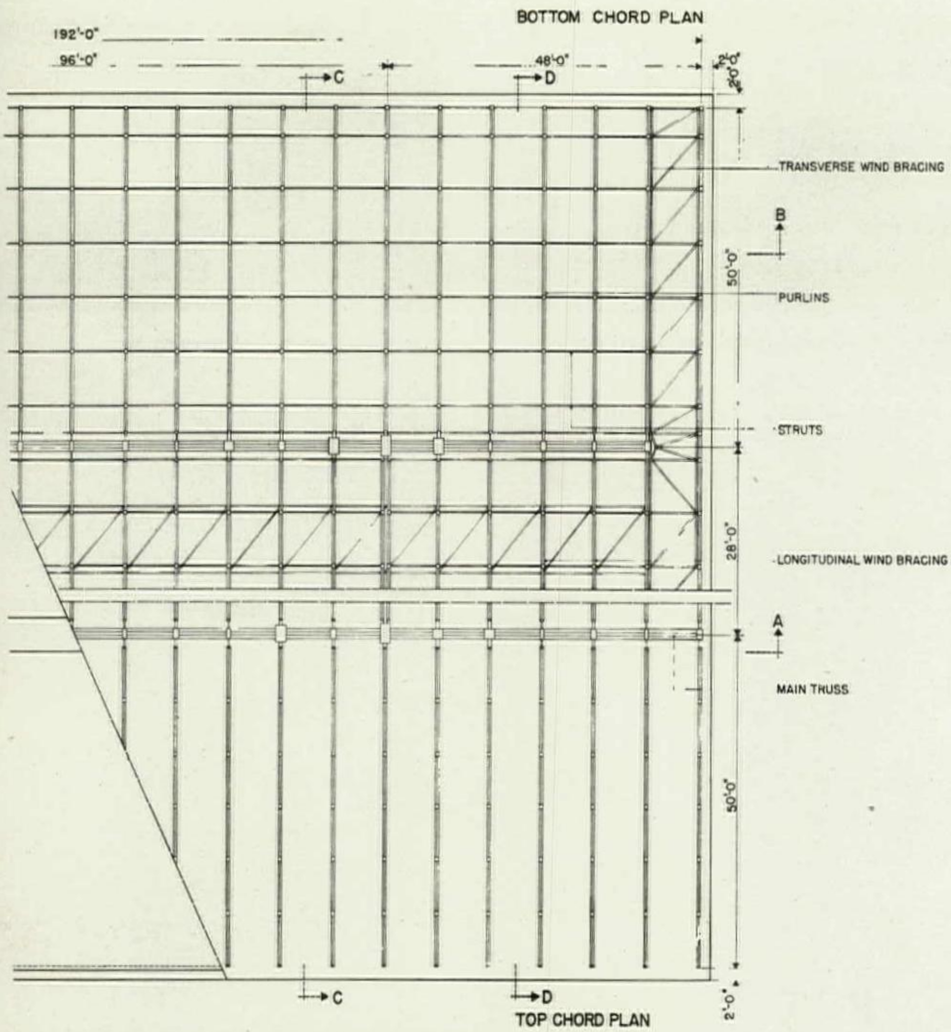


Plan (of a different hangar than is shown in photos) demonstrates possibility of full space utilization.



