PROGRESSIVE ARCHITECTURE

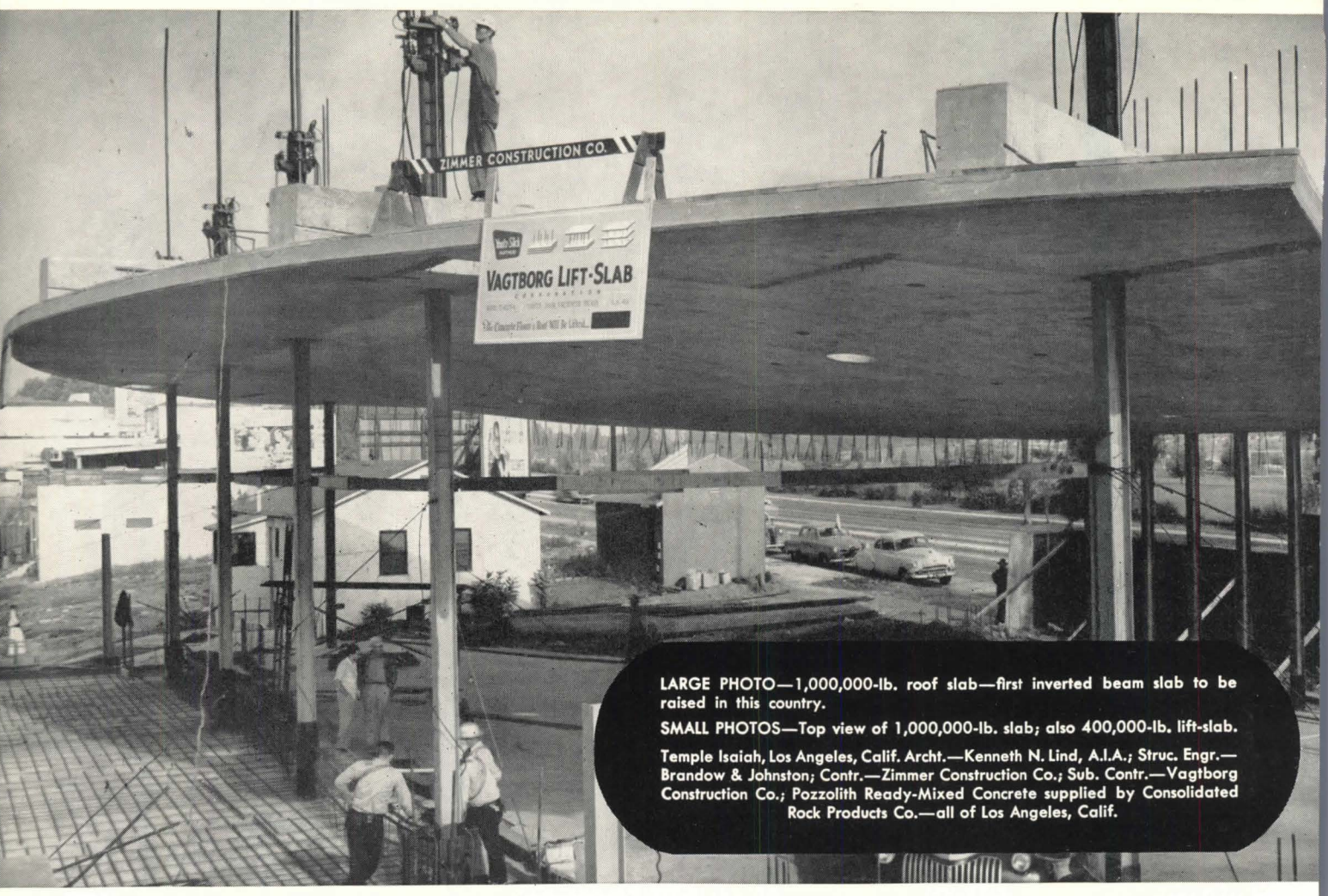
human welfare

hot-climate house

4

april 1953

largest architectural circulation in the world



LARGE PHOTO—1,000,000-lb. roof slab—first inverted beam slab to be raised in this country.

SMALL PHOTOS—Top view of 1,000,000-lb. slab; also 400,000-lb. lift-slab.

Temple Isaiah, Los Angeles, Calif. Archt.—Kenneth N. Lind, A.I.A.; Struc. Engr.—Brandow & Johnston; Contr.—Zimmer Construction Co.; Sub. Contr.—Vagtborg Construction Co.; Pozzolith Ready-Mixed Concrete supplied by Consolidated Rock Products Co.—all of Los Angeles, Calif.

First Inverted Beam Lift-Slabs Are POZZOLITH CONCRETE

IN a letter about this job, Zimmer Construction Co., the contractor, said—"With the use of Pozzolith in our concrete we were able to . . . pour both slab and beams together with 3½" slump, yet were able to maintain the necessary workability so necessary in this type of pour without excessive vibrating.

"Further, with the use of Pozzolith we obtained a seven day test of 3,200 pounds and a twenty-eight day test of 4,600 pounds, allowing us to raise these slabs in seven days instead of the usual fourteen day delay."

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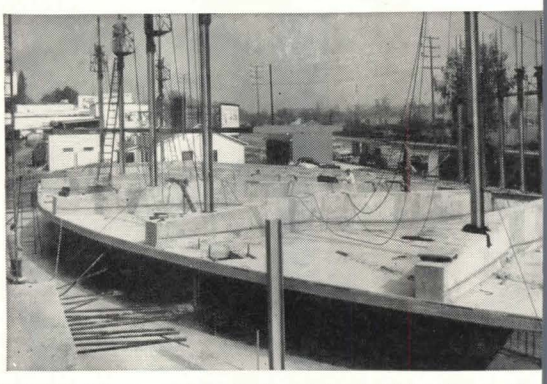
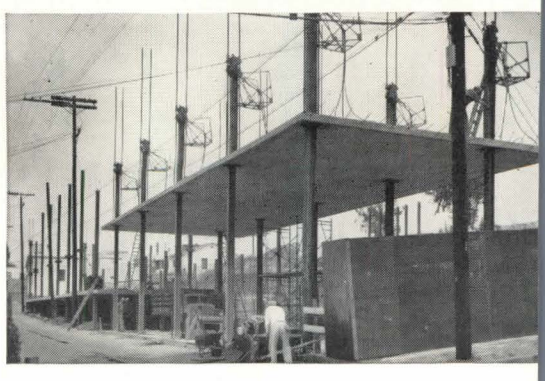
Investigate the advantages of Pozzolith for your next job . . . it will enable you to obtain the required qualities *at lower cost than by any other means*. "See-for-yourself" Pozzolith demonstration kit supplied on request . . . without cost or obligation.





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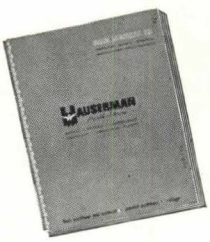

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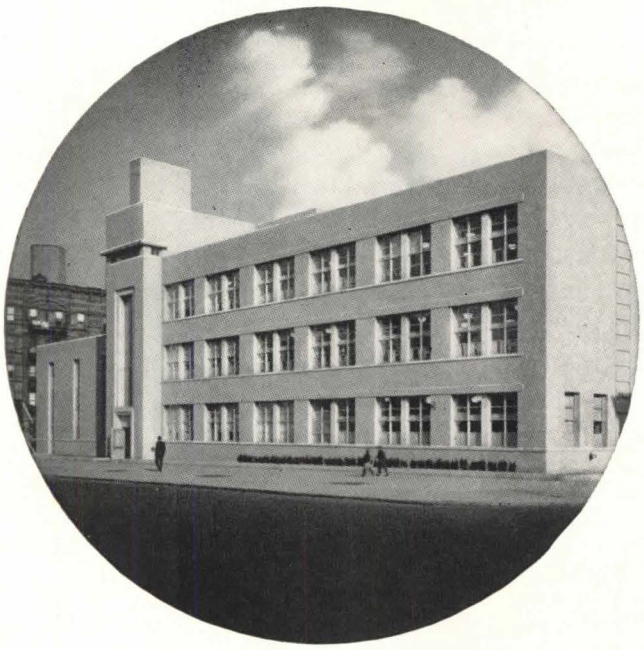

any school...

cut maintenance too!

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Those two questions are keys to better buying and here Ceco-Sterling Aluminum Double-Hung Windows win on both counts. Made of ageless aluminum, they give rugged life-time service . . . will outlast any school . . . won't rust, rot, warp, or swell . . . provide the tightest weather seal ever.

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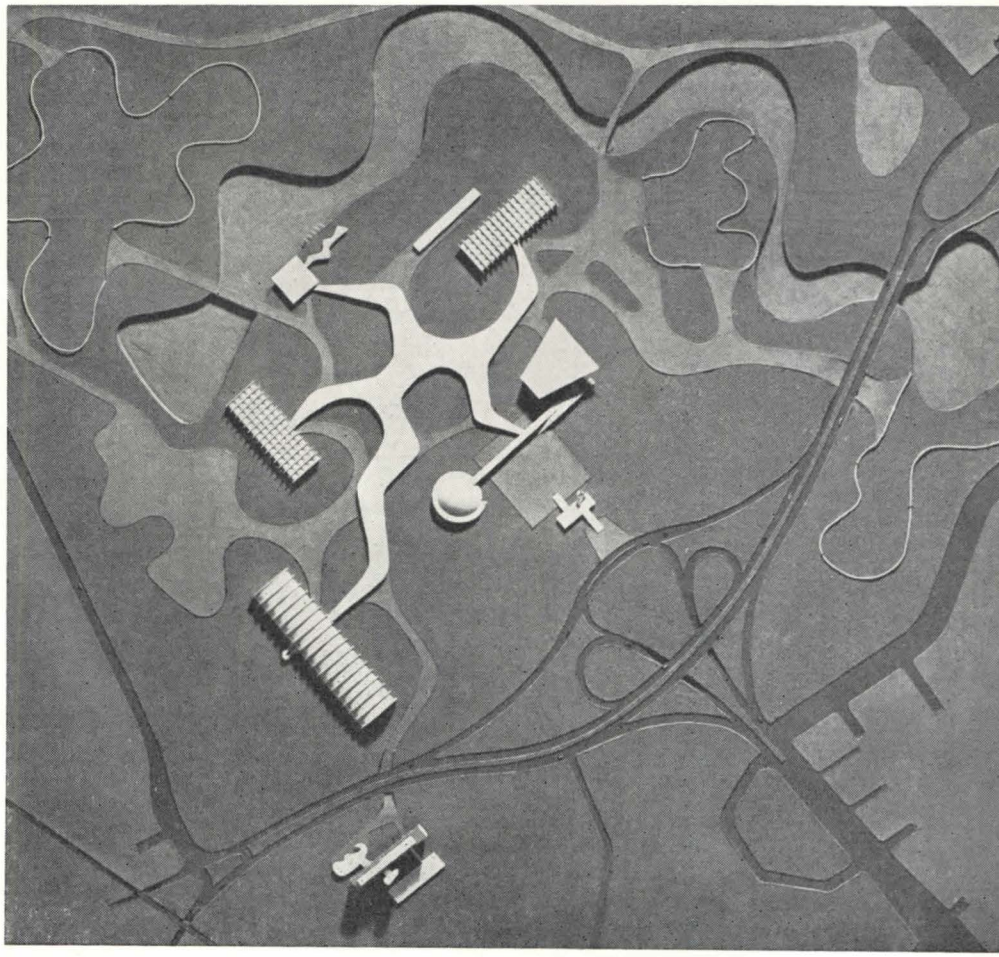
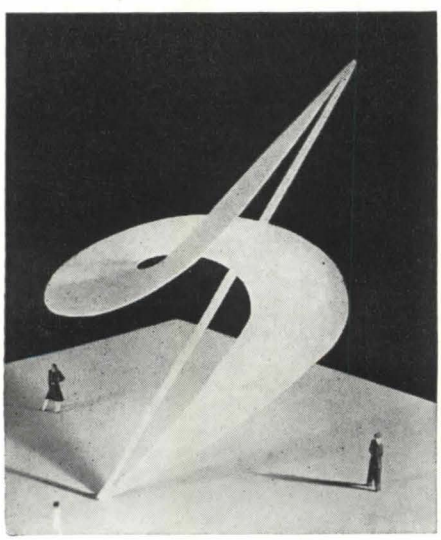
Design skills and structural daring of a panel of Brazilian architects—Oscar Neimeyer, Helio Uchoa Cavalcanti, Zenon Lotufo, Eduardo Kneese de Mello, with Gauss Estelita and Carlos Lemos collaborating—have been enlisted in the creation of exposition buildings for the approaching Fourth Centennial of São Paulo, Brazil. The large site *(right)* is being developed to serve, after the Exposition has concluded, as a park for the city. Certain of the structures, therefore, are intended as permanent buildings while others suggest the more ebullient character of display and playtime architecture.

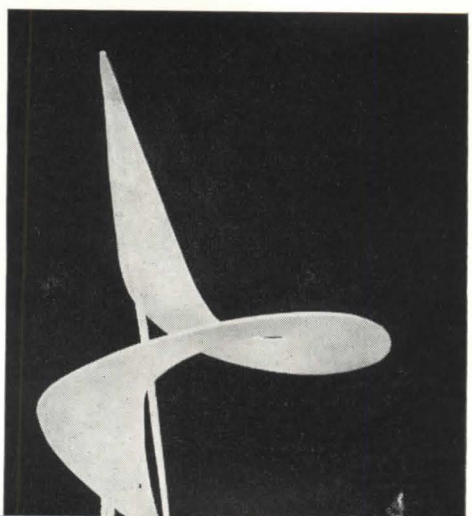
Circulation was a primary consideration of the site planners, so that Exposition visitors will be able to go directly to points that interest them. The shapes and external treatment of the buildings, reminiscent of contemporary industrial forms, are intended by the panel of architects to suggest the complexity of modern society served by architecture originating in harmonious stimuli.

Thus the Centennial Commission has found in the designs of the architectural panel "the perfect manifestation, the ideal language to communicate" the importance of São Paulo's technical and industrial development during four centuries.

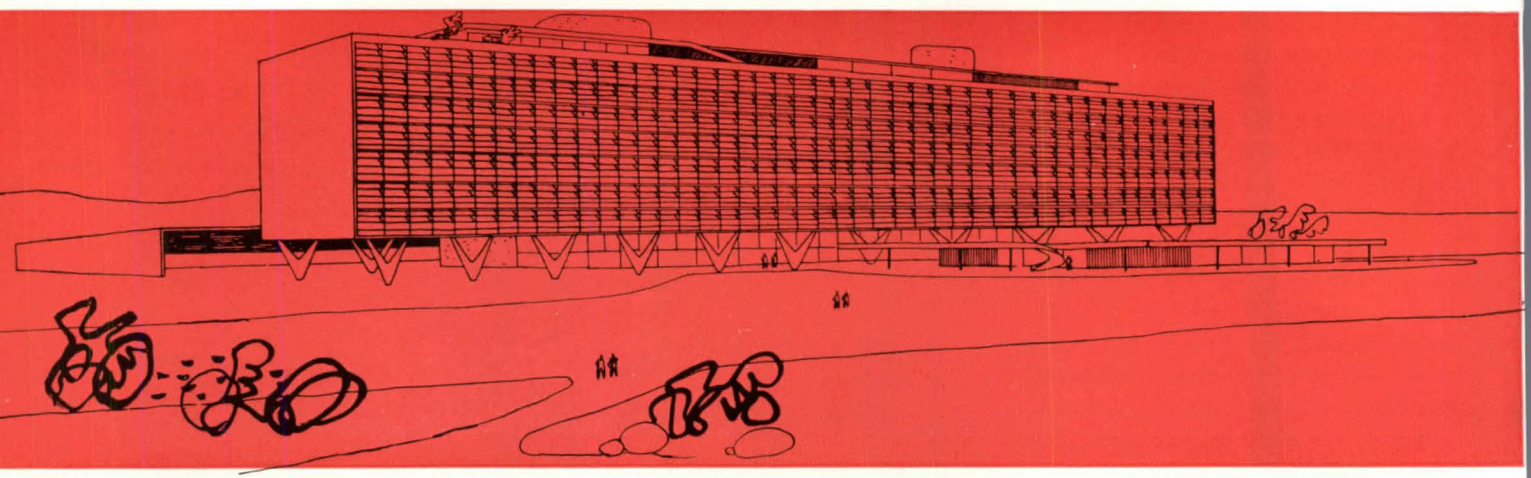


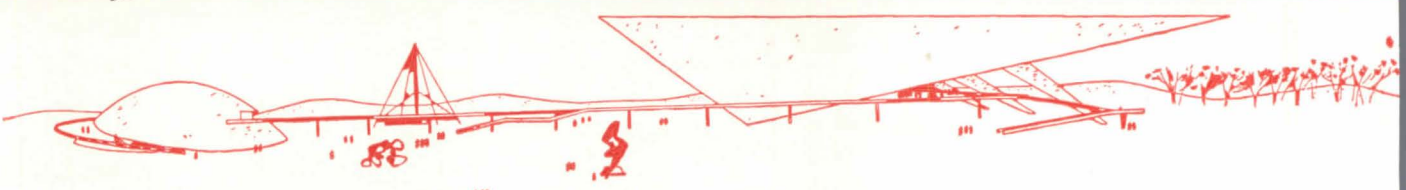
exposition buildings exemplifying technical advance



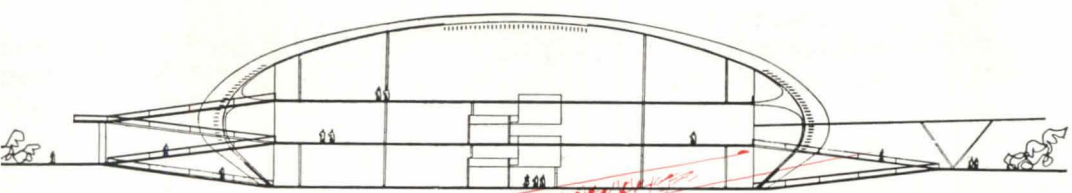


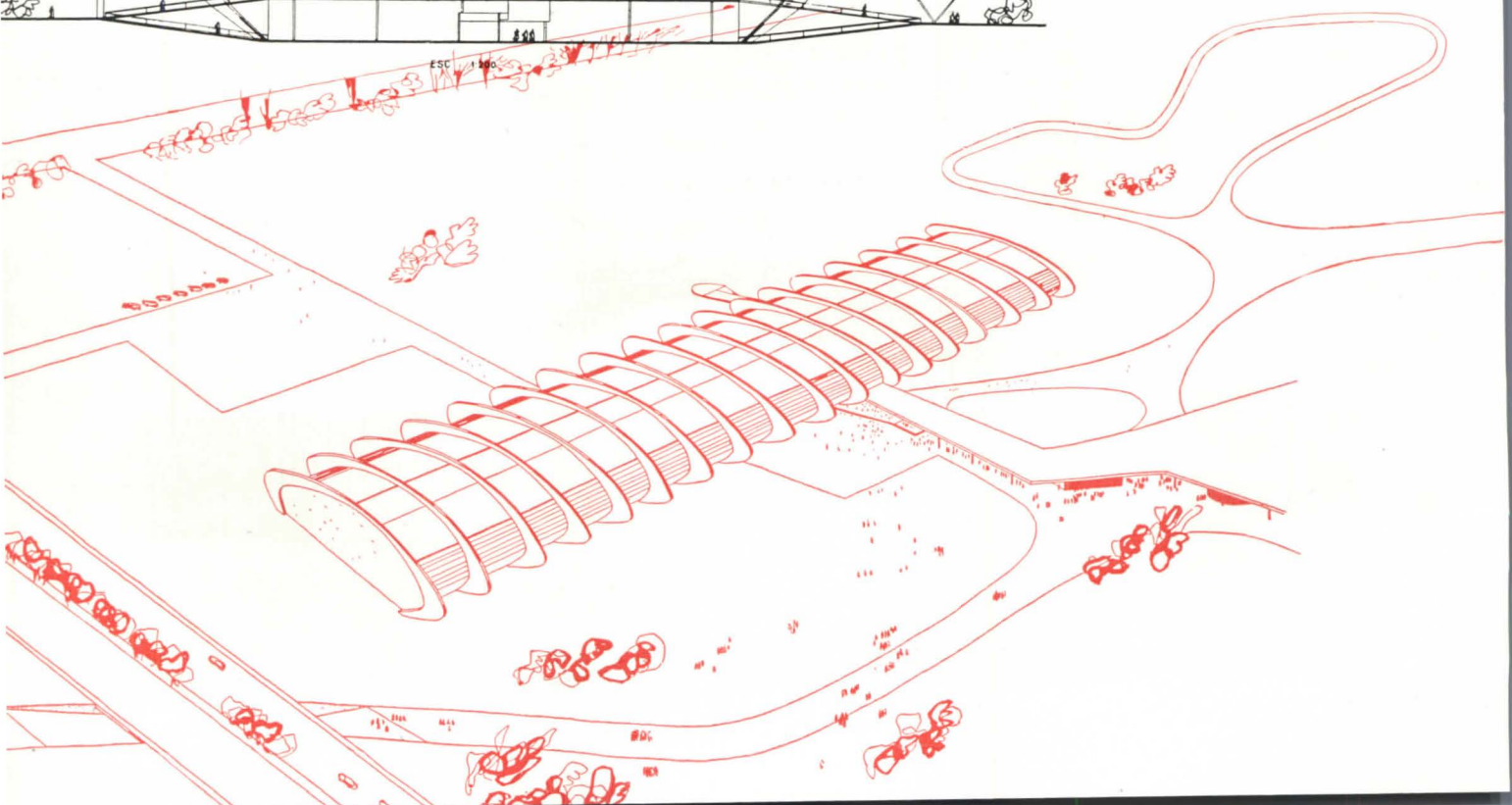
Two views of a model of a monument to the spiraling importance of São Paulo, intended to adorn the public park that will remain after the Fourth Centennial Exposition.





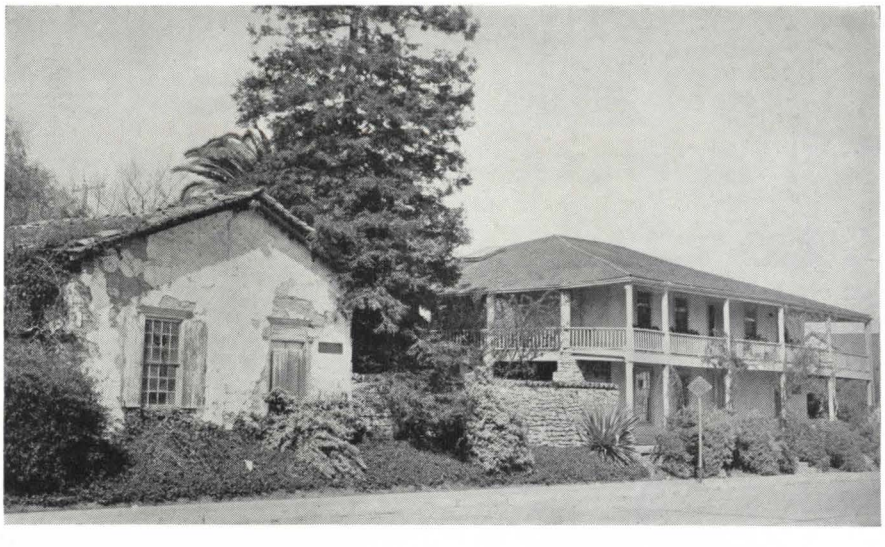
Expressive of the talented architects who are designing the São Paulo Exposition structures are these sketches of the Agricultural Building (top), *Planetarium and adjacent Auditorium* (above), *the projected Industrial Museum* (below), *and the Industrial Building* (bottom of page).





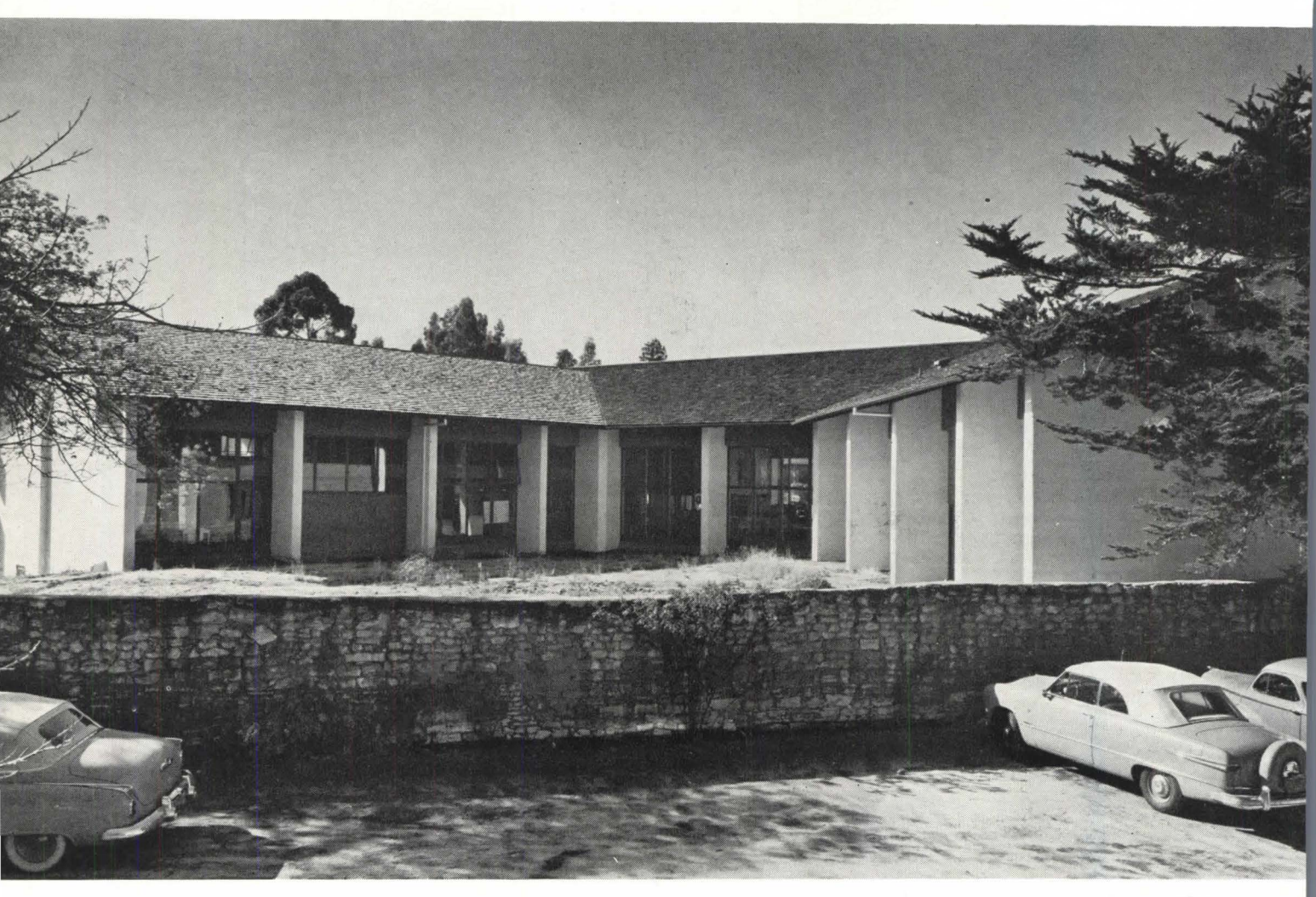
public library

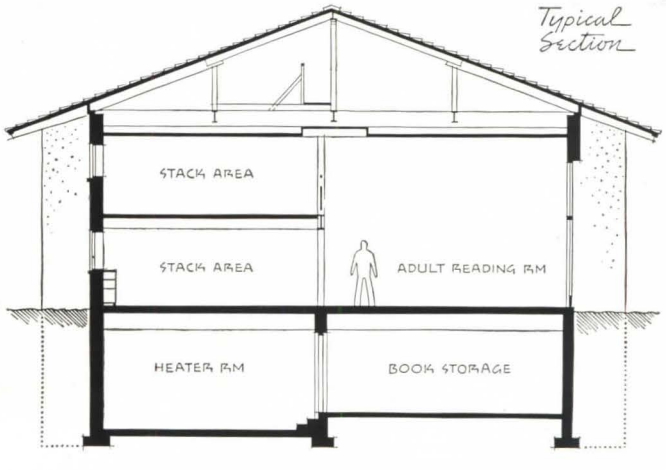
location	Monterey, California
architects	Wurster, Bernardi & Emmons
structural engineer	A. V. Saph, Jr.
mechanical-electrical engineer	James Gayner
general contractor	Harold Geyer



Built on an odd-shaped site, the new library is planned for future expansion; stub ends of concrete frame at rear of building (above) *are for tying in construction. Contemporary in concept and plan, it was sensitively designed to fit in naturally among the city's rich historical treasures. The old Sherman headquarters and Larkin house* (R. A. Parker view at right) ***are*** *but one block away.* Photos: Roger Sturtevant

public library

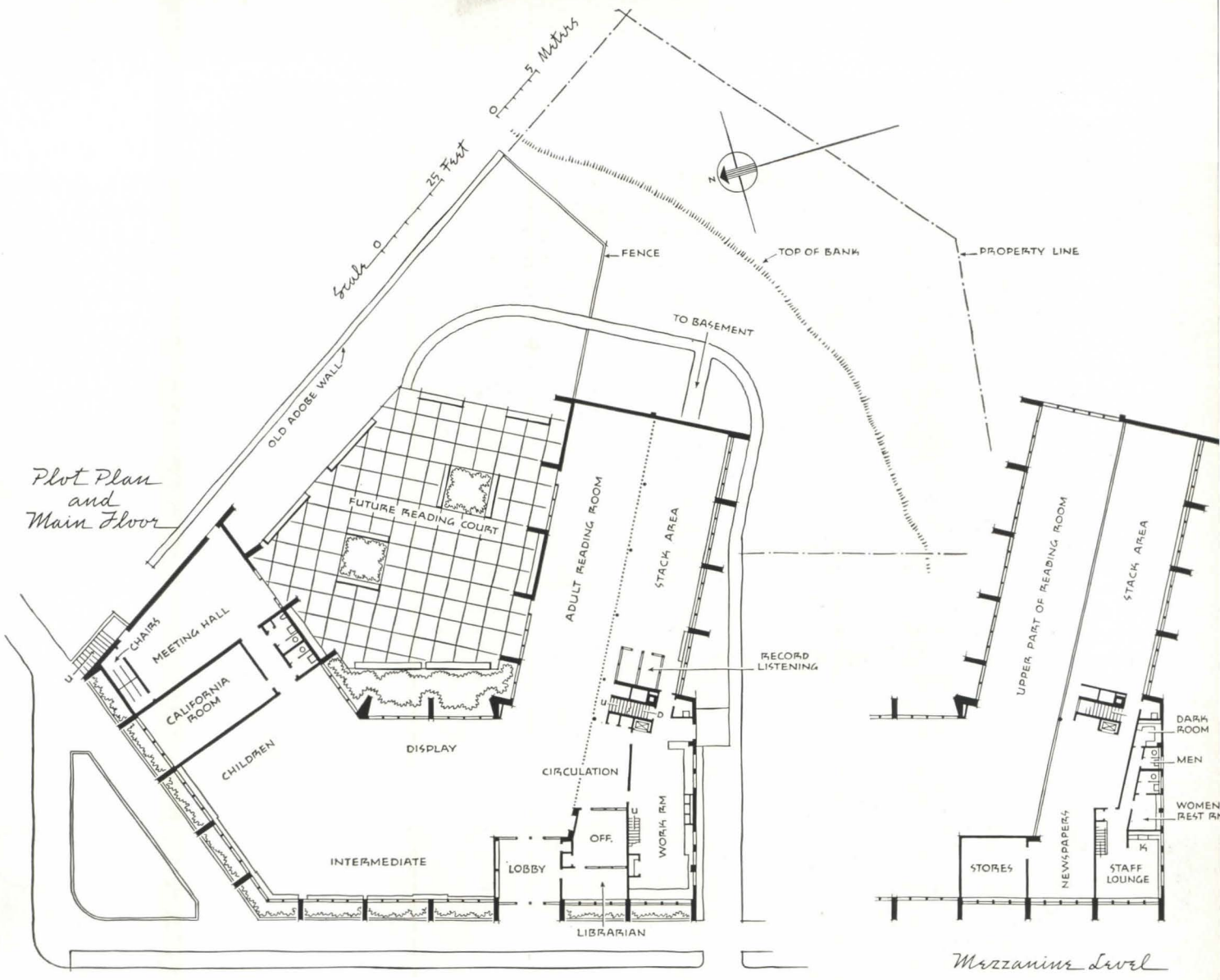


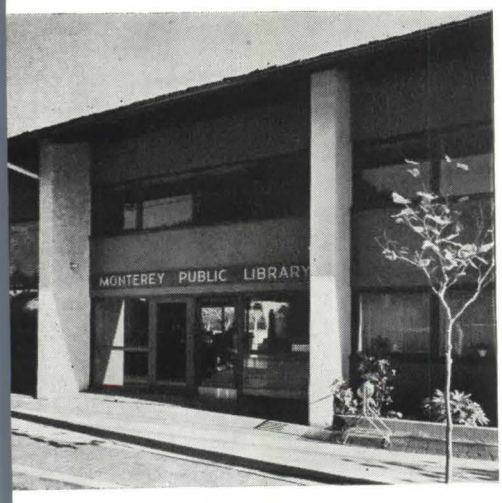


The irregular polygonal site, immediately next to one of the city's finest old houses (to the northeast), occurs at an intersection diagonally across from the main city plaza and city hall. Later, the Library Board hopes to acquire the re-entrant property on the south (at present, a soft-drink bottling plant) for future expansion. Taking advantage of the site, the architects placed the children's room in one arm of the plan, the adult reading room and stacks in the other, with central supervision over-all. Eventually, as the plot plan shows, a landscaped reading court will be developed at the rear of the building, with the old adobe wall bordering the historic neighboring property serving as its outer boundary (*large photo above*).

For the success of the project and its generous provisions—an historical room, a small meeting hall for both library and public use, music-listening booths, etc.—the architects ask that much credit be accorded to the late Delbert R. Jeffers, who was Librarian during the planning stage.

Commenting on the structural system, from which the building's esthetic qualities





As the photographs indicate, the outdoor reading court is as yet undeveloped. The exposed concrete buttresses along the two streetfronts (left and below) *effectively shield the large glass areas. A partial basement occurs under the adult reading-room wing and contains heater room and storage space. The plan shows a future additional bay and window at the end of the wing.*

directly derive, they say: "In order to achieve the feeling of the heavy Monterey-type walls and still bring in all the light needed for functional working, a scheme of concrete buttresses was adopted. To keep the spaces open and flexible, steel beams were embedded at the top, and the roof structure was built up from there. This system is highly adaptable to expansion."

public library

As mentioned previously, the structure combines concrete-pier framing and steel for the roof frame or wherever else (as in the mezzanine stack area) wide unobstructed spans were desired. The roofing is of wood shakes—a bow to Monterey tradition. Inside, floors are generally of rubber tile, though some areas (meeting hall, work room, etc.) are simply waxed, integrally colored concrete; asphalt tile over wood planking is the mezzanine flooring.

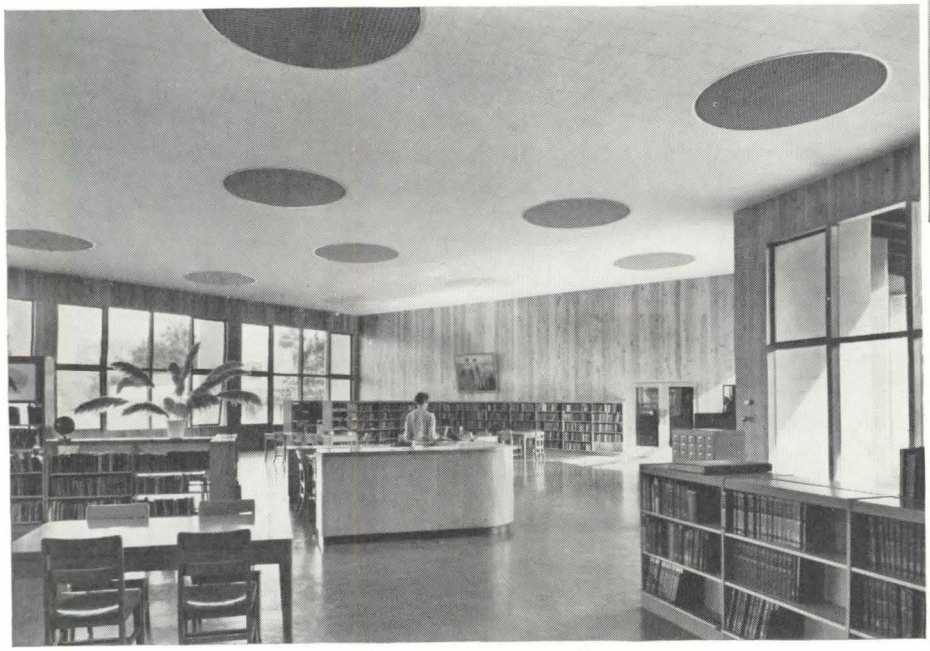
Interior walls are surfaced with cedar boarding, and ceilings of all public rooms are of perforated acoustic tile. While a variety of artificial light fixtures is used in the smaller rooms, lighting of main rooms comes from a series of 6-ft diameter, round ceiling recesses filled with continuous fluorescent strips and screened with louvers. The stack lighting is also fluorescent, while incandescent units of several types are used in minor rooms.

For sound control, many walls have a sound-insulating blanket between double studding, and the music-listening booths have a special combination of acoustic-tile ceilings, solid fiberboard wall insulation and sound-blanket insulation. Wood sash is used throughout, with 3/16 in. sheet glazing. The major heating derives from a floor-panel system, using wrought-iron piping, but for the mezzanine and main individual rooms, a down-diffusion heating and ventilating system is used, to prevent overheating. A few small rooms on the mezzanine have baseboard convectors.

Public reactions to the new library have been varied, Librarian Ethel M. Solliday tells us, "ranging from whole-hearted approval to mild disapproval. Some people feel the building is 'too extreme' or 'raw' because of the natural-wood walls and exposed-steel beams. One of the most frequent comments has been that 'it doesn't look like a library,' usually accompanied by an expression of approval. Generally speaking, people like the lightness achieved by the natural-wood walls, the high ceiling, numerous windows, and feeling of spaciousness. The exposed-steel beams have excited the most comment, and again most people have reacted favorably, although some have made suggestions for covering the long beam with murals, carved wood panels, etc.! Staff reaction is, of course, favorable. After many years of working in crowded drafty quarters, we are especially appreciative of the adequate work areas and the uniform temperature provided by the radiant floor heat."

