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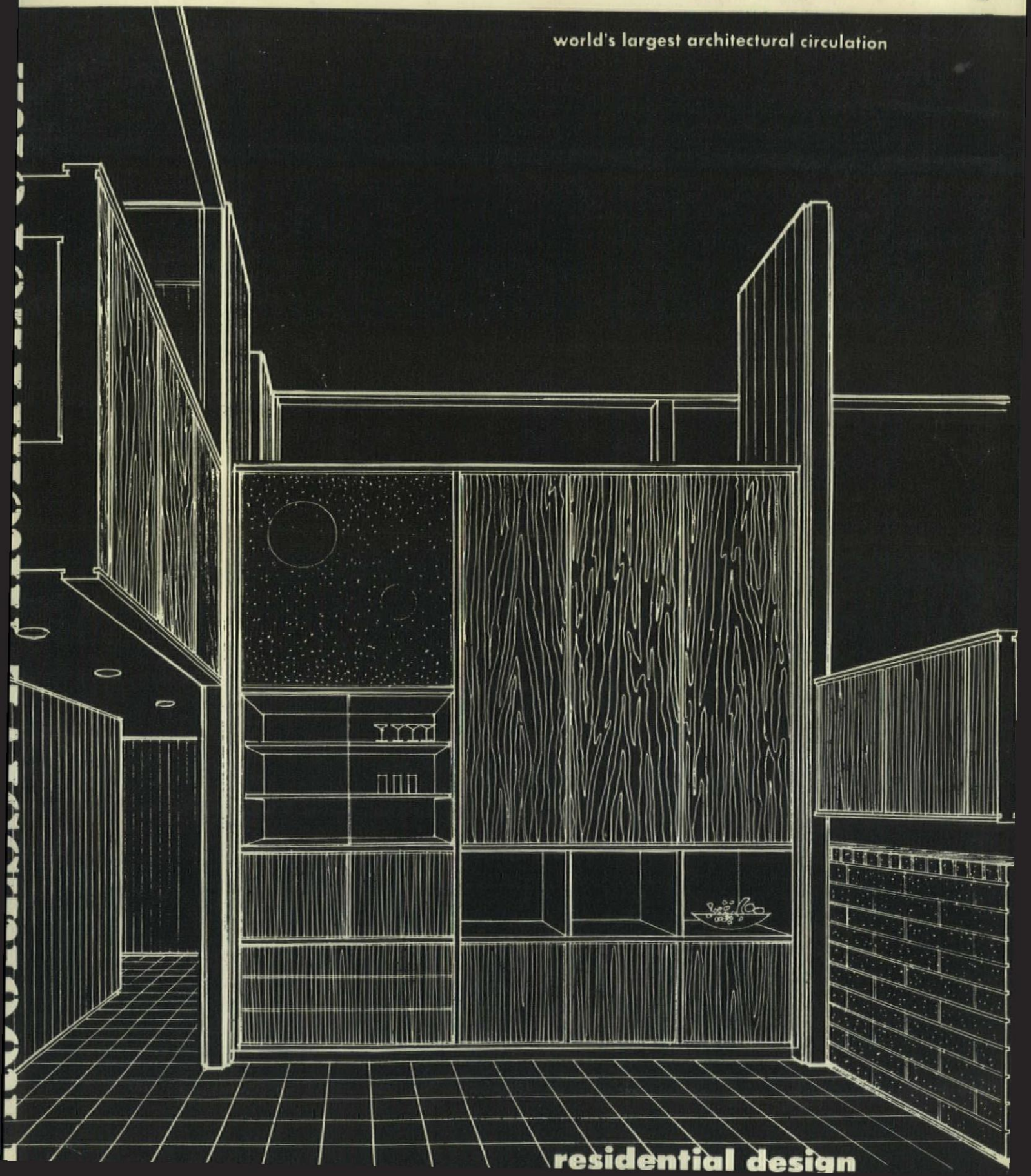

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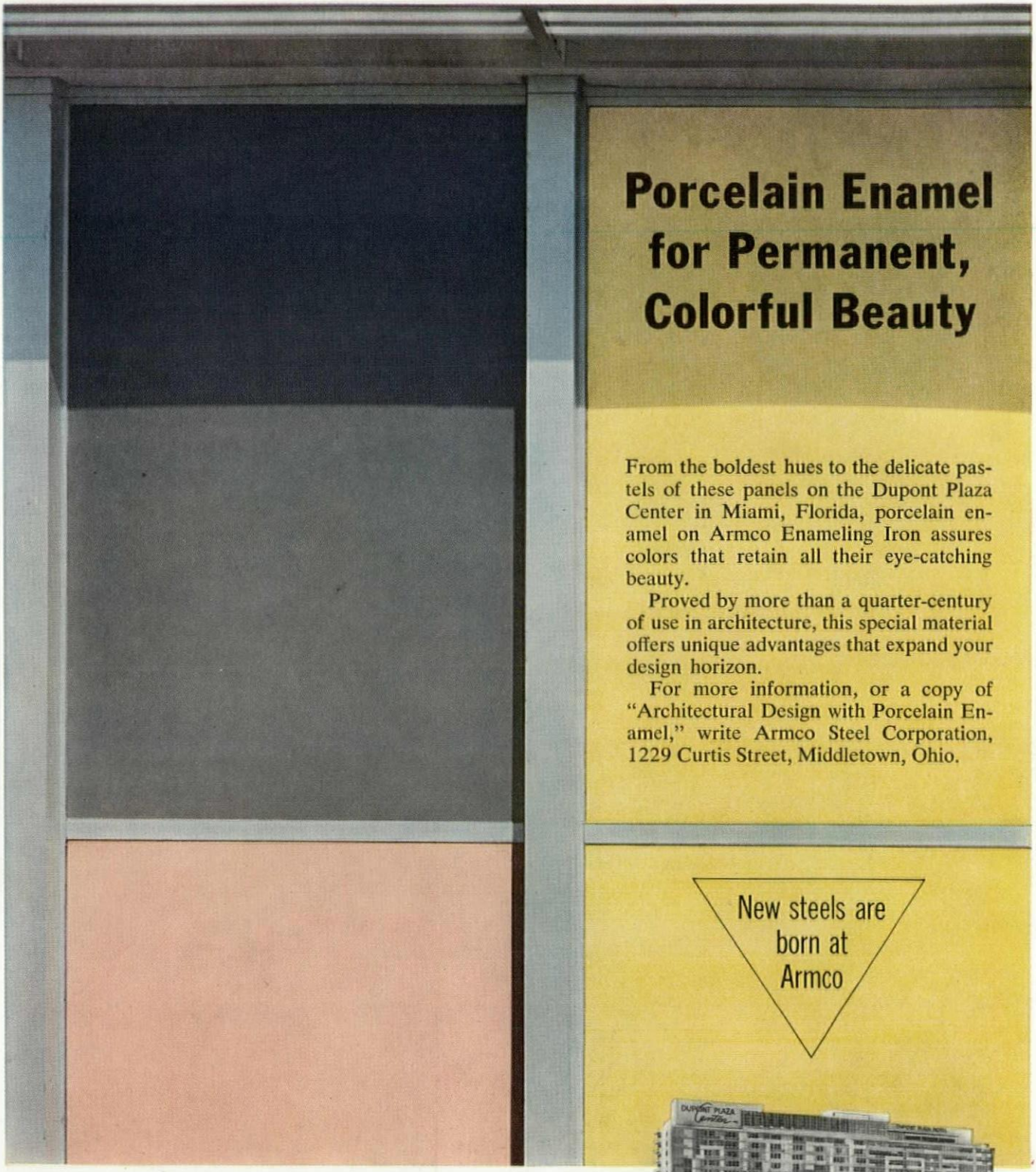

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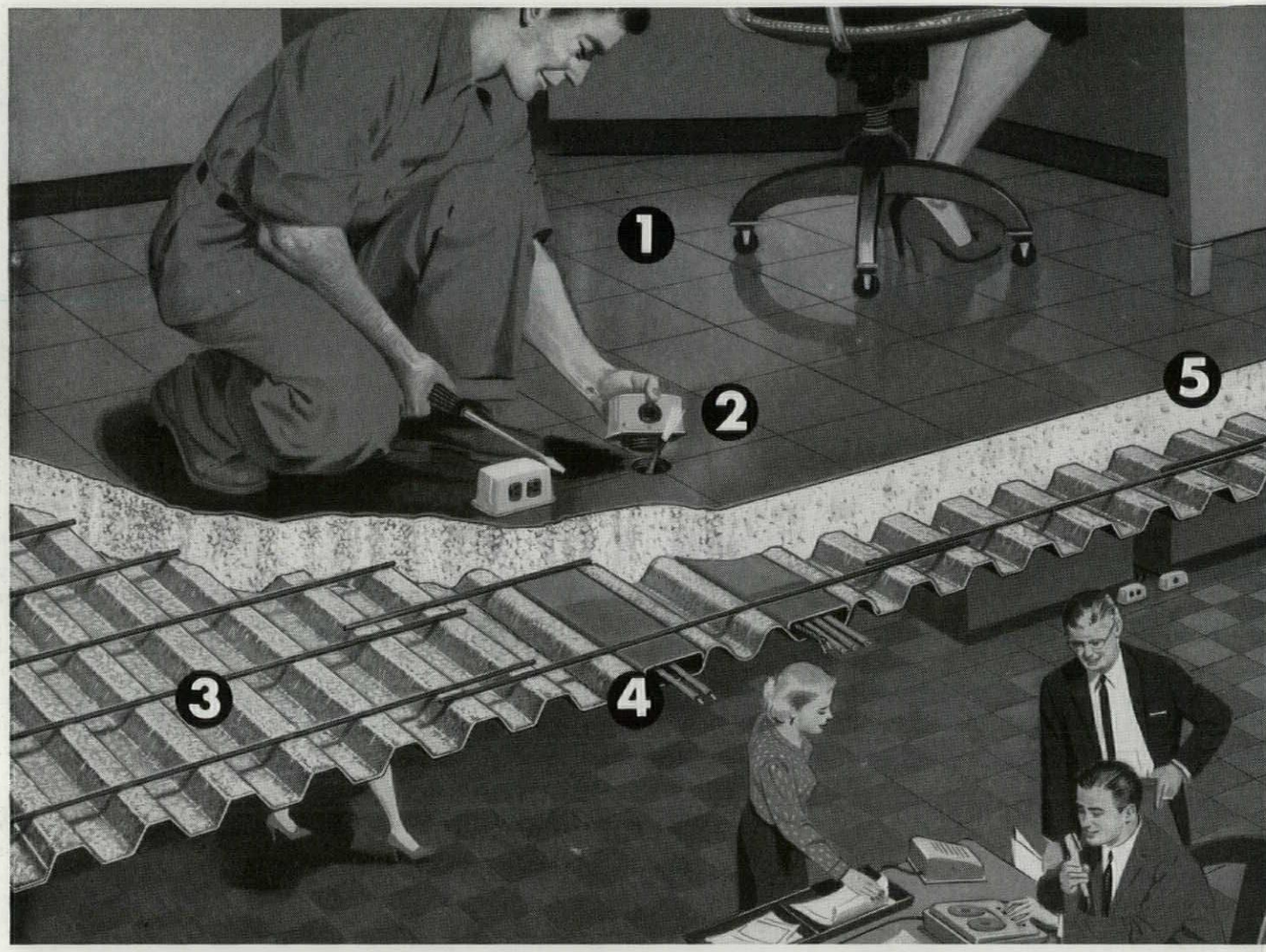

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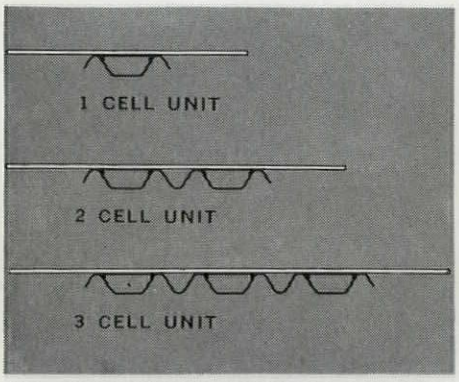

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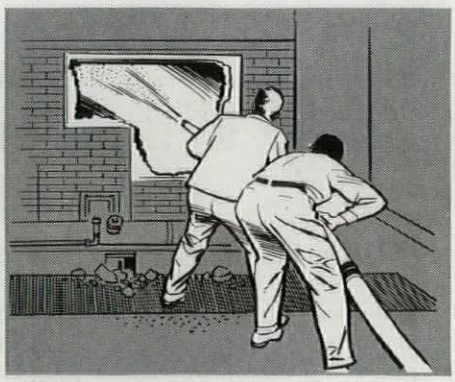

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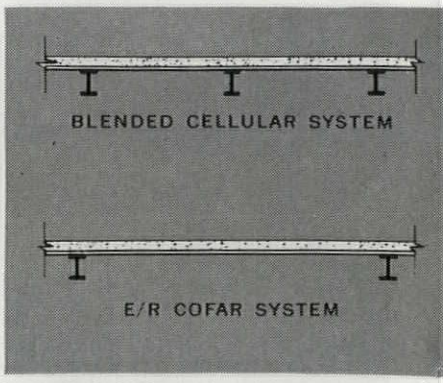

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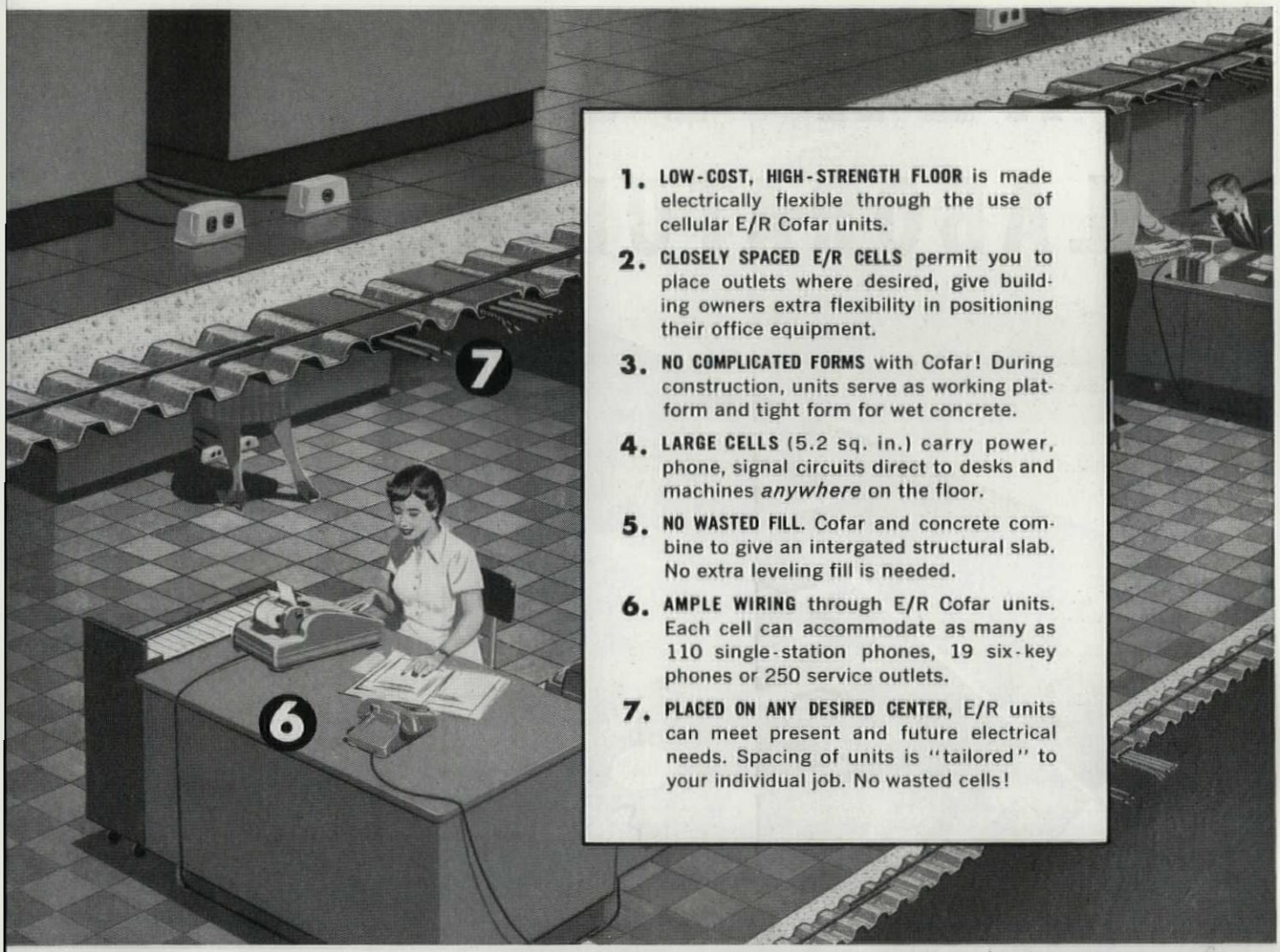

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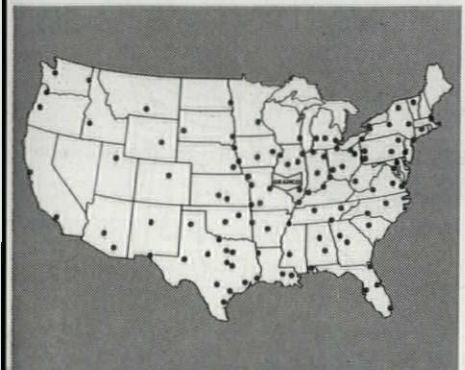

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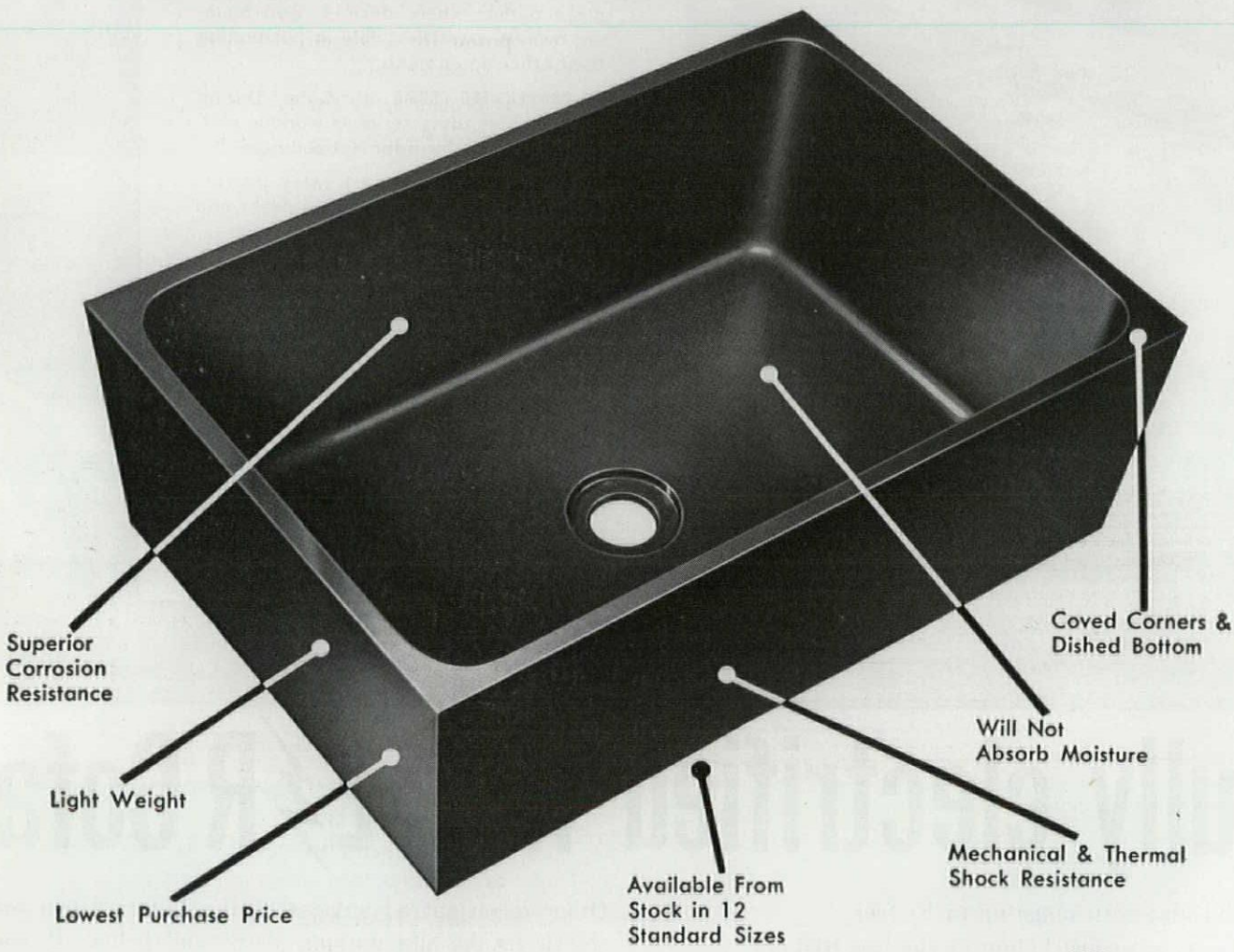

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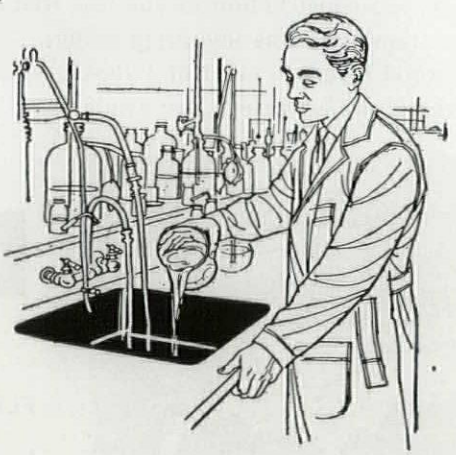

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PROGRESSIVE ARCHITECTURE

March 1959

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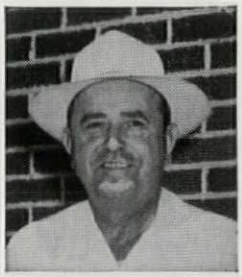

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Corporations In Professional Practice — Part 3

It's The Law Column by Bernard Tomson

P/A Practice of Architecture ***article, the third in a series of three columns pertaining to the practice of architecture and engineering by corporations. As has been pointed out, those who support corporate practice emphasize the business advantages accruing from it. Those who oppose it emphasize the possible threat to professional ethics or standards arising from such practice.***

The problem of proponents of professional practice by corporations, in those states where it is not prohibited, is to suggest a form of corporate organization which will protect the interests of the public and of the client by insuring that professional standards are not subordinated to business objectives. If, however, corporations are not permitted to practice architecture or engineering, is there any way that individual architects or engineers can secure some of the business benefits which can be realized with corporate operation?

One of the chief problems of the professional under our present tax structure is to accumulate savings for himself and his family. Many corporate executives are securing their future through profit-sharing plans approved by the United States Treasury Department, and under certain circumstances it may be possible for the architect or engineer also to utilize this procedure.

The spread of profit-sharing plans among medium and small corporations, where stock is closely held, is particularly evident today. Even where profits are great, the high individual and corporate tax rates make it difficult to accumulate savings; and small corporations, by utilizing a qualified profit-sharing plan, can convert part of their profits (that would otherwise go out in taxes) into capital that accumulates until the need for that capital arises. In small corporations, ownership and management are generally combined in the same few people. The stockholders who own the stock also run the corporations as officers and directors. Under profit-sharing plans authorized by the present law, a corporation may institute a profit-sharing plan of which the executives are members. The corporation agrees to contribute a certain proportion of its year's profit, if any, to the fund which is set up in proportion to a certain limited percentage of each executive's salary. Under some plans the amount contributed to the fund is discretionary. The profits which are placed in the fund are not subject to tax. This fund can be invested and the income or profits realized upon these investments are also tax free. Upon their retirement, the members of the fund are paid their share, at which time said distribution is subject only to a long-term capital gains tax.

Another aspect of this plan is that, until a member has continued his employment for a period of ten years, his rights do not become fully vested; and if he should voluntarily leave the corporation prior to this period, he forfeits part of the fund, the remaining part of which is credited to the other members. Consequently, the profit-sharing plan is an incentive for the members to continue in the employment of the company; and where employes leave without obtaining a vested right in profit-sharing fund, the owner-managers of the corporation increase their interest proportionately.

If a corporation may not practice architecture or engineering, and profit-sharing plans may only be approved for corporations, how then may a professional obtain the benefit of such a plan? One way may be to divide the architectural or engineering firm into two, separate entities. One such entity would continue, through the individual or partnership firm, furnishing exclusively architectural or engineering services, such as design and supervision of construction. The other entity would consist of a corporation which would be formed for the purpose of furnishing drafting services only, and would be owned and operated by the individual architect or engineer or by the partners of the architectural or engineering firm. The drafting corporation, whose salaried executives would be the owners of the company, would then initiate a profit-sharing plan and obtain the benefits of a tax-free accumulation, like any other corporation.

The foregoing plan might be subject to challenge by state authorities in those states where corporations may not practice architecture or engineering, on the ground that the furnishing of drafting services is such practice. The line between the performing of architectural services, as distinguished from purely drafting services, is very fine. At a minimum, the drafting corporation must be set up so that it is not furnishing services to the public and the final responsibility for and approval of the work performed there must lie with the architectural or engineering firm whose members are duly licensed. The success or failure of this plan may depend on the care and competency with which the charter of the drafting corporation is drawn, and also upon the varying interpretations of the licensing laws given by the courts in different states.

If corporate practice constitutes a hazard to professional obligations and standards, and if the business benefits of such practice cannot be legally obtained by individuals or partnerships, the solution to the problem may be legislation which grants some of these benefits to the individual practitioner or to the partnership firm. This is a question which should be considered carefully by the profession.

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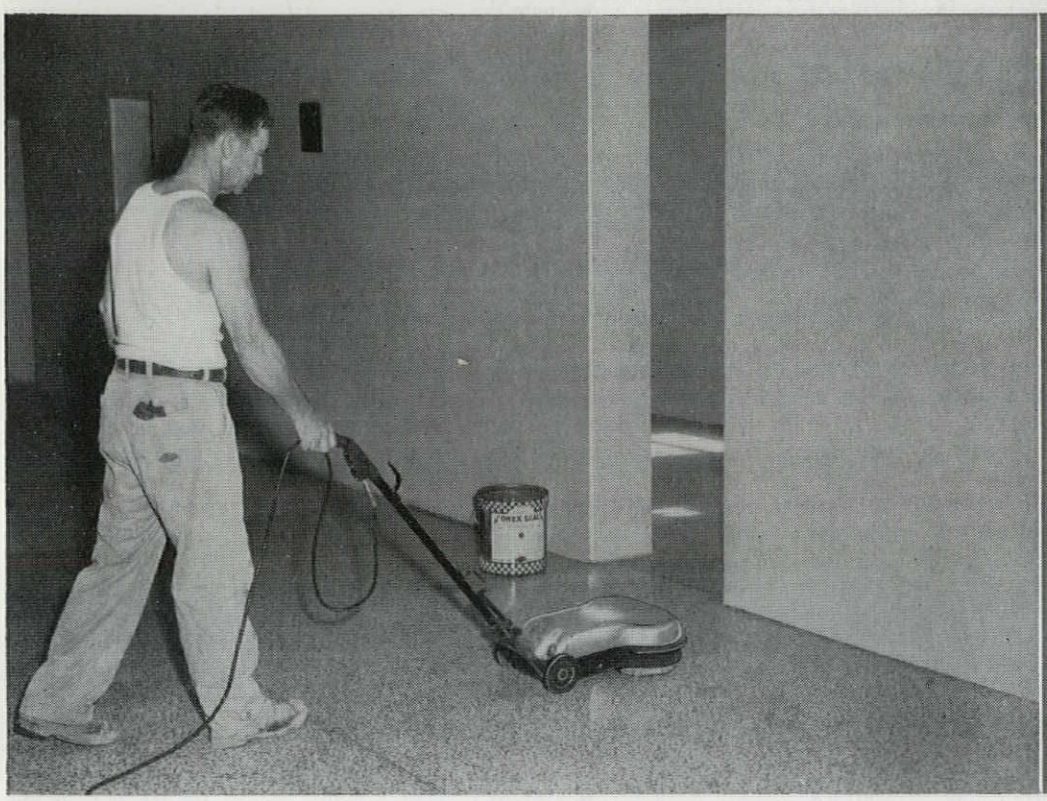

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Organization of Specifications

Specifications Clinic by Harold J. Rosen

P/A Practice of Architecture *article describing the organization of specifications by sections or divisions according to trade categories, for the benefit of bidders' estimators.*

The American Institute of Architects classifies specifications as one of the Contract Documents, one of the necessary constituent elements of the Contract. Webster's dictionary gives this definition: "Specification (usually plural)—A written or printed description of work to be done, forming part of the contract and describing qualities of material and mode of construction, and also giving dimensions and other information not shown in the drawings."

Specifications used in building operations are a detailed description of the materials, processes, and workmanship required to complete a building or part of a building. Thus, a specification for the structural steelwork of a building is a detailed description of the nature and physical characteristics of the steel to be used, the methods of assembling it and raising it into place, and the labor or workmanship required to produce, erect, and finish the work.

Specifications may be in the form of a single document containing a description of all the work and materials that are to be included in a building. This frequently occurs when the building is small and when a brief specification will be sufficient. This is also true of specifications written for buildings erected in the 19th Century. At that time, specifications consisted generally of only three main sections—Masonry, Carpentry, and Mechanical Work—with various allied or related subjects under each section. The Masonry section included excavation, brickwork, stonework, steel columns and lintels, tilework, and waterproofing. The Carpentry section included roofing, glazing, and painting, as well as the carpentry. The Mechanical or pipe trades consisted of plumbing, gas, and heating work. When electricity came into use, it was included in the mechanical work.

The foregoing arrangement of the specifications was adequate for the nature of the buildings constructed at that time and for the trades as they conducted their work. However, our buildings have grown more complex and the building trades more specialized. The specifications for today's buildings are written particularly for the general contractor's estimator, his subcontractors, manufacturers, and materials dealers, all of whom may need to "take off" the items of their work for estimate.

Accuracy in estimating is for the best interests of the client. To assure this accuracy, the specifications should be divided into sections or divisions so as to permit the builder's estimator to prepare his estimate quickly and accurately. The preparation of drawings and specifications takes considerable time. However, bidding periods are generally of short duration. It is therefore evident that the estimator must have a specification so separated by trades that he can list the materials and quantities, note the methods of their use, separate those parts on which he will take subestimates, secure prices, and tabulate results, all within a three- or four-week period—usually in not more than two weeks.

For convenience in writing, for speed in estimating, and for ease in reference, it has been found that the most suitable organization of the specifications is a series of sections dealing successively with the different trades and in each section grouping all of the work of the particular trade to which the section is devoted. It is not a simple matter to determine the proper subdivision of the trades, and once made it is not necessarily permanent. Changes will occur as materials change and union jurisdiction changes. Concrete work was formerly a general mason's work; now it is a separate trade. Wood forms for concrete were once specified under Carpentry, but are now specified under the Concrete section. As new methods of work develop, they will at first be done by an existing trade but later come under the category of a new trade. The separation of trades varies in different localities, and the subdivision of specifications should generally conform to the practice of the local building trades.

Trade-union practices will cause changes in trade divisions of the specifications, as the trades relinquish or gain control of certain work or features of work. The specifications writer cannot solve these problems for all time in his specifications, since union practices and use of materials continue to change.

There are some sections of the specifications which are written on a basis of the similarity of the materials, which are specified in one section of the specifications for convenience of the specifications writer. For example, Thermal Insulation is very easy to describe in one section even though it may be required for perimeter insulation in Concrete work, roof insulation in Roofing work, and wall insulation in Carpentry. Another example is Toilet Accessories. This is written in one section for the specifications writer's convenience. Even though the specifications section requires the furnishing and installation of the toilet accessories, the installation may be claimed by many trades. The toilet-paper holders installed on metal partitions may be secured thereto by one trade, the soap dispenser on plaster by another trade, and the tile soap dish in ceramic tile by still a third trade.

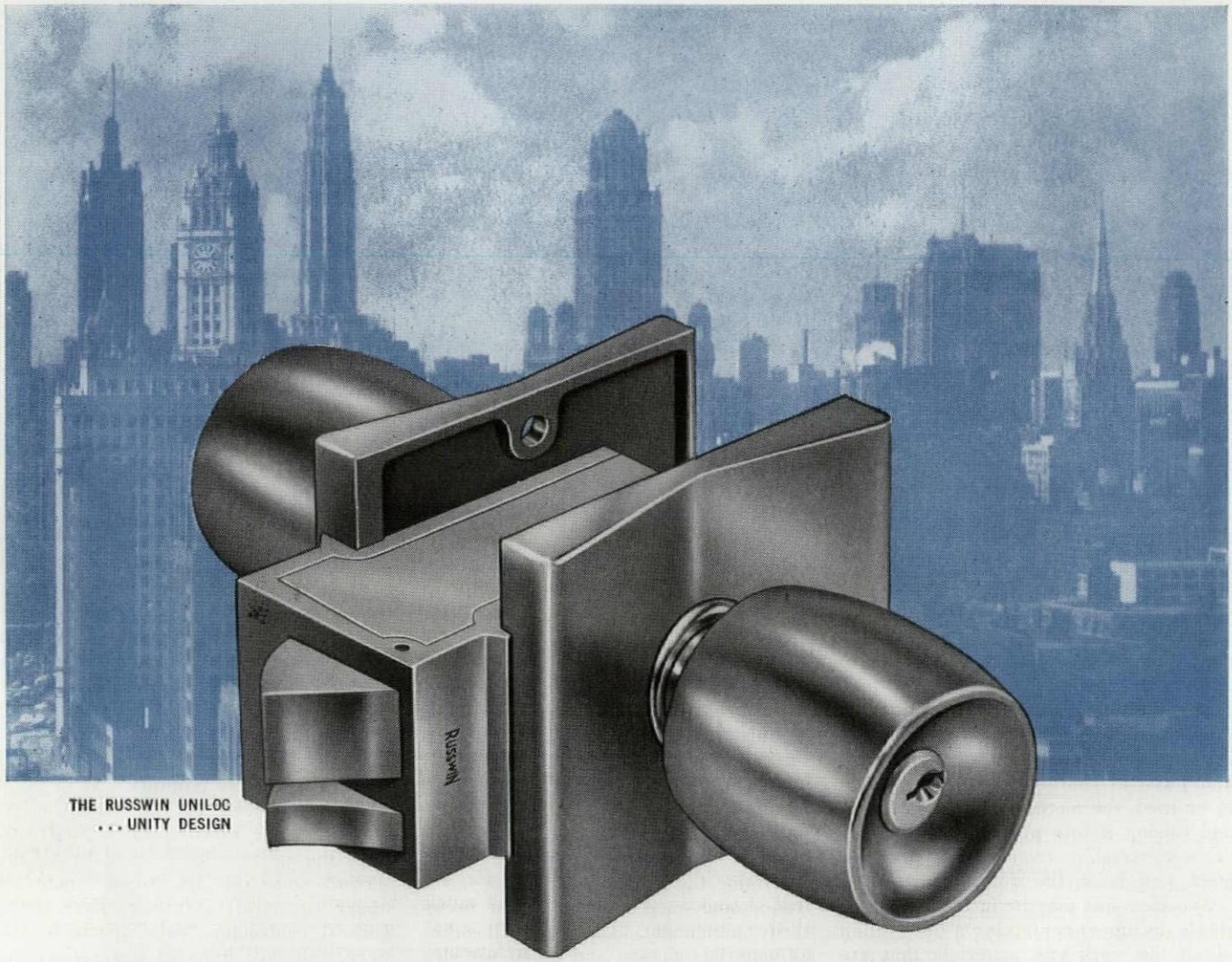
There are still other instances where we know perfectly well that one trade has jurisdiction with respect to a certain operation and we continue to specify this operation elsewhere. For example, in dry-wall construction, gypsum wallboard is specified to be furnished and erected, and the taping and cementing of the joints is included in the same section. Yet the erection of the wallboard is performed by carpenters, while the taping and cementing of joints is claimed and performed by painters.

Trade sections of the specifications should not be referred to as contracts, since the entire work covered by all the sections may be let in one contract under a general contractor. Even if the general contractor "subs" parts of the work, this will have no bearing on the Owner's contract with the general contractor. Any such reference to the sections as "contracts" would be confusing. However, when the work of the separate trades is awarded to individual contractors, then these portions of the work are separate contracts and should be referred to as such and the specifications for these separate contracts should be complete within themselves.

It is often necessary to refer in one trade section to the work of another trade section. For example, the runner channel for the metal suspension system of an acoustical-tile trade may be specified under the Furring, Lathing, and Plastering Section. Under the Acoustical-Tile Section, reference should be made to the runner channel installed under the Furring, Lathing, and Plastering Section and not by the Furring, Lathing, and Plastering subcontractor. The term, General Contractor, should be used throughout and not the terms mason, carpenter, painter, etc. No reference to subcontractors should be made in any of the trade sections.

The General Conditions of the specifications should be supplemented with the following admonition: "The following

(Continued on page 11)



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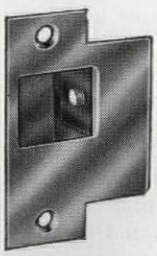

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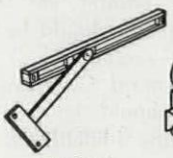
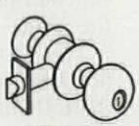
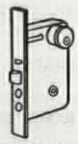


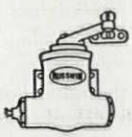
Overhead Door Holders



Stilemaker Locksets



"Ten Strike" Cylinder Locks



Surface Door Closers

Fire Exit Bolts

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Organization of Specifications *(continued)*

technical specifications are generally divided into trade sections for the purpose of ready reference. The division of the work among his subcontractors is the Contractor's responsibility and Architect assumes no responsibility to act as arbiter to establish subcontract limits between any sections of the work."

There is no provision in the specifications which prohibits the General Contractor from lumping or redistributing the various trade sections in any manner he wishes.

However, the development of the use of many individual trade sections has led to the incorrect belief that these sections should be so complete in themselves that the general contractor is relieved of responsibility. The general contractor, whether he had the three sections of the specifications to work from in earlier days or the 30 to 40 sections of today's complex structures, is still responsible for organizing, co-ordinating, and fitting together of all the related work.

As an example of trade-section organization of the specifications and failure to pin responsibilities on the General Contractor, there is now a move on foot to provide one trade section for the entire work of metal-and-glass curtain walls. In this section of the specifications would be lumped the metal curtain wall, spandrels, glass, calking, insulation, flashing, stools, venetian-blind pockets, etc. The avowed purpose is to establish one over-all responsibility. What has happened to the requirement calling for the General Contractor to have over-all responsibility?

Manpower for a Structural Engineer's Office

*by Milo S. Ketchum**

P/A Practice of Architecture ***article describing the problems involved in staffing the office of a structural engineering firm.***

Architects, as well as the structural engineers, should be interested in the manpower and employment problems of structural-engineering firms that work for architects. This knowledge may assist the architect to understand the engineer and his problems. The average structural office is probably quite small, consisting of no more than a principal and perhaps five employes. It is strictly a service organization and its personnel must be available at all times to assist the architect. If the engineer has several clients, the work tends to flow through the office in a fairly uniform manner because gaps in the schedule of one architect will be made up by work for another architect. The highs and lows of work thereby are smoothed out, in comparison to the schedules of architects, and it is my opinion that there is less turnover in a structural engineer's office than in an architect's office.

There are two basic patterns for office organization. First, both engineers and structural draftsmen may be hired, with the engineers doing all the design wo and the draftsmen making the finished drawings. This method is particularly suitable in large metropolitan areas where there is a regular labor market for structural draftsmen. The other pattern is to employ only graduate engineers, who do both enginering and drafting. If there is a large number of small jobs, this system is more efficient even though the rate per hour is higher for engineers than for draftsmen. It is not so efficient on large projects if the engineer is used too much of the time on sub-engineering work.

The experience of our office and others has been that it is practically impossible to find a fully trained engineer for our work and that we must be constantly training new men out of school. There are two sources of supply for engineers: (1) graduates in the civil-engineering curriculum, and (2) graduates in architectural engineering. The architectural engineers, generally, are superior to civil engineers for structural offices; for the civil engineers have had to spend much of their time in school on courses not germane to the structure or architecture of buildings. Also, the civil engineers are given no incentive to improve their drafting, and by their senior year they have lost all desire to excel in this field. Also, they are slightly schizophrenic with regard to their place in the building industry. In our experience, it takes a full year for the civil engineering graduates to catch up with the architectural-engineer graduates in drafting proficiency and knowledge of building construction.

Not enough young engineers know it but a consultant's office is the best place for a young engineer to start. He will be working under the most skilled men in the profession and he will get more responsibility under proper supervision than in any other situation where young structural engineers are employed. The consultant must make this fact known to the engineering schools.

The success of an architect or engineer depends upon his ability to hire, to train, and to retain the services of competent employes. This is more important to the architect and engineer than to other professional men, because so much of his budget goes for salaries compared to, say, the law or medicine.

There is an art to hiring good men which must be studied and practiced. It is our policy to interview almost everyone that pops his head into the office, regardless of our immediate requirements. If we can find a top-notch man at a good price, we hire him whether we need him or not. It is often the way questions are answered that gives clues to an applicant's personality, rather than the answers themselves. The employes of a consulting engineer usually work directly with the employes of the client, so they must be able to meet and work with architects. Therefore, they must be on the extrovert side. There are some engineers that do not have the personality to work with clients.

We have developed our own methods of estimating the need for additional help, which are a great consolation to us. We list our clients on the left side of a sheet of scratch paper and on the right we place three columns representing the minimum average and maximum number of men needed for each client. We try to project our needs six months in advance. We base our estimates to some extent on the number of his employes. We need at least one engineer to each three architectural draftsmen. This system is not foolproof but if we disregard the results of this survey we may be in trouble.

It has been our observation over the country that most employes of structural engineering firms are quite young. The fee schedules for consultants in most areas do not warrant high-priced help. When the employe obtains enough experience he gets a better paying job outside a consultant's office or sets up his own office. The consultants begin to feel after awhile that they are running a training school for structural engineers. When fee schedules are raised to a point where the engineer does a proper job of design and supervision, then, he can afford higher-priced help.

*Partner, Ketchum & Konkel, Consulting Engineers, Denver, Colo.

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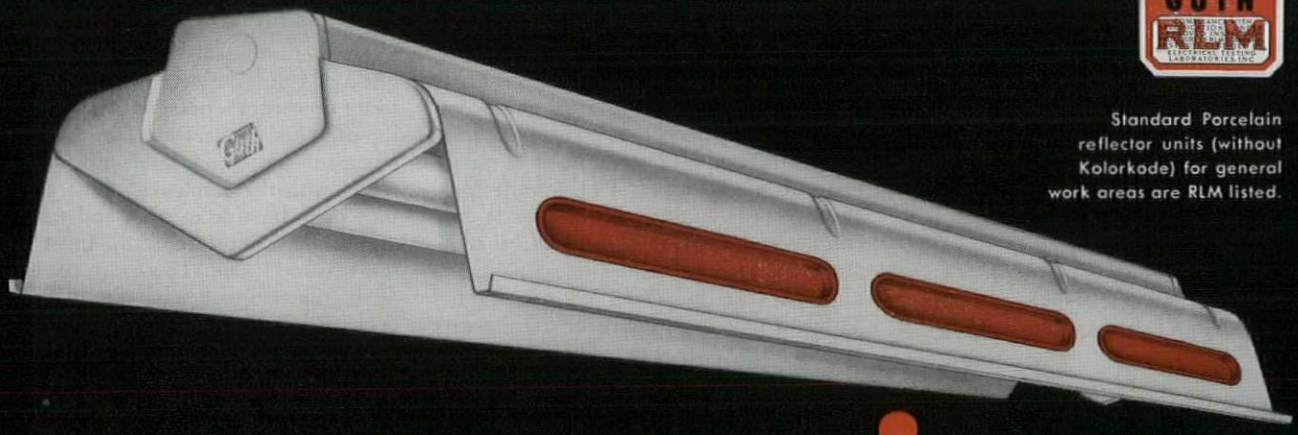

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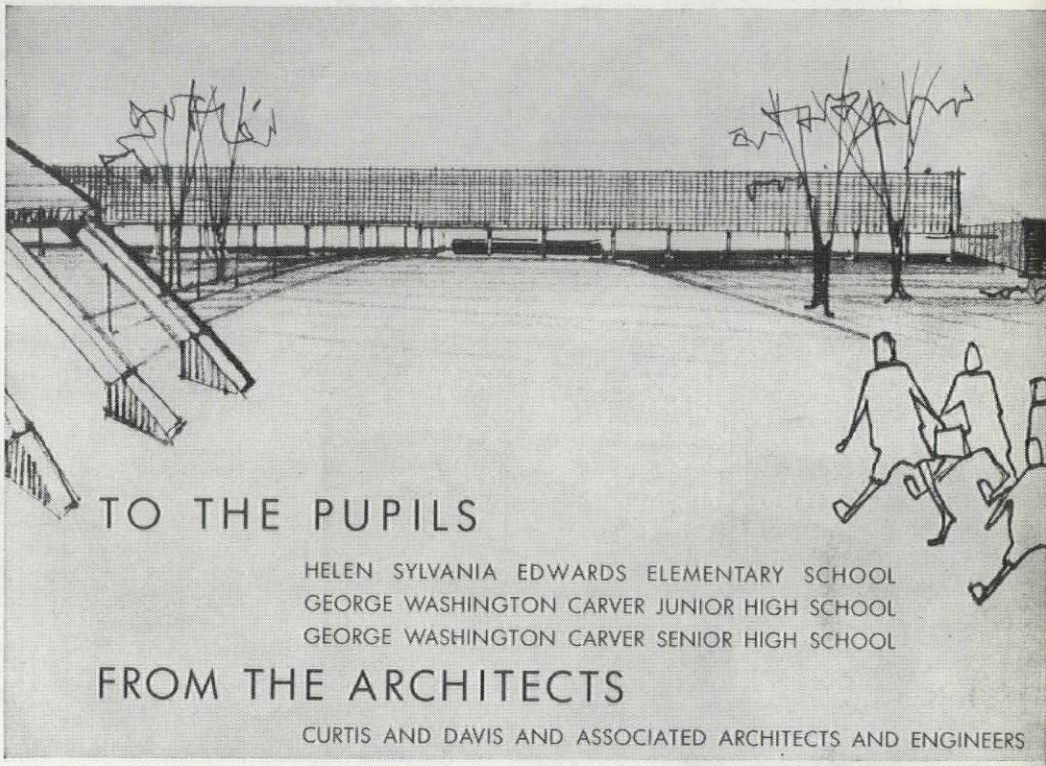
OFFICE BROCHURES 4: the new school

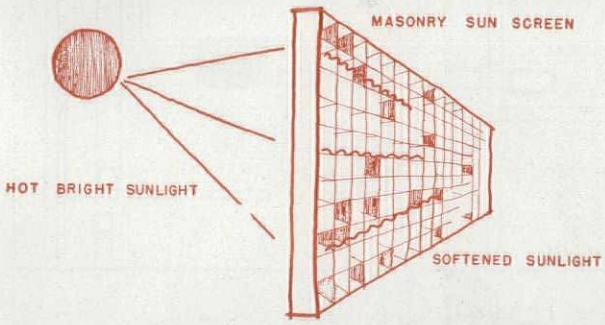
P/A Practice of Architecture ***article discussing and illustrating an unusual sort of "office brochure"—one prepared for the children attending a new school.***

Architects Curtis & Davis, New Orleans, on turning over to the client their P/A Design Award-Winning George Washington Carver High School, furnished for the pupils a simple explanatory booklet (the cover of which is illustrated here) designed to make them more proud (and more understanding) of their school. Text is simple. The first page begins: "We believe your school to be one of the finest in the nation and, after we explain it to you, we believe you will agree.

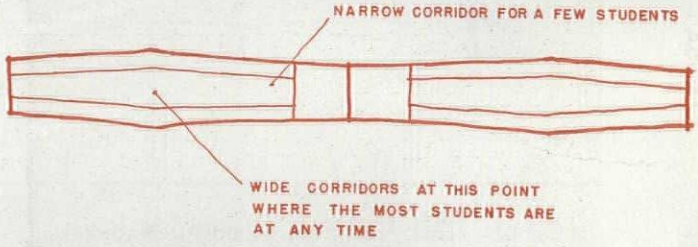
"Your teachers, the staff, and members of the Orleans Parish School Board worked with us for many months planning your school and, now, as your school opens, you will enjoy the benefit as a result of these combined efforts."

Most of the book is made up of easy-to-read illustrations, such as those shown on this page.

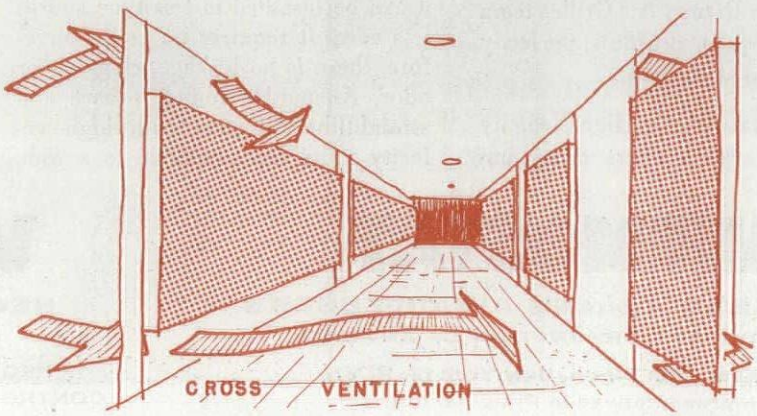




HOW A SUN SCREEN WORKS



WIDE CORRIDORS AT SOME PLACES



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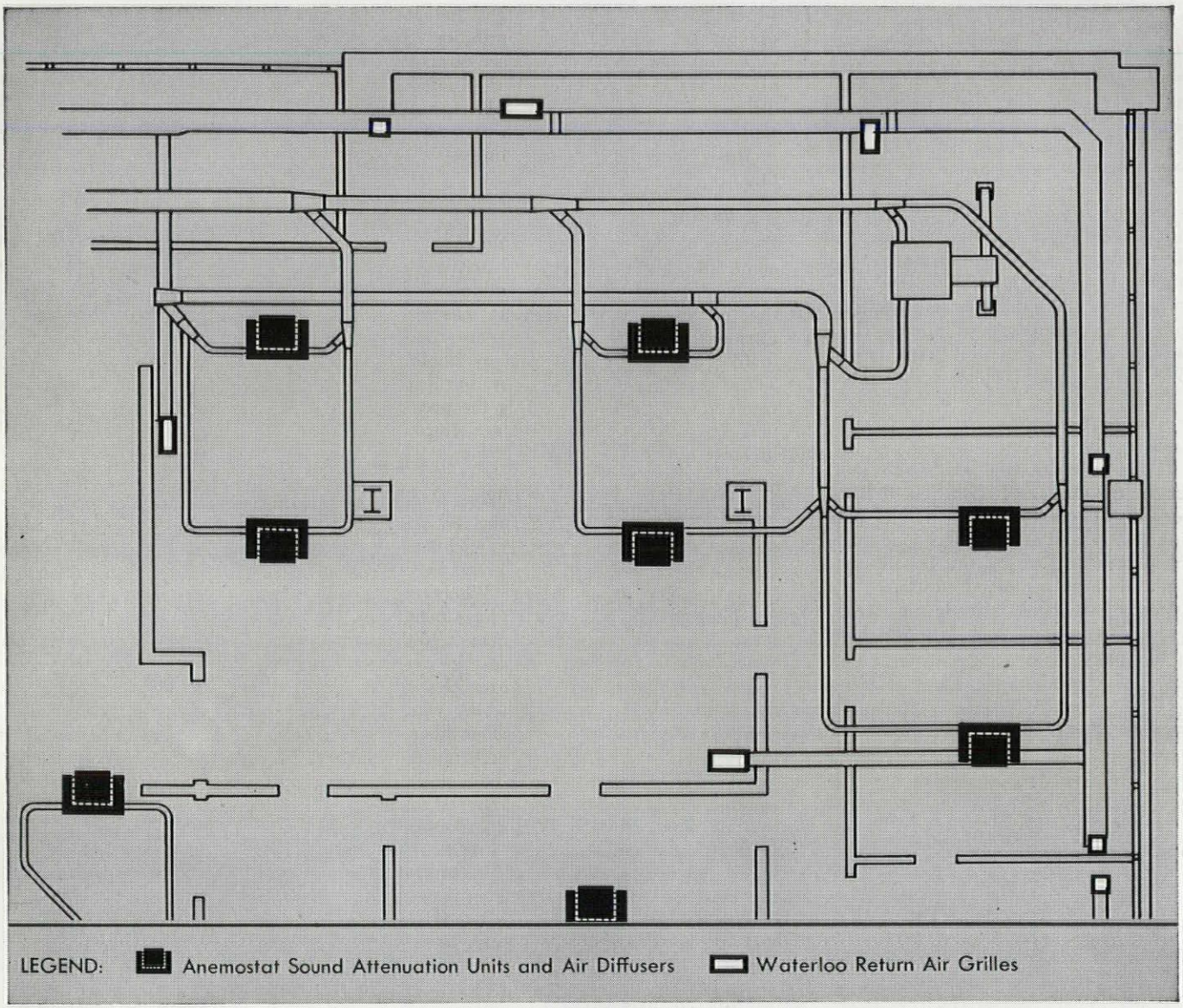

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Antiexplosion Measures for Manufacturing Plants

Mechanical Engineering Critique by William J. McGuinness

P/A Practice of Architecture *column on mechanical and electrical design and equipment—devoted this month to safety precautions against fire and explosion in industrial plants using flammable liquids.*

Fire and explosion are industrial hazards in plants using readily combustible or explosive materials. High on the list of those requiring design safeguards against these mishaps are ink-manufacturing plants. Many of the 30 or more liquids used in ink manufacture are highly flammable. The greatest care is required in storage and handling of the liquids, prevention of explosive mixtures, elimination of sources of ignition, and facilities for rapidly clearing the air of dangerous fumes. Much of this kind of planning has been experienced by the Sinclair & Valentine Co., Division of American-Marietta Company, whose 47th plant has just been completed and placed in operation at Secaucus, New Jersey. This plant, designed by Abbott-Merkt & Co., embraces many safety features developed over the years, and also includes new ones never before used.

Erik Johnsen and Richard Bush, of Abbott-Merkt & Co., were the engineers for this plant. Abbott-Merkt's president, Col. Richard H. Tatlow III, has said that the safety of laboratory personnel, process workers, and of other people living and working in the surrounding community was a prime consideration as designs took shape. Flexibility and adaptability to new processes was the keynote of the general planning.

storage and handling

Flammable liquids are stored in numerous tanks in two general groups underground and outside of the plant. Vents from these tanks are provided with special protective devices that prevent ignition or explosion that might be caused by an accidental outdoor fire. They have double, spring-loaded closures which open sequentially to relieve pressures and vacuums. On the outside there is a screen wire that prevents the entry of flame. These liquid solvents are pumped from the tanks in metered amounts to conform exactly with the periodic needs of the several processes. Automatic cutoffs assure that no excess amounts are permitted inside the plant at any time. In the tanks, submersible pumps, with pumping elements directly in the liquid, deliver this liquid under pressure. By use of this method, the pumps are always primed and there is no suction side in which the low pressure might induce greater volatility and susceptibility to explosion. The pump motors are directly above the liquid and are spark-proofed. To prevent dangerous tank leakage, certain oils and solvents with corrosive qualities are stored in stainless-steel tanks.

use of inert gases

Because oxygen in the air could support combustion or explosion of volatile liquids, air is not used in containers of the processes. Instead, inert gases—nitrogen and carbon dioxide—are used to fill all voids not displaced by liquid. These gases are obtained by burning commercial gas and collecting the products of combustion. These are stored in large tanks at 100 psi.

electrical sparkproofing

In all areas where gases may be released, electrical equipment such as lights, motors, switches, and starters have been specially sparkproofed. Wherever possible, starters and switches have been located entirely outside of these areas. Where this was not practicable they are housed in rugged cast-iron boxes closed by covers of the same material with tightly fitting ground joints. This housing supplants the usual lightweight sheet-metal box. Lamp filaments have been isolated as sources of ignition by setting the bulb in a heavy glass bowl, gasketted to the ground joints of a cast-iron housing. If an explosion should occur within the bowl or housing, because of gases leaking in through connecting conduits, the construction is heavy enough to retain it.

air conditioning

Designs that are based upon the usual requirements of comfort—including the regulation of heating and cooling, air freshness, filtration, humidity, and air speed—would be insufficient to provide the extra safety and operating convenience needed in this plant. Removal of explosive dust particles and flammable gaseous mixtures in the air is essential and local cooling of hot processes is part of the general scheme. Interlocks prevent the starting of certain equipment until ventilating air is set in motion. Dust is picked up by air-handling equipment and held in baglike collectors. The fumes are ignited and burned so that they will be inert on disposal. To prevent annoyance to adjacent residents, collected fumes have odors removed before they are released from stacks above the roof.

The offices, lunch room, and laboratories are air conditioned. Fresh air in the amount of 25 percent of the total circulated air is constantly added. If fumes escape in the laboratories, special arrangements permit any technician to exhaust all of the air at once, replacing it with 100 percent outdoor air. This can be completed in several minutes after which the normal ratio of fresh air to total air may be resumed. During the hours when the building is generally unoccupied, a time clock programs the testing by an automatic analyzer of air samples drawn through tubing from all parts of the plant. Action can be taken at once if dangerous conditions are detected.

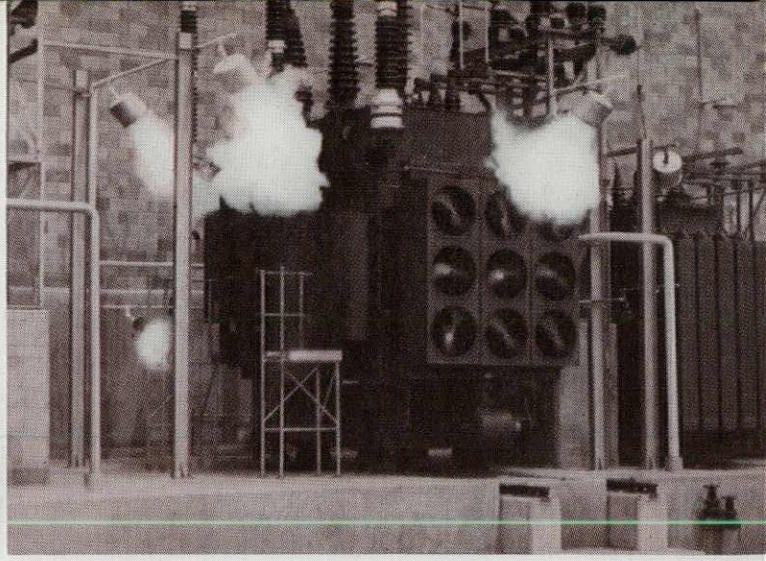
Similar in principle to the removal of dust and fumes at their sources, provision is made to reduce the temperature of heat-producing processes to preclude the need for general cooling of the adjacent air. During the operation of certain machines which produce excessive heat, cooling water is continuously circulated. After cooling the machinery, the water flows to a hot well. From this point it is pumped to a roof cooling tower. Here it is cooled and delivered to a cold well where it is ready for a repetition of the process.

sprinklers and fire barriers

The several divisions are separated by fire walls and automatic fire doors and the building is completely equipped with sprinklers. In exposed areas, sprinkler pipes are filled with nonflammable antifreeze to prevent their bursting in subfreezing weather.

explosion relief

Obviously the chance of a damaging explosion is quite small. Those who operate industries in which a blast is even a rare possibility, have learned to plan for its relief and for minimization of damage and concussion. Requirements of the State of New Jersey and of insurance companies have been exceeded in the Secaucus plant. Windows, special panels, and skylights are designed to offer minimum resistance to a blast blowing out. Large expanses of glass are used, especially in the color matching laboratory where maximum natural daylight is available from a northern exposure. The glass, of course, doubles as an explosion vent in case of a blast.



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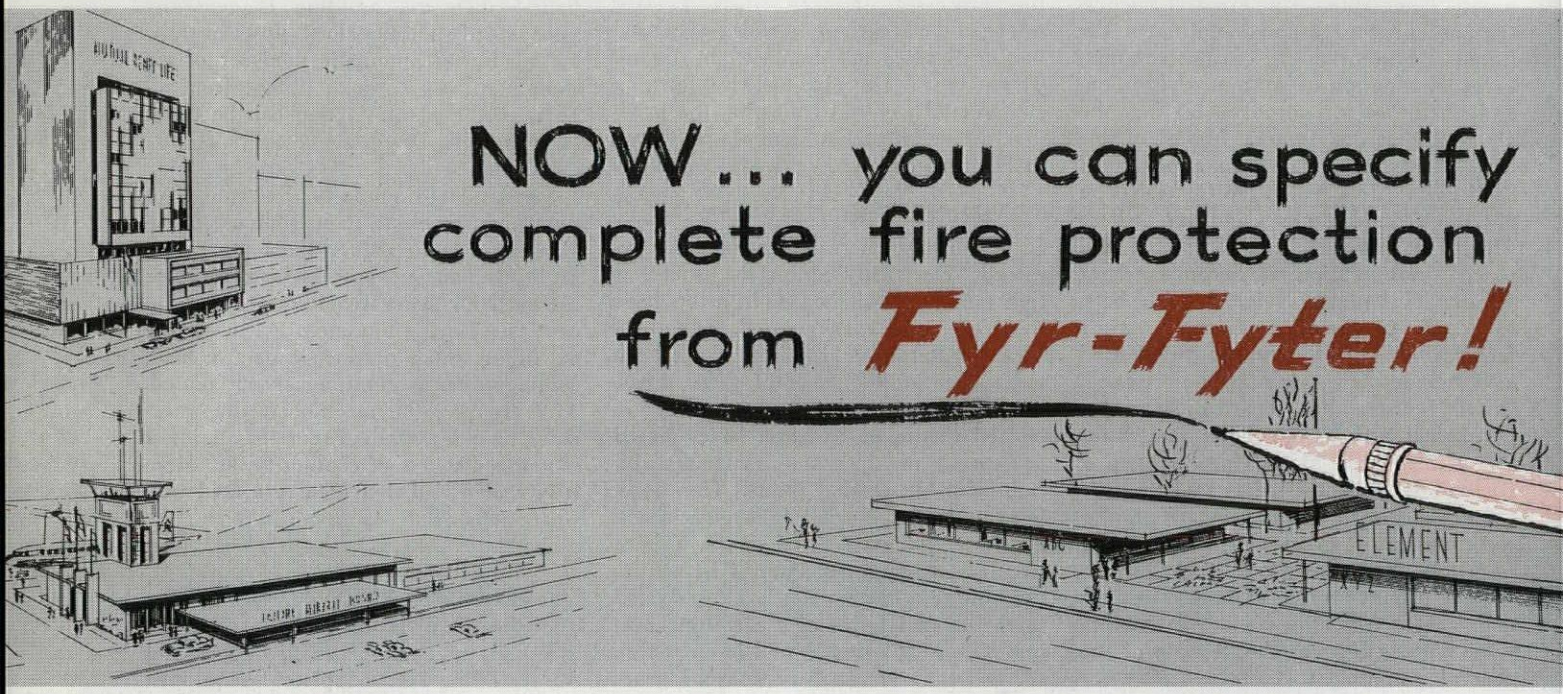

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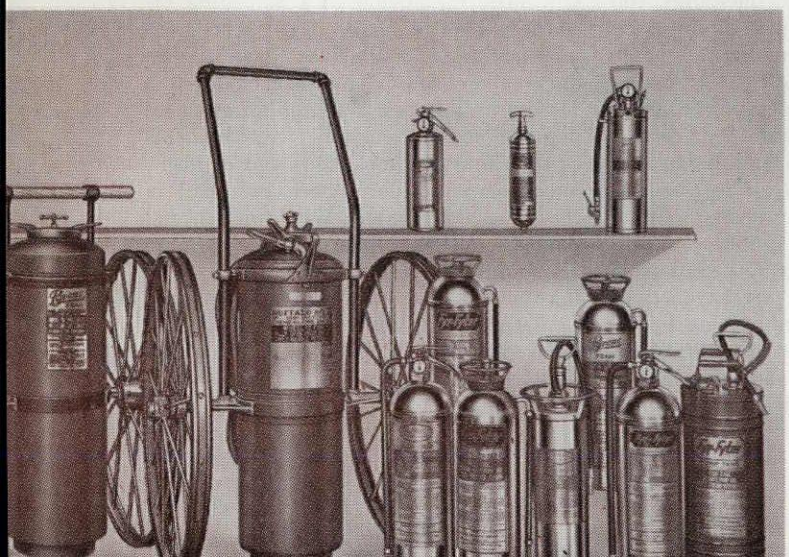

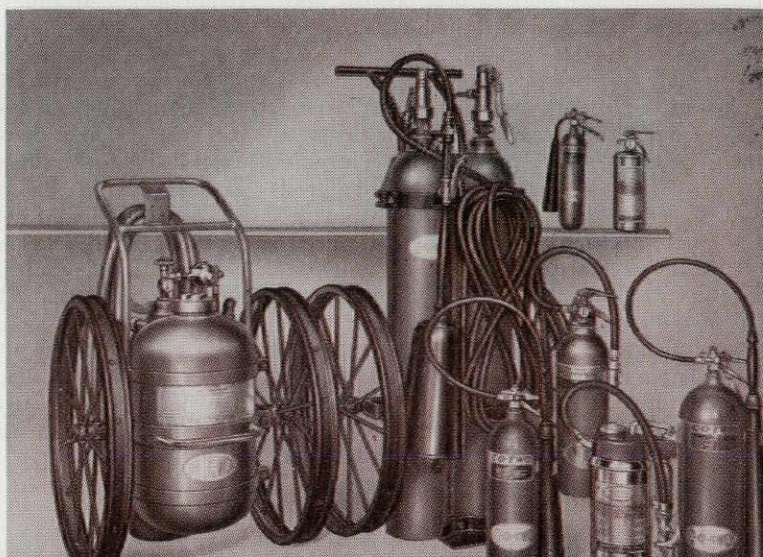

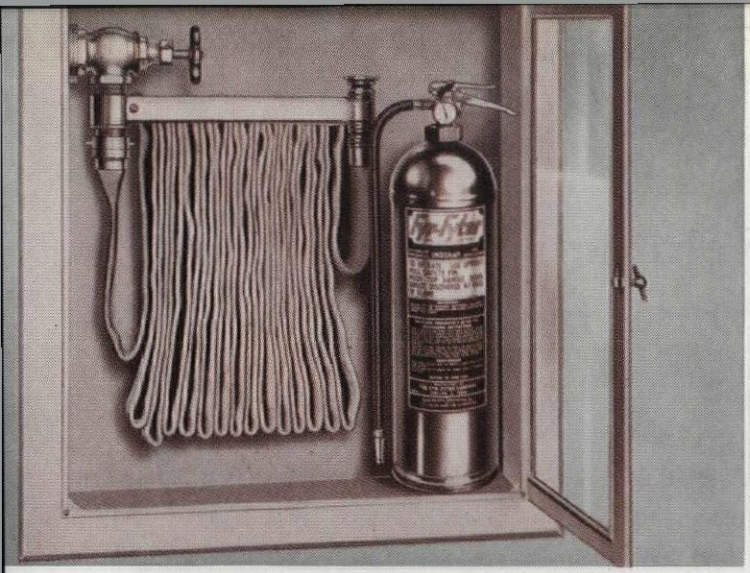

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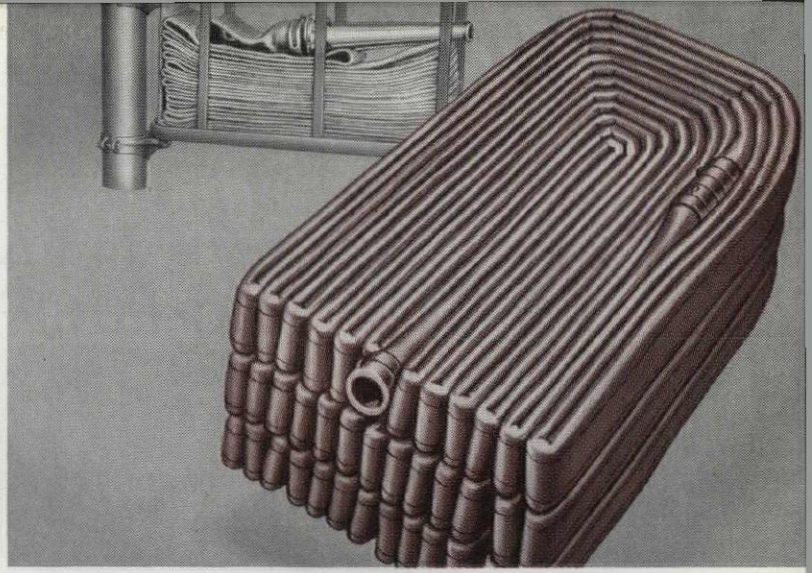

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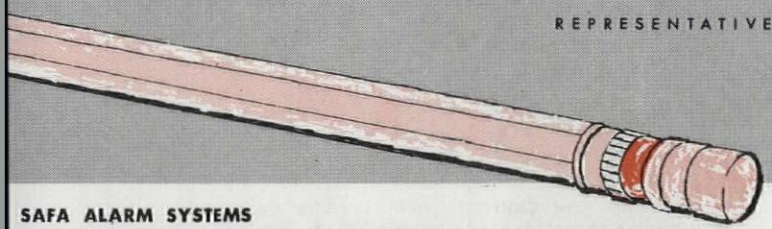

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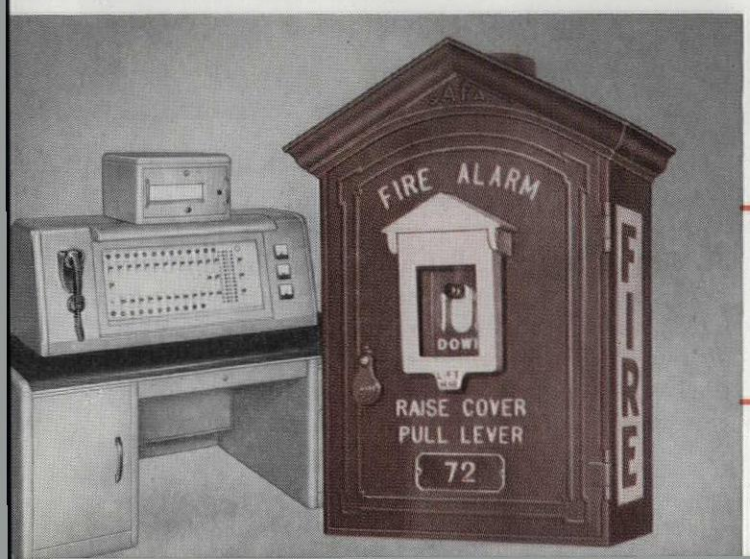

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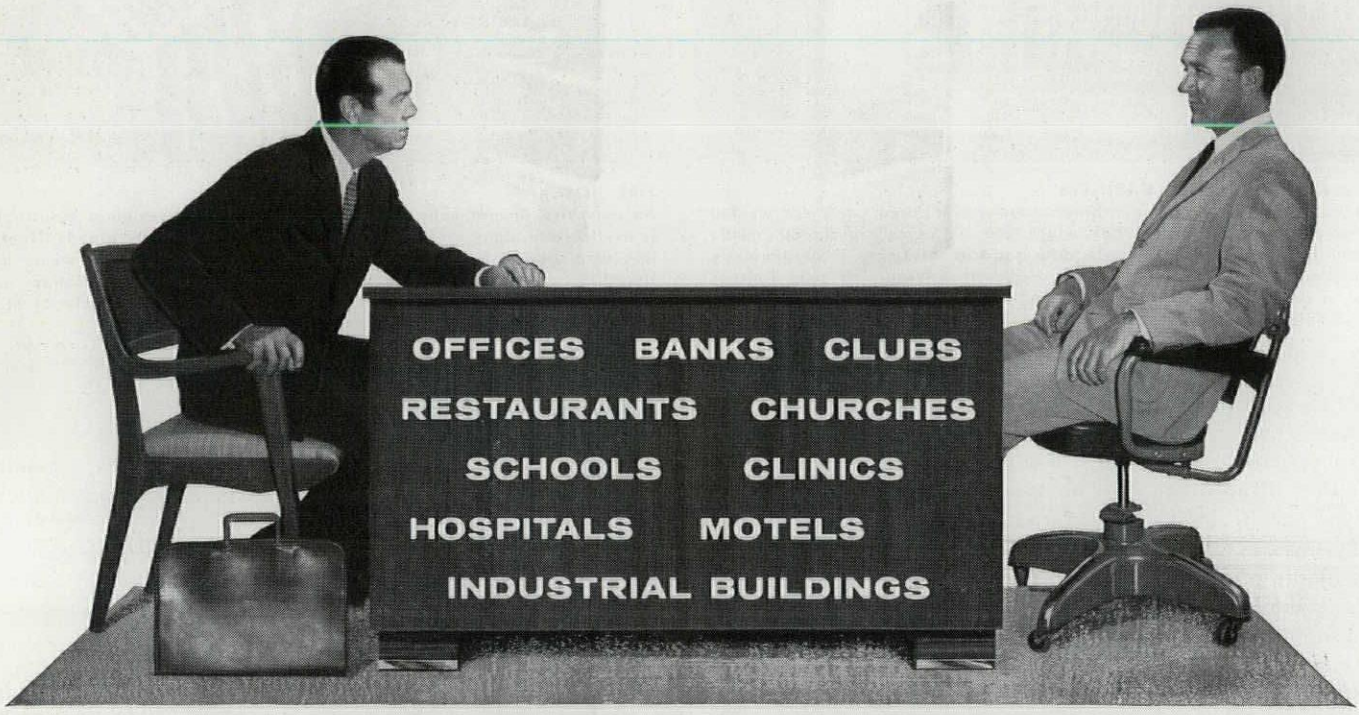
What Engineers and Architects Ask Us About Temperature Controls for Smaller Buildings



Q. Isn't it unusual to recommend pneumatic controls for the smaller installations? I always thought pneumatic controls were for the big jobs only.

A. Not at all. Johnson has always done work in buildings of all sizes. Naturally, you hear more about the big "name" jobs, but every year Johnson also furnishes pneumatic controls for thousands of small and medium size heating and air conditioning installations.

Q. To be practical, how small can a building be and still use a pneumatic control system?

A. Since building *size* has nothing to do with building *quality*, size isn't the problem at all. A quality-built *small* building needs just as good a control system as a first class *big* building. That means *pneumatic* controls if you want to give your clients big-system standards of comfort, efficiency and economy.

Q. What help does Johnson offer the engineer and the architect?

A. Johnson accepts complete responsibility for all control work. A Johnson engineer will plan a control system to meet your exact needs, no matter how small the job. His recommendations are backed by the Johnson organization's 74 years' experience with all types of systems and all makes of equipment. Likewise important, all installation work is done by Johnson's own full-time installation mechanics. There's no need for you to spend valuable time on planning, estimating, supervisory or installation details. Thus, Johnson helps simplify your work, saves your time and gives your client a top notch control system.

Q. What advantages does the owner get from pneumatic control systems?

A. They are much simpler and involve fewer components than other types. They require less supervision and are easier and less costly to maintain. Since each system is specially planned, they assure the greatest long range economy in the operation of heating and cooling systems. And, of course, nothing else combines the accuracy and dependability of pneumatic controls.

Q. Who does the owner look to for service when he uses pneumatic controls?

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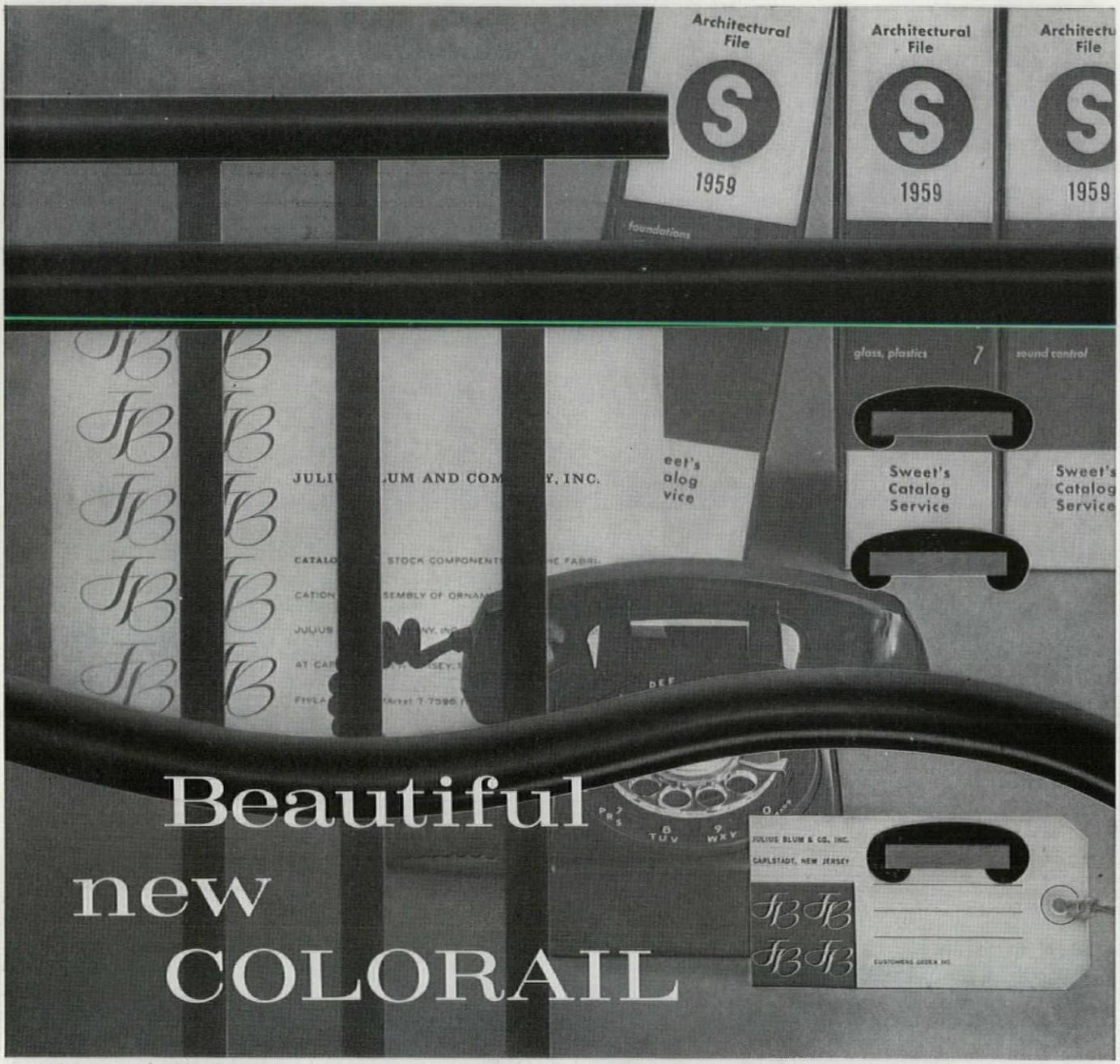

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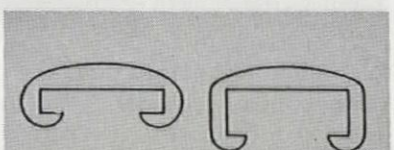

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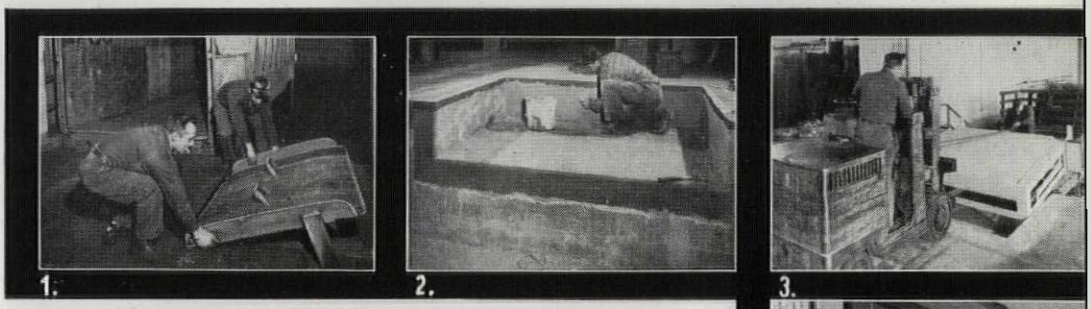

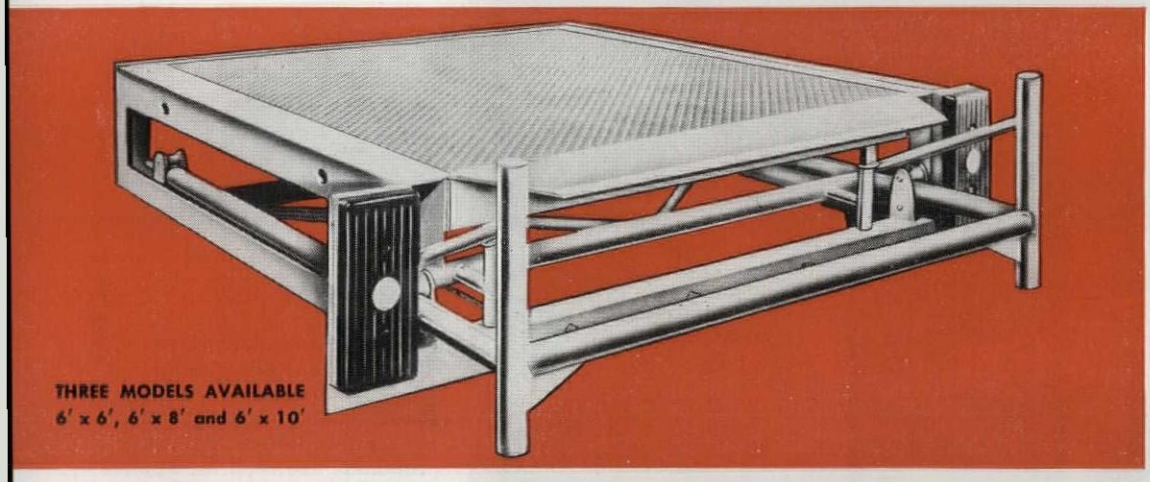

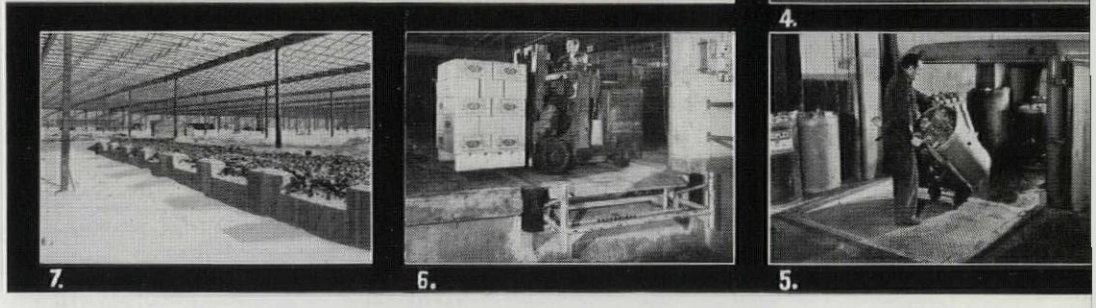

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4. Dock now automatically receives high bed truck up to 16" above dock level, regardless of dock height. Ends need for dock attendant, dangerous plates, extra crews, etc.

5. Dock also automatically receives low bed truck down to 10" below dock level, regardless of dock height. Ramp lip hugs truck bed.

6. When truck leaves, hinged ramp automatically returns to full cross traffic position, supports locking in place. Dock is ready to receive next truck. No clutter. No wasted dock area.

7. Ideal for new construction. Preserves front wall. Dock and shallow pit formed and poured as one unit, reducing construction costs for installation by 60% to 80%.

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"Dockbridge" is a simple, trouble-free, fully automatic, truck-activated, hinged loading ramp . . . takes trucks up to 16" above and down to 10" below dock level without the use of costly, complicated hydraulics or jury-rigged mechanisms. Only the "Dockbridge" is a clean, compact, self-contained package, ready to install in a prepared dock pit 17½" deep. Makes installation low cost and easy in existing docks or new construction.

A "Dockbridge" installation means: Fewer truck spots to handle your load. More efficient flow of materials. Fewer personnel. Full use of material handling equipment. Efficient movement of materials during peak loading periods, cutting overtime, delays in shipping and billing. Trucks spend less time loading and unloading, more time rolling.

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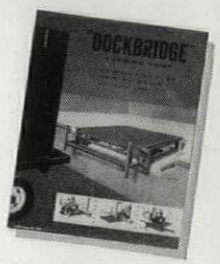

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Plant Engineering 1C/AE

Industrial Construction 16A/AE

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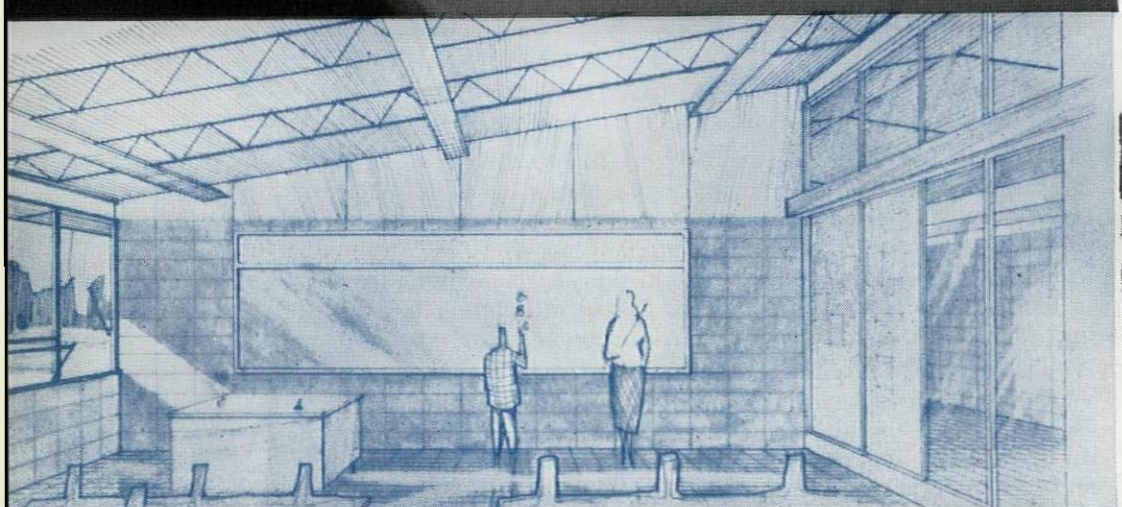
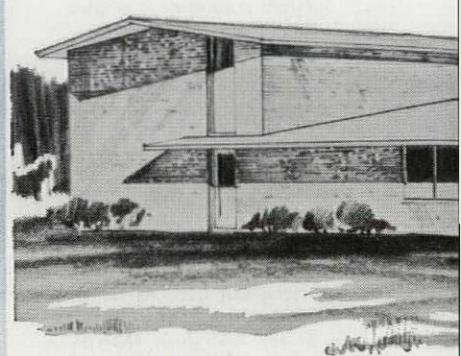
Pre-cut sound-absorption batts of inert fiber fit into the 2⅜″ rib-openings of Acoustideck, under cover of 1″ rigid board insulation. Standard methods are used for application of bonded roofing.