MOBILAR STRUCTURES

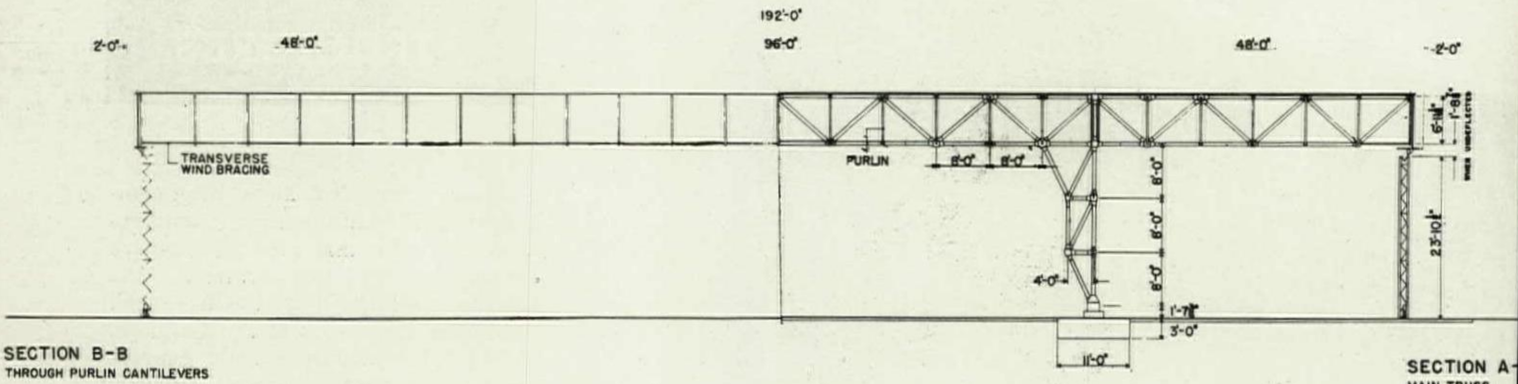
Mobilar principles have been employed in a building design deliberately devised to make the most severe demands upon the system. The hangar building selected utilizes wall units and connectors to the ultimate, incorporates all foreseeable general and detail problems, and permits design innovations obtainable only with Mobilar construction. The basic unit consists of a pair of 2-hinged frames which have center spans of 96 ft and 48-ft cantilevers at both sides. The frames are 96 ft apart, and support transverse purlin trusses spaced 8 ft o.c., each with a 96-ft center span and a 48-ft cantilever at each side. Of several plan variations, one was completely analyzed.

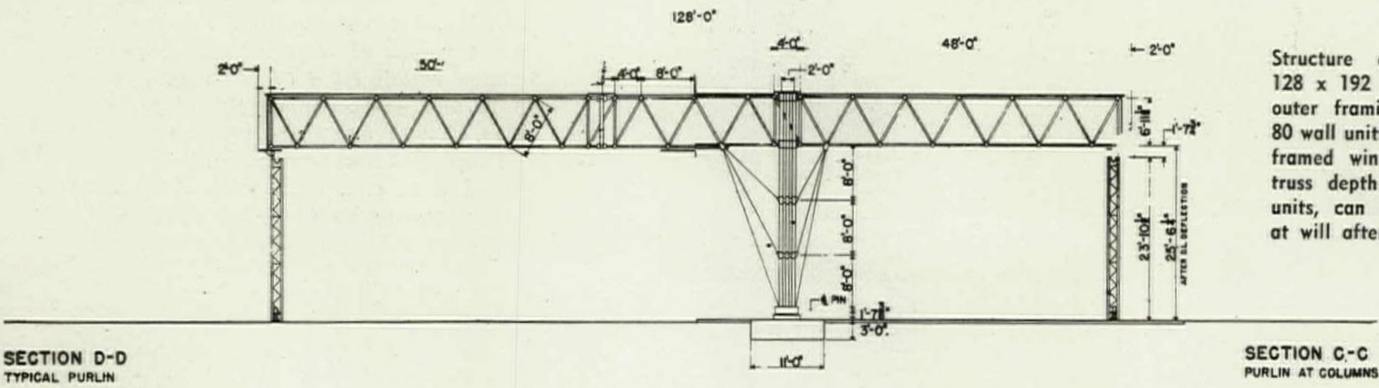


Variation completely analyzed had main frames 28 ft apart; this minimum practical spacing incorporates problems not otherwise encountered.