The warm tones of the cedar-board walls and neutral, tan-gray of the rubber-tile flooring set the muted color scheme of the interior. As a foil, the major steel beams are painted bright tile-red, while cross-beams under the mezzanine (right) *are bright blue. Acoustic-tile ceiling is off-white.*

(SELECTED DETAIL, mezzanine railing, page 143)



public library

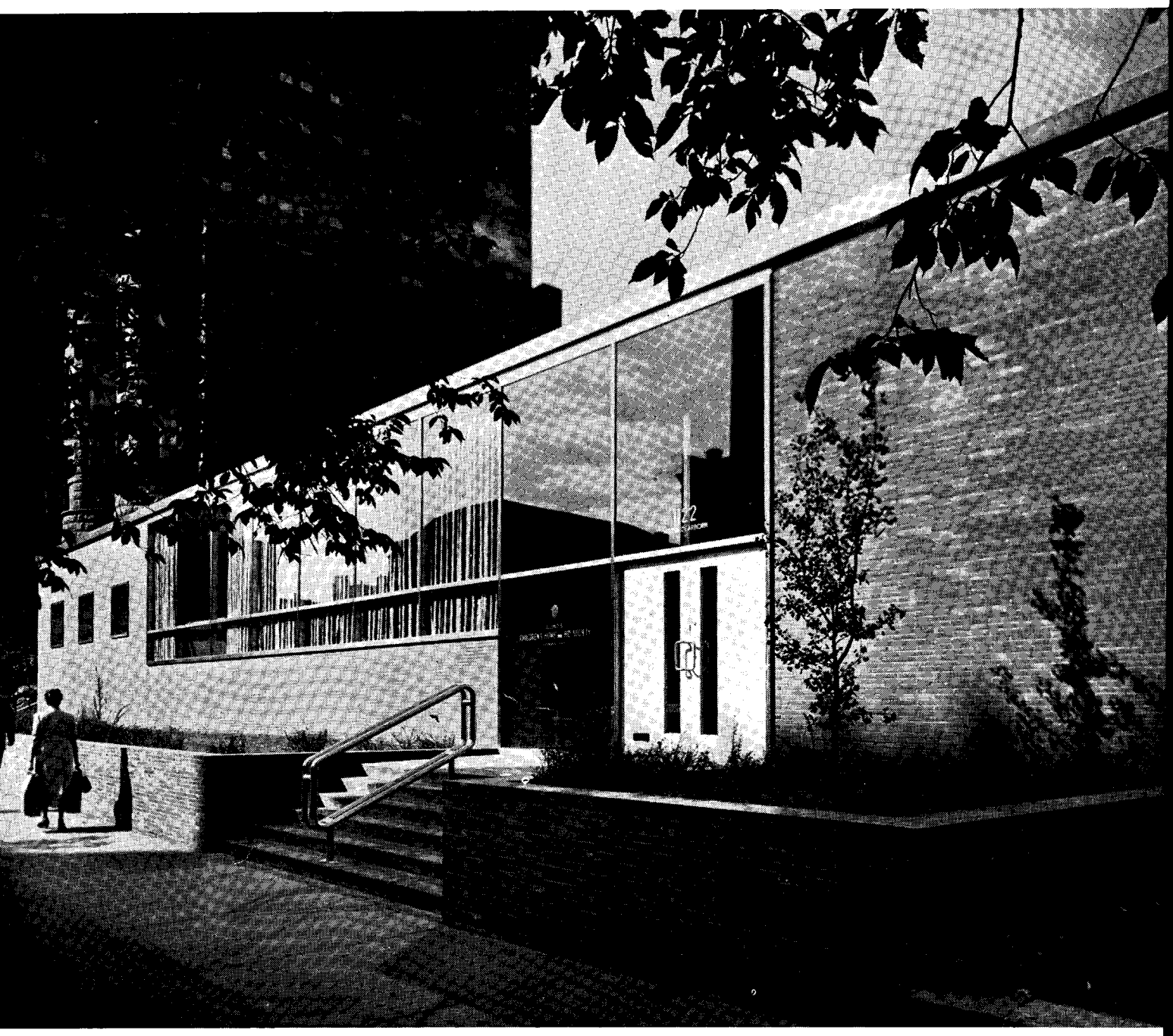
The small meeting hall (top) *has glazed doors opening to the future reading court; the room serves various local groups as well as library needs. The Librarian's office* (bottom) *is separated from the entrance lobby by an outer office, the obscured-glass wall of which appears at left.*

planning for human welfare

The architect can make no pretense of taking the place of the doctor, surgeon, psychiatrist, or social worker in coping with personal misfortunes and disabilities. Yet, as even the few buildings on following pages clearly demonstrate, architecture often can and does soften the blow of the misfortune, makes it easier to bear, and even specifically furthers essential therapy or procedures. Most persons have no remote conception of how many there are in this country who must endure physical disability, lack home care, or are otherwise in need of outside assistance. If architecture provides only its modest share of help, it will be a surprisingly large contribution. In a stunning report prepared for this issue by Irwin Luckman, designer of the house for a paraplegic veteran (p. 89), it is estimated that "there are about 25,000,000 disabled persons in the nation, of whom about 5,000,000 are severely and permanently handicapped." No exact figures exist, but these incredible totals are averages derived from recent, official estimates.

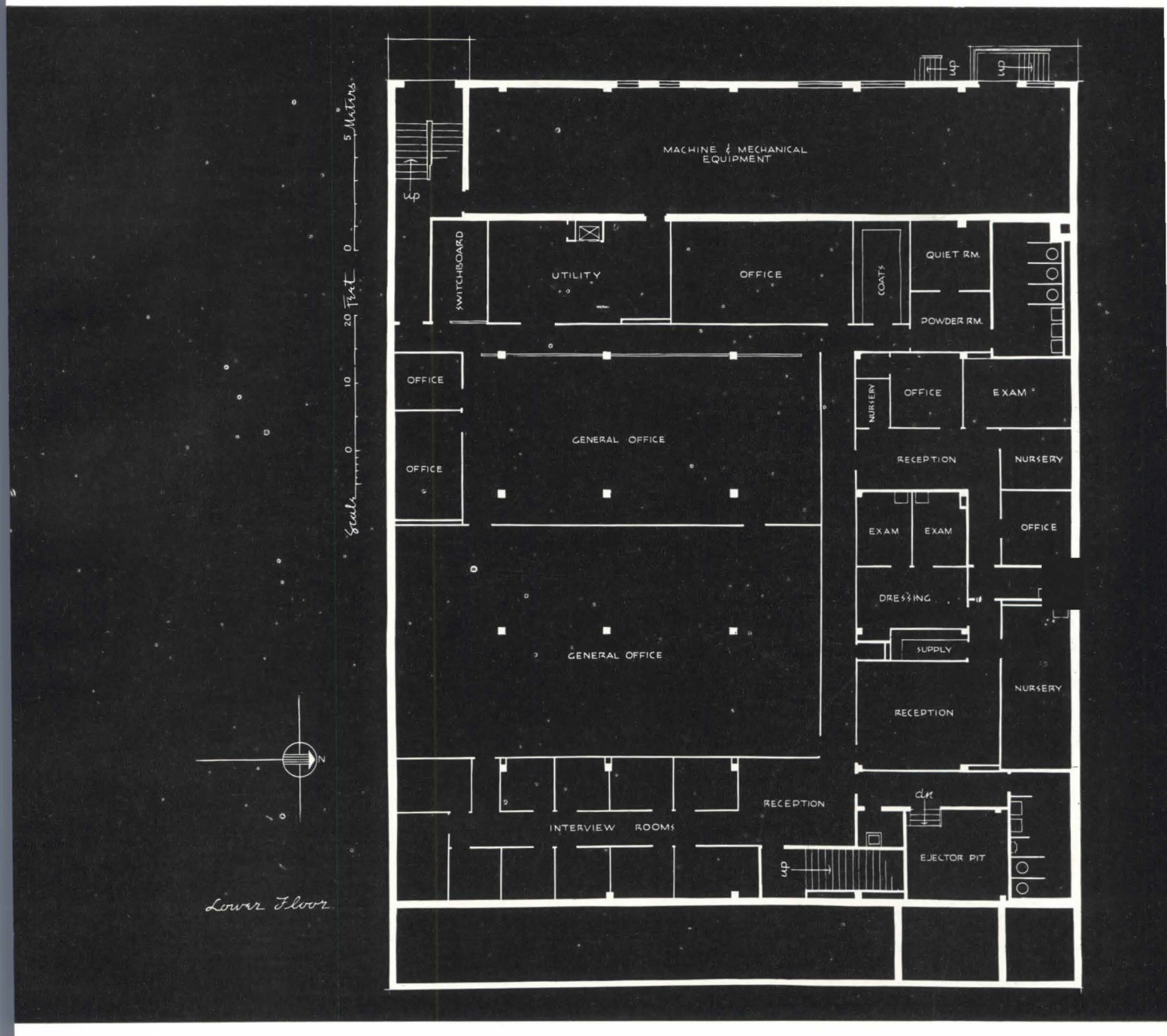
In approaching the design of a building for the handicapped, Luckman recommends that the architect "seek out and exploit those abilities the person still possesses. He may learn—and be able to show the disabled person—that common acts assumed to be done in only one way, can be performed through the substitution of other faculties." Discussing in particular an individual with orthopedic impairment, Luckman further suggests that the architect "should not be content to design for the abnormal requirements of the wheelchair or other prosthetic device, but must design instead for the abnormal requirements of the *person*. He should seek wherever possible to make the prosthetic device unnecessary. His goals should be: maximum performance; maximum therapy; maximum pleasure." Obstacles to success include "the limitation of the disablement itself" and "the disabled person who specifies that he does not want any special features that might look unusual and point up the abnormality." Such problems—and the families involved are frequently the ones to introduce them —"may be modified if the architect can make it apparent that only an unorthodox solution to the unorthodox requirements can radically improve ability to perform." Financial lack will very often be the stumbling block to thwart the wish and possibility of working out a helpful solution, Luckman also points out. His discussion specifically concerns the design of a private house for a particular person with a special and definable disability. A parallel though somewhat different problem is the design of the institution or group-use structure where persons with a common difficulty, but with widely varying degrees of deficiency, are to be accommodated. Here no such precise solution can be worked out as is possible for an individual. But workable compromises can be developed.

In this study, we show buildings for the use of welfare agencies; an infirmary for orphaned children; a school and home for deviate youth; a training and recreational building for the blind; a dormitory for deaf children; and, in addition, Luckman's remarkable proposal for a house for a paraplegic.



client	Children's Home and Aid Society
location	Chicago, Illinois
architects-engineers	Skidmore, Owings & Merrill
general contractor	R. C. Wieboldt Company

Headquarters for one of the oldest and largest privately supported, nonsectarian child-welfare agencies in the country (caring for some 1,800 children annually), this building also houses offices for casework interviews and medical and psychiatric clinics for examination and—if needed—treatment. The agency does not provide resident facilities; rather, it conducts an outpatient service that works to improve existing home conditions or find good new homes for underprivileged or homeless children. In designing the building, which won a 1952

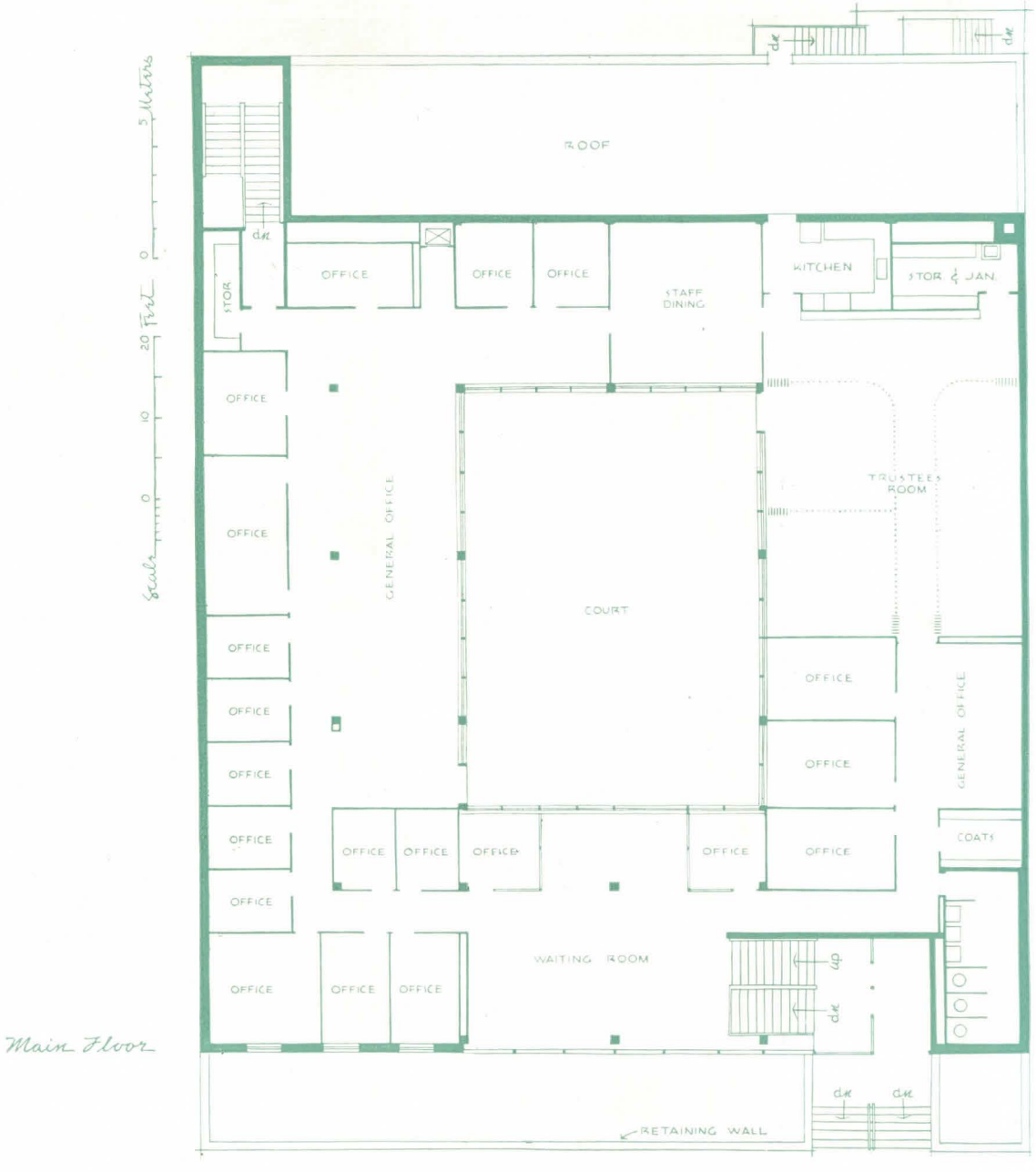


Honor Award from the Chicago Chapter, A.I.A., the architects consciously strove to develop a character that would be friendly, nonimposing, and noninstitutional.

The plan is organized on two floors, with the building entrance at an intermediate level. This depression of the lower floor assists in giving the structure its long, low, quasi-residential appearance. On the lower level, in addition to mechanical and utility rooms, there is general office space, the interview suite, and the medical and psychiatric clinics. The upper level, built around a central brick-paved court, includes main waiting room, administrative offices, general offices, a trustees' room, and staff-dining facilities.

A reinforced-concrete skeleton structure, the building has long-span roof panels poured of lightweight concrete, with glass fiber used as insulation. Exterior walls are of long, narrow Roman brick; floor-to-roof areas of glass occur both around the courtyard and at the main entrance (SELECTED DETAIL, *p. 141*). Plaster is the main interior wall finish, but to create a spacious feeling, obscured glass is used in places where noise control or privacy were not prime considerations. Throughout the building, ceilings have an acoustical-plaster finish, and in the clinics, the walls also are acoustically treated. At the entrance and on stairs, terrazzo is the flooring; asphalt tile is used elsewhere. Trim and stair rails are stainless steel. Light units are both fluorescent and incandescent. The heating system is forced air, so installed that air conditioning may be added later.

Photo: Torkel Korling

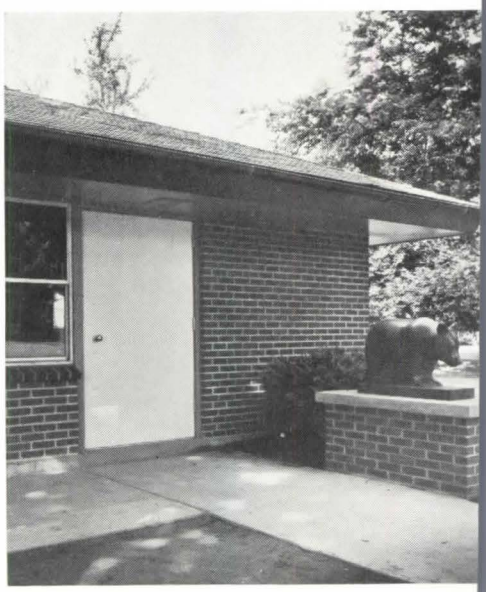


Main Floor

In the trustees' room (left), *folding leatherette partitions permit division into three smaller meeting rooms. The waiting room* (acrosspage) *is 11 steps up from the entrance lobby. On the rear wall, a windowed niche looks out on the courtyard.*

Photos: Hedrich-Blessing
Vories Fisher

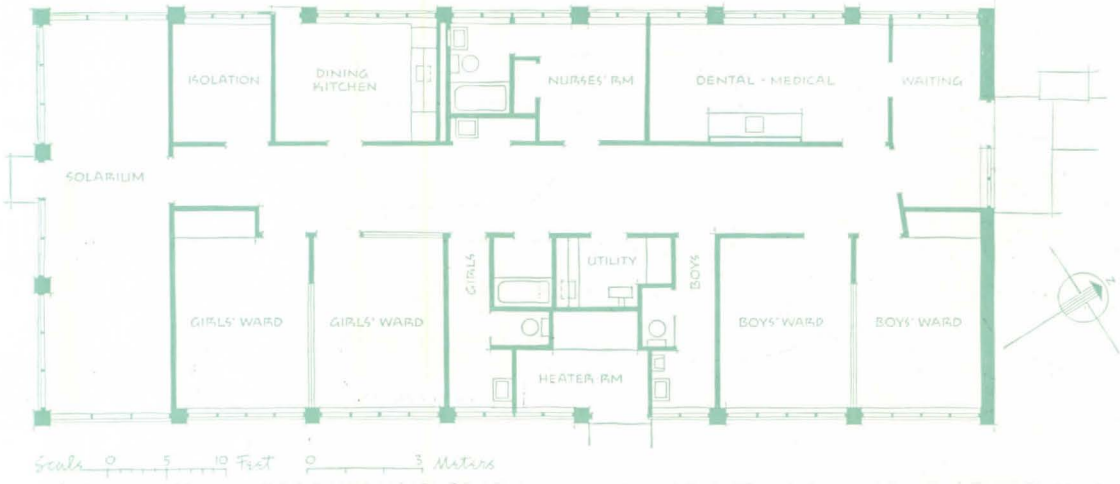
infirmary

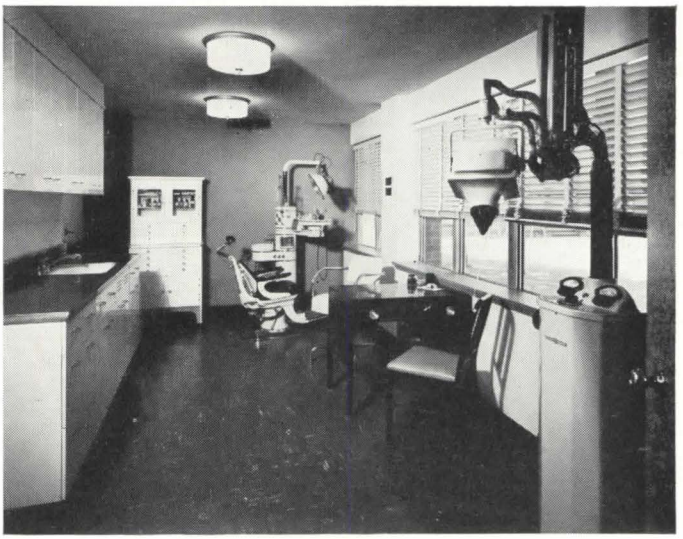


client	Baptist Orphanage
location	Philadelphia, Pennsylvania
architects	Carroll, Grisdale & Van Alen
structural engineer	William R. Sauter
mechanical-electrical engineer	A. Ernest D'Ambly
general contractor	R. M. Shoemaker Co., Inc.

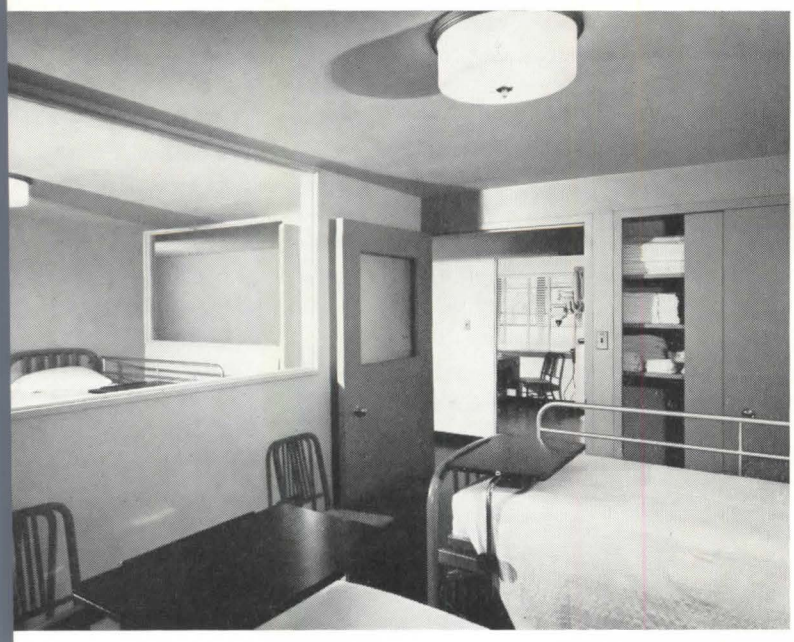
This child-scaled little building was designed to provide care for children with routine illnesses, temporary quarters for the seriously ill awaiting transfer to a hospital, a medical-examination department, and a dental-treatment facility. Built on a concrete slab at grade, in a quiet section of the orphanage campus, the structure is framed with fireproofed-steel columns. Walls are brick; roof trusses, wood; roofing, slate. Entrance to the building is from the northeast, and ambulatory patients coming for examination or dental work never enter the infirmary portion. Patients' rooms are to the southeast or southwest, and a solarium (which can be used as additional bed space if needed) is across the southwest end. Corridor walls of patients' rooms have observation windows.

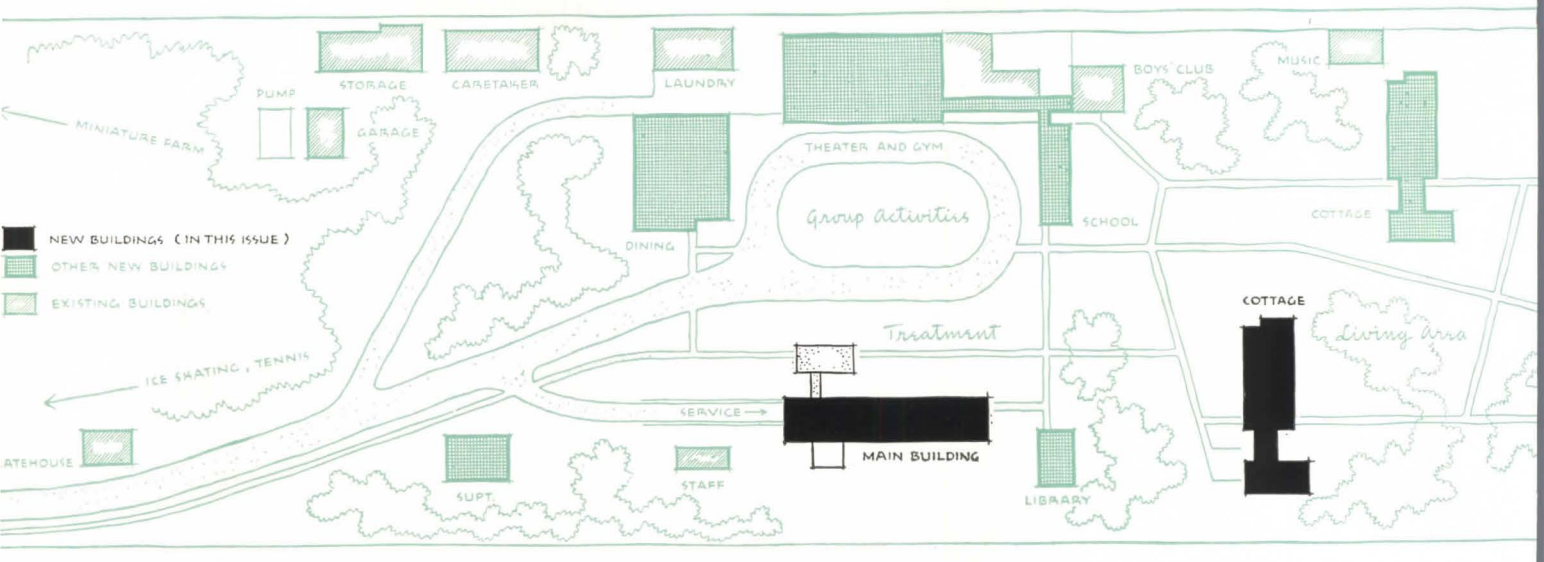
Minimum maintenance was a major program requirement. Hence, sash are aluminum; the soffit of the roof overhang consists of asbestos-cement panels screwed to the wood-roof trusses; downspouts and gutters are copper; and exterior doors are heavy wood, painted (the only exterior surfaces that require maintenance every two or three years). Asphalt tile is used for floors, and a rubber cove and base occur in every room except bath and utility rooms, which have tile floors and walls. Interior walls generally are of painted plaster. Hot water is the heat source, serving a radiant floor-slab system—a feature the staff finds particularly good in working with young children.





The engaging bronze bear beside the front entrance to the building, the work of Cornelia Van Alen Chapin, was designed to temper somewhat a child's concern about having a tooth pulled or being given a shot. The medical-dental room (right) *is on the northwest wall, just beyond the waiting room. If conditions require, the solarium* (below, right) *becomes additional patients' bed space. Between the boys' wards* (below, left) *is a clear-glass panel similar to the viewing windows in corridor walls.* Photos: Cortlandt V. D. Hubbard





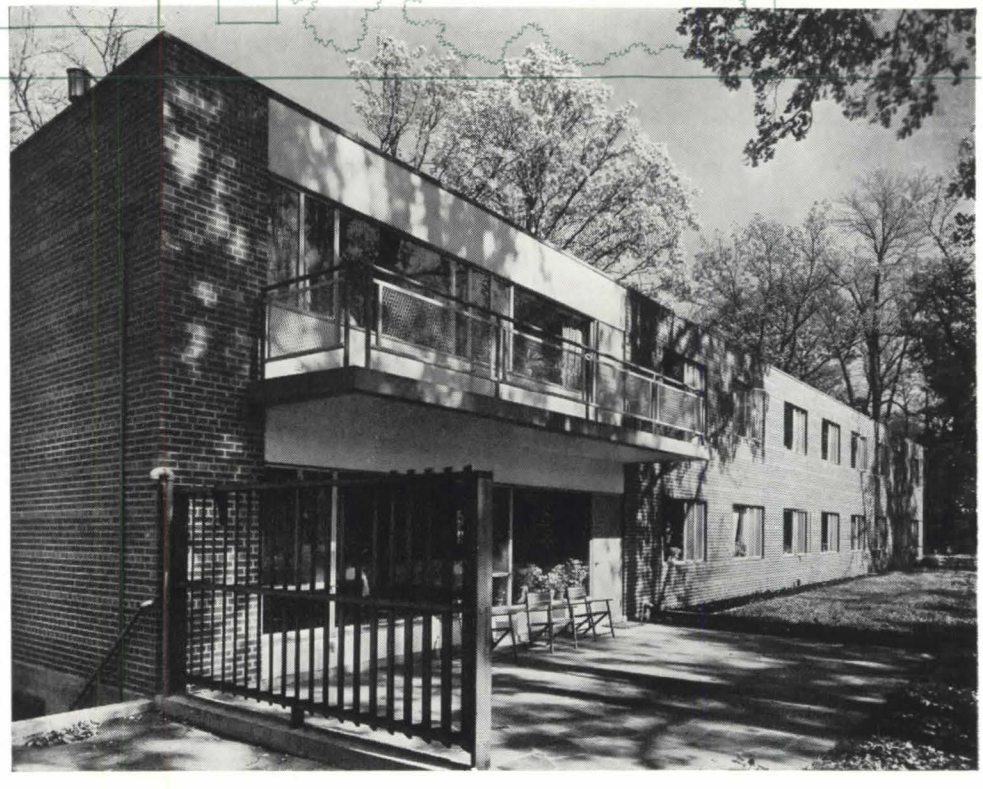
home, school, and camp

client	Arden Shore Association
location	Lake Bluff, Illinois
architects-engineers	Skidmore, Owings & Merrill
general contractor	R. C. Wieboldt Company

A home, school, and camp for deviate boys in the 9-to-17-year-old age group, this campus is licensed by the State of Illinois as a child-welfare agency. The facilities for living, training, and recreation accommodate 50 boys and a staff of 15. Built on a long, narrow, 16-acre wooded strip of land bordering Lake Michigan, approximately 40 miles north of Chicago, the group is currently made up of several old buildings (some of which will be removed later) and a few new buildings, two of which—the Main or Administration Building and a typical resident cottage—are shown here.

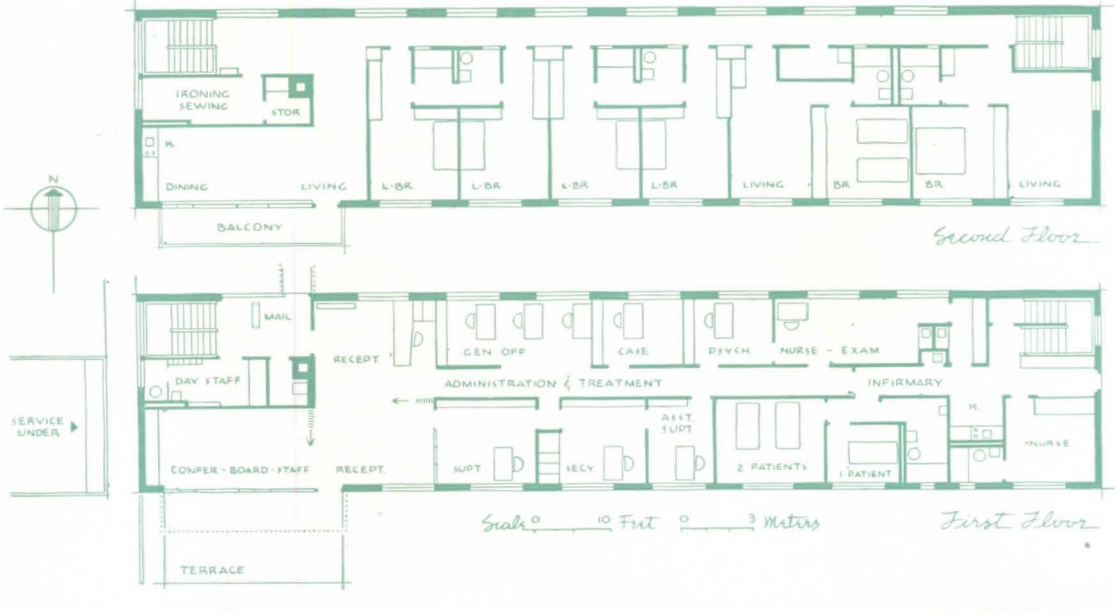
For the new buildings, the architects recommended construction of maintenance-free materials so far as possible, and a number of independent small buildings rather than one large institutional structure. On the ground floor of the Main Building shown on these two pages are a reception room, board- and staff-meeting room, and offices for superintendent and administrative staff. In the clinical area (also on the ground floor) are an examining room, space for visiting medical and psychiatric consultants, and a case worker's office. In addition, there is an infirmary with room for three patients and a private room and bath for the resident nurse. Upstairs are a suite for the superintendent; quarters for one married couple, and accommodation for four unmarried staff members, with a community living room and kitchenette at the southwest corner. A full basement contains the heating plant, general storage space, maintenance shops, and a temporary manual-training shop. The pavilion on the north facing the central green is the assembly point for students who take a bus to the local high school.

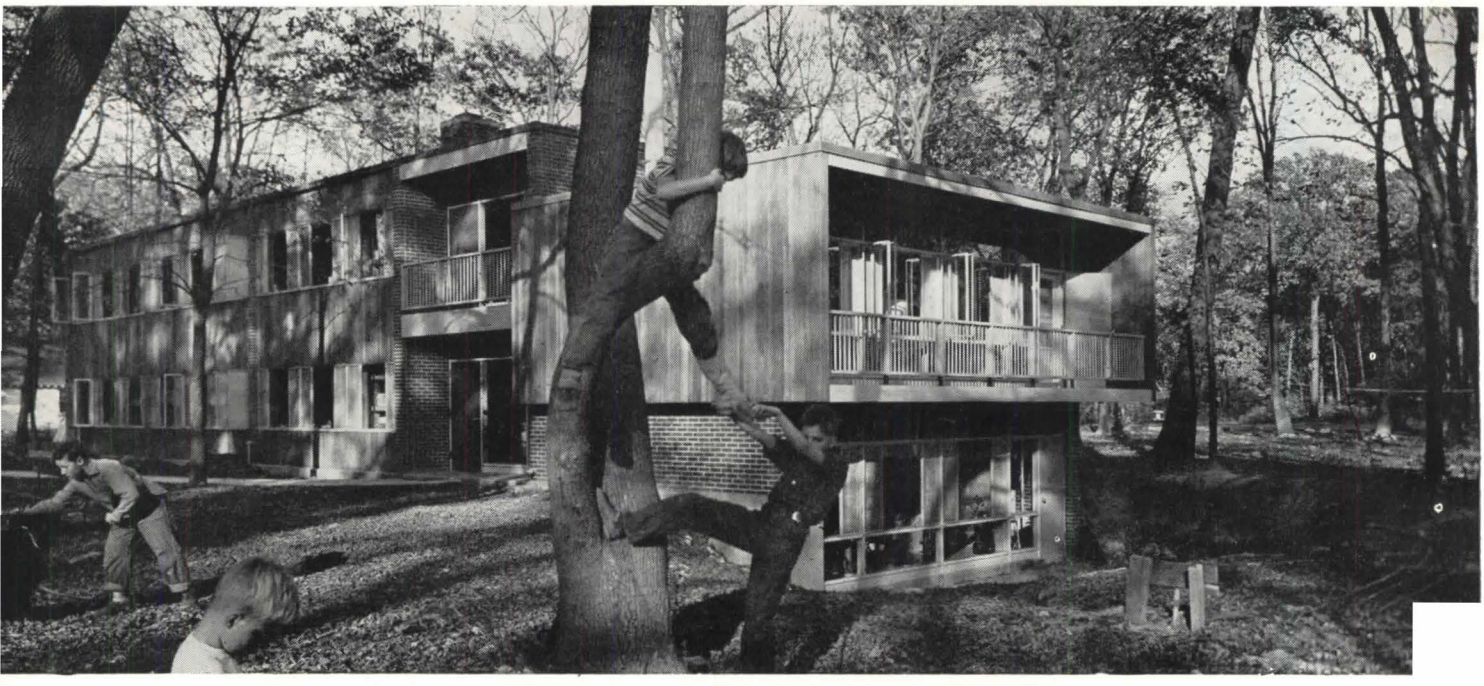
The building, constructed on a reinforced concrete foundation, has load-bearing masonry walls and concrete floor and roof slabs on open-web steel joists. Interior surfaces are concrete block or plaster; floorings are either asphalt tile or linoleum. The sash are aluminum, either fixed panels or casement units. At two-pipe steam-heating system is served from an oil-fired boiler.



General view of Main Building from the southwest; the balcony opens off the staff living-dining room. Placement of the buildings so far back from the lake-front saved much road-construction cost, minimized the snow removal problem, and in addition, makes "going to the beach" an occasion.

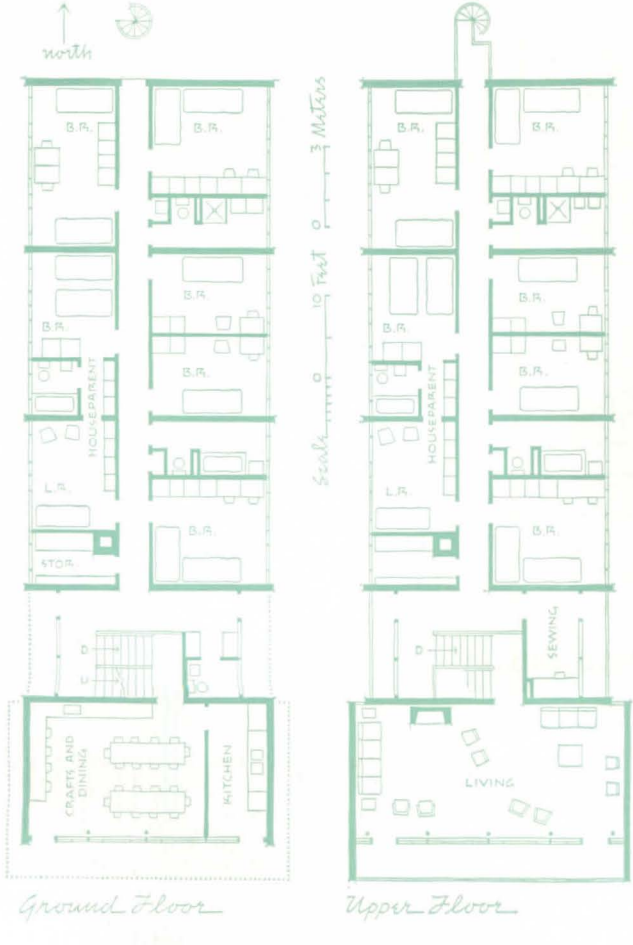
Photo: Torkel Korling





Each of the three housing units accommodates 16 boys, 8 (and a house parent) on each floor, in single or double bedrooms rather than dormitories. Equidistant from both floors is a living room for house meetings, games, and lounging, while beneath is a large crafts room, with a small kitchen that is used for snacks and Sunday suppers. The exterior fir siding is a facing for steel-stud spandrel walls between red-brick bearing walls.

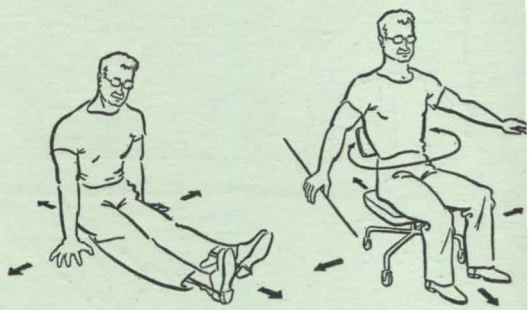
Exterior photos: Torkel Korling
Interiors: Fred R. Danster



planning for the handicapped

house for a paraplegic

The client's limited mobility included mechanical means (wheelchair; Canadian canes), with relatively little therapeutic value; and movement by hopping on hands across padded surfaces, or in an ordinary secretarial chair.



