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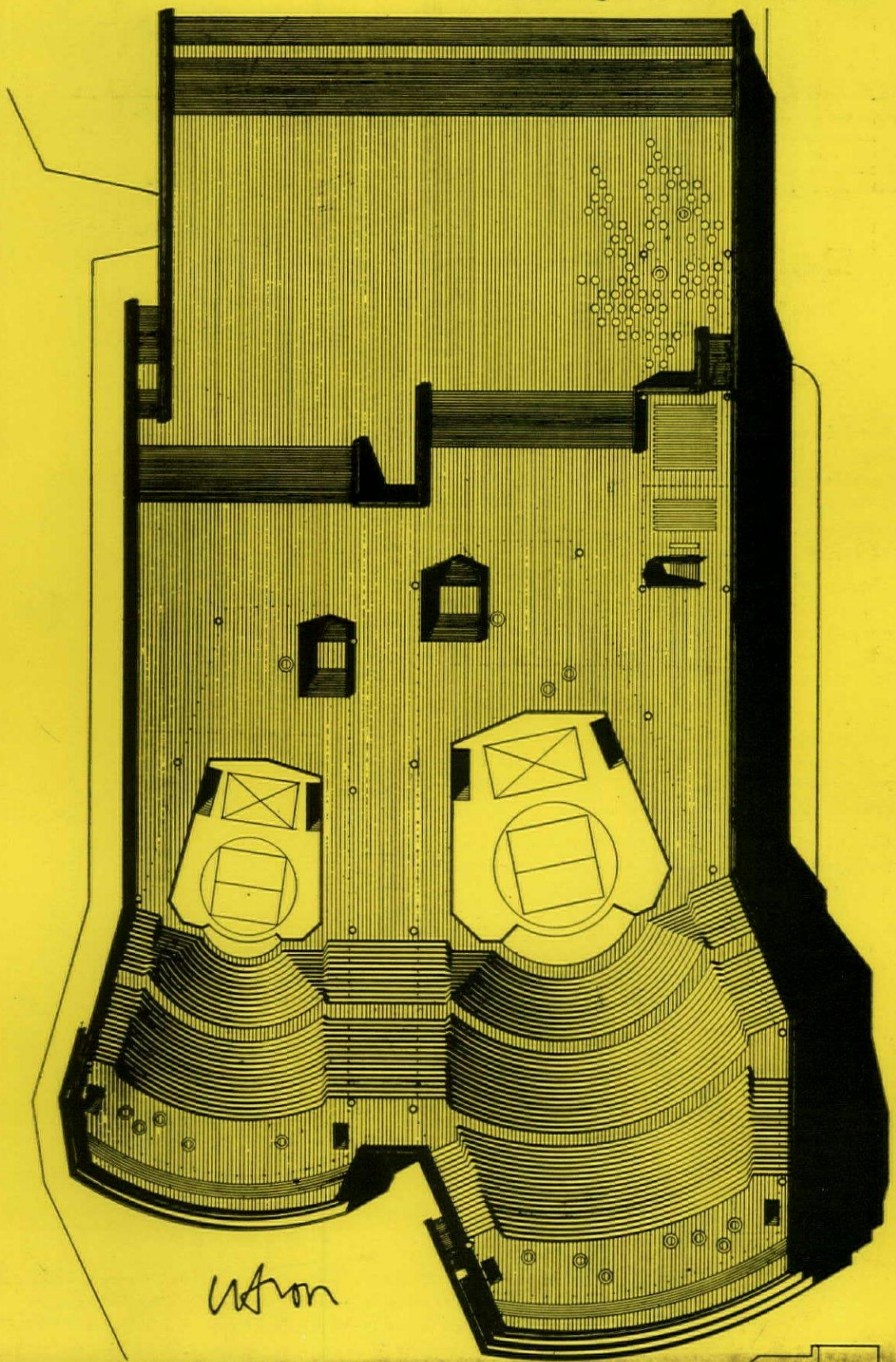