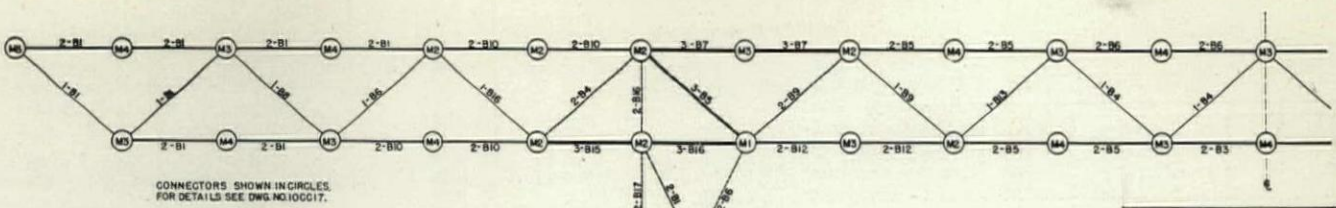
MOBILAR STRUCTURES

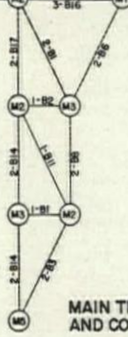
Structure is designed for dead loac plus snow or live load of 30 lb pe sq ft, and 15 lb wind load on vertica surfaces, also to withstand tempera ture-induced stress. Emergency ste code is basis for structural steel de sign. The 8-ft structural unit result in an 8-ft module upon which ar based variations developed to dat The required four columns can b spaced out to 96 ft o.c.; resultin 192 x 192 ft building may be use alone or multiplied at will. Roof i covered with ribbed steel deckin and suitable roofing. Costs of manu facture and sale of such items as wa units, for example, have been checke against cost of available hangar typ doors. Results: Mobilar wall uni appear to be cheaper, certainly woul be no more expensive.





Structure analyzed is 128 x 192 ft c-to-c of outer framing, requires 80 wall units, has metal-framed windows set in truss depth above wall units, can be modified at will after erection.



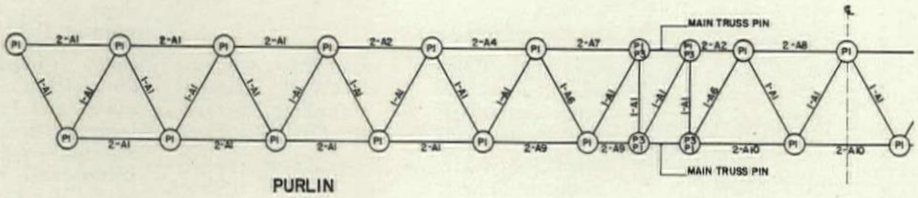


MAIN TRUSS AND COLUMN

Pipe schedule shows how wall thickness of Mobilar tubing is varied to take stresses in trusses, purlins, columns. Total weight of 192 x 192 ft building, including framing, roofing, and removable walls, is 746,384 lb (20.25 lb per sq ft). Weight of framing is same or slightly less than more conventional, comparable hangar structures. Considering weight as an index of cost, Mobilar system offers positive advantages—such as mobile walls; reduced total height as compared to such devices as steel arches, conventional trusses, etc., for a given clear interior height and span (increased height makes longer runways necessary)—at no increase, possibly a decrease, in cost.

PIPE SCHEDULE

DESIGNATION	WALL THICKNESS INCHES	WEIGHT LBS. PER L. FT.
$2\frac{7}{8}$" O. D. PIPES		
A1	.125"	3.671
A2	.134	3.92
A3	.148	4.310
A4	.165	4.776
A5	.180	5.181
A6	.188	5.395
A7	.203	5.793
A8	.238	6.705
A9	.250	7.009
A10	.313	8.564
A11	.344	9.299
A12	.438	11.400
A13	.50	12.68
A14	.625	15.02
A15	.750	17.02
6" O.D PIPES		
B1	.250	15.35
B2	.313	19.01
B3	.375	22.53
B4	.438	26.02
B5	.500	29.37
B6	.563	32.69
B7	.625	35.88
B8	.688	39.03
B9	.750	42.05
B10	.813	45.04
B11	.938	50.71
B12	1.000	53.40
B13	1.063	56.10
B14	1.188	61.10
B15	1.313	65.80
B16	1.438	70.00
B17	1.938	84.30