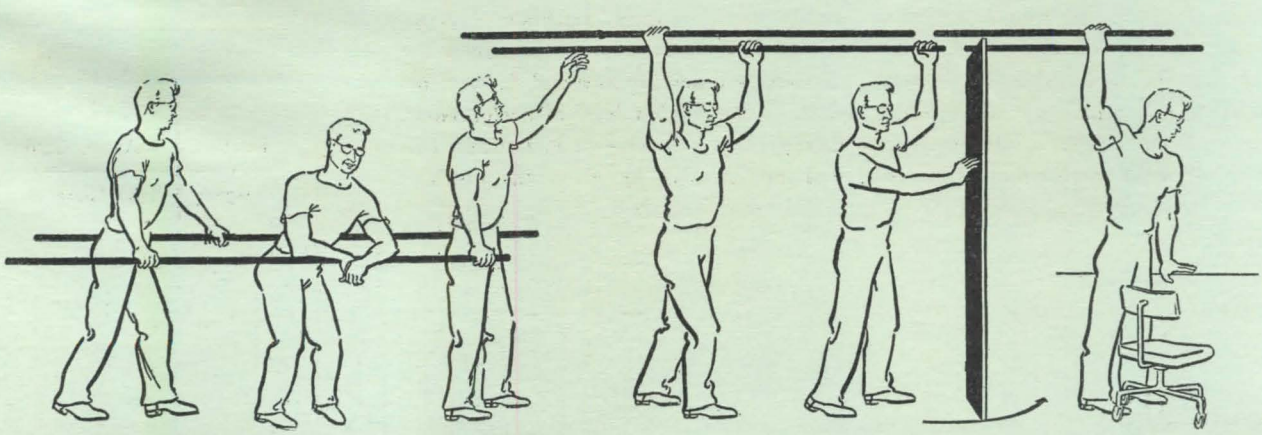
As outlined on page 79, the designer's approach to developing this house was to find ways to use the client's unimpaired abilities to provide maximum activity, maximum therapy, and maximum pleasure. When undergoing treatment at an institution, therapy is part of a routine; in the home, however, the individual must assume responsibility for continuing it. The usual dwelling rarely *invites* him to exercise; moreover its arrangement may even create physical barriers that stifle the motivation. So, this designer worked to see if he could create an environment in which ordinary, routine, and pleasant activities could be performed in such a way as *incidentally* to provide the necessary therapy.

This particular client was wounded in World War II leaving him with paraplegia, a spinal nerve injury that causes permanent lack of function and sensation in the lower extremities. He required regular exercise, and had excellent compensatory development of chest and arms as a result of therapy since his disability. Though he could use a wheelchair, which is comfortable and safe and even would be preferred when the man is tired or ill, the designer comments that "it is bulky, awkward to maneuver, and provides little therapy." The Canadian canes are less bulky and provide much freer movement, but "they are dangerous, require great effort, and since he must watch his feet, are extremely nerve-taxing and require poor posture"—however desirable and necessary they are for certain activities.

The fact of the man's delight in parallel-bar exercise, plus his unimpaired physical abilities, resulted in the ingenious design solution. The bars are stable, and the user is safe and at ease; he does not need to watch his feet; he can even relax on the bars when upright and go long distances without tiring. He can perform various exercises on them and feel a sense of accomplishment. Using only parallel bars, however, did not seem a feasible solution, since they would impede other people's movements about the house; there would be difficulty in transferring to chair or canes; and passage through doors seemed impossible.

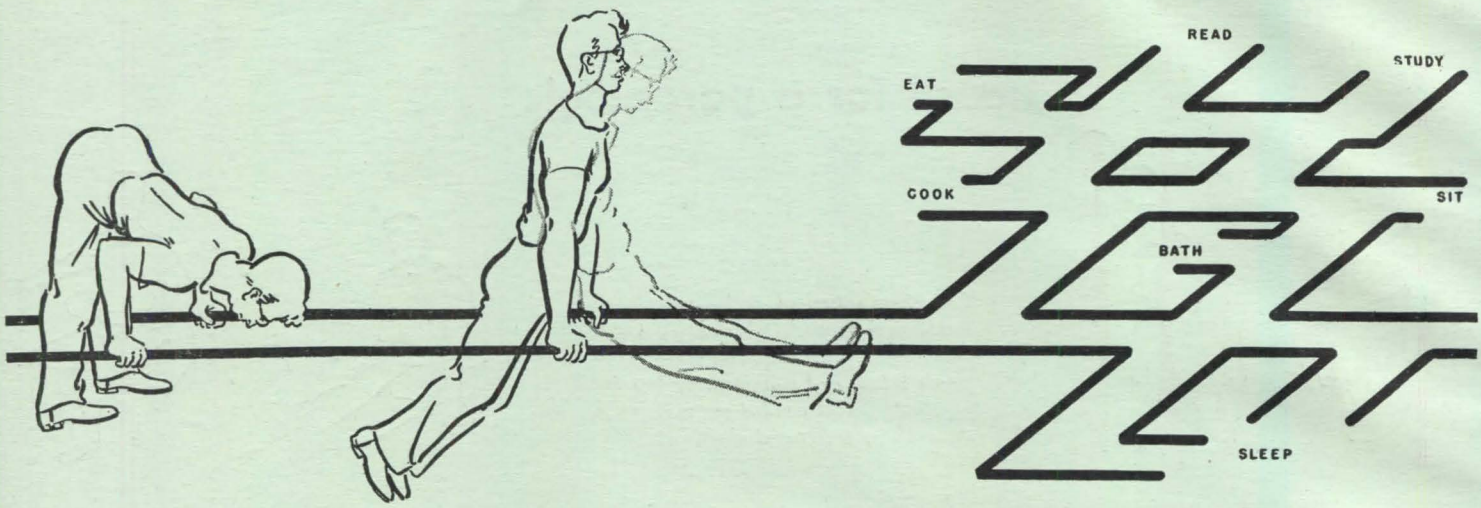
With a combination of parallel and overhead bars, however, the idea became more practicable. Where he would have to cross other circulation paths or pass through

He could also "walk" on parallel bars, providing excellent exercise, with gait and posture approximating normal. From this, plus the fact that he could easily switch from parallel to overhead bars, the designer worked out a major element of circulation in the house design. Sketches: Irwin Luckman



planning for the handicapped: house for a paraplegic

Exercise on bars (in this particular client's case) is of special therapeutic value and provides maximum mobility and maximum pleasure. By utilizing his unimpaired physical abilities, "the wheelchair and canes were entirely eliminated within the house, except as alternates when preferred."



doors, he could switch to overhead bars. To transfer from overhead bars to a seat, all he needed was a stable grip at an intermediate height. One limitation was that he could not stay on them as long as he could on parallel bars, without becoming fatigued. For even longer "walks," the designer proposes an additional series of bars outside the house.

Inasmuch as the client has use of some back muscles and can keep his balance, the secretarial chair proved an ideal solution for the time he would be sitting. By providing touch surfaces about four feet apart, wherever the chair would be used, he could "swim" between them readily, and with a speed and maneuverability not possible in the wheelchair.

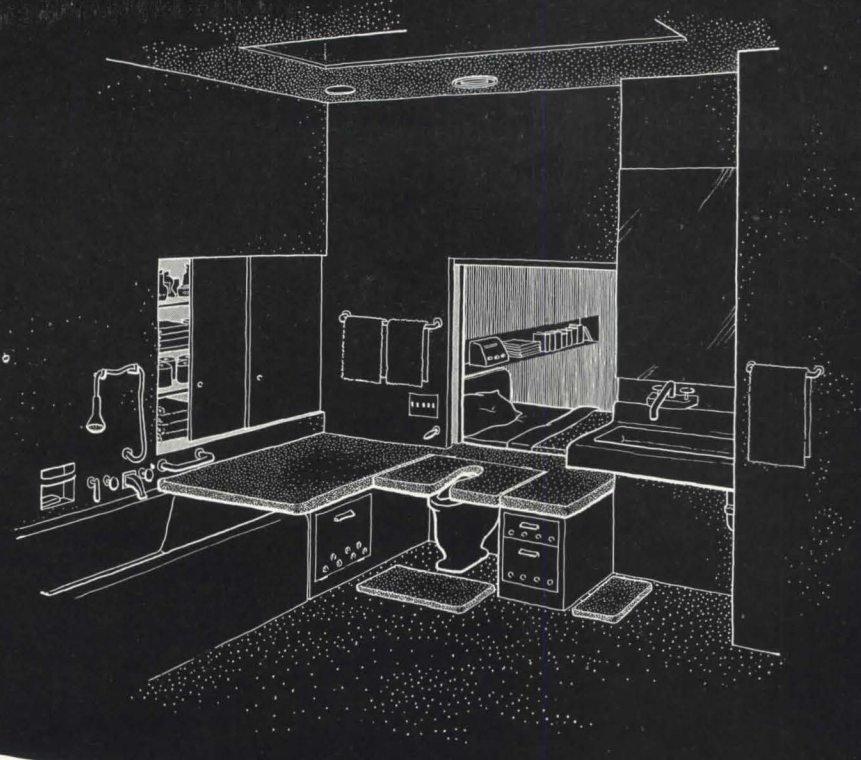
Special attention went into the design of the study-bedroom-bathroom area. As the designer points out, "when the client is in bed, he is stranded, without first putting on his braces, and then making the effortful and often dangerous transfer to some means of getting about. Just picture how difficult it is to get dressed in the morning, when he has to wash in the bathroom, gather his clothing from some other point, and get back on the bed in order to dress. Follow the further difficulty of using the toilet during the night when he is very sleepy, has to put on braces, transfer to the wheelchair, from that to a hard surface, and then follow the whole procedure in reverse—a difficult, dangerous, and quite obviously non-therapeutic effort." The idea of merging the bedroom and bathroom (*see drawings*) simplified the whole procedure. In the bathroom, closest to the bed, is the toilet bowl, its seat padded with foam rubber, and at the same height as the bed, allowing him to slide directly onto it. The padding extends to all other fixtures. By mounting the bed on ball-bearing wheels and tracks, he could pull himself, bed and all, by means of a wall-mounted bar. And with closets also brought down to bed height, he could reach his entire wardrobe without leaving the bed.

In conclusion, the designer finds his solution one "in which long-distance movements between activity groups were exploited (and even stretched) for their therapeutic value, always permitting alternate usage of wheelchair or canes, or free movement of the nondisabled; all localized activities were made as effortless as possible through elimination of unnecessary, non-therapeutic movements. By using the client's unimpaired physical abilities, it was possible to develop an entirely new pattern of performance of his living activities . . .

"Our desires are closely related to our ability to achieve them," Luckman observes. "Given new avenues of performance, the disabled will develop new and stronger desires. A new, higher level of performance, therapy, and pleasure—in fact, a new outlook on life can be given the disabled through architecture."

Overhead bars enter the bedroom-study (1); the bed rolls on tracks; the secretarial chair offers much additional freedom of movement. Alongside the bed, at bed height, is a pass opening, with soundproof, counterweighted door panel connecting through to the bathroom (2) where immediate surfaces are padded, and the client can maneuver himself to any of the facilities, including the bathtub, by hand hopping. To assist in dressing, closets are also at bed height (3) and reached by rolling the bed forward.

location	Oakland, California
designer	Irwin Luckman



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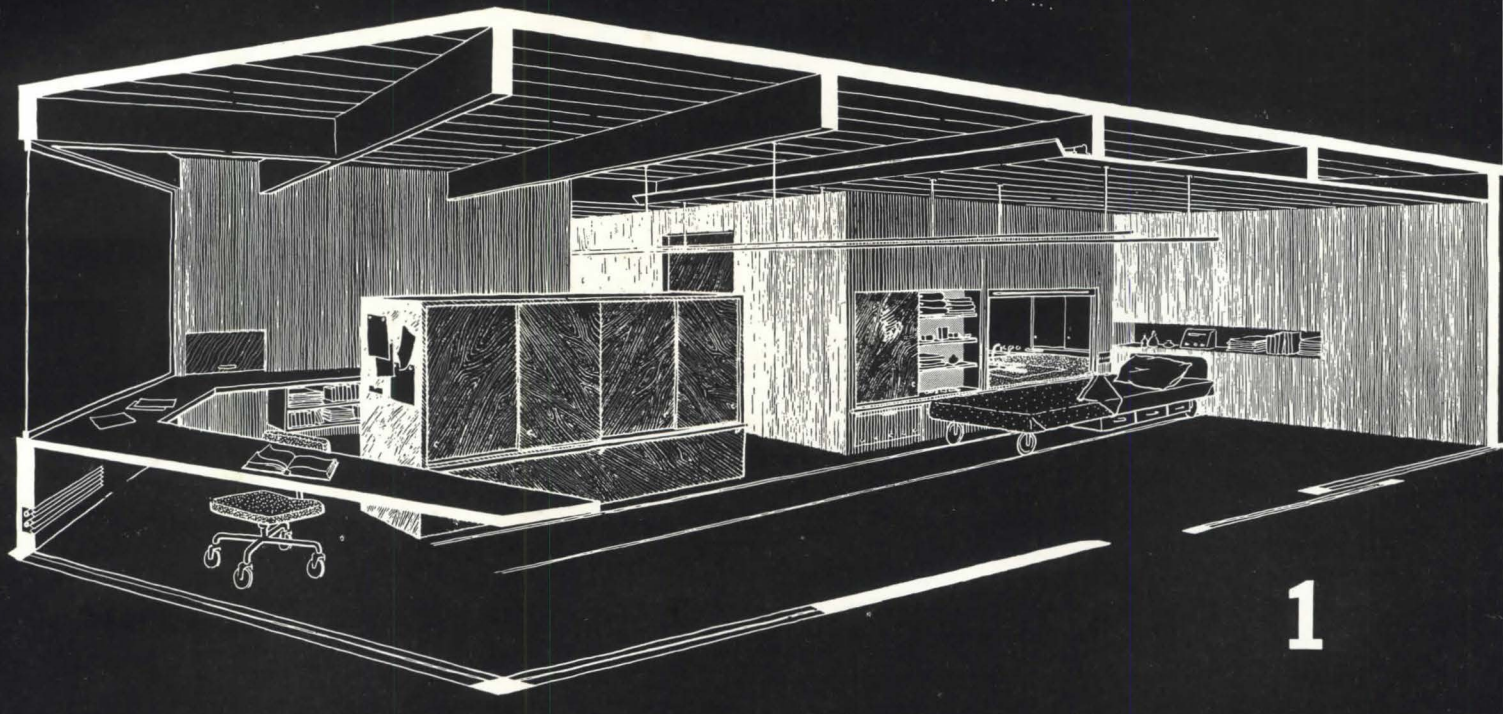

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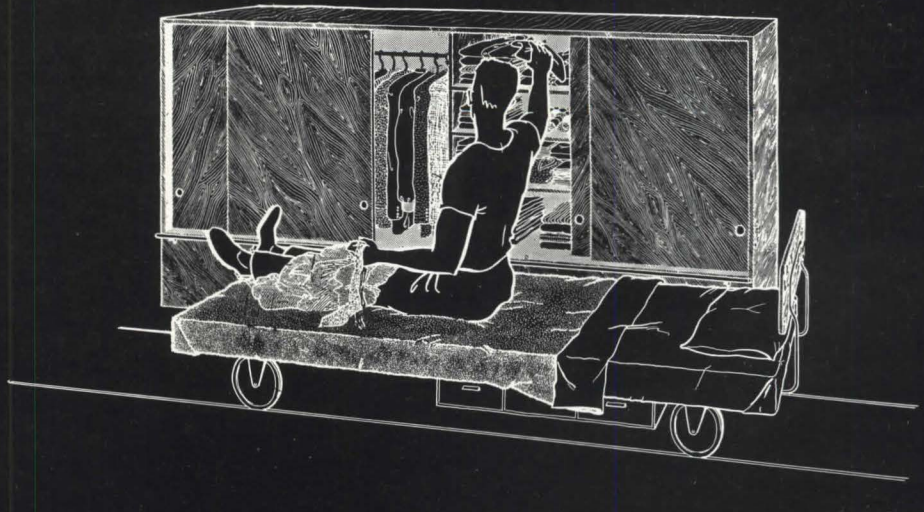
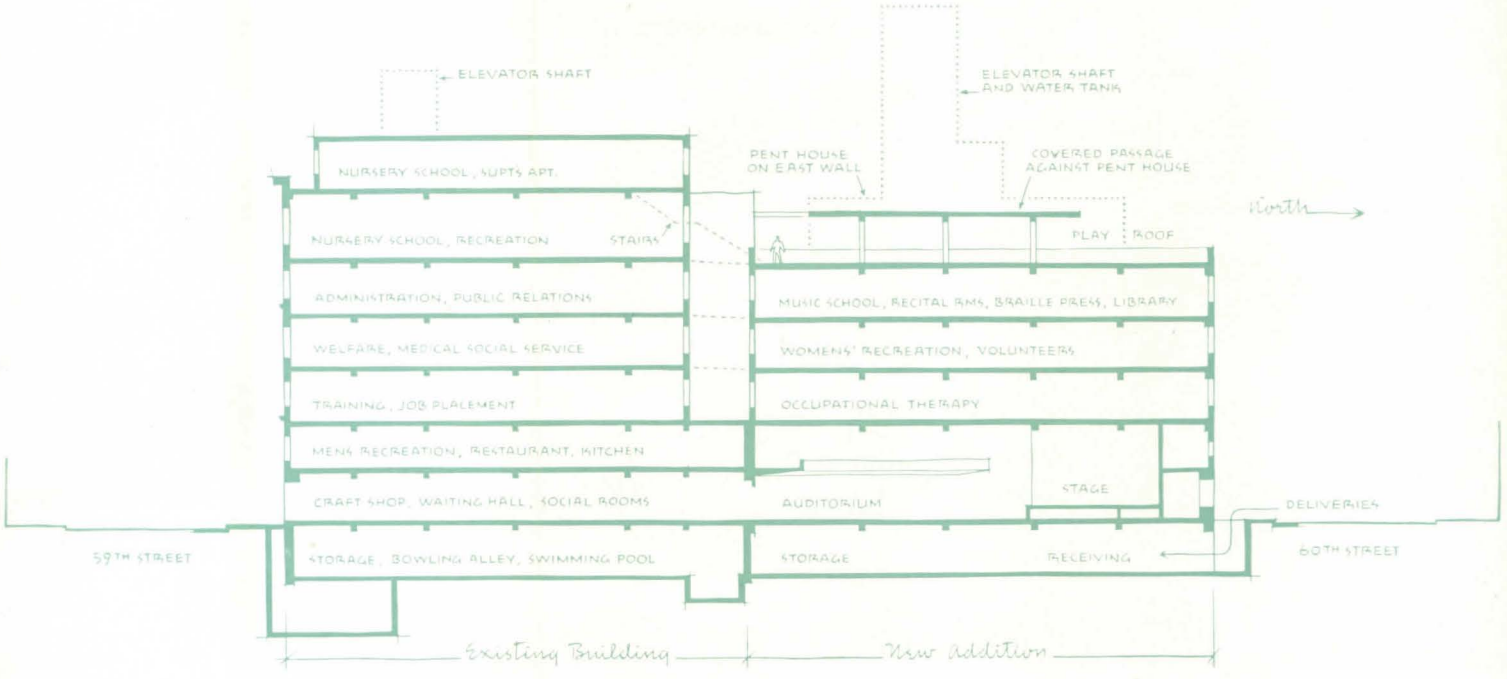


3


LLOYDS
AIR CONDITIONED
LA PETITE MAISON
THE LIGHTHOUSE

training and recreation center for the blind



A five-story and basement addition to an old six-story structure that had seen long service, "The Lighthouse," which is a full block in depth, provides training and recreational facilities for some 4000 blind or partially sighted persons. It is also the administrative headquarters for The New York Association for the Blind. The old building was much remodeled and refurbished—and structural and mechanical provisions in the addition are sufficient to allow the addition of two more floors when the need arises and funds are available.

Planning for those with seeing defects, including the totally blind, has several specialized aspects that are not immediately apparent—an echo, perhaps, of the basic wish to keep everything as normal as possible. For example, one might think that the metal screeds in the sidewalk at entrances were merely decorative, but they also serve as warnings and guides when a cane or the foot touches them. Corridors throughout the building have linoleum wainscots five-feet high, since walking about is frequently guided by touch, and the linoleum is easily kept clean. Bordering the stairways, in addition to high mesh guards, there are continuous, sturdy handrails that have inset metal buttons to inform those who touch them that a landing is near and also which floor is being reached—three buttons for the third floor; four, for the fourth, etc. The long corridors that join the old and new parts of the building on all floors are equipped with shut-off doors; in case of fire, these passages constitute horizontal exits that are more readily maneuvered by a blind person than are stairways. At the front of the auditorium stage, a strip of corrugated-rubber matting warns actors that they are not far from the edge.

One of the most extraordinary provisions is a painstaking, preplanned use of color. Doors to important rooms are bright red, set in light-hued walls; doors to closets are a muted brown. Thus, those with partial sight find the entrances readily and know where they are bound. According to Dr. Philip S. Platt, Director of the Association, even the totally blind "by some subtle means, become aware of attractiveness or unattractiveness" of colors and their environment, and are affected by it.

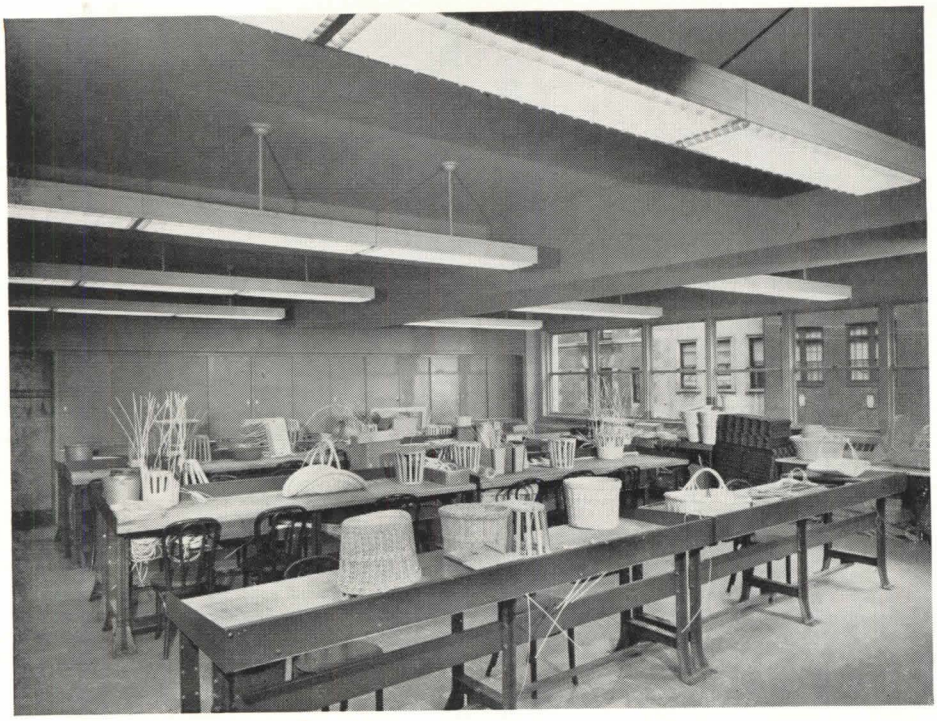
The new building contains an uninterrupted play roof (35′ x 100′) for roller skating, dancing, and games; a music school; recital room; Braille press; Braille library; reading rooms; and psychological-guidance rooms; a whole floor devoted to occupational therapy — basket weaving, doormat making, sewing, etc.—and an auditorium that seats 350.

The old building has been remodeled to accommodate the nursery school, with its own play roof; and medical, social-service, and training departments, with offices for administration and job placement.

At street level, alongside the main entrance on the 59th Street front, is a modern, retail shop, where articles made by the blind are sold. The basement contains much-used bowling alleys, a swimming pool, and kennels for "seeing eye" dogs.

client	The New York Association for the blind
architects	Clay, Potter & Coulter
structural engineers	Severud-Elstad-Krueger
mechanical-electrical engineer	Harry Bond
general contractor	Fuller Construction Company

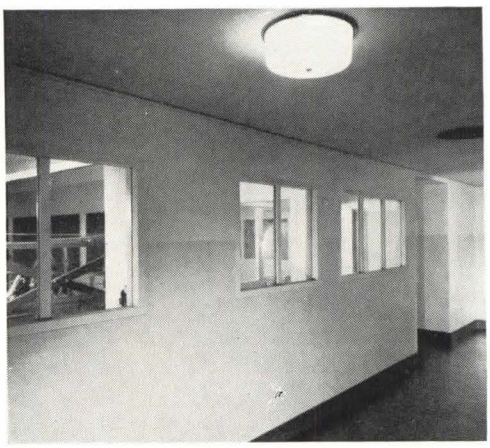
planning for the handicapped: training and recreation center for the blind

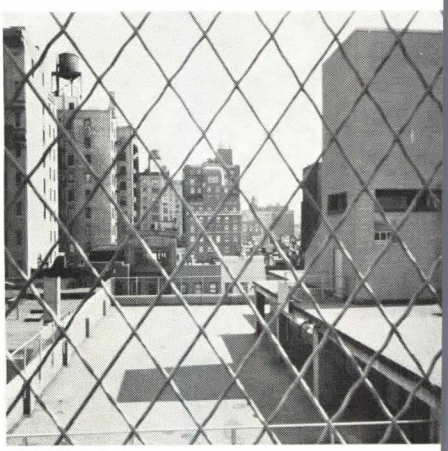


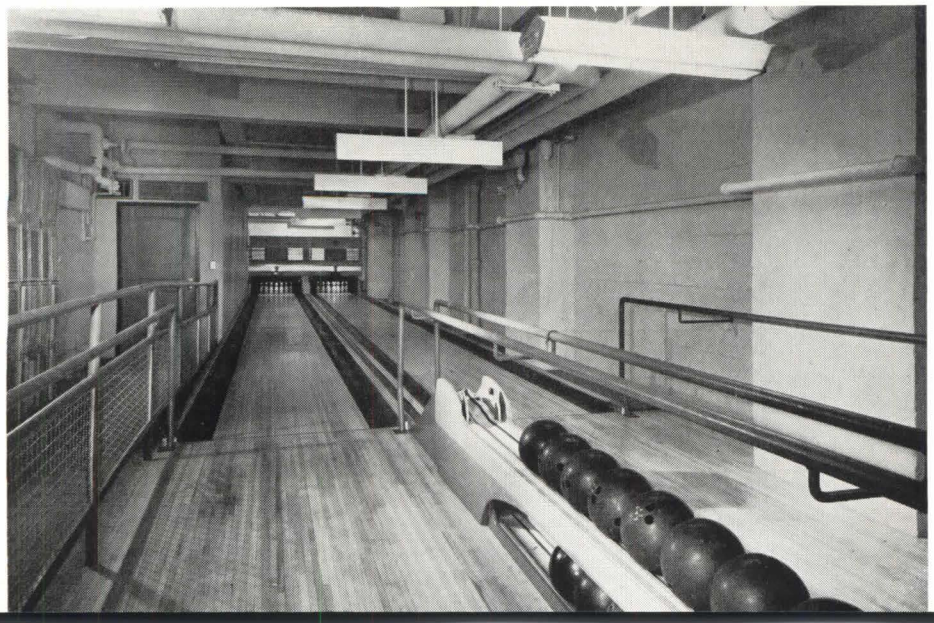
The basket-weaving room (left) *is typical of all workrooms; doors to cupboards slide, avoiding undesirable projections; coat hangers are fastened to the clothes poles.*

In corridors (below, left), *viewing windows permit supervision of workrooms without interruption. There is linoleum wainscot to a point above line of hands; also door recesses that allow them to open without interrupting the hall space.*

Photos: Ben Schnall







Roof view (above) *is taken from the nursery-school play roof, looking down on the adult roof of the new addition; high mesh guard fences provide reassuring protection.*

In bowling alleys (left) *guardrails and handrails help make play possible, with minimum risk.*

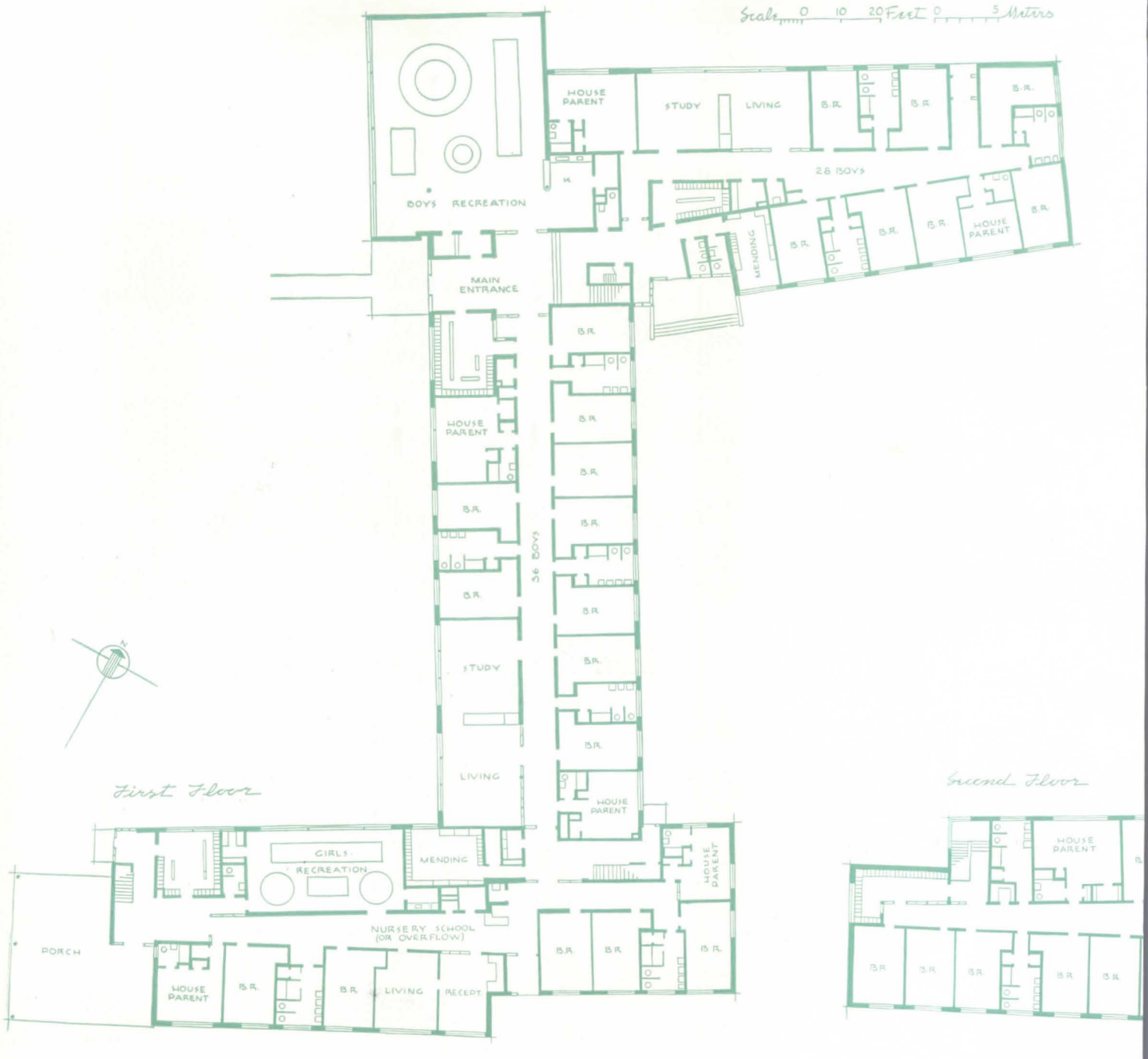
dormitory for deaf children

client	Michigan School for the Deaf
location	Flint, Michigan
architects	O'Dell, Hewlett & Luckenbach
engineers	E. R. Little Co., Inc.
general contractor	Couse & Westphal

The spreadout building accommodates 140 young children with hearing defects, including total deafness. From a play porch at the end of the nursery wing (above) *are seen the two-story dormitory block, main entrance, and windowed recreation room for the boys. At the southeast end of the building* (below) *a balcony adjoins the living-study of one of the upstairs dormitories.*

Photos: Florence Dyer

planning for the handicapped: dormitory for deaf children

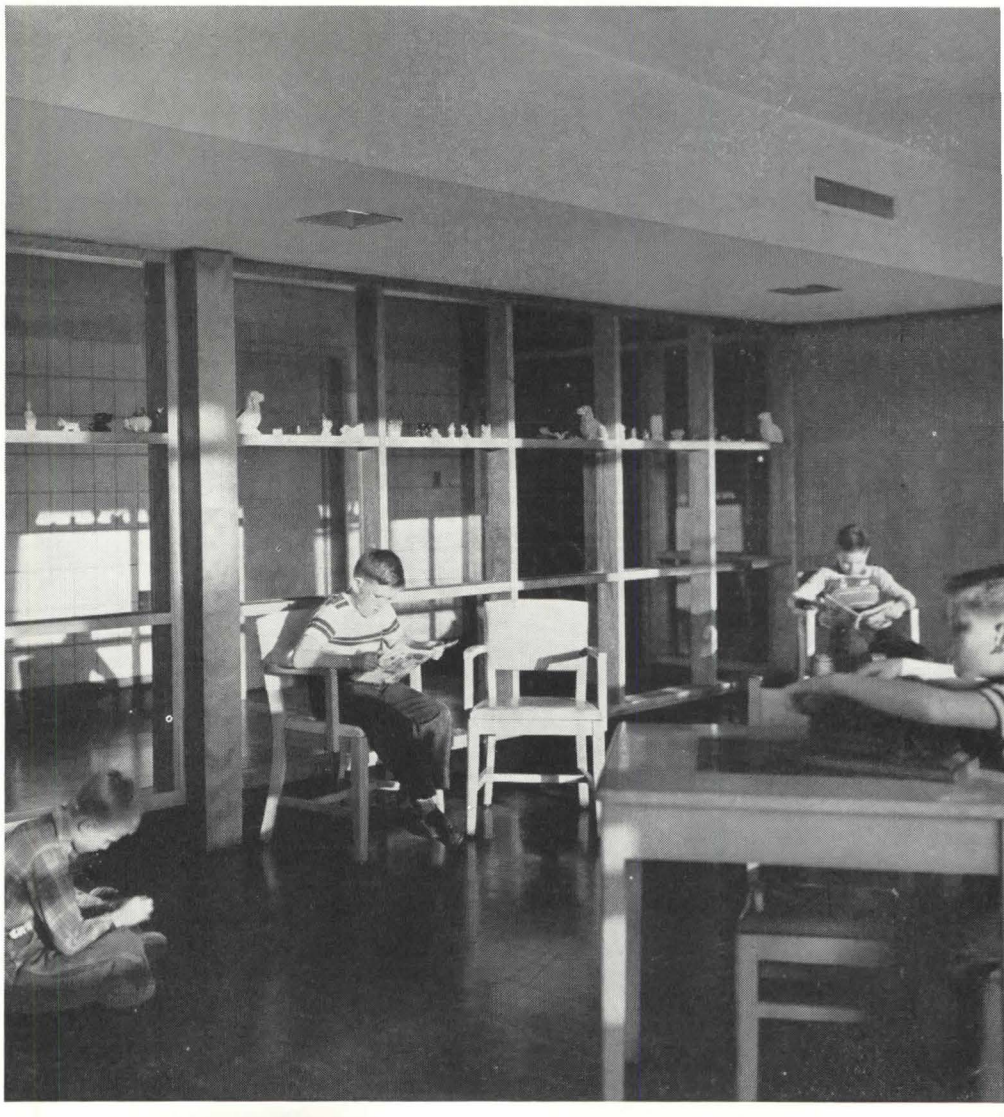


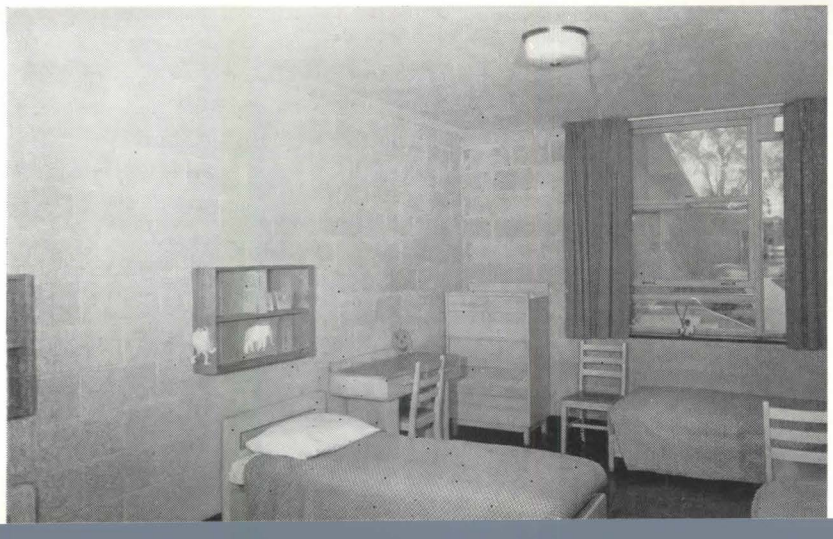
Built on the campus of the Michigan School for the Deaf, this dormitory is for children in the 8- to 12-year age group. The name is somewhat a misnomer, since the children range from the totally deaf to those with partial hearing more often referred to as "hard of hearing." Hence certain elements are introduced, such as special acoustic treatment, that are of particular benefit to those with some degree of hearing. In addition to the dormitories, there is a nursery where mothers of hard-of-hearing or deaf children come and attend classes to study care of those with hearing deficiencies.

The building is placed with regard to a developing campus plan near the classroom building, the service building (where the school dining room is located), and the administration unit. Choice of orientation was determined by the wish to provide maximum sunlight and also to take advantage of a pleasant view to the southeast. The south unit of the building contains (on the ground floor) the nursery school and

girls' recreational facilities; in the center section is a dormitory for 36 of the youngest boys, with living room, study, and suite for a house parent; in the rear wing is another dormitory for 28 boys. Older children are accommodated in two dormitories on the second floor—the one to the south for 36 girls; the other for 40 boys.

Since many hard-of-hearing children are extremely sensitive to sound vibrations, a loud noise even causing genuine distress or pain in certain cases, special acoustic plaster is used on all ceilings. In the dormitory living rooms are adjustable hearing aids, so that many of the children can enjoy recordings or broadcasts. Since nonhearing children are also very sensitive to lights, a flashing light, controlled from the house parent's suite, is used in each bedroom for waking the children in the morning.





The wall-bearing structure has steel floor and roof joists and concrete slabs 3¾" thick to accommodate radiant heating coils—an advantageous heating system where residents are as likely to sit on the floor as anywhere else. While asphalt tile is the flooring in general, wood is used in certain areas to accelerate sound vibrations from musical instruments, making it possible for the children to follow rhythm for dancing. Incandescent light fixtures are used in bedrooms (left), *while both incandescent and fluorescent units occur in living rooms* (above).

TWO RESIDENTIAL ROOF SYSTEMS

Corrugated, reinforcing-steel panels serve as forms for lightweight-concrete roof and floor slabs as well as exposed ceilings in the Hutchinson house at Glendale, Missouri; Architects: Fischer & Campbell Associates, Kirkwood, Missouri.

Although the Cofar system of reinforced-concrete floor-and-roof construction (developed by the Granco Steel Products Company, St. Louis, Missouri) has already been used extensively in commercial buildings,* the application of this type of concrete-slab construction as a structural and decorative element in residential construction is relatively new. A recent example employing this method is found in the Hutchinson home at Glendale, Missouri, designed by Fischer & Campbell Associates. The exposed undersides of the second floor and roof are corrugated, reinforcing-steel panels over which a light-aggregate insulating concrete has been poured. In this home, the panels were left exposed and painted in order to show the corrugated-ceiling pattern. Had the designers preferred, however, suspended lightweight-plaster ceilings easily could have been added. The exposed areas of the corrugated steel required no special paint, as the sheets were delivered to the job vinyl-primed for field painting.

