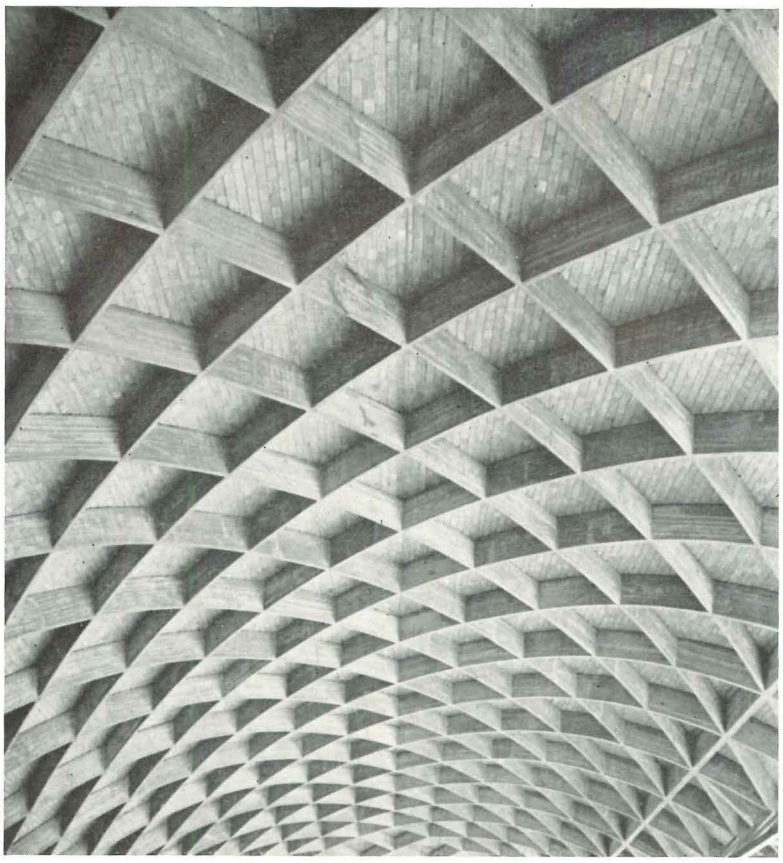
BUILDING NEWS



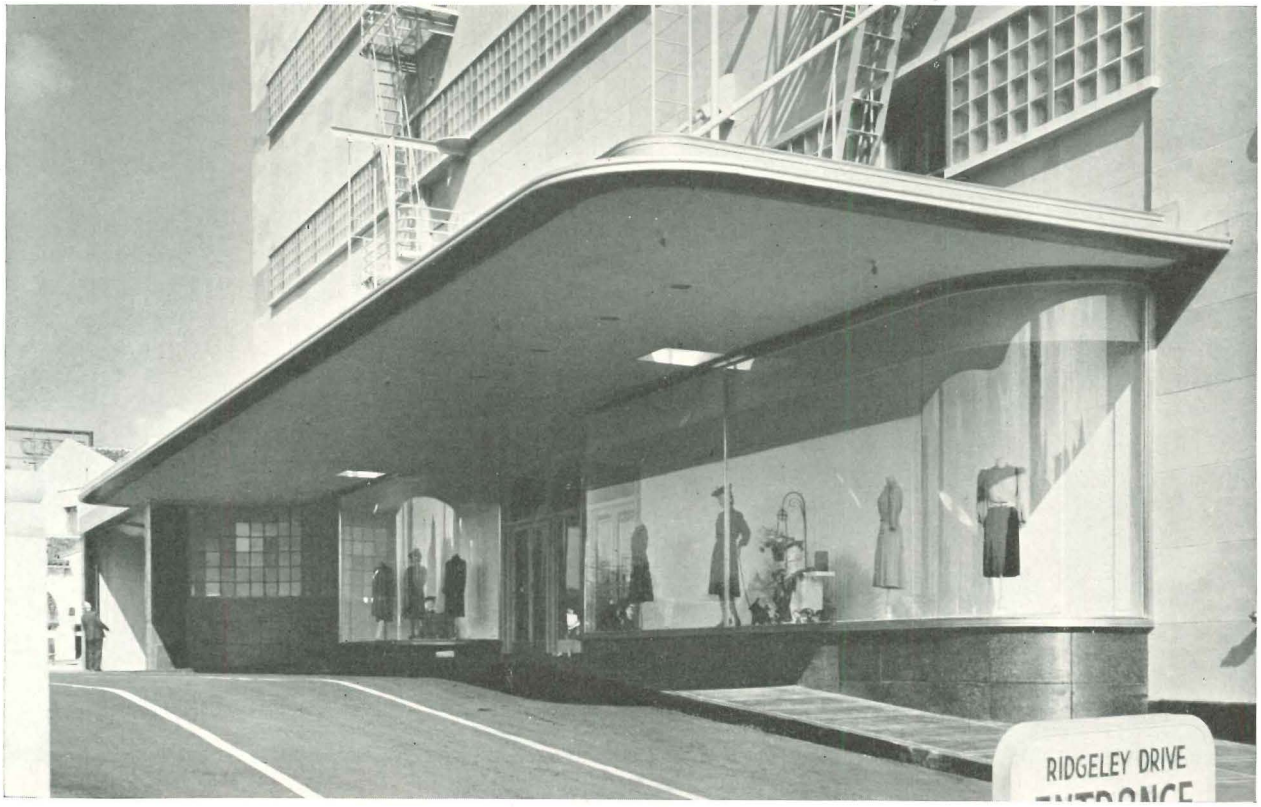
Vasari

Hangar designed for span and bomb resistance...See p. 54

ARCHITECTURAL RECORD
COMBINED WITH
AMERICAN ARCHITECT AND ARCHITECTURE

Photos by Stuart O'Brien

Coulter Department Store, Los Angeles. Reinforced-concrete walls are "blocked" to simulate Bedford limestone; several brands of Portland cement are used in the brush coat to give the different color tones.

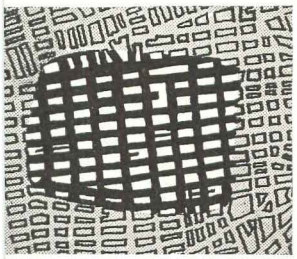


Rear entrance with parking area at left. Sixty percent of store patrons arrive by auto and enter here.

OS ANGELES: NEW STORE PROVIDES FOR MOTORIZED PATRONS

TILES O. CLEMENT, Architect

LD



entral shopping area of
s Angeles, shaped by
d transportation methods

EW

west shopping district
ng Wilshire Boulevard,
ped by motor transport

Los Angeles is, in population, approximately one-fifth the size of Greater New York, but it is spread over an area about 50% larger. Its widely scattered inhabitants are housed, for the most part, in detached single-family dwellings, on lots usually big enough to permit keeping autos. And the automobile does play an important part in solving the city's transportation problem: per-capita ownership of cars here is the highest in the world.*

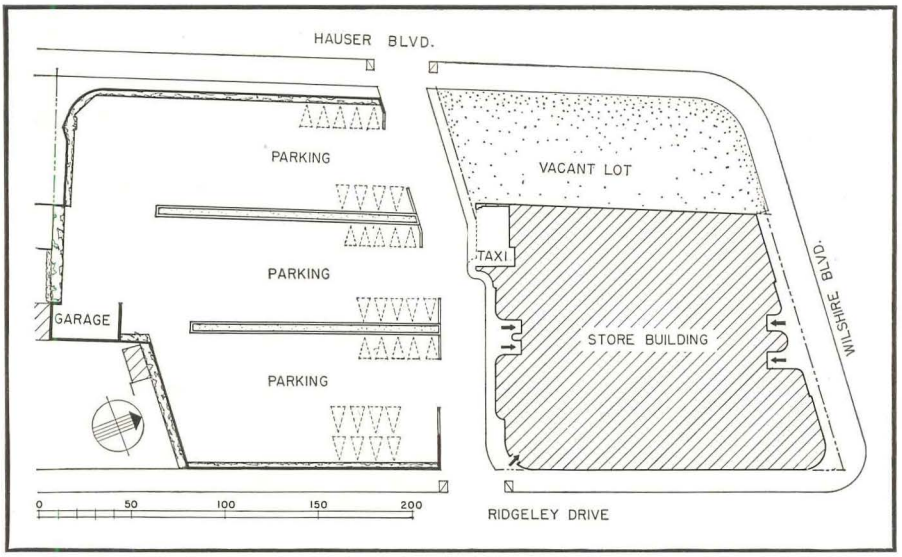
Los Angeles' newest shopping district extends several miles along Wilshire Boulevard; the influence of increased human mobility on the plan of the city becomes apparent when this section is compared with the old, central trading area of Los Angeles, relatively centralized and congested. Spread out as they are, the stores along Wilshire Boulevard are generally open to view on several sides: competing electric signs and advertising become less effective in gaining attention than distinction in the design of the building itself.

On this street was recently opened a reinforced-concrete four-story-and-basement structure, Coulter's Department Store. Sixty percent of the patrons of this store arrive by automobile and enter through the parking area rather than from the street. The rear entrance has therefore been made a prominent part of the design: it opens on a marquise-sheltered sidewalk and is flanked by display windows on both sides. A small lobby is located there, equipped with seating facilities, telephone, and "Will Call Desk."

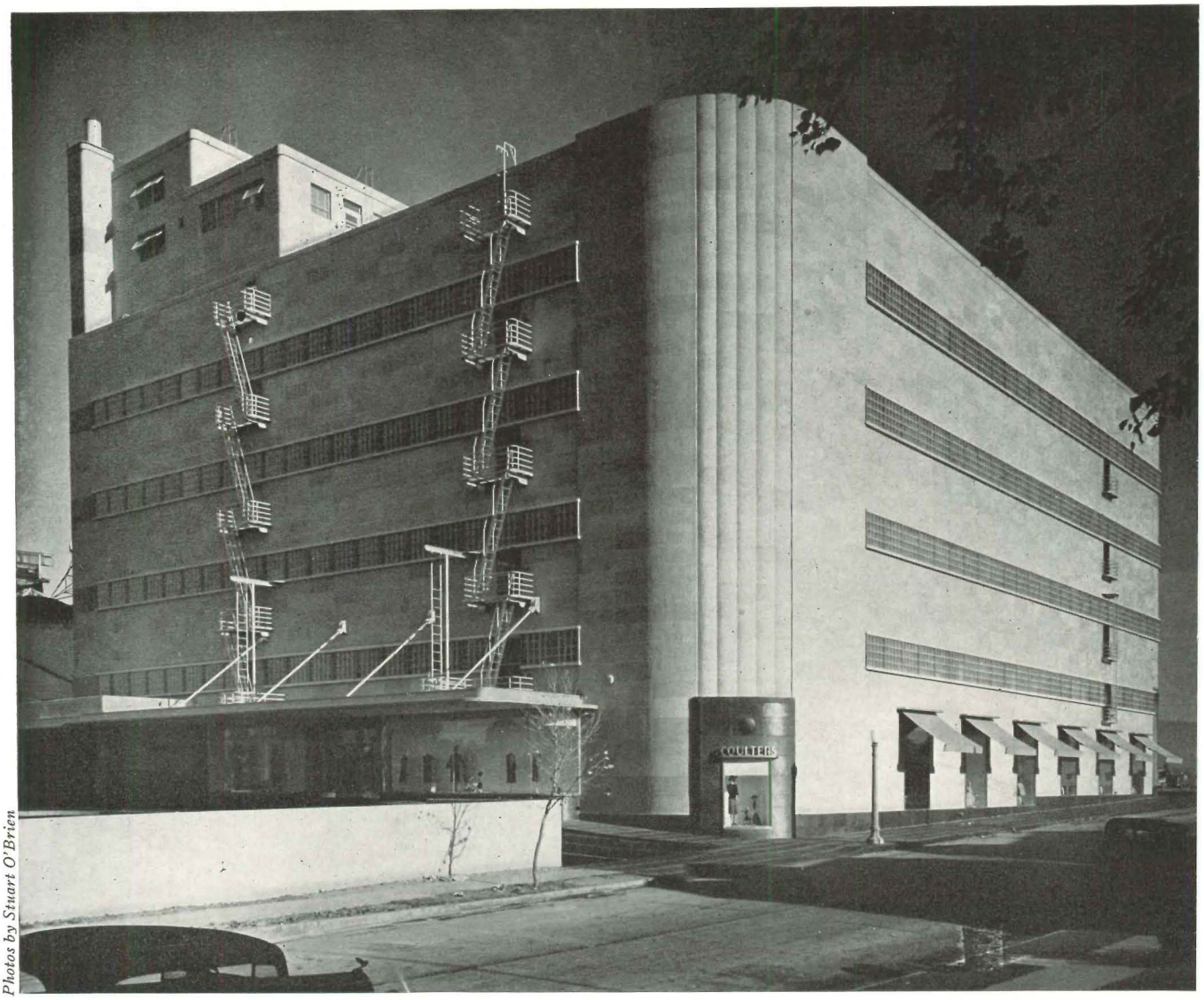
There are no windows: the building is completely air-conditioned. In the upper floors, long horizontal panels of glass brick provide daylight illumination; these are at a height from the floor sufficient to permit wall cases and fixtures to be placed below them. The glass-brick panels are hung on the outside of the walls, structural columns behind them; reinforcing steel runs both vertically and diagonally through the columns to assume possible earthquake stresses.

The structure has been designed to permit addition of an extra story without any structural alterations below; this proposed fifth floor is to be in the form of a U with the elevator foyer opening onto a garden.

*According to 1936 registration figures and 1930 population statistics (the latest available), Los Angeles has one automobile for every 2.7 persons; Detroit, the center of the U. S. motor industry, has one auto for every 3 persons; Greater New York has one for every 8 persons.

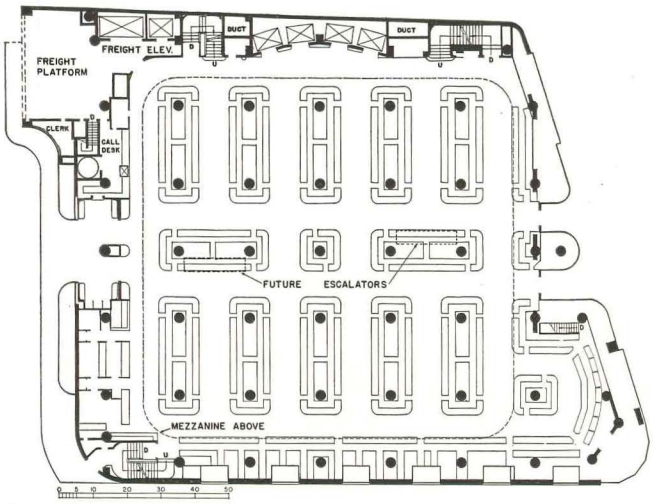


Plot plan

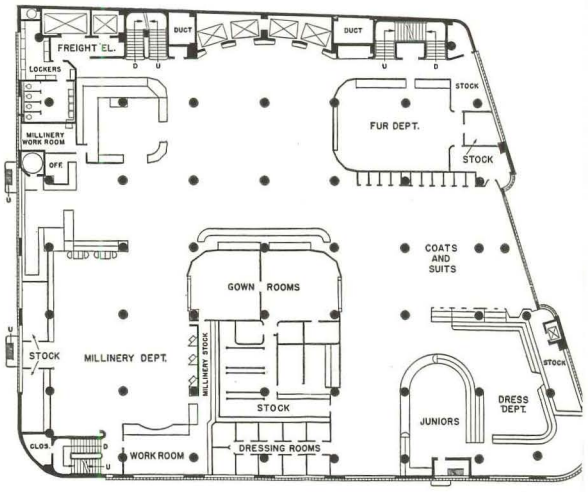


Photos by Stuart O'Brien

Rear view of Coulter Department Store with parking area at left and a freight platform beyond entrar

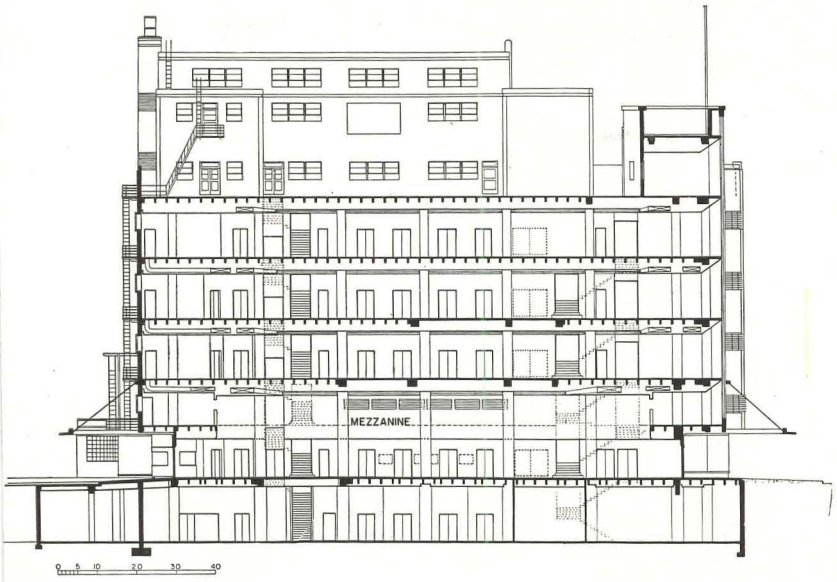


First floor



Third floor

EPARTMENT STORE IN LOS ANGELES



ection

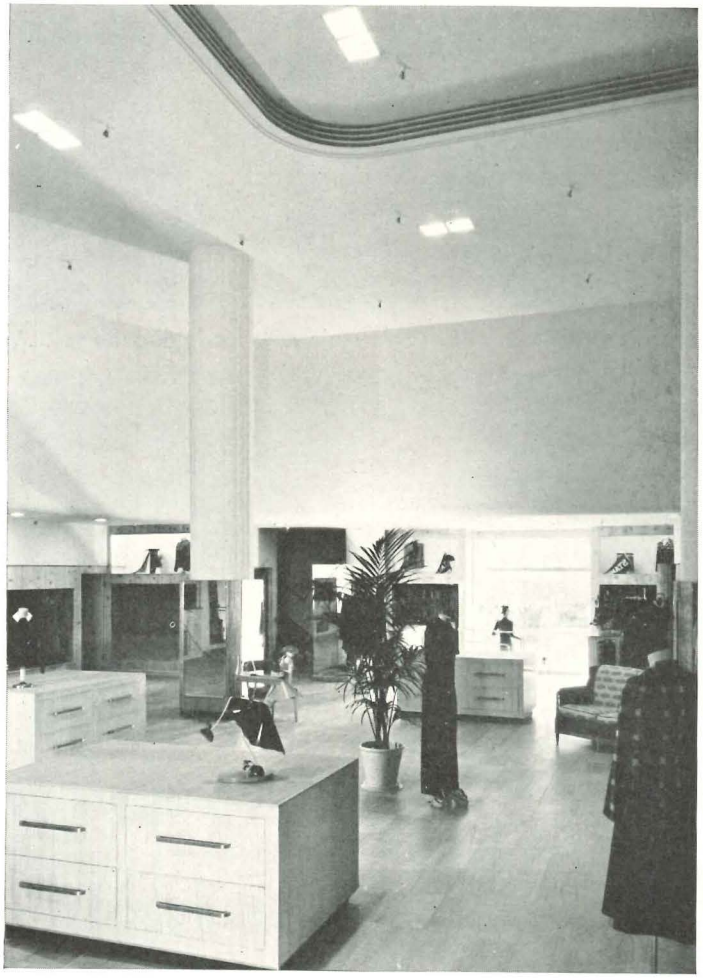
N THE MAIN FLOOR, circulation is nplified by placing front and rear trances opposite each other and ining them by a double main aisle. evators and stairways are centrally cated against the west wall, equally cessible from either entrance, yet moved from the main flow of traf- . Removable metal-bound panels e set into all floors beneath the unters and cases which adjoin the nter aisle; these panels cover open- gs intended to permit future in- llation of escalators without the cessity for structural alteration. ove the street floor is an enclosed zzanine balcony housing the ad- nistrative offices; mezzanine walls e broken by long horizontal louver nels, which assist ventilation and ovide a means of inspection from mezzanine level.

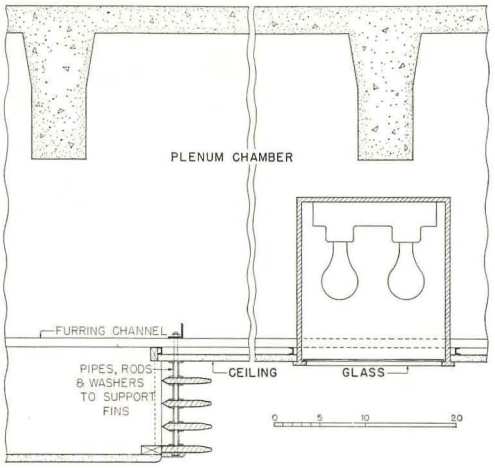
The air-conditioning system is ex- mely flexible. All free space be- een ceilings and floors above is a ntinuous air-conditioning plenum mber. Openings can be cut into floor to draw air from rooms; at some future time, new rooms partitioned off, air-conditioning lets can be made by cutting open- s into floors wherever they are nted.

Wilshire Boulevard entrance . . . A double main aisle leads directly to . . .

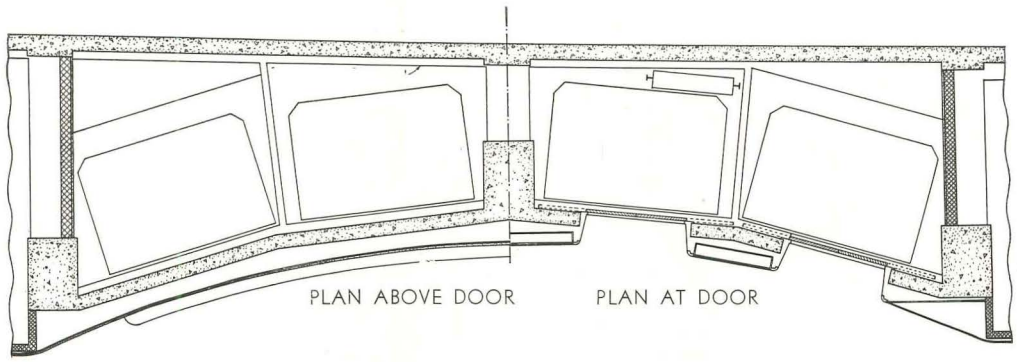
automobile entrance at rear . . . Note "Will Call Desk" in lobby.

Photos by Stuart O'Brien

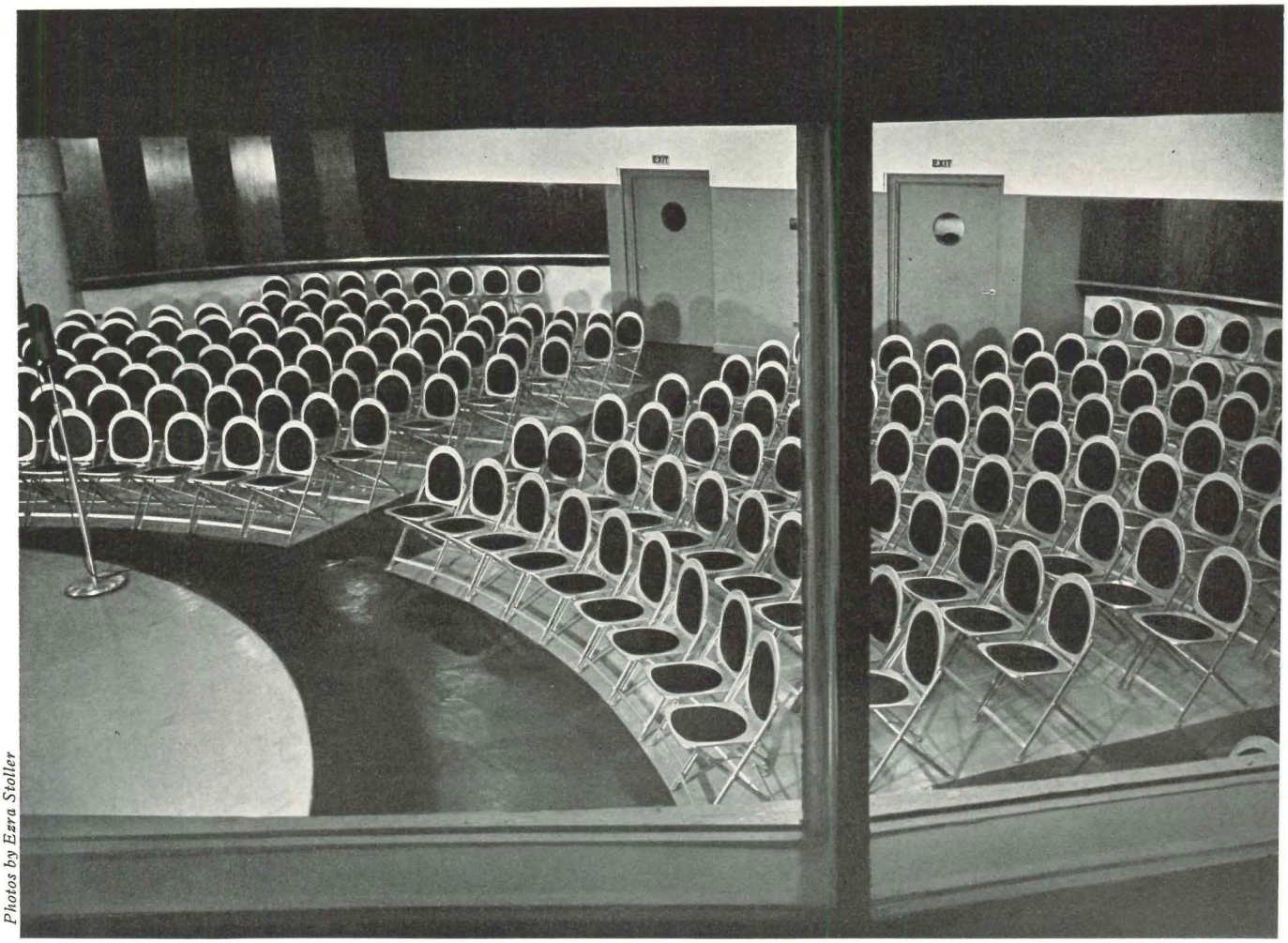




Ceiling lights on the first floor are countersunk flush with the surface. About 85% of the heat-radiating surface of these lights is within the plenum chamber; most of the heat generated by the lamps is carried off in the air-conditioning outflow, so that room temperature is not appreciably affected.



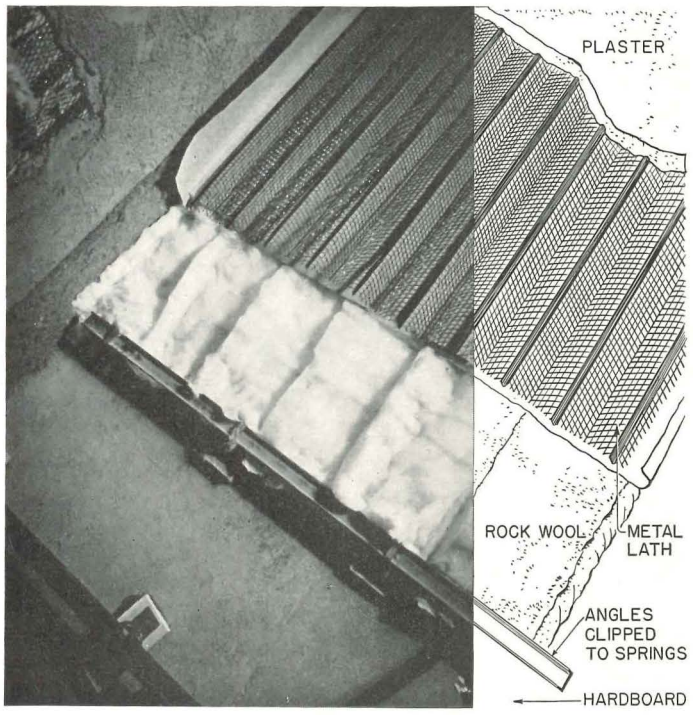
Elevator shafts are set in a shallow arc: this arrangement provides greater floor area in front of the elevators; and all cabs can be seen from any position within the arc at the same time. Shallow display cases are set into the wall between elevator doors.



Photos by Ezra Stoller

CIRCULAR BROADCASTING STUDIO IS DESIGNED FOR WMCA

LEON BARMACHE, Designer, and RENE BRUGNONI, Architect



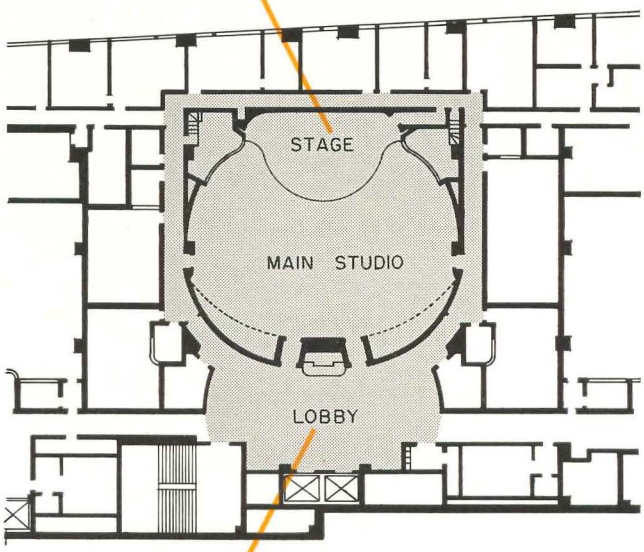
Detail of wall construction

THE MAIN auditorium of the new WMCA studios in New York City is the first circular room to be used as a source of radio programs. It was essential to prevent focusing of sound waves at some point in the room — like light reflected from a concave mirror: this was done by installing a 4-in. blanket of rock wool, covering it with perforated hardboard; the sound is absorbed as soon as it strikes the wall.

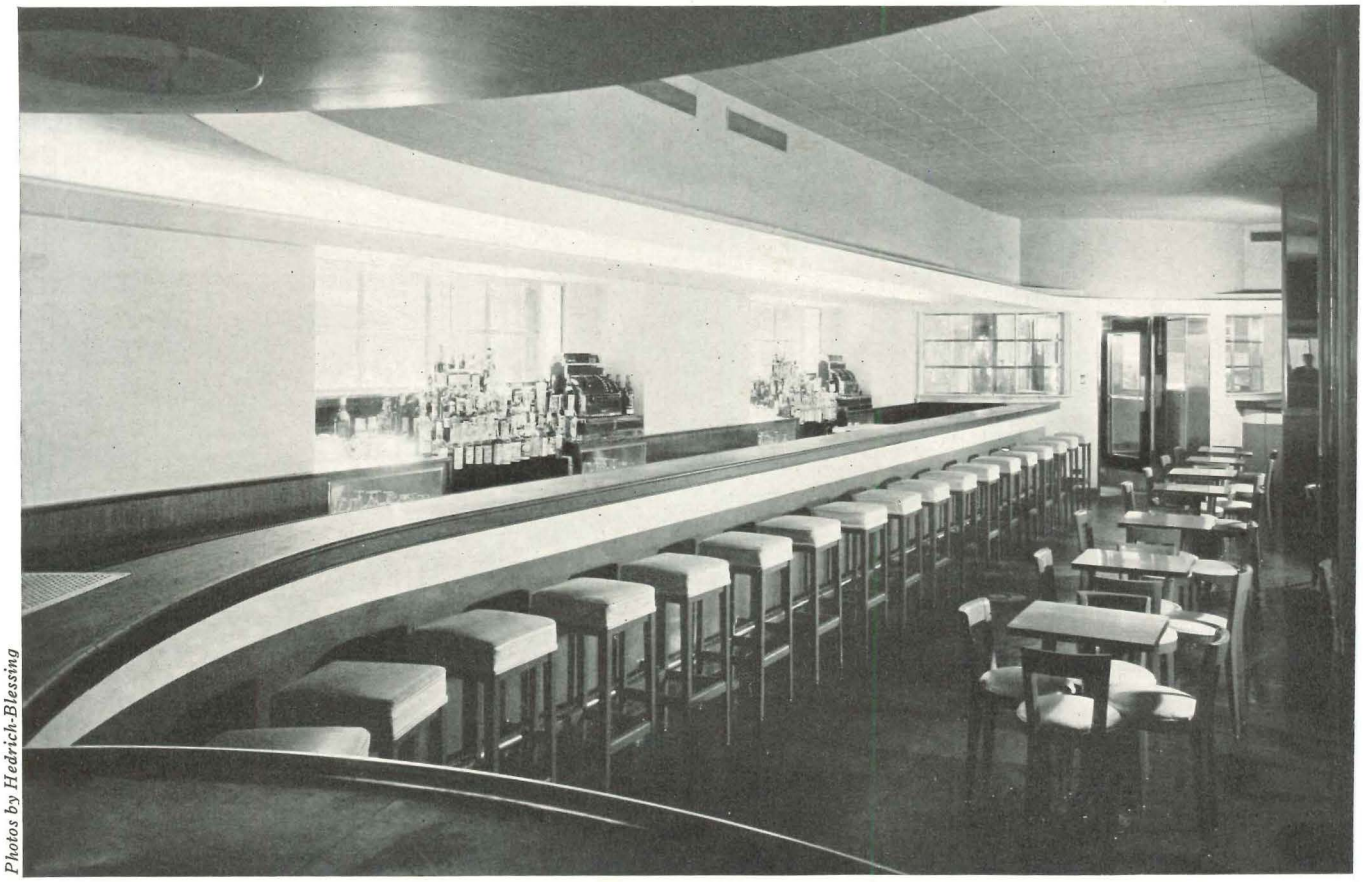
The problem of sound transmission was solved by suspending walls, floor, and ceiling from the structure by means of springs. These springs are resilient, and sounds originating inside or outside the studio do not pass through them; the springs are attached to blocks of wood encased in cement and insulated by felt pads.

Breaks in the ceiling and alcoves with acoustical rock-wool paneling aid in preventing echoes.*

*Jacobson & Co., Inc., New York City, were the acoustical engineers.


STAGE
MAIN STUDIO
LOBBY


WMCA



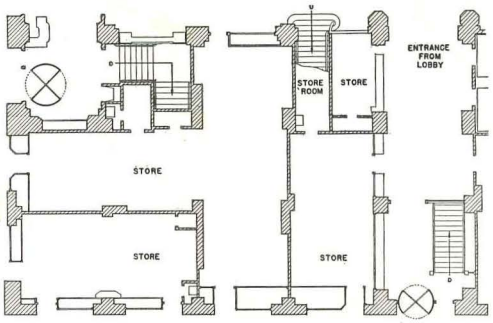
Photos by Hedrich-Blessing

Bar in Sherman Hotel, Chicago. View looking toward street entrance, with stage platform out of picture to ri

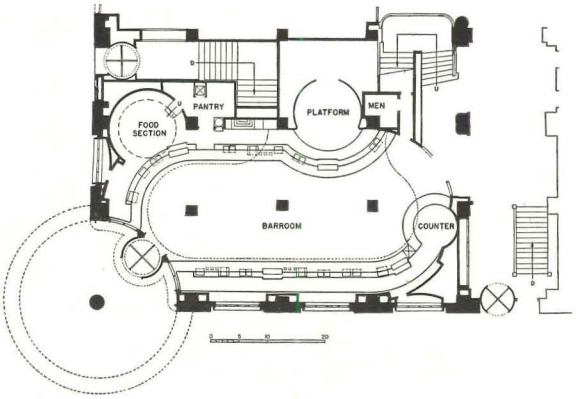
STORE GROUP REDESIGNED INTO BAR AND STAGE

HOLABIRD & ROOT, Architects

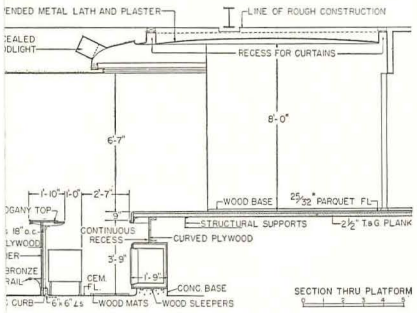
THE STREET-FLOOR corner of Chicago's Sherman Hotel has been redesigned, with a bar and entertainment center replacing a group of old stores. In making the change it was necessary to provide an entrance with enough physical prominence to compete with other entrances along busy Randolph Street; a circular marquise extending out over the corner, and observable along the intersecting streets, satisfies this need. Bar is accessible from lobby as well as from street, and lunches prepared in the hotel kitchen can be served conveniently in the barroom. Entertainers perform on a stage which is a little above bar level and observable from all parts of the room. The fixed columns have been a design restriction, but seem to offer little obstruction to circulation or sight lines to the stage.



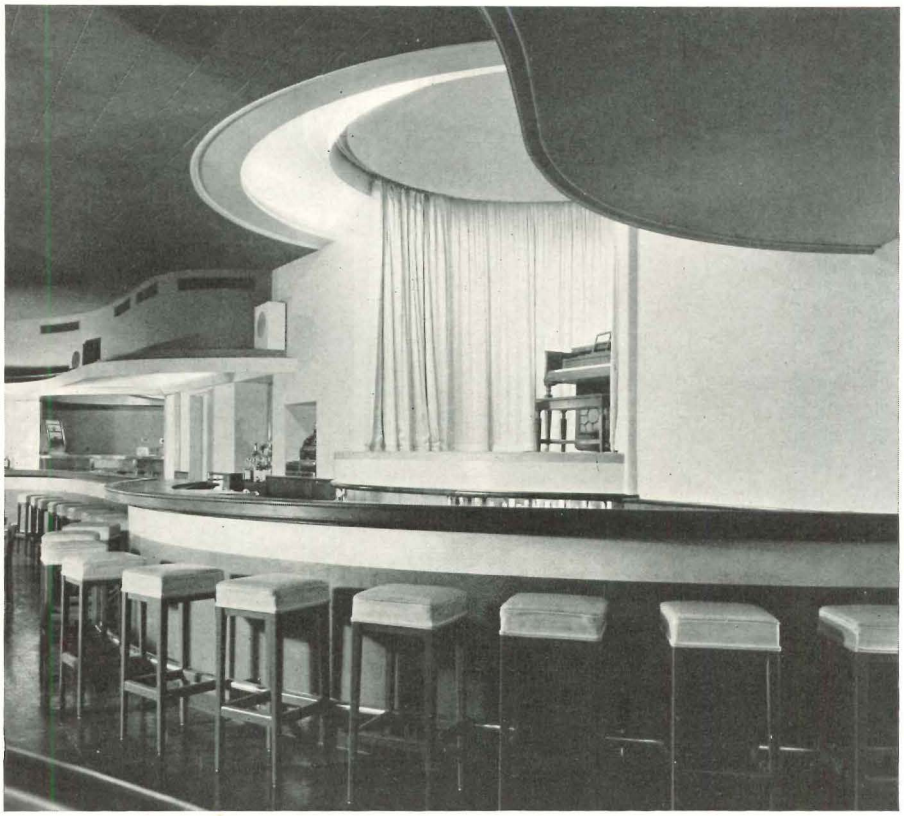
Before

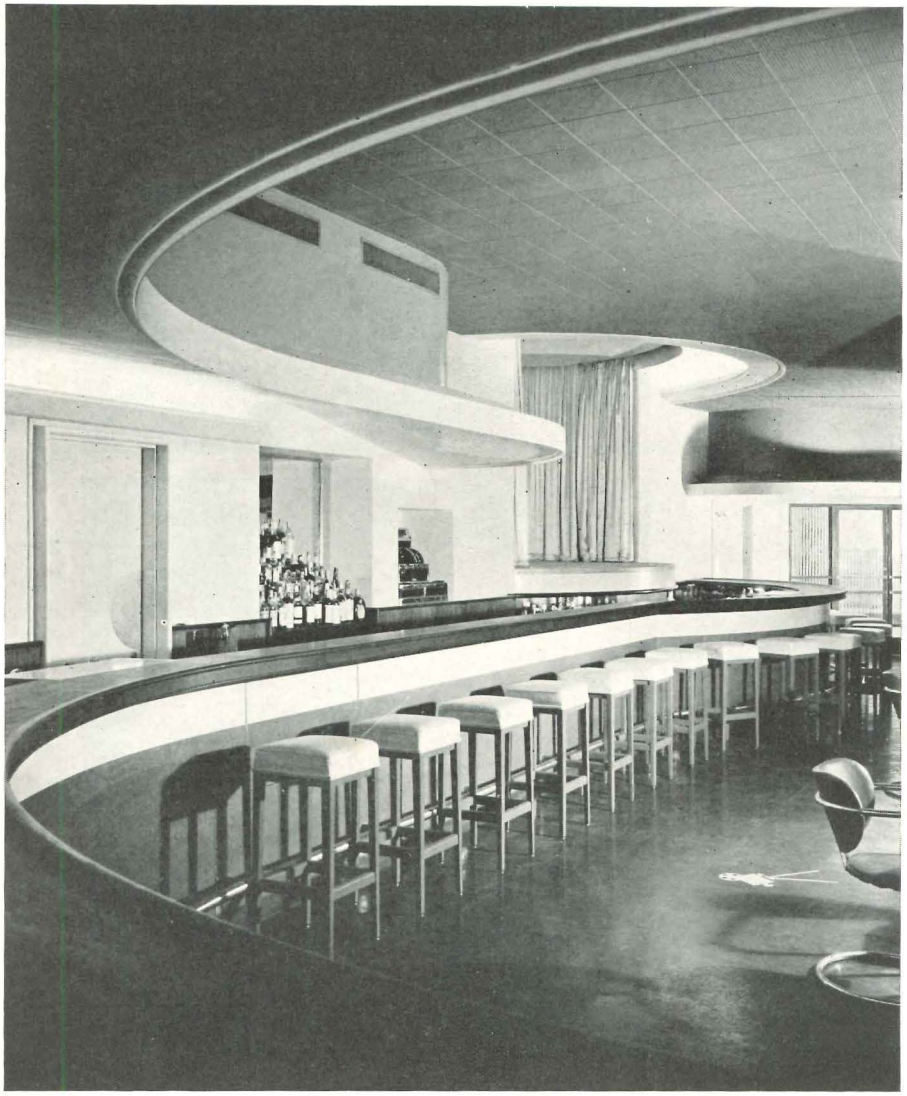


After



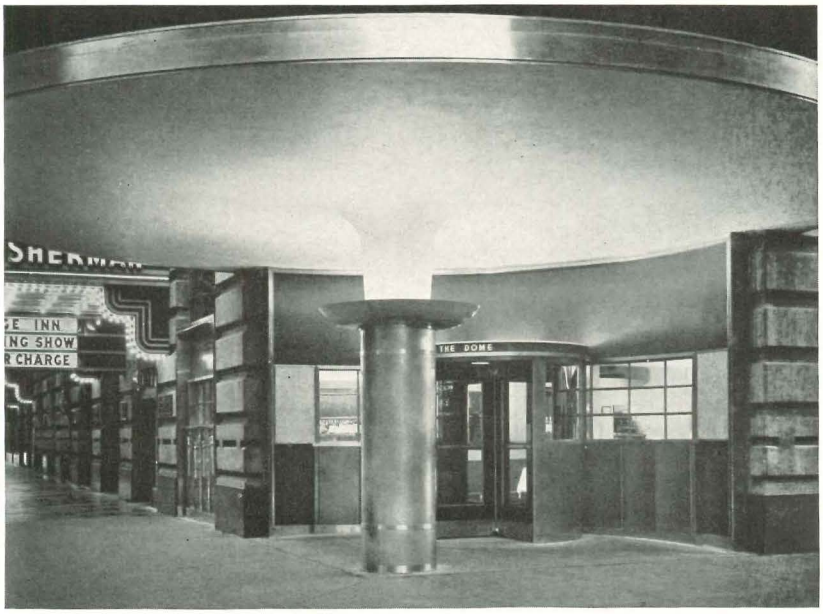
ection of stage



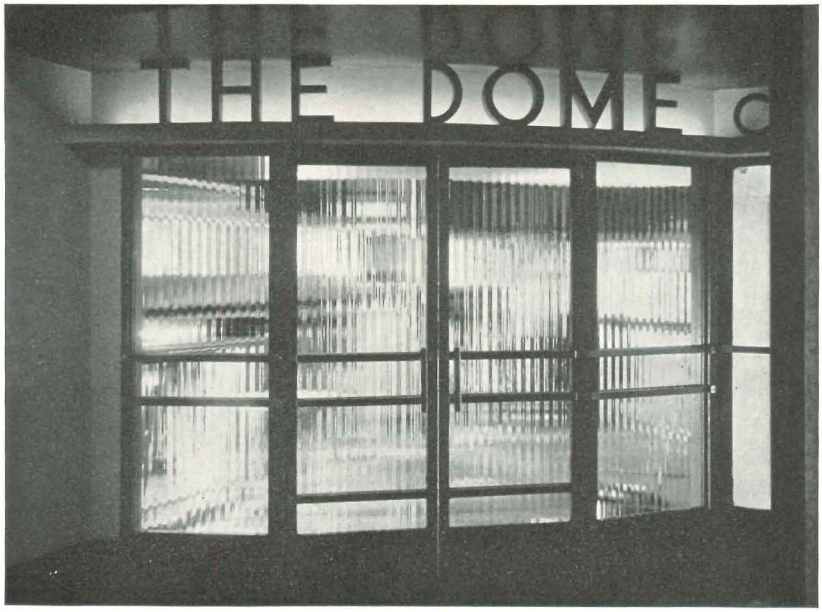


View of the interior, looking toward stage

BAR IN CHICAGO

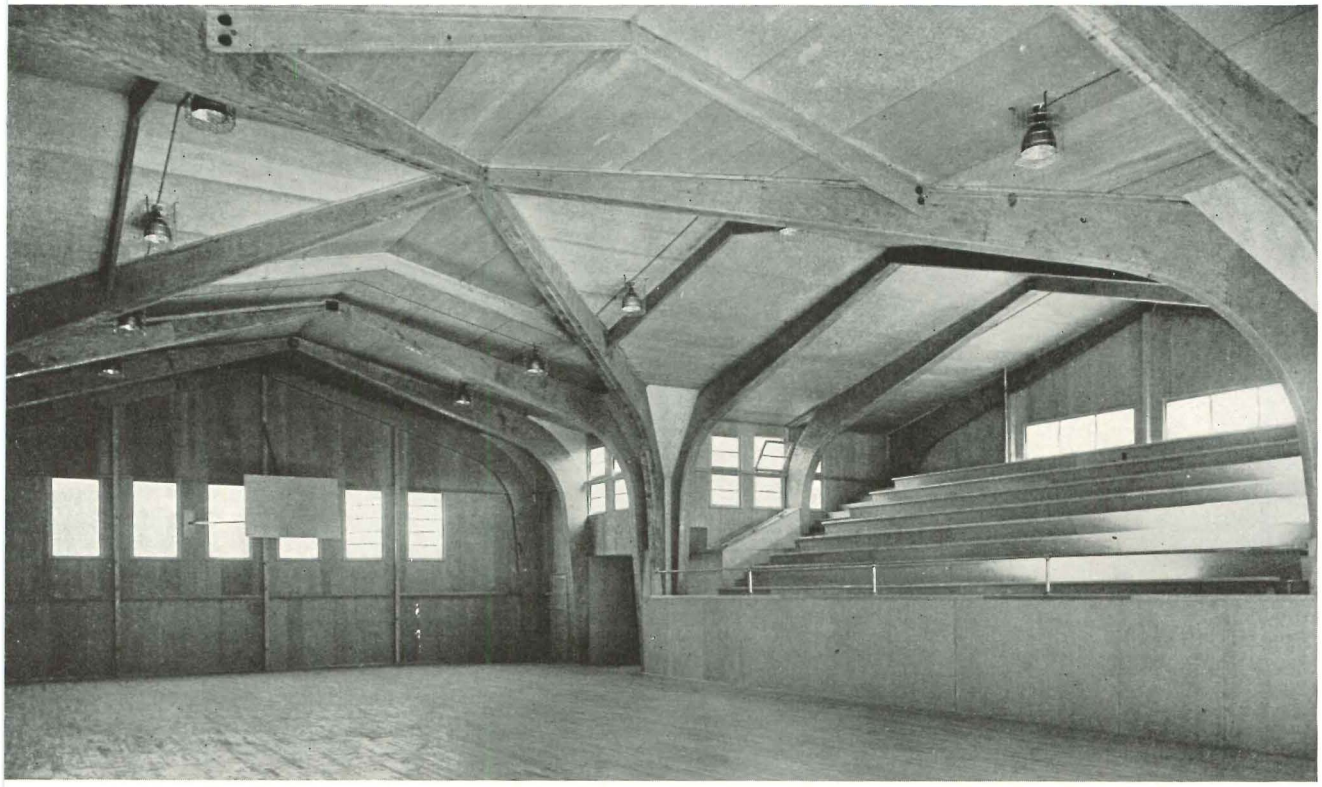


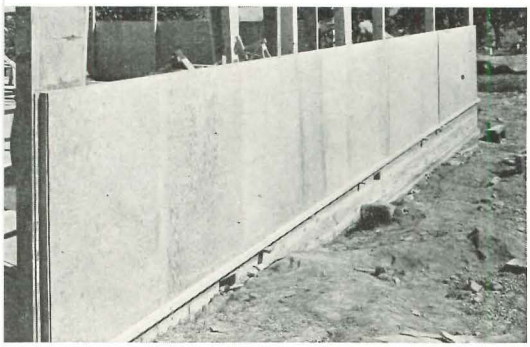
Photos by Hedrich-Blessing

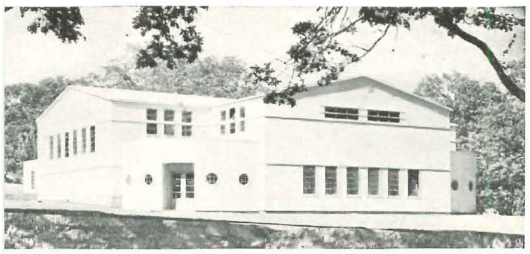


TOP: Entrance from street. CENTER: View, looking toward lobby entrance. BOTTOM: Entrance from lobby of hotel.

UED PLYWOOD RIGID-BENT TRUSSES USED IN GYM-AUDITORIUM







WALTER H. ROTHE, Architect

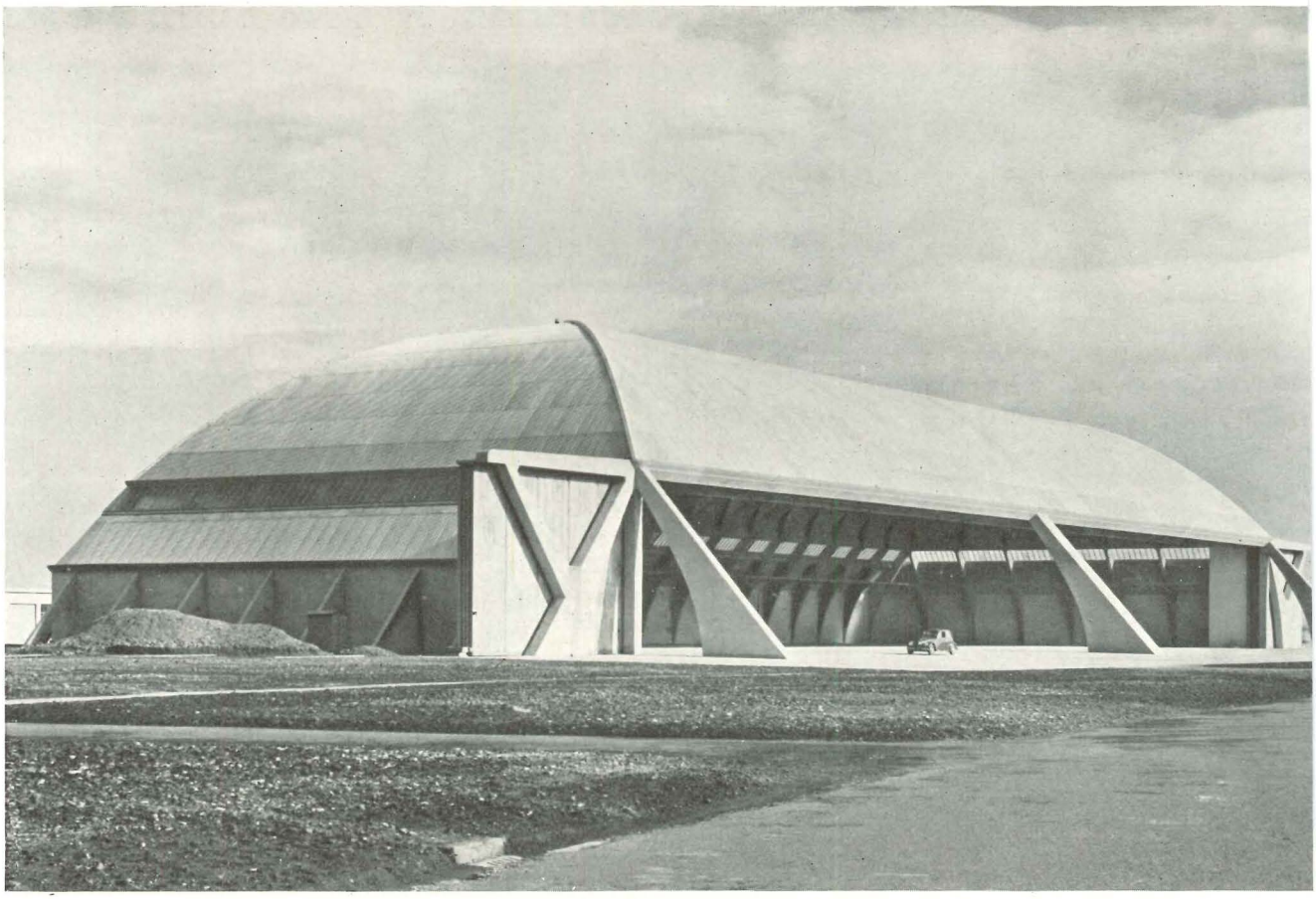
A GRADE-SCHOOL building combining auditorium and gymnasium was recently completed at White Salmon, Washington. It is a one-story structure composed of a large central unit and four adjoining wings. Its framework of glued, stress-covered, rigid-bent trusses is enclosed, walls and roof, with prefabricated panel units made almost entirely of Douglas fir plywood: 85% of the material used is plywood. Construction follows the principles worked out by the Forest Products Laboratory at Madison, Wisconsin. (See AR, 2/38, p. 48.)

The framework is composed of 12 sets of rigid-bent arches of 43-ft. span and 2 sets of arches of 61-ft. span, all resting on concrete footings. Steel tie rods under the floor bind the arches at the footings to overcome outward thrust. No purlins or structural ties are used: the panel units alone enclose the frame. Trusses were constructed and tested at the site. Closure panels were fabricated in a factory 300 miles away.

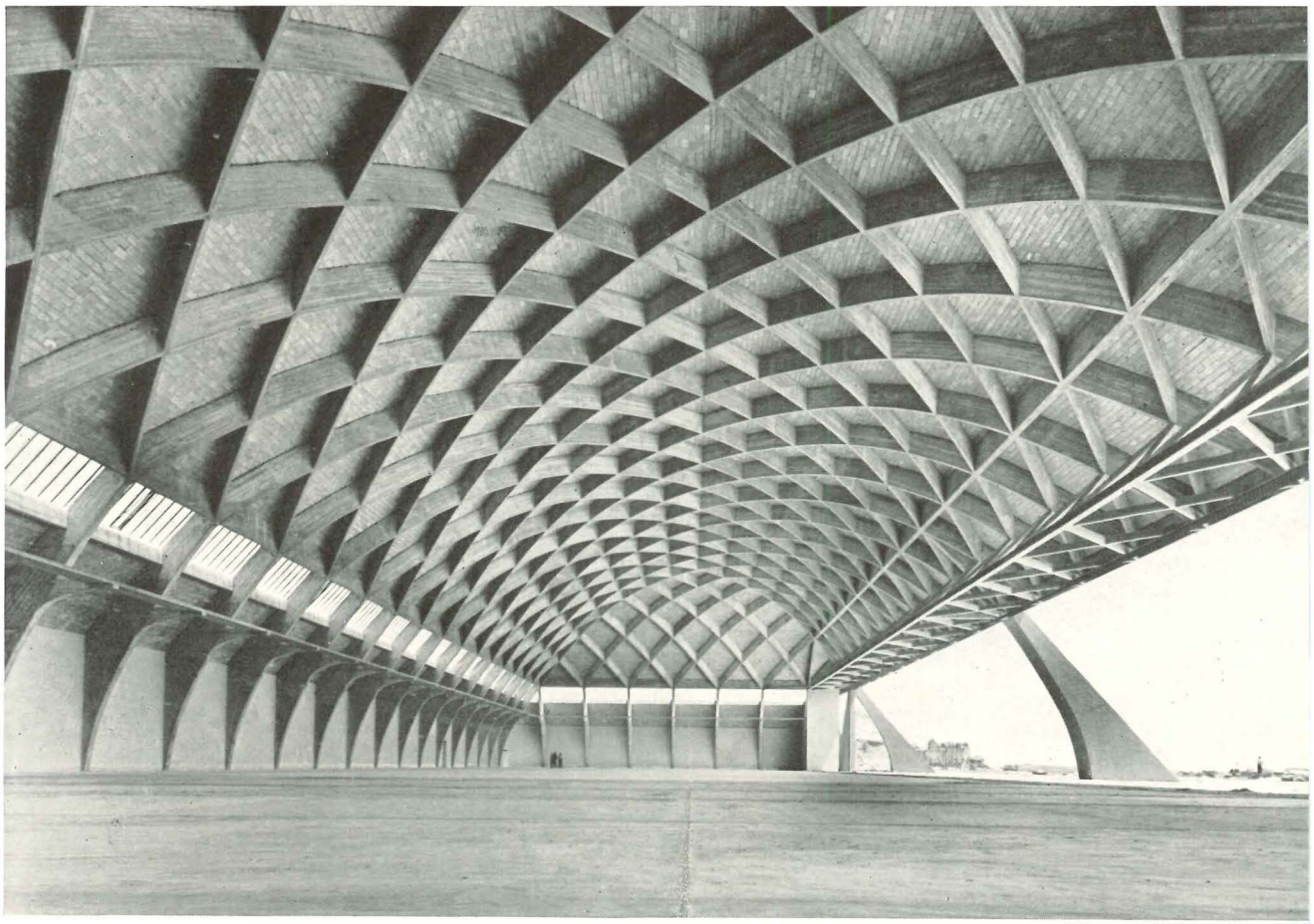
Expanded vermiculite or rock-wool batts provide insulation and contribute to fire resistance. (Wall sections, rock-wool insulated, were tested by exposure to fire for 1½ hrs. without failure.) The insulation was placed in the units at the shop. Section joints are flush and invisible; splines have been inserted in the joints, glued in place, and rendered smooth with hand-electric sanders. Although the capacity of the heating plant was reduced by one-third from the specifications originally given, it has been determined that the lowest outside temperature will not require capacity firing.

Because of its glued construction, the building is quite rigid; some nails and bolts were used, but only for the purpose of applying pressure while the glue set. The building is comparable in construction to a stringed instrument; this may account for its acoustics, said to be remarkably efficient.*

* Super-Harbord plywood and self-bonding glue by I. F. Laucks Co. were used.



Airplane hangar near Rome, Italy. Width of entrance is 372 ft. Doors slide into a continuation of the gi



Photos by Vasari

View showing vault ribbing. Horizontal member near open side of hangar forms a lattice girder with the ribl

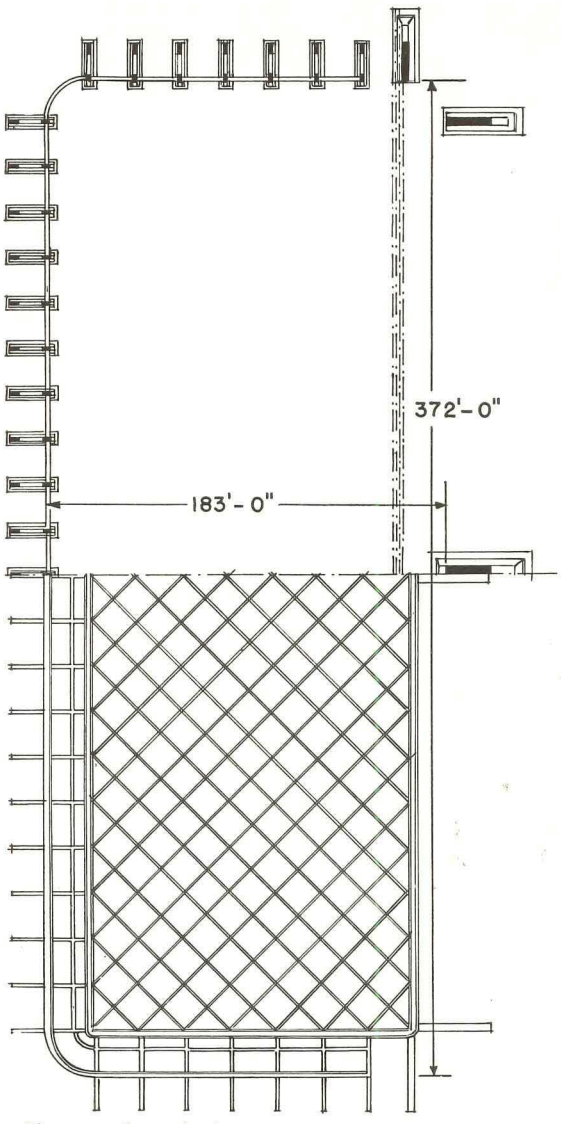
HANGAR PROVIDES CLEAR SPACE AND BOMB RESISTANCE

P. L. NERVI, Engineer

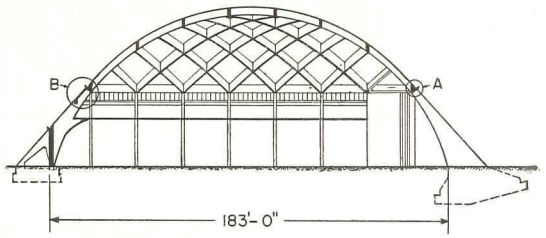
THIS STRUCTURE near Rome satisfies the essential requirements of hangar design: width of span for ever-lengthening wingspreads; and bomb-resistance. The entrance, spanning 372 ft., is obstructed only by the central pier; clear area inside the building is about 54,000 sq. ft. Bomb-hits anywhere except on the horizontal girders in front would probably cause only local damage.