Using Acoustideck was one way the architects of the Fennimore Community School, Stitzer, Wisconsin helped the community to hold down building costs, and at the same time to get more value for its school dollars.





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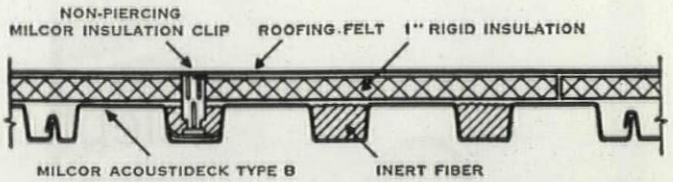
New steel roof deck doubles as an acoustical ceiling



Milcor Acoustideck cuts cost of roof and ceiling for school

You can save taxpayers half the cost of separate roof and ceiling constructions when you specify Milcor Acoustideck, because Acoustideck serves as *both* a steel roof deck *and* an acoustical ceiling of modern, fluted design.

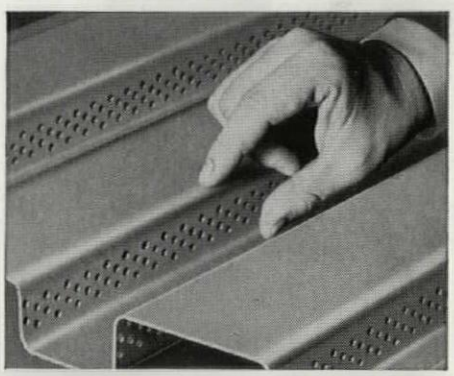
This dual-purpose deck goes up fast, because it is easy to handle and is not affected by weather. Its long spans save on structurals. It helps earn favorable insurance ratings, because it is incombustible.

Tests by Armour Research Foundation show that Acoustideck has a Noise Reduction Coefficient of .70. This satisfies the requirements of classrooms, gymnasiums, offices, industrial plants, and other noise-problem areas.

Acoustideck is Bonderized, and prime coated with a baked epoxy-resin enamel which resists the wear and tear of shipping, storage, and erection. Only one field coat of paint is usually required instead of two; field painting costs are cut in half. Acoustideck is also available in galvanized steel or aluminum.

See Sweet's Architectural File, section 11a/In — or write for catalog 241.

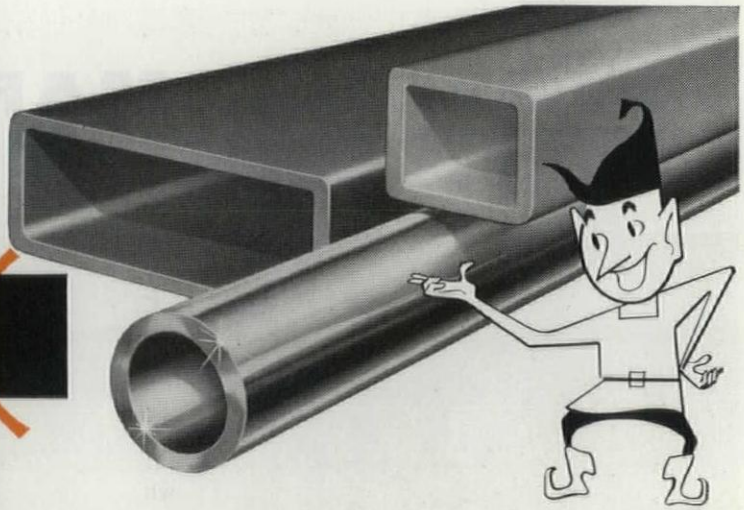
MILCOR® Acoustideck

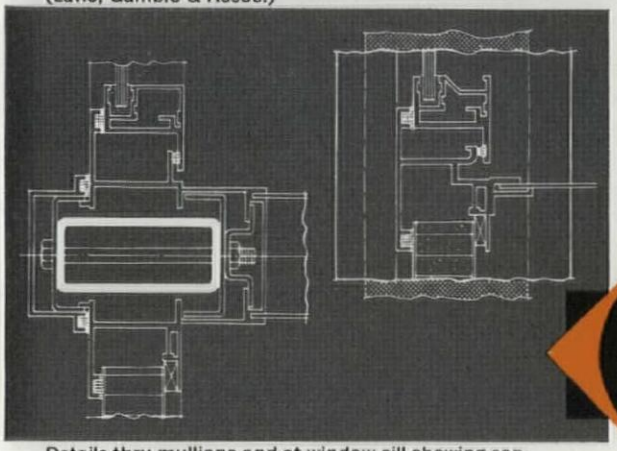


Because the acoustic perforations are in vertical webs only, the possibility of dusting is completely eliminated. Spans to 10 feet are practical with Acoustideck.

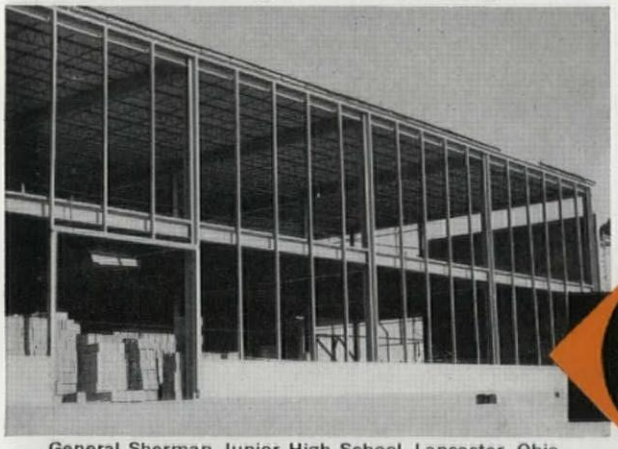
ARCHITECTS:
Durrant & Bergquist
Dubuque, Iowa
Boscobel, Wisconsin

Exchange Bank and Office Building, Dallas, Tex., featuring all welded steel tube curtain wall framing. (Lane, Gamble & Assoc.)

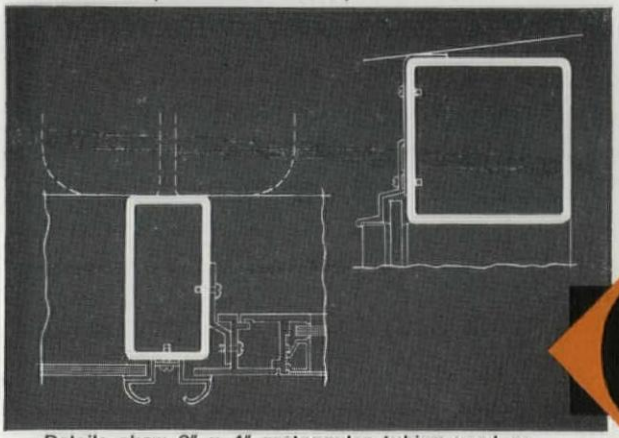




Details thru mullions and at window sill showing conventional use of rectangular welded steel tubing.



General Sherman Junior High School, Lancaster, Ohio, a typical example of welded tubular frame construction in schools. (Jos. Baker & Assoc.)



Details show 2" x 4" rectangular tubing used as posts with 4" x 4" square tubing welded to tops replacing back part of sash.

LC-595

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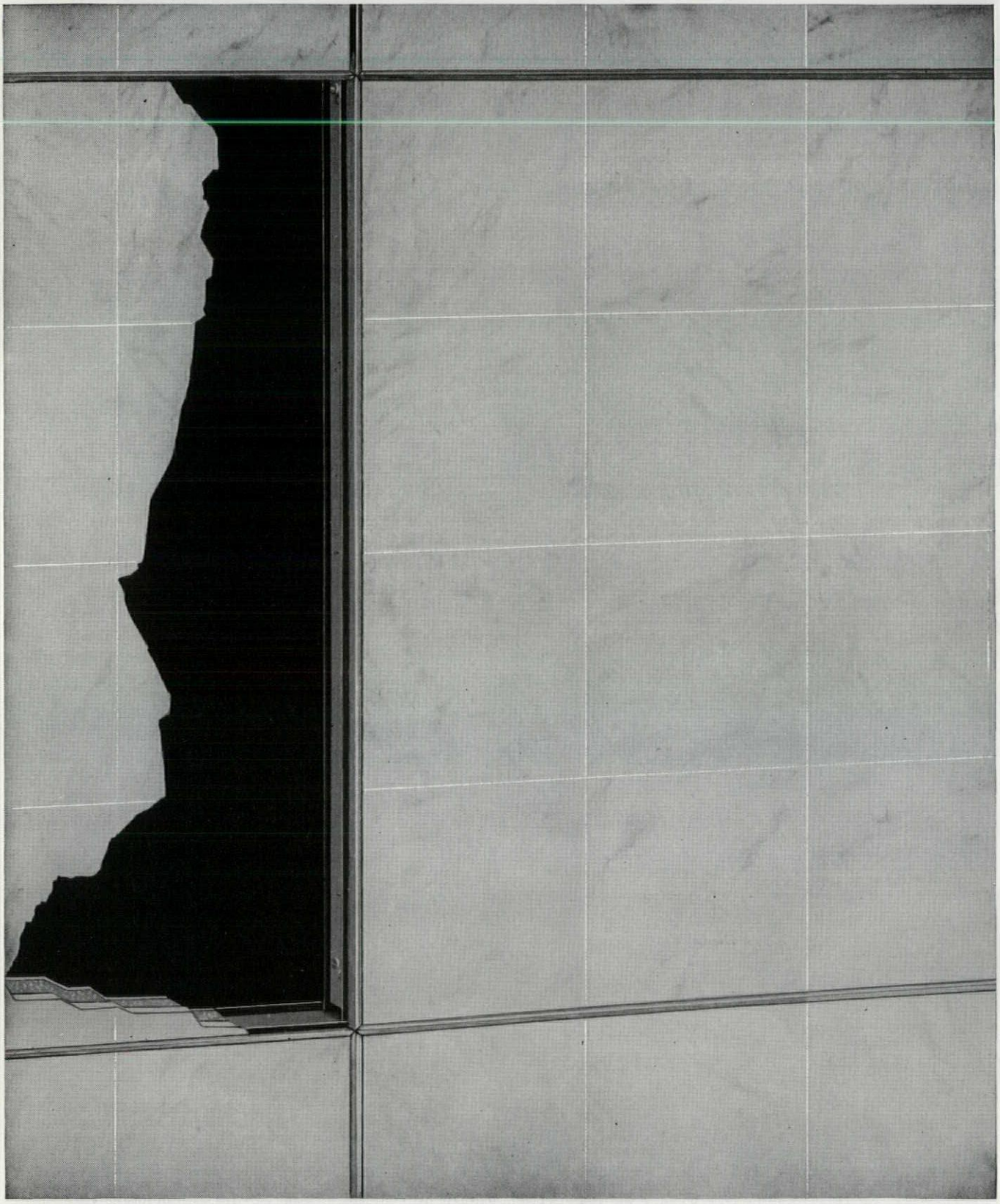

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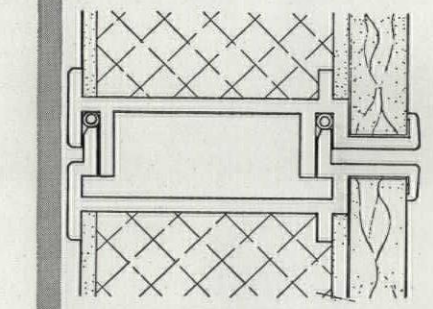
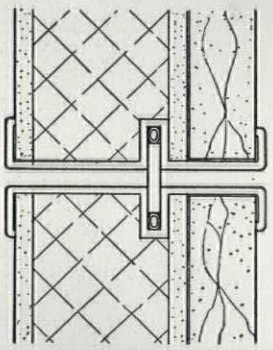
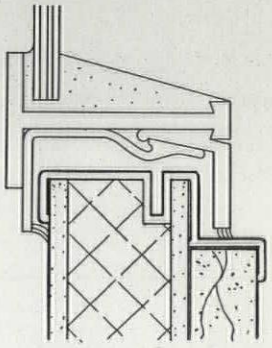


Flush-Mount Panel



Grid-Wall Panel



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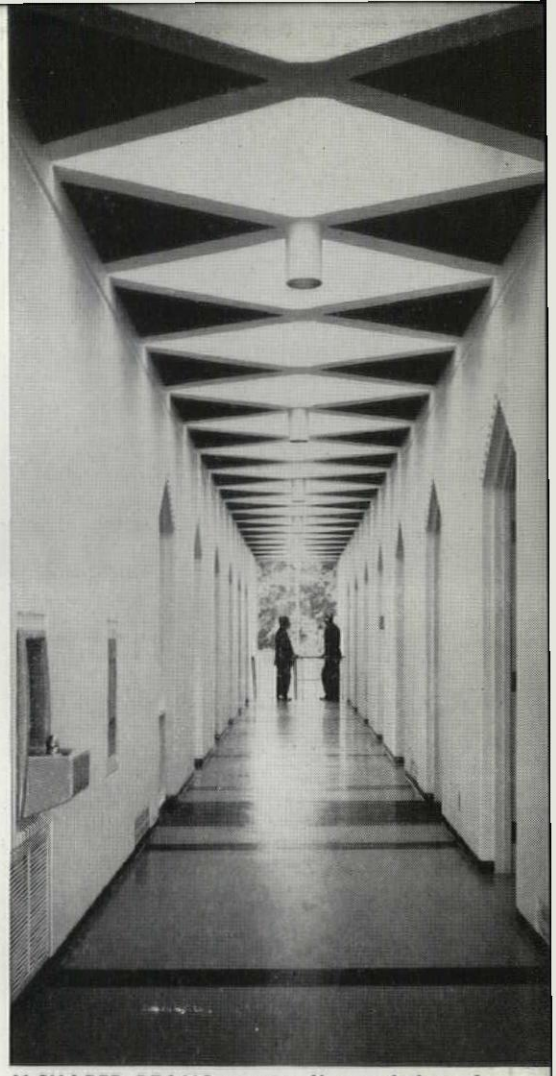
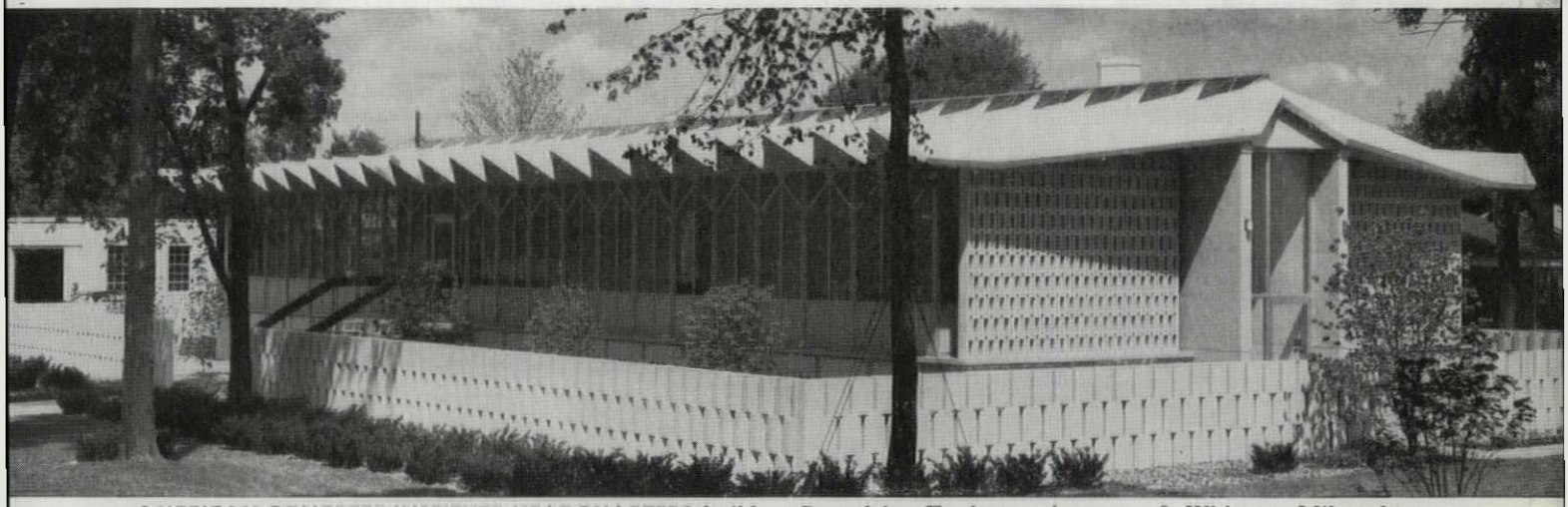


X-SHAPED BEAMS create diamond-shaped skylights in the central corridor where precast roof segments meet.



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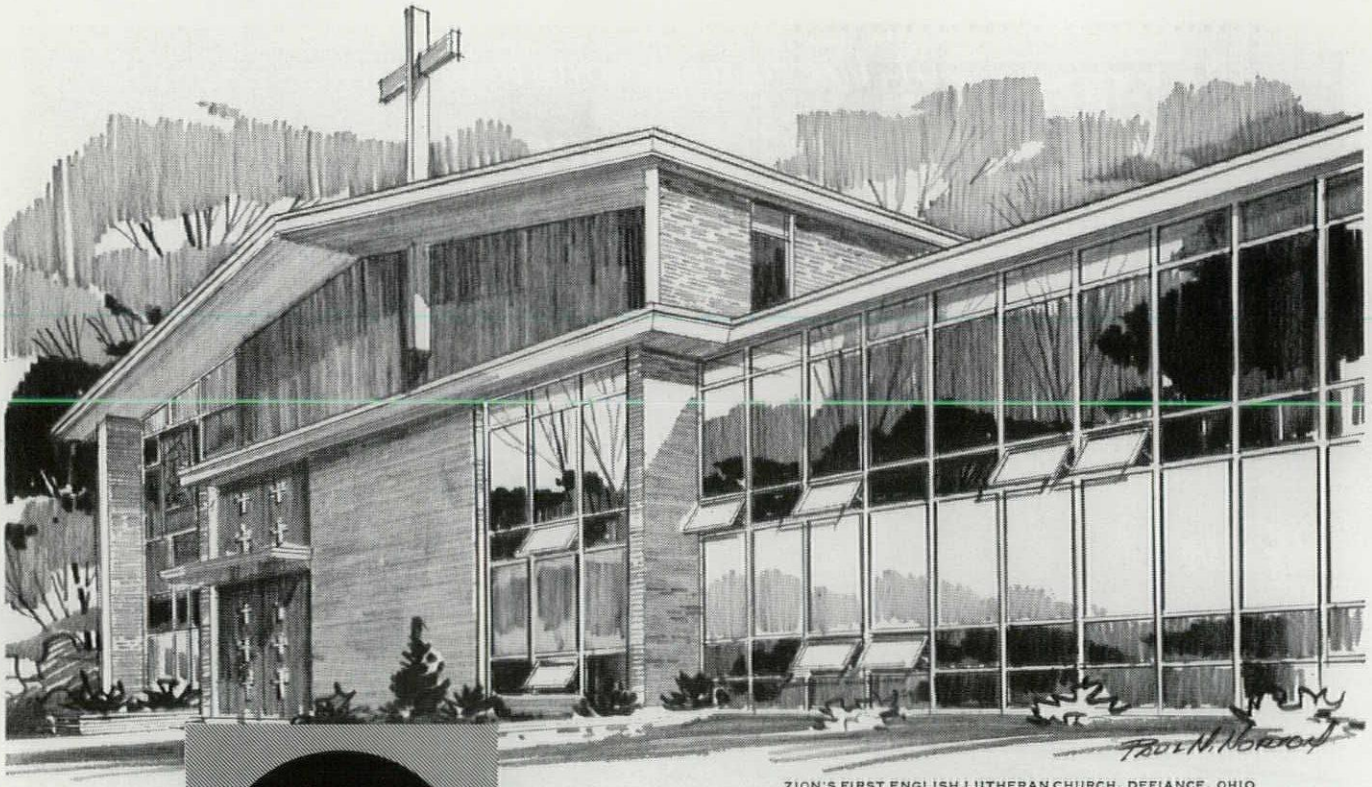

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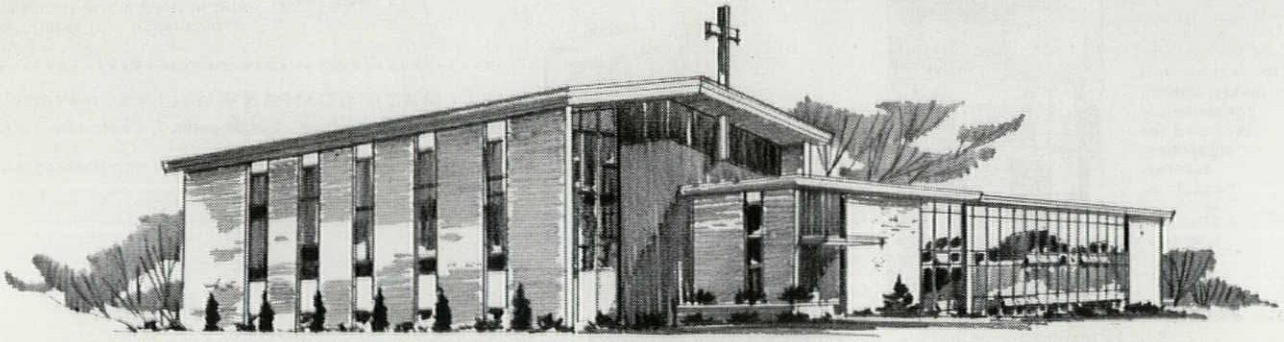

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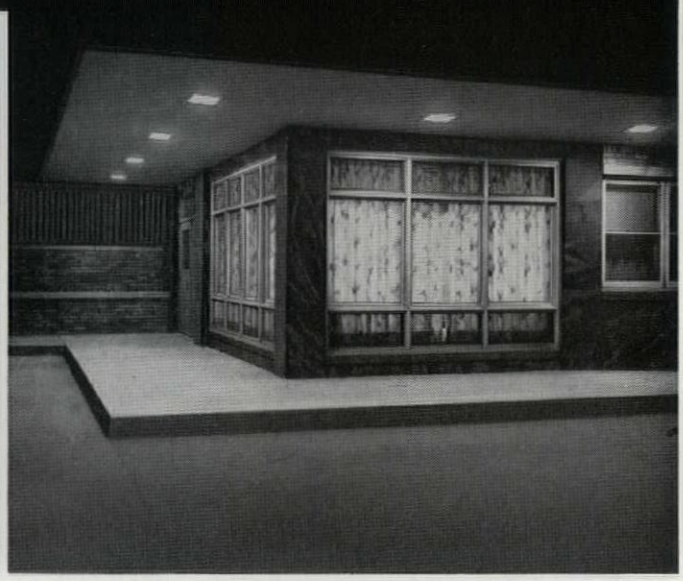

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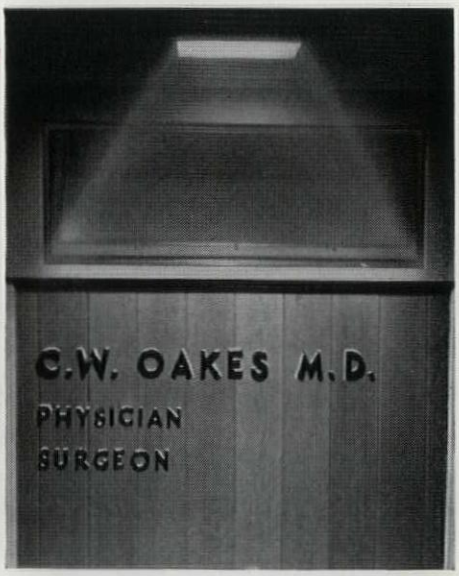

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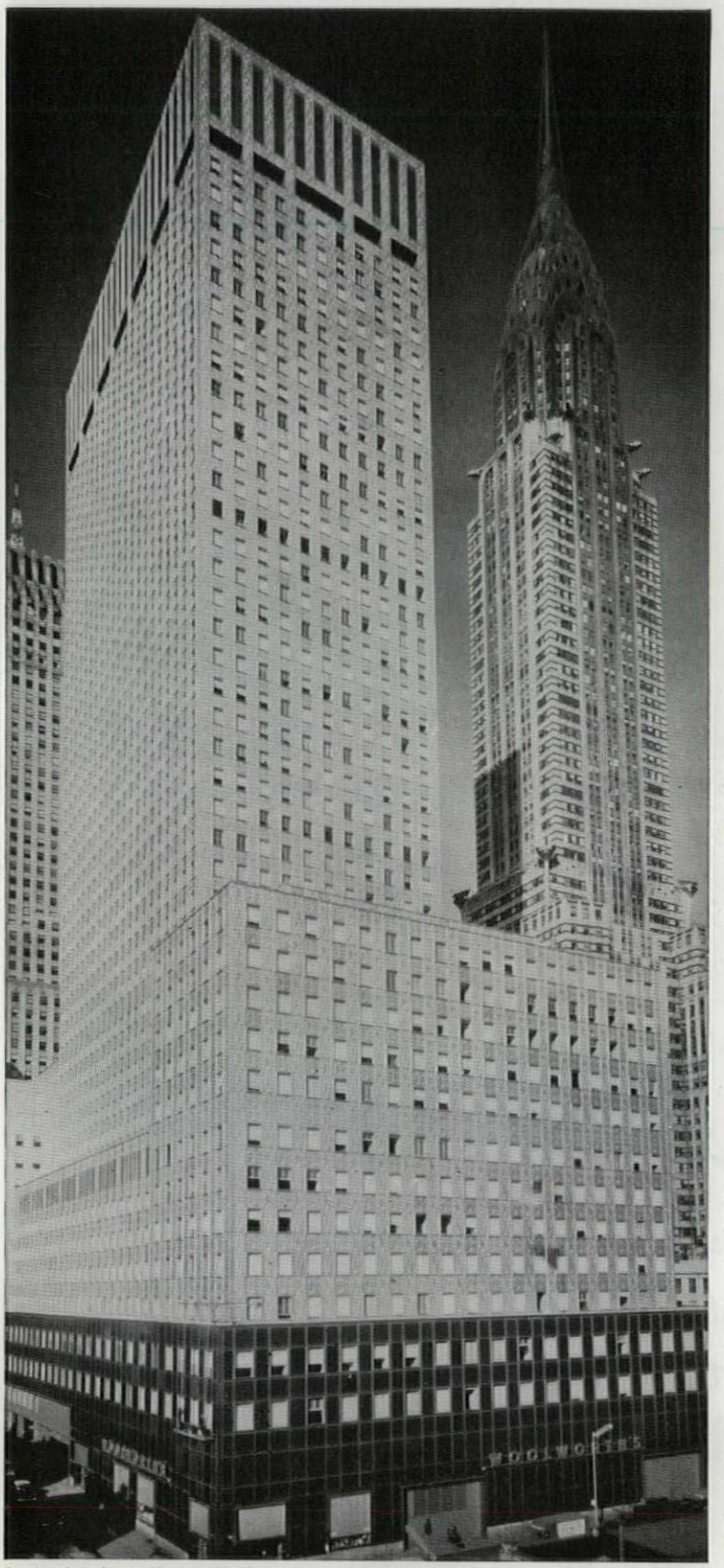

two generations of Allegheny Stainless on the skyline

New York City's new 42-floor Socony Mobil Building and famous Chrysler Building have much in common: close in location, big in size, both fine examples of Allegheny Stainless Steel applications.

The Chrysler Building pioneered in the use of stainless in architecture and construction technique. It was capped with a stainless steel roof of multiple arch design, surmounted by a stainless steel spire.

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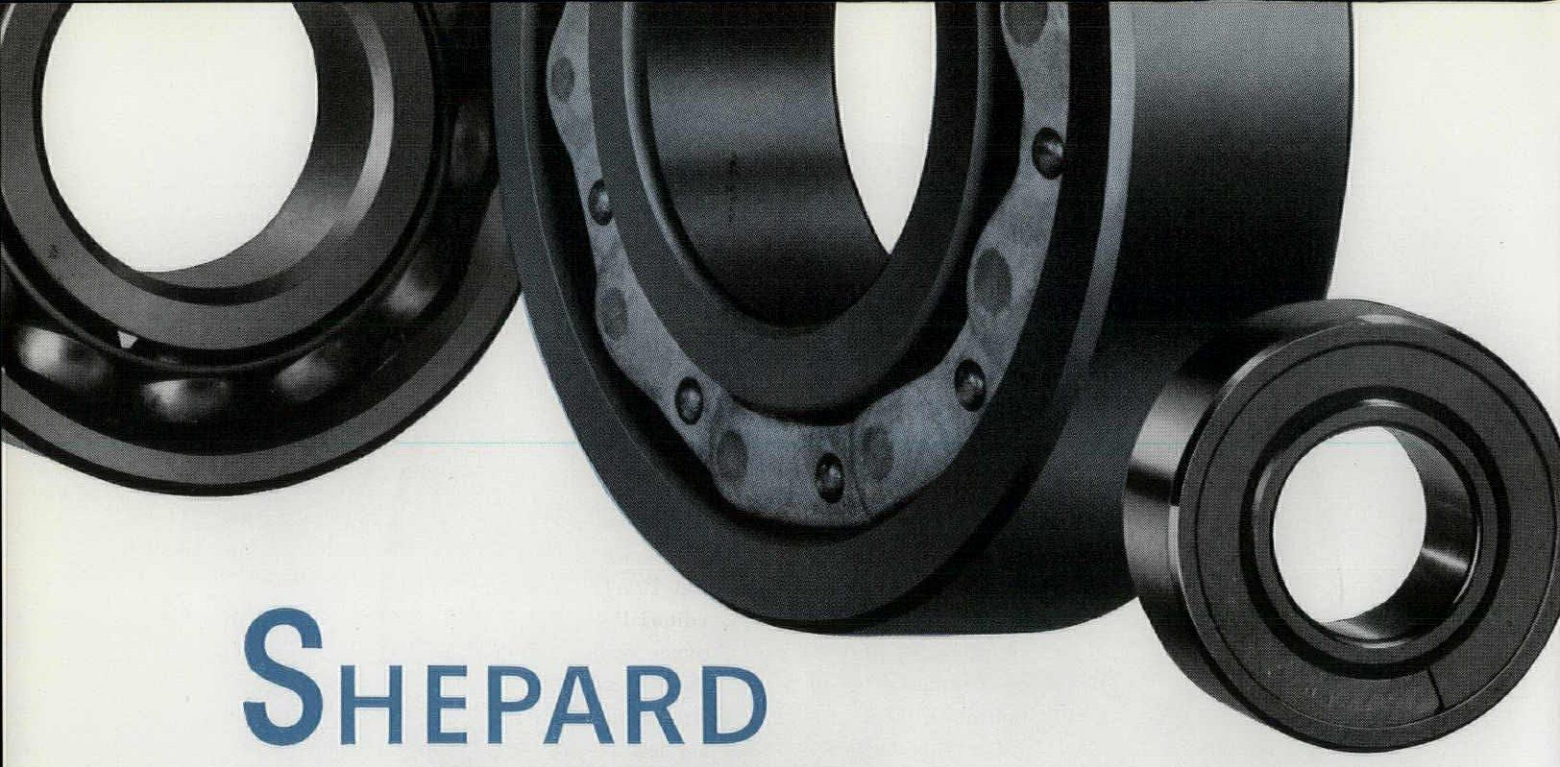

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Indexed in Art Index, Architectural Index.

REINHOLD

wants task continued

Dear Editor: Congratulations to Stephen Kliment for his article on Classicism in Architecture (DECEMBER 1958 P/A).

Out of today's confusion, editorially, educationally, professionally, comes this clear statement calling for a re-evaluation of our standards and our traditions.

Certainly there have been too few in the field of architectural criticism to come forward with constructive suggestions.

Could you urge Kliment to continue this important task he has set up for himself?

Perhaps the proper direction for architectural design thinking and training can be brought into a sharper focus at last.

I look forward to a continuation of this fine work.

SIDNEY L. KATZ,
Architects Associated
New York, N. Y.

skeleton is showing

Dear Editor: Stephen Kliment's article (DECEMBER 1958 P/A) has me puzzled. He's trying to turn the structural skeleton into a Classical temple. And, alas, no matter how hard he goes at it, he will not gain his end.

In the future, we are going to see more and more such attempts. The Old Guard does not bother, but the Young Secessionists* suffering, or having suffered the Italian Flu, must try to wear the toga. Well, their big-bunioned—no, their *skeleton* feet, and arms and skull, etc.—stick out to mark their attempt.

There is one very interesting aspect of such an article: it reflects the growing uneasiness of the profession. Good! The architects—and far more important, the clients—are not without eagerness to have something more substantial than today's Secessionism.

HENRY HOPE REED, Jr.
New York, N. Y.

**Reed prefers the label, "Picturesque Secessionism," to Modern as a definition of the attempt to break away from historical styles—and be original, at all costs.*

strictly high level

Dear Editor: I am a month behind. Nevertheless, I want to say how much I enjoyed the DECEMBER 1958 P/A. I spent last Sunday reading it from cover to P.S. —strictly high level.

WILLIAM W. CAUDILL
Corning, N. Y.

insulation in the 1660s

Dear Editor: I can write with authority on the origin of floor insulation, for my ancestor, James Robb, Chief Mason of the King's Works in Ireland back in the 1660s, devised a practical system which I saw as a young architect 40 years ago in a building that was being demolished.

The insulating material was a prickly shrub, low-growing and common to Ireland and Scotland, known as gorse or whin. This was cut in small heads and tamped in tightly in the interjoist spaces, which in a compressed form created a multiplicity of dead-air spaces between the flooring and the ceiling under. The filling also acted as a verminproof medium as well as insulation. Robb used this method in Killyleagh Castle, County Down, and also in the Old Castle of Belfast, and the writer saw part of this insulation intact in 1918. The dead furze was well preserved and the prickles were still sharp and poisonous, for workmen engaged in demolition work were constrained to have medical treatment to their hands.

I also, 25 years ago, adopted this form of insulation in a new building and found it excellent for soundproofing. Early in the 18th Century, sound-plugging with lime mortar came into use in Dublin. It consisted of a board laid on fillets nailed to the side of the floor joists, midway between the under-floor and ceiling back and this was covered with the mortar plugging. This pertained in common practice when I was an apprentice architect.

C. J. ROBB
Timpany Ballynahinch
Co. Down, Ireland

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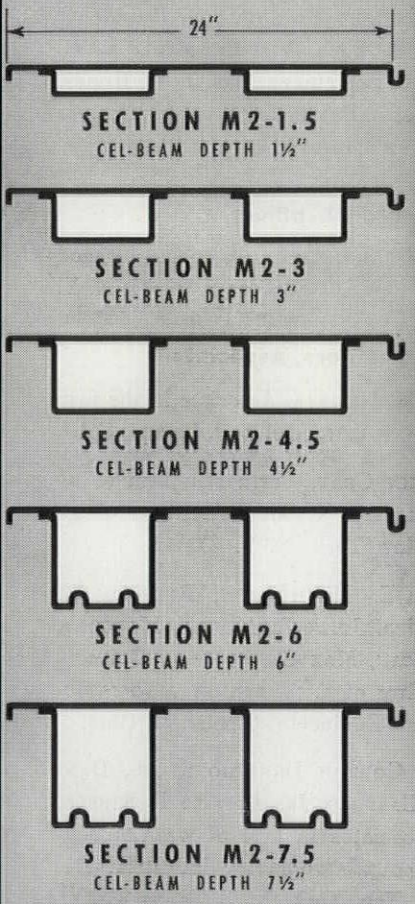

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appointments, elections

WAYNE F. OWENS, appointed Director of Architectural Division of PARK & YEE, Architects-Engineers, Honolulu, Hawaii.

ERNEST V. MANNING, appointed Project Architect with A. M. KINNEY ASSOCIATES, Architects-Engineers, Cincinnati and New York.

RALPH J. EPSTEIN, elected Vice-President of A. EPSTEIN & SONS, INC., Engineers, Chicago, Ill.

MAX R. HORWITZ, elected Vice-President and Director of Architecture, and RICHARD C. NIBLACK, promoted to Director of Design for CHARLES LUCKMAN ASSOCIATES, Architects-Engineers, Los Angeles and New York.

DONALD D. KING, appointed Assistant to Secretary of American Society of Civil Engineers, New York, N. Y.

RALPH W. OLMSTEAD, appointed President of THE H. K. FERGUSON COMPANY, Engineers-Builders, Cleveland, Ohio.

MARVIN G. STURGEON, appointed Vice-President of CHARLES LUCKMAN ASSOCIATES, Architects-Engineers-Planners, Los Angeles and New York.

WALLACE V. CUNNEEN, JR., appointed Executive Assistant to WELTON BECKET, President of WELTON BECKET & ASSOCIATES, Architects, New York, N. Y.

new corporation

BATTEY & CHILDS, Architects-Engineers, 231 S. La Salle St., Chicago 4, Ill. changed from a partnership to a corporation. LEONARD C. CHILDS is President; ROBERT J. WIER, Vice-President; E. G. ENGDAHL, Secretary; MRS. J. C. HOBBS, Treasurer. PAUL L. BATTEY, former partner, is consultant.

new branch office

VICTOR GRUEN, Architect, opens enlarged office at 2 W. 13 St., New York 11, N. Y.

new partners, associates

HARRY M. NAKATA, Associate in the firm of ALLEN Y. LEW, Architect, Fresno, Calif.

BENJAMIN GRAY, Partner in firm of DE LEUW, CATHER & BRILL, Architects-Engineers, New York, N. Y.

MARVIN E. MATHEWSON, RUSSELL W. BANDOMER, JOHN R. MORRIS, MALCOLM G. DUNCAN, MAX CARDIFF, new Partners in the firm of A. M. KINNEY ASSOCIATES, Architects-Engineers, Cincinnati, Ohio.

ARCHIE GORDON DRUMMOND, JR., DANFORTH CARDOZO, JR., EDWARD F. KIBBLE, new Associates in firm of WALTER DORWIN TEAGUE ASSOCIATES, Industrial Designers, New York, N. Y.

GIN D. WONG, JAMES H. LANGENHEIM, JACK L. CAMPBELL, new Partners in firm of WILLIAM L. PEREIRA & ASSOCIATES, Architects, Los Angeles, Calif.

A. RAYMOND VON BROCK, THOMAS A. NORTON, CARRELL S. MCNULTY, JR., GRAY TAYLOR, Partners in the firm of SHERWOOD, MILLS & SMITH, Architects, Stamford, Conn.

(Continued on page 56)

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(Continued from page 54)

LAWRENCE H. PEDEN, new Associate in firm of JACK M. LYERLA, Consulting Structural Engineer, Spokane, Wash.

E. J. GOODWIN, JR., and ROBERT V. FLANAGAN, new Partners in firm of PIERCE & PIERCE, Architects, Houston, Tex.

new addresses

CALIFORNIA COUNCIL, AIA, Room 302, 916 Kearny Street, San Francisco 11, Calif.

EERO SAARINEN & ASSOCIATES, Architects, 1300 N. Woodward Ave., Birmingham, Mich.

URBAHN, BRAYTON & BURROWS, Architects, 635 Madison Ave., New York 22, N. Y.

BREGMAN & HAMANN, Architects, Holt Renfrew Bldg., 146 Bloor St., W., Toronto 5, Ont., Canada.

GRAHAM LATTA, Architect, 3444 W. First St., Los Angeles 4, Calif.

COSTON, FRANKFURT, SHORT, Architects-Engineers, 912 First National Bldg., Tulsa, Okla.

NATIONAL COUNCIL OF ARCHITECTURAL REGISTRATION BOARDS, 418-24 Commerce Exchange Bldg., Oklahoma City, Okla.

JOSEPH B. SINGER, Architect, 230 James St., S., Hamilton, Ontario, Canada.

MILES A. GORDON, Architect, 120 E. 61 St., New York 21, N. Y.

KELLY & DETEAU, Architect-Engineers, 913 Judson Rd., Longview, Tex.

BOYER, BISKUP & WIDSTROM, Architects, 4802A Dodge St., Omaha, Neb.

SAMUEL I. OSHIVER & ASSOCIATES, Architects-Engineers, 1425 Walnut St., Philadelphia, Pa.

JAMES M. HUNT, Architect, 16 Chestnut St., Elberton, Ga.

new offices

N. GRANT NICKLAS, JR., Architect, 212 Union Ave., Altoona, Pa.

LEON WM. BYLLS, Architect, 456 W. Third St., Elmhurst, Ill.

CECIL H. WELLS, JR., Consulting Structural Engineer, 2006 Pioneer Court, San Mateo, Calif.

CARL B. TROEDSSON, Architect-Planner, 501 S. Boylston St., Los Angeles 17, Calif.

WILLIAM L. PEREIRA & ASSOCIATES, Architects-Planners, 1231 W. Fifth St., Los Angeles 17, Calif. (partnership of PEREIRA & LUCKMAN dissolved).

W. E. KUYKENDALL, JR., Architect, 405 Mills Bldg., El Paso, Tex.

NAIDORF & SHAPIRO, Architects, 1022 S. La Cienega, Los Angeles, Calif.

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(Continued on page 60)

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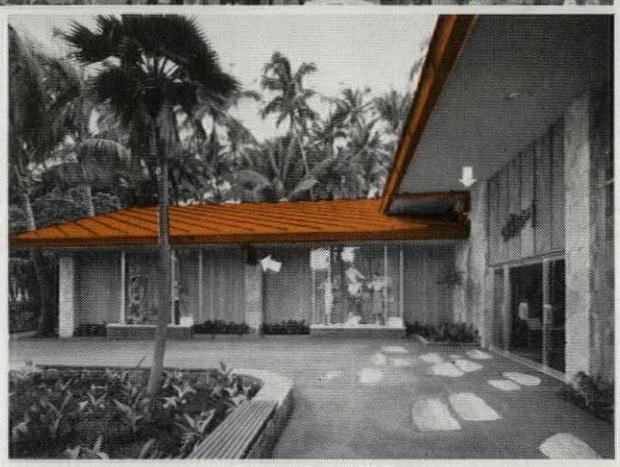
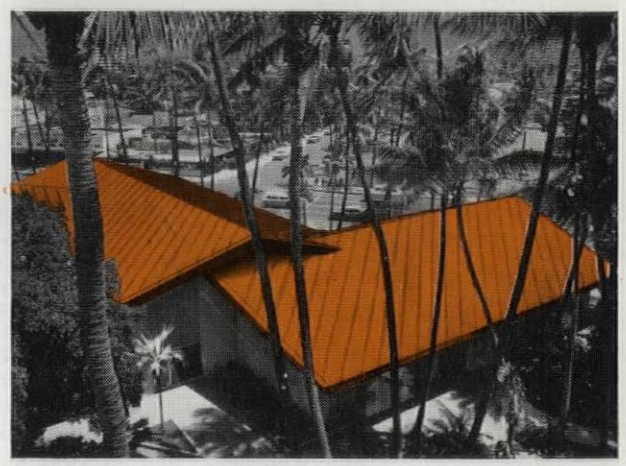


ENTRANCE TO THE fabulous McInerny Waikiki Store. Known as "The Jewel of the Pacific," it is one of the show places of the world, and is in Honolulu, Hawaii. Note how copper gutters blend into roof line; also unique treatment of down spouts (arrows).



MOST UNUSUAL ROOF EFFECT is obtained by running batten seams on the diagonal. Copper was furnished by Revere Copper and Brass Incorporated. Architect: VLADIMIR OSSIPOFF, F.A.I.A.

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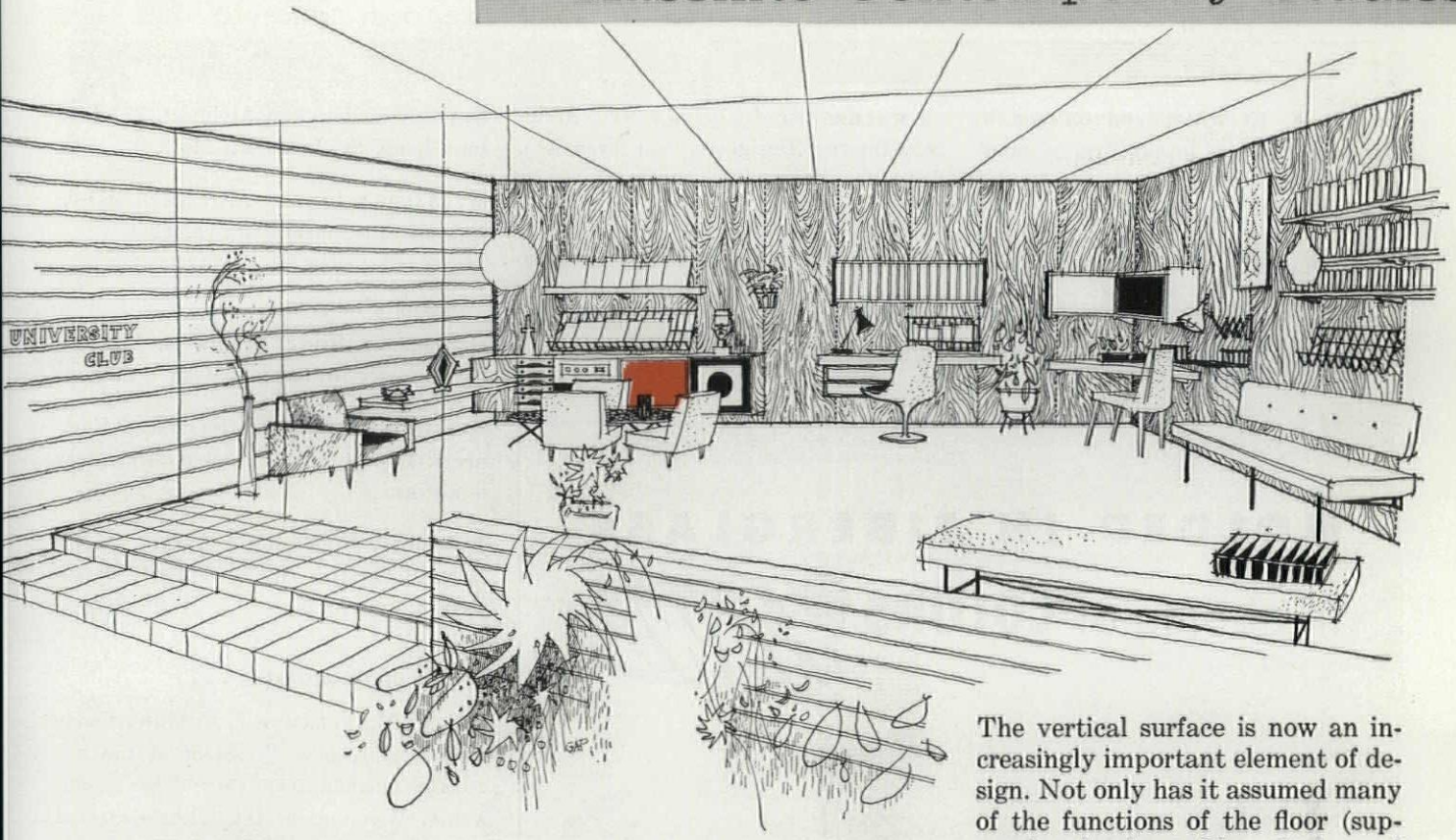

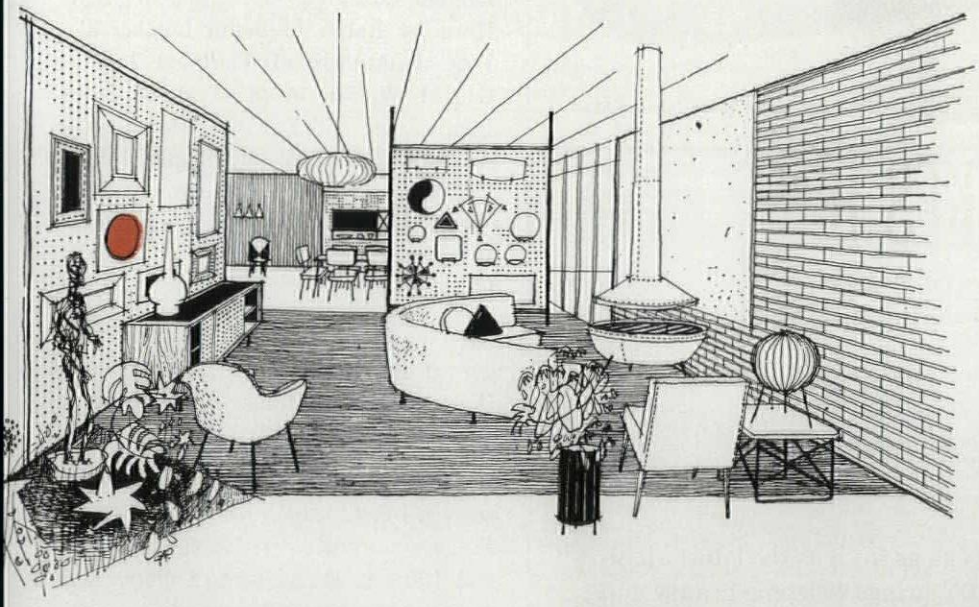

The vertical surface is now an increasingly important element of design. Not only has it assumed many of the functions of the floor (supporting books, tables, desks and such), but it has removed virtually all the old limitations to artistic expression. Furthermore, wall decor is no longer frozen; rearrangement of materials is quick and easy, with no damage to the wall.

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(Continued from page 56)

EUGENE E. CRAWFORD and GEORGE V. BANNING, Partners in new firm of CRAWFORD & BANNING, Architects, San Rafael, Calif.

JERRY HAPPEK, Architect, 1941 Teall Ave., East Syracuse, N. Y.

WALTER HARADA and GEORGE MEU, Partners in the firm of HARADA & MEU, Architects-Interior Designers, San Francisco, Calif.

ELMER J. MANSON, EDWARD JACKSON, DIXON S. WILSON, WILLIAM J. H. KANE, Partners in new firm of MANSON, JACKSON, WILSON & KANE, Architects, Lansing, Mich.

STANLEY M. GLANTZ, Architect, 727 Lantern Lane, St. Louis 24, Mo.

W. MAURICE JOHNSON, Architect, 563 N. Church St., Spartanburg, S. C.

name changes

HOLABIRD & ROOT, Architects, Chicago, Ill. formerly HOLABIRD & ROOT & BURGEE.

KETCHUM, KONKEL & HASTINGS, Engineers, Denver, Colo., formerly KETCHUM & KONKEL.

WAASDORP, NORTHRUP & AUSTIN, Architects, Rochester, N. Y., formerly WAASDORP & NORTHRUP.

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RICHARD C. SCHAUB, new Product Manager of the Buildings Division's Plastic Department of BUTLER MANUFACTURING COMPANY, Kansas City, Mo.

H. B. JOHNSON, new Architectural Representative in Chicago area for THE PHILIP CAREY MFG. COMPANY, Cincinnati, Ohio; and JOHN L. D. BASSETT, Architectural-National Accounts Representative, with headquarters in Pittsburgh, Pa.

ROBERT B. MULLIKEN, new Sales Engineer and Informational Service Representative for the Pittsburgh District Office of SIKA CHEMICAL CORPORATION, Passaic, N. J.

R. LESLIE MULLEN, elected President and Chief Executive Officer of LEHIGH STRUCTURAL STEEL COMPANY, Allentown, Pa.; and GEORGE J. NEWMANN, elected Executive Vice-President.

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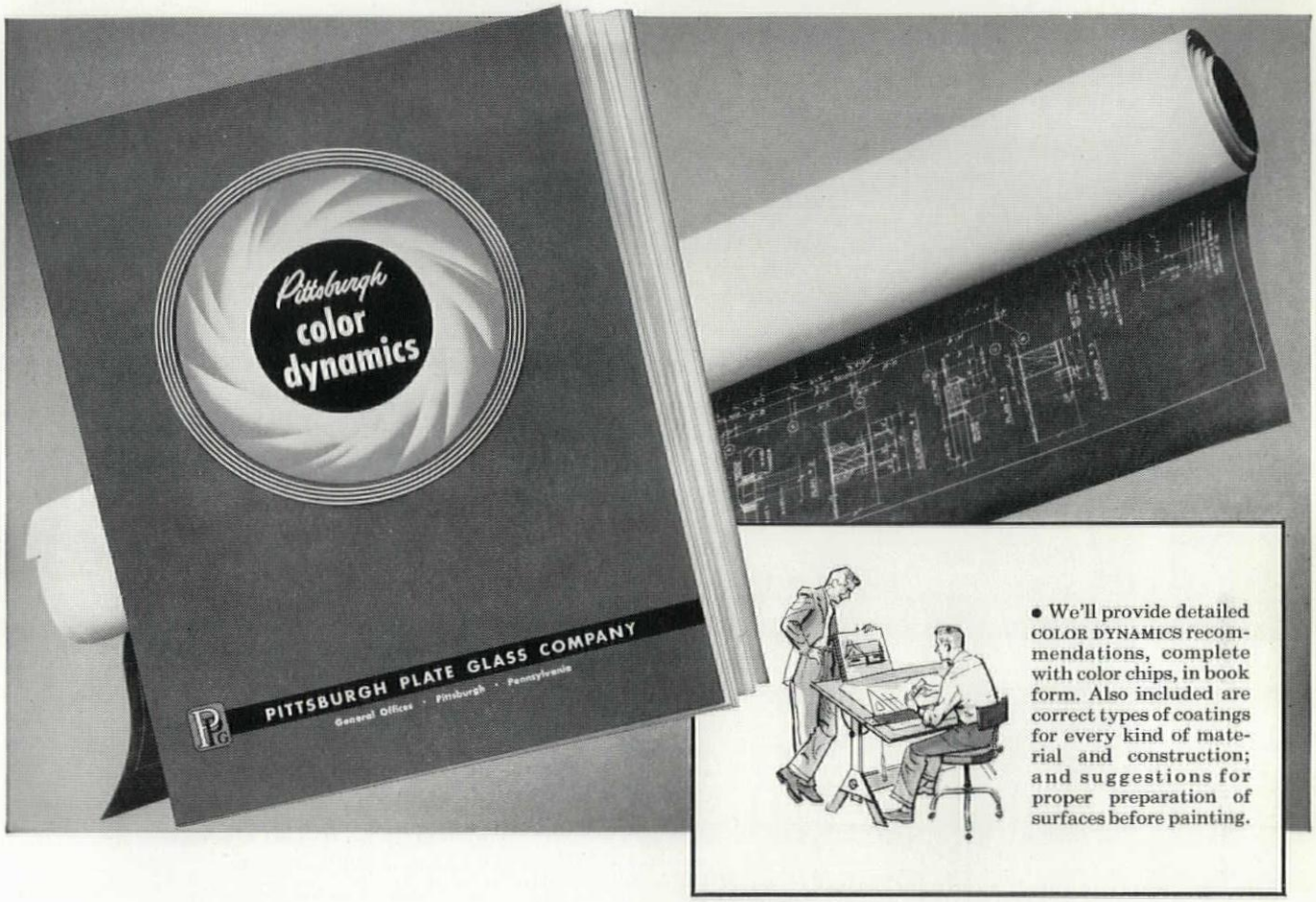

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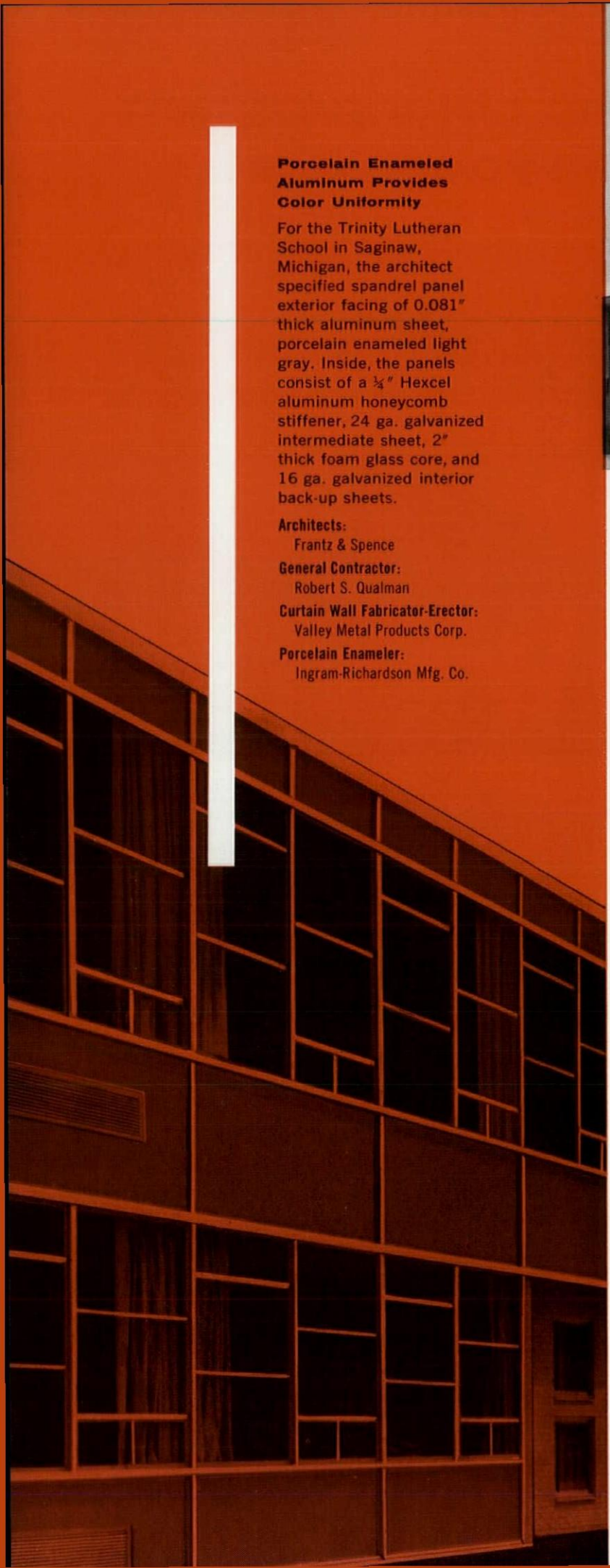

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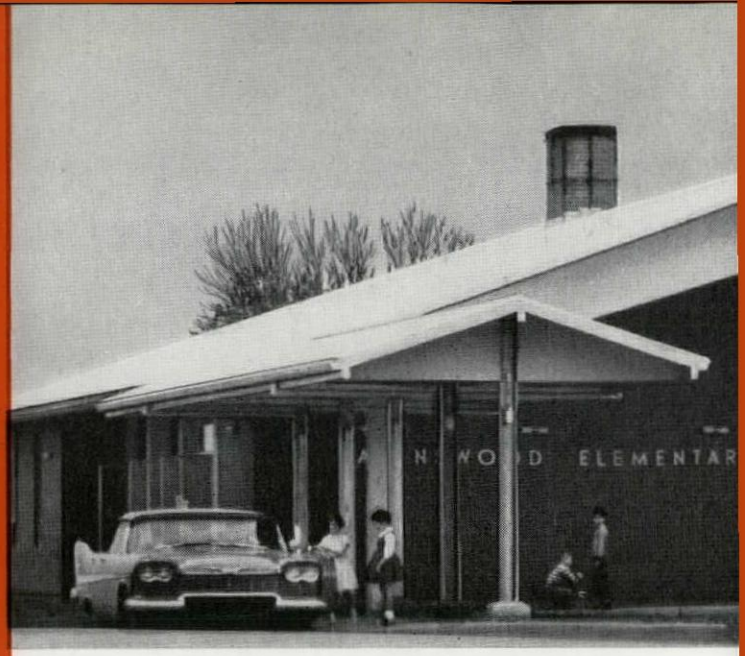

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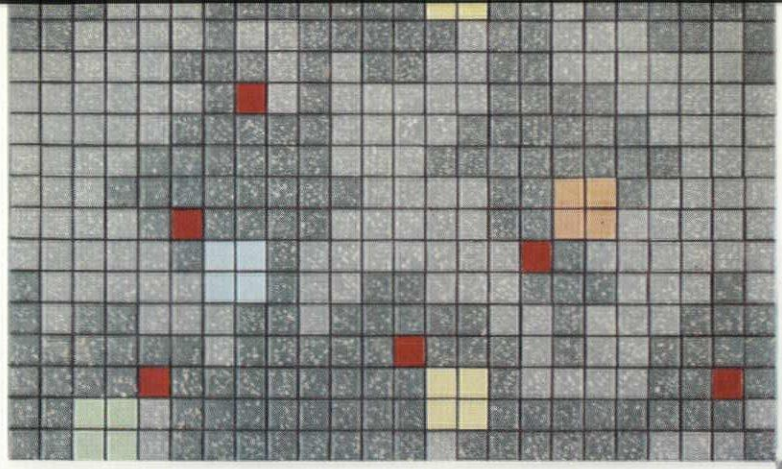

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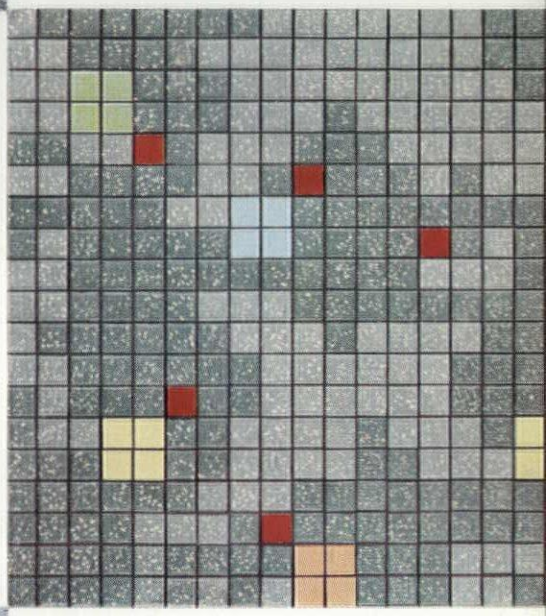
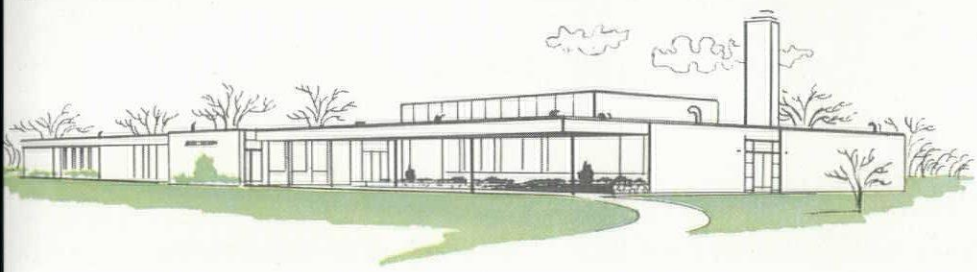


Plate No. 1057

School buildings can be made more practical, more attractive with Romany• Spartan ceramic tile indoors and out



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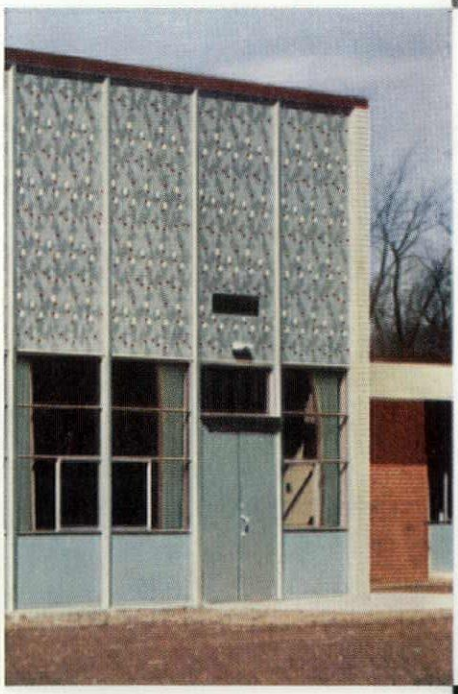

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Brownstown Township, Michigan

Architect:
WALTER J. ROZYCKI
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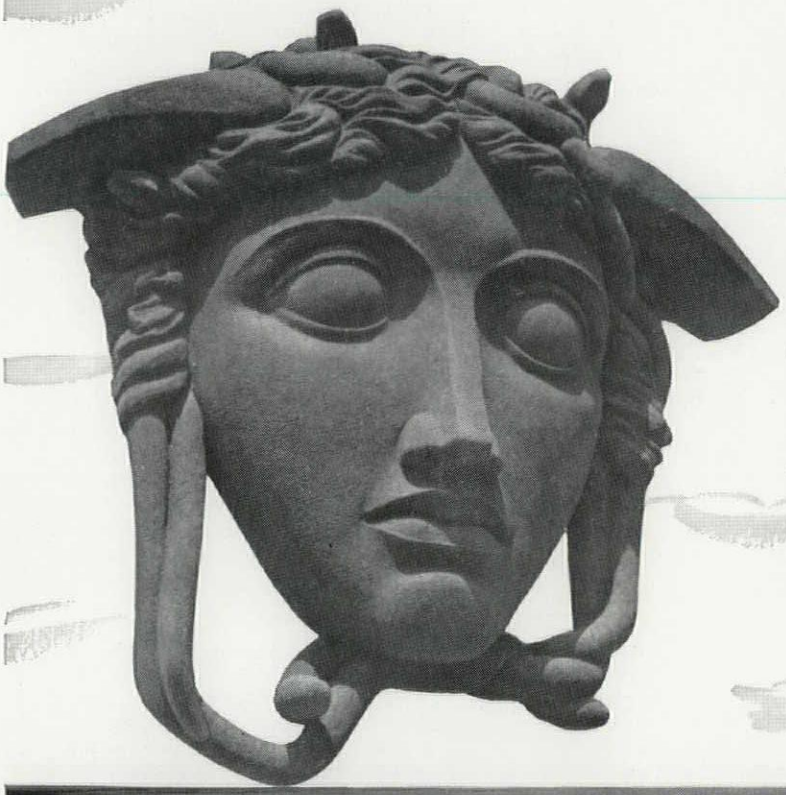

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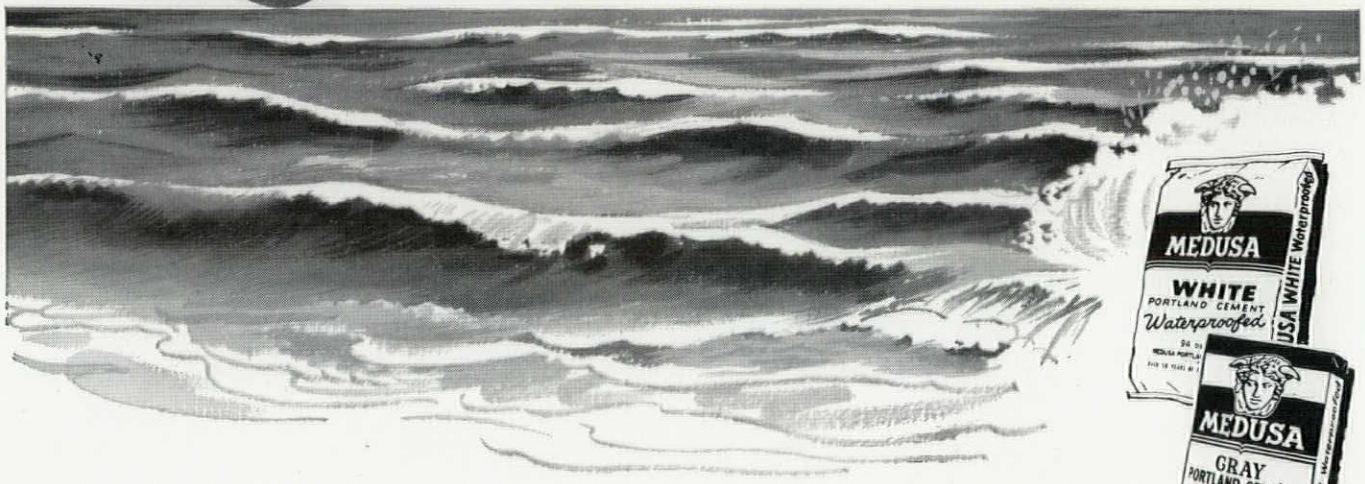

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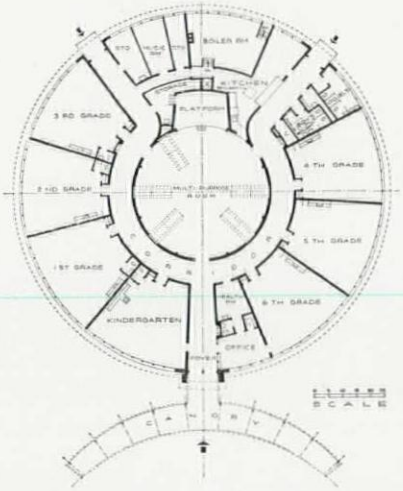
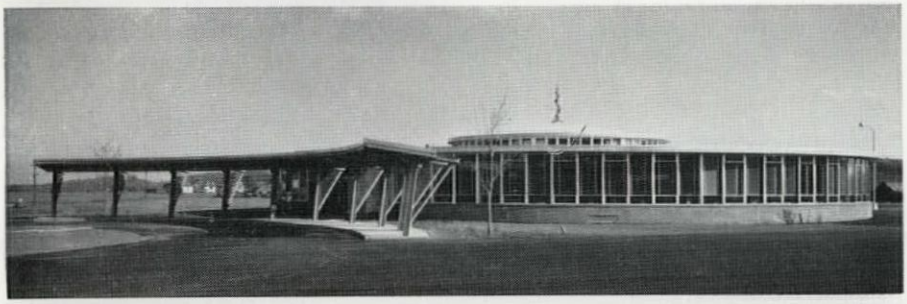
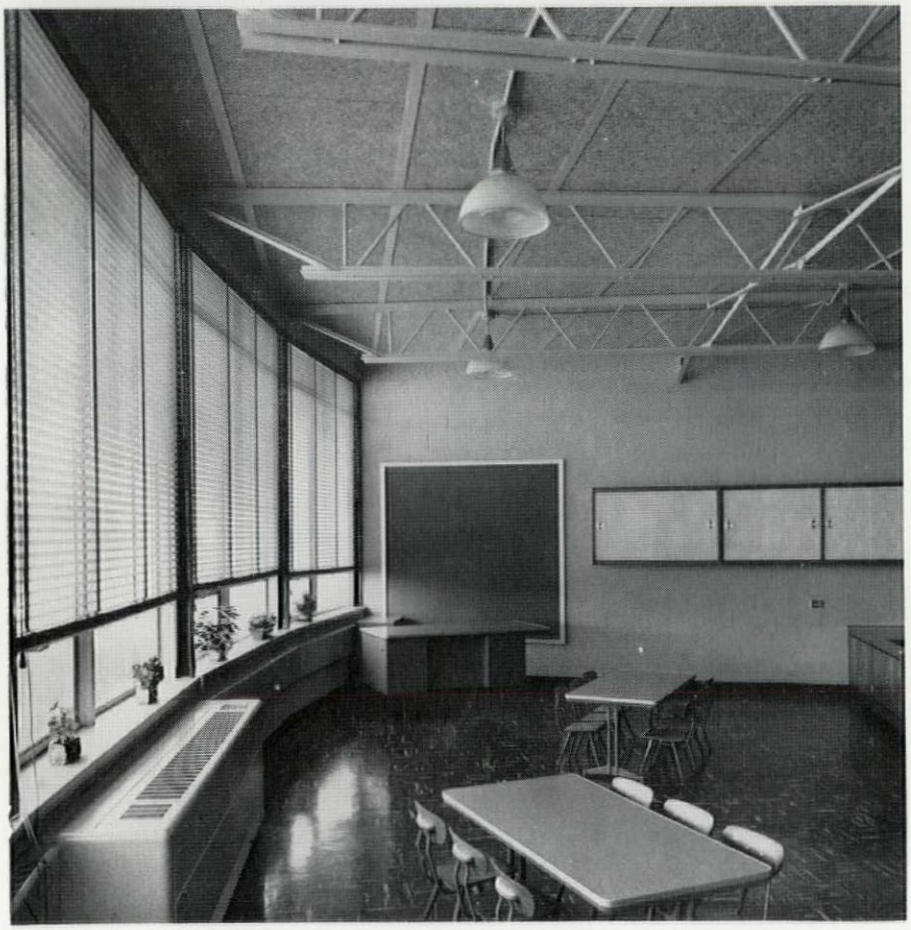


FLOOR PLAN: Hereford Township Elementary School, Berks County, Pennsylvania
Architects: Wolf and Hahn, A.I.A., Allentown, Pennsylvania





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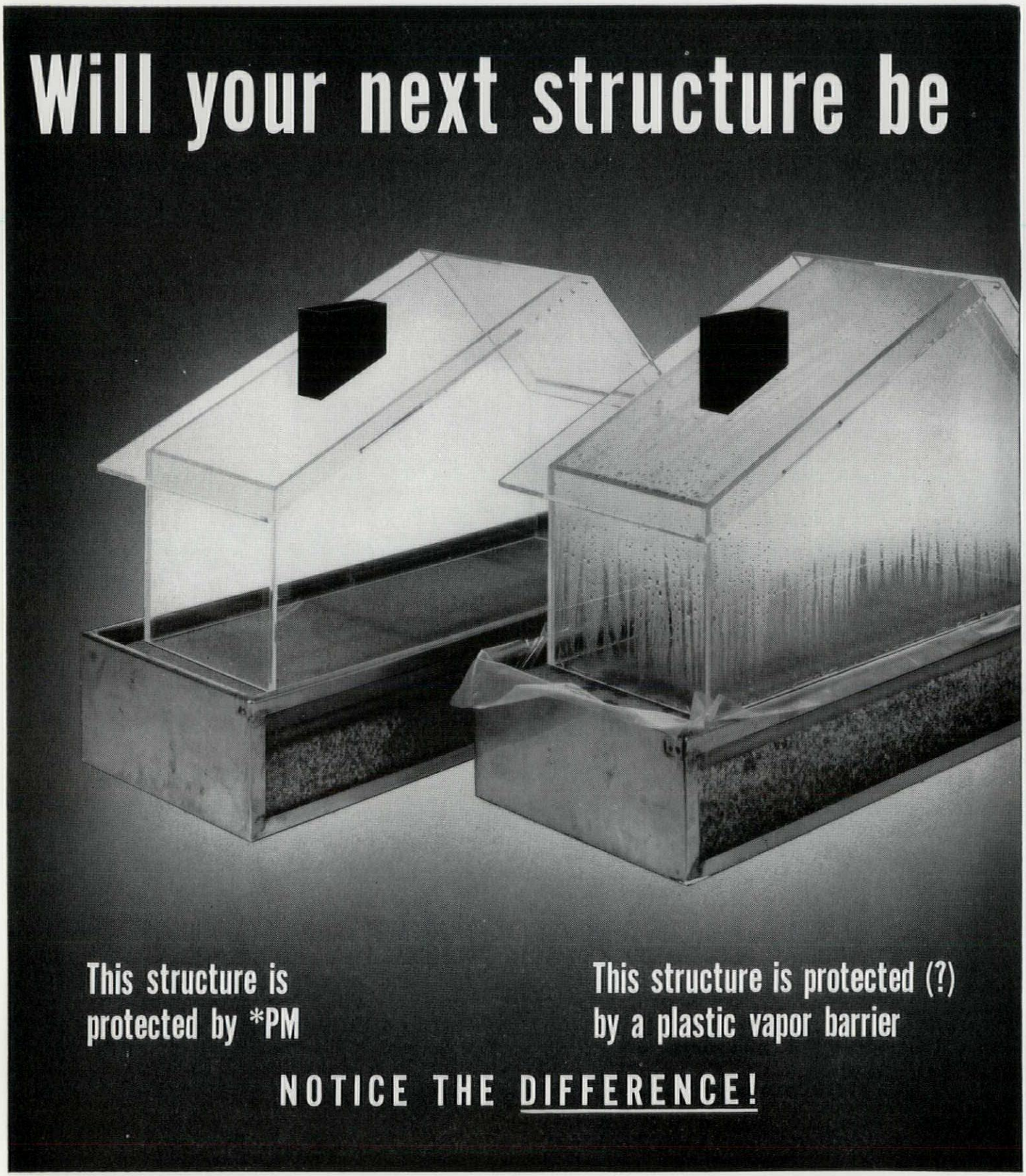

Pictured above is a display that has attracted widespread attention wherever it has been exhibited. Both houses, concrete slabs and tanks are identically constructed. The tanks are filled with sand, to represent soil, and water is added. On top of the soil is placed a vapor seal . ."PM" under the house on the left and a plastic film under the house on the right. Heat is applied to the tank to accentuate the creation of vapor and the results are very apparent. Notice that the house protected by "PM" (left) is completely dry while the house on the right has become a virtual steam bath. The results are even more amazing when you consider the fact that the plastic film under the house on the right is a monolith without the seams, openings and ruptures that would be present in full-scale construction.

a virtual "steam bath"?
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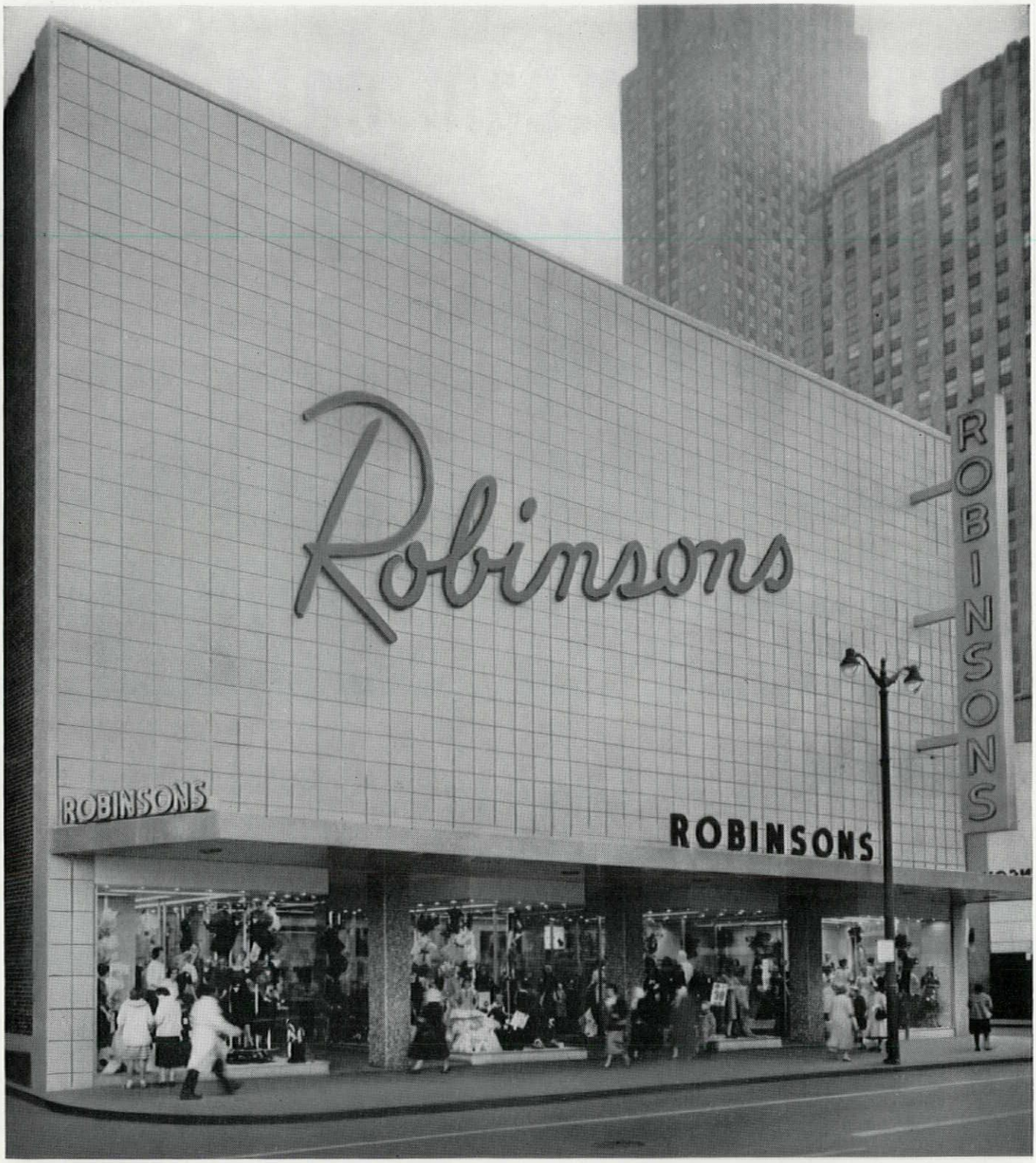

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F S T C

fields of practice: *residential design*

Presented on the following pages are seven houses designed, respectively, by James Nessly Porter and John Terence Kelly; Bruce Abrahamson; Robert A. Little & George F. Dalton & Associates; Craig Ellwood (Jerrold E. Lomax, Associate); E. H. & M. K. Hunter; Josef Van der Kar; and George Matsumoto (Wayne F. Koontz, Collaborator). In an attempt to isolate some of the pros and cons of residential design as a Field of Practice today, we asked the principals for their opinions. In the selected quotations from their remarks, the following subjects are touched upon: relation of residential practice to over-all practice; its rewarding aspects; its most frustrating aspects; client approaches; turning down clients; presentation methods; design goals; and monetary reward.

relation to over-all practice "At present, residential design constitutes about 30% of our practice. I wish it were less. I don't want to stop doing houses, but I would like to limit residential work to one house per year" [*Ellwood*]. "About 25% of our practice. Wish it were more. We feel that in this field an architect can best express his real ability" [*Hunters*]. "As our practice has grown, we have become more selective of house jobs. We now do only those houses where we think all aspects of the job are propitious . . ." [*Little*]. "We like to do houses and could be content with a strictly residential practice, if the monetary return were greater . . ." [*Porter*].

rewarding aspects of residential practice "The most rewarding aspect is the self-satisfaction of somehow—through the frustrating maze of the antiquated processes of the building industry, and in spite of archaic building codes, needless deed restrictions, reactionary (tract) architectural committees, sloppy subcontractors, and nervous, anxious periods when it is part of the job to act as arbitrator-analyst-mediator-diplomat—being able to produce a building without serious flaws, buildings that conspicuously display perfections, regardless of what has seemed to be every effort by all concerned to effect the exact opposite" [*Ellwood*]. "The most rewarding thing is when someone in the family discovers, in the new house, a freedom and esthetic satisfaction which you've designed. This is thrice rewarding—when you conceive it; when the builder builds it; and when the client discovers it" [*Little*]. "A satisfied client is the most rewarding aspect of this type of work. It is always a challenge to bring together the client's program needs with his budget" [*Matsumoto*]. "To fulfill functional needs in an acceptable, organized, 'esthetic' environment" [*Van der Kar*].

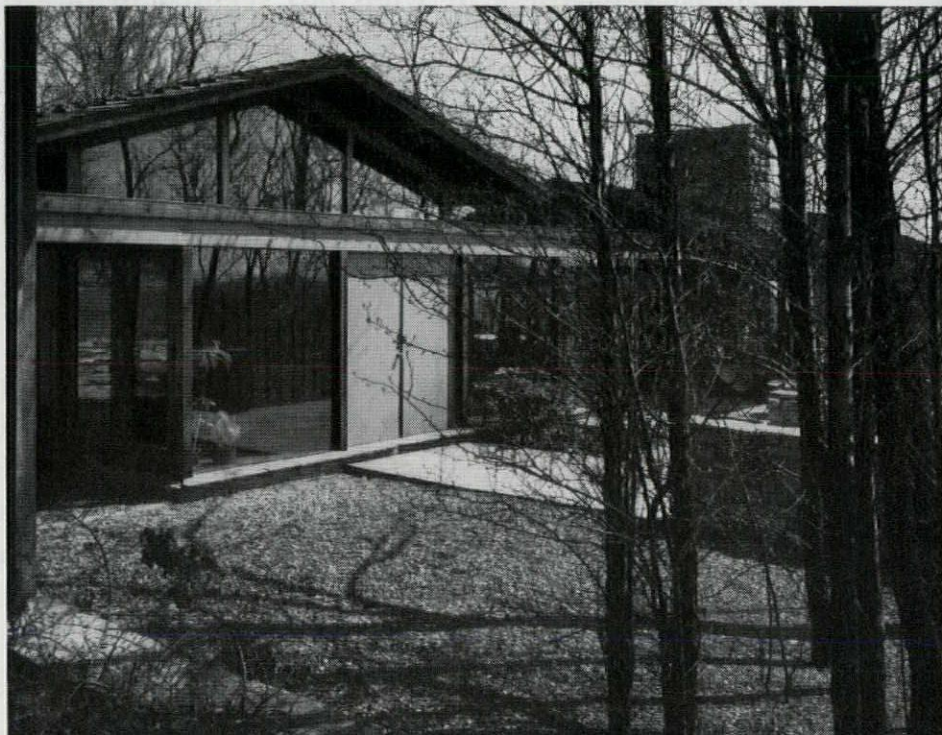
most frustrating aspects "Client relationship when there is a reluctance to accept new ideas due to opinionated, conservative, and reactionary thinking" [*Abrahamson*]. "Most clients' lack of appreciation, lack of understanding, lack of knowing the huge task it is to design and build a custom house, and the impossibility of building it perfectly. Not that we have unhappy clients—their pleasure and pride are real and expressed profusely and passionately

to all—to all but us, that is" [*Ellwood*]. "Being in competition with pseudo-modern, prefabricated buildings which, on the surface, seem to provide the amenities of life but which, in reality, do not" [*Hunters*]. "Neighborhood 'style' restrictions; difficulty of getting good interior design and furnishings; occasional budget impossibilities or family maladjustments (the architect ends up being a psychiatrist)" [*Little*]. "Usually, the limitation of the budget is discouraging. I often find the younger families with limited funds sympathetic to modern work and willing to experiment. Need for traditional expression seems to increase with older clients who are more apt to have an adequate budget" [*Matsumoto*]. "Working within a limited budget; arbitrary changes by clients and contractors; competition from draftsmen, lumber yards selling stock plans, and some architects, who are willing to 'knock out' a house plan for a few hundred dollars; unreasonable demands on time and patience by clients" [*Porter*].

client approaches "Except for an occasional request for Modern Chinese Ranch or Modern Hawaiian Farm from a tract or speculative builder, we are seldom called for a particular style. When we are called, we recommend other men rather than try persuasion . . . the job is too great for us to attempt. Most clients come to us because they know our work" [*Ellwood*]. "Most come knowing the kind of work we do. Once in a while, we have someone who requests period design. We used to convert many clients, but now that the public thinks it is better educated about contemporary design, people seem firmly set in one camp or the other" [*Hunters*]. "Most clients come to me knowing something of my work. . . . I feel there's a danger in too much selling, for people are certainly not all alike and have different emotional needs. . . . If the client is sure he wants rock 'n' roll, why insist on trying to sell him Bach?" [*Matsumoto*].