Cofar, using very high-strength economical cold-rolled steel, provides a positive reinforcement with maximum allowable unit stress for one-way concrete slabs and a deep-corrugated steel form with allowable flexural unit stress for wet-concrete and construction loads. Thus, conventional positive reinforcement bars, temperature steel, and wood forms are eliminated and a substantial economy can be realized. No additional steel is needed and there is no reduction of design stresses, although a high safety margin is obtained.

The Cofar panels are crossed with transverse wires, welded across the corrugations in manufacture. These wires, not over 6 in. center-to-center, provide temperature reinforcement, mechanical anchorage, and shear transfer from the concrete to the Cofar. Hot-dip heavy galvanizing insures building-life permanence.

The roof of the Hutchinson house, supported by 3″ x 6″ wood joists 6 ft on center and resting on 4″ x 14″ wood beams, has a maximum slope of 4 to 12. The second floor slab, 3½″ thick from bottom of corrugations to finish floor, is supported by 10 I 35's spaced 8 ft apart and a masonry wall at the back of the house.

* *860 Lake Shore Drive apartments by Mies van der Rohe, Chicago; Corrigan Tower and Fidelity Union Building by Wyatt C. Hendrick, Dallas.*

For a residence on Fishers Island, New York, a one-level structure topped with a low-pitched white roof seemed best suited for the requirements of the client's family, the site, and the regional climatology (Long Island Sound). As only an air space was needed above the ceiling, ample storage having been provided at ground level, a 4 to 12 slope efficiently accommodated the dimensions of the floor plan. Such a slope excluded a shingle-type roof (6 to 12 is usually considered minimum) and offered an opportunity for another type of construction. To Ed Thatcher's way of thinking, a plywood roof system was the logical solution for this house.

His original design called for 5/8" exterior grade Douglas Fir plywood over 2" x 8" rafters; 24" cedar shingles to be used as wedging at each bearing. As the home was actually roofed, however, 3/8" plywood panels were laid over 5/8" plywood sheathing and wedges (*see details below*). This revision was made at the request of the general contractor who supported his semiskilled carpenters in their contention that seasonal spring winds would require a platform to work on. (This compromise was accepted ungrudgingly by the architect as his contractor agreed to furnish the additional material at no extra cost; however, Thatcher states that if he again had to design a roof for similar conditions, he would adopt his original scheme.) The 12" overlap was dictated by the architect's own judgment. As an added safety precaution, a bead of calking was spread under the edge of each plywood panel (in about 1 in.) so that any opening that might have existed after nailing would be sealed. Jointing for most panels was similar to that shown for the ridge members (*shown below*). To avoid staining the white roof, which assists reflection of summer heat, Monel metal flashing was specified. All cutting was performed at ground level and the laying of the 4" x 8" panels began at the eaves, proceeding up the slope. Roofing time was less than four days for the crew of two relatively unskilled men.

Although two coats of titanium exterior paint were applied to the major areas of the roof, an extra coat was added to the exposed edges of the plywood panels. Today, after three years' exposure, examination shows that no part of the roof is in need of further painting.

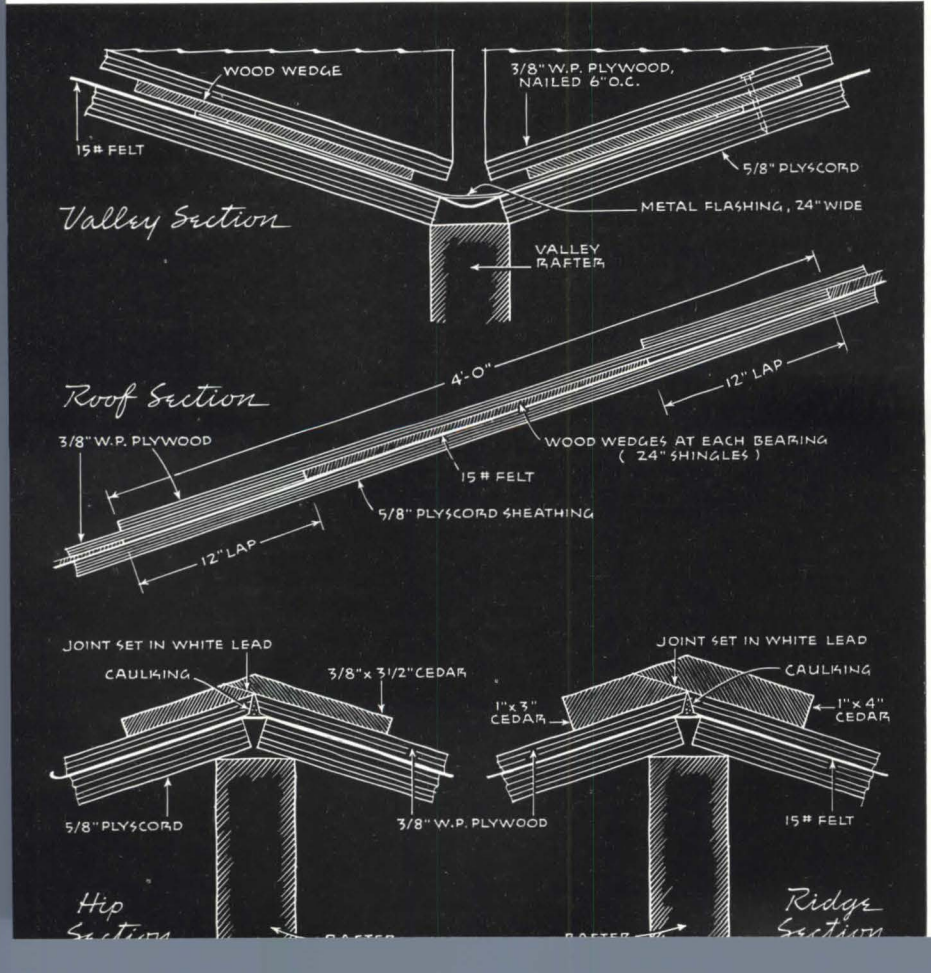
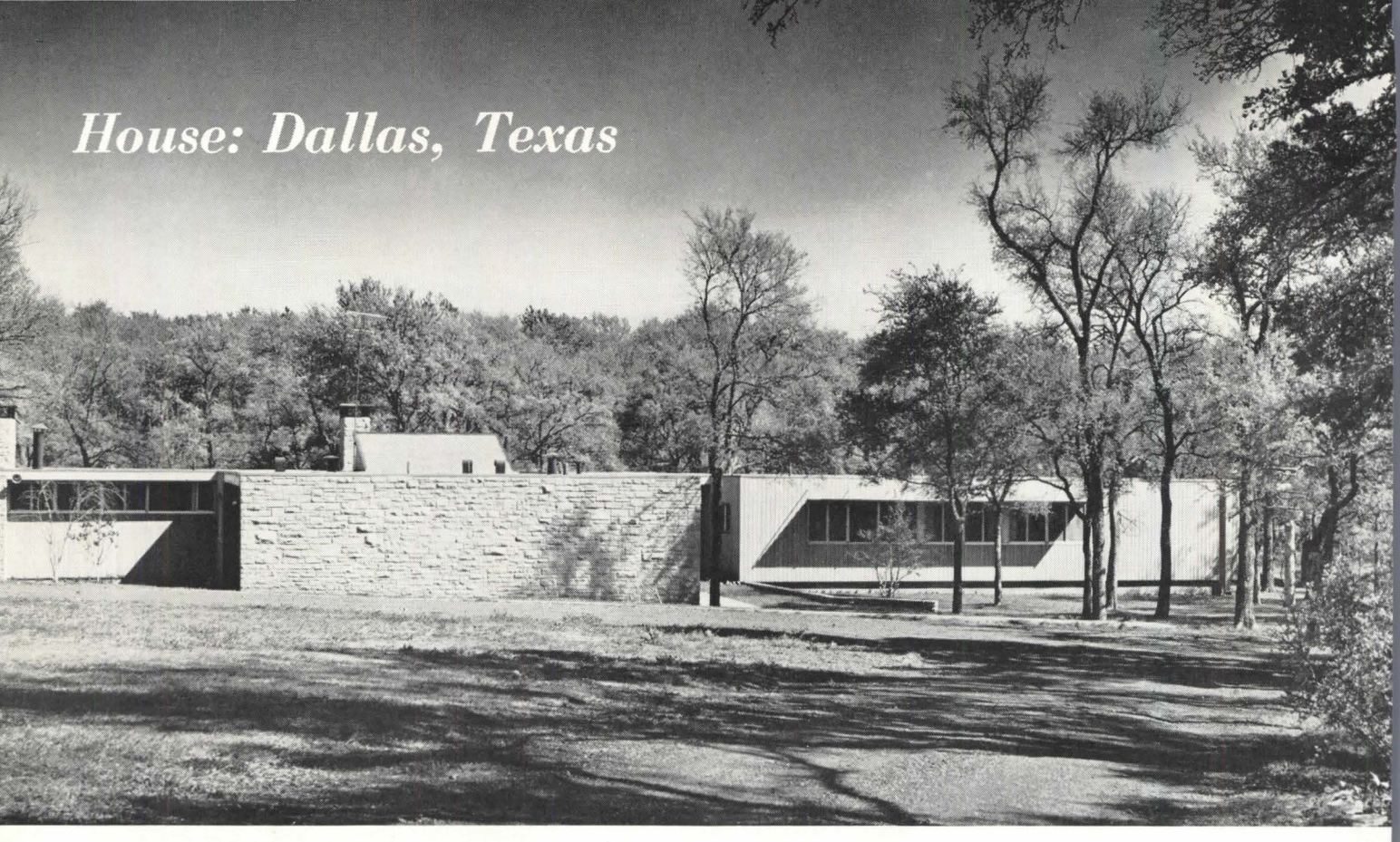
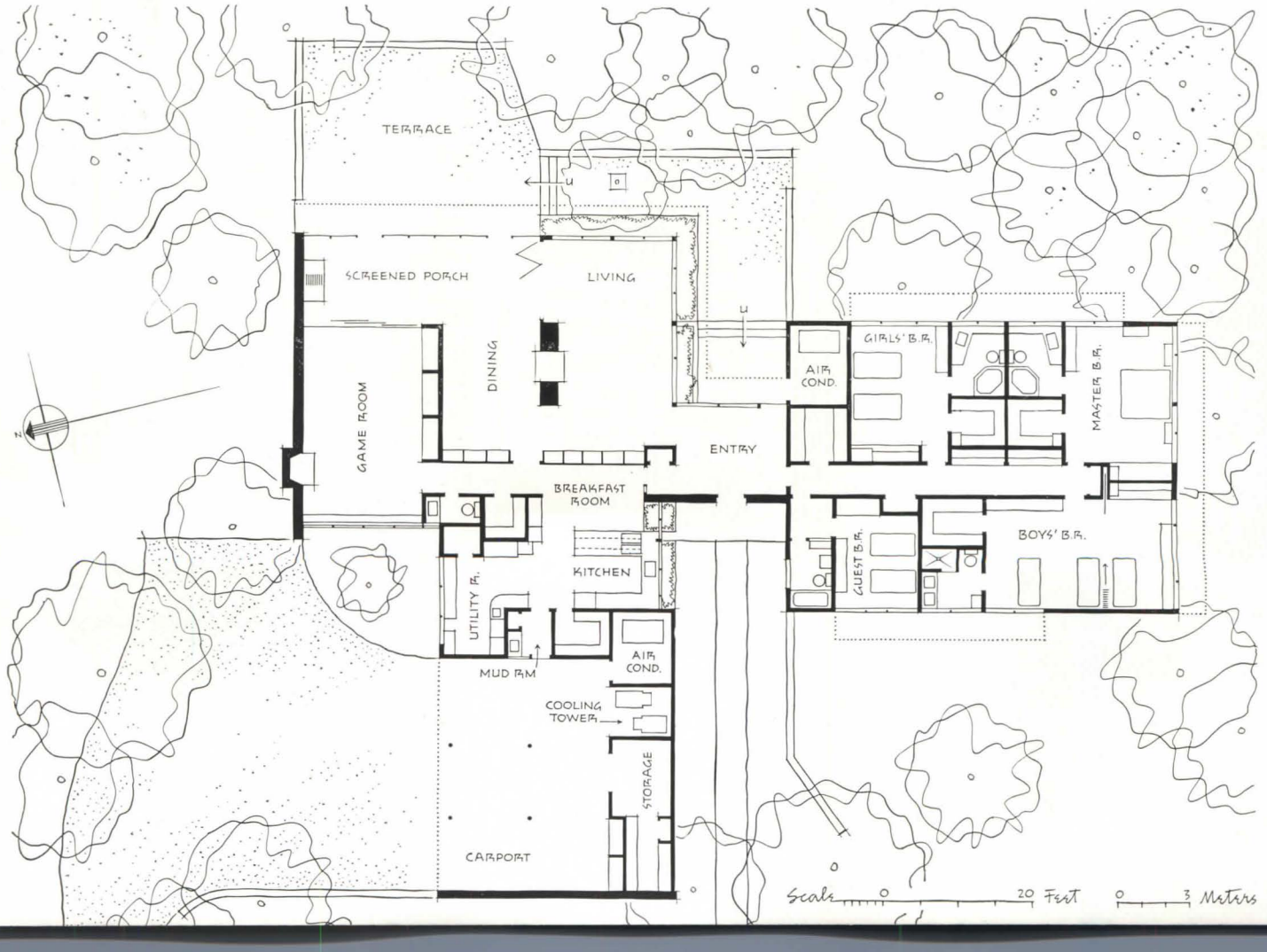


Photo of typical ridge, hip, and valley of plywood roof for residence on Fisher's Island, New York (above). *Architect: Edwin D. Thatcher, New York. Detail drawings* (left).

House: Dallas, Texas



architects	Fehr & Granger
consulting engineers	Wilson & Cottingham
general contractor	Charles V. Sumner



An exceptionally commodious home for a family consisting of parents, three sons, and a daughter, this house is set well back from the street on a live-oak-wooded site that slopes gently down to a creek—about 100 feet west at the rear of the property. The architects tell us that design of this house constituted one of those ideal architect-client relationships wherein the owners "knew in general their space requirements and simply advised us that they wanted us to design a house to fill those space needs. At no time did they impose any preconceived likes and dislikes. Any shortcomings in design must be laid at our doorstep."

An important aspect of the design problem was that the family enjoys all sorts of group activities, but at the same time each has highly individual interests. A by-product of this is that there are at least three areas provided for dining—the main dining room, a table on the screened porch near the barbecue, and a breakfast room at one end of the kitchen. Further functional requirements were that the house be designed so that it would require a minimum of housework and could be maintained without servants. A very special problem was the family's allergies to dust and pollen, resulting in year-round air conditioning zoned for economy of operation.

Basic plan solution is a two-part scheme with bedrooms and baths in one unit; living and dining areas in another; and as a connecting link, the central entry. In the bedroom wing, each of the bedrooms has its own bath. The room for the three boys is a large dormitory-like affair, but a folding partition allows the youngest his independence from the older brothers. All except the guest bedroom have both wall and walk-in closets, and off the bedroom corridor is an unusually spacious walk-in storage room.

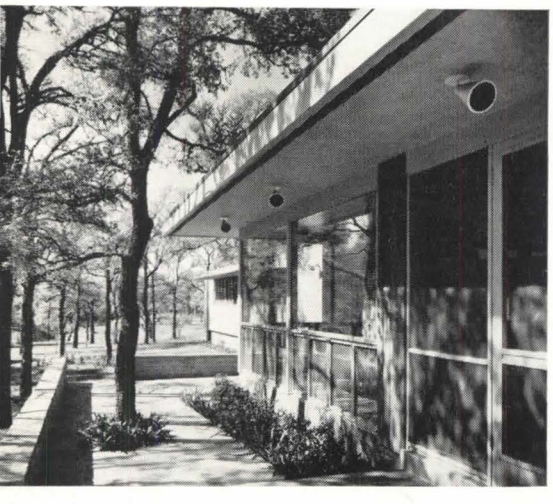
The living portion of the house is flexibly organized, with rooms flowing into one another in such a way that areas may be separately used by adults and children, or the whole area joined for group entertaining.

The house has a waterproofed, reinforced-concrete floor slab on compacted fill, with continuous, concrete grade beams. Exterior walls are either standard stud frame with plywood sheathing and vertical redwood siding, or solid local masonry, with the stone exposed inside the house. The roof is framed with wood joists, with plywood decking and built-up tar-and-gravel surface.

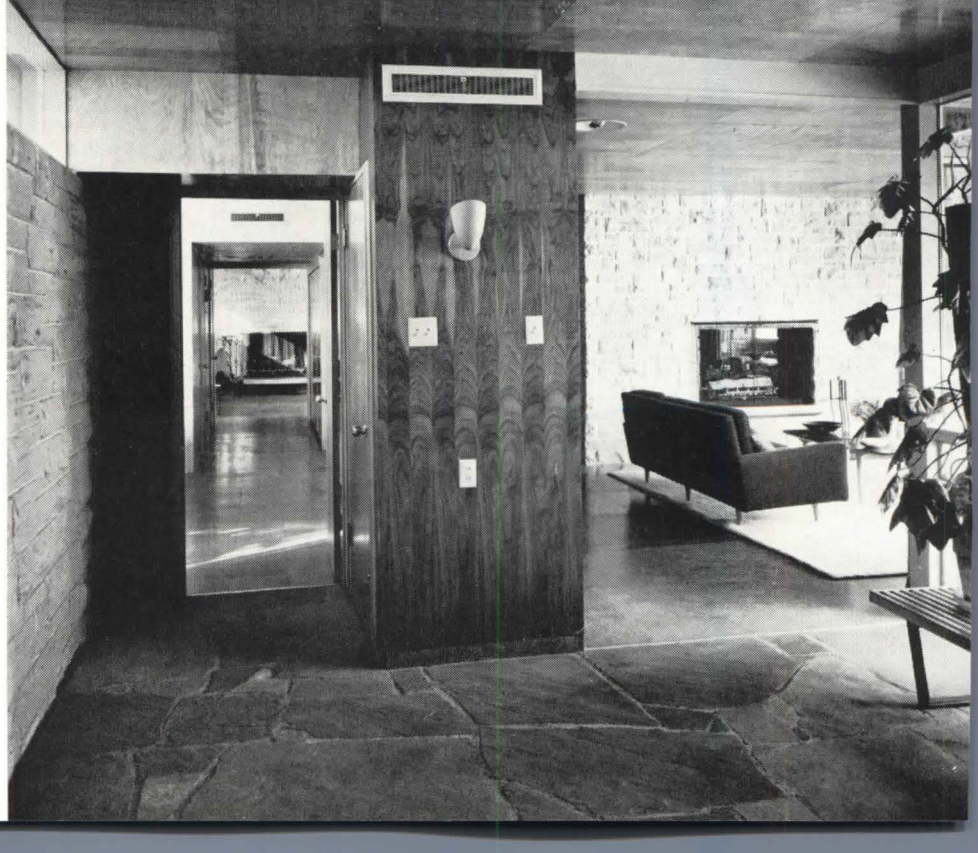
House: Dallas, Texas

The front door (right) *is set in a masonry wall, with clerestory strip above; on the living side of the house* (below) *this connecting-link entry has a solid door, but floor-to-ceiling glazing* (see cover).

Photos: Gottscho-Schleisner



A passage from the flagstone-floored entry (right) *gives independent access back to the kitchen and game room; at right of this storage-wall partition is glimpsed the fireplace of the living room, where vinyl-cork flooring is used.*



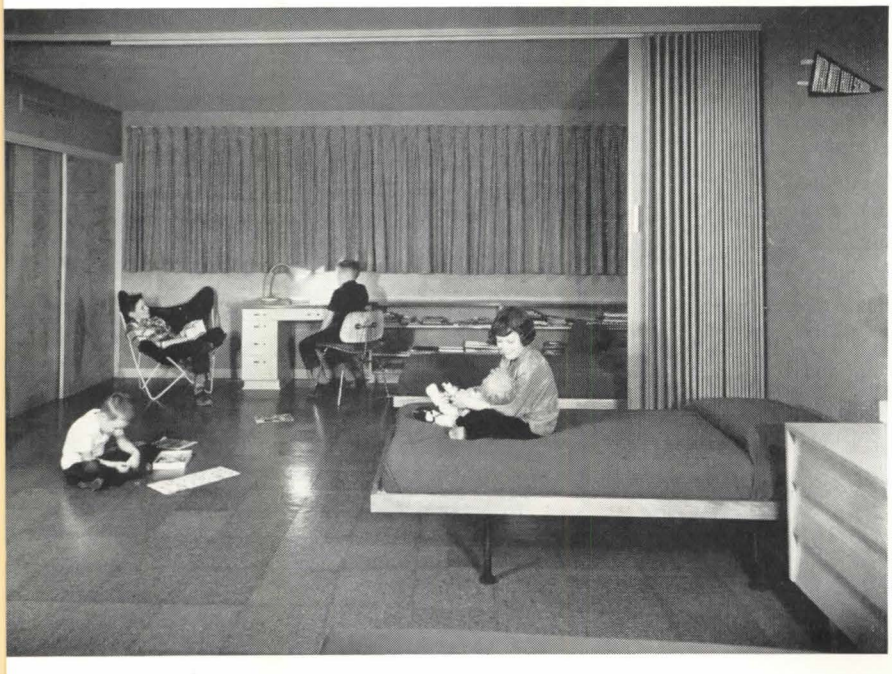
The living room (above) *has window walls facing the terrace—fixed glass in upper portions; operable screened casements below. On the other side of the two-way fireplace is the main dining room* (right), *also with a vinyl-cork floor. Both rooms open onto the screened barbecue porch.*

House: Dallas, Texas

Fold-back glazed doors join the living room and the marble-floored, barbecue dining porch (right). *Along the left-hand wall of the latter, sliding doors connect with the game room* (INTERIOR DESIGN DATA, March 1953). *The kitchen-utility-breakfast-room complex* (two photos below) *is handsomely equipped, including a drinking-water cooler and such conveniences as a grocery-store push cart for distribution of linens. The cooking equipment occurs in a projecting unit, with ceiling-hung cabinets above.*

construction

Foundation, floor, framing: reinforced-concrete foundation and floor: reinforced concrete—Trinity Portland Cement Division, General Portland Cement Company; stone bearing walls; Douglas-fir wall and roof framing. **Wall surfacing:** exterior: redwood siding; interior: birch and walnut plywood—U. S.-Mengel Plywoods, Incorporated; gypsum board—United States Gypsum Company; bathroom wall paper—Katzenbach & Warren Incorporated. **Floor surfacing:** vinyl-cork flooring—Dodge Cork Company, Incorporated; marble floors in bathrooms—Vermont Marble Company; flagstone porch flooring. **Ceiling surfacing:** birch plywood—U. S.-Mengel Plywoods Incorporated; gypsum board—United States Gypsum Company; acoustical tile—Owens-Corning Fiberglas Corporation. **Roof surfacing:** built-up roofing. **Waterproofing and dampproofing:** waterproofing—Anti-Hydro Waterproofing Company. **Insulation:** thermal: insulating wool—United States Gypsum Company. **Roof drainage:** galvanized-iron scuppers and downspouts. **Windows:** aluminum casement windows—A. B. C. Window Company; sealed double glazing and plate glass—Libbey-Owens-Ford Glass Company. **Doors:** birch slab interior—U. S.-Mengel Plywoods, Incorporated; custom aluminum doors—Hill Welding & Metal



The owners' bedroom (above) *occupies a corner location, with windows on both east and south walls. The room for the three boys* (left) *is equipped with a folding partition for partial separation.*

Works. **Hardware:** lock sets—Schlage Lock Company. **Paint and stain:** exterior: bleaching oil—Samuel Cabot Incorporated; interior: flat oil paints, varnish—Pratt & Lambert Inc.

equipment

Kitchen and laundry: clothes washer and drier—Westinghouse Electric Corporation; range, griddle, ovens—Thermador Electric Manufacturing Company; dishwasher—General Electric Company; garbage-disposal unit—Given Manufacturing Company. **Lighting fixtures:** recessed domes, luminaires, and lamps—Kurt Versen Company; downlights and adjustable wall fixtures—Gotham Lighting Corporation. **Plumbing and sanitation:** water closets, water heater, lavatories—Crane Company; bathtubs—American Radiator & Standard Sanitary Corporation; toilet seats—C. F. Church Manufacturing Company; chrome accessories—Hall-Mack Company; medicine cabinets — Miami Cabinet Division, Philip Carey Manufacturing Company. **Heating and air conditioning:** year-round air-conditioning system—Worthington Pump & Machinery Corporation; grills—Barber-Colman Company; gas-fired hot water boiler—L. J. Mueller Furnace Company; temperature controls—Minneapolis-Honeywell Regulator Company; induced-draft cooling tower.

NEW DIRECTIONS IN THERMAL INSULATION, Part III

by Groff Conklin

Walls

It was stated in the second installment of this article (*March 1953 P/A*) that, according to a survey by the Housing and Home Finance Agency made in 1950, fewer than seven percent of the new single-family detached FHA houses built in the hot-climate regions of the United States had insulation of any type in their walls. Is this an indication of the fact that (at least in the non-air-conditioned house) wall insulation is of relatively small value?

As a matter of fact, quite the opposite is true. Any wall construction that will keep a sizable amount of heat out of the structure is worth while in hot climates and insulating materials do just that. Dean W. R. Woolrich of the University of Texas makes the point that in hot climates it is essential that the interior surface temperature of walls be kept well below the normal temperature of the human skin, for if the wall surface approaches the average skin surface temperature of the occupants—83 F—people in the room suffer because their bodies cannot lose heat by radiation to the walls. Even if the air is kept moderately cool by ventilation, the hot walls will make the room's occupants very uncomfortable. And in hot climates interior wall temperatures, especially if the wall is a typical thin-frame construction or even with a brick veneer, can easily rise into the discomfort zone on typical hot days.

At a "Correlation Conference on Housing and Building in Hot-Humid and Hot-Dry Climates" held in Washington, D. C., by the Building Research Advisory Board of the National Research Council, November 18-19, 1952, mention was made of the fact that, at least in the case of the more expensive home, a possible solution, particularly in hot-dry climates, is for the first floor to be built of thick masonry and the second floor to be built of frame. During the day it will be relatively cool on the first floor and at night the lightly-built second floor will be cool.

* *Continued from March 1953 P/A.*

However, since massive masonry walls are not economically feasible in most parts of the country for the average home, insulation must provide the barrier to heat in such homes, just as in roofs. It is a sound investment in comfort wherever climates are hot and a genuine long-term economy if air conditioning is to be used. In the latter case wall insulation is essential to keep operating costs of the air-cooling unit from running much too high.

Due to the curious behavior of reflective insulations, which are most efficient in reducing downward heat flow but not as effective for upward or horizontal heat flow, they are of no greater value than the fibrous or cellular materials.

There is a rather novel way of increasing the hot-climate effectiveness of wall insulation that was developed for certain factories built in the South during World War II; this method can also be applied to residential design today (*Figure 1*). This is the provision of vertical ventilation between the outer layer of wall material and the insulation. Since hot air rises, a considerable amount of air motion will occur if one merely leaves openings at the bottoms and the tops of the wall through which the heated air can rise and escape.

Unfortunately, no reliable test data on the value of this sort of wall ventilation for homes is available. However, the technique should be a very usable one in hot-climate homes, provided care is taken to prevent the entry of insects and small animals into the space by screening the vents top and bottom.

Openings

With the exception of the most primitive dwelling, no common type of home is completely windowless. There are nearly always wall openings to admit light and (in hot climates) air currents, and to permit the evacuation of stale air and unpleasant odors from inside the structure (*Figure 2*). Even in air-conditioned homes, where the windows are closed tightly during the operation of the cooling unit, they are still essential for the admission of light and for the exchange of fresh air during the hours when the outdoor air is cooler and the air conditioner is turned off. In addition, windows are important in that they satisfy basic psychological needs of man, who hates to feel hemmed in and whose eyes need a change of focus at times from near by to far off, which can be best obtained by looking out of windows at views and distant landscapes.

In non-air-conditioned houses particularly, too many openings and poor opening design and placement can have very harmful effects upon human comfort; in air-cooled buildings these defects can add appreciably to the cost of operating the cooling equipment. The number of window placement factors that can be mishandled by those unfamiliar with hot-climate design is surprisingly large. Windows and fixed glass areas can be too openly exposed to the sun's heat, incorrectly shaded, wrongly placed in the building, ineffectively glazed and too big[1]. It is true that special sun-control devices of a wide variety are available but in many instances they are costly and good building design often could reduce the expense of these necessary items.

The more important factors to be considered in designing openings for homes in hot climates are as follows:

(1) Orientation is basic. Whenever possible, the wall with the largest openings, usually the living room with its view windows, should be oriented more or less to the *north*, a situation opposite to the temperate zones with cold winters where solar house design calls for southern or southwestern exposures. In hot climates the problem is not to use solar energy to reduce

[1] *Work done by the Texas Engineering Experiment Station, College Station, Texas, has produced extremely valuable data concerning the placement of openings in buildings where natural ventilation is important. Research Report No. 22, "Some General Considerations on the Natural Ventilation of Buildings," and Research Report No. 36, "Geometry of Classrooms as Related to Natural Lighting and Natural Ventilation," developed and published by the Station, are important contributions to this field. At the B.R.A.B. Conference last November, additional data on this subject were presented in a paper by Bob H. Reed; these, however, were supplementary discussions of natural ventilation in practical terms of application rather than advances of basic knowledge.*

heating load; it is to get rid of solar energy by whatever means possible in order to keep it from increasing the cooling load. If other factors such as view and prevailing winds are also favorable, a north orientation can be extremely effective in increasing comfort in the most-occupied and largest-windowed rooms of the house.

(2) All openings exposed to the sun should be shaded. If natural shade cannot be provided, whether trees or vines growing over arbors near enough to the windows to keep out most of the sun's heat, artificial shade must be built in. Experiments by F. C. Houghten and David Shore in 1940 showed that while there was a design radiation gain (in Btu per square foot per hour) through an unshaded western window of about 175 Btu between three and four p.m. on a hot summer day, the same window protected with a dark-colored outside shading screen had a radiation gain of only 48.4 Btu.[2] There was less heat gain through south windows and even less through east and north so that the shading problem is greatest on the west and southwest exposures. However, particularly in hot-dry climates where solar glare is often a serious problem as well as solar heat, shade is important on all sides of the house. Verandahs and wide balconies furnish shading for windows and at the same time make possible outdoor living, particularly if adequately screened. Wood, concrete, or metal overhangs can be made a part of the structure *(Figure 3)*, as can pivoted vertical louvers which can be turned to bar the sun's rays as their direction changes position throughout the day. Wood, metal, or glass exterior hoods or Venetian blinds, wood jalousies, and fabric awnings can be applied as removable and replaceable units. At times heavy draperies are employed which can be pulled across the inside of the windows in the hottest weather but this shading device is defective in that it closes off the view, bars natural ventilation, and is less efficient a barrier to radiation than the exterior devices mentioned.

(3) Window types are often important. The double-hung window is never as satisfactory in hot climates as the vertical or horizontal casement if correctly oriented, or the sliding window that disappears entirely into the wall. One can open only half the area occupied by a double-hung window for ventilation. The other half is always glass-covered—a defect even in an air-conditioned home where windows often are opened to admit cool evening breezes, as previously pointed out. In some regions, a single outswinging side-hinged window, correctly oriented in terms of prevailing winds, could act as an efficient wind scoop to bring the breezes into the structure. In general, however, single and double casements should be avoided in areas where high winds and hurricanes are known to occur.

(4) Glazing. The type of glass to use is not difficult to determine, since the decision will be largely an economic one. Can the owner afford heat-absorbing glass or not? It is more costly than ordinary double-strength window glass and its contribution to interior coolness, while considerable, is not necessarily large enough to warrant its use in most homes—particularly those that are not air conditioned. If windows are shaded adequately, heat-absorbing glass is not especially valuable, since the only heat that such glass helps to bar more than any other kind of glass is radiant heat.

Heat-absorbing qualities are now available in 7/32 in. thick double-strength window glass. If this heat-absorbing, double-strength window glass is not too costly, it should be used in all openings exposed to the sun in hot climates because of the reduction in heat gain it would cause.

As for double glazing, whether of the integral type or composed of inner window and outer storm window, there is conflicting evidence of its value as a heat gain reducer. The Libbey-Owens-Ford Glass Company states that a single ¼-in. plate glass window transmits about 87% of the total solar

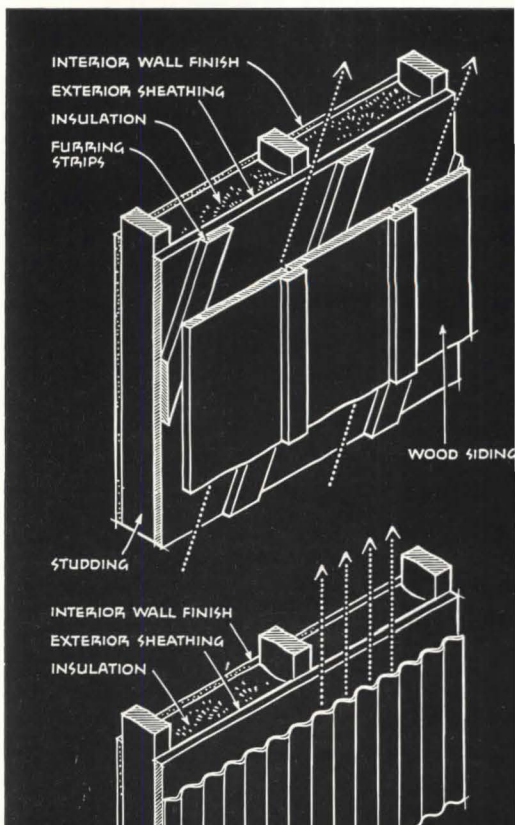
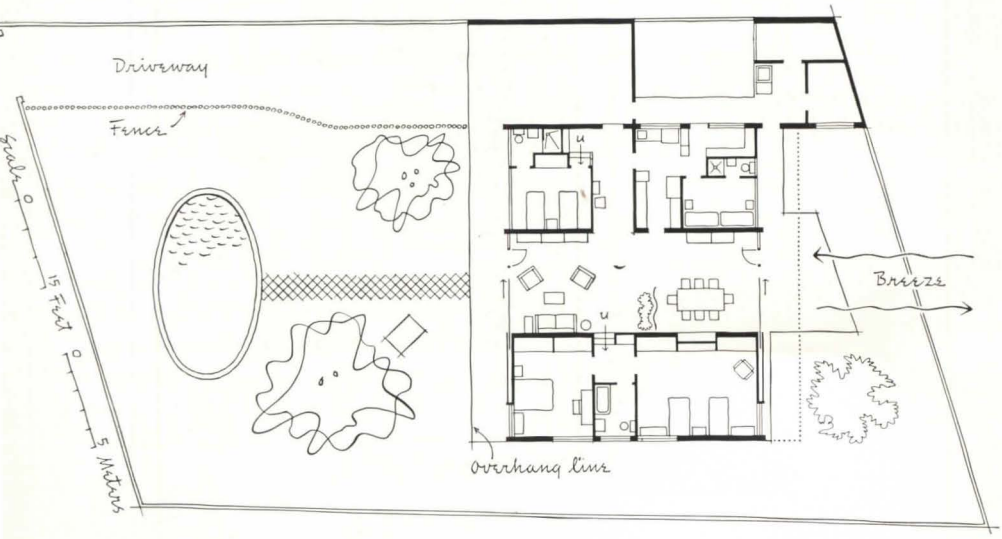
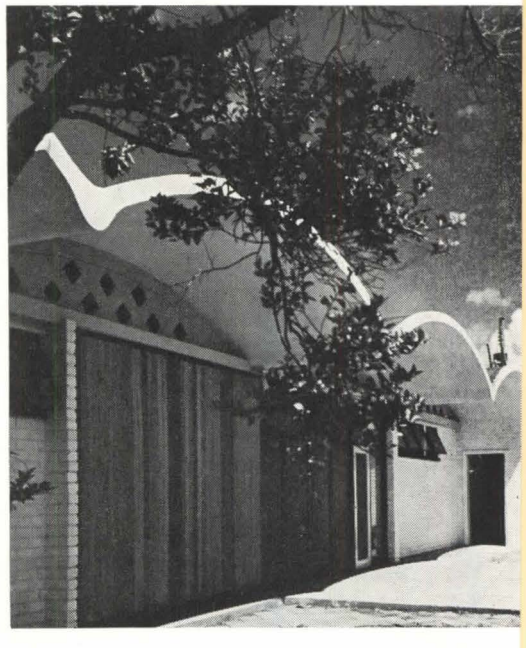


FIGURE 1 *Wall Ventilation*

[2] *"Heat Gain Through Western Windows With and Without Shading," by F. C. Houghten and David Shore,* Heating, Piping and Air Conditioning, *1940.*

Figure 2—Fleischmann residence, Palmira (near Bogota), Colombia. Sliding-glass walls on opposite exterior walls (42 ft apart) allow complete penetration of prevailing breezes into living and dining areas of this home. The continuous barrel-vault roof projects six feet on either side of the house to afford good protection from the direct rays of the sun. J. Arango & F. Murtra: Architects-Engineers.





energy from sun and sky. The radiant heat penetrating their sealed double-glazing with ½-in. air space between the sheets is about 77%, only 10% better than regular plate. When the outer light of the double-glazed unit is heat-absorbing plate, the solar energy transmitted drops to 58%. Heat-absorbing plate glass alone permits the passage of roughly 70% of the total solar radiation, according to L. O. F. Of course, the double glazing (with or without heat-absorbing glass) has a U factor of 0.56 for summer conditions, as compared with 1.06 for both plain and heat-resistant plate. Therefore, under very hot conditions for an air-conditioned house, double glazing with one pane heat-absorbing might very well pay for itself in lower cooling load, particularly if the openings are to be very large.

(5) Windows versus artificial light; high wattage lighting versus low-wattage. Dean Woolrich points out that[3] "The injudicious application of picture windows where such units serve as solar heat traps, the installation of large areas of natural window lighting where artificial lighting sources would be far more conducive to summer comfort, and the installation of high-wattage mazda-

[3] *Quoted from September 1952* Heating, Piping and Air Conditioning, *page 119.*

type lamps where low-wattage fluorescent lamps could well do the job with two-fifths of the heat load are such common errors of builders' judgment in hot climates that the exceptions are fewer than the mistakes in many tropical cities."

This quotation presents the problems—and their solutions. There is only one point to which serious objections could be raised and that is the replacing of large window areas with low-wattage lights in non-air-conditioned houses, particularly if it is not done with very careful judgment. In hot-humid climates especially, the maximum intake and movement of air is desirable. Unless relatively costly artificial ventilation is brought in to replace normal air movement, the large window area in hot climates should not be abandoned. Of course, it should be shaded completely, as previously recommended.