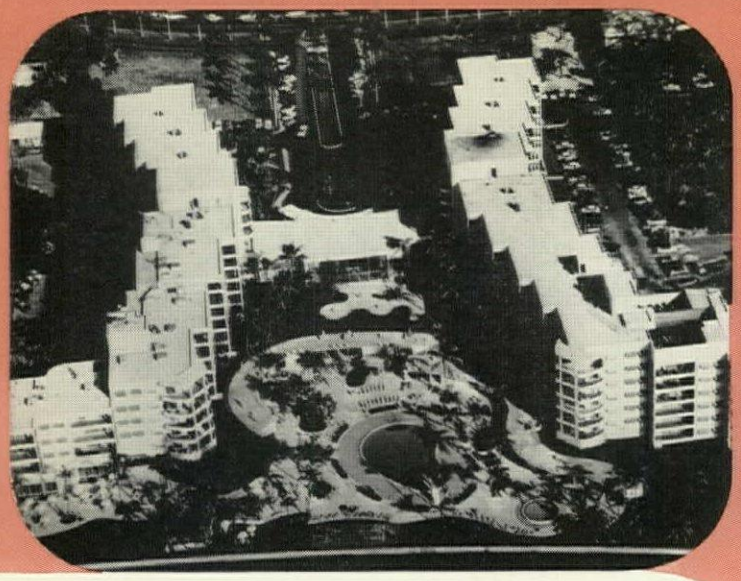

Palm Beach Towers Hotel, Palm Beach, Fla.; Arch.—John Hans Graham & Assocs., Washington, D. C.; Struc. Engr.—Oboler & Clarke, Miami; Consltg. Engr.—Norman C. Schmid & Assocs. Palm Beach; G. C.—Taylor Construction Co., Miami; Pozzolith Ready-Mixed concrete—Burnup & Sims, and Rinker Materials, West Palm Beach.

Thunderbird Motel, Miami Beach, Fla.; Archt.—Norman Giller & Assocs., Miami Beach; Contr.— Taylor Construction Co., Miami; Engr. —Jules Channing, Miami; Pozzolith Ready-Mixed concrete—Maule Industries, Inc. & Acme Concrete Corp.

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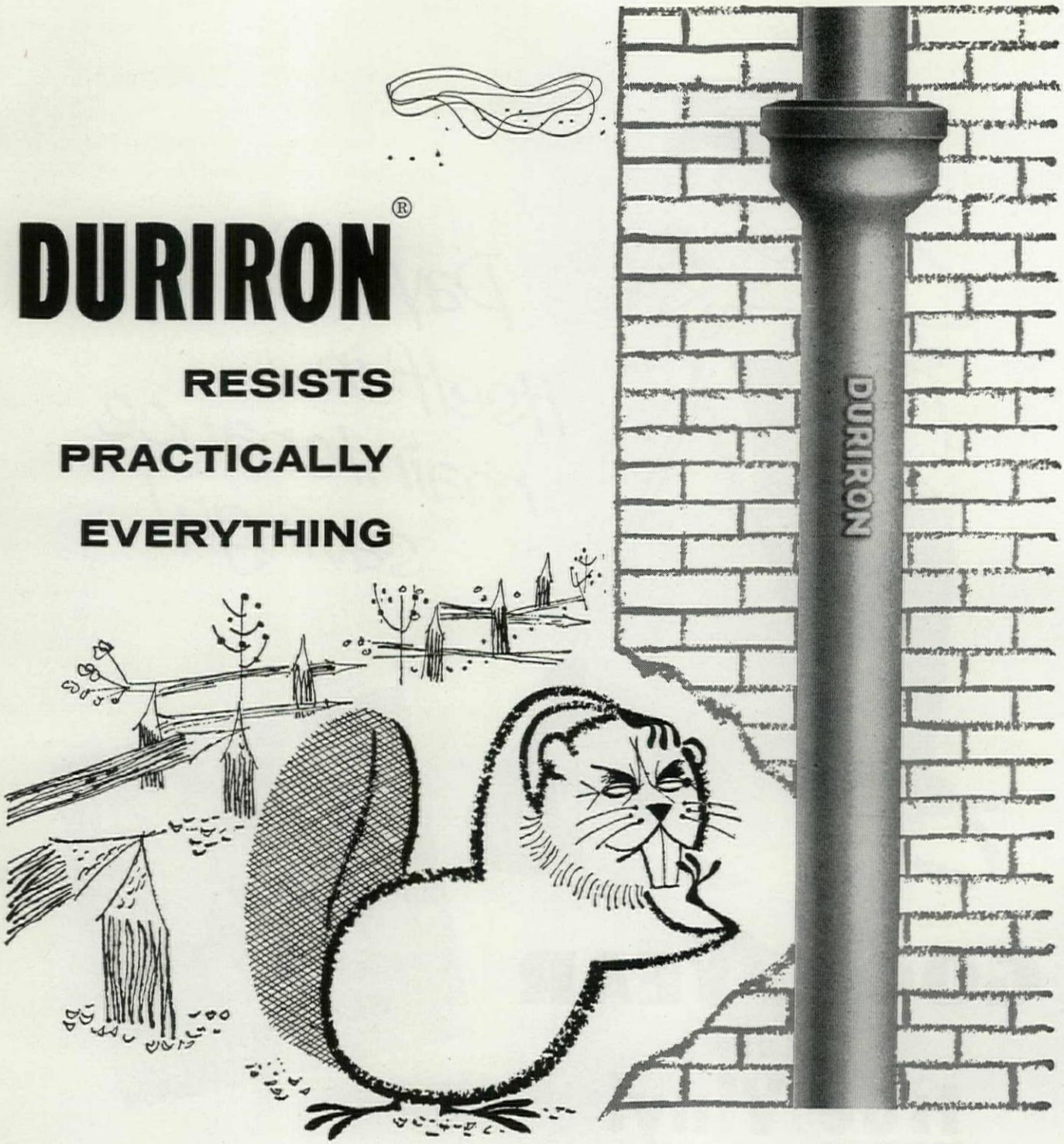