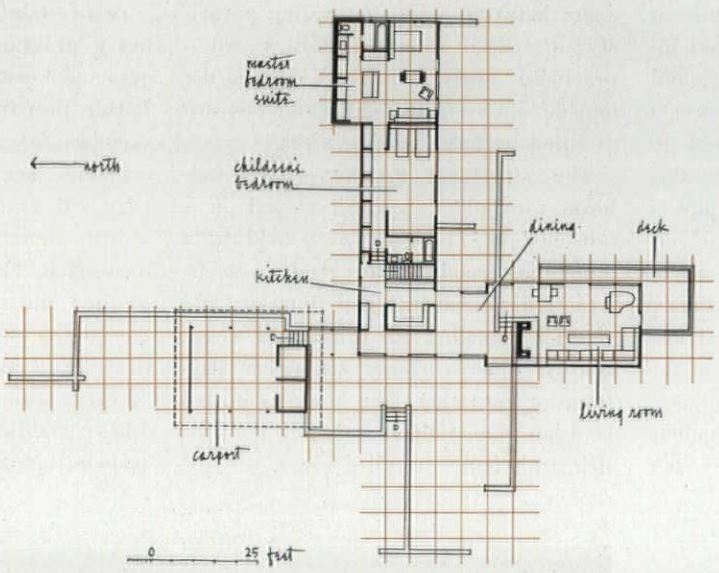
(Continued on page 262)

Photos: Dearborn-Massar



house 1

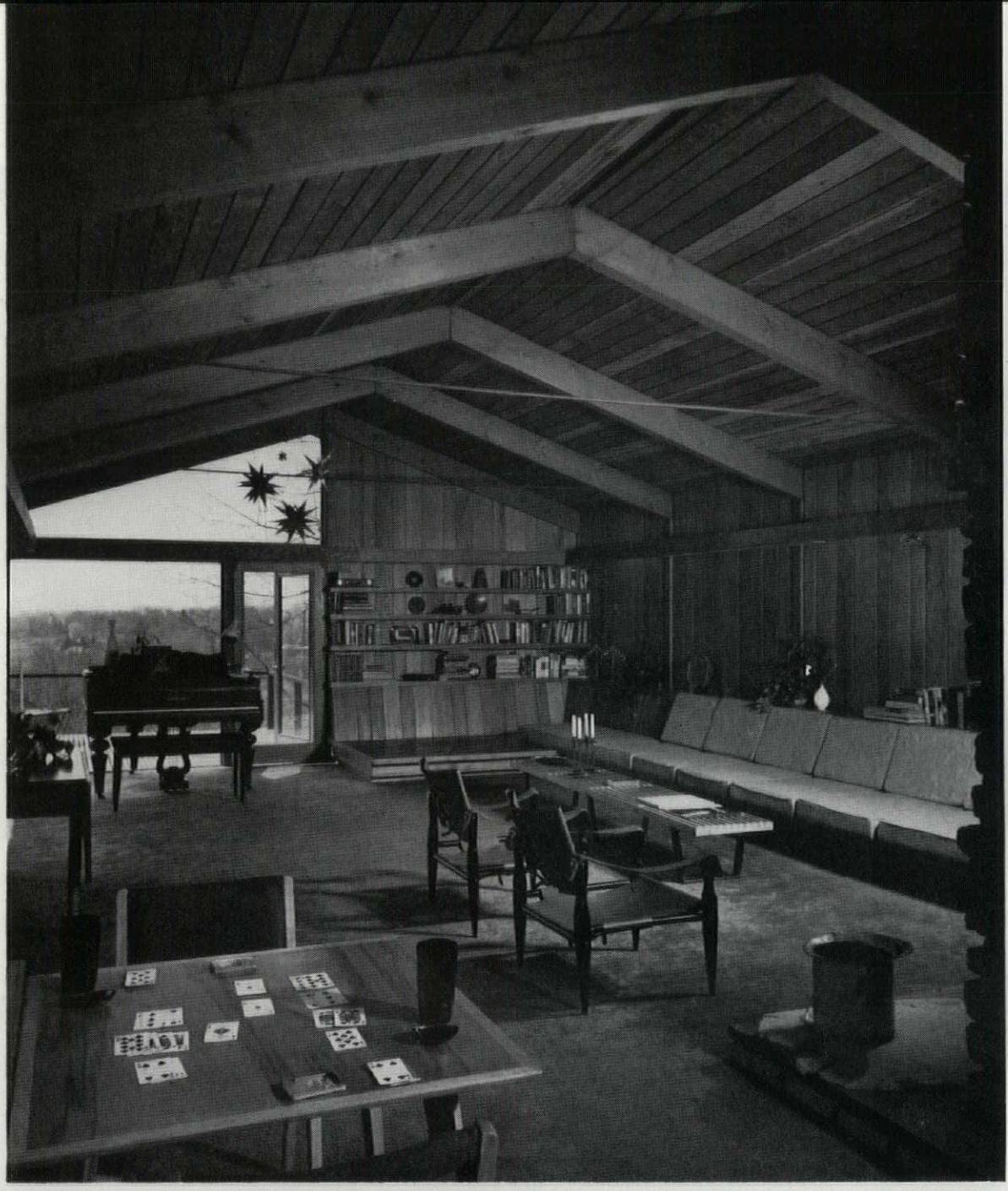
tri-nuclear scheme planned for a hillside

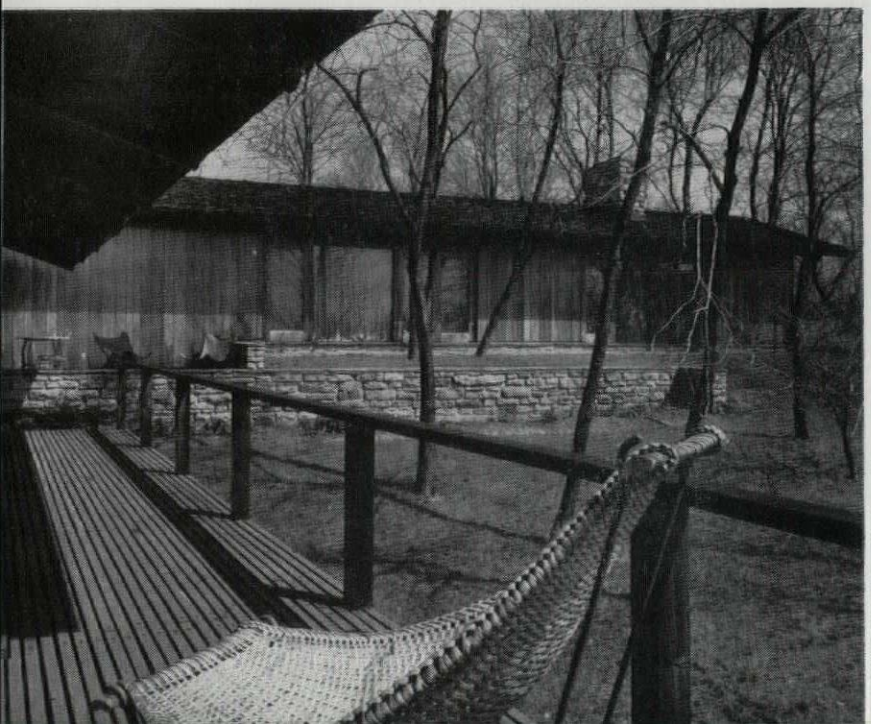


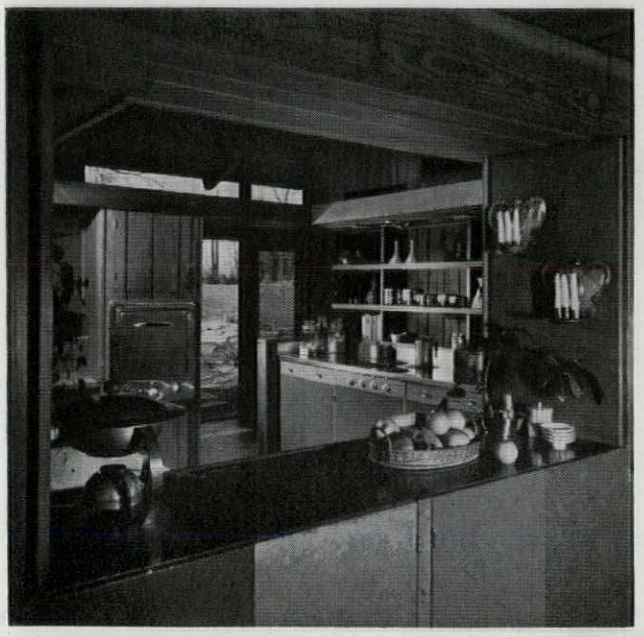
A wooded, one-acre site that slopes from north to south; a family that enjoys intimate contact with the out-of-doors; and informal living requirements of parents and two children (since increased to four) were factors in the design of this house in East Liverpool, Ohio. Architects were James Nessly Porter and John Terence Kelly, and this is the home of Porter and his family. The "centrifugal" plan consists of three, gable-roofed elements, disposed on different levels of the site, joined by a flat-roofed central portion which shelters the entrance, kitchen, and dining areas. There are very few doors between rooms—providing a variety of spatial interrelationships—while practically every room has a door to the outside. Views to the south and east are captured by large window areas.

The structural system is post-and-beam with plank roof, developed on a 6-ft module. Materials were held to a minimum—wood, stone, glass—with fir structural members, and interior and exterior paneling of shiplapped cedar boards. Floor surfaces are either flagstone or carpeting. The house is heated by a hot-water radiant system in the floor slab, with four controlled zones.

residential practice After establishing a program and arriving at general agreement with the client as to site use, Porter prepares preliminary plans and sketches for approval. Preliminary cost estimates are made by the contractor who will probably do the building; by a professional estimator; and by Porter's own office. "This step saves a great deal of time and trouble later on," he finds. Remaining steps: preparation of working drawings and specifications; client conferences concerning materials and finishes; bidding and selection of contractor; actual building.

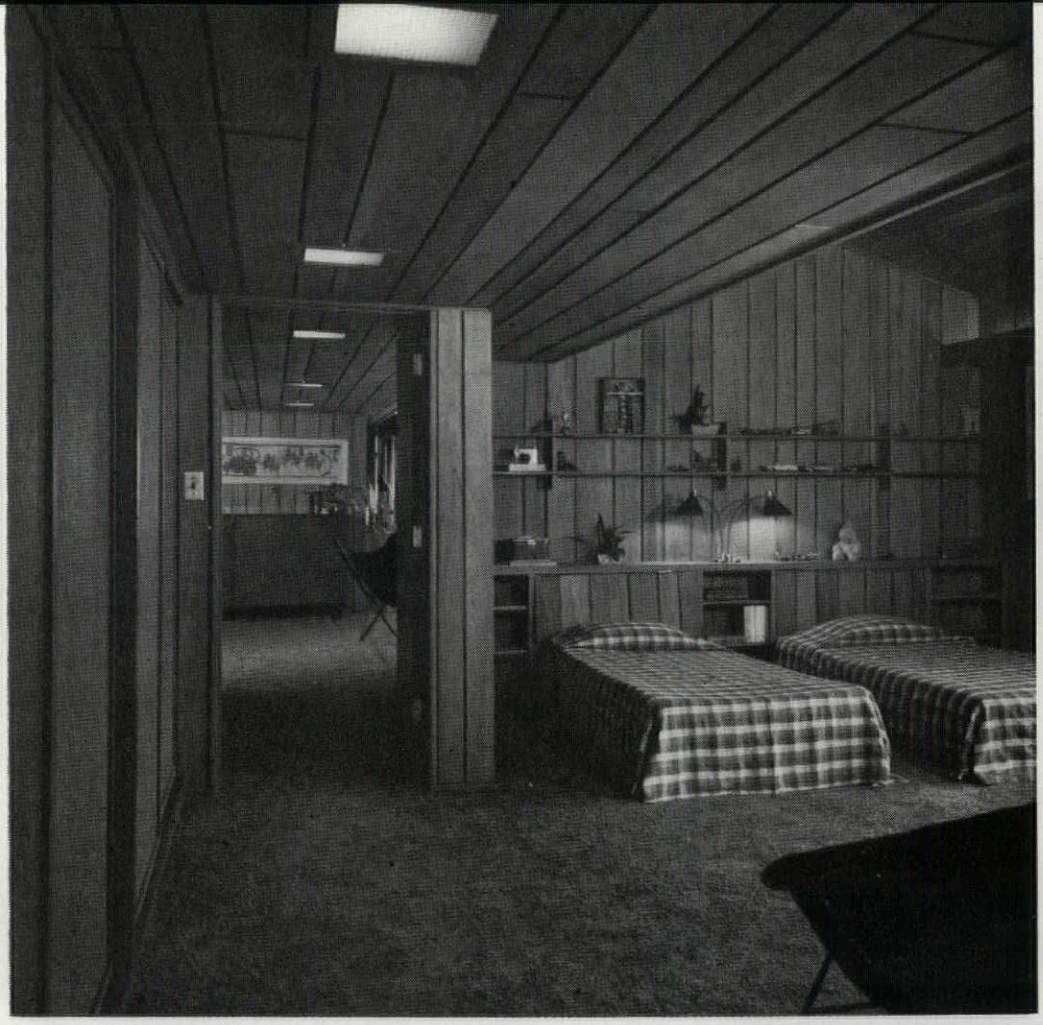


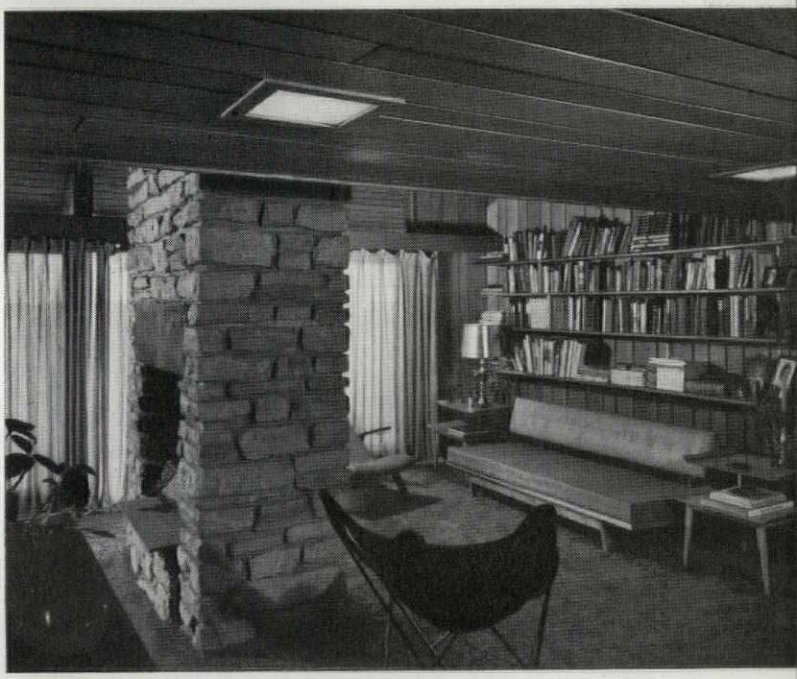


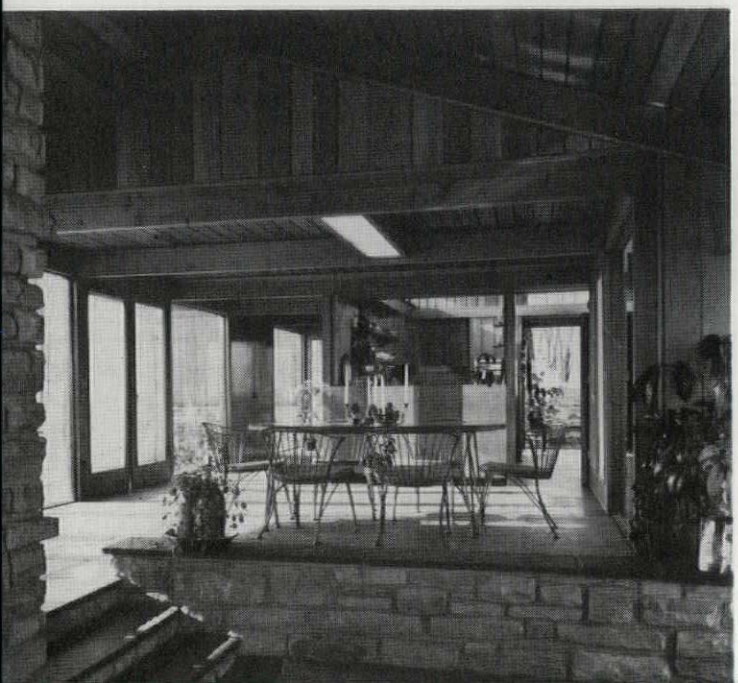


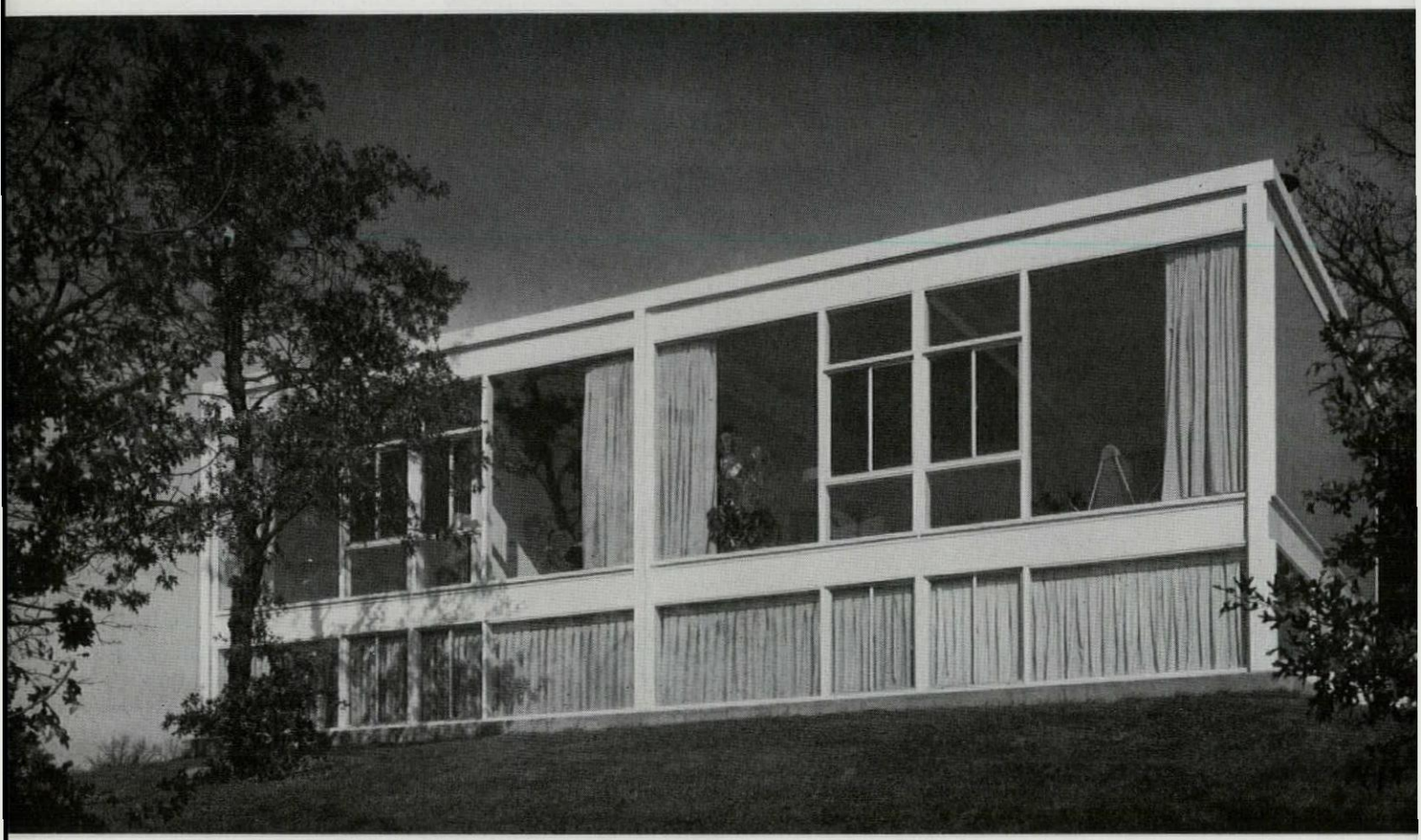
Up three steps from the generous living room (above) *are the flagstone-floored dining space* (acrosspage bottom) *and pass-through-counter kitchen* (left).

Up another three steps is the bedroom wing, with the children's area (acrosspage top), *which can be closed off by folding partitions, and the owners' suite* (acrosspage center), *which is divided by a see-through fireplace into sleeping and study areas.*









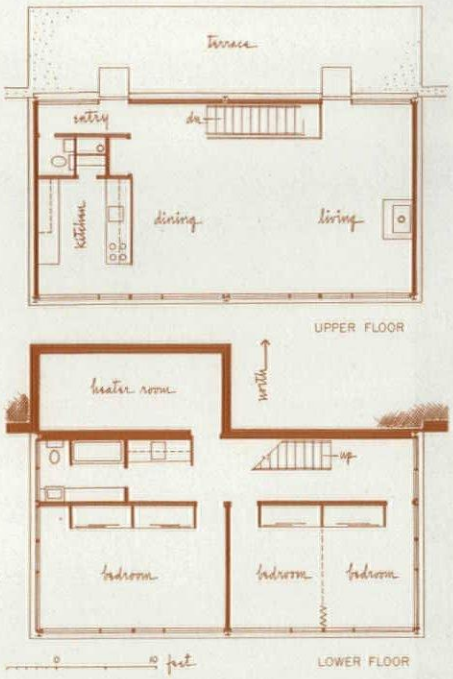
house 2

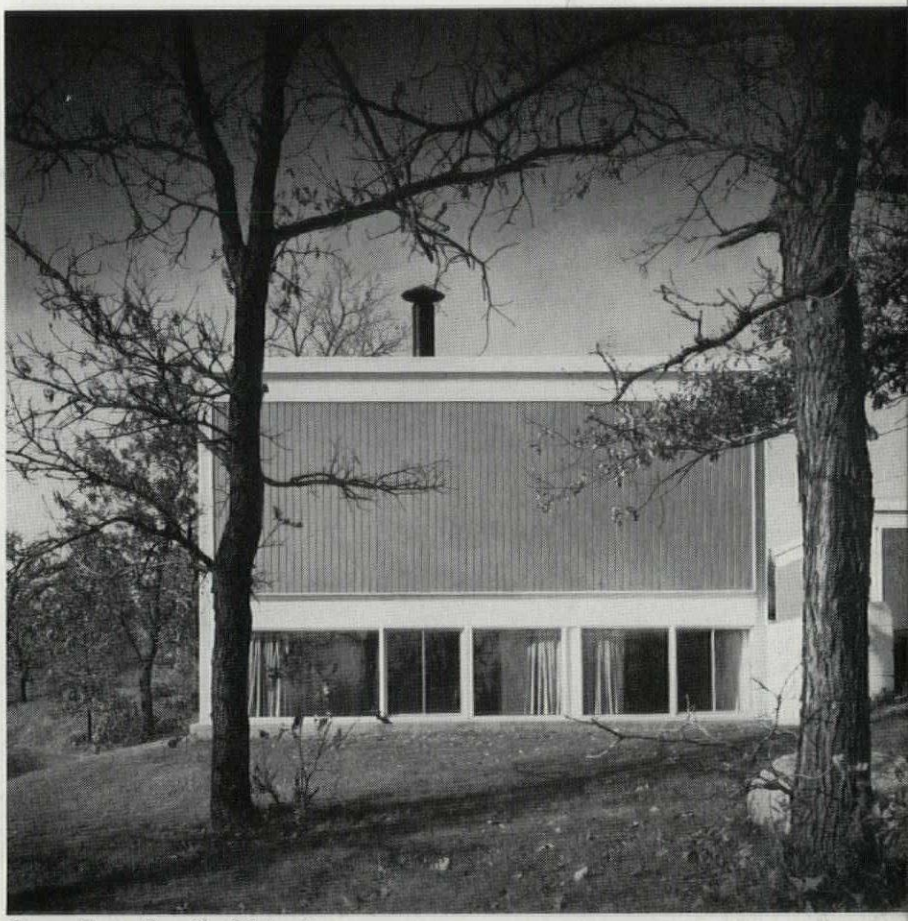
steel-and-glass structure for a cold climate

Winner of an Award Citation in P/A's Fourth Annual Design Awards Program, this compact house, in Edina, Minnesota, is the home of the architect, Bruce Abrahamson. The arrangement on two floors, with the bedrooms on the lower floor and the other living areas elevated to take maximum advantage of a view to the south, echoes the slope of the one-acre site, which drops away some 30 feet between its northern and southern boundaries.

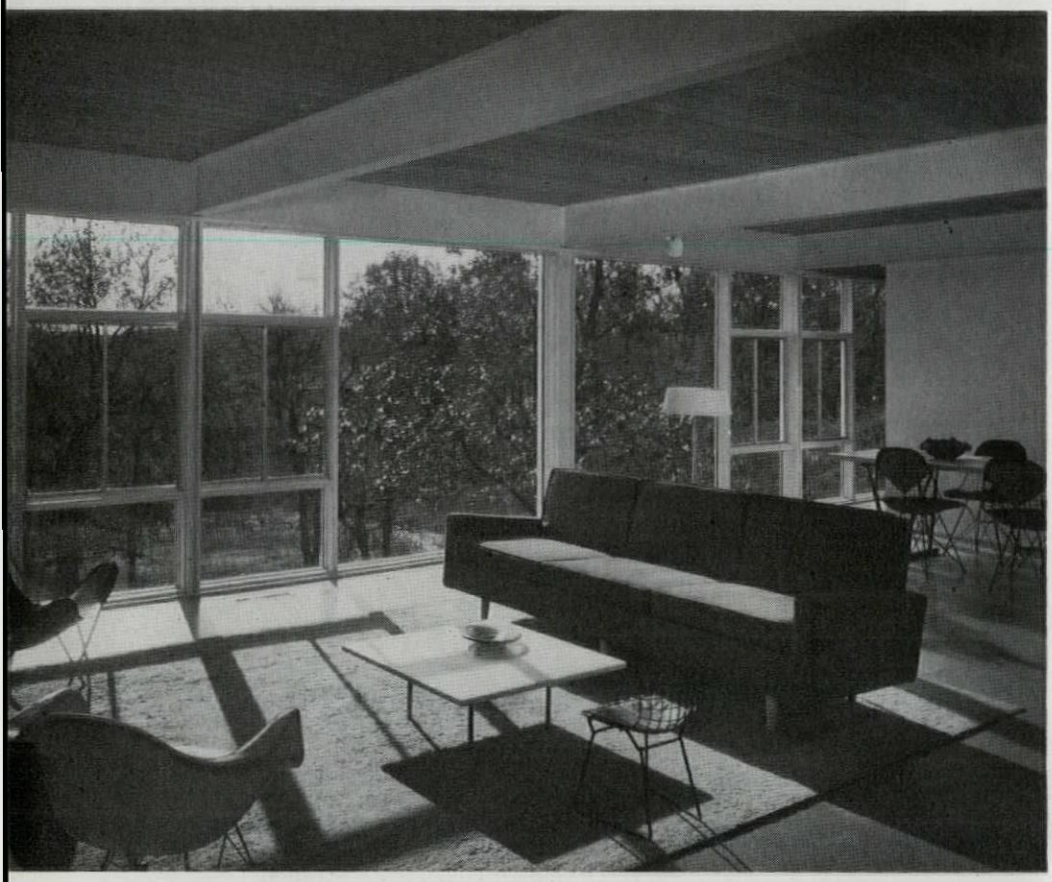
In designing the house, the architect tells us, "I was primarily concerned with creating a clean, simple building form and plan consistent with my design principles and the economy desired. . . . One of the prime motivations was the wish to prove that a steel-and-glass house, which would provide the desired esthetic, could be built in a cold climate and still not cost any more than the standard and accepted methods of house construction used in this area." He proved his point, as construction cost came to but $10 per sq ft (excluding kitchen equipment and a well). Details of the structural system are shown in SELECTED DETAIL (*overpage*). The exposed steel frame, wood sash, and door frames are painted white; the vertical, redwood siding is gray; and exterior doors are blue-black. A warm-air system heats the house, with perimeter floor outlets on each floor. Warren A. Ortenblad was Contractor.

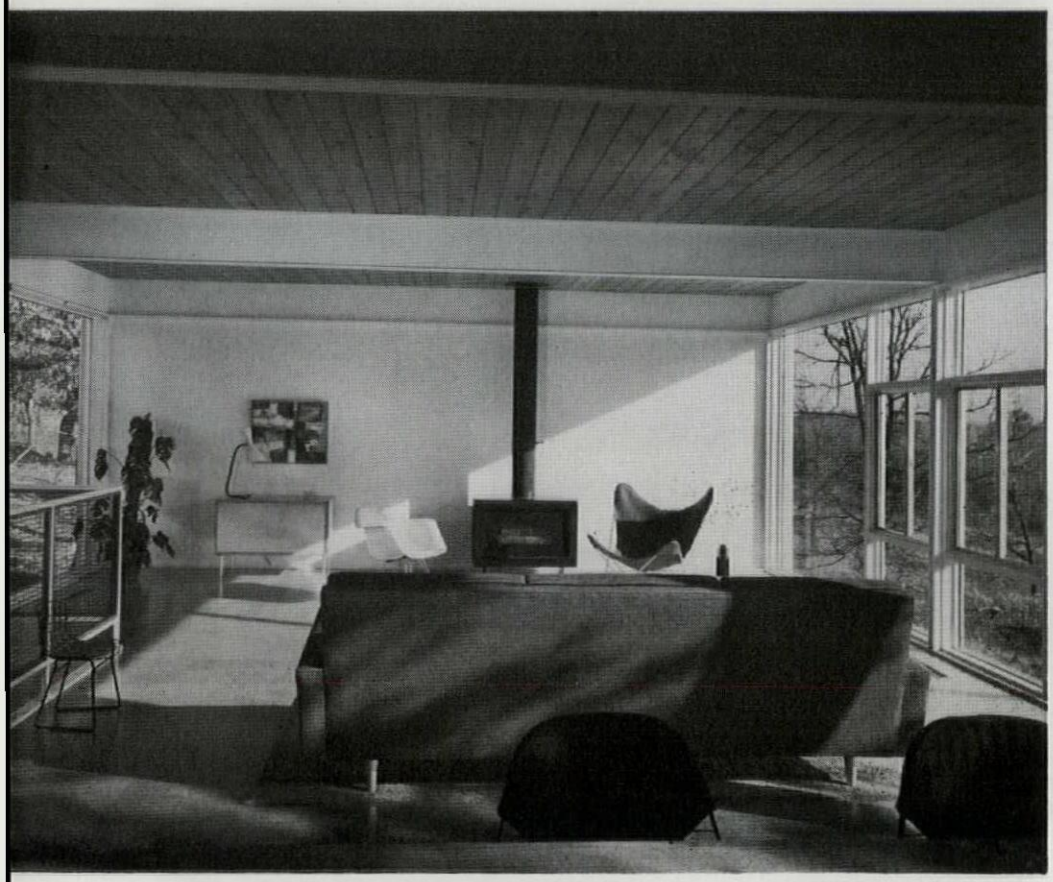
residential practice After a general building program is drawn up, Abrahamson confers with a client regarding room sizes, material preferences, living habits, special requirements, and approximate budget. The site is visited with the client. Then, schematic studies are made, discussed with the client, and preliminaries are developed to determine the basic scheme. While working drawings go forward, there are conferences to decide details, selection of materials, etc. Bids are taken, contracts prepared, shop drawings checked, and construction supervised. Color schemes are prepared and furniture and equipment chosen.





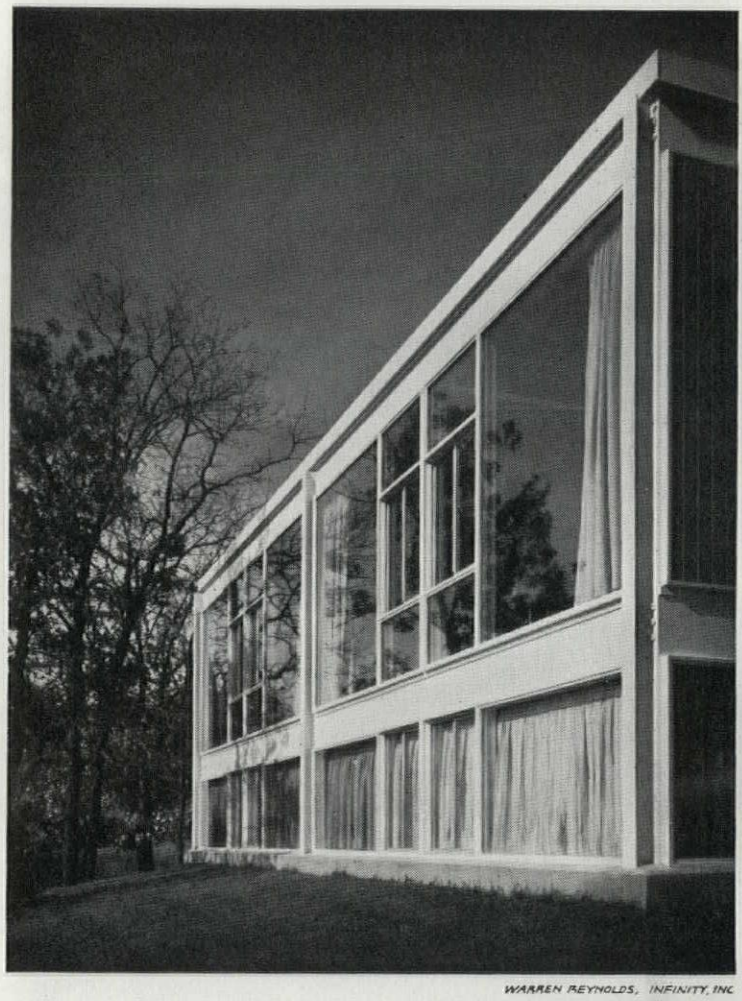
Photos: Warren Reynolds, Infinity, Inc.





The combined living-dining space on the upper floor is 20'x28' in area and has a full window wall (details acrosspage) *facing the southern view. Light cork is the flooring, while bedroom floors downstairs are finished in gray asphalt tile. Walls throughout are white, with color accents reserved for furnishings and paintings.*

window wall



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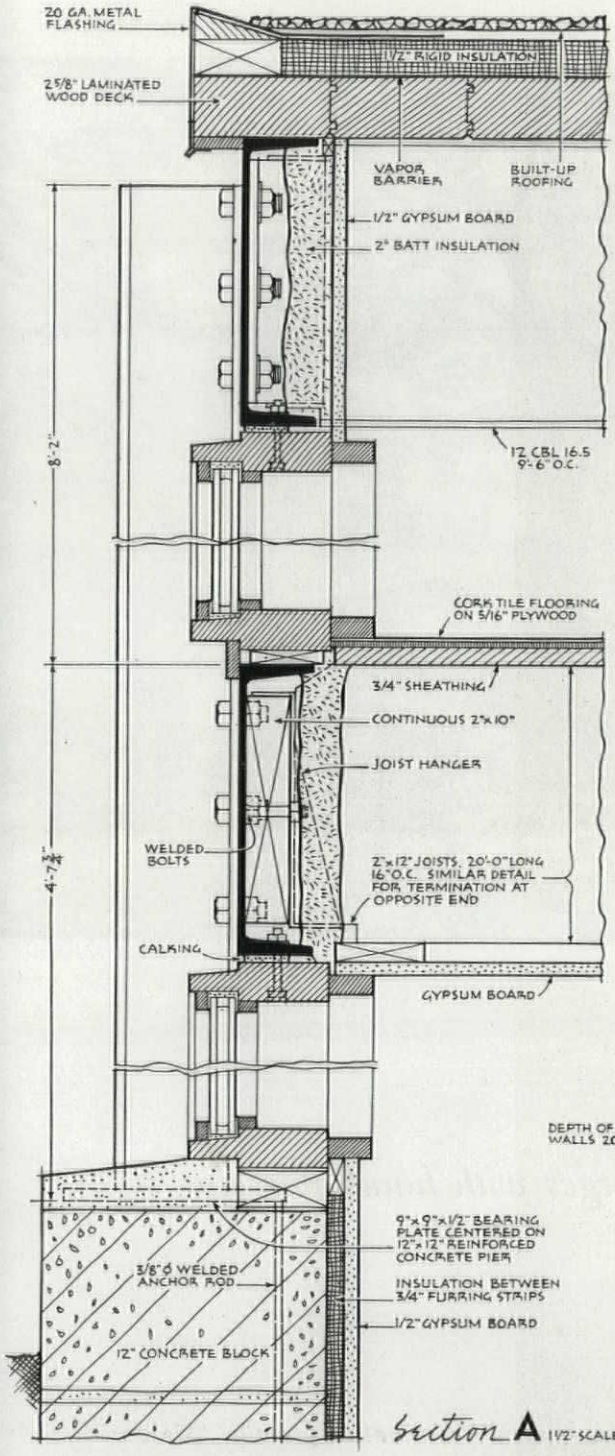
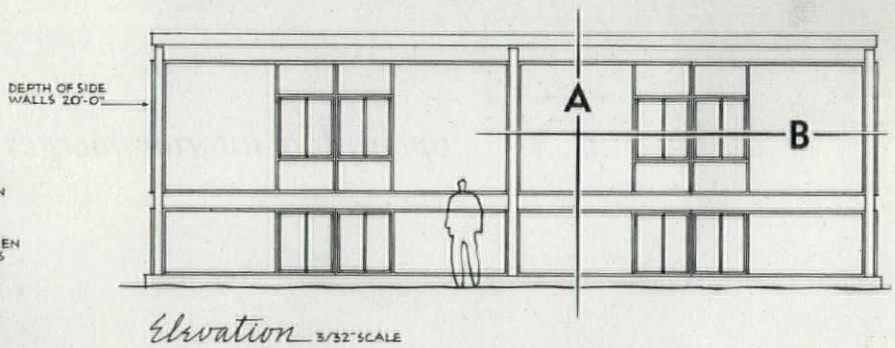
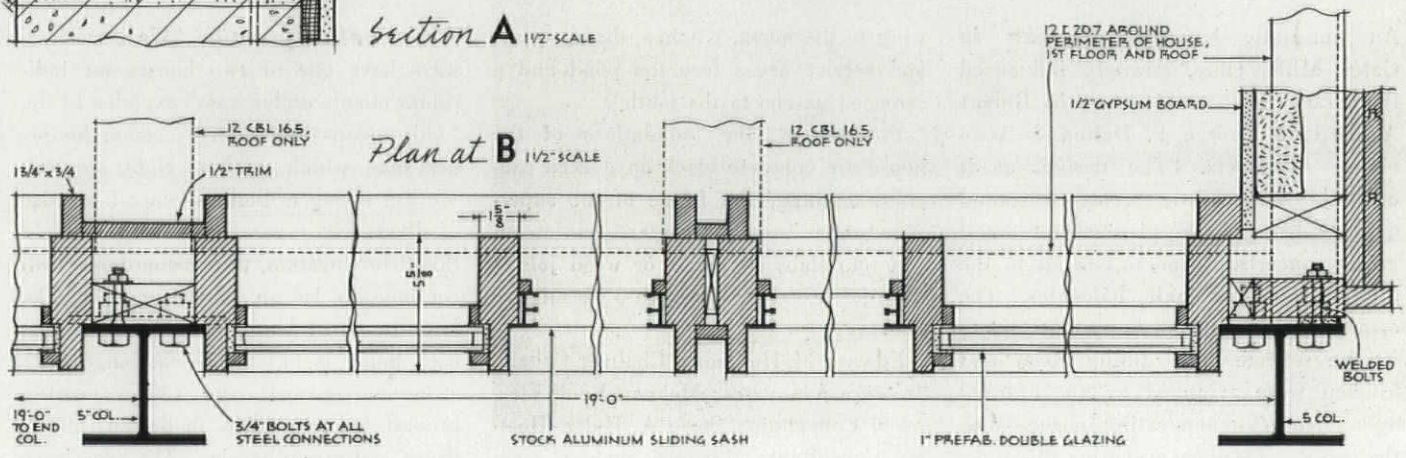


Section A 1 1/2" SCALE



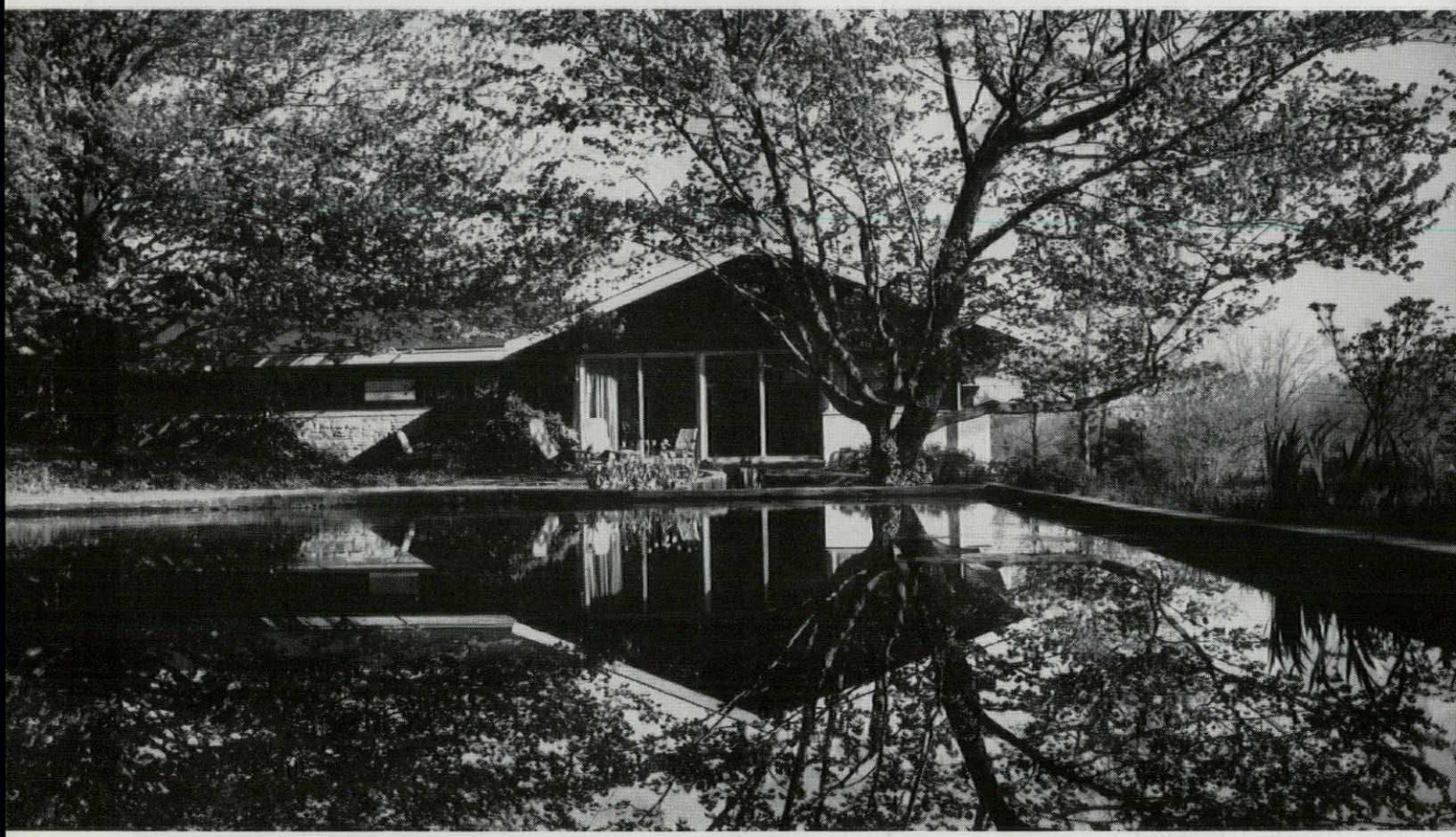
Elevation 3/32" SCALE



Plan at B 1 1/2" SCALE

ABRAHAMSON RESIDENCE, Edina, Minnesota

Bruce Abrahamson, Architect



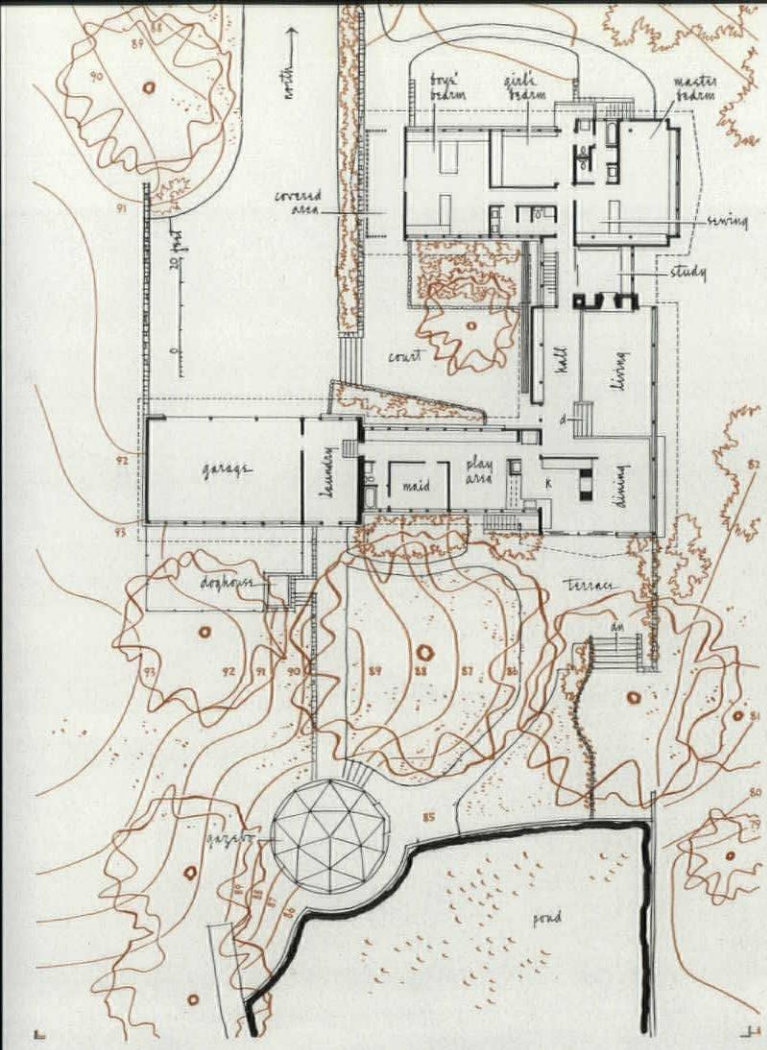
house 3 *open-plan interior merges with handsome site*

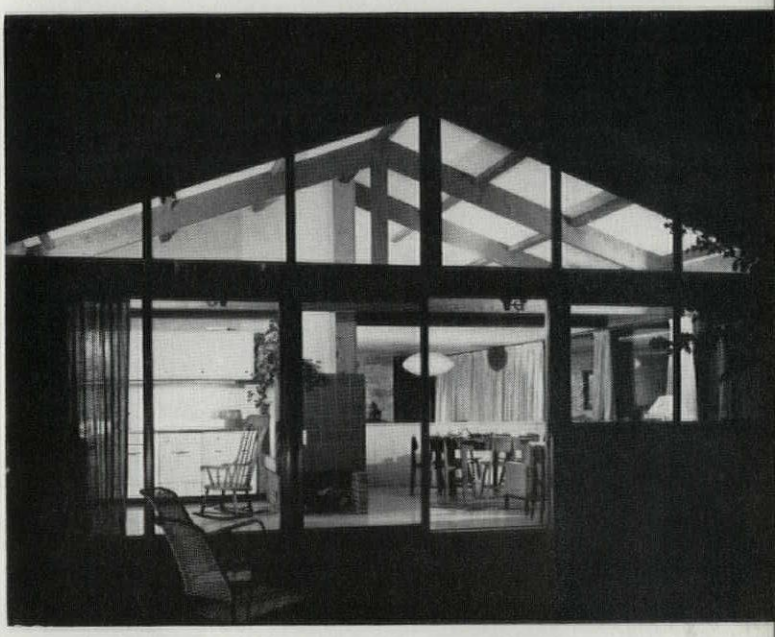
An unusually handsome property in Gates Mills, Ohio, strongly influenced the arrangement of this house by Robert A. Little & George F. Dalton & Associates, Architects. "The design, as it evolved," writes Little, "centered around a large living room planned for small group concerts. Listeners can sit in the dining room or hall balconies. The owner's paintings were important factors in the scheme. The dining room and kitchen were arranged as an informal open living/kitchen/eating space, with the two-way fireplace accenting this function." The bedrooms are grouped in a wing to the north. Kitchen, dining, play, and service areas face the pond and a screened gazebo to the south.

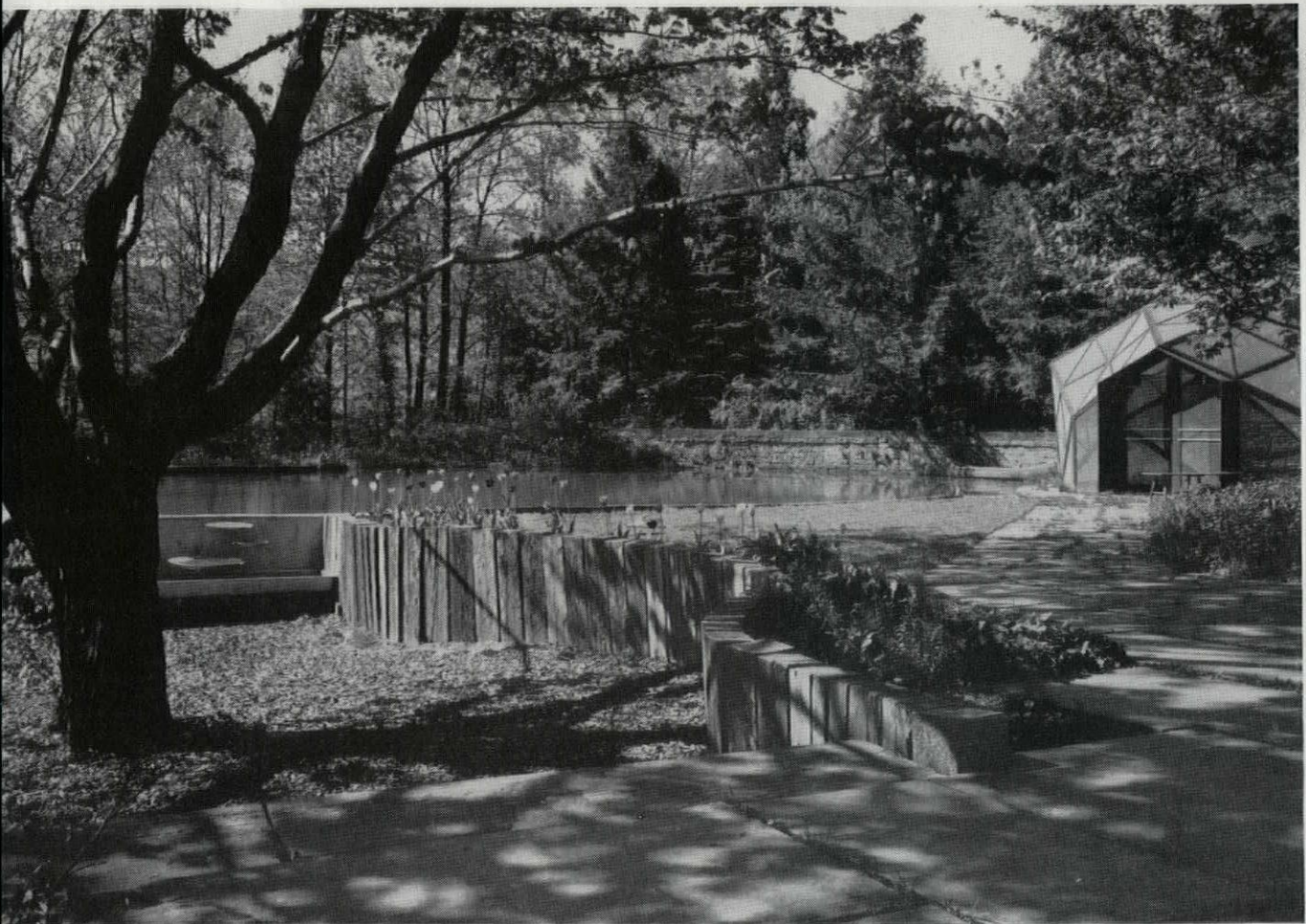
Structurally, the foundations of the house are concrete block on poured concrete footings; the frame of the superstructure is wood; floors are reinforced-concrete slabs on grade, or wood joists; the roof, wood trusses with 3″ insulative decking.

Edward M. Hodgman, Chalmer Grimm, Jr. were Associates; Mehnert-Reid, Electrical Consultant; Steve A. Halsz, Heating Consultant; Maynard Sheldon, General Contractor.

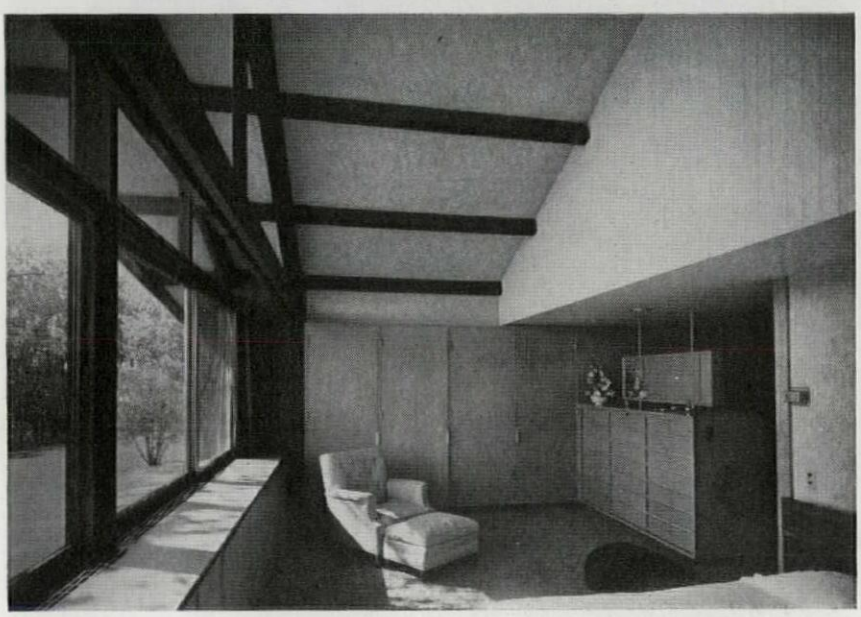
residential practice "We almost always have one or two houses for individual clients under way," explains Little. "This means two to five custom houses per year, which is about right, we feel. We are trying to build a general practice of diversified types of buildings, and in this diversification, the custom house will continue to be an important part. The importance of house work to us is that each house is (1) a new challenge; (2) a human reward; and (3) a proving ground for new ideas in design, family living, and group housing. The experience is valuable, regardless of price."







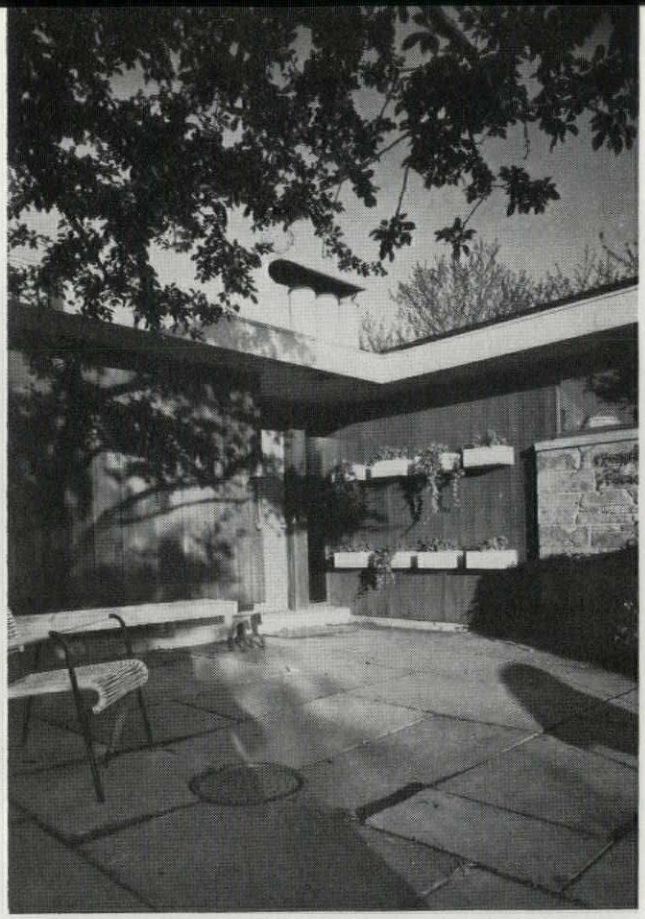
Photos: C. W. Ackerman

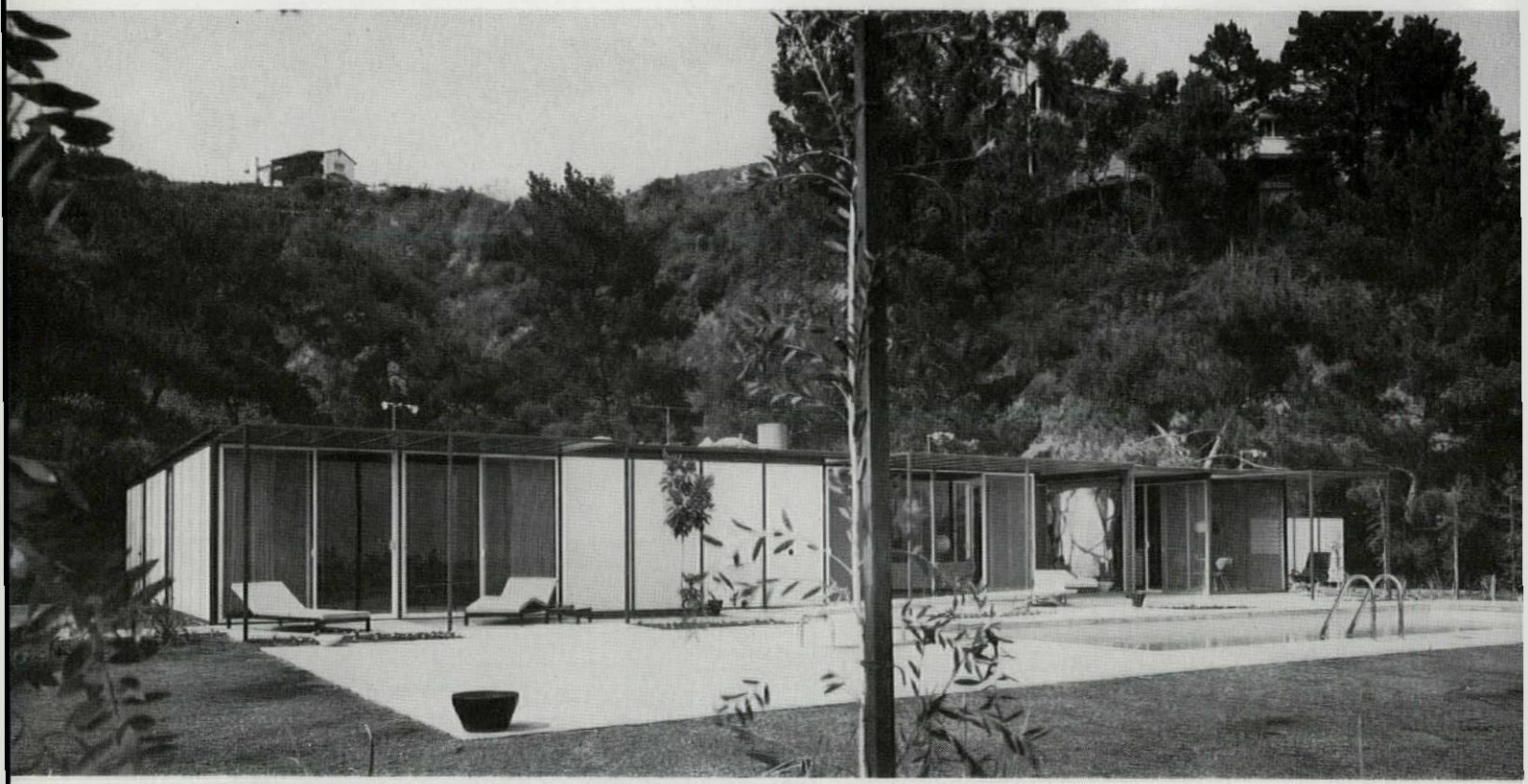


Living room (above), *dining room* (acrosspage center), *and balcony* (acrosspage bottom) *are carefully interrelated for everyday family use as well as large-scale entertaining.*

The master bedroom (left) *is a high-ceilinged space, oriented toward a broad east view.*

At entry court (acrosspage top), *as elsewhere, exterior walls are stone veneer on concrete block and random width T&G vertical cypress siding.*





house 4 *materials and structure clearly defined*

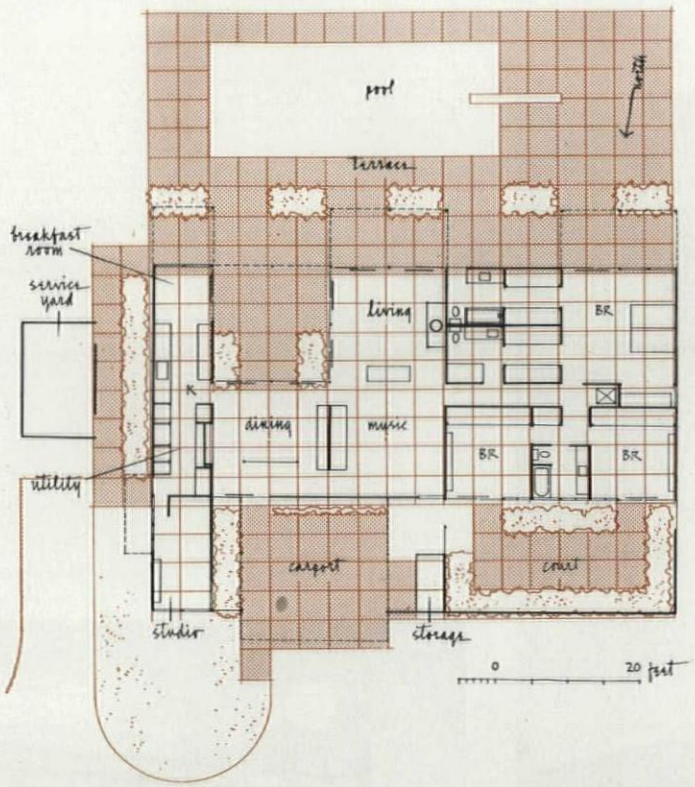
Craig Ellwood, designer of this house feels strongly that "the increasing cost of labor and the growing lack of craftsmen—our expanding machine economy—will more and more force construction into the factory, where units will be manufactured for fast job assembly." The system developed here for residential construction, as part of *Arts & Architecture*'s Case Study House Program, is an encouraging step toward such new construction methods. It makes these contributions: (1) total prefabrication of the structural frame, as well as the panel system; (2) use of standard units now on the market; (3) departure from the single-material, single-product research house.

Though both frame and panel system (SELECTED DETAIL *overpage*) are prefabricated, Ellwood has placed emphasis on visual separation of the steel frame, which "does all the work" (loadbearing, earthquake resisting), from the panels, which are merely fillers.

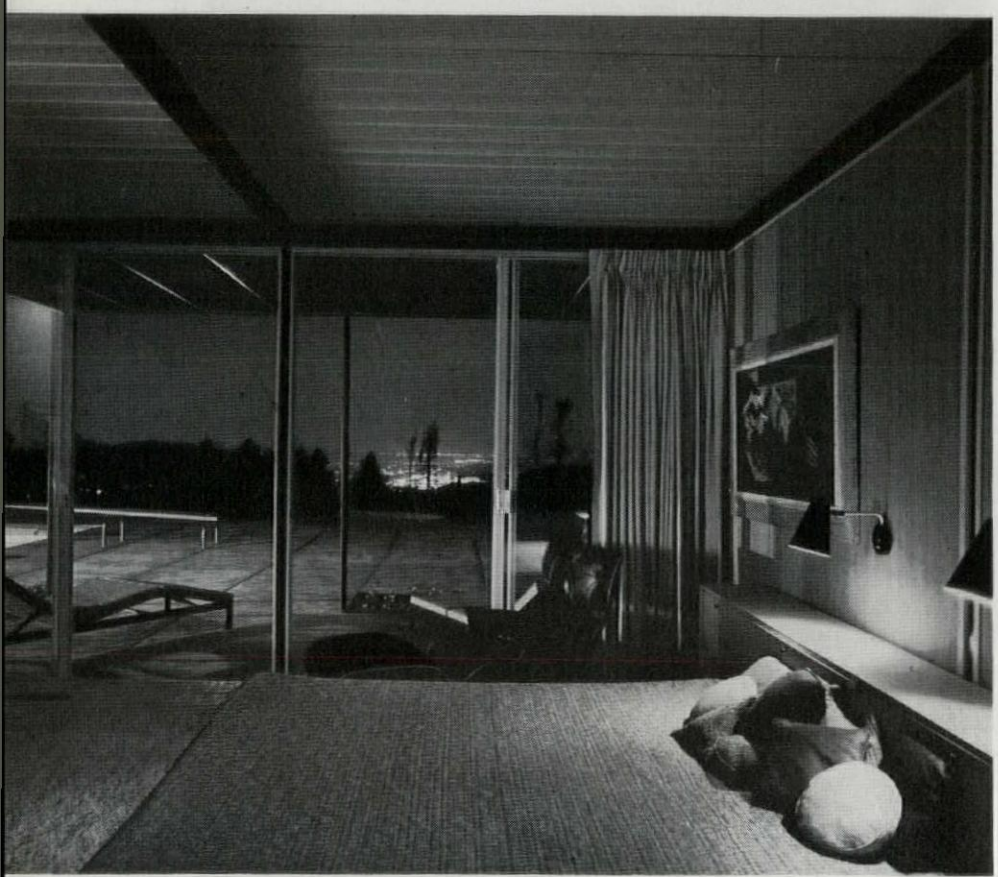
Associated with Ellwood was Jerrold E. Lomax; Albyn & Charles Mackintosh, Structural Engineer; Warran Waltz, Landscape Architect; P. E. Philbrick, General Contractor.

residential practice Because the custom house requires a disproportionate amount of the architect's time and attention, Ellwood believes that the answer lies in a prefabrication system similar to the one used in this house—one adaptable to custom as well as multiple house requirements. "Certainly standardization limits design, but economics demand it. We believe it better to give the client a good standardized house rather than the typical pile of dissimilar parts."

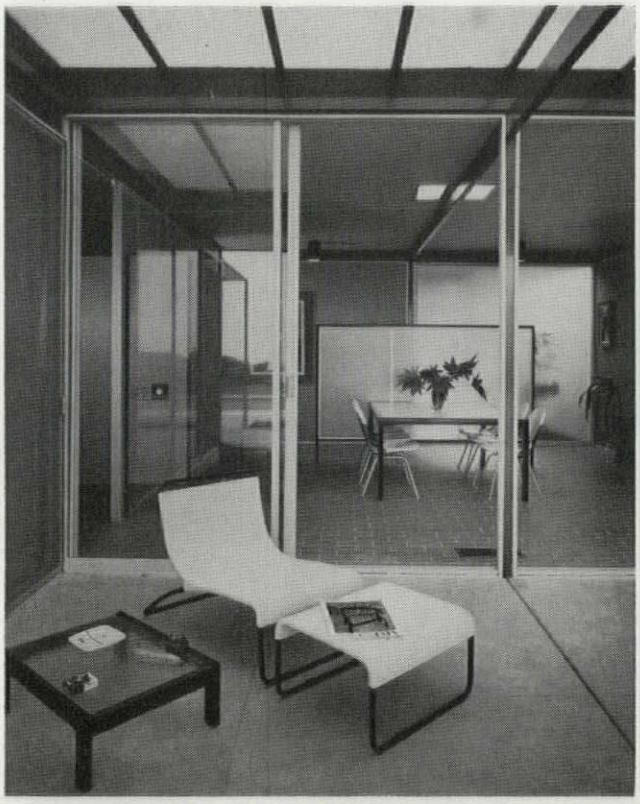
Unstable ground conditions at the building site in Beverly Hills, California, made it necessary to introduce steel piling and reinforced-concrete girders for support of the structure. The floor is a reinforced-concrete slab, 7" thick. The structural frame is composed of a series of steel bents — 16' rectangular-tube beams shop-cut and welded to square-tube columns—placed 8 ft. o.c.



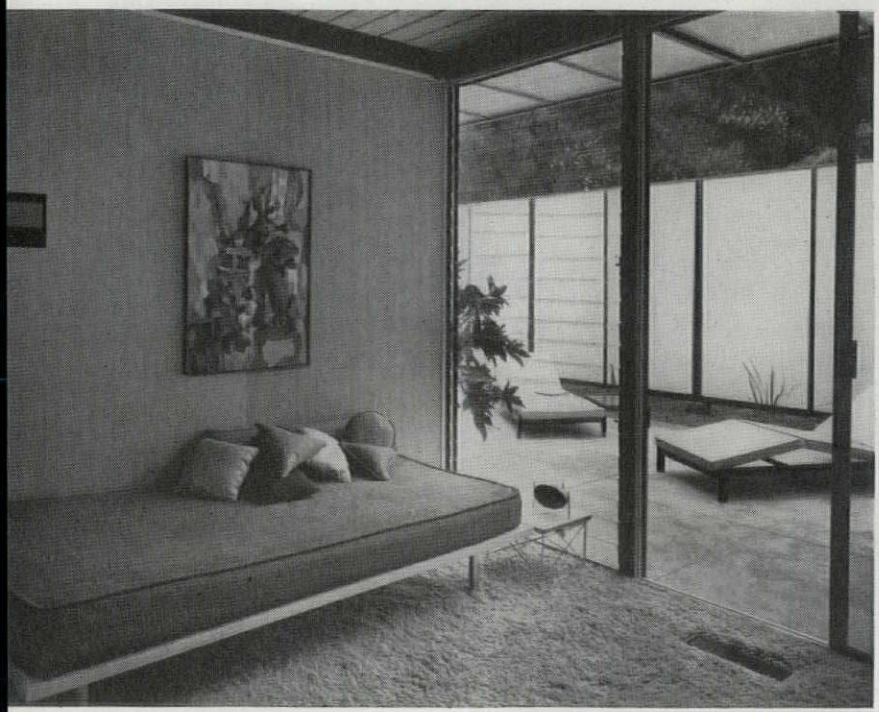
Photos: Marvin Rand



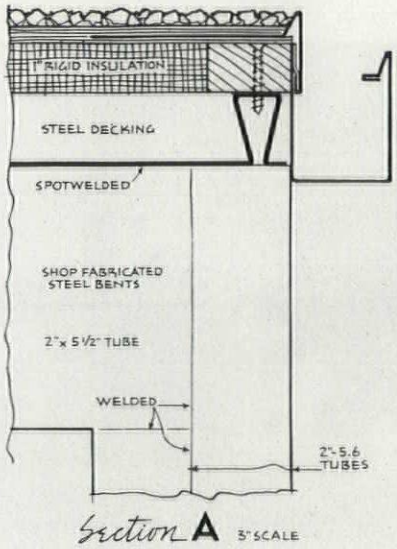
Solid wall panels are made up of 2" wood frames to which sheets of 5/16" plywood with resin-impregnated overlays have been glued and nailed. Other panels—all based on the 8-ft module—are the sliding-glass wall units, the louver-sash panels, and the fixed-sash units. All are attached directly to the 2" square-tube columns or are held in place with 2" continuous batts attached to the tubing with metal screws. Wall panels are slightly undersized for easy installation, and 1" steel angles help fix and "trim" the panel edges.



Blue, heat-absorbing wire glass has been used for roof overhangs and for roof over living/dining court (above). *At night, floodlights above the roof, throw a gentle, diffused light into the area. Clear plastic domes allow daylight to enter above halls, baths, and dressing areas. Outdoor screen walls and space divider at entry are of translucent glass. Floor surfaces are of 8"x4" quarry tile, small square ceramic mosaics, or off-white wool-loop carpeting. A mural of chipped and crushed ceramics* (right) *subtly repeats the colors used throughout the house.*

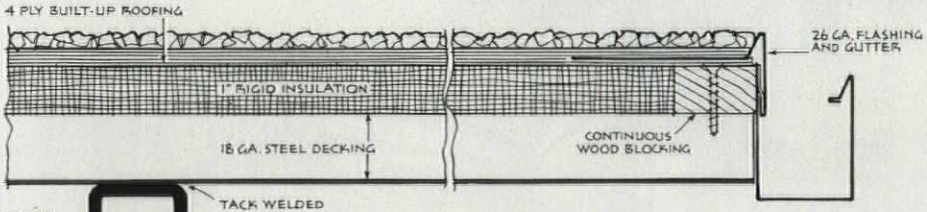


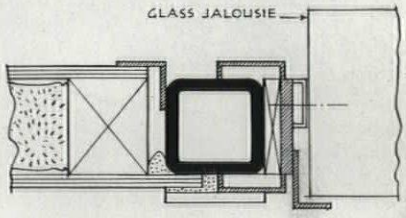
carport



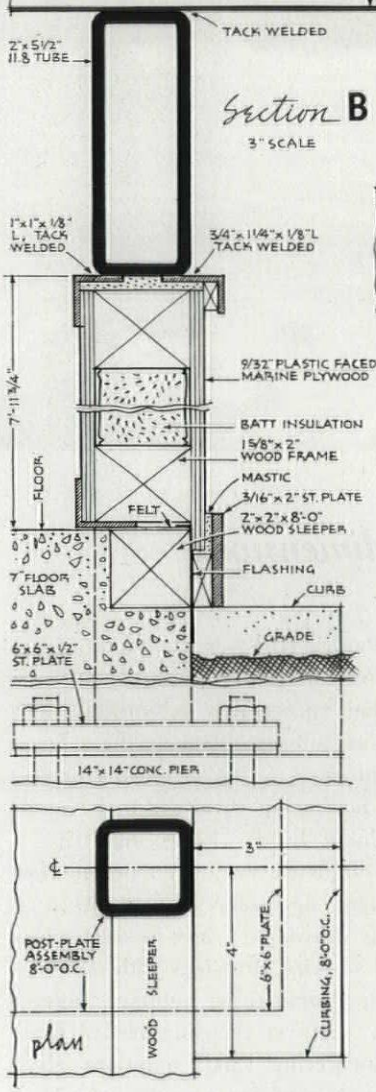
Section A 3" SCALE

MARVIN RAND



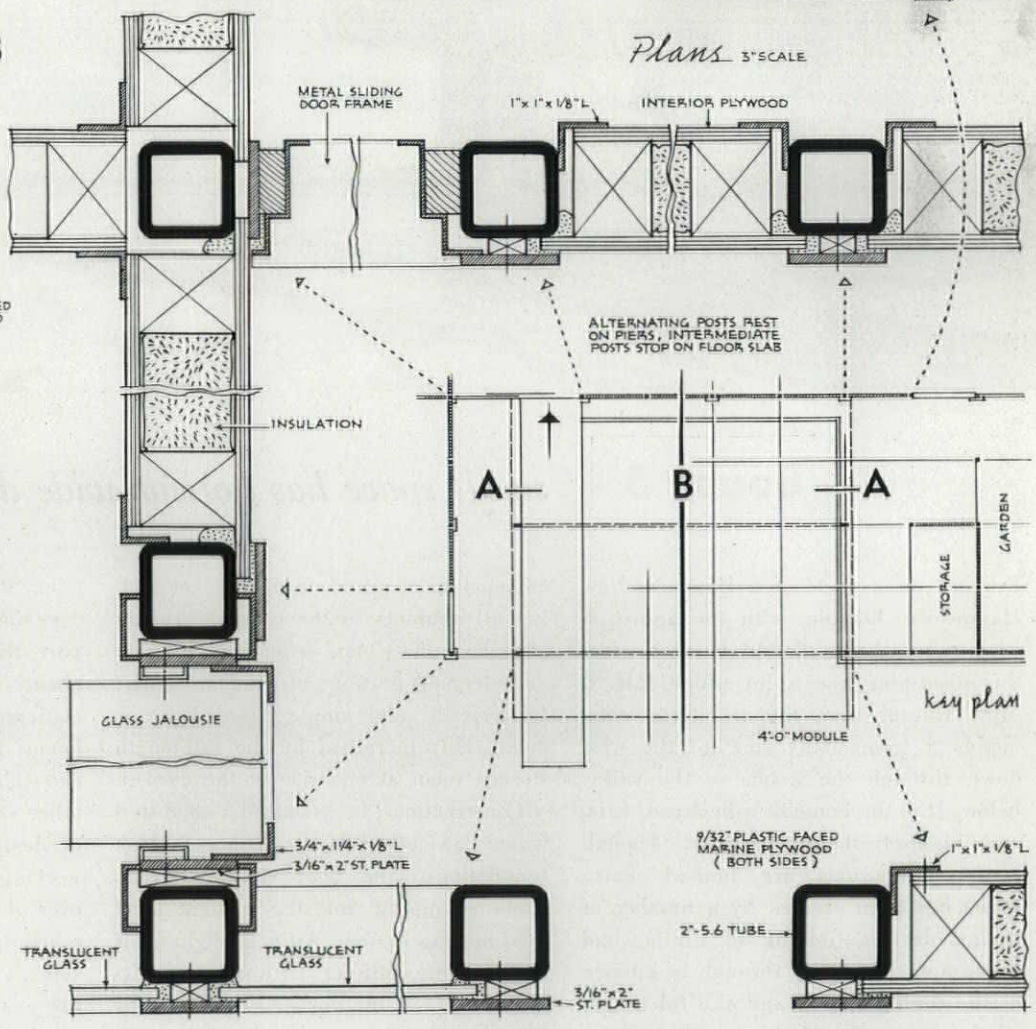


Section B 3" SCALE



plan

Plans 3" SCALE



key plan

CASE STUDY HOUSE, Beverly Hills, California

Craig Ellwood Associates, Designers

house 5

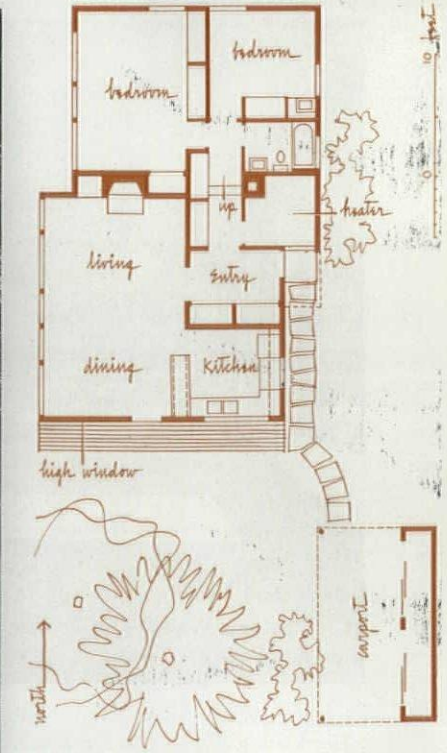
small space has horizon-wide dimensions

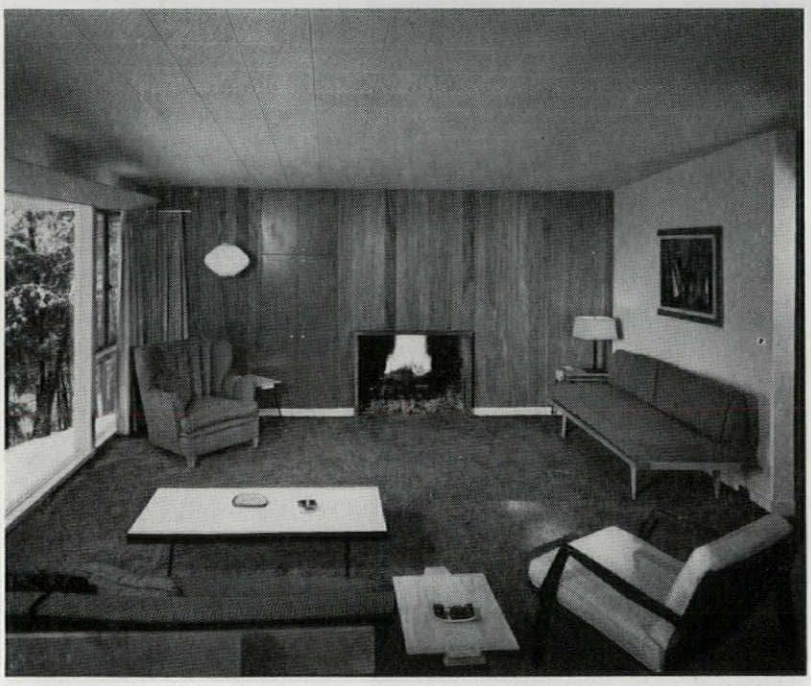
Perched on a shelf of a Hanover, New Hampshire, hillside, with the approach road quite near on the uphill (east) side, this disarming house, for which E.H. & M.K. Hunter were the architects, commands a tremendous view to the west down through the woods to the valley below. It is the home of a husband, wife, and high-school-age daughter. Though actual dimensions are limited, extra space has been created by a number of design devices—joining of dining and living areas; opening through to kitchen of the dining space; and skillful use of window areas, carefully designed to accommodate required furniture, yet adding all outdoors to the living surrounding. The offset-plan scheme sets living and sleeping portions of the house apart for privacy, and ample closet space is measurably increased by the full-length storage room at one side of the carport.

Construction is standard wood-stud frame on concrete or concrete-block foundations. The floor slab on grade contains piping for the radiant-panel floor-heating system. Artificial lighting is mainly from indirect, built-in coves. Exterior walls of the house: gray-brown fir flooring, plastic-surfaced plywood, white trim. Stanley Hill was Contractor.

residential practice The Hunters report their procedure in working with clients as follows: "two or three house conferences . . . visit to client's present home; measuring furniture to be used; entertaining in our home, and trips to other completed work . . . presentation of design; necessary adjustments . . . working drawings; sheet-by-sheet going over of working drawings with materials schedule; competitive bidding; supervision . . . help in choosing needed furniture; answering small questions about 'new' equipment for next 10 years."