The suggestion to use fluorescent lighting instead of incandescent in hot climates is obviously worth consideration, even though for a variety of reasons it may not be followed at all times. A 100-w incandescent bulb produces 341 Btu per hour, enough to destroy the value of a great deal of evening coolness. A fluorescent of approximately the same brightness (32-w) disperses only 109 Btu per hour into the room and is therefore a sizable comfort improvement over the older form of illumination.

Cellars and Crawlspaces

The problem of condensation in cellars and crawlspaces can be important in hot climates, particularly where outdoor humidity is high. Temperatures in the enclosed underground areas fall below the dewpoint and heavy moisture condensation results; the same thing can happen in inadequately-ventilated crawlspaces. Condensation in crawlspaces usually (but not always) can be eliminated by increasing the ventilating areas, but the problem is often too large to be handled by such means in full cellars.

What happens in hot-humid climates is that the outer air is so moisture-laden that any attempt to reduce condensation in cool cellars by increasing ventilation merely adds moisture (and condensation) to the cool area without sufficiently raising the temperature to cause it to vaporize again. The condition can be remedied by a number of ways: by keeping out all the warm outdoor air, by using dehumidifiers, by installing insulation and a vapor barrier with the vapor barrier facing *outward*, by using some sort of double glazing in the cellar windows, and by heating the cellar until the surface of the walls dries out. The latter expedient is hardly one to be recommended for general use in hot-humid climates.

There are many smaller ways of reducing discomfort in hot climates, including such pleasant devices as using plants in the interior of the house. Interior plantings have more of a psychological than an actual physical effect; indeed, in hot-humid climates they could *add* to the dampness in the dwelling. Consequently, they should be used with care, but they should be used whenever possible.

Since an increase in humidity in a hot-climate house also increases the discomfort, even though the temperature does not rise (this is due to an increase in *latent*, rather than *sensible* heat), specific methods of reducing humidity at points of its origin are always helpful additions to comfort in hot climates. Individual exhaust fans in kitchens, bathrooms, laundries, and other dampness-producing areas are extremely useful in the tropical and semitropical regions, just as they are in the northern zones, if natural ventilation is inadequate to dispose of the surplus humidity.

the special problems of air-conditioned homes

The building techniques thus far described are generally suitable for both air-conditioned and non-air-conditioned homes. Except when a dwelling is to be designed with nonopening windows (and few such homes have been or ever will be built) essentially the same principles of designing for comfort in the noncooled house can be applied as principles of economy in the cooled house. They help to reduce the cooling load—and consequently the initial and the operating and maintenance costs of the equipment.

The procedure for obtaining cooling loads is extremely complex. As Tyler Rogers puts it: "To find air conditioning and cooling loads—use the services of an expert and start during the preliminary design stages."

Many northern architects successfully calculate heat losses for homes they are designing and select heating units accordingly. Heat-loss calculations, in regions where heating is the major comfort and economic problem, are simple indeed compared to over-all heat-gain calculations. All one is really after in figuring heat loss is the amount of heat per degree of temperature differential inside and outside that will escape through the materials and the types of construction being used. The effects of solar radiation, of air currents, of sky radiation, of prevailing winds, of humidity, and so on, are rarely if ever taken into consideration in calculating heating loads. They may be carefully analyzed when problems of orientation, overhangs, etc., are being considered but not at other times. They are, however, of basic importance in hot-climate cooling load calculations and air-conditioning engineers with special experience in hot-climate calculations are about the only people who can figure cooling loads correctly for such climates.

It is somewhat disturbing from the practicing architect's point of view that most northern-trained air-conditioning engineers

Figure 3—complete shade without sacrifice of air movement was provided by a double canopy over the arcade of the Baldwin Hills Shopping Center, Los Angeles. Robert E. Alexander: Architect.

Photo: Julius Shulman

without extensive hot-climate experience sometimes wrongly estimate the total heat gain for cooling load purposes. The reason for this is that they are trained to use "heating and cooling standards that are keyed to the 40th parallel," as Dean Woolrich puts it.[3] He goes on to say: "The usefulness of some of the specifications of prevailing United States codes and standards for air cooling when applied to tropical zones is questionable. Some specifications of our accepted existing codes for computing the cooling load are actually incorrect when applied to tropical areas."

Engineers with wide experience in hot-climate conditions will know how to compensate for these defects and are the only people in the building industry who know enough about heat gain to be able to estimate for air-conditioning equipment satisfactorily. Merely to give an idea of the complexities of their task, here are some of the factors with which they must deal:

(1) Sensible and latent heat.
(2) Direct and diffuse radiation from the sun.
(3) Incident and reflected radiation.
(4) Periodic heat flow and the time lag of heat transmission through various materials.
(5) Equivalent temperature differentials for *radiant* heat, which are multiplied by the U factors for thermal conductivity to arrive at heat gain totals.
(6) Minimum ventilation requirements for the operation of the air-conditioning equipment at differing outdoor humidity levels.
(7) Calculation of heat gain through glass of various types, in various positions, with various orientations, and under varying conditions of shade.
(8) Heat gain (or loss) from ceilings between first and second floors and floors over cellars.
(9) Heat gain from infiltration of outdoor air.

Obviously, this complex operation is nothing that an architect should undertake without special training in air-conditioning procedures. It is, however, quite within the architect's province to dovetail his designs and his specifications with the most economical as well as the most comfort-giving use of air conditioning. In attempting to do this, the methods of reducing heat gain described here might well claim his maximum attention. Most of them are just as effective for economical air cooling as they are for increasing comfort in the non-air-cooled building, with special emphasis on the basic need for a well-insulated structure. Materials that are resistant to the passage of heat in all its forms—convective, conductive, and radiant—including insulations against reflective and conductive heat and heat-absorbing double glazing, are almost basic requirements for the air-conditioned dwelling.

Of course, when designing for air conditioning in hot climates the architect naturally pays somewhat less attention to providing natural ventilation than he does when designing for comfort without air cooling. Whatever openings there are will be closed during the operating period for the air conditioner. Windows are definitely needed and they should be well-designed and sufficiently large, but not too large, to give the occupants a feeling of space and of outdoor-indoor living, as well as to take advantage of views. But it is even more important in the air-cooled house that the glazing be heat-absorbing, that the openings be completely shaded from the direct rays of the sun during the hottest hours and that the largest ones be oriented preferably to the north or the northeast where air temperatures are likely to be lower. Careful window design can have a marked effect on the total cooling load.

In working with an air-conditioning expert, an architect can often make essential contributions. As mentioned above, the expert is trained but he is unfamiliar at times with specific local problems and the architect who is thoroughly acquainted with these conditions often can suggest improvements or corrections.

conclusion

Conditions in hot climates obviously create new problems for architects who have been trained in temperate-zone traditions. However, the intent of this report is not to dissuade practitioners from following their profession in the tropical and semitropical parts of the world, but rather, to alert them to some of the differences that exist between temperate-climate design and hot-climate design, and thus to keep them from making some of the more common mistakes.

That the problem is not entirely one of the true tropics may not have been sufficiently emphasized in this article, but it is perfectly true that "40th parallel thinking" has resulted in bad errors in hot-weather design as far north as the Mason-Dixon Line. Dean Woolrich had some sharp things to say along this line in his paper in *Heating, Piping and Air Conditioning:*

"Some modern examples of the total disregard of the architectural fitness of structures from the point of view of their thermal characteristics can be seen in the thousands of Cape Cod houses being introduced in some of the treeless areas of the suburbs of Washington, D. C. (and Washington's climate approaches the semitropical)." Dean Woolrich goes on to show that similar errors continue to be perpetrated even in notoriously hot regions: "In one exclusive area of Dallas, Texas, the prevailing structures are two-story English designs with no overhanging eaves and many unshielded windows."

But one thing does remain as a common bond between cold-climate and hot-climate design for thermal efficiency and that is the use of insulating materials and methods. These are important not only in air-conditioned homes in the South, where they have a large economic function, but also in non-air-cooled dwellings, where their comfort-producing values make them decidedly worth the small extra expenditure their use involves.

For the old truism still holds: it is a lot easier to keep warm in cold climates than it is to get cool in hot climates. And anything that will help to increase the net comfort of man in an overheated environment is a positive contribution to the health and happiness of a large part of the world—even if its values cannot at first be counted in immediate dollars and cents.

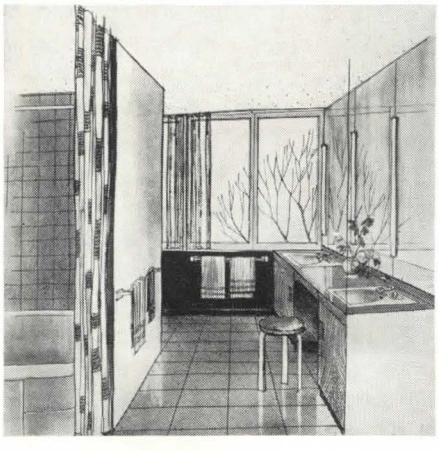
IDEAS in advance of today's standards

Originality of ideas and the quality, economy, and practicability of designs submitted were bases of jury decisions in the recent Architectural Competition, "dedicated to ideas for bathrooms, kitchens, and utility rooms," sponsored by Crane Co., Chicago, Ill., with Howard L. Cheney, Chicago Architect, as Professional Advisor. The 32 winning designs were the work of architects, draftsmen, students, and one professor, representing all parts of the country.

"To begin with, the Jury was looking for designs well in advance of today's standards but sufficiently practical so that they might be used in any custom-built or operative builder's house within the intent of the program," reports Royal Barry Wills, Boston Architect who was Chairman of the Jury. "Skill in rendering was considered only an aid in presenting the design. . . . The room idea was given the primary consideration."

A trend toward health aids such as sun lamps, exercises areas, and in many cases a garden—particularly with bathrooms for homes costing over $25,000—was of interest to the Jury. Complex and over-rendered designs were given short shrift when reviewed. Members of the Jury were: Chairman Wills; Glenn Stanton, Portland, Ore., A.I.A. President; George N. Dahl, Dallas, Tex., Architect; Alan Brockbank, Salt Lake City, Utah, N.A.H.B. President; and Henry Dreyfuss, Industrial Designer, N. Y. and Calif.

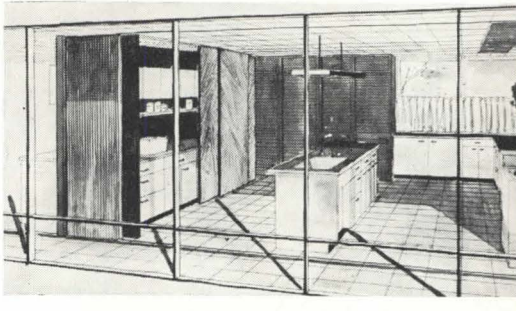
Winners of the top prizes of $3,000 in the four categories of the competition were: *J. A. Curtiss,* M.I.T. graduate student, for bathroom in home costing up to $25,000; *Charles West Jones, Jr.,* U.S.C. '52 graduate, for bathroom in home costing over $25,000; *Richard C. Brigham,* Cambridge, Mass., Architect, for best kitchen; *Donald H. Panushka,* Draftsman for Eero Saarinen & Assoc., Bloomfield Hills, Mich., for best utility room. In addition, there were 28 other prizes for "top" designs.

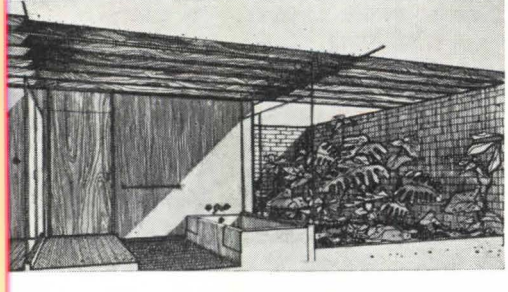


Compact, yet uncrowded . . . privacy, yet simultaneous use of all four fixtures, were merits Jury found in J. A. Curtiss' design (right) *for a bathroom in a house costing up to $25,000.*

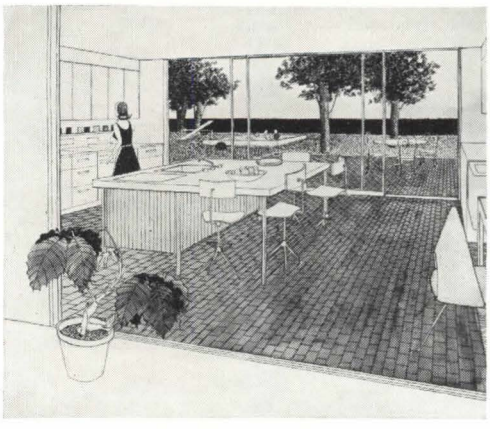
Admirable arrangement of more fixtures and adjacent garden were praised in Charles West Jones, Jr.'s design (below) *for a bathroom in a house costing over $25,000.*

The Jury found that Donald H. Panushka had designed (below) *a comprehensively planned utility room for varied home work and hobbies.*





It's "basic virtue" made the kitchen design (right) *by Richard H. Brigham stand out in the Competition. Practical for work, it does not overlook child-play supervision.*



resilient flooring resume

by Dave E. Smalley*

Since the advent of linoleum, many years ago, there has been a steady increase in the popularity of resilient flooring. Within the last decade or two, however, the idea has taken on revolutionary proportions.

The most applicable definition which Webster gives to the term *resilient* is "a body capable of withstanding sudden shock without permanent deformation or rupture." Therefore, floors of a resilient nature have these advantages over permanent, hard, nonresilient floors: they yield to pressure, providing greater comfort underfoot; indentation from pressure is self-remedied; they are more sound absorbent and quieter under impact; and they are easier to replace. These desirable factors, along with spectacular improvements in decorative effects, are responsible for the great and growing popularity of resilient floorings.

In the following pages we attempt to describe and discuss briefly the several types of resilient floors. It is to be understood, of course, that we must more or less generalize since the products and recommendations of the several manufacturers are not identical. While the limitations of space prevent our differentiating between the various brands, we will try to be fair to all.

Of the generally recognized types of resilient floors, we have linoleum in its several classifications, cork tile, rubber tile, asphalt tile, and the newer vinyl plastics. Taking these in the order named, we begin with linoleum, the oldest of all and the one with the most variations.

linoleum

Basically, almost all linoleum made today consists of oxidized linseed oil, fine-ground cork and wood flour, color pigments, mineral fillers, and resinous binders. This mix is bonded under heat and pressure to a backing of burlap or felt. Although the designations differ somewhat among the different manufacturers, the several popular kinds of linoleum can be classified as plain, inlaid, jaspé, embossed, marbleized, and tile.

* *Brazil, Indiana.*

Plain Linoleum

Plain linoleum is the newer term for what was for years called "Battleship." In its darker shades and heavier gage it is still frequently referred to by the same name which was derived from the earlier use of this material on the decks of battleships.

As the term implies, plain linoleum is of one solid color. At one time as much as ½-in. thick, it is now rarely more than ⅛-in. in thickness. It is supplied in a rather wide range of shades but the browns, grays, tans, and greens seem to predominate.

The heavy gages are less adaptable in regions where the humidity is excessive, and this rule applies to practically all linoleum since the material is softened by long exposure to such conditions.

Because of its smooth, more-or-less impervious surface, its toughness and consequent wearability, plain linoleum is especially adapted for commercial and institutional use; for this purpose ⅛-in. gage is recommended. For residential and other moderate conditions 3/32-in. gage is recommended.

Plain linoleum is also used extensively for runners in corridors, where it is inlaid in terrazzo or concrete and is frequently used to border and accent custom-designed floors.

The rules for the installation and treatment of plain linoleum differ so little from those of the other kinds of linoleum that those features are discussed collectively in another section of this article.

Inlaid Linoleum

Straight inlaid linoleum is so constructed that the decorative pattern goes entirely through to the backing, thereby preserving the pattern intact during the life of the flooring. It is made by two different methods, one of which is cutting the designs out of different colored strips of linoleum mix, with dies similar to biscuit cutters. These sections are automatically combined in the general design on the backing. Heat and pressure then complete the process.

Molded inlaid is made by sifting finely granulated mix, through a series of stencils, onto the backing material; followed by molding and fusing to the backing, under repeated applications of heat and pressure. Embossed linoleum is also made by this process with the addition of manufacturing processes by which parts of the design are depressed under heat and pressure, creating a textured effect.

Straight inlaid patterns range from simple straight-line styling to custom effects and are usually supplied in gages of 3/32-in. to 1/16-in. They are recommended for residential and light commercial use or, in conservative patterns, for offices and residential kitchens.

The embossed inlaid, usually made in tile and textured styles, offers wide opportunities to create unusual effects in commercial and residential interiors.

Some inlaids are lacquered and waxed before leaving the factory. This pretreatment is probably found beneficial because most inlaids have vertical pores, making the untreated flooring a little more absorbent to moisture and to traffic stains.

Jaspé Linoleum

Jaspé linoleum is similar to plain, except that it presents a multitone, striated appearance in a series of irregular, varying tones of the same or harmonizing color in more-or-less parallel streaks. It is supplied in a variety of colors though the greens and tans seem to be favored.

Somewhat more expensive than the plain, jaspé has these advantages over the latter: it avoids the monotony of a single plain color and its variegated effect helps to conceal footprints, dust, and small litter. It is also capable of being made into many decorative designs such as checkerboard, basketweave, herringbone, miter joint, etc.

Jaspé linoleum can be recommended for schools, hospitals, commercial buildings, and residences. In gage it is obtainable in ⅛ in. and 3/32 in. It is produced in rolls six ft wide and up to 99 ft in length.

Marbleized Linoleum

For all practical purposes there seems to be little difference between the texture and serviceability of marbleized and jaspé linoleums. The principle difference is in the

design, the marbleized simulating the variegated, nondirectional pattern of marble. It is better adapted than jaspé for custom designing because it can be cut into various shapes without harming the pattern effect. Supplied in many patterns and shades, it is available in gages of ⅛″, 3/32″, and 1/16″ and is recommended for all types of interiors.

Linoleum Tile

True linoleum tile, which is sold widely, is merely ordinary linoleum cut into tiles. It has, therefore, the same qualities as linoleum. However, certain linoleum-appearing tile products are processed differently, producing a product much more dense and durable than ordinary linoleum. This type of tile is said to have an indentation resistance of more than 200 psi which is nearly three times greater than that of regular linoleum. Therefore, it is much more than just linoleum cut into squares. It is exceptionally resistant to wear and abrasion and will not crumble or dust under heavy loads. Usually marbleized, the colors of which go through to the backings, it often so closely resembles rubber tile and asphalt tile that close inspection is required to identify it.

Supplied in squares of from 2″ x 2″ to 12″ x 12″ and in rectangles of from 3″ x 6″ to 18″ x 36″, it is recommended for all public buildings, including schools and hospitals, and for residences. The cost is about that of rubber tile.

cork tile

Cork tile, although it belongs to the linoleum family, differs from linoleum both in manufacture and structure. At one time made simply by compressing ground cork under high heat, the object being to melt the natural cork resins to serve as a binder, it was later found that excessive heat was injurious to the cork. Today certain resins of a lower melting point are used to eliminate the need of high temperatures; and in some cases dielectric heat has supplanted the oven-baking process.

Cork tile is not as durable as other types of resilient flooring and requires more careful maintenance methods.

Softer and more resilient underfoot than any other floorings, it is almost as noiseless as carpeting and exceptionally comfortable. It also possesses a rich dignity not found in other floorings and is particularly adapted for libraries, art galleries, courtrooms, reception rooms, and richly appointed residences. It is often used in banks, where it serves well in tellers' cages.

Since it is cellular in structure, cork tile is virtually impervious to air and atmospheric moisture. It will not warp and is subject to a minimum danger of rotting.

It is sometimes necessary to sand a new installation of cork tile to remove the unevenness at the joints caused by irregularities in the subfloor. However, where the beveled tile is used sanding should not be necessary.

Cork tile is usually supplied in the following sizes: 6″ x 6″, 9″ x 9″, 12″ x 12″, and 24″ x 48″. In gage it runs 3/16″ and 5/16″ although some manufacturers supply it in other thicknesses.

Of the various popular types of linoleum, certain comments and information apply to all.

linoleum and cork tile maintenance

All linoleum products, being largely or wholly comprised of vegetable matter, are vitally affected by alkali. Soap is made by combining vegetable oils or fats with alkali; therefore, when linoleum is brought into contact with alkali, especially if the latter is activated by moisture, a process similar to saponification begins. For that reason clients must be warned about the use of alkaline cleaners on linoleum.

But there is much more to the alkali hazard than the use of cleaning agents, at least from the standpoint of the architect. Linoleum, including cork tile, must never be installed over damp concrete or concrete which may become damp. This means that no linoleum of any kind should be laid on a concrete floor in direct contact with the ground—especially in below-grade installations where dampness in concrete is almost certain to exist at some time. There is a natural alkali inherent in concrete which, though much slower in action, can eventually be as effective as lye.

As a matter of fact, all authorities with whom this author is acquainted recommend that linoleum be laid on suspended subfloors, where there is ventilation underneath.

In order to insure the best service from linoleum or cork tile, an owner or supervisor should be instructed in the proper care of the floorings. While the manufacturer usually provides such instructions there are some basic facts that the architect should know.

As already indicated, no cleaner of an alkaline nature should be used. Only neutral soaps (those containing not more than 0.15% free alkali) are recommended, though certain synthetic cleaners (sulfated alcohol or sulfonated hydrocarbons) may be used with safety.

Finishes of a varnish or lacquer nature (those applied at the factory excepted) should not be used since they tend to stiffen the flooring and make it brittle. Floor waxes are the only kind of finish that should be used for the maintenance of linoleum and cork tile and all manufacturers of these floorings approve them. On linoleum either the solvent or water-wax type may be used, though for the original treatment of cork tile two or three applications of the solvent type are recommended, after which water waxes may be used.

rubber tile

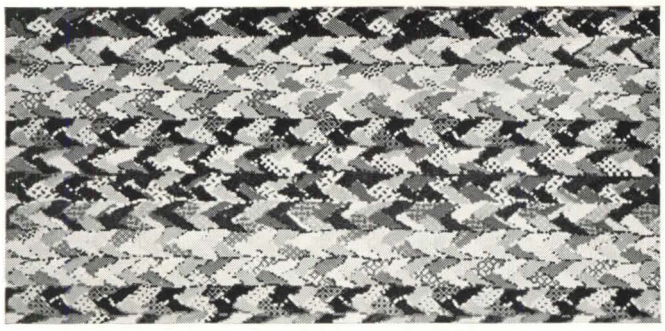
From the standpoint of original cost, rubber tile is the most expensive of resilient floors. This fact, coupled with those which give it exceptional beauty, richness of sheen, clearness of colors, and the luxurious "feel" underfoot, have justified the frequent reference to rubber tile as the "aristocrat of floors."

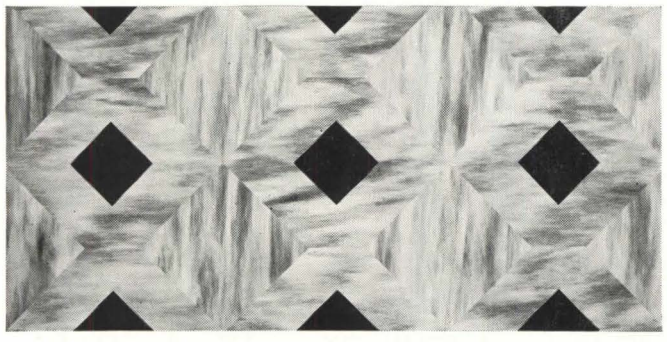
These rather superlative qualities especially recommend rubber tile where an air of elegance is desired, such as in exclusive shops, executive offices, and fine homes. It is also very adaptable for hospitals, clubs, libraries, and schools. Naturally less slippery than some other floors, it is especially suitable for entrance ways.

Originally natural rubber was used in the manufacture of rubber tile but World War II compelled manufacturers to resort to synthetic rubber. This substitution proved to be a boon, since it was soon found that the synthetic rubber possessed better wearing qualities and less tendency toward oxidation (the "death" of rubber) and made possible the control of quality. Uniformity of product, never completely accomplished from natural raw materials, has been established in the manufacture of rubber tile.

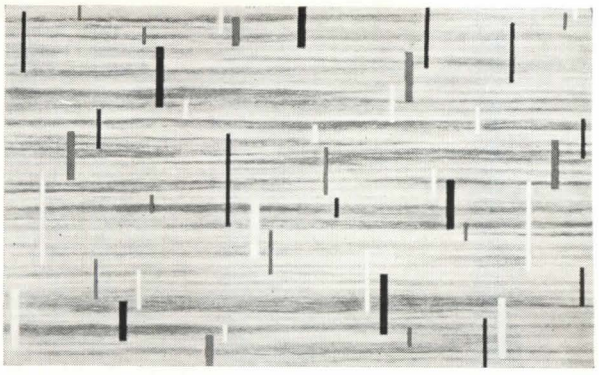
One of the special advantages of rubber tile is its high resistance and its prompt recovery from indentation. Compared to the

linoleum





inlaid linoleum

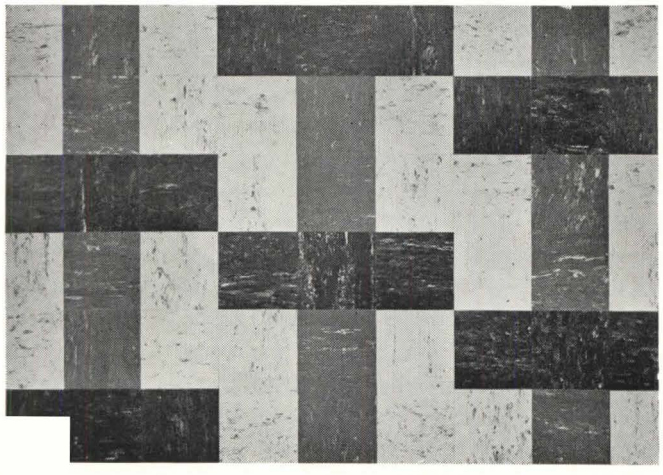


Straight-braid design in linoleum; three possible color combinations (above, left).

Inlaid linoleum; colored "Jackstraw" strips set cross-directionally to striated background colors (above).

Brushed effect in linoleum pattern composed of 6⅜" x 6⅜" and 8½" x 8½" blocks with 3⅛" x 3⅛" insets; gray or brown background, yellow, red, taupe, or green insets (left).

Photos: Armstrong Cork Co.; Congoleum-Nairn Inc. Pabco Products Inc.



Staggered design in rubber tile (above); *available tile sizes are 6" x 6" and 9" x 9".*

Color and marbleization extend through thickness of these rubber tiles (below); *26 colors.*

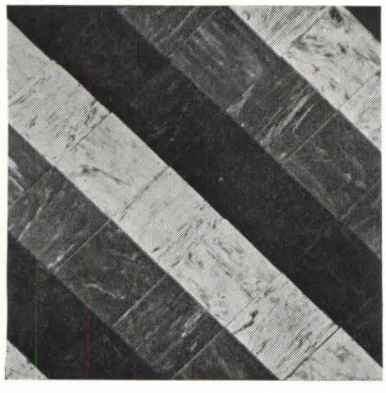
Photos: B. F. Goodrich Co. American Biltrite Rubber Co.

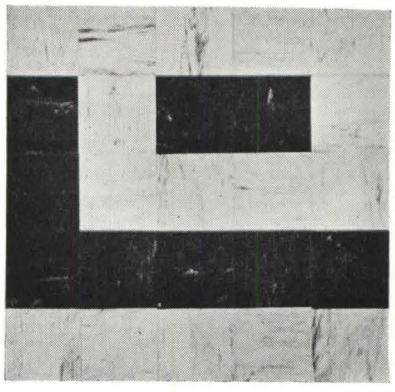
cork

Natural-shade cork tile (above); *gages: 3/16" and ⅛"; tile sizes: 9" x 9", 6" x 12", and 12" x 12".*

Photo: Sloane-Blabon Corp.

rubber tile





esistance of other types of flooring, rubber ile will stand up to 200 psi, whereas 25 si is considered the limit for asphalt tile, 0 psi for cork tile, and 75 psi for plain inoleum. Rubber tile is, in addition, much nore resistant to cracking or crazing and ts high-tensile strength prevents excessive ontraction and expansion, thus eliminating ny tendency to buckle.

As it is the most pliable tile flooring vinyl tile being a possible exception), ubber tile will conform to smaller irregularities in the subfloor and to minor swellngs or settlings of the latter.

Rubber tile can be satisfactorily installed, however, over any smooth, firm loor of concrete, steel, well-seasoned wood, r other hard surface. Of course the floor urface must be free of dust, oil, grease, loor wax, and other foreign matter.

Concrete subfloors must be absolutely lry before installing the tile and this paricularly applies to freshly-laid concrete. A simple way to test the dryness of the conrete is to sprinkle a small quantity of calium chloride in the center of a ½-in. thick ing of putty (about 3 in. in diameter) on he floor. Press a piece of window glass ver the putty ring to prevent the outside ir from coming in contact with the chemical, the latter being visible through the glass. If there is any moisture or dampness n the concrete, the calcium chloride will lissolve and show water spots. If the chemical remains white and dry after eight hours, t is safe to proceed with the installation. This test may be utilized for testing the moisture in any floor since no flooring should be installed over any kind of damp subfloor.

It is not to be assumed that even such a successful test qualifies a below-grade concrete subfloor for an installation of rubber tile. Nor is it recommended that rubber tile be laid over concrete which is in direct contact with the ground. No matter how dry the surface of such concrete may be at the time, its hygroscopic qualities will eventually draw moisture out of the ground by the process of capillary attraction.

While most manufacturers of rubber tile warn against its installation on below-grade or ground-contacted concrete, at least one manufacturer seems to take issue with them. Or, at least, he recommends his rubber tile for basement floors. He says: "When proper precautions and preparations have been taken, rubber tile flooring can go into any basement at a very small additional cost—not more than 10 to 12 percent." Briefly, his methods are in the one instance, to place a tar, waterproof membrane over the primary slab, to tie it in with the side walls, and to continue up to a point above grade. Then both floor and wall are cemented over. "Where a basement concrete floor has been completed, the floor should be coated with tar; two by four sleepers are then placed, and a plywood subfloor is laid—leaving spaces around the edges for ventilation. Next, saturated asphalt felt is cemented to the subfloor and on this the rubber tile is installed with waterproof cement."

For architects and their clients who may not favor the foregoing method, we shall show later that asphalt tile is more easily adapted for below-grade subfloors and seems to be the more generally accepted material for the purpose.

Rubber tile also seems to serve best on suspended subfloors and in such cases presents no special installation problems. It does, however, call for special maintenance care to avoid damage to the flooring. Differing from linoleum, mild alkaline cleaners are even approved while the use of soaps is restricted by The Rubber Manufacturers' Association. The Association states in its recent cleaner specifications regarding alkalinity: "The pH value of a solution of the maximum concentration recommended for use shall not exceed 11.6." This permits the use of modified soda which is a 50-50 mixture of sodium carbonate and sodium bicarbonate.

Regarding the use of soap, the Association limits to one percent by weight the maximum concentration of anhydrous (dry) soap in the solution used.

Water emulsion waxes are recommended for maintaining all rubber tile and periodic buffing with No. 1 steel wool is suggested. Oils and greases, the hydrocarbons, are all enemies of rubber, bringing about its gradual disintegration. This means solvent-type floor waxes (liquid or paste) should never be used on rubber tile. Neither should oily dust-mops or sweeping compounds be utilized. Daily mopping with clear water and buffing with a floor polishing machine is the recommended routine.

asphalt tile

No type of resilient flooring has made such rapid strides in popularity as has asphalt tile. Once an unlovely material whose limited two-tone color scheme was sometimes referred to as "two shades of black," it has developed into one of the most decorative of floorings.

Now made principally or wholly of asbestos fibers, mineral pigments, and resinous binders it is capable of being made into all the rich and vivid colors of the other floorings.

It is not nearly as pliable or resilient as rubber or linoleum and unless it is warm, it will break before it bends. For that reason perfectly level, smooth, nonflexible subfloors are more important than in the case of any of the other resilient floorings.

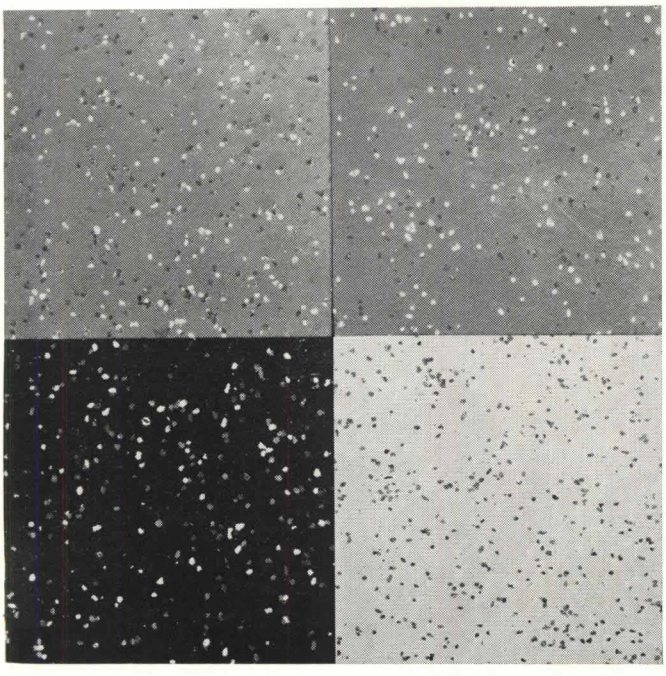
Although its resistance to indentation is comparatively low, it is probably the toughest and most "foolproof" of all the floorings. Only certain solvents (such as gasoline, oils, greases) which quickly dissolve it seem to be the natural enemies of asphalt tile. Solvent-type waxes, including paste wax, are ruinous.

Being thermoplastic it softens under heat, but is relatively fire-resistant. It is the one type of resilient flooring which is recommended by all of its makers for below-grade installations and it can be used on concrete at any level.

In the case of wooden subfloors, one manufacturer specifies that the floor should be double and composed of well-seasoned boards, not over 3 in. wide. He further specifies that "A layer of 15-lb completely asphalt-saturated felt paper with butt joints shall be laid across the boards and cemented down with linoleum paste. The felt paper shall be thoroughly rolled with a 100-lb 3-section iron roller."

In any case, there should be an underlayment of felt cemented across the wooden floor and it is recommended that the tile itself should be kept in a warm room for at least 24 hours before installation. During the laying of the tile a room temperature of at least 70 F should be maintained for easy handling of the tile and adhesive.

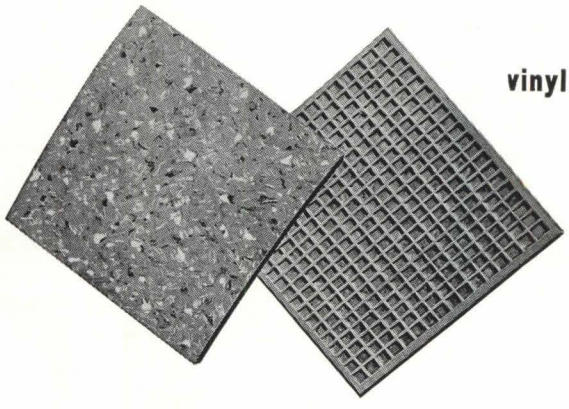
Asphalt tile is now supplied in a greaseproof type, designed for kitchens, automobile showrooms, etc., wherever grease or oil may be spilled. It is from 30 to 50 percent more expensive than standard tile and



asphalt tile

Asphalt tile in confetti pattern of multi-color dots and dashes on solid-color background (left); *9" x 9" squares are ⅛" thick; 10 background colors.*

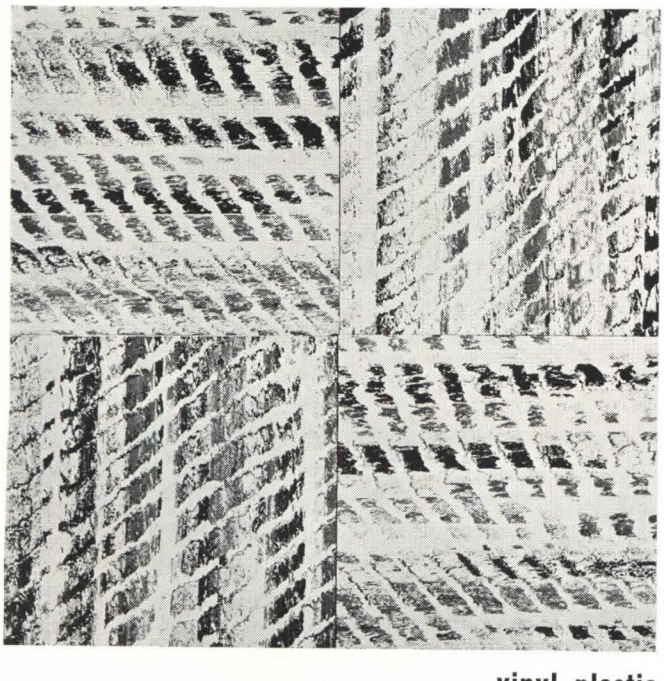
Photo: Mastic Tile Corp. of America



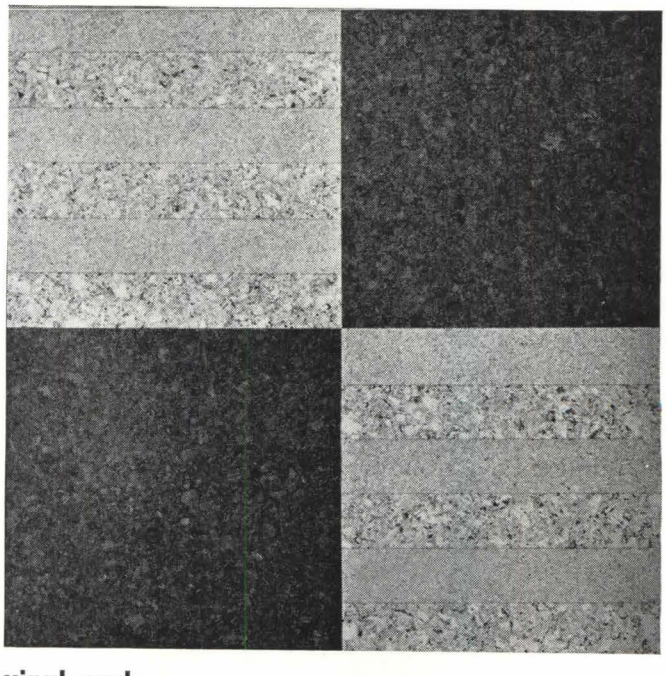
vinyl plastic

Terrazzo-pattern vinyl-plastic tile (right); *can be installed without use of adhesives.*
Corduroy-pattern vinyl-plastic tiles (below) *and a panel of vinyl-cork parquetry* (below, right).

Photos: Robbins Floor Products, Inc. Bakelite Co.; Dodge Cork Co.



vinyl plastic



vinyl cork

erefore is recommended only where there a specific need for it.

Nearly all types of soap and mild alka- e cleaners may be used for maintaining phalt tile but to obtain best effects and to se the cleaning it should be waxed, using water wax, of course. But wax often kes asphalt tile slippery. This fact has en rise to the belief that asphalt tile is turally slippery. However, according to e Asphalt Tile Institute, the National reau of Standards reports as follows: Inder most conditions asphalt tile is safer walk on than any other smooth-surfaced terial, provided it has no high-gloss wax ish."