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PROGRESSIVE ARCHITECTURE

August 1957

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Volume XXXVIII, No. 8

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It's the Law by Bernard Tomson

P/A Office Practice *article discussing the respective functions of architects and engineers.*

The practice of architecture and engineering has been traditionally considered by the courts and legislatures as distinct and separate professions. There has been, nevertheless, a judicial and legislative recognition that the functions of the architect and the engineer overlap. In determining, however, the permissible area in which either may practice, the judicial decisions are often inconsistent. Further, some courts have viewed this area of overlapping function as the basis for a conclusion that there is no distinction between the areas included in the professional competence of architects and engineers.

The case of *Gionti* v. *Crown Motor Freight Co.* 26 A. 2d. 282 is illustrative of the traditional view that the practice of architecture and engineering is distinct. In this New Jersey case, a licensed engineer prepared plans and specifications for the erection of a garage and office building. The Court concluded that this was an unlawful practice of architecture, stating:

"It is argued that as a result of the progress made in the professions of the practice of architecture and engineering many 'overlapping functions and activities' have arisen between them, that the result has been that all 'distinctions' between them have 'passed away,' that they 'differ in name only,' and therefore, we should construe the respective statutes relating to these professions accordingly. However interrelated the professions and the statutes relating to them may be, the legislature has made and maintained a marked cleavage between them. It is beyond our power to thwart that clear legislative cleavage."

An example of the recognition of a limited overlapping function of the architect and engineer is the case of *Smith* v. *American Packing and Provision Co.* 130 P. 2d. 951. In this case it was contended that a professional engineer had been unlawfully practising architecture, and was, therefore, not entitled to compensation. The engineer had been retained to plan and supervise the construction of certain alterations in a meat packing plant. The Court said:

"If a person had to have a license in each field into which his chosen profession or calling might overlap in some degree, he might not only have to obtain numerous licenses in different fields to engage in the field in which he is specially trained and qualified, but he might be prevented from engaging in the field in which he is particularly well qualified for the reason he could not meet all of the qualification for license in other fields."

"These statutes construed together, in our opinion, do not contemplate that a professional engineer who performs some service in his own field in which he is duly licensed, such as making plans and designs in connection with an engineering problem or project, shall have to procure a license as an architect merely because the particular engineering activities necessitate the making of plans and designs, or require supervision in construction, which might also be embraced within the scope of the functions of an architect.