The bearing structure consists of a system of segmental ribs running at 45° to the axis of the hangar. At sides and rear the arches are supported on piers inclined at an angle which continues the cross-sectional curve of the roof; these carry the weight of the structure directly to the foundations. In front, the arch system and horizontal girders bring the load to five larger piers at corners and center. The reticulated girder, hung from the structure at a height of 30 ft., supports the possibility of uneven loading as well as horizontal wind stress on the great doors and roof: these reactions are distributed to the frontal buttresses, bringing the system back into equilibrium. When open, the doors are supported on a continuation of the girder, which is, in turn, supported on either side by a strut joining one of the main piers.

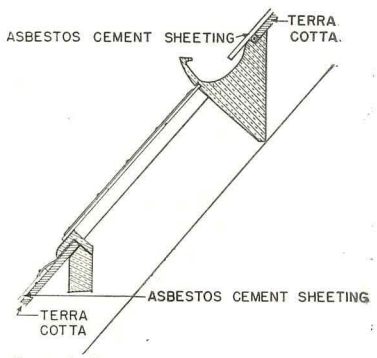
The concrete bearing structure is covered with terra cotta, reinforced with asbestos-cement sheeting. "Air cushions" in the squares formed by the vault-ribbing aid insulation.



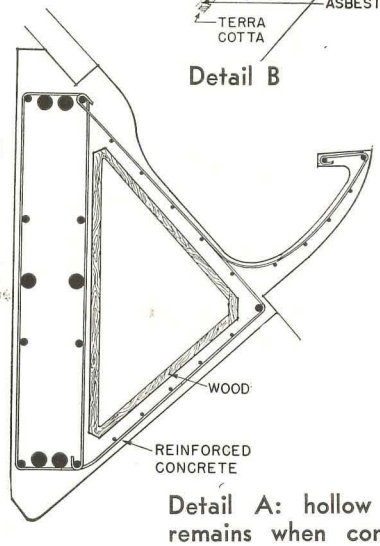
Floor and roof plan



Section of hangar

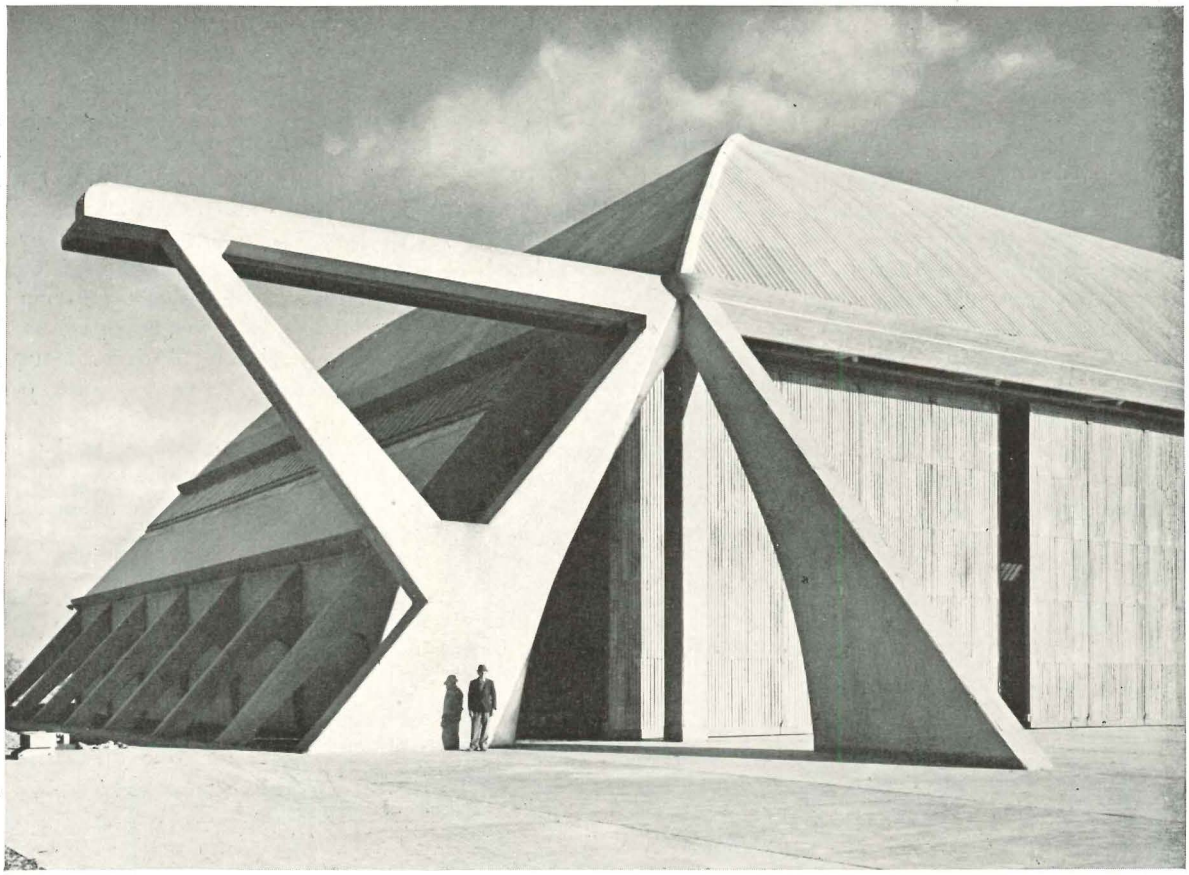


Detail B



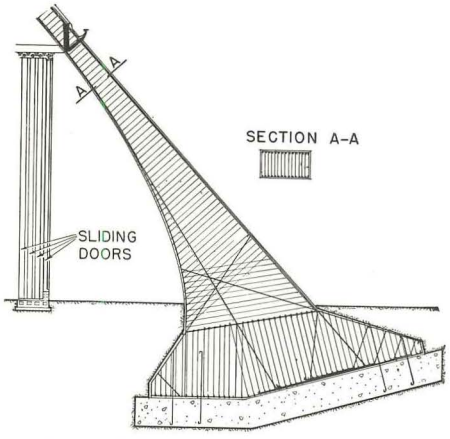
Detail A: hollow wooden form remains when concrete hardens, lightening the structure.

AIRPLANE HANGAR IN ROME

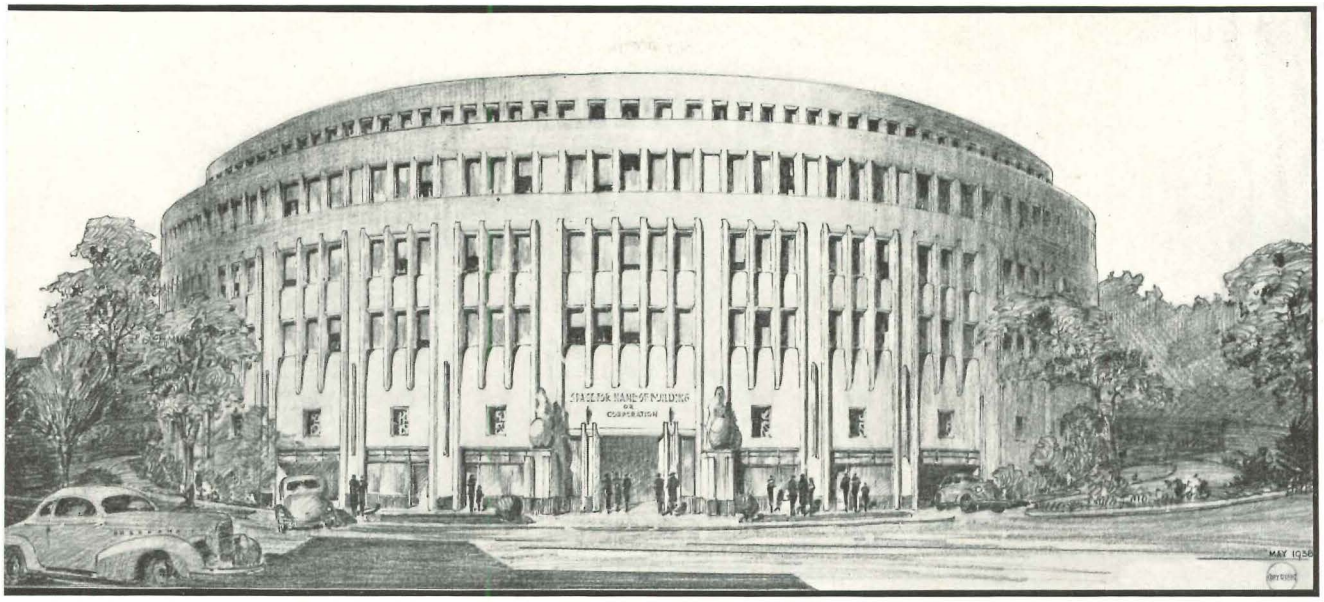


Photos by Vasari

Hangar doors slide into a continuation of the girder, which is supported by a strut joined to one of the main piers.



Section of frontal pier



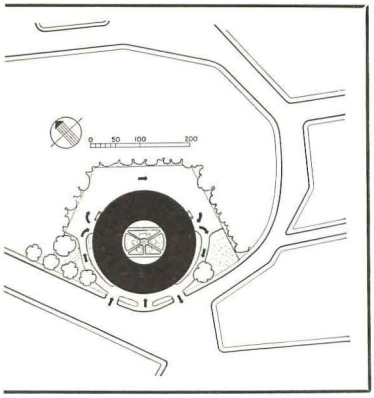
RCULAR OFFICE BUILDING PROPOSED FOR LARGE CORPORATION

F. RUCK, Architect, and ZARA WITKIN, Civil Engineer

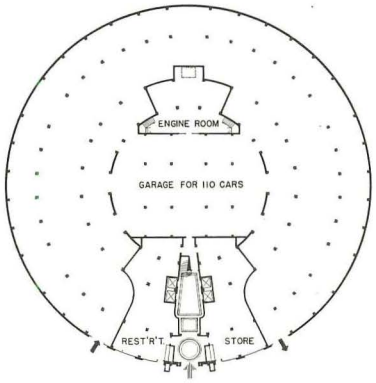
IS PROPOSED "office building for a large corporation" designed for a specific Los Angeles site open to v on all sides.

ince, geometrically, the perimeter of a circle is rtest, relative to enclosed space, there is a minimum wall and corridor area. It becomes easier to space ators, stairs, and fire escapes uniformly to give conient access from all parts of the building. Operational systems—plumbing, heating, ventilation, lighting, etc.—can be more efficiently laid out: there are no dead ends and waste spaces as in the "L", "U" or "E" types. Further, this is the strongest self-bracing structural shape against wind, earthquake and other lateral stresses.

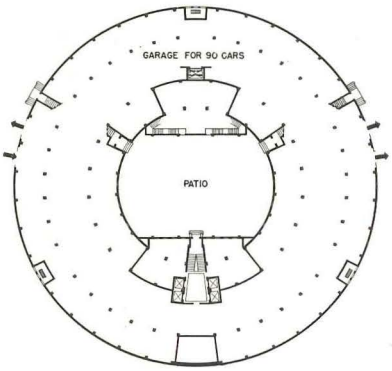
Identical exterior panels may be used all around the building. Construction plans include a scheme for precasting entire wall sections.



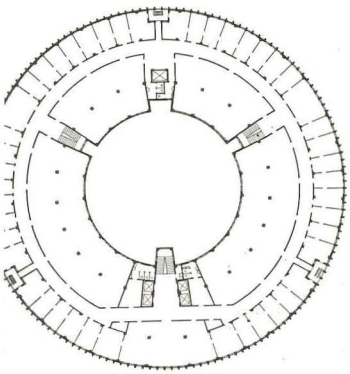
t plan



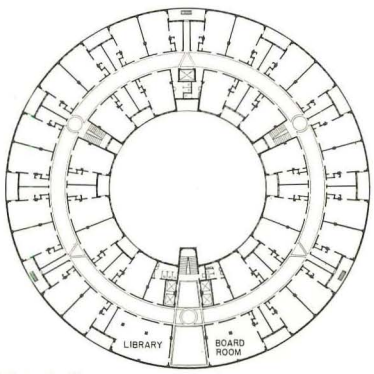
Ground floor



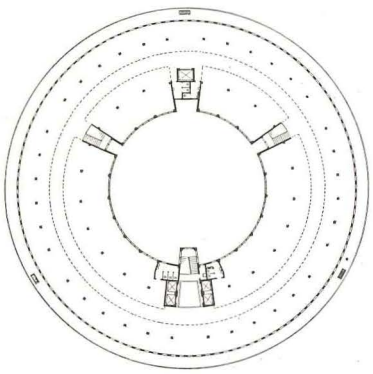
Mezzanine



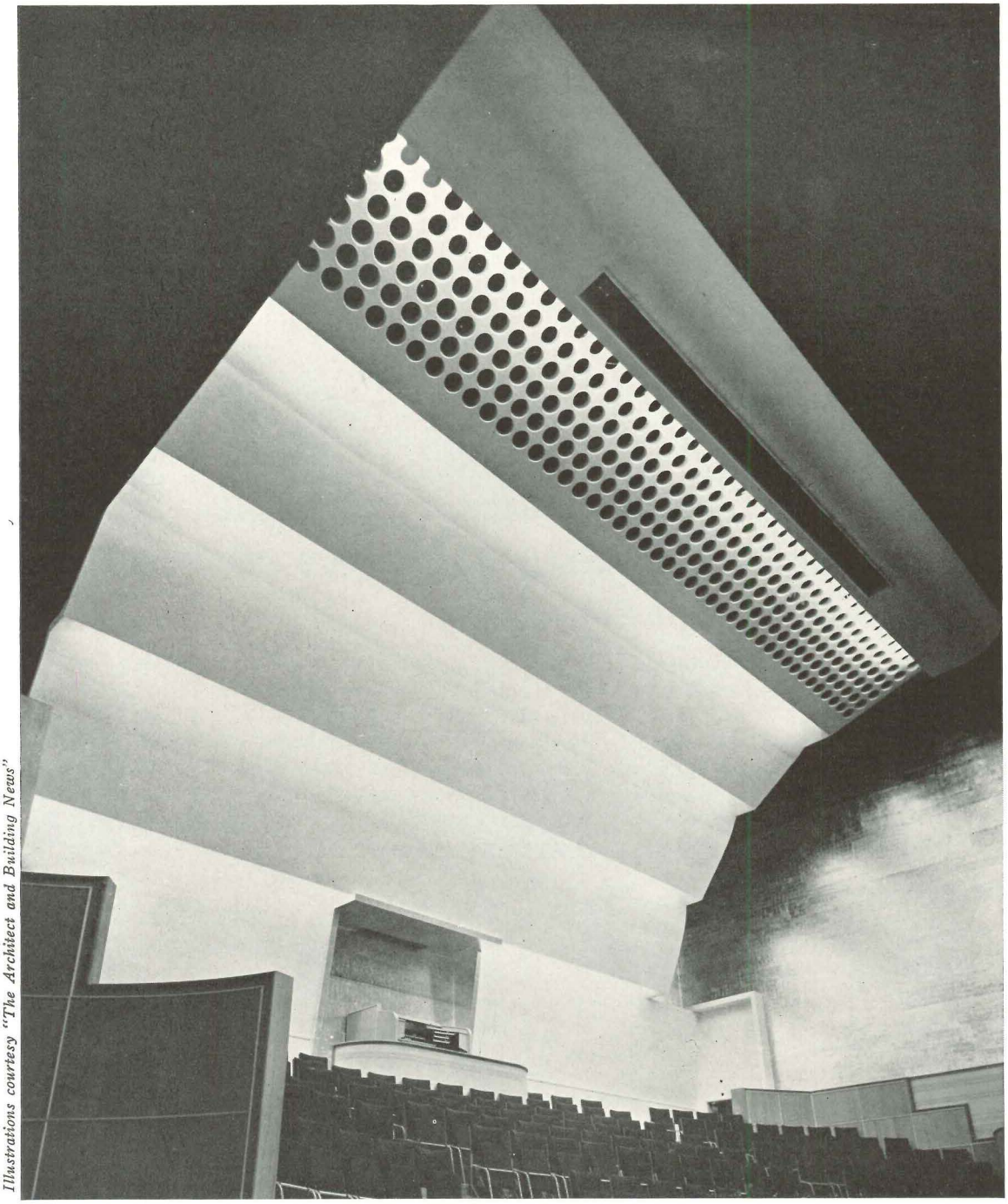
t and second floors



Third floor



Fourth floor



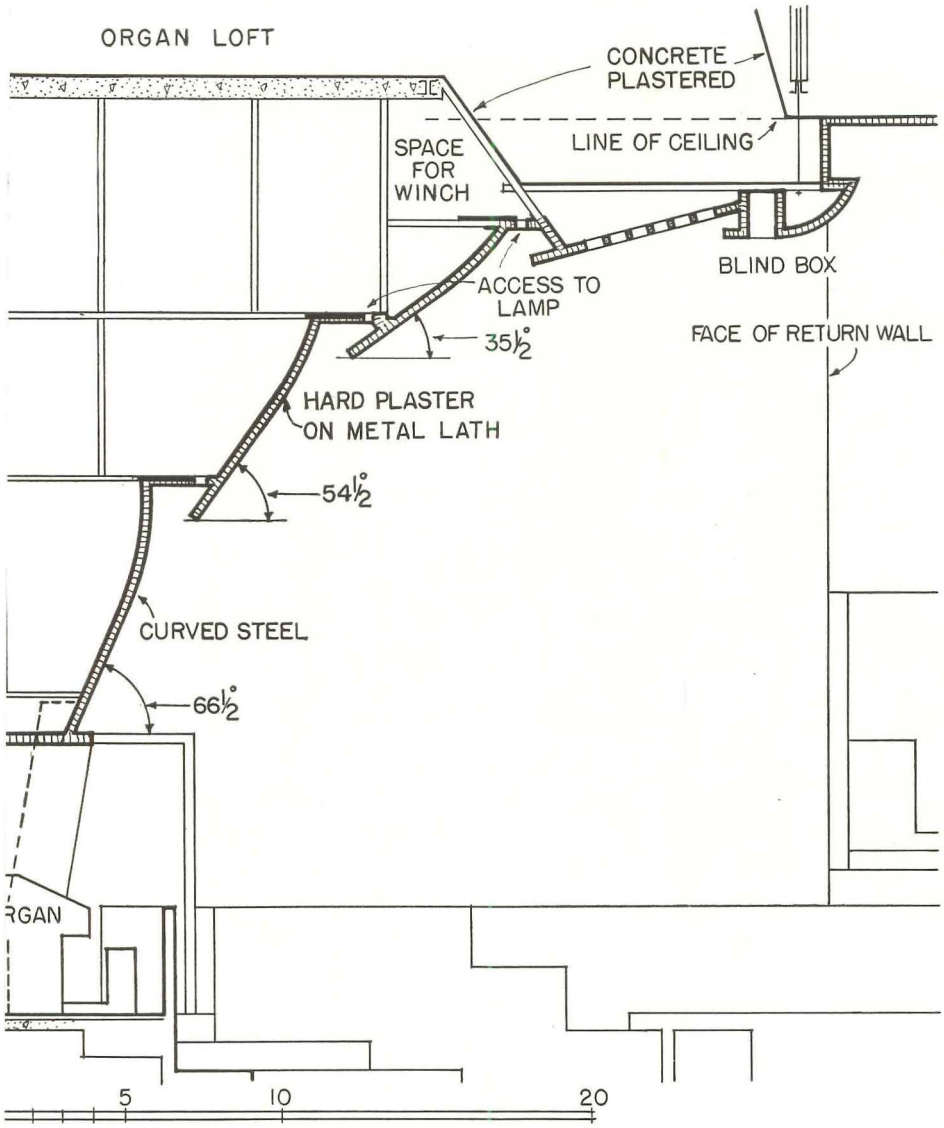
Illustrations courtesy "The Architect and Building News"

ACOUSTICAL HOOD FOR MULTIPLE-USE AUDITORIUM

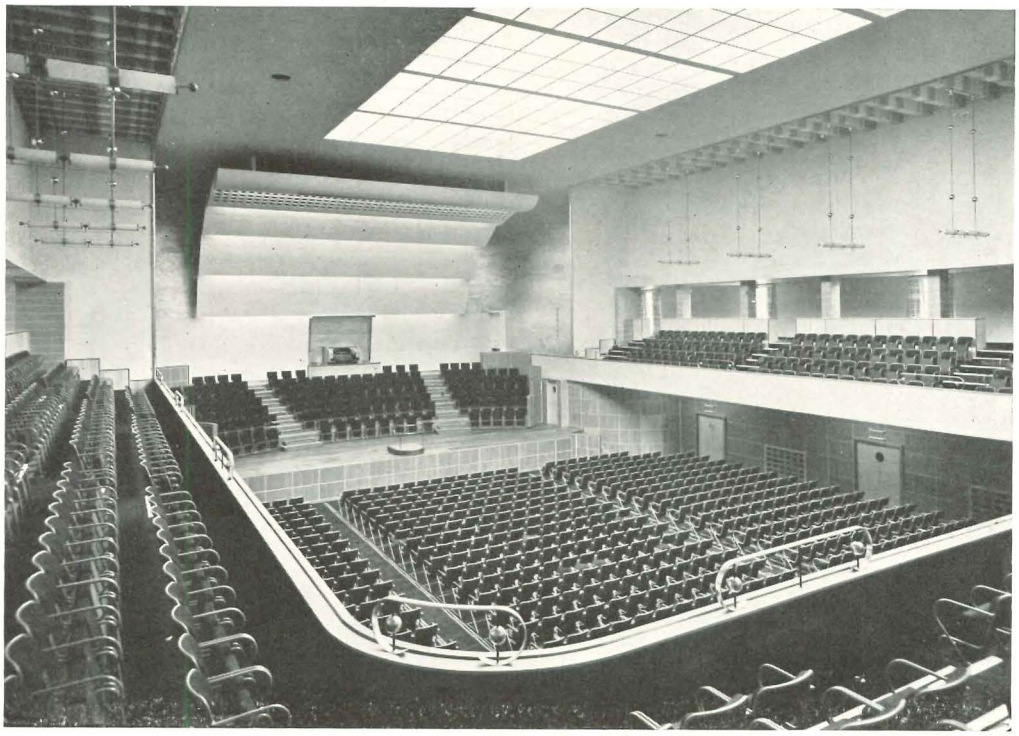
E. D. LYONS and L. ISRAEL, Architects

A MUNICIPAL AUDITORIUM recently opened in Wolverhampton, England, is to be used for organ, choral, and orchestral work, and by soloists and speakers. An acoustical hood placed over the proscenium has been designed to control the different reverberation-characteristics common to these different uses.

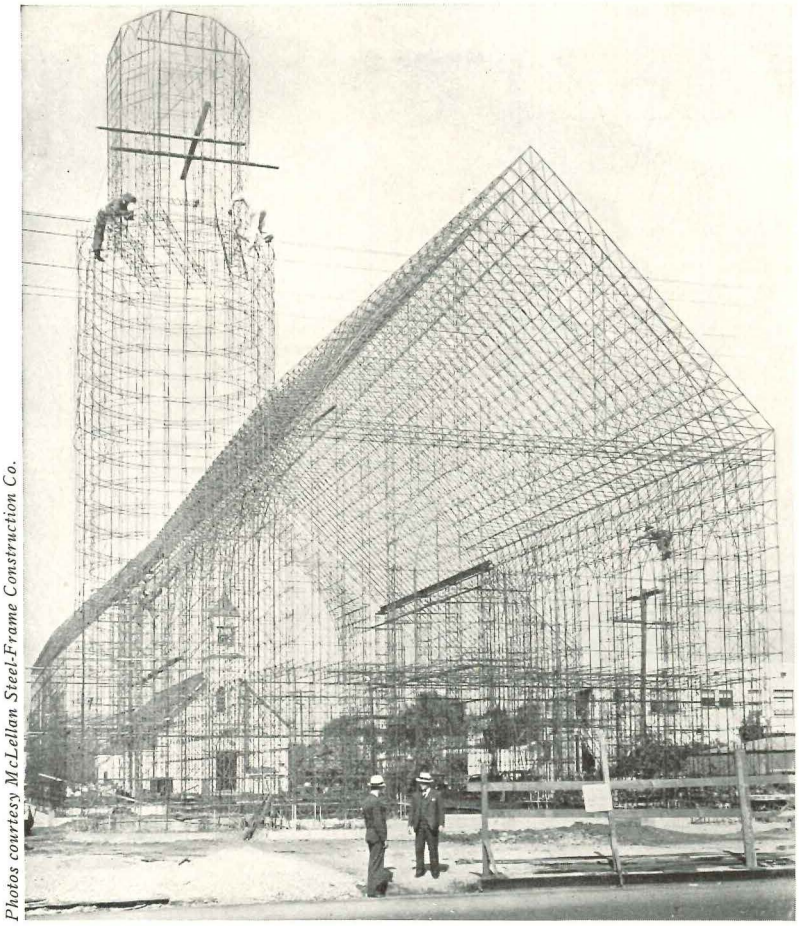
The hood is a light steel frame entirely suspended from the roof steel. It is composed of six planes at various inclined angles, with the upper part of each plane slightly concave to broaden the sound waves. The openings in the two upper veins carry sound from the organ chamber behind and above the sounding board. In order to amplify the speaker's voice, "soft speaker cones" have been incorporated in the hood as well as in the auditorium ceiling and balcony soffits; these are controlled from a room at the rear of the balcony. The beams over the balconies are used acoustically to prevent "fluttering." There are floodlighting troughs in each plane.



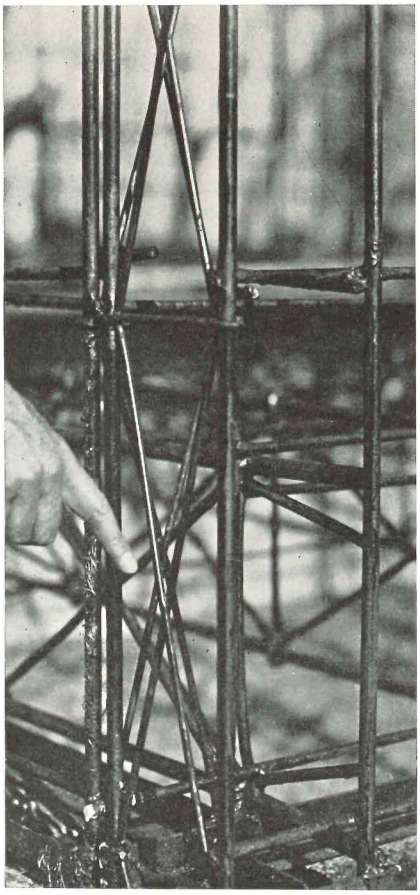
ion of acoustical hood

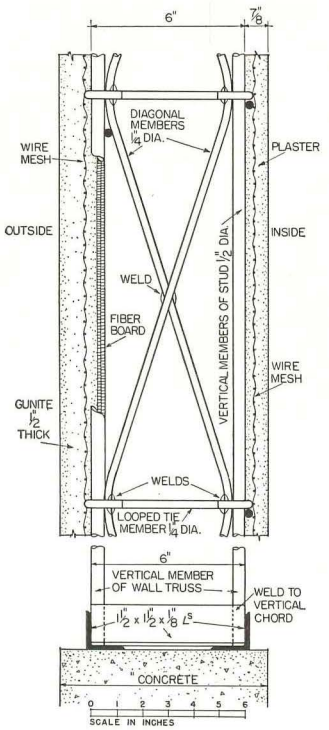


v of auditorium inte-
Note ceiling beams
balcony; these aid
preventing fluttering.



Photos courtesy McLellan Steel-Frame Construction Co.





Angle-irons holding wall panels are welded to anchor bolts set into the concrete foundation.

Church in Southern California Built of Welded Steel Rods

THE MCLELLAN steel-frame construct a new system consisting entirely of sr round, steel rods, one-eighth to five-eig of an inch in diameter, has recently l developed in Southern California. structural frame is a network of r welded—walls, roof, and floor joists— a single unit. All joints are arc-wel and tests are said to prove that these jc are stronger than the members joined.

The completed framework resembles birdcages, one slightly smaller than within the other, the two laced toge with trusslike cross-bracing. Air space tween exterior and interior wall surf acts as heat insulation.

The structure is exceptionally strong light, its weight only about one-third of a corresponding wooden frame. I designed as a "compensating" framewc all loads are widely distributed over structure, and the design takes advantag the superior strength of steel in tensi

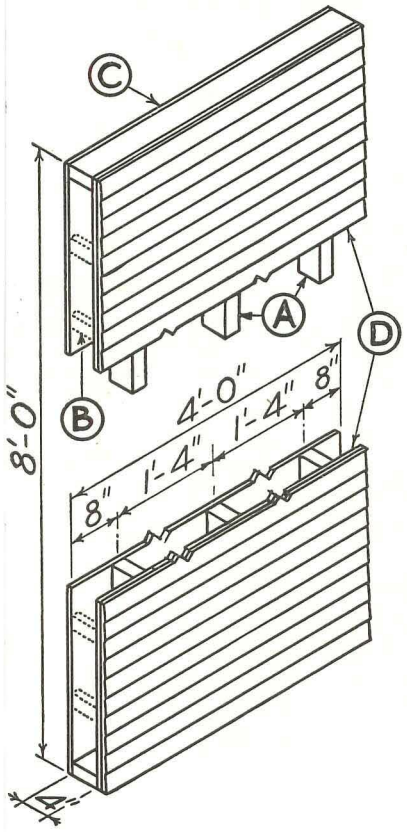
Sidewalls are prefabricated in panels single-story height. These panels cor of vertical studs, diagonally braced and l in position by horizontal tie rods.

The studs are composed of two vert chord members, braced to form a continu truss and stiffened with horizontal c rods. Diagonal cross-bracing in any stud is a continuous rod, bent in sawtc fashion, extending from top to bottom the stud, and bound, at the junctures v the vertical chords, by horizontal cross r Horizontal tie rods between studs are c tinuous across the panel. The diagc cross-bracing within panels is continu from one corner to the other and is bent sawtooth fashion for stiffening. Tl each panel, in itself, is a truss.

Floor and ceiling joists are identical are similar in construction to the wall st

Panels are joined together, to form walls, by sleeve connections encircling truding ends of rods; these sleeve jo are electric-welded after panels have l set in place. Bottoms of wall panels welded to angle-irons resting on founda walls; the angle-irons, in turn, are we to anchor bolts set into the foundation.

When the framework has been c pleted, both surfaces are covered with m lath stitched to the frame. Concrete pneumatically applied to the exterior surfaces, plaster or other appropriate fi to the interior. Floors are laid over an i lation of fireproof material. The struc is resistant to fires, earthquakes, and term



Typical wall specimen

A, three wood studs (2 x 4 in.); B, wood blocks to support the edges of the faces, optional with sponsor; C, inside face (lath and plaster); D, outside face (wood sheathing, paper, and lap siding).

Research Program into Low-Cost Constructions Announced

A REPORT recently issued by the Bureau of Standards describes the earliest results of a program of research into the properties of various building materials and their suitability for low-cost housing. This program was undertaken last year, under a grant of Congress, by a staff committee of the Bureau. (See AR, 10/38, p. 34.)

Until quite recently, tests on the structural qualities of houses have been largely of the trial-and-error sort. Inefficient constructions and constructions unnecessarily strong or expensive have been replaced only very gradually. To speed up the industrialization of housing, it has become essential to employ research methods common to the more advanced industries; and here there were several alternatives.

First, house structural systems in actual service might be observed over a period of years; but this would take a long time and the information obtained would be relatively indefinite. More precise results could be obtained by applying known loads to complete houses and then measuring their effect. But this, too, would require much time and would, in addition, be very expensive. Moreover, only the weakest element of a particular house could be tested by this method: for instance, if loads were applied to the second floor of a house to determine its strength, and if the walls crushed before the maximum load for the floor was applied, another house with stronger walls would have to be tested.

To the members of the Bureau committee it has seemed more practicable to test "elements" of a finished house—floors, walls, roofs, etc. Results of such tests will probably approximate more closely to those obtained on a complete house than would the results of tests on the separate materials of which the house was fabricated. This simplification and enlargement of the "building unit", if only for testing, is symptomatic of increasing industrialization in the building industry.

The Bureau has asked for specimens, which it has agreed to test without charge. An attempt will be made, in this way, to coordinate the experience of organizations, architects, engineers, and other individuals, so that it will be most useful to those concerned with the design or fabrication of houses, particularly low-cost houses.

So that the results of various tests may be as comparable—and hence as useful—as possible, the Bureau has formulated a number of rules for the submission of specimens for testing. Specimens should not be fabricated until the Bureau has agreed to include the construction in the program.*

For any or all of the four elements of a house—wall, partition, floor, and roof—one or more low-cost constructions may be chosen. Dimensioned drawings and a complete description of each element must be submitted; all available information which will identify the materials or units in the construction should be included. Drawings and information will be used to determine whether or not the construction will be used in the research program. (Specimens should not exceed in price the values given in the table in the left-hand margins.)

Specimens should be as large as practicable so that the effect of variations in material and workmanship may be minimized, and so that the results obtained may be representative of constructions in actual houses. Obviously, the size of specimens is limited by the size of testing machines available. The following sizes have been decided upon:

Wall: 15 specimens: height, 8 ft.; nominal width, 4 ft.† (480 sq. ft.). 3 specimens: height, 8 ft.; nominal width, 8 ft. (192 sq. ft.). Total area, 672 sq. ft.

Partition: 3 specimens: height, 8 ft.; nominal width, 4 ft. (480 sq. ft.)

Floor: 6 specimens: length, 12 ft. 6 in.; nominal width, 4 ft. (300 sq. ft.).

Roof: 3 specimens: length, 14 ft. 6 in.; nominal width, 4 ft. (174 sq. ft.).

Further information on this program of research may be found in Report BMS2 by Herbert L. Whittemore and Ambrose H. Stang. It is for sale by the Superintendent of Documents, Washington, D. C., at 10 cents.

*The Bureau of Standards will test only "elements" of completed houses: an element is defined as a "portion of the completed house ready for occupancy having one primary function, for example, a floor or wall.". "This Bureau does not test building units or members such as brick, concrete block, open bar joists, etc., for the public, if such tests can be made in the materials-testing laboratories of commercial organizations and technical schools."

†The greatest width which can be tested is 6 ft.

PRICE OF LOW-COST HOUSE CONSTRUCTIONS*

Element	Max. price per sq. ft.
Wall and load-bearing partitions; including weatherproofing on outside face of the wall and the finish on inside face of the wall and on both faces of the partition	$0.60
Partition, nonload-bearing; including finish on both faces	.35
Floor; including finish floor on upper face and ceiling (if any) on lower face	.75
Roof; including weatherproofing on upper face and ceiling (if any) on lower face	.60

Prices as of July 1937 of each element, as used in a house delivered in Washington, D. C.; higher-priced constructions will not be included in the program.

WITH THE PROFESSION

Prize Competition for Design of Theater Announced

FOLLOWING CLOSE on the heels of the recent Wheaton and Goucher College contests, another competition for the design of a college building—"A Festival Theater and Fine Arts Building"—begins with the publication of this notice in ARCHITECTURAL RECORD. The awards will total $1,500: first prize, $500; second prize, $300; third prize, $200; and five citations of $100 each. The competition is sponsored by The American National Theater and Fine Arts Academy, assisted by the Museum of Modern Art.

The competition problem is the design of a festival theater, with all the facilities necessary for dramatic productions, opera, motion pictures, etc.; in addition, the building is to house the activities of a college Fine Arts Department. There is no contract to be awarded; but, to make the problem as specific as possible, the site for the project will be considered to be a portion of the campus of the College of William and Mary.

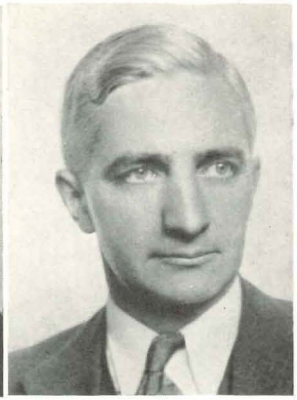
Any architect, designer, engineer, or draftsman residing in the United States, except employees of ARCHITECTURAL RECORD or the Museum of Modern Art, is eligible to compete. The sponsors have invited five architects to enter the competition, guaranteeing them a remuneration of $400 each. These architects are Goodwin & Stone, New York, N. Y.; Walter Gropius, Cambridge, Mass.; Michael Hare, New York, N. Y.; Harrison & Fouilhoux, New York, N. Y.; Richard Neutra, Los Angeles, Calif. But all designs will be judged at the same time and will remain anonymous until after final judgment.

The competition closes January 31, 1939. The names of the jurors — three architects, a theater expert, and an educator associated with the Fine Arts — will be announced February 14, 1939, at which time the judgments will begin. Prize-winning and other selected designs will be published in ARCHITECTURAL RECORD.

Entry blanks can be obtained from the professional adviser, Kenneth K. Stowell, AIA, care of Architectural Record, 119 West 40 Street, New York, N. Y.

S. Fraser McIntosh

Myron T. Hill



Waldron Faulkner

Winners of $200,000 Prize Competition Announced

THE WINNERS of the $200,000 prize competition of the James F. Lincoln Arc Welding Foundation have recently been announced. This competition, begun early in 1937, was judged by 31 engineering authorities from leading universities and colleges throughout the country. Thousands of papers were submitted and subjects of study in the 44 divisions of the Program represented almost every section of industry. The Central Committee of the Jury of Award, after discounting some very enthusiastic claims, found that savings to industry by arc welding, estimated by authors of papers, amounted to $1,600,000,000.

Awards of $712, $508, $305, $203, and $152 were received by designers of steel-framed houses. These, the first five awards in the house division of the Program, went respectively to S. Fraser McIntosh, president, Insulated Steelbilt Structures Inc., Amsterdam, N. Y.; Myron T Hill, architect, Toledo, Ohio; Waldron Faulkner, architect, Washington, D. C.; E. W. Burgess, engineer Milwaukee, Wis.; E. H. McClintock designer, and T. K. O'Connor, fabricator, Springfield, Mass.

The paper by Mr. McIntosh "Steel-Framed Dwellings", features a system of construction using shop fabricated welded steel units. Myron T. Hill describes an attempt to design a logical steel frame. Waldron Faulkner describes and gives detail plans for construction of a welded steel-frame house. Mr. Burgess paper, "Steel Frame Structures", describes a pressed thin steel plate shaped into ribs to be used as floor

In brief form, these and other papers are available from the James F. Lincoln Arc Welding Foundation Cleveland, Ohio.

Exhibition of Post-War Architecture to Travel Through U. S

THE "NATIONAL EXHIBITION of Representative Post-War Architecture", the first of its kind ever to travel throughout America, will be seen, during the coming year, in more than a score of cities all over the country.

The Special Exhibits Committee and the Committee on Education of the American Institute of Architects have selected and assembled the material, and the American Federation of Arts will exhibit it.

The exhibit consists of photographs, plans, notes, and details of 150 buildings; an attempt was made to choose "representative" buildings, irrespective of style or architect.

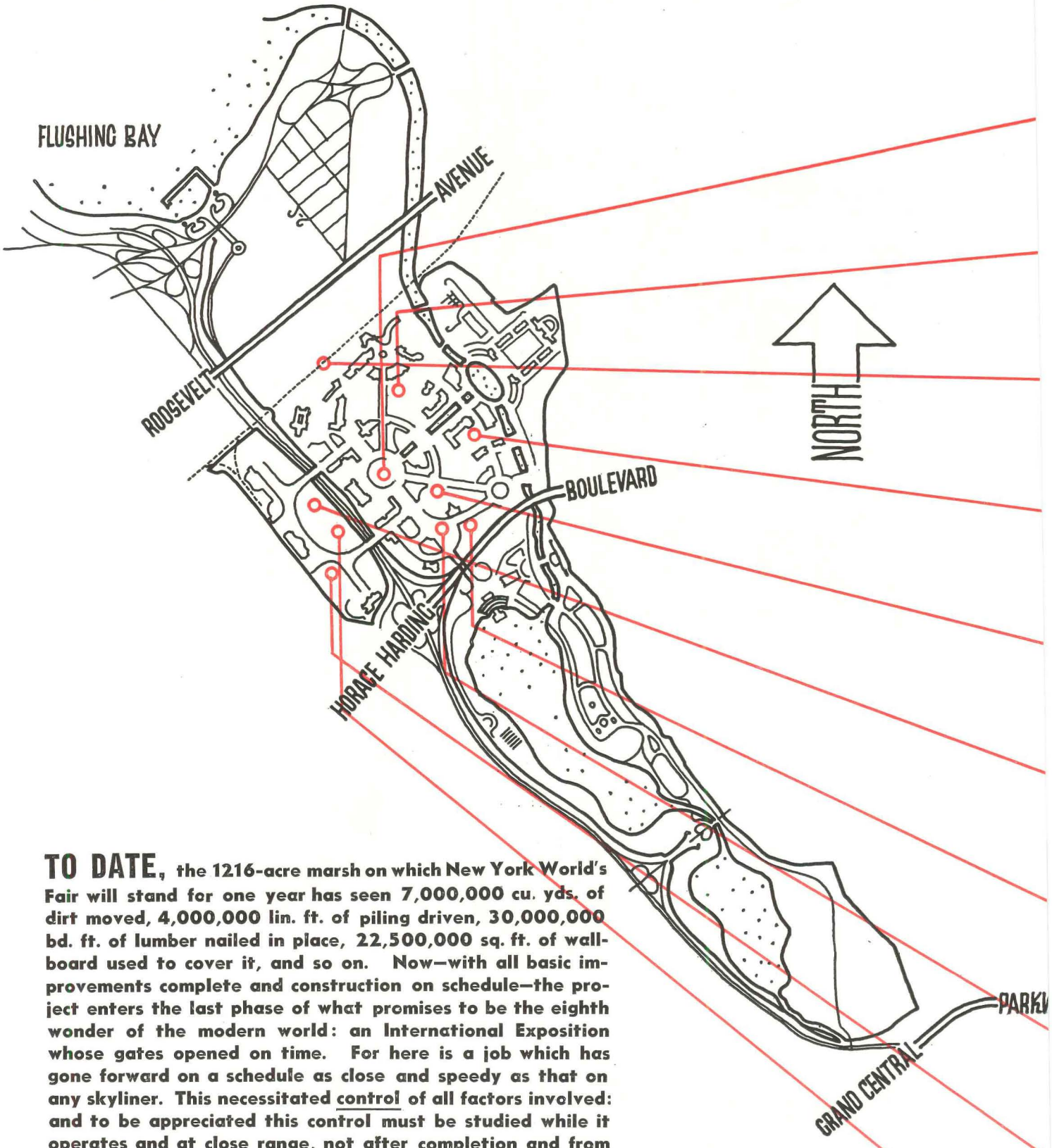
All places on the exhibition circuit have not been definitely decided upon, but the following are scheduled: National Collection of Fine Arts, Washington, D. C.; Harvard University; Massachusetts Institute of Technology; Baltimore Museum of Art; New York City; Yale University; Princeton University; University of Pennsylvania; Addison Gallery, Andover; Montclair; Chicago; Memphis; Detroit; Beloit College; Kansas State; University of Minnesota; other Western cities are to be announced later.

Headquarters of the American Federation of Arts are in the Barr Building, Washington, D. C.

DESIGN TRENDS

ARCHITECTURAL
RECORD
COMBINED WITH
AMERICAN ARCHITECT AND ARCHITECTURE

PREVIEW

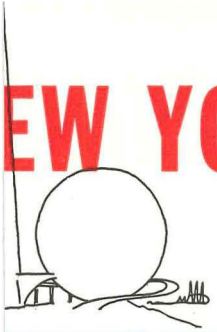


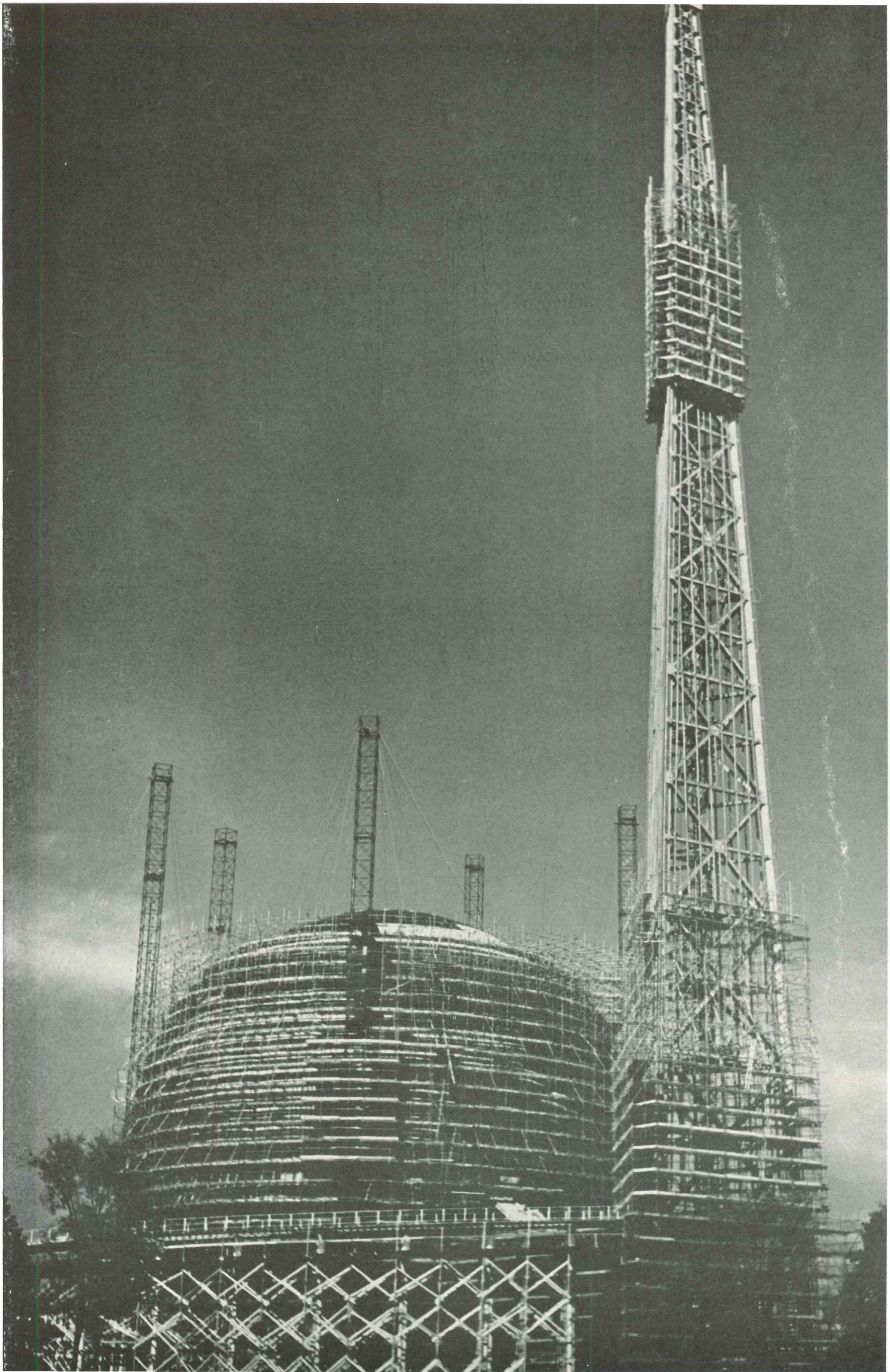
TO DATE, the 1216-acre marsh on which New York World's Fair will stand for one year has seen 7,000,000 cu. yds. of dirt moved, 4,000,000 lin. ft. of piling driven, 30,000,000 bd. ft. of lumber nailed in place, 22,500,000 sq. ft. of wallboard used to cover it, and so on. Now—with all basic improvements complete and construction on schedule—the project enters the last phase of what promises to be the eighth wonder of the modern world: an International Exposition whose gates opened on time. For here is a job which has gone forward on a schedule as close and speedy as that on any skyliner. This necessitated control of all factors involved: and to be appreciated this control must be studied while it operates and at close range, not after completion and from the outside.

But expositions are scarce and—like lightning—seldom strike twice in the same spot; consequently, the average architect seldom designs one. Thus, ARCHITECTURAL RECORD here previews not the Fair as a whole but only some of those buildings, systems, and equipments which point to higher production standards, and which have application to many building types other than exposition structures.

All photographs, except where noted, were specially taken for ARCHITECTURAL RECORD by Jean St. Tomas.

EW YORK WORLD'S FAIR - - - 1939





TRYLON, PERISPHERE, HELICLINE

ARRISON and FOUILHOUX, Architects

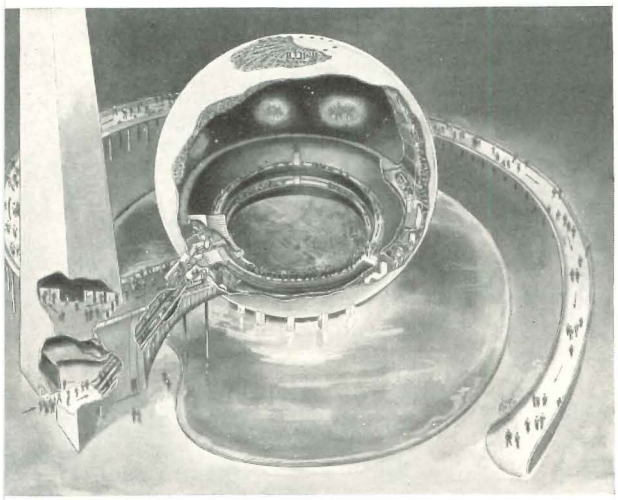
NRY DREYFUSS, Designer

ORAN, PROCTOR & FREEMAN, Foundation Engineers

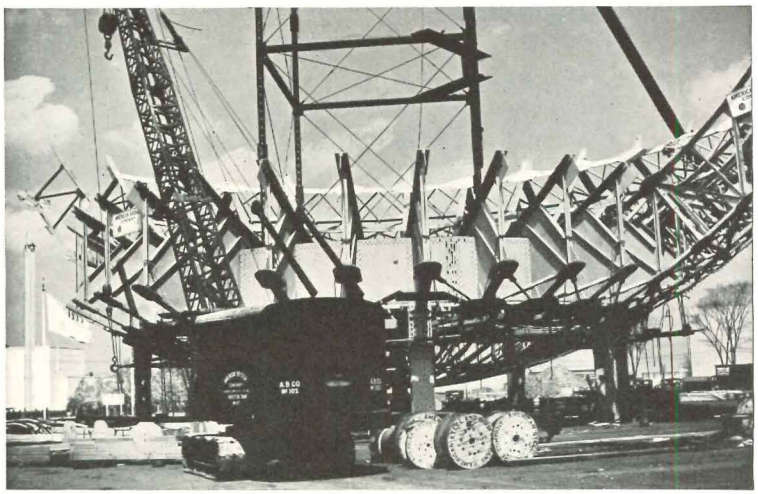
ORTRIDGE HARDESTY, Structural Engineer

035 SKETCHES were discarded before the present sign for the Fair's Theme Center was finally cepted; and the problem had just begun. The design ocess was difficult, since no precedence existed for ch structures, and an entire series of tests had to be ried on to determine the characteristics of such uctures under loads, wind pressure, etc. Nor were brication and erection problems any simpler; extraorinary standards of precision had to be maintained roughout. This led to the development of a novel ging set-up; of cantilevered scaffolding outside and ating scaffolding inside the Perisphere; of a new terial to surface the structures; etc. Yet, in spite its complexity, the entire job is on schedule, with ly one minor injury—"a crushed toe-nail".

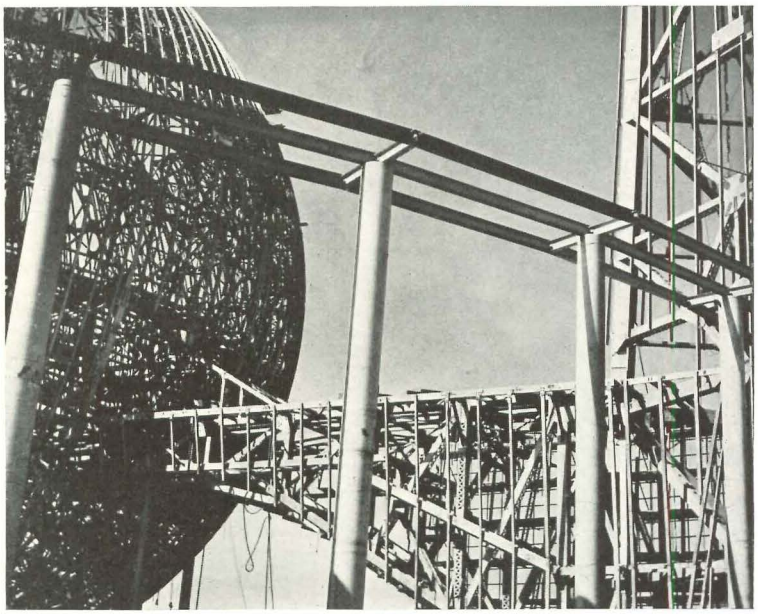
As finally constructed, the Perisphere rests on a cle of 528 piles driven into sand about 100 ft. below e surface: these piles are capped with a concrete g. From this foundation eight columns support a ge ring girder 72 ft. in diameter; and from this der spring 32 meridian trusses similar to the lines longitude on a globe. These in turn are joined together by 15 horizontal trusses. Smaller purlins complete the assemblage. The Trylon and Helicline are more usual design and presented no such problems the Perisphere.



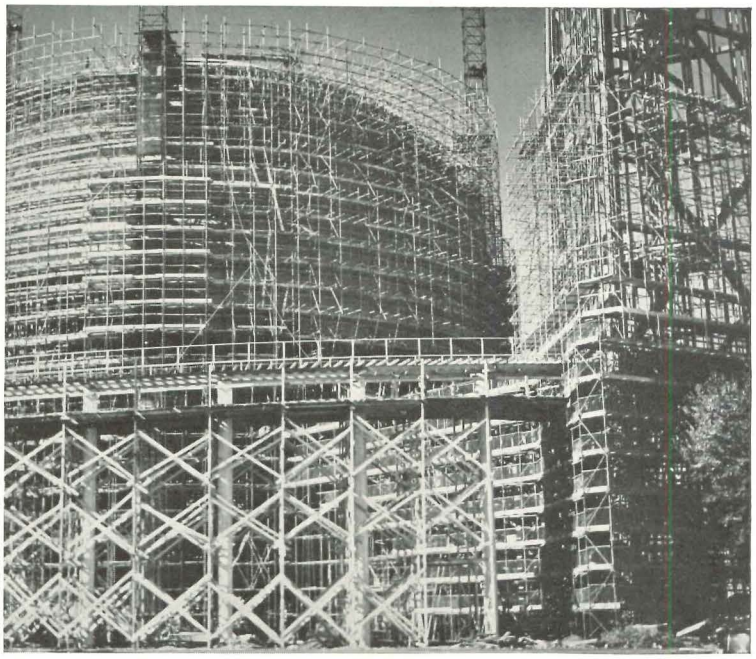
o giant escalators (lower left) spill 8,000 persons per ur onto two circular platforms (center); moving in posite directions, these platforms make complete circuit in 5½ min., where barrier deflects traffic onto elicline (left, center).



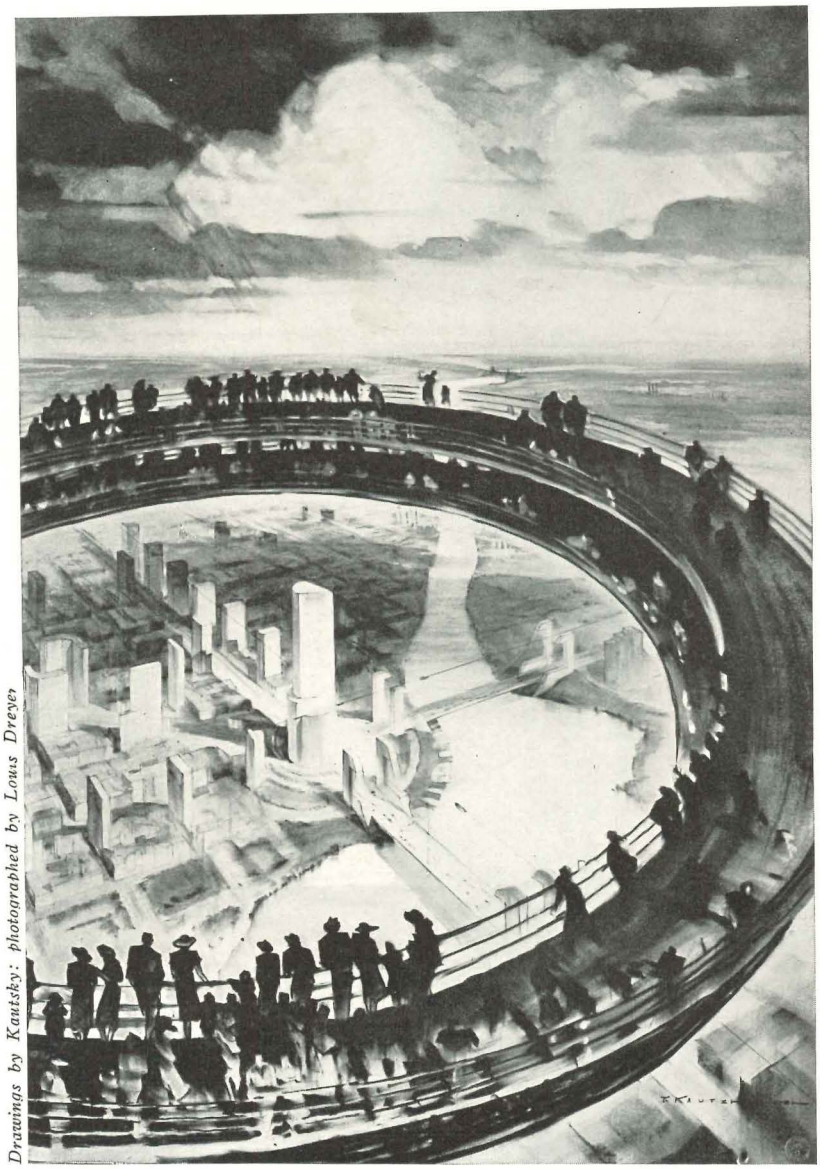
ERECTION required specially-designed rigging system



FRAMING: 7,125 pieces of shop-fitted steel in proper place



SCAFFOLDING so complex that separate bids were taken on special scaffolding design.



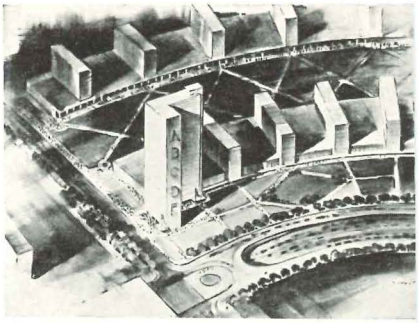
Drawings by Kautsky: photographed by Louis Dreyer

Sketch showing relation of spectator to Perisphere's huge diorama of Town of Tomorrow.

DRAMATIZATION of the Perisphere's thematic display, "Building the World of Tomorrow", was the task of designer Henry Dreyfuss. While the accepted design for the Perisphere is essentially that for a theater—with a slowly moving audience in the center and "show going on above it, below it, and all around it"—the design involves many problems in traffic, display, lighting, acoustics, etc., not found in the usual theater. The central task of the designer was therefore to integrate a number of specialized fields into a theater for which there was no single precedent.