This would seem to eliminate floor wax the maintenance of asphalt tile but in past year or so one of the large chemi- l companies has developed a solution of spended, finely-ground silica which, when ded to water-wax emulsions, increases as ch as 50 percent the coefficient of fric- n. These waxes, now obtainable from ny sources, seem to be the answer for xing asphalt tile. Varnishes and lacquers , of course, unsuitable and often detri- ntal.

Asphalt tile, usually about ⅛-in. gage, is w supplied in a wide range of colors and signs. It is adapted for use in almost any d of building and is particularly recom- nded where cost is an important factor.

vinyl plastic

nyl-plastic floorings are just coming into neral use and are supplied in both sheets d tiles. As flexible as rubber, they are d to be fairly immune to alkalies, oils, eases, and ordinary mineral solvents. me makes contain asbestos fibers, others made of vinyl resins and color pig- nts, modified with special plasticizers d calendered on felt backing. Some of tile is molded into shape without a cking, so closely resembling rubber tile t one almost has to "smell" it to iden- y it.

Its chief attributes seem to be its extreme xibility, rich colors, and fine natural ss, though its cost is relatively high. ch is claimed for it by its producers t since it is still a comparatively new terial, its wearing qualities over an ex- ded period are yet to be determined.

Vinyl-plastic flooring may be used over ctically any kind of dry, smooth sub- floor, though only vinyl plastic asbestos tile may be used below-grade. It is recommended for markets, auto showrooms, laboratories, homes, and seems to be popular in drug stores. Tile sizes may vary but the standard seems to be 9″ x 9″ with ⅛″ thickness, though one authority claims more vinyl tile is used in 1/16″ thickness. Borders run 9″ x 9″ and 18″ x 24″.

A high coefficient of friction is claimed and waxing is pronounced unnecessary. However, since any kind of surface will finally succumb to friction, it is obvious that a protective coating of wax should extend the life of the flooring.

conductive flooring

While, in the foregoing, we have discussed the different popular resilient floorings as such, there is still something to be said about a certain phase of those floorings that has become important. Conductive flooring constitutes certain structural adjustments in the different types of flooring for the purpose of draining off static electricity.

In most cases conductive floorings are now compulsory where installations are made in the surgeries of hospitals and other locations where explosives are used or stored.

A few of the leading manufacturers of linoleum, rubber tile, and asphalt tile now supply their floorings with conductive qualities. In appearance and other visible characteristics they cannot be distinguished from the regulation floorings. But they must be specially maintained, avoiding the use of coatings which might nullify the conductive properties for which they are designed. An inquiry recently made of The Underwriters' Laboratories brought this reply, "We have listed no waxes or similar finishes for general use on conductive floors. Two manufacturers of ours listed electrically-conductive floorings supply finishing and maintenance materials which may be used on their own floors but these materials have not been tested and listed for general use on various types of floors."

radiant heating

In concluding this article on resilient floors there is something to be said in regard to their use over radiant heating installations. Since this type of heating consists of a series of pipes, often embedded in concrete floors, the same rules apply as already cited for the proper use of resilient flooring on concrete.

Therefore, if the concrete is in direct contact with the ground on or above grade, asphalt or rubber tile may be used. However, for below-grade installations only asphalt tile should be used. On suspended subfloors where the heating is located, linoleum may be used. Cork, rubber, and the vinyls may also be used in radiant-heating installations and are completely efficient for such use.

Because of the thermoplastic qualities of most resilient flooring materials, these floors tend to become slightly softer when radiant heating temperatures run higher than normal. However, since most radiant systems deliver normal temperatures of 75 to 85 F at the immediate surface of the floor, it is not considered any more effective than the direct rays of summer sunlight.

Near the beginning of this article the writer said that it would be difficult to abide by the specific descriptions and directions of all the manufacturers of resilient floors. Obviously we have been unable to do so but we have endeavored to give the architect-reader the general idea which cannot have gone too far astray from any one manufacturer's version. At least we have tried to be as fair with the makers of the floors as we have tried to be helpful to our readers.

acknowledgments

The following organizations, through their literature and personal help, have assisted greatly in the preparation of this article:

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The Flintkote Company, The Tile-Tex Division
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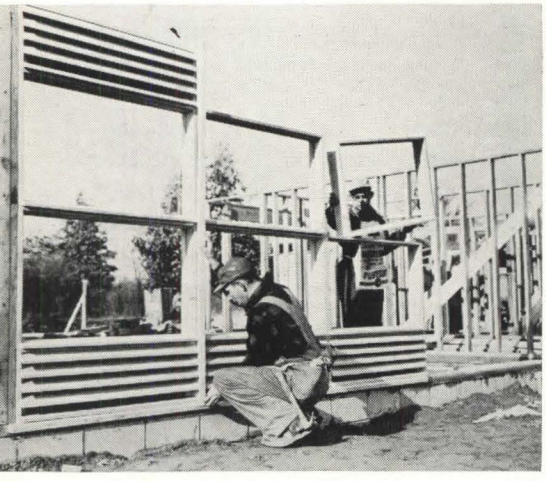
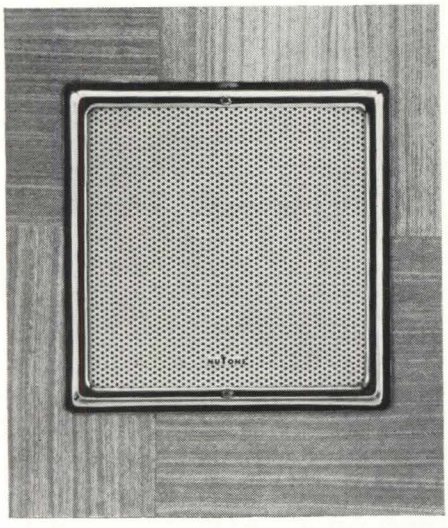
The Goodyear Tire and Rubber Company
Johns-Manville
Kentile, Inc.
Mastic Tile Corporation of America
Pabco Products Inc.
R. C. A. Rubber Company
Robbins Floor Products, Inc.
Sloane-Blabon Corporation
United States Rubber Company
Uvalde Rock Asphalt Company

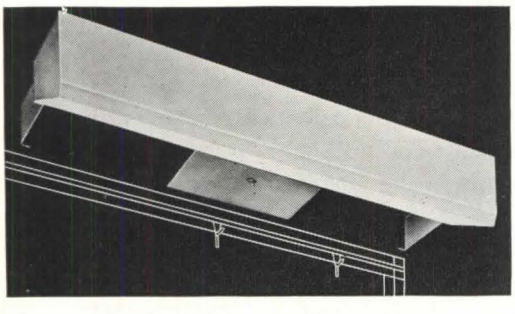
p/a products



Self-stacking "Totem" units—fixed windows, ventilating windows, wood-louvered ventilating units, and insulated wall panels—interlock in any combination desired, either horizontally or vertically (left). *Identical in size, each unit is 4' high, 2'-4" wide, 4⅜" thick, and has a bearing load of 2400 lbs (vent units also come in half and quarter sizes). Top, bottom, and sides of all panels have two grooves to accommodate splines that come packaged with each unit. Solar Air-Flo, Inc., Elkhart, Ind.*



New recessed chime—7" square with sounding mechanism behind the wall line —cannot be bumped, damaged, or scraped (left). *Tone results have been improved by use of a double resonator system whereby both ends of the tone bar are resonated. Multiple installation provides uniformly mild tone throughout house. This chime sounds two notes for the front door and one for the rear. NuTone, Inc., Cincinnati, Ohio.*



Leonard V. James, Fellow I.E.S. has stated: ". . . It might first be noted that even good general illumination in the room (class) *will normally provide less than half as much light (footcandles) at the wall or chalkboard surfaces as at the task on the desk." The "chalkboard dean"* (left) *has been introduced by the Solar Light Manufacturing Company of Chicago as its contribution toward the proper illumination of classroom chalkboards.*

air and temperature control

Weathermaker: new low-cost residential air-conditioning unit provides two tons of cooling and dehumidifying capacity plus winter heating and year-round filtered air circulation. Measures 37" x 37", 62" high. Burners are available for heating with any type of gas or with oil. For areas where water is scarce, air-cooled condensing attachment may be used which eliminates water consumption. Cooling and dehumidifying capacity is supplied by hermetic compressor. Carrier Corp., 300 S. Geddes St., Syracuse 1, N. Y.

Air-Conditioning Unit: new residential air conditioner supplies heat by gas-fired, forced-air furnace and summer cooling and dehumidification by automatic electric refrigeration unit. Models in 3- and 5-ton capacities for new or existing homes of six to eight rooms. 3-ton size: 70" high, 40" wide, and 34¼" deep. General Motors Corp., Frigidaire Div., 300 Taylor, Dayton 1, Ohio.

Two-Ton Gas Fired Air Conditioner: new unit providing summer and winter air conditioning for houses in price range of $10,000 to $14,000; cost not over 10% of price of house. 27" wide, 75" high, covers 8¼' of floor space; delivered complete, less ductwork. Other features: quietness of operation, low maintenance costs. Servel Inc., Evansville 20, Ind.

Air Volume Extractor and Controller: double-duty adjustable air-volume extractor and controller is factory assembled and, according to manufacturer, saves sheet metal workers up to 50% in assembly time over handmade methods. Unit of heavy-duty construction makes use of curved blades which bring even distribution of air to entire grille face. Titus Mfg Corp., Waterloo, Iowa.

construction

Masonite Presdply: 4' x 8' panels for concrete form work have core of plywood and faces of hardboard with grainless surface. Combines sheathing and lining in one material; may be reused a number of times. Smooth finished concrete is obtained which does not require hand rubbing. Panels available in thicknesses of ⅝" and ¾". Masonite Corp., 111 W. Washington St., Chicago 2, Ill.

Skytrol Glass Block: new light-diffusing glass block designed for use in skylights both structurally and optically. Fibrous glass screen sealed in block creates double cavity which improves insulating value and diffusion of light. Block is 12" x 12", 4" thick. Pittsburgh Corning Corp., 307 4 Ave., Pittsburgh 22, Pa.

doors and windows

Weather-Seal: new improvement for sliding glass doors uses mohair pile as a combination weatherstrip and guide in glass-run channel of top section of door. Eliminates need for top guide rollers. Mohair pile provides double weatherstrip which contacts both sides of vertical flange in head of frame. Exterior appearance of installation is not changed. Arcadia Metal Products, 324-31 N. 2 Ave., Arcadia, Calif.

Window and Door Lintel: new lintel is produced by roll-forming process which eliminates any twist and assures that lintel lies flat at both ends. Special rib construction prevents wall drainage contact with the sash and provides space for a solid bed of mortar. No tuck pointing is necessary. Available in two gages and sizes from 2'-0" to 7'-6" Sharon Steel Corp., Brainard Steel Div., Warren, Ohio.

electrical equipment, lighting

Indirect Fluorescent Design: luminous indirect fixture designed for pendant mounting. Full reflecting-transmitting ribbed plastic panels are curved at a radius which is modern in appearance, yet allows correct levels of illumination for classrooms, offices, and other interiors. Variety of lengths may be mounted individually or joined in continuous rows. Two and four lamp models are listed. Fluorescent Fixtures of California, 3320 18 St., San Francisco, Calif.

finishers and protectors

Staize-Clene Paint: new odorless enamel paint which will resist dust, dirt, and grease is recommended for hotels, restaurants,

ants, offices, hospitals, and other institu-nal users. Patented ingredient leaves al-ost poreless film. 39 colors in flat, semi-ss, and gloss finishes. Enterprise Paint g. Co., 2841 S. Ashland Ave., Chicago 8,

id-Not Floor Finish: new transparent astic floor finish is said to be completely id-proof and can be applied over var-shed or enameled wood, rubber or asphalt e, cork, terrazzo, or magnesite floors. lorless liquid forms semigloss, nonglare ish that lasts three to four times as long wax. Especially adaptable for use in hos-als, schools, and commercial, industrial, d public buildings. The Monroe Co., Inc., 703 Quebec Ave., Cleveland 6, Ohio.

insulation (thermal, acoustic)

oustilite: perforated acoustical tile-board ade from light-colored wood fibers. Size: " x 12" tile with ½" and ¾" thicknesses. plied with adhesive or nails. Beveled butt ge joint, standard 484 drilled holes per e; factory-painted white surface with 78% ht reflection. Minnesota and Ontario per Co., Insulite Div., 500 Baker Arcade dg., Minneapolis 2, Minn.

rocor Insulation: new use for insulation aterial as noise-absorbing pads behind tal ceiling pans. Pads have .85 noise re-ction when used behind the standard rforated metal pan system. Made of mi-te fibers of glass, pads will not burn or pport combustion, will not rot or decay, d will not absorb or give off odors. Paper ing on the pads is not necessary. Owens-rning Fiberglas Corp., Nicholas Bldg., ledo 1, Ohio.

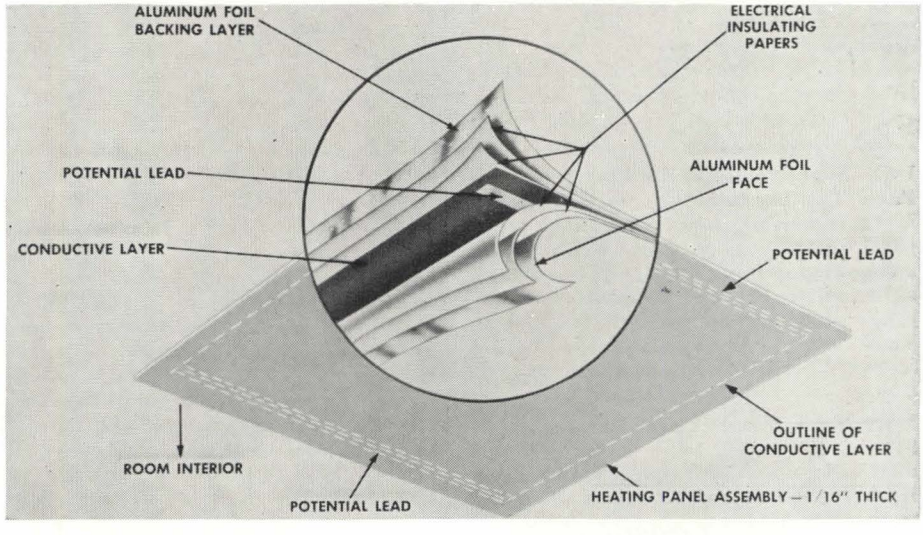
sanitation, water supply, drainage

emote Type Water Cooler: redesigned e of remote-type water coolers includes dels in either 3-, 5-, or 10-gallon capaci-s. Compressor, condenser, cooler, and wir-g completely enclosed in metal and fin-ed in baked gray enamel. One unit can rve from one to five wall fountains. In dition to water cooling, unit may be used r cooling light oils, some chemicals, and ohol. Control dial enables the user to gulate the outlet water temperature within e control range to suit his own needs. mprite Products Corp., E. Maple Rd., rmingham, Mich.

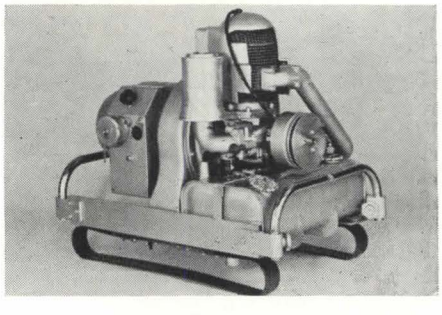
specialized equipment

n Position, Heat Gain, and Shading ata Calculator: slide calculator will figure at gain through windows in a matter of nutes. With the latitude of the building d the compass bearing of the window own, calculator can figure sun altitude, lative sun-window azimuth, shadow angle, liance transmittted through bare window, d shade percentage using Ingersoll Kool-ade Sunscreen. By changing inserts, cal-lations can be made for most latitudes in rth America. Borg-Warner Corp., Inger-l Products Div., 310 S. Michigan Ave., icago 4, Ill.

Electric radiant-heating panels — only 1/16" thick and weighing but 6 oz per sq ft—can be cemented to ceiling like ***wallpaper*** (installation photo right; detail drawing below). *Although complete radiant heating for an entire house or a single room is possible with the panels, they are particularly useful for an added room or for supplementary heating. Three sizes are available: 4′ x 6′, 4′ x 4′, and 3′ x 4′. Panels are rated at 22 watts per sq ft (75 Btu's) and are available for either 115 or 230 volts. Surface temperature averages about 100 F. United States Rubber Company, Rockefeller Center, New York 20, N. Y.*



New, dual-voltage, 5 kilowatt portable generator will carry a continuous load of 5,000 watts, single phase, 60-cycle alternating current at either 115 or 230 volts (right). *Dimensions are: 29" long, 24½" wide, and 25½" high, weight: 228 lbs, complete with gasoline engine. Homelite Corporation, 67 Riverdale Avenue, Port Chester, N. Y.*



Pantryettes: new steel kitchen wall cabinets with translucent sliding glass door panels. Can be easily hung by homeowner at any height desired. Units are mounted on special hangar strips which are attached to wall-studding; come in variety of lengths from 18" to 5½′. Nash-Kelvinator Corp., Kelvinator Div., 14250 Plymouth Rd., Detroit, Mich.

Vertical Files: new vertical filing system which results in substantial savings in floor space and in installation costs uses steel vertical file shelves. Folders are easy to find and to replace. Compact, library-like arrangement of stacks and folders has cut down unproductive walking time. Fewer file clerks are required. Virginia Metal Products Corp., 1112 First National Bank Bldg., Pittsburgh, Pa.

surfacing materials

Poly-Krome Asphalt Tile: terrazzo-design asphalt-tile flooring for residential and commercial installations. Multicolored chips set deep into surface of tile retain their sparkle throughout the life of the flooring. Available in 10 colors. Hachmeister-Inc., Floor Tile Div., Box 357, Pittsburgh 30, Pa.

p/a manufacturers' literature

★ *Editors' Note: Items starred are particularly noteworthy, due to immediate and widespread interest in their contents, to the conciseness and clarity with which information is presented, to announcement of a new, important product, or to some other factor which makes them especially valuable.*

air and temperature control

1-5. Agitair Stripline (S100-153), 12-p. booklet describing air diffusers with built-in diffusing vanes which create turbulence for mixing and cause quick temperature equalization. Information on available widths of two models, selection procedure, design and construction, typical application and installations, and methods for testing the diffusers. Charts, drawings, photos. Air Devices Inc., 17 E. 42 St., New York 17, N. Y.

1-6. Suggestions for Designing Radiant Panel Heating with Copper Tube, 50-p. brochure which includes chapters on radiant panel heating, general design consideration, a suggested simplified design procedure, installation practice, and a discussion of why copper tube should be used for radiant-panel heating with a question and answer section. Tables, drawings. Chase Brass & Copper Co., Waterbury, Conn.

1-7. Trade-Wind Clipper Blowers, A.I.A. 30-D-1 (620G), 8-p. folder listing five requisites for successful kitchen and small room ventilation and advantages of blower models for kitchen cabinet and ceiling installations. Specifications, information on accessories, and installation drawings of various units. Trade-Wind Motorfans, Inc., 5725 S. Main St., Los Angeles 37, Calif.

★ **1-8. USKON Electrical Radiant Heat from the Ceiling,** A.I.A. 30-C-44 (M-3177), 24-p. booklet describing prefab electrical heating panels for residential or commercial installation and adaptable to new or old construction. Heating units which utilize sheets of electrically conductive rubber now available in sheets 1/6" thick or in rigid panels ¼" thick. Advantages, construction and installation information, heating cost estimation, specifications. Tables, photos. United States Rubber Co., Passaic, N. J.

construction

2-9. Spectra-Glaze Specifications, 4-p. folder with data on a structural concrete block with face glazed to provide a permanently finished surface. Drawings of available shapes, information on color selection, textures, strength, chemical resistance, dimensional stability, and cost. Also test results and specification data. Glazed Block Corp., 147 5 St., Rochelle Park, N. J.

Two bulletins on gypsum lath and water-repellent core-treated gypsum sheathing. Description of physical properties and uses of plain, perforated, and insulating lath with fire resistive ratings, attachment details, information on floating systems of attachment, and suspended ceilings. Details of construction and specifications of the sheathing. Gypsum Assn., 20 N. Wacker Dr., Chicago 6, Ill.:

2-10. Fireproof Gypsum Lath, A.I.A. 20-B-2

2-11. Fireproof Gypsum Sheathing, A.I.A. 19-D-3

2-12. Reynolds Architectural Aluminum, A.I.A. 15 (BI-9-1052), 16-p. brochure listing architectural advantages of aluminum and describing various applications. Tables of available sizes of square and rectangular tubing and bars, square corner and structural shapes, sheets, plates, and extrusions. Outline of mechanical, chemical, electrolytic, electro-plate, and organic finishes. Reynolds Metals Co., 2000 S. 9 St., Louisville 1, Ky.

2-13. Rilco Glued Laminated-Wood Arches, Beams, and Trusses, A.I.A. 19-B-3, 20-p. catalog illustrating basic shapes of laminated-wood tangent arches, purlins, beams, radial arches, bowstring trusses, utility arches, timber trusses, and girders and showing their application in the construction of churches, schools, gymnasiums, commercial and industrial buildings. Basic design data, dimension tables, and connection details. Rilco Laminated Products, Inc., First National Bank Bldg., St. Paul 1, Minn.

★ **2-14. Design Data for Reinforced-Concrete Columns and Sonotube Technical Data.** Tables giving design data for round reinforced concrete columns with any of 11 diameters as compiled by the Clemson Engineering Experiment Station, Clemson College, S. C. Also reports on crushing and bursting strength tests of a laminated fiber form for the construction of round concrete columns. Sonoco Products Co., Construction Products Div., Mystic, Conn.

2-15. One Hundred Years of Engineering Progress with Wood, 112-p. compilation of papers presented at the wood symposium held during the Centennial of Engineering Convocation, Chicago, Ill., Sept. 3-13, 1952. Twenty-one papers and six discussions describe many phases of wood utilization and factors affecting their progress during the past century, including working stresses, structural and other commercial lumber grades, laminated timbers, and engineering progress. Photos, tables. Timber Engineering Co., 1319 18 St., N. W., Washington 6, D. C.

doors and windows

3-9. Gate City Fact Folio, A.I.A. 16-L. Information with illustrations on preservative-treated wood awning windows, including specifications for the complete unit, schedule of sizes and types, and hardware specifications. Detail sheets on thermopane glazing and vinyl jamb and metal horizontal weatherstripping. Also installation suggestions with details for different types of construction. Gate City Sash & Door Co., P. O. Box 901, Fort Lauderdale, Fla.

3-10. Hasko Doors, 8-p. folder featuring a flush door with core of wood arch ribs ⅛" thick, spaced 1½" apart and also describing a line of flush, ready-hung, and roller doors. Specifications, sizes, construction features; photos, drawings. Haskelite Mfg. Corp., 700 Ann St., Grand Rapids 2, Mich.

3-11. Aluminum Awning Windows, 16-p. booklet giving information on a line of aluminum windows with flash welded frame corners. Illustrations of typical installations in residences and commercial and public buildings. Sectional drawings, installation details for frame, brick veneer on frame, brick veneer on block and concrete masonry. Standard, modular, and special sizes; specifications; operating hardware. Industrial Machine Tool Co., Inc., Tru-Seal Window Div., Fenton, Mich.

3-12. Saving Ways in Doorways, A.I.A. 16-D (75), 32-p. catalog with photos and drawings of steel rolling doors, fire doors and shutters, two-section doors, roll-top sectional overhead doors, steel rolling grilles, and special doors and counter closures. Description of features, specifications, drawings, photos. The Kinnear Mfg. Co., 820-870 Fields Ave., Columbus 16, Ohio.

3-13. Aluminum Windows, 16-p. catalog of residential double-hung and casement windows of aluminum with stainless steel hardware. Specifications, size chart, full-scale and installation details. Drawings, charts, photos. Metal Arts Mfg. Co., Inc., P. O. Box 4144, Atlanta, Ga.

3-14. Doors and Entrances by Natcor, A.I.A. 16-E, 12-p. catalog describing a line of aluminum entrances and narrow stile doors with extruded aluminum sub-buck. Door and frame details of standard size units and units custom-built to architects' specifications. Dimensions, specifications, and glazing recommendations. National Glass Co., Natcor Store Fronts Div., Taunton, Mass.

3-15. Steelcraft, A.I.A. 16-E (SCC-521), 12-p. brochure giving information on steel residential casement windows and industrial windows. Specifications, available types, and sizes, sectional drawings, and installation details. The Steelcraft Mfg. Co., 9017 Blue Ash Rd., Rossmoyne, Ohio.

electrical equipment, lighting

4-5. Curtistrip, A.I.A. 31-F-2 (2423), 12-p. catalog of various sized wiring channels for all types of lighting equipment; small, medium, and large units made of heavy gage cold rolled steel and finished baked aluminum. Detailed descriptions, illustrations

f channels and accessories, illumination ata, applications. Curtis Lighting, Inc., 135 W. 65 St., Chicago 38, Ill.

-6. Ballasts for Fluorescent Lamps (495)E). 16-p. bulletin on fluorescent lamp allasts for residential, commercial, and in- ustrial uses contains photos and wiring iagrams of equipment, gives specifications, f switch-start, trigger-start, slimline, cir- ine, germicidal, and d-c operation ballasts. lso descriptions of ballasts for instant-start mps, series ballasts with sequence start- g, multiple use of slimline ballasts, and gh voltage lighting for commercial build- gs. General Electric Co., 1 River Rd., henectady 5, N. Y.

7. Guardian for the Finest in Service ation Lighting (52), 32-p. catalog cover- g service station lighting equipment with chnical data and general information on orizontal and vertical fluorescent units for mp island lighting, sealed beam spot and od lampholders, reflectors, splice boxes d fittings, sign lighting units, brackets, hting standards, hinged poles, and other lated equipment. Photos, drawings, charts, dex. Guardian Light Co., 301 Lake St., k Park, Ill.

8. Swivelier, A.I.A. 31-F-23 (132), 40-p. ochure describing line of adjustable light- g equipment including canopy shade units, rtable units, "Vogue-Lites," recessed fix- es, wiring devices, units for outdoor use, cial units, and lighting accessories. In- mation also on patented wall socket, de- led specifications of units, illumination ta; photos, list of prices, numerical index. ivelier Co. Inc., 43 34 St., Brooklyn 32, Y.

9. Engineered Fluorescent Lighting -5799). 24-p. pocket catalog on fluorescent ninaires for commercial buildings and in- strial plants gives information on where respective types of luminaires are best olied, what models are available, the fea- es of each, and their dimensions. 4-p. le with standard data on all the lumi- res including style number, description, l price. Photos, diagrams. Westinghouse ctric Corp., Box 2099, Pittsburgh 30, Pa.

finishers and protectors

. Carbosota Wood Preservative 770), 6-p. folder giving features of a cold- creosote oil wood preservative which tects wood against insects and fungi and retards excessive shrinking, swelling, l checking. Application and coverage in- mation, description of open tank process. ied Chemical & Dye Corp., The Barrett ., 40 Rector St., New York 6, N. Y.

. Where to Use Tapecoat, 8-p. bro- re describing possible applications of a l tar protective coating in tape form in and oil, transportation and communica- s, water and sewage, and general indus- trial fields. Table of coverage, photos. The Tapecoat Co., 1523 Lyons St., Evanston, Ill.

insulation (thermal, acoustic)

6-3. Job-Proved Celotex (1600-A), 12-p. booklet on insulation boards for use over any type of solid deck under built-up roofing: smooth-surfaced, slag, or gravel. Sizes, thicknesses, and edges of four types of insulation board and advantages of each. Coefficients of transmission (U) of flat roofs covered with built-up roofing. Photos, drawings. The Celotex Corp., 120 S. LaSalle St., Chicago 3, Ill.

Two booklets on line of acoustical and sound control products. One contains illustrations of the use of glass fiber products in offices, retail businesses, hospitals, schools, and industrial plants. The other includes technical data on noise reduction coefficients, application details and specifications for textured, perforated, and plastic-faced acoustical tile; ceiling board; baffles; insulation pads; preformed insulation; and insulating wool. Owens-Corning Fiberglas Corp., Nicholas Bldg., Toledo 1, Ohio.

6-4. Look to Fiberglas for the Complete Line of Sound Control Products (A52-8)

6-5. Sound Control Products, A.I.A. 39-B (AC6.A1)

specialized equipment

8-6. Chart-Pak for Making Industrial Layouts, 9-p. brochure describing a new method of preparing industrial layouts. A variety of pressure-sensitive tapes representing material conveyors and structural components, scaled ¼"=1' and other tapes consisting of broken and solid lines, reference numbers, letters, and colored arrows are represented. Also information on plastic layout boards and pressure-sensitive grid sheets for machine and equipment templates. Chart-Pak Inc., 104-8 Lincoln Ave., Stamford, Conn.

surfacing materials

9-4. Inexpensive Luxuries by Hako (AT-200), 8-p. bulletin listing features of asphalt tile flooring products, including parquetry and terrazzo designed tile. Installation procedure, color chart, and photos of possible design combinations. Hachmeister-Inc., 2332 Forbes St., Pittsburgh 30, Pa.

9-5. Specification for Installation of the Mosaic Tile Company Conductive Floor Tiles, A.I.A. 23Q (13), 2-p. bulletin giving information on a conductive flooring adhesive and a vitreous ceramic, electrically conductive tile flooring for hospital operating rooms and other areas listed as Class I Group C Hazardous Locations. Description of "thin-set" method of installation, detailed information on materials, and setting procedure including installation, grouting and finishing, and cleaning and protection. Miracle Adhesives Corp., 214 E. 53 St., New York 22, N. Y.

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PROGRESSIVE ARCHITECTURE, 330 West 42nd Street, New York 36, N. Y.
I should like a copy of each piece of Manufacturers' Literature circled below.

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3-14	3-15	4-5	4-6	4-7	4-8	4-9	5-2
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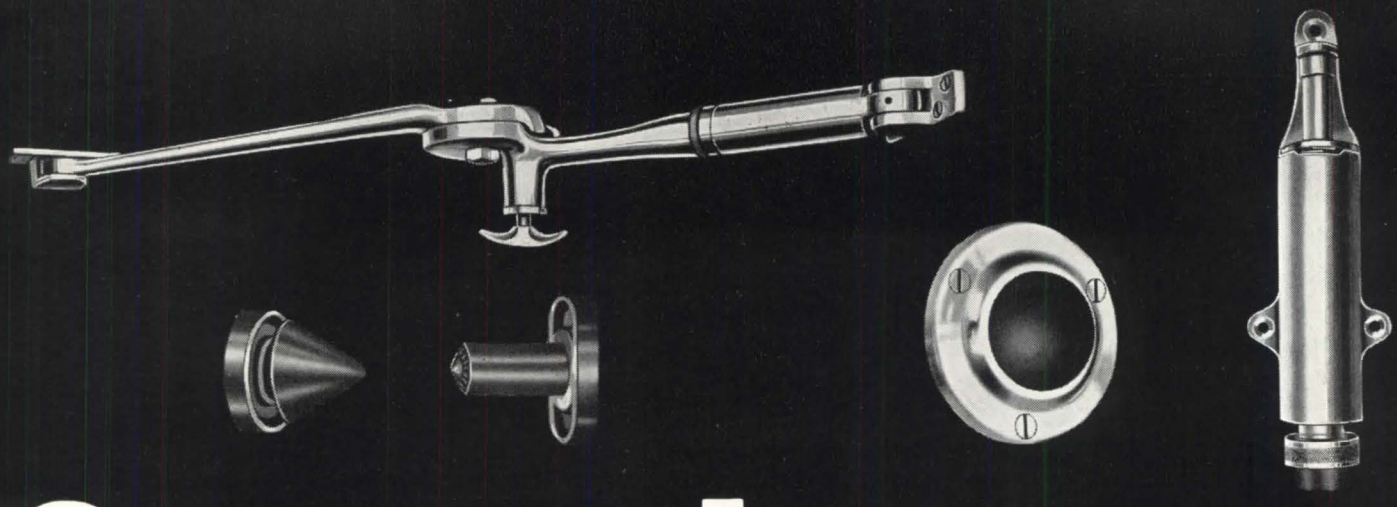

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For over a quarter century, hardware consultants and architects have specified Glynn-Johnson door devices and specialties for efficient operation and protection of all types of doors in all types of buildings.

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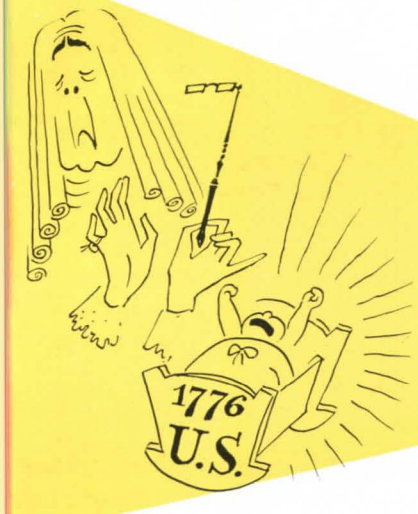
Refer to G-J Catalog for complete line of door holders, bumpers, and specialties . . . for all types of doors in public and commercial buildings.

by Ben John Small

spec small talk

"x" marks the spot

There is a story going around concerning an overly critical plastering inspector who relished condemning large areas of plastering work which had very slight imperfections. He behaved like a psycho-ceramic (crack pot) as he marked up area after area with a greasy red crayon. The contractor's pressure rose with each new onslaught. He counterattacked and had the inspector discharged by showing the chief inspector perfectly good areas which unbeknownst to others he had marked up similarly with an identical crayon.



brand vs. performance

A friend of mine who sometimes acts as consultant to the mortgage department of an insurance company got a questionnaire the other day which asked, among other things: "In checking specifications do you guard against the inclusion of unknown or off-brand materials?" The answer choices were "always," "frequently," "sometimes," "never." It seems fairly obvious that such a question will draw heavy "always" and "frequently" response, and very few "never." Suppose, on the other hand, the question had been worded differently, something like: "Regardless of whether brand names are specified, *do you make* sure that the materials called for will perform satisfactorily under the conditions that are reasonably likely to occur?" Again the responses would probably tend toward the positive. What is an "off-brand?" Well, an off-brand is a brand I haven't used or heard of. Is it any good? Maybe, maybe not. I'm not going to use it just because it has a name. But I'm not going to reject it because I don't know anything about it yet. The manufacturer may make great claims about its characteristics; often he even believes them. Sometimes he's right. And the only way to find out is to test it. Of course, time, or expense restrictions may prevent such tests. Or the tests may not be as conclusive as we'd like. But, as open-minded men know, many of the standard brands of today were the "off-brands" of yesterday. In 1776, among the nations of the world, the United States of America was an off-brand.

density

It all started innocently enough. Our client instructed us that all combustible low-density boards be protected with a fire-retardant paint. This requirement puzzled me because I did not (and still do not) know the limits ascribed to low, medium, medium heavy, heavy, and extra heavy density boards. Federal Specification LLL-F-311 requires "Fiber - Board; Hard - Pressed, Structural" to have a minimum density of 60 pounds per cubic foot. *Federal Specification LLL-F-321b* which describes "Fiberboard; Insulating" does not refer to densities. Most roof insulating fiberboards weigh approximately 15 pounds per cubic foot. Somewhere I have read that wood, wood fiber and nonlaminated paper boards having a density of over 24 pounds per cubic foot qualify as hardboard. Standard hardboard weighs approximately 67 pounds per cubic foot (denser than most woods) and tempered hardboard is slightly heavier than the standard. Help!

definition department

Do you remember what is meant by "united inches" in glazing terminology?

flame resistance

Speaking of definitions the following excerpt from the *Acoustical Materials Association Bulletin XIII-1951* should serve as a useful reminder:

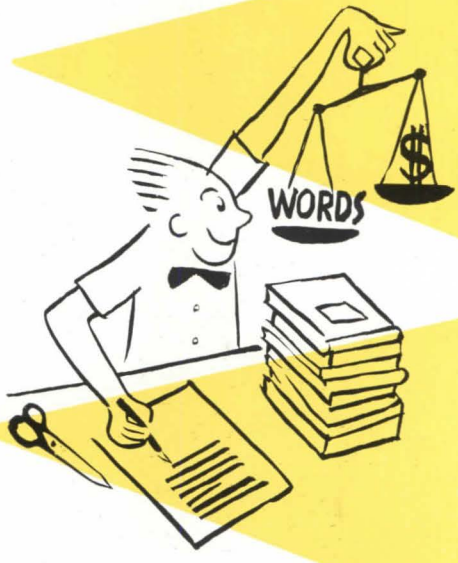
"The indiscriminate use of terms such as "fireproof," "fire-resistant," "flame-proof," etc., in specifications has created confusion among architects, consumers, and the public. All such terms are relative and should be compared with some recognized standard. The Acoustical Materials Association refers to 'flame-resistance' as a term embracing various degrees of the above terms. By specifying products according to the tests and classifications listed and defined under a recognized specification such as SS-A-118a, specifying agencies can establish and define limits of 'flame-resistance' according to definite standards. "The classifications to 'flame-resistance' listed and defined in *Federal Specification SS-A-118a* are:

Incombustible
Fire-Retardant
Slow Burning
Combustible

"A suggested specification would read as follows:

'Acoustical tile shall meet the requirements of the (Incombustible, Fire-Retardant, Slow - Burning, Combustible) classification of *Federal Specification SS-A-118a* when tested under that method.'

"Reference to 'flame-resistance' or similar terms not tied to a definite standard tends to be meaningless."



costly words

I wonder how it would be if fees for specification writing were based upon a price per word. I am serious about this! If renderers can do it, why not specification writers. I have before me a proposal from a professional renderer reading as follows: "prices—25 to 75 cents per square inch, depending upon size of drawing and amount of detail." My proposal would be one-tenth of one cent per word, no streamlining, and no charge for words leading to extras. Should you engage me on the price per word basis, do not expect me to say "plywood" for one-tenth of one cent when I can earn two and two-tenths cents on "a cross-banded assembly made of layers of veneer, or veneer in combination with a lumber core or plies joined with an adhesive". I could expand this another seven-tenths of a cent worth, but after all I do have a conscience (I mean—a sense or consciousness of the moral goodness or blameworthiness of one's own conduct, intentions, or character, together with a feeling of obligation to do right or be good—hence, a faculty, power, or principle conceived to decide as to the moral quality of one's own thoughts or acts, enjoining what is good).

In this attractive interior the door integrates with, rather than interrupts, the decorative plan of the room. Architect: John B. Danna, Dallas, Texas.

BRIEF DATA

Glass—⅜″ thick. Muralex pattern on both surfaces.

Tempered—Three to five times stronger than untempered glass of same thickness.

Reversible—Can be used right or left hand.

Standard Sizes—2′6″ x 6′8″ 3′0″ x 6′8″
2′8″ x 6′8″ 3′0″ x 7′0″

—also 4 sizes for openings of these dimensions with proper allowance for clearances.

THE BEAUTY OF IT IS . . .

This door does more than open and close

It's plain to see that this door does a lot more than let people in and out.

It is a thing of beauty in itself—a lovely glass panel that carries out the decorative highlight of the room—a continuous translucent wall.

It is a Blue Ridge *Securit** Interior Glass Door—a single piece of translucent patterned glass made into a flush door of elegant simplicity.

The *Securit* Door combines beauty with many practical virtues:

The ⅜″ thick glass is tempered. It is three to five times stronger than untempered glass. It can stand hard usage.