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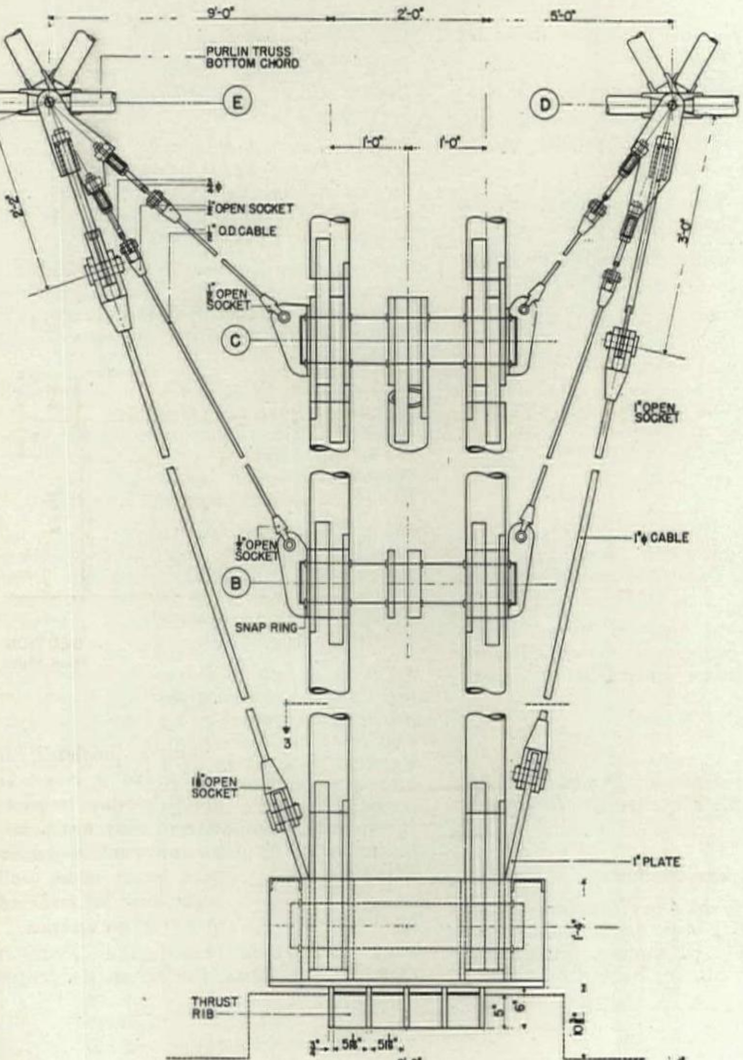

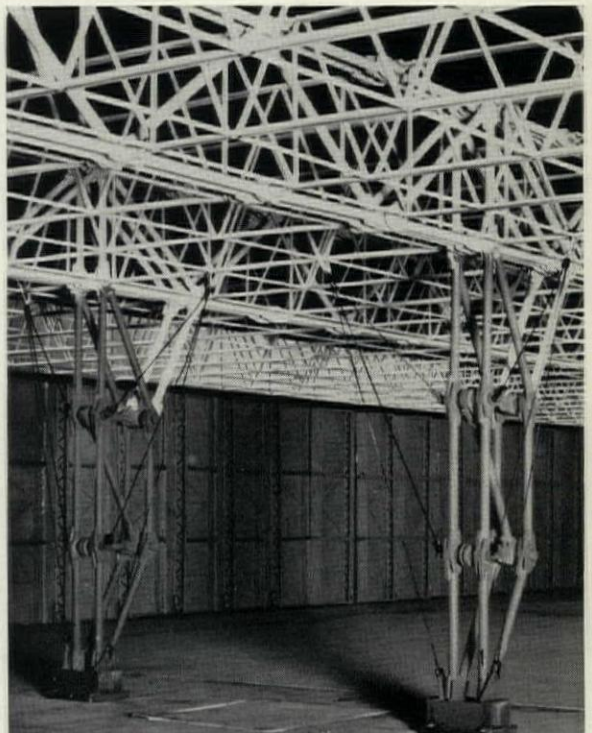

Wire guys brace columns to purlins. Columns are supported on steel base plates designed to resist all possible combinations of horizontal and vertical reactions. Footings are 11 x 11 x 3 ft, reinforced concrete, with ribs to help transmit horizontal thrust to the earth.