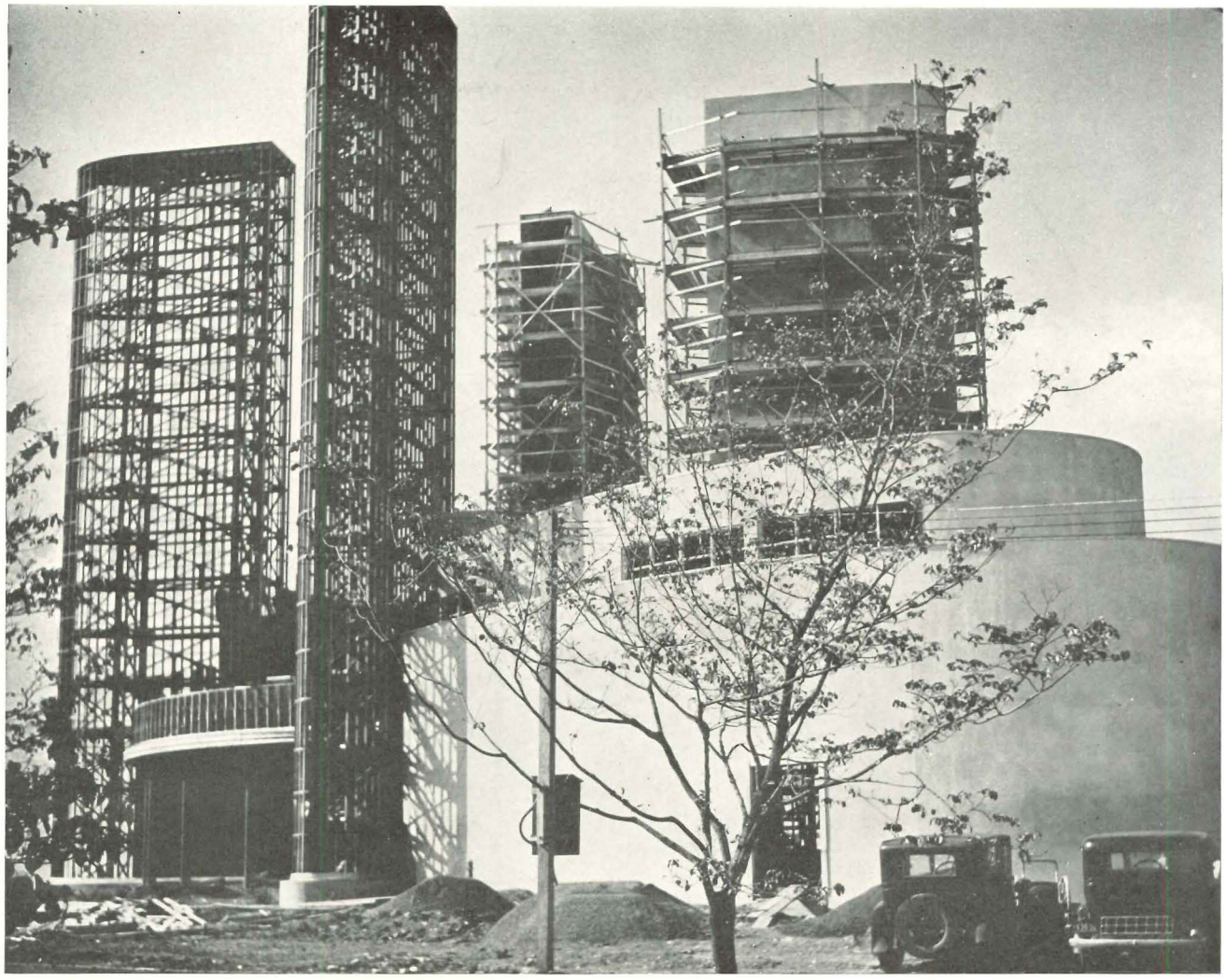
The central display—a scale model of a city which incorporates current standards of town and regional planning—will occupy the bottom of the sphere; by means of the diorama technique, it will merge into the walls of the sphere. Lighting effects—not only in the model itself but on the entire inner surface of the sphere—will then reproduce a 24-hour day—clouds, stars, sunrise, and sunset—compressed into 5½-min. cycles. Spectators on the rotating platforms will thus get the illusion of moving freely through space. Elaborate sound effects are also planned.

Preliminary model: "Democracity"



Tomorrow Town's Democracity's re shops

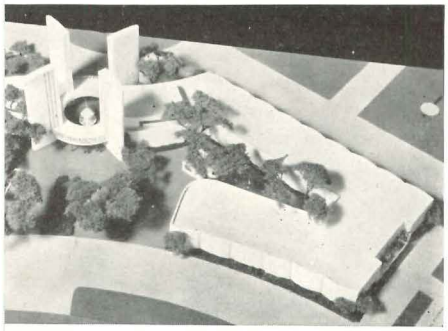
Democracity's sports center



GAS EXHIBITS, INC.

SKIDMORE & OWINGS, Architects
JOHN MOSS, Associate

NSORED jointly by 169 gas companies merica and Canada, this is a single- structure for display of gas appli- s for cooking, heating, and air con- ning. Chief external feature is the ılar "Court of Flame", flanked by pylons, in which a (gas) flame will continuously. One end of the struc- is occupied by a 350-seat theater for onstration purposes.



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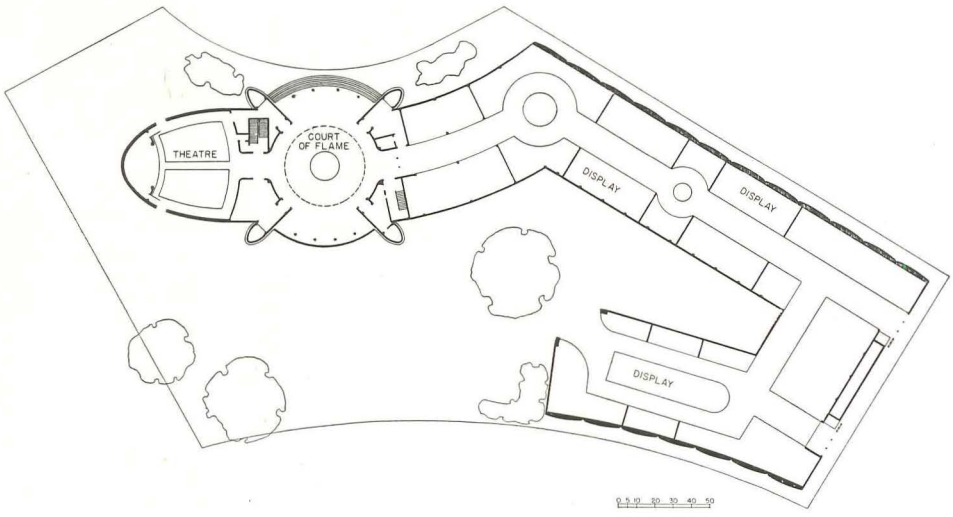
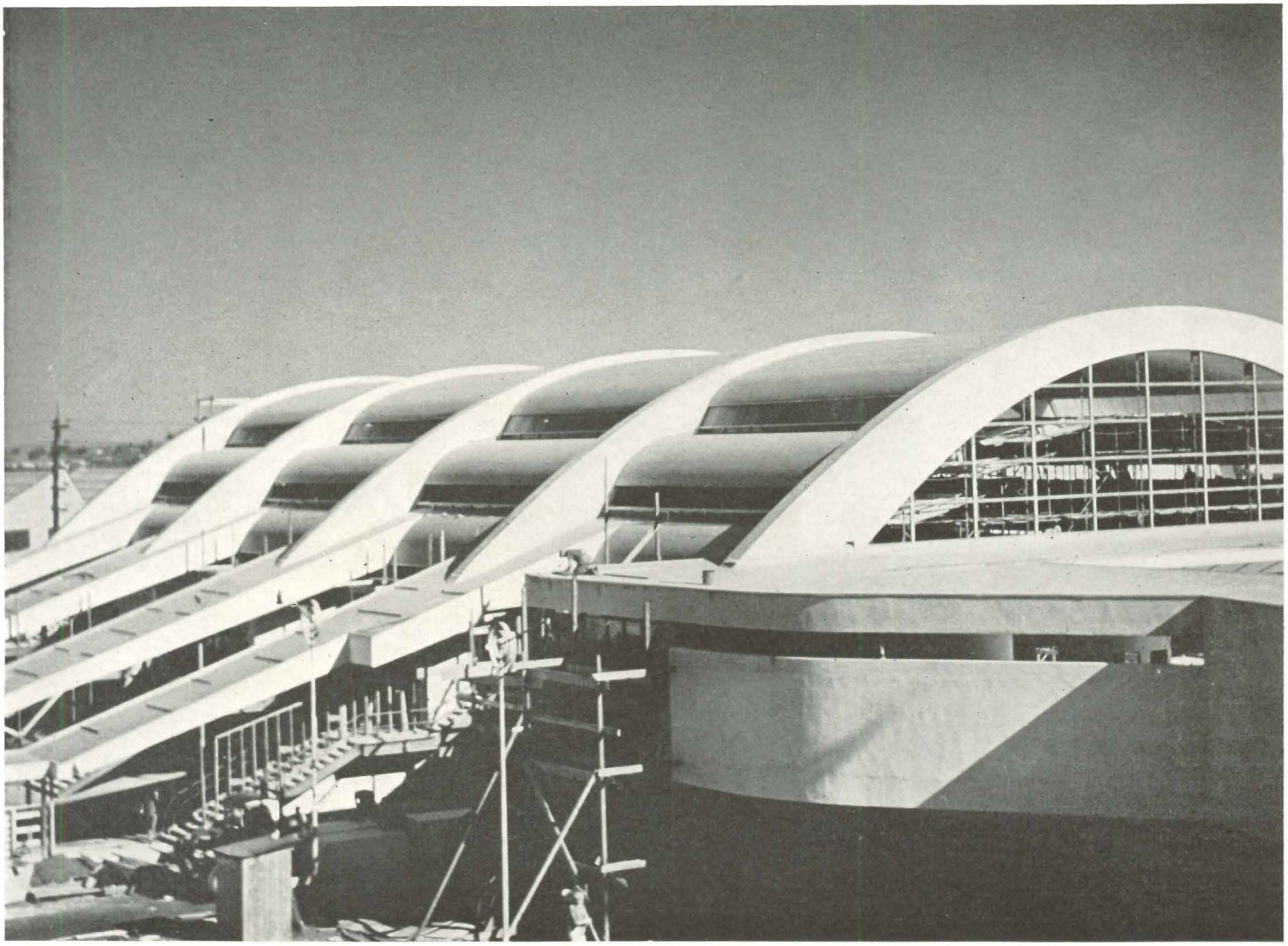
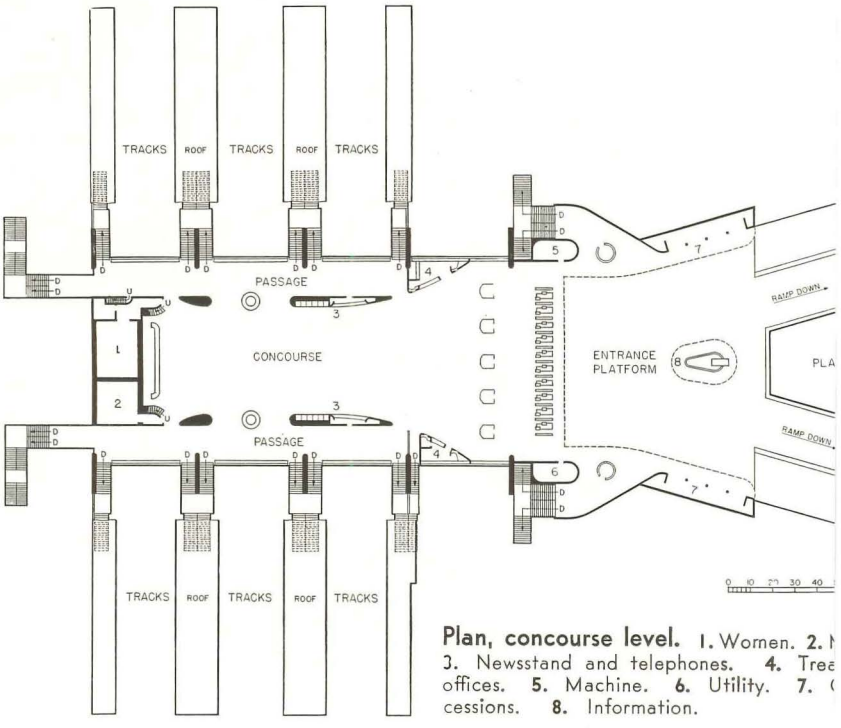


Plan



3. LONG ISLAND R. R. STATION

FAIR CONSTRUCTION DEPARTMENT, Designers

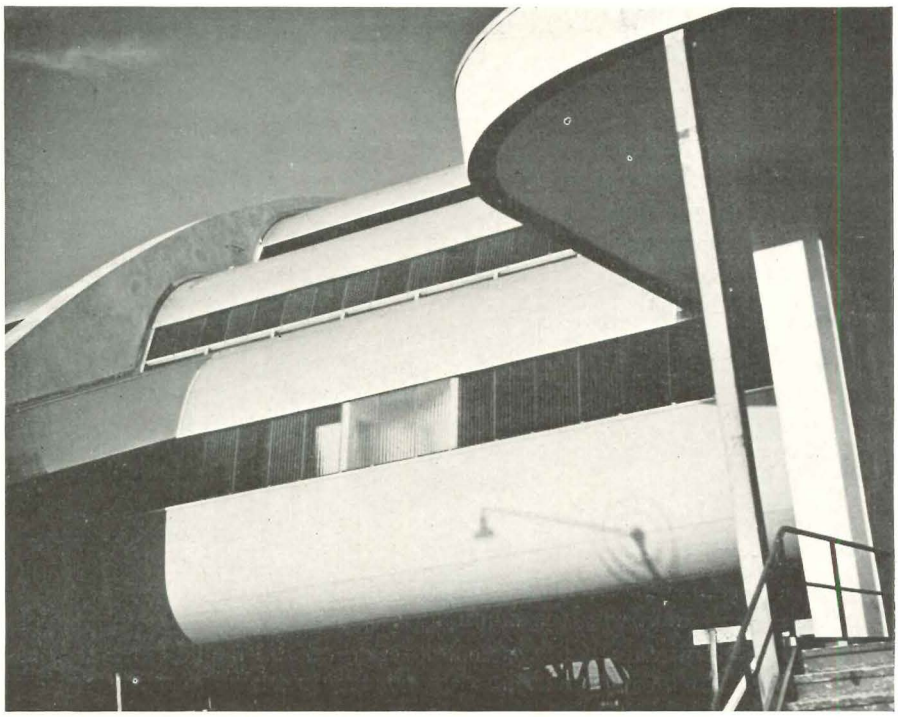


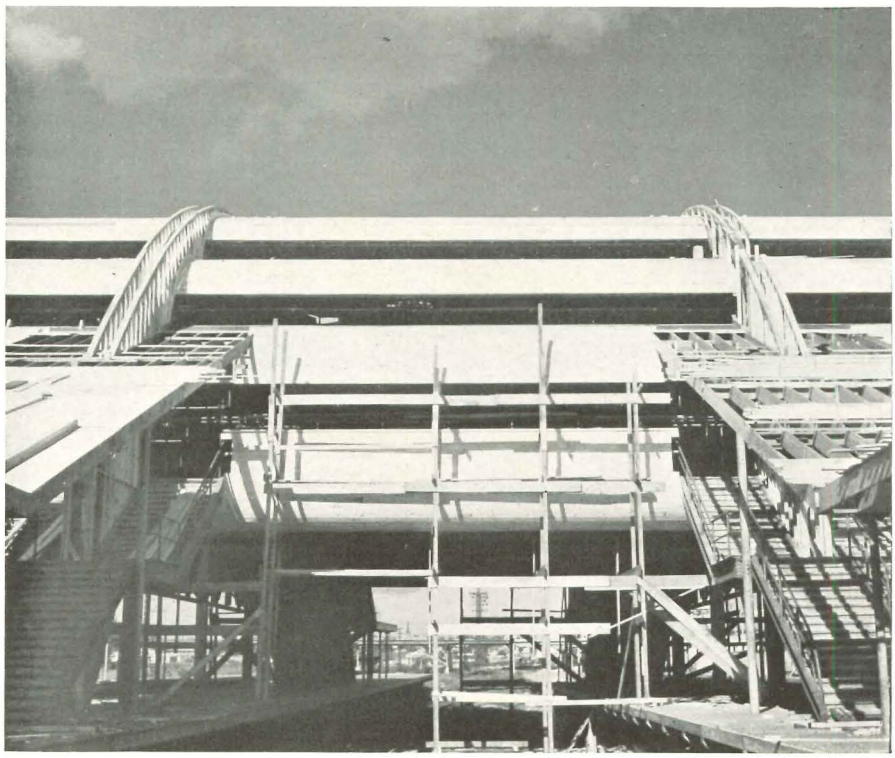
Plan, concourse level. 1. Women. **2.** N 3. Newsstand and telephones. **4.** Trea offices. **5.** Machine. **6.** Utility. **7.** (cessions. **8.** Information.

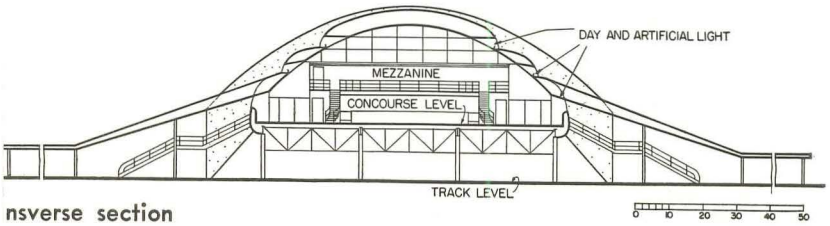
BOTH PLAN and construction, the Long ınd Railroad Station is one of the Fair's st notable structures. Although frankly ıporary in character (and consequently fireproof in construction), it indicates / standards for a common design prob—that of the busy suburban station. ıeal descendant of the old "covered" ılge, the station is actually a wood-and-el bridge carried by five transverse ther than lateral) arch trusses. This ic concept yields not only an economical n and construction, but also an appropri- esthetic quality. Thus certain elements n *look like trains* (top, right) without ıny sense being representational.

Although the station is essentially steel-ned, there is a wide and novel use of od. With only the trusses and end walls ccoed, the rest of the shell is wood-athed and canvas covered. In the contin-ıs clerestory fenestration, windows and ıdow frames have been eliminated; the rugated glass strips thus become an inte-l part of the envelope. The clerestorys also designed so as to serve as source of h natural and artificial light (section, be-).

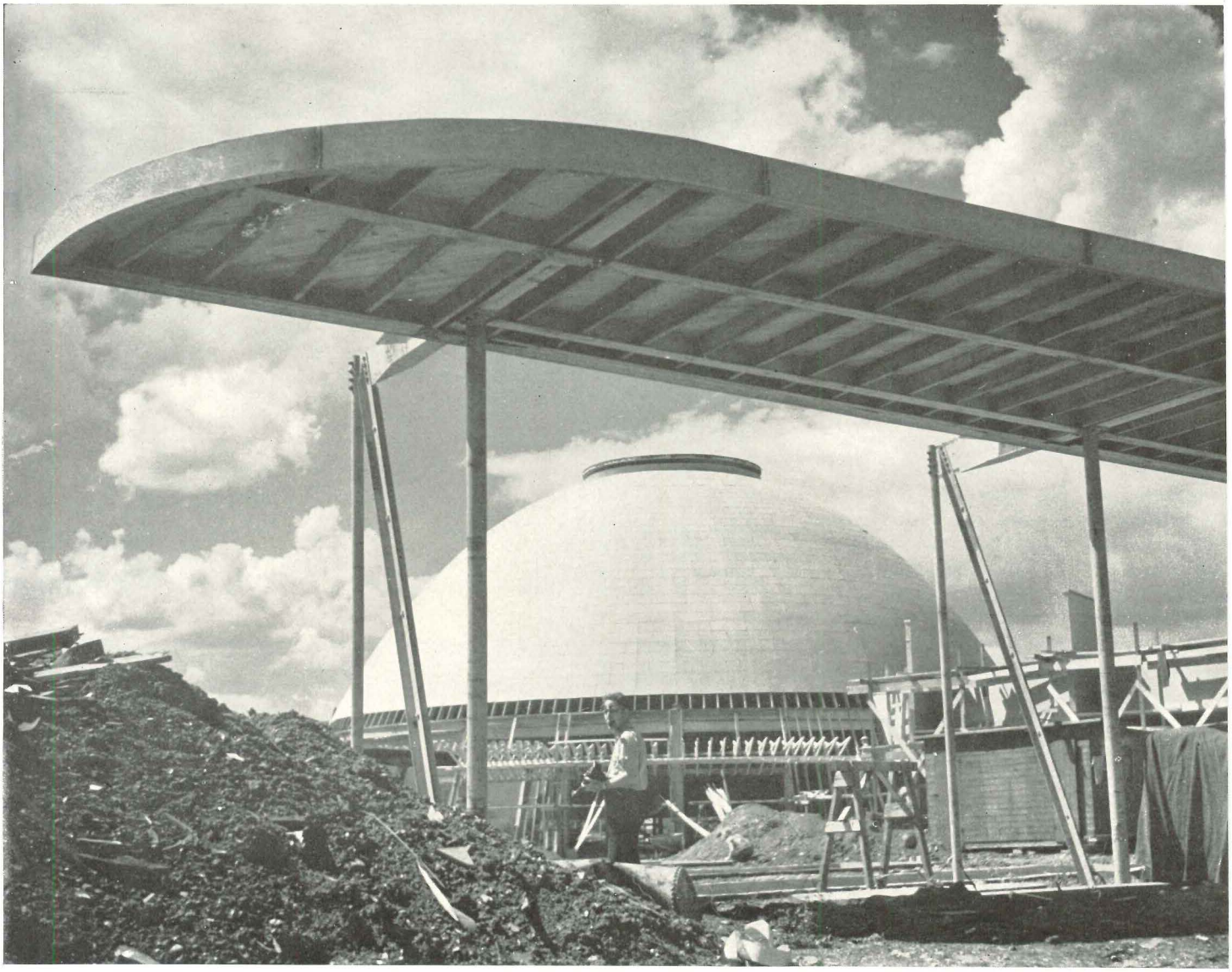
Location of the station is fortunate, from standpoint of visitors; ramps from the course level give directly into one of the r's secondary plazas; and the station is sely flanked by exhibit buildings so that visitor finds himself inside the Fair imme-tely upon leaving the station.





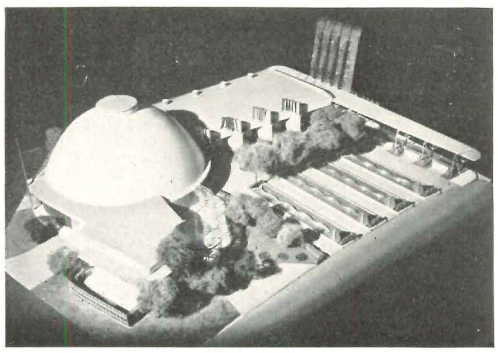


nsverse section



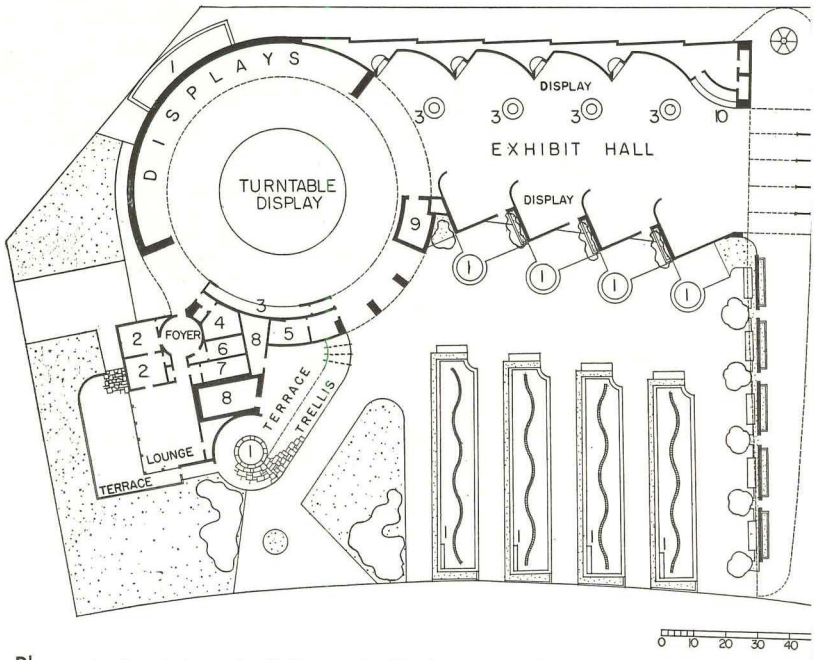
4. DISTILLED SPIRITS, INC.

MORRIS B. SANDERS, Architect
ROSS-FRANKEL, INC., and
MORRIS B. SANDERS, Co-designers

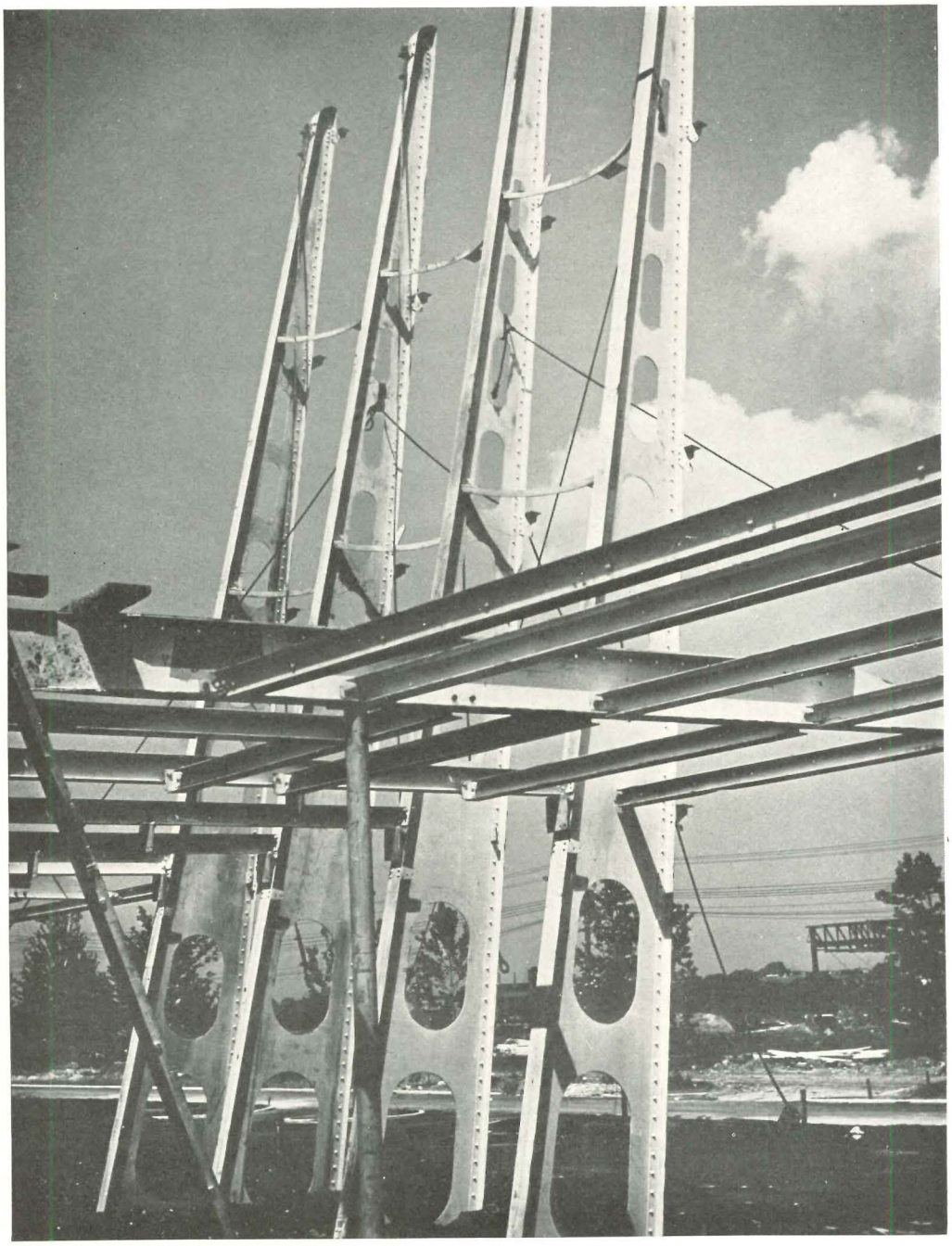


Richard Garrison

Model

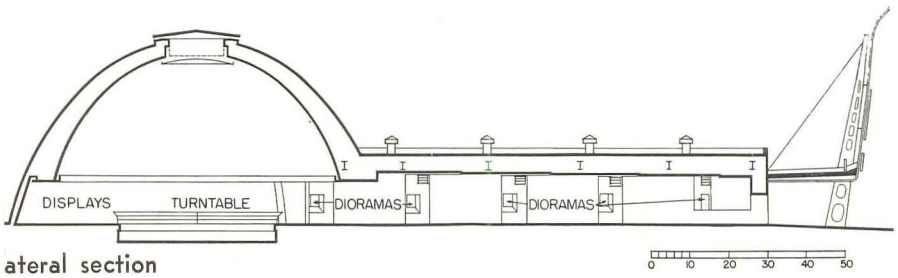


Plan. 1. Fountain. 2. Office. 3. Display. 4. Men. 5. Women. 6. Wor employees. 7. Men employees. 8. Electrical room. 9. Utility. 10. Informa



E DISTILLERS' building not only sts an unusually wide range of ıctural and finish materials—el, glass, wood, metals—but also v applications of many of them. e steel framing of both canopy p, left) and marquee (right) is ısual. In the former, a cantiler is achieved by means of diaıal bracing and an anchor-type ting (see Foundations, page) In the marquee, the 40 ft. tical members become a decorae feature of the entrance, their rced webs lightening the conuction actually as well as estically. In its finished form ght, below) this marquee will faced with corrugated enamel eets, on which a free-standing sign in sheet metal and composin will be applied. Corrugated l block glass are widely used in garden, both for decorative ee pools, over page) and utilian purposes.

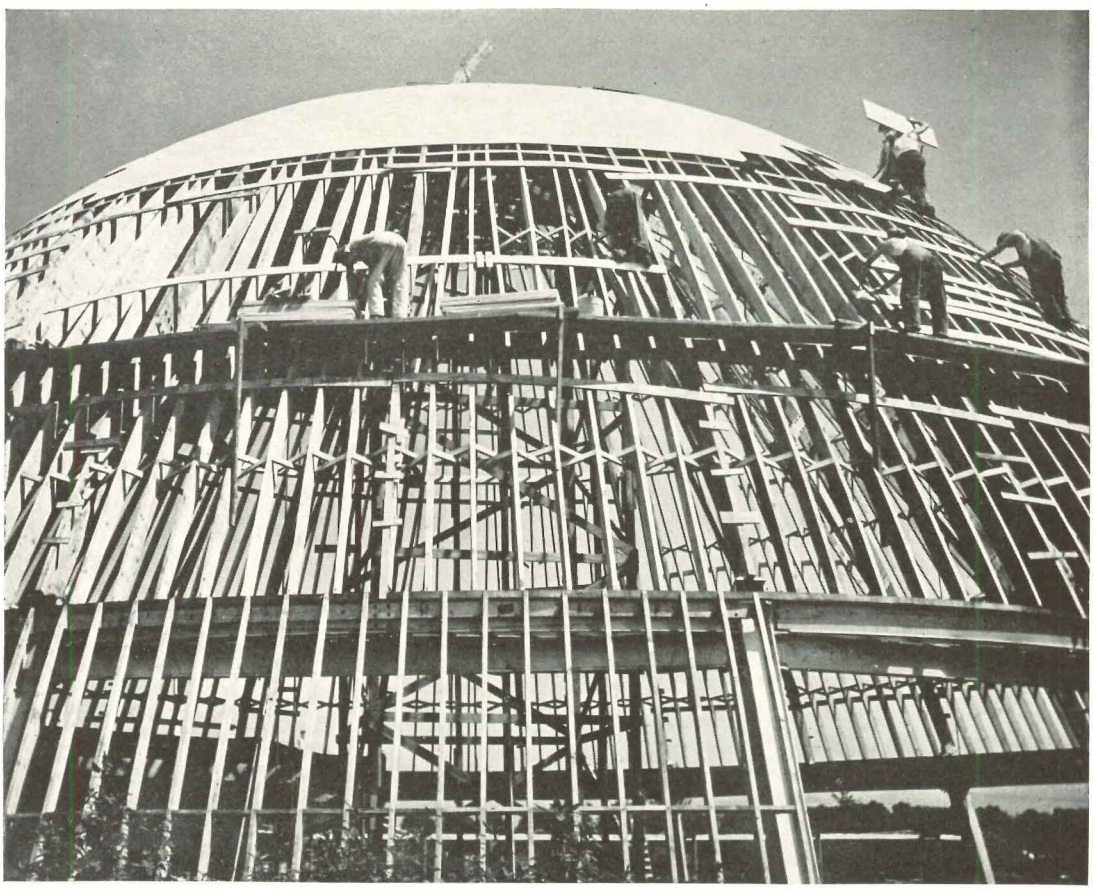
Exhibit material—which is instry-wide and with no brand or mpany advertising—is organized o two main halls, the second one ıtered by a revolving turntable. unge, terrace, and dressing oms for exhibit members are ouped along one end, while the rden (bottom, over page) occues a large proportion of the reining ground area.



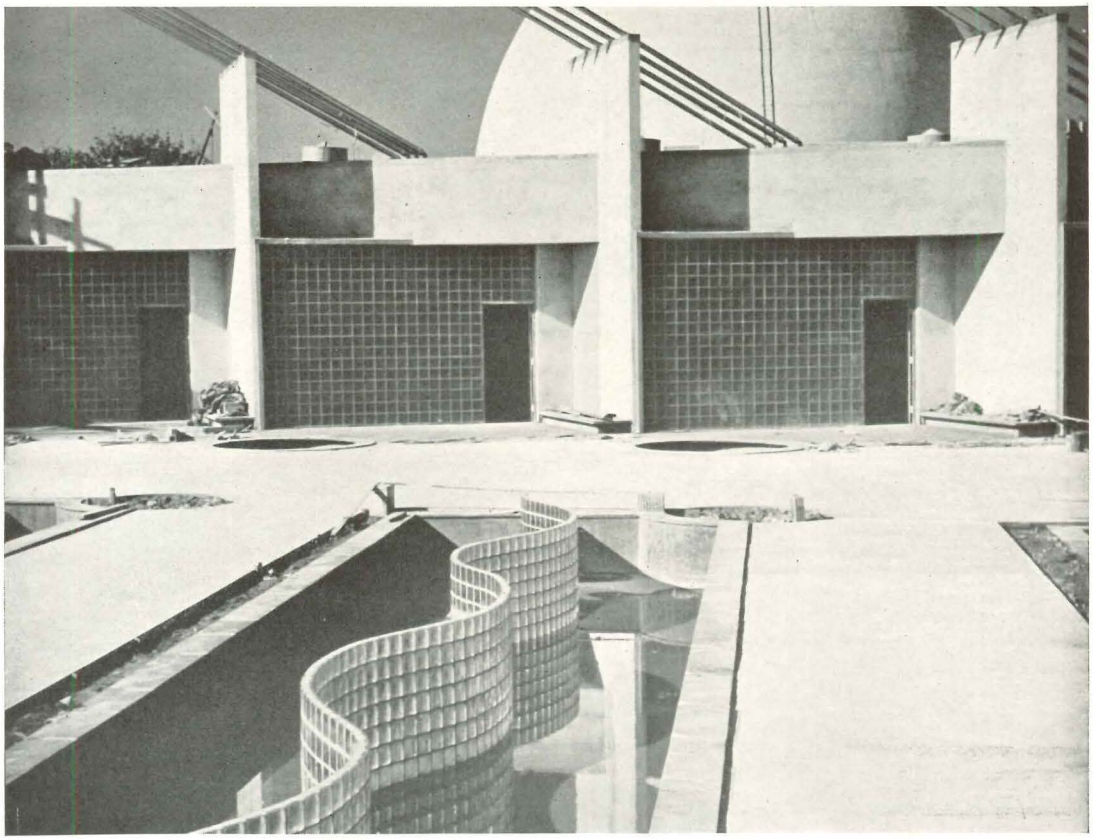
ateral section

Richard Garrison

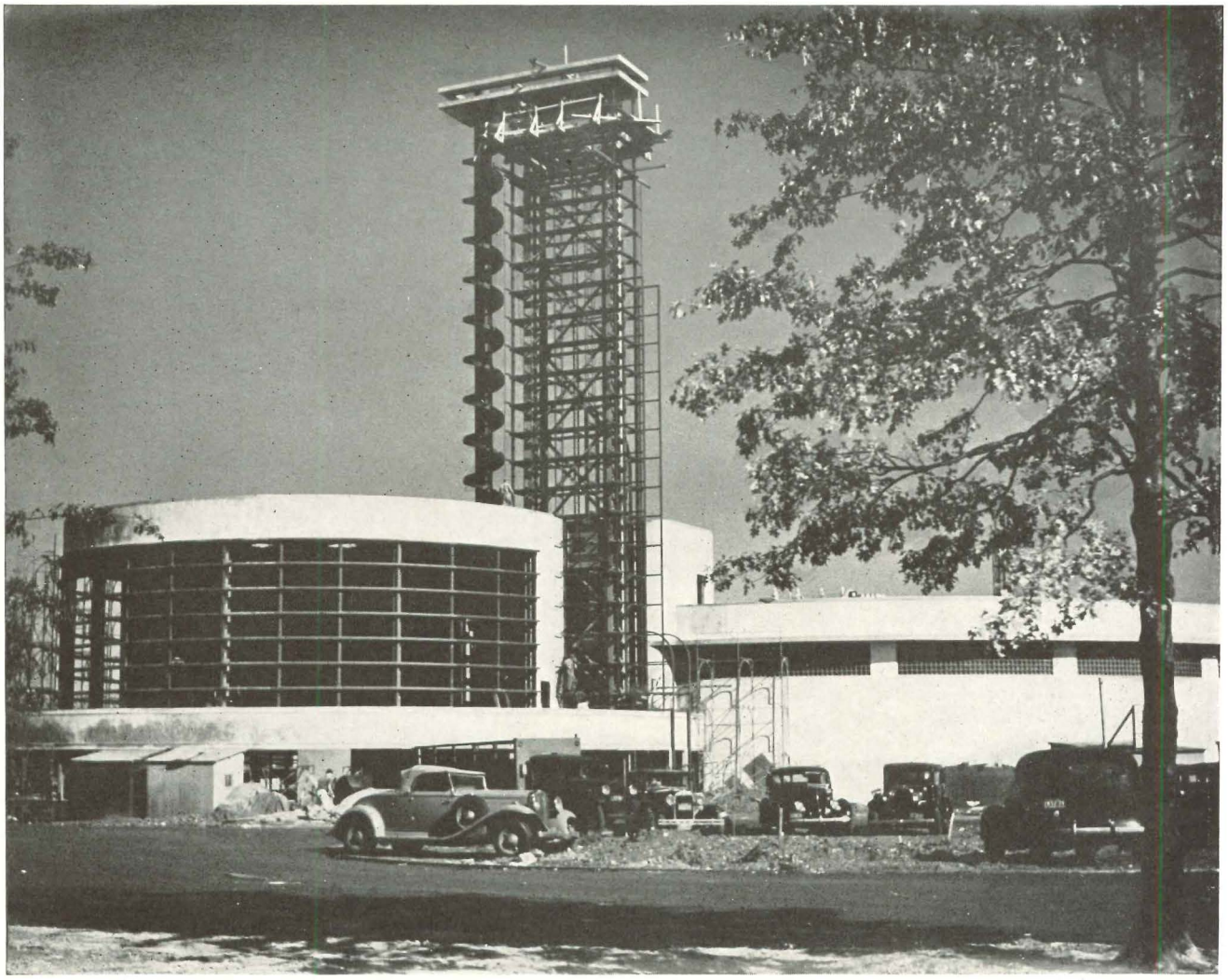
DISTILLED SPIRITS, INC.



The steel-framed dome is sheathed in wood and insulation board, finished in stucco, painted.



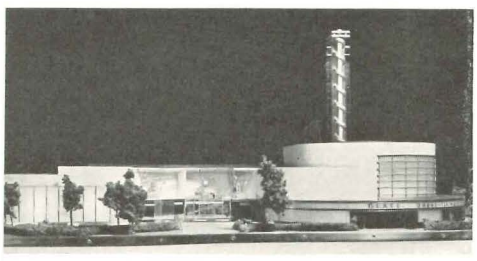
The garden, one of the most elaborate of the Fair's private exhibits, is designed for heavy use. Hence, grass areas are eliminated, planting confined to beds. Full-grown lindens will shade each bench.



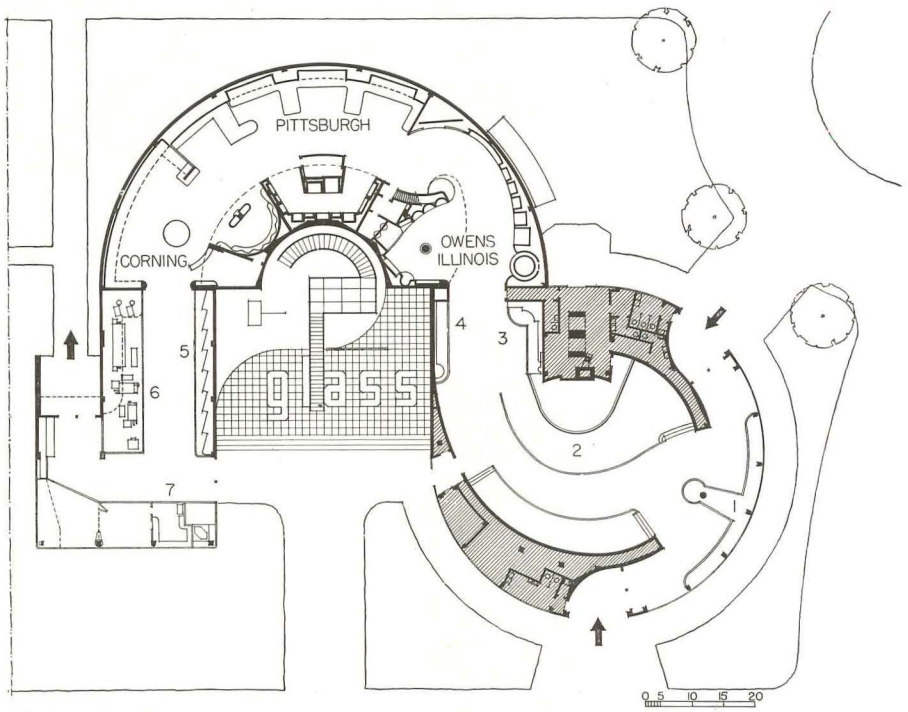
. GLASS, INC.

HREVE, LAMB & HARMON, Architects
NDERSON & PORTER, Engineers

NOTHER industry-wide exhibit, this uilding makes use of glass in block, ate, and structural forms to demonrate its properties: strength, transrency, and precision. The structure multi-level, designed for one-way affic (see plan, right). Among its ovel features will be a glass-paved ter-ce, a stairway and ramp of the new se-hardened plate, and a decorative wer of blue plate.



Model

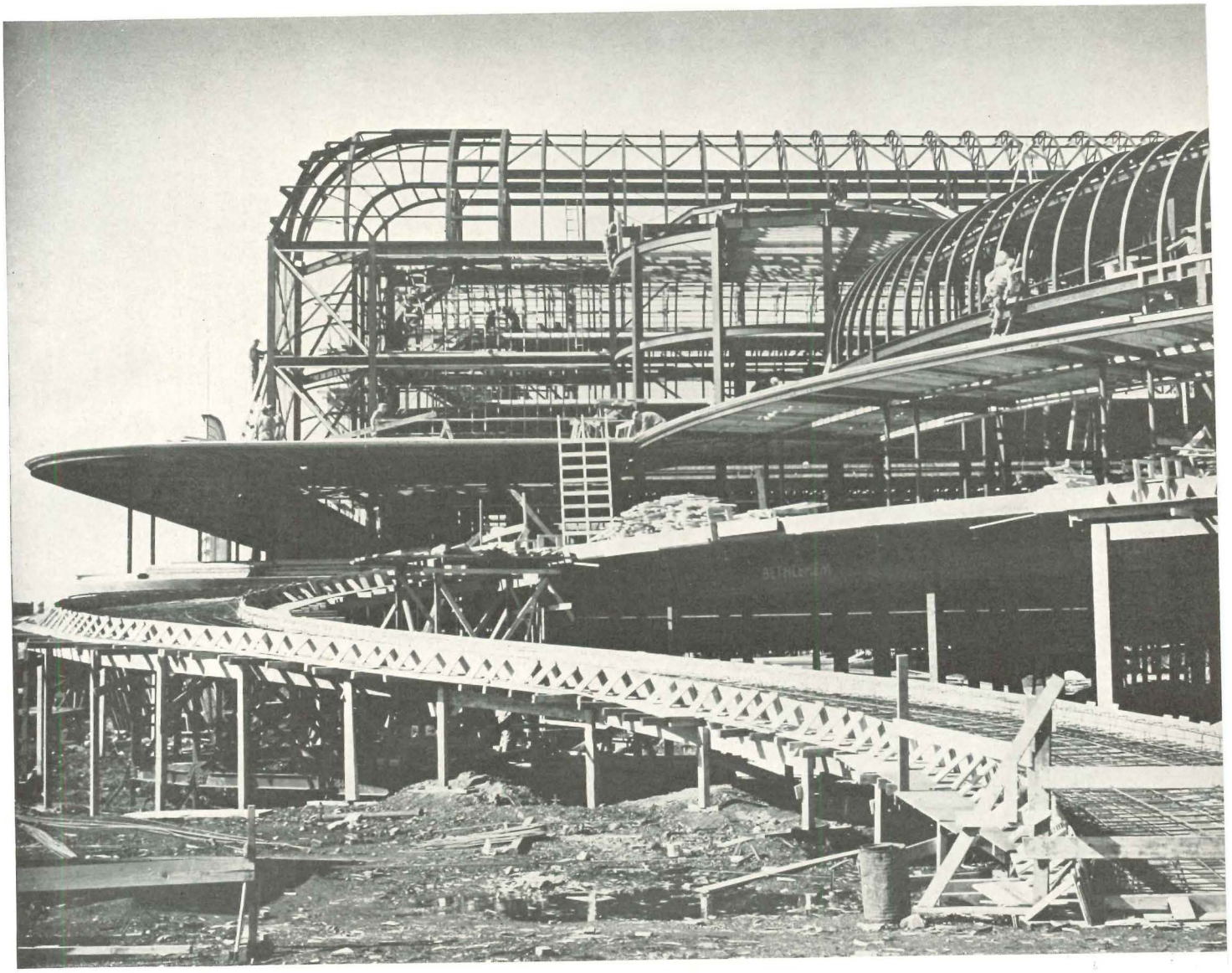


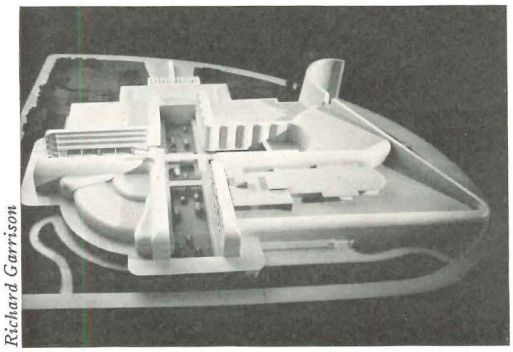
Plan, main floor. 1. History of glass. 2. Hot-glass exhibit. 3. Manufacture. 4. Chart of glass. 5. Properties of glass 6. Glass-fibre machine. 7. Glass in the home.

6. GENERAL MOTORS CORP.

NORMAN BEL GEDDES, Designer

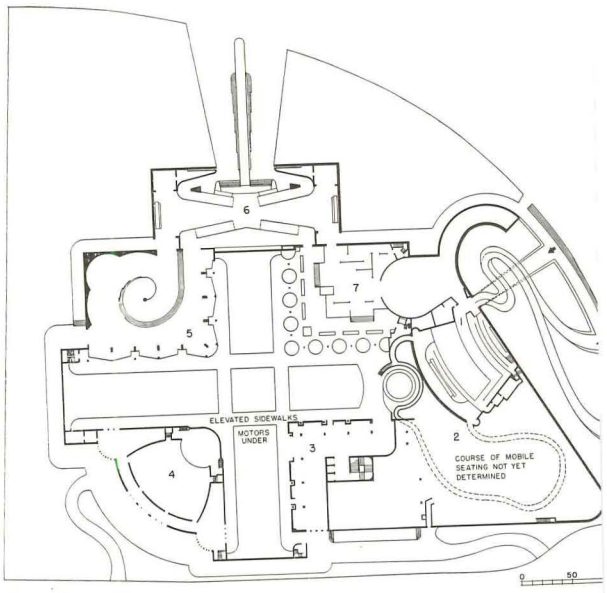
ALBERT KAHN, Architect



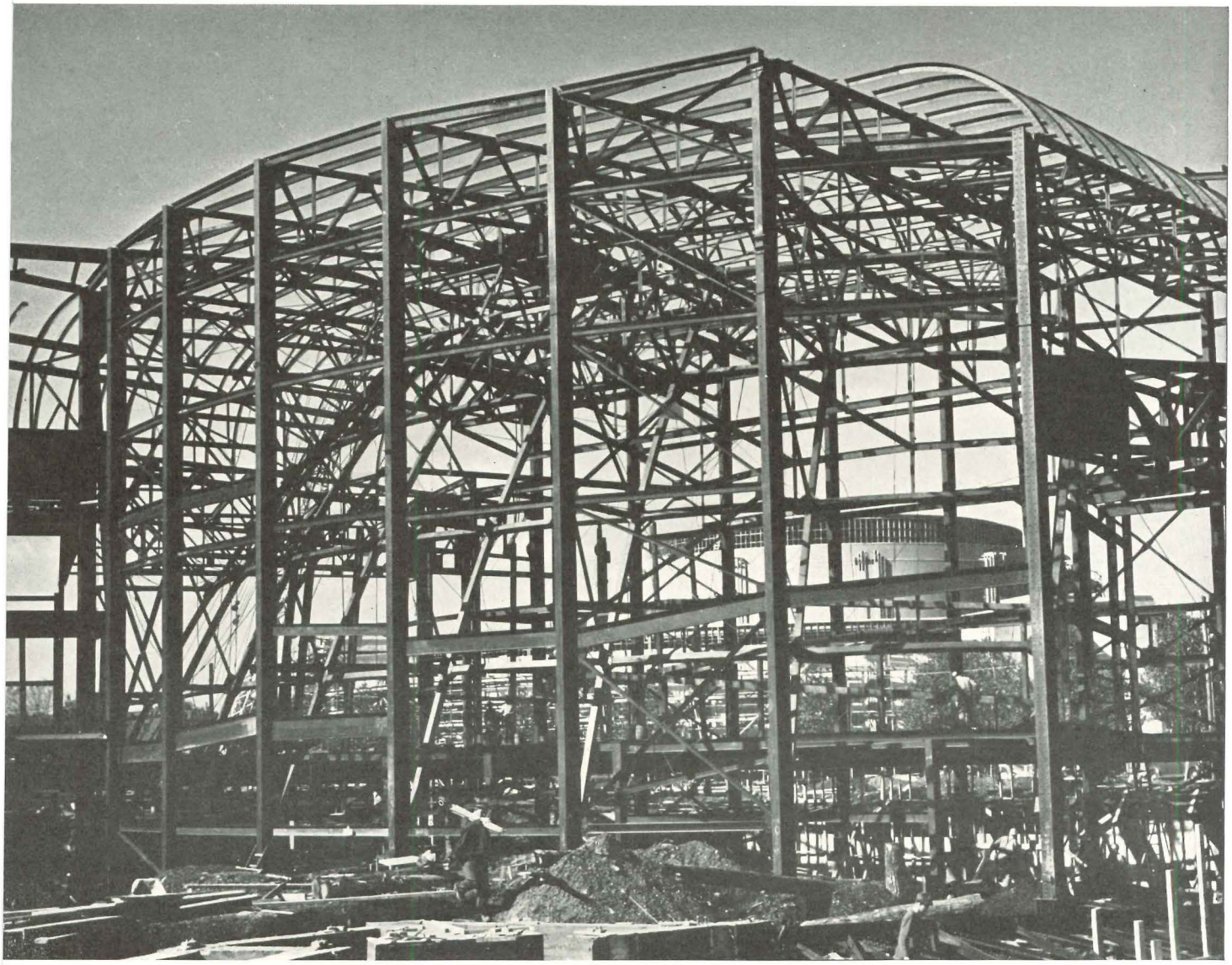


Richard Garrison

Model



Plan, main floor: 1. Main entrance and loading platfo 2. Display space for model town. Moving chairs on ramp take visitors through exhibit. 3. Apartment and hotel disp 4. Auditorium. 5. Automobile display. 6. Entrance Diesel display. 7. Frigidaire display.



THE LIGHT but elaborate steel framing of the G-M building grows out of the design problem of housing an exhibit which not only focuses on the mobility resulting from the development of the motor car but also attempts to express architecturally the concepts of "streamlining" now current in the automotive field. Thus the full-scale model of an urban street intersection of the future (complete with elevated pedestrian walks, full-sized motor filled streets, and life-size modern buildings) is an expression of the first requirement. The curving walls, rounded parapets and "streamlined" lettering are expressions of the second.

Notable feature of the exhibit will be the street intersection (open cruciform in model, facing page) flanked by four full-size buildings—apartment hotel, theatre, sales and office building, retail store. This last will boast circular showcases which rise as a unit to upper floors for changes in display.

Although the exhibit has three entrances and is multi-level, the main traffic stream will be routed through the major entrance along a series of spectacular ramps into a loading room (1 on plan). From this point visitors will be carried —on an escalator comfortably equipped with paired seats—through a huge introductory diorama (2 on plan) showing potential traffic facilities of the future. In the rest of the exhibit, traffic is not controlled.

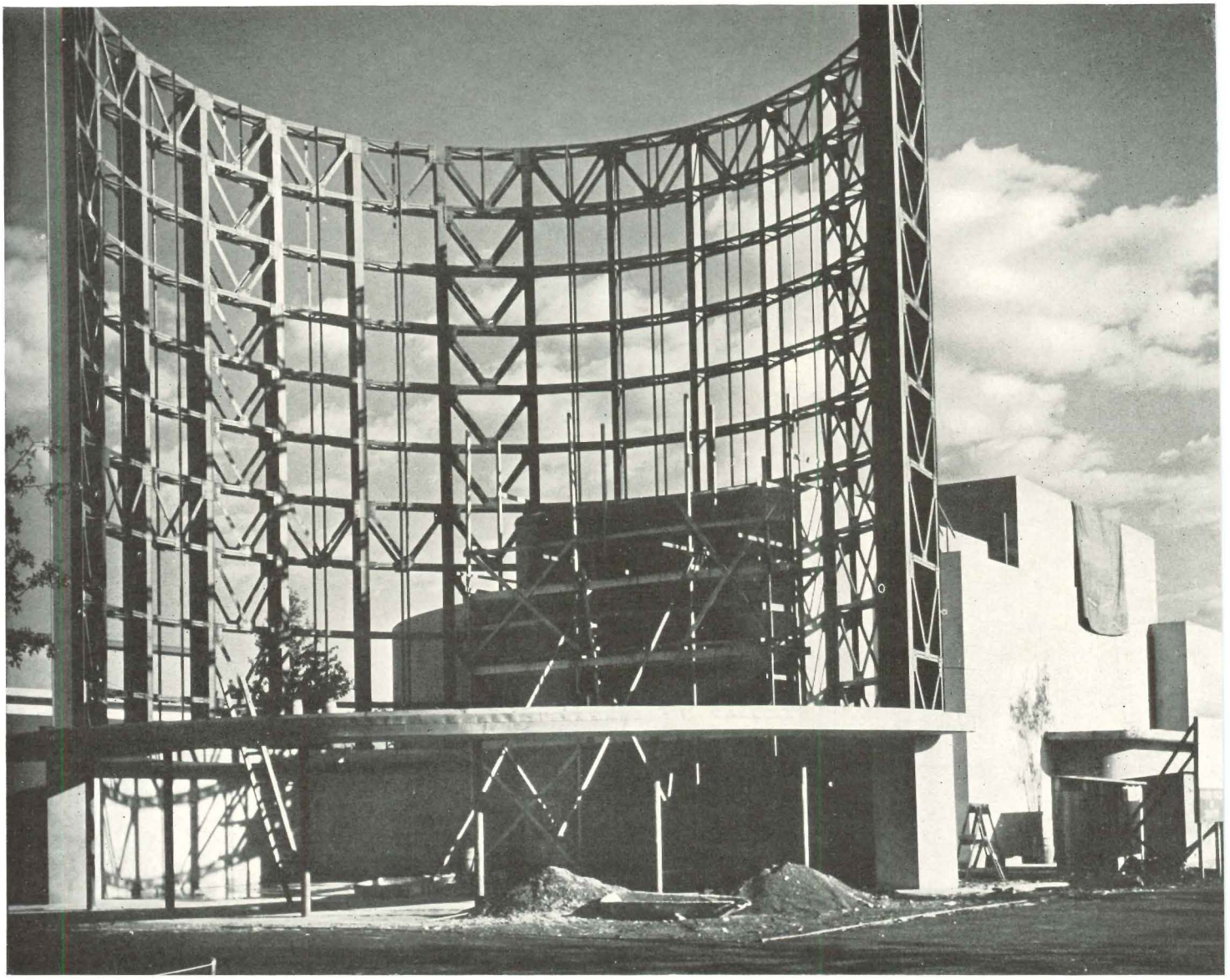
Exterior finish will be a new lacquer developed for auto bodies, applied to stucco with air brush.

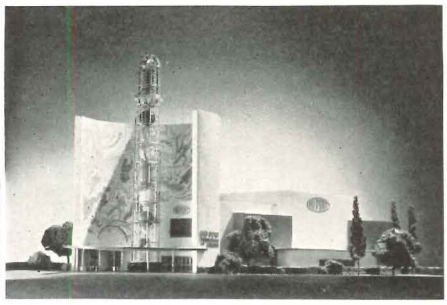
7. E. I. DUPONT DE NEMOURS & CO.