The translucent glass lets light through to brighten rooms. Yet the pattern provides privacy.

The *Securit* Door is easy to hang. No cutting, planing or painting. Everything needed comes to the job with the door—beautiful hardware and ball-bearing hinges. Door prepared to use with Sargent closers or LCN concealed closers when specified.

The cost? It compares favorably with high-quality doors of other materials—and you make important savings in installation time and costs.

The Blue Ridge *Securit* Interior Glass Door is smart, really different. It is a key item to include in your plans for up-to-date interiors. For further information, see your L·O·F Glass Distributor or Dealer. Or mail the coupon. *®

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CITY_____ STATE_____

bars

Immediately obvious in all of the designs presented on the following pages are the various ways of concealing the bars when they are not in use. In some cases, section of walls swing open, doors jackknife, or panels slide. They are all built in walls and completely attractive, opened or closed. An absolutely necessary requirement is that finishes—on shelving, work areas, and counter tops—be alcohol proof. Formica, Micarta, stainless steel, glass, and specially finished woods are used for these surfaces. Efficiency and ease of operation has in no way detracted from fine design.

location	den-study, house, Hillsborough, California
architects	Campbell & Wong

data

interior finish: stained plywood

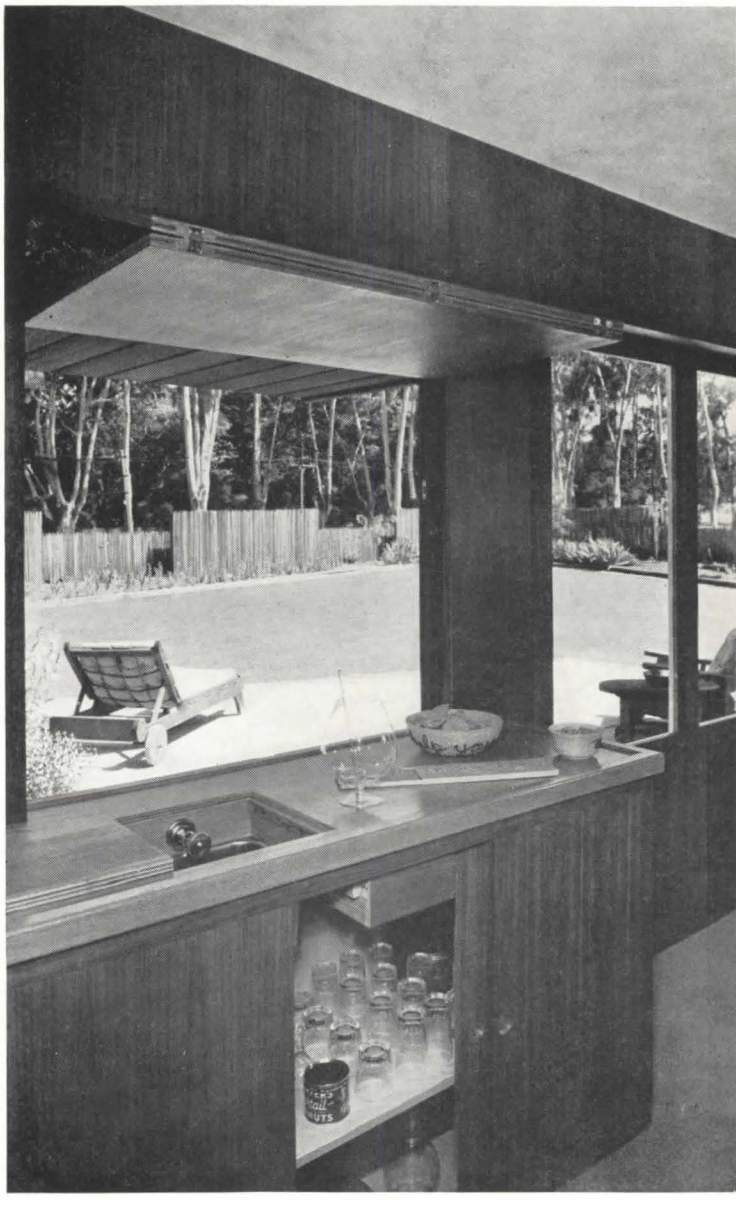
exterior finish: clear-lacquered walnut veneer

shelving: pine

lighting: side-lit/ 18" lumiline

counter top: oak/ heavily bar-finished

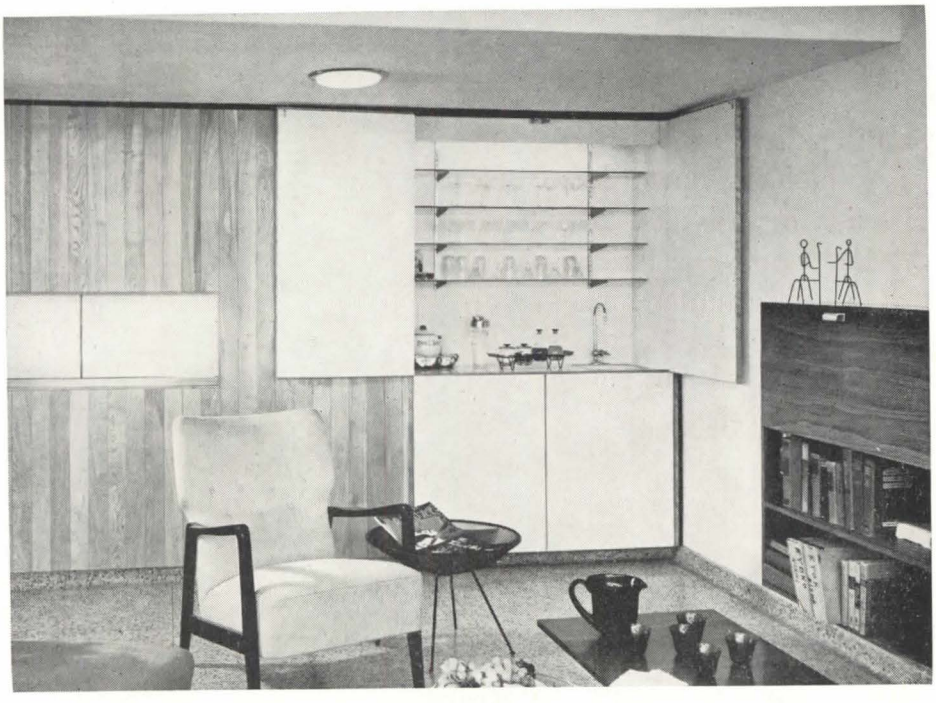
hardware: custom hardware on jackknife doors



Conveniently located for either indoor or outdoor service, this under-counter bar is completely concealed when closed. Sliding doors cover the shelves, and a top on the sunken sink completes the counter. When being used for out-of-doors, a wood panel jackknifes to the ceiling to permit easy access. Convenient, workable, and attractive in an uncluttered, simple way, this unit performs its job well. *Photo: Roger Sturtevant*

residential bars

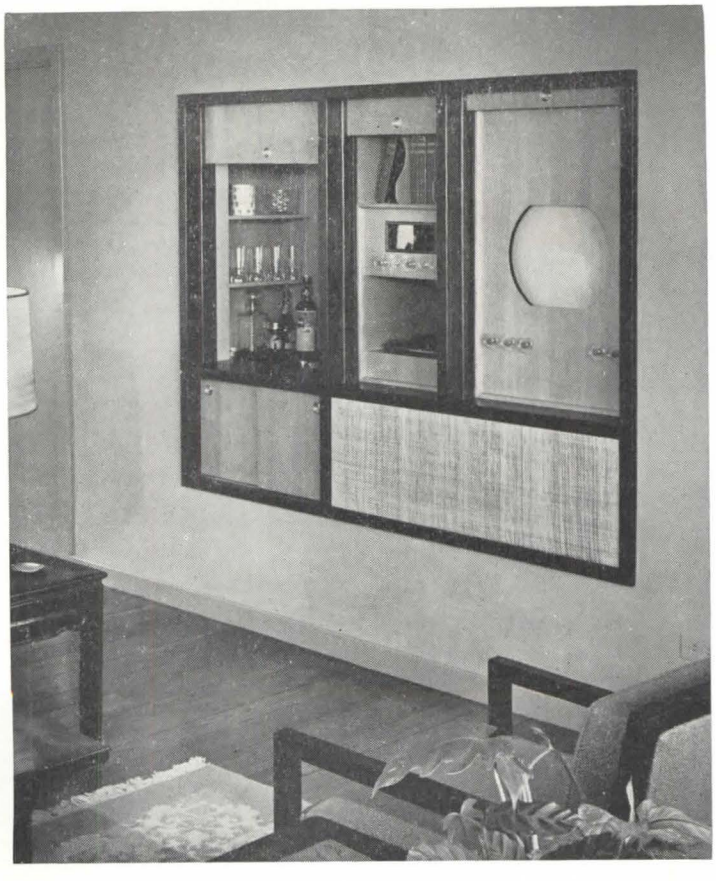
location	living room, house, Los Angeles, California
architect	Kazumi Adachi
associates	Dike Nagano, Hideo Takayama



data

interior finish: white Micarta
exterior finish: white Micarta
shelving: ¼" plate glass
lighting: "slimline" fluorescent
counter top: white Micarta
hardware: concealed/ touch latches
equipment: 12" x 12" sink

Completely executed in white Micarta, this bar is in a living-dining area of a playroom. Here white has been used as an accent to a natural-finish ash siding and yellow-painted walls. Opened or closed, it is neat and orderly, and maintenance is simple, with never any fear of harming the finish. Here is a perfectly honest, straightforward design, handsome in its plainness. Photo: Julius Shulman



No attempt has been made to conceal the fact that this wall serves a purpose. The designer has played up the interesting space division of the combination bar, television set, and radio-phonograph by using a mahogany frame in contrast to the light Korina and grass-cloth panels. It's a nice pattern on the wall—certainly appealing to the eye. The woven texture in the lower right horizontal panel completes and enhances the design.

Photos: Dean Stone: Hugo Steccati

data

interior finish: painted plywood
exterior finish: clear-lacquered Korina veneer mahogany trim
shelving: glass
lighting: flush light over bar sink
counter top: mahogany, bar-varnished
hardware: custom-made for vertical-slide doors
equipment: stainless-steel sink

location	living room, apartment, San Francisco, California
architects	Campbell & Wong

location	living room, house, West Los Angeles, California
architect	Victor Gruen
associate	R. L. Baumfeld

data

interior finish. wood-core, lacquered/ architect-designed/ H. D. Cowan Furniture Co., 165 Long Beach Ave., Los Angeles, Calif.

exterior finish: Honduras mahogany/ manufactured and installed by H. D. Cowan

shelving: ¼" plate glass/ Libbey-Owens-Ford Glass Co., Nicholas Bldg., Toledo 3, Ohio

lighting: "Warm-tone" fluorescent/ General Electric Co., 1 River Rd., Schenectady, N. Y.

counter top: black Formica/ The Formica Co., 4620 Spring Grove Ave., Cincinnati 32, Ohio

hardware: concealed hinge for lower panel/ pins with guides for upper disappearing panel/ Soss Mfg. Co., 21777 Hoover Rd., Detroit 13, Mich.

equipment: stainless-steel, special-order sink; under-counter refrigerator

One of the most elaborately designed, by Victor Gruen, is the fireplace wall of a living room — a study in elegant simplicity. When closed, there is not the slightest suggestion that an engineered bar is in back. The wall, as a unit, is exceptionally fine in its space distribution. The lower-left section, shelved on the back to hold glasses, swings away from the wall and the top sections slide into the closet, convenient to the living room, yet still inconspicuous when open. Rating: Masterful.

Photos: Julius Shulman

p/a interior design data

residential bars

location | living room, house, Brooklyn, New York

architect | Arthur Louis Finn

data

cabinet work: Stuyversant Fixture Co., New York, N. Y.

interior finish: mirror/ Joseph Rosenfeld, New York, N. Y. Chinese tea-paper/Laverne Originals, 160 E. 57 St., New York, N. Y.

exterior finish: upper portion, weather-greyed cedar; lower portion, birch with ebonized finish

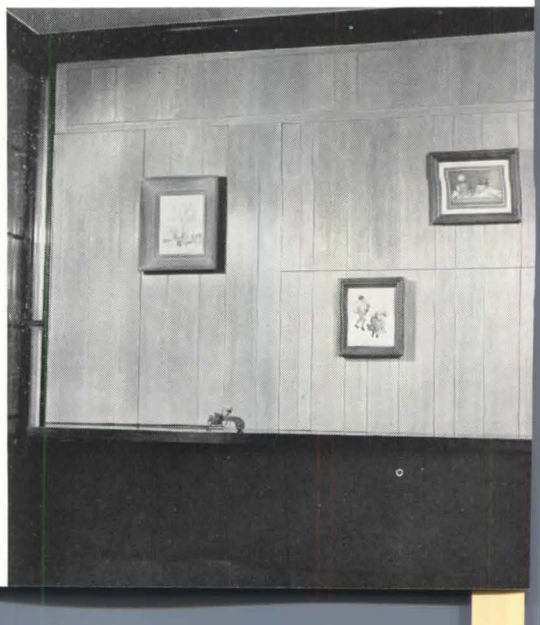
shelving: plate glass

counter top: black Formica

hardware: concealed hinges/ Soss Mfg. Co., 21777 Hoover Rd., Detroit 13, Mich., all other hardware/ custom-made

equipment: refrigerator/custom-made/ Meitz Co., New York; Monel-metal sink

Not only a bar appears, when panels are moved, but chairs as well. The top section of weathered grey cedar opens to reveal a bar large enough to allow a bartender to work comfortably. The framed pictures are handles for the panels. The bottom panels of birch with an ebony finish are backs of four chairs. The bar, with the cabinet that houses the television set, is practically all of an eleven-foot wall. The man of the house sometimes uses the room for business conferences—or simply as a retreat. *Photos: George Cserna*



data

interior finish: stainless steel, lacquered wood/ lacquer, W. P. Fuller & Co., Mission & Beale Sts., San Francisco, Calif.

exterior finish: Philippine mahogany on vertical sliding door/ U.S. Plywood Corp., 55 W. 44 St., New York 18, N. Y., Koroseal plastic on lower panel

shelving: ¼" glass/ Libbey-Owens-Ford Glass Co., Nicholas Bldg, Toledo 3, Ohio

lighting: "Warm-Tone" fluorescent, General Electric Co., 1 River Rd., Schenectady 5, N. Y.

counter top: black Formica/ The Formica Co., 4620 Spring Grove Ave., Cincinnati 32, Ohio

hardware: balanced suspension for vertical sliding panel/ Acme Sash Balance Co., 1626 Long Beach Ave., Los Angeles, Calif.

equipment: stainless-steel sink/ special order

Another combination of music and bar is shown in this living room. A vertical sliding panel reveals the bar. Textures of louvered wall above the radio and slightly padded plastic covering on the panel below the bar add to the attractiveness of the unit. Accessible to living and dining room, a small space has been fitted to operate successfully. A built-in sink completes the job.

Photos: Julius Shulman

location	living room, house, Los Angeles, California
architect	Victor Gruen
associate	R. L. Baumfeld

bars

location	delegates lounge, UN Conference Building, New York, N. Y.
director of planning	Wallace K. Harrison
deputy director	Max Abramovitz
interior design	Abel Sorenson

A meeting place for delegates, the main lounge is as near perfection as possible—timeless in design, clear in execution, and a real tribute to co-operative effort. All furnishings, although efforts of many designers from many countries, have the unity of good design. A great expanse of cedar-colored carpet, large uncluttered wall areas painted grey, with the north window wall framed in a handsome textured fabric, and a high ceiling all contribute to the mood of ease, comfort, and restfulness. Mainly, the furniture's fineness is its simplicity of line, but especially attractive is the accent of large fan-back wooden armchairs along the window wall. The bar is used for serving coffee in the morning, light luncheons, and beverages. Sole adornment, the bas-relief map of the world, has a tan and burnt Sienna coloring—close in value to the mahogany bar and circular baffle, which conceals the bar and also serves as a storage closet for supplies.

All lighting is from the ceiling, with the exception of the standing lamps on the south wall. On clear days, the room is flooded with sunlight.

Photo: Gottscho-Schleisner

data

cabinetwork

Bar: Cuban mahogany/ designed by UN Headquarters Planning Office/ executed by Amman & Goetz Co., Inc., Lafayette St., Bronx, N.Y.
Storage Baffle: mahogany slats on rattan backing.
Flower boxes: designed by UN Headquarters Planning Office/ executed by Amman & Goetz.

furnishings and fabrics

Wooden Arm Chairs: (Bar area) mahogany/ Jacob Kjaer, Copenhagen, Denmark.
Upholstered Chairs: #70/ birch/ grey and red Saran upholstery/ Knoll Associates, Inc., 575 Madison Ave., New York 22, N. Y.
All Tables: mahogany/ designed by UN Headquarters Planning Office/ executed by Snyder's Ltd., Ontario, Canada.
Fan-back Chair: "Windsor"/ ash, with teak arms/ Johannes Hansen, Copenhagen, Denmark.

bas-relief mural

Lounge Chairs and Sofas: off-white and dark brown leather upholstery/ Heals Contract Ltd., Liverpool, England.
Carpeting: cedar color wool/ Tapis Francais, Paris, France.
Drapery Fabric: natural-color wool with metallic-thread interwoven/ Jud Williams, 55 East 55 St., New York, N. Y.

lighting

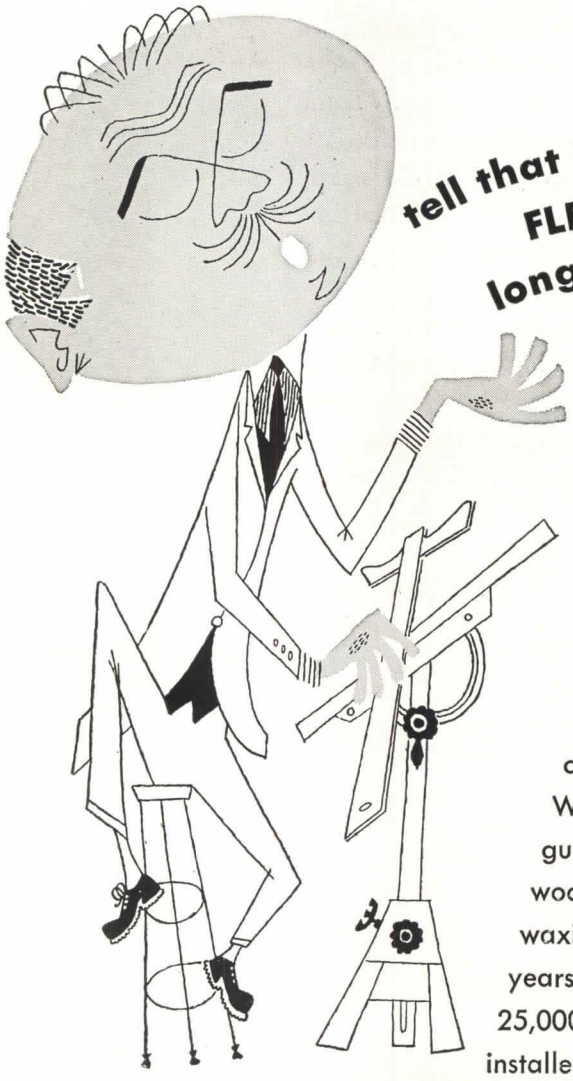
Downlights: Edward F. Caldwell & Co., 101 Park Ave., New York, N. Y.
Floor Lamps: triple-stem/ designed by UN Headquarters Planning Office/ executed by Koch & Lowy Mfg. Co., 101 Park Ave., New York, N. Y.

mural

Wall Map: natural-ground, cedar-color relief/ designed by UN Headquarters Planning Office/ executed by Lester Associates, Westchester, N. Y.

walls, ceiling, flooring

Walls: plaster/ paint/ M. J. Merkin Paint Co., 1441 Broadway, New York, N. Y.
Ceiling: acoustic plaster/ U. S. Gypsum Co., Inc., 300 W. Adams St., Chicago 6, Ill.
Flooring: concrete slab.



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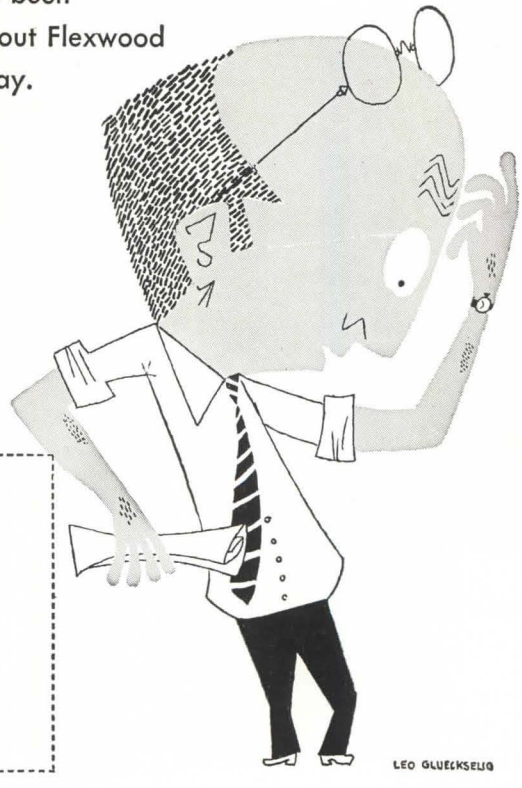

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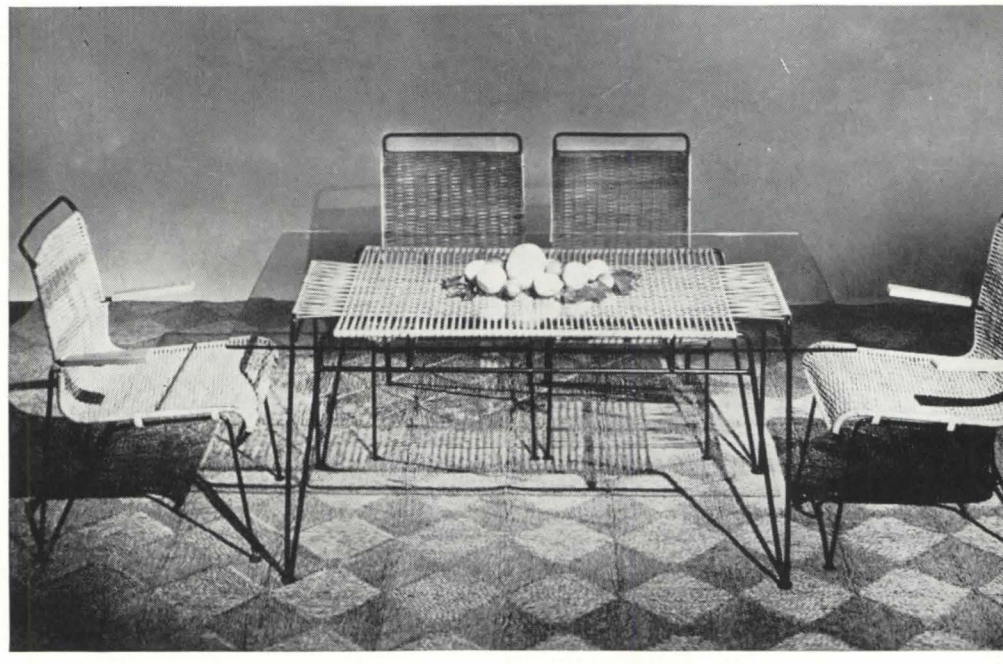
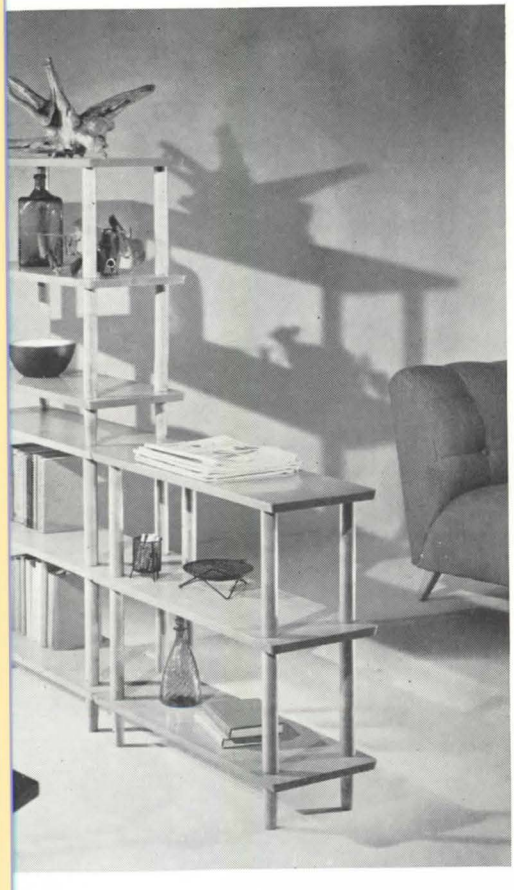
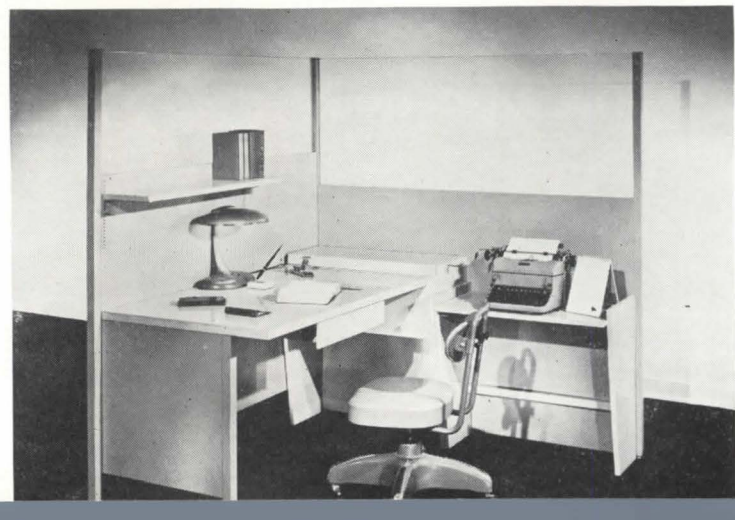


Room Dividers: (from Birchcraft Casual Modern Collection) dowel legs, three shelves/ hand-rubbed butternut finish/ 30" by 11", 28" high/ **retail:** $19.95/ **T. Baumritter Co., Inc., 171 Madison Ave., New York, N. Y.**



Dining Furniture: "Sol-Air" group/ wrought iron, woven rattan, glass/ available in black or red finish/ #40-G table, 36" by 72"/ **retail:** $165; #81-C arm chair/ **retail:** $51.70; #80-C side chair/ **retail:** $49/ designed by Swanson Associates/ **Ficks Reed Company, Grand Rapids, Mich.**

L-Shaped Office: "E Unit"/ wall panels of laminated ribbed core/ glass screens/ desk top of natural wood/ entire unit 48" by 54" (Also available 48" by 60" or 60" by 60"/ **retail:** $149.50 for basic unit/ **GR Products, Inc., 140 Federal Square Bldg., Grand Rapids, Mich.**



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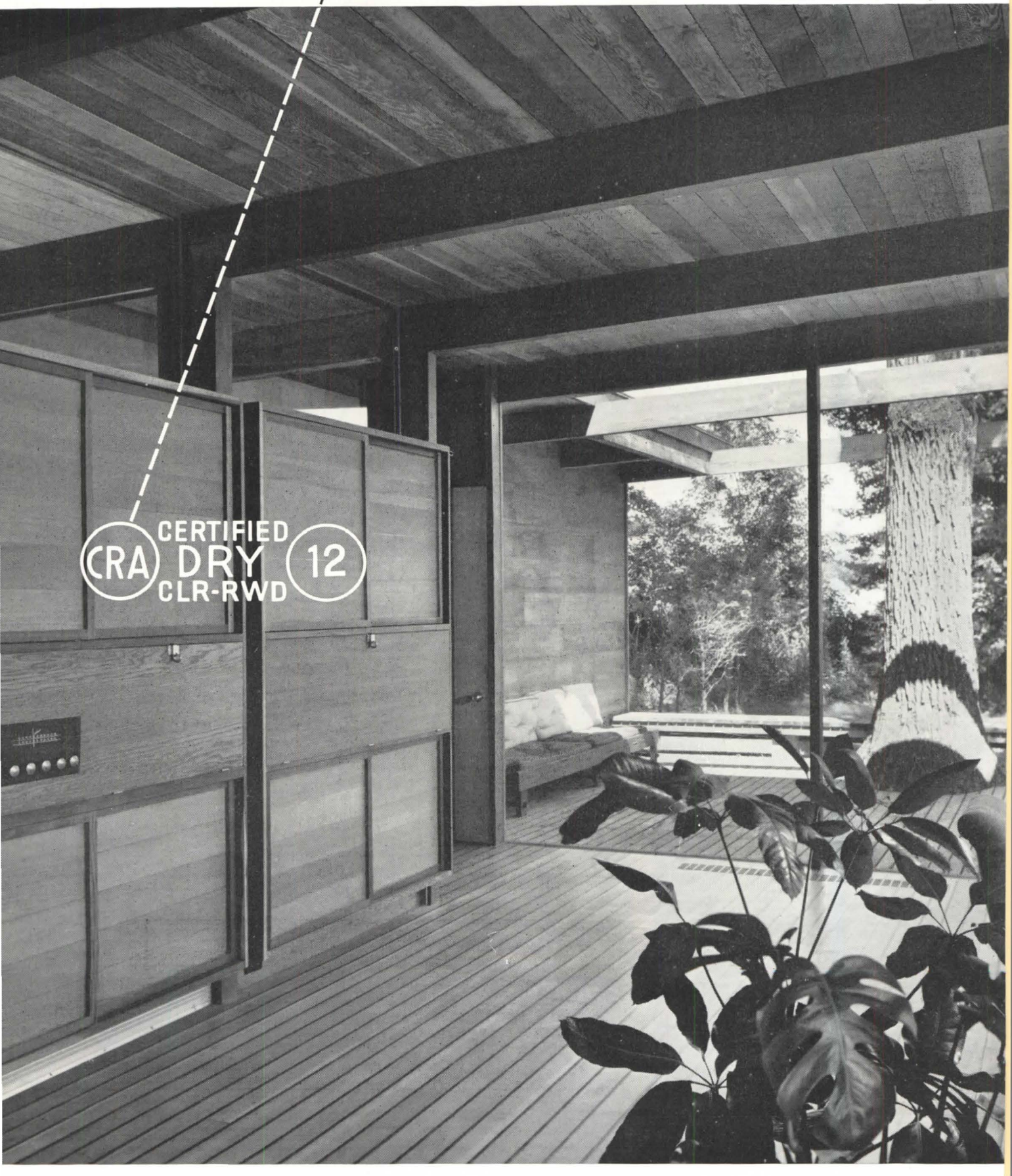

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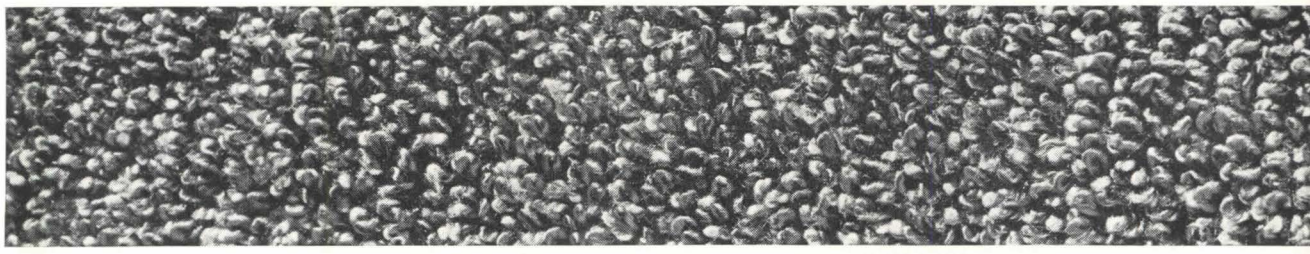
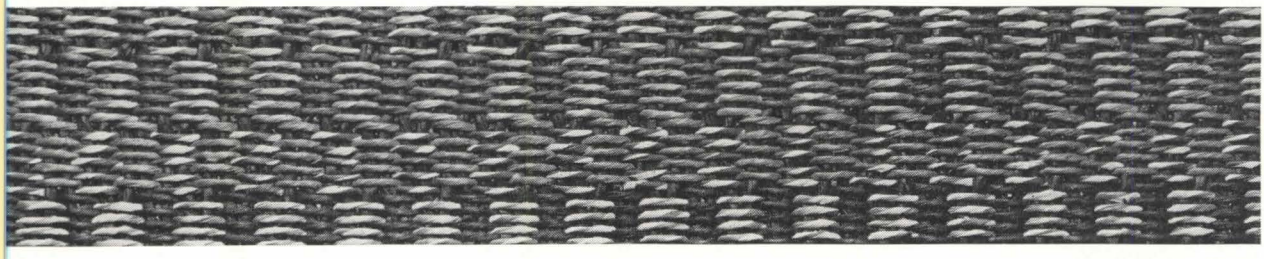
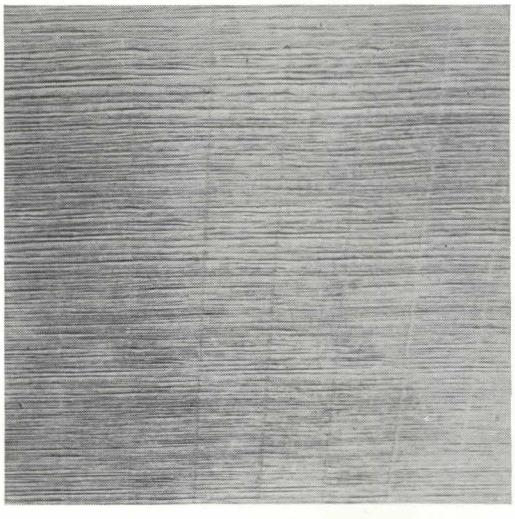
Carpet: "Waipoint"/ Fiber E blended with other man-made fibers, backed with latex/ uncut, low-loop pile/ available in any size, shape, or color/ designed by John Gerald and Katherine Kinnane/ **retail:** $14.95 per sq. yd./ **Waite Carpet Co., Oshkosh, Wis.**



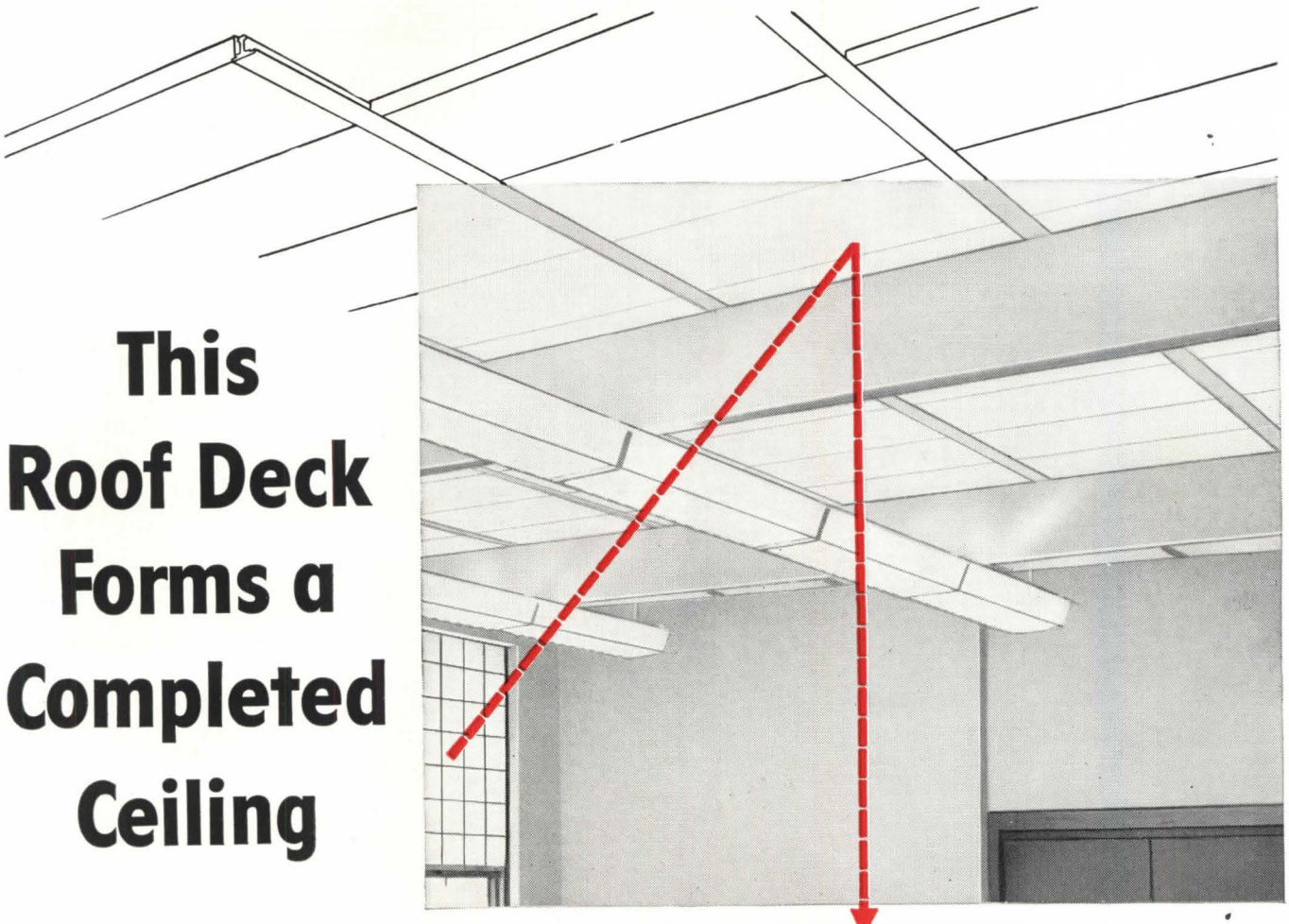


Fibre rug: "Braid-wai"/ weave has three-dimensional effect/ designed by John Gerald and Katherine Kinnane/ **retail:** $27.95 for 9′ by 12′ size.