Photos: Joseph W. Molitor



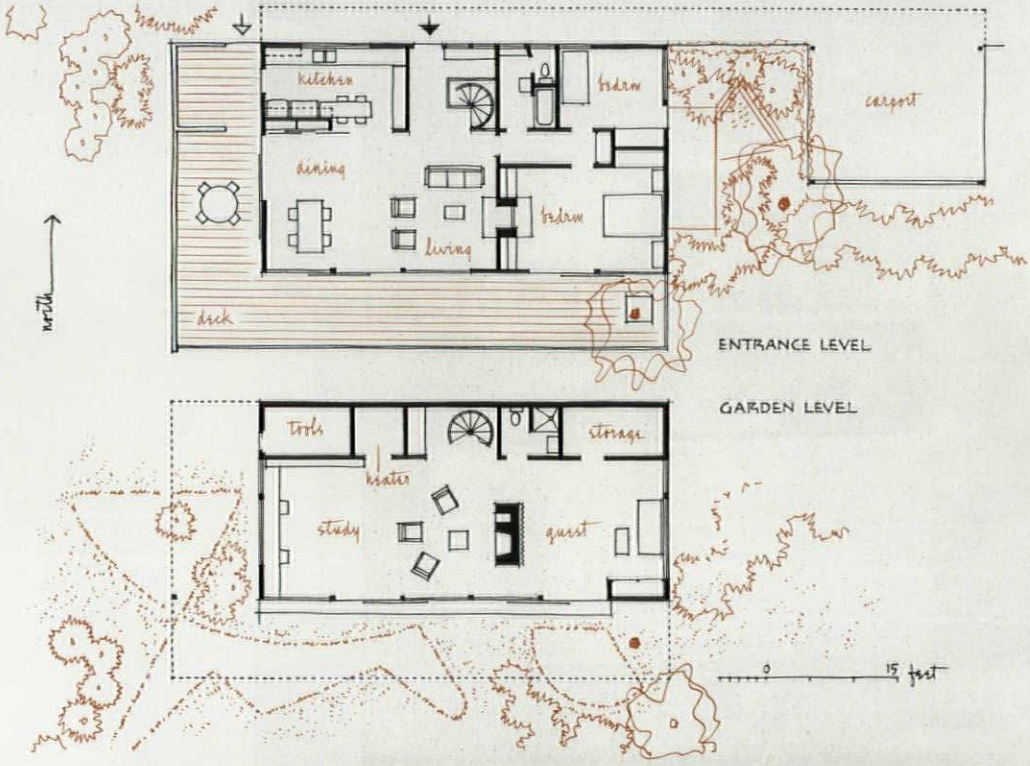


Where larger pieces of furniture are placed, such as the living-room sofa, a solid dado area is used beneath casement windows; for the main view end of the living room, down-to-the-floor glazing makes the most of the outlook. The fireplace, at the north end of the room (left), *is surrounded by a wall of light mahogany paneling.*

At one side of the dining end of the room (acrosspage top) *is the kitchen* (bottom) *which may be closed off by an accordion partition.*

house 6

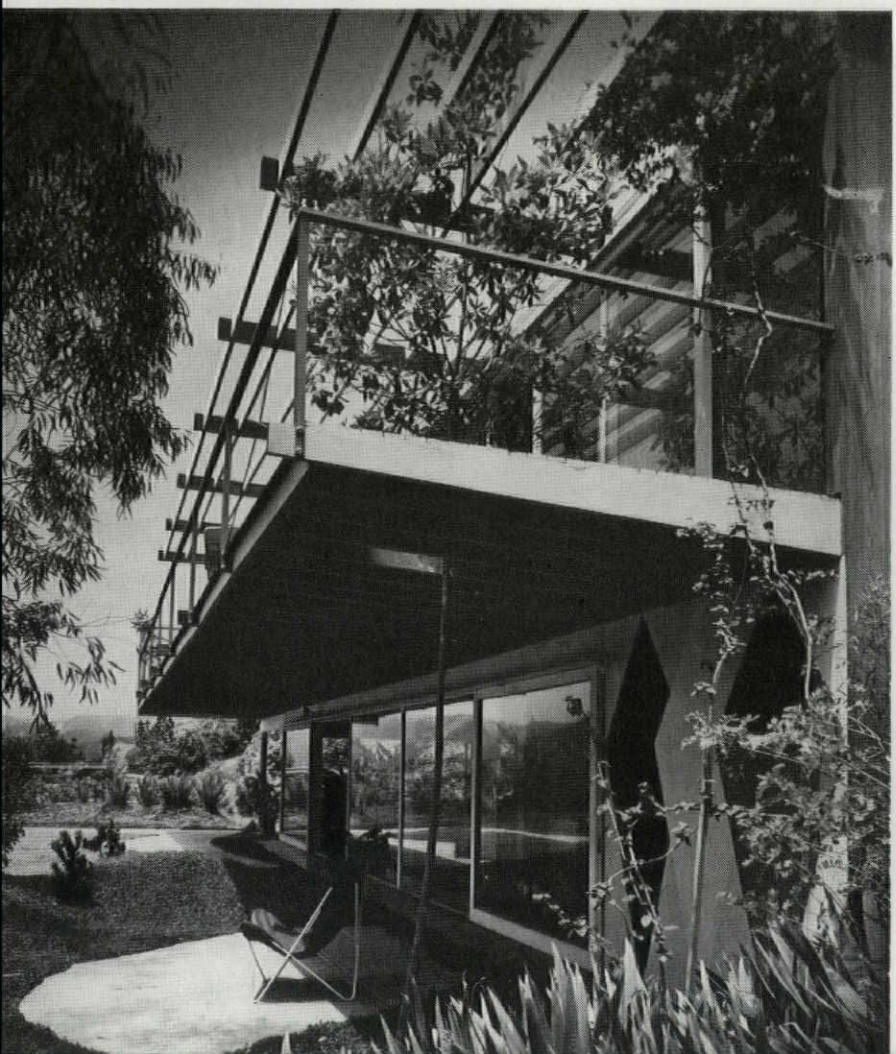
two-level plan facilitates group activities



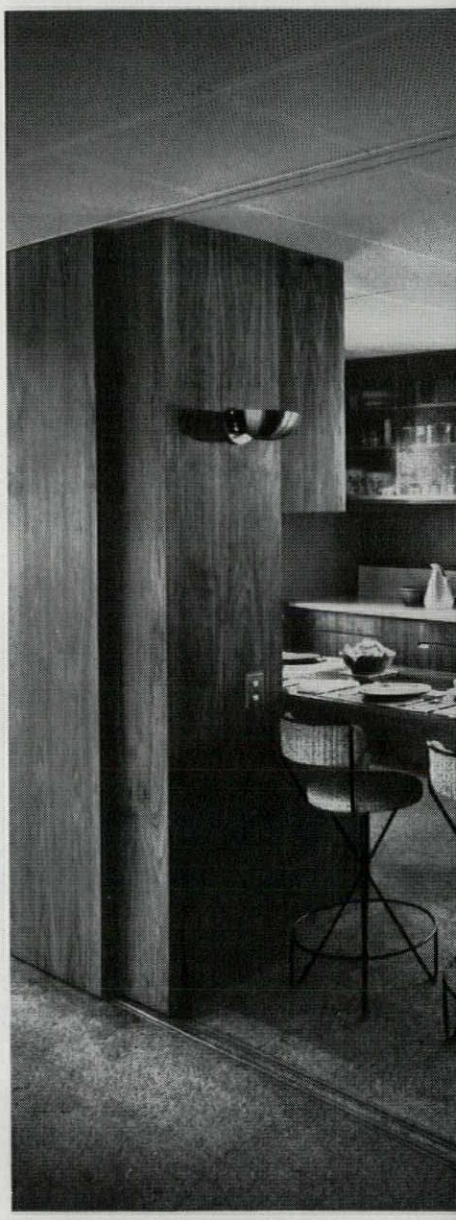
The unusual distribution of living quarters in this Los Angeles hillside house, for which Josef Van der Kar was Architect, reflects the living preferences of its owners. The small family, a couple (both scientists) and their daughter, required less than usual amount of sleeping area, but a generous proportion of space for study and entertainment. Thus, in addition to basic living spaces—entry, living/dining room, kitchen, two bedrooms—there is a large open space (16′x46′) on the garden level entirely devoted to study or entertainment. "Parties," write the owners, "frequently progress from the bar and living/dining room to the downstairs living room and to the garden." Taking advantage of the steeply sloping site, all major rooms open to a garden, deck, or patio. "The house is set against the hill between two ravines," Van der Kar comments, "at the least critical slope and with minimal disturbance of contours."

The house is wood framed; doors and wall panels on the two-story south façade are based on an 8-ft module. Exterior siding is of redwood, gray creosote stained. Most interior walls are surfaced with oak, walnut, or birch, though some wall areas are brightly painted. Eckbo, Royston & Williams were Landscape Architects; Sy-Art Construction Co., Contractor.

residential practice Van der Kar's customary working procedures include: conferences to set up basic requirements in terms of budget; preparation of preliminaries for further study of needs; conferences to develop or reject various elements proposed for the solution. With the general scheme approved, interiors, exteriors, cabinets, utilities are detailed for further study and final approval; working drawings and specifications; routine bids and selection of contractors; construction supervision; conferences on color to be used.

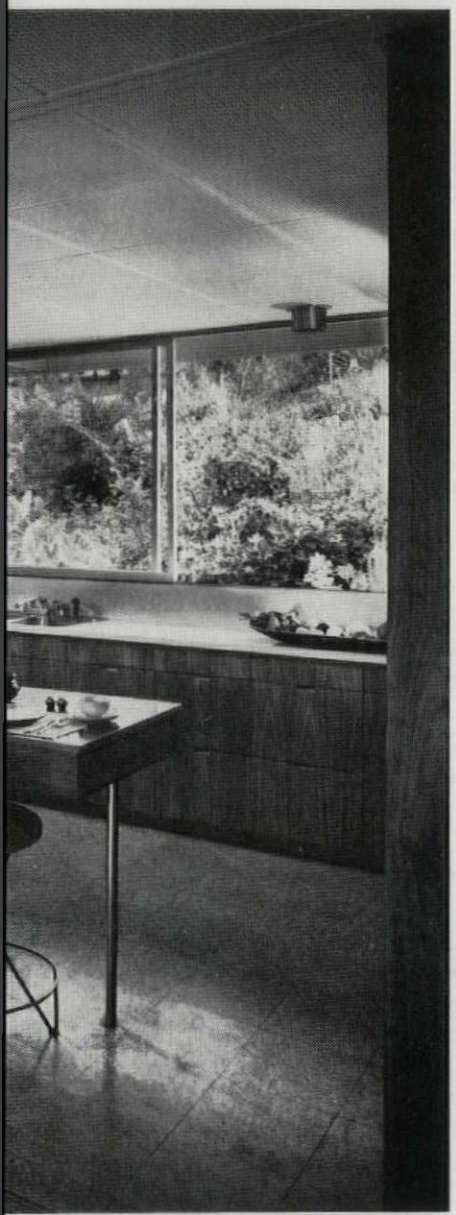


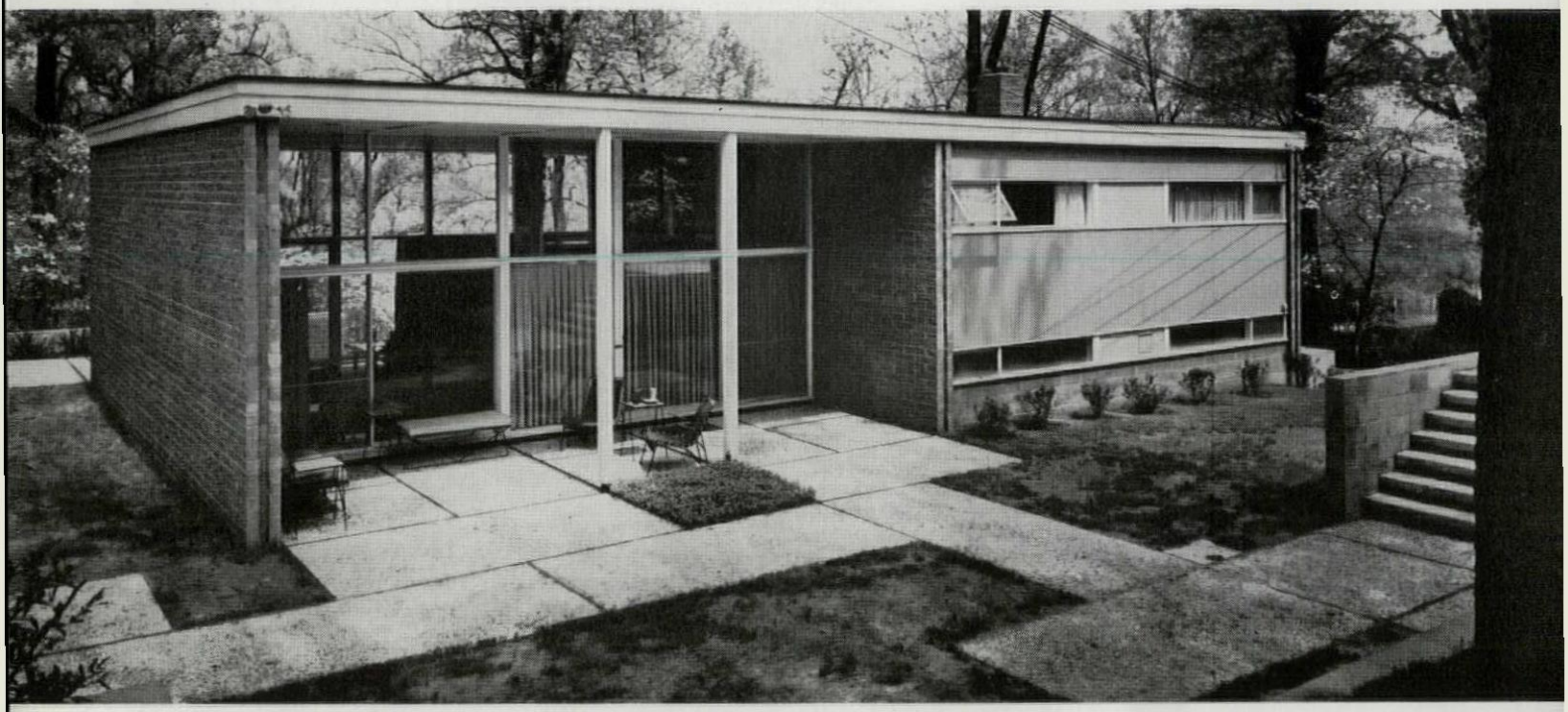
Photos: Julius Shulman



The garden-level living area (left), *partially subdivided by a freestanding fireplace, may be fully divided by a curtain into a guest room at one end and a study on the opposite side.*

For informal entertaining, the bar and kitchen (below) *are fully opened to the main living space; for formal entertaining, ceiling-height sliding doors may be drawn across the opening. The living deck extends along both sides of the living/dining area.*



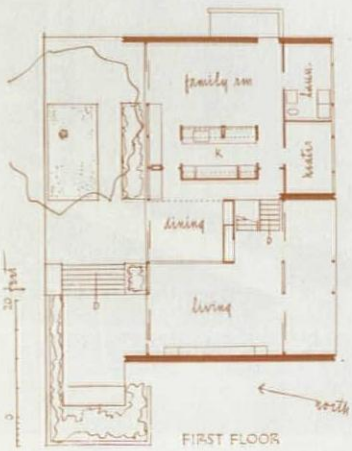


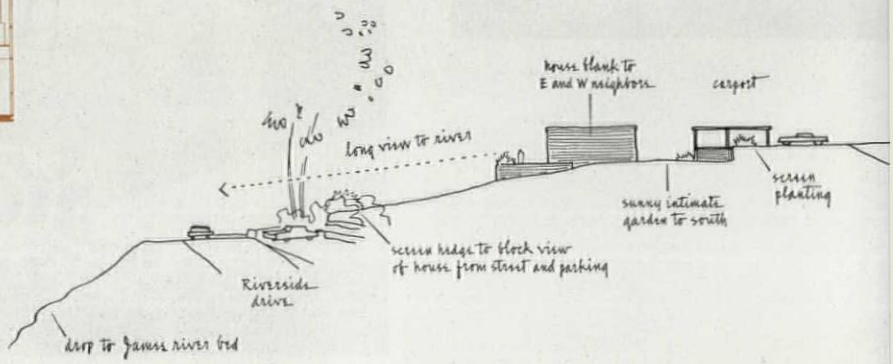
house 7

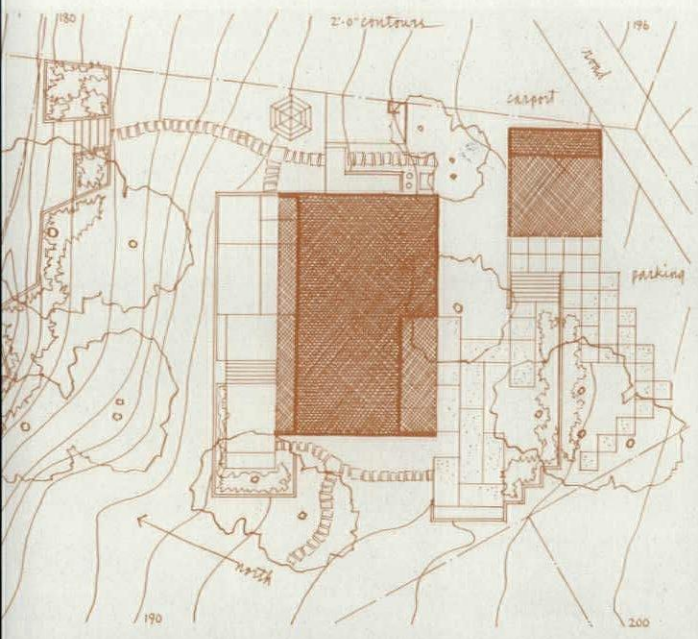
space skilfully disposed on three levels

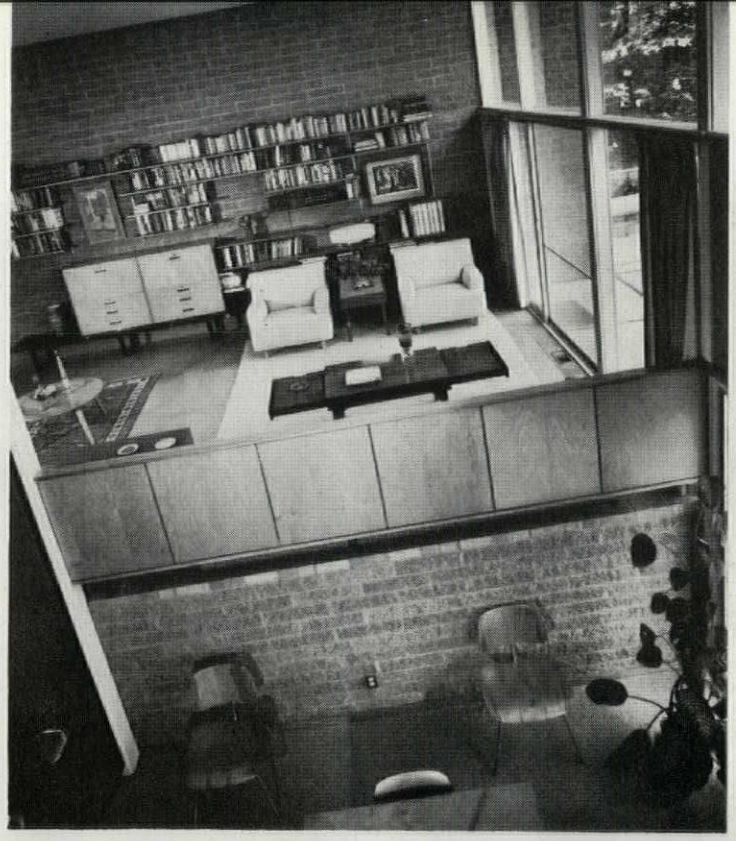
Masterful handling of space, both inside and out, distinguishes this Richmond, Virginia, house for which George Matsumoto was architect; Wayne F. Koontz, collaborator. The site has a 20-percent slope from an upper access road down to a lower drive, and sweeping view of the James River, to the north. The site also slopes from west to east. Shaping of the land is as ingenious as the intermeshing of the three interior levels. The house is placed about at center of the slope, and a portion above is leveled to form a sunny garden, protected from the access road by carport and planting. Terraces to the north, organized on two levels, open from both the family room/kitchen/dining areas and the intermediate-level living room. Bedrooms are a short flight up from the living room. Unlike conventional split-level solutions, the three levels here all open into each other, and remarkable variety and sense of spaciousness are achieved. For example, from the bedroom balcony (*across-page top*) one looks across the full-height dining room to the intermediate-level living room beyond. Cavity-brick end walls shield living areas from neighboring houses. Theodore Cecil Brown, Mechanical Engineer; Kayhoe Construction Corp., General Contractor.

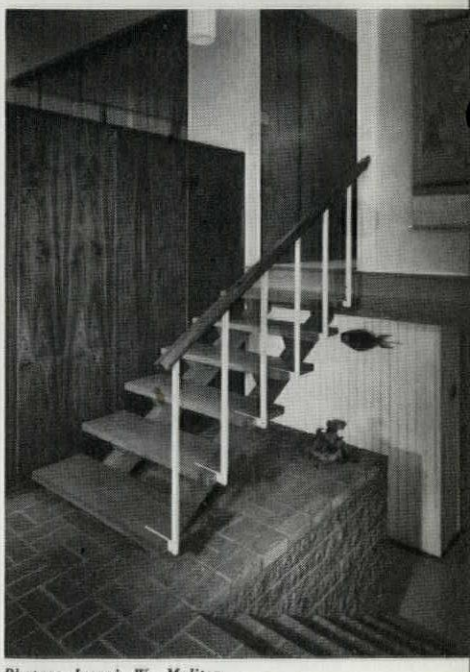
residential design "I believe that the first few conferences I have with the clients are the most important," says Matsumoto. "Frank discussion of their program, prejudices, budget, future needs, etc., shape the house along with the site. Only plans are submitted until some agreement is settled on the basic parti . . . ." Later, after numerous sketches have been made and plans and elevations are approved, details of cabinets, built-ins, storage, wall finishes, etc., are settled. Then, working drawings.



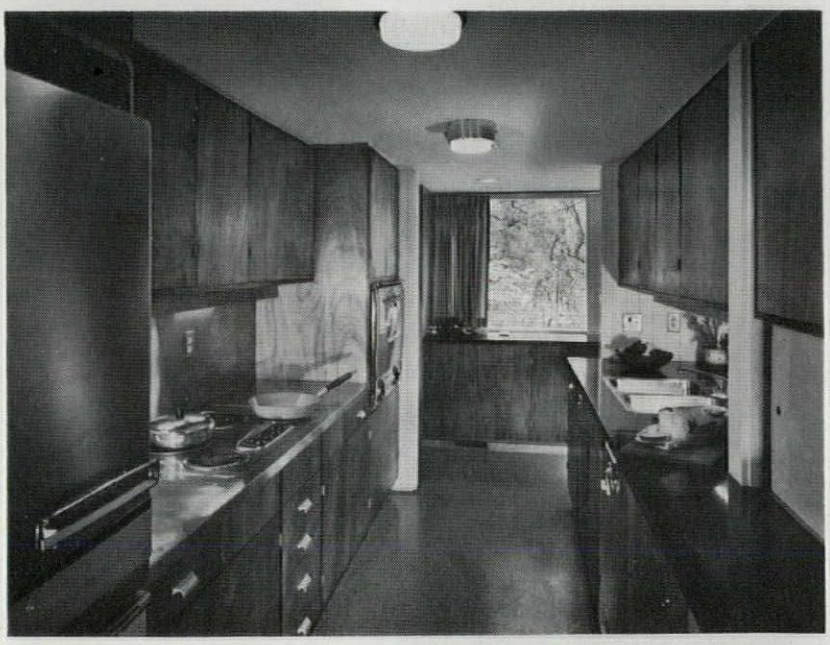








Photos: Joseph W. Molitor

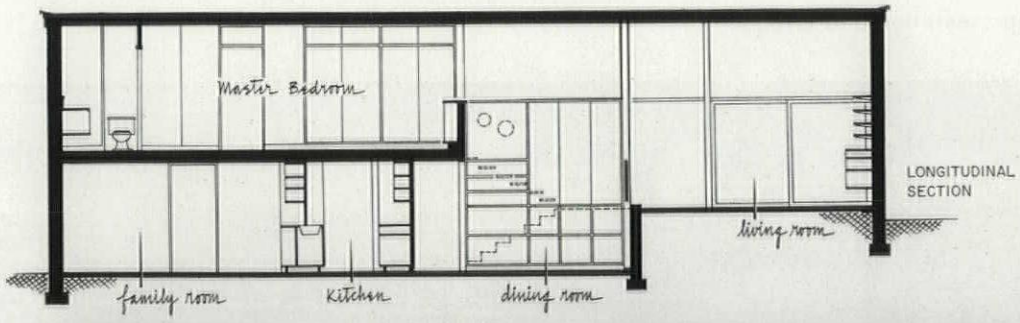


"From the outset, we wanted to 'feel' all three levels," comments Matsumoto. Key to the solution (see longitudinal section) *was the decision to make the central dining room* (acrosspage bottom) *a full-height, open well with railings, storage units, and nonwalled areas bordering it at the living and bedroom levels. A very special problem in the design of this house was the fact that the owners already possessed much excellent contemporary furniture, and spaces had to be dimensioned to accommodate the pieces.*

The kitchen (left) *constitutes a divider between the noisier family room and the main dining and living spaces.*

The owners' bedroom (acrosspage center) *is extra large and doubles as a study.*

This house won an Award Citation in P/A's third annual Design Awards Program.



LONGITUDINAL SECTION

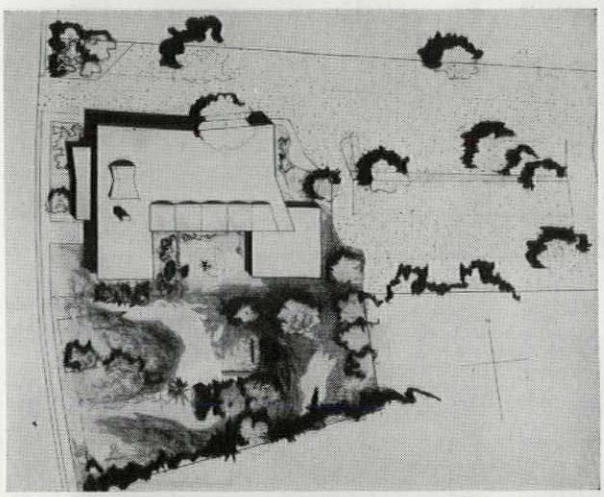
medical group center

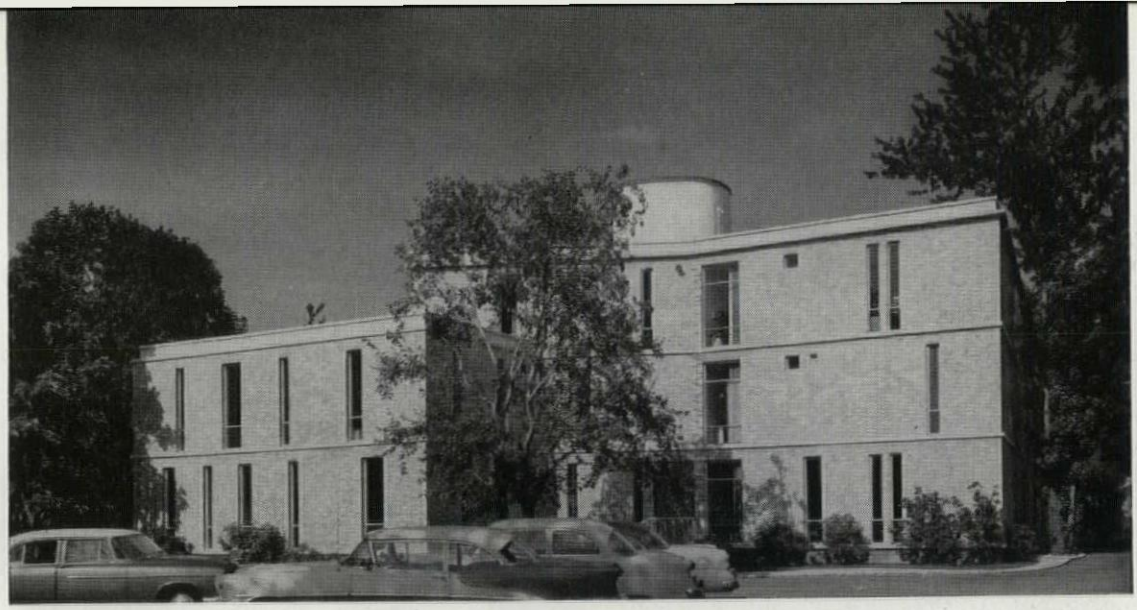
location | Hempstead, New York
architect | Basil Yurchenco

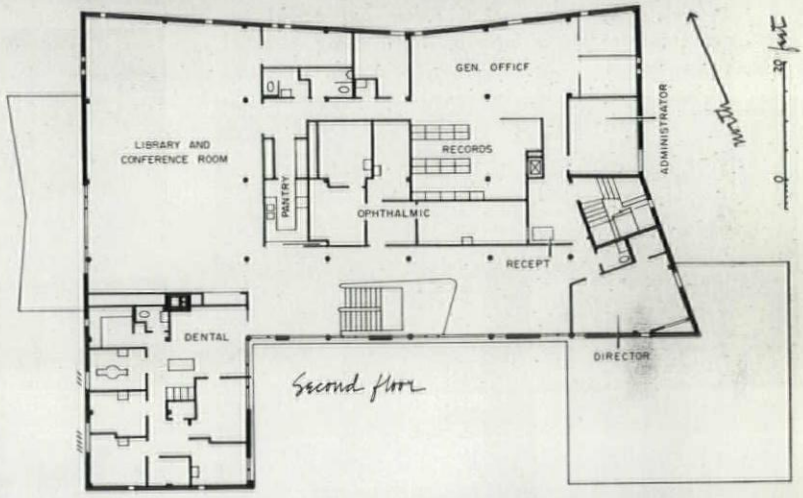
The architectural requirements for this clinic were necessarily complex since complete diagnostic and treatment facilities had to be provided for a full complement of medical specialists, as well as two general practitioners. Not only was it required that the many functions be organized in a smooth-flowing plan, but also that the building be planned for expansion and that costs remain within a moderate budget. On the other hand, writes the architect, "the clients were most co-operative in permitting the architect to control the total design—lighting, interior design, cabinetwork, furnishings, and landscaping—with the result that I could work to finer scale, interplay of light, shade, and significant detail."

Structurally, the building uses steel columns to support 2¾" concrete slabs on open-web joists. Exposed columns, projecting spandrels, vaults, stairs, are of white concrete. Glazed brick, in blue-green and brown-black tones, provide the outer wythe of the exterior cavity walls; cinder blocks are used on the inner surface.

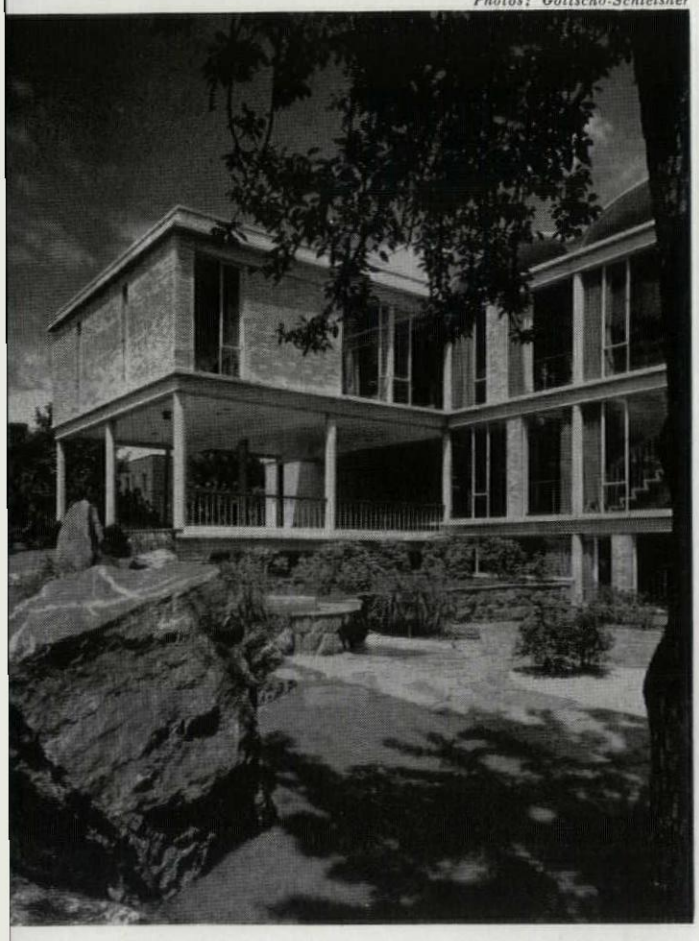
Albert Chang was Chief Draftsman and Clerk of the Works; Steve Ateshoglou, Structural Engineer; Harold Hecht Associates, Mechanical Engineer; Cort Mechanical Corp., Air Conditioning; Cuevas Martinez, Cabinetwork; Beaujean & Sons, Landscape Work; Kind & Co., Interior Planting; Murray Bederson, General Contractor.

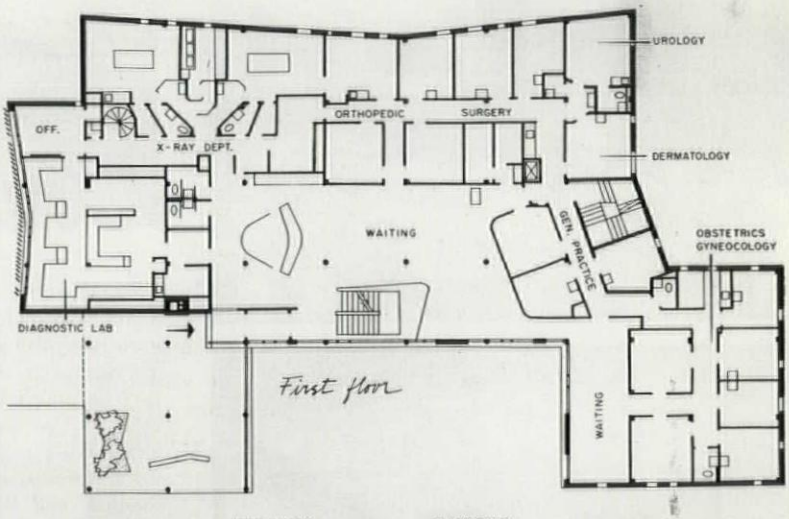


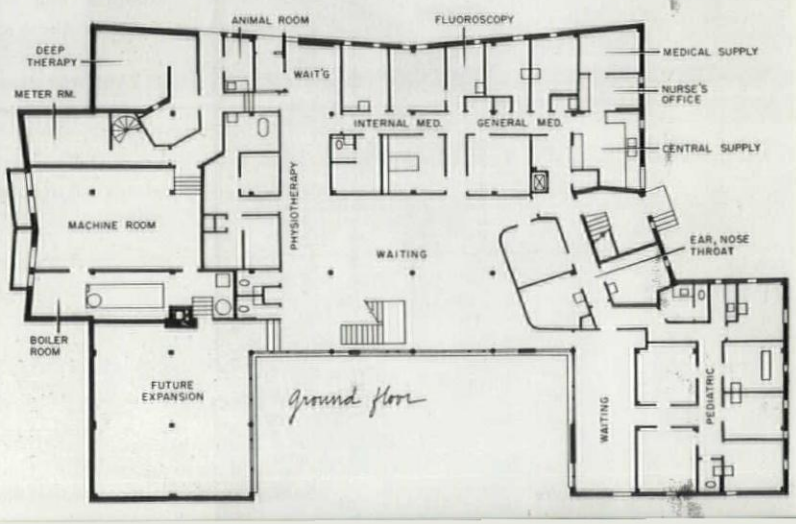


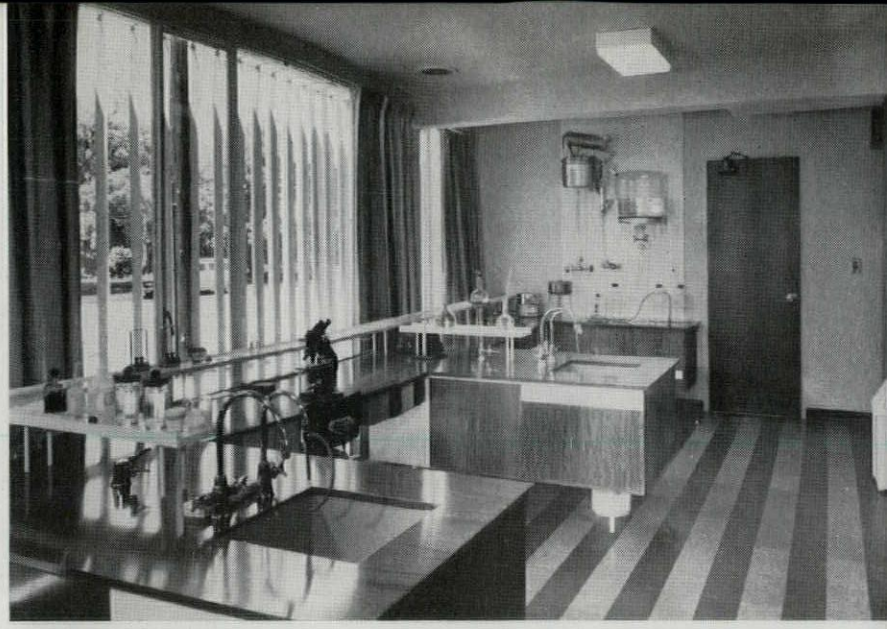


Photos: Gottscho-Schleisner

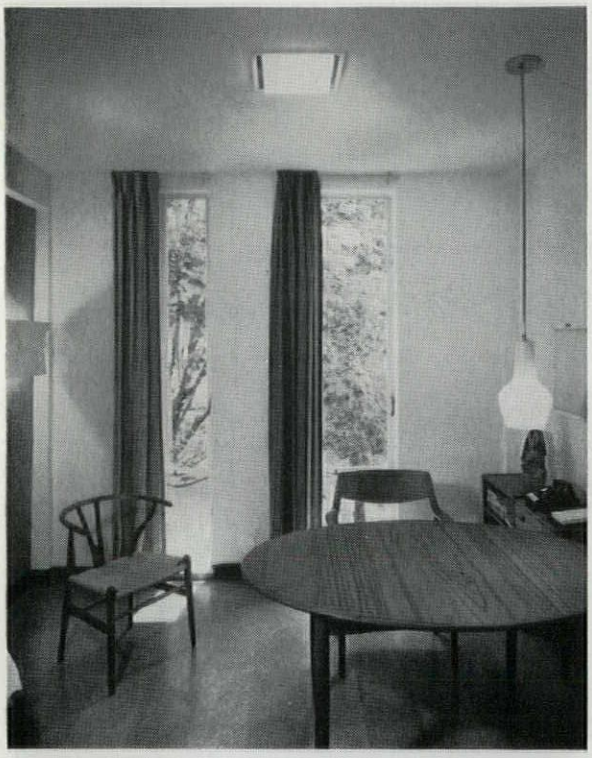


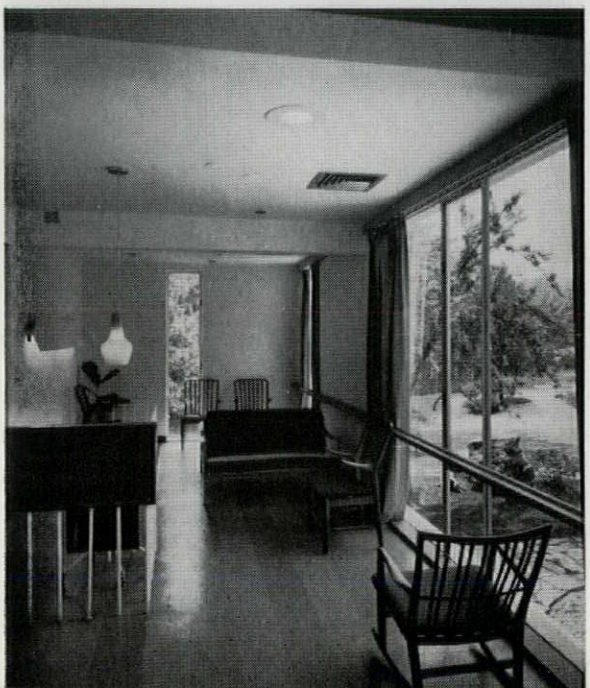






Fixed wood louvers shield the 680 sq ft laboratory (right) *on the street side from sun and traffic distractions. Instead of the traditional on-the-floor metal cabinets, the architect designed off-the-floor wood cabinets surfaced with plastic-laminated wood veneer. Desks and cabinets in the second-floor office area* (below right) *are also architect-designed. "The off-floor solution," he explains, "not only worked better but added considerably to the airiness of the working area."*





Throughout the building one floor color (alternating tones of cork-tone asphalt tile) and one wall color (off-white) were used. "This," writes Yurchenco, "permitted occasional painting of free walls in pure intensities, and enabled furnishings, color, and persons to be seen and related in their most plastic aspects."

Furnishings are for the most part Danish, Swedish, and Dutch products, specified not only for their fine workmanship but primarily for their proper relationship to the architecture.

Thus, the typical consultation room (top left) *contains a natural teak table, instead of the usual imposing front desk; the typical small waiting area* (below left) *uses delicately-scaled seating pieces, in lieu of the usual, over-stuffed leather sofas.*

In the molding of space and light the architect succeeded particularly well in the vaulted conference/lecture room (above), *and second-floor waiting area* (right). *For acoustical purposes, the undersides of the vault have been sprayed with 1" asbestos spray.*

Artificial lighting is incandescent as much as possible. Fluorescent lighting is limited to examination rooms and supplementary, decorative, strip-lights.

The building is air-conditioned throughout, using a split system to permit booster cooling or heating of certain areas, as well as cooling and ventilating of all interior rooms.

Heating is by radiant coils in the slabs of all waiting areas; elsewhere by coils in the ceiling.

Open, cantilevered stairs linking the waiting areas on the ground floor (left) *with the waiting spaces on the two upper floors, were approved after extensive discussion, during the planning stages, with the building department. This permitted the consolidation, on each floor, of most of the corridor space into a generous, useful, and attractive waiting area.*

the doctor/patient relationship restated

by Sibyl Moholy-Nagy*

It is strange and unpleasant for non-Americans to hear a doctor's consultation quarters referred to as "office," and to find it located in a business building shared by any number of physicians whose only identification is the "sheepskin" on the wall. There is something brutal and alienating in this indifference of the doctor's personality to his working environment that damages the the patient's confidence in personal interest, and sends him on the now-so-typical round, trying specialist after specialist as if they were crutches or arch supports. For a troubled, ill person to endure long waits in a lightless, airless cubicle, sitting on a sagging leather sofa, staring at a print of "Pasteur at the Microscope" is a depressing experience. It becomes intolerable when a child has to be kept at bay in this closet.

Thirty-six Long Island physicians, organized as a group under the Health Insurance Plan, decided to do something about this sorry state of ambulatory care. They felt that a constructive move had to be made, acknowledging the need for central medical facilities without relinquishing the personal character of the doctor/patient relationship. They turned to Architect Basil Yurchenco who has spent decades analyzing the problem of medical architecture from all possible viewpoints. In Hempstead, where the new Medical Group Center now stands, he was confronted with that insidious mixture of shabby commercialism and stunted "Garden City" flavor that has made Long Island the ugliest and most violated spot along the Eastern Seaboard. Perhaps it is the stark contrast between this vulgar environment and the Hempstead Medical Group Center that now emphasizes the delight of this architectural experience. It answers with proud affirmation the three basic questions that should be asked about any building claiming to be more than mere shelter:

Site Planning: Where does it stand?

Esthetics: How does it look? and

Function: How does it work?

The Hempstead building site had two scant natural assets that had escaped the bulldozer: a curtain of leafy trees on the property line and a ground slope. By orienting the main elevation of the building away from the street and toward the trees, the architect gained several advantages. The glassed area of the main lobby faces south and benefits from the sun. The waiting patients see only a richly—for this visitor's taste, perhaps a too-richly—landscaped garden. During a short reprieve, they are shielded from the sight and sound of traffic. The street elevation emphasizes this withdrawal that is inherent in the function of the building. The laboratory, which takes up most of the street façade, is protected from direct light and visual intrusion by fixed louvres in delicate shades of blue, yellow, and white. They challenge the dull uniformity of Clinton Street with a pleasant visual accent, emphasizing that this is neither a residence nor a place of business. But the most evident advantage of having the main building facing the grounds is the entrance, which should be large and conspicuous in a public service structure. The 27′x30′ covered entrance terrace, created by the projection of the dental offices, would have forced the building back on the grounds if the traditional street orientation had been maintained, resulting in the usual (and useless) front lawn. Placed to the side, the ample covered terrace supplies a weather barrier between indoors and outdoors for patients waiting for transportation, and it presents to each visitor a full view of the garden, as a first booster shot for his troubled spirits.

The second question—*How does it look?*—can be answered only subjectively, based on the personal taste of the viewer. For this critic, there exists an esthetic discrepancy between the faultless visual harmony of the interior and the unfused elements of the exterior. Transparent view from the street and Cyclopean rear view are unrelated to each other. The gray, mat brick gives to the walls a subtly textured skin that is all but crushed by stone cornices of oppressive weight. Vertical windows of excessive narrowness break up this over-emphasized horizontality but their geometric linearity is cold and unpleasant, as if cornice and window slot gave a discordant echo of Behrens and Oud. This constructivist hangover is agreeably muted by the continuous barrel vaults of the main body which—especially at night—overrule the jarring cornices.

It is the particular merit of these continuous vaults that they are much more than esthetic counterpoints. Thev dominate the interior in a most original variation of the ancient skylight theme. On the second level, which is the top floor of the building, the vaults are finished in rough acoustical plaster that is continuously animated by the flux of natural light. For an exceptionally long and narrow space of 60′x16′ this provides a rhythmic animation that draws the eye forward and upward. In the handsome conference and lecture room the same theme is repeated. Here the vault is a hyperbolic-paraboloid concrete shell, its soffit smooth and light-reflecting. It achieves a visual illusion of verticality by adding the expanse of the sky to the rather scant height of the walls.

The purity of the sky panorama, included within the architectural concept, is perhaps the subtlest artistic touch among the rich evidences of the architect's role as an artist in this building. It is futile to write about color schemes. Here they are perfect, based on brightness that never becomes shrill, from the co-ordinated furniture coverings against complementary colored wall planes to the exquisite variations of the window draperies. It is a great relief to find, for once, the curtain back for its original function—to be drawn at night and to give color accents to the *interior*, instead of acting as exterior-wall decoration because some architect found it the easiest way of relieving the crashing boredom of his modular façade. An Italian Rococo goddess blends effortlessly with modern furniture and planting because there are no excesses. One accent is counter-

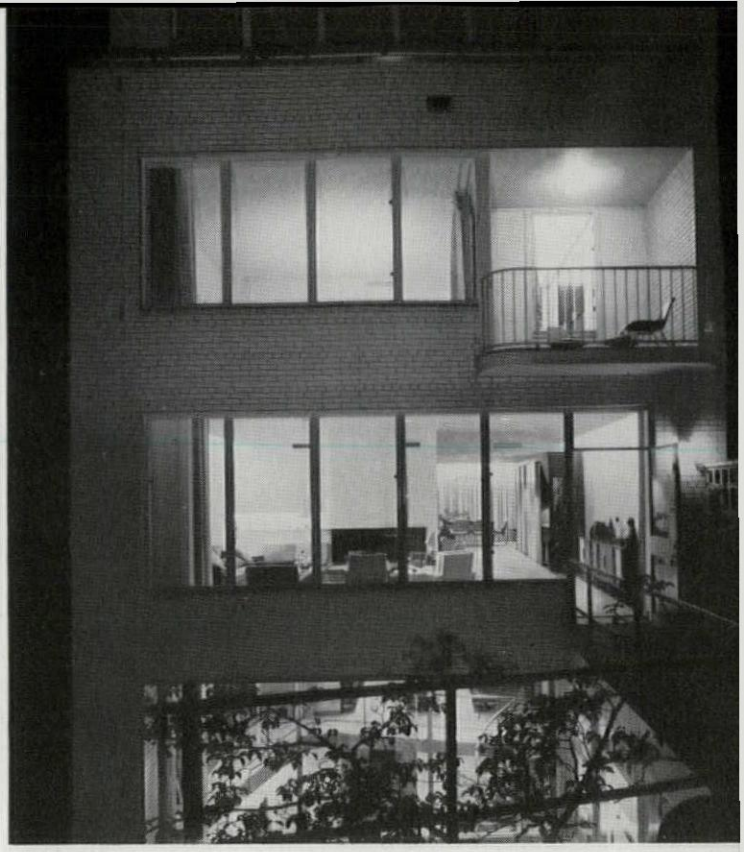
* *Author, critic, professor of architecture, Pratt Institute, Brooklyn, N. Y.*

pointed by the adjoining one: a free-form planting table under the austere angularity of a cantilevered concrete stair that forms the vertical axis of the building; or a curved, textured, wood wall composed of standard moldings, reflecting on the aseptic polish of asphalt tile. A particularly pleasing textural accent is provided by natural grain of mahogany doors and teak furniture, giving the impression that the architect's care extended to every table surface, even to its shape that carefully avoids the "man-behind-the-desk" impression. The exclamation-mark windows that seem unfortunate on the exterior make sense in the interior. They break up the confining four walls of the necessarily small consultation rooms with a lovely floor to ceiling vista. In an age hopelessly addicted to designing exteriors alone, Basil Yurchenco has reaffirmed that a building receives its meaning from the enclosed space. Here his esthetic is superb, even if the outer form sometimes falls short of this truly spatial perfection.

And *How does it work?*—this well placed, beautifully appointed center for medical care. An evaluation of functionality can come only from a patient's standpoint, since the requirements of the practicing physician are of a different and highly specialized order. An observant patient would rejoice in several aspects of efficient planning, evident even to the layman. One is the breaking up of specialized areas according to the type of patient. Children are on the ground floor, well out of the way of adults on the main floor and close to fountains, pools, and plants of the yard. The main floor, with no stairs to climb, is reserved for general diagnosis, X-ray and other laboratory tests which often involve accident and fracture cases. The second floor has dental and ophthalmological offices which do not presuppose walking difficulties. General office space, with typewriter and telephone noises, is also located here, isolated from the main areas of medical consultation. It was no minor feat to accommodate twenty-odd consultation and examination rooms plus numerous satellite spaces, such as toilets, storage, locker and lab facilities, on three floor areas, each 129.2′x80.7′. The architect has solved it without ever resorting to the stacked-box and tapeworm-corridor system—and with his masterly plan has expressed the very essence of the whole project. A doctor, his nurse, and the patient form a family unit that moves freely and privately from consultation room to examination room and to other necessary spaces. This family unit is characterized and differentiated by a distinctive location, layout, and decorative scheme that identify the doctor with his environment and the patient with his doctor. There is a carefully thought-through transition from vestibule to large reception area, to small waiting room, to consultation room: a gradual withdrawal from mass existence to privacy.

Despite so many exceptional features, this is not a conspicuously rich building. A decent economy is noticeable, whose foremost feature is the blessed absence of disjointed design specialists who vie with each other in the design of color schemes, lighting, and furnishings. One hand designed, one taste decided in the Hempstead Medical Center, bringing a joyful realization that there still exist architects who practice their calling as "a universal art for universal man."

Centuries ago, the dwellers in mud-brick hovels and dark narrow-chested half-timber houses received from their cathedrals a lift of spirit and senses that must have restored their faith in the ultimate beauty of man's works on earth. The suburban middle class that constitutes the chief clientele of this medical center belongs to an undevout and unesthetic age. But patients cannot help absorbing, consciously or subconsciously, an atmosphere of unobtrusive refinement and calm beauty that will heal their contaminated senses, as their doctors heal their sick bodies.



town house/research library

location	New York, New York
architect	Felix Augenfeld
associated architect	Jan Hird Pokorny
interior designer	Felix Augenfeld

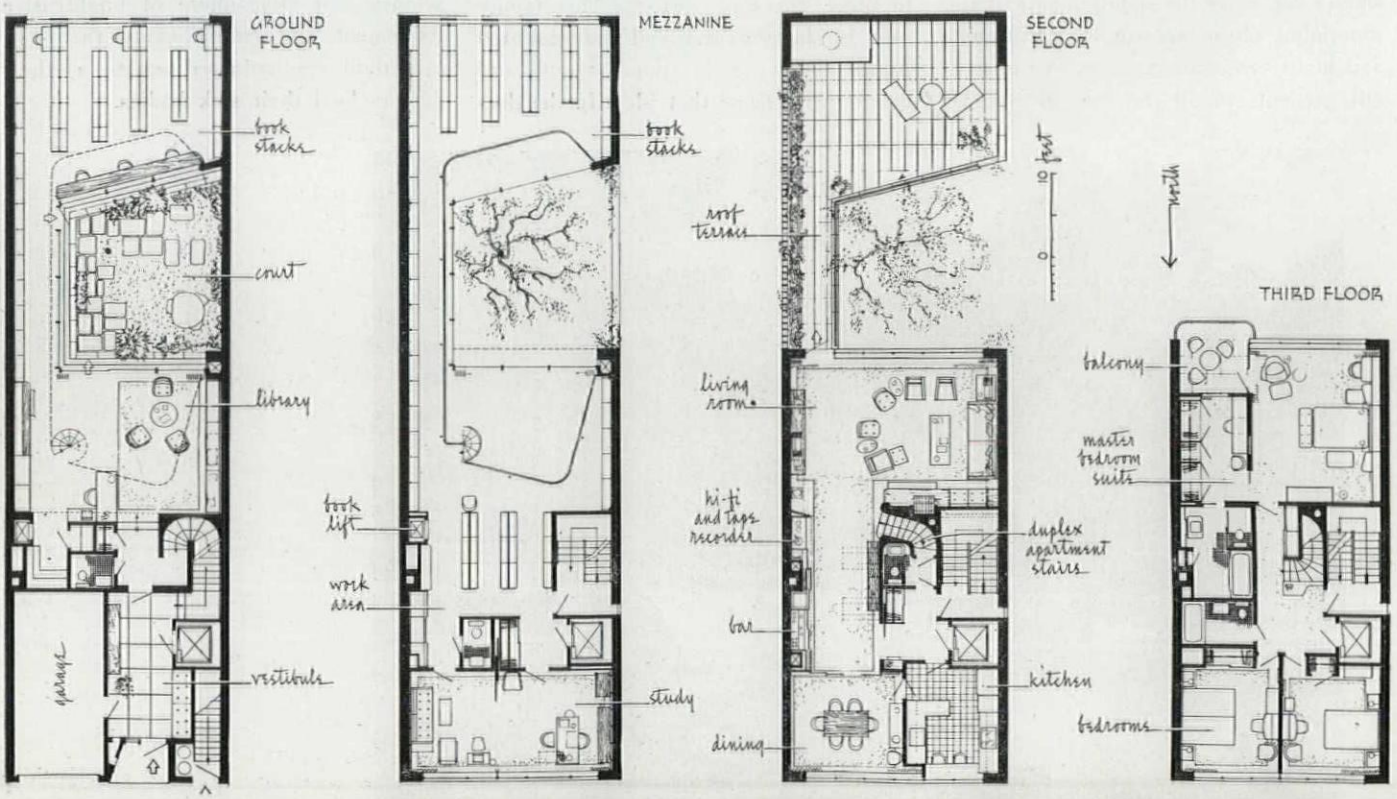
Unusual requirements for this specialized building, on a narrow city lot, were: arranging the client's 50,000-volume library so that it could be used by students of special fields without disturbing the owner; and providing a quiet, seasonal residence for the owner, his wife, and their guests as well as a top-floor apartment for a librarian, and a garage.

On the ground floor and mezzanine, the library receives daylight from a glass-walled patio. An effect of deep transparency in what is actually restricted space is created by clear views through the patio and house (book stacks run longitudinally, too). A spiral stair in the reading lounge, an interior stair from ground floor to basement book storage, and a book elevator for all three library floors make the library circulation independent of the rest of the building. Although the owner's study on the mezzanine is linked to the library, the duplex provided for his residence is separate.

Steel-frame structure on concrete foundation has, on lower three floors, loadbearing side walls, floors of reinforced concrete. Loadbearing steel columns of steel shelving on these library levels support floors. On upper levels, walls are brick; floors, wood.

Forced hot-water heating system has two multizone air-handling units: one for library, the other for residence areas. For cooling, a packaged chiller unit in the penthouse supplies water to the cooling coils. The same ducts are used for cooling or heating. Either zone can be cooled when other is being heated.

Winfield S. Bondy was Mechanical Engineer; A. D. Ateshoglou, Structural Engineer; E. W. Howell Co., Contractor.



Photos: Alexandre Georges

Library's sense of space, height, and openness is created by enclosed garden, balcony suspended from ceiling—designed to place all book shelves within easy reach without usual low ceilings. Night view shows duplex residence (acrosspage) *above library.*

town house/research library

An extraordinary integration of efficiency and esthetics is achieved by Architect Felix Augenfeld in his plan of interior spaces; choice of colors and easily maintained surfacing materials; meticulous attention to specially designed lighting, storage, and furniture details. Glass-walled garden graces library with view and light *(above)*; open, curved mezzanine places all shelves within easy reach, expands sense of spaciousness and transparency with height *(acrosspage top)*. Elegant simplicity, intimacy, comfort are echoed in owner's study *(acrosspage bottom)*, which may be divided in two by sliding panels. BARBARA J. MELNICK

data

Color Plan: Brilliant white (flooring, ceiling, window framing, furniture) and warm yellow (rug, cabinet, side garden door) add light, space; are enriched by teak paneling, sparked by red chairs, intense blue of book shelving. Mellow walnut-paneled study has quiet, pale-green rug, vibrant accents in red chairs.

Ground Floor and Mezzanine

cabinetwork

Suspended Storage Cabinet: teak/sliding-doors yellow Formica/white Formica top/architect-designed. **Book Shelving:** standard steel/blue finish/Art Metal Construction Co., Jamestown, N.Y.

doors, windows

Glass Window Wall: steel frame painted white/Hope's Windows, Inc., 1940 Chadakoin St., Jamestown, N.Y. **Sliding Glass Door:** Arcadia Metal Products, 801 S. Acacia St., Fullerton, Calif. **Swinging Door:** painted yellow. **Locksets:** Schlage Lock Co., 2201 Bay Shore Blvd., San Francisco, Calif. **Hinges:** Stanley Works, 784 Lake St., New Britain, Conn.; Oscar C. Rixson Co., 9100 W. Belmont Ave., Franklin Park, Ill. **Window Blinds:** pale gray/Thru-Vu Vertical Blind Corp., 113 Calvert St., Harrison, N.Y.

equipment

Central Air Conditioner: The Trane Co., 206 Cameron Ave., La Crosse, Wis. **Spiral Stair:** oak treads/cherry rail/blue-painted steel/architect-designed.

furniture, fabrics

Armchairs: walnut/Finn Juhl design/Frederik Lunning, Inc., 667 Fifth Ave., New York, N.Y.; red upholstery/Rancocas Fabrics, 24 E. 56 St., New York, N.Y. **Side Chairs:** red upholstery/Herman Miller Furniture Co., Zeeland, Mich. **Round Table:** white Formica/Herman Miller Furniture Co.

lighting

Hanging Fixtures: white reflectors/Finland House, 41 E. 50 St., New York, N.Y. **Recessed Ceiling Lights:** Century Lighting, Inc., 521 W. 43 St., New York, N.Y. **Library Stack:** fluorescent/Lightolier, Inc., 346 Claremont Ave., Jersey City, N.J.

walls, ceiling, flooring

Walls: teak panels/built-in Adapt-A-Strut channels, brackets/Garcy/Garden City Plating & Mfg. Co., 1750 N. Ashland Ave., Chicago, Ill. **Ceiling:** plaster painted white. **Flooring:** vinyl/white/terrazzolike/Robbins Floor Products, Inc., Tuscumbia, Ala. **Rug:** yellow cotton/Vogue Carpet Corp., 515 Madison Ave., New York, N. Y.

Study

cabinetwork, partitions

All: walnut/architect-designed. **Sliding Partition:** walnut/divides study in two.

door, windows

Doors: walnut. **Draperies:** glass fiber/green print on white/Laverne, Inc., 160 E. 57 St., New York, N.Y.

furniture, fabrics

Desk: walnut/Lehigh Furniture Corp., 16 E. 53 St., New York, N.Y. **Typing Table:** architect-designed. **Chairs:** red upholstery/Knoll Assoociates, Inc., 575 Madison Ave., New York, N.Y.

town house/research library

data

Living Room

Design Theory: Gracious, quiet living space is extended outdoors to terrace loggia on roof of rear library wing; or, for entertaining, to front of house, through passage, where sliding panels may close off dining room. Cove lighting—at east, west walls, built-in marble shelf in fireplace wall—and hanging fixture on dimmers, create desired ambiance.

Color Theory: Warmth, richness, tranquility are conveyed by deep yellow rug; white and pale-yellow walls; white ceiling, tables; beige marble; walnut woods; deeper intensity of red and gold, accented by moss green, black fabrics.

cabinetwork, partitions

All: architect-designed. **Living-Room Cabinet:** walnut/sliding doors painted. **Passage Storage Wall:** for bar, TV, hi-fi, tape recorder/walnut/sliding doors, gray, yellow Formica. **Partition Between Passage, Dining Room:** sliding/walnut/polyplastic.

doors, windows

Blinds: white/Thru-Vu Vertical Blind Corp. **Draperies:** beige Olympia/hand-woven/Jack Lenor Larsen, Inc., 16 E. 55 St., New York, N.Y.

furniture, fabrics

Built-in Bench: beige marble/architect-designed. **Seating:** red, gold fabrics/gold, black, moss-green pillows/Knoll Associates, Inc.; custom-made. **Walnut Tables:** architect-designed. **Oval Pedestal Tables:** white/Saarinen design/Knoll Associates, Inc.

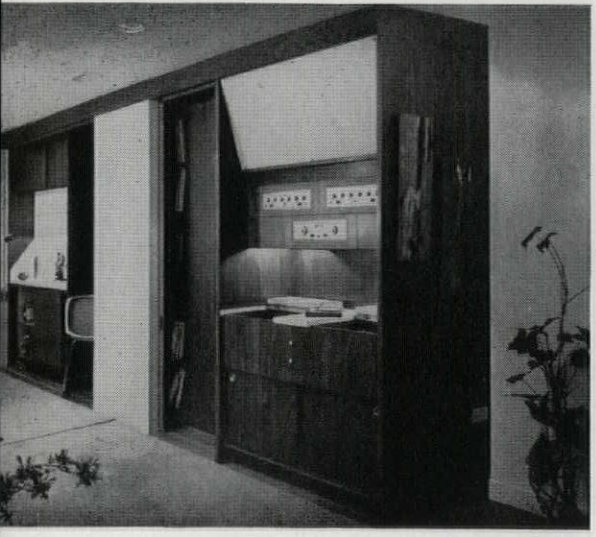
lighting

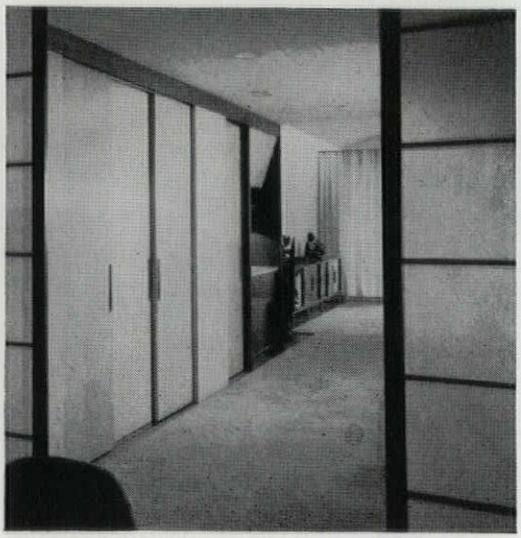
Recessed Ceiling: Century Lighting, Inc. **Hanging Fixture, Fluorescent Cove Lighting:** architect-designed/custom-made/Koch & Lowy Mfg. Co., 201 E. 34 St., New York, N.Y.; on dimmers/The Superior Electric Co., Bristol, Conn.

walls, ceiling, flooring

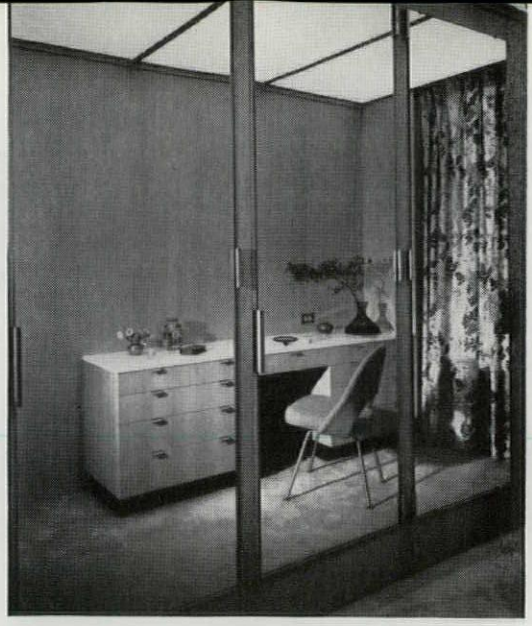
Walls: plaster/painted white, yellow. **Ceiling:** plaster/painted white. **Passage Walls, Ceiling:** Japanese grasscloth, beige. **Flooring:** oak. **Rug:** yellow wool/Vogue Carpet Corp.

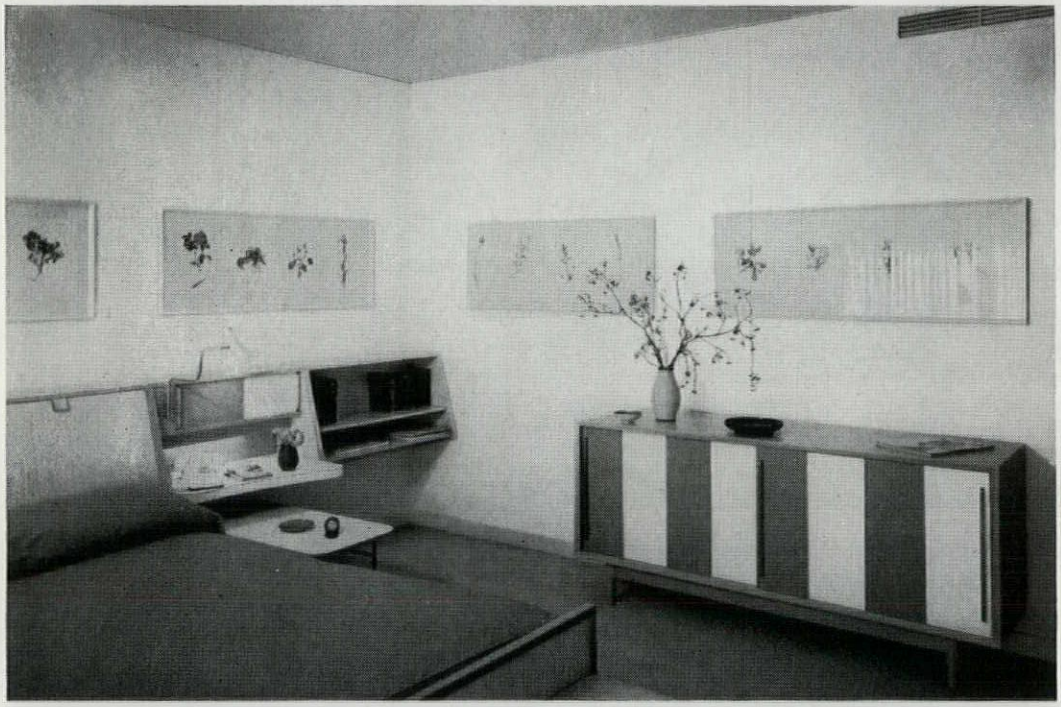
storage wall in passage between dining room, living room





town house/research library





data

Bedroom and Dressing Room

Design Theory: Master bedroom opens onto small terrace over patio garden, also into compact dressing room (reflected above in mirrors of its built-in closet wall). Suspended units eliminate clutter for simplicity, allow space for special movable bedside tables.

Color Plan: Spaciousness and serenity of white walls and ceilings, pale-green rug, light wood, warmth of gold armchair, are accented by purple chair, blue used with white Formica on sliding doors of desk, cabinet.

cabinetwork

All: architect-designed. **Built-in Headboard, Desk, Shelves:** pale Korina wood/natural finish/white Formica shelves/sliding doors blue, white Formica/off-white horsehair fabric on headboard, bench. **Dresser:** Korina wood/white, blue Formica sliding doors. **Dressing Room Counter/Chest:** Korina wood.

doors, windows

Doors: glass/Korina wood. **Blinds:** white/Thru-Vu Vertical Blind Corp. **Draperies:** sheer linen/green print Bouquet Garni/Jack Lenor Larsen, Inc.

furniture, fabrics

Chairs: yellow arm chair/lavender desk chair/red dressing room chair/Knoll Associates, Inc. **End Table:** white/Saarinen design/Knoll Associates, Inc. **Bedside Tables:** white Formica/casters/architect-designed.

lighting

Built-in at Desk, Shelves: fluorescent. **Headboard Reading Lights:** architect-designed/custom-made/Koch & Lowy Mfg. Co. **Floor Lamp:** Altamira, 18 E. 50 St., New York, N.Y. **Dressing Room:** luminous ceiling.

walls, ceiling, flooring

Walls: plaster, painted white/Korina wood. **Ceiling:** plaster, painted white. **Flooring:** oak. **Carpeting:** light green/wool/wall-to-wall/Vogue Carpet Corp.

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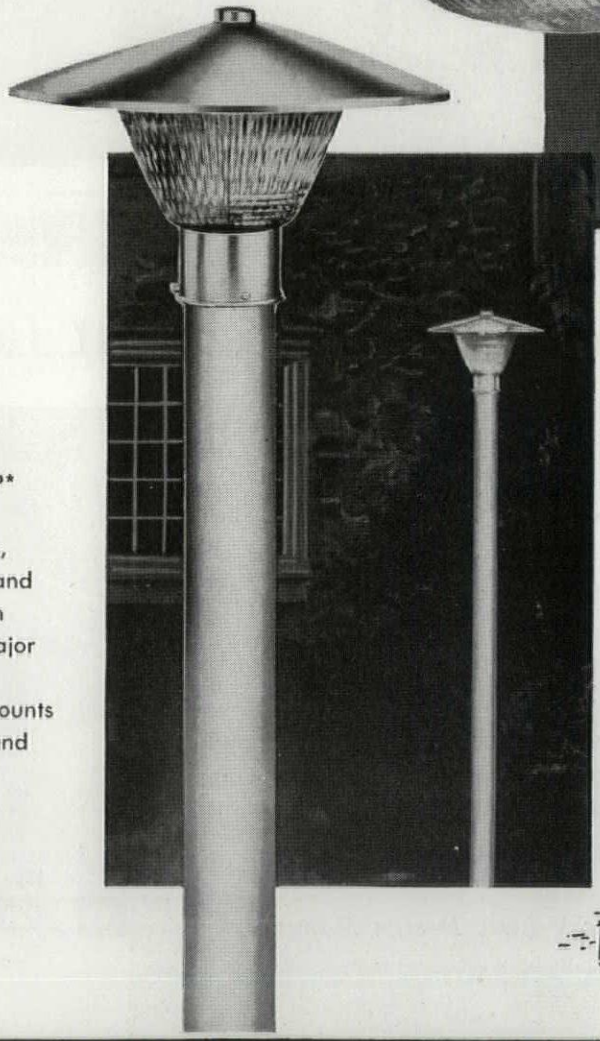

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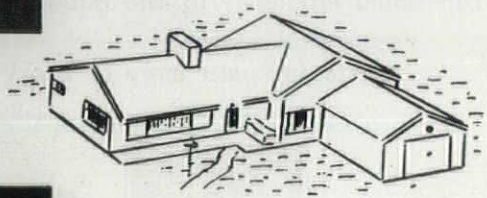

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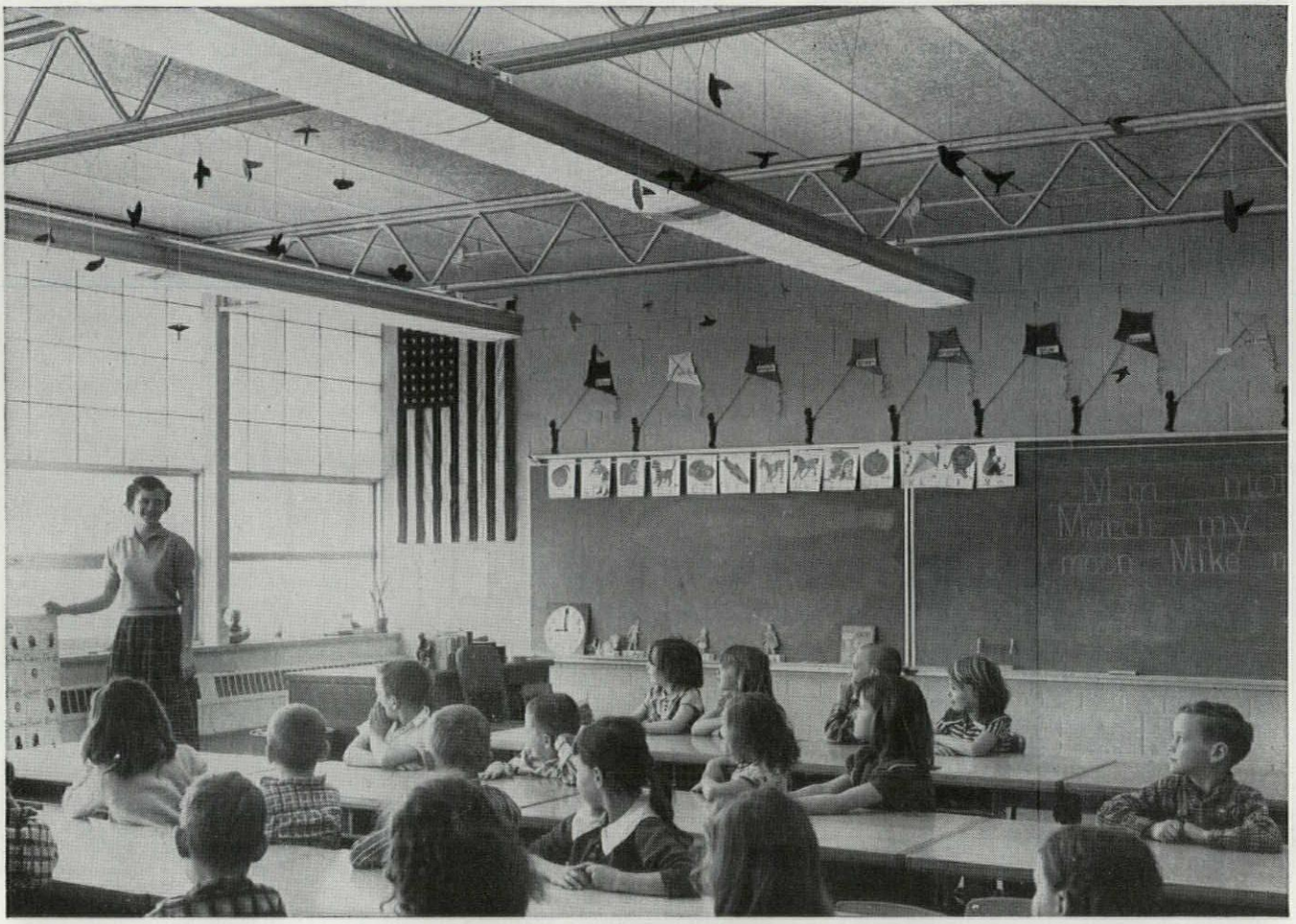

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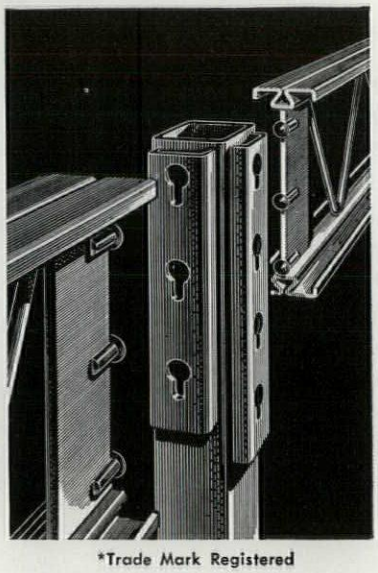

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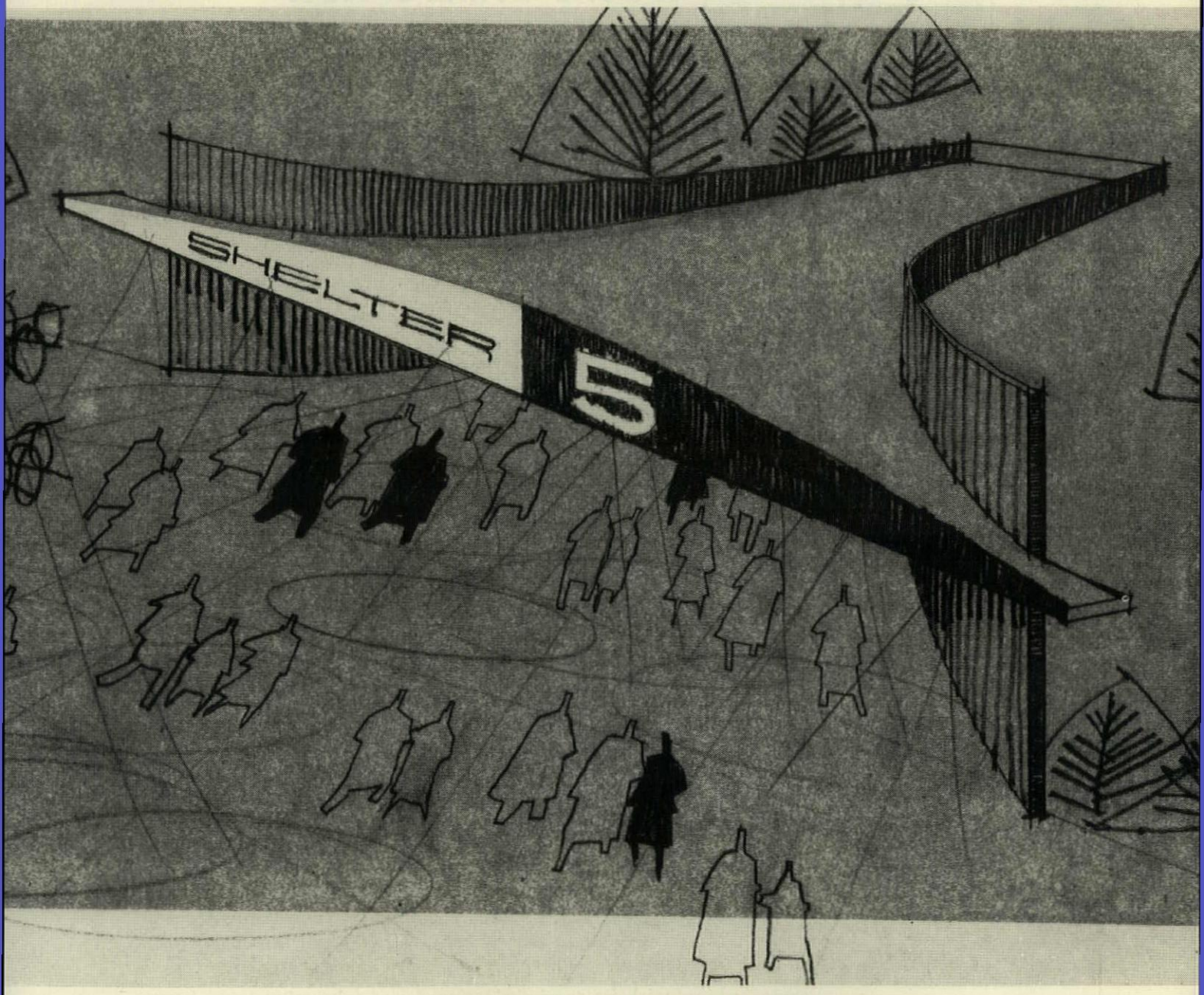
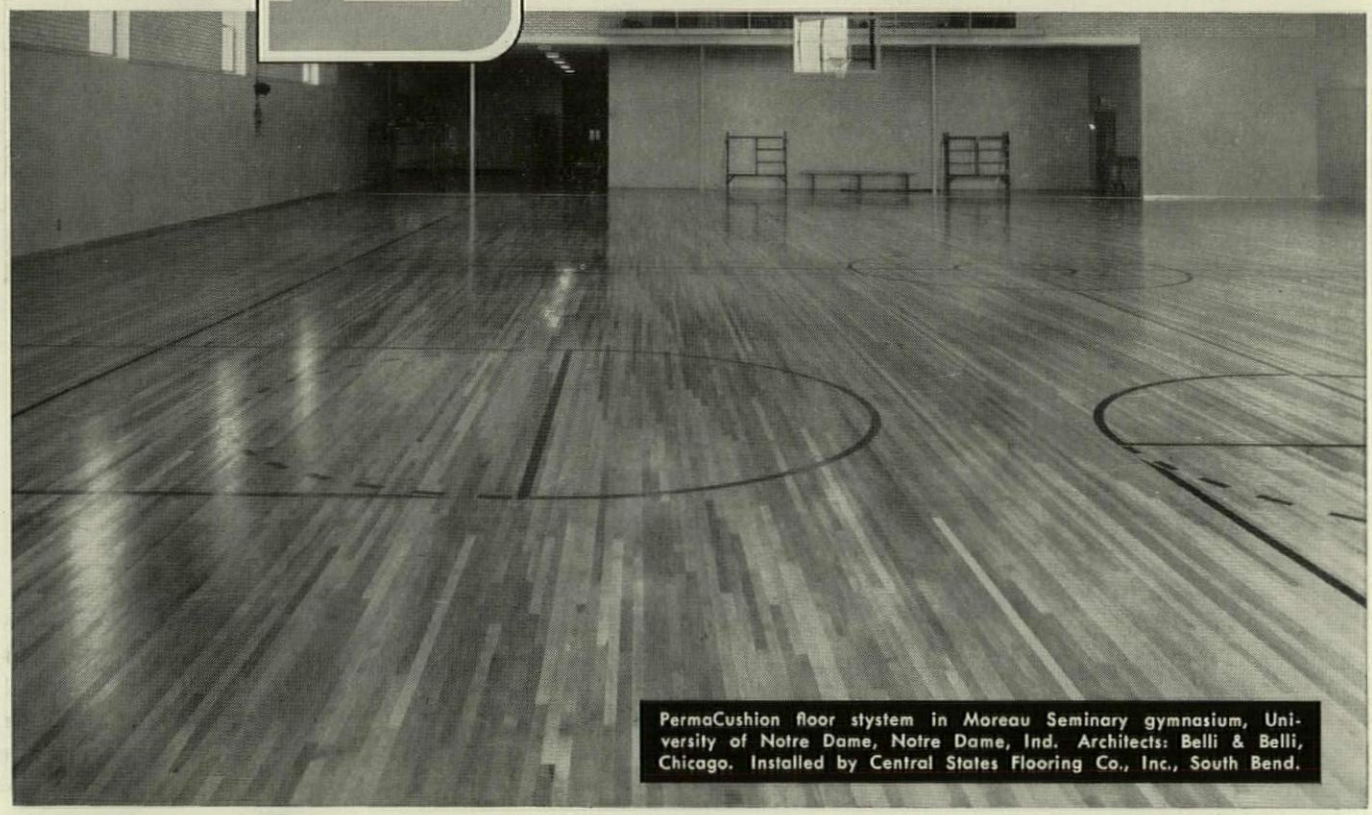


- Architects, Engineers Collaborate on Civil Defense Plan (above)
- P/A Design Awards Banquet Celebrated in San Francisco
- Design of "Grand Central City" Accepted
- Multipurpose Building Panel is Incombustible, Weatherproof

FOR ND NOTRE DAME'S NEW MOREAU SEMINARY GYMNASIUM:



PermaCushion floor stystem in Moreau Seminary gymnasium, University of Notre Dame, Notre Dame, Ind. Architects: Belli & Belli, Chicago. Installed by Central States Flooring Co., Inc., South Bend.

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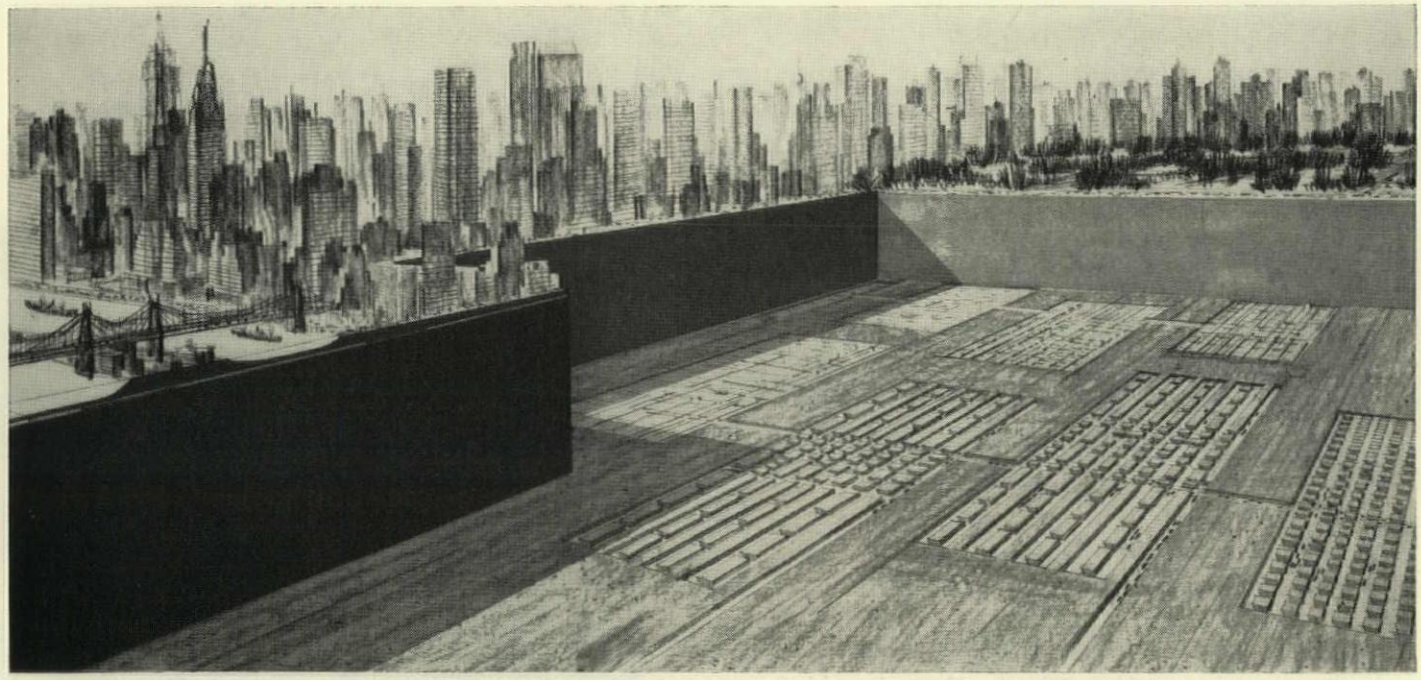


ARCHITECTS, ENGINEERS COLLABORATE ON CIVIL DEFENSE PLAN

4,000,000-Capacity Refuge for Manhattan Studied

NEW YORK — The Office of Civil Defense and Mobilization has been handed an Orwellian scheme for sheltering from bomb-blast and fallout the 4,000,000 people who live, work, or visit in Manhattan. The report is part of OCDM's continuing program of feasibility studies for shelters in various cities, and was prepared by Guy B. Panero Engineers, with Paul Weidlinger as Structural Engineering Associate and Hood & Manice as Architectural Associates.

Four criteria were established for the Manhattan Shelter Study: (1) maximum-safe shelter depth; (2) 30-minute warning period; (3) 90-day occupancy; and (4) provision for 100 percent of the island's population. Twenty-five shelter groups or "base modules," designed to protect 160,000 persons each (above), would be situated throughout the city according to population density. Each unit would be sunk 800 ft into Manhattan's granite base; huge natural-rock pillars being left for supports.

Access to the shelters would be mainly by steep ramps (below right) and chutes (below). Some of the ramps would be continuous from surface to shelter; others, because of space limitations, would change direction at intervals to limit total, net, horizontal travel. The chutes would descend steeply for the greater length of the journey, flattening out at the end of the incline. Crippled and sick would be transported by elevators or by rock conveyors. The typical base module would have three entries, each 20 ft wide and 12 to 14 ft high. Entries in the densely populated business areas would be 40 ft wide by 18 ft high.