WALTER DORWIN TEAGUE, Designer of Exhibit

ROBERT J. HARPER, Associate

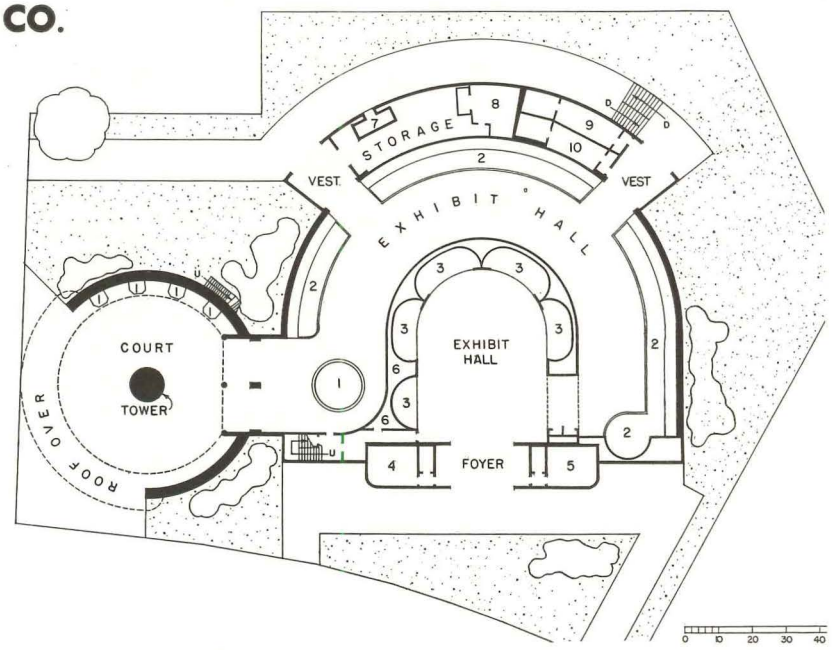
A. M. ERICKSON, Engineer



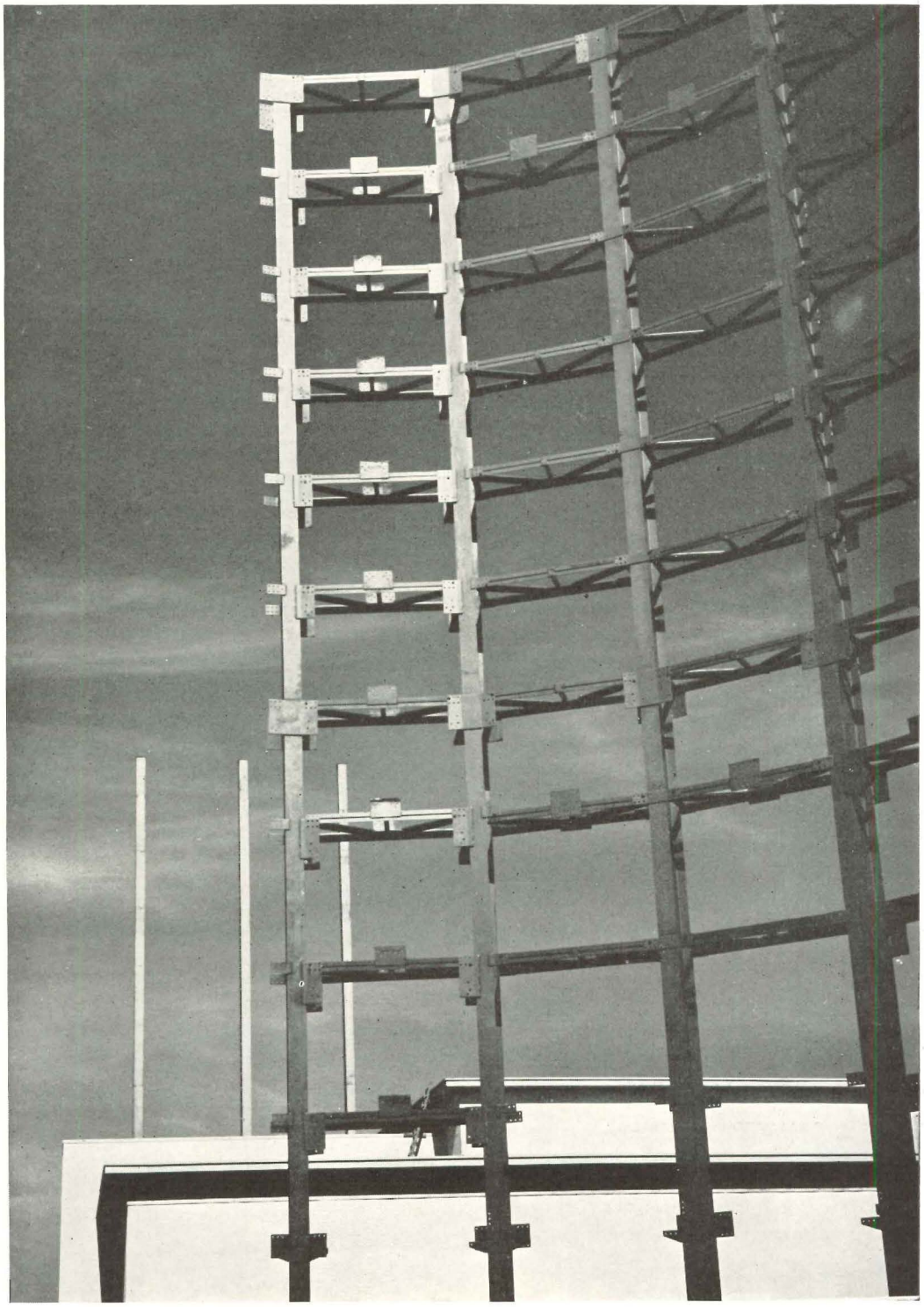


Fred. Bradley

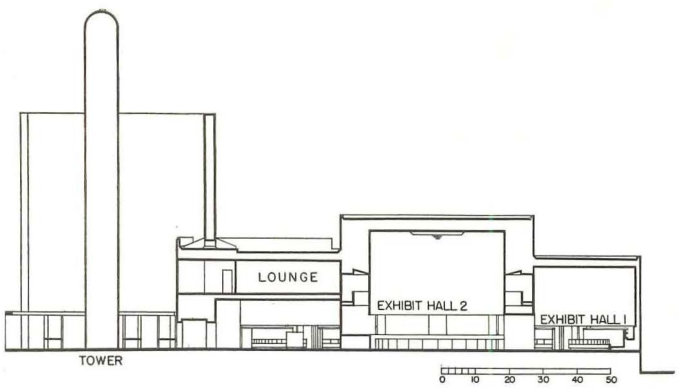
Model



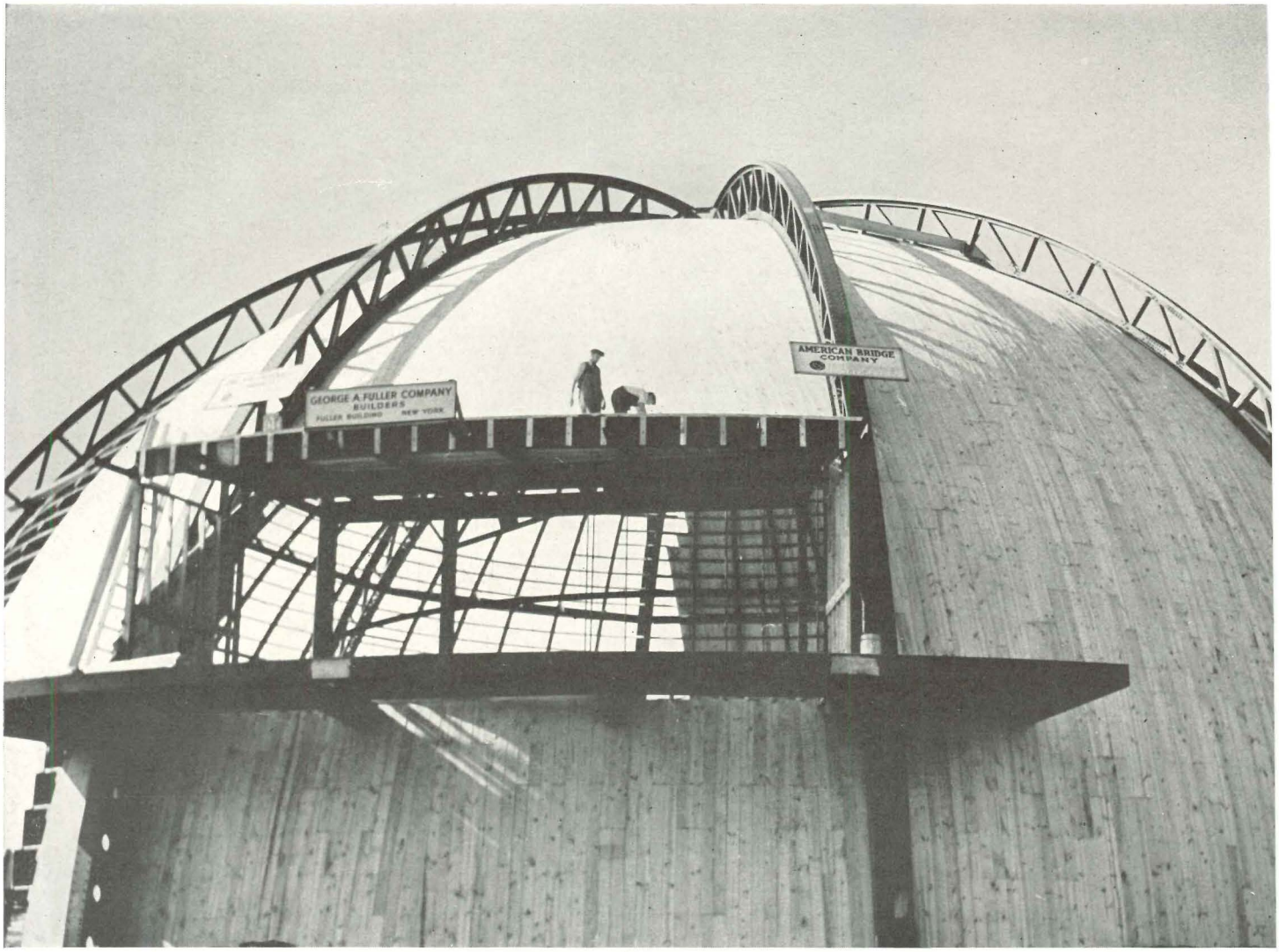
Plan, Main floor. 1. Display cases. 2. Exhibit platform. 3. Dioramas. 4. M rest room. 5. Women's rest room. 6. Service. 7. Transformer vault. 8. conditioning. 9. Women's lockers. 10. Men's lockers.



N ARCHITECTURAL emphasis
ıe DuPont building was orig-
y scheduled to have been
: of the largest murals ever
uted" on the plastered sur-
of the semicylindrical en-
ce court (bottom, facing
:). As the steel framing—
gned to withstand wind pres-
s created by its odd shape—
t up, its decorative possibili-
became increasingly apparent
ht) ; it has now been decided
eave it unplastered.
he exhibits are organized in
ıence for one-way traffic. The
ance court is centered by a
-ft. tower consisting of lab-
ory equipment, greatly en-
ed.
ıctive displays of chemical
:esses will be arranged in
outer hall, while in the cen-
room 5 small stages will be
l for a marionette production.
ıy of the exhibitors' own
lucts—plastics, enamels, fab-
—are incorporated in the
ding itself.



ıgitudinal section

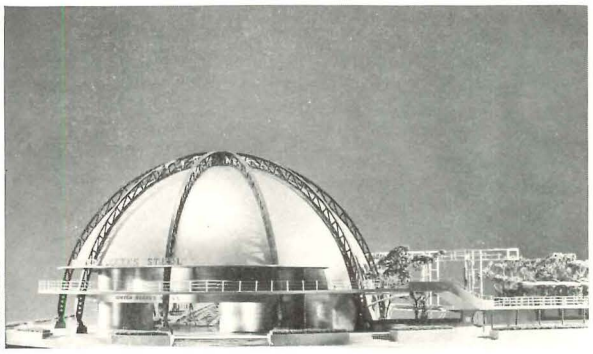


8. UNITED STATES STEEL

WALTER DORWIN TEAGUE, Designer of Exhibit

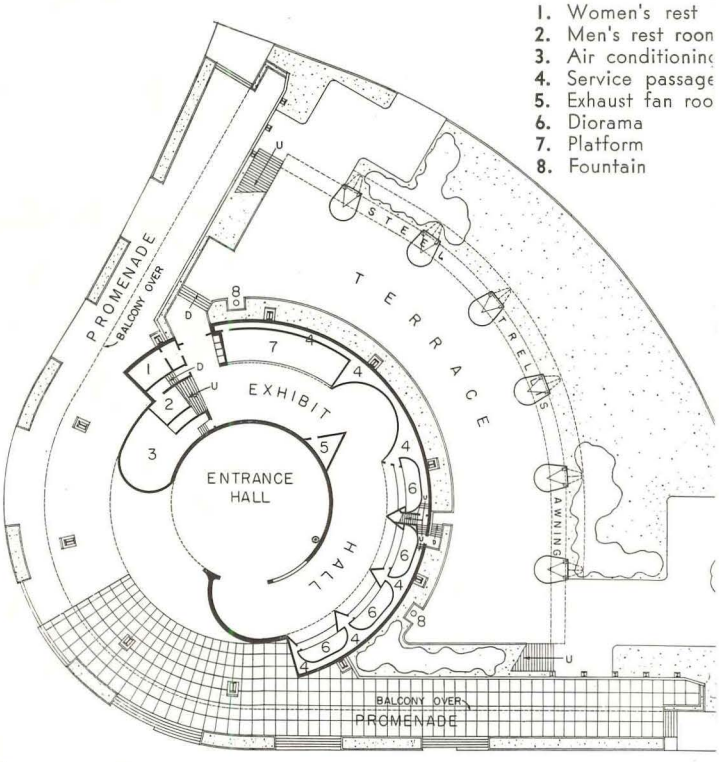
GEORGE FOSTER HARRELL, Associate

YORK & SAWYER, Architects



John Mills

Model

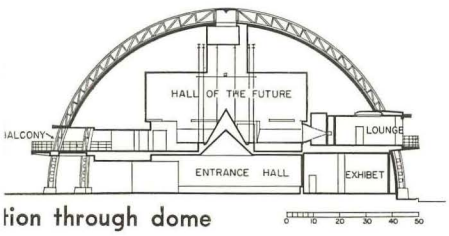


Plan, main floor

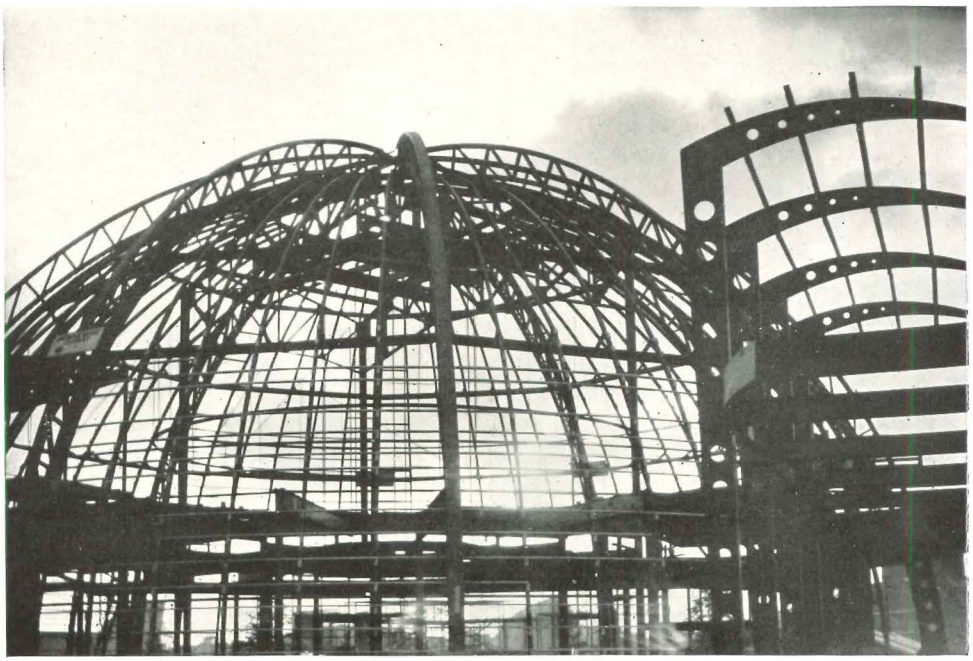
S. Steel is one of the few ex-
tors at the Fair whose building
itself be largely fabricated of its
products — steel and concrete.
m the dome, with its stainless
l shell hung from five intersect-
open-web arches, to the elab-
e treillage employing various
l members (right), the structure
demonstrate the multiple uses
steel in specific design problems.
st notable structural application
n the dome itself (right, below)
ch — with a relatively light and
ple construction—gives an un-
ken floor area of approximately
000 sq. ft. and a maximum height
55 ft. Stainless steel will be used
a number of forms for surfac-
— in corrugated panels on some
he outer walls, in specially fabri-
d curved sheets on the dome, in
er-thin sheets on interior walls;
erior flooring on the rear balcony
of multi-grip steel floor plates.
ch of the interior trim and finish
be of steel in various commer-
ly available forms.

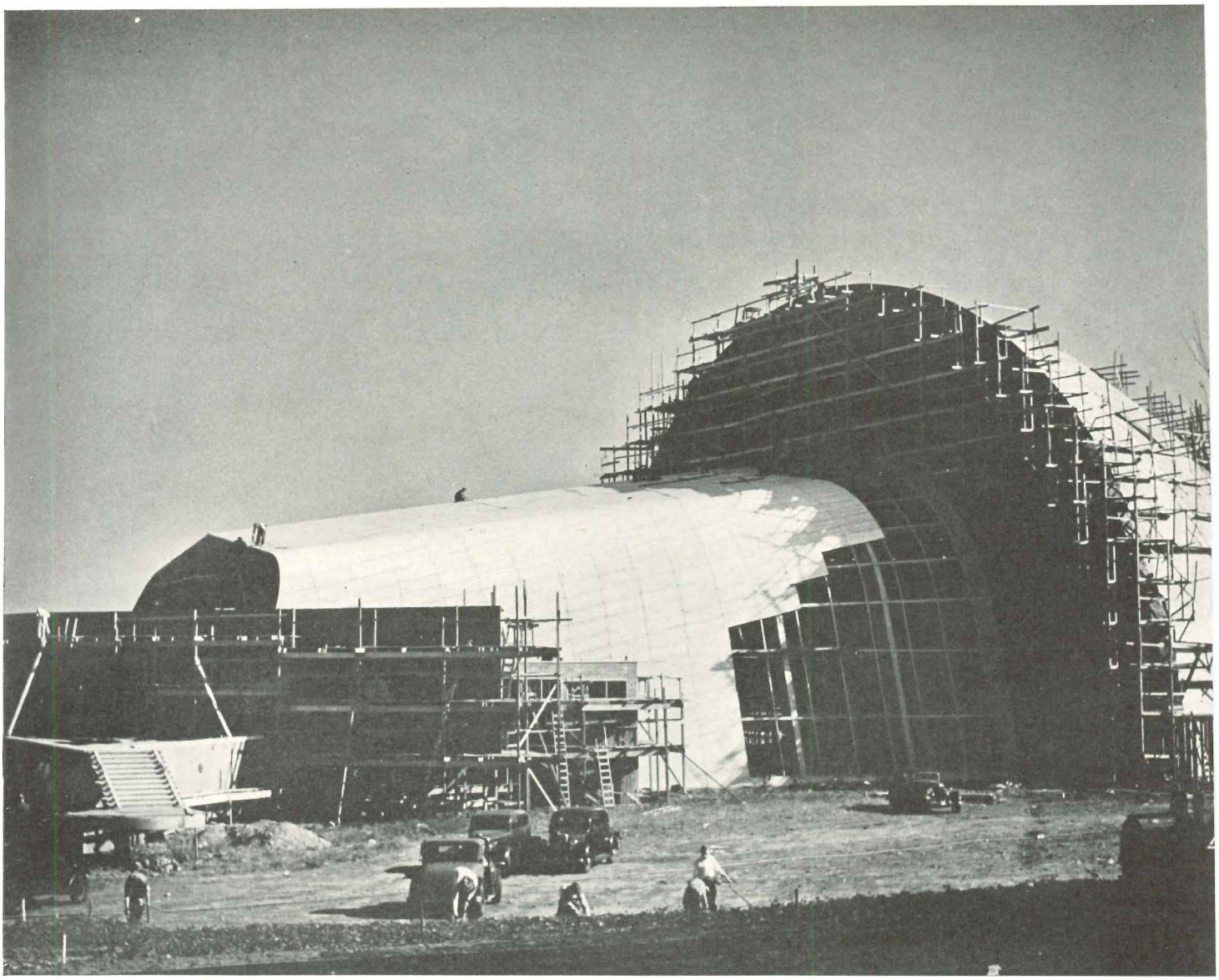
The plan is organized to permit
orderly and easy flow of traffic
ough the exhibit, which occupies
floors. Entering the circular
rance Hall (bottom, facing page),
fic flows through a semicircular
ridor (whose outside walls are
d with dioramas depicting manu-
ture of steel products), up the
rs into a circular "Hall of the
ture", out onto the balconies and
vn the exterior steps.

Externally, the building will be in
inless steel, except for structural
mbers, which will be painted blue.



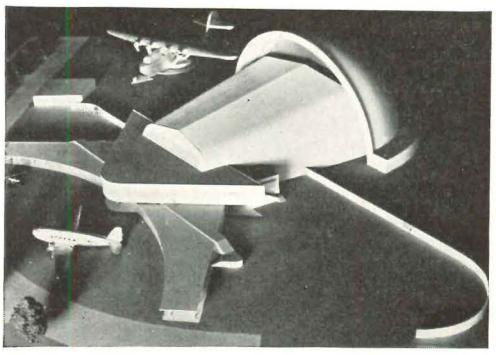
tion through dome



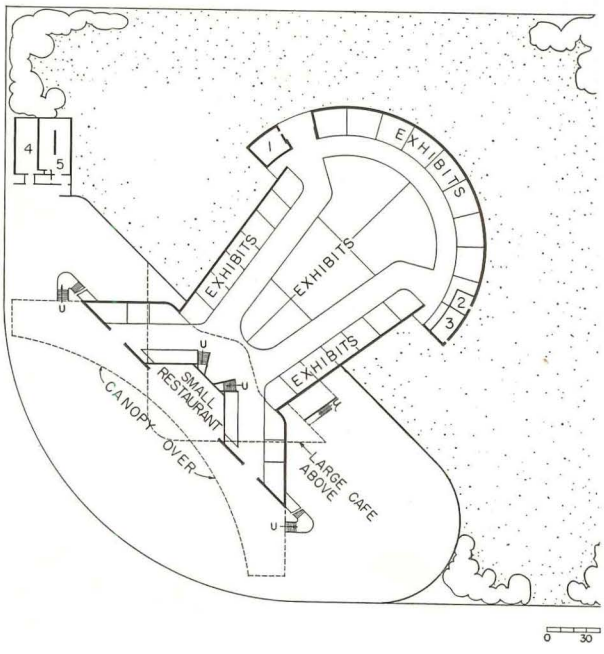


9. AVIATION BUILDING

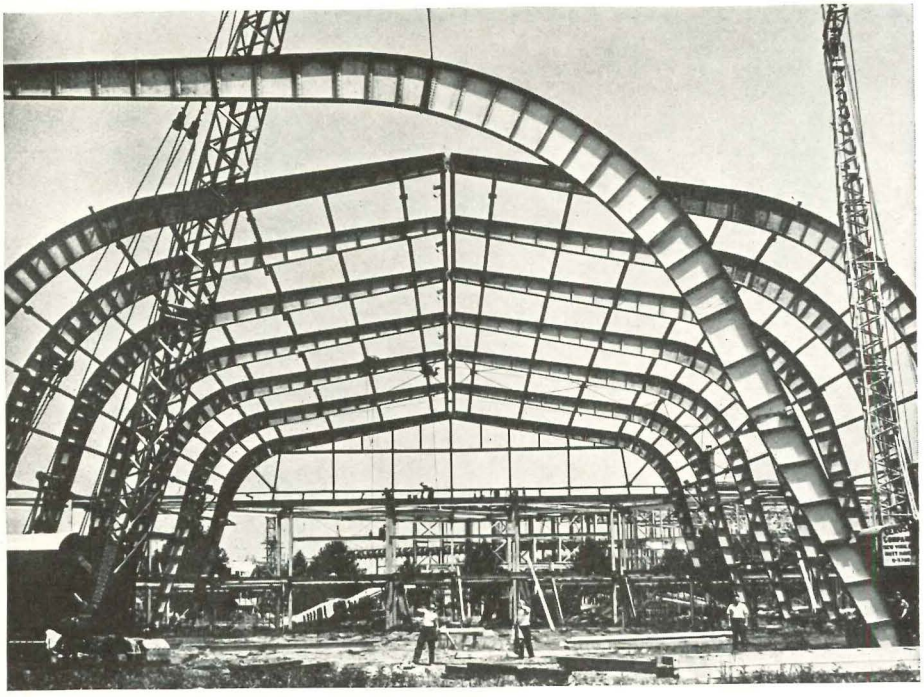
WILLIAM LESCAZE and GORDON CARR
Associated Architects

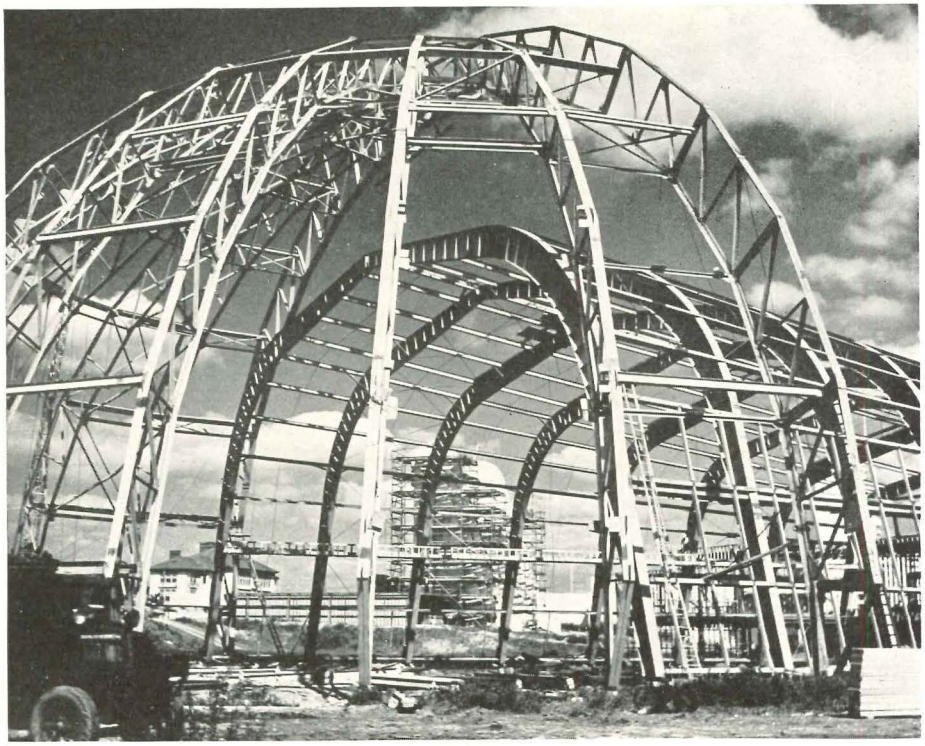


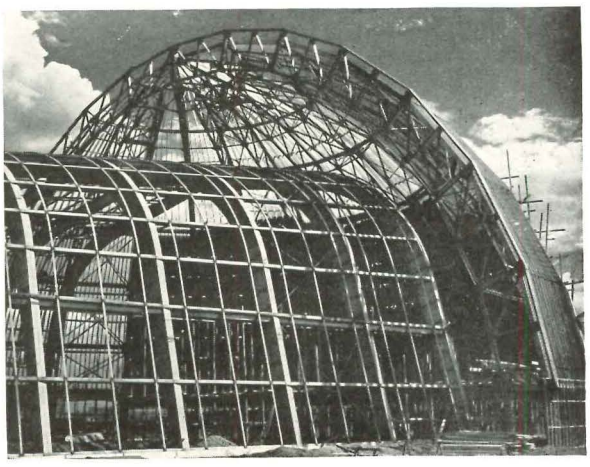
Model



Plan, main floor. 1. Utility. 2. Switch. 3. Transform
4. Men. 5. Women

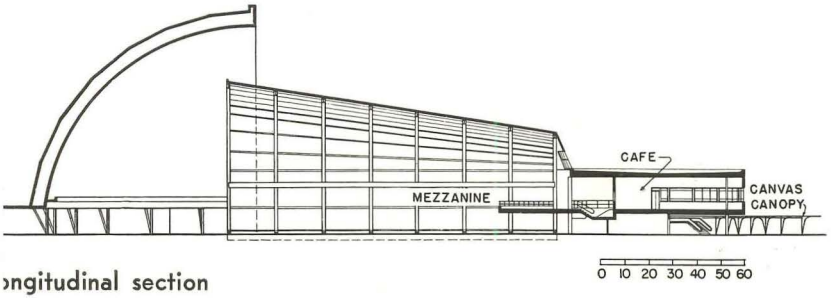




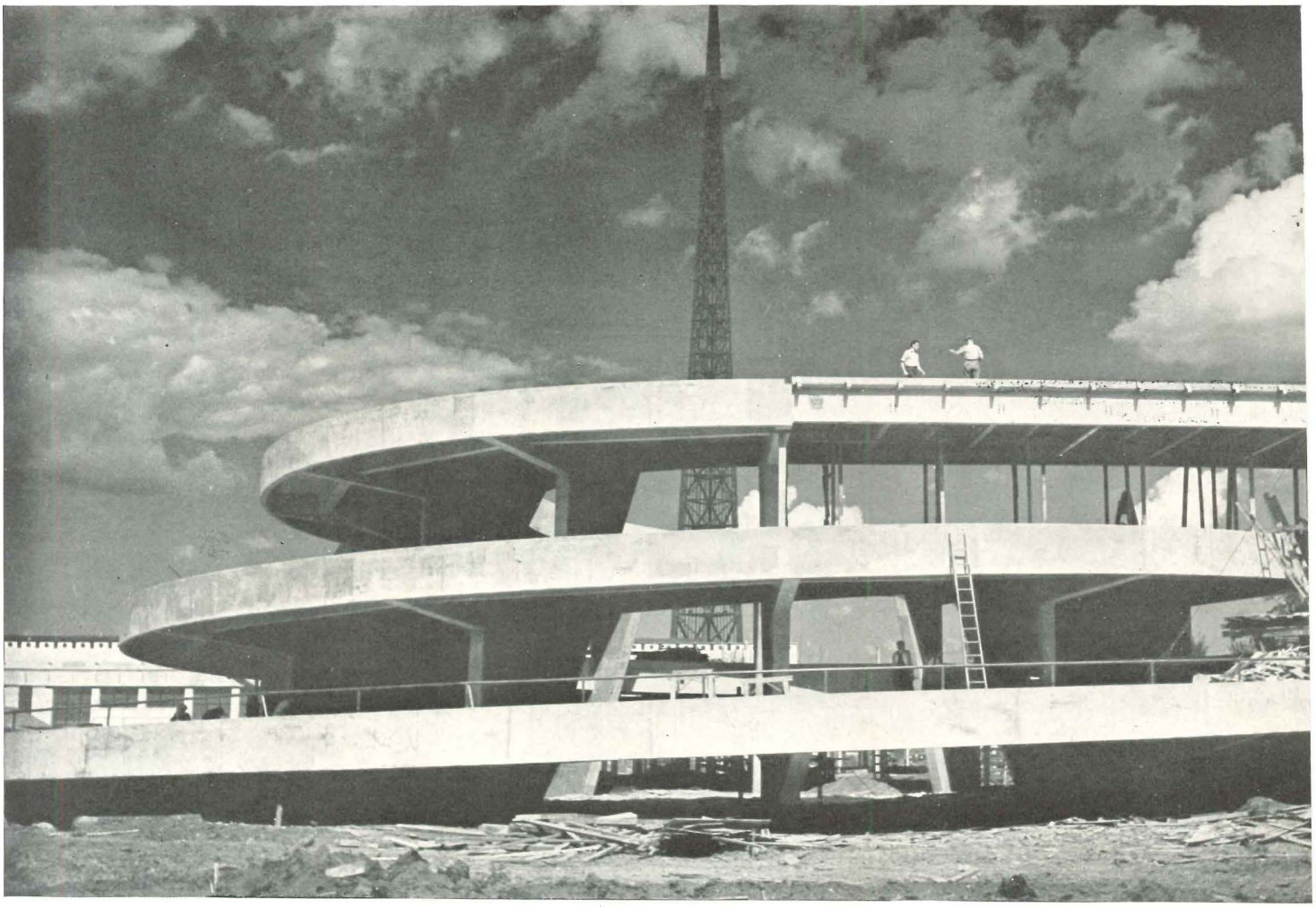


NOTHER OF THE structures notable for steelwork is the Aviation Building. It one of the few Fair-built structures ich departs from the standards of design verning general exhibit buildings (see 89). Although its general form is rep-entational of "flight in space", the iation Building actually fills two basic quirements: a large floor area, and suffi-nt internal height in which to suspend modern skyliner. The problem of a low-st, rigid envelope has been solved by e designers in the use of two structural stems — shop fabricated, solid-section, nged arches for the cone (top, right) d open-web arches of more usual design the semisphere (center, right). The rmer is sheathed in corrugated asbestos, e latter in canvas. Another feature is the ge stressed-canvas canopy across the tire front (see plan, facing page). Laced, ip style, to a system of braced tubular el columns, the canopy is anchored by eans of tie-rods to concrete blocks at ch end.

The exhibit space is confined to one or, with no provisions for traffic con-ol. Focal point of the display will be e plane, suspended in the open semi-herical dome on whose cement-plastered rface cloud and light effects will be pro-cted to create illusion of movement. The angular "prow" on the second floor will use a large cafe, with auxiliary services.



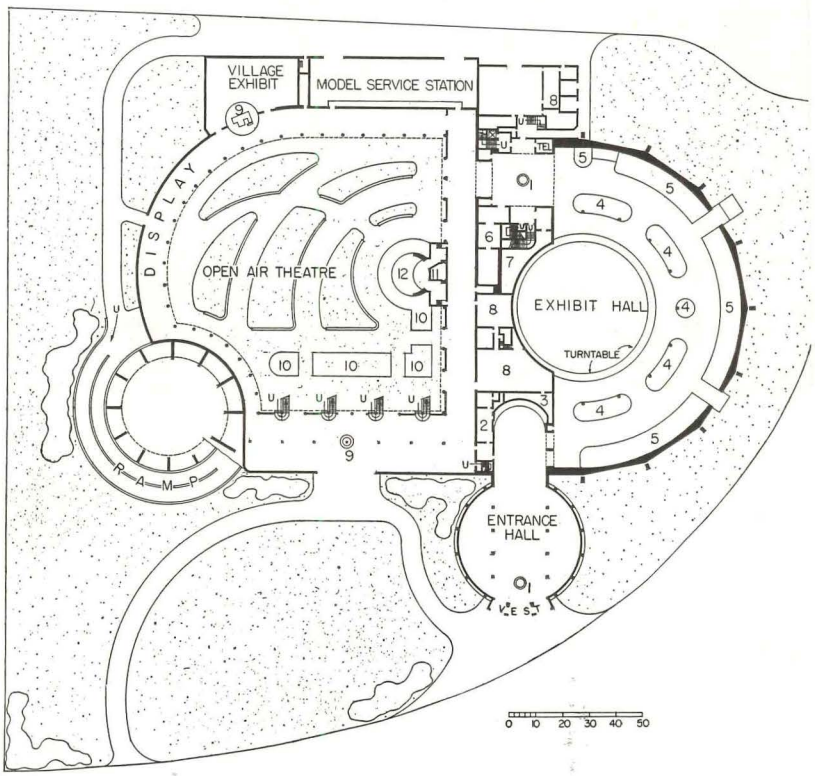
ngitudinal section



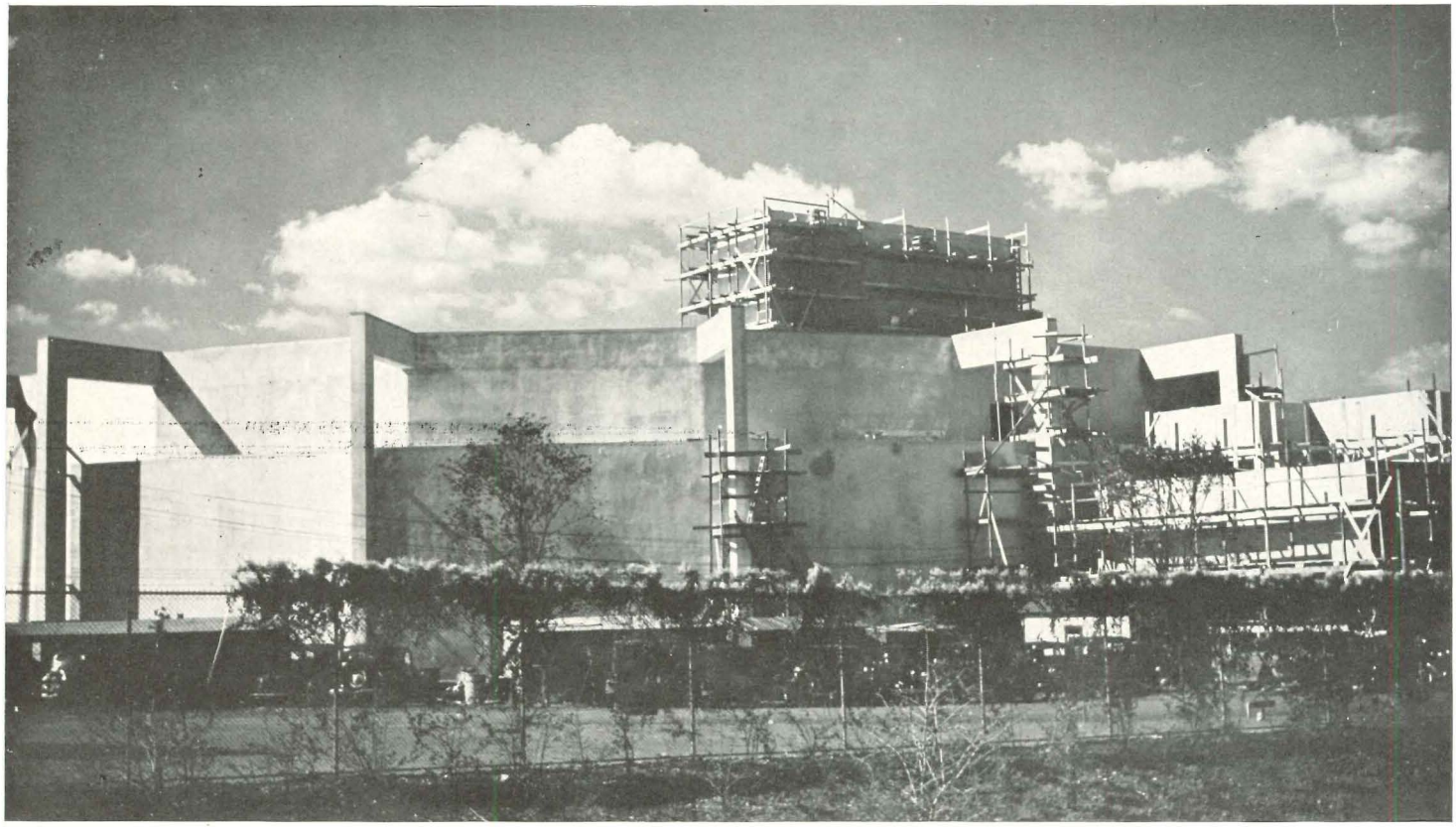
10. FORD MOTOR COMPANY

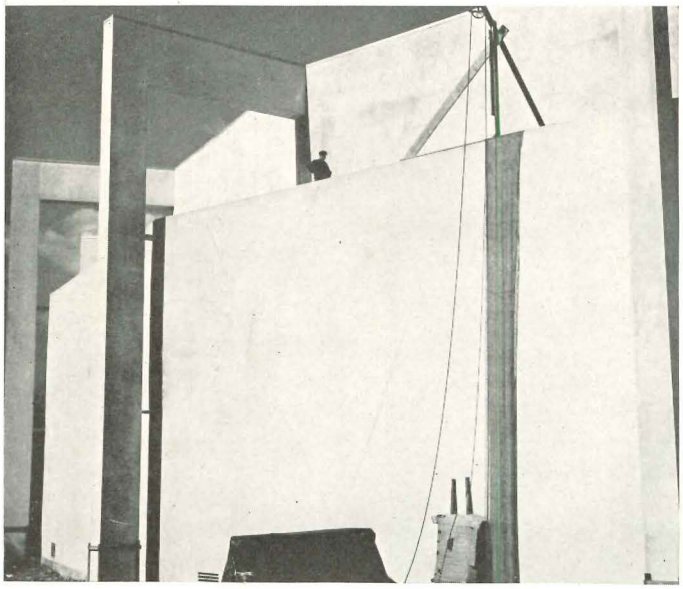
WALTER DORWIN TEAGUE, Designer of Exhibit
CHARLES C. COLBY and RUSSELL R. KILBURN, Associates
ALBERT KAHN, Architect

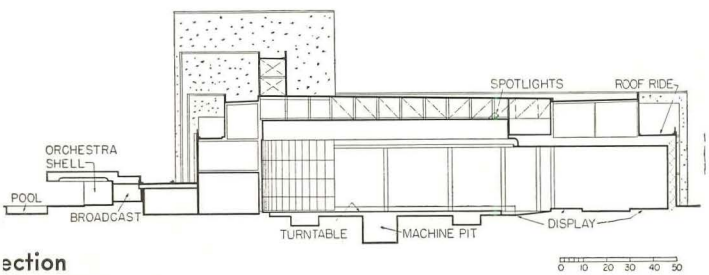
Model



Plan, main floor: 1. Information desk 2. First-aid room 3. Mechanical equ ment 4. Island 5. Platform 6. Women's rest room 7. Men's rest ro 8. Service 9. Display 10. Pool 11. Broadcasting 12. Orches



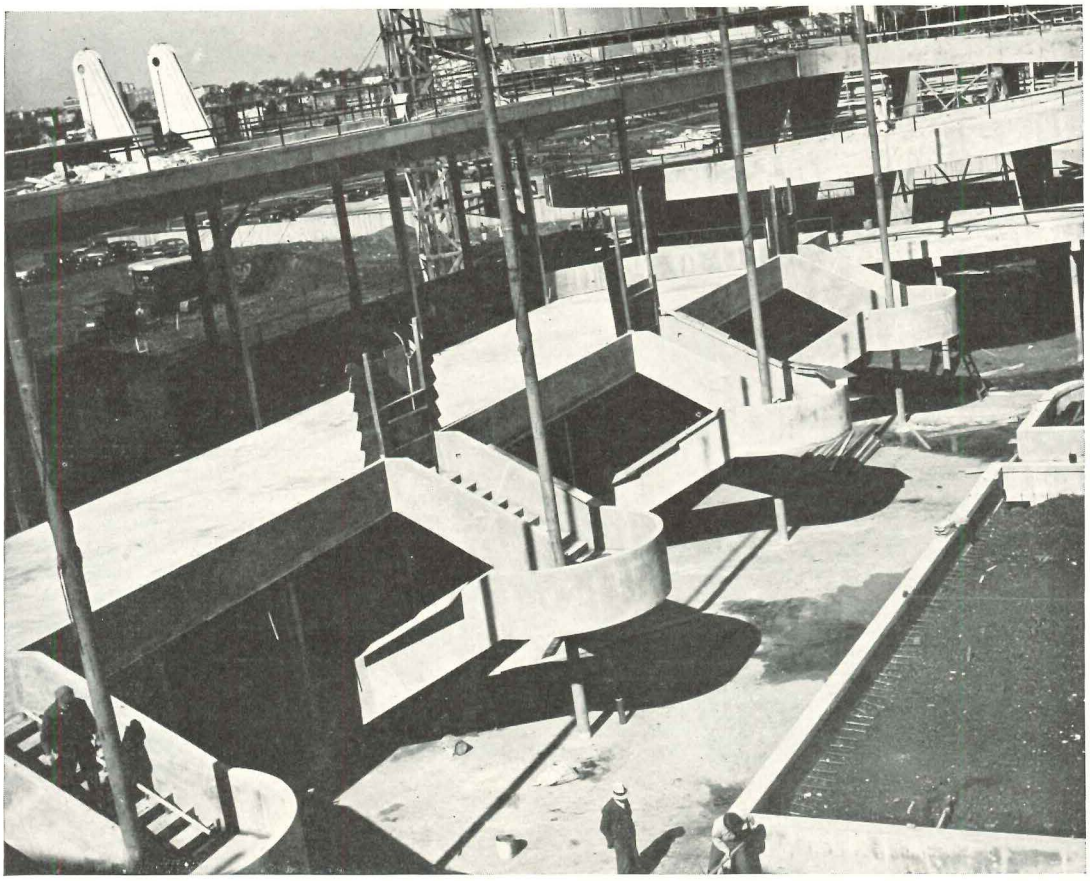




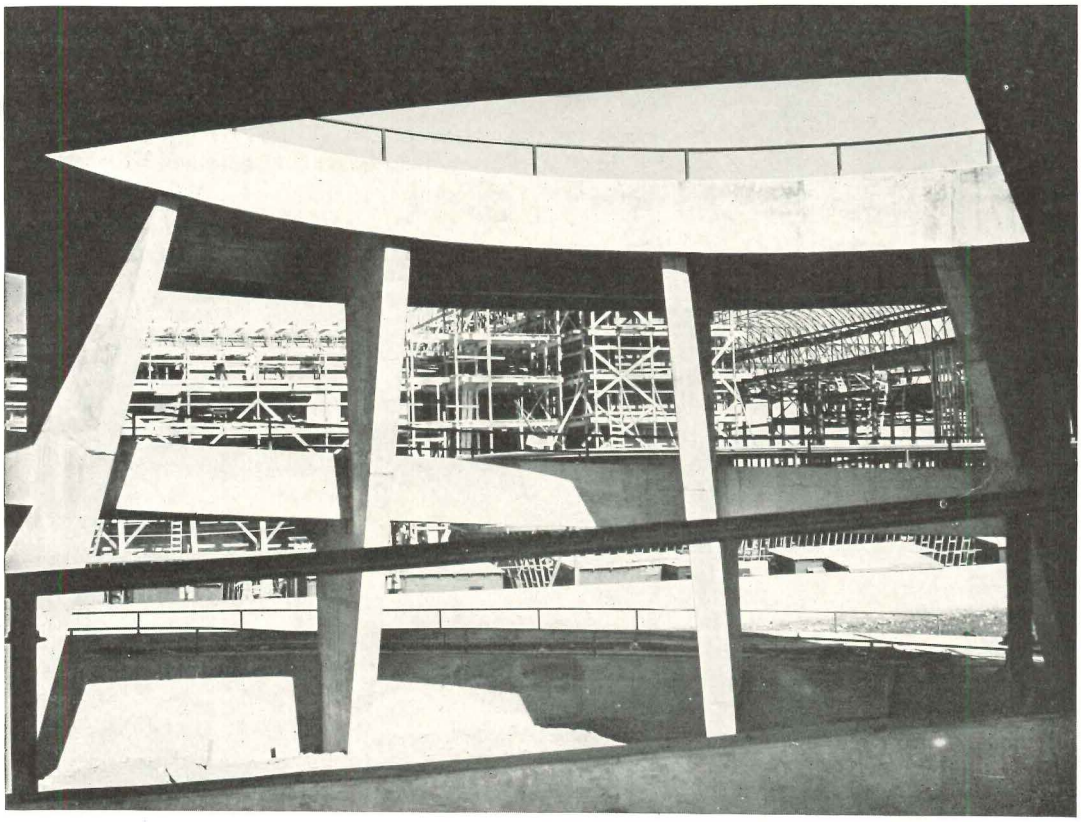
ection

BOTH CONSTRUCTION and plan of the Ford building were largely determined by the central requirement of the exhibit—a highway for demonstrating motor-car performance. This "roof ride" led to a much wider and more spectacular use of reinforced concrete than elsewhere at the Fair. In both spiral ramp (facing page) and steps to loading platform (top, over page), concrete has been used in a manner usually confined to permanent structures. Notable is the cantilevered three-tiered spiral ramp; a truncated cone in section, this ramp is carried by a ring of columns around its inner circumference (bottom, over page).

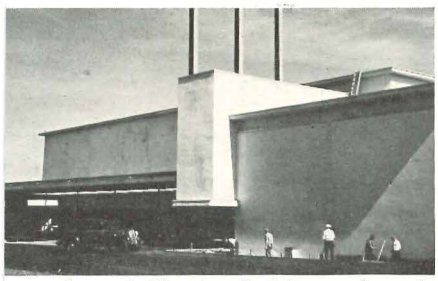
In plan, the exhibit—one of the largest at the Fair—is organized around a 100-foot turntable in the center of the large exhibit hall. Mechanical and other displays are placed across a semi-circular aisle around the turntable. Leaving this part of the exhibit, the visitor passes into a large patio, which is surounded by the half-mile "Roads of Tomorrow," an elevated roadway winding over the building and around the garden at various levels. The musical programs, which are an integral part of Ford promotion, had to be provided for in the structure. But exposition audiences differ radically from those of radio: they move on a casual schedule and consequently require not only different music but also different seating facilities. The plan of the Ford patio is designed to meet these needs. The irregular tree-shaded paths roughly circle the orchestra platform; the sides furthest from the platform are lined with benches; thus the audience can move with complete freedom. A studio behind the platform provides complete broadcasting facilities.



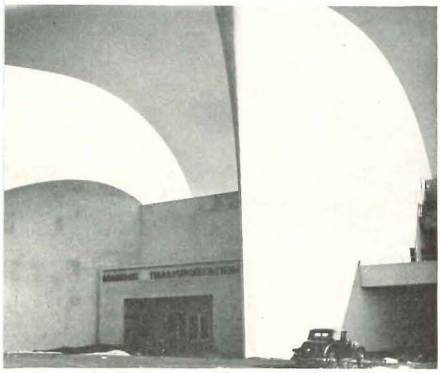
Entrance to loading platform of "roof ride" is by means of cantilevered concrete stairs.



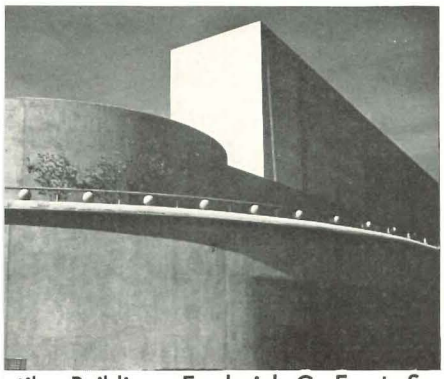
Interior detail of spiral ramp on "roof ride", showing method by which it is supported.



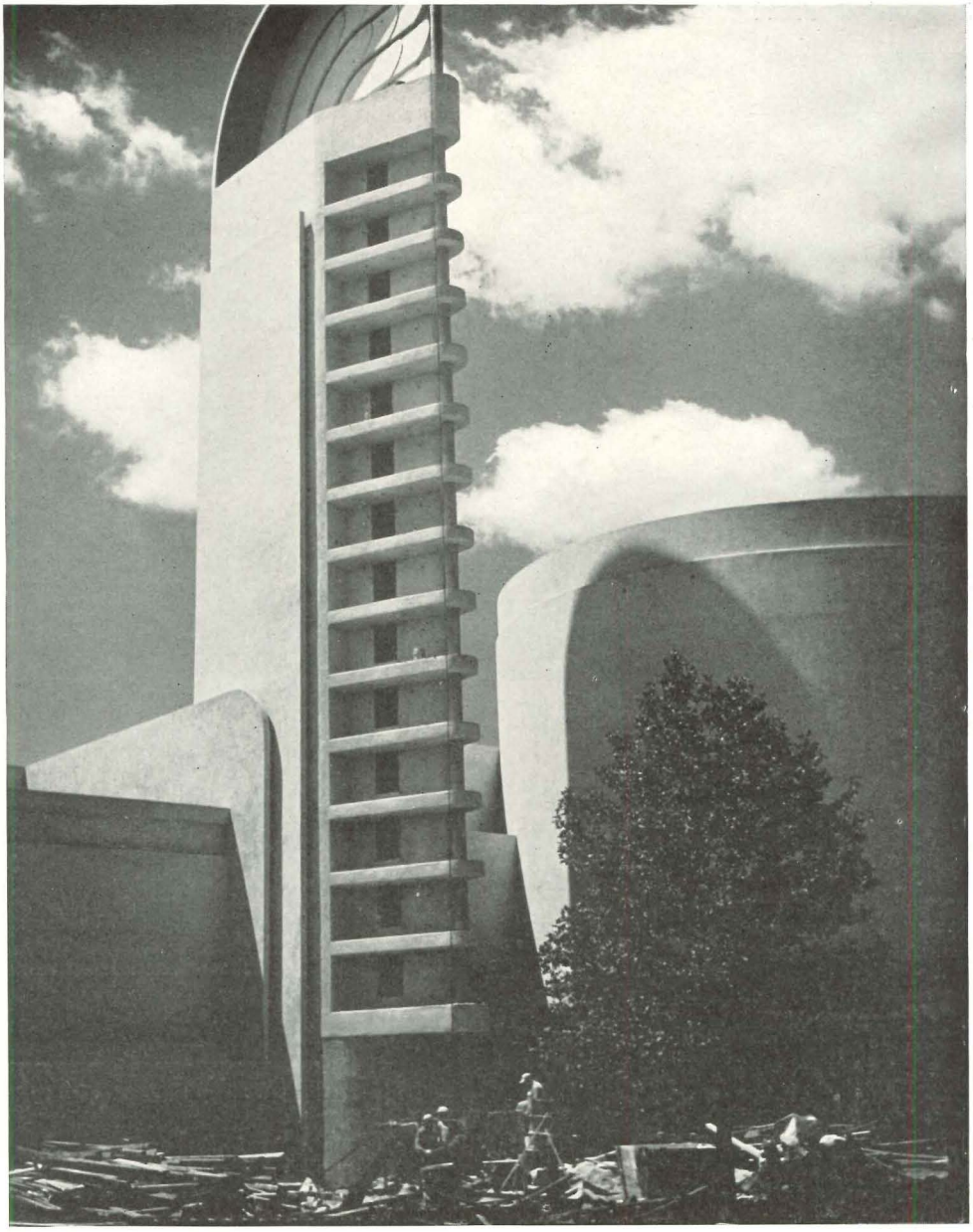
emicals and Plastics Building. Joseph Freedlander, Maximilian Bohm, and arles Beeston, architects.



ritime Building. Ely Jacques Kahn, schenheim and Brounn, architects.



xtiles Building. Frederick G. Frost, Sr., ederick G. Frost, Jr., and Ward W. nner, architects.



Decorative pylons, Transportation Building. James Gamble Rogers, architect.

EXHIBIT DESIGN

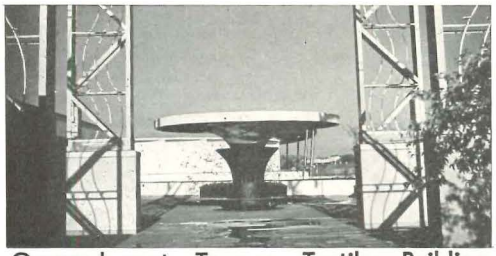
JOHN P. HOGAN*

HERE WILL BE in all on the Fair Site out 375 structures ranging from information booths and concession stands to umping stations and exhibit buildings. f the major structures, 100 will be exhibit buildings and 50 amusement concessions.

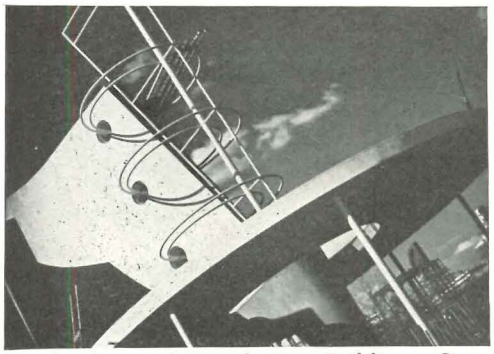
Of the 100 or more exhibit buildings, e Fair Corporation will construct only out one-third. Most of the Corporation uildings were completed before the her exhibitors began to build. With some notable exceptions, the general character of the buildings has followed the principles, both in interior arrangement and in details of construction, which were established by the Corporation. As the general plan was completed, Fair buildings were located throughout the exhibit area in strategic places in order that they might serve as a control for the architecture of the buildings to be constructed by exhibitors.

In the Government Area, where a greater variation was to be expected in buildings constructed by foreign nations, unity was retained by grouping the government buildings and the pavilions to be occupied by foreign nations (who are not erecting their own buildings) around a central court. The Board of Design did not itself design the Fair-owned exhibit buildings, although some of the members in their private capacity were architects for other exhibitors. Architects, or in many instances groups of architects, were selected for the design of the Fair-owned exhibit buildings on a program prepared by the Board of Design. In this way, and through the

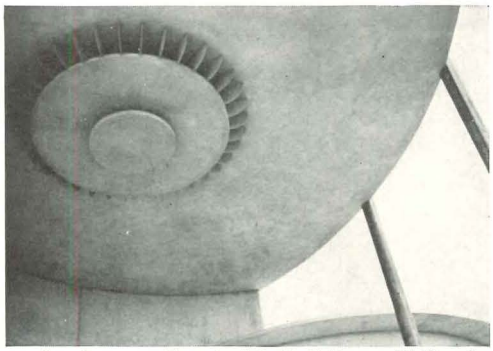
*Chief Engineer and Director of Construction, New York World's Fair 1939



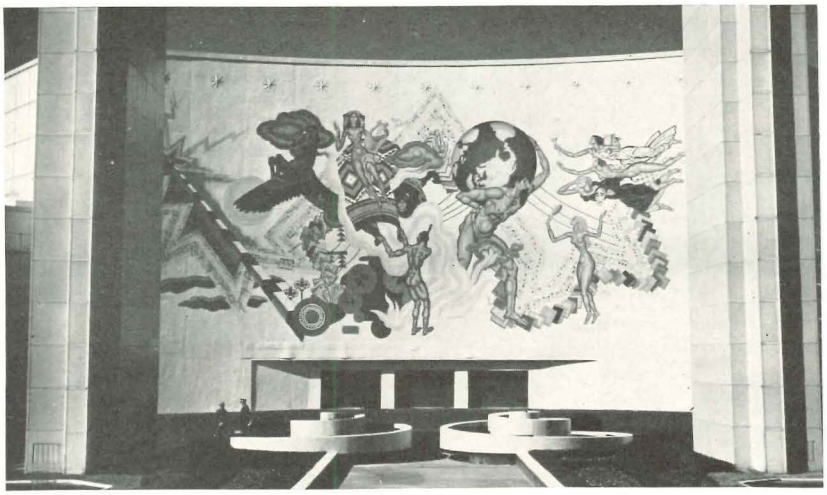
Covered seat, Terrace, Textiles Building



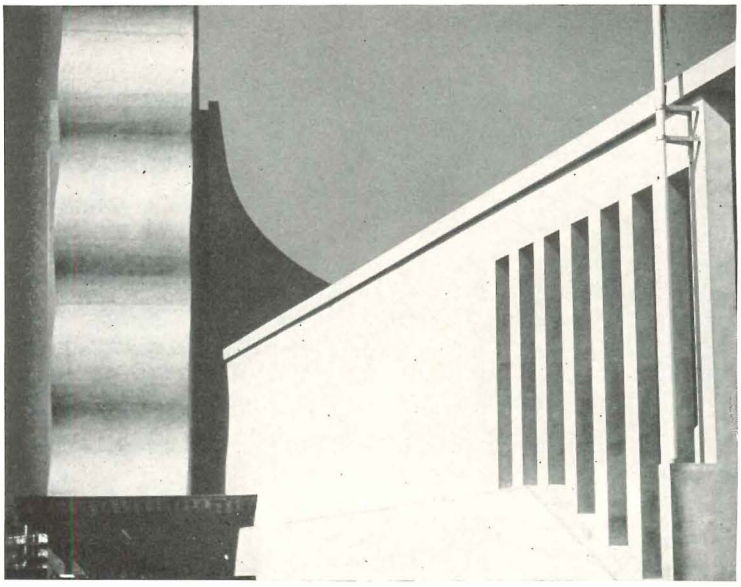
Production and Distribution Building. Corbett and MacMurray, Robert W. Cutler, architects.

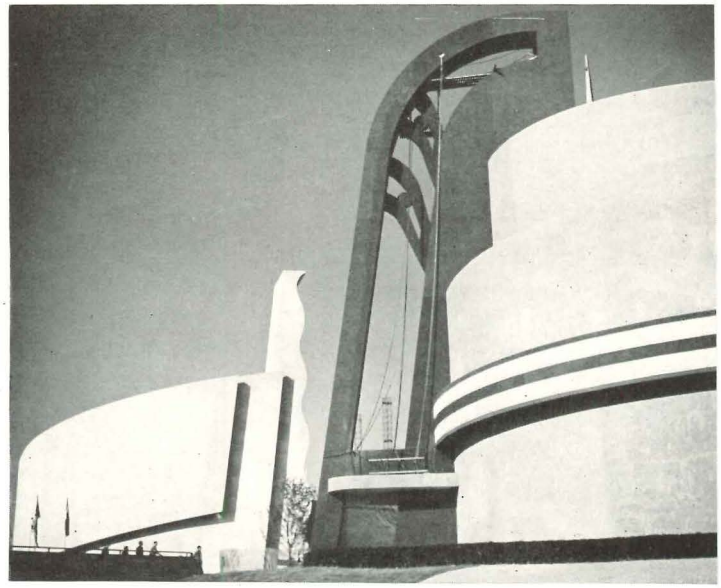


Light fixture, Food #3 Building. Philip L. Goodwin, Eric Kebbon, Edward D. Stone, Richard Snow, and Morris Ketchum, Jr., architects.