"However, we do not say that professional engineers can make plans for all kinds of buildings or do whatever an architect can do, for clearly the entire field of architecture, is not embraced within the field of professional engineering as defined by statute. . . ."

"The real criterion for determining if a licensed professional engineer must also have a license as an architect, is not whether some service he performs might be performed lawfully by an architect, but whether such functions are necessarily embraced within the scope of engineering covered by his license. The issuance of a license in one field is not to be employed as a stepping stone to practice in some other field or even in a part of such other field, unless the functions of such other field performed by the licensee are necessarily embraced within the scope of the activities authorized by the license."

Relating the above principles to the particular case the Court concluded:

"If the changes to the building were merely those necessary to accommodate the rearrangement and reorganization of plant equipment and facilities, to correlate plant operations to insure increased production, it might well be that the plaintiff was acting within the scope of professional engineering practice. . . ."

The Courts have often had difficulty in defining the area in which the practices of architecture and engineering may permissibly overlap. This has resulted in some confusion. For instance, in *Rabinowitz* v. *Hurwitz-Mintz Furniture Co.* 133 So. 498, a civil engineer was retained to prepare plans for and supervise the remodeling of a store building. The majority of the Court ruled that, since the remodeling of the store front included the preparation of plans and specifications for the construction of certain structural steel beams, the engineer could properly plan the remodeling of the entire store front. The minority of the Court, however, in a dissenting opinion stated the following:

"The fact that the plans required certain structural steel work to be done did not deprive the whole work of its architectural character. In the organization of a corporation a notarial charter is necessary. Does this fact render the work of organizing and advising the corporation notarial rather than legal? Or does it give to one who is a notary and not an attorney the right to give legal advice to the corporation?

"Architectural work should be done by architects, and it is a plain violation of the statute for a civil engineer to undertake it. His styling himself a 'civil engineer' does not change the character of the work."

An example of the tendency of some courts to lend judicial sanction to the gradual encroachment by engineers on the practice of architecture, is the New York case of *D'Luhosch* v. *Andros* 109 N.Y.S. 2d. 491. In this case, a licensed engineer sued to recover for services rendered in drawing plans and specifications for a "dwelling." The defense was raised that the engineer could recover no compensation because he was not a licensed architect. The Court in construing the New York statute, concluded that there was no distinction between the services of an architect and engineer. The Court said:

". . . I cannot find that there is any statutory distinction between the services which may be legally rendered by a licensed engineer and that by an architect. True it is, that historically at least, an architect has always been classified as one associated with the arts, *Young* v. *Bohn*, C.C., 141 F. 471, 472, which does not appear to be so with respect to the engineer. This undoubtedly accounts for the inclusion in the definition of an architect of the phrase including 'esthetic and structural design' and the further statement that his professional service 'requires the application of the art and science of construction based upon the principles of mathematics, esthetics and the physical sciences.' However, it can scarcely be contended successfully that the principles of mathematics and the physical sciences are not and have not always been utilized by the engineer, and to some extent at least, the art of esthetics. Certainly no engineer drafting plans and specifications for any dwelling would knowingly and seriously avoid using this art. . . ."

The elimination of a distinction between the practice of architecture and the practice of engineering, by legislative enactment or by judicial fiat, should be a matter of great concern to the architectural profession. If this distinction is to be maintained, the architectural professional must consider what steps can and should be taken to protect itself and the general public.

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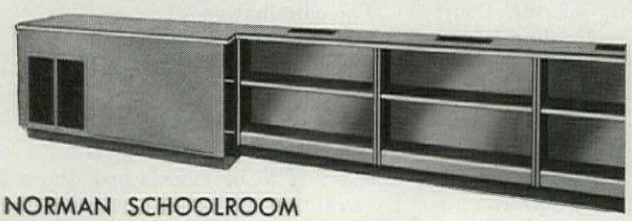

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Mechanical Engineering Critique *by William J. McGuinness*

P/A Office Practice *column on mechanical and electrical design and equipment, devoted this month to the suitability of the water-to-air heat pump to industrial buildings in northern areas.*

A number of systems use the refrigeration cycle and the heat value of natural materials for the purpose of heating and cooling buildings. This general category of devices, using no fuel other than electricity, is the heat pump. Probably the two most common types of heat pump are known as air-to-air and water-to-air. Either is much cheaper to operate than straight electric-resistance heating. The comparision of heat pumps to systems using conventional fuels is, however, another matter. It may be said that for installations which are planned for both heating and cooling, the heat pump is often competitive both in cost of operation and installation cost. The advantages—elimination of flame, fuel storage, stack, and smoke—are great.