Each base module—or 160,000-person community—would contain five submodules harboring 31,000 persons, plus a central "headquarters" for 5,000 members of the "service area cadre" who would oversee the operation of the complex, assign quarters, and control traffic between "communities." Each submodule would contain its own facilities, including administration, nursery, showers and toilets, mess halls, police quarters, and storage areas. Units within each base module would be connected by roadways; and roadways between the base modules would allow relocation of people within Manhattan or to shelters in other boroughs of the city and surrounding areas.

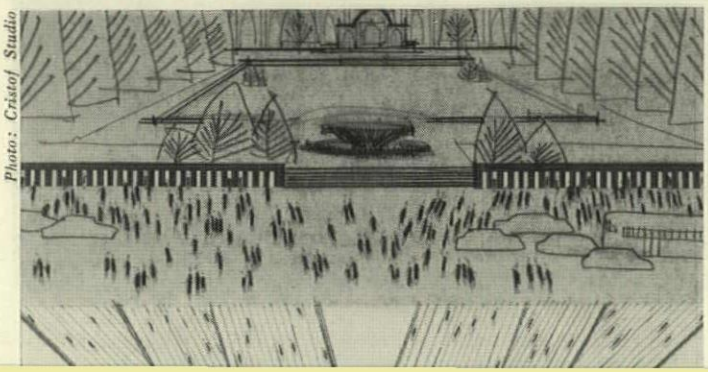
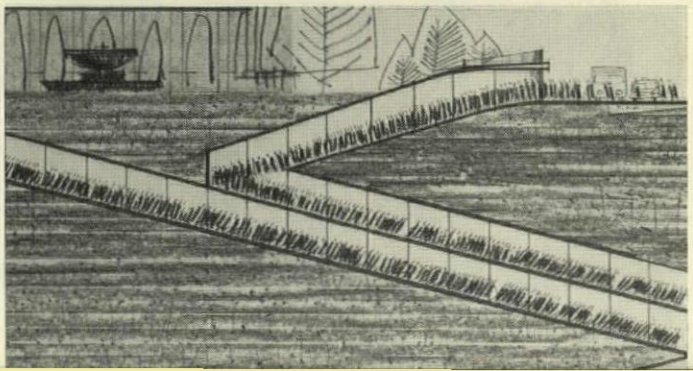


Photo: Cristof Studio



P/A DESIGN AWARDS BANQUET CELEBRATED IN SAN FRANCISCO

Ovation Given Yamasaki for Principal Address

SAN FRANCISCO—Architects, designers, and engineers from all regions of the country, plus a healthy turnout of city and state officials, assembled at Fairmont Hotel atop Nob Hill, January 16, to participate in the Sixth Annual Progressive Architecture Design Awards Banquet. After a P/A reception for the Winners and local architects, the Northern California Chapter of AIA co-sponsored the banquet. This is a yearly event to honor Winners of the P/A Design Awards Program (see JANUARY 1959 P/A).

After a welcome from Chapter Pres. Donald Powers Smith, official congratulation to the Winners was offered by San Francisco Mayor George Christopher, who termed architects the "doers" in today's urban redevelopment programs. P/A Editor Thomas H. Creighton then presented Design Awards and Award Citations to the Winners, illustrating each design with slides and comment from the Design Awards Jury. James Scheuer, co-sponsor with Roger Stevens of the First Design Award-winning project, in accepting the award for the client, stated that in large-scale urban redevelopment, "good design is good business," and that the responsible entrepreneur enlists first-rate architectural talent. The major address of the evening (see pages 154-155) was given by Detroit Architect and P/A Design Awards Juror Minoru Yamasaki. This reassessment of our aims in American architecture received a thunder of applause from the audience.

The day following the banquet, a well-attended P/A Design Seminar was held at the School of Architecture, University of California. Three of the premiated projects were discussed in some detail. They were: Capitol Towers in Sacramento (Wurster, Bernardi & Emmons, Edward L. Barnes, and DeMars & Reay); Robert Mueller Municipal Airport Terminal, Austin, Texas (Fehr & Granger); and University of California Residence Halls, Berkeley (Carl I. Warnecke-John Carl Warnecke).

Yamasaki McPhee Barnes Wurster Mayor Christopher

Photos: Cristof Studio

Donald P. Smith

Birkerts Stageberg Thorsen

Alexander Creighton Neutra

Mr. & Mrs. King

Henniger Creighton

Campbell Obata

Granger Crume Fehr Blum

Steinhardt Thompson

Mrs. Steinhardt Fehr Steinhardt Ketchum Crume Bradford Mrs. DeMars Lanigan Mrs. Bradford DeMars

Mr. & Mrs. Carl Warnecke

Price

Evans Mrs. John Warnecke Mrs. Chan Warnecke Mrs. Neil Smith Smith Mrs. A. A. Hoover Hoover

Scheuer Wurster Barnes Reay DeMars Dreyfus Halprin Bernardi

"I AM FOR DELIGHT IN ARCHITECTURE"

Yamasaki's Address at P/A Design Awards Banquet

This competition in its various forms —the awards presentation, the criticisms, and the publication—because of its great contribution to design is the most important annual occurrence of our architectural world. May I suggest, therefore, that we thank PROGRESSIVE ARCHITECTURE and vote it, too, a top award for the event of the year.

Through my memory's blur of the images of hundreds of designs (examined by the Jury), I remember the persistent search for new form and texture which prevailed through the entries. This attempt at enrichment characterized designs from all regions, their very frequency seemed to presage a national movement. The efforts varied from building to building in intensity. Some were timid, some bold, and some hysterical. There were rows of gables or simple folded slabs, there was a gamut of shells and grills of every description. A few were thoughtfully conceived designs like Fehr & Granger's Austin airport building. Many were discordant additions pasted to simple buildings, and others must have been directly inspired by the guided missile.

The confusion so obvious in this group of designs was only concentrated evidence of a national confusion in architecture. The battle among architects for and against more richness in buildings is still unresolved, as are many other issues, such as the parallel argument whether we should pursue strength or delight in architecture. Aware of the possibility that I may only add to this chaos, I would like to attempt here my analysis of our design picture.

I am for delight in architecture. I believe in this delight for certain positive reasons which I will list here; reasons which go beyond restlessness with the prevailing technique.

Within the limited palette available in the dogma of rectangles to which we have committed ourselves, we cannot solve the complex architectural needs of our society. There is physical evidence at hand that a total environment of rectangular modules will be overwhelmingly dreary. I can picture it as monotonous as the Arabian desert, which I experienced recently. The problem is that we cannot leave our cities as easily as I was able to leave the desert!

Midtown New York, for instance, is rapidly losing the little character it possessed. The plastering of façades of whole blocks with regimented patterns of glass and porcelain-enamel rectangles has made so many New York blocks look exactly alike. Our life gives promise of being spent in look-alike houses, look-alike automobiles, look-alike buildings.

It is true that a large part of the problem (in New York) is that so many of the important commissions have been given to immature and sometimes irresponsible men. Yet even with sensitive and responsible architects doing all of the buildings, would we like our streets filled with buildings based only on flat patterns of rectangles? Or imagine the Piazza San Marco five-sided, with buildings of glass and porcelain-enamel curtain walls.

I do not mean to belittle the importance and necessity of the period through which we are passing. There was dire need to integrate our technology into building; to express the tools which mechanization has given us. The clarity with which Mies and others have taught us the relation of industrialization to building has freed us from so many of the prejudices which were handed us from the past generation of architects. It is fitting that Mies culminates these lessons with what I believe to be the one truly great modern building—Seagram's.

But to continue slavishly copying the techniques which Mies used in expressing his architectural beliefs . . . is to lose sight of his true greatness. I thank him for showing us that buildings which are built by machine can be as beautiful and sensitive as the handmade buildings of the past. I also greatly admire his unshakable faithfulness to his interpretation of our technology. This, to me, is the essence of the architectural philosophy of Mies van der Rohe.

Enslavement to only his façades, without a full understanding of his primary contributions, will result in buildings as shallow as the eclecticism of our predecessors, which we have been so quick to criticize. But even more important, this style of architecture with its limited vocabulary can not circumscribe the whole experience of architecture for men.

Though I believe that many of Mies' buildings are among the finest of the modern movement, I have not been able in any to find what I term delight. The monumentality, the dignity, the elegance, are superbly conceived. Yet there is missing a joyful quality which in my belief is a basic requirement of a universal architecture today. The reason for such a positive statement is my certainty that to a democratic society such as ours, the ingredient of delight is essential in building a satisfying environment.

The degree of delight in architecture through history seems to have been consistent with the degree of interest in culture in a particular civilization. The more totalitarian the society, the less it was concerned with delight in architecture. Civilizations dedicated to slavery, such as the early Egyptian, built only tremendously monumental and gloomy structures. Modern dictators like Hitler and Mussolini were insistent on pomp to the elimination of any delight in their buildings. Nor can we find delight in the architecture of the Soviets. In contrast, in societies where the emphasis was on culture rather than authoritarianism—such as the Greek, the Italian and English Renaissance, the Japanese—delight

in many forms was woven into the architectures. Beauty and gentleness were important, rather than power and brute strength.

Thus, we Americans who pride ourselves in our democracy, who hope to win the cold war by spreading our beliefs of co-operation and warmth in humanity, gentleness in mankind instead of brutality, must have a vocabulary of architecture which is consistent with our ideals. By building an intelligent and inspiring environment in which it is delightful to be, which shows the best of our knowledge of beauty and gentility, we will express in physical terms our most hopeful aspirations.

The quality of delight can be attained in architecture through many means, most of which have been thoroughly explored in past architectures. These are being rediscovered again today by many of us. In addition to the basic requirements of space, proportion, and refinement, are the more obvious means of contrasting textures or ornament, modeling of buildings to reflect the play of sun and shadow, and use of the drama and interest of silhouette against the sky. More subtle, perhaps, are the interweaving of surprise to break the monotony of regimented plans, and the age-old utilization of overhead daylight to give variety to indoor spaces.

Four years ago, I took a trip around the world. It was on this trip that I first awoke to the need for delight in our architecture. Fortunately, I spent most of these few short weeks in Italy and Japan. In Italy, I was struck with the joyful quality of its historical architecture. The rushing fountains, the exuberant buildings, brought an excitment to that architecture that I knew was missing in ours. The delight of a Bernini fountain or a Venetian skyline bright in the sun is pure enjoyment. The background of colorful buildings in the Piazza San Marco or in the Market Square in Siena provides unending pleasure to thousands in their leisure.

In Japan, I found delight in the combination of building and gardens. The understanding and enhancement of nature lent interest and warmth to the buildings. The water, the plants, the rocks so thoughtfully arranged give a serene enjoyment to those inside and outside the buildings. The structures with their intimate scale, the gentle refinement, their sensitive wood and paper details, and the subtly beautiful adornment of the TOKONOMA could only have been conceived with the primary thought of giving inner security and pleasure to man.

This utter lack of ostentation in Japanese architecture is in curious but impressive contrast to the ideals of many architects today to show strength and power in their buildings. I wonder if the latter isn't just another form of muscle-flexing. Though neither exuberant delight of Italian buildings nor serene delight of Japanese architecture should be swallowed whole, there is obviously much to be learned from both.

In the four years since this trip, our office has been trying to interpret what can be learned from these architectures into the buildings we have designed. This, with the express understanding that whatever idea we accomplish must be developed within the framework of our technology.

This direction has been very exciting. The early discovery that fidelity to technology does not mean enslavement by the rectangle has helped us attain a degree of freedom. We thought then how blind we have been not to have seen before the versatility of the machine, as evidenced by the variety of products all around us. The number of shapes-spheres, cylinders, pyramids, and the multitude of non-geometric forms that we see daily in machinemade household and business equipment, made of (many) materials, are vivid testimony that machinemade architecture need not have . . . restrictive limitations of a rectangular module. Technology, rather than being restrictive, gives us ability to create an infinity of forms. We have this great advantage without the penalty of the tedious and laborious process of carving adornment through hand labor.

These years of working toward this goal have made us more enthusiastic than ever about the kind of environment that can be developed in America, with ideals and through the intelligent use of our technology.

The serene and delightful surroundings that modern man needs to give him relief from his manifold problems can be the significant contribution of the architect today. The anxieties of cold war, of mechanical regimentation, of traffic, ad infinitum, can be considerably lightened by a pleasant environment. . . . How wonderful it would be if we could have many oases of pure delight . . . in America, and how often I would visit such places to find respite from the tumult of our lives.

Yet the path to delight in architecture gained with the methods of technology is filled with many dangers. Mass-production-minded America can be its own victim of too much, too often. An uncontrolled cascade of ornament might flood our streets with grills of every description, despite our awareness that our buildings would be as ill clad totally in hexagons, diamonds, or crossed circles as in rectangles. The structural histrionics of exhibitionist architects indiscriminately misusing shell forms and folded plates could wreak havoc with our already jumbled skylines.

Though it is difficult to imagine cities more confused architecturally than ours—it is possible. Miami Beach, for instance, is a horrible forecast of what we might achieve. Though we might enjoy a periodic Times Square or even a Disneyland, our normal environment must be calm and peaceful.

We architects must learn to live with each other—so that our buildings will live with each other. We can, if we are ever-cognizant of the ultimate goal of providing an inspiring, serene, and delightful environment. If we architects, and owners, too, could curb our individual desires for attention, and respect the larger idea of the community's architectural well-being, we could accomplish a long step toward our goal. And to this end, we must not be trapped by architectural techniques—by dogmas of any kind.

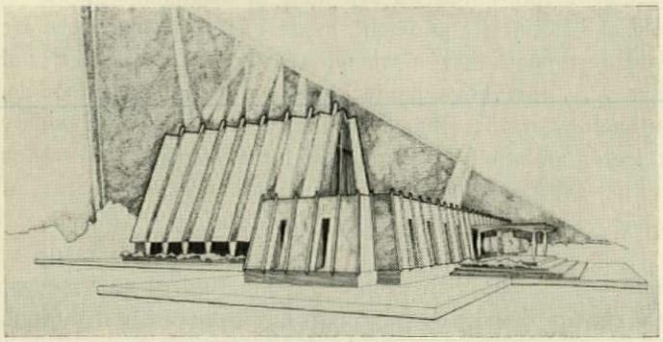
There is a Taoist saying:

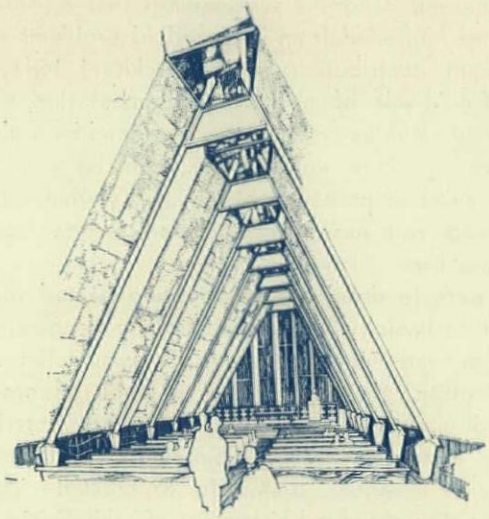
"Limited by space, a frog in a well cannot understand what is on ocean;

"Limited by time, an insect in summer cannot understand what is ice."

In the wells of architectural dogma, our horizons would be terribly limited. The full understanding of what we must do in architecture in this century will give the perspective and vision we desperately need now.

AIRFIELD CHAPEL DESIGNED FOR NEW YORK'S IDLEWILD





NEW YORK, N. Y. — Plans to construct a Protestant Chapel at New York International Airport have been announced by Protestant Council of the City of New York. The building, designed by Edgar Tafel, New York architect, will join an existing Catholic Chapel in the "chapel area" of the airport; and a Jewish Chapel now in the planning stage will be added later.

The Protestant chapel will stand on a cross-shaped platform, and the building is designed as a cruciform space. Visitors will enter through the service wing, containing information and waiting area, conference rooms, minister's study, library, lavatories, and heating and air-conditioning equipment. The narthex will connect this wing with the sanctuary, which will seat 100. Two ministers will serve the chapel on a 24-hour basis, and the staff will include a secretary, a part-time organist, a sexton, and a caseworker to aid incoming passengers.

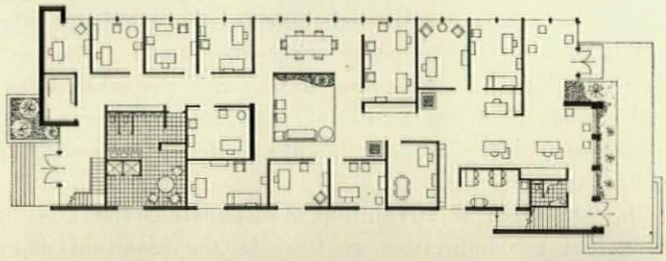
Structurally, the chapel will be of precast-concrete arches between which will be set precast-concrete slabs with a coffered design. The roof will be a skylight of tinted glass. Side aisle windows, main window, and clerestory will be of stained glass. The floor will be of flagstones. The furniture, to be designed by Tafel, will be walnut. All exterior walls will be clad in oxidized copper, and the base will be Roman brick.

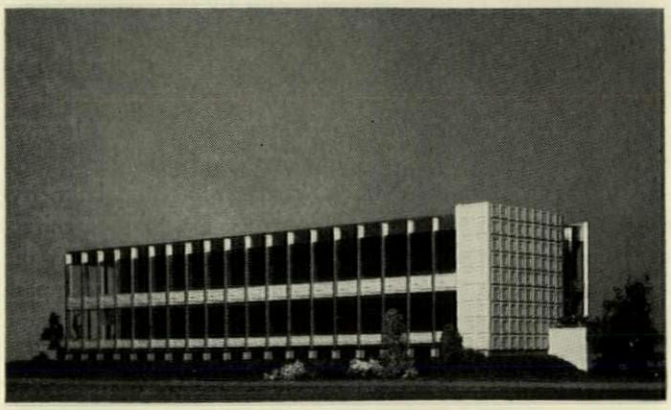
The design was approved by New York Port Authority, as it had to "conform to the general style of architecture" of the airport.

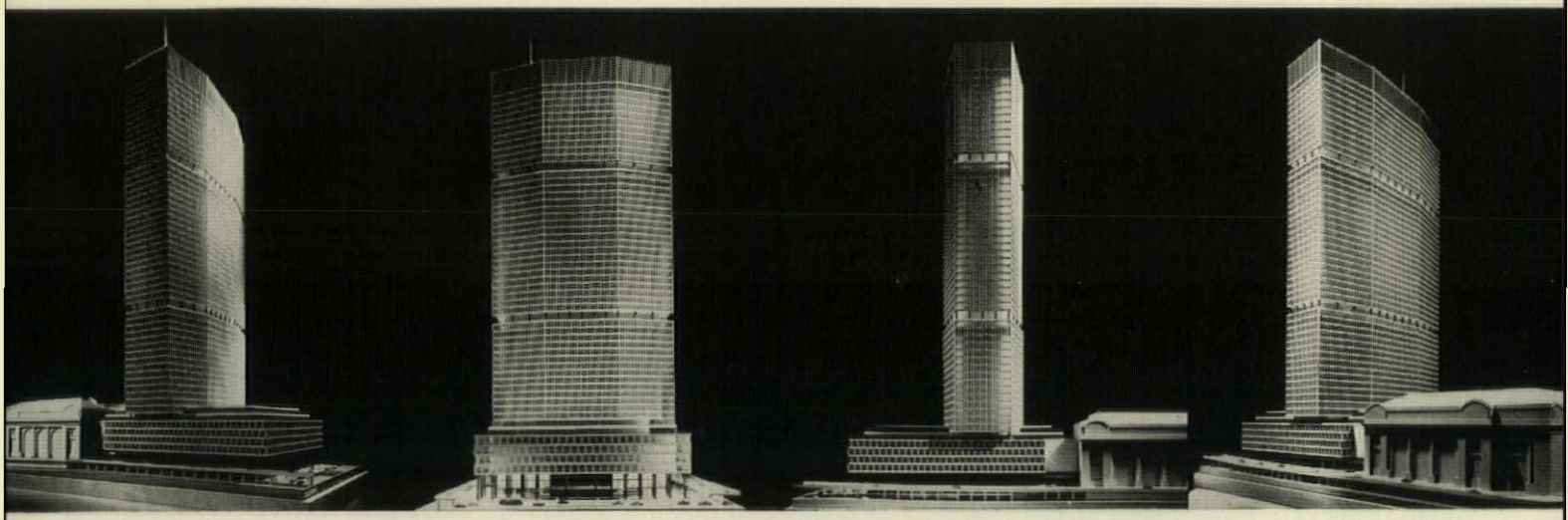
OFFICE-AWAY-FROM-HOME TO OPEN IN LOUISVILLE

LOUISVILLE, KY. — An air-age building type will be the Embassy Building near Standiford Field here, designed by Architect J. Quentin Biagi of Shelbyville, Ky. The "Embassy Plan" provides executives who travel for national organizations with temporary office space on a contract basis. The Louisville building is the pilot model of what the developers (Edwin O. Davis and Robert F. Seery) hope will be a network of Embassy Buildings at airports throughout the country. Secretarial help, dictating machines, and other office aids will be available to those who sign up for the service.

The Louisville building will have walls of glass and specially-designed aluminum spandrels, facing north and south. Load-bearing columns will project beyond the walls. The east and west (end) walls will be surfaced with textured precast-concrete panels three ft square. The interior spaces will include individual offices for rent, conference space, secretarial rooms, and washrooms where executives can shower and shave between planes. The interiors will be designed by Robert Greiwe, Cincinnati. Management of the building will provide all furnishings and utilities.





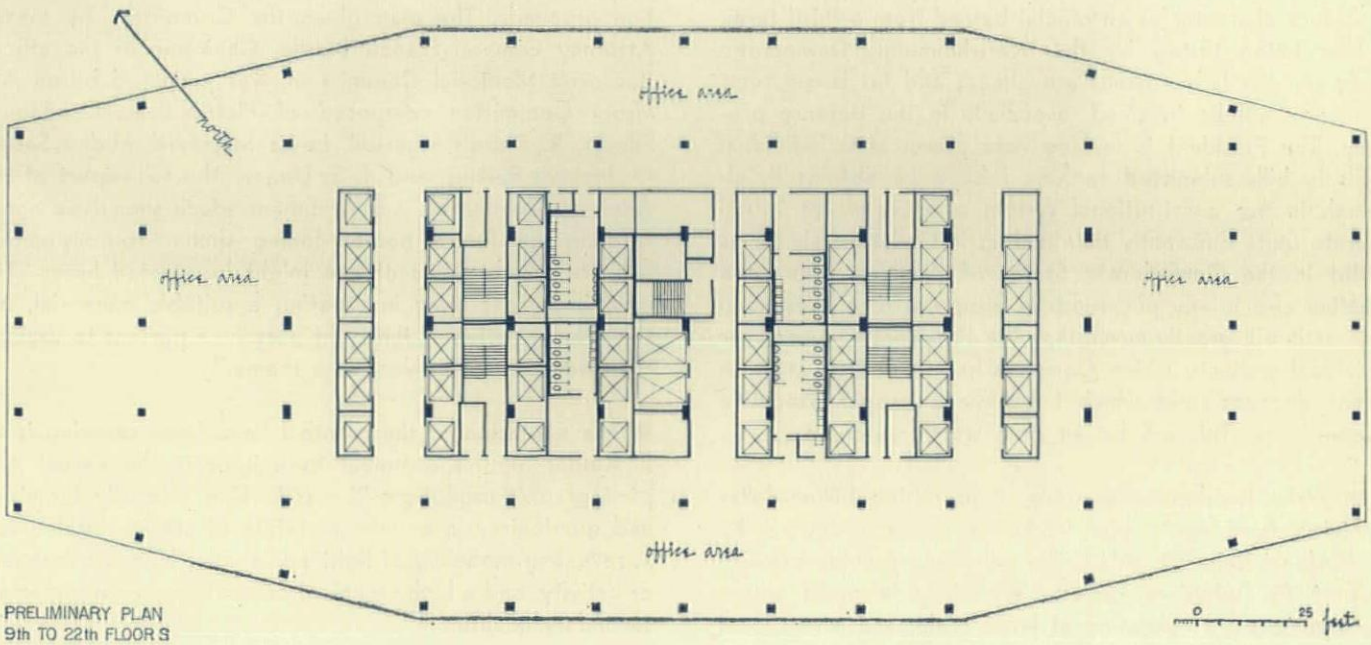


DESIGN OF "GRAND CENTRAL CITY" ACCEPTED

New York to Receive Major New Building

NEW YORK, N. Y.—Designs for a giant new building in this city's teeming Grand Central Terminal area have been released. "Grand Central City," which will rise on East 45th St. between the eclectic-Classic terminal on 42nd St., and the picturesque New York Central tower on the upper Park Avenue axis at 46th St., will add what is described as the world's largest commercial office building (in floor space) to one of the world's most densely populated business districts. Announcement of the new building was made just a few days before New York City Planning Commission revealed new zoning proposals designed to serve as guides to better municipal planning and to eliminate, in some part, the serious crowding caused by overbuilding in most areas.

Grand Central City was designed by Dr. Walter Gropius, Dr. Pietro Belluschi, and Richard Roth, as associated architects. The building will have 2,400,000 sq ft of floor area, supplanting the present "world's largest," the 2,300,000-sq-ft RCA Building. The 55-story structure will have as its dominant element a 49-story, octagon-shaped tower of metal, masonry, and glass. The tower will stand on a broad, six-story base which will cover almost all of the 151,000-sq-ft site between the existing Park Avenue ramps. The main entrance will be through a deep, 40-ft-high loggia on the 45th St. side. There will also be entrances from Grand Central Terminal and Vanderbilt Avenue. In addition to the customary public lobby areas, there will be four private entrance and lobby areas, each with its own service and elevator core. Two recessed floors will add interest to the vertical lines of the tower. James Ruderman—Consulting Engineer; Diesel Construction Company—General Contractor.



PRELIMINARY PLAN
9th TO 22th FLOORS

FATE OF CONSTRUCTION BILLS FORECAST

by Frederick Gutheim

In less than a month after Congress convened, it was plain that the President is going to have a hard time of it. By voting for the Presidentially disapproved airports and GI housing bills, Congress has upset the precariously balanced budget. As sent to Congress, the budget showed only a slim $70-millions margin. The housing program now stands at a shade over $2 billions, and the airports program at $465 millions. The pair of bills will probably exceed by nearly a billion dollars what the President had recommended. The question to be faced, then, is whether the President will veto these actions of Congress, as I think he will, and whether Congress can and will override the veto, as I think it will. It is significant that these opening skirmishes in the struggle between Congress and the executive have been fought over domestic construction programs, and that the issues have been substantial questions of policy. In the housing bill, the issues have been the scale of urban land redevelopment, local-authority housing programs, controversial new programs of middle-income co-operative housing and housing for the aged, the required down-payments for higher priced FHA housing, and GI housing in rural areas. The airports bill, which provides money to match that put up by local governments, saw a discussion of terminal-building design and so-called "frills" like restaurants, bars, and game rooms (none of which are involved in the matching Federal agreement). I find it significant that this discussion, both on the floor and in committee, despite the nature of the issues, was almost totally uninformed by any architectural contribution. The testimony offered by architects was directed almost wholly to the support of a larger housing program—and, indeed, who would have expected it to be otherwise? I think it would be refreshing if, some how, Congress might turn to architects for professional advice on such programs.

The President's weakness, which stems primarily from his lame-duck character as an official barred from a third term, is now being tested by the overwhelmingly Democratic Congress. Far larger issues are ahead, and far larger sums of money will be involved, especially in the defense program. The President is seeking veto power over individual items in bills submitted to him. I hope he obtains it, although in our constitutional system of government it will operate quite differently than it does in Great Britain, or as it did in the Confederate States of America where the practice also briefly prevailed. In programs of architectural interest it will greatly strengthen the President's power over individual projects, which Congress has tended to usurp in recent decades, and which I believe a proper executive responsibility. This will be an issue worth watching.

● In other legislative measures, a promising billion-dollar revolving fund for public works has been proposed by Rep. Albert Rains (D., Ala.). The bill would provide a major support for suburban growth, especially in areas where homebuilders are operating at large scale, and where local governments have insufficient financial capacity to undertake needed community improvements. It is commonly known that except for the Federal public works program of the 1930's, cities have increasingly fallen behind in local public works. The depression, the war, the postwar shortages, inflation, and financial stringency have all left arrears in streets, water and sewer facilities, and municipal services of all sorts. This is a major factor in the difficulties of central cities today, as well as of suburban expansion. But when it comes to Federal intervention in this field, however badly it is needed, we come face to face with the lack of any national urban policy. Before we subsidize a competition between central cities and suburbs, we might do well to examine the consequences.

Senators Clark (D., Pa.) and Kennedy (D., Mass.) are both interested in a proposed Federal investigation of such problems of metropolitan growth. The desirability of this was attested by Senate majority leader Lyndon Johnson of Texas, and it is a fertile field for pre-election activity, offering the chance to expose executive shortcomings since 1953, and the cold shoulder the administration has turned to urban problems. Last fall's election returns left no doubt of the emergence of metropolitan voting patterns of a significance comparable to the rise of the big city machines on which Roosevelt came to power.

● A Washington site for the long-projected Franklin D. Roosevelt Memorial now seems established. It is 27 acres, which might be described as lying along the Potomac, between the Lincoln and Jefferson Memorials. Temporary buildings scheduled for clearance now occupy the land. The legislative action offered by Representative Burleson (D., Tex.), Chairman of the House Committee on Administration, authorizes a competition for the design, which will require further Congressional approval before construction proceeds. The plan given the Committee by former Attorney General Francis Biddle, Chairman of the official Roosevelt Memorial Commission, was prepared by an Advisory Committee composed of Pietro Belluschi, Samuel Glaser, R. Sturgis Ingersoll, Lewis Mumford, Hideo Sasaki, G. Holmes Perkins, and J. S. Unger. The full report of the Advisory Committee is a document which should be noted carefully by future bodies facing similar responsibilities, but one memorable sentence might be quoted here: "The most important thing in creating a suitable memorial, besides the selection of the right person or persons to execute the work, is the discovery of a theme."

● The quotation of the month I have been savoring is G. E. Kidder Smith's comment as a juror in the annual AIA photographic exhibition: "I was looking primarily for vision and spontaniety in an interpretation of architectural space. A revealing modeling of light and shade, human occupancy or activity, and a high technical competence were important secondary qualities."

ARCHITECTURAL BULLETINS

● Final report of Joint Committee on Washington Metropolitan Problems has been handed to Congress. Report pertains to problems of metropolitan growth in National Capital region, states Frederick Gutheim, Staff Director.

● Second Biennial Western Home Awards Program has been announced. Sponsors are AIA and Sunset Magazine. Any home in West designed by an architect and completed since January, 1956, is eligible. Entries accepted through June 1: Sunset Western Home Awards Committee, Box 222, Menlo Park, Calif.

● New York School of Printing (below) has been dedicated in Manhattan. Designed by Architects-Engineers Kelly &

Ben Schnall

Gruzen, building houses most completely equipped printing school in the world. Façade features mosaic tile mural by Hans Hofmann, which will be shown next month in P/A.

● Avery Archive of Measured Drawings of Historic Monuments has been established at Columbia University's Department of Fine Arts and Archaeology. It will be used to facilitate advanced study of historic architecture, particularly to answer questions regarding exact measurements of buildings. Archive committee welcomes donation of detailed drawings to: Chairman of Faculty Committee, Avery Archive of Measured Drawings of Historic Monuments, Department of Fine Arts and Archaeology, Columbia University, New York 27, N. Y.

● No architects, artists, or musicians were on list of 15 trustees for National Cultural Center prepared by White House. Group includes former diplomats, bankers, an automobile dealer, other businessmen. Three members remain to be appointed by House of Representatives to board which would concern itself with development of a cultural center in Foggy Bottom area of capital.

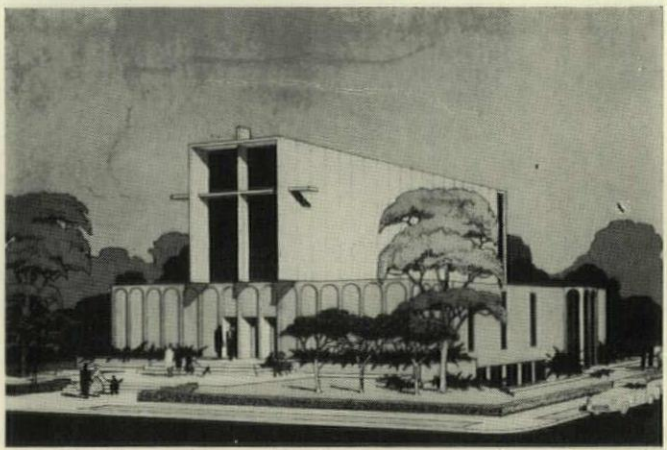
● Architecture students from MIT, Harvard Graduate School, and Boston Architectural Center took part in design competition for U. S. Science Pavilion for "Century 21" Exposition, to be held in Seattle, Wash., in 1961.

● Chicago will get a ten-story, 550-room hotel, to occupy five acres of air rights over Illinois Central Railroad property. Hotel will be situated across Outer Drive from Chicago

Exposition Center shown in FEBRUARY P/A NEWS REPORT (page 81). Unusual feature will be heated, year-round outdoor swimming pool. Architects—Naess & Murphy.

● Statement praising schools produced by current building program of New York Board of Education was issued by National Committee on School Buildings of AIA during recent Atlantic City Convention of American Association of School Administrators. Statement, obviously a riposte to charges by New York City Comptroller Gerosa of "waste" in school construction, read in part, "Committee members consider the current buildings to be civic architecture of a high order, in both their technical and esthetic aspects. . . . It is obvious that the policy of the Board of Education of employing many private architects has made available to the city experience and talent which could not otherwise be applied to these problems."

● St. Andrew Presbyterian Church in St. Louis is dominated by a giant concrete cross extending beyond walls and roof of sanctuary. Stained-glass window behind cross was de-



signed by the architect, Harris Armstrong, after painting by Paul Klee. Materials are salmon-pink brick on first floor and lower level, plastic-sprayed concrete on cross and around nave. Planting pockets along walls supplement landscaping of site. Mechanical-Electrical Engineers—Belt & Given; Structural Engineer—Leslie J. Bergmeier.

● San Francisco Architect John S. Bolles received Merit Award from Government of Saudi Arabia in design competition for King Saud University in Riyadh, Saudi Arabia. . . . Ludwig Mies van der Rohe was awarded 1959 Gold Medal for Architecture by Queen Elizabeth. . . . Mies has been succeeded as professor and chairman of Department of Architecture, IIT, by George Edson Danforth. . . . Edward L. Barnes, New York architect, received Medal for Distinction in Architecture from Yale School of Art & Architecture. . . . Architect Arthur F. Schwarz has been appointed to his third four-year term as Chairman of St. Louis City Plan Commission. . . . New president of the Aluminum Association is M. M. Anderson, vice-president of Aluminum Company of America; S. D. Den Uyl, elected chairman of board, is also board chairman of Bohn Aluminum & Brass Corp. . . . Architect Vincent G. Kling received 1959 Philadelphia Arts Festival Award in Architecture. . . . John E. Clark replaces E. F. Walsh as Director of Promotion for Structural Clay Products Institute. . . . Retirement of Joseph W. Leinweber changes name of Birmingham, Mich., firm to Minoru Yamasaki & Associates. . . . Italian Architect Ernesto N. Rogers serves as visiting professor in Chair of Italian Culture during current session at University of California, Berkeley. . . . Murrel Spence elected as national president of Sliding Glass Door & Window Institute. . . . Annual Arnold W. Brunner Scholarship of New York Chapter, AIA, went to G. E. Kidder Smith, to prepare pocket guide to contemporary architecture of Europe. . . . George S. Richardson, of Pittsburgh Consulting Engineers Richardson, Gordon & Associates, elected president of American Institute of Consulting Engineers.

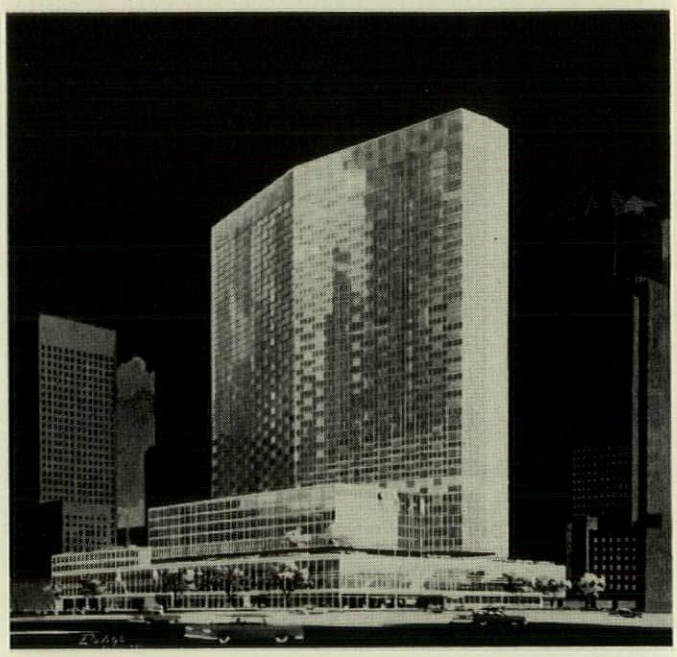
● Circular bank will join San Francisco's Crown Zellerbach Building on 1⅓-acre site. Design by Skidmore, Owings & Merrill encloses branch office of American Trust Company in 40 huge sheets of plate glass separated by aluminum-faced steel supporting columns. Roof and ceiling will be

accordion-pleated precast concrete. The roof will be covered with sheet copper and allowed to take on a patina. Pavilion will sit in a landscaped park.

● Buffalo-Western New York Chapter, AIA, announces $1000 postgraduate scholarship award to be given each Spring. Award limited to one student a year . . . . Several Harley J. Earl Scholarship Grants in Industrial Design and Architecture are available. Write: Executive Head, Art & Architecture Department, Stanford University, Stanford, Calif. (before April 15).

● Dr. Leo L. Beranek of acoustical consulting firm of Bolt, Beranek & Newman, recently returned from giving 45th Thomas Hawksley Lecture in London, Oxford, and Bristol Universities, Zurich, Prague, Warsaw, and Moscow. . . . David Levine, Architect and Landscape Architect, made landscape architect member of Art Commission of City of New York. . . . Another New York Art Commission member is Robert Cutler, Partner in Skidmore, Owings & Merrill, who also belongs to Mayor's Special Committee to Study Inspectional Practices in Department of Buildings. . . . American-Standard has created Industrial Division by consolidating American Blower, Kewanee Boiler, Ross Heat Exchanger Divisions.

● First major hotel to be constructed in New York in 28 years (below) was announced by Zeckendorf Hotels Corp. The 42-story structure, to be named The Zeckendorf, was designed by Architects Harrison & Abramovitz. It will be



built on W. 51 St., next to Rockefeller Center. First-through-third floors will have public rooms; fourth-through-ninth, office areas; remainder will have guest rooms. Structural Engineer—Edwards & Hjorth; Mechanical Engineer—Jaros, Baum & Bolles.

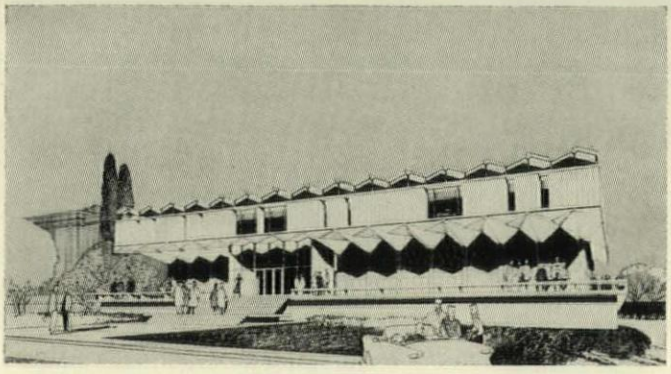
● Virginia and West Virginia Chapters, AIA, hosts to Middle Atlantic Regional Conference in White Sulphur Springs, Mar. 13-14. . . . Upcoming events at New York's Architectural League include "The Work of Pier Luigi Nervi," Mar. 16-27, and "The Architecture of Minoru Yamasaki," May 18-29. . . . Building Research Institute's 8th Annual Meeting, Penn-Sheraton Hotel, Pittsburgh, Pa., Apr. 6-8, will include sessions on curtain-wall sealants, mechanical fasteners, windows. . . . South Atlantic District, AIA, regional conference will take place aboard M. S. Italia on cruise to Nassau, Apr. 13-17. . . . Lead Industries Association's 33rd Annual Meeting, Hotel Drake. Chicago, Apr. 22-23. . . . Royal Architectural Institute of Canada will hold annual assembly at Prince Edward Hotel, Windsor, Ont., May 27-30. . . . Education in Materials will be theme of yearly American Society for Testing Materials sessions in Atlantic City, Jun. 22-26. . . . University of Michigan's 12th

Conference on Aging, Jun. 22-24, will concentrate on "Designs for Retirement," including housing of elderly. . . . Third Annual Symposium Conference on Creative Arts Education will be held at Syracuse University, Syracuse, N. Y., Jul. 28-30.

● Master plan for future development of San Francisco International Airport terminal facilities was presented to Mayor George Christopher by Architect Welton Becket of Welton Becket & Associates, developers of the plan. Proposal includes two new terminals, three-level parking garage, an addition to one of the existing piers. The existing terminal will remain.

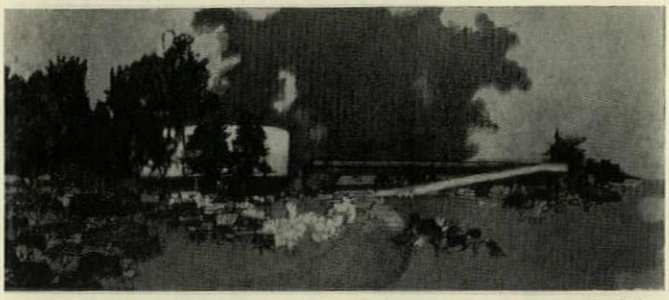
● Gala unveiling starring Postmaster General Summerfield, Robert Moses, William Zeckendorf, and Architect I. M. Pei occurred in New York to announce plans for "The Central City," office building which would rise near city's General Post Office and Pennsylvania Station (see page 157 for news of what's happening over at Grand Central Station). Site for building is two-block area on New York's West Side planned to tie-in with proposed Mid-Manhattan Crosstown Expressway, pet project of City Construction Co-ordinator Moses. More floor space than Pentagon's 5,000,000 sq ft would be in building, 500,000 sq ft being used by the Post Office, and the rest by businesses. Building would not proceed until completion of Expressway.

● Galaxy of folded plates will characterize roof of Mark C. Steinberg Hall of Art and Archaeology at Washington University, St. Louis, Mo. Project was designed by Assistant Professor of Architecture Fumihiko Maki, and the architects are Russell, Mullgardt, Schwarz & Van Hoefen. Hall, which also will be used by Fine Arts and Architecture students, will contain exhibition gallery, auditorium, library, faculty offices, seminar room, classroom, and photography display room. Construction began in February.



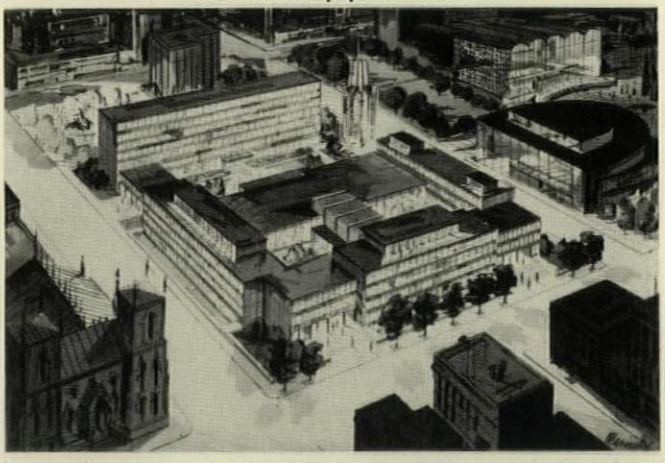
● Sculptor Jean de Marco and Landscape Architect Michael Rapuano elected to membership in National Institute of Arts & Letters. . . . New York Architects Peter Blake and Julian Neski and Editor William W. Atkin of Reinhold Publishing Corporation's Art & Architectural Book Department, received Citations from New York Chapter, AIA, for planning U. S. exhibit for 5th Congress of Union Internationale des Architectes, to be held in Moscow, Jul. 20-28. . . . Young Woo, 5th-year student in University of Southern California School of Architecture, won 3rd Annual Albert C. Martin Award for Advanced Study in Architecture. . . . Rudolph Horowitz received George G. Booth Traveling Fellowship in Architecture from Department of Architecture of University of Michigan College of Architecture and Design.

● Visitors' Center and Cyclorama Building at Gettysburg, Pa., was designed by Los Angeles Architects Richard J.



Neutra & Robert E. Alexander. Scheme proposes cylindrical area for display of gigantic painting of Pickett's Charge, museum for display of Civil War relics, auditorium, library, and offices for personnel. A large outdoor rostrum will be provided where speakers will evoke the memory of Lincoln's famous words on the site.

● Fordham University will have a $25 millions midtown center in New York, cheek by jowl with Lincoln Center for



the Performing Arts. Law School will be first of a three-stage development, followed by classrooms, libraries, and laboratories for Schools of Business, Education, Social Service, and General Studies. Third phase will provide student union, another classroom and laboratory buildings, and campanile. Architects—Voorhees, Walker, Smith, Smith & Haines.

● Alcoa Carefree Home attributed to Eero Saarinen (page 72, JANUARY P/A NEWS REPORT) is by Charles M. Goodman & Associates.

MOTEL CHAIN USES STYROFOAM® . . . CUTS INSULATION, PLASTERING COSTS 33%

A better building at lower cost is the aim of every architect and client. That's why Travelodge Corporation is "sold" on a new construction method using Styrofoam. Styrofoam is simply adhered to the interior of a masonry wall with a mastic adhesive and then plastered over. By thus eliminating furring, lath and batt insulation, Travelodge saves enough to *insulate and plaster every fourth unit free!*

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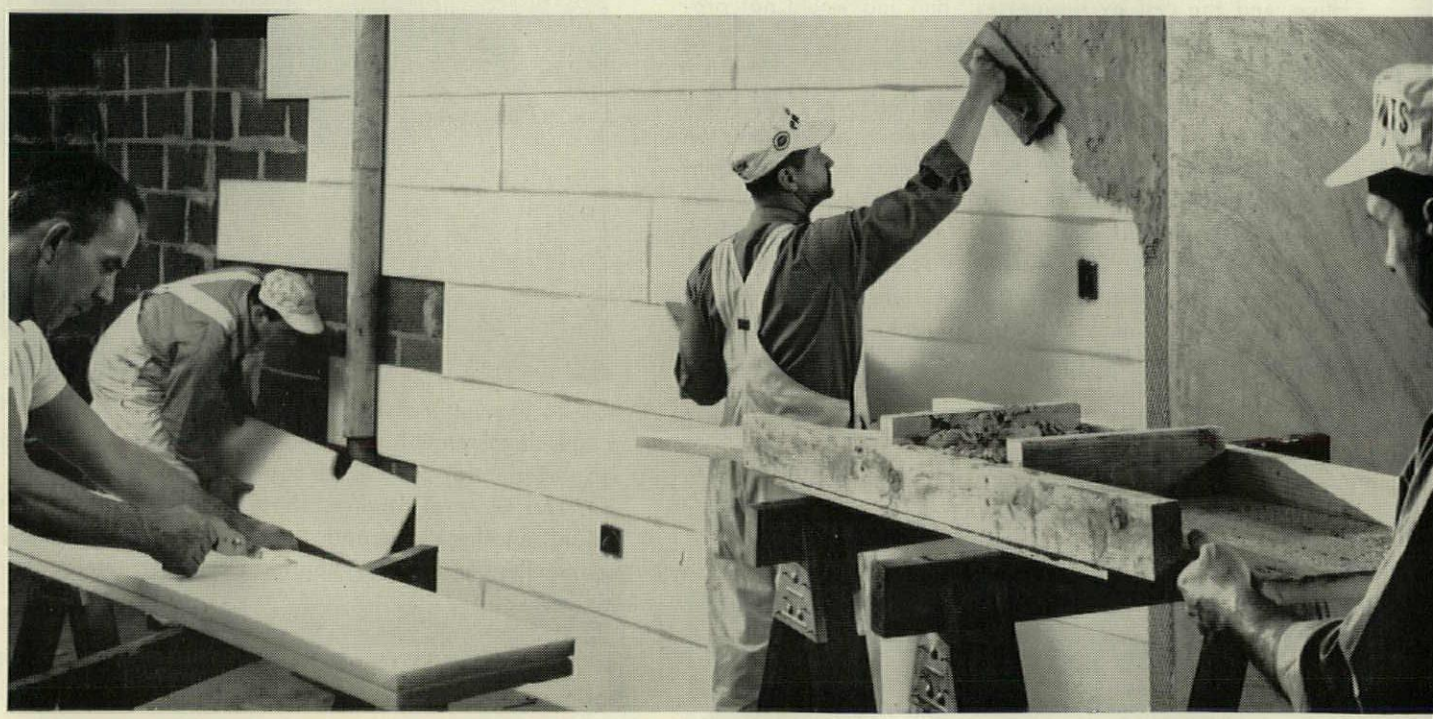
Styrofoam has been used in Travelodge motels in Indianapolis, Toledo and Cleveland and will be used in four new motels now under construction.



WESTBURY HIGH SCHOOL, LONG ISLAND, N.Y. Architect: Eggers & Higgins, A.I.A.

STYROFOAM *insulates three more ways in N.Y. high school*

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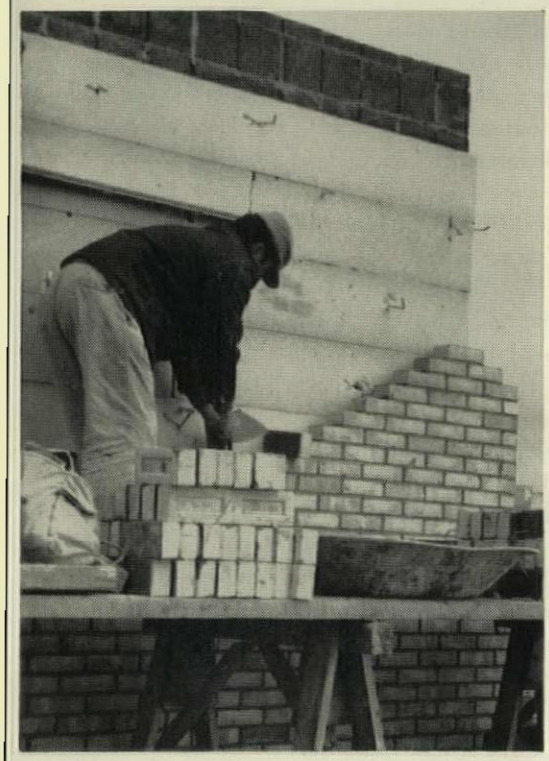
Styrofoam keeps the students warm in Westbury High School. As a cavity wall insulation it acts as a vapor seal as well as insulation against extreme temperature differences which produce undesirable condensation in the cavity. As a foundation perimeter insulation, it eliminates the solid masonry path between slab and foundation.

In both applications, the low "K" factor of Styrofoam *stays* low. For Styrofoam won't absorb water . . . resists rot, mold, and deterioration. It offers permanent insulating effectiveness that pays off in warm, dry, comfortable interiors.



. . . in walk-in refrigerators

Styrofoam was specified for still another task in Westbury High School. Large walk-in refrigerators in the food service area were insulated with Styrofoam to keep heat gain to a minimum. Styrofoam has been used in industrial cold storage plants for over a decade. Its long-lasting insulating efficiency makes it ideal for low-temperature applications of all types.

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INTER-AMERICAN INTERCOM ASSAYS TODAY'S ARCHITECTURE

Intercontinental Radio-Telephone Round Table Conducted

Koch Pei Richards Ortega Currie

TOLEDO, OHIO—Some 150 architects, editors, and representatives of building materials manufacturers trooped into the sumptuous Toledo Club, January 29, to listen to an international radio-telephone discussion of contemporary architecture with a group of architects in Bogota, Columbia. Both groups gathered under auspices of Owens-Corning Fiberglas Corporation, which was concurrently launching a program for Latin-American distribution of its products.

Leonard Currie, Dean of School of Architecture, Virginia Polytechnic Institute, was moderator of the proceedings. Discussants on the Toledo end of the line were Architects Carl Koch, Cambridge, Massachusetts; Alvaro Ortega, Visiting Professor (from Columbia) at Harvard's Graduate School of Design; and Ieoh Ming Pei, New York. In Bogota were Architects Marcel Breuer, New York; Pablo Lanzetta, Dean of School of Architecture, National University, Bogota; and Julio Volante, Argentine-born architect now practicing in Venezuela. John Noble Richards, AIA President, greeted both assemblages and introduced the participants.

Much talk between the panelists centered around the theme of "regionalism" in architecture today. Ortega felt that the distinctive and daring qualities found in contemporary Latin-American architecture derive from the close and continuous relationship that exists there between design and building, and also from local building laws "which fortunately, in South America, came late."

"As I see it," commented Breuer, "the term 'regional' calls attention to human requirements which . . . receive varying design solutions in those parts of the world where conditions vary." Study of native traditions and native technology is not done in order "to borrow some style and hang it on a steel skeleton; it is because one finds that some elements of the native technology may have wisdom and logic. . . . Some very real regional differences exist—climate, natural resources, social structure, ideological aims."

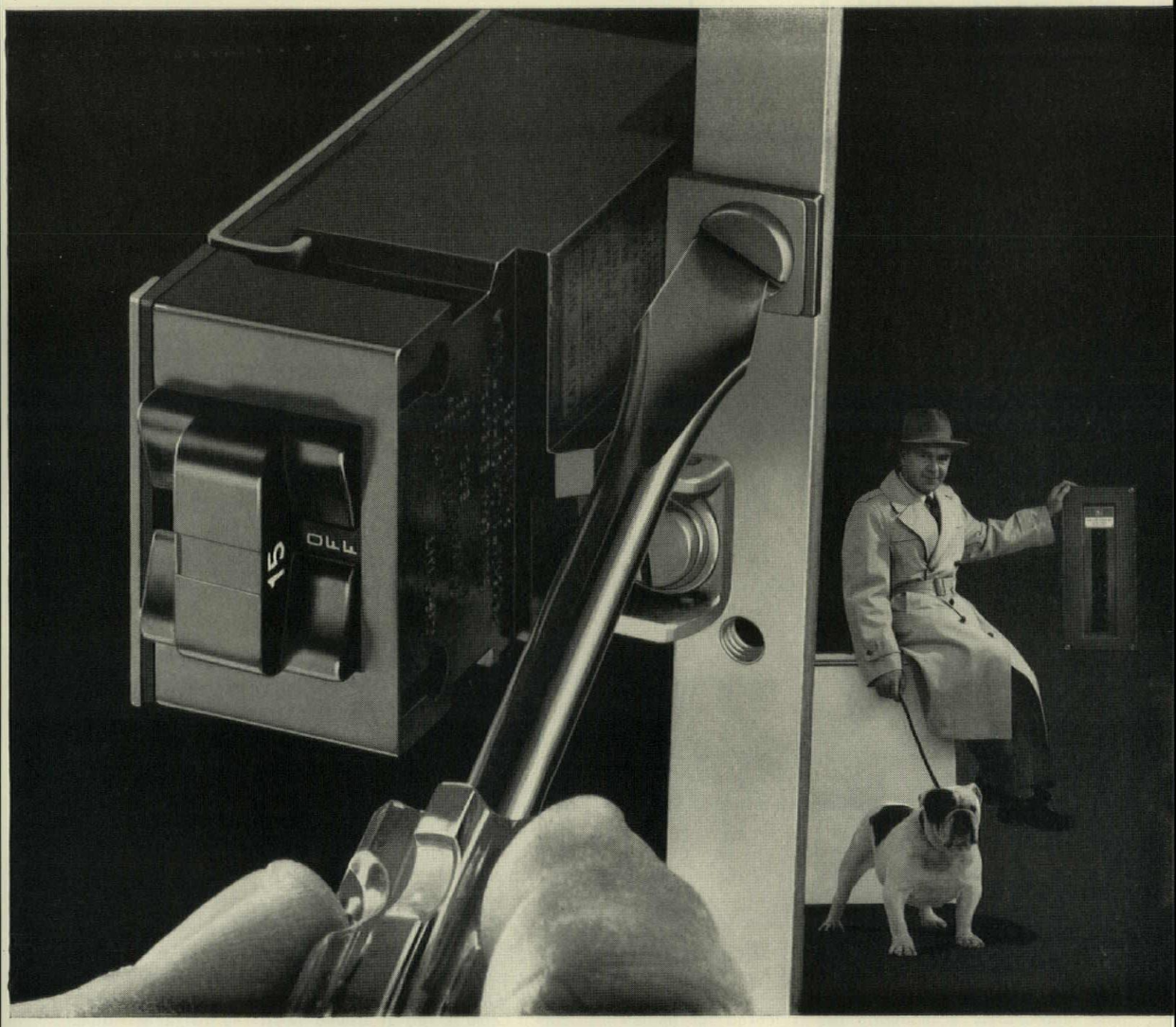
Koch centered his comments on regionalism around the State Department's Foreign Buildings Operations series of embassies and consulates abroad. "Here I agree, in a slightly different way, with everything Breuer said. I do not believe in regionalism in the geographical sense of the word, though I believe that any good architect can and should respect and use local materials and idioms developed in response to local human needs." He particularly cited Edward D. Stone's New Delhi Embassy. "A beautiful piece of architecture. . . . The screen, its main feature, recalls the Taj Mahal, to be sure. But the Taj was not an indigenous Indian building when built. . . . The classic repose and symmetry remind me a little of the Parthenon, though the toothpick steel columns were perhaps actually inspired by the Swedish Pavilion at the New York World's Fair. . . . While I do not believe in regionalism, I don't believe in cubes of glass or cubes of steel, either. Not because they don't recognize local materials and traditions, but because they don't recognize people."

Lanzetta expressed the opinion that "although romantic aspects of regional architecture are not systematically applicable to urban development . . . where people live within the flow of industrialization, economic interchange, and cultural influences, I consider, on the contrary, that regional architecture has great value in those regions which, for various reasons, have been maintained in a certain isolation." "But," he went on to say, "the use of regional materials must be encouraged and done technically."

In Pei's estimation, "what we should look for in architecture, regardless whether it is from South America, Japan, or the United States, is not the superficial surface manifestations, such as courtyards, brise-soleil, or glass boxes . . . I think the important thing is the idea behind the design expression." As an example, he analyzed the Japanese garden. "There are many parts of the world where you will find a climate such as you find in Tokyo or Kyoto. . . . You will also find in many other parts of the world the same plant materials. . . . Why is it that the Japanese garden looks so very different from Western gardens? . . . The real reason behind it is the idea of Zen. This idea was unique and present in Japan when such gardens were created . . . without this idea, even with the same climate and materials, the results are quite different."

Volante commented, "The existence of regionalism in architecture in different epochs has been evident, but I believe it is necessary to analyze deeply the present conditions in most Latin American countries because, if the idea of regionalism exists as an absolute and decisive factor . . . there is the serious danger of falling into the romantic sentimentalism of the past. This could give rise to a local style which would not be in accord with contemporary art."

G.A.S.



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BANKERS SURVEY COUNTRY'S FINANCIAL TRENDS

by William Hurd Hillyer

The nation's biggest banking institutions are trumpeting the fact that 1959 witnesses inauguration of the Twenty Billion-Dollar Bank Group. For the first time in history, its members announce, the United States has 20 banks with deposits exceeding one billion dollars each. This circumstance is hailed as an axiomatic index of prosperity for the whole economy (despite a shrinking gold hoard, a $12-billions Federal deficit and a forced-balance budget). Only a few of the banking group disregard the fallacy that overspending is harmful merely to the extent that it is feared. They give heed to the measured footfall of what the Tsimshian Indians call "Someone Heard Coming"—in this case semi-spiral inflation.

Chase Manhattan officials are among those observers who lean toward a conservative view. They concede that business activity has regained its previous high after reaching the recent $453-billions annual rate, but they insist that, to meet multifarious demands of a growth economy, certain factors will determine the extent to which a necessary yearly expansion of some $20-billions productive potential can be achieved. Major forces making for recovery have been $8.5-billions inventory buying; $6.5-billions Government expenditures in goods and services; $2.5-billions housing; $10.3-billions general consumption, including 8% last-quarter rise in consumer durables. Of these factors the bank foresees that the first three will now begin to shrink and new housing starts will be governed by mortgage fund inflow. Only a moderate rise is looked for in new plant building and equipment. Chase Manhattan's national output chart shows a steady 4% growth output trend since '47 with a wormlike actual-performance line clinging thereto until the current sharp rise. All this adds up to a national dilemma: the rate of expansion must itself increase at a mounting tempo, creating more inflationary pressure to sustain the inflation already brought into being.

Consumer resistance to high prices may hold this anomaly in check, suggests Federal Reserve Bank of New York. It notes mail-order price cuts, retailer tendencies to "hold the line" against further advances, and a strong position of "economy" cars, as symptoms that stabilizing forces have begun to work. "Lower prices for some important products," the bank thinks, "would stimulate increase in the over-all volume of sales," hence in output, employment, and profits. The FRB finds evidence that "the vigorous upswing" marking the latter part of 1958 has continued in early '59. Rising construction activity is specifically noted. Meanwhile the Labor and Commerce Departments report a January new high for building construction and officials forecast a record $52.3 billions for '59.

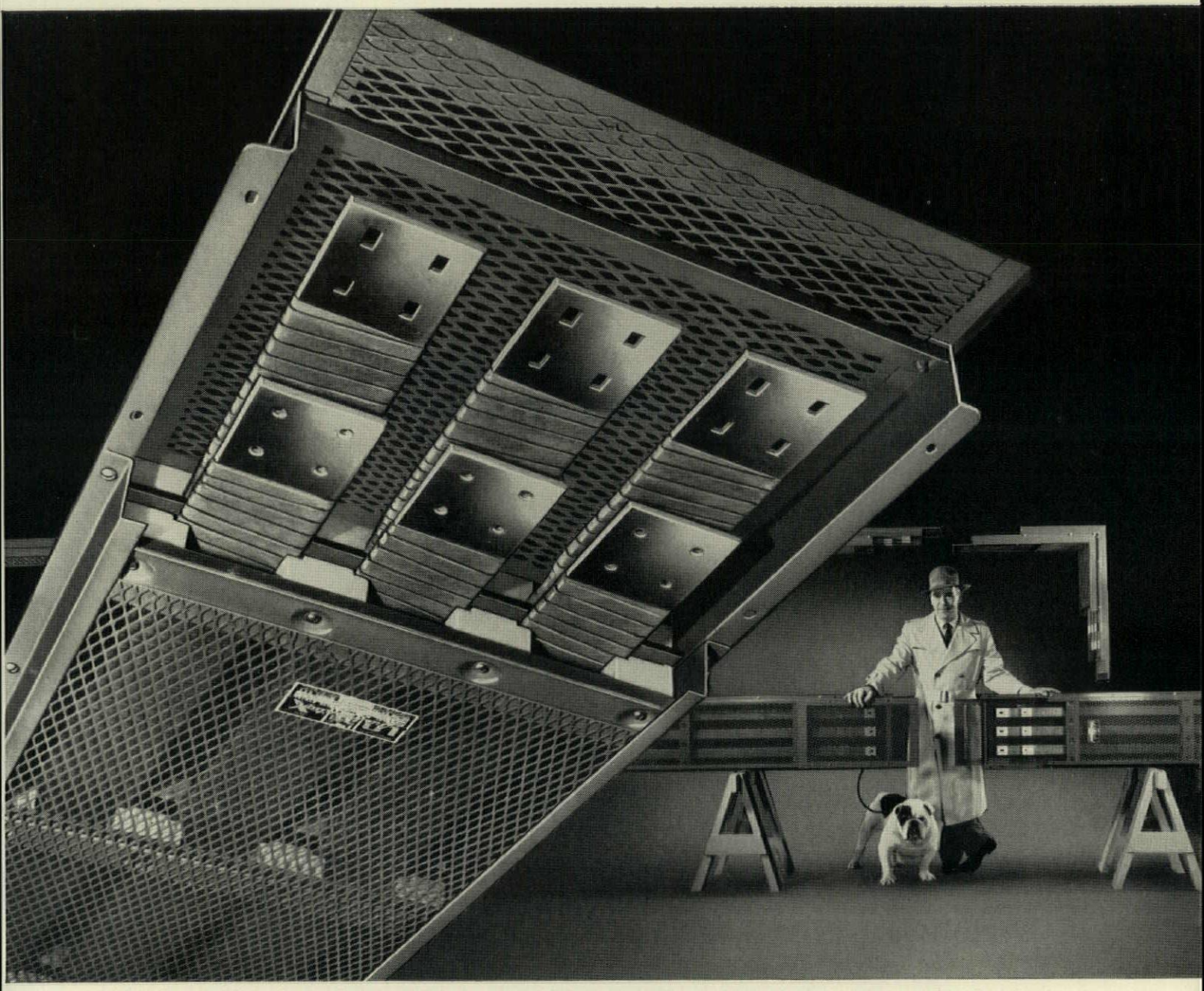
The First National City Bank of New York sees the steady flow of favorable business since the first of the year as continuing the progress of recovery. Prerecession peaks have already been passed in many areas. "Home building is nearing boom levels," dollar volumes of gross national product, retail sales, wage and salary income, construction expenditures, were all at new record levels by the end of '58. The bank anticipates further gains, although the pace of the recovery has been uneven and there are lingering problems. On balance, First National City reflects confidence in a continued upswing.

● Of particular interest to the profession are capital expenditures, because they subsume so many building-construction activities. According to Government expectations, spending for new plants and equipment in the present quarter of the year will run at a seasonally adjusted annual rate of 30.5 billions, which is up from the $30-billions rate of '58s last quarter, although below the $32.4-billions rate of that year's first quarter.

● Municipal bonds have been sharing the heaviness of other high-grade construction-fund sources during the past month. The doldrums have been paced by U.S. Treasury "debt mismanagement" and credit restrictions of the Federal Reserve System. The Treasury's new 4% bonds, due in 1980, augmented the gloom; that issue, obviously designed to attract buyers at a premium, seesawed up and down until it came to rest at around 98½. The market was disappointed by their performance and fears another crisis, as reported by The Bond Buyer.

● Rising general demand supports output growth, Federal Bank of St. Louis reveals. Between May and December of '58 the seasonally adjusted annual rate of expenditures for private residential housing starts rose 27% from a seasonally adjusted annual rate of expenditure. Numerically, new private housing starts are up from a seasonally adjusted annual 915,000 in February to 1.33 million in November. The over-all tempo of building construction is still mounting, banking surveys indicate. Southern pine and hardwood-lumber production in the St. Louis district is exceeding the latest three-year, mid-winter average.

● Production of homes is outrunning sales, although sales are strong for this time of year. The Boston Banker & Tradesman states that builders are confident. Mortgage money for dwellings is easily found, but the industrial-building market may soon prove a counter-attraction for the larger lenders—a situation which is more remunerative, and possibly more of a challenge, to the architect.



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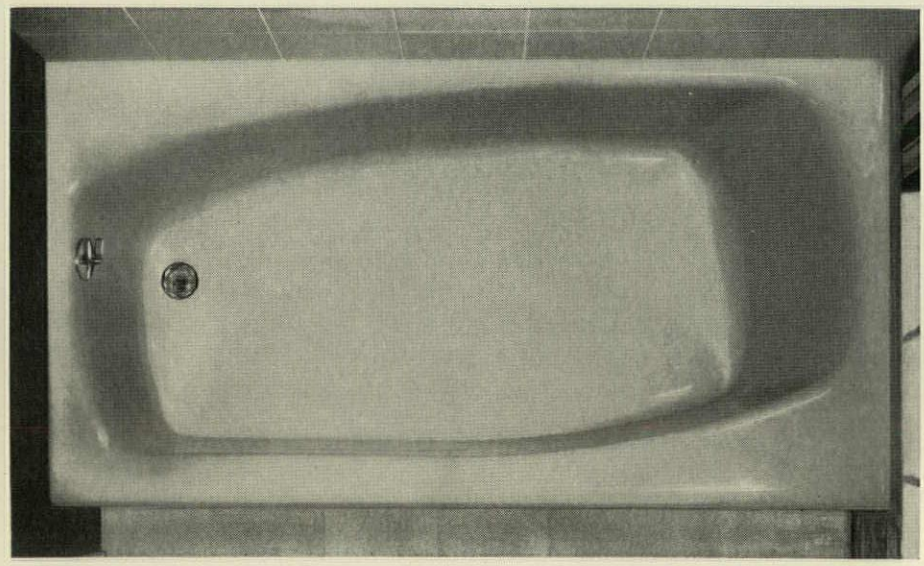

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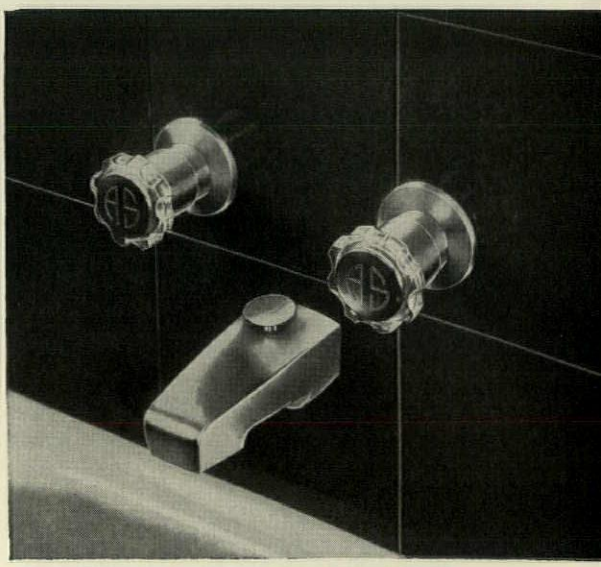

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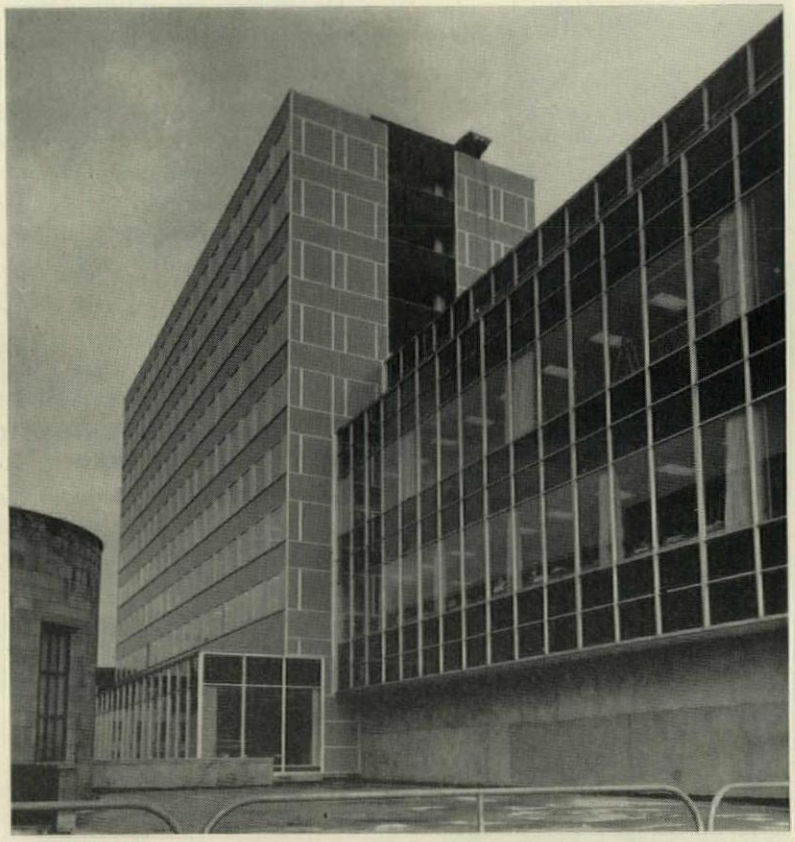

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Weldwood Glasweld is available in 1/8", 1/4", and 5/16" thicknesses. It is stocked in 48"x96" panels, and has a range of 10 colors. Spatter and linen-weave patterns are available, plus a perforated panel for ceiling use. An additional 20 colors and patterns are available on special order. Despite its ceramiclike appearance, the panel can be cut with a carborundum wheel on a portable power saw, or scored and snapped. It is easily drilled with conventional bits. It may be nailed without predrilling in 1/8" thickness and may be applied, with mastic, over almost any regular surface. Glasweld can be used in the same curtain-wall panel as both interior and exterior surfacing. It is guaranteed colorfast, and it is rot-free. A variety of moldings for joint and edge treatment will be marketed for Glasweld panels.

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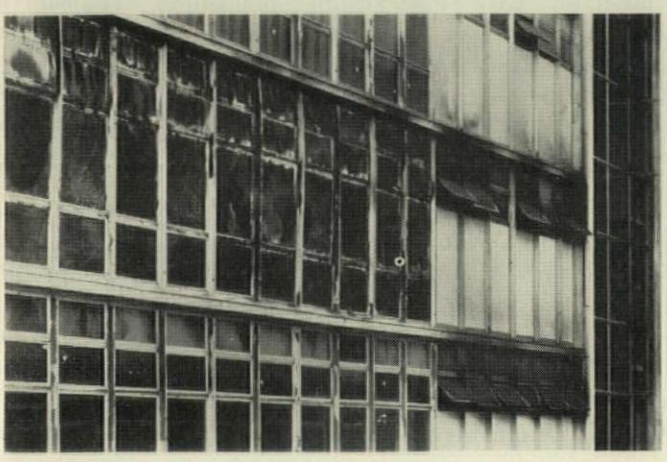
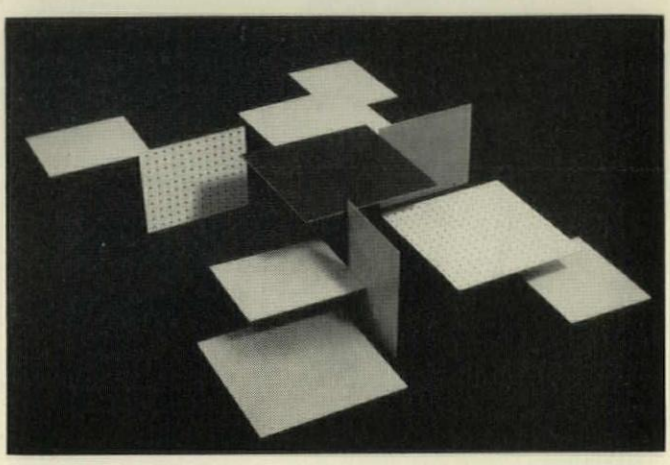
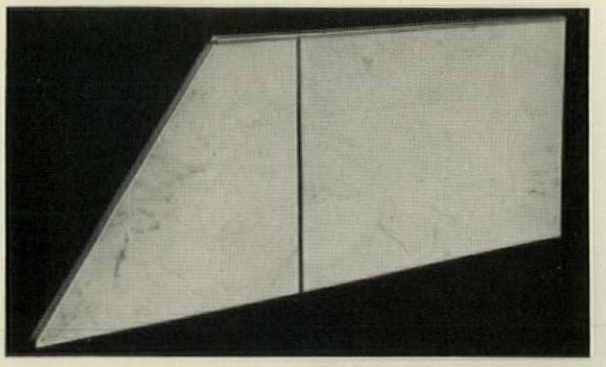




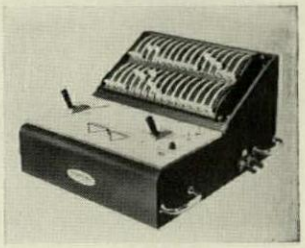


101

Old-Favorite Material Appears in New Guise

New building panel combines facing of marble $1/2$" thick with core of rigid insulating material encased in frame of extruded anodized, aluminum. Marble units 1' square make up surface of typical panel, allowing for wide range of color selection and arrangement. Three panel types are available: Series 100, flush mount, for opaque curtain and panel walls; Series 200 for grid walls and mullions; Series 300 for spandrel panels or below window units in window walls. Double-faced marble panels also may be specified. Developers of panel are Vermont Marble Company and Maul Macotta Corporation.

Vermont Marble Company **101**



102

Size, Weight, Cost of Dimming System Cut by Tiny Rectifier

Levels of light intensity in Cen-Trol, all-electronic dimmer system, are regulated by C-Core, miniscule, silicon-controlled rectifier. Reductions in weight, size, heat, and noise permit dimmer chassis to be located close to lighting instrument it will control (eliminating need for long, heavy, individual cable runs). Cable size from dimmer chassis to centrally located console (shown) of Cen-Trol system is No. 18 wire.

Century Lighting, Inc. **102**

103

Curtain Wall Offered in Single Package

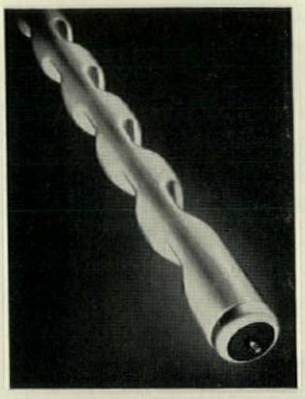
Low-cost factory fabricated-and-assembled steel curtain-wall system has been developed. All components of system are manufactured and assembled in the factory, then shipped to the job as completed units ready for installation by manufacturer's own erection crews.

Fenestra, Inc. **103**

Fluorescent Lamp Provides More Light

Improved version of Power-Groove fluorescent lamp is said to produce 15% more light, consume only 7% more power than older design. New design involves 40 three-inch, crescent-shaped grooves alternately on opposite sides of tube. Lamp produces 15,000 lumens at 215 watts, or an efficiency of 70 lumens per watt. Weight of lamp has been reduced one quarter. Will be available in 4-, 6-, and 8-foot lengths.

General Electric Company **104**



104

Adhesive Now Odorless

Formica Safe-Bond has faster "spread rate," can be brushed, rolled, or sprayed. Nonflammable, nonhazardous, its special aspect is odorlessness. This, plus safety factor, enables work to proceed in public buildings without inconvenience of close-down. Easy to work with—application equipment is washable with warm, soapy water. Although best known as adhesive for laminates for tables and countertops, applies to wood-working and wall-covering industries.

Formica Corporation **105**

106

Modular Furniture Units for Office, Home

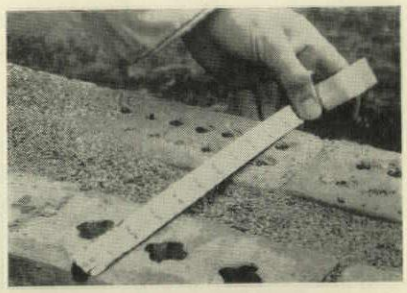
Variation of "Omnibus" units, with desk and office components added, is designed modularly, allowing number of combinations. Some features are Pendalfex file units, desk tops in several sizes, and long shelves to provide working "Ls." Group is kept rather small in scale, to be usable for home and office.

Richards Morgenthau Company **106**

Vermiculite Fill Insulation Is Water Repellent

Free-flowing vermiculite fill insulation has been treated under special process to make it highly water repellent. It is designed to provide insulation in block or cavity walls; will not lose insulating efficiency if moisture penetrates wall. Application is simply by pouring material into wall cavities or openings in blocks.

Zonolite Company **107**

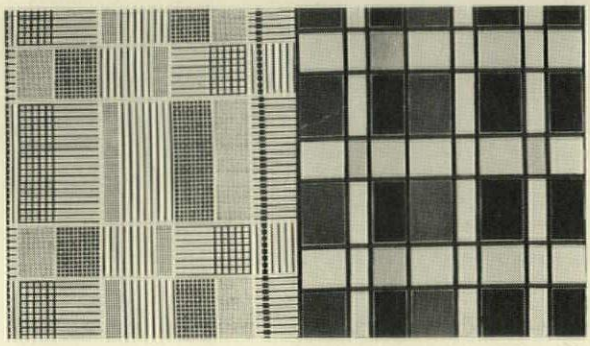


107

Swedish-Designed Fabrics Handprinted in U.S.

Low-priced "Sverige" fabrics are designed in Sweden under direction of Astrid Sampe, and printed and distributed in U. S. All six designs, plus correlating solid colors, are available on heavy-cotton sailcloth. Two designs are shown. Printed fabric priced at approximately $3.98/yd, solid-color fabric at approximately $2.98. Designs by Mrs. Sampe, Bengt Lindroos, Marianne Nilson, Viola Grasten, Kjell Abramson.

Imperial Textile Company **108**

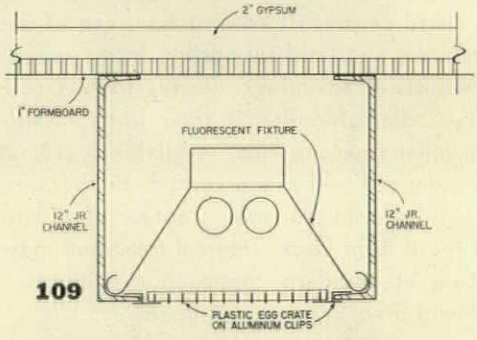


108

Steel Beams Used to House Lighting Fixtures

Four Denver, Colo., schools by Architect Roland M. Johnson have made lighting-fixture cost savings of about $375 per room through use of roof-supporting Junior Channel beams to house lighting fixtures. Industrial-type fluorescent fixtures were set inside the 12-in-sq beams, and a plastic egg-crate grid was held in place beneath the fixtures by aluminum clips. The boxed Junior Channels are exposed and painted to blend with the colors of the classrooms. All connections are hidden.

Jones & Laughlin Steel Corporation **109**

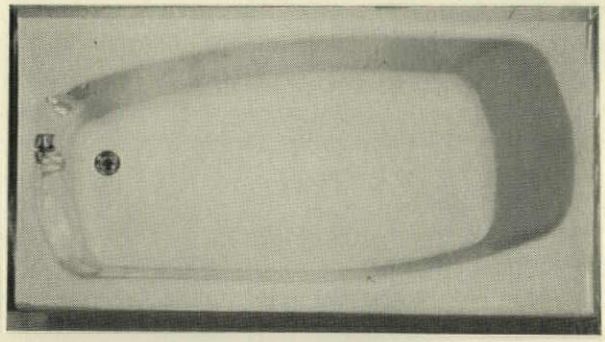


109

Lozenge-Shaped Bathtub Introduced

Bathtub with hexagonal bathing area is said to be first major design change in field in 25 years. "Contour" design provides extra bathing space where needed, in midsection of tub. Wide ledges at ends convenient for foot-bathing and as seat while washing children. Narrow rim at center is more convenient for gripping by children and aged. There is a flat, safety bottom.

American Radiator & Standard Sanitary Corporation **110**



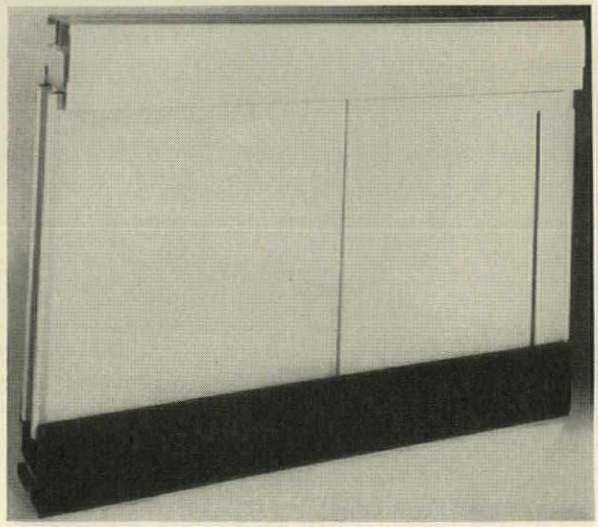
110

Plastic-Coated Steel Has Wide Application

Vinyl-coated sheet steel can be used for curtain-wall applications, partitions, wall-covering. New process involves curing and bonding of liquid-vinyl plastisols to sheets and coils, either cold rolled or galvanized in a continuous coating process. Plastic coating can be embossed with any texture or pattern that can be engraved on printing roll.

United States Steel Corporation **111**

111



"Foaming" Paint Acts as Fire Retardant

Paint containing combination including newly developed resin pigments retards flame. When fire attacks surface painted with "Saf," some chemicals decompose into harmless vapor; remaining chemicals begin to swell into thin film. With increasing heat, they expand into layers of spongy insulating mats. Heat of 1700 degrees creates mat more than one inch thick. Paint stops progress of flames and insulates surface beneath against spread of heat. Paint withstands 1700-degree flames for up to one hour.