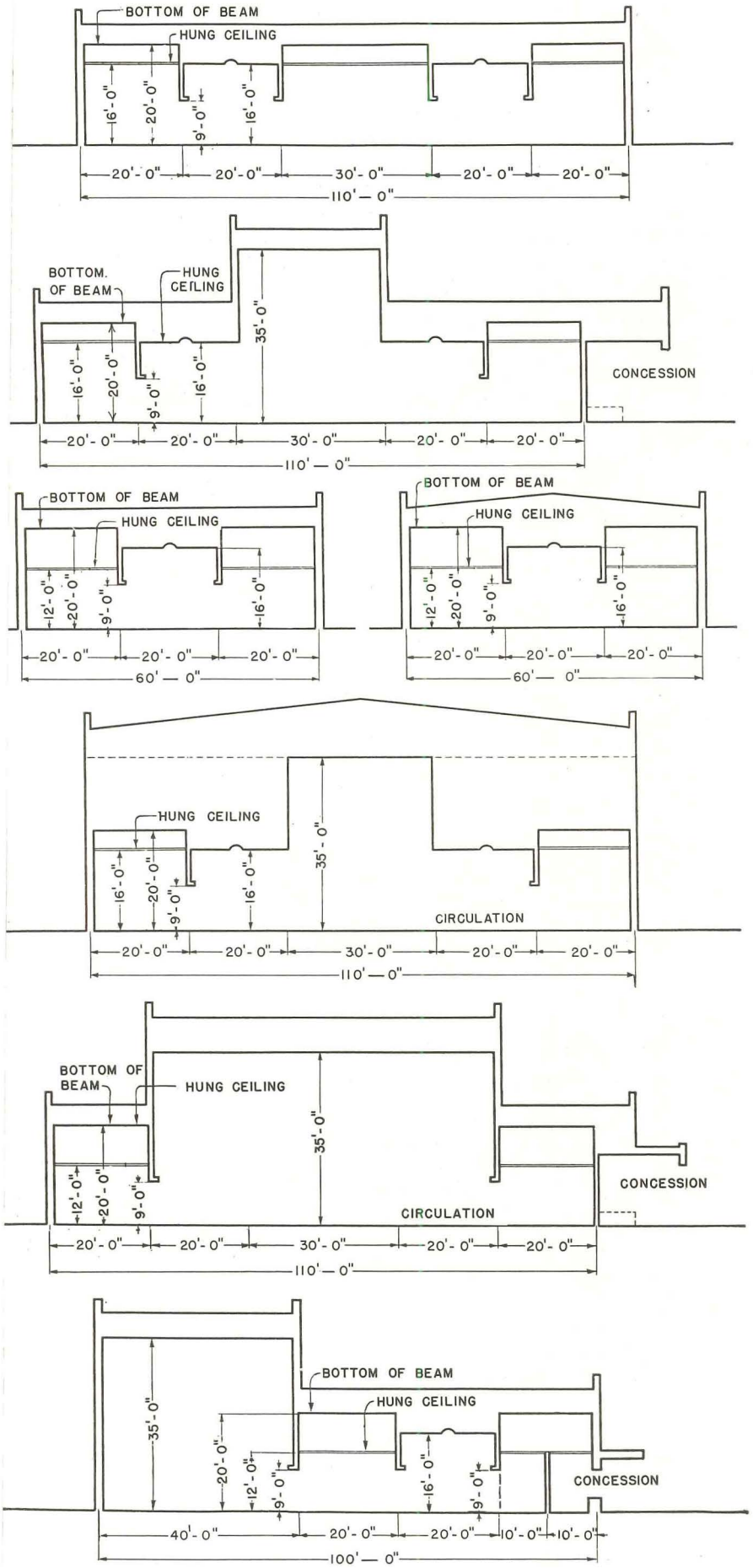


Top: Communications Building. Francis Keally and Leonard Dean, arch tects; Eugene Savage, muralist. Bottom: Food #2 Building. Aspinw and Simpson, M. W. del Gaudio, architects; Carlo Ciampaglia, muralis





Left, Hall of Pharmacy. Pleasants Pennington, George L. Payne, Jr., I. Woodner-Silverman, architects. Right, Electrical Products Buil ing. Walker and Gillette, architects.



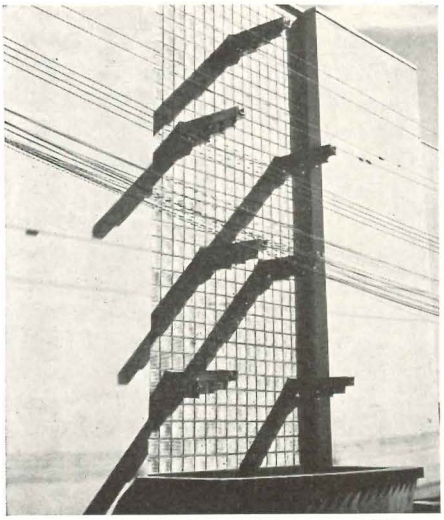
chitects of the 30-odd Corporation buildings were guided by these basic ɔes; evolved by the Fair staff, they embody the standards here described.

freedom of individual exhibitors to select their own architects, literally hundreds of architects, sculptors, and mural painters have participated in the preparation of the Fair. All plans from Fair architects or architects of exhibitors were reviewed by the Board of Design, and in most instances were modified by suggestions from the Board.

The purpose of this control was to create a certain amount of unity without uniformity, and insofar as possible, to avoid a lack of cohesion. For the same reasons, general control of light and color within reasonable bounds was exercised by the Board of Design in uniformity with a general light and color scheme prepared by the consultants of the Board. Proper landscaping was made mandatory and while very considerable latitude was allowed, pressure was brought on all exhibitors to present satisfactory landscape plans.

In determining the program for the World's Fair exhibit buildings, it was necessary for three separate departments of the Fair to cooperate, the Board of Design, the Construction Department, and the Department of Exhibits and Concessions. The Fair had been zoned by the Board of Design into eight main sectors, and it was the duty of Management to determine the amount of space in Fair Buildings which should be assigned to each sector and to determine the size of the Fair buildings which should be located in each sector. Management decided that there should be provided in the Fair-owned exhibit buildings 450,000 net sq. ft. of exhibit space, 100,000 sq. ft. of gross space for stores and restaurants, and 40,000 sq. ft. of net space for concessions. They also made suggestions in regard to the most saleable arrangement of this space based upon the experience of other Fairs.

As the Board of Design is a board of review and not an administrative branch of the Corporation, it was decided that the Construction Department was to prepare all working drawings based on approved definitive designs of contract architects, and to construct all buildings either by contract or with forces employed by it, which placed the important element of cost control in the Construction Department, and also the responsibility of carrying out into detailed design architectural conceptions of the contract architects as approved by the Board of Design. The Construction Department was also charged with the administration of the entire construction budget and preparation of detailed land-



Fountain, Metals Building. William Gehron, Morris & O'Connor, architects.

scape plans, detailed lighting plans, and the enlargements and erection of murals and sculptures from models approved by the Board of Design.

The requirements of both Management and exhibitors were analyzed, and four important determinations were reached: First, that the buildings should be one story, with entrances level from the streets and sidewalks. Second, that since the bulidings were to be occupied by a number of exhibitors it would be impossible to secure good results in lighting and decoration unless complete reliance was placed upon interior lighting. This brought about a decision to have no windows. Third, that the interior should be susceptible to division into minimum units 20 by 20 ft. or multiples thereof, wherever the exhibit space was located on the side with a central aisle. Wherever a central exhibit space was provided with an aisle on each side, it was decided to make this central island 30 ft. wide. Fourth, that all aisles were to be 20 ft. wide.

This led to a typical arrangement of buildings either 60 ft. wide with two exhibit spaces and a central aisle, or buildings 110 ft. wide with two aisles, two side exhibit spaces, and a central exhibit. This determined the economical plan of the Fair buildings and was followed generally, although domes and rotundas were provided for points of special interest.

Based upon these determinations, a careful structural study was made on the various possibilities of economical construction. Many types of material were investigated and economics finally dictated the selection of light steel frames and interior columns along the face of the side exhibits. Preliminary cost investigations indicated that required space could be obtained within the limits of cost in stucco, which was the material preferred by the Board of Design. It was therefore possible to build a more substantial Fair within the limits of cost than had been originally anticipated.

With some variation, the general materials of construction were as follows: steel frame with wood purlins, joists and rafters, all covered with one-half inch gypsum board. Over this was placed paper-backed lath and about one inch of cement mortar and stucco. The interiors were finished in gypsum boards, taped and sparkled. Floors were of four inches of fine stone covered with black top. Hung ceilings were generally used and the spaces between the ceiling and roof serves as plenum chambers for exhaust fans with individual motors placed about 50 ft. apart along each side. For insulating material there was placed on the interior of the outer wall and underneath the roof joists either a layer of rock wool or a metal foil insulation. A small fire in one of the buildings indicated that this assembly, being largely composed of non-combustible materials, is very slow burning.

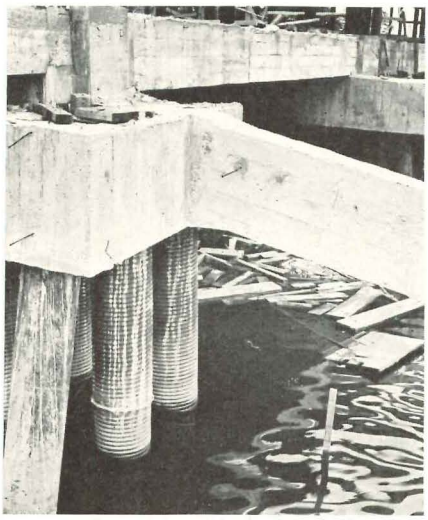
It was estimated that in order to meet the net space requirements it would be necessary to build 1,400,000 sq. ft. of exhibit buildings at an estimated cost per sq. ft. of from $4 to $6, depending on the character of the foundation. The lower costs were for buildings on spread footings and the highest cost for buildings supported throughout on piles with supported floors. A survey of the soil conditions throughout the site, assisted by numerous borings, indicated that the average cost would be about $5 per sq. ft., and a budget was accordingly set up for exhibit buildings of $7,000,000. Through good design and careful cost control, the space requirements have been more than satisfied by the construction of 1,159,000 gross sq. ft. at an average cost of about $5.25 per sq. ft. The slight increase in average cost is entirely due to the fact that more Fair buildings were built on piles than was anticipated, due to the tremendous building program of exhibitors.

The temporary character of the buildings and the need for economy dictated a rather plain type of building, but through the ingenuity of the design architects, many interesting forms a shapes have been worked into the stru ures without exceeding the cost limi tions. The relatively simple charac of the buildings also dictated the mod type of architecture, which will be ch acteristic of the entire Exhibit Area. the Government Area the buildings bu by foreign nations will be generally o more substantial construction, and modern trend will not be so pronounc In the Court of States there will be group of thirteen buildings which v illustrate different early types of arc tecture in this country, including a plica of Independence Hall. In t Transportation Area the buildings a equally as substantial as those in t Government area will be.

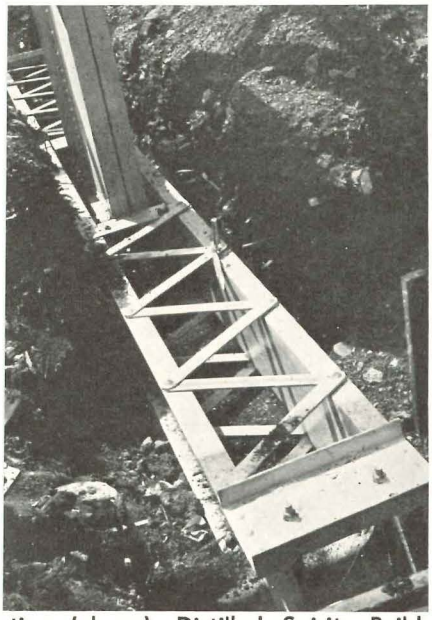
As far as the Fair-owned exhi buildings are concerned, it was necessa to rely greatly for effect on color, lig and elaborate landscaping, and if t Fair is to teach any architectural less it will be emphasis on the necessity the combination of all these elements harmony with the design of the buil ings themselves. Particularly interesti is the attempt to produce a gay and ha monious color scheme without varyi contrasts or incongruity. The success this effort may also be a lesson for t future.

Finally, in order to complete the de orative features, liberal use has be made throughout the site both by t Fair Corporation and by exhibitors mural paintings and sculptures. A schools of artists and sculptors we given an opportunity to display the skill, and many comparatively rece techniques and materials have been use Here also a strong effort has been ma by the Board of Design to allow for variety of thought, expression, and m terial without disturbing the harmonio whole.

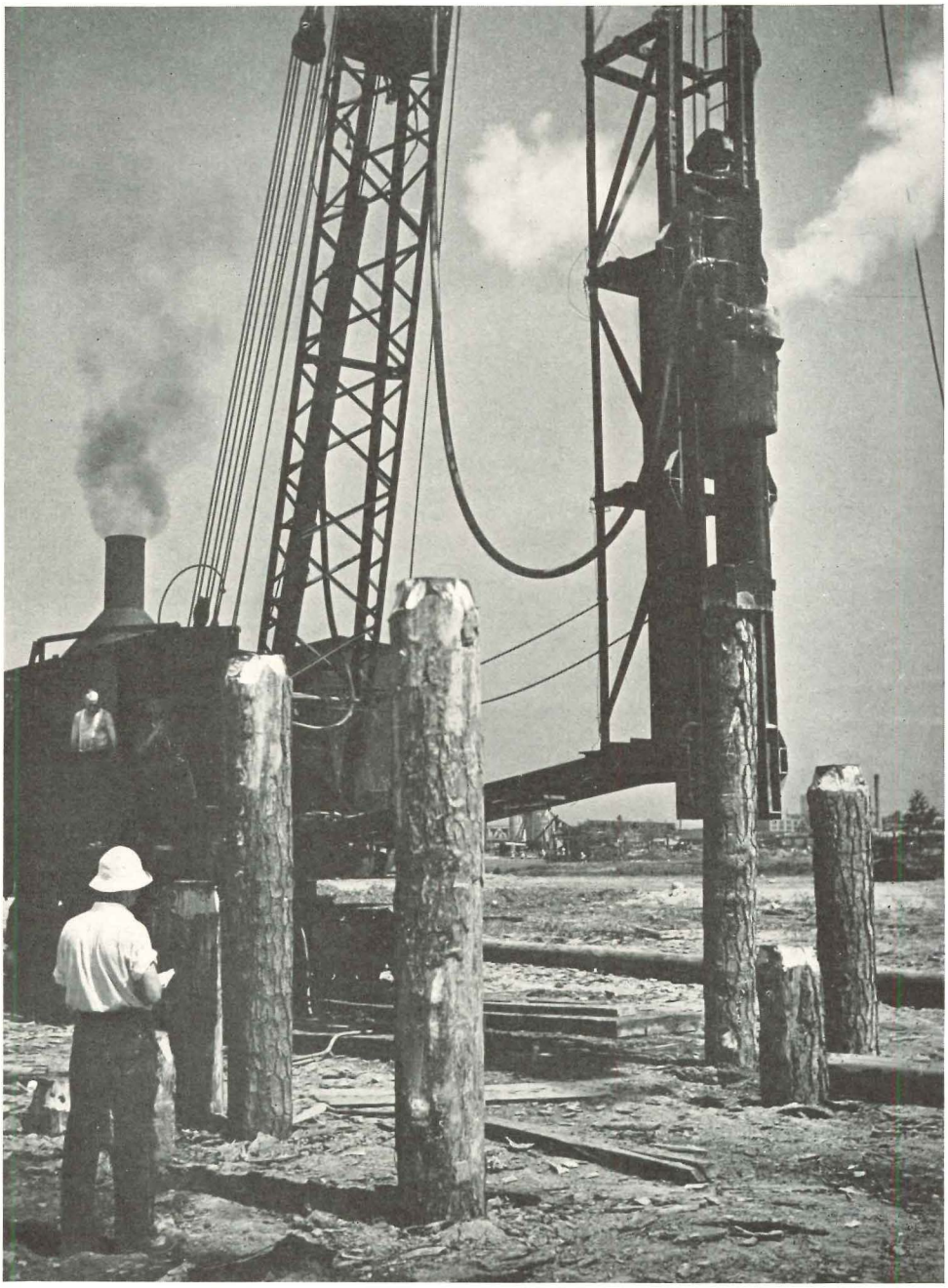
In construction, the principle has be followed of finishing areas as fast as th buildings are completed. The plantin of trees along all the main avenues star ed the moment the grading of the si was finished and is practically complete at this time. As soon as the last area stucco has been completed on any buil ing, the landscape engineers start gra ing, and planting. A majority of th trees have already been planted and th remainder are going in; two-thirds the roads and walks have been pave utilities are all in and operating.



ıcrete piling, New York Amphitheater.
ın and Robertson, architects.



ɔting (above), Distilled Spirits Build-
. Piling (right), French Building.
ıert and Patou, architects.



FOUNDATIONS

L. B. ROBERTS*

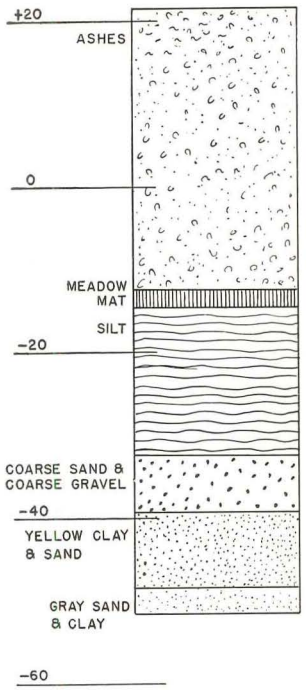
IE SITE selected for the New York orld's Fair 1939 was known as Flush- ; Meadows—a tidal marsh over three les long and more than a mile wide certain places, traversed by a sluggish al stream known as Flushing Creek. ıis location was regarded as ideal for :h a purpose, due to its adequate area d its accessibility to high-speed trans- rtation facilities.

The original swamp surface of matted vegetation covered a silt formation containing a high percentage of water which in places is as much as 80 ft. deep below high tide. Underlying this silt is a stratum of firm sand suitable for foundations.

For more than 30 years portions of this swamp had been used as a City dump, and some fifty million cubic yards of ashes and rubbish had been placed on the area. During the years when this material was being dumped, the fill in some places, had a total depth of over 125 ft., and its weight had forced the meadow surface downward 30 to 40 ft. below the original swamp level.

Ownership of the greater part of this swamp had been acquired by the City of New York for development as Flushing Meadow Park. An agreement was entered into between the World's Fair Corporation and the City of New York providing for the temporary use of the site by the World's Fair in return for which the latter would install extensive landscaping and other permanent im-

ssistant Chief Engineer, New York World's r 1939



Typical test boring at Fair site, showing soil conditions which building designers faced and overcame with a variety of foundation designs

provements for the future park site.

The site was graded by the City of New York and this operation involved the movement of about 7,000,000 cu. yds. of rubbish material. This was spread over the low land and during the work the course of Flushing Creek was changed, a new channel created and two lakes having an area of 135 acres were developed.

When the grading was complete, soil borings and loading tests were made throughout the entire site. Test piles were driven and loading tests were made to determine the safe loading capacity of both the ash fill and the sand stratum underlying it. From the results of these tests certain general deductions were made for various parts of the site in advance of knowledge of proposed structural loadings. These basic conclusions have been summarized by Messrs. Foster and Glick as follows:*

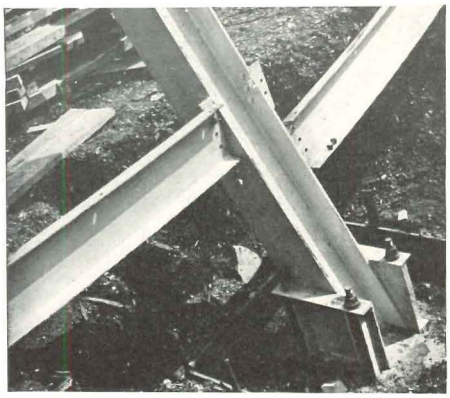
> "(1) That spread foundations for heavier constructions should be confined to the areas previously loaded by large depths of ashes, and where, after final grading, a considerable depth of ashes remained over the underlying silt and clay.
>
> "(2) That where loads were to be placed in recently filled areas, settlements of considerable magnitude could be expected, and where ash fill over the Meadow was shallow, loads should be limited to a maximum of 300 lb. per sq. ft.
>
> "(3) That where structures were to be built, filling should be done prior to the construction of the foundations.
>
> "(4) That grading, or modification of existing grades, should be limited to a 3 per cent slope where the fill of ashes was relatively thin over the original ground."

*Engineering News Record, September 22, 1938.

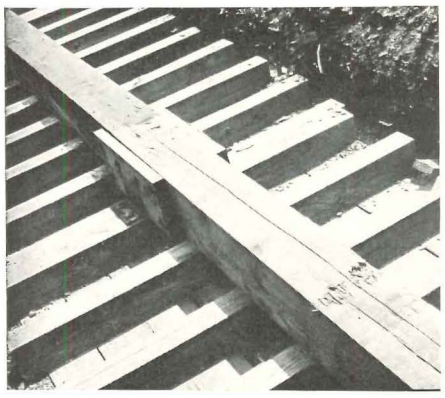
The pile driving operations have b on an extremely large scale. At present time over 470 miles of piles h been placed.

The actual driving of the piles un the conditions described—through m dow mat surface and semi-liquid silt firm bearing sand—is very interesti Where the ash fill is thin, a hole punched in it by a steel "spud" which then removed. The pile is lowered i this hole and the steam hammer pla on top of it. Even a light tap will d the pile and hammer as much as fo feet as the pile passes through the s The pile meets resistance as it penetra the underlying sand and this resista increases until the desired bearing pacity is reached. It is also interesti to note that if the driving of a pile discontinued at this point for only a li ited period of time—often less than hour—the pile is "frozen" in the silt a ash fill. It becomes difficult to st driving it again—often fifty blows producing any increase in penetrati Maximum design loadings for piles av age 18 tons. Test piles were loaded high as 36 tons.

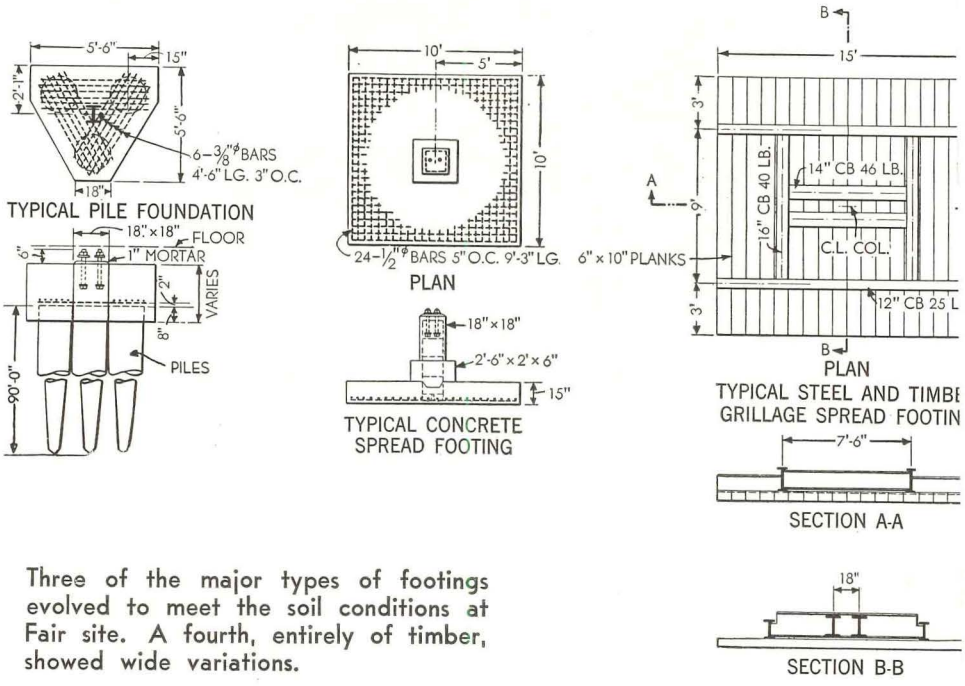
Lighter structures are supported spread footings, particularly in areas deep ash fill. Building settlements w anticipated and damage has been ave ed by providing joints to prevent cra ing of stucco and walls. Settleme records of buildings confirm the desi assumption cited above and continu experience on the site indicates that t foundation problems have been satisfa torily solved.



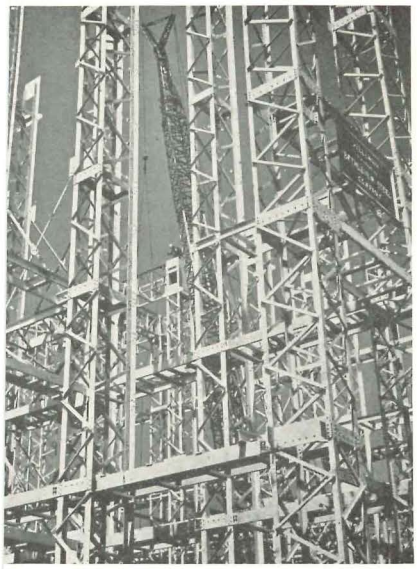
Footing, Distilled Spirits Building



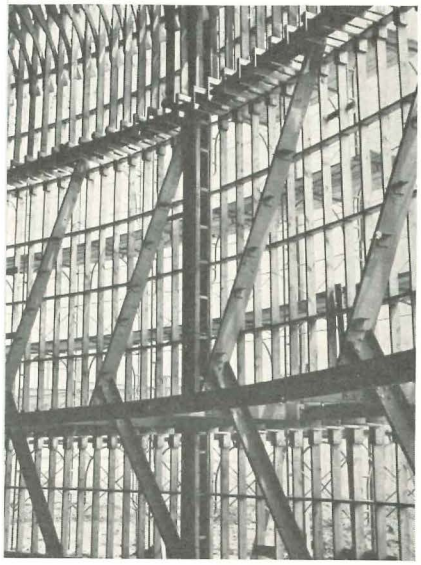
Spread timber footings, Gas Exhibits, Inc.



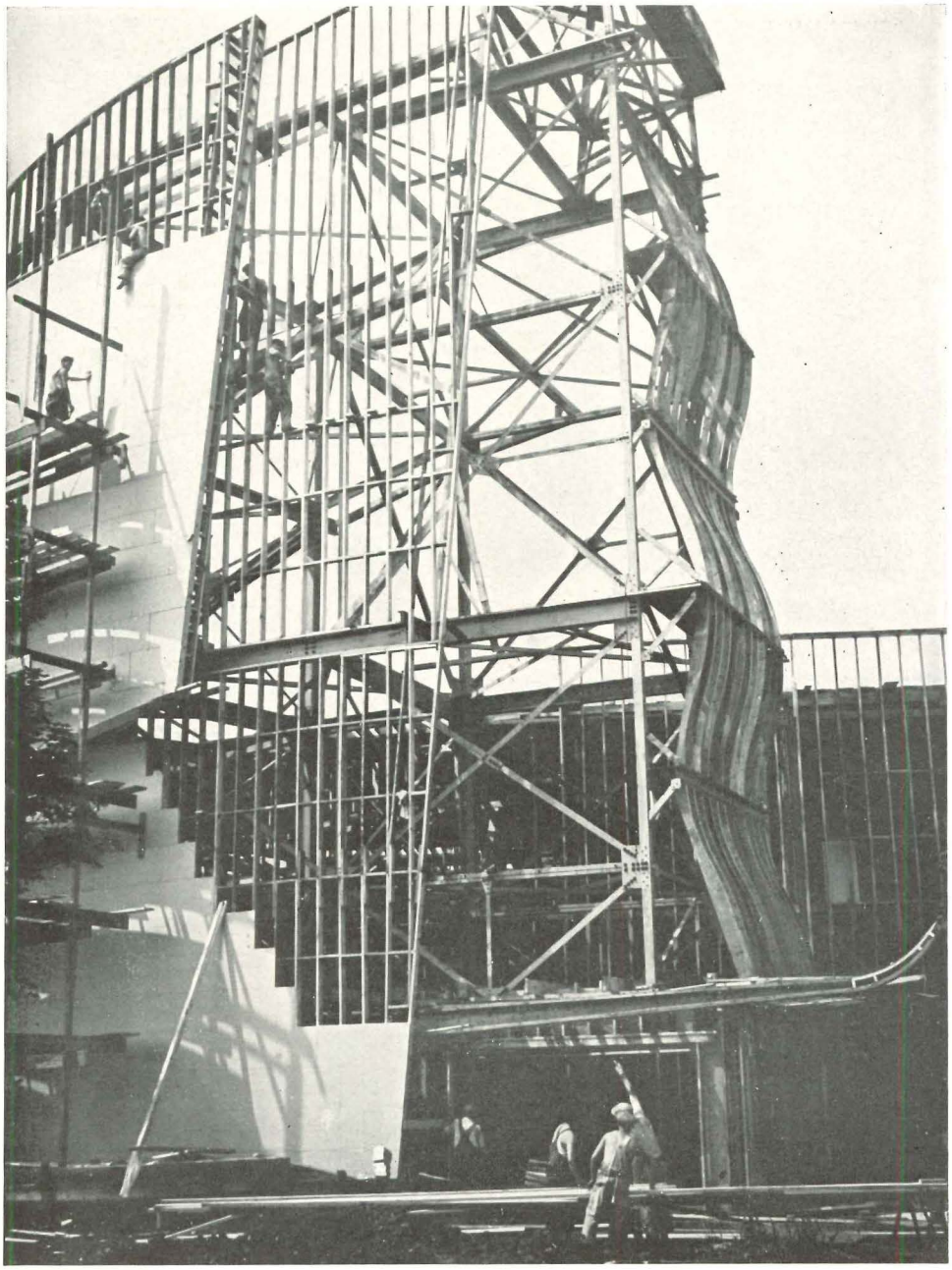
Three of the major types of footings evolved to meet the soil conditions at Fair site. A fourth, entirely of timber, showed wide variations.



framing, U. S. Government Build-
Howard L. Cheney, architect.



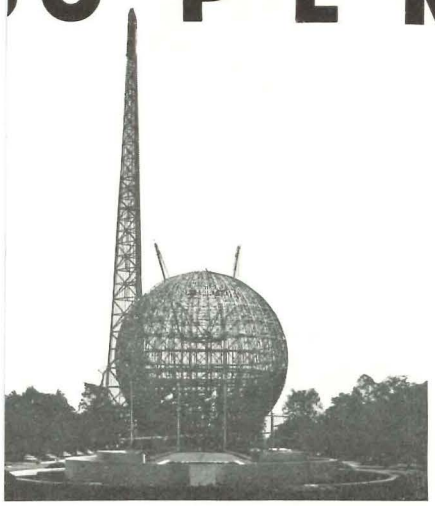
nal bracing, Consolidated Edison
oration Building. Harrison and
houx, architects.



Steel framing, timber studs, and plasterboard. Main entrance, Hall of Pharmacy.

SUPERSTRUCTURE

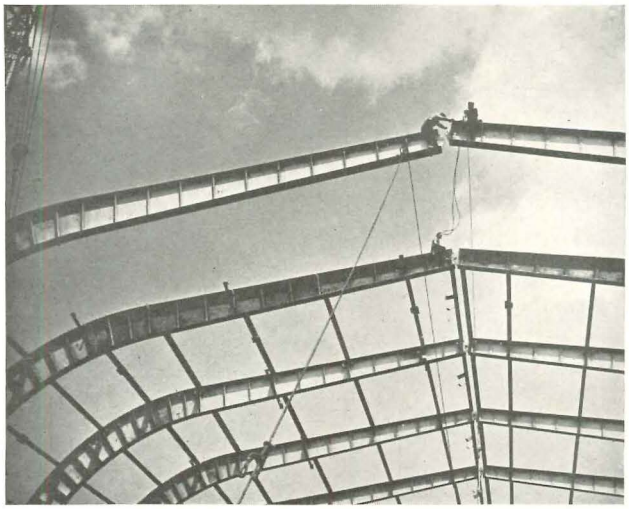
IRVIN L. SCOTT*



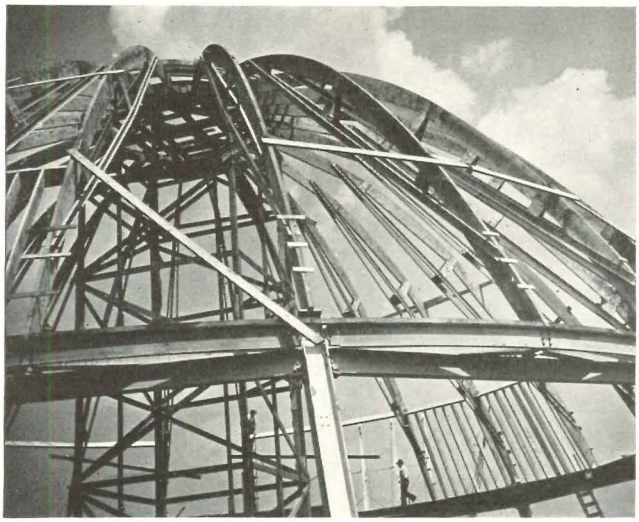
World's Fair Exhibit Buildings in general fall into two main categories: (1) Those designed and erected by the Fair Corporation itself for rental to prospective exhibitors, and (2) Those erected by private participants to house their individual exhibits. In the former group it was necessary that the design should be conceived along broad general lines to satisfy the then unknown specific needs of the greatest number of exhibitors, whereas in the case of the exhibitor who elected to pitch his own tent, he was able to design his building around a pretty well determined type of exhibit. Fair-built buildings are, therefore, more or less standardized in plan as to depth of the exhibit space and circulation, and in elevation as to materials and absence of fenestration, for who could say what exhibitor would want windows and where?

Since the cost of the exhibit buildings has to be amortized, during the life of

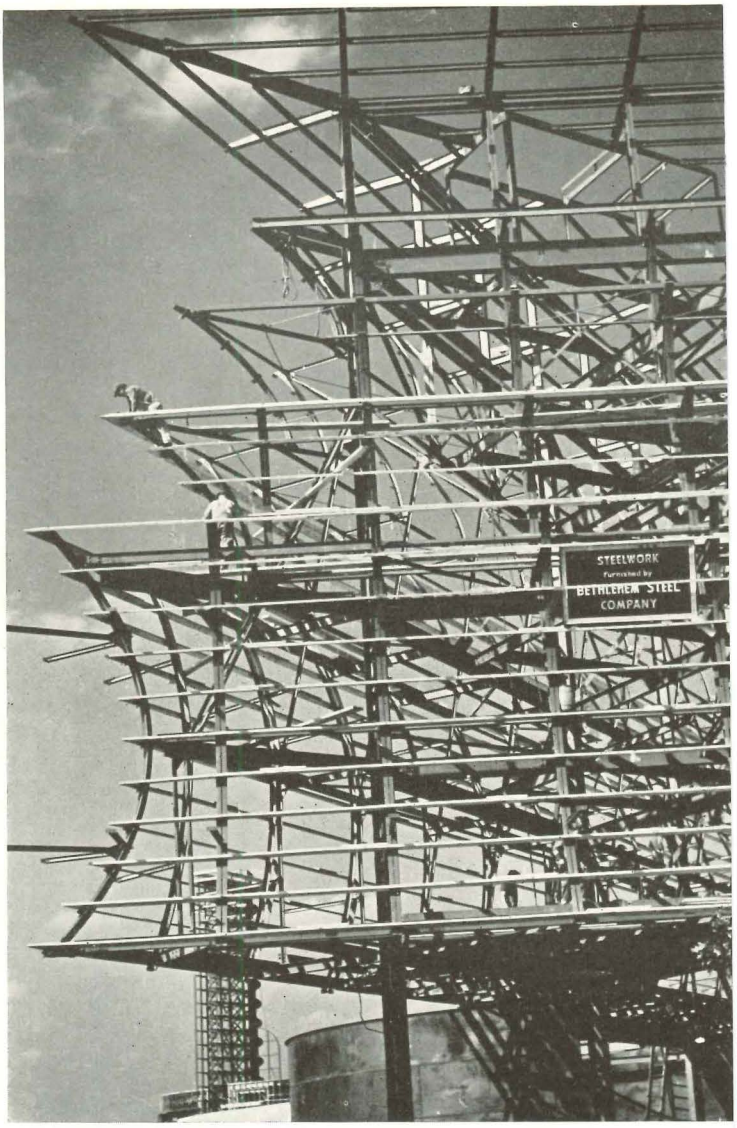
*Chief architect, Construction Department, New York World's Fair 1939



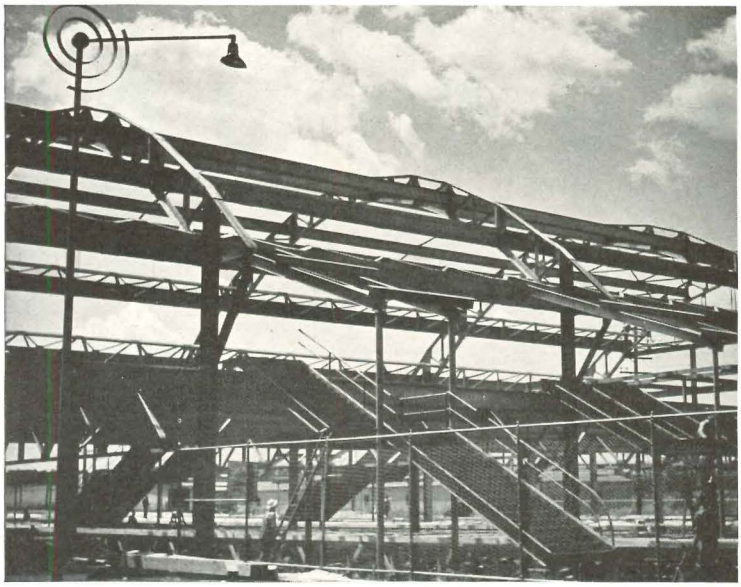
Aviation Building's solid-web arch trusses are swung into place.



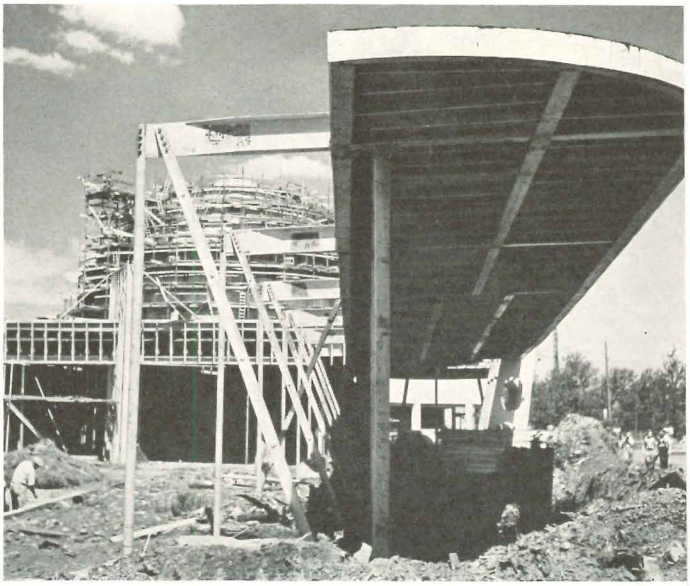
Wood templates in place on dome of Distilled Spirits Building, timber studding follows.



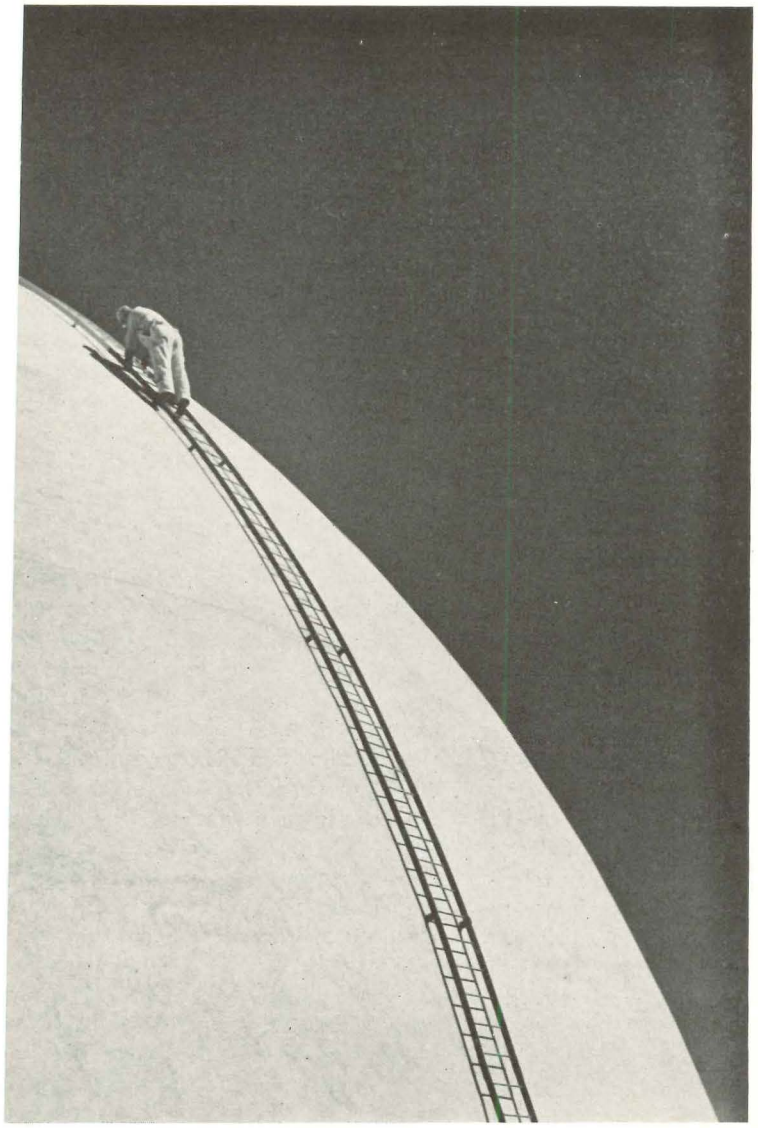
Special light steel framing on Petroleum Industry Building to acc modate exterior lighting design. Voorhees, Gmelin and Wa architects.



Left: trusses of Long Island Station.

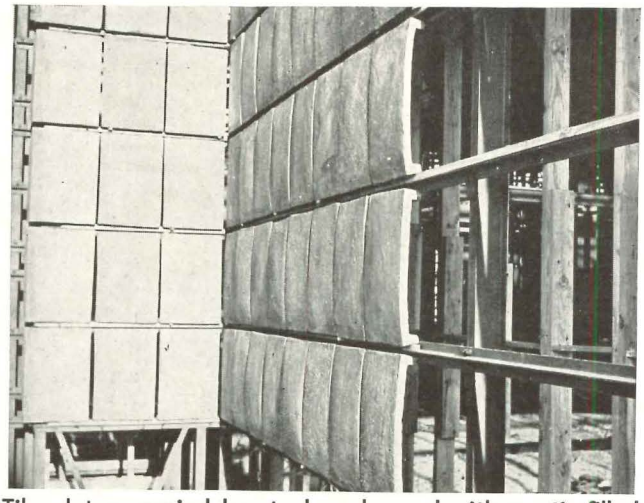


Right: cantilevered canopy, Distilled Spirits Building.



ting the dome, Food Building No. 1. Leonard M. Schultze and
ıibald M. Brown, architects.

Stucco on metal lath, Transportation Building. James Gamble Rogers, architect.



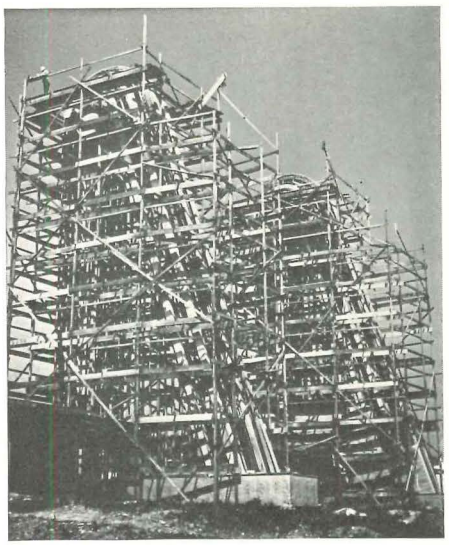
Tile plates, carried by steel angles and with mastic-filled joints, form external facing of Belgian Building. Van de Velde, Stynen & Bourgeois, architects.

Fair, by the sale of space to partici-
ıts, it was necessary that careful
lysis should be made as to what com-
ation of materials for the super-
ıctures should effect the maximum
nomy and produce the best architec-
al effect. Many types of structures
:e suggested and investigated, all the
y from precast cellular concrete walls
l roof, forming both the inner and
er "skin" to prefabricated sections of
called "bird cage" construction, with
cco or gypsum board applied to the
er and outer surfaces. None of these,
vever, offered the necessary economy
the one hand, nor the flexibility re-
red of expositional architecture on
other. The type of construction
ally adopted was the light structural
el frame with curtain walls of gypsum
ırd, wire lath and stucco on 2 x 6 in.
ds between the supporting columns,
l wood framing resting on trusses or girders with sheathing and three-ply built-up roofing forming the roofs. By and large, this type of construction has been followed by the private exhibitor, either taking his cue from the analysis made by the Fair Corporation or from his own independent studies. However, in the programming of the Fair-constructed buildings, the skin covering of stucco was suggested but not made mandatory. Where the designing architect elected, he could suggest other exterior treatments provided they did not exceed the cost of stucco. As a result, there are such interesting deviations from the rule as the sand-blasted vertical red-wood siding on the Community Arts Building, and the corrugated V-beam sheets forming the outer skin of the Cosmetics Building.

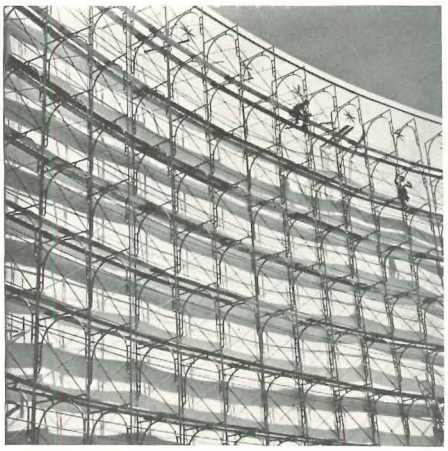
Also in the private exhibit building of the A. T. & T., 3/16-in. asbestos boards in 4 x 8 ft. sheets have been applied with wide joints to the gypsum board backing, giving an interesting pattern that lends relief and variety to the general architectural effect.

It is a requirement of the Fair code that, in general, structural members be protected by a material having a fire resistive rating of at least ½ hour. This naturally has ruled out the use of exposed steel as an architectural expression except in certain cases where a deviation from the Code could be justified or where no combustible materials were used in connection with the steel structure. An example of this is the main exhibit hall of the Aviation Building. Here the architects suggested spanning the hall with a series of three centered steel arches of increasing magnitude, tying these together with connecting beams and purlins. Quite naturally, fabrication cost ran high but this was offset by the fact that the protection

SUPERSTRUCTURE



Wood scaffolding on Transportation Building.



Lightweight, prefabricated steel scaffolding for Communications Building.

Wood sheathing on semisphere of Aviation Building.

from the weather is afforded by a single skin covering on the exterior of corrugated steel sheets protected with saturated felt and aluminum foil, leaving the well-designed steel arches exposed to view on the interiors.

This treatment exists "in reverse" in the case of the U. S. Steel Building. Here it was natural that the exhibitor would want to attract attention to his own product in the construction of his building. Accordingly, a smooth stainless steel "inner dome" is suspended on the inner chord of the main supporting steel arches which are left entirely exposed to view from the outside. Other lower elements of the building carry out the theme, the whole forming a fine expression of the use and function of steel.

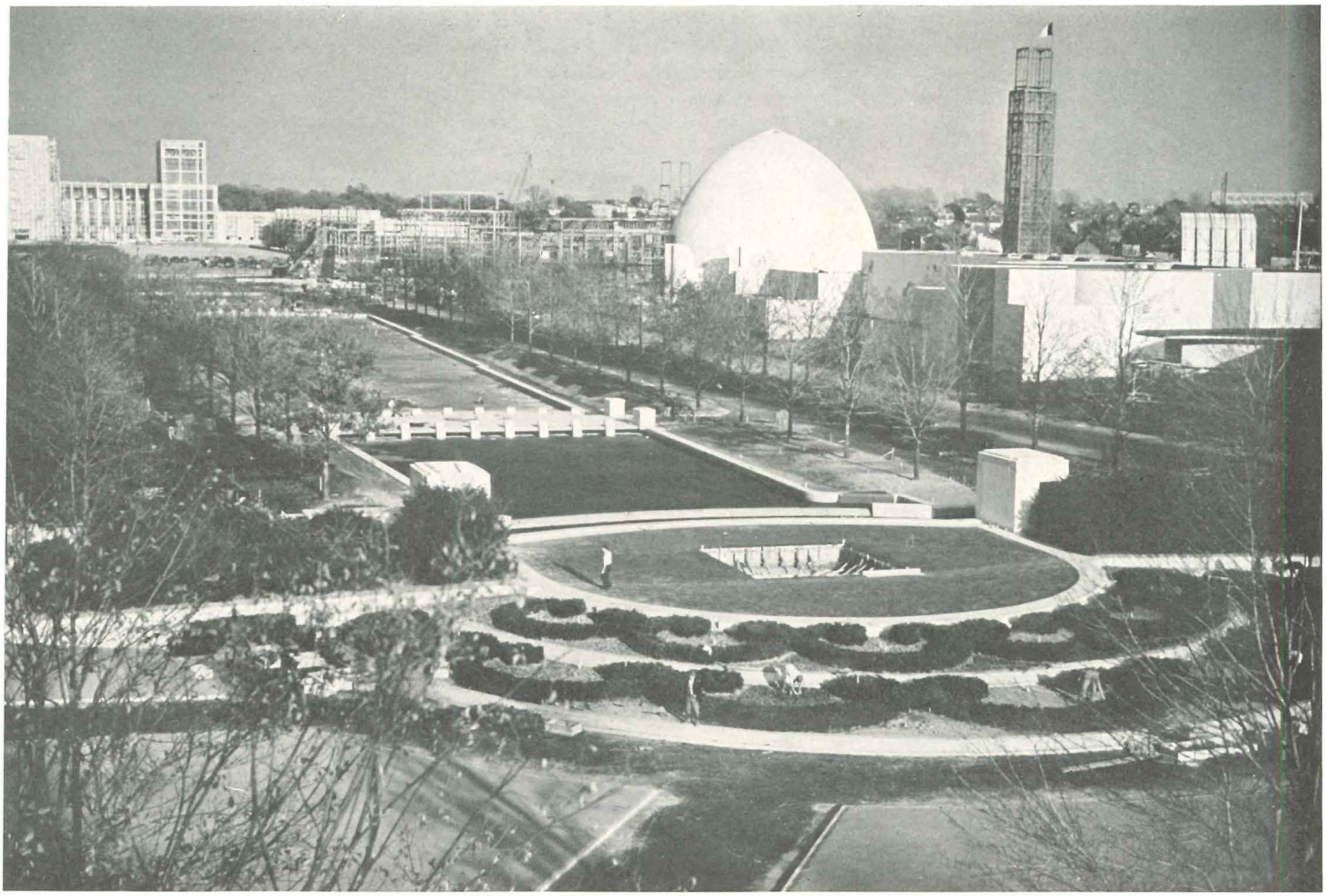
From a point of view of fabrication, it is interesting to note the steel superstructure of the Belgian Building. Having been designed and fabricated abroad, it forms a graphic picture of the relative costs of labor and materials in Belgium as compared to this country. One is immediately struck with the use of small members throughout. Where in this country a steel member of large section would be used to cut down fabrication and erection cost, they choose to use several small members so fabricated as to perform the same function, with a resulting economy in material but with a large increase in man-hours of labor; a practice prohibitive here. Another feature of interest in this building is the skin covering of rough terra cotta tile approximately 2 in. thick, 18 in. wide, and 2 ft. long. These are supported directly on light horizontal steel members and pointed up with mortar after erection. Wood is used only as interior furring.

Perhaps the most novel type of construction to be seen anywhere on the site is that of the dome of one of the Food Buildings built by the Fair Corporation. The diameter exceeds 100 ft. and rises to a height of 90 ft. from grade. Its main structural members consist of vertical studs cut to radius from 3 x 14 in. wood members. Each tier of these was notched to receive a 3-in. pipe ring around the circumference. The next tier of studs were correspondingly notched to fit over this pipe ring and so on upward, the wood members and pipe rings diminishing as they near the top. The outer surface was then sheathed with diagonal wood sheathing after which felt roofing was applied. A broad meshwork of pencil rods was then laid over the dome to which was wired metal lath for the final stucco skin. The inner surface of dome was sheathed with gypsum bo making an entire thickness from in to outer skin of not over fifteen inc

Space does not here permit eve hasty reference to all the varied interesting forms of construction to seen at the site. No review, howe would be complete without a ment of the dominating architectural feat of the Fair, the Theme Center, compo of the Perisphere, Trylon, and Helicli Though based on the simplest of g metric forms, the structural difficul of the Perisphere have seemed to crease as the square of its diame Here again, numerous were the sugg tions as to how to construct it—"reforced concrete," welded steel pla "bird-cage", and stucco, all were inv tigated and somewhere found wanti In the end, the structural steel fra was adopted. In its final design, it c sists of 32 meridian trusses, runni from the zenith and connecting to ring girder 8 ft. deep and 72 ft. diameter near the base of the sphe which is in turn supported by eight c umns. Horizontal members connect meridian trusses at various stages a the whole basic framework is overl with curved vertical purlins 4 ft. centre at the equator, on which is appl the wood nailers for the final skin cov ing. This latter consists of two lay of gypsum board with staggered joi and a coat of waterproofing betwe each layer. On top of this are appl two layers of burlap successively tro elled into two ¼-in. coats of a magnes type of stucco, after which a final f ish coat of magnesite plaster is appli and steel trowelled. Two coats of chl inated rubber base paint will be appli for additional waterproofing and col

The Trylon, rising 700 ft. from t bottom of its foundation, has a stru tural steel frame to a height of 500 and from this point a self-supporti exterior sheathing of riveted steel plat A skin covering similar to that of t Perisphere will be applied flush wi these steel plates and the whole paint with rubber base paint.

The Helicline, descending from t 50 foot level of the Trylon to grade a encircling the Perisphere is an 18-fo ramp supported on single tubular c umns of varying sizes and spacing alo the centre of its run. The soffit curv upward on either side to meet the de and is covered with brushed stainle steel sheets studded with polished rive The balustrade will be of transpare wire glass.



LANDSCAPING

GILMORE D. CLARKE*

E MEMBERS of the Board of Design together for the first time late in y, 1936. The task before them was a simple one, considering the fact : a theme and a general plan for a elopment were required within a pe- l of three months. The site had been sen. Even those who were familiar h it and who had had experience in ge-scale construction operations had ıe difficulty in visualizing this vast dump and swamp developed into a at garden; a place where, a short ee years later, millions of people ıld be entertained as guests of the y of New York through the New rk World's Fair Corporation headed Grover Whalen.

The development of the plan was car- l on concurrently with the evolution a Theme, the latter under the guid- e of Board Member Robert D. Kohn.

—

ember, Board of Design, New York World's 1939

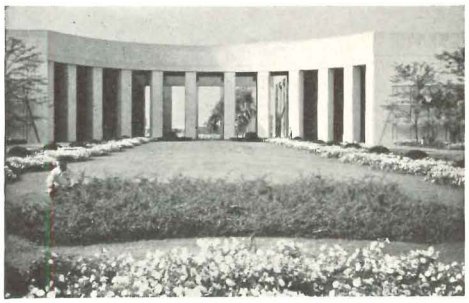
Normally, a World's Fair plan is devised to serve a single purpose, that of a fair: this one, however, had to be designed to serve two purposes—first the Fair, and after the Fair a great park. The land the Fair occupies is owned by the City of New York and is under the jurisdiction of the Park Department. The lease gives the head of that Department, Robert Moses, control over certain factors in the development, among them approval of the general plan to the end that the basic pattern for the Fair would serve adequately for park purposes later.

One might think it impossible to lay out a satisfactory two-purpose pattern on a grand scale covering an area of 1,216½ acres; and that, to accomplish such a purpose would result in a compromise for one scheme to the other. It seems that the axial pattern developed within the first three months by the Board of Design admirably fulfills the dual purpose for which the plan was devised. In any event, it pleased the Directors of the World's Fair and was approved by the Park Department.

The deep swamp, overlaid with a mat of cinders, presented problems which required much study and necessitated that the special factors relating to soil conditions be kept uppermost in mind throughout the development of the scheme. For example, the transportation sector, requiring the installation of heavy machinery, was located between Grand Central Parkway and 111th Street, the only section providing fairly solid ground with no underlying swamp.

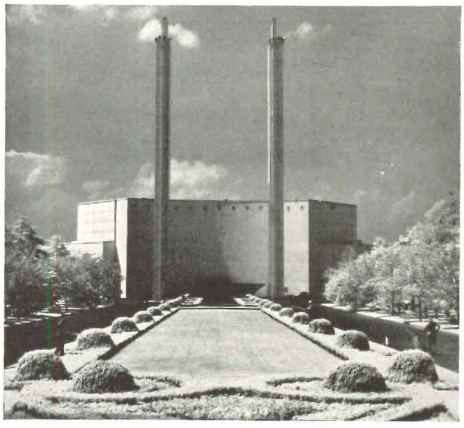
The pattern of the Fair was laid out, having in mind the creation of a central Theme Center—the Perisphere and Trylon—with a number of theme subcenters around which the several major subdivisions of the Fair are being developed. The New York World's Fair was not conceived as a prototype of any other

"American Womanhood", Gaetano Cecere, Sculptor.



Gardens of New York City Building, looking toward Business Systems and Insurance Building. Eric Cugler, Slee and Bryson, architects.

Spiral gardens, Court, Hall of Pharmacy.



Court of Communications Building.

pattern of a city or garden: true, it has a central axis along which a great mall has been developed. In that respect, it may have some relation to Versailles, or other French monumental compositions. If that is so, the park was evolved as a result of the functions and requirements of the Fair combined with the restrictions and advantages provided by the site. The principal asset is its location almost at the geographic center of the city, providing potentially adequate transportation services by water, rail and road. The visitor will easily find his way around on foot or by means of several types of vehicular transportation. There is no main entrance; rather, there are several entrances of more or less equal importance. Thus, the people are immediately decentralized upon arrival, resulting in a minimum of congestion.

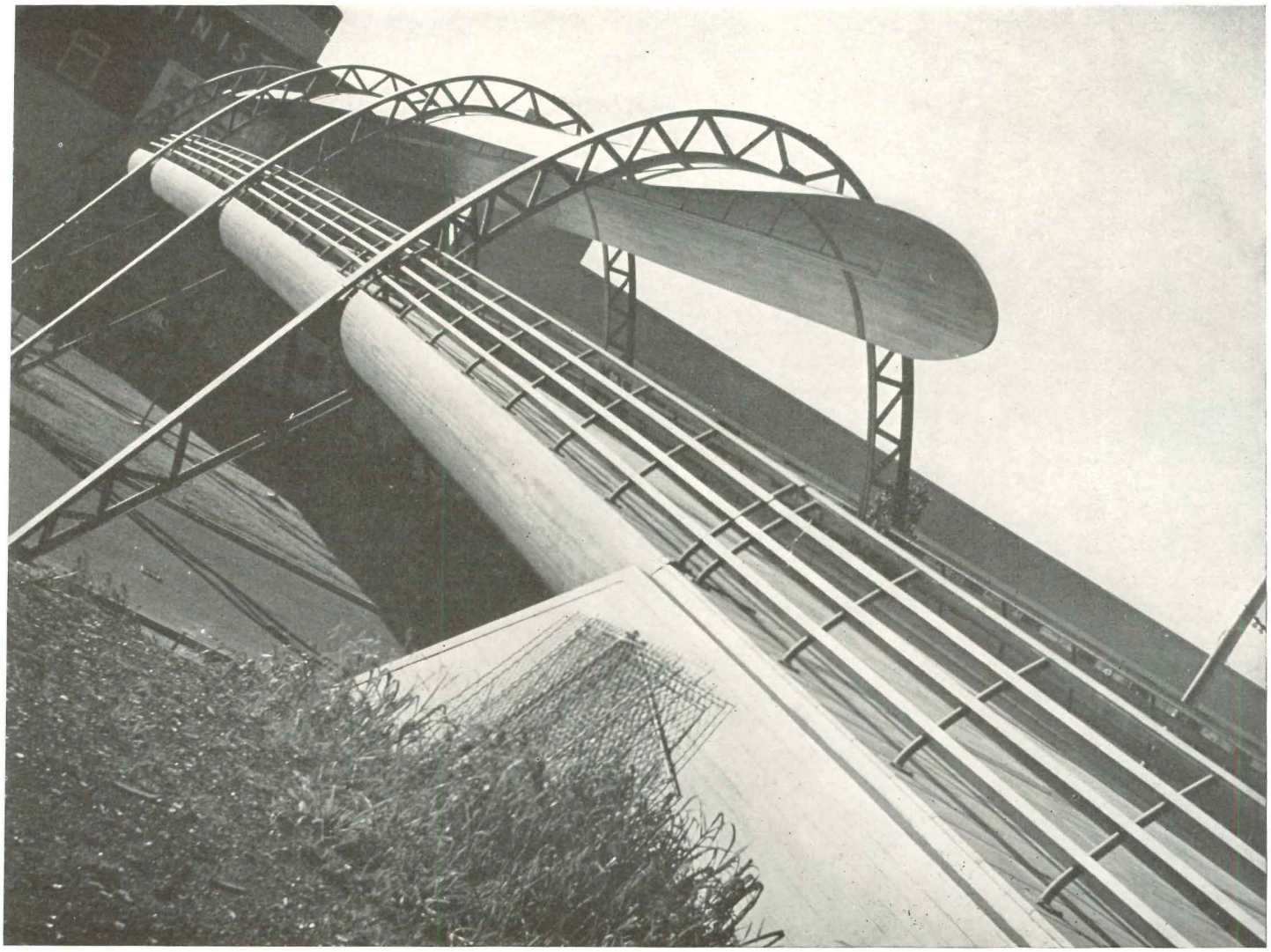
Not a tree or bush was left upon the site when the grading operations had been completed. At the very beginning, when budgets were being discussed, the estimates to provide adequate planting amounted to more than $1,500,000. A sum greater than that was granted and during the spring and fall of 1937 one of the largest big tree moving programs ever attempted was carried out. For example, elms in the Theme Circle have trunks more than eighteen inches in diameter, and the trees are sixty feet high. (The fact that the trees were planted two years in advance insures that they will be well acclimated before the opening day, April 30, 1939.) These and the thousands of other trees in great variety will supply the necessary shade for the malls and combine to create many delightful compositions with the architecture and its mural decorations, the sculpture, flags, and fountains—both in daylight and nightly splendor. All the large trees are in locations where they will grow on to maturity in the Flushing Meadow Park of tomorrow. They are mature now; they will grow to a ripe old age and give enjoyment to countless millions in years to come. And so these living reminders of the New York World's Fair of 1939 will be perpetuated for those who visit the park in later years.