Wall Covering: vinyl fabric in seven decorator colors: dark wine, light coral, light blue-green, light gray-green, tan, sunshine yellow, light gray/ available in special colors/ 18-gage rolls are 54″ wide/ washable, scuffproof/ **U. S. Plywood Corp., 55 W. 44 St., New York, N. Y.**



Wall Covering: "Bolta-Wall"/ Vinylite resins laminated to rubber-saturated paper backing/ surface-textured Bamboo (above) and Leather Grain finish/ may be applied to most smooth, dry surfaces with special adhesive/ rolls 48″ wide, 25 yards long (also available in Bamboo pattern in tile size) **retail:** 50 to 60 cents per sq ft/ **Bolta Products Sales, Inc., Lawrence, Mass.**



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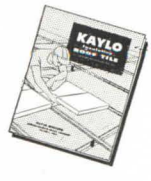

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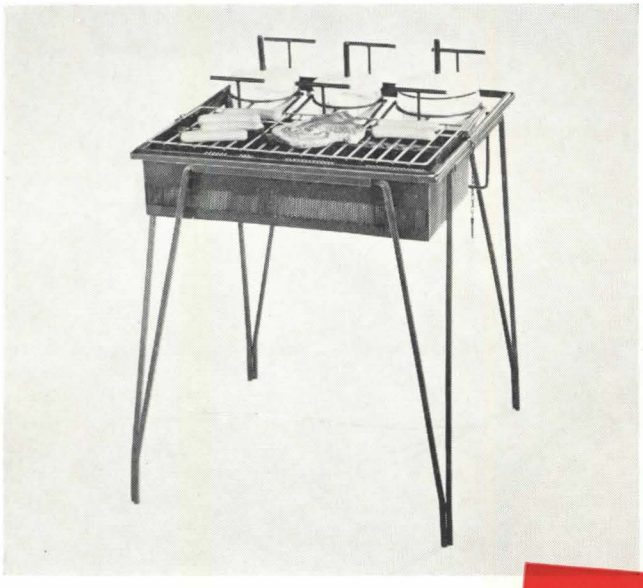

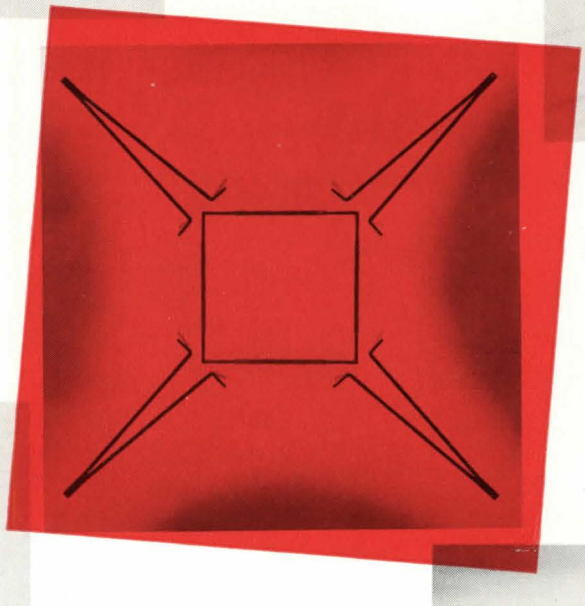

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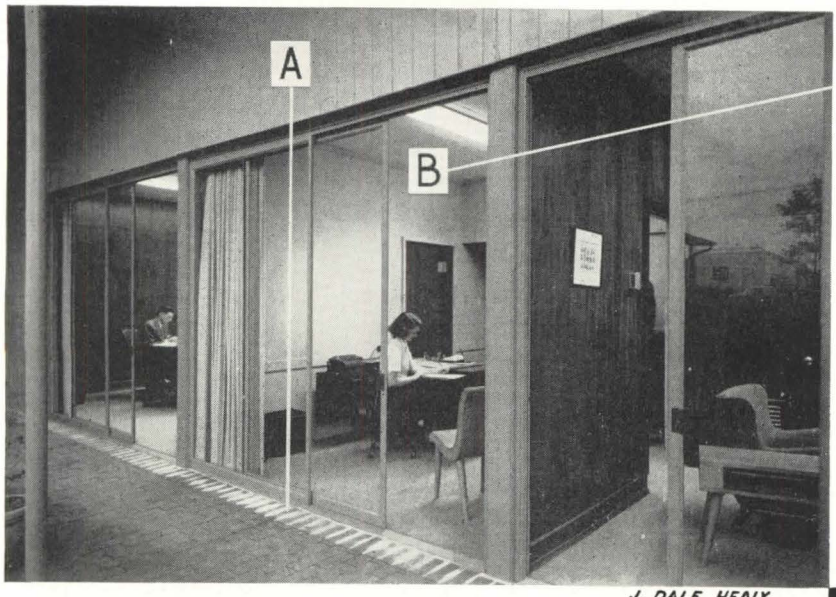

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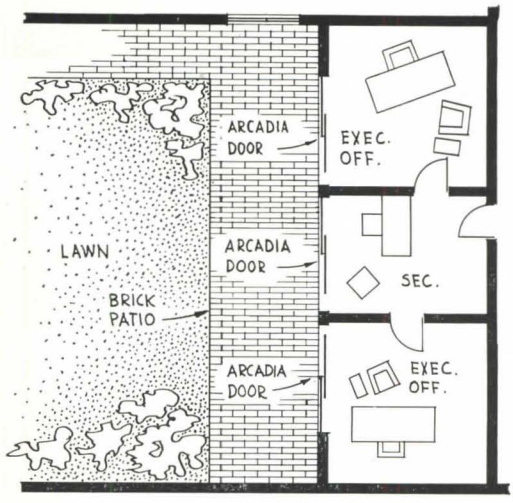

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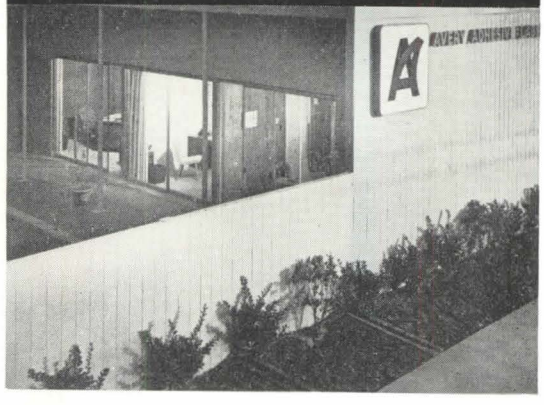
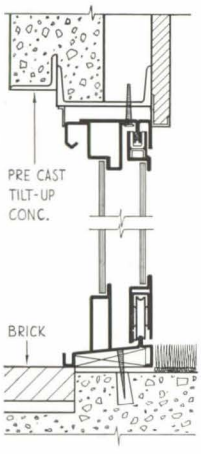
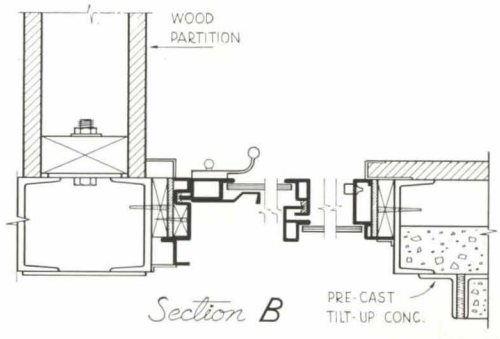




Section A



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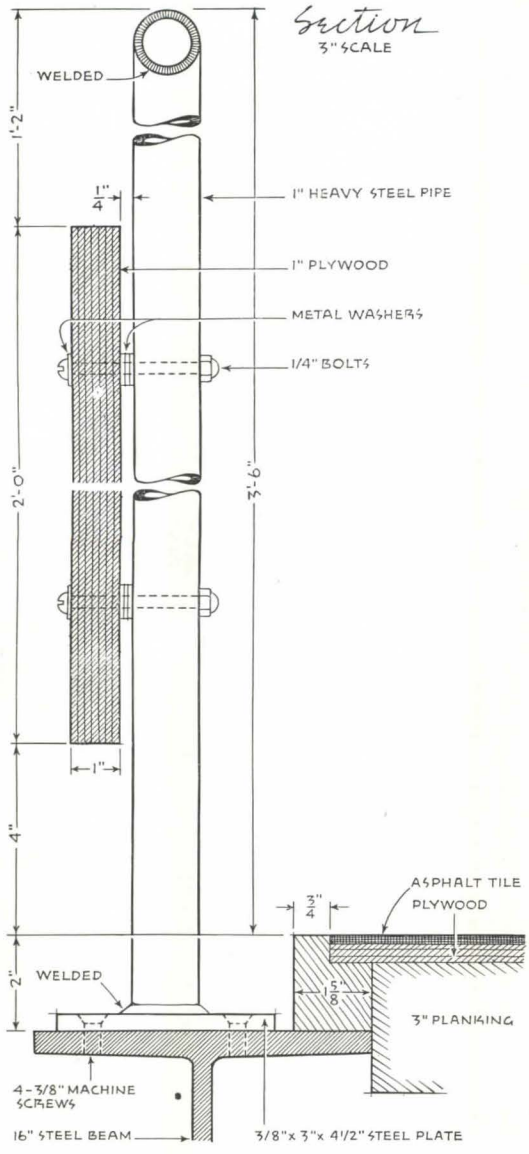

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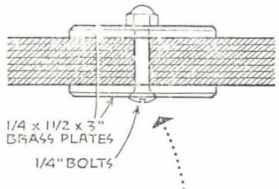
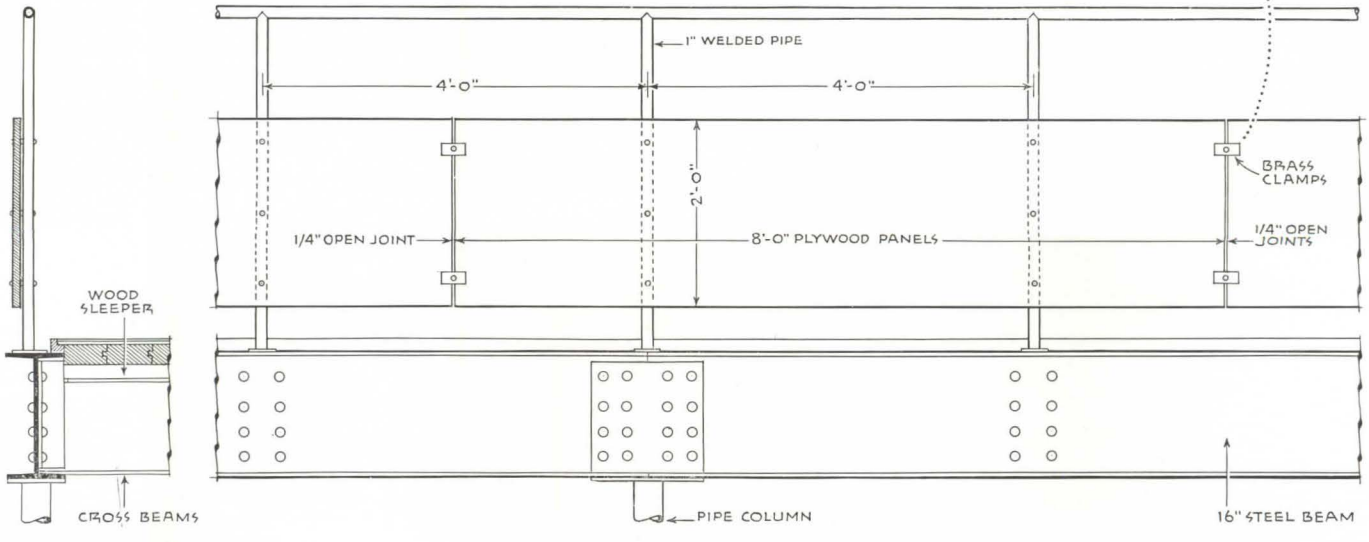
Plan 3" SCALE



Section and Elevation 1/2" SCALE



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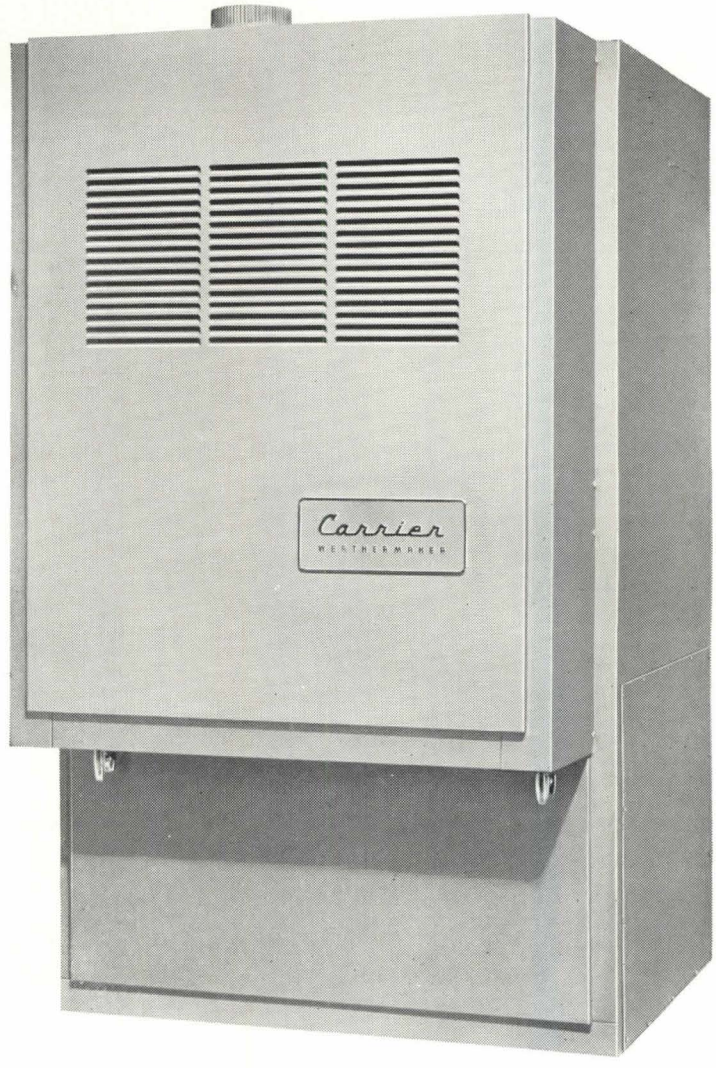

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Kencork's outstanding beauty is unmatched by any other cork flooring. It comes from natural tones of rich, nut brown... and subtle variations in shading from one tile to another. Of course, only top quality cork is used...no artificial binders whatsoever.

Because Kencork's resilience and loveliness make carpeting unnecessary, substantial savings result from its use as a distinguished, long-wearing floor and floor covering...as well as walls that last almost forever...clean and stay clean easily and economically.

Thanks to new methods and manufacturing equipment Kencork is now readily available to help Kencork Flooring Contractors make immediate delivery.

SPECIFICATIONS AND TECHNICAL DATA

Installation

Over any smooth, dry, interior floor. Over radiant heating. Over concrete in direct contact with earth if drainage is away from installation and slab top is at least 12″ above surrounding grade.

Thicknesses

$\frac{3}{16}$″ and $\frac{5}{16}$″: factory or natural finish.

Prices

Installed prices vary with size and condition of underfloor: approximate cost, based on minimum area of 1000 sq. ft. over cement underfloor, 60¢ per sq. ft. for $\frac{3}{16}$″ gauge and 70¢ per sq. ft. for $\frac{5}{16}$″ gauge.

Colors

Kencork colors are only pure cork after being compressed under controlled heat and pressure. The result is a combination of gradations of rich nut brown...from light to dark.

KENTILE • KENCORK • KENRUBBER • KENFLEX KENTILE, INC., 58 SECOND AVENUE, BROOKLYN 15, N. Y.

KENCORK® FLOORS WALLS

Wood County Hospital, Bowling Green, Ohio.
Strong, Strong & Strong,
Lima, Ohio, Architects.
Steinle-Wolfe, Fremont, Ohio, Contractors

Wood County Hospital...

where Truscon "O-T" Steel Joists Make Floors Light and Fire-Resistant

Light? Yes. The light weight of Truscon "O-T" Steel Joist construction lessens time and labor required for erection. It saves materials in supporting framework and foundations.

Strong, too. Wide, specially-formed top and bottom chord members impart stiffness, and keep joists true to line. Continuous steel web member is electrically welded to the chords.

Fire-resistant? Yes. Tests prove that ¾-inch of cement or gypsum ceiling plaster on metal lath protects Truscon "O-T" Open Truss Steel Joist construction against high temperatures. In fact, the majority of insurance rating bureaus recognize the merits of this construction and give it a first-class fireproof classification.

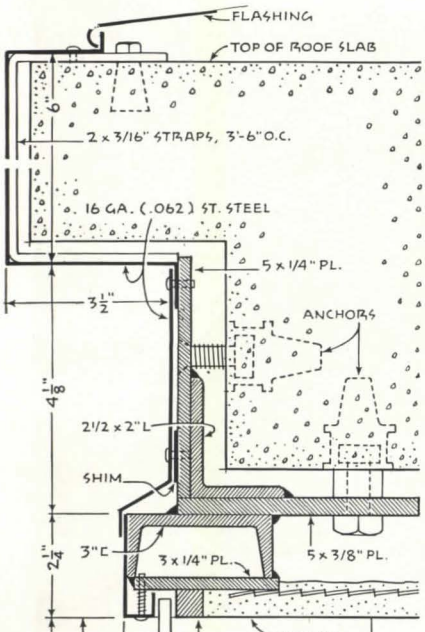
Investigate this lower-cost-per-square-foot construction that assures adequate strength and safety. See Sweet's for complete specifications on Truscon "O-T" Steel Joists. Write us for literature describing the complete line of Truscon Steel Building Products.

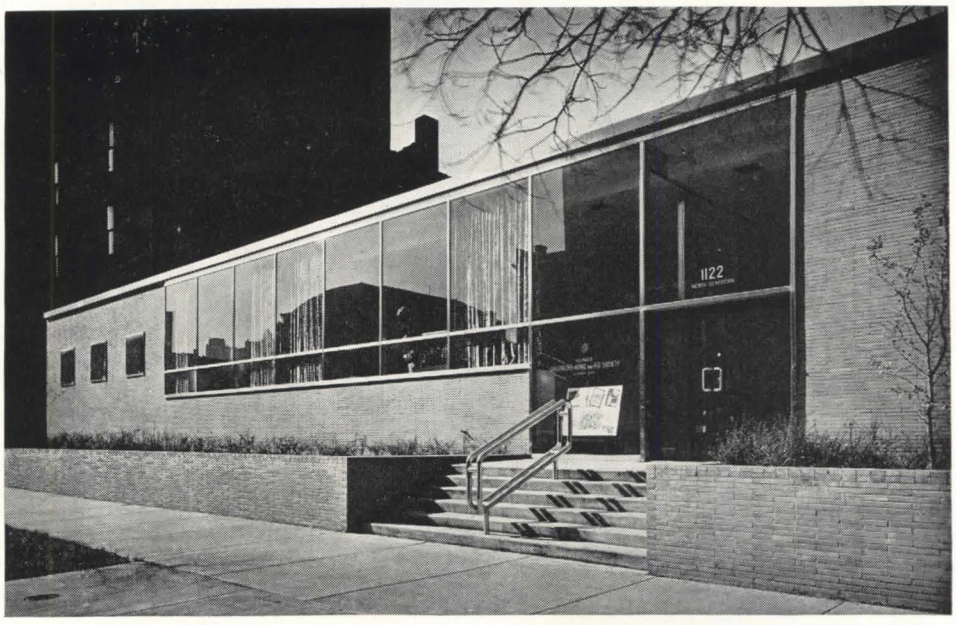
Truscon "O-T" Steel Joist construction for floors and roof. Underslung design of the bearing means maximum headroom under supporting girders. Open web allows passage of pipes and conduit in any direction.

TRUSCON STEEL DIVISION
REPUBLIC STEEL CORPORATION
1060 ALBERT STREET, YOUNGSTOWN 1, OHIO

TRUSCON MARK OF MERIT PRODUCTS

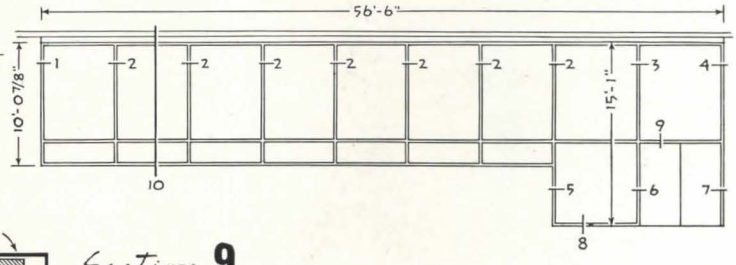
TRUSCON® a name you can **build** on

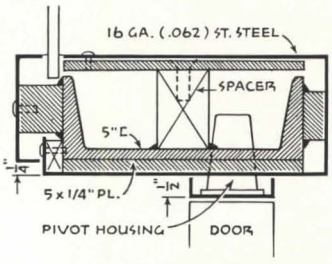




HEDRICH-BLESSING

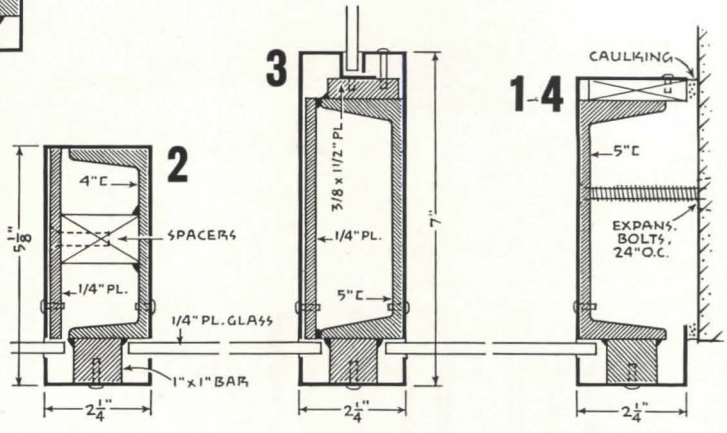
Elevation
1/16" SCALE

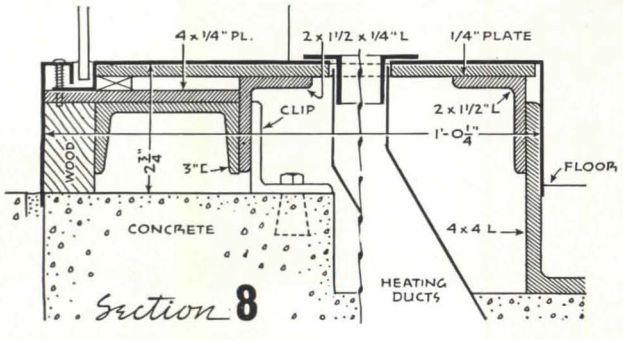




Section 9
3" SCALE

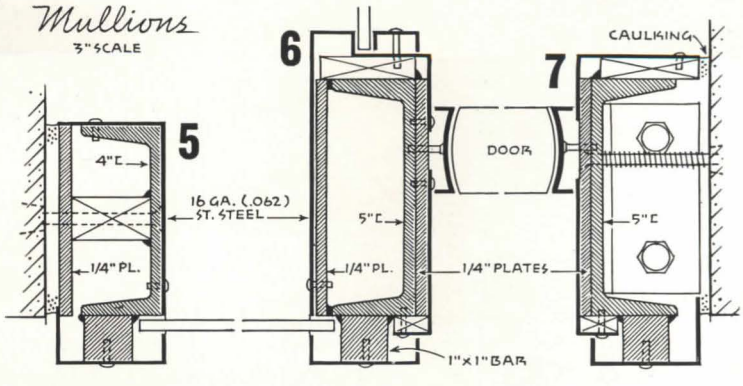
Section 10
3" SCALE





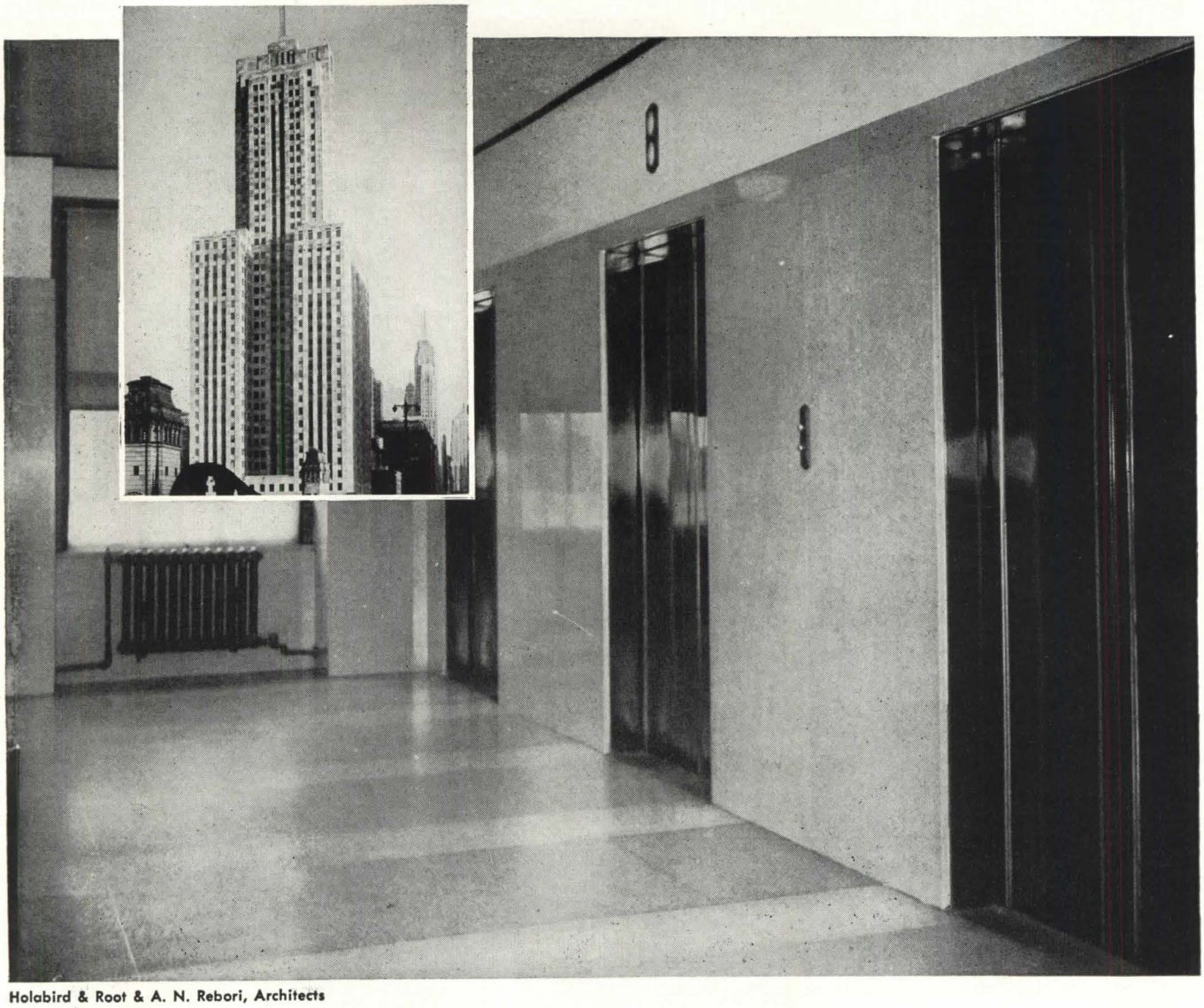
Section 8

Mullions
3" SCALE



ILLINOIS CHILDREN'S HOME AND AID SOCIETY, Chicago, Ill.

Skidmore, Owings & Merrill, Architects



Holabird & Root & A. N. Rebori, Architects

marble

"When the forty-two story LaSalle-Wacker Building was constructed, marble wainscot was installed in all of the public toilets, public corridors and elevator lobbies above the first floor. The wainscot in the corridors is 6′ high, and that in the public toilets and elevator lobbies is 7′ high.

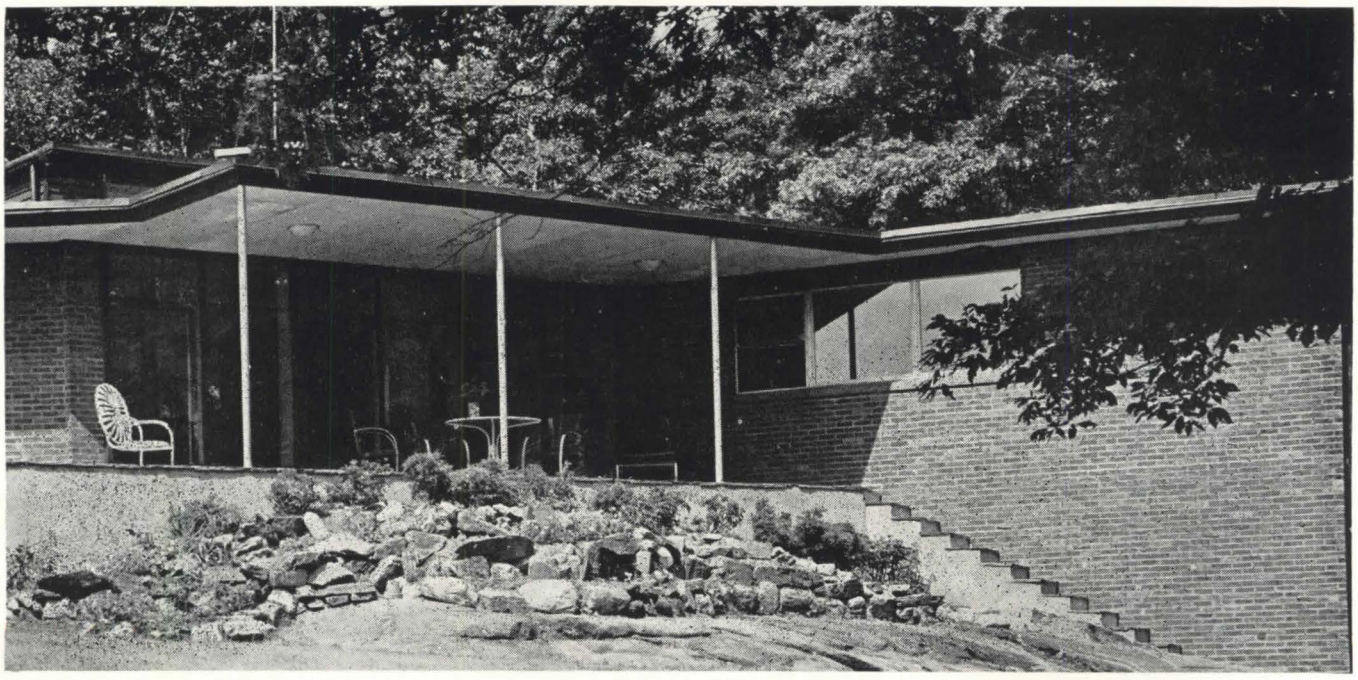
"In the twenty-two years that this building has been open to traffic, our maintenance expense on this wainscot has been very low.

"Today this marble still holds its original beauty in color and lustre with little or no discoloration. This richness in appearance and the low maintenance cost makes this marble a good investment." C. F. Schwarzwalder, Manager, LaSalle-Wacker Building, Chicago, Illinois.

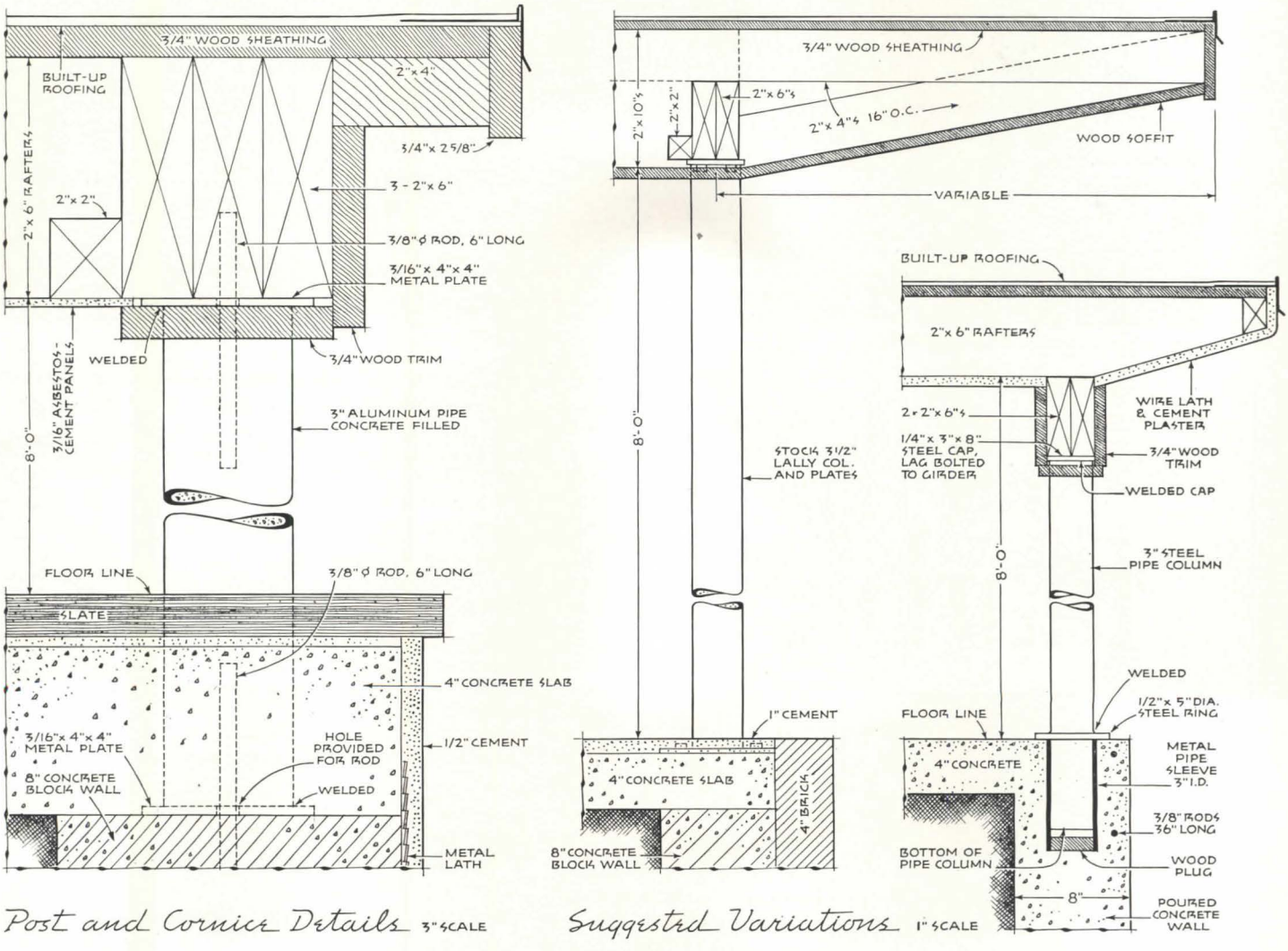
Your free copy of colorful booklet: "Proof That Marble Costs Less" available now. Write:

MARBLE MIA INSTITUTE OF AMERICA, INC.

108 FORSTER AVENUE, MOUNT VERNON, NEW YORK



SUZANNE SZASZ



Post and Cornice Details 3" SCALE

Suggested Variations 1" SCALE

GOLDWASSER HOUSE, Mamaroneck, N. Y.

Caleb Hornbostel, Architect

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If you have a specialized application where the unique qualities of stainless will improve your product or your processing operations, don't hesitate to call in a Crucible representative who can give you the benefit of our broad experience. And when you buy stainless, be sure you specify Crucible REZISTAL, the quality brand of heat and corrosion resistant steels.

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by Bernard Tomson

it's the law

Correspondence commenting on the January column (which considered the legal implications in the practice of architecture by engineers) included a letter from O. Clarke Mann, a structural engineer and a member of a State Legislative Committee in Tennessee. The letter itself appears in VIEWS this month. The Court's opinion, mentioned in the letter, is so stimulating and is of such universal interest, that I am devoting the column to direct quotations from it:

"The bill was filed in this cause by the complainant, who is a licensed engineer, against the members of the State Board of Architectural and Engineering Examiners, praying, among other things, for a declaratory judgment and decree defining the rights of complainant as a registered engineer under the terms of the Act.

"Intervening petitions were filed on behalf of the Tennessee Chapter of the American Institute of Architects and on behalf of the Tennessee Society of Professional Engineers . . .

"Proof was taken by complainant and defendants, as well as the intervenors, which proof included the depositions of Board Members, as well as other eminent architects and engineers.

"The statute appears in Williams Annotated Code at Sections 7098-7112, and provides among other things (7098):

" 'In order to safeguard life, health and property and promote public welfare, by requiring that only properly qualified persons shall practice architecture and engineering in this state . . .'
and further requiring that a person seeking to practice architecture or engineering shall submit evidence that he is qualified and must be registered, and making it unlawful for persons to practice architecture or engineering unless duly registered, etc.

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"A definition of *architect* used by some of the Courts, quoted from Webster's Dictionary, is 'one skilled in practical architecture; one whose profession it is to devise the plans and ornamentations of buildings or other structures and direct their construction.' The definition found in the American College Dictionary is 'one whose profession it is to design buildings and to superintend their construction.' While the same dictionary defines *engineer* as 'one versed in the design, construction and use of engines or machines, or in any of the various branches of engineering: one trained in engineering work: *one who plans, constructs, or manages as an engineer*: one who arranges, manages or carries through by skillful or artful contrivance.'

" 'Engineering' is defined as 'the art of science of making a practical application of the knowledge of pure science such as physics, chemistry, biology, etc.: the action, work, or profession of an engineer.' In the deposition of N. W. Dougherty (pp. 74, 75, 76) this appears: . . .

" 'This Committee has made a very careful study of definitions of 'architect,' 'architecture,' 'engineer,' and 'engineering,' but it was found that any definition of 'engineering' would be so general as to include too much, or too specific to be sufficiently general, or too voluminous to be suitable to incorporate in a law. Some have endeavored to include in a definition of 'engineering practice' all sorts and kinds of construction work, but engineering includes investigations as well as plans and no catalogue can well be prepared sufficiently detailed to include all sort of engineering activities. Both architecture and engineering are broad terms involving construction and necessarily there can be no sharply drawn distinction. Architects in the broadest sense are engineers even if usually architecture is associated with ideas of artistic or decorative features. Architects are eligible to membership in the American Society of Civil Engineers and several architects are members.'

"From the definitions given by the witnesses, as well as those hereinbefore quoted, and from this record as a whole, it appears as a fact that cannot be seriously questioned that the functions of these two professions, viz., architecture and engineering, so overlap that there is no practical way to draw a clear line of demarcation between the two.

"As applied to the field of building construction, it seems perfectly clear from the proof and the record as a whole, as well as from facts of which the Court might take judicial knowledge, that an architect, in order to successfully pursue his profession must be trained in certain branches of engineering, while, on the other hand, an engineer trained in the field of construction might be able to design many types of buildings and many of the components of various buildings with as much scientific skill as an architect, even though the engineer might not be trained in the art of making buildings artistically beautiful.

"The proof discloses that the great TVA organization, which has built many types of structures, including dams, power plants, administrative offices, residences, and buildings of all kinds, has a large staff of engineers (about 550 in number) and a small staff of architects (about 30). (See Dep. Tour p. 97.)

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"Significantly, the head of the whole division that supervises the design and construction of all of their buildings, dams, etc., is an engineer, and has been throughout the history of the great Federal authority. (Tour pp. 103-105) Tour testified that the chief design engineer of TVA is R. A. Munroe, a civil engineer . . .

"All the foregoing is by way of saying that it is the judgment of this Court that it cannot define and delineate the functions of architects and engineers in such way as to draw a line of demarcation between them which could be successfully applied in practice. This is emphasized in the record since it appears that the architects and engineers themselves could not agree on such a definition and division of functions.

"The statute involved herein is a regulatory measure. The Tennessee Legislature, as hereinabove stated, has not attempted to define and delineate the practice of architecture and engineering as separate fields for purposes of regulation, and unless and until the Legislature makes such a definition and lays down the requirements of practice in those fields the Court will not undertake to invade this field of legislation.

"From all of the above it thus follows that the prayer for a declaratory judgment defining and delineating the practice of architects and engineers must be denied."