Baltimore Paint & Chemical Corporation **112**

Pinch-Legs Feature of Coffee Tables

Tapered legs which narrow to a pinch then flare out at bottom support round top, 39" in diameter. Other tops avail-

able are free-form and variation on square corner table. Tables available in hand-rubbed teakwood or walnut.
Otto Gerdau Company **113**

Combination Roof Deck and Ceiling

Milcor Acoustideck combination steel roof-deck and ceiling has .70 noise-reduction coefficient—suited to commercial, industrial, institutional building installation. Weighs less than poured or precast construction, can be used with wide joist spacing and light supporting framework, to span up to 10'. Acoustical advantage derives from 4 rows of perforations, $5/32$" diameter. Precut fiber batts furnished with deck for installation along ribs. Available in 18, 20, 22 gage steel, Bonderized and prime coated, or galvanized—in 14 and 16 gage, galvanized only. Can be used interchangeably with Type B Roof Deck. Thermal insulation may be fastened over both by standard construction methods.
Inland Steel Products Company **114**

Residential Boiler Improves Appearance

Cast-iron, gas-fired boiler for residential use has "home appliance" styling. Model WFD-H sports a white jacket with gold trim; surface is protected from dampness by Duridized film and high-temperature aluminum spray. Sized

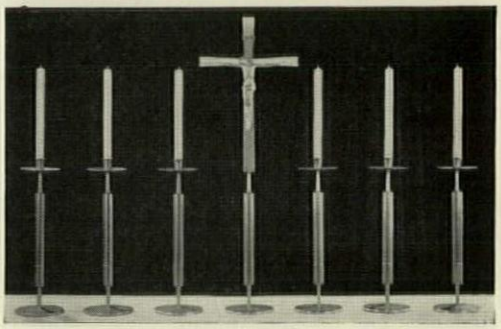
for from 78,000-300,000 Btu/hr input, WFD-H features tankless heater for hot water; wet-base sectional design for use on any type floor; and porcelainized flue collector to project from effects of combustion gases.
Richmond Plumbing Fixtures Division
Rheem Manufacturing Company **115**

Ceiling System Acts as Fire Guard

Acoustical-tile ceiling has gained a two-hour Fire-Retardant Time Design Rating from Underwriters' Laboratory, Inc. System is densely packed mineral-fiber tile with special tongue, groove, and kerfed edge detail that permits interlocking of the tiles. Each tile rests on clip spline which has been snapped onto steel main runner. Runners are attached to bar joists or carrying channels with galvanized clips.
Armstrong Cork Company **116**

Altar Furnishings Given Contemporary Look

"Forecast" Altar Group, designed for Alcoa by Rambusch Studios, feature clean-lined appearance which would blend with many backgrounds. Collection includes candlesticks,



chalices, and crosses. Group fabricated of Kensington metal, special luxury-finish aluminum alloy.
Aluminum Company of America **117**

Epoxy Cement Created for Vinyl, Rubber Flooring

Amtico epoxy cement—especially created for on-grade concrete installation of all Amtico vinyl and rubber floorings, even in coastal areas—is an off-white, two-part liquid adhesive, said to increase versatility of uses of these floorings in greater variety of installations. Available in a unit-gallon only. Coverage is approximately 200 sq ft per unit-gallon when spread with recommended fine-notched trowel.
American Biltrite Rubber Company **118**

Organic-Finish Metal Coloring

Permatron one-coat organic finish replaces plating and electro-chemical coloring methods on metals, offers substantial cost reductions from savings in material, time and equipment. Requires no pretreatment of metal—can be sprayed, dipped, or roller-coated. Unaffected by salt spray, extremes in temperature, detergents, alkalies, acids—withstands repeated impact. Successfully simulates any metal. Available in brass, gold, copper, bronze, and a variety of colors.
Permatron Company **119**

Floor Tiles Feature Metallic Colors

Resilient floor tiles available in metallic colors and three stylings for residential and commercial application: solid vinyl Metallic Chip (9" x 9" in .080" gage), in silver gray, copper beige, white galaxy, golden pink, and ivory inlay; Metallic Vinyl Asbestos (9" x 9" in $1/16$" standard gage), in three marbleized and six Carnival styles, in golds on whites and blacks, and also colors; Crystalite Glitter (9" x 9" and 12" x 12", plus other sizes, also in 37" x 37" with sides untrimmed—all in $1/8$" gage), of translucent vinyl having marble variation, in White Gold, Black Gold, Jewel Black.
Kentile, Inc. **120**

Asbestos-Plastic Used For Roofing Shingles

Fire-Chex asbestos-plastic roofing shingle features resistance to severe weather, fire exposure—without asbestos underlayment. Shingle is 12"x36" over-all, weighs 325 lb to the square. Comes in "Forecast" colors—Style-Line-Shadow texture. Sta-Seal adhesive, special pressure-sensitive material, factory-applied in wide bands covered with removable protective tape—eliminates reliance on heat for sealing.

The Philip Carey Mfg. Company **121**

Push-Button Operates Electric Stairway

Automatic electric stairway operates with 1/4" steel cables and dual-pulley engineering principle to assure smooth, consistent performance—power unit is 1/3 hp, 115-v cycle, single-phase electric-gear motor, with push-button switch. Large treads are ribbed-rubber-covered for safety; hand rails are of 1 1/16" galvanized steel tubing. Rough opening requirement: 30"x72"; frame size-outside: 29"x71 1/4".

Precision Parts Corporation **122**

Stoneware Planters Suit Indoor, Outdoor Use

Rough-textured, unglazed, high-fired stoneware is slab-built in concentric cylinders with overlapping seams, broken lines.

Planters, designed by David Weinrib, are 20"x16"x15", $150; 17"x15"x14", $90; and 13"x11"x9", $60.

Karl Mann Associates **123**

Locksets Incorporate Labor-Saving Features

Series 5280 in line of Yale moderately priced residential and commercial interior key-in-the-knob type locksets, is available in Medwood as well as other designs—offers labor-saving features—paper template and installation instructions included. Boring and backset dimensions are completely interchangeable with Yale 5207, 5237, and 5300 series locks. Available in brass, bronze, aluminum, chromium plate on brass.

The Yale & Towne Mfg. Company **124**

Aluminum-and-Polyethylene Folding Shower Door

Low-priced Showerfold door for residential or public installation in standard bathtub and stall-shower openings, is constructed of slim, polished aluminum sections hinged with flexible, translucent panels. Door is moved from either side by finger-tip, over track that has no upward grooves. Allows 80% accessibility to tub or shower when open, fully restricts water when closed. Available in complete range of sizes and colors.

Olin Mathieson Chemical Corporation **125**

Real-Wood Veneer Paneling In Flexible Sheets

Furnaflex real-wood veneer paneling, applies like wallpaper. Aluminum backing offers resistance to heat, moisture, mildew, other climatic conditions. Water and stain-resistant permanently finished vinyl surface prevents fading and cracking. Can be applied direct to all structural materials, including plastic and glass, without preparation of surface to be veneered. Adapts to curved contours. Available in oak, birch, mahogany, walnut, cherry or maple, in dull satin, or glossy finish—in laminated sheets, 4'x8', of matched or random-width panels .025" thick. Other veneers and sheet thicknesses available on special order.

Wilcox Woolford Corporation **126**

Outdoor Track Surfacing

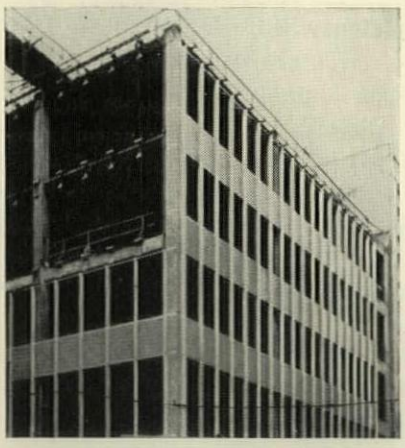
"Grasstex" presents all-weather easy-maintenance properties, desired performance factors. Fibrous, resilient asphalt composition surface for outdoor running track offers following advantages: (1) can be placed over materials already on ground when stabilized with asphaltic emulsions; (2) nonskidding; (3) surface is never spongy after rain; (4) lanes can be striped permanently in colors for "lane identification." Shallow holes resulting from indentation made by spikes close up automatically. Mastic Weathercoat, 3/32", rolled and applied with squeegees, seals 1/4" Grasstex surfacing, insures complete bond.

American Bitumuls & Asphalt Company **127**

Curtain Wall Has Italian Blue-Glass Panels

Translucent Italian blue-glass mosaic squares are set in 4' panel, in aluminum sash measuring 5' x 10'. Building is First National Bank of Oregon, Portland, by Architects Stanton, Boles, Maguire & Church. Wall panels were fabricated by Universal Corporation of Dallas, Tex.

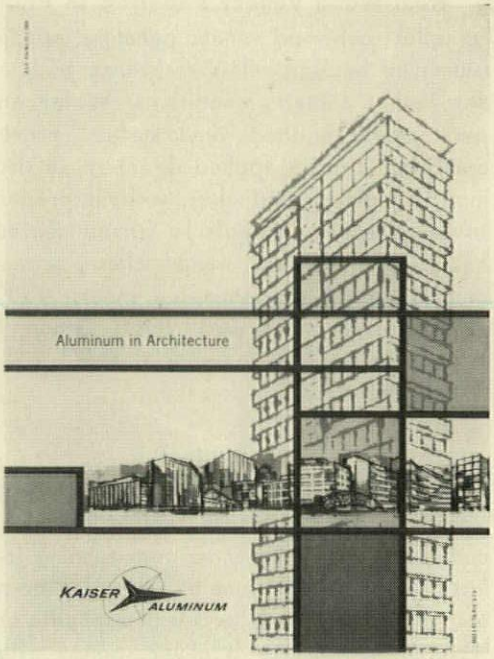
Reynolds Metals Company **128**



Chimney System Is Easily Assembled

Chimney of stainless, aluminum-coated, and galvanized steels presents a compact all-fuel chimney system requiring no cutting—weighs 10 lb per ft and can be hammer-installed in 30 minutes following preparation of openings. Support assembly withstands more than four times maximum chimney weight load, and is engineered to withstand winds of 200 miles per hour. Chimney incorporates raincap design and louvre arrangement to minimize streaking, and provide efficient ventilation; nonbreakable insulation effective to over 1700 F.

Bert R. Huncilman and Son **129**



Booklet describes characteristics, suggested applications, and availabilities of architectural aluminum. Tables deal with: selections of alloys for given applications; information and properties of available architectural alloys for considering structural stresses; comparison of technical information on architectural aluminum finishes. Products described are standard and specialty sheet products; architectural extrusions; stressed-skin domes; ShadeScreen and electrical conductors.
Kaiser Aluminum & Chemical Sales, Inc. (AIA 15-J, 24-p.) **200**

AIR AND TEMPERATURE CONTROL

Compact, Fumeless, Electric Baseboard Heater

Bulletin describes Ilg electric baseboard heater—featuring room-by-room temperature selection control, noiseless operation—available in 2', 5', 8' lengths in both 120 and 240 v power—over-all height 8⅞"; depth 2⁹⁄₁₆"—can be flush-mounted or recessed against studding. Accessories provided for complete, unbroken installation. Specifications, construction, installation data included.
Ilg Electric Ventilating Company (Bulletin 1401, 2-p.) **201**

High-Efficiency Filtering Media

Brochure explains properties of high-efficiency mechanical air filters—Type F, dry-type Multi-Pak, pocket-type Airmat Deep Bed. Collection efficiency ranges from 45 to 90 percent plus, depending on media thickness, density, texture. Illustrations of media and full assemblies, filter selection tables, engineering data charts, performance curves, included.
American Air Filter Company, Inc. (Bulletin 238, 8-p.) **202**

Selection Guide for Airline Grills

Guide contains comprehensive engineering and selection data on line of Airline grills. First section provides data on eight types of grills, with application information according to installation classification (whether for heating and ventilating in sill, floor, or sidewall)—shows five available border styles. Other sections give air-flow measurement; sound-level data; grill pressure resistance table—application data for duct heights 2" to 6", and grill openings ranging from 1¼" to 5½" in size.
Waterloo Register Company, Inc. (6-p.) **203**

Editor's note: Items starred (★) are particularly noteworthy, due to immediate and widespead 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.

CONSTRUCTION

Uses of Stone from Antiquity to Present

Brochure reviews uses of stone from primitive time through the Egyptian, Grecian, Roman, Byzantine, Medieval, Renaissance periods, the present time, closing with a large 22"x32" panorama of the City of the Future—depicts every type of quarried stone in natural colors—suggests uses of stone and stone patterns for all types of construction.
Building Stone Institute (16-p.) **204**

Decorative Tile and Brick Applications

Catalog shows entire line of structural-clay products: ceramic-glaze Vitritile in 22 standard colors—ceramic-glaze Velour-textured facing brick in 11 colors—Natco face brick in three sizes, range of colors and textures. Among additional new and redesigned products presented is a splayed-base unit designed to prevent surface contact and damage from movable equipment. Perspective and line drawings, full-color photographs of products, and products in use, included.
Natco Corporation (Catalog S-59, AIA 10 A-B, 24-p.) **205**

Fir Plywood for Today's Construction

General information booklet "Fir Plywood for Today's Construction" contains data on physical properties of fir plywood; chart of characteristics and proper use of each grade of interior and exterior-type panel; table of basic requirements for plywood construction; gluing and nailing recommendations. Design and use data for various concrete forms is included.
Douglas Fir Plywood Association (AIA 19-F, 12-p.) **206**

Aluminum Safety Treads and Nosings

Catalog describes Super-Grit aluminum-base abrasive-filled treads and nosings for churches, schools, public buildings, where exceptional durability combined with safety and ap-

pearance are considerations. Treads are 1/4" thick with 3/16" deep abrasive penetration claiming to provide 65 percent more grit capacity than previous treads—have flat easy-to-clean surface. Available in wide variety of nosing designs in 3" to 9" widths for light-, medium-, and heavy-duty traffic stairs—fabricated in lengths as required, to 12'0". Preattached time-saver anchors for fresh concrete are provided, other fastener types, as specified.
Wooster Products Inc. (AIA 14-D-1, 20-p.) **207**

★ **All-In-One Window and Panel Wall System**

Brochure explains one- or two-story all-in-one window-and-panel wall system that permits co-ordination with almost any building module in range of building types (school, clinic, medical, one- or two-story commercial)—durable, weathertight, expandable (corner panel can be removed to allow additions). Aluminum-faced and backed panels have clean vertical lines, available in three standard exterior finishes—other finishes, and 22 baked-on standard panel facing colors. Furnished with 3 stock window sizes. Detail drawings, suggested specifications, included.
Reynolds Metals Company (AIA 17-A, 8-p.) **208**

Floor-Panel Selection Aid

File sheet provides safe load and section property tables for Types OF and OP enclosed-rib steel roof deck and sub-flooring—panels, described as combining high strength with light weight, are said to save cost of many hundreds of tons of steel, up to months of construction time—as subflooring, panels act as raceways for wiring, enabling future installation of electrical outlets within minutes. Sections are 18" and 12" wide, available in lengths up to 25', in galvanized, aluminum, stainless steel, gray-painted steel. Erection information, welding specifications, flashing details, included.
American Steel Band Company (4-p.) **209**

★ **Wrought-Iron Building Drainage Systems**

Booklet in nine sections reviews advantages of 4-D wrought-iron piping in soil, waste, vent, and downspout applications—furnishes results of building piping surveys, photographic examples of vent corrosion—sections include descriptions of corrosive conditions encountered in drainage services; comparative service records; typical installation and performance tables; piping economy; cost comparisons between low maintenance and low-initial-cost materials. Specifying and reference data included.
A. M. Byers Company (AIA 29-B-2, 64-p.) **210**

Products for Structural Systems

Catalog lists four additions to an existing line of steel architectural products: lightweight, 16-gage, loadbearing punched channel studs of open-web design, usable as exposed members, providing more area for conduit clearance, easy attachment of metal lath and collaterals; rigid-frame column and rafter assemblies in spans from 30' to 78', eave heights from 9'-6" to 19'-6", applicable where architecturally pleasing exposed structural section and clear span is desired; combination acoustical ceiling and roof deck in one structural element, in 18- and 20-gage steel; galvanized and painted roof deck in two profiles (standard and wide rib) in 18-, 20-, 22-gage steel. Catalog contains information on entire Stran-Steel line of products. Illustrations and photographs show how each can best be used in a variety of applications.
Stran-Steel Corporation (23-p.) **211**

Building Products and Services

Technical manual is divided into six separate catalog sections detailing engineering data and specifications for each of the following commercial building elements: metal curtain walls, metalclad fire walls, rolling steel doors, electrified M-floors, long span M-decks, steel roof decks, acoustical and troffer forms, acoustical ceilings, structural steel, steel plate components. Diagrammatic drawings and photographs accompany text; section with construction details for drafting room use is included.
The R. C. Mahon Company (100-p.) **212**

Adaptable, Handsplit Roof Shakes

Manual illustrates history of red cedar handsplit shakes—contemporary design applications—discusses properties of durability, insulating value, lightness of weight, strength,

appearance. Photographs and sketches show proper application techniques, uses for shakes in modern residential, church, school, commercial building. Also shown are manufacturing and grading processes.
Red Cedar Shingle Bureau (AIA 19-D-1, 32-p.) **213**

Design Versatility of Laminated Wood

Manual demonstrates design versatility of glued-laminated wood members—provides detailed drawings defining a wealth of possible uses in every type of structural form—also photographs of existing buildings including auditoriums and churches employing tepee, crossvault, oval, V type forms, and unusual shapes to fit special ground contour conditions—and a free-spanning rigid-frame construction featuring contraflexual located field splices for maximum clearances, optimum economy. Complete specifications, application data, information on types, fabrication, protection, relative strengths and bending properties, color selection chart, included. **214**
Unit Structures, Inc. (AIA 19B-3, 28-p.)

(Continued on page 183)

FLINTKOTE

Win yourself this carload

while you get acquainted with America's broadest

Big promotion going on! Two weeks from now, this same Flintkote flatcar starts rolling into big space ads in LIFE and SATURDAY EVENING POST. Other powerful selling ideas are coming up in READER'S DIGEST too. The purpose: to demonstrate that Flintkote makes the broadest line of building products in America, and to help everyone who moves Flintkote products into the homes of America.

While the whole country's getting a look at the length and breadth of Flintkote's line . . . you can cash in . . . win yourself every can, case and carton you see above!

Or you can win the equivalent in cold cash . . . $5000. Or win one of 121 other cash awards!

EASY TO ENTER!

Read the official entry rules (right). Complete the entry blank in this ad and mail it to FLINTKOTE CARLOAD CONTEST, Box 7A, Mount Vernon 10, New York. Hurry! Each entry must be postmarked no later than April 15th, 1959 and received by April 21st, 1959.

Nothing to buy!

122 chances to win!

GRAND PRIZE

Three choices:

- The products shown on the flatcar illustrated.
- The equivalent in Flintkote Building Products of your choice.
- The cash value, $5000.00.

Plus 121 Cash Awards

2nd Prize . . . . . $500 cash
20 third prizes, each $100 cash
100 fourth prizes, each $25 cash

Enter today! Flintkote's $10,000 CARLOAD CONTEST

Guess

how many building products the Flintkote Company makes and guess the total shipping weight of the products on this flatcar.

(or $5,000 in cash)

line of building products

FLINTKOTE CARLOAD CONTEST RULES

(1) Only one entry per person. Each entry must be mailed separately and may be submitted on either the official entry blank or on ordinary paper bearing your name and address.

(2) Entries will be judged by the Reuben H. Donnelley Corporation on the basis of accuracy of answers to (a) the number of different products the Flintkote Company makes and (b) the total shipping weight of all the products shown on the flatcar in this advertisement.

(3) In the event of a tie, tied contestants will be asked to complete the following statement in twenty-five words or less: "The Flintkote line of products is a good line because . . .". Ties will be broken by judging these statements on originality of thought, logic, clarity and conciseness of expression. In the event of a final tie, duplicate prizes will be awarded. The decision of the judges is final.

(4) This contest is open to all dealers, distributors, builders, specifiers and architects in the continental United States and Canada, except employees (and their immediate families) of The Flintkote Company, its affiliates and their advertising agencies.

(5) This contest is subject to all Federal, state and local laws, ordinances and regulations, and is not open to contestants in any area where state or local laws, ordinances or regulations render participation illegal.

(6) All entries, contents and ideas therein become the property of the Flintkote Company to be used as it sees fit.

(7) Winners will be notified personally or by mail about six weeks after the close of the contest. Names of the winners will be available about 60 days after the close of the contest to those sending stamped, self-addressed envelopes to FLINTKOTE CARLOAD CONTEST, Box 7A, Mount Vernon 10, New York.

OFFICIAL ENTRY BLANK
FLINTKOTE CARLOAD CONTEST

The number of building products made by the Flintkote Company is .....

The total shipping weight of the products shown on the flatcar is ..... Pounds, ... Ounces.

Mail to:
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Box 7A, Mount Vernon 10, N. Y.

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CITY_____

ZONE_____ STATE_____

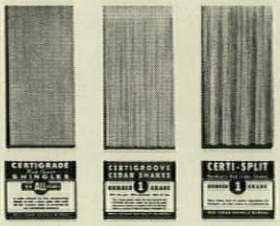
WESTERN RED CEDAR

. . . native to better neighborhoods

You can tell a really good district at a glance—*and so can your clients.* Fads and fancy stuff are at a minimum. The designs and materials are chosen for their enduring qualities of natural good looks and honest function. Triple-thick roofs of rugged cedar shingles . . . richly-textured walls of cedar shingles or shakes . . . are marks of the better neighborhood. For the house of cedar is the house of quality. And the quality today—*more than any other single feature*—is apparent in the homes that the public prefers.

RED CEDAR
SHINGLE BUREAU

5510 White Building, Seattle 1, Washington
550 Burrard Street, Vancouver 1, B. C.



For full application details on cedar shingles and shakes, see the current Sweet's Catalog...or send coupon...

NAME_____
FIRM_____
ADDRESS_____
CITY_____ ZONE____ STATE_____

(Continued from page 179)

DOORS AND WINDOWS

Steel Doors and Frames for Hard Service

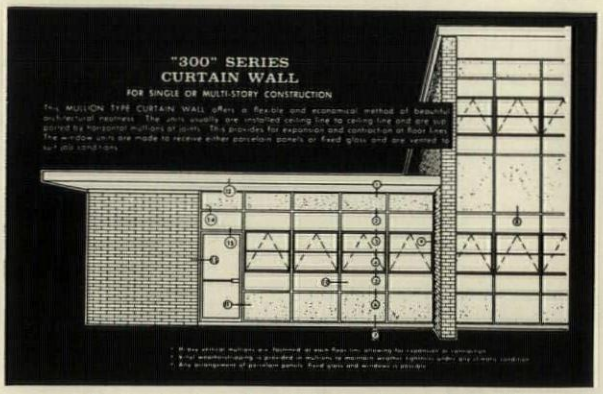
Catalog presents lines of steel doors and frames for heavy-duty, high-frequency application—Commercial series 300 and 400, Commodity series 100 and 200 (suitable for public dwelling as well as commercial application). Twenty-seven versatile door designs, "k-d inter-lok frames," cut-out adaptations of all standard locksets, are among Commercial line highlights. Diagrammatic and cutaway drawings, specifications, provided. Insert sheet lists fire doors and frames available in range of types and sizes.
Amweld Building Products (19-p.) **215**

Commercial Windows and Curtain-Wall Systems

Catalog shows sectional details, standard and modular sizes, for more than twenty types of Ualco aluminum windows for residential and commercial use. Included are casement, double-hung, horizontal slider, jalousie, utility, awning, commercial projected, commercial pivoted, ranch styles; and four curtain-wall systems—offering choice of spandrel-panel materials, finishes, colors; installation ease, low maintenance. Photographs of existing installations, assembly and construction-detail drawings of windows and hardware, specifications, provided.
Southern Sash Sales & Supply Company (40-p.) **216**

Versatile Curtain and Window-Wall Construction

Folder describes aluminum Suwinco curtain and window-wall construction, designed to meet standard or individual re-



quirements in institutional, public, industrial building—Series 300 extruded-aluminum, intermediate, projected window—Series 400, with inswinging safety vent for convenient cleaning—Series 1400 with 4"-deep sub frame, employing vertical and/or horizontal sightlines. Standard types and sizes, section details, typical installation details, specifications, given.
Superior Window Company (13-p.) **217**

Stock Aluminum Unit-Flow Window Wall

Booklet explains "unit-flow" stock aluminum wall units system designed to save construction time in small school, commercial, and industrial building. All curtain-wall elements, including window, door, and panel, are contained in a single package unit—available in selection of styles. Custom-design curtain-wall structures to blend with standard units can be supplied. Section details, specifications sheet, included.
All-Lite Metal Window Company (AIA 17-A, 4-p.) **218**

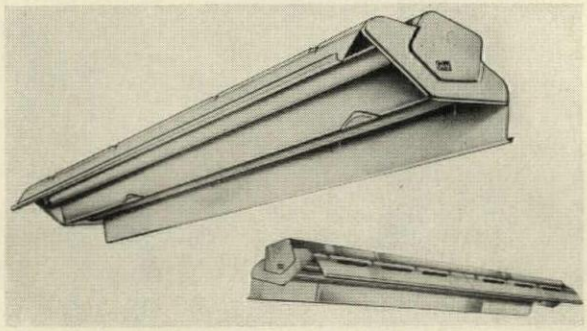
ELECTRICAL EQUIPMENT, LIGHTING

Vaportight Lighting Fixture

Catalog presents vaportight lighting fixture line—specifications, dimensional data, outline drawings, application information, for all components and assemblies of entire line of completely interchangeable pendant, ceiling and wall fixtures. Large cutaway photos illustrate precision-molded die-castings, air-conditioned reflectors, other design features.
Stonco Electric Products Company (12-p.) **219**

Kolorkoded Industrial Luminaire

Brochure illustrates Wyteliner industrial Kolorkoded (red, green, yellow) luminaire units—used to identify exits, fire equipment, general aisles, traffic lanes, other specific plant areas. Units feature drop-design end plate—are for 430,



800, or 1500 Milliamp operation, utilizing HO,VHO,SHO or power groove lamps. Reflector units are available in white porcelain enamel, baked-on white or Alzak aluminum—with either 10 or 25 percent uplight, 13- or 27-degree shielding using T-12 lamps.
Edwin F. Guth Company (AIA 31-F-2, 4-p.) **220**

Low-Brightness Single-Lens Panel

Bulletin contains suggested specifications, tables for calculating illumination levels, photometric data for Crystopal No. 71 single, lightweight, lens panel, made of water-white crystal and opal providing uniform brightness-controlled illumination in stores, offices, public buildings—liberal use is made of charts, graphs, and drawings in presenting testing conditions, brightness and distribution data, coefficients of utilization for 2,3,4 lamp troffers. Sizes up to 33"x100".
Corning Glass Works (Bulletin L-110-Q, 6-p.) **221**

Recessed Modular

Booklet provides information on Lightolier's new 2' x 4' and 2' x 2' modular troffers in three styles: Optiplex, Domex, and Strialux. "Calculator" charts and candlepower-distribution charts shown on each variety: six pages give application and installation data; detailed table simplifies ordering.
Lightolier (AIA 31-F-23, Brochure 25, 20-p.) **222**

Eighteen Hospital Lighting Fixtures, Systems

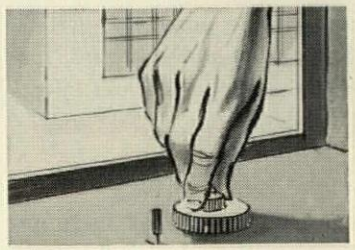
Catalog contains photographic reproductions, cross-sections, highlight descriptions, specifications for: patient-bed lighting; asymmetric-beam fluorescent systems for high-level lighting of operating rooms; fluorescent application for

(Continued on page 188)

LUPTON unites personalized Comfort-

NEW SYSTEM COOLS, HEATS, VENTILATES

Now, you can not only cool and ventilate, but heat as well with LUPTON's new Comfort-Conditioning Curtain-Wall System. LUPTON Comfort-Conditioning units, operating as heat pumps, are satisfactory for all heating purposes during change of season, and wherever winter design temperatures are not extreme. Furthermore, these units can be furnished with supplementary heat to take care of all heating requirements, regardless of winter design temperature.



INSTALLATION COSTS DROP 40 TO 60%

Unlike central systems, LUPTON Comfort-Conditioning requires no unsightly, expensive cooling towers, ductwork, plumbing connections, or condenser units . . . only electrical connections. Each unit has single control for temperature, fan, and exhaust for odor- or smoke-removal, allowing individual room regulation. This provides a major rental feature and lowers air-conditioning costs. Wide separation between outside air intake and discharge prevents air from re-circulating . . . results in faster, more efficient operation for heating or cooling.

*TRADE MARK

Conditioning* with curtain walls

WIDELY FLEXIBLE SYSTEM

With all panels sized uniformly, you can readily expand or decrease Comfort-Conditioning capacity at small cost. LUPTON's two Comfort-Conditioning units—heavy-duty, for severest cooling requirements, and lighter-duty, for most applications—are interchangeable in themselves or with shelving, bookcases, or storage cabinets. You get a complete exterior-interior wall, with nothing protruding on the outside, a sill of normal depth on the inside. Also the LUPTON system gives you great opportunity for variation in spandrel proportions and surface treatment.

For more information about Comfort-Conditioning—LUPTON's far-reaching advance in aluminum curtain-wall design and function—write today. Investigate all its possibilities and advantages.

LUPTON®

ALUMINUM CURTAIN WALLS AND WINDOWS

MICHAEL FLYNN MANUFACTURING COMPANY

Main Office and Plant: 700 E. Godfrey Ave., Philadelphia 24, Pa. New York, N. Y.; Chicago, Ill.; Cincinnati, Ohio; Cleveland, Ohio; Los Angeles, Calif.; Stockton, Calif.; Dallas, Texas. Representatives in other principal cities.

New acoustical ceiling given two-hour fire rating by Underwriters' Laboratories

New Armstrong Acoustical Fire-Guard is the first two-hour acoustical ceiling tile. It eliminates the need for intermediate fire-stops—saves construction time—lowers building costs.

Take a good look at the floor-ceiling assembly on the opposite page. It can mean significant savings in both construction time and money in nearly every new commercial or institutional building in the country.

Underwriters' Laboratories, Inc., (in its report #4177-1) stated that this floor-ceiling assembly, utilizing Armstrong Acoustical Fire-Guard ceiling tile, "will afford two-hour fire protection against the passage of flame or dangerous transmission of heat." It also reported that this system, when tested, protected bare steel joists for a period exceeding six hours.

Saves money

Armstrong Acoustical Fire-Guard eliminates the need for costly intermediate fire-stops. Previously, it was necessary to (1) utilize reinforced concrete construction, or (2) spray steel structural members with an insulating material, or (3) suspend a lath and plaster fire-stop to which the acoustical ceiling tile could be applied.

Saves construction time

Armstrong Acoustical Fire-Guard is installed by a completely dry method. No costly delays are necessitated by "wet" operations. No extra moisture is introduced into the building.

Available in two designs

Armstrong Acoustical Fire-Guard is now available in two attractive perforated designs: Full Random and Classic.

Offers choice of construction

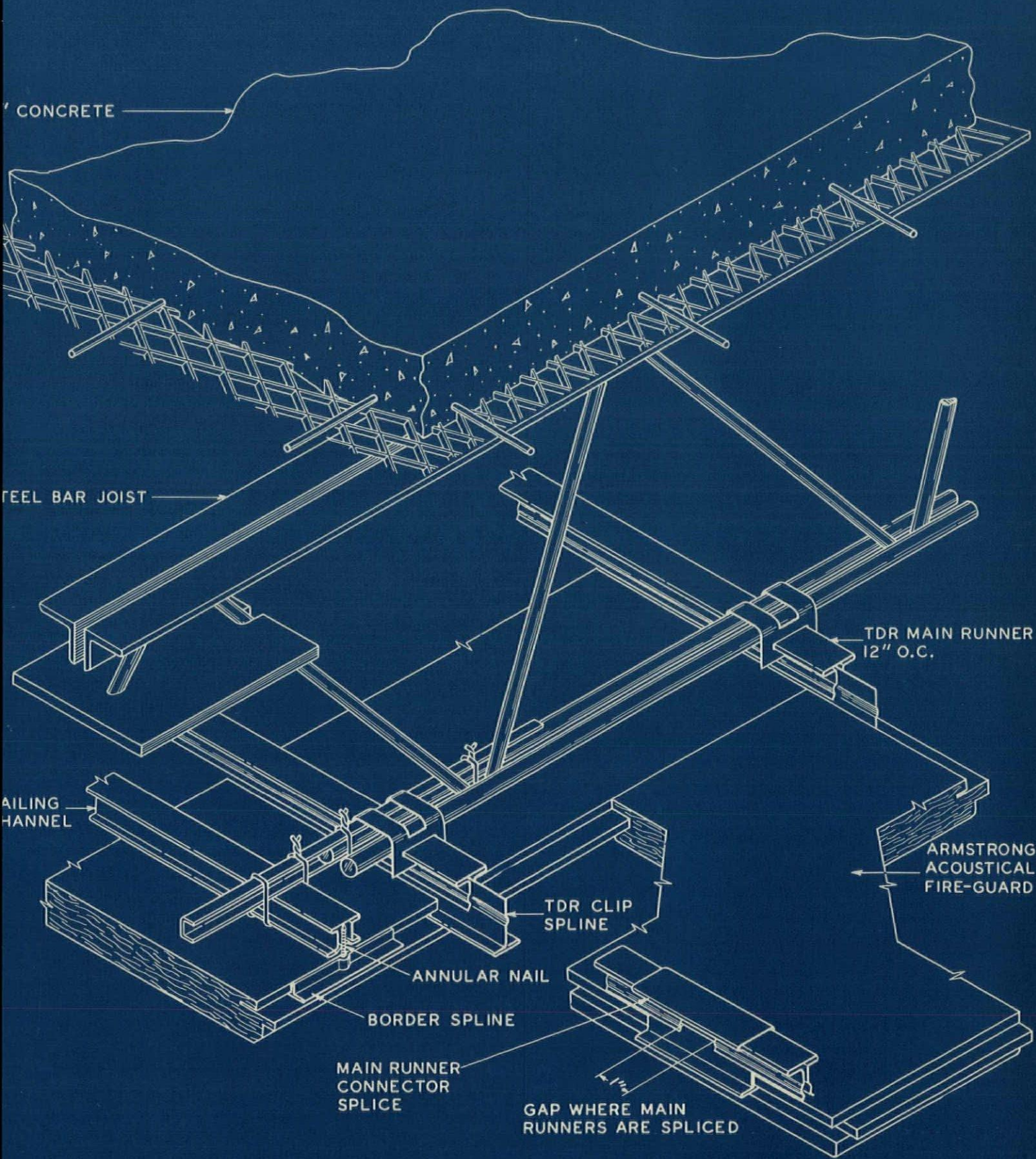
Assembly shown at right is minimum acceptable construction. Use of heavier steel joists or thicker concrete or suspension of the system from 1½" plasterer's channels hung below structural members would logically be permissible.

For complete information about Armstrong Acoustical Fire-Guard, call your Armstrong acoustical contractor, your nearest Armstrong district office, or write to Armstrong Cork Company, 4203 Watson Street, Lancaster, Pennsylvania.

Details of Armstrong Fire-Guard Suspension System on opposite page. The main runners are installed on 12" centers and are attached to the bar joists (or suitable carrying channels such as 1½" plasterer's channels) with galvanized clips placed at nominal 4' intervals. Clip splines are snapped into the main runners. The acoustical unit is supported on all four corners by the flange on one side of the tile and the kerf on the other side of the tile, resting on the snap-in clip spline. Border tiles are supported by annular nails which are inserted in border splines and fastened into nailing channels.

Armstrong ACOUSTICAL CEILINGS

ARMSTRONG ACOUSTICAL FIRE-GUARD CEILING SYSTEM



p/a manufacturers' data

(Continued from page 183)

completely tamperproof psychiatric-ward lighting; utilization of indirect-fluorescent lighting for efficient ward lighting —other installations. Material is presented in quick-reference chart form, showing specifically engineered lighting units for typical layouts. Features and condensed specifications included for each unit.
Alkco Manufacturing Company (Catalog HL, AIA 3-F-2, 8-p.) **223**

FINISHERS AND PROTECTORS

Interior and Exterior Wood Protectors
Folder shows uses of Lignophol finishes in prevention of deterioration of wood exposed to abrasion, heat, moisture, weather and fungus attack, for variety of applications including floors, trim, paneling, cabinets, doors — types described are: interior quick-drying finish (one-application wood preservative natural finish); penetrating finish (for interior and exterior natural wood surfaces, and heavy-duty industrial wood floors); gym finish (gymnasium floor protective coating). Specific application information and coverage data, package and shipping data, are included.
Building Products Division, L. Sonneborn Sons, Inc. **224**

Color Finishes Promote Decorative Uses of Wood
Publication deals with applications of Rez sealer primers and exterior and interior color wood finishes—comprehensively illustrates uses of wood: in construction, as decorative wall material, for interior furnishings (tables, cabinets, bookcases, etc.). Two-color drawings and full-color photographs emphasize range of design possibilities in use of varying color tones, grains, and surface textures of wood. Book contains diagrammatic build-it-yourself drawings, discussion of wood strengths and features for best application results, surface preparation and color finish application information.
Monsanto Chemical Company (56-p.) **225**

SPECIALIZED EQUIPMENT

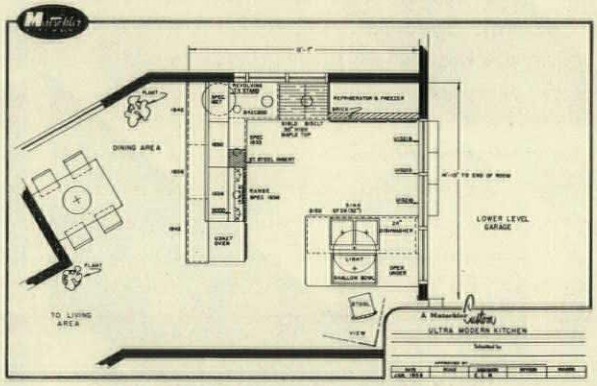
Knock-Down Aluminum Cabinet Framing System
Folder explains Arcware aluminum knock-down framing system primarily designed for kitchen cabinet construction; also suitable for vanities, bookcases, other home applications —with choice of exposed or concealed framing, in 11 widths on 3" module from 12" to 42" for both upper and lower units—cabinet core components assemble quickly without screws, nails, or glue (drawings show how). Available in early American, provincial, ranch, contemporary styles.
Architectural Hardware Corporation (6-p.) **226**

Traffic Flow-Layouts Aid Cafeteria Planning
Publication analyzes traffic-flow principles in cafeteria installations to achieve maximum operation efficacy—contents, in 10 sections, analyze factors pertaining to personnel comfort, efficiency—laning of service and customer traffic, station location and equipment arrangement, counter types, etc. Layouts are visualized in numerous design drawings.

Appendixes at back give comparison data of cafeteria counter with lunch counter, and self-service counter operations. Source-reference table included.
Norton Company (40-p.) **227**

Bass Reflex Baffles with Spiral Sound Absorption
Folder describes architectural sound baffles for commercial, industrial, residential wall or ceiling applications—round and square faceplates for 6",8",12" speakers with slotted or louvered ports are made of non-resonant, molded, glass fiber and styrene—materials, plus enclosed design are said to assure strong, lightweight, fireproof product, vibration and dust infiltration-free. Models come in neutral shades, may be painted to suit application.
Fourjay Industries (4-p.) **228**

Kitchen Travelog Floor Plans
Booklet presents 20 floor plans to suggest effective utilization of space in arrangement of kitchen furniture and equip-

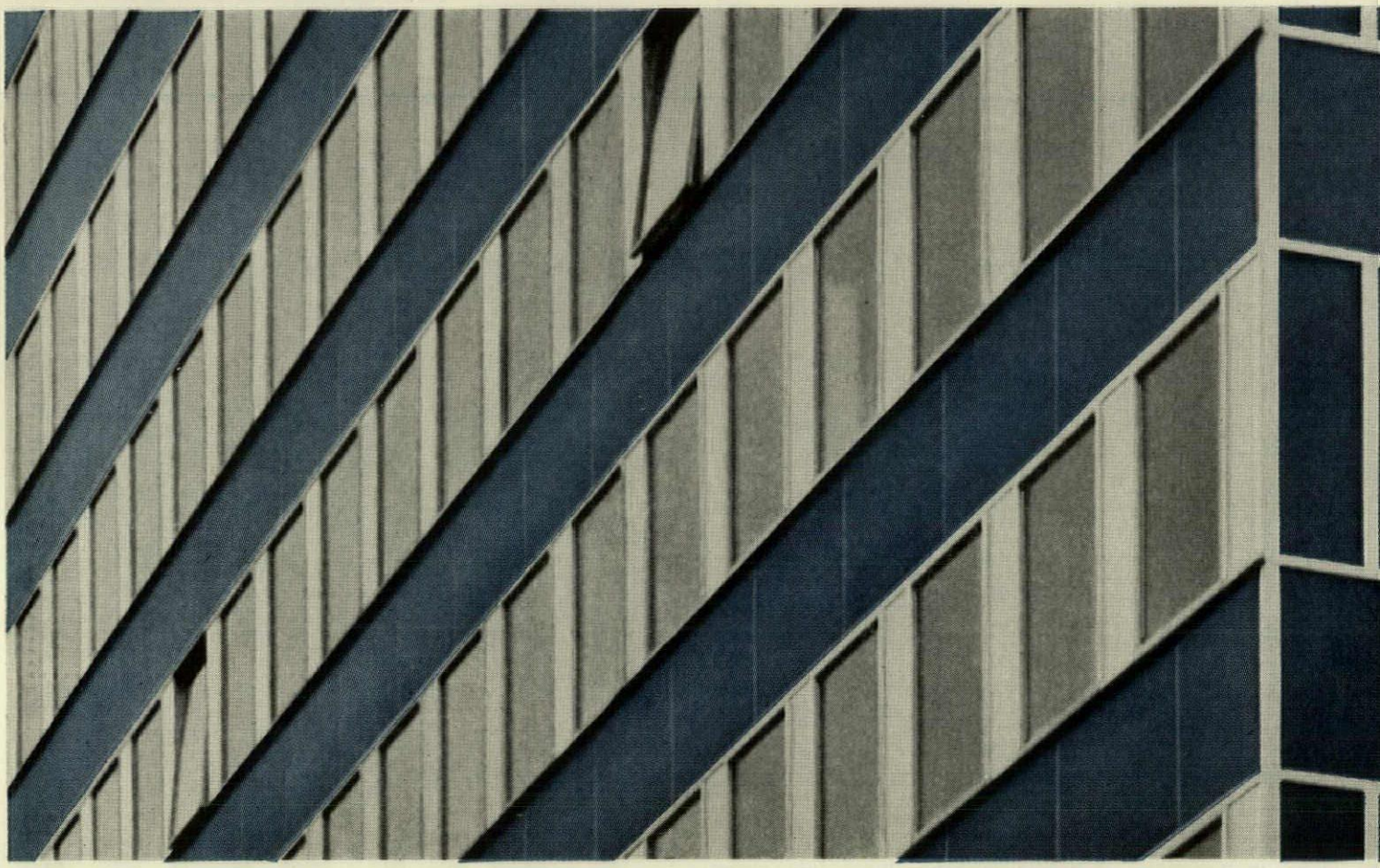


ment, in a variety of design layouts—decor types used include city apartment, ranch, Victorian, oriental modern, Dutch colonial, bungalow, among others.
Mutschler Brothers Company (40-p.) **229**

Industrial and Municipal Incineration
Bulletin provides design, application information, sizes and capacities, for flue-fed, readymade types of waste disposal plants filling divergent needs in industrial and municipal uses. Cutaway drawings show interior construction and airdraft flows for types R,G,A, and E. Suggested specification wording section is included—also data on portable incinerators.
Morse Boulger Destructor Company (AIA 35-J-41, 12-p.) **230**

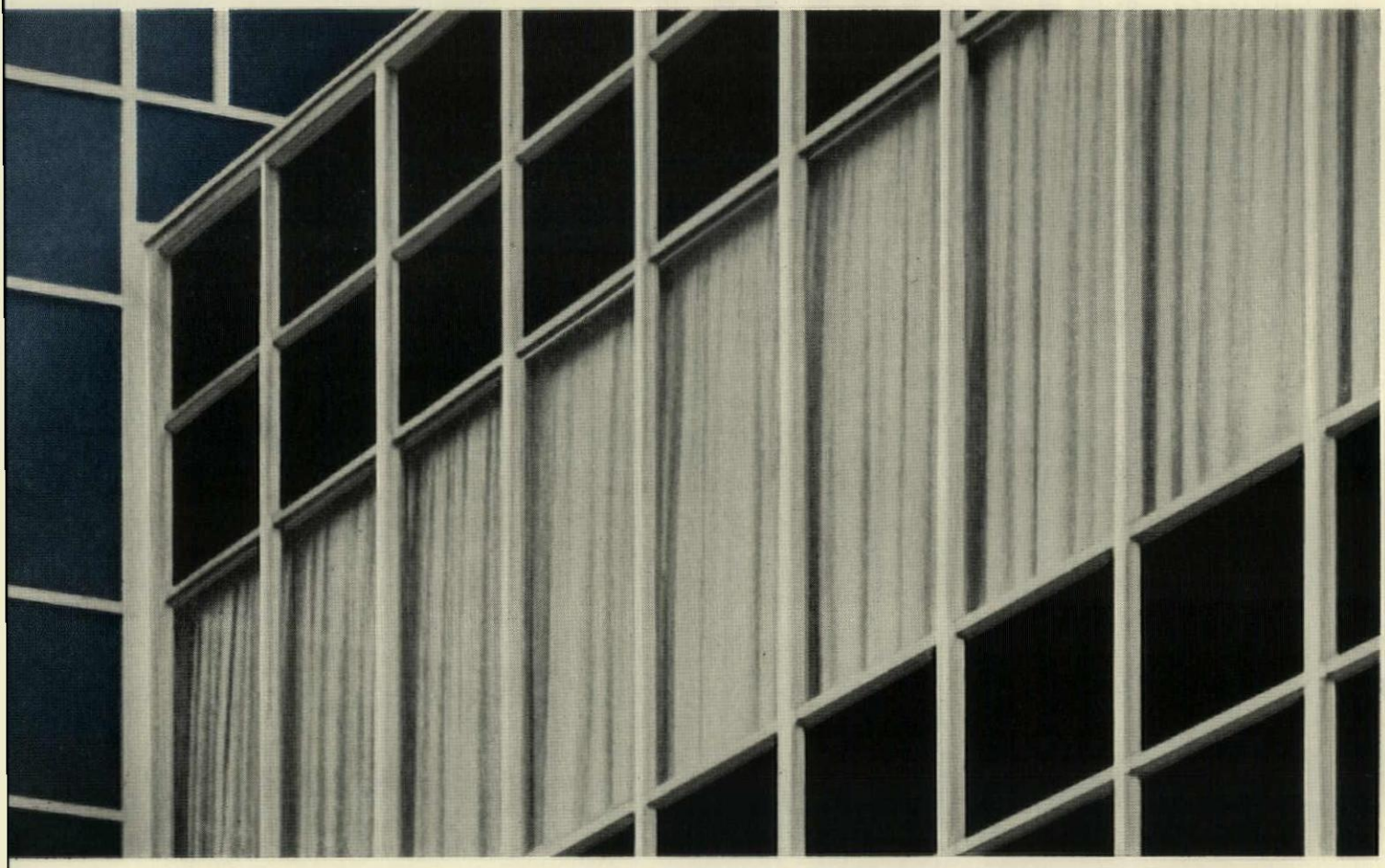
Steel, Adjustable Stairway
Bulletin presents detailed construction, operation, application drawings and information on attractie all-steel Ajusta-Stair adjustable stairway, adaptable to steel, wood frame, and concrete construction — fitting any desired height; screw-type adjustable risers adjust treads to level; slope adjustment is variable between and including 8" on 12" and 12" on 12". Comes completely assembled except for handrail; requires no special tools or skills to install.
New Jersey Steel Joist Corporation (2-p.) **231**

New from United States Plywood



CURTAIN WALL panels faced with Weldwood Glasweld and used as opaque glazing—a new concept in permanent exterior color. Weldwood Glasweld panels answer the need for a flat, economical, and highly durable facing.

GLASWELD — a colorfast inorganic panel to inspire fresh ideas in building design



For building exteriors and interiors— strong, rigid, colorfast Weldwood Glasweld

Here is an attractive solution to the problems of beauty, durability, and economy in building design. Weldwood Glasweld is a completely inorganic exterior-grade steam-cured reinforced asbestos panel with a permanent all-mineral enameled surface. It is *guaranteed* colorfast, fully weatherproof, and incombustible. An effective moisture barrier, it will not rot or warp, is easy to keep clean, has a high strength/weight ratio, and has high resistance to chemicals and abrasion.

Suitable for exterior use such as fascia panel components, soffits, and canopy ceilings, Glasweld has countless interior possibilities, as well. Bathroom walls, fixed and movable partitions, wainscoting, kitchen counter tops and sliding cabinet doors, and dinette tops of Glasweld suggest just a few of its uses. Select from its variety of patterns and more than 30 standard colors.

Weldwood Glasweld in 48″ x 96″ panels comes in stock thicknesses: ⅛″, 3/16″, ¼″, and 5/16″. Prices and delivery on special sizes and thicknesses on request. For specifications and installation data, mail the coupon.

WELDWOOD® GLASWELD®
Product of United States Plywood Corporation

Free new Glasweld booklet

United States Plywood Corporation
Dept. PA3-59, 55 W. 44th St., New York 36, N. Y.

Please send me the new data booklet, "Weldwood Glasweld" (#1914).

Name.....

Firm.....

Address.....

City.....**Zone**.....**State**.....

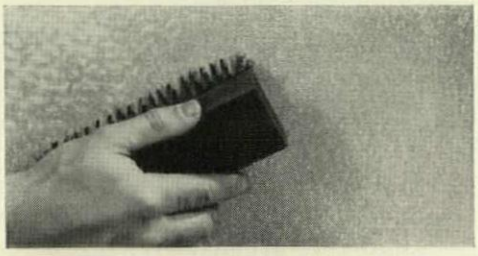
THICK...TOUGH...LIFETIME FINISH FOR WALLS

New GLID-TILE

UPGRADES CONCRETE BLOCK AND OTHER SURFACES TO CERAMIC TILE QUALITY AND BEAUTY...

at a fraction of the cost!

GLID-TILE resists impact! This concrete block broke *before* the GLID-TILE coating cracked.



GLID-TILE resists abrasion! Continuous wire brushing did not scratch or mar GLID-TILE'S tough, durable surface.

New GLID-TILE gives wall surfaces a beautiful, durable tile-like finish at a fraction of the cost of glazed, ceramic or structural tile. This special polyester resin spray finish is almost twenty times as thick as an average coat of paint. It outlasts conventional paint coatings by years!

GLID-TILE may be used over masonry block, concrete, wood, metal, plaster or wallboard. It becomes an integral part of the surface; cures to a continuous, non-porous finish that withstands hard usage, mechanical abuse, impact and abrasion. It resists acids, solvents, alkaline detergents and hot water. Because there are no mortar joints, GLID-TILE is the easiest of all wall coatings to maintain and keep clean . . . a tremendous saving in food processing plants and other operations where sanitation is a must.

GLID-TILE is available in a wide range of colors to meet the most modern color styling requirements—in offices, auditoriums, cafeterias, classrooms, laboratories, washrooms, factory production areas.

Write now for complete details and the name of the firm that applies GLID-TILE coatings in your area.

ATTACH THIS COUPON TO YOUR COMPANY LETTERHEAD AND MAIL TO:

Dept. PA-359, The Glidden Company
900 Union Commerce Building
Cleveland 14, Ohio

Please send me the following information on GLID-TILE:

☐ Free specification folder.

☐ Name of local firm that applies GLID-TILE.

Name_____

Firm_____

Address_____

City_____ State_____

QUALITY Glidden PRODUCTS

PROFESSIONAL FINISHES
The Glidden Company
MAINTENANCE FINISHES DIVISION
900 Union Commerce Building • Cleveland 14, Ohio
In Canada: The Glidden Company, Ltd., Toronto, Ontario

For more information, turn to Reader Service card, circle No. 313

Looking Forward to April

PROGRESSIVE ARCHITECTURE

ROUND-ROBIN CRITIQUE: THREE ELEMENTARY SCHOOLS

MARCH P/A will be fully devoted to the building type most prevalent on drawing boards throughout the country—schools. Another of the popular ROUND-ROBIN CRITIQUES will be featured in March, in which three architects discuss, defend, and appraise their school designs. The schools to be examined are a cluster-plan school, in New Jersey, by Ketchum, Giná & Sharp; a compact, eight-classroom school, in Ohio, by A. M. Kinney Associates; and a school designed as a series of pavilions, in Massachusetts, by Carl Koch & Associates.

COMPARATIVE ANALYSIS OF TWO HIGH SCHOOLS

Architects Perkins & Will designed two campus-plan schools in New York's Westchester County, both with very similar programs. That the end results of detailing, siting, and relationship of elements emerged quite differently in the two schools is unusually interesting. An analysis of these differences will be offered in March.

TOKENS OF ART IN CITY SCHOOLS

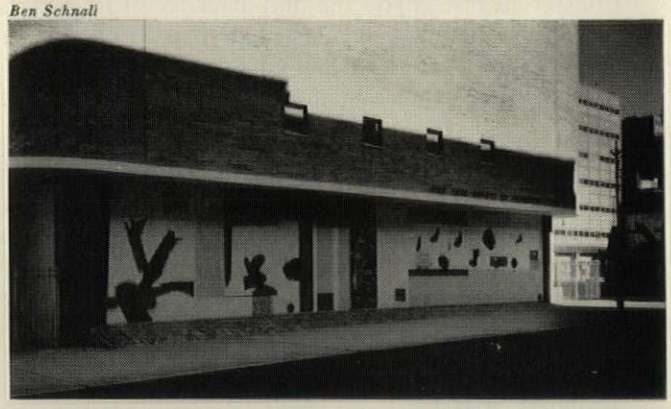
P/A's continuing series RELATED DESIGN FIELDS, will concern itself in March with the much-discussed program of the New York City Board of Education to include art in the city's schools. Artists represented in this presentation will include Hans Hofmann, Gwen Lux, Mary Callery, Costantino Nivola, and Samuel G. Wiener, Jr.

Alexandre Georges

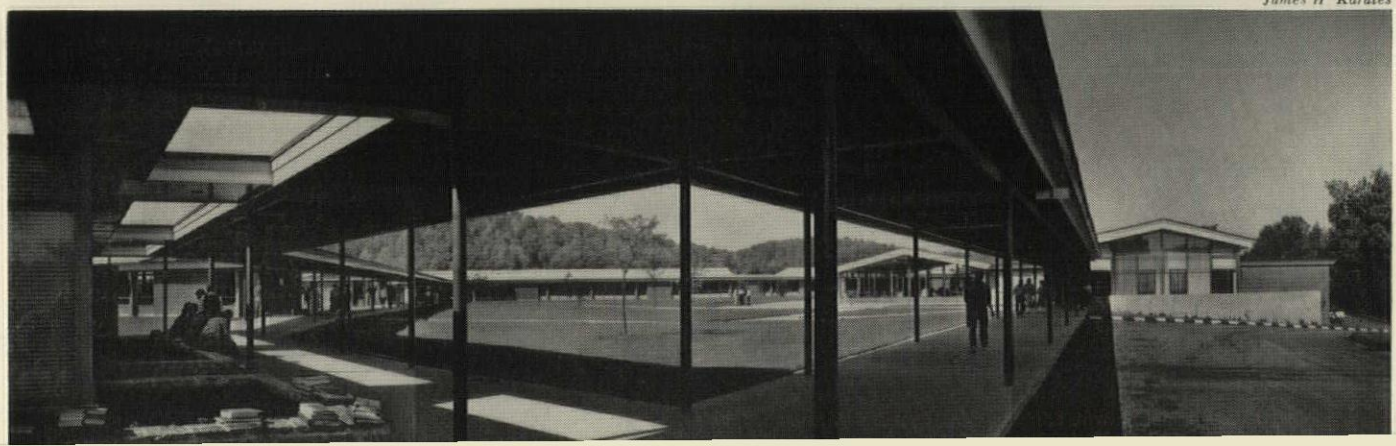
Alexandre Georges

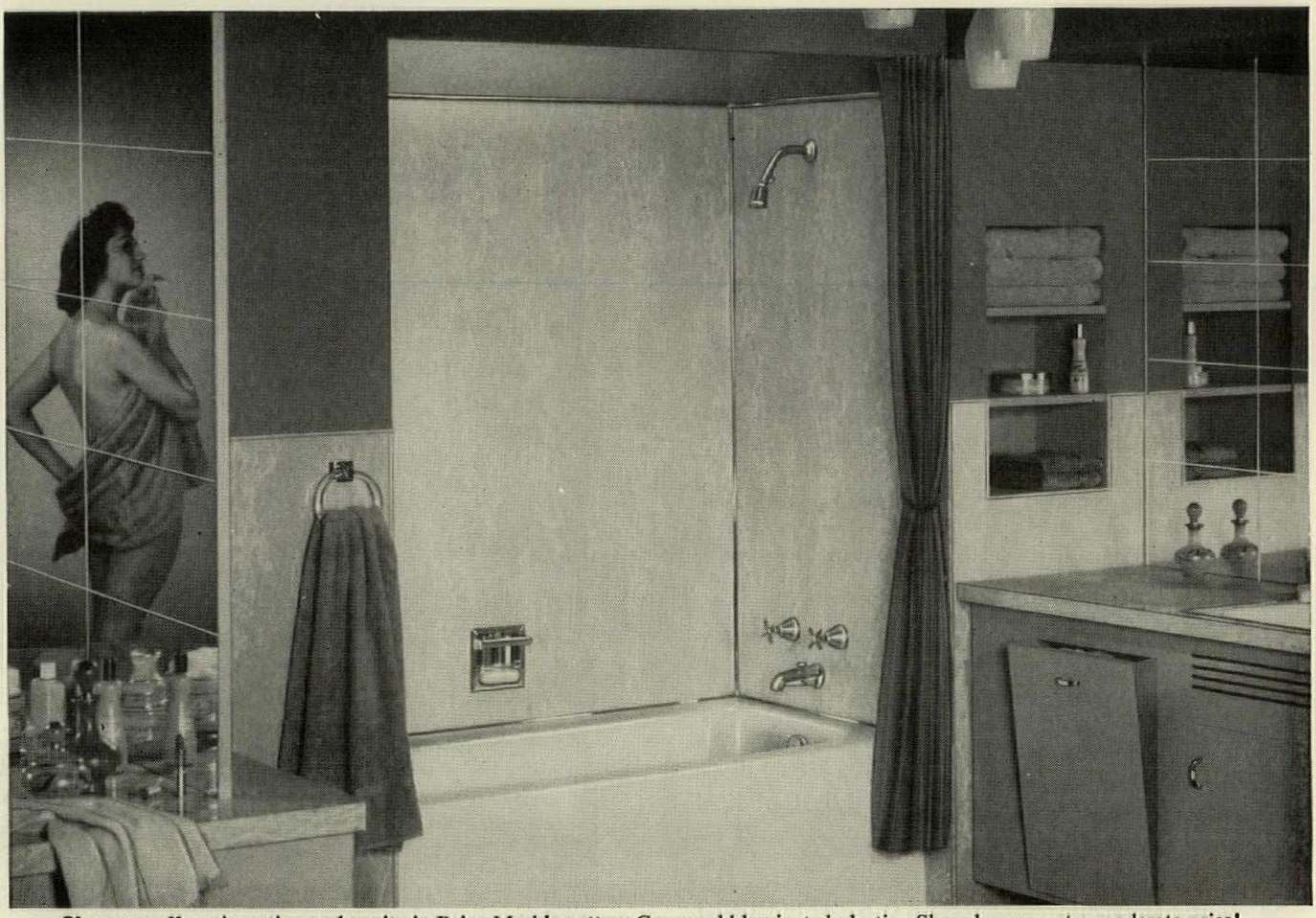
Joseph W. Molitor

Ben Schnall



James H Karales





Showerwall, wainscoting and vanity in Beige Marble pattern Consoweld laminated plastic. Sheer luxury—at a moderate price!

Design Prestige Bathrooms Like This, With Consoweld Bathtub Showerwall Package

Consoweld brings you the only package of its kind . . . a showerwall unit that adds modern bathroom beauty quickly, easily—and at low cost—to your project, individual home, or remodeling work.

Rapid Installation

Consoweld's Showerwall Package fits any 5-foot tub alcove—reaches 5 feet above tub—well over shower spray level. Each individually packaged unit consists of pre-cut panels, mouldings and corner fittings, plus step-by-step instructions . . . everything needed except adhesive and caulking. You cut labor and fitting costs . . . speed up on-the-job time!

Complete Selection

The Showerwall Package is available in eleven striking color choices—six luxurious Marble colors, five shower-bright colors in the new Twinkle pattern. All of them in durable Consoweld 10—1/10 of an inch thick!

ADVERTISED IN LIFE

Consumer Acceptance

Consoweld is advertised in leading national magazines . . . Consoweld colors and patterns offer complete consumer choice. The line is *designed* that way! Colors and patterns are "Color-Tuned" to consumer preferences and market-tested by research experts to assure eye-appealing (and *buy*-appealing) selections to please every taste.

Write for full information

Use the coupon to get complete information on Consoweld's Showerwall Package line, as well as data on other Consoweld applications on counters and walls in homes, offices and institutional buildings.

CONSOWELD®
LAMINATED PLASTIC

CONSOWELD CORP., Wisconsin Rapids, Wisc. PA-39

Please send me complete information on the Consoweld Bathtub Showerwall Package and other Consoweld applications in construction and remodeling.

Name_____

Company_____

Address_____

City_____ State_____ 64AR2

Please Check: ☐ Builder ☐ Architect ☐ Other

For more information, turn to Reader Service card, circle No. 314

A steadily increasing amount of research is being devoted to exploitation of solar energy for man's use. Of particular interest to architects is its value as a heat source for houses. In this presentation, two pioneer experts bring the reader up to date on basic design considerations for houses to be heated by this method. Following, three recently completed solar-heating installations, embodying varying solutions, are analyzed.

solar heating for houses

by Aladar Olgyay* and Dr. Maria Telkes**

importance of solar energy

In our outer-space-conscious age, every one realizes the importance of the sun's energy. All of our food and fuel comes originally from the sun; the former produced by photosynthesis annually, the latter created millions of years ago, and preserved in the form of coal, oil, and gas. These fossil fuels can be supplemented with water power, to some extent, and atomic energy may further supplement them effectively. Uranium, however, is also irreplaceable and will eventually become exhausted.

The incomparable magnitude of sun radiation over the earthly sources is well known. If the sun should be extinguished, and we would use our fuels to receive energy at the same rate as supplied by the sun, our entire source of combustible fuel would be expended in about three days. Nuclear reactions, even with the "breeder principle," would extend this period by only a few hours. However, the sun's radiation—this great source of energy—is a steadily continuing power.

magnitude of solar radiation

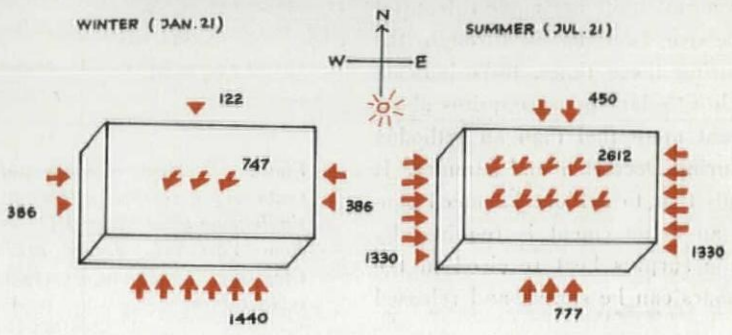
The intensity of solar radiation, outside the earth's atmosphere, is 1.94 cal/cm²/min measured on a plane surface perpendicular to the solar beam. This figure is called the solar constant and is based on the earth's mean distance of 93 million miles from the sun. Slight variations in the sun's energy output are disregarded in the constant. In engineering calculations, the above figure is generally considered as equivalent to 420 Btu/sq ft/hr. This energy amount intercepted by the earth, is in five minutes the equivalent of the U. S. annual energy consumption of ¼-billion tons of coal. Expressed in electrical units, the solar constant is equivalent to about one kw per sq yd.

A similar perpendicular surface at ground level receives considerably less solar energy. As radiation passes through the atmosphere, it is "scattered"—due to suspended dust and air molecules, and because part of it is reflected diffusely from the clouds back into space. Before it reaches the ground, solar energy is reduced by impurities in the air and is partly absorbed by some atmospheric constituents, especially carbon dioxide, water vapor, and (at upper levels) oxone. The transmitted energy will thus vary according to the distance the sun's beams must travel through the atmosphere. At noon, when the sun is at its highest and the distance shortest, the amount of energy received will be the greatest. In early morning or late evening, when the distance is greater, less energy will be received.

radiation amount on surfaces

In some cases, with rotating surfaces, all of this radiation can be utilized. With buildings, however, where the walls are immobile, the differently oriented surfaces receive various amounts of radiation *(Figure 1)*. As can be seen, the south side has a favorable relationship with the seasons, receiving the largest amount of heat in winter and relatively little in summer. East and west sides are less advantageous, and, of the two, west is less desirable due to high afternoon temperatures which are coupled with radiation effects in summer. The north side receives relatively small amounts of radiation, while a horizontal surface receives its maximum impact in summertime. It is evident, then, that a heat-collector surface should have southern orientation.

Figure 1—Amount of total radiation for clear-sky conditions on the various sides of a building in the New York-New Jersey area. Each arrow represents 250 Btu/sq ft/day.



* Architect-Consultant, Princeton, N. J.
** Senior Research Scientist, Research Division, New York University, New York, N. Y.

Tilting a south-facing surface will change the amount of heat received by radiation *(Figure 2)*. A 60-degree tilt will increase the radiation impact in both seasons. But while, in winter, the difference compared with a vertical wall is only 10 percent, in summer, when collection is undesirable, it increases by 235 percent. This makes the use of tilted-collector surfaces rather questionable, since they are advantageous only if the summer shading of the surfaces is adequately solved. Moreover such a tilted surface, speaking of buildings, limits freedom in planning.

radiation is not continuous

The figures shown *(Figure 2)* are total amounts, received not in a steady flow but in peaks, limited to certain daytime hours, depending on the orientation.

The heat balance of a south-facing vertical glass wall during a winter day, is illustrated *(Figure 3)*. The incoming heat gain is indicated with plus signs, while the heat loss is shown with minus signs. It is quite evident that during sunshine hours much more heat will be received than required, and after sunset heat loss starts. The over-all picture is positive, but unbalanced. The so-called "solar" houses, where large glass areas are used on the south side, show this characteristic. A great deal of sunshine is admitted through the windows on clear days, and even on partly cloudy winter days, with the result that fuel is saved while the sun shines. The house may often become overheated. However, at night and on cloudy days, the large windows will dissipate a great deal of heat. If no attempts are made to control the excessive heat losses through the glass during these times, tests indicate that such a "solar" house requires about 16 percent more fuel than an orthodox house during December and January. It is obvious that to achieve balanced conditions, an arrangement is required by which the surplus heat received in the sunny hours can be stored, and released during nighttime and on cloudy days.

heat-budgeting

In a particular problem, generalized climatic data or trigonometric considerations alone do not suffice to solve adequately the question of the receivable amount of energy. The solution also has to be based on observational data to arrive at satisfactory conclusions. Ground reflectivity, to mention only one factor, works advantageously. During the coldest times, when the ground is snow covered and thus acting as a reflective surface, the collectable solar radiation is increased by a sizable amount.

It is futile to recall that the weather is capricious—and nothing can be done about it. The correct procedure is to observe the records and derive statistics from them. From the point of view of solar-house heating, the most important problem is the sequence of clear, partly cloudy, and cloudy days during the winter.

To illustrate the use of solar statistics,

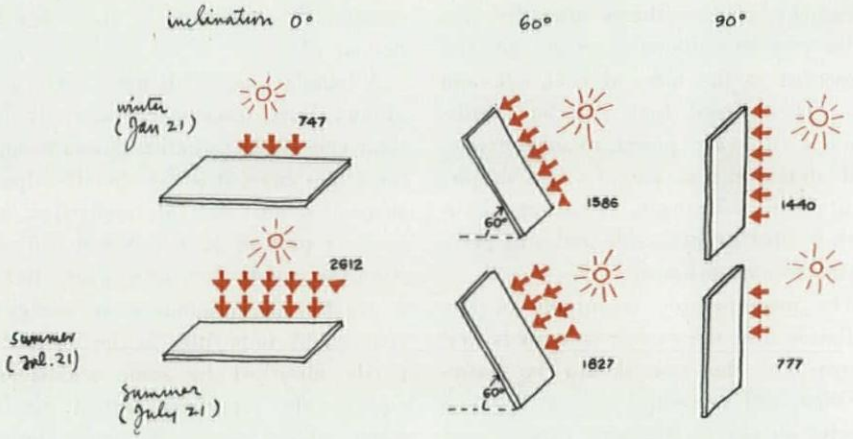


Figure 2—Amount of total radiation for clear-sky conditions on a south-facing surface, with various inclinations, in the New York-New Jersey area. Each arrow represents 250 Btu/sq ft/day.

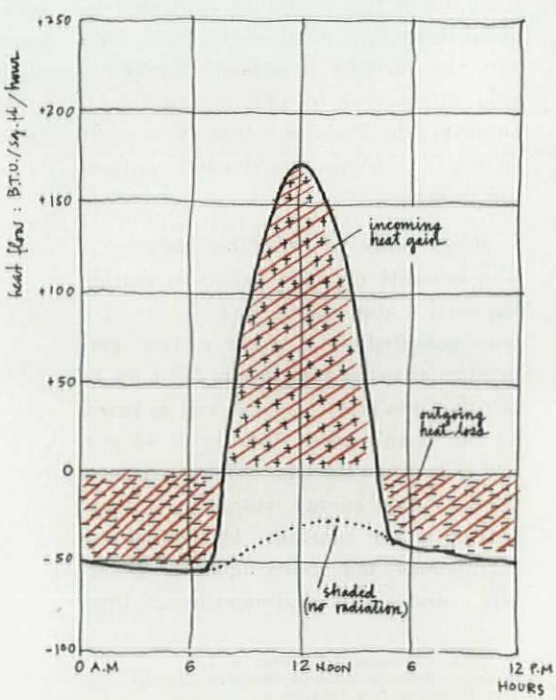


Figure 3—Heat balance of south-facing vertical surface of single-pane glass (U = 1.13) in New York-New Jersey area. Clear-sky conditions, average temperature.

an analysis of "heat-budgeting" is given.

The required heat-storage capacity for solar heating can be predicted by analyzing the amount of solar energy that can be obtained and comparing it with the heating loss of the house. It is sufficient to prepare an analysis for the coldest months: December and January. During these months the monthly *average* solar energy should be equal to the *average* heat loss of the house.

Heat collected from the sun, therefore, must equal the heat loss from the house. The heat loss of the house is proportional to the degree days (the difference between 65 F and the average daily outdoor temperature). The degree days and the amount of solar energy *(as in Figure 4)* were obtained from the Weather Bureau's Climatological Data for New York, N. Y. (Central Park Observatory).

Using established correlations, the amount of solar energy that can be collected on one sq ft of a south-facing vertical wall were calculated. In accordance with previous experimental results, it was assumed that, of the radiation falling on the collector, 55.5 percent can be collected on clear days, 35 percent on partly cloudy days, and none on cloudy days. Results for December and January were tabulated *(Figure 4)*. There were nine totally cloudy days during each month, while the sun was shining during half of the days. It can be noted that more heat was lost on clear days, because these are generally colder than cloudy days. The cloud-cover diminishes the heat loss from the earth and benefits the house. The bottom line *(Figure 4)* shows the heat balance, the difference between heat loss and heat gain from the sun. At times there was an accumulation of heat equal to six or eight days of heating. The accumulated heat was sufficient to balance heat losses on cloudy days.

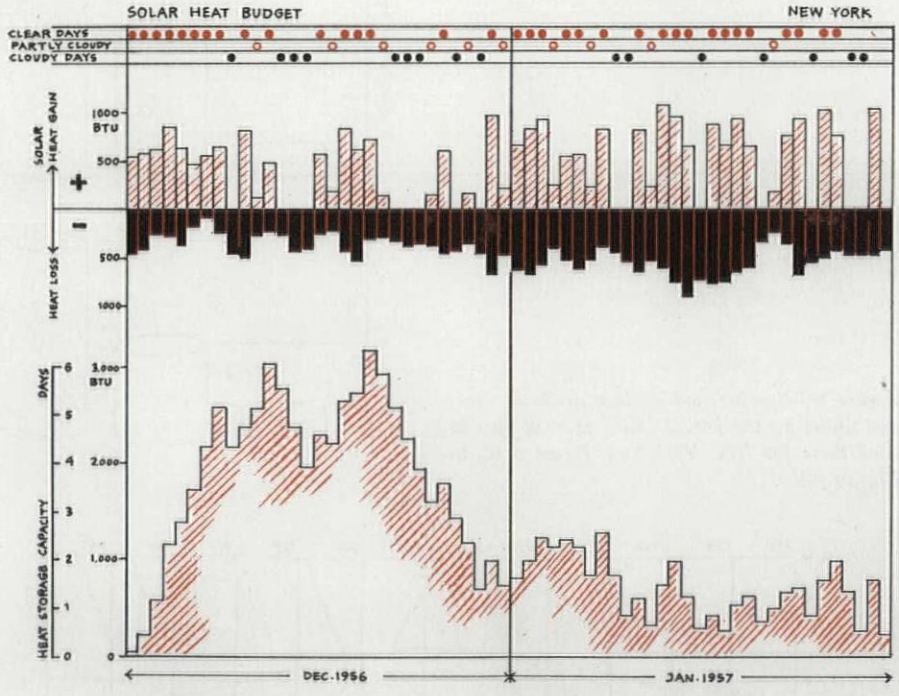


Figure 4—Solar-heat budget for New York, N.Y., during December 1956 and January 1957.

The chart *(Figure 4)* clearly illustrates that a heat-storage bin, capable of storing five to six days heating requirements, would be quite satisfactory for accumulating surplus heat and equalizing the heating load for that particular season. During this particular time, a sequence of three cloudy days occurred twice during the month of December; in January a sequence of only two cloudy days was observed. In other months, sequences of four or even five cloudy days sometimes occur. An analysis of many years shows that a sequence of seven days is very infrequent in the vicinity of New York.

Solar-house heating is essentially a problem of collection and storage of solar heat; these two elements are discussed in the following paragraphs.

solar-house collectors

Several research projects have been concerned with solar-heat collectors. Air-spaced, glass panes were designed to prevent heat loss from a black-metal absorber plate. Air or water circulation was used to carry heat from the black plate to a heat-storage bin. It has been realized that the use of multiple air-

spaced panes can diminish heat losses from the black plate, but an increasing number of panes diminishes the transmission of solar energy. A collector with two or three glass panes represents the "standard collector" used at the present time.

heat storage

Heat storage is one of the major problems of solar-house heating. Economically acceptable heat-storage methods must occupy a small volume of the house, because this volume is rather expensive.

In conventional homes, the heater room generally does not occupy more than four percent of the total volume of the house. The heating load of a well insulated, average, modern house, in the 5000-degree-day region, may average around 300,000 Btu per day during the winter season. Exceptionally cold days may require nearly twice as much heat, but these are rather infrequent in the 5000-degree-day zone. Presently used materials may be classified as two types: *Specific-Heat Type of Heat Storage.* Water and rocks have been suggested as the most available heat-storage materials, heat being stored as their specific heat. One cu ft of water has a heat-storage capacity of 62.5 Btu/degree F, while one cu ft of solid rock has about 36 Btu/degree F. Assuming a temperature rise of 30 F, the heat-storage capacity of one cu ft of water would be 1880 Btu and that of rock 1080 Btu. The above-mentioned average, 300,000 Btu/day, will require about 160 cu ft of water (five tons) or about 280 cu ft of solid rock (25 tons). It is necessary to provide additional space for the circulation of air or water to deliver solar heat to storage, and to recover the heat when needed. Thus, the economically available space in the heater room may be sufficient for the storage of the heating requirement for about two average days when using water, and for only about 1.3 days when using rocks. This is obviously not sufficient.

Heat-of-Fusion Type of Heat Storage. Dr. Maria Telkes has suggested a more effective method; the use of heat-storage materials which melt at a moderate temperature level and store heat as their heat of fusion, or heat of transition. Low-cost salt hydrates, which are easily available—some of them being obtained as by-products—can be used for this purpose. A typical example is sodium sulphate decahydrate, $Na_2 So_4 10H_2O$, which almost entirely melts in its water of crystallization when heated to its transition temperature of 90 F. Its heat of fusion is 104 Btu/lb, density 92 lb/cu ft; therefore, one cu ft of this material can store 9500 Btu as its heat of fusion at the transition temperature. The specific heat of this material is comparable to that of water on an equal volume basis. The stored heat can be recovered as the material crystallizes again. The salts are permanently sealed into durable, but inexpensive containers with large surfaces for heat exchange, preferably by the circulation of air. The salts are mixed with additives to eliminate stratification—or settling of solid layers.

Figure 5—Comparison of equal heat-storage capacity of various materials on volume basis.

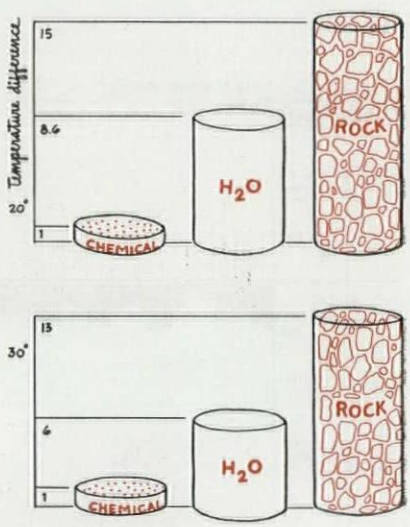
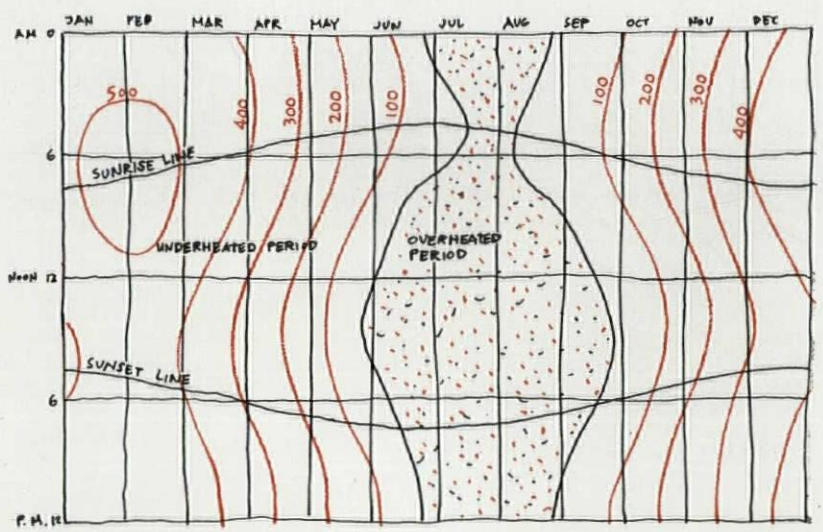


Figure 6—Heating and cooling needs of over- and under-heated periods, with average outside conditions for New York-New Jersey area, in Btu/sq ft/hr.



With a temperature rise of 30 F, the total heat-storage capacity of this material can be as high as 11,900 Btu/cu ft. The heat-storage capacity of this salt is six times greater than that of water, and 13 times greater than that of rocks, on an equal volume basis *(Figure 5)*. (When other temperature intervals are used, these values may be different.) Therefore, with the heat-of-fusion type of materials, it is possible to store more heat per cu ft, or conversely to use a smaller heat-storage volume. The usual heater-room, then, should be sufficient to store heat for 10 or more cloudy days when this salt is used.

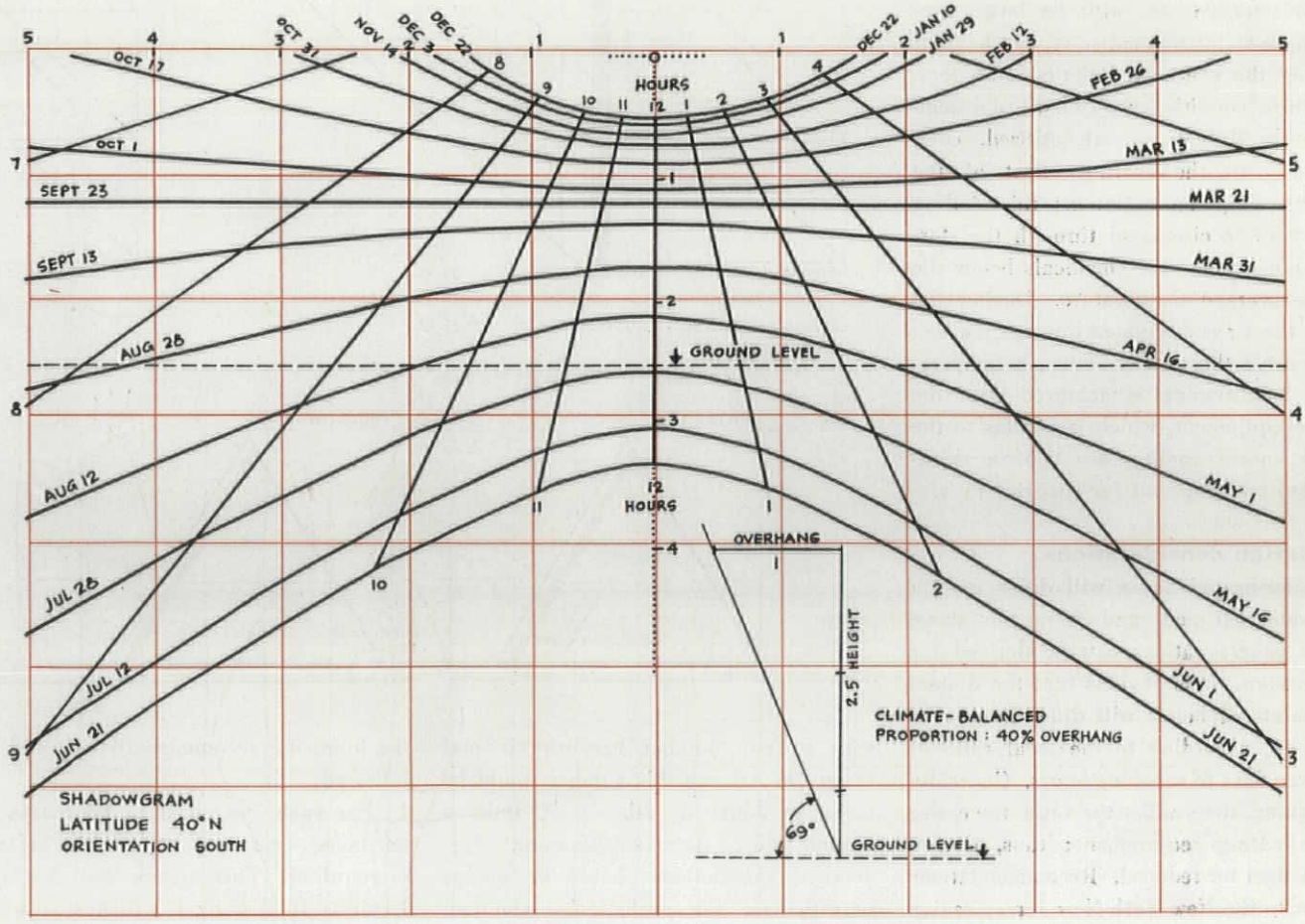
winter-summer balance

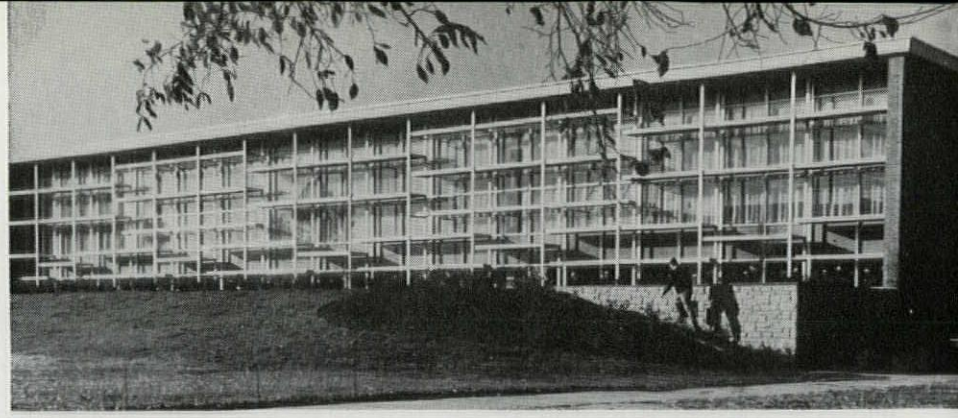
Since the ultimate purpose of a house is to maintain comfort conditions inside throughout the seasons, its thermal balance is of interest not only in winter, but also in summer. The outside temperature conditions of a region can be categorized according to the heating or cooling needs: the period when heat is needed to be comfortable, can be called "under heated"; when the outside temperatures exceed the comfort level, the period is called "overheated."

These periods for the New York-New Jersey area are shown *(Figure 6)*. The lines in the underheated period indicate quantities of heat in Btu/sq ft/hr, which are needed to secure comfort conditions. The over-heated period indicates the times when no heat is needed; shading, and possibly cooling, is required.

A collector, therefore, should be arranged so that it collects less heat as summertime approaches, and ceases to collect heat during the over-heated per-

Figure 7—Shadowgram; latitude 40° North; orientation South.





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iod. This can be achieved with properly dimensioned shading devices, which work favorably around southern exposures.

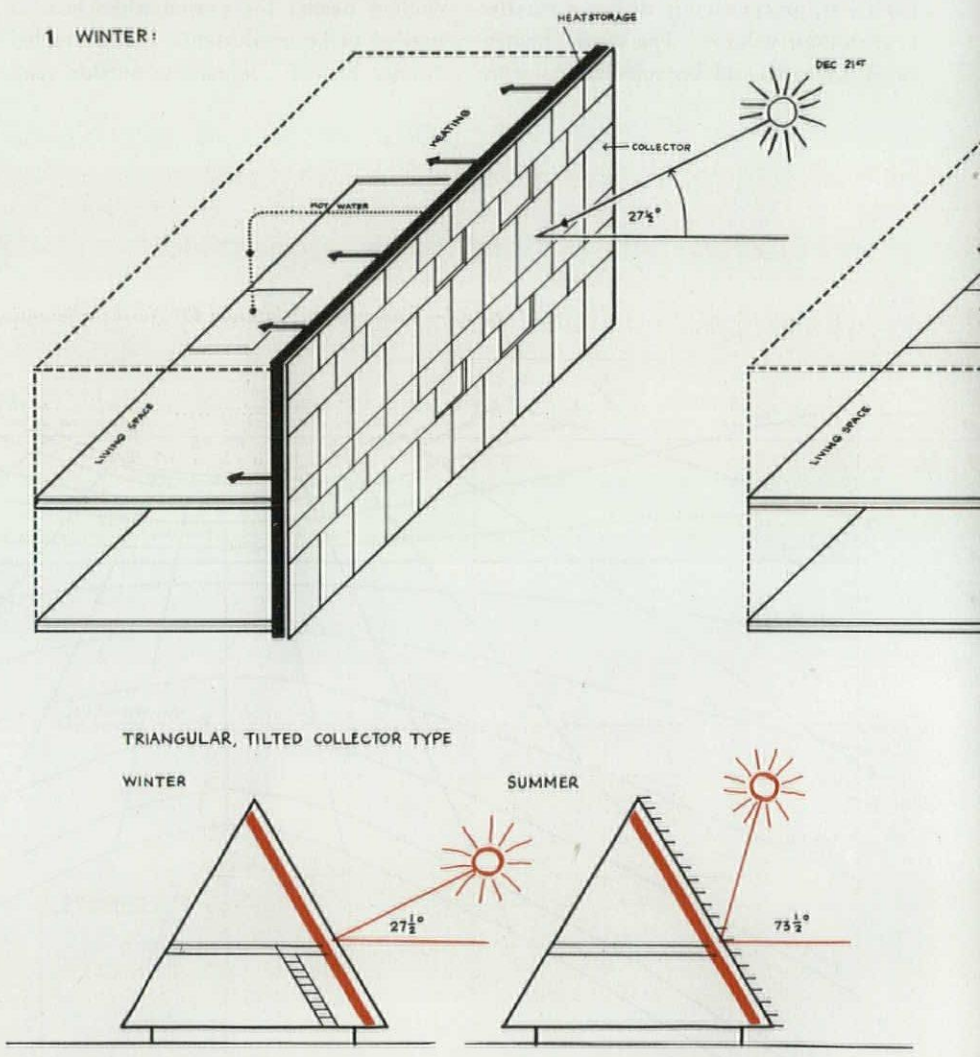
A "shadowgram" *(Figure 7)* shows the length and direction of a shadow of a point placed at a unit distance in front of a south-facing wall. It can be seen, that a horizontal device with a proportion of 40 percent (wall height 2.5 to overhang 1) will perform advantageously.