The Fair will be a great, colorful garden of a magnitude never before realized in America. Almost three quarters of a million bedding plants will be used. The Holland Government has donated over one million flowering bulbs, the large majority, of course, being tulips. The display of these bulbs and bedding plants in carefully designed gardens will be one of the most noteworthy disp of the Fair. It will demonstrate the old art of bedding may be adapte the present modern trends in archi tural design and result in secu dramatic compositions of formal gre patterns in wide ranges of color in mony with the gay colors of the ar tecture and the murals. Once more shall use petunias, lantanas, an phlox, verbenas, tagetes, heliotr ageratum, and geraniums by the th sands in mass display for dramatic c effects. Hedges of taxus, privet, lar thuja, hemlock, and other material planted to form varied and fanta effects.

The gardens and courts about Theme Center and those along the n arteries of circulation were designe the offices of the Board of Design. bulb and flower displays were patte and arranged by Miss M. B. Spr The courts and gardens provided by Fair were designed by Landscape Ar tects A. F. Brinckerhoff and C. D. I Mr. C. N. Lowrie is Landscape Ar tect for the large lake area between F ace Harding Boulevard and 69th R The several gardens of private exh buildings were planned by several la scape architects chosen by the exhibit Plans for these gardens received proval of the Board of Design be going forward, thus enabling the lay of the minor parts to be coordina with the general scheme of the Fair.

The co-ordination of the vari phases of the work at the Fair is a n noteworthy example of co-operat between many men and women of dif ent professional fields of endeavor. work of the magnitude of the New Y World's Fair could not be a suc without the closest kind of collabora between the arts; of the arts with en neering, and of both of these with manifold fields of endeavor which en into this most complex work.

Enterprises of this sort often go al with the interesting personalities volved in it completely submerged. I out of the question to mention here names of all those who contributed ably in the development of the des of the landscape of the Fair, but writer cannot end this article with paying tribute to the man who had cha of the preparation of specifications, purchase, inspection, delivery and pla ing of all the plant material, Mr. He Nye. It is the biggest job of its k ever accomplished within a short years.



itrian overpass. Fair Board of Design: Michael L. Radoslovich and Arthur Barzaghi, designers.

IRCULATION

STEPHEN F. VOORHEES*

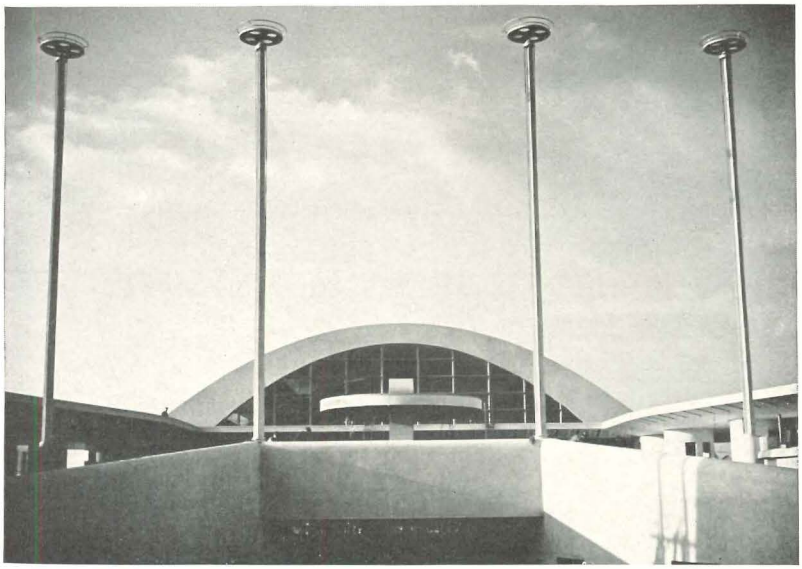
CONSIDER, first, external circulation, problem of getting people to the Fair The Site is located near the center opulation of Greater New York. It be possible to reach it from any of five-cent fare subway systems in the This was one of the factors which ienced the choice of the Site for the . Both the I.R.T. and the B.M.T. elevated tracks running from Queens a to Main Street in Flushing. This k cuts the western end of the Fair and additions to the Willetts Point ion are being built with an overpass arry the people directly into the Ex- t Area. It is estimated that a peak of 40,000 visitors per hour can be ected through this gate. On this of the Fair also is the Long Island Railroad which is also enlarging its facilities. A special station is under construction and it is estimated that some 18,000 passengers per hour will be brought from the Pennsylvania Station.

At the other side of the main exhibit area will be the terminus of a spur being constructed by the Independent Subway System. This station will discharge passengers into one of the principal plazas of the Amusement Area and facilities will be available for handling 40,000 people per hour.

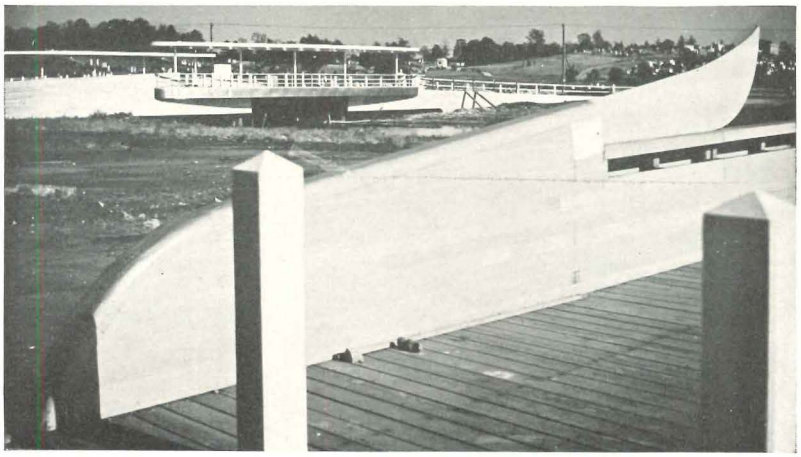
While these three means of transportation will bring the vast majority of visitors to the Fair, a not inconsiderable number will come by bus and private car. In cooperation with the Department of Parks and the Queens police officials carefully calculated routings for automobiles are being worked out. The Triborough Bridge will lessen somewhat the load on the Queensboro Bridge, and the new Whitestone Bridge will be open in time to divide the traffic still more by providing a short cut for cars from New England and the North. On the Fair Site, but outside the turnstiles will be parking fields to accommodate a total of 40,000 cars. Private cars will discharge passengers at the gate on Horace Harding Boulevard and the Corona Gate. The Corona Gate on 111th Street will also be the entrance for passengers arriving by the various bus lines.

While the number of passengers expected is not large, it should be noted that facilities will exist for coming to the Fair by water. A boat basin and landing dock are being prepared on the edge of Flushing Bay adjacent to the Site. Also the North Beach airport is within five

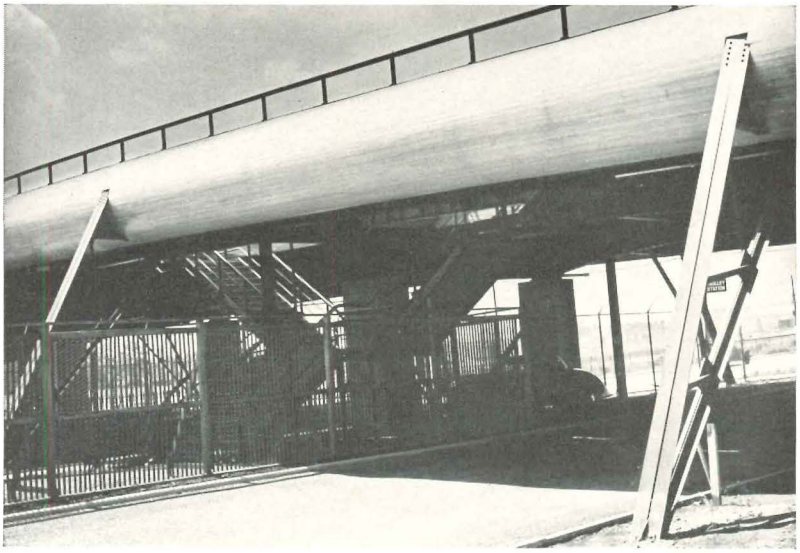
irman, Board of Design, New York World's 1939



Approach ramps to Long Island Railroad Station. Fair Board of Design: Michael Radoslovich and Irwin L. Scott, designers.



Passenger bridge, Amusement Area. Fair Board of Design, architects.



Temporary pedestrian additions to permanent bridge at Horace Harding Blvd. Fair Board of Design: Michael L. Radoslovich and Arthur Barzaghi, designers.

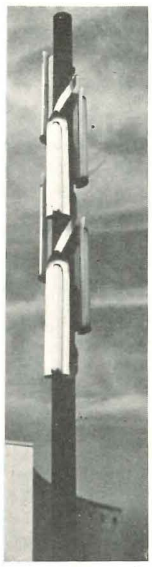
minutes' motor distance from the Grounds.

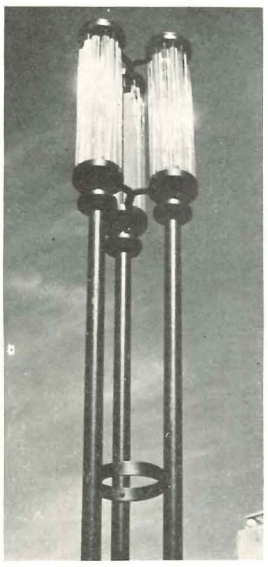
Within the Fair, circulation has planned, not to lead visitors throu pre-conceived logical scheme, bu make it as easy as possible for vis to follow their own whims and inter The logical arrangement that migh appropriate for a museum cannot adapted to the purposes of a Fair w the crowds to be handled are much l er and the material to be shown is subject to logical arrangement. great objective in handling Fair cro is to make it easy for visitors to their way about, and to so arrange various exhibits and attractions to sp the crowds over as large an area as sible. The Fair has been delibera planned on a large scale. A gene amount of landscaped space is prov around both the Fair Corporati buildings and those of the various exl tors. The streets are wide and full vantage has been taken of the fact after the Fair, the Site is to becon Park. Much of the planting for future park is already done.

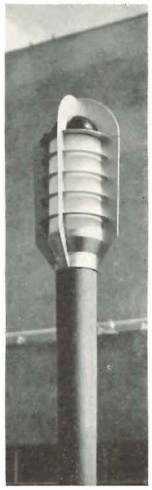
Each of the principal gates leads rectly into an open plaza and each p has several attractive vistas. Thus, tering crowds will be spread through jacent exhibit areas rather than gu along single paths. The visitors wil assisted in orienting themselves by eral conspicuous monuments which help them identify various gates and portant buildings. The chief of these course, is the Trylon and Perispl which occupy the Theme Center, highest point on the Fair Site. F standing towers and pylons at vari other points combined with avail maps will enable people to find their about the grounds easily.

A concession contract has been awa ed to the Greyhound Bus Lines for intramural bus system covering whole Fair. Bus routes are planne avoid pedestrian crossings as much possible and at no point will pedest and bus traffic be routed together. rangements are now being discussed some form of transportation for i viduals.

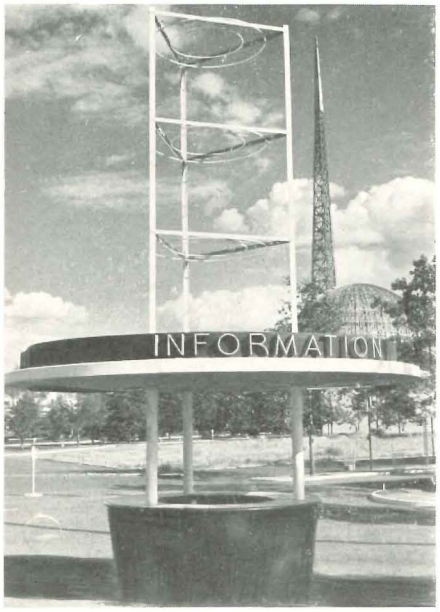
Nearly all of the exhibit space buildings by the Fair Corporation be on one level and very few of the hibitors who are building their buildings are planning for more than floor. Thus stairs will be a rarit changes of level where they do oc will be accomplished by ramps.







ɔove, four light standards. Fair ıard of Design, architects. Right, ıht towers, Textiles Building.



ght tower, Information Booth. Fair ɔard of Design, architects.

LIGHTING

STEPHEN F. VOORHEES

LIGHT AS WELL as sound will be controlled in the interest of visitors to the Fair. All possible cooperation has been given to the various exhibitors to enable them to make advantageous use of lighting effects but within rules which prevent annoyance to the public and unfairly competitive displays. The use of lighting effects by any exhibitor, for example, which would detract from the effect of neighboring exhibits is forbidden. Decisions on such questions rest with the Fair's Board of Design and its lighting technicians.

The Fair itself, as is the case in the field of sound, is using the most advanced developments to create novel and beautiful effects. An example is the use of the new source of light, the capillary mercury tube. Light from these tubes is picked up by the green coloring matter in foliage. A dramatic and interesting effect will be created along the main esplanade by illuminating the trees from beneath with this type of light.

The great sphere of the Theme Building, white and opague by day, will at night seem to lose its solidity. Lighting effects which have been evolved during two years of research by the Fair's technicians will give the sphere the appearance of a huge luminous globe like an iridescent soap bubble filled with moving clouds and color mist. The Perisphere is one focus in the gigantic display of light and color which will animate the

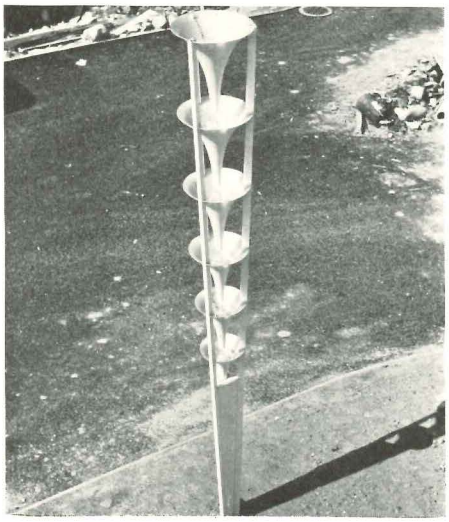
Light fixture. Fair Board of Design, architects.

Fair at night. At the other end of t Mall will be the body of water nam the Lagoon of Nations, approximat 800 ft. long and 400 ft. wide. T Lagoon will be the scene of displa combining light, sound, and color in way never before attempted. In the ce ter of the Lagoon is a submerged pl form nearly 400 ft. long and 150 wide. On it are mounted over 1,4 water nozzles, 400 gas nozzles, contai ers for fireworks, and 500 lighting un with various types of lamps and a paratus for color changes. This equi ment is partly submerged; the pa above water are camouflaged in t appearance of water flowers or form decorative shapes. Camouflaged to t likeness of huge flowers will be t openings of the sound projectors me tioned above. Each of the elements w be controlled from a single room on t roof of one of the government building Here a board resembling a huge orga console will be operated by three m and a director. A number of compos tions for this great instrument are preparation.

Other dramatic effects are in prepar tion for Meadow Lake which lies sou of the amusement section of the Fa Here, from barges which can be mov about in the lake to vary the patter more compositions using water and lig will be created.

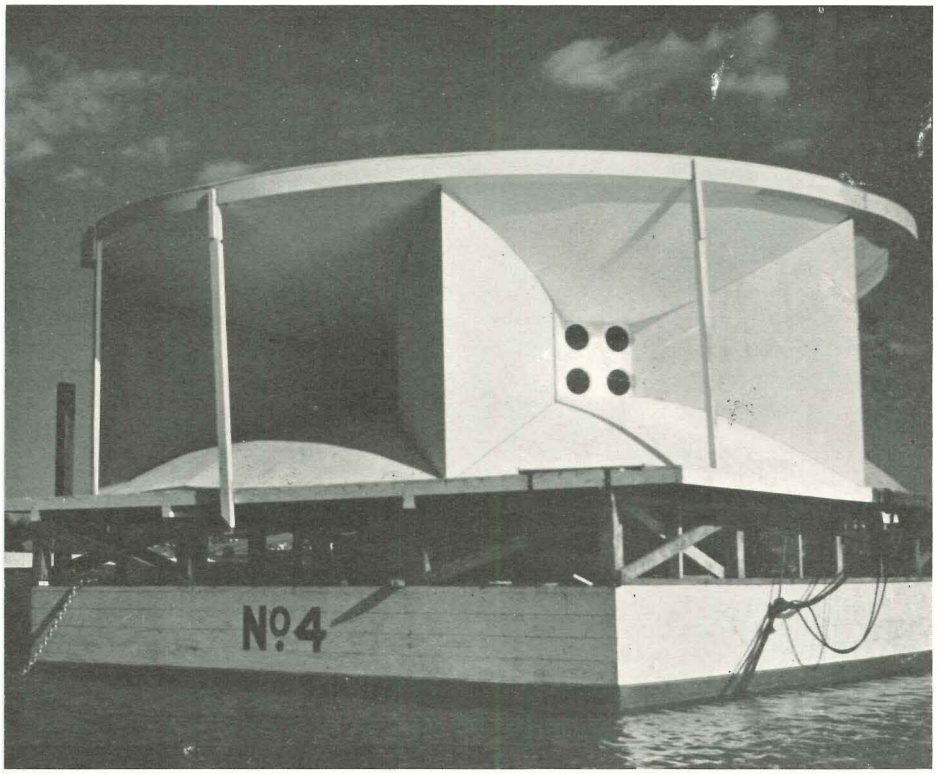
Some measure of the effectiveness these spectacles can be found in the fa that when a model was set up to demo strate them in miniature, so many sho ings became necessary that the mod finally had to be dismantled.

Aqualon, combination light fixture and fountain. Fair Board of Design, architects.



Indirect lighting fixture, using conventional incandescent lamps. Fair Board of Design, architects.

Zeon lighting on Information Booth. Fair Board of Design, architects.



e of the floating amplifiers "anchored" offshore on Meadow Lake to be used conjunction with water carnivals.

S O U N D

STEPHEN F. VOORHEES

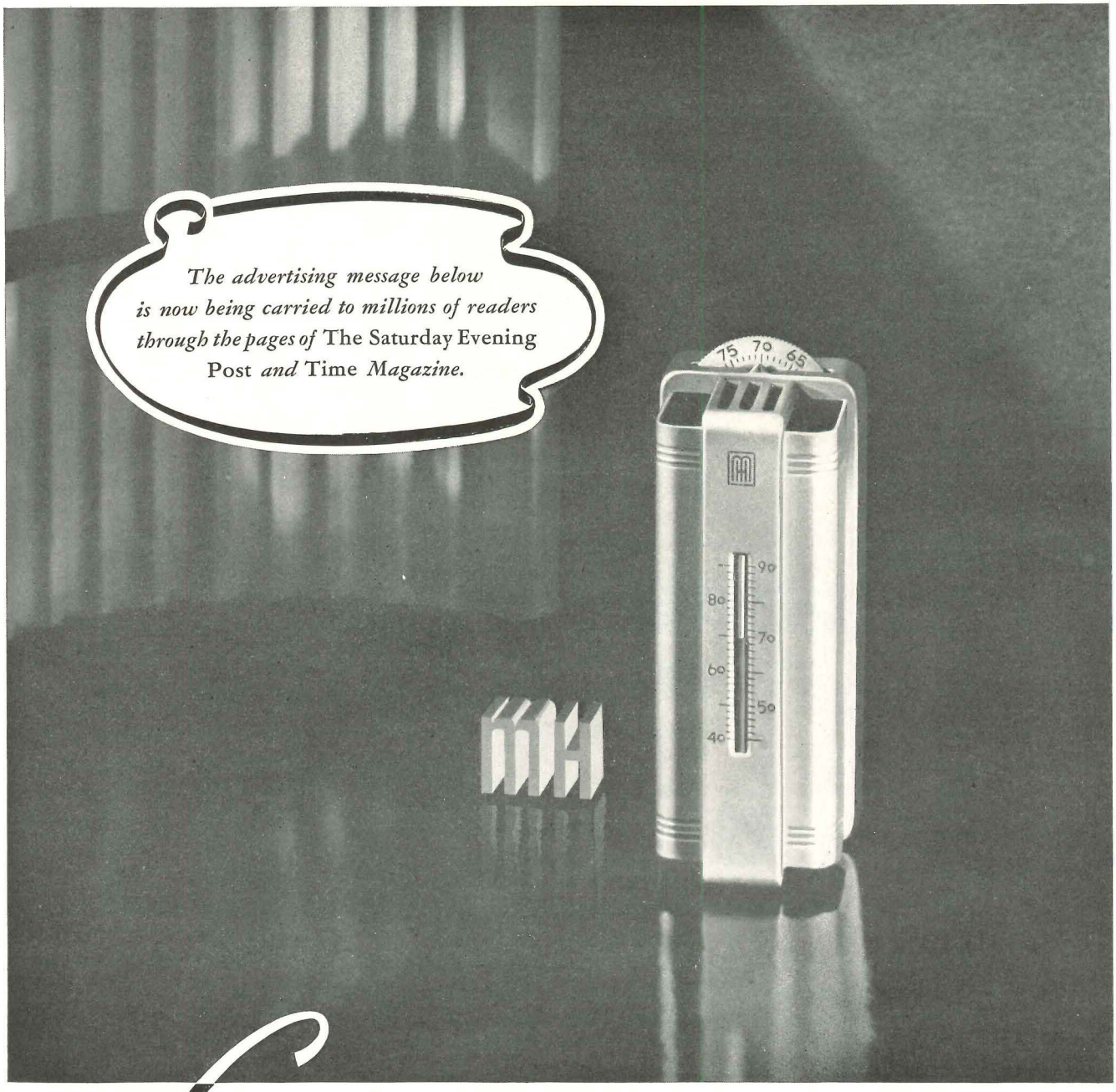
UND WILL be controlled by the Fair the interests of visitors to a greater ent than has been done in most of the ent fairs. The Corporation itself is iding any use of either light or sound ich could conceivably become anoy- to visitors and is enforcing the same nciple on the private exhibitors. This ans first of all that the Fair Grounds l not be dotted with loud speakers as s the case in some of the recent fairs. e visitor will not have the feeling of hing to turn off a neighbor's radio as walks about among the exhibit build- s; and within the buildings, the use sound by each exhibitor will be re- icted to prevent people in other ex- its being distracted. In other words, h the Fair Corporation itself and the ious exhibitors will use sound only two ways—first as a background to ate atmosphere, and as a part of an istic presentation to the public. The ditional barkers standing before ex- its competing with each other will be irely absent and even the more mod- ern version of the same scene in which competing loud speakers blare at passers-by will be absent.

The Fair will have, however, a comprehensive sound system. It will be centered in a specially reserved section of the Communications Building. Here the amplifiers and technical equipment of the sound system will be set up as an exhibit by the Fair Corporation. There will be small studios where speeches and musical programs can originate either for broadcast or for the Fair's Public Address system. Here also will be a Fair sponsored exhibit of sound equipment and provision for explaining to the public the detail operation of a large example of modern sound engineering.

Carried on the wires of the regular telephone system the programs will be sent to sixteen speakers or sound outlets. There will be one inside each of the main entrances to the Fair to give incoming visitors a feeling of the festive spirit that should characterize a Fair. There will be other speakers at strategic points on the grounds—one on each of the bridges connecting the transportation area with the main exhibit section and one in the main plaza of the amusement section. These will aid in leading crowds from one area to another.

This Public Address system will be built from stock equipment and will be a more or less standard example of modern methods of handling sound. Of more spectacular interest will be the specially designed equipment installed for particular purposes at the Fair. Among the spectacles presented by the Fair Corporation will be the shows combining water, fire, and sound on the Lagoon of Nations. Combined with the dramatic use of gas jets, fountains, and fireworks will be sound effects and especially composed music emanating from sound reproducing equipment especially designed for this purpose. All the equipment, from the records through the various amplifying devices to the loud speakers is being created by the most competent sound engineers especially for this purpose. The speakers will send out sound of a lower frequency than is possible from any standard equipment and will be capable of delivering an enormous volume of sound.

Perhaps the most spectacular of the Fair's special sound equipment is that which is being built under the Perisphere. The engineers in discussing the possibilities of music and sound effects around the Theme Plaza discovered that the curve of the Perisphere constitutes a very rough approximation of the horn of a loud speaker. To make this approximation more complete, a pit roughly fifteen feet deep, is dug under the sphere—its walls are of a shape calculated to simulate a section of a horn. In effect the lower half of the sphere, the surface of the water under it, and the walls of the pit will constitute an enormous annular horn. Sound originating under the sphere will spread out in all directions except into the interior of the sphere which will be protected by sound proofing material. These shapes will form the equivalent of a horn whose mouth is over 100 ft. in diameter and whose length is well over 100 ft. The designers of this sound system are certain that vibrations down to sixteen cycles a second can easily be created. This will give an effect in the open air similar to that caused in cathedrals by the vibrations of sixteen-foot pipes. This will be, in other words, far and away, the largest loud speaker ever created and will assure effects never before attempted.



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BUILDING TYPES

F. S. Lincoln

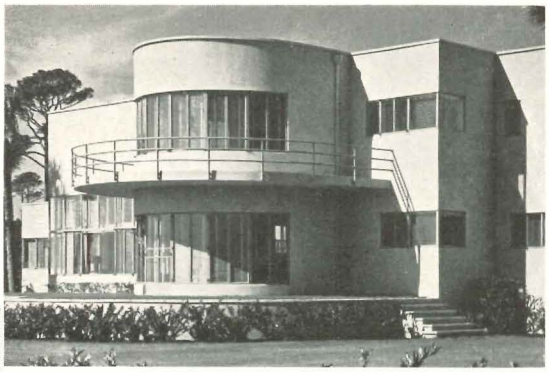
HOUSES . . . . . $25,000 and up

FORTHCOMING STUDIES: Office Buildings—December; Restaurants—January.
PRECEDING 1938 STUDIES: Houses ($15,000–$25,000)—October; Apartments—September; Hospitals—August; Theatres—July; Factories—June; Schools—May; Houses ($7,500–$15,000)—April; Houses ($7,500 and under)—March; Retail Stores—February; Hotels—January.

ARCHITECTURAL
RECORD
COMBINED WITH
AMERICAN ARCHITECT AND ARCHITECTURE

Houses Costing $25,000 and Up

ILLUSTRATED CASE STUDIES



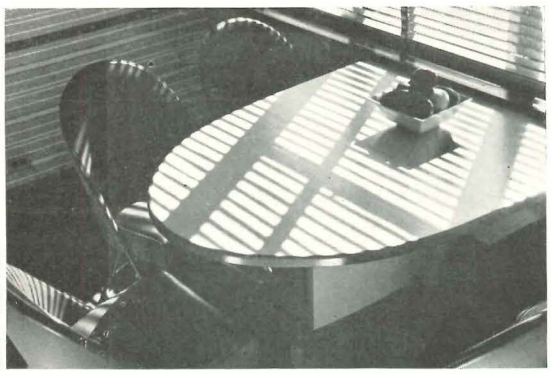
Gottscho

Gottscho

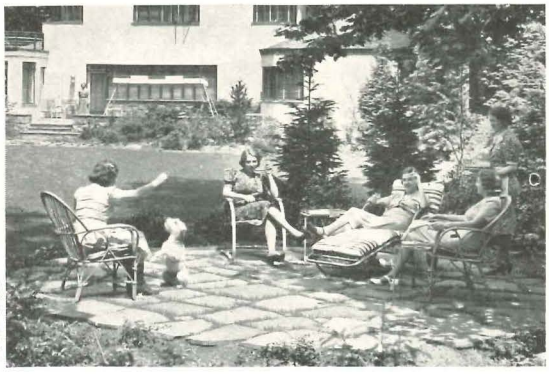
Seven houses, illustrations of which suggest th widely varying influence of climate, site, constru tion, and personal interests of the owner on res dential design. . . . Results of the "modern" ar "traditional" approach to specific problems design are comparatively reported by details the house at Sea Island, Georgia, designed b Francis Louis Abreu (see opposite page) . . . ar those of a house at Oyster Bay, New York, f which Kimball & Husted were architects (se page 113). . . .

The remaining houses include: A residence Great Neck, New York, (page 119) which mak full use of modern equipment and materials produce a livable, comfortable home. Hans N Wormann was the architect. . . . A residence Los Angeles (page 123), constructed of adobe ar concrete, Gardner A. Dailey, architect. . . . residence near Asheville, N. C., (page 126) sit ated to take advantage of excellent views, Hen Irven Gaines, architect. . . . An estate near Me tor, Ohio, (page 128), Charles Bacon Rowle architect. . . . A house in New Canaan, Conn (page 130), Robertson Ward, architect. . . .

TIME-SAVER STANDARDS DATA



R. B. Churchill



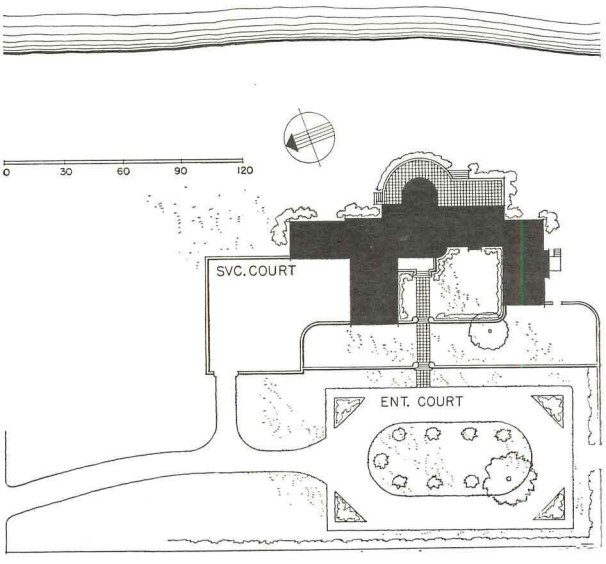
John Gass

"Details for Indoor Living Areas"—drawings, ph tographs, and descriptive notes—show how desig ers in different sections of the country have d veloped units of built-in furniture which are cente of activity within various living areas. Living-roo (page 133) in a residence at Great Neck, New Yo Hans N. Wormann, architect and interior designe . . . Breakfast room (page 134) in a residence Kansas City, Mo., Kem Weber, interior designe . . . Child's room (page 135) in a residence Washington, D. C., Eugene Schoen and Sons, arch tects and interior designers. . . . Two bedroor (page 136), the first in a residence at Elmsfor N. Y., Joseph Aronson, designer; the second a residence at Washington, D. C., also by Euge Schoen and Sons. . . .

"Outdoor Living Areas"—continuing the series Time-Saver Standards on construction of outdo units, data for which were furnished by Albert Taylor, Landscape Architect and President of th American Society of Landscape Architects: W Construction (page 137) . . . Pool Constructi (page 138) . . . Pool Piping (page 139) . . . St and Ramp Construction (page 140). . . .

SEA ISLAND, GEORGIA: Residence for Miss Judy King

FRANCIS LOUIS ABREU
Architect



According to the architect, "The problem in this case was that of adapting a house to a flat lot, facing the Atlantic Ocean, and in doing so to take full advantage of the best views and to locate the rooms in such a manner as to make use of the prevailing eastern and southern breezes—the house to have ample accommodations for the entertainment of guests, who would indulge in many types of sports with the change of seasons.

"The house was to harmonize well with the gray beach sands, to keep the feeling of the horizontal lines of shore and horizon, and to express the idea of the 'outdoors' in each of the rooms.

"The house is painted in two tones of gray, the darker gray on windows and doors—all about a shade or two darker than wet sand."

SEA ISLAND, GEORGIA

Residence for Miss Judy King

Detail of front entrance; the grass-patterned walk is typical of all living-terrace surfaces. The landscape architect was T. M. Baumgardner.

MATERIALS AND EQUIPMENT

FOUNDATION

Reinforced concrete walls, 12" thick; reinforced concrete spread footings

STRUCTURE

Reinforced concrete and structural clay tile

EXTERIOR

Walls: Load-bearing clay tile, 12" thick; reinforced concrete lintels, bands, etc.; stucco, Portland cement

Sash: Steel casements, Hope's Windows, Inc.; bronze screens; glazing, Pittsburgh Plate Glass Co.

Roof: Built-up, twenty-year bonded composition and gravel; promenade tile; sheet metal, copper

Insulation: Mineral wool batts, 3" thick, over all ceilings

Painting: Walls sand color; trim darker

INTERIOR

Floors: Structural-steel bar joists; concrete floors; rubber tile finish, Goodyear Tire and Rubber Co., Inc.

Partitions: Clay partition tile, 4", plastered; exterior walls furred, "Simp-L-On" system, Simplon Products Corp., metal lathed and plastered; bathroom, glass tile, "Vitrolite", Libbey-Owens-Ford Glass Co.

Sills and trim: Window sills of slate and local "Coquina" stone; trim, stock metal, "Coquina" stone; metal door bucks, Kalman Steel Corp.

Cost: approx. 55¢ per cu. ft.

EQUIPMENT

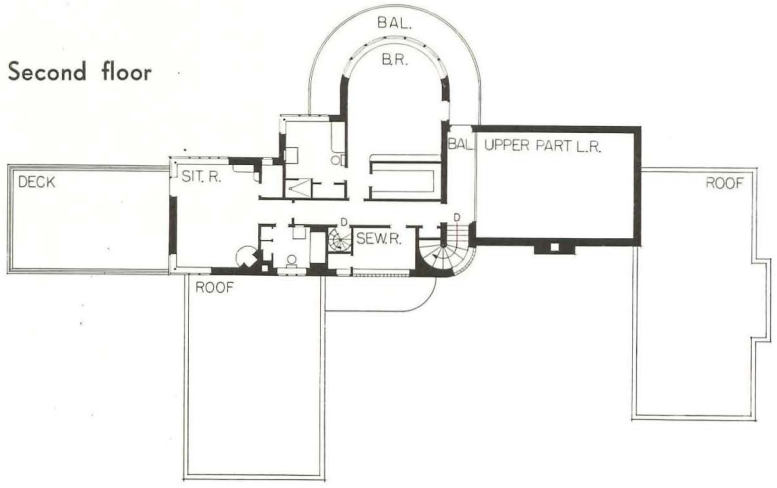
Heating: Hot-water system; oil-burning boil concealed radiators, "Modine", Modine Manuf turing Co.

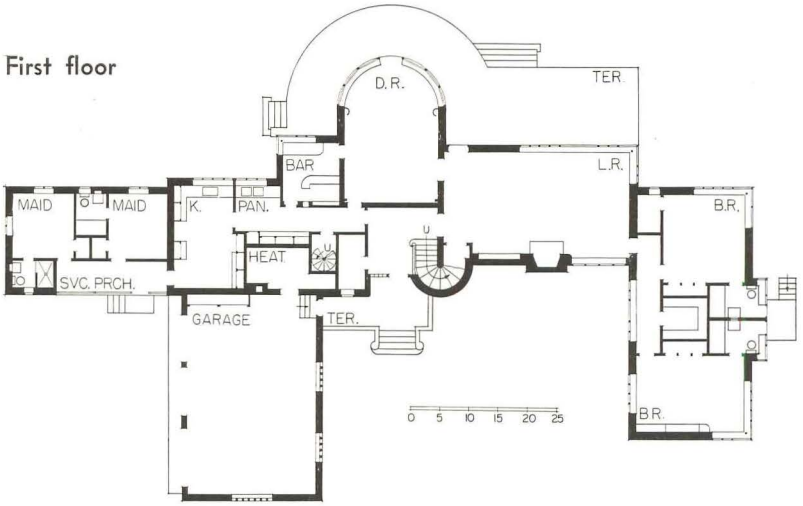
Plumbing: Piping, copper tubing, "Streamlin fixtures, "Neuvogue", Crane Co.

Electrical: Wiring, conduit, General Electr lighting fixtures, mostly concealed strip ligl "Lumiline", Curtis Lighting, Inc.; annunciator tions in all rooms

Kitchen: Cabinets, steel; sinks and counter to Monel metal; refrigerators, Frigidaire Div., G eral Motors Sales Corp., and Frederich; elect range, General Electric

ove, the ocean front of the house. e semi-circular bay commands wide ws up and down the shore line; liv- and dining rooms are grouped in southeast end to take advantage of evailing winds. In the first floor plan the right, notice particularly the loca- n of the bar; and the outside entrances, bathers, into the guest-room baths.



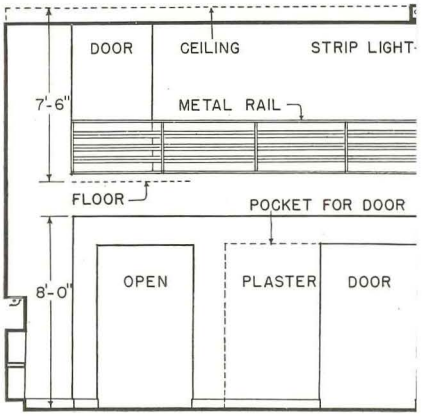


SEA ISLAND, GEORGIA

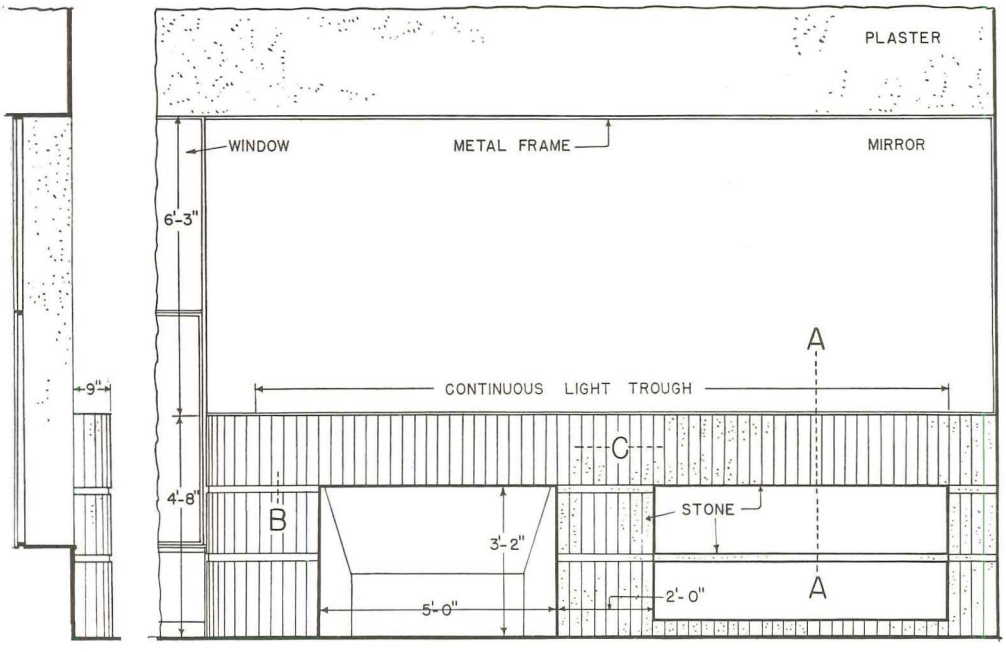
Residence for Miss Judy King

The living-room faces the beach; t
race and windows overlooking
ocean can be seen reflected in
overmantel, which is a tan mir
Plaster walls are painted warm bei
the floor is deep brown; the rug a
upholstery are rough textured. All
teriors are by Virginia Conner, I
who also designed the furnitu
Architectural details of the living ro
are shown below.

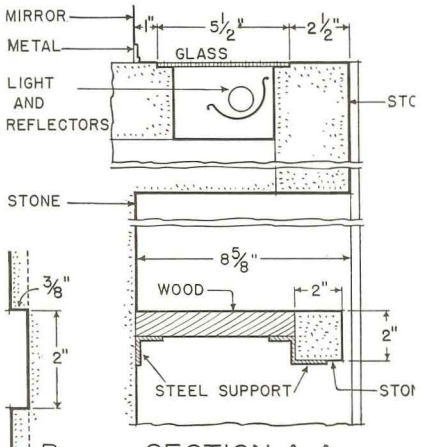
Photos by Gottscho



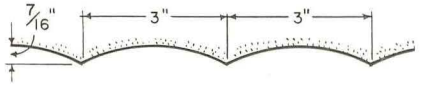
END OF LIVING RM. SCALE ⅛"= 1



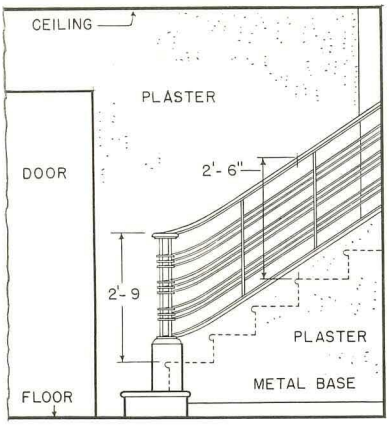
SECTION FIREPLACE ELEVATION SCALE ¼"= 1'-0"



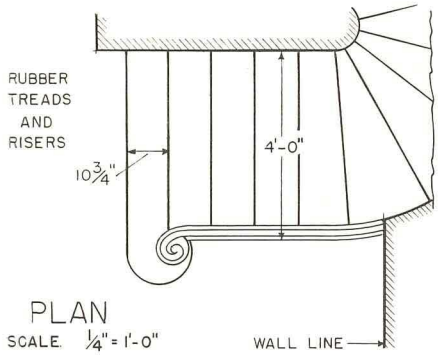
SECTION A A
SCALE 1½"= 1'-0"



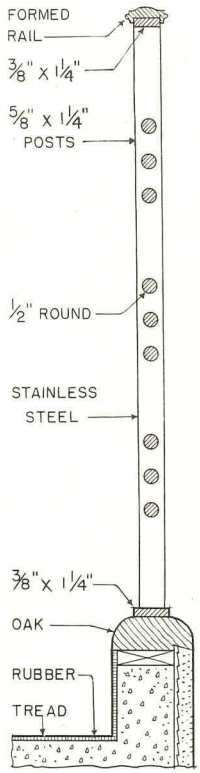
SECTION C SCALE 1½" = 1



ELEVATION SCALE ¼" = 1'-0"

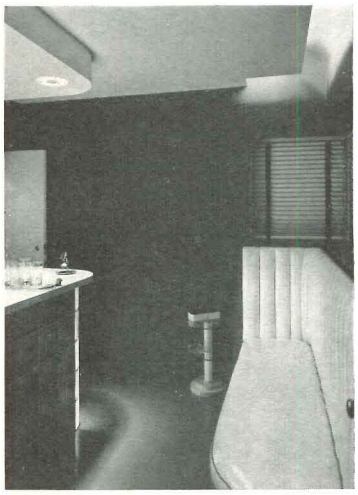


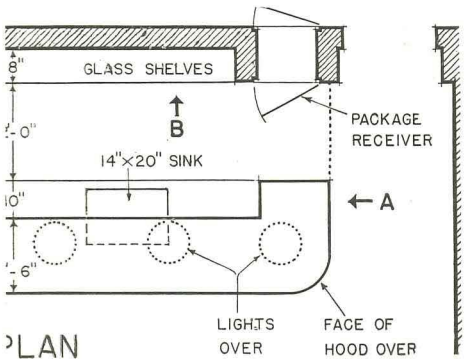
PLAN
SCALE ¼" = 1'-0"



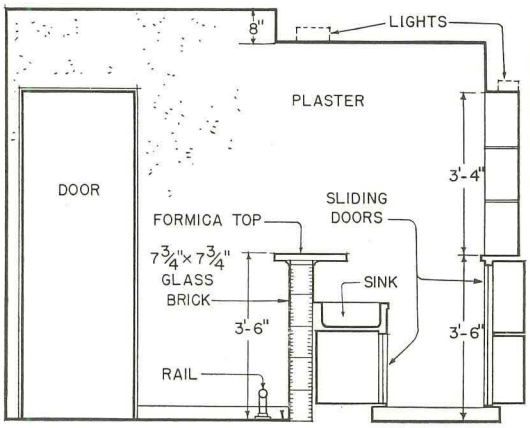
RAIL DETAIL
SCALE 1½" = 1'-0"

Drawings and photograph above show stair details. Two photographs and drawings below show bar details; in addition to the combination air-conditioning and lighting outlets over the bar, coved strip lights, similar to those in other rooms, furnish general illumination.

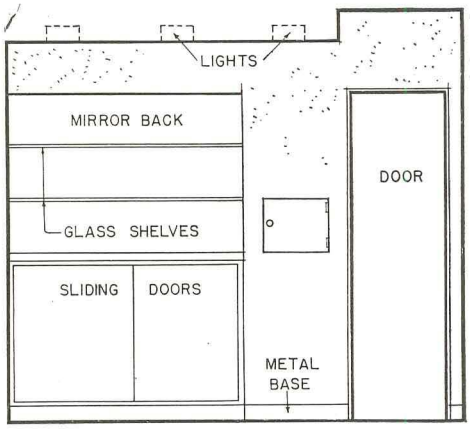




PLAN



SECTION A



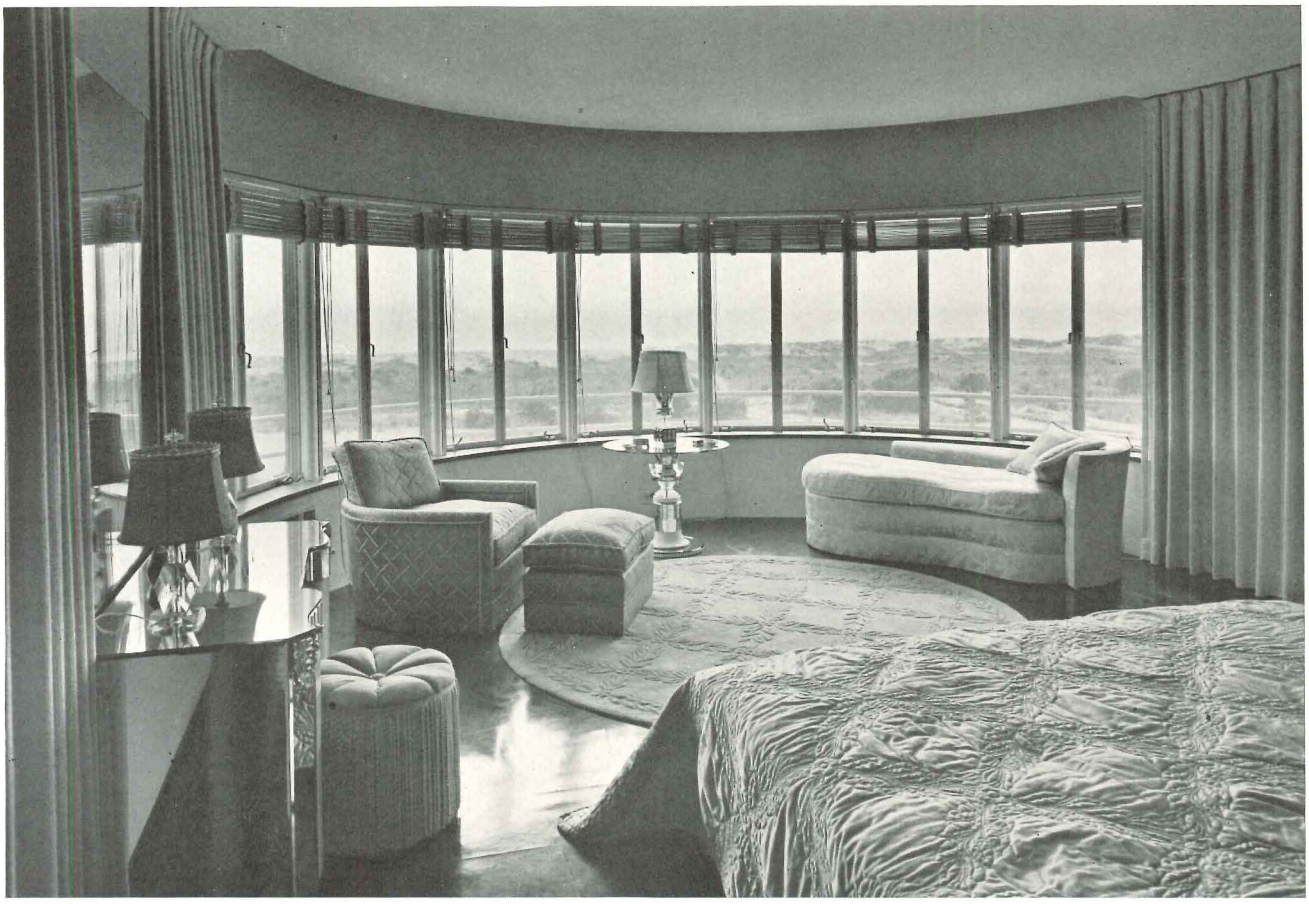
SECTION B

Photos by Gottscho

SEA ISLAND, GEORGIA

Residence for Miss Judy King

Second-floor suite: at left, the sitting room, reflected in the overmantel mirror; below, the bedroom. In the latter, the floor is deep blue rubber, the walls painted "bois de rose", tables crystal, and the bed and curved chaise longue are ice-blue damask.



YSTER BAY, NEW YORK: Residence for A. M. White, Jr.

KIMBALL & HUSTED
Architects

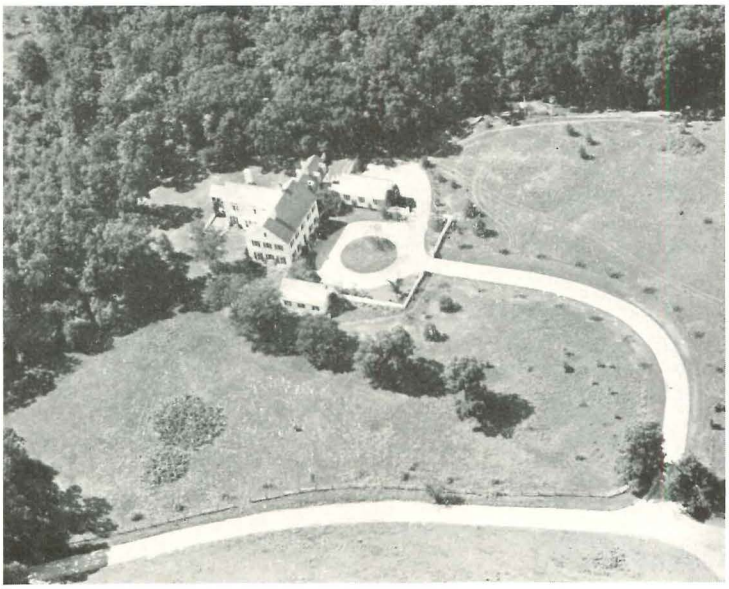
CHARD A. KIMBALL, of the firm of Kim-ll & Husted, states:

"The problem in locating the house was to ve a maximum amount of sun to the living rtion, and to make use of desirable views om the living room, library, and owner's droom.

"Grade conditions enabled us to drop the rage floor and service court out of sight, lf a story below the entrance court, and to ve the living room more height than the ner first-story rooms.

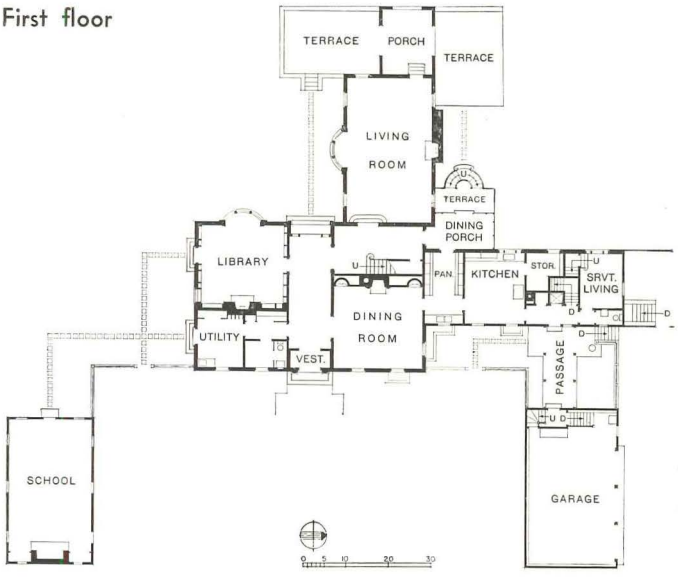
"A small building in which Walt Whitman d at one time taught school was moved to e site by the owner and incorporated in the oup, the garage balancing it to form the trance court.

"Roof and court drainage was very simply sposed of at grade on the wooded slope uthwest of the house. The well was so cated on this slope that it was possible to nceal the pump house completely in the nk."

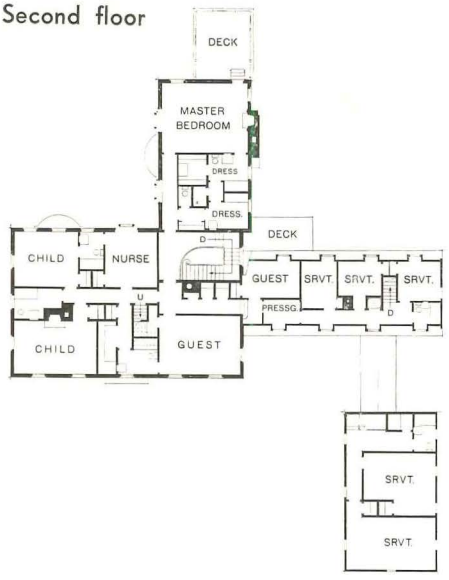


Photos by Gottscho

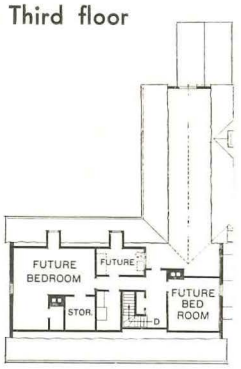
First floor



Second floor



Third floor



ove, left, library bay window and garden entrance; right, vice portion, showing the covered connection between house l garage, and the service court dropped lower than the ıainder of the grounds.

:. KIMBALL further says: "A three-car age, connected to the house, was required. was suggested that space over the garage used for future servants' rooms. It was also desirable to have the possibility in the ıre of one or two more master bedrooms l bath; these serve at present as a 'rainy ' children's play-room, and master's study. The property was high, partially wooded d, without water or any outside services. general, the T-shaped plan permitted cross-tilation in all important first-story rooms l in the owner's bedroom.

A porch off the living-room offers pro-ed outdoor sitting. Its flagstone floor ex-ds out into a sunken terrace for sunny door sitting. The second story of the porch ntended for sleeping and is equipped with eens and rolling shutters."

MATERIALS AND EQUIPMENT

FOUNDATION
Concrete

STRUCTURE
Wood frame, brick veneered

EXTERIOR
Walls: Brick veneer; brick, Post Brick Co.; front entrance, brick specially moulded to detail
Sash: Wood, double hung; bronze screens; special steel sash, dining porch, Lundell-Eckberg Mfg. Co., with bronze operators, H. S. Getty & Co., Inc.
Roof: Wood frame and sheathing; slate surface, "Bangor Medium", Bangor Slate Co.

INTERIOR
Floors: Oak plank in living portion, first floor; linoleum in service portions, first-floor lavatory and second-floor guest bath, Armstrong's and Sealex; canvas in sleeping porch
Walls: Stud frame, plastered and painted generally
Ceilings: Plaster, painted
Trim: Specially milled, wood; library, knotty pine
Painting: Lead and oil; doors mahogany, walls off-white, trim white

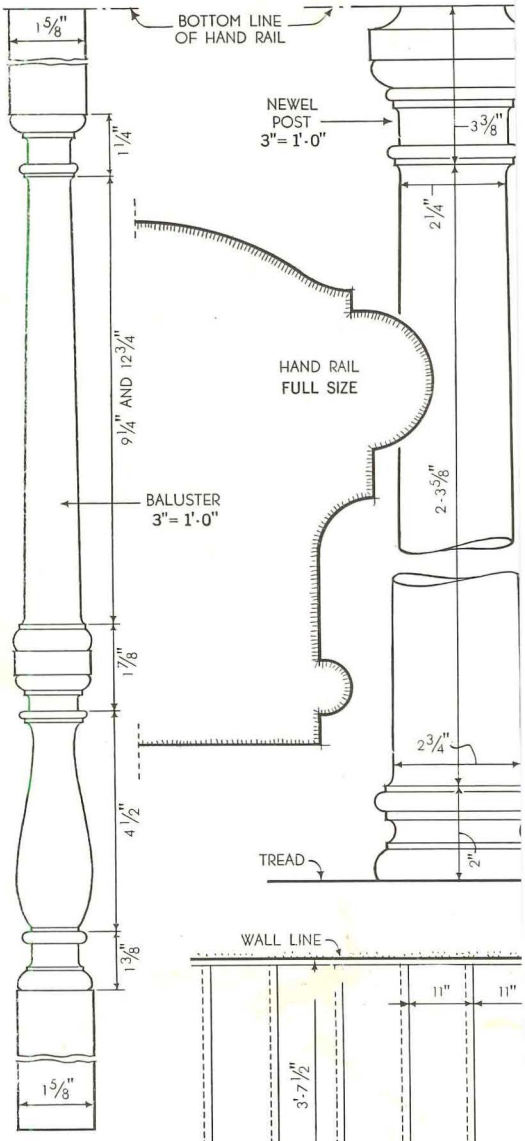
EQUIPMENT
Heating: Boiler, "Capital", United States Radiator Corp.; radiation, "Capital Fincast", United States Radiator Corp.; oil burner, Petro-Nokol; humidifier, "Zephyr"; motorized valves and thermostat, Minneapolis-Honeywell Regulator Co.
Plumbing: Fixtures: Crane Co.; pantry sink, Tracy Mfg. Co.; bathroom accessories, Charles Parker Co.
Kitchen: Cabinets, Janes & Kirtland, Inc.; range, American Gas Association
Radio: Remote control, Capehart, Inc.

Cost (construction only, excluding fees): 45¢ per cu. ft.

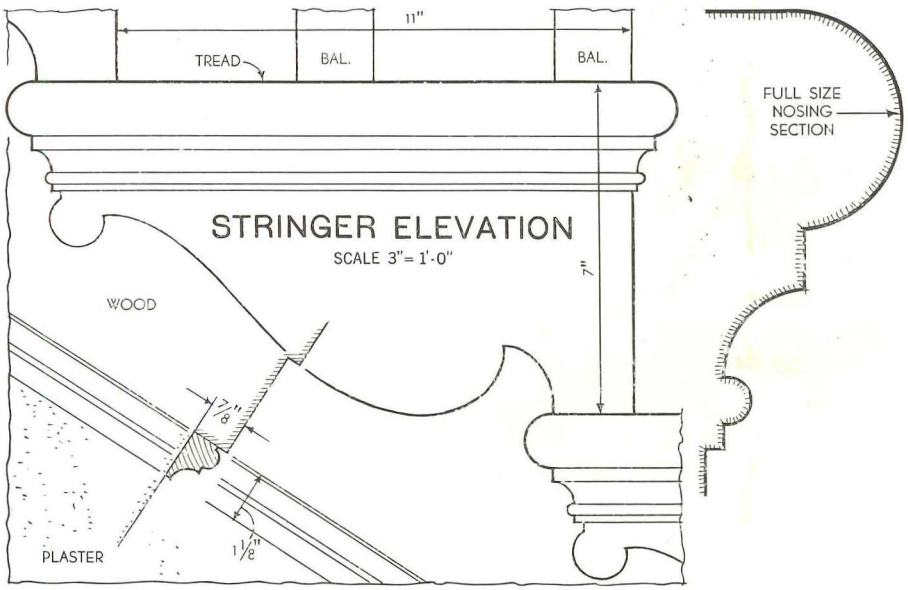
OYSTER BAY, NEW YORK

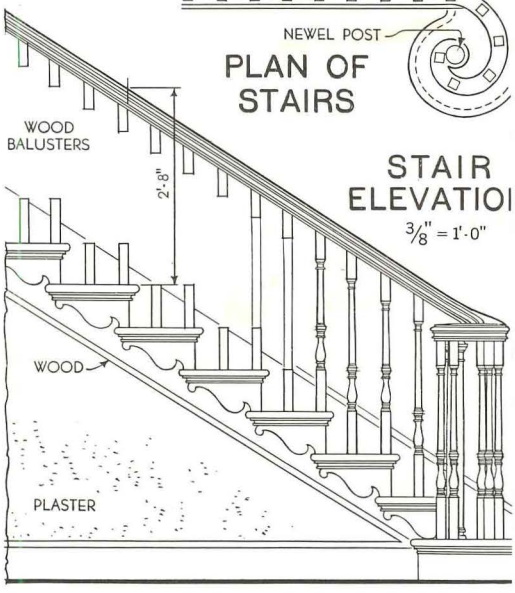
Residence for A. M. White, Jr.