Air Conditioning

1-37. *What Every Home Owner, Builder, and Architect Should Know About Year 'Round Air Conditioning*, 6-p. illus. booklet (4 x 8¼). Question-and-answer information on advantages of a combination air-conditioning furnace and packaged cooling unit. Chrysler Corp., Airtemp Div.

1-34. *Packaged Cooling (L-389)*, Chrysler Corp., Airtemp Div. Reviewed Feb.

1-35. *Refrigeration and Air Conditioning in Hospitals (Bulletin 502)*, Frick Co. Reviewed Feb.

Color Values in Vision

3-48. *Optonic Colors for Schools*, 22-p. color-illustrated booklet explaining color selection principles; 18 rules for planning color combinations. Arco Co. Pittsburgh Plate Glass Co., Color Engineering Dept. Reviewed February:

3-49. *Pittsburgh Color Dynamics (Adv. 225).*

3-50. *Pittsburgh Color Dynamics and Color Therapy for Hospitals and Institutions (Adv. 228).*

3-51. *Pittsburgh Color Dynamics for the Home.*

3-57. *Pittsburgh Color Dynamics for Offices, Hotels, and Restaurants.*

Concrete

3-54. Folder on pre-cast "artery" concrete building block, Arthur L. Kuhlman Industries. Reviewed Feb.

Concrete, Air Entraining

3-53. *Air-Entrained Concretes (Form 96-45-2)*, Dewey and Almy Chemical Co. Reviewed Feb.

Concrete Block

3-59. *Planning Your Home*, 14-p. illus. consumer booklet (5½ x 8½). Educational data on concrete masonry for home planners. Besser Mfg. Co., Public Information Service.

Copper

2 monographs, Copper & Brass Research Association. Reviewed February:

3-55. *Copper Valleys and Flashings for Residences (12-H).*

3-56. *Copper Roofs and Decks for Residences (12-H), Monograph II.*

Doors

4-36. *Revolving Doors (1945 Catalog for Postwar Planning)*, 20 pp. Data on revolving doors, combinations of wood, metal, formica, glass; operating mechanisms; typical details; tables on entrance infiltration loss, traffic capacities; specifications. International Steel Co., Revolving Door Div.

4-38. *New Comfort Thru Bishop Venta-Glass Windows and Doors*, Nu-Air-Wa Co. Reviewed Feb.

4-39. *St. Louis Doors*, 12 pp., illus. Features of motor- and manually-operated doors; freight, dumb-waiter, warehouse, industrial, fireproof. Data on operation; layouts; details; specifications. St. Louis Fire Door Co.

Doors, Garage

4-40. *A "Brand New" Overhead-Type Garage Door*, Berry Door Co. Reviewed Feb.

Drafting Room Equipment

On print-making machines, Charles Bruning Co., Inc. Reviewed February:

4-41. *Just the Ticket (Model 41 Printer-Developer).*

4-42. *It's Positively Right in Bruning Black and White.*

4-43. *Detail Engineers'-Glass and Universal Layout Scale for Form Grinders 50 to 1 Magnification*, Universal Engraving & Colorplate Co., Inc., Engineers Specialties Div. Reviewed Feb.

Ductwork

4-44. Folder on insulated duct, Philip Carey Mfg. Co. Reviewed Feb.

Electric Wiring Devices

5-28. *Bryant Superior Wiring Devices (Cat. 40)*, Bryant Electric Co. Reviewed Feb.

Electronics

5-29. *Electronics at Work*, Westinghouse Elec. & Mfg. Co. Reviewed Feb.

Fireplace Equipment

6-57. *The Modern Fire Screen*, 6-p. illus. booklet on "Flexscreen" woven metal curtains for fireplace safety screens. Bennett-Ireland, Fireplace Div.

8-84. *Firedaire, A Fireside Furnace*, Edwards Mfg. Co. (See No. 8-84 under "Heating Equipment.")

Floors

"Idea" portfolios on store modernization, Armstrong Cork Co. Reviewed February:

6-52. *Ideas for the Jeweler Who Is Planning for Tomorrow.*

6-53. *Ideas for the Baker Who Wants to Have a Better Shop.*

6-54. *Floors That Stay Young*, E. L. Bruce Co. Reviewed Feb.