This proportion is independent of the size of the device, and can be used on the collector-wall in different arrangements. Shading can be solved with overhangs, or the same efficiency can be achieved with a small-scale, trellis-like device, which is put up in summertime, as are screens on the windows.

The principle of this "dressed-wall" solution on a vertical surface, and that on a tilted collector, are demonstrated *(Figure 8)*.

The storage bin, with its large temperature-stabilizing capacity, can be used during the overheated period as a temperature conditioner. The diurnal temperature differences are utilized, combined with the cooling effect of the nightly outgoing radiation; this cooling night air is circulated through the storage bin, cooling the chemicals below the daily average temperature. During the day, the air is circulated through the bin, and cools the rooms. Thus, a temperature conditioning is achieved with the same equipment, which is similar to the well known cooling effect of a thick-walled building, but far superior to it.

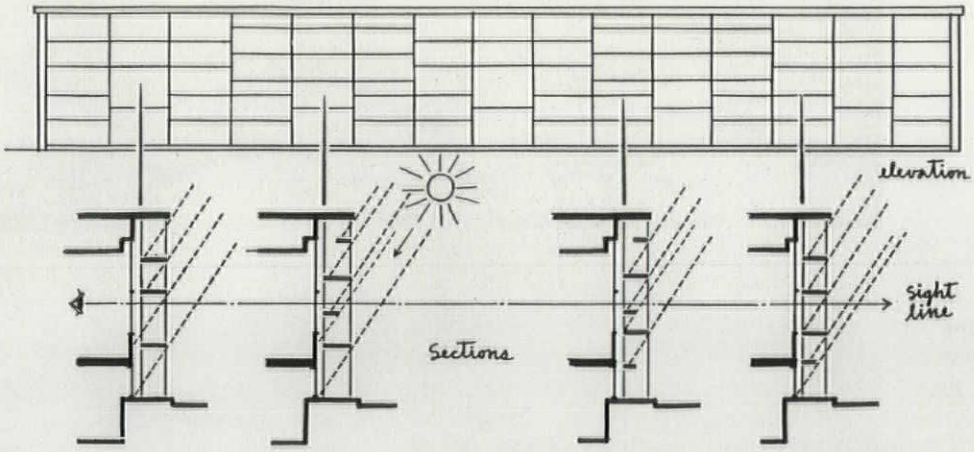
Figure 8—Principle of solar wall (below); *variations of a horizontal device* (above *and* acrosspage).

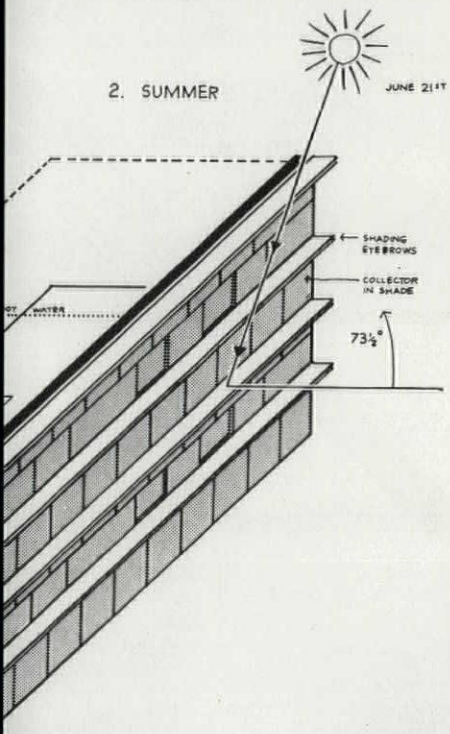


design considerations

A solar-heated house will differ from a conventional one, and from the above data generalizations can be derived for its design. It is obvious that the dimensions stated below will differ in various regions, according to the local ratio of degree days to sunshine hours. Generally speaking, the smaller the ratio, the easier the heating requirement; thus, dimensions can be reduced. Recommendations refer to the New York-New Jersey region with a ratio number between six and seven (in Arizona this number would be three to four, in Illinois or Indiana around nine). At actual planning stage, detailed calculations should be made; nevertheless, for preliminary planning the following recommendations could be followed:

1 For each two sq ft of floor area in the house, one sq ft of collector surface is required. This means that if a collector is 10 ft high, it will heat a house





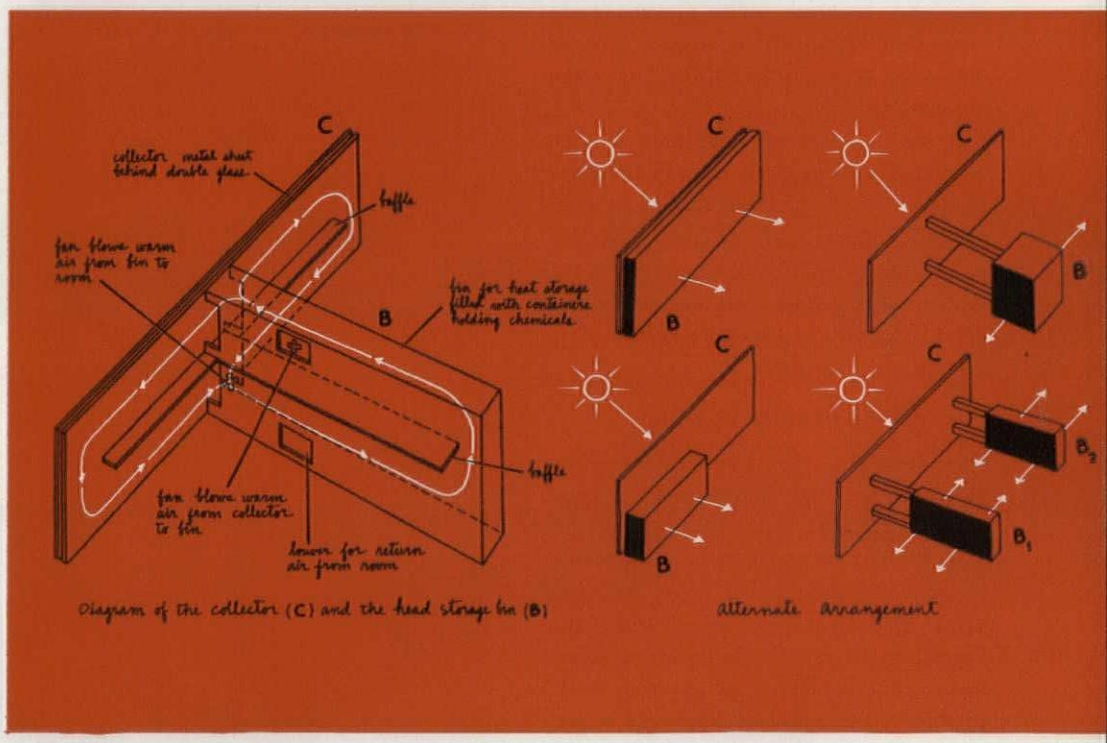


*Figure 9—Diagram of collector (**C**) and heat-storage bin (**B**) with alternate arrangements.*

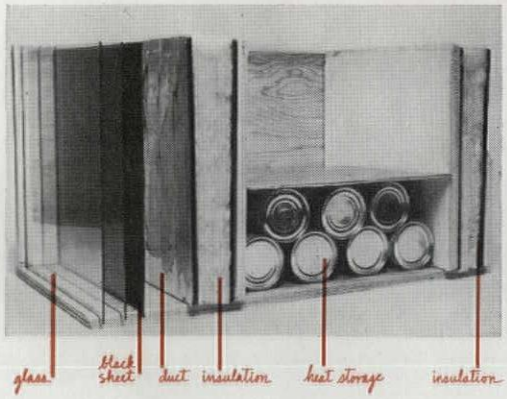
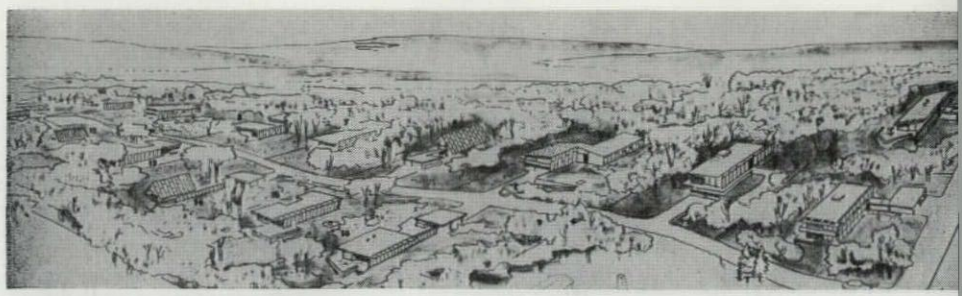


Figure 10—Telkes' chemical heat-storage system for a building with solar heating.

20 ft wide. If the house is wider, the collector surface should be extended beyond the southern wall of the house.

2 The heat-storage area of the house, in case of chemical bin or bins, will occupy about four percent of the floor area.

3 The connection of the collector (**C**) and the storage bin (**B**) is schematically shown *(Figure 9)*, in the case of warm-air heating. Alternative positionings, also illustrated, are: Where the bin is separated from the collector; connected with it by ducts only; or where the storage bin is placed directly behind it. *(Figure 10 shows a part of such a collector-storage-bin unit. The units are expected to be prefabricated in standardized modular dimensions.)*



4 Insulation of the walls is assumed to have a U-value of 0.13, and the windows to be double glazed. The ratio of window surfaces to wall surfaces is 1:5, or 20 percent.

Schematic plans *(Figure 11)* show various types of houses; the collector surface is indicated in color while heat-storage bins are in black. The plans include two- and three-bedroom houses, one- or two-story types with vertical or tilted collectors.

A development of solar houses illustrating these principles, called "Solar Estates," is planned for Christmas Hill, Spring Valley, N. Y. *(Figure 12)*. On a 27-acre estate, five acres of which belong to an existing residence, 16 houses are to be built, of the types shown.

economy of solar heating

The economic aspect of solar-heating feasibility can be expressed by a comparison with the usual heating systems. This comparison must be based not only upon initial installation costs, but also upon operational expenses—since the "fuel," so to say, is "built in" a solar-heated house. Thus, to get the whole picture, the expense of a 20-year operational period is a realistic basis for comparison. A graphical presentation of volumes—comparing a house (100 percent), its heat storage (4 percent), and the amount of oil (230 percent) consumed in 20 years—is shown *(Figure 13)*.

Let us consider an average oil-heated house in a temperate, 5000- to 6000-degree-day zone, with a heating equipment cost of $1800 and a yearly consumption of 1300 gal of oil. The yearly operational expenses (at 13.7 cents/gal) will run around $180 per year, or about 10 percent of the installation cost. Electrical and maintenance costs are supposed to be the same in both types of heating, and are therefore disregarded in this comparison.

Cost of installation, like other building costs, are assumed to be on the basis

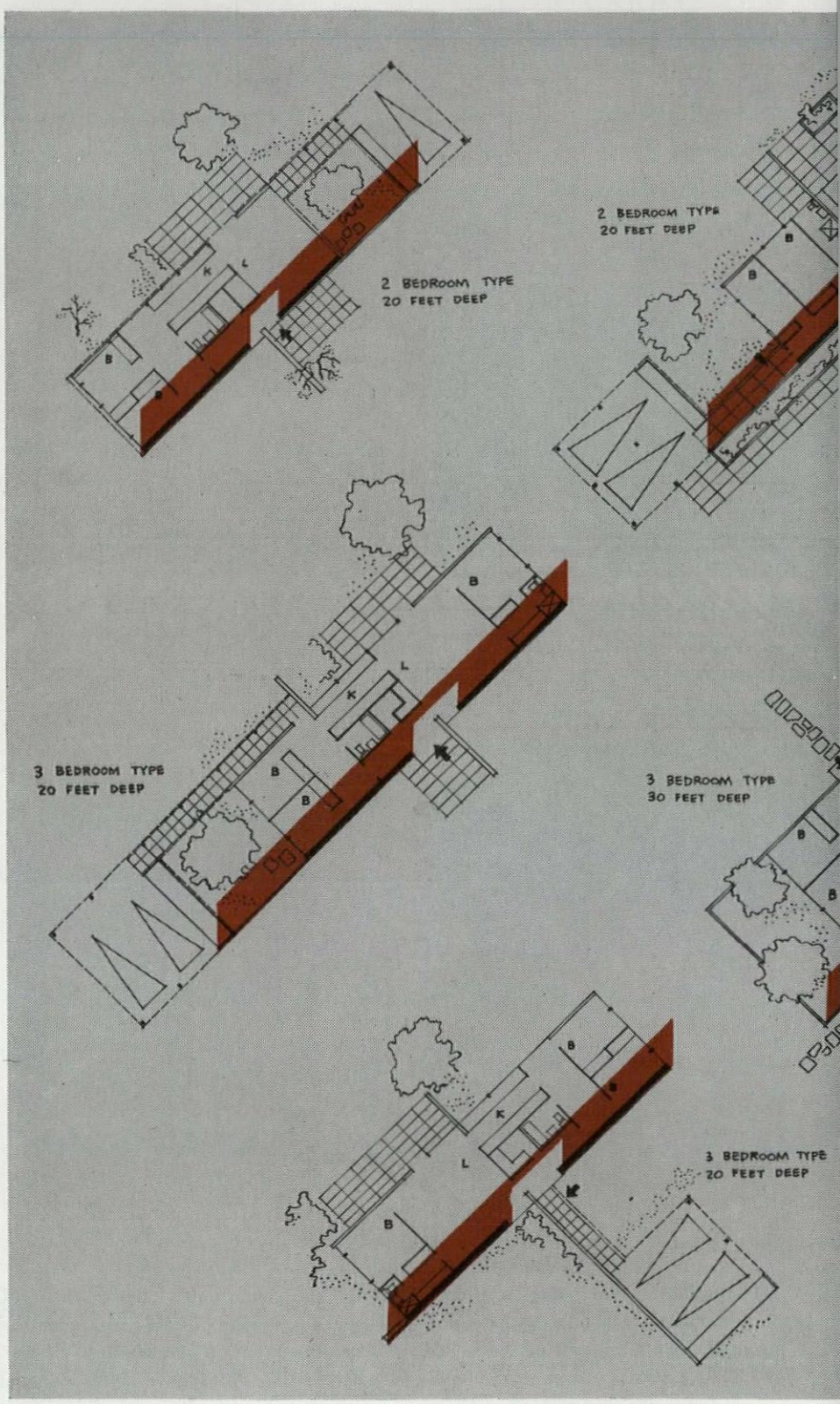
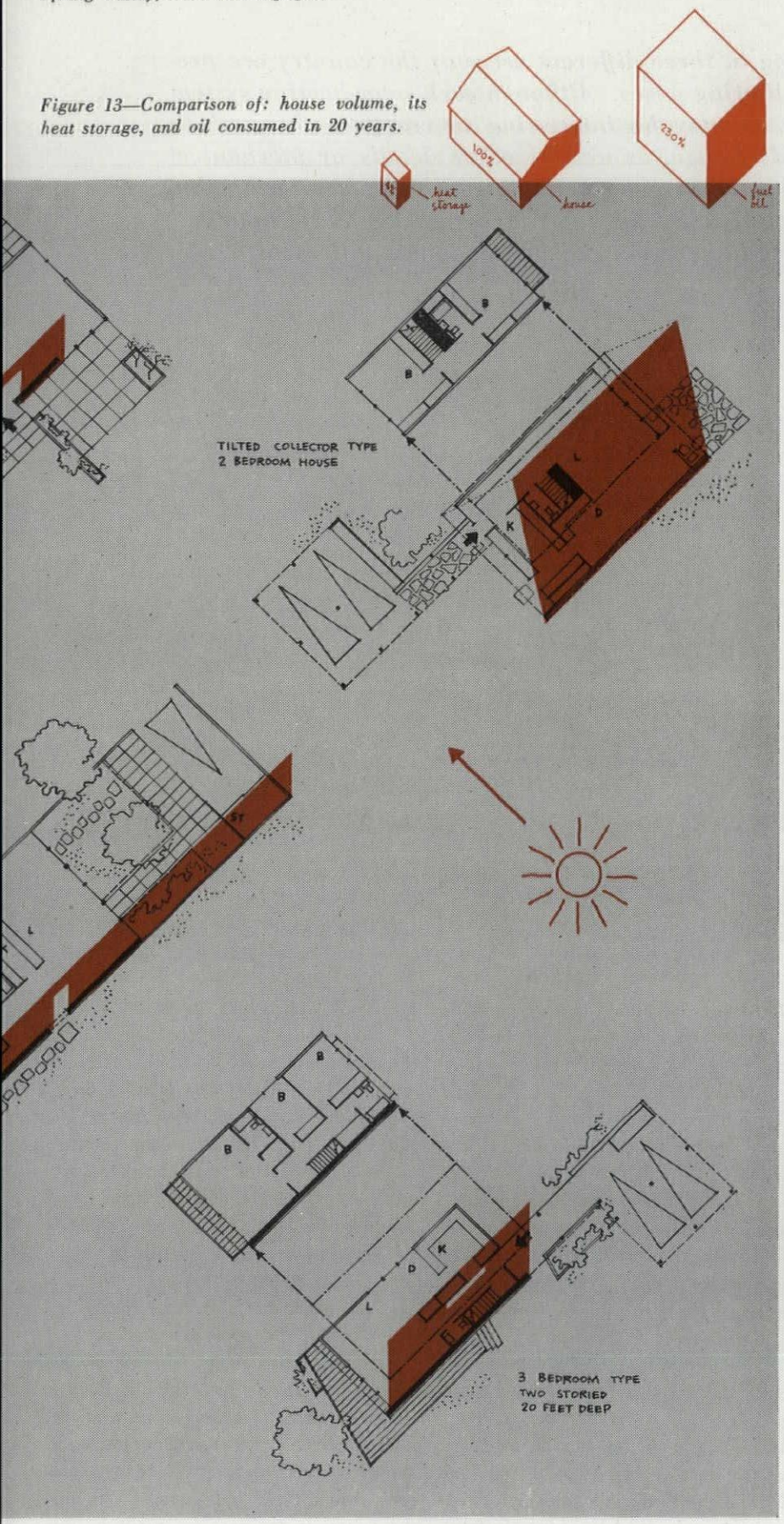


Figure 11—Schematic plans for various types of houses showing possible locations for

Figure 12—Future group of solar houses to be known as Solar Estates, on Christmas Hill, Spring Valley, N.Y. (acrosspage).

Figure 13—Comparison of: house volume, its heat storage, and oil consumed in 20 years.



collector (vertical and tilted) and storage bin.

of "cash-in-hand," and do not customarily take into account the extra cost of financing involved by payment over an extended term. If operational costs, necessarily covering a period of years, are to be taken into account in the comparison, it is fair that these also be reduced to the same "cash-in-hand" basis. This would amount to discontinuing the operating costs, in the same way as the prepaid cost of an annuity. The term involved is assumed to be 20 years. At five percent interest, the discontinued amount of the total would be 0.623 of the total; at four and one-half percent it would be 0.650, and at four percent, 0.680.

Using the four and one-half percent rate, the discounted operating cost of the above example for a 20-year period would be 20x180x0.650, or $2340. The total "cash-in-hand" cost of installation and operation of the house comes to $4140, a sum representing the present-day equivalent of keeping the house heated for 20 years. This amount is 2.3 times larger than the installation cost of the heating equipment.

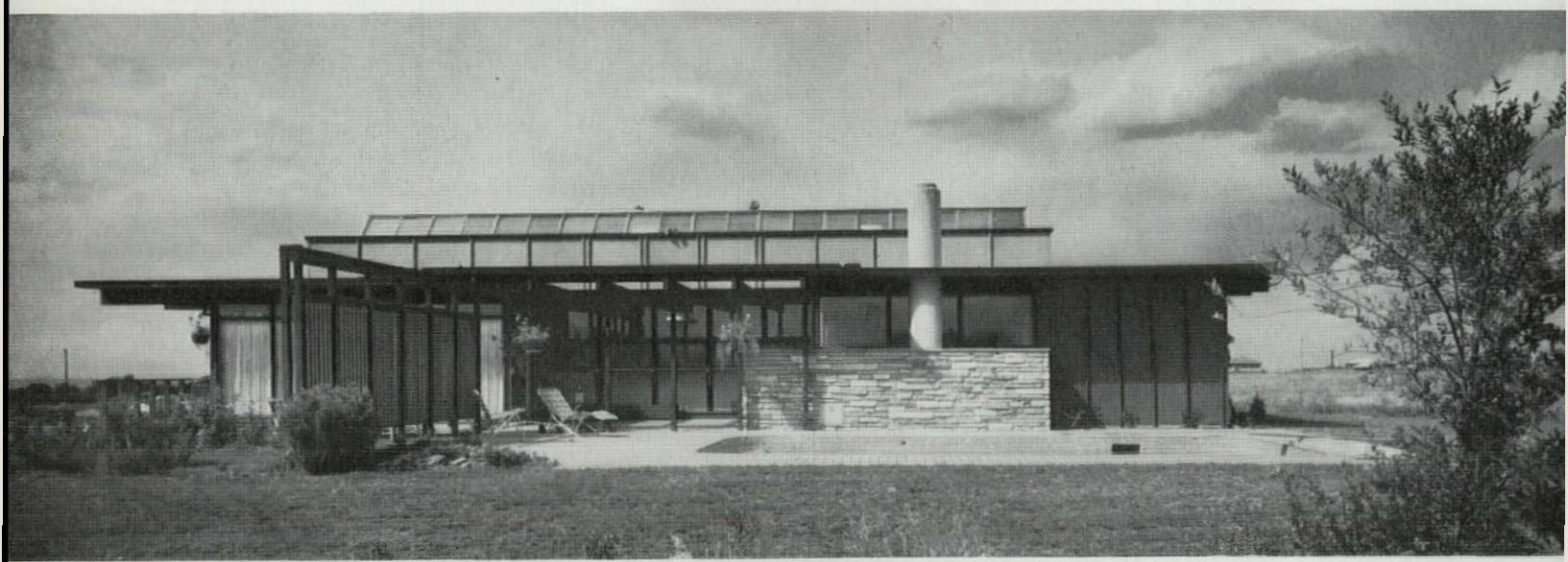
Thus, a "design criterion" can be established: a solar-heated house will break even, economically, if the installation of the system costs 2.3 times as much as a conventional heating equipment. If it costs less, it will save money.

In this economic comparison, the summer cooling of the system is not even included. In a cost breakdown, the price of the walls, replaced by collectors, should be deducted. Solar collectors and storage devices must be built in easily assembled components by mass production methods, to achieve precision and the price reduction connected with it. Such units, produced ready for installation, are under study now. It is difficult at present to give a cost analysis based on the experimental installations, but it is believed that, using production methods, the cost will be far below the "design criterion" and the system will show considerable savings.

round-up: recent solar heating installations

Solar houses now operating in three different areas of the country are presented on these and the following pages. Although each solar-heating system follows a similar pattern, it may be interesting to compare the various methods of collection and storage, as well as other details of mechanical design. In each case, it would have been feasible to erect a solar-heating system that could accommodate the total heating demand; however, the investment required would have been disproportionate to its worth.

Löf house, Denver



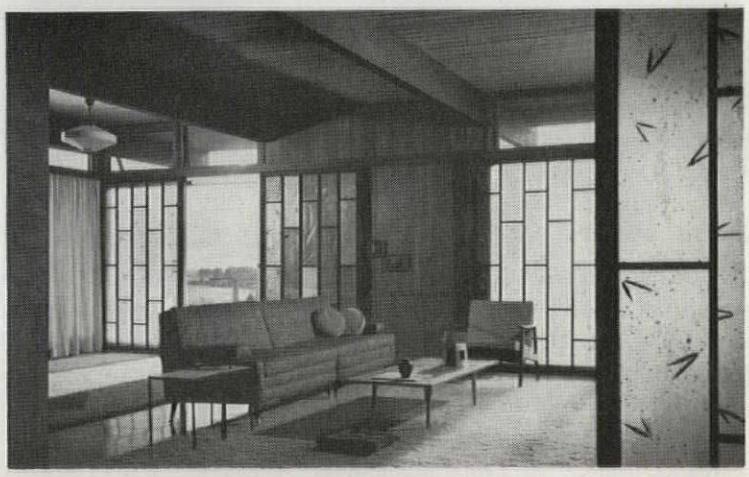
This solar house at Cherry Hills Village, near Denver, Colorado, was designed by James M. Hunter Associates, Architects, not only as a home, but also as a laboratory where its owner—Dr. George O. G. Löf, Consultant—can experiment with the phenomena of solar heating. Accordingly the scheme of the house has been deformed to permit a south-facing patio where volumes of air can be controlled and trapped, as a blanket around the house, by both horizontal and vertical louvers. Likewise, on the north face an attempt is made to hold warm air of midday as long as possible for its insulating value.

Rough-textured wood that may be readily color-changed, shoji screens on the west designed to act as one-way mirrors that can be reversed to reflect heat outward or to retain heat inside, reflective-lined draperies, and plastic swimming-pool covers are among the many devices to control or experiment with the solar-heat source.

The heat collectors consist of a series of glass louvers—each overlapping three-quarters of its neighbor below, with the bottom louver being finished in a mat-glazed glass. Air recirculates through the series of louvers exposed to the sun, while being forced through ⅛" interstices under pressure. The entire series is enclosed in a glass-covered duct, painted black on the inside to retain heat. The duct face is tilted to the sun at approximately a right angle.

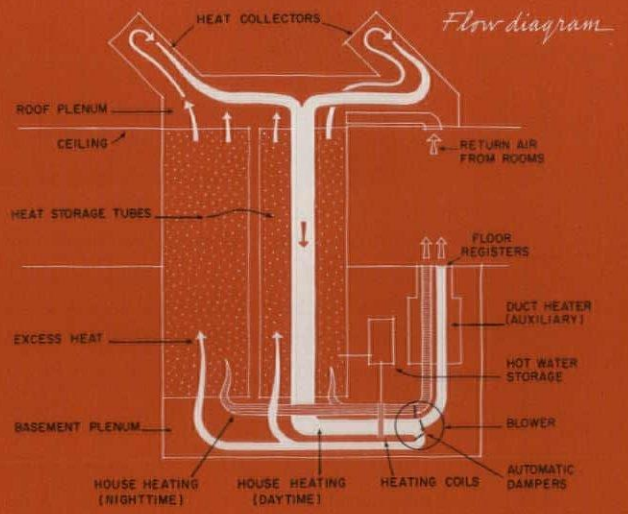
Air from the house can be made to enter the duct at its low point (68 F to 70 F) and gathered again at its high point after having absorbed heat directly from the sun. (Dr. Löf has developed temperatures well over 240 F in 16 ft of run.) This super-heated air is then forced through storage beds of hard-granite gravel, where it deposits heat in direct proportion to the specific gravity of the storage material. The air is next returned to the collector and recirculated to build up heat at those times when the house does not need heating.

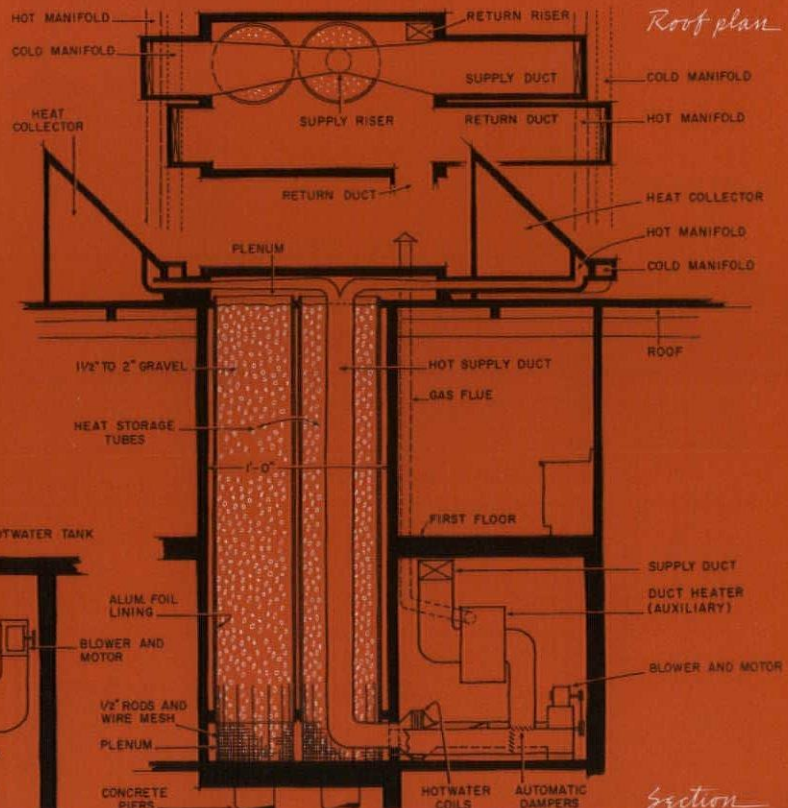
The system can be regulated by a series of dampers, so that part return air and part super-heated air are mixed and distributed to the rooms at normal register temperature. Remainder of super-heated air proceeds through storage bins back to the collector. When there is no available heat from the sun, the system may be reversed so that return air from the rooms goes through the hot storage bins into the warm-air registers for night heating or for rainy days.

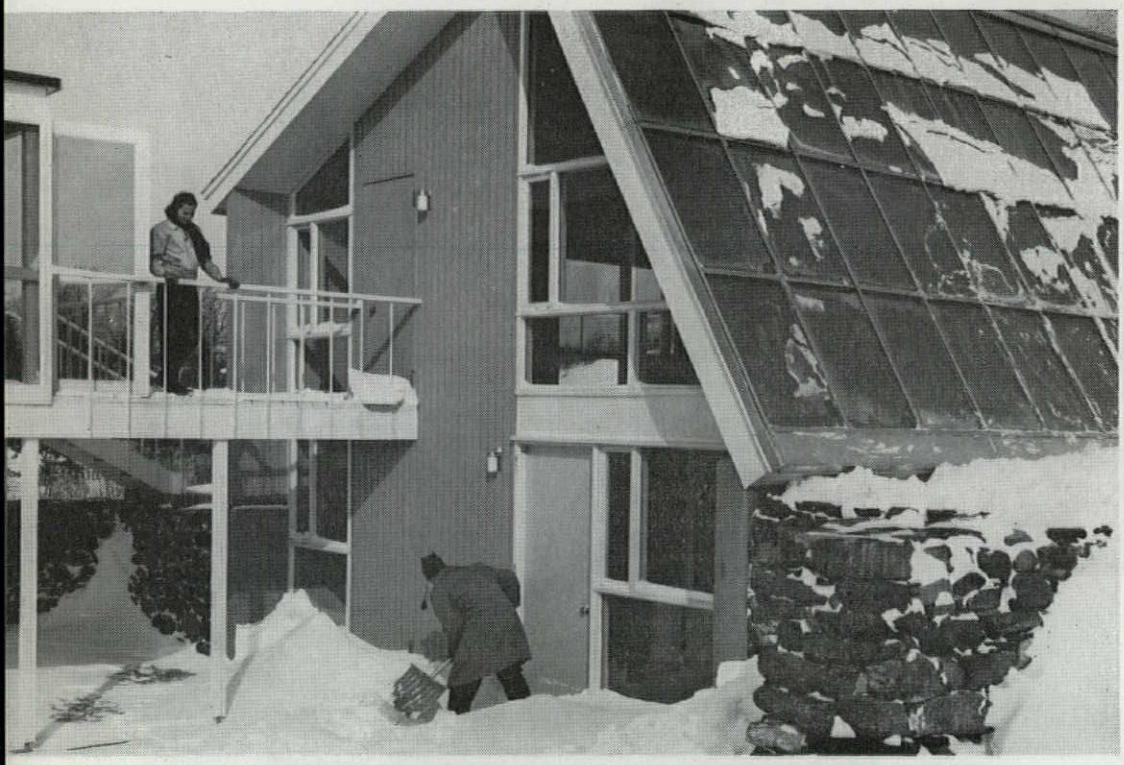


Domestic hot water is provided by burying a long copper coil in the gravel bins directly connected to a hot-water tank. Water may be circulated by gravity or a small pump.

Auxiliary heating devices supplement both space-heating and domestic hot-water problems in the event of the system's failure, or through a "long, gloomy, season."

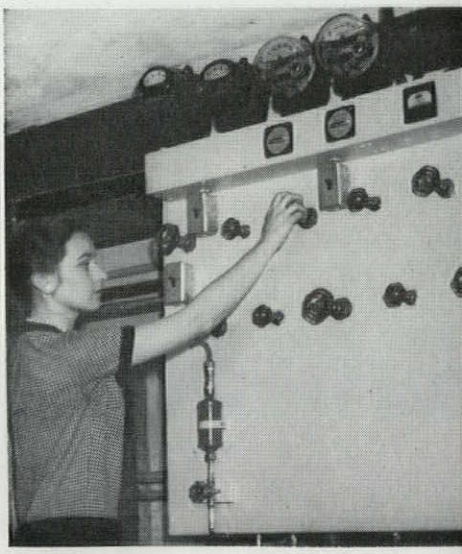


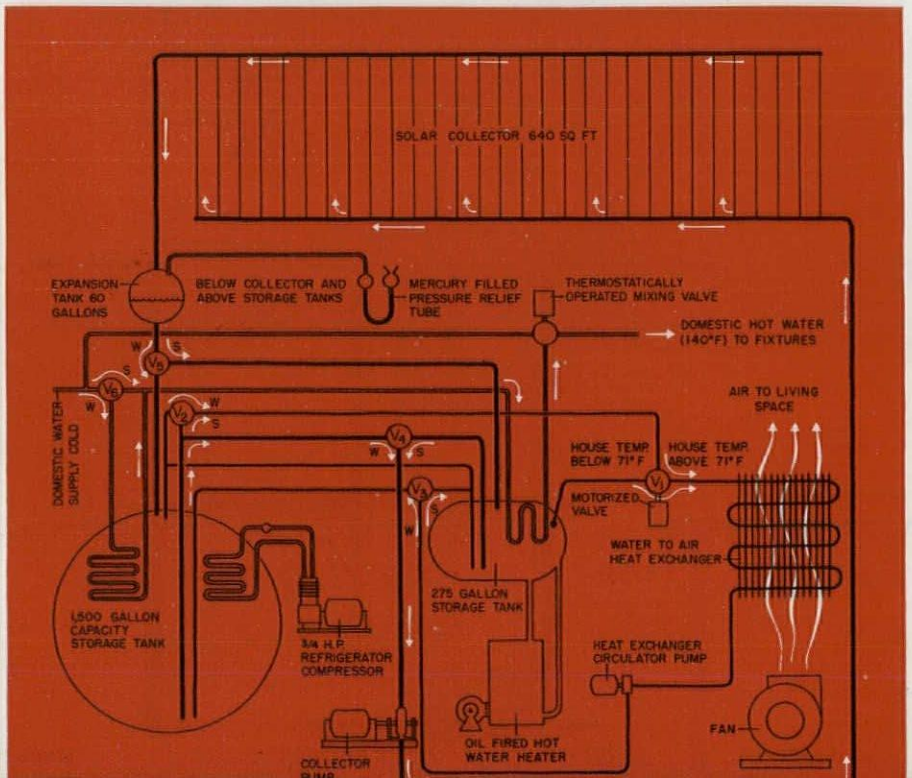


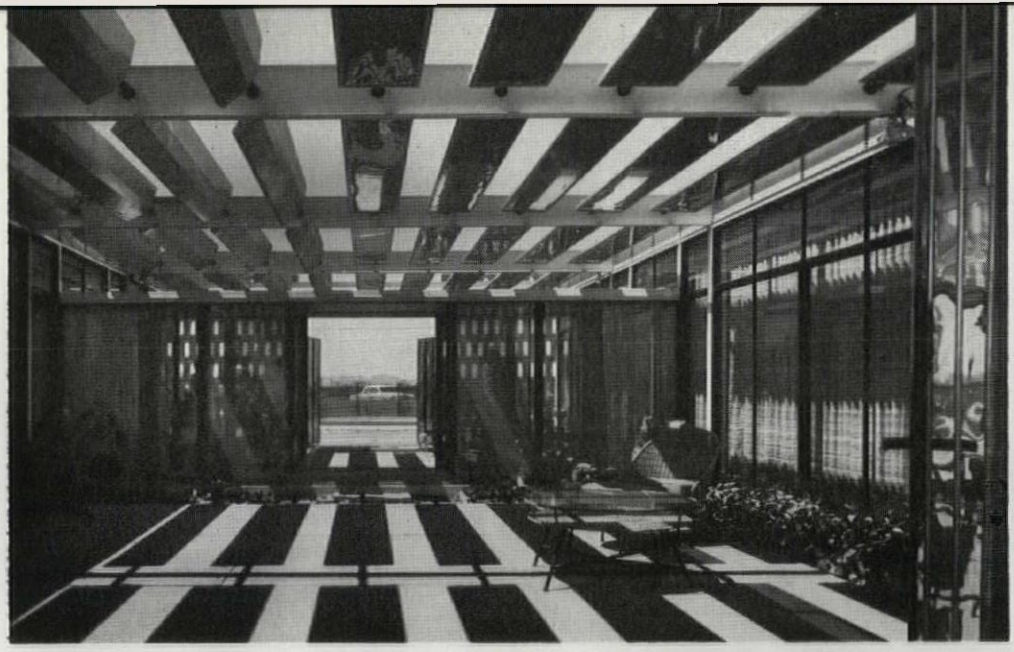


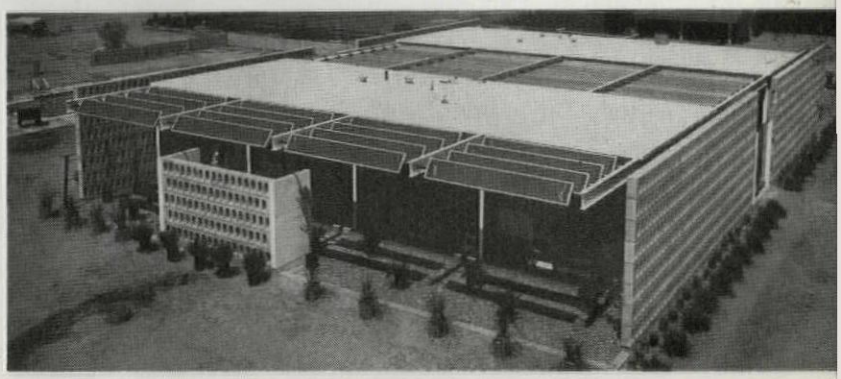
MIT solar house IV, Lexington, Mass.

Pioneers in solar heating for 20 years, researchers at MIT have now completed their fourth solar house. Located in suburban Boston, this two-story house—which has been sold to a private family but maintains a separate access for research personnel—has a total usable floor area of 1450 sq ft. Its 60-degree-tilt collector consists of 640 sq ft of glass, two layers thick, over a similar area of .025″ thick aluminum sheet painted black. While the aluminum sheet absorbs solar energy, the glass serves the dual purpose of letting the sunshine in and keeping the longer heat-energy waves from emerging. Water is circulated through copper tubes attached to the aluminum sheet and captured solar energy is transferred from the sheet to the water. In turn, the hot water is stored in a 1500-gal tank. To heat the house, the hot water is pumped through a heat exchanger which transfers heat to an air stream passing through ducts and registers. For summer operation, the furnace is turned off and valves are set (*above*) to connect the small tank to the roof collector. Solar energy is used to heat water in the small tank for domestic use, and a small refrigerator is applied to the large tank to provide cooling for the living room.



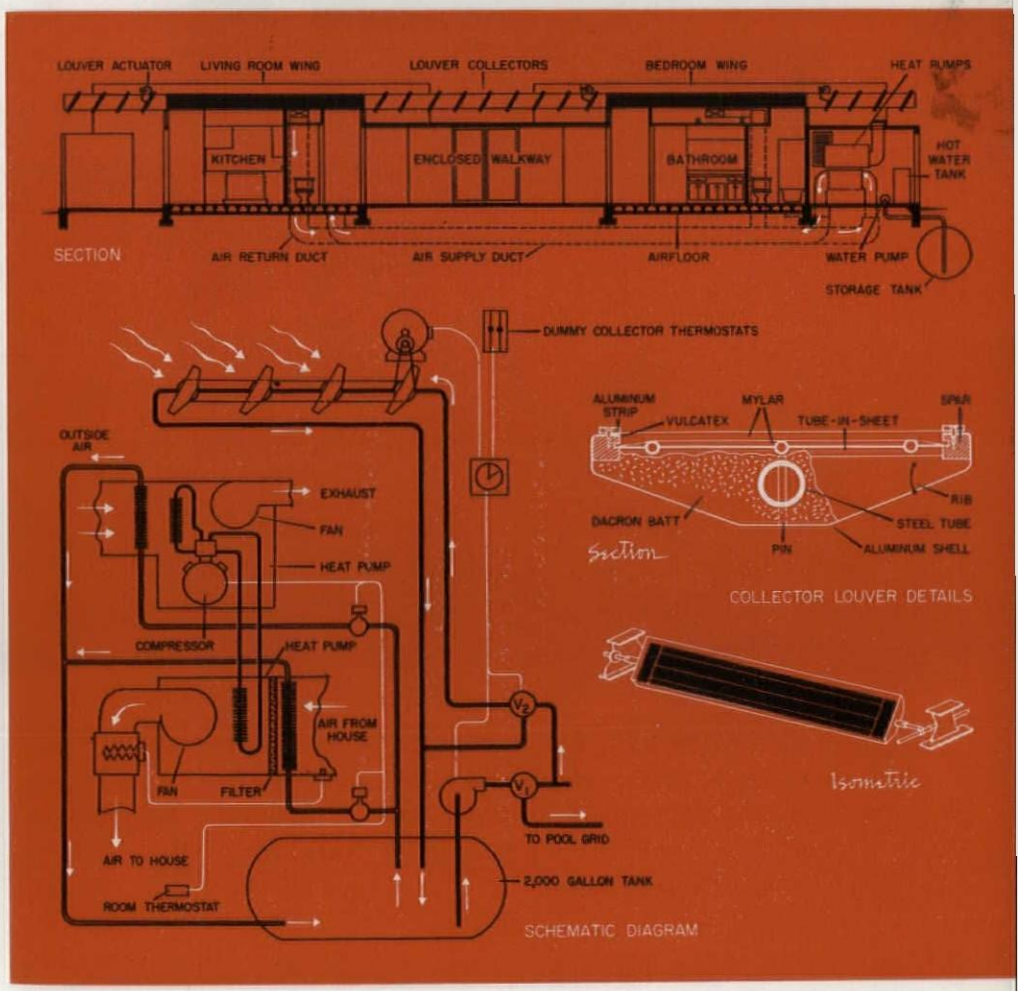






AFASE house, Phoenix

The solar house of Association for Applied Solar Energy has undergone tests to determine the relative cost of heating the house with and without solar energy. Although test results have not been completed, operation has been on an automatic solar-heating cycle, and the total power requirement of the system is being recorded. The power requirement for the same period, if the house were heated without solar energy, will be calculated. At the heart of the system is a 2000-gal insulated water tank buried in the earth. Water tank temperature is raised by passing it through flat-plate solar collectors constituting the louvers over the central court, and the north and south patios. When the water temperature is higher than the house air, heat will be transferred directly from the water to the air through an exchanger. When the water temperature is lower than that of the house air, thermal energy will be transferred from the water to the house by a heat pump. When the solar-house heat pump is in use, the operational cost will be less than in a conventional system, because the solar-heated water will be warmer than the outdoor air.



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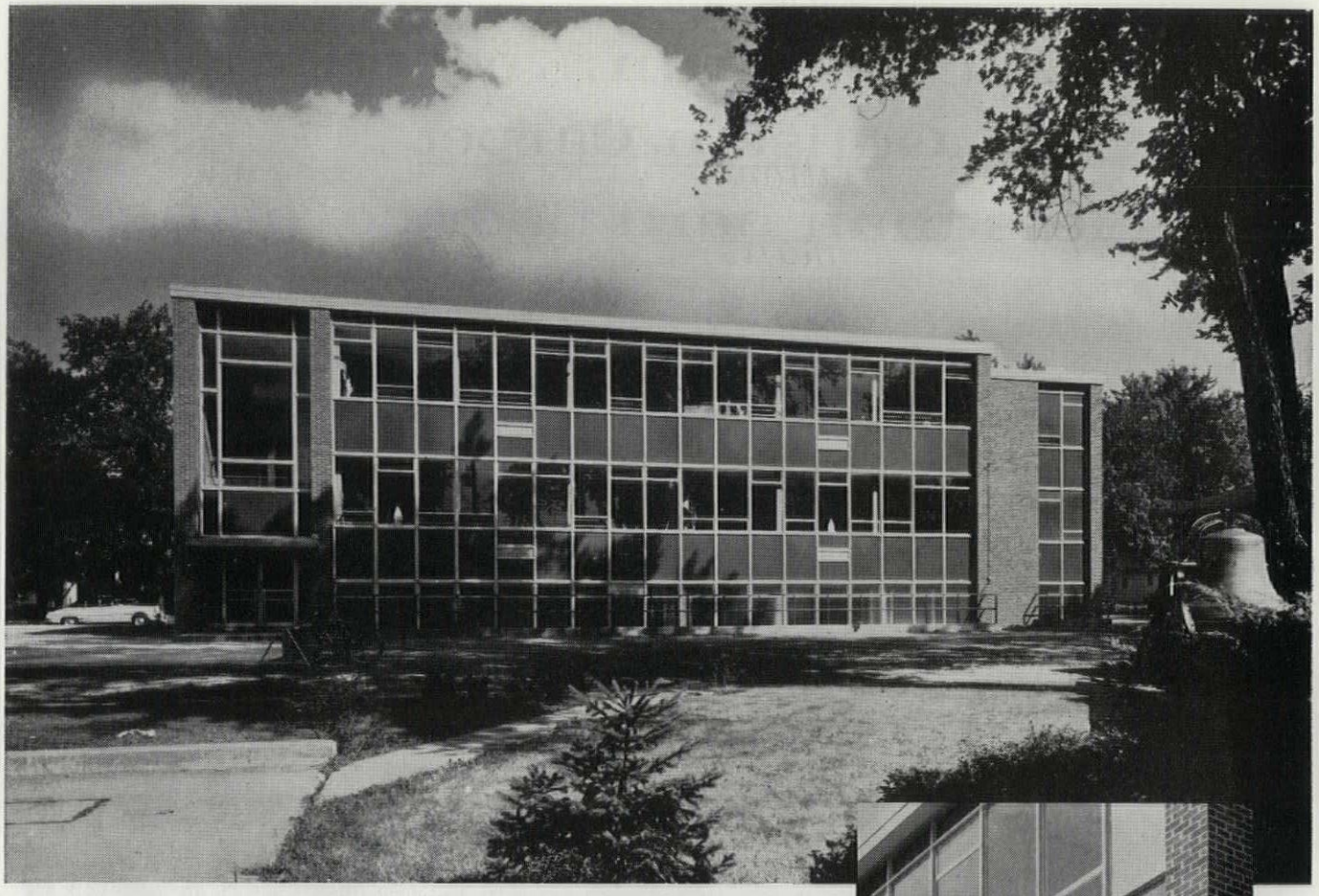

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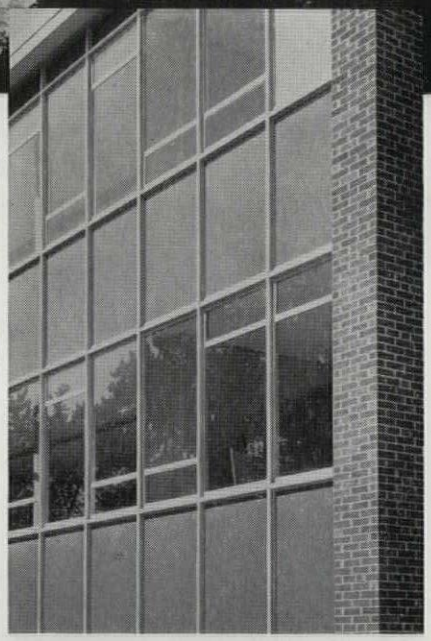

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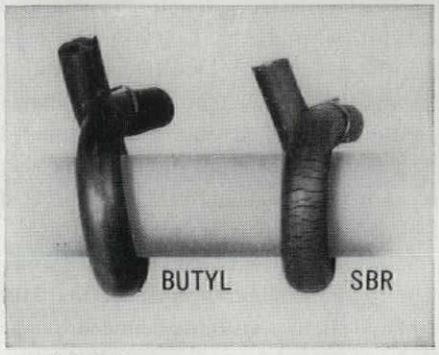

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(Continued from page 222)

by the brothers Olgyay. It is safe to say that until materials and methods now undreamed of are developed, this book will offer the final word in sun control for all types of buildings. And a superb "word" it is, too, consisting of nearly 100 pages of profusely illustrated technical data and more than 100 pages of photographs of existing shading installations.

The volume's technical excellence is unquestionable. Anyone who studies the first section, which analyzes in detail all of the problems that the sun enforces upon the architect, will have the science of solar control at his fingertips. But what makes the book particularly outstanding is its superb collection of actual examples, in buildings from all over the world, of every imaginable type of structural sunshade. A glance through this picture file will, I think, make most architects give second thought to the problem of skyscraper design—and of many other kinds of design as well, though skyscrapers are the worst offenders—as worked out almost everywhere in the United States. We Americans tend to let the air-conditioning system do the work, at exorbitant cost, rather than permit our buildings to handle the larger part of the sun's heat load themselves, through proper orientation, placement of openings, and design of shading devices.

It can only be hoped that this basic book may eventually start a backfire against the current craze for smooth-surfaced, geometrically boring, and economically insane glass structures. Glass is a fine material, no doubt of it, but—as the Olgyays point out in extensive and often gently reprimanding detail—it should be used with some effort at human scale and economic common sense. The present volume tells how to do just that.

A *must* book for every architect with an interest in rational design for comfort and for the long-term operating economy of his buildings.

GROFF CONKLIN
New York, N. Y.

the auto: public problem #1

Parking. *Geoffrey Baker and Bruno Funaro. Reinhold Publishing Corp., 430 Park Ave., New York, N. Y., 1958. 208 pp., illus. $9.50*

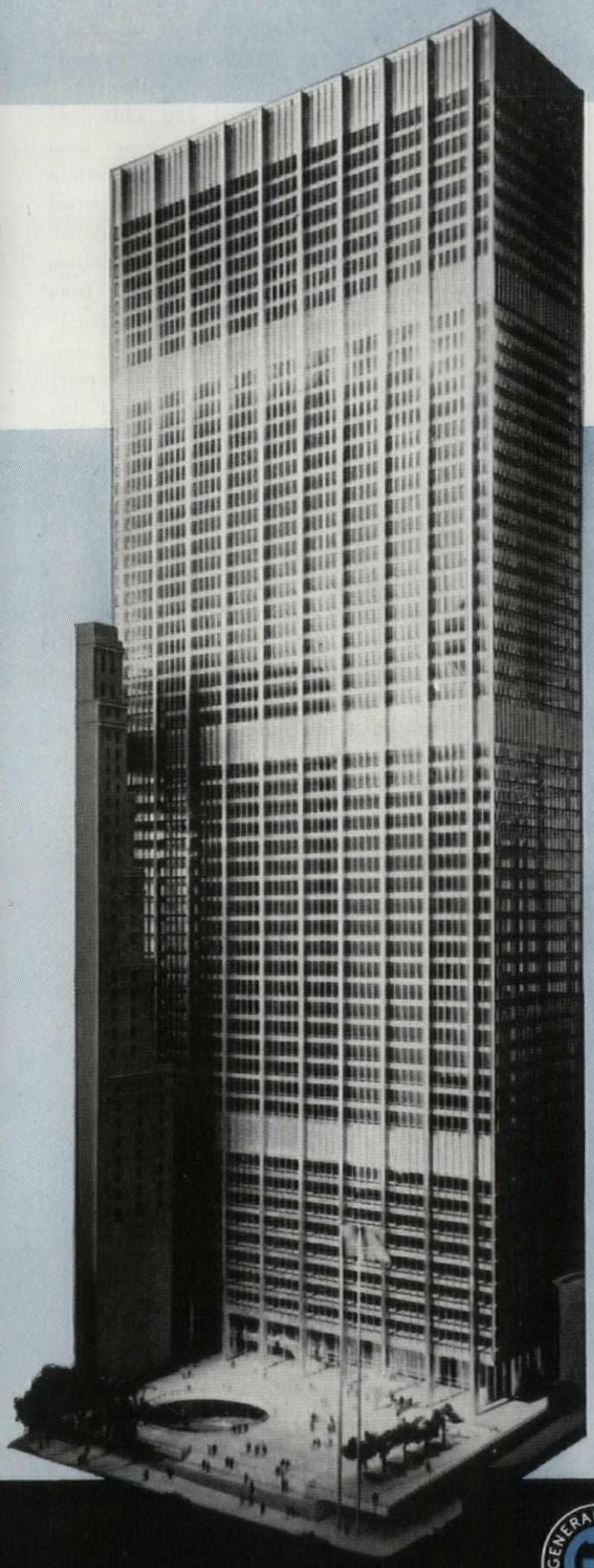
The team of Geoffrey Baker and the late Bruno Funaro has given us a really informative book on *Parking*, a subject now under much discussion throughout those parts of the world where automobiles are used extensively. Their book offers the reader a comprehensive and exhaustive study as to what has been done and is being done in many cities. It contains an excellent display of photographs, plans, and charts, accompanied by a factual account of the ways different types of parking facilities are operated and the effect they now have on traffic.

However, when one finishes scrutinizing this document one feels that the authors might well have included among their studies the manner in which these parking facilities could be tied in constructively with public transport, since that is a mighty pertinent question and

(Continued on page 228)

FOR THE NEW CHASE MANHATTAN BANK BUILDING

NEW YORK CITY



CURTAIN WALLS

IN ALUMINUM

by

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(Continued from page 226)

will become increasingly important as the years roll by.

For surely, as the population grows in metropolitan areas, it will become imperative to concentrate on moving people rather than vehicles, and the millions that are now being expended yearly on motorcar facilities will have to be diverted to improving and modernizing public transportation. This book points out that a thin man in a subway rush hour only occupies 2 sq ft; a man running, 15 sq ft; while a man in a popular 1958 American car, standing still, covers 200 sq ft.

At present there are about 170 million Americans. By 1975, reliable statistics point to a population of 225 million Americans. There is a limit to the amount of road space and terminal facilities which can be turned over to motorcars.

Today, our countryside is being slashed unmercifully for motor expressways which destroy in their path many old, established communities as well as great tracts of valuable farm lands. It will never be physically possible to accommodate all the cars which increasingly pour onto our city streets without killing our social pattern and adding to our housing shortage. Fifty years from now, the use of the motorcar in certain regions will have to be greatly curtailed and, in others, completely prohibited. That one-third of our present population, as the authors say, which drives from home to desks daily, attends drive-in theaters for recreation, and uses motor-banks and motor-restaurants wherever possible, may, in the future, find that legs still have a value.

For this self-multiplying of the human race, if permitted to continue, is bound to force many changes in our present habits—and the way an automobile is employed will be among them. Current ideas on parking may be interesting and provocative but, as the book so rightly states, what we plan for next year will probably be outmoded two years hence.

Parking is challenging and should be read by planners, government officials, and motorcar fanciers.

GOODHUE LIVINGSTON, JR.
New York City Planning Commission
New York, N. Y.

national advertisement

This is Japan 1959. *The Asahi Shimbun, Yuraku-cho, Tokyo, Japan, 1958. Distributed by Japan Publications Trading Co., Ltd., Central P. O. Box 722, Tokyo, Japan. 388 pp., illus. $6.50 ($7.25, in wooden box).*

The aim of this annual (since 1954) publication by the Asahi Shimbun is to present Japan of today to the foreign world and thereby stimulate its interest. Contents include articles on government, business, and industry; traditions of Japan; architecture, old and new; art, music, sports, and cooking; scenic tours; short stories; foreign views on Japan (and Japanese views on foreigners), etc.; plus supporting advertising. It is, as the name implies, a total, annual picture of Japan.

Among the many articles of special interest to architects are: one on the construction of the Asahi Building in

(Continued on page 232)

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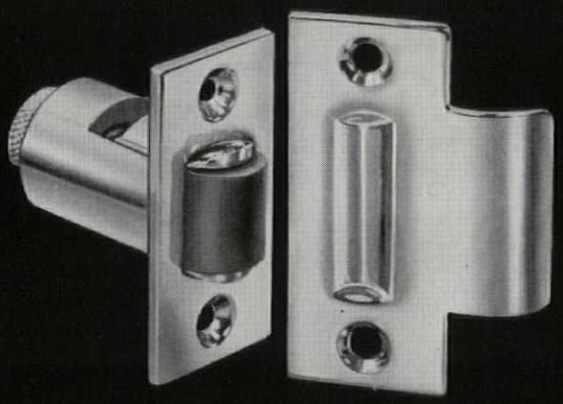

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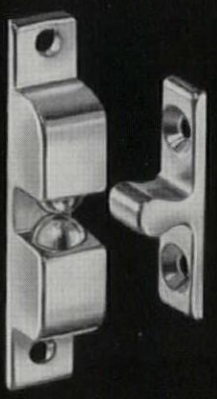

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GJ 555 . SECURITY
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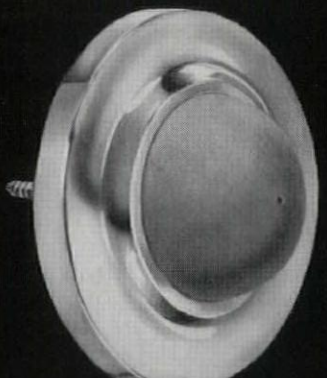

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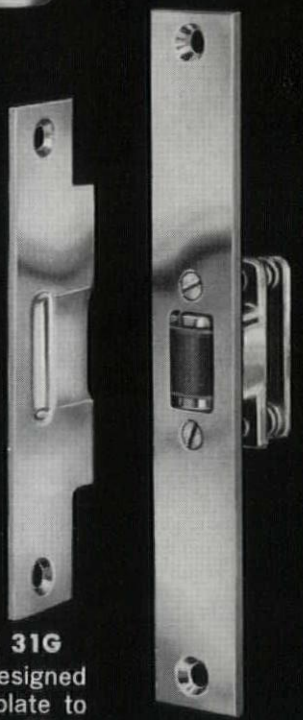

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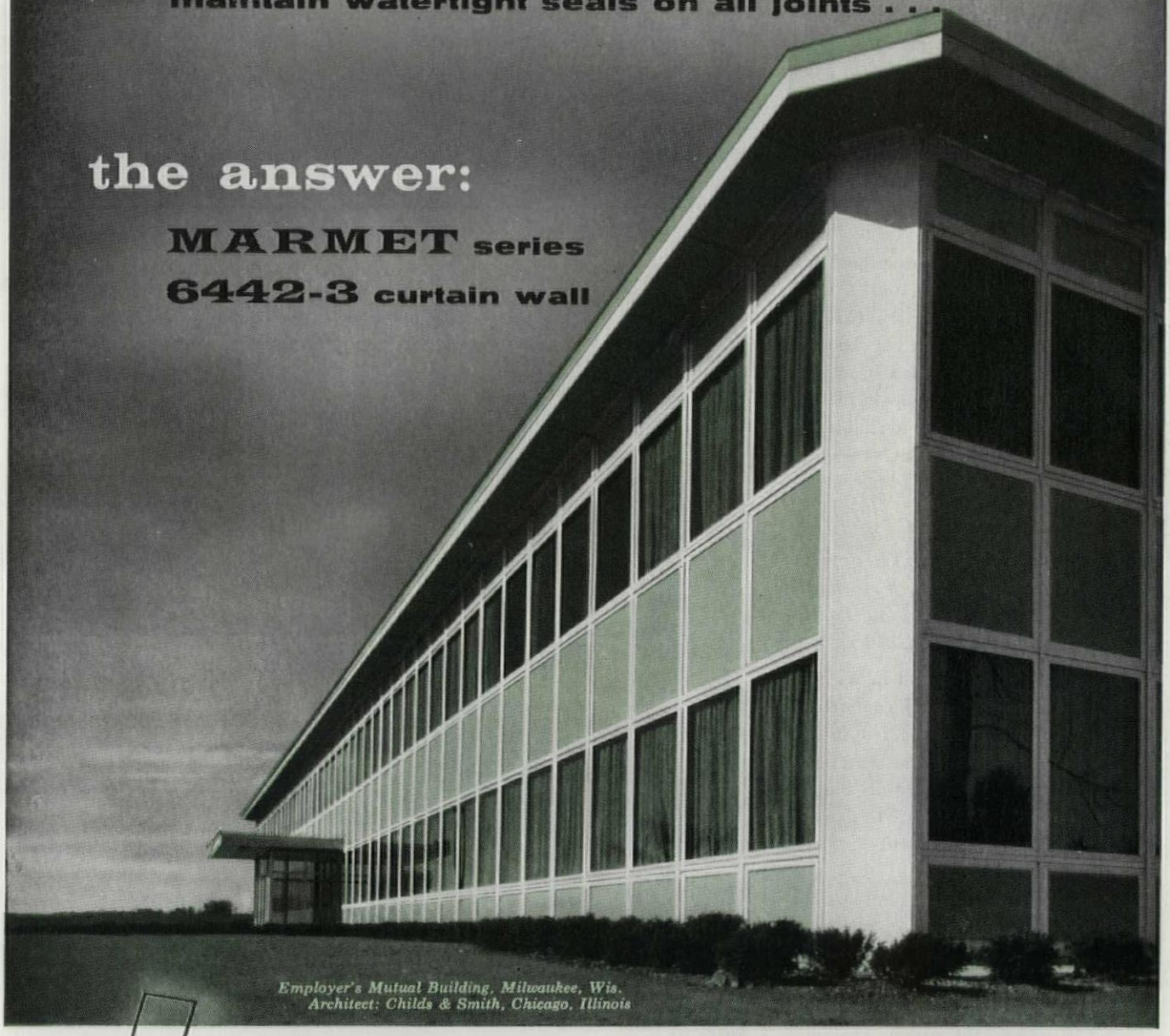

Employer's Mutual Building, Milwaukee, Wis.
Architect: Childs & Smith, Chicago, Illinois

look how fast it goes up . . . look at the results!

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reviews

(Continued from page 228)

Osaka; colorfully illustrated pieces on the "Dawn of Japanese Art," and on Persian art; an article by George Nelson; two special reports by Architect Kenzo Tange, one on Japanese gardens, "The Secret of the Rock," and a 17-page round-up of recent Japanese architecture; an illustrated list of noteworthy gardens; "Birth of the Ginza" (Tokyo's main thoroughfare) shown in oil paintings; and a 10-page story on "Wood in Architecture."

The more thoroughly I examined the book, with its 388 pages (10x13) filled with more than 1000 pictures (110 in color), the more enchanted I became with the exquisite design and beauty of all that is Japan. *This is Japan 1959* is certainly the best substitute available for an actual trip to Japan today. A.L.

engineers' reference

Pre-Stressed Concrete: Theory & Design. *R. H. Evans & E. W. Bennett. John Wiley & Sons Inc., 440 Fourth Ave., New York, N. Y., 1958. 310 pp. $10*

The authors, R. H. Evans and E. W. Bennett, have presented a fairly comprehensive review of prestressed concrete in this text. It is divided into three basic sections, including: Part I, Analysis of Simply Supported Beams; Part II, Design of Simply Supported Beams; and Part III, Special Applications.

Part I contains a rather comprehensive discussion of the principles of prestressing as applied to simply supported beams and girders. Included are many examples and calculations which serve to clarify points discussed in the various chapters. One disadvantage noticed in the text, however, is the nomenclature used. Throughout the text English terminology is used, which becomes confusing to those accustomed to the American nomenclature for prestressed concrete. However, at the beginning of the text the notations are explained and compared to those used in America. It was also noted in Part I that all of the systems of post-tensioning presently utilized in the U.S. were not covered. The discussion on losses in prestressed concrete are thoroughly covered.

It was also noted that the section on prestressing steels did not include anything on seven-wire, high tensile-strength strand. This material, of course, is utilized almost exclusively in the U.S. for pretensioning. Also, the steel wires shown as typical are of lower ultimate strength than those in common use in the U.S.

The chapter devoted to flexural strength is very comprehensive and covers strength and safety of prestressed members in a very thorough manner. Test results of various over-reinforced and under-reinforced sections are tabulated.

Part I also includes a thorough study of shear and principal tensile stresses in prestressed concrete. The effect of prestressing on principal tensile stresses is discussed in detail. A short paragraph on the effect of torsion on principal tensile stresses is also included; and stresses developed at the end blocks of post-tensioned girders and pretensioned girders are discussed in detail, and various calculations are shown.

(Continued on page 240)

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reviews

(Continued from page 232)

Part II covers the design of simply supported beams. Examples are shown for the design of beams reinforced with pretensioned and post-tensioned steel. The location of the prestressing force, the required section modulus, allowable concrete stresses, shear investigations, etc. are discussed rather thoroughly.

Part III of the text is devoted to special applications of prestressed concrete. This section of the text is an excellent one and is very complete. The use of composite construction is thoroughly covered, and excellent examples are shown.

A chapter in Part III is devoted to miscellaneous structures including masts, posts, piles, roadways, runways, railway sleepers, foundations, etc. Indeterminate structures are also discussed in some detail in Part III. This chapter is an excellent one and clearly sets out the problems and solutions of prestressing of indeterminate structures. Solutions for continuous members as well as rigid frames are presented in detail. Some discussion is made on the ultimate load capacity of these continuous structures. Excellent references are also listed on this subject.

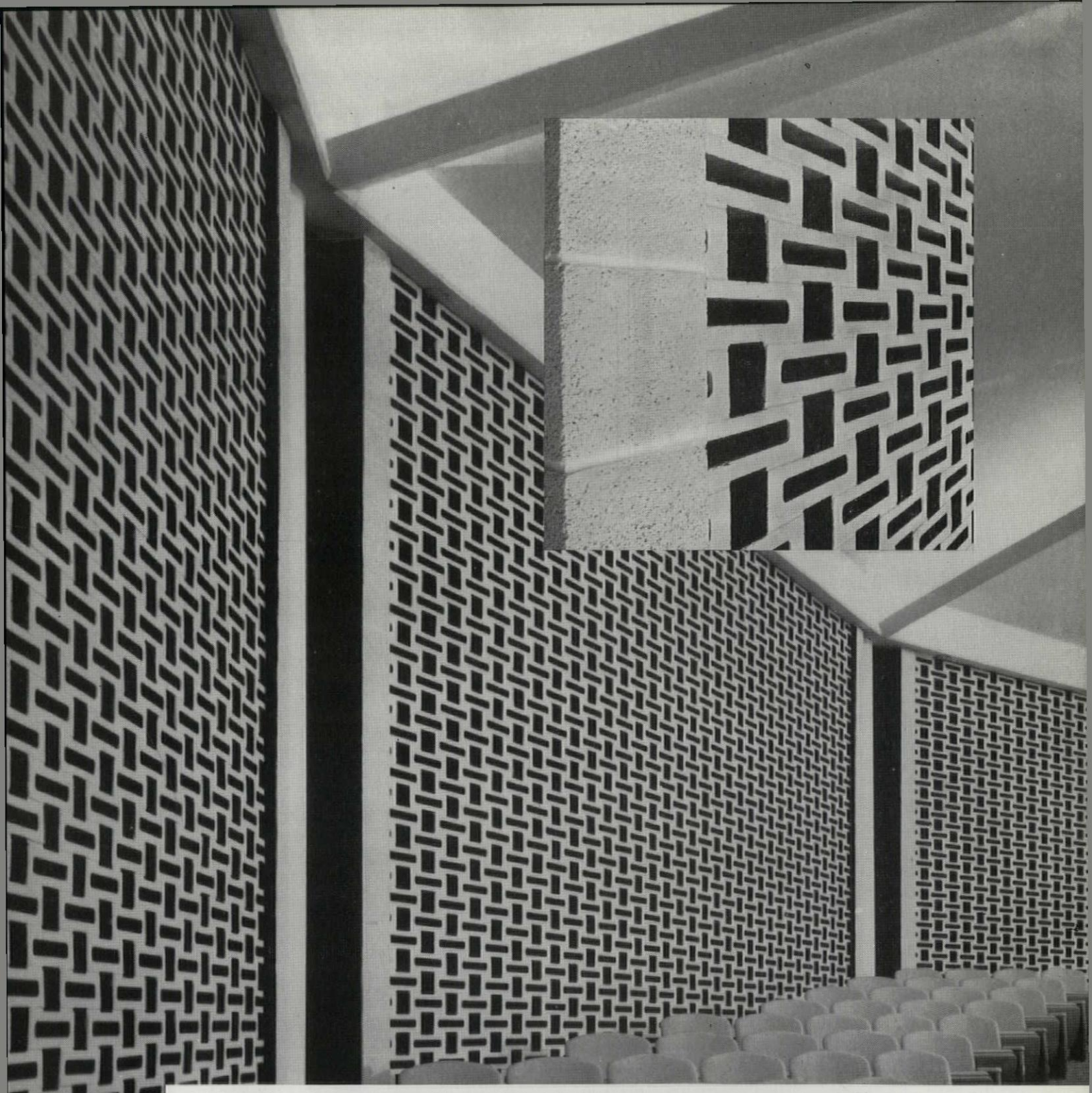
Part III also contains a chapter devoted to liquid retaining structures; i.e., prestressed pipe and prestressed tanks and dams. This interesting chapter adequately covers the design and analysis of circular structures. The application of prestressing to domes and shells is also presented in a chapter of Part III. This section, while not too detailed, presents the fundamentals of prestressing spherical domes and cylindrical shells.

In the Appendix, various tables are presented which assist the designer in calculating section properties of various prestressed concrete girder shapes.

In conclusion, *Pre-Stressed Concrete: Theory & Design* is a valuable addition to the rapidly growing list of texts on prestressed concrete. The authors have presented their material clearly and concisely. Sufficient examples are included to make the text interesting to designers, engineers, and advanced students of Civil Engineering.

FRED E. KOEBEL
San Antonio, Tex.

(Continued on page 246)



Wayne Memorial high school auditorium, Wayne, Mich. Eberle M. Smith Associates, Inc., architects.

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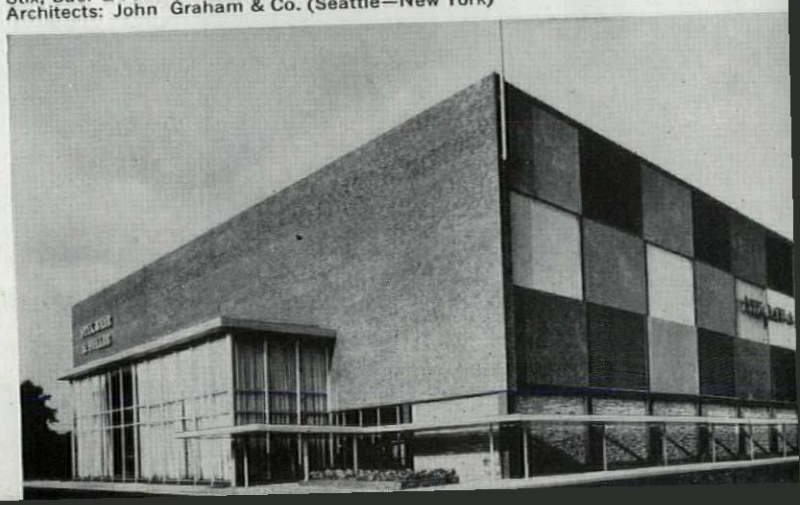

ABOVE—Military Personnel Records Center. Architect: Hellmuth, Yamasaki & Leinweber
ABOVE RIGHT—Pius XII Memorial Library. Architect: Leo A. Daly Company

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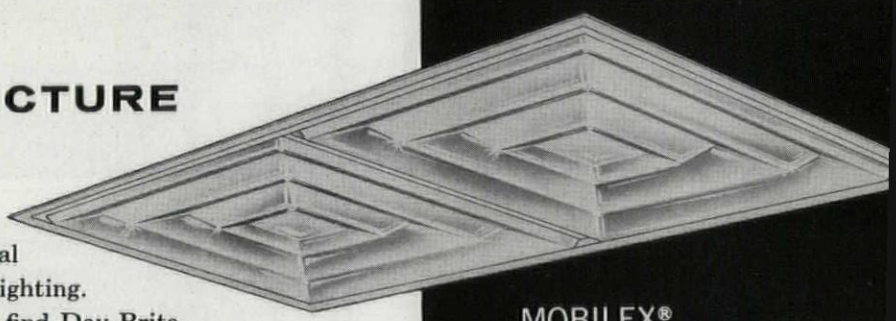

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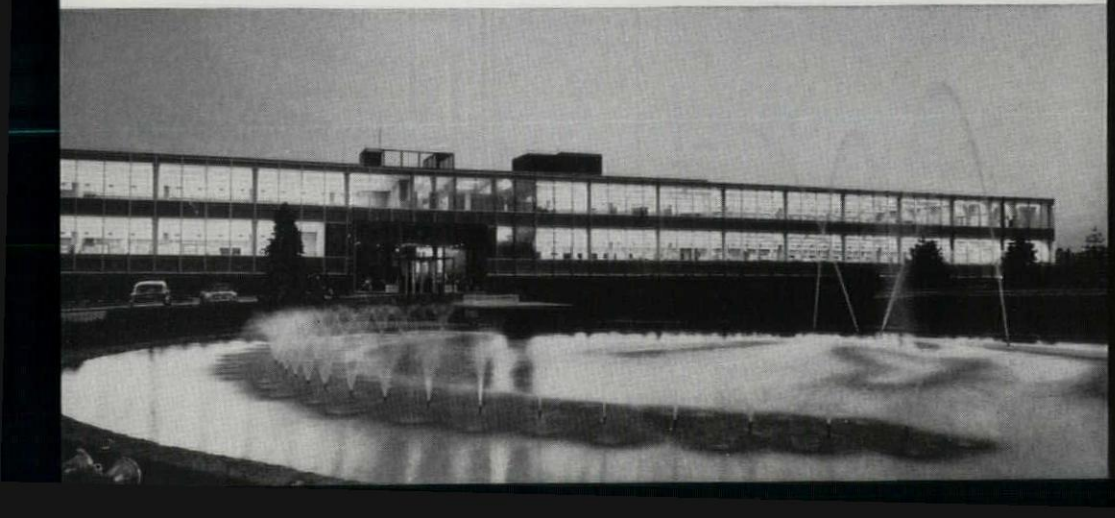
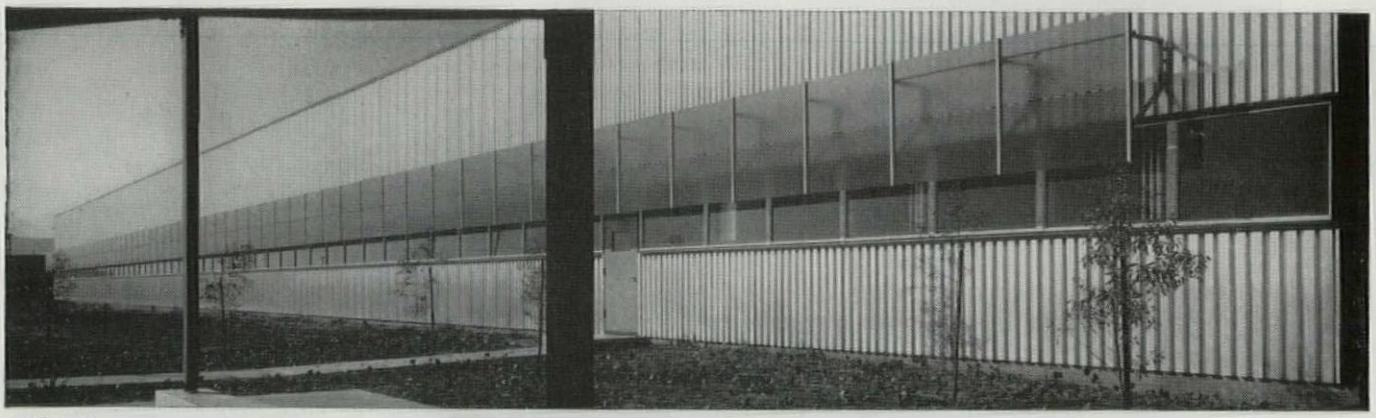
McDonnell Aircraft Corporation, Engineering Campus
Architect: Harris Armstrong, F.A.I.A.

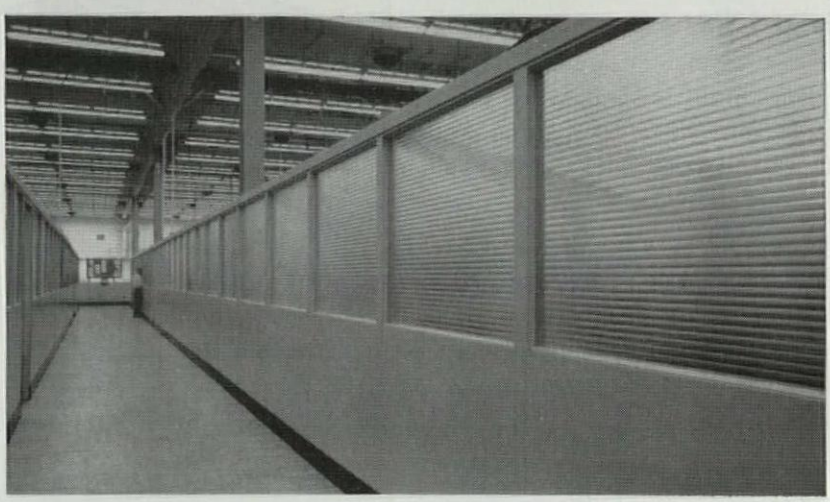


LIGHT DIFFUSING GLASS MAKES...



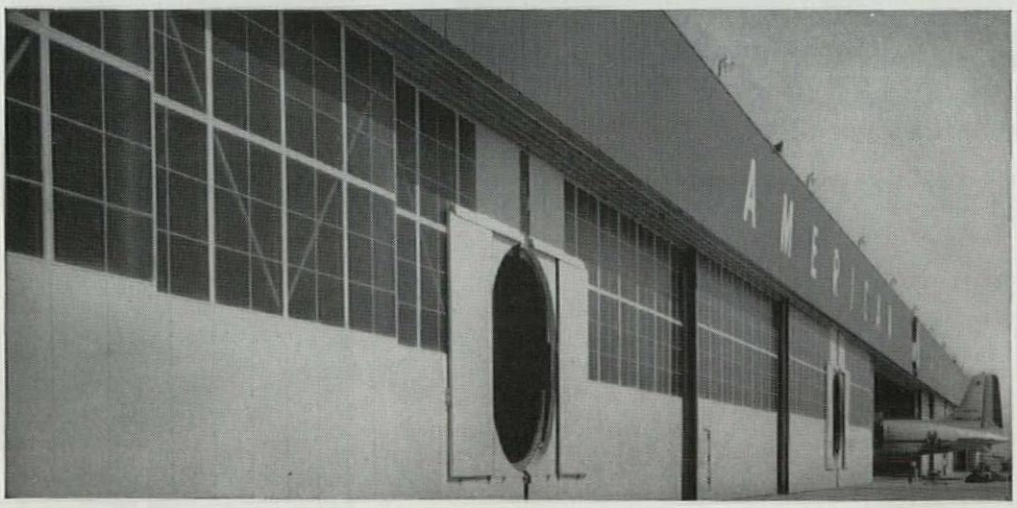
Architects: Marcel Breuer and Associates
Supervision: Craig Ellwood

A point of special architectural interest in the new Torrington Manufacturing Co. plant at Van Nuys, California is the sunshade of Coolite heat absorbing wire glass that spans the western elevation.



Complementing the spectacular new IBM offices in San Jose, California are these Hauserman partitions, glazed with lustrous Mississippi Broadlite glass.

Architect: John S. Bolles, San Francisco, Calif.
Partitions by: E. F. Hauserman Co., Cleveland, Ohio



1260 lights of ¼" Coolite Wire Glass provide better daylight with protection, while absorbing excess solar heat in expansive American Airlines Hangar at Los Angeles International Airport.

Architect: Quinton Engineers Ltd., Los Angeles, California
Glazing by: W. P. Fuller and Company, Los Angeles, California

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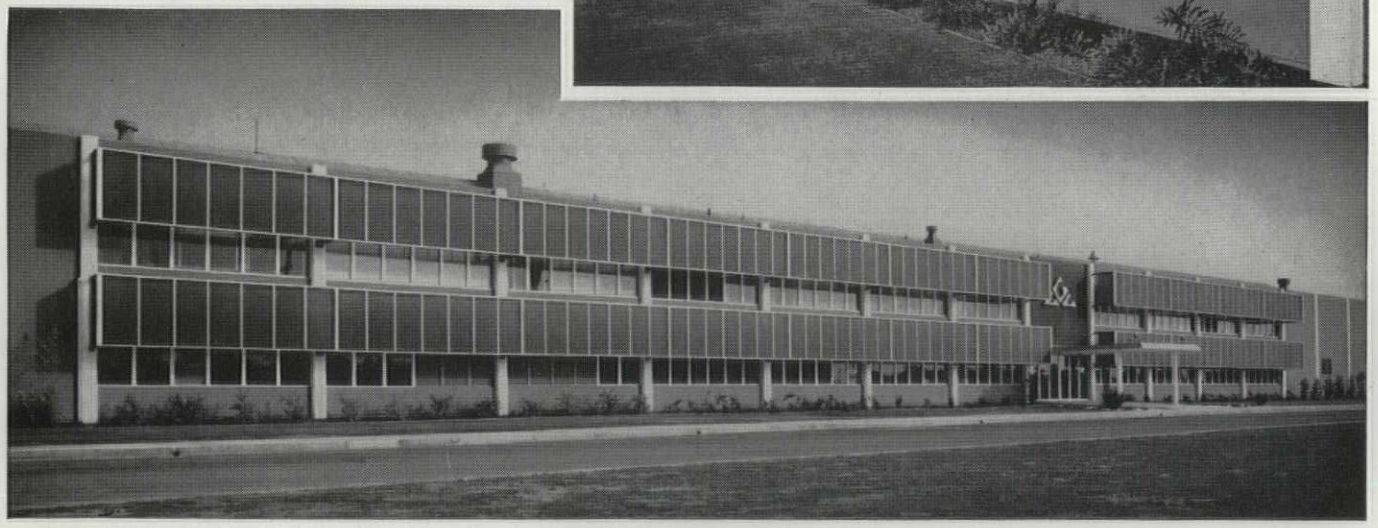
Growers Container Corporation, Fullerton, Calif.
Architect: Falk and Booth, San Francisco, Calif.



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ROLLED, FIGURED AND WIRED GLASS

reviews

(Continued from page 240)

comprehensive and lavish

The Praeger Picture Encyclopedia of Art. *Frederick A. Praeger, Inc., Publishers, 15 W. 47 St., New York, N. Y., 1958. 584 pp., illus. $17.50*

Frederick A. Praeger has published what is not only the best one-volume "picture" encyclopedia of art, but one of the best dictionaries on the subject. It is handsome, as all-inclusive perhaps as one volume can be, and generously filled with excellent plates. It is a bargain too, obviously made possible only because of simultaneous publication in four countries.

Beginning with a general introduction on the nature, forms, and history of art, the work continues dividing art history into six periods, ranging from Pre-History to the Modern Age, with a final section entitled, Art Outside Europe. The latter does not include North America—the United States and Canada here being considered an integral part of the western tradition. These seven sections each have their own introductory history of the arts and crafts of the given epoch after which follows an alphabetical listing of painters, sculptors, architects, and schools or movements within the period.