Photos by Gottscho



PLAN OF STAIRS

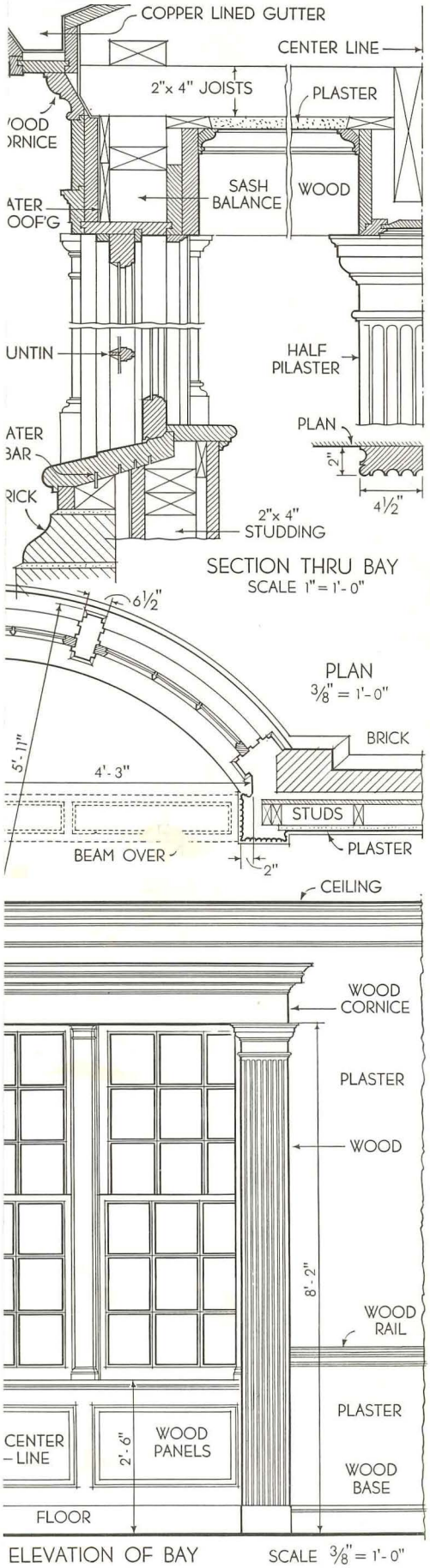


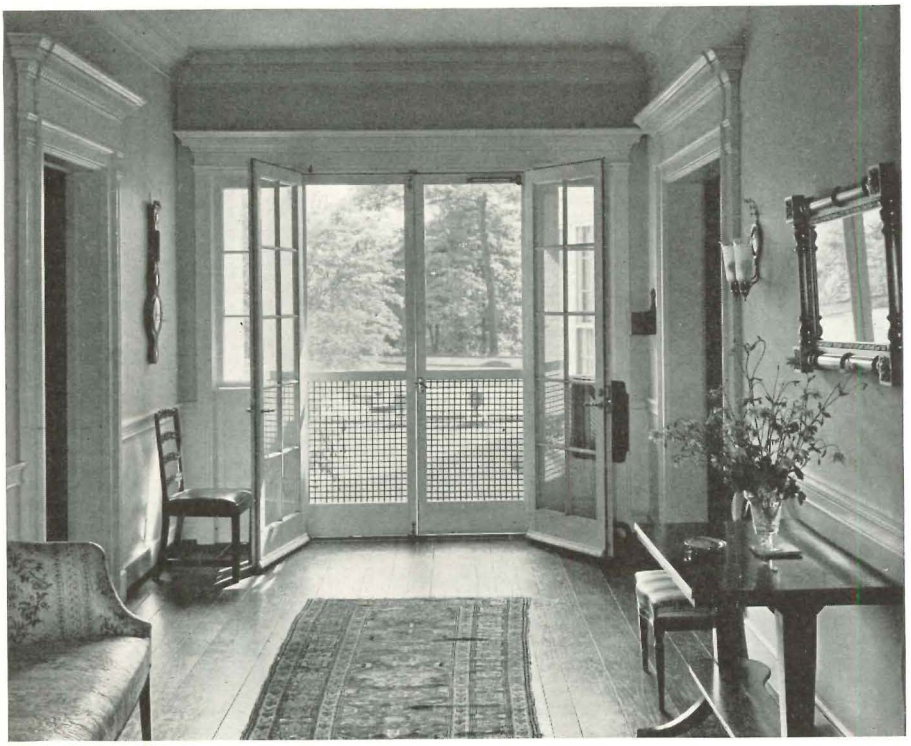


STAIR ELEVATIOI

3/8" = 1'-0"

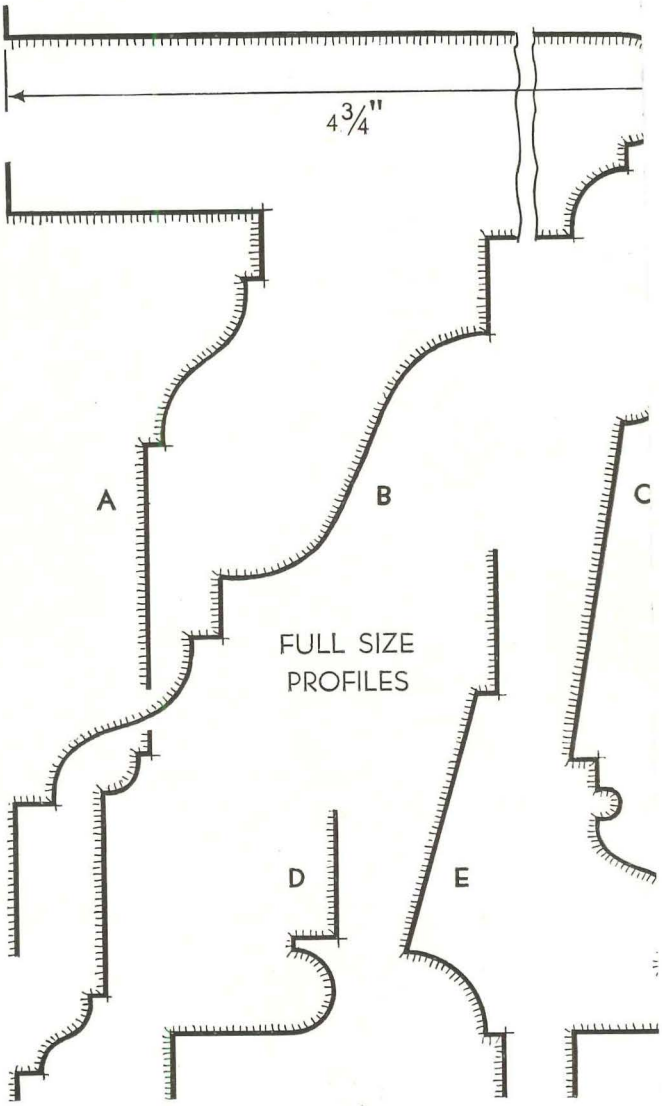
ıt, main hall; right (below), living room;
ings, living-room bay. On facing page,
hall looking through to library, and
details.

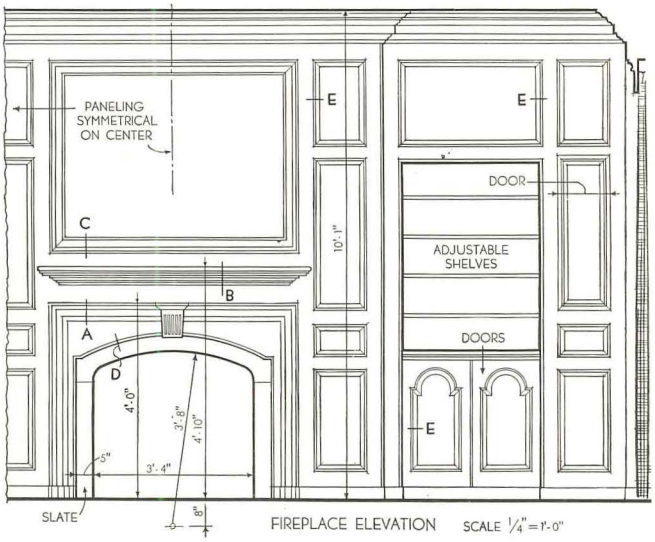


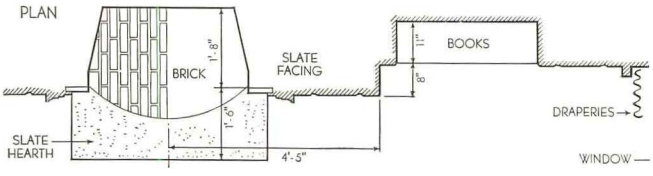


OYSTER BAY, NEW YORK: WHITE RESIDENCE

Photos by Gottscho





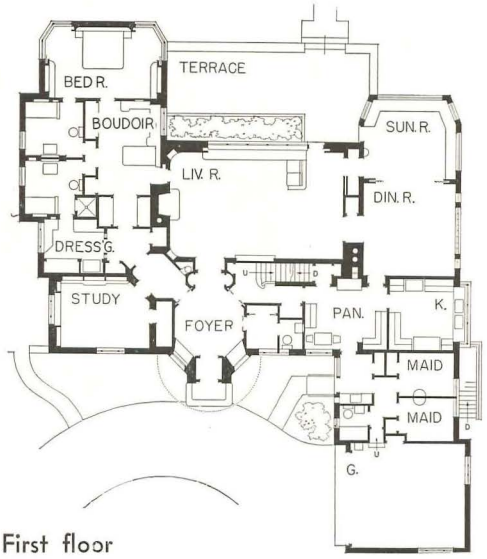


The dining room mantel, shown at the top, is an original from Williamsburg and has been incorporated in the wall treatment. Paneling and niches are new. The library mantel, shown below, is of pine; mantel, paneling, and bookshelves, designed for the house, are detailed at the right.

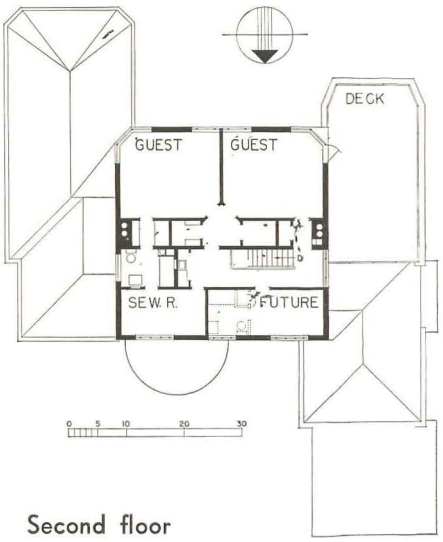
Residence in GREAT NECK, NEW YORK

HANS N. WORMANN
Architect

WHILE THE COST of this house was fairly high, considering its size, it includes many refinements not ordinarily encountered. These range from individual dressing rooms and baths for the owner and his wife, to curtain and venetian blind pockets at all windows. Many pieces of furniture were designed as integral parts of the structure; all were the architect's responsibility. Heating system is divided into five independently controlled zones, roughly: service, living, master's sleeping, second floor, and baths.



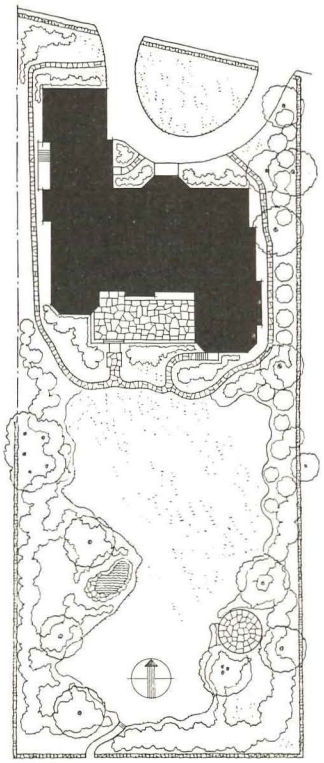
First floor



Second floor

Photos by John Gass

Plot plan



Residence in GREAT NECK, NEW YORK

MATERIALS AND EQUIPMENT

FOUNDATION
Mass concrete with 1" waterproof cement parging; continuous 4-ply waterproofing membrane in basement floor

STRUCTURE
Reinforced concrete, cinder block and fieldstone ashlar

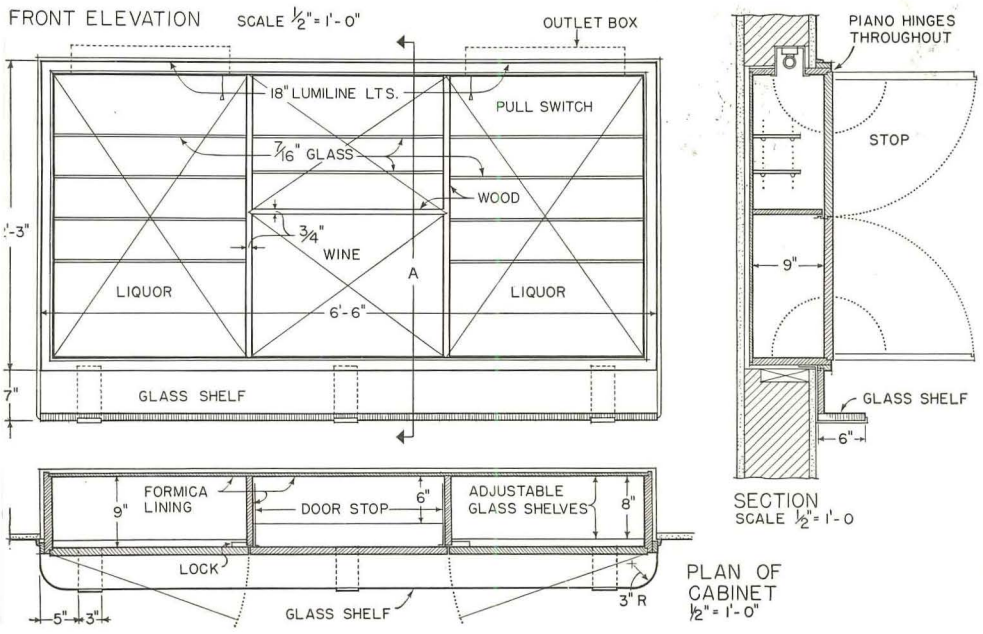
EXTERIOR
Walls: Cinder block, 8" and 12" thick; 3-coat stucco, Artstone Rocor Corp.; some fieldstone ashlar
Sash and doors: Screened "Intermediate" steel casements, J. H. Thorn Co.; special steel window in sun room, Allen Automatic Co.; garage doors, lift type; glass block, dining room, Pittsburgh Corning Corp.; weatherstripping, interlocking zinc members
Roof: Shingle tile, Ludowici-Celadon Co.; sheet metal, 16 oz. copper
Insulation: Aluminum foil, all exterior walls and sundeck, Alfol Insulation Co.; roofs, 4" rock wool

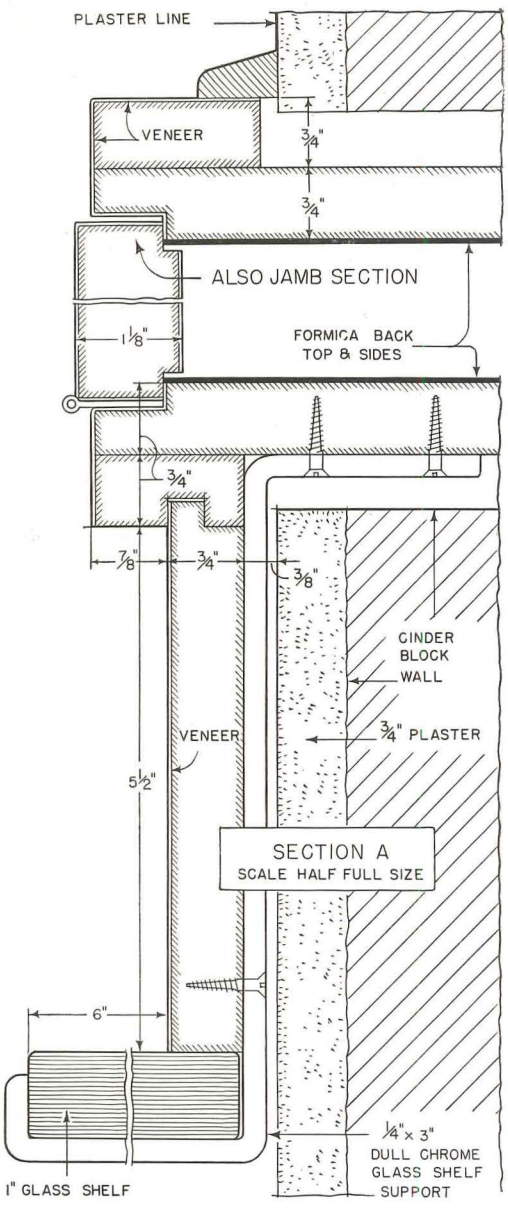
INTERIOR
Floors: Basement, double concrete slabs, waterproofing between, and first floor, "Floroform" concrete; precast concrete joists and slabs, Bedford Hills Concrete Prod. Corp.; finish, cement generally; oak block, study, dining room, guest room, E. L. Bruce Co.; Roman travertine, sun room; N. C. pine, asphalt, part of basement; tile, baths
Partitions: Part cinder block, part studding plastered, painted 3 coats, some stippled wallpaper, living, guest, bedrooms, and par of hall; baths, tile
Doors: Flush, ¾" thick
Stairs: Precast concrete; covered with oa treads and risers, first to second floors
Sound insulation: Between dining room anc kitchen, balsam wool

EQUIPMENT
Heating: "Split" system, 2 zones air condi tioned, 3 zones, 2-pipe vapor radiation Carrier Corp.; 5 zone thermostats; oil-firec boiler; Petrometer gauge
Plumbing: Water lines, brass; copper hot water tank; fixtures, Crane Co.
Electrical: Motor operators for sunroom window and garage doors; kitchen range exhaust fan; annunciator call bells, all rooms 2 outside alarm bells; radio outlets, all rooms aerial built in second floor ceiling; 32 light ing circuits, 375 outlets; lighting fixtures built-in, Kurt Versen, Inc.
Kitchen and laundry: Gas stove, Magic Chef refrigerator, Norge; cabinets, Excel Meta Cabinet Co.; counters, linoleum; clothes chute, aluminum, Haslett Chute & Conveyor Co.; incinerator, Kerner Incinerator Co.
Cellar: Honeycomb wine bottle racks, Her man Soellner, Inc.
Hardware: Duli chrome, Schlage Lock Co.

Cost, building proper, approx. 50¢ per cu. ft.

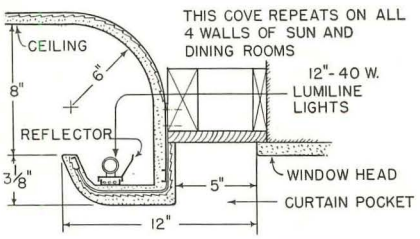
Two views of the living room; walls are of white and silver grass cloth, chenille carpeting is deep blue, draperies of handwoven fabric striped blue, beige, and red. Details of the window cabinet are shown elsewhere in this issue; details of the built-in bar are shown below. Both built-in and portable furniture are of straight-grained and crotched walnut, with handwoven upholstery.



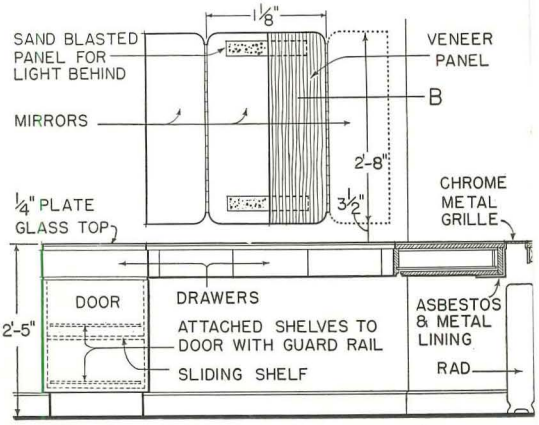


Residence in GREAT NECK, N. Y.

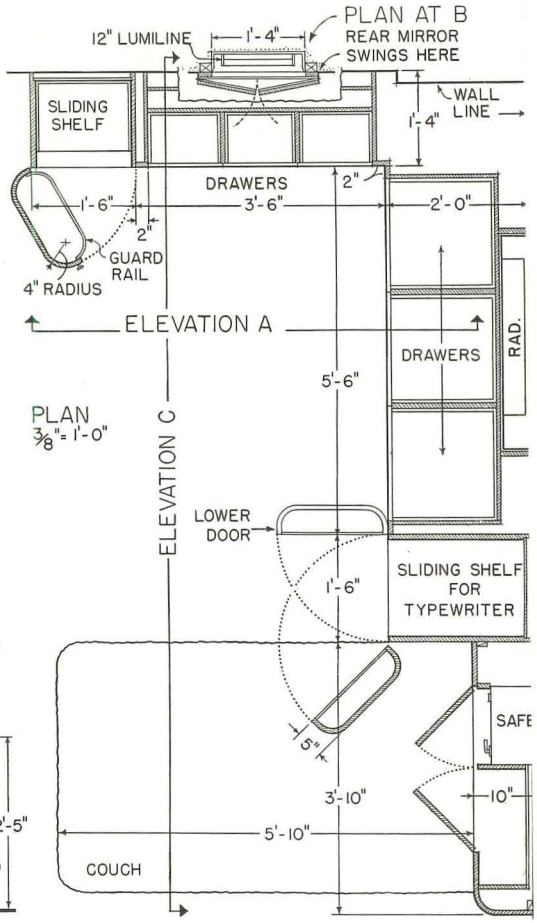
Above, view through dining room into sun room; the window at the far end of the sun room is a single sheet of plate glass which can be lowered by motor into the basement. Continuous light coves in both rooms are red lacquered, and contain 74 lineal feet of tubular lighting, 2,800 watts. Below, boudoir dressing table and desk, with details.

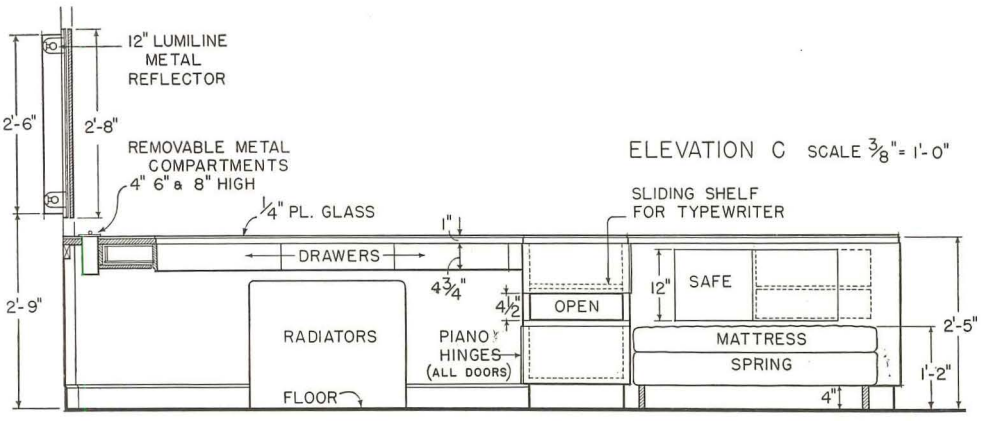


LIGHT COVE & CURTAIN POCKET 1"=1'-0"

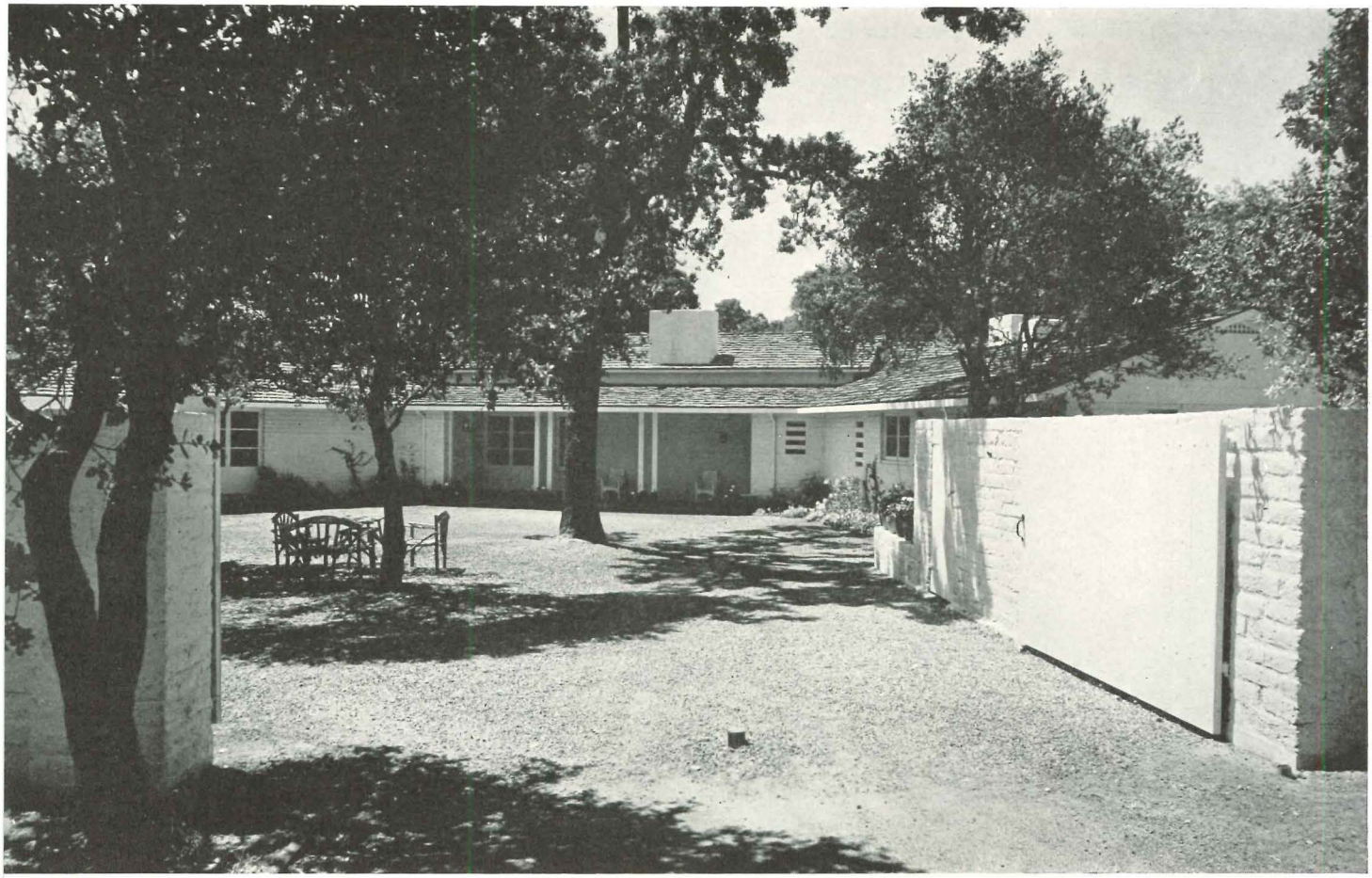


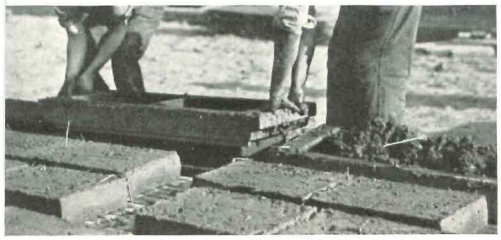
ELEVATION A SCALE ⅜"=1'-0"





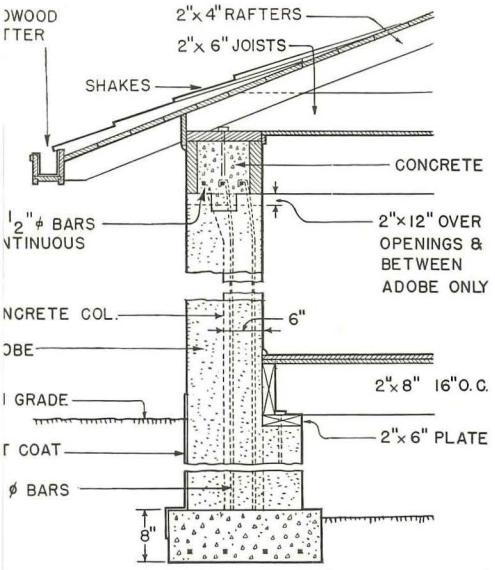
ELEVATION C SCALE ⅜"=1'-0"



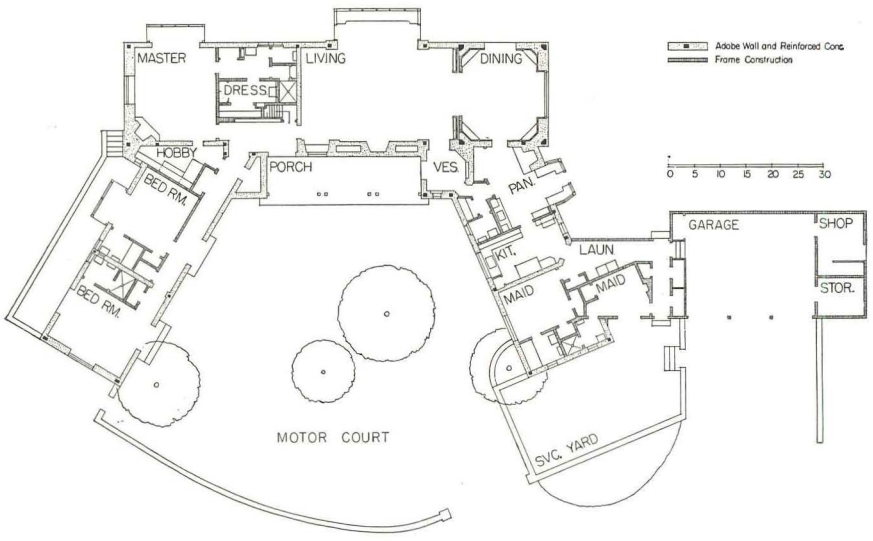


WOODSIDE, CAL.: Residence for Mr. & Mrs. Stewart Elliott

GARDNER A. DAILEY
Architect

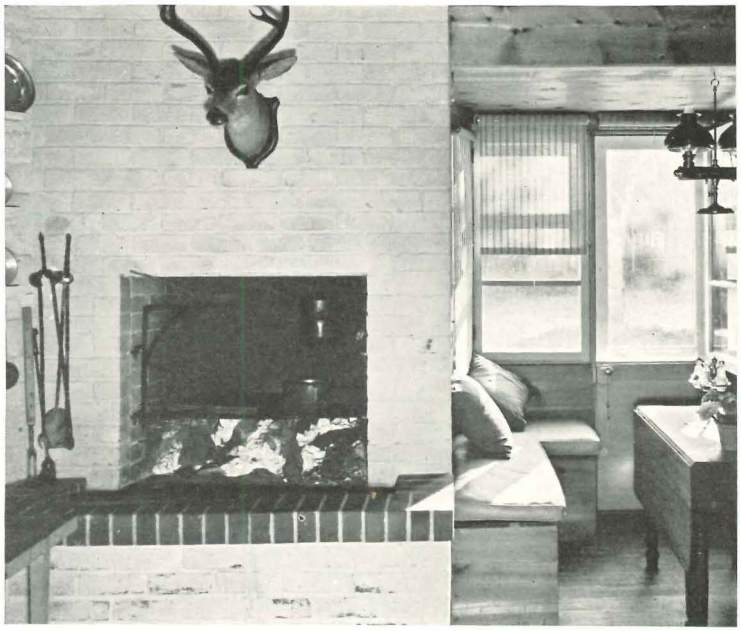


erior and some interior walls are Bitumals obe brick, 12" by 18", composed of sur- e soil, straw, water, and Bitumals oil. Mor- was also Bitumals adobe. Concrete columns re poured in recesses left in adobe; red- od forms for collar beams remain in walls.



WOODSIDE, CALIFORNIA: Residence for Mr. & Mrs. Stewart Elliott

Above, rear terrace, showing in the foreground the bay from the master bedroom; beyond, the living-room bay. Below are two views of the pantry, which does triple duty. Besides the usual cupboards and sink, it contains a barbecue fireplace and breakfast table with benches.



Above, interior of living-room; below, dining-room. All same walls are finished with knotty red cedar boarding. Wood studs and plates are secured to adobe walls with bent lengths of barbed wire embedded in mortar joints and nailed to framing.

MATERIALS AND EQUIPMENT

FOUNDATION
Continuous reinforced concrete

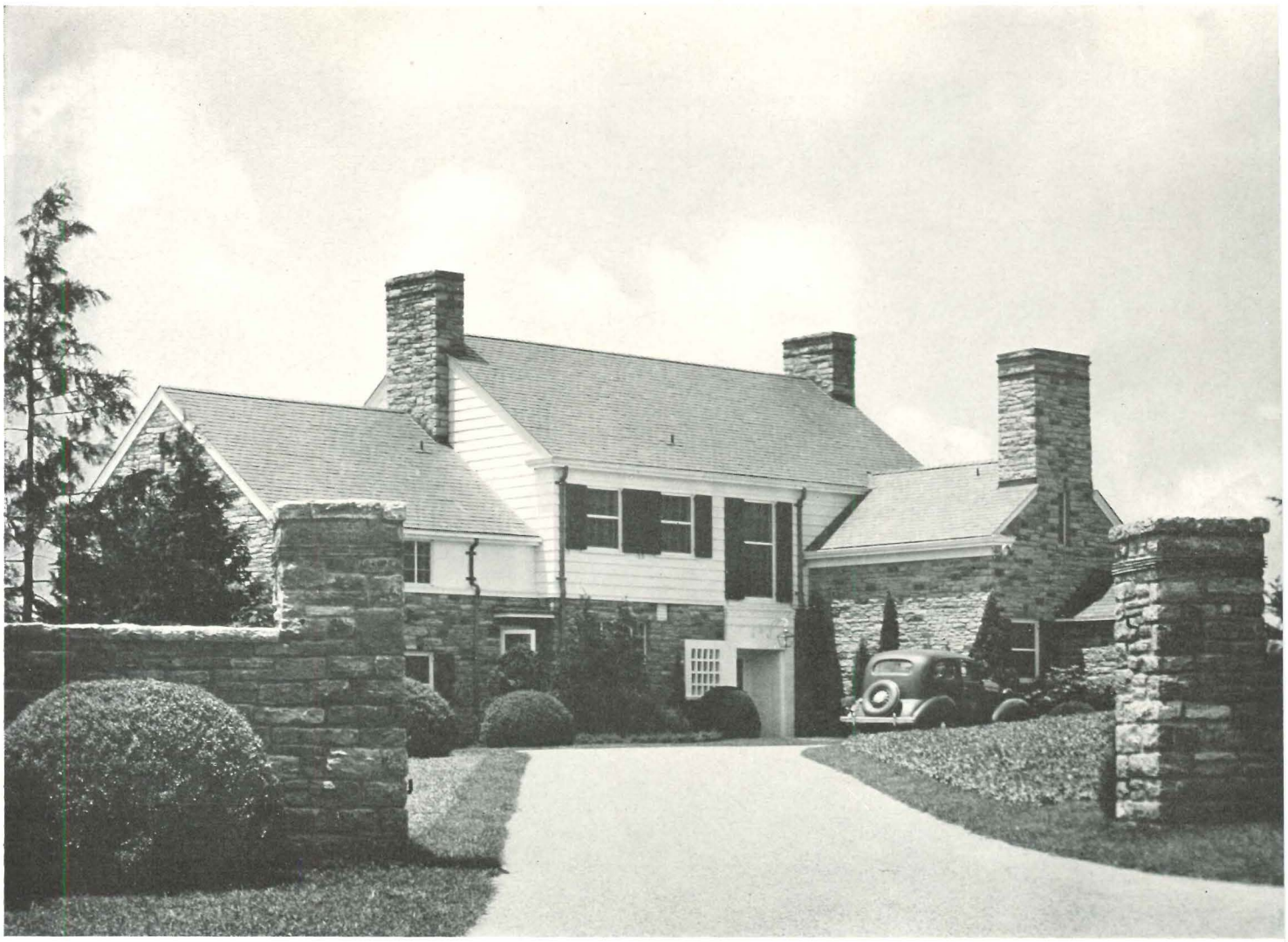
STRUCTURE
12" adobe walls generally; 24" adobe on gable walls; reinforced concrete columns and collar-beam or plate

EXTERIOR
Walls: Adobe, painted with special preparation, Triangle Paint Co.
Sash and doors: Sugar pine, outswinging casements, painted; glass, select, A grade, Pittsburgh Plate Glass Co.; sills, quarry tile set in cement mortar
Roof: Douglas fir framing; red cedar shakes; sheet metal, 12 ga. galvanized iron

INTERIOR
Walls: Adobe exposed, painted with Texolite, U. S. Gypsum Co.; non-bearing walls, Douglas fir studs, knotty red cedar finish and trim, lacquered, E. I. duPont de Nemours & Co., Inc.
Floors: Square-jointed oak plank except baths, lavatories and kitchen finished with Armstrong's linoleum, blue, laid over Insulite "semi-hard" hardboard; entrance porch, quarry tile; hearths, 12" by 12" hollow tile
Ceilings: Red cedar, lacquered

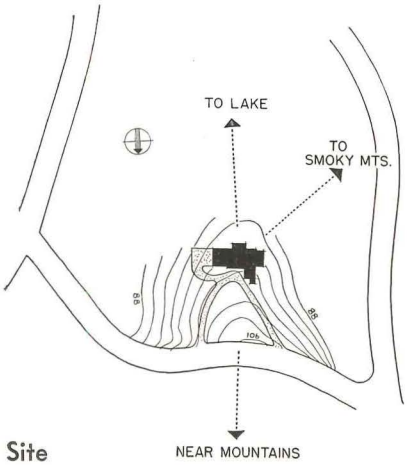
EQUIPMENT
Heating: Hot water; Watrola Heat Generator, gas fired; Young convectors set in Schick enclosures, damper-controlled; ½" copper circulating lines; Thrush circulating pump
Plumbing: Piping, Chase copper; fixtures, Crane Co.
Electric wiring: Steel conduit in adobe; otherwise knob and tube
Hardware: Sargent & Co.

Cost: approx. 33¢ per cu. ft.

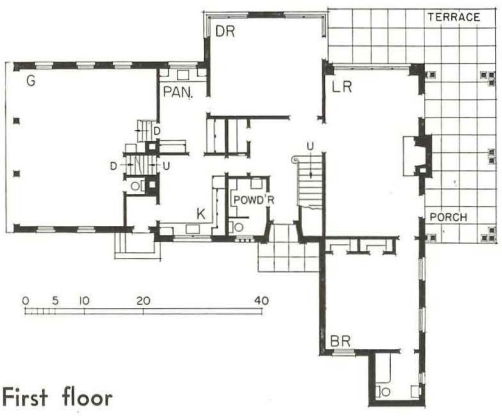


ASHEVILLE, N. C.: Residence for Mr. & Mrs. E. J. Sparks

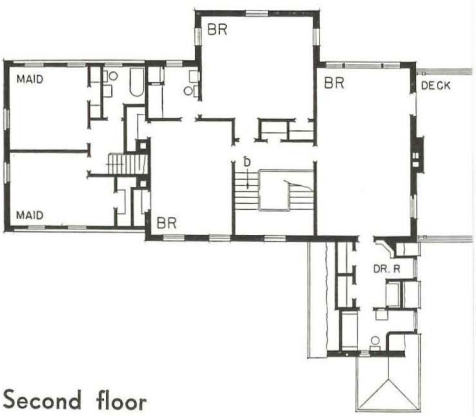
HENRY IRVEN GAINI
Archite



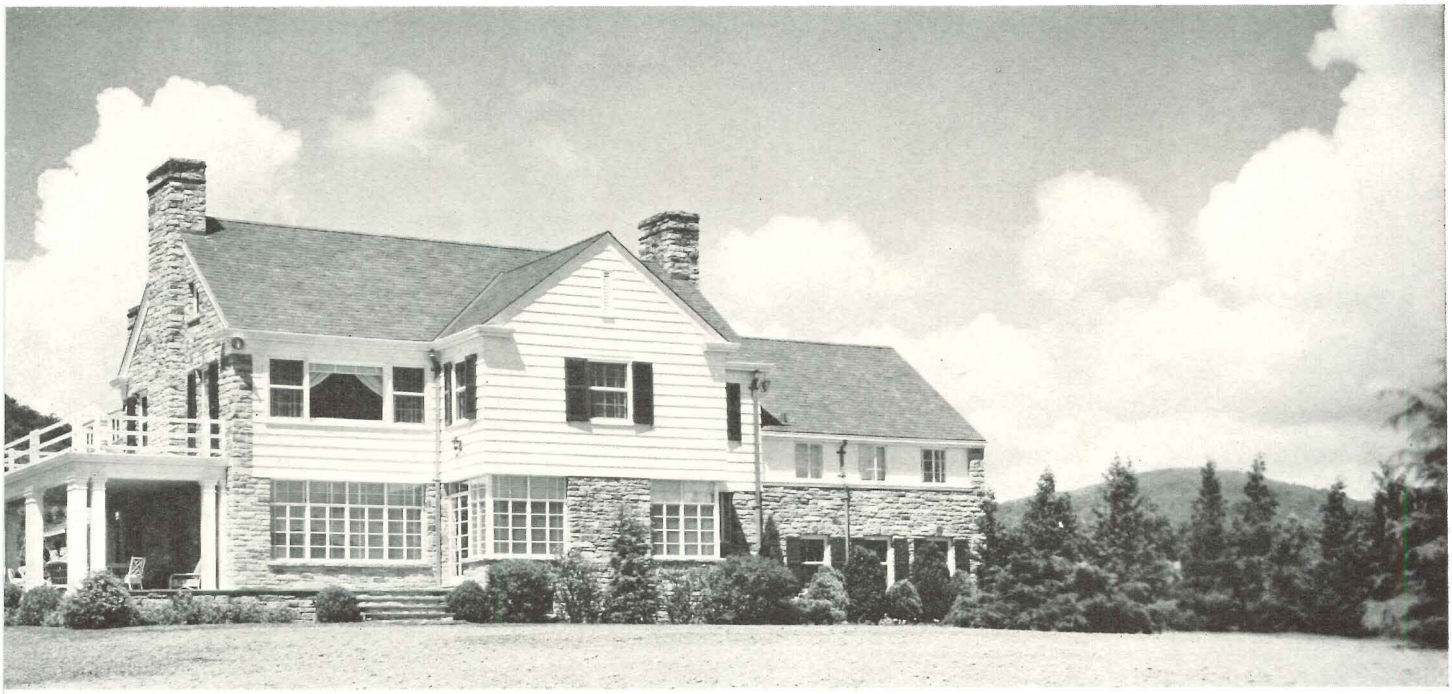
Site



First floor



Second floor



facing page, entrance front; above, south eleva-
; right, south end of living-room; right, below,
ıen. In addition to the usual fixtures, a dishwasher
garbage disposal unit are built into the sink.

TERIALS AND EQUIPMENT

NDATION
ed mass concrete footings; common brick

ICTURE
d frame; masonry veneer

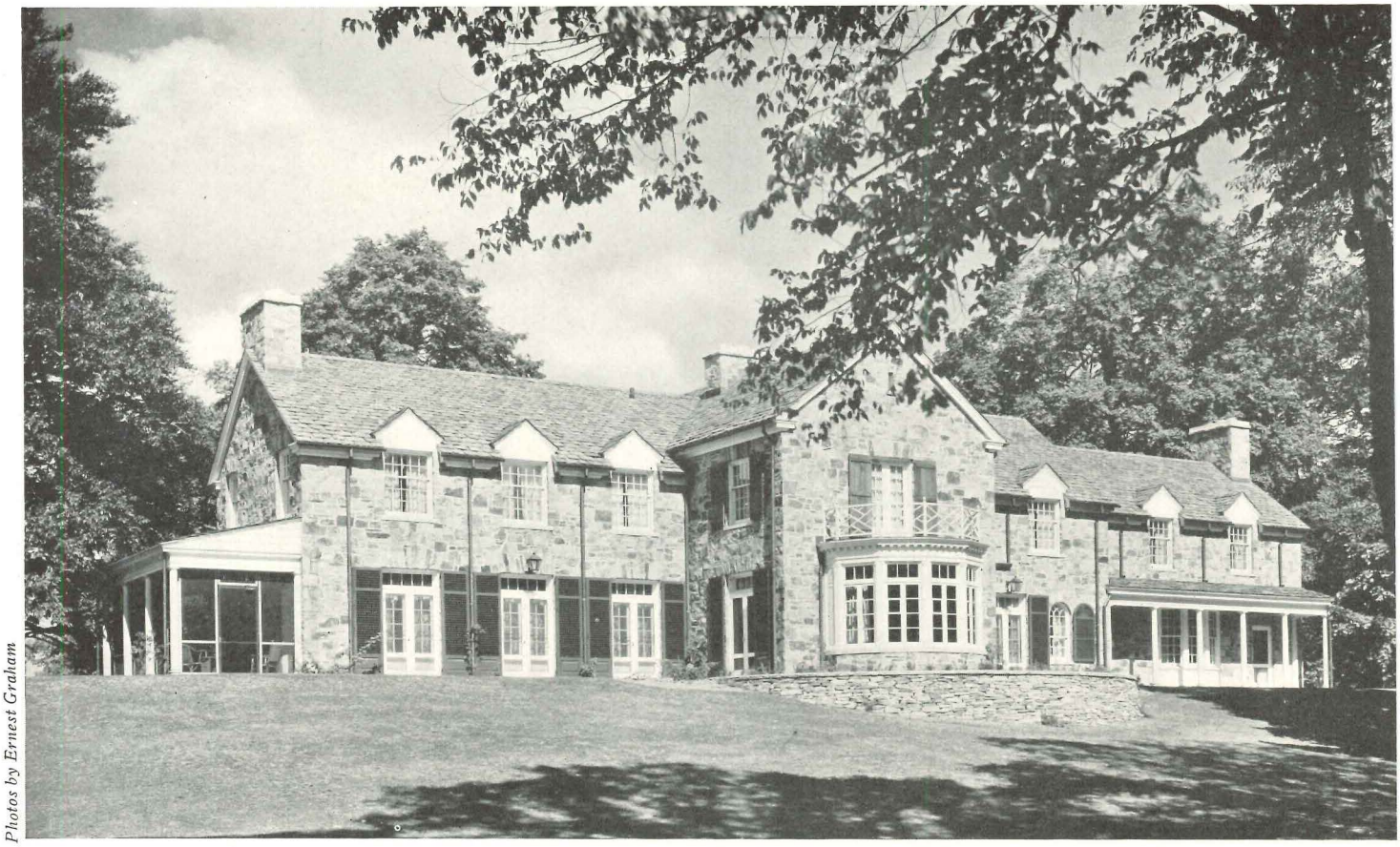
RIOR
s: Local stone veneer and redwood sid-

: Metal, Detroit Steel Products Com-
; wood
s: Metal, Detroit Steel Products Com-
; wood; garage, "Ro-Way" lift type,
Manufacturing Co.
: Slate, "Buckingham", Virginia Slate
.; sheet metal, copper
ation: Sidewalls and roof, Red Top Insu-
Wool, U. S. Gypsum Co.
ing: Benjamin Moore paint

RIOR
s: Plaster, U. S. Gypsum Co.; wallpaper,
nbus Coated Fabric Co.
s: Oak, D. M. Rose Company; baths, tile,
ic Tile Company; kitchens and pantry,
um, Armstrong Cork Products Co.; ter-
, local flagstone
White pine

IPMENT
ware: Sargent & Co.
en: Range, refrigerator, hot-water sup-
dishwasher, garbage disposal, General
ric Co.
bing: Fixtures, Standard Sanitary Manu-
ring Co.
ing: Concealed radiation, C. A. Dunham
stoker, Iron Fireman Mfg. Co.; boiler,
. Radiator Corp.
ing: Fixtures, Lightolier Co.
ian blinds: Pella, Rolscreen Company

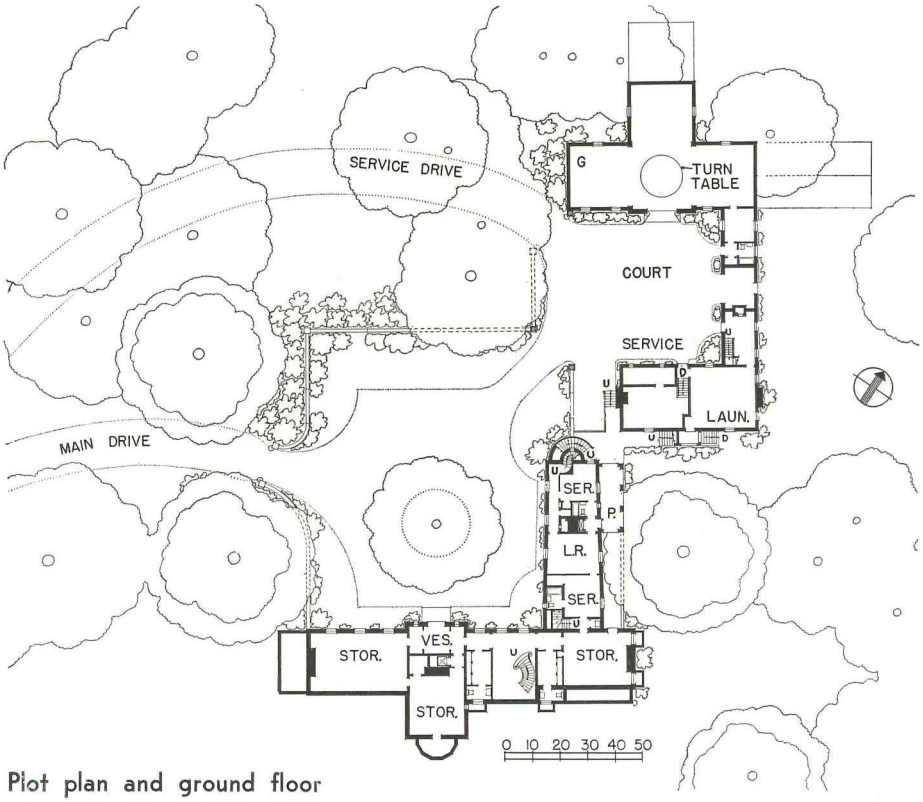
Cost: 40¢ per cu. ft.



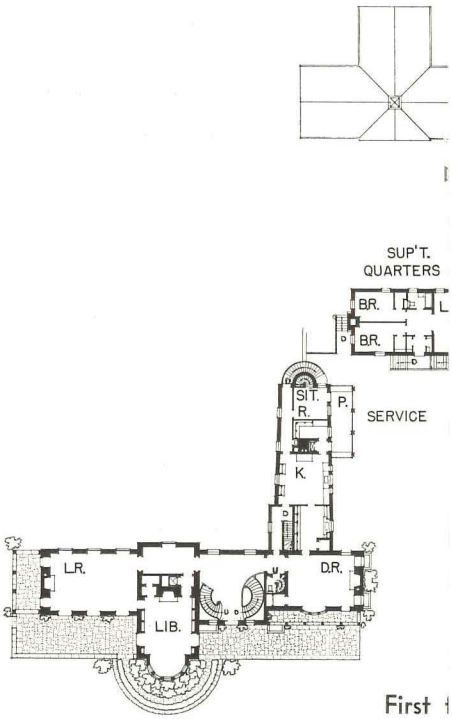
Photos by Ernest Graham

MENTOR, OHIO: Residence for Mr. & Mrs. Newell Bolton

CHARLES B. ROWLEY & ASSOCIA
Archit



Plot plan and ground floor



First f

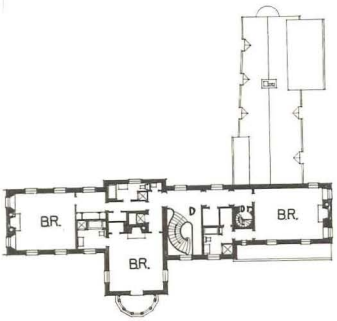
TERIALS AND EQUIPMENT

JCTURE
ɔnry and reinforced concrete

ERIOR
s: Hard local sandstone facing. ydite" backup, Hydraulic-Press Brick plastered inside on insulating fibre d, furred
: Semi - mill construction, heavy den rafters widely spaced, 2" sheath- and graduated slate roof
: Wood, double hung
ing: Trim, white; shutters: first story, n; second story, brown

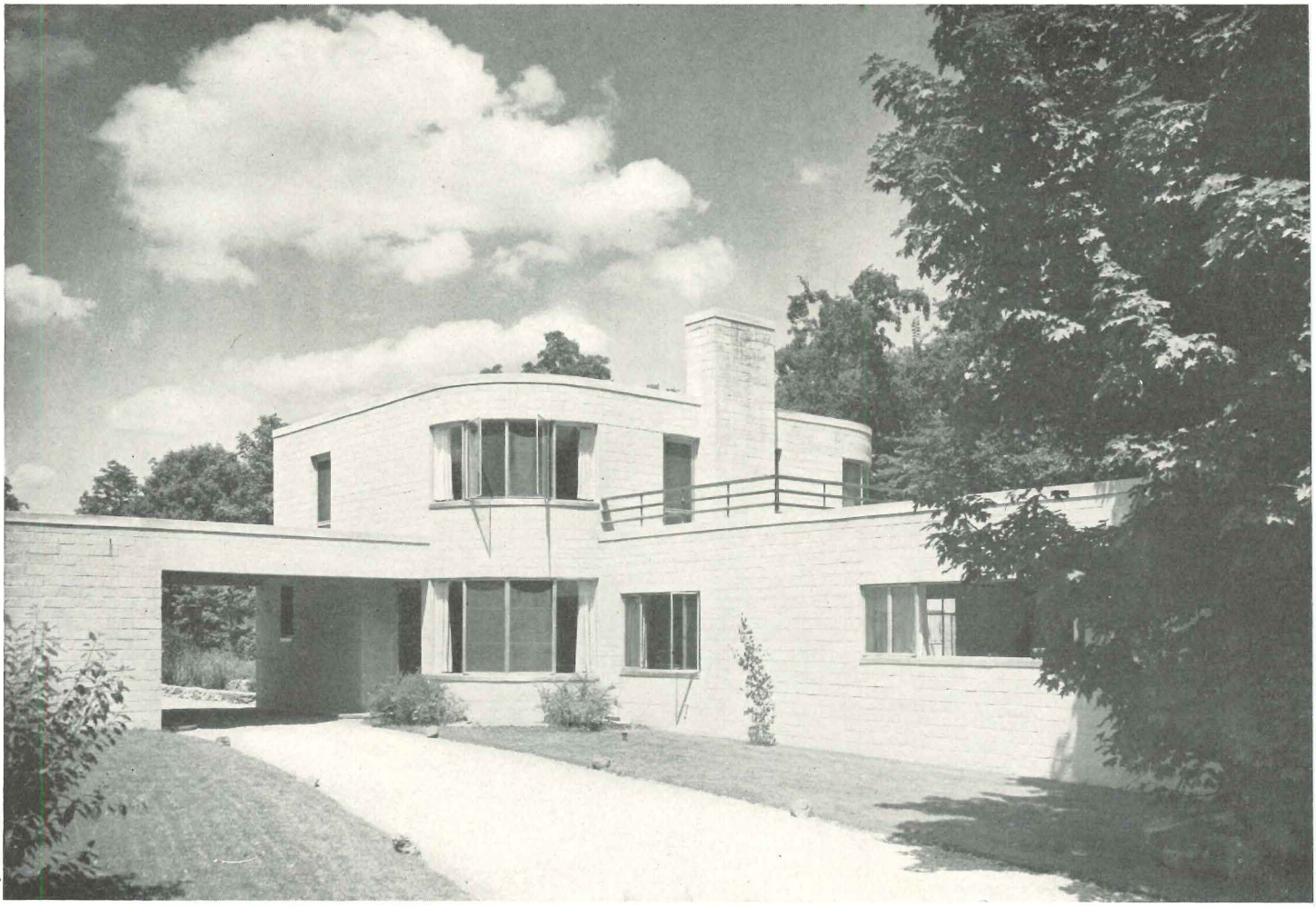
INTERIOR
Walls: Bearing walls, "Haydite" and brick; non-bearing, gypsum block; plastered on both sides; library, panelled cherry
Floors: Bar joists, 3" reinforced concrete slabs, wood sleepers, wood rough and finish floors; library, cherry plank
Ceilings: First story and basement, metal lath and plaster; second story, plaster on fibre board
Stairways: Cherry treads and handrails, white painted risers and balusters

Cost, including service buildings: approx. 60¢ per cu. ft.