6-55. *Modern Floor Finishing*, E. L. Bruce Co. Reviewed Feb.

6-56. Folder on machines for cleaning mill floors, G. H. Tennant Co. Reviewed Feb.

Furniture

6-60. *The Arnot Sleeper*, 12-p. illus. booklet describing convertible sleeping units for homes, hotels, etc.; brief information on metal furniture. Arnot & Co.

Glass Block

7-37. Folder on glass block for railroad buildings, Owens-Illinois Glass Co. Reviewed Feb.

7-38. Folder on use of glass block in industrial buildings, Owens-Illinois Glass Co., Insulux Products Div. Reviewed Feb.

Granite

7-39. *Fletcher Granite Products, AIA File 8-B-3*, H. E. Fletcher Co. Reviewed Feb.

Gypsum and Gypsum Products

7-42. *Architectural Specifications, AIA-37-A (WW-16)*, 4-p illus. folder on "Weatherwood" products: insulating building board, plaster base, tile, plank; asphalt-coated sheathing. United States Gypsum Co.

7-40. *Farm Production Must Be Increased*, United States Gypsum Co. Reviewed Feb.

7-41. *Sheetrock, Pyrofill and Weatherwood Pyrofill Roof Construction (CD-16)*, United States Gypsum Co. Reviewed Feb.

Heating Equipment

8-71. *Heat Exchangers, AIA 306-1 (Bulletin H-1)*, Brownell Co. Reviewed Feb.

8-80. *The New Principle of Heating, Panelray*, 12-p. illus. booklet on gas heater unit for space heating; dimensions, specifications, installation data. Bryant Heater Co.

8-81. *Ratings and Installation Guide (Form 860)*, 12-p. illus. booklet (5½ x 8½) on a baseboard system of radiant heating for homes; dimensions, specifications, detail drawings. Burnham Boiler Corp.

8-72. *Byers Radiant Heating in a Garage (P.O. 6741)*, A. M. Byers Co. Reviewed Feb.

8-82. *Coleman Gas Floor Furnace*, 26-p. illus. consumer booklet on automatic gas furnace set below floor (register at floor level), for use in homes, schools, offices, churches. Coleman Lamp and Stove Co.

8-84. *Firedaire, A Fireside Furnace*, 8-p. illus. booklet on all-steel, heat-circulating fireplaces for small-area heating; specifications. Edwards Mfg. Co.

8-73. *Series 12 Unit Heaters, AIA-30-D11 (Cat. 12C-1)*, Fedders Mfg. Co., Inc. Reviewed Feb.

8-74. *Wartime Story of a Bottling Boiler Plant*, Fitzgibbons Boiler Co., Inc. Reviewed Feb.

8-75. *Assured Economy in Automatic Heat (Form 242)*, 12-p. illus. booklet on an automatic stoker for any type residential heating system. Hershey Machine & Foundry Co.

8-76. *Modine Convector Radiation (Bulletin 245)*, 4-p. illus. consumer folder on copper convector unit for home hot water or steam heating systems. Modine Mfg. Co.

8-77. *Peabody CD Wide Range Oil Burning System (Bulletin 109)*, 4-p. illus. bulletin. Data on constant differential oil burning unit which controls combustion over a 50 to 1 capacity range. Peabody Engineering Corp.

8-78. *Preferred Unit Steam Generator (Bulletin 1000-B)*, 6-p. illus. folder on heavy-duty, oil-fired, portable steam plant unit, for full or semi-automatic operation. Data, dimensions. Preferred Utilities Mfg. Corp.

8-79. *A Practical Plan, for Incorporating Central Heating and Air Conditioning in a Proposed Suburban Apartment and Housing Development*, 24-pp., illus. Reprint of a study of a central heating and air-conditioning plant for a proposed suburban housing development. Blueprints, comparative cost data, case histories of typical installations. Ric-Wil Co.

Insulation

9-45. *Flintkote Insulation Products (SR-3)*, 4-p. illus. folder on decorative