Few will fail to be impressed with the volume, comprehensive as it is in scope and lavish with illustrations—192 full-page four-color plates and more than 400 black and white. The latter are brilliant in tone, the color plates for the most part excellent, so excellent in average that criticism seems carping. What failures there are unfortunately occur in plates which demand sharpness in detail. Regrettably, too, gold seldom prints well and the results are more pretentious than happy. Readers will be surprised by the authors' selection of illustrations. The Watteau, detail from *La Gamme d'Amour*, is a charming choice and color-wise perfect; opposite is a Boucher, *The Prophets*, dark, heavy, and untypical. The only excuse for the choice of the Picasso color plate can be its rarity, because it represents no well-known style. But rarity is not the standard for the Raphels, for here are his

(Continued on page 250)

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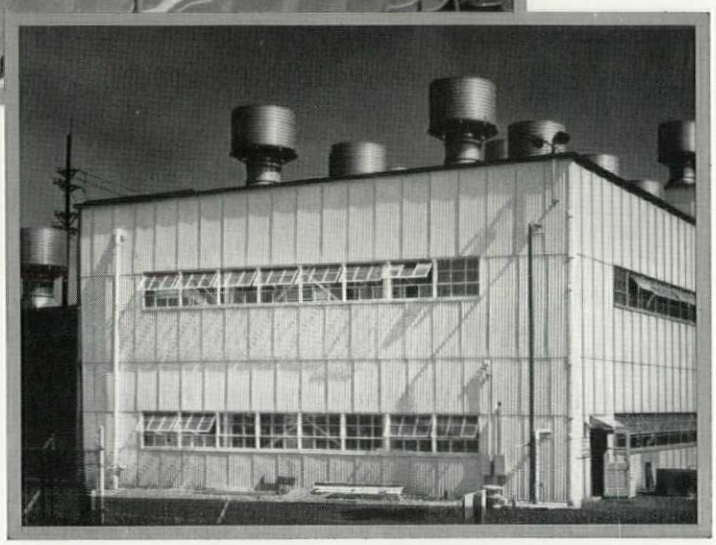

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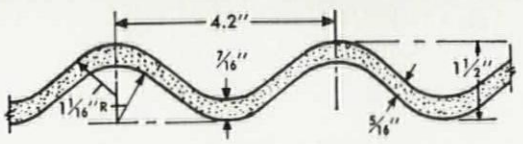

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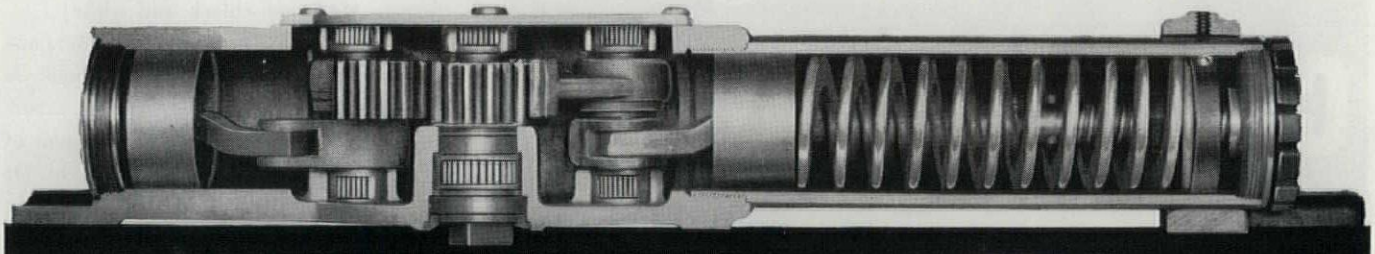
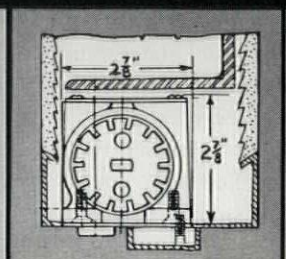
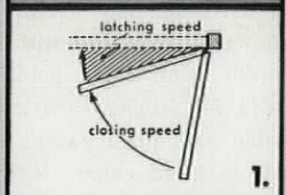
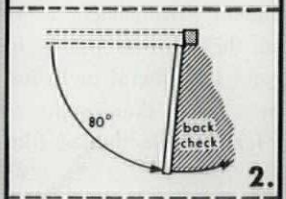


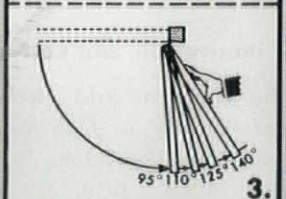
no problem with RIXSON

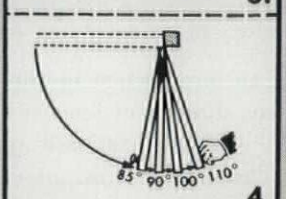
OVERHEAD concealed DOOR CLOSERS











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reviews

(Continued from page 246)

Madonna of the Chair (in color) and the *Sistine Madonna* (black and white).

Strength lies in the early sections through the Renaissance. The book is totally weak in the survey of contemporary architecture and woefully negligent of any American pioneering in this field. Of 14 architects identified in the modern period, only Wright, Neutra, Gropius, and Mies van der Rohe could qualify as "American." Any mention of Skidmore, Owings & Merrill lies in an explanatory line to a photograph of the Lever Building. And what of Gaudi, Saarinen, or Niemeyer? What prejudices the authors have are strictly national ones; the Germans get more than due credit in identifications and pictures. But this reviewer finds the bias interesting, particularly in the color plates which fill a gap that exists in most other volumes of contemporary art.

Any reference shelf, public or private, will find this work a happy addition. This volume, furthermore, will satisfy the amateur who wishes to have a survey of the art field, and delight the more advanced student who will find much to refresh him. The publishers deserve credit for issuing such an encyclopedia within the price range of many; the authors merit equal credit for their intelligent arrangement of subject matter; and the editors, praise for the tasteful layout and liberal inclusion of line cuts—worth more than many words—as well as for the selection of illustrations.

MILTON E. FLOWER
Dickinson College
Carlisle, Pa.

innovation and self-expression

The Moderns and Their World. *Introduction by Sir John Rothenstein. Philosophical Library Inc., 15 E. 40 St., New York, N. Y., 1958. 128 pp., 48 color plates, 48 monochrome plates. $12*

In an introduction by Sir John Rothenstein, director of London's Tate Gallery, the reader is cautioned against thinking of "modern art" as one organic, related style or period. There are no homogeneous traditions, and classifications tend to break down the "individualism"

(Continued on page 254)

WISHFUL WOODPECKER! Thought this was **real** mahogany veneer.

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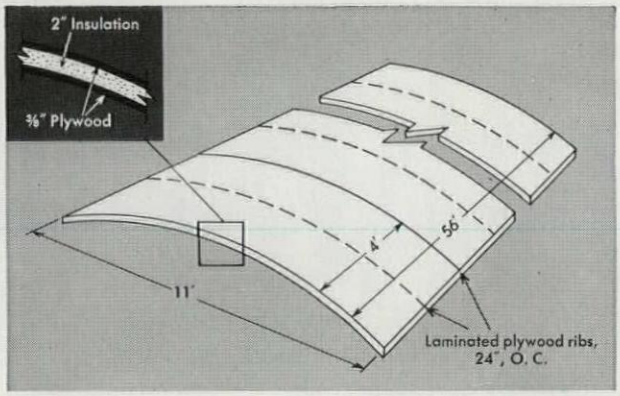

Prefabricated roof vaults are 11 feet wide at the chord, and 56 feet long (40 foot span plus 8 foot cantilever both ends). Key to system is the outstanding shear strength of the stressed fir plywood skins.

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ARCHITECT: Theodore T. Boutmy, A. I. A.
George Kosmak, Consultant
John E. Brown, Structural Engineer

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THESE lightweight fir plywood stressed skin barrel vaults designed for a California yacht club provide large clear floor areas at low cost plus an attractive profile and interior.

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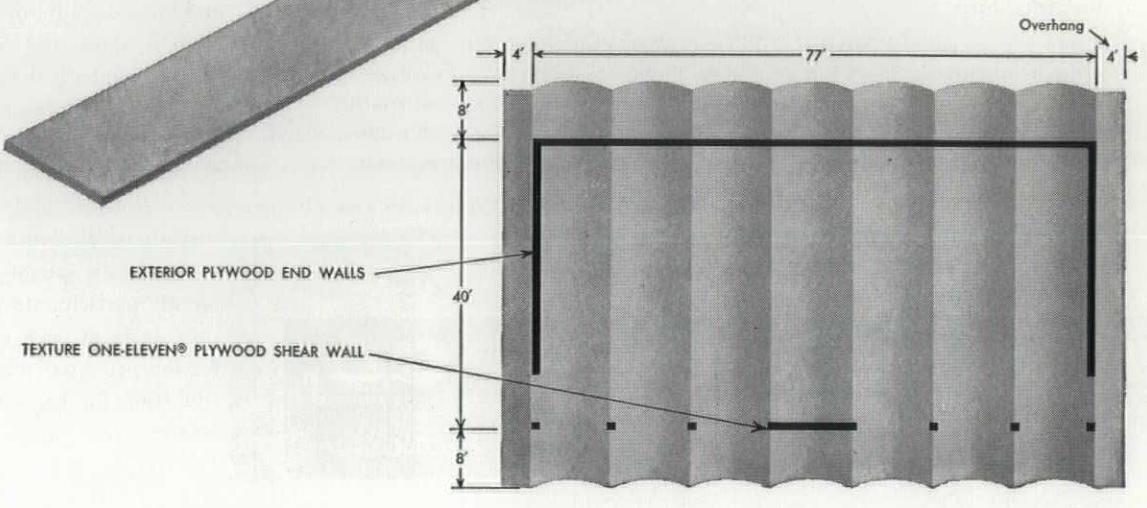

reviews

(Continued from page 250)

of today's artists. Modern art (modernism) is in essence revolutionary, with each artist, each small group being innovators. The story of the moderns is a story of individual personality and self-expression, with the realization of the personal vision the highest attainment.

Between the introduction and the plates are grouped concise biographies of the 63 artists whose work is shown; a bibliography; and an index to the plates.

The emphasis of the book is admittedly based on Ezra Pound's dictum that the way to understand pictures is to look at pictures. The 96 plates, showing representative modern art from Cezanne to our contemporaries, are handsomely printed in offset on heavy 9″x12″ pages. The use of full color in 48 of the reproductions makes possible a range of the vibrant pigments of Kandinsky, Dufy, and Klee to the more somber, subtle tones of Marc, Sutherland, and Utrillo. Rothenstein notes that he selected the British examples and the publishers selected all others; both are to be commended for fine choices. A.L.

fund of information

Building Construction Handbook. *Edited by Frederick S. Merritt. McGraw-Hill Book Co., Inc., 330 W. 42 St., New York, N. Y., 1958. 806 pp. $15*

The successful completion of modern buildings depends increasingly on co-ordination among owner, architect, consulting engineers, technical specialists, contractor, subcontractor, material vendors, and business advisors. Knowledge of each other's aims and responsibilities does much to smooth the progress of the work and assure a reasonable profit to all.

Under the able leadership of Frederick S. Merritt, Senior Editor, *Engineering News Record*, and with the aid of 25 specialists, *Building Construction Handbook* offers a splendid fund of information for all participants in any building venture. It is at once a reference handbook for the principal practitioner, a source of education for his assistants, and a cross-reference for those in other divisions of

(Continued on page 258)

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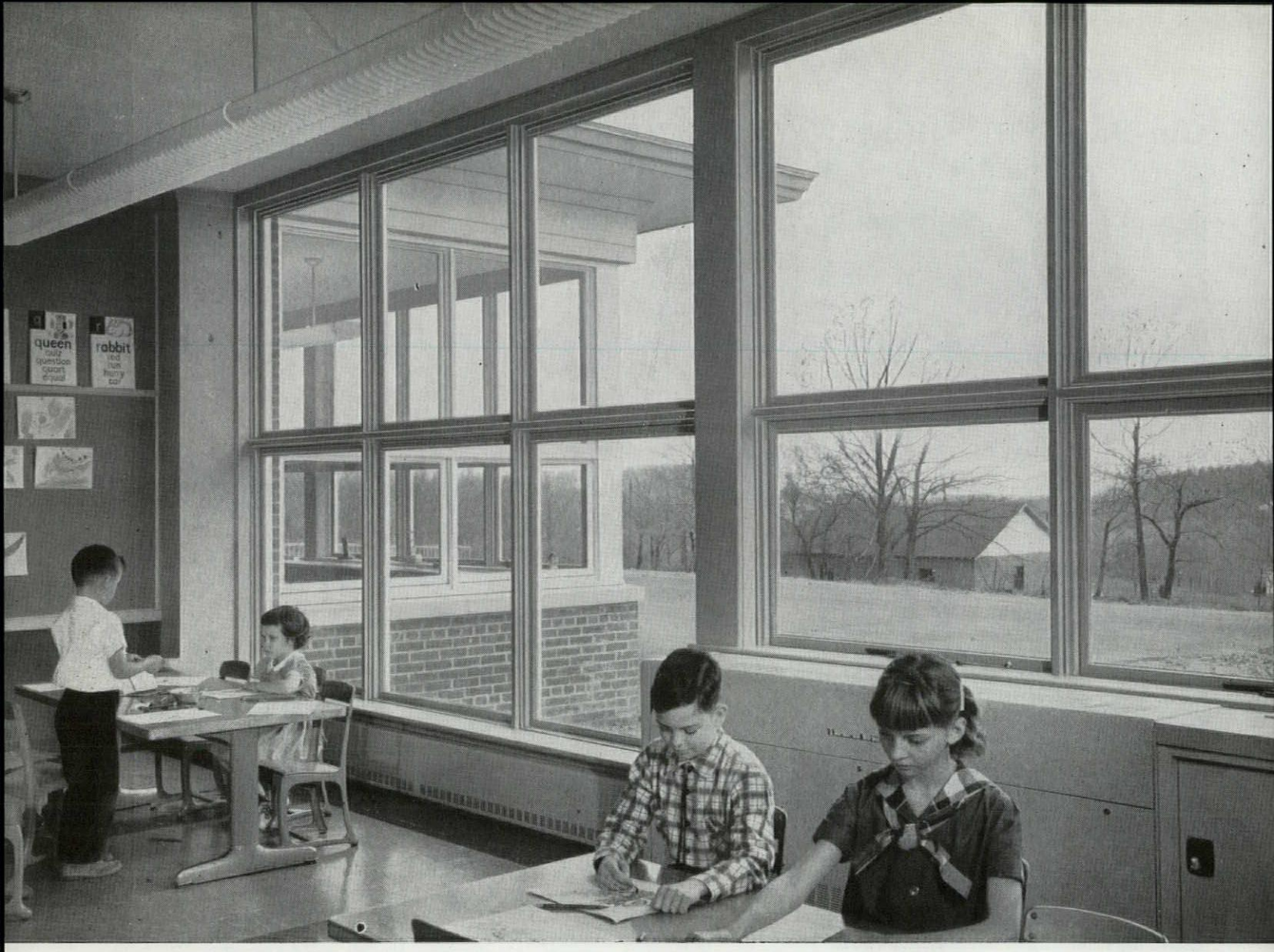

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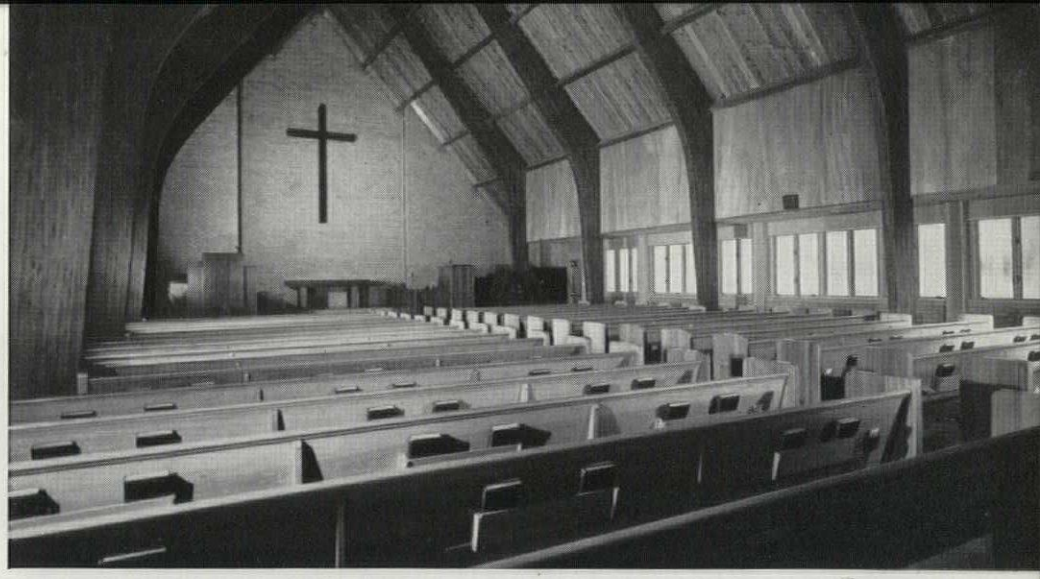
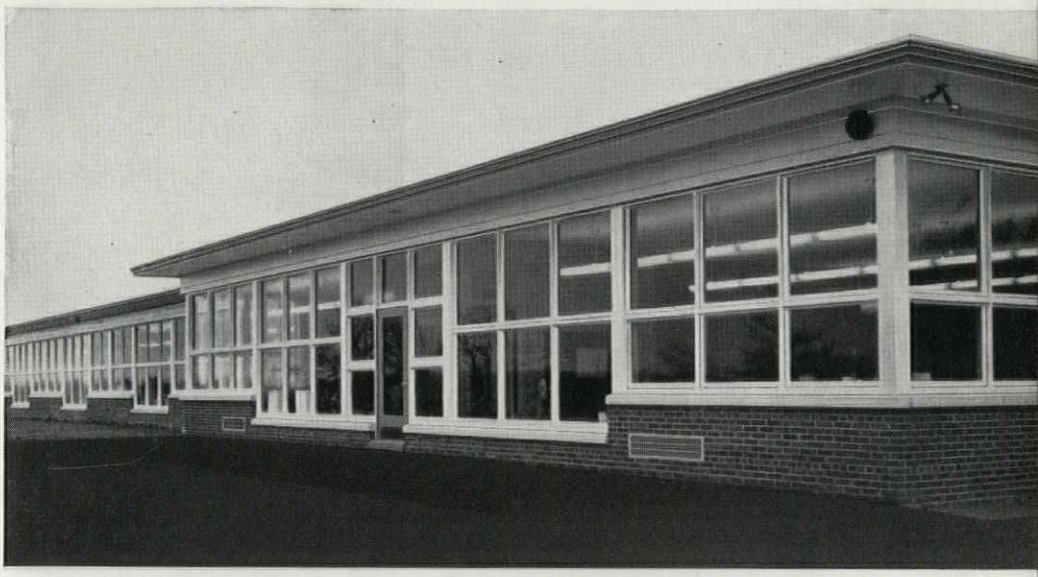
The Andersen Casement Windows in this Laramie, Wyoming, church complement the interior design by adding simple beauty and dignity. Ralph D. Peterson, Architect.



See how Andersen Windows add character, natural warmth and homelike atmosphere to this classroom in the new Lakeview School, Denville, New Jersey. Edward A. Berg, Architect.



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AW

(Continued from page 254)

the construction team. It will prove invaluable as a reference and text in courses in Civil Engineering, Architecture, and Construction Management.

Digesting the 29 sections to major divisions, it will be seen that the book includes professional services; design and building methods for the several types of construction, including concrete, steel, and wood; materials of construction, such as doors, lath, and plaster; basic stress analyses and foundation problems; design and construction of all mechanical services; and construction management, including surveying, estimating, insurance, and bonds.

Selecting for discussion, purely at random, several of the many interesting sections may give some impression of the nature of the book.

Stresses in Structures, by Frederick S. Merritt: a basic and clearly illustrated discussion of structural behavior from Hooke's law through fixed-end moments, moment distribution, arches, shells, domes, earthquake design, moving loads, and vibration.
Soil Mechanics, by Dr. Jacob Feld: the newly developed theories of soil consolidation and soil improvement, basic design theories of usual and unusual footings, and stresses caused by pressures against walls.
Concrete Structures, by Maurice Barron: materials for concrete, concrete buildings, arches, prestressing, and prestressing.
Wood Construction, by Verne Ketchum: from wood classification and selection to glued-laminated beams, trusses, arches, and the latest in connections.
Construction Management, by Robert McLean: contract types, job organization, time schedules, reports, and labor relations.
Heating and Air Conditioning, by Ralph Torop: design of heating plants, perimeter heating, panel heating, snow melting, air conditioning, and controls.

These and all other sections were written by highly successful and busy people who have taken time from tight schedules to contribute to this new, all-inclusive, reference manual of building.

WILLIAM J. McGUINNESS
New York, N. Y.

BOOKS RECEIVED

A Century of Art and Architecture in Minnesota. Donald R. Torbert. University of Minnesota Press, Minneapolis, Minn., 1958. 62 pp., illus. $3 (paperbound)

Venetian Villas. Giuseppe Mazzotti. Bestetti, Rome, Italy, 1957. Distributed by Marcello Maestro, 41 Charlton St., New York, N. Y. English text, 560 illus. $25

The Human Side of Urban Renewal. Martin Millspaugh and Gurney Breckenfeld. Edited by Miles L. Colean. Fight Blight, Inc., 32 South St., Baltimore, Md., 1958. 192 pp., illus. $3.50

Field Inspection of Building Construction. Thomas H. McKaig. F. W. Dodge Corp., 119 W. 40 St., New York, N. Y., 1958. 352 pp. $9.35

Residential and Commercial Air Conditioning. Charles H. Burkhardt. McGraw-Hill Book Co., Inc., 330 W. 42 St., New York, N. Y., 1959. 300 pp., illus. $9

Planning 1958. American Society of Planning Officials, 1313 E. 60 St., Chicago, Ill. 262 pp. $5 (paperbound). Selected papers from the National Planning Conference in Washington, D. C., May 18-22, 1958, at which time leaders in the field spoke on: changing metropolitan areas, urban design, zoning, urban renewal, open space, the city center, relationship of official and citizen planning, industrial districts, economic growth and planning in Latin America, campus planning, metropolitan government, land-use plan, public housing adminstration of a planning office, the zoning administrator, research in planning, economic surveys, and selected urban-renewal case studies.

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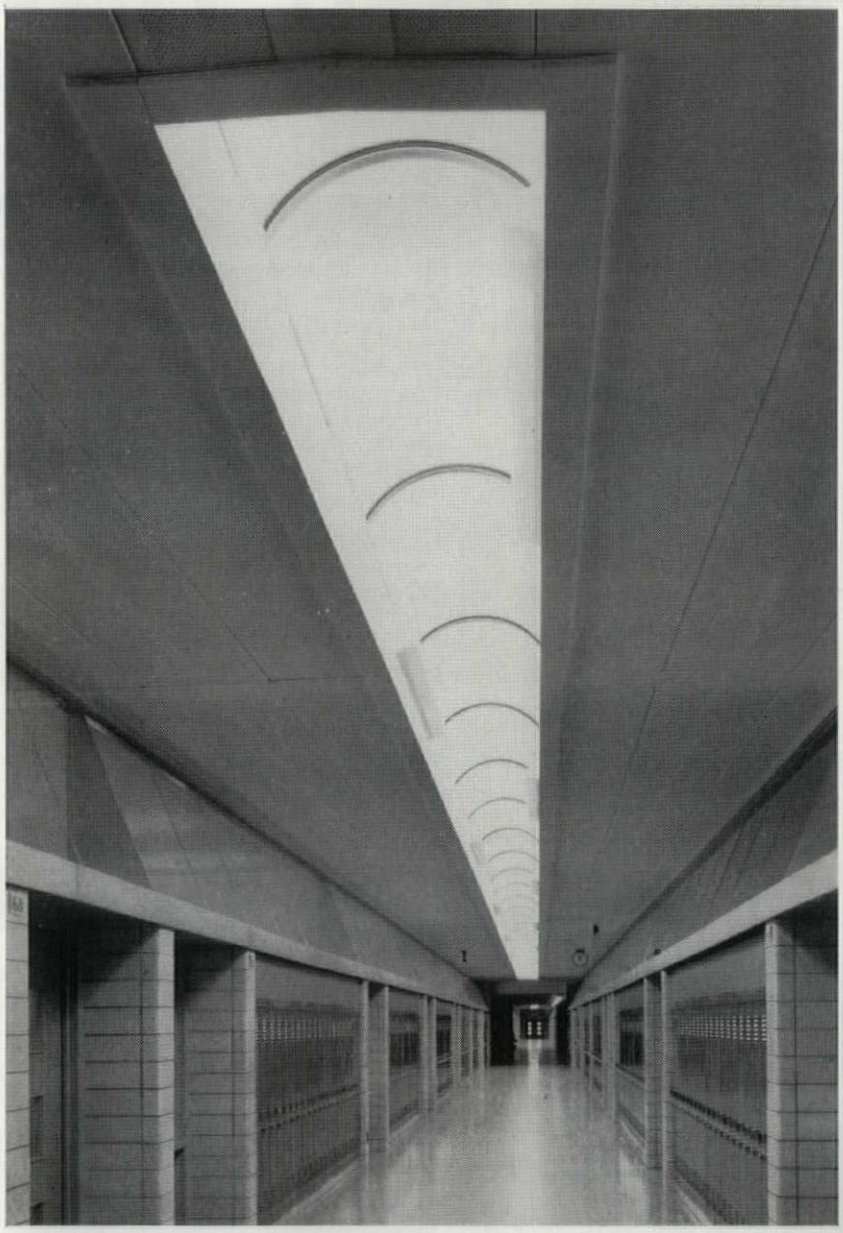

Interior view of hallway at Columbus, Wisconsin High School at 11 a.m. Photograph taken without use of artificial light and was not retouched. Note the use of glass in the walls above lockers and doorways to permit daylight into the interior areas of the classrooms.

The picture at left speaks for itself of the effectiveness of the continuous vaulted plastic skylight for interior illumination. Here is more than 400′ of perfectly lighted hallway. This PAM unit provides natural overhead daylight. The PAM continuous skylight has been design-engineered for just such extensive jobs. Many advanced engineering features have solved the problem of expansion and contraction in both aluminum and plastic and condensation control.

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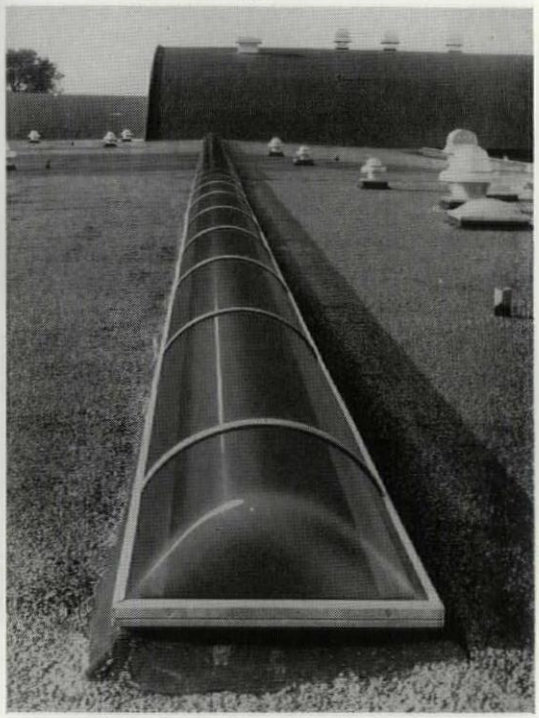
Lawrence Monberg and Associates, Architect.



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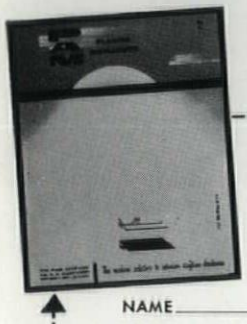

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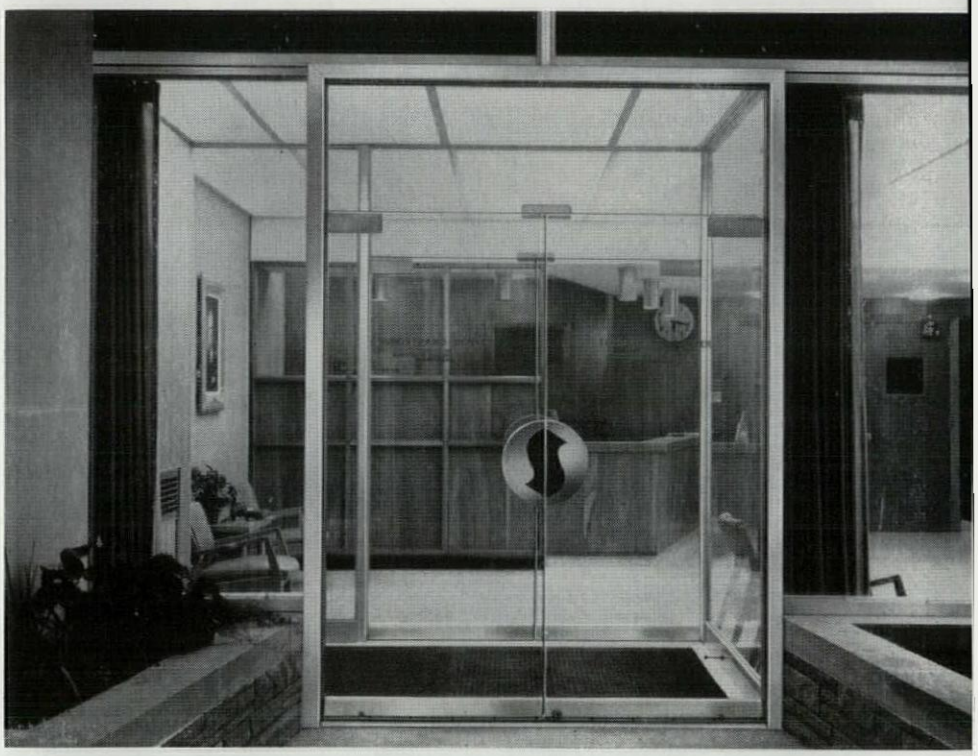


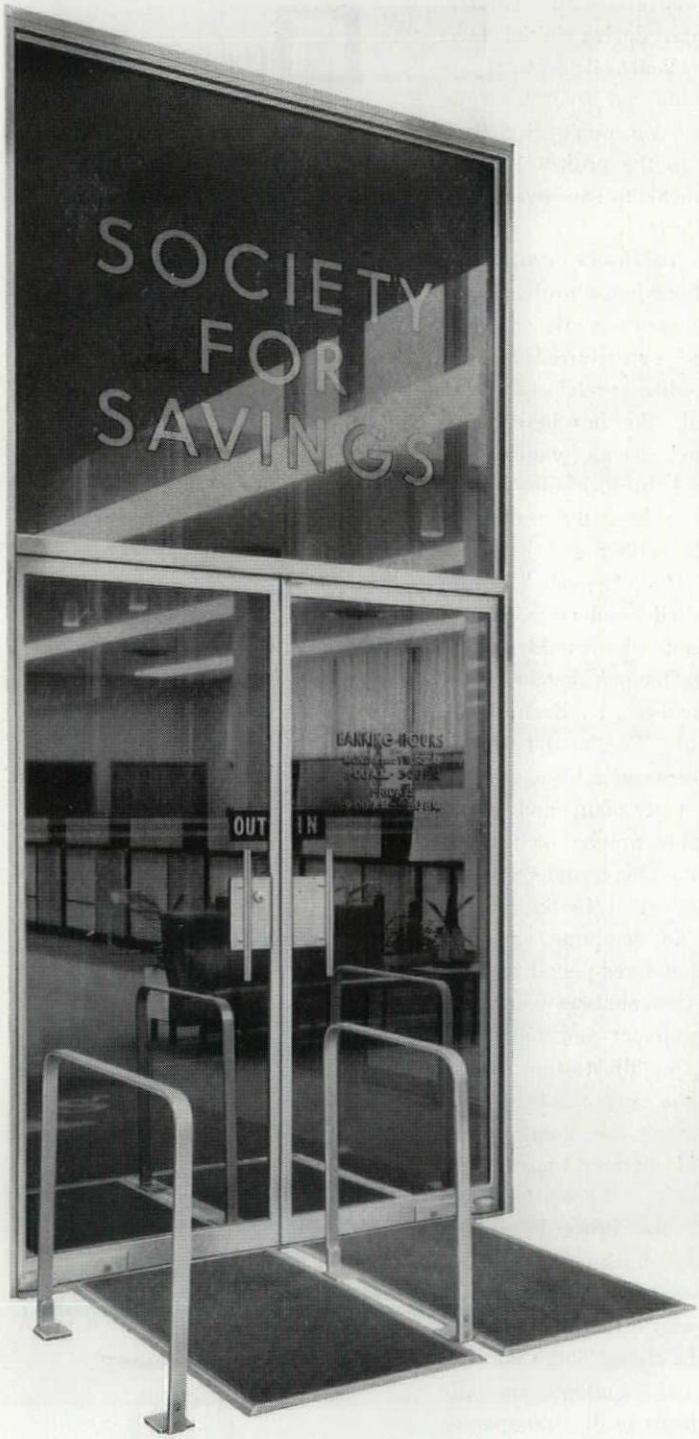
HERCULITE DOORS

add to the beauty, dignity and open-vision effect of this entrance to the Sundstrand Machine Tool Company, Denver, Colorado. HERCULITE Doors are strong, sturdy and long-lasting. They are available in both ½" and ¼" thickness, and their design possibilities are almost unlimited. Notice here how the architect utilized the HERCULITE Door Plate to reproduce the Sundstrand trademark. Architect: Olsen, Urbain & Sandstrom, Chicago, Illinois.

TUBELITE DOORS

and Sidelights create an unusual approach to this Walgreen Drug Store, one of the drug chain's eastern units. Architects Abbott-Merkt & Co. & Ely Jacques Kahn & Robert Allan Jacobs, New York, New York, have made a special feature of this angled, recessed entrance through the use of special TUBELITE Doors. TUBELITE Doors are fabricated of heavy extruded, hollow aluminum tubes, with no exposed seams. They offer the greatest possible value at the lowest cost.

—come to PITTSBURGH



. . . to get the right door for your new building. Only at Pittsburgh can you find a complete line of different door types—HERCULITE®, TUBELITE® and West Tension Doors. These doors are *different* in price, in construction and in design. They are *alike* in quality, in beauty and modern smartness. And one of them will be exactly what you need for the building you are erecting or remodeling.

Sweet's Architectural File, Sections 16a and 16b, has complete details on Pittsburgh Doors, hinges and accessories for doors. For additional information, contact Pittsburgh Plate Glass Company, Room 9129, 632 Fort Duquesne Blvd., Pittsburgh 22, Pa.

PITTCOMATIC® . . . the nation's finest automatic door opener . . . may be used on all HERCULITE, West and TUBELITE Doors. The hydraulic, motor-driven control may be installed for *mat* or *handle* operation.

PITTSBURGH DOORS

. . . for entrances of enduring distinction

WEST TENSION DOORS

provide a smart, modern and completely convenient entrance for this Society for Savings—Hartford National Bank, West Hartford, Connecticut, designed by Architects Jeter & Cook, Hartford, Connecticut. These West Doors are equipped with mat-operated PITTCOMATIC door openers, and they open quickly, safely, smoothly every time a depositor steps on the mat. West Tension Doors are constructed from ½" thick glass, held under compression by a thin metal frame. They are strong, rugged, will not sag or get out of alignment.

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PITTSBURGH PLATE GLASS COMPANY

In Canada: Canadian Pittsburgh Industries Limited

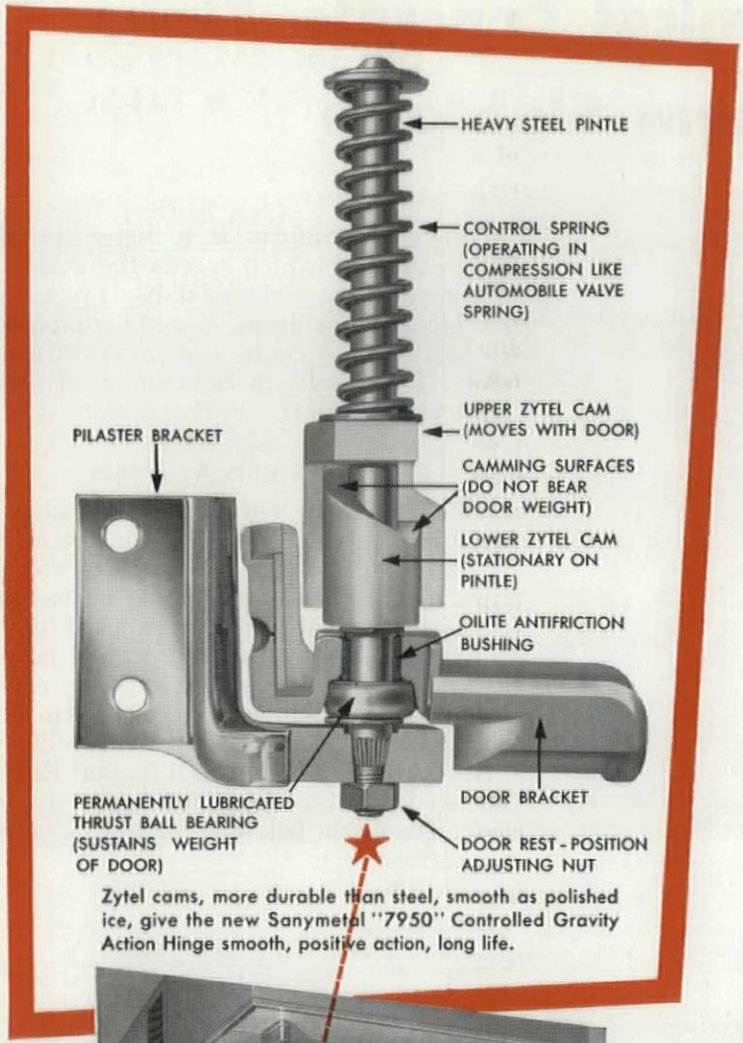
residential design

(Continued from page 96)

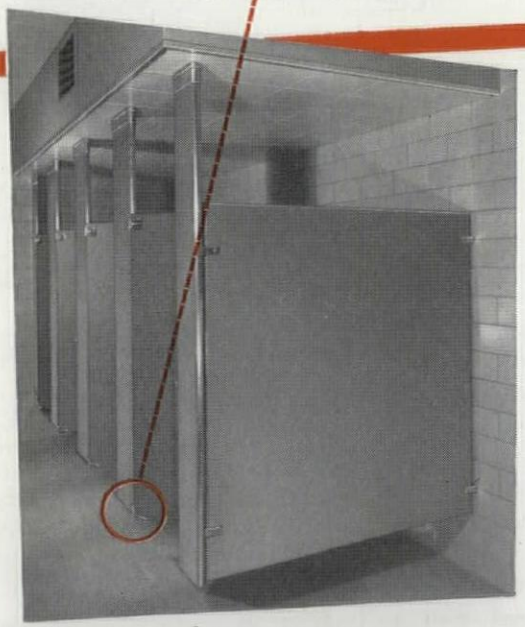
turning down clients "We have often turned down commissions because of a lack of meeting of minds" [*Hunters*]. "We feel unable to serve about 10% of those who contact us" [*Little*]. "I have turned down commissions—by recommending another architect who can do better what the clients want" [*Matsumoto*]. "Sometimes, during initial talks with prospective clients, it becomes apparent that they do not want what we have to give, and we won't give them what they want, so the project is taken elsewhere. It's difficult to say who has rejected whom" [*Porter*].

presentation methods employed "To date, most of our house projects have not been of sufficient size to allow detailed models within the fee structure. If a rough model will help sell a special concept, it may be employed. Sketches in color of over-all house and design features are used and are very helpful. I believe, however, the detailed model is the most effective implement in selling any building-design concept [*Abrahamson*]. "We use colored-ink, detailed renderings. We've never had a client who would go the extra for a model. Our pen sketches, however, are very precise. . . . Each sketch requires 35-40 hours. We give the original to the client" [*Ellwood*]. "We use ink drawings—plan, plot plan, and elevations; models, photographs of models. The model and its photographs are the most effective method" [*Hunters*]. "For presentation, we do diagrams, cartoons, rough plans, and colored-pencil or tempera perspectives—sometimes very fast on yellow tracing paper and sometimes carefully drawn on illustration board, depending on time and needs of the job. Models take us too long, except as quick-study aids in very unusual circumstances" [*Little*]. When the parti is agreed upon, we proceed with a more detailed presentation of the plan and the elevations, and as many free-hand sketches as may be necessary to convey our ideas to the client. These sketches may be in pencil and are often made while conferring with clients to illustrate points. In this way, we settle upon the plan as well as the major massing, openings, and structure. Very little in the way of details

(Continued on page 270)



Zytel cams, more durable than steel, smooth as polished ice, give the new Sanymetal "7950" Controlled Gravity Action Hinge smooth, positive action, long life.



Tested, with standard door under actual operating conditions, the new Sanymetal "7950" Hinge showed no appreciable wear of operating parts after opening and closing over 1,000,000 times!

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the most satisfactory toilet compartment hinge there is

1,000,000 over ~~301,000~~ cycles of operation without appreciable wear

Here is an example of how Sanymetal's research keeps Sanymetal Toilet Compartments leaders in engineering and design quality:

Though no Sanymetal Concealed Hinge was ever reported to have caused service trouble — Sanymetal engineers sought to improve even this highly satisfactory design.

The key to major design improvement was found when the material "Zytel" became available. Using this new material, it was possible to make two simple cams replace a metal assembly including a yoke, a cam ramp, 2 rollers, and ball bearings. The new hinge with Zytel cams is more compact, smoother in operation, and tests to over 3 times the usage which was considered "lifetime" for the previous design.

The Sanymetal "7950" Hinge has controlled action so the door comes to rest at any desired position, *independent* of door weight (which varies with width), and it does not cause the door to rise or lower when swung (preserving an even, architecturally pleasing line).

It is through such advanced design and engineering *by Sanymetal,* that you get the important improvements in toilet compartments. Sanymetal has introduced such improvements as Epon primers, BRIDGECORE insulation, extruded aluminum bracket supports, and the Sanymetal "8800" Concealed Latch — all within the last 18 months. Each one was tested and proved satisfactory, capable of extending the life of the product and minimizing maintenance. To get these features at no extra charge, specify "Sanymetal". They save in long-run cost.

New brochures describe Sanymetal's "BRIDGECORE" insulation and "8800" Concealed Latch. Write for them, and for Catalog 96, which explains other important details of quality toilet compartment construction.

Sanymetal® PRODUCTS COMPANY, INC.
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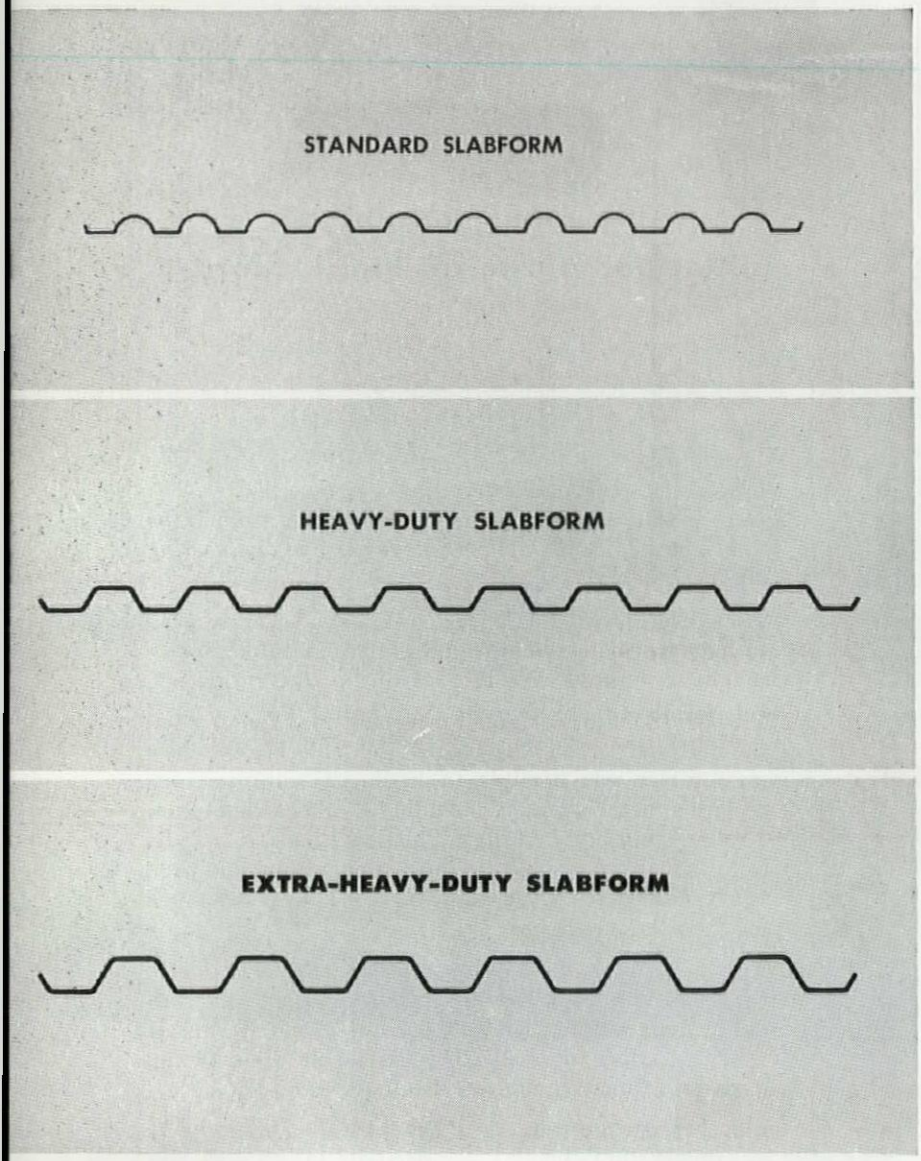
Faster, More Economical Concrete Slabs with Bethlehem Slabform



Bethlehem Slabform is a high-strength steel centering which speeds the pouring of concrete floor and roof slabs. It requires no blocking or bracing and, compared to flexible-type centerings, it saves concrete. The result: more economical concrete construction.

Three Weights Available

Slabform is furnished uncoated for structural cast-in-place slabs, or continuously galvanized for use as a permanent structural member for lightweight insulating concrete roof slabs or as an exposed form.

Made from steel having a yield point of about 90,000 psi, Slabform is made in three weights: Standard Slabform for spans normally up to 3 ft; Heavy-Duty Slabform for spans up to 5 ft; and Extra Heavy-Duty Slabform for spans up to 7 ft. The table below gives the physical properties.

Properties Per Foot of Width			
	Thickness In.	Moment of Inertia—In.^{4}	Section Modulus In.^{3}
Standard	0.0156	0.012	0.0333
Heavy-Duty	0.021	0.039	0.080
Extra Heavy-Duty	0.024	0.101	0.136

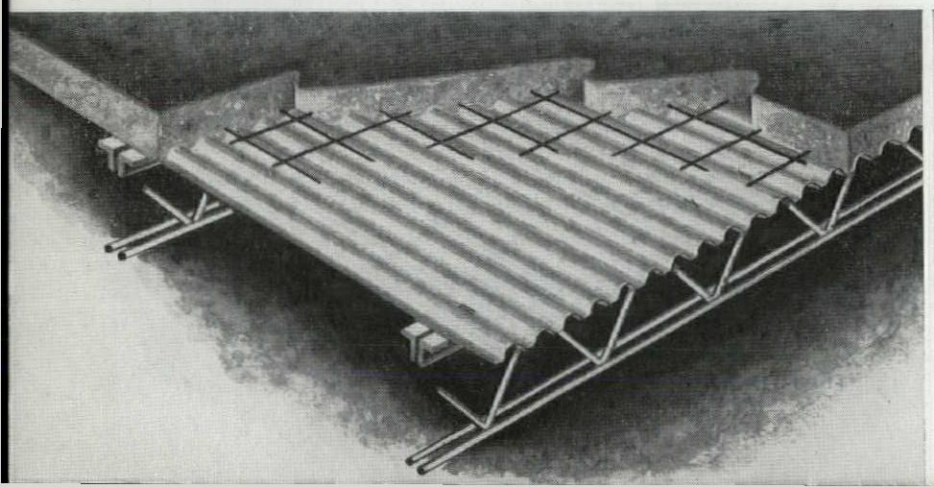
NOTE: Properties are computed in accordance with requirements of A.I.S.I. "Light Gage Cold-Formed Steel Design Manual."

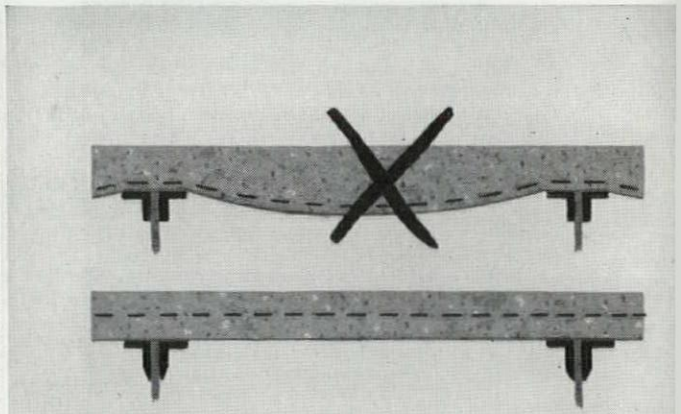
Shipping weights per square based on cover or laying widths:

Slabform Section	Black	Galvanized
Standard	79 lb	87 lb
Heavy-Duty	115 lb	126 lb
Extra Heavy-Duty	138 lb	150 lb

Slabform provides lateral restraint for supporting members and stiffens the complete assembly when it is in place and properly attached. No wooden blocking or bracing is required because there is no lateral pulling or straining of members during Slabform placing.

The solid form helps retain the moisture needed for continuing hydration of concrete during the curing period, resulting in greater concrete strength. Rigid Slabform holds deflections to a minimum, saving up to 20 pct in concrete.





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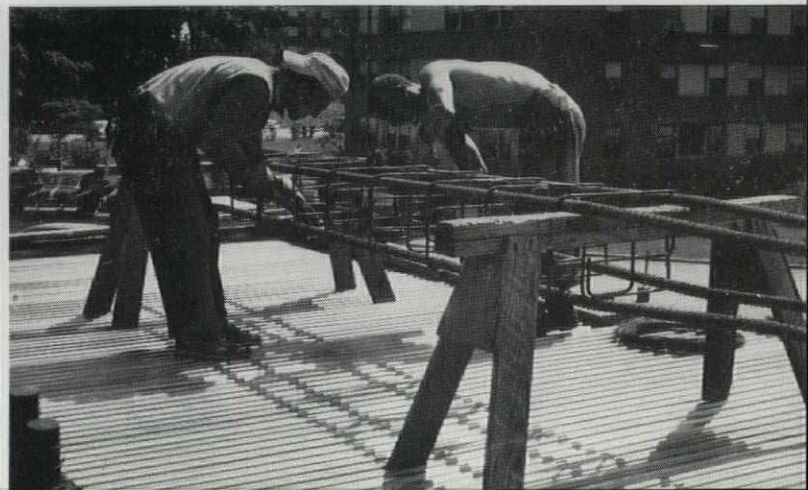
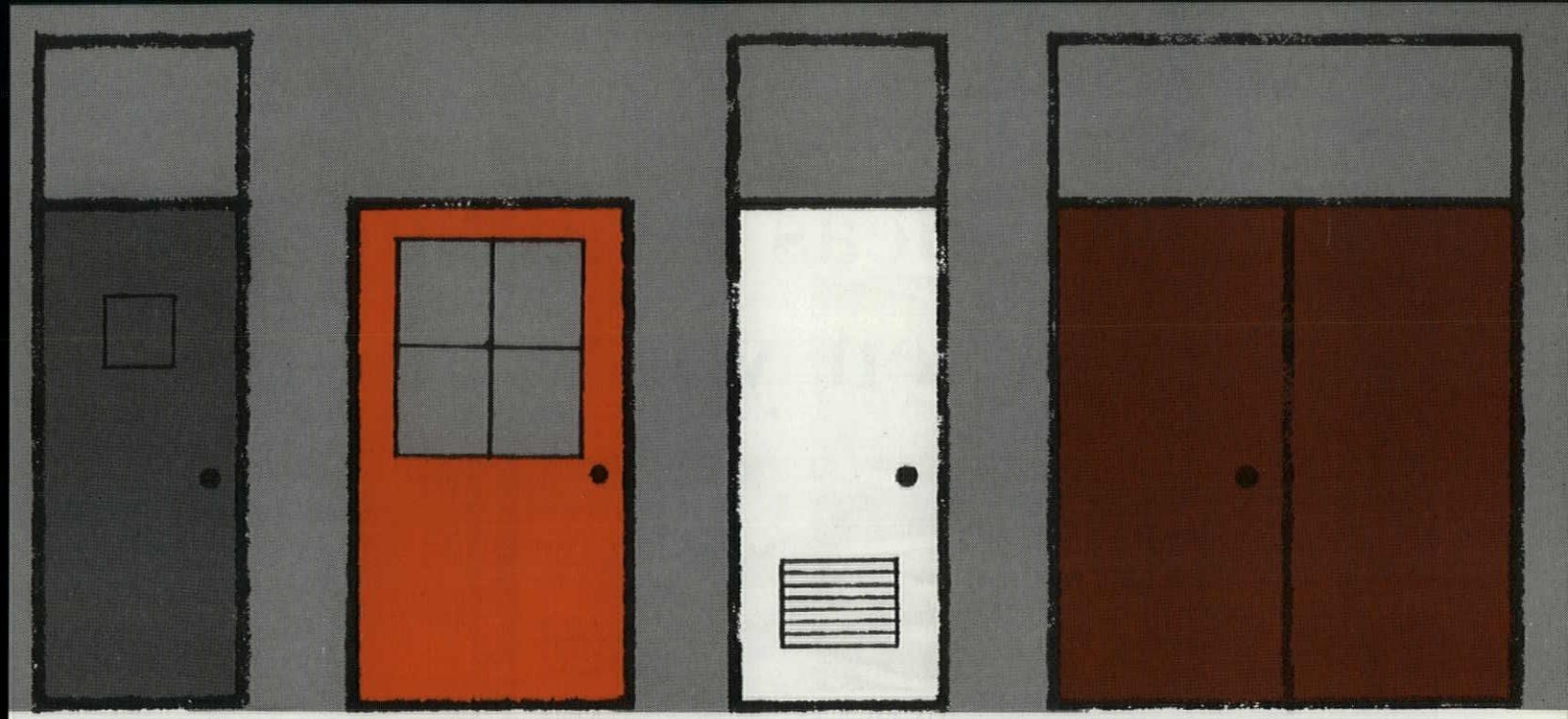
Because of the rigidity of Slabform sheets, the slab can be poured and finished in only one operation. Its appearance from below, after installation, is neat and clean.

Slabform is placed easily and quickly. When placed, it provides a solid, safe working platform for all trades. Slabform readily withstands normal construction abuse.





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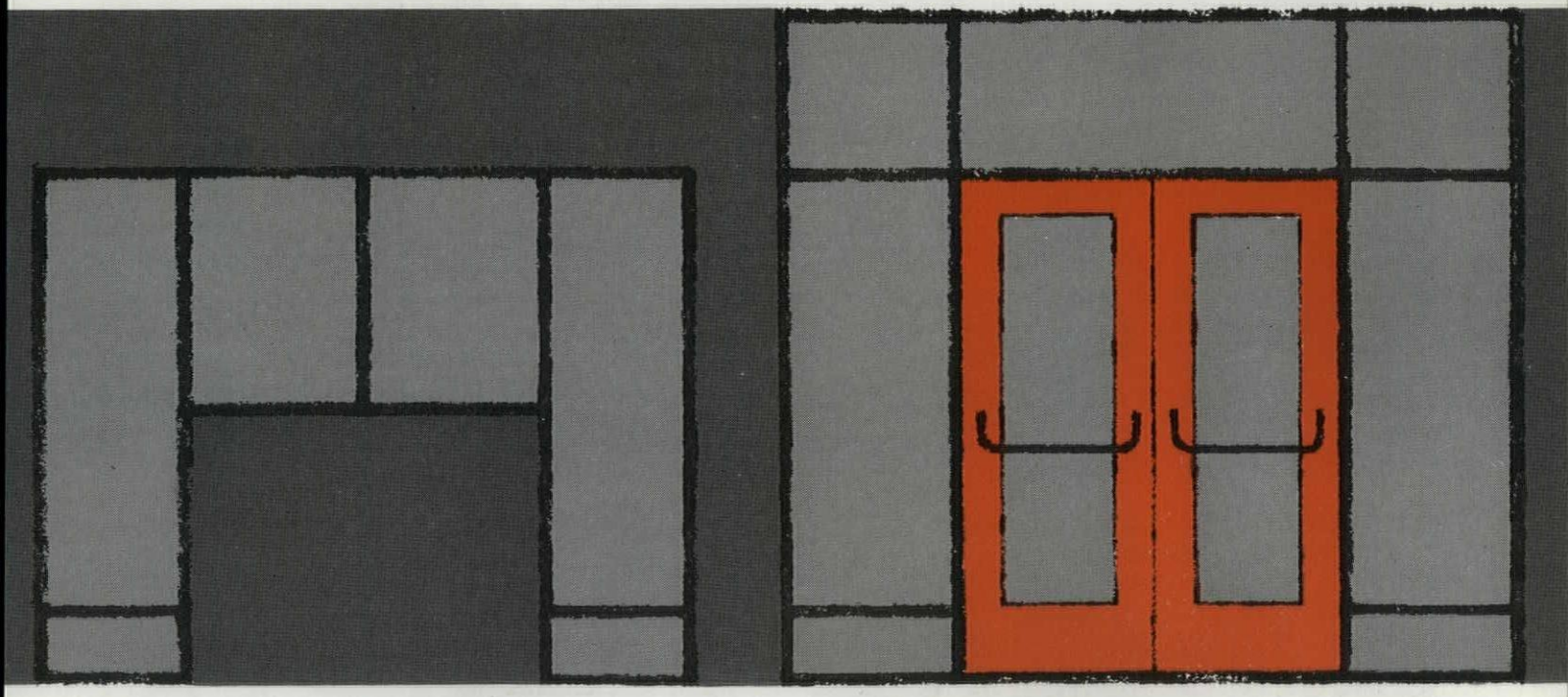

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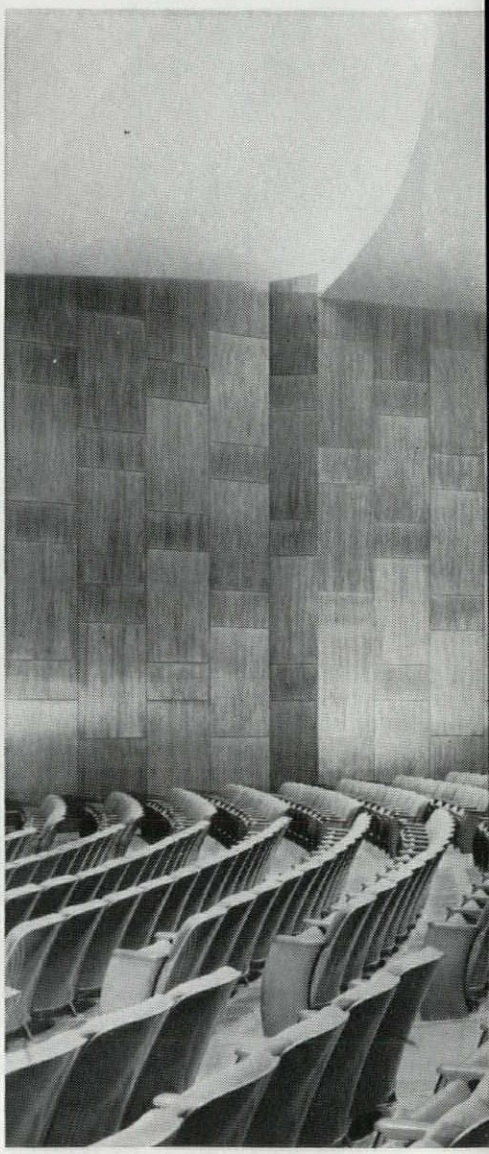

RODDIS DOORS for Chicago's Prudential Building — 2100 of them were used in this great skyscraper, including those in the offices of Household Finance Corp., pictured here. Roddis Doors are available *primed and sealed* for protection, finer finishing—or, like doors of the Prudential Building, *completely prefinished* to sample. Famed for quality and beauty, Roddis Doors aid creativity with a limitless choice of domestic and imported woods. Roddis offers *one* source for all your wood door needs—solid and B-label fire doors, guaranteed for life; hollow core and X-ray doors.

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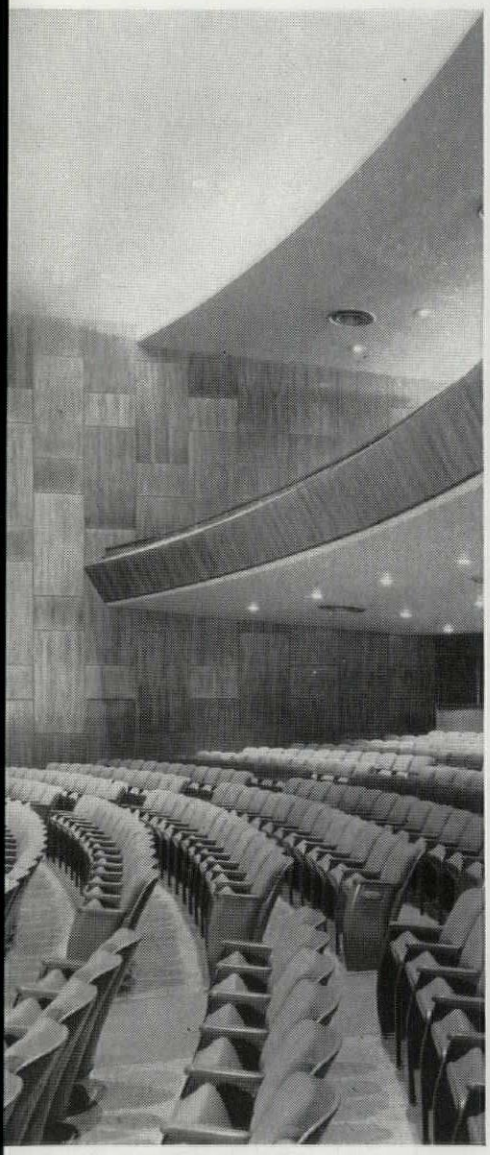

installation exceptionally beautiful. You'll find a vast variety of woods in standard panels to fit your ideas quickly. *Custom* panelings? Roddis is a specialist in this area . . . able to provide practically any design in wood with beautiful veneers perfectly matched for the desired effect.

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FOR FURTHER INFORMATION SEE *SWEET'S ARCHITECTURAL FILE*, OR WRITE TO

RODDIS PLYWOOD CORPORATION, MARSHFIELD, WISCONSIN

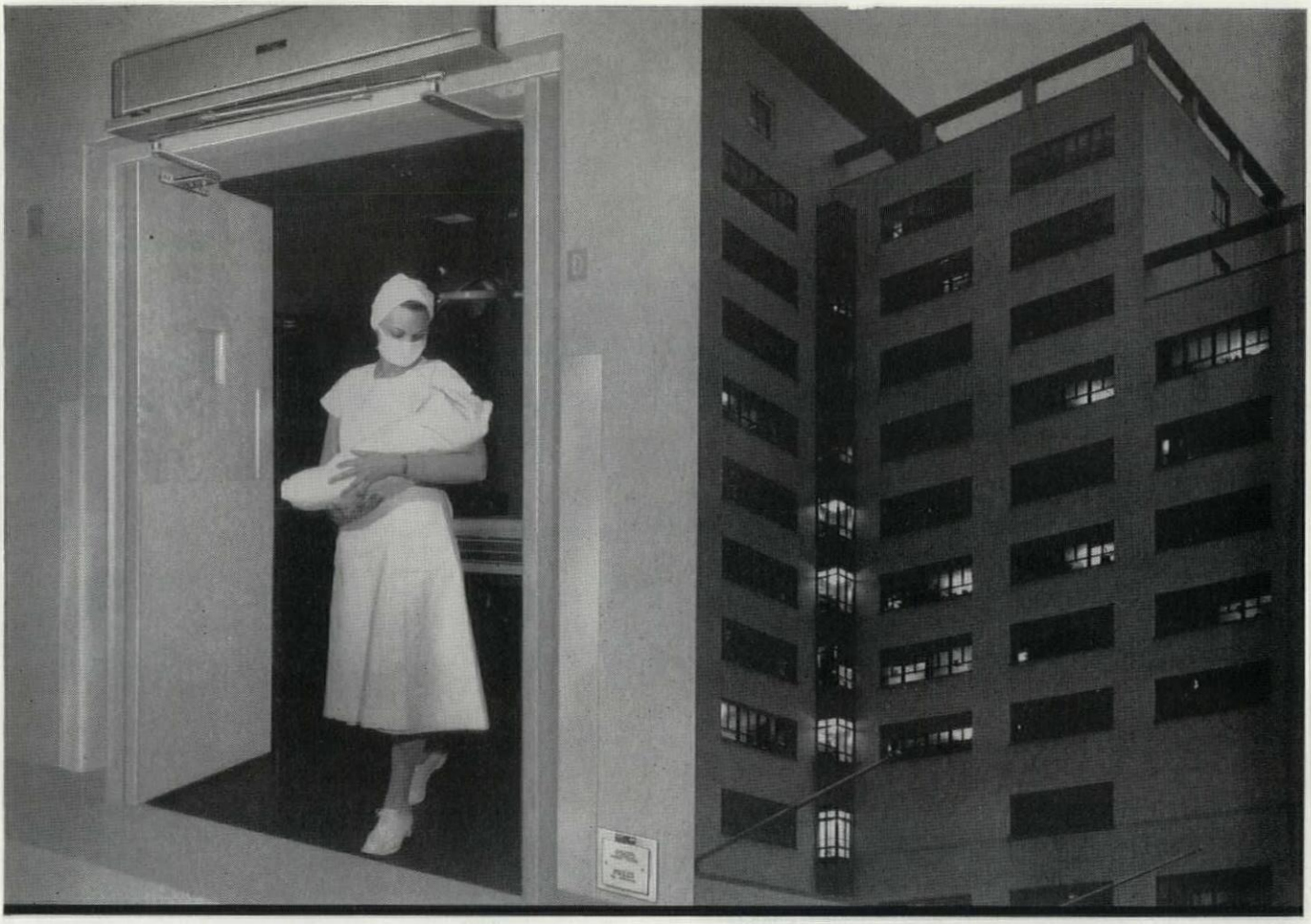
residential design

(Continued from page 262)

is shown in these quick sketches. A finished drawing or model shows too much detail, and often the clients will buy irrelevant details or the rendering itself rather than the house. Detail renderings and models are expensive and serve little except for promotion or fund raising. It sells but does not further understanding which can lead to disappointments when the building is completed. I find clients have a pretty good idea of what they are getting with plans, elevations, and freehand sketches. In other words, 40 15-minute sketches do more than one 40-hour rendering, and we would have spent but one-quarter the amount of time" [*Matsumoto*]. "Black-and-white sketches are usually all that we can afford to do. Occasionally we use models if we feel that the client or we ourselves would benefit from them. To date, we have not used a colored rendering for a residential project" [*Porter*]. "Small sketches during the conferences apprise the client of the visual developments. If the project is large, a model is made to check the logic, if some assumptions are in doubt" [*Van der Kar*].

design goals "We attempt to arrive at a design concept for a house that has a basic, clean building form. The plan, of course, must satisfy the client's requirements and go further if within the concept. All details, materials, and color must have a consistency and simplicity" [*Abrahamson*]. "Since buildings are judged by their visual expression, the substance of architecture is form, and this is our primary concern. We often adjust and adapt a plan to a pre-conceived form. We feel justified in doing this, if all the utilitarian requirements are fulfilled, and if our pre-conceived form is a valid expression of structure and materials. We give equal design consideration to all façades and all interior room elevations. We define each element; we separate the vertical planes from the horizontal planes; we never pierce walls with windows and doors—our doors and glazing are ceiling-height to maintain clear definition of all elements, including definition of the ceiling/roof slab; the rhythm of the structure is usually designed with strong color contrast" [*Ellwood*]. "Our goals in design-

(Continued on page 274)



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The name to rely on is Stanley Magic-Door . . . leader in the field for over a quarter-century. Write for free literature and the name of the Magic-Door distributor in your area to Magic-Door Sales, The Stanley Works, Dept. C, 1078 Lake St., New Britain, Conn.

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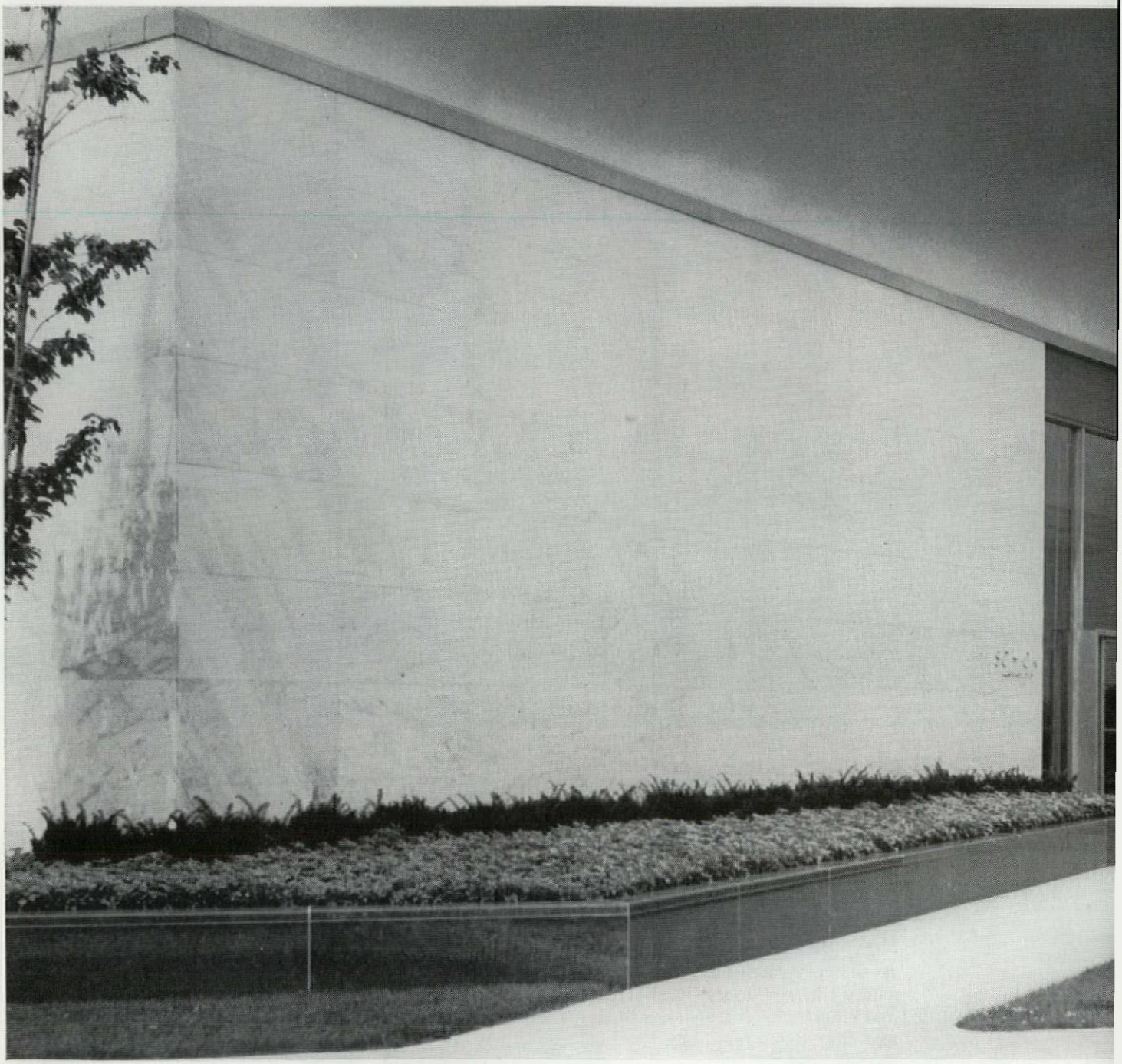

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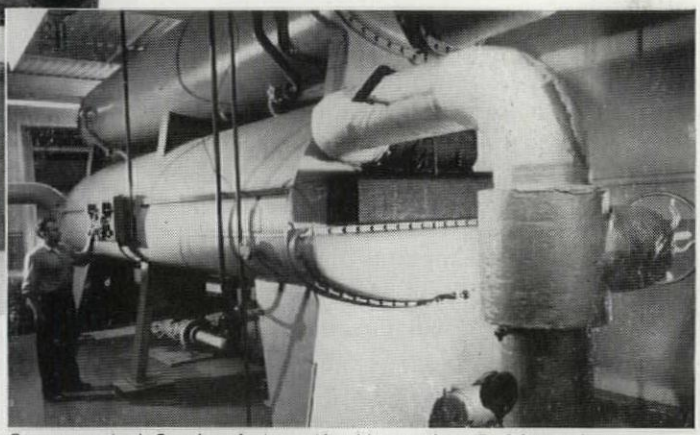

year around... and with gas as the boiler fuel, operating costs are cut to a minimum. Low maintenance is another substantial savings, since there are no major moving parts to get out of order, need replacing or repair.

Because of low installation, operating and maintenance costs, the gas-operated Carrier Automatic Absorption units can be the source of important savings. For full details, call your local gas company, or write to the Carrier Corporation, Syracuse, New York. *American Gas Association.*

Gas-operated Carrier Automatic Absorption Refrigeration

- cuts operating expenses
- minimum maintenance required
- low installation cost
- adjusts automatically to cooling load
- compact and light weight

residential design

(Continued from page 270)

ing a custom house are: (1) to produce a beautiful piece of livable sculpture and landscape (so far not achieved, of course); and (2) to make people happier than they would have been in another less designed house (almost always achieved)" [*Little*]. "My design philosophy is very simple and yet difficult to put into words as far as houses are concerned. Here, design of a relatively small building is involved. And small buildings are seen from not too great a distance. Hence, we see not only the form of the building, but the details, projections, and recessed shadows, deep overhangs, as well as the color and texture of each material used. Even the grain of the wood or the coursing and texture of masonry become discernible visual elements. With so many things going on, the problem of designing a house is to keep it simple in concept, form, structure, and in use of materials and color" [*Matsumoto*].

monetary reward "Touch and go" [*Abrahamson*]. "We get 12½% for residential design, including supervision, and this is not enough. But our clients cannot afford much more than this. Recently we have been turning down low-budget and small-house commissions because we cannot afford to do them" [*Ellwood*]. "Monetary returns depend equally on the type of client and how much hand-holding in addition to normal services is required, and on the efficiency of the contractor. Most returns are only touch and go" [*Hunters*]. "We can only just afford to do custom houses" [*Little*]. "Profit, if any, varies... houses demand more... drawing than commercial work in the same price category. But they're much more fun to do" [*Porter*].

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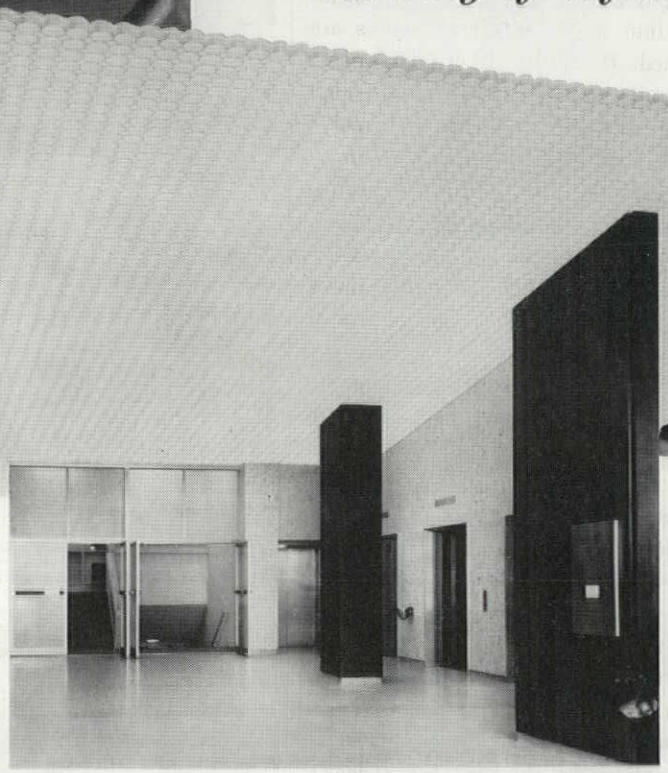

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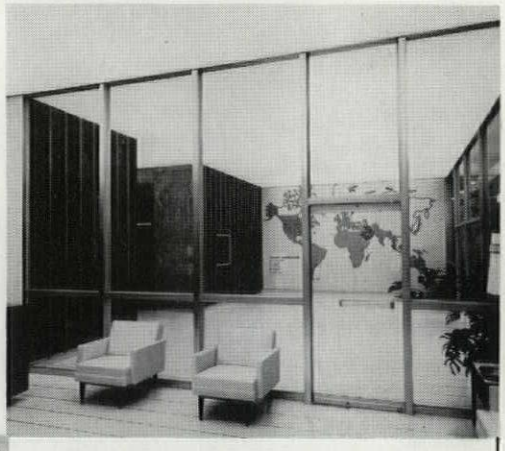
Welton Becket & Associates, architects



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(Continued on page 278)

p/a jobs and men

(Continued from page 276)

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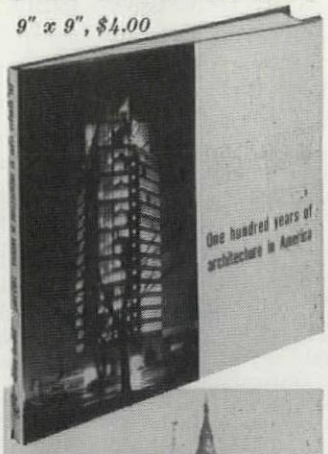

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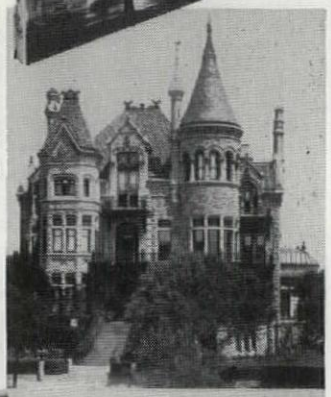

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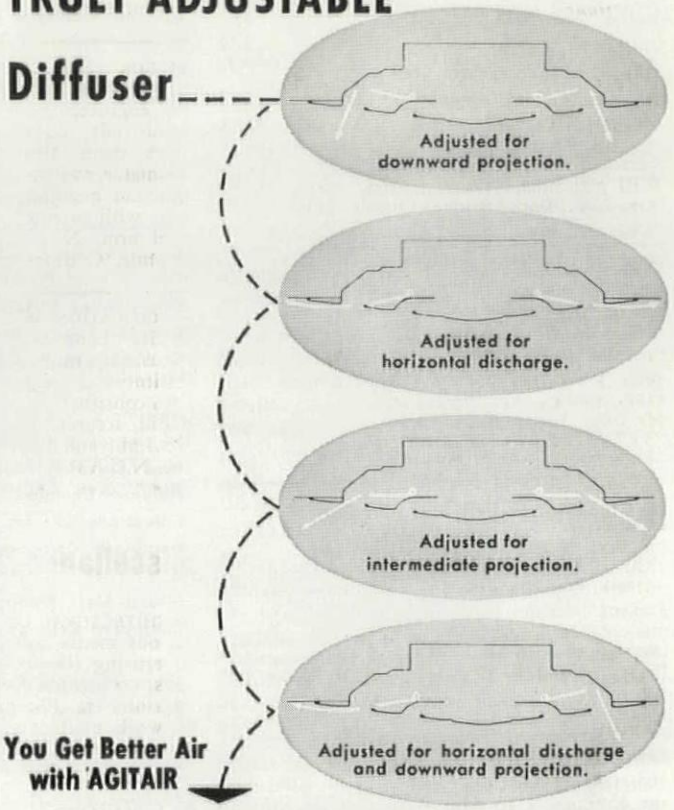

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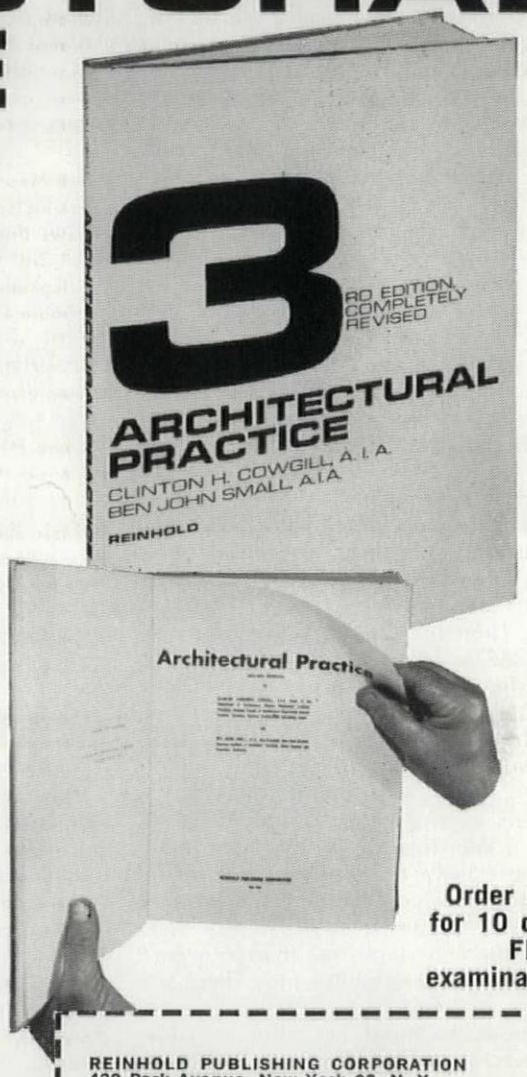

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how can we see architecture?

This is a continuation of the essay on criticism that I started last November with the question, "Why *don't* people see architecture?" and continued in December, asking, "Why *should* people see architecture?" I came to the conclusion that the setting up of certain critical criteria, which the public might understand and use, would be worthwhile.

What remains is to decide whether it is possible to develop, for an art as complicated as architecture, an empirical system of criticism of architecture, which can be used by the intelligent lay viewer of buildings, groups of buildings, and cities. When I speak of developing an *empirical* system, I mean that our aim should be the finding of a fairly simple method of *really seeing buildings*—and yet a sufficiently formalized method so that we are conscious of using it, and use it consciously.

We certainly cannot expect the average citizen to become a professional critic, or to understand more than the most superficial application of technical terms and criteria. Hence the method of judging must be simple.

There are many philosophies of esthetic criticism, most of them, in contemporary times, following from Hegel's *Philosophy of Fine Art*, or Kant's *Critique of Judgment*. There are several "philosophers of criticism" whose works are respected, if somewhat academic—people like Theodore Meyer Greene, whose book, *Arts and the Art of Criticism*, is almost standard text on the subject (although quite out of date so far as recent architectural developments are concerned), and Stephen Coburn Pepper, who, in a readable small volume called *The Basis of Criticism in the Arts*, attempted the development of a critical system using all of what he considers the important "world hypotheses" or systems of basic philosophy. There are several modern classics in the field of esthetic-architectural criticism, notably Konrad Fiedler and Heinrich Wölfflin—people who laid the basis for a sufficiently objective critical attitude to include the contemporary, sometimes revolutionary art movement—precursors, in a sense, of the critical protagonists of modern art such as Herbert Read.

In relation to architecture itself, critical discussions and attempts to develop critical systems go back to Vitruvius, whose comment that architecture is an amalgam of function, construction method, and esthetic pleasure ("commodity, firmness, and delight," as the English critic, Sir Henry Wooton, translated it) has never been refuted (but has never been capable of translation into a workable system of criticism.)

Greene evolves an interesting, if rather complicated and difficult-to-use formula based on two "things to judge": *raw materials*, and the *artistic medium* (the materials selected and organized); and two "times to judge" (the phrase is mine): in primary use (judgment of the sensuous material), and in secondary use (judgment of subject matter). Thus, in architecture, the raw materials to be evaluated in primary use would be wood, stone, concrete; in a secondary use, the human existences (program) to be organized; the artistic medium to be evaluated would be, in the primary stage, the structural shapes employed; in the secondary-use stage, the social functions fulfilled.

Pepper divides philosophical hypotheses which have application as esthetic-judgment systems into four main groups: first, the *mechanistic systems*, which might almost be described as hedonistic reactions (values lie in quantity of pleasure or displeasure); second, the *contextualistic systems*, in which the *situation* under which the esthetic experience occurs is important; third, *organistic systems*, where the esthetic value is determined by the integration of feeling (integration of object and feeling; integration of structure, integration of parts to whole); fourth, *formistic systems*, which Pepper defines primarily as those depending on *normal* man appreciating a norm in the realm of esthetic experience, and which include all the evaluations based on symbolism, on familiar "styles," on "appropriateness" to time, place, culture, social condition.

Another work—directly on architecture—which has had great influence in our time is Geoffrey Scott's *The Architecture of Humanism*. It is primarily a critical study of late Renaissance architecture, and its principal value is a negative one: it demolishes with great scholarship and fine wit the "fallacies" of *romantic criticism;* of *mechanical criticism;* of *ethical criticism;* and of *biological criticism*. Scott's recommended criterion is "humanism." I have always felt a great letdown in Scott's concluding chapters, because he takes "humanism" to mean very narrowly conceived emotions, I believe. "A spire, when well designed, appears to soar" . . . we see, and feel in "humanistic" terms "the springing of arches, the swelling of domes," and "we speak of a tower as 'standing' or 'leaning' or 'rising'; we say of a curve that it is 'cramped' or 'flowing'. . . ."

However, Scott then goes on to define three rather mechanistic means of "humanistic evaluations": space, mass, and line (his analysis of architecture as space is perhaps his most brilliant essay in the book), and then a fourth "delight" which he separates somewhat—but not too distinctly—from the three "favorable physical states" of space, mass, and line—which he defines as order, or coherence. In this broad term Scott really lumps all the formalist esthetic values.

It is interesting that Scott is also developing three "things to judge"—space, mass, line—and two "ways to judge"—by the value of humanism, primarily, and by the value of "order" secondarily.

A more recent work on architectural criticism is Bruno Zevi's *Architecture as Space*, subtitled *How to Look at Architecture*. Zevi's thesis is implicit in his title: to him there is only one way to look at architecture, and this is as space. Starting from the argument that "the specific property of architecture . . . consists in its working with a three-dimensional vocabulary which includes man" Zevi comes to the positive position that "it is interior space, the space which surrounds and includes us, which is the basis for our judgment of a building, which determines the 'yea' or 'nay' of esthetic pronouncements on architecture." Zevi would deny that it is a positivist system; he allows *every other interpretation* of architecture . . . but only so long as it is applied in *spatial terms:* Technical considerations? Yes—if the technic is evaluated in *the way it forms interior space*. And so on: it is, he says, a "super-interpretation" or (more modestly) an "underlying-interpretation."

I am ignoring several very interesting discussions of evaluation of architecture *through understanding the architectural process*. This requires what Greene calls the ability to apprehend the work of art as "agent" rather than as "observer," an agent being, in this context, anyone who "participates in an experience." An Australian architect-critic, Robin Boyd, has written a brilliant unpublished manuscript on architectural criticism, *While Architecture Lasts*, in which he develops a critical-evaluation system which requires understanding of the architect's creative act—the idea, the concept, the "parti" as architects call it, which marks the change from program study to "design." This understanding, important as it is, must surely be denied the lay viewer without years of critical training and I am therefore not considering it further here.

It seems to me that I see an interesting possibility emerging from all this academic discussion: that we might find certain basic *things to see* (values, such as function, space use, technics), which might be judged by certain *ways to see* (value judgments, such as esthetic pleasure, context, appropriateness). Another time, let's see if a usable "system" might develop from this.

Thomas H. Creighton