ɔond floor

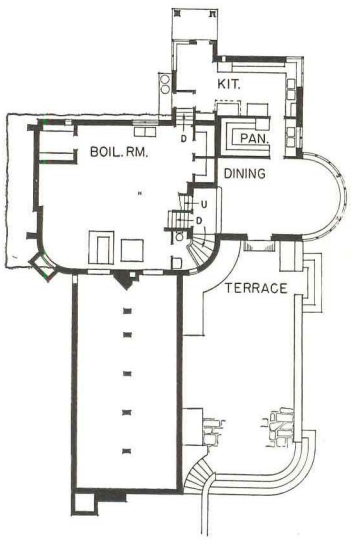
Sandstone used in exterior walls was obtained from the bed of a nearby stream, and varies in color from warm gray to orange. Tapering service wing (see plan) produced a sloping ridge line which follows site contours. Above, entrance court (residence is named "The Courtyard"); right, main stair



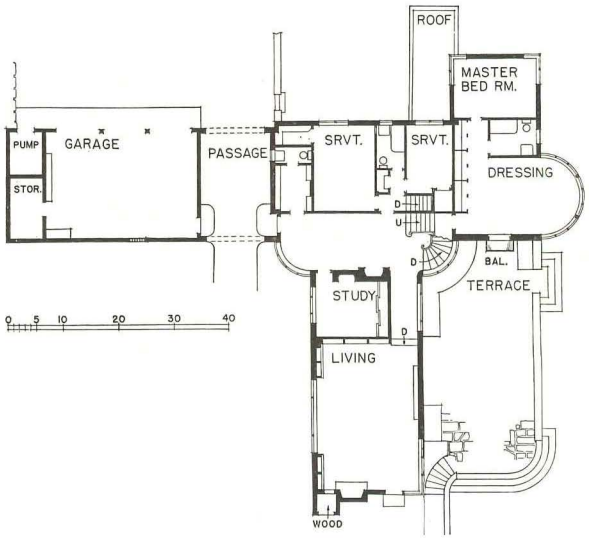
Alfred Cook

NEW CANAAN, CONN.: Residence for Mr. & Mrs. Franklin B. Kirkbride **ROBERTSON WA**

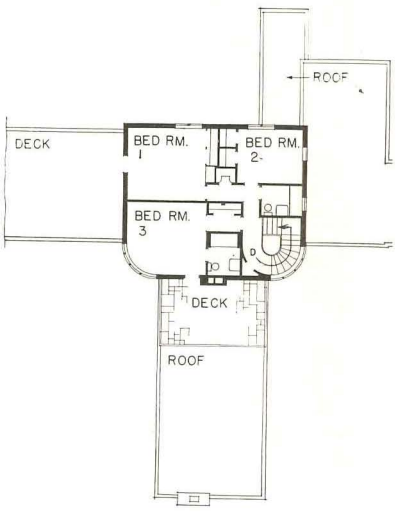
Archit



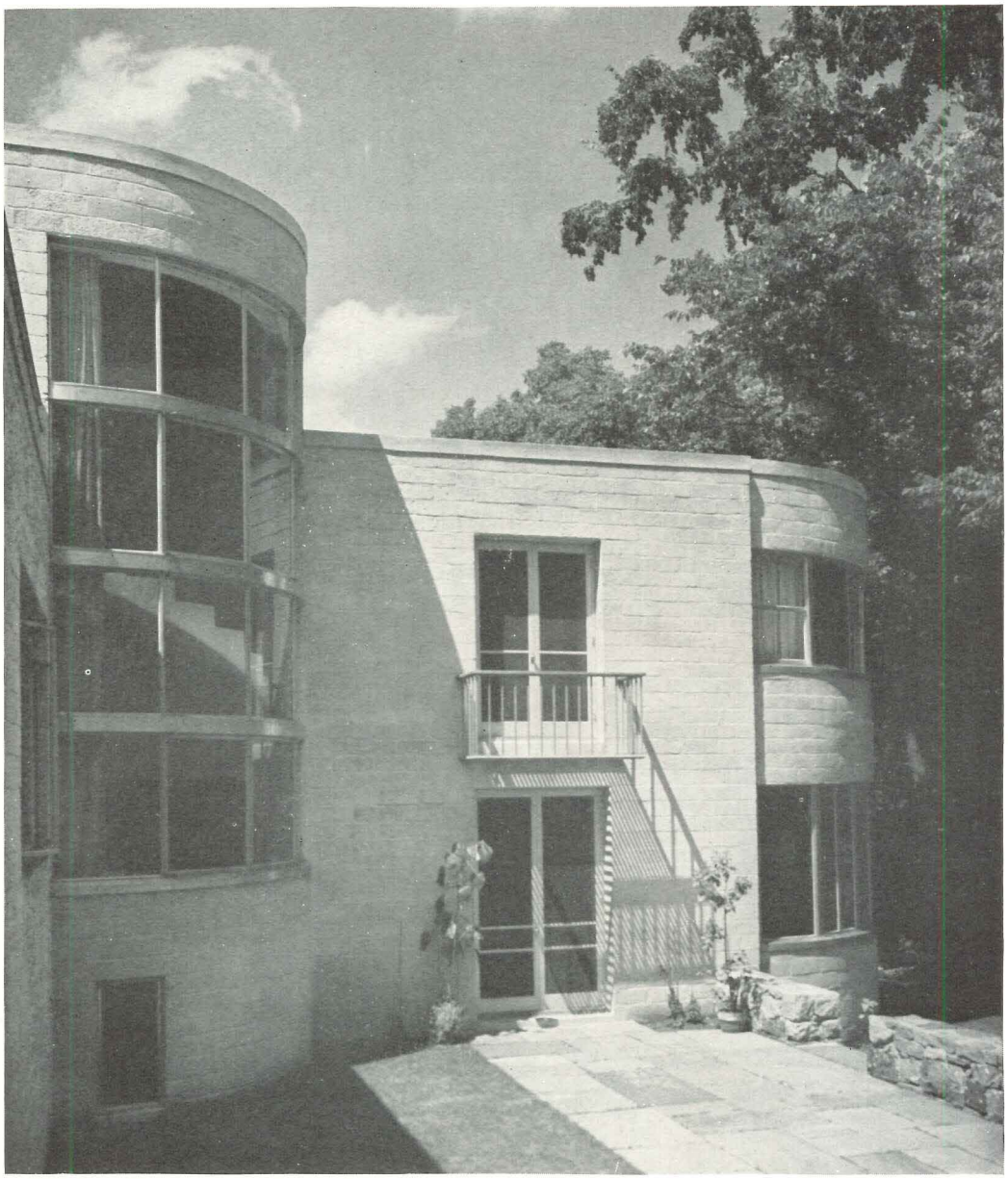
Basement



First floor



Second floor



Six floor levels were required to take advantage of the sloping site. On facing page, entrance front; at right, large window in stair hall was built and erected as a unit. Below, left, another view of the terrace; right, the semi-circular bay overlooks a trout stream.

NEW CANAAN, CONN.: Kirkbride residence

Photos by Alfred Cook

Upper photograph, living room interior; lower, dining room

MATERIALS AND EQUIPMENT

FOUNDATION
Concrete

STRUCTURE
Concrete block, reinforced concrete and steel

EXTERIOR
Walls: Concrete block, Bedford Hills Concrete Products Corp.
Roof: Wood framing; built-up roofing, Barrett Co.; Quarry tile deck
Doors: Steel, Hope's Windows, Inc.; garage, Overhead Door Co.
Sash: Metal, General Bronze Corp.; glass brick, Pittsburgh-Corning Corp.; screens, Kane Mfg. Corp.
Paint: Cement paint, Artstone Rocor Corp.
Insulation: Alfol, Alfol Insulation Co., Inc.; rock wool, Eagle-Picher Sales Co.
Iron work: White Plains Iron Works, Inc.

INTERIOR
Partitions: Stud, plastered, painted
Ceilings: Plastered, painted
Floors: Steel joists, concrete; linoleum finish generally, Armstrong Cork Products Co. and Congoleum-Nairn, Inc. (Sealex); oak plank, Bruce Flooring Co.

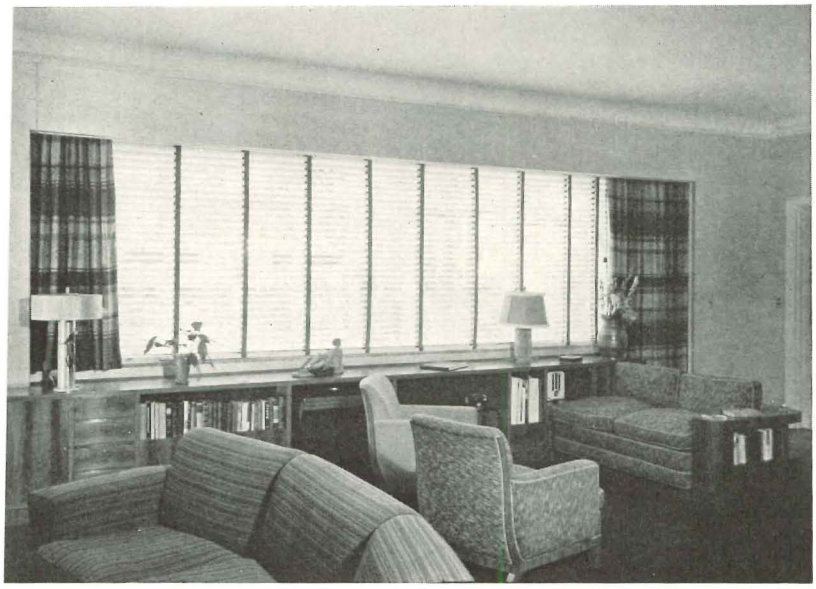
EQUIPMENT
Heating: Air conditioning, Scott Newcomb
Plumbing: Disposal system, American Sewage Disposal Co., Inc.; fixtures, Standard Sanitary Mfg. Co.
Lighting: Fixtures, Cecil K. White
Kitchen: Cupboards, Bradley Kitchen Cabinet Co.

Cost, including fees: approx. 59¢ per cu. ft.

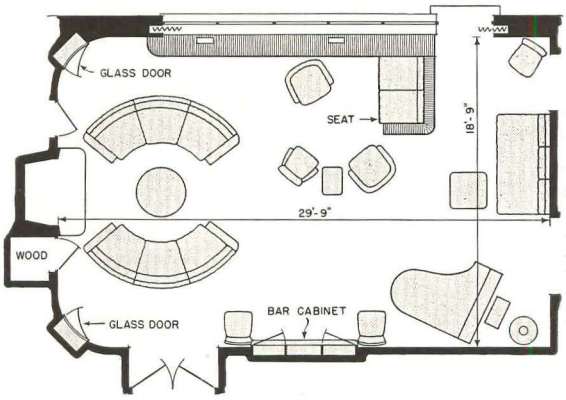
etails for Indoor Living Areas

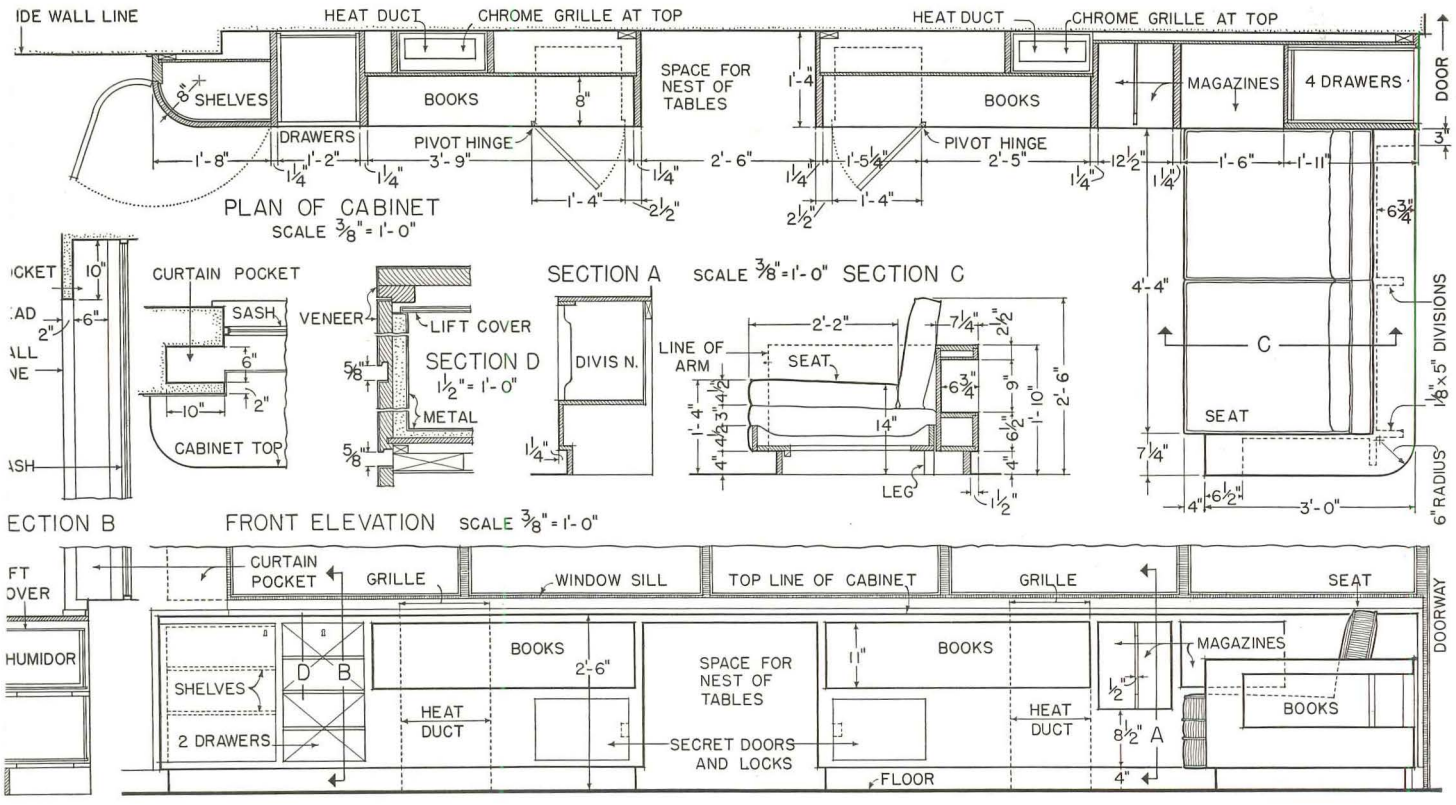
Four pages of suggestions for the design of built-in furniture —equipment units which under a variety of conditions may be developed as functional parts of interior living areas . . . .

'ING ROOM — Under-window Cabinet



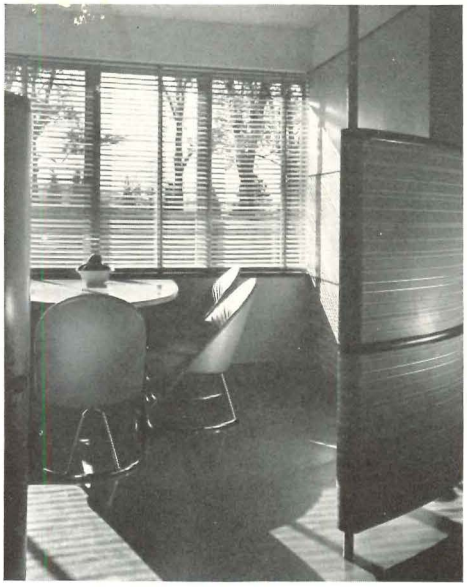
Residence in Great Neck, New York: Hans N. Wormann, architect and interior designer. Woodwork is straight-grained and crotched walnut; upholstery, handwoven fabrics in brown, beige, and blue; curtains, handwoven, striped blue, beige and red. Curtain and Venetian blind hardware is completely concealed.

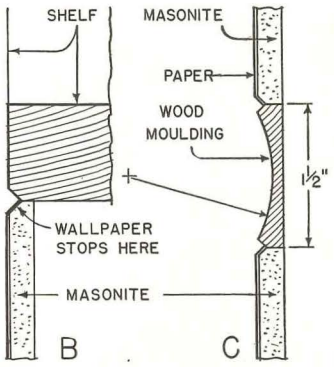




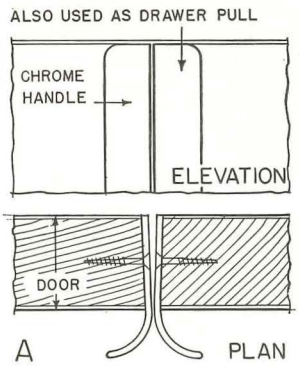
BREAKFAST ROOM

B. Chu...ill
Phot

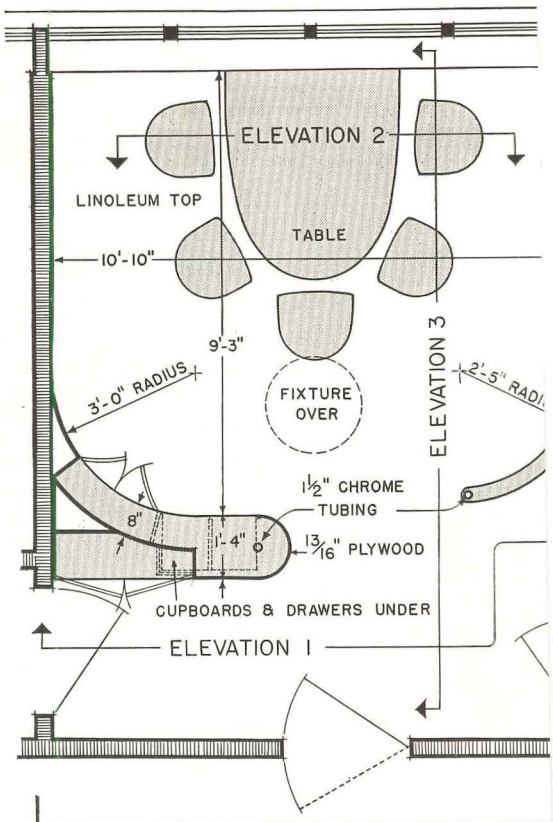


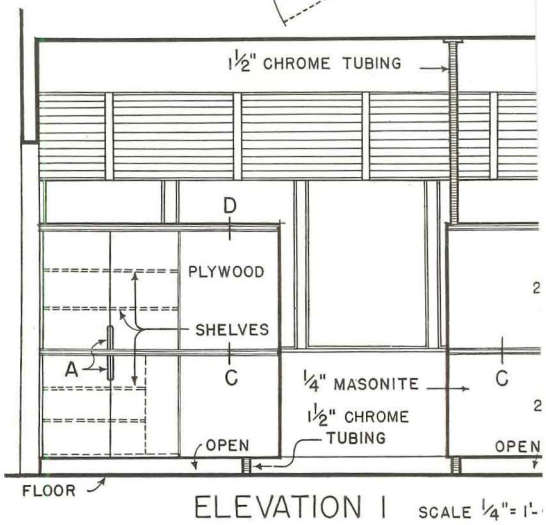


DETAILS SCALE HALF FULL SIZE

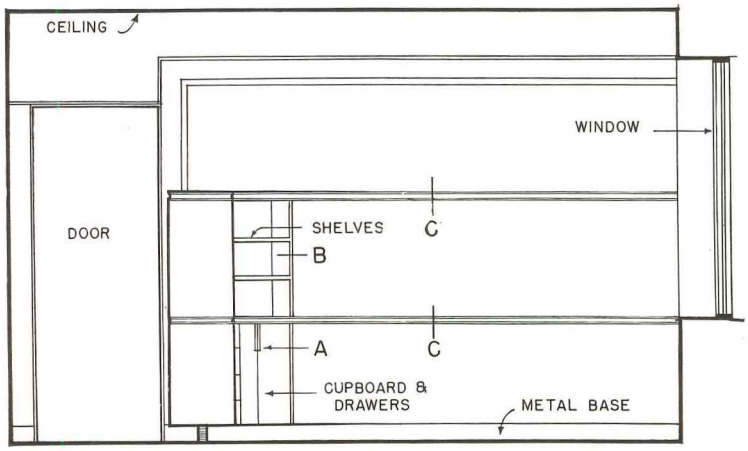


Residence in Kansas City, Mo.; alcove designed by Kem Weber; E. W. Tanner, architect. Table standard and top are covered with Armstrong's linoleum, with red lacquered hardwood edges. Cabinets and screen are designed to give privacy to occupants, since the room serves as a passageway from pantry to front door.

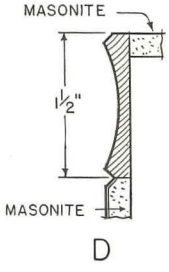


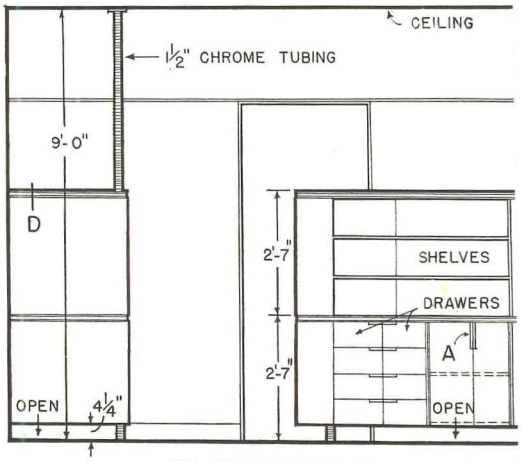


ELEVATION 1 SCALE ¼"= 1'-



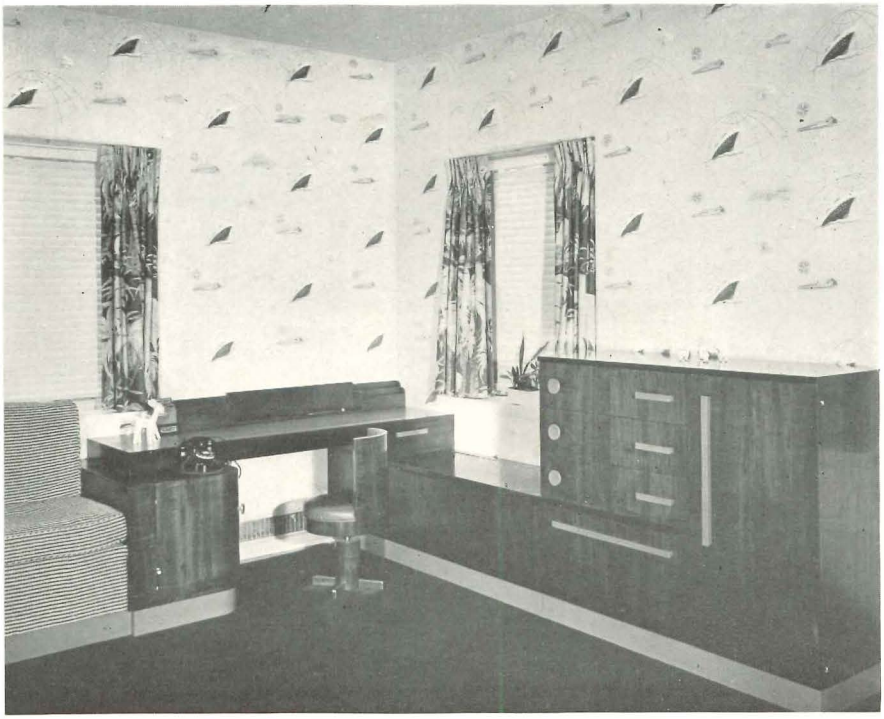
ELEVATION 3 SCALE ¼"= 1'-0"



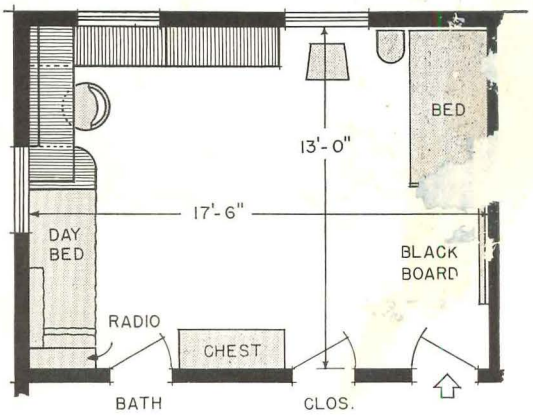


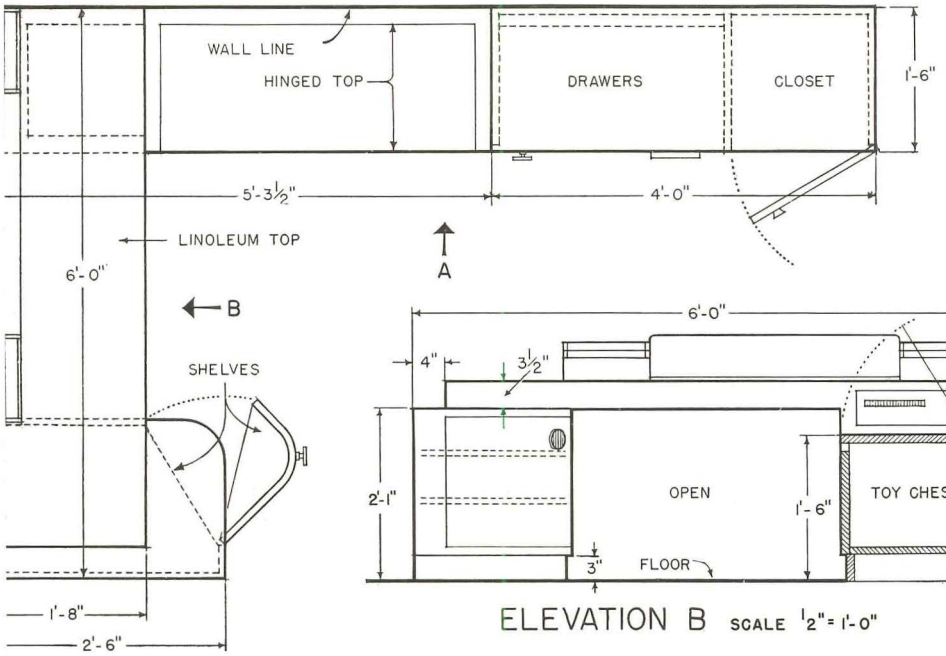
ELEVATION 2 SCALE ¼"= 1'-

HILD'S ROOM — Desk, Bins, and Cupboards

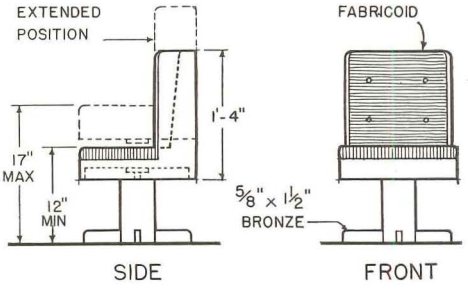


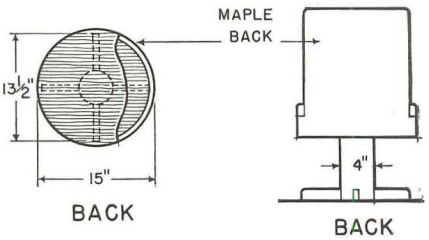
Cafritz residence, Washington, D. C.: Eugene Schoen & Sons, architects and interior designers. The floor is of cork, covered with a rug. The desk and cupboard unit is of brown maple, lacquered, with maroon Catalin knobs and pulls. The base is maroon Formica. The desk has an inset linoleum top surface.





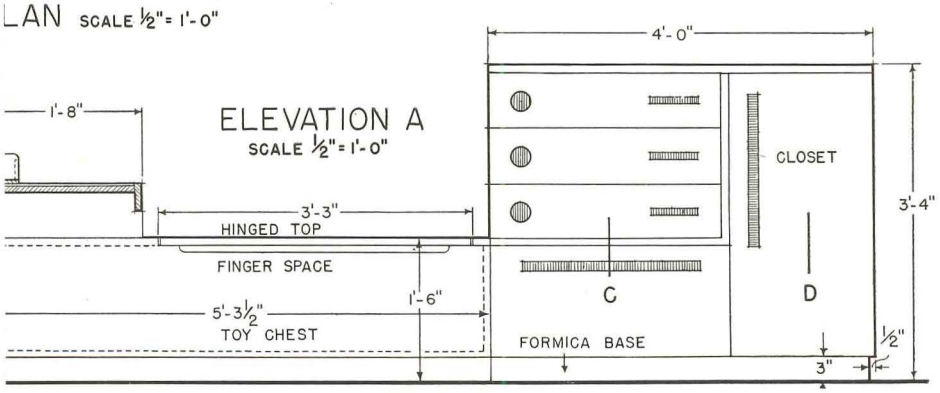
ELEVATION B SCALE ½"= 1'-0"

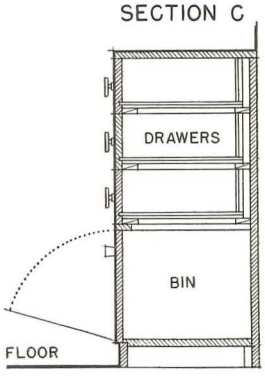


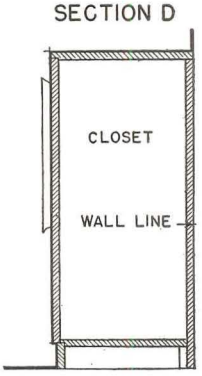


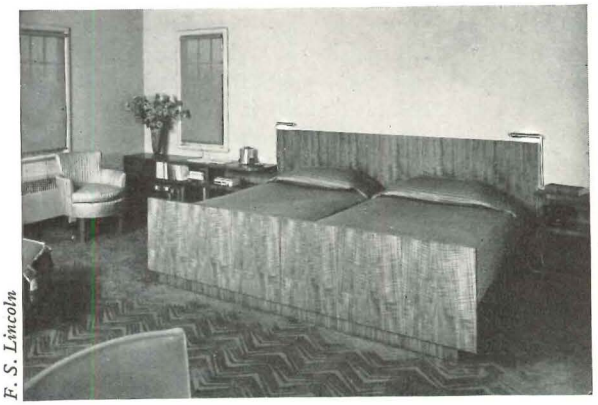
CHAIR DETAIL SCALE ½"= 1'-0"

LAN SCALE ½"= 1'-0"

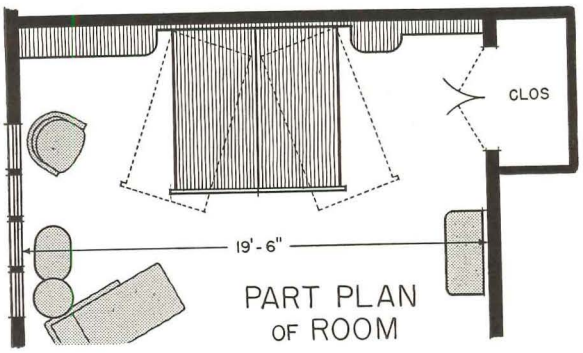




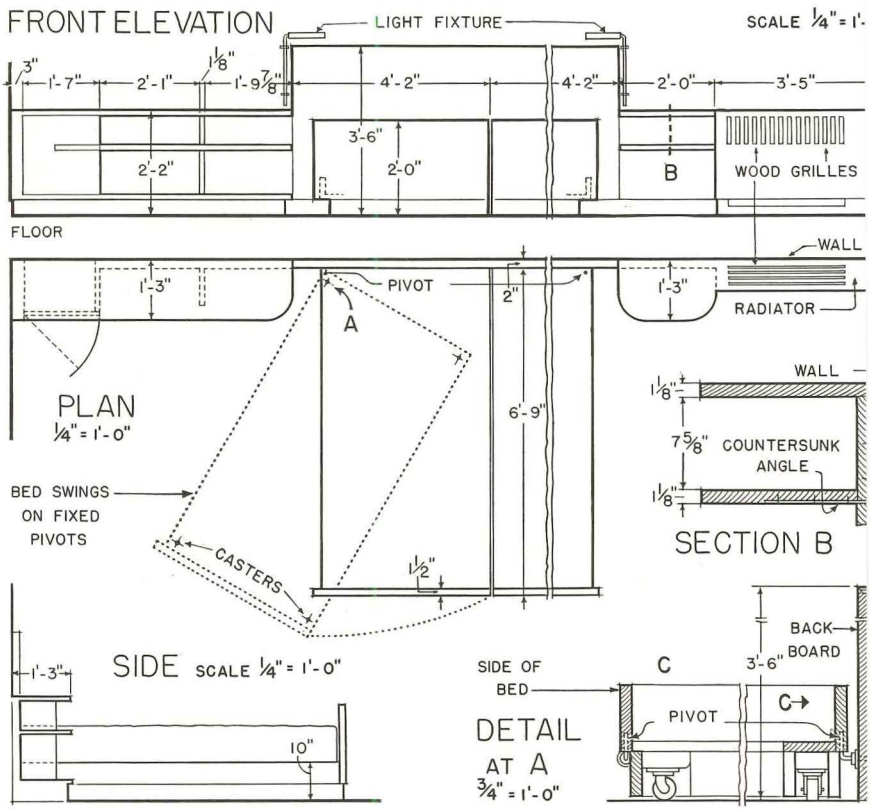


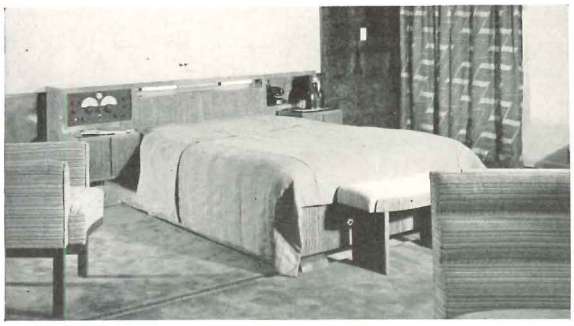


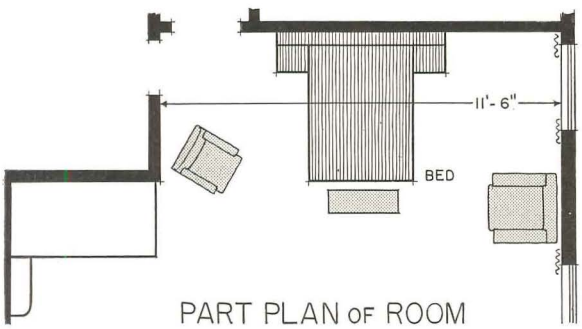
F. S. Lincoln



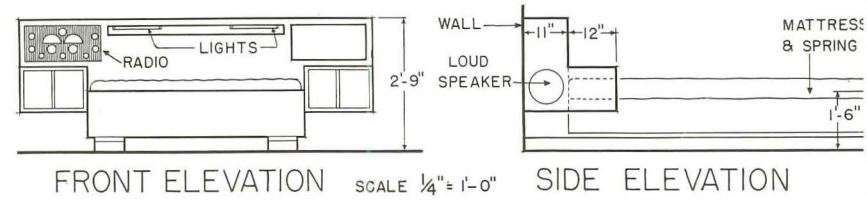
Residence in Elmsford, N. Y.: Joseph Aronson, designer. Notice that t night tables are set far enough away to permit beds to be swung out f ease in making them up.

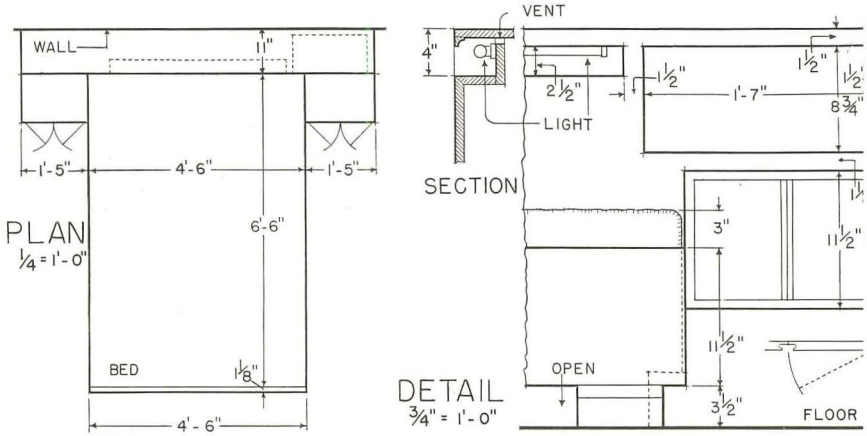






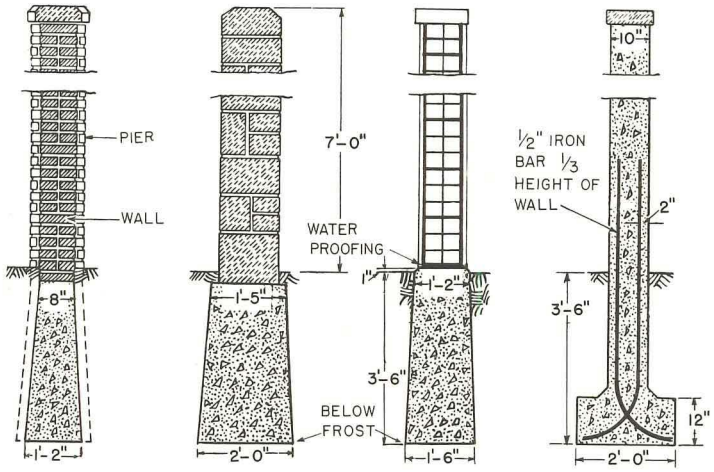
Cafritz residence, Washington, D. C.: Eugene Schoen & Sons, architec and interior designers. The bed is of English brown oak; the night tabl are hinged to the head cabinet and swing out away from the bed.



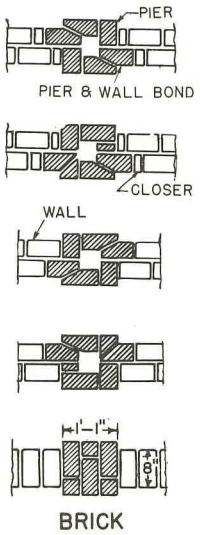


OUTDOOR AREAS– WALL CONSTRUCTION

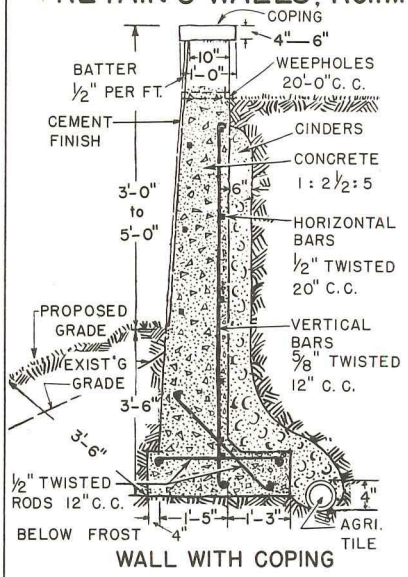
FREE STANDING WALLS



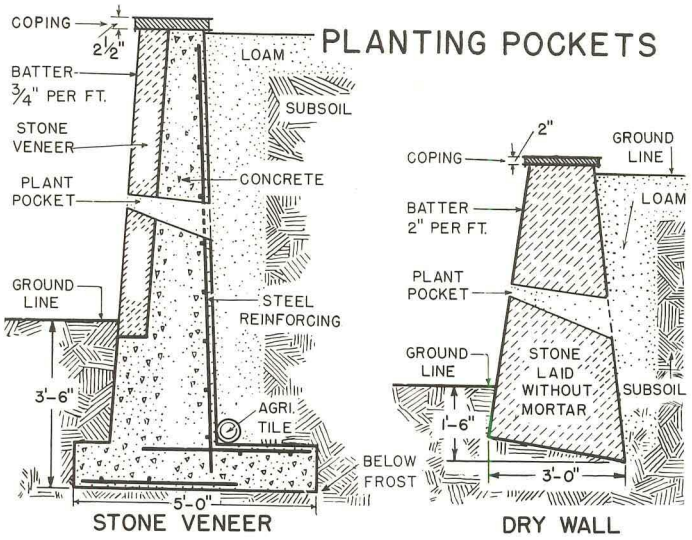
PIER AND WALL BOND



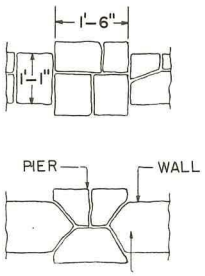
RETAIN'G WALLS, Reinf.



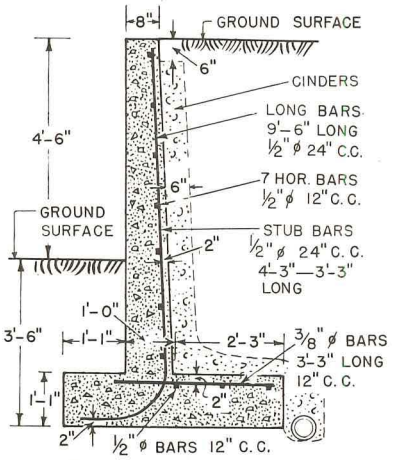
PLANTING POCKETS



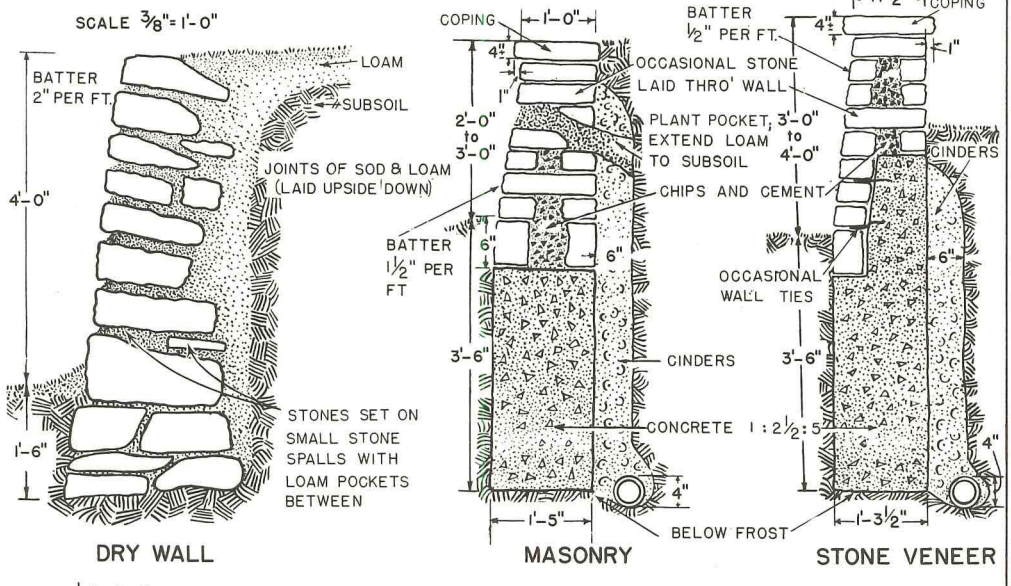
PIER AND WALL BOND



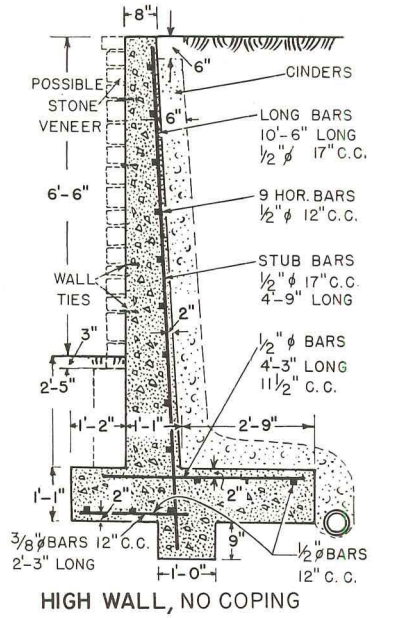
Prepared by
A. D. TAYLOR
LANDSCAPE ARCHITECT



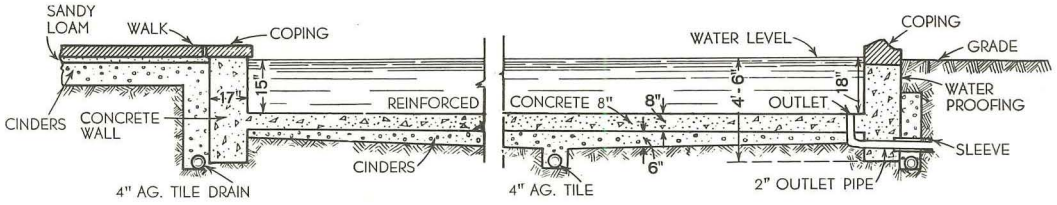
RETAINING WALLS, Not reinforced



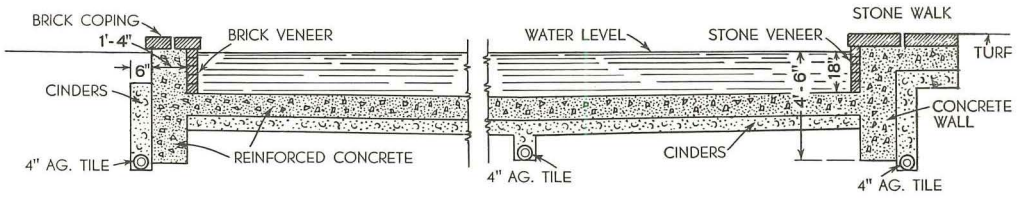
SCALE ¼"= 1'-0" EXCEPT AS NOTED



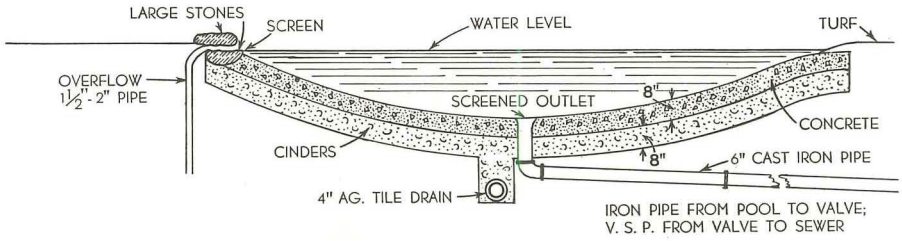
CONCRETE POOL
(NOT TO SCALE)



CONCRETE POOL
STONE OR BRICK VENEERED
(NOT TO SCALE)

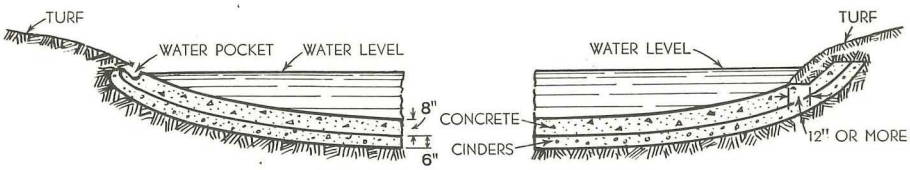


INFORMAL POOL
(NOT TO SCALE)

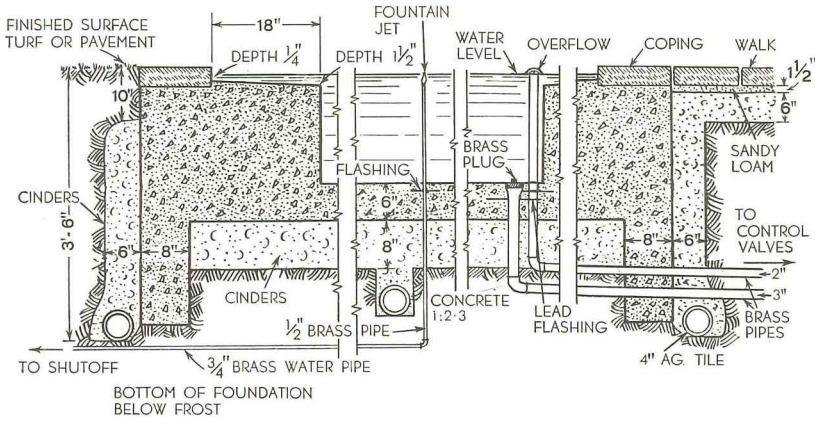


INFORMAL POOL
ALTERNATE EDGINGS
(NOT TO SCALE)

NOTE: All metal piping except lead must be protected from cinder fill. If gravel is used, protection may be omitted.

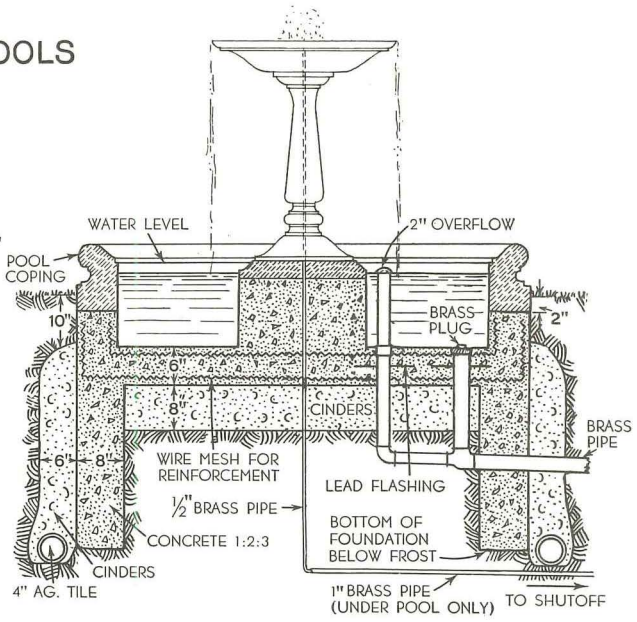


COMBINED BIRD BATHS AND LILY POOLS



BIRD BATH AT EDGE OF POOL

SCALE: ⅜" = 1'–0"



UPRIGHT BIRD BATH

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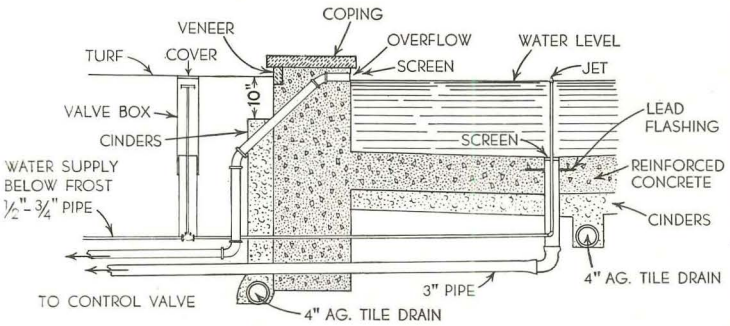
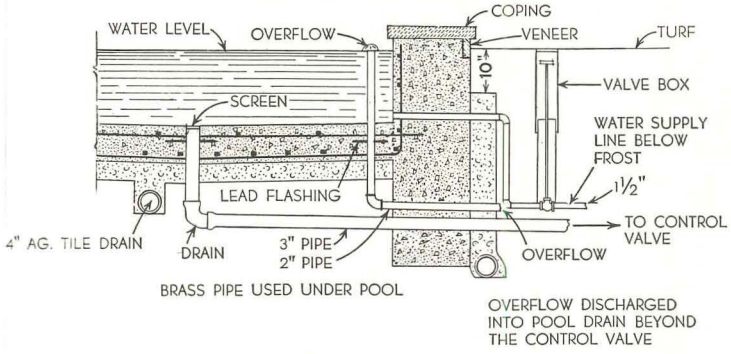
POOL PIPING – Supply and Drainage

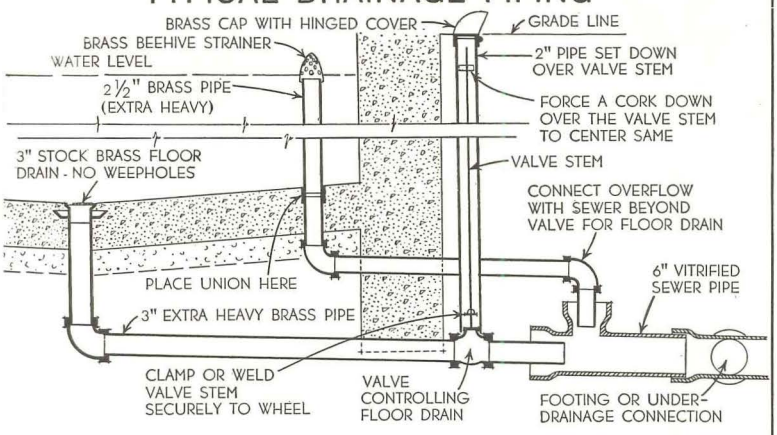
SIDE OVERFLOW



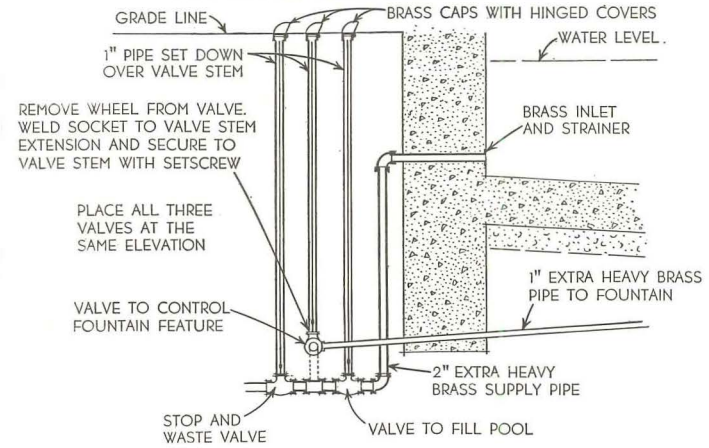
SURFACE OVERFLOW



TYPICAL DRAINAGE PIPING

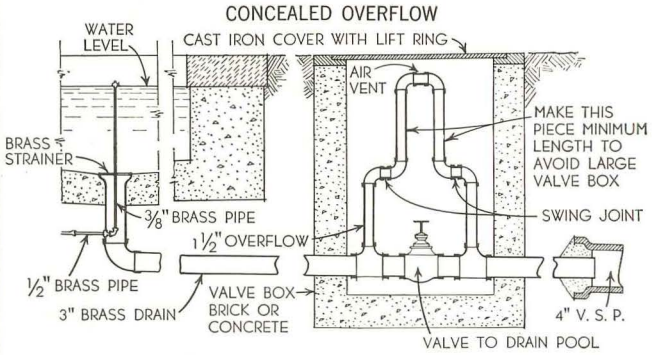


TYPICAL SUPPLY PIPING

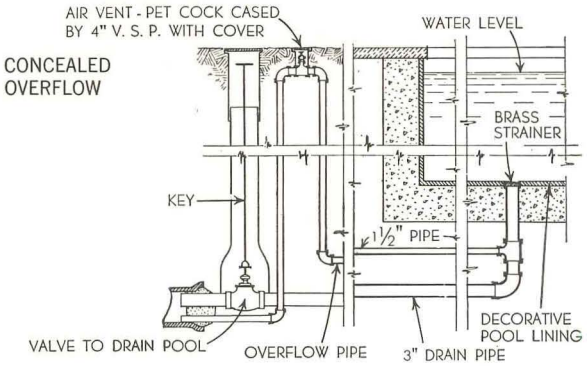


ALTERNATE TYPES OF OVERFLOWS

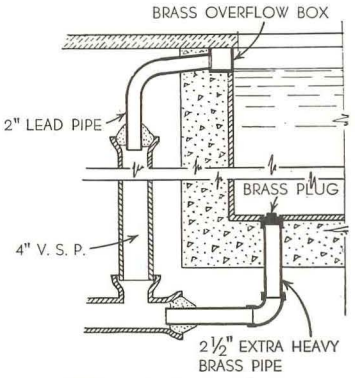
CONCEALED OVERFLOW



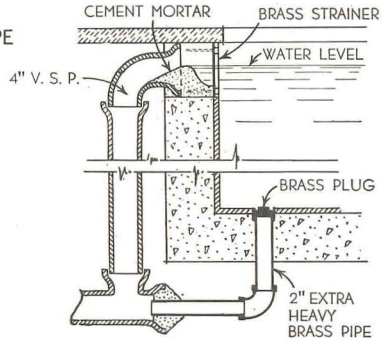
CONCEALED OVERFLOW



CURB BOX



VITRIFIED SEWER PIPE



NOTE:– Pool piping may be of either iron, brass or lead. Use of extra heavy brass pipe under concrete eliminates difficulty in replacing pipe. All metal pipe should be protected from cinder fill by embedding it in concrete or by using non-ferrous, waterproof sleeves.

NO SCALE

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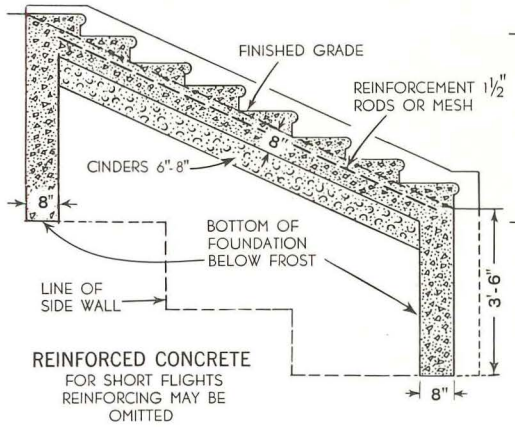
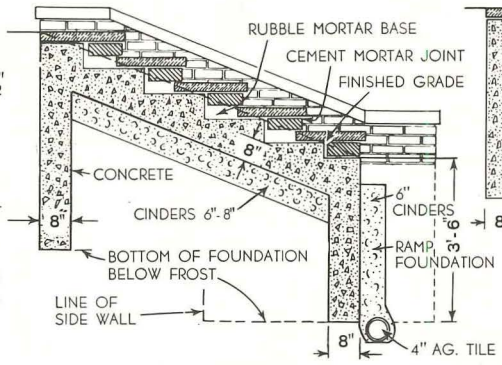
OUTDOOR AREAS—

CONSTRUCTION OF STEPS, RAMPS and PERRO

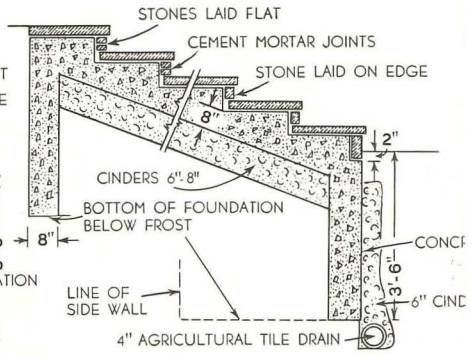
STEPS



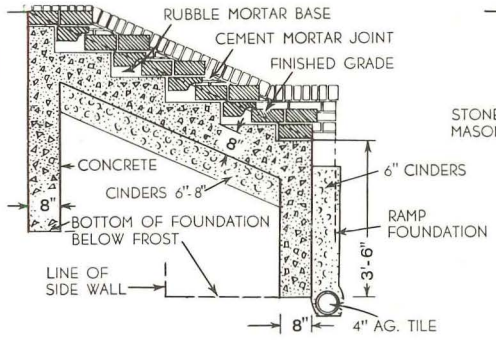
REINFORCED CONCRETE
FOR SHORT FLIGHTS REINFORCING MAY BE OMITTED



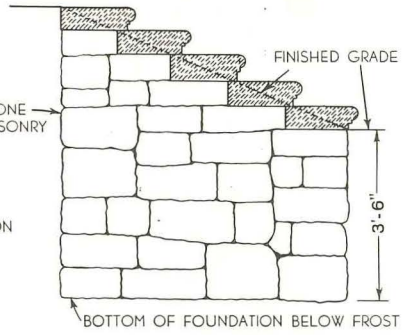
STONE AND BRICK
(CONCRETE FOUNDATION)



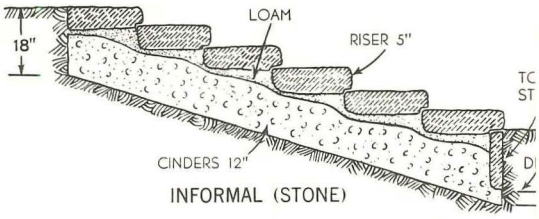
STONE VENEER
(CONCRETE FOUNDATION)



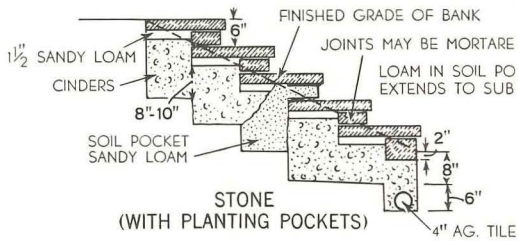
BRICK
(CONCRETE FOUNDATION)



STONE (MASONRY
FOUNDATION)

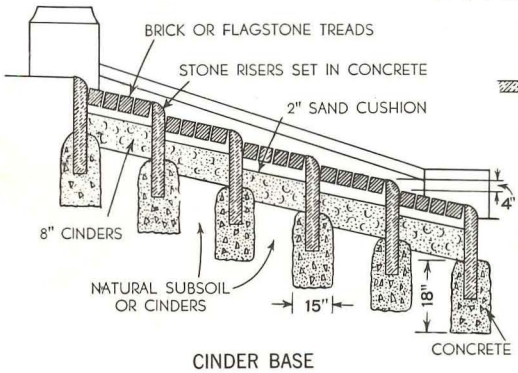


INFORMAL (STONE)

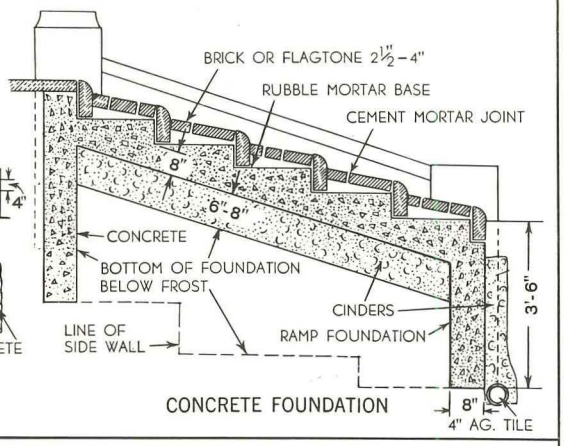


STONE
(WITH PLANTING POCKETS)

RAMPS



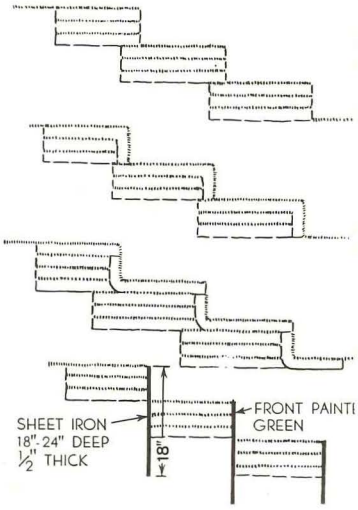
CINDER BASE



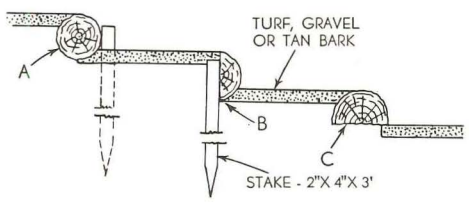
CONCRETE FOUNDATION

TURF STEPS

ALTERNATE METHODS

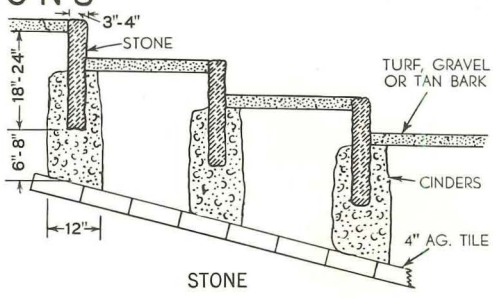


PERRONS



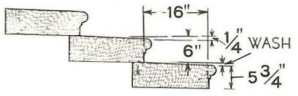
LOGS - ALTERNATE METHODS

SCALE: ¼" = 1'-0"



STONE

WASH ON STEPS



Prepared by A. D. TAYLOR LANDSCAPE ARCHITECT