In comparing air-to-air with water-to-air, it would be wrong to suggest that one is better than the other or shows greater promise. Each has advantages and shortcomings which must be appraised on the basis of climate, temperature of outdoor air or ground water, availability, and quality of water. Until recently, when multiple-stage compression gave promise of correcting the situation,* air-to-air heat pumps have been restricted by their limitations to the southerly one-third of the United States. In northern climates, ground water at 60F is a better source of heat than outdoor air at 0F. Thus, in winter, when outdoor temperature approaches zero, the air-to-air heat pump has had to employ supplementary electric resistance heating which is expensive.

A recent installation in the new plant of the American Coils Company at Farmingdale, New Jersey, is a good example of the use of the water-to-air heat pump for industrial buildings. It also stands as additional evidence of the validity of using decentralized package units to eliminate ducts and to afford great flexibility of operation. This manufacturing plant, the floor plan of which is shown *(page 9)*, builds the heat pumps which it used. It also makes air conditioners and other similar products. Fourteen units of varying capacity draw ground water from a common supply and utilize it for heating or cooling by means of refrigeration units in each cabinet. A fan in each unit draws in cool air from the plant and either heats it (winter) or cools and de-humidifies it (summer). A thermostat in the return air plenum of each heat pump controls its operation. In warming the air in winter, ground water at about 50F is cooled to a lower temperature and wasted at a point remote from its source. In summer the air in the plant is drawn in, cooled and dehumidified. The ground water, not much above 50F is warmed in this process and wasted, together with the condensed humidity from the units. Prior to disposal, this water floods the roof, reducing the heat-gain load. The underground water storage tank doubles as a fire reserve.

Architecturally, this is a very clean solution. Except for a limited duct system at the unit near the executive suite, there is not a duct in the plant. Units in the three large offices are sized to accommodate these rooms. In the manufacturing space, 10 heat pumps serve the general needs of this area. Air is drawn in at mid-height and discharged upward toward the ceiling with sufficient spread to blanket the whole room including the three foot strip window that circles the plant. Throws of 50 ft or more are handled with no discomfort to office or plant personnel. No discomfort is reported by stenographers who sit close to return grills. Sound due to air flow or compressor operation is not disturbing. Two pipes disappearing into the floor and one electric conduit from above are the only service to each heat pump.

As the sun circles the plant in summer, the various units turn on to absorb the local load. Conversely, in winter the units away from the sun will operate. Extremely close regulation of temperature is possible in both seasons, because of the inherent zoning qualities of this plan. Operating economies are obvious, due to the fact that all excessive "carry-over" heating or cooling is curtailed at once. The plant has no cellar, crawl space, pit, penthouse, stack, or roof structure. It is indeed an almost-perfect solution for the purpose it serves. At last, the heating and cooling plant does not "stick out" or control the shape and size of the building. A saving of $40,000 was effected in the elimination of ductwork and it is estimated that both the installation cost and operating expenses are less than using any other method of heating and air conditioning.

critique

It is suggested that the units, instead of standing on the floor, might hang flat below the ceiling. This would require a slight re-design of this particular heat pump. No addition of fresh air was planned in this operation. This is satisfactory for this plant, but fresh air might be desirable in other processes involving odors, and in offices more congested than those of the American Coils Company. Water is a great need. Here 350 gpm are available to aid in removing heat at a rate of 1,470,000 Btu/hr in summer and supplying 2,000,000 in winter. Obviously there are locations where this water rate might not be available. Water with an acid reaction or containing hardness must be treated. The company can provide special alloy coils, but water analysis and possible treatment are indicated. The fixed relationship of summer/winter output in a heat pump might affect somewhat the design of the structure whose ratio of heat loss to heat gain must resemble those characteristics of the heat pump.

*Mechanical Engineering Critique, *September 1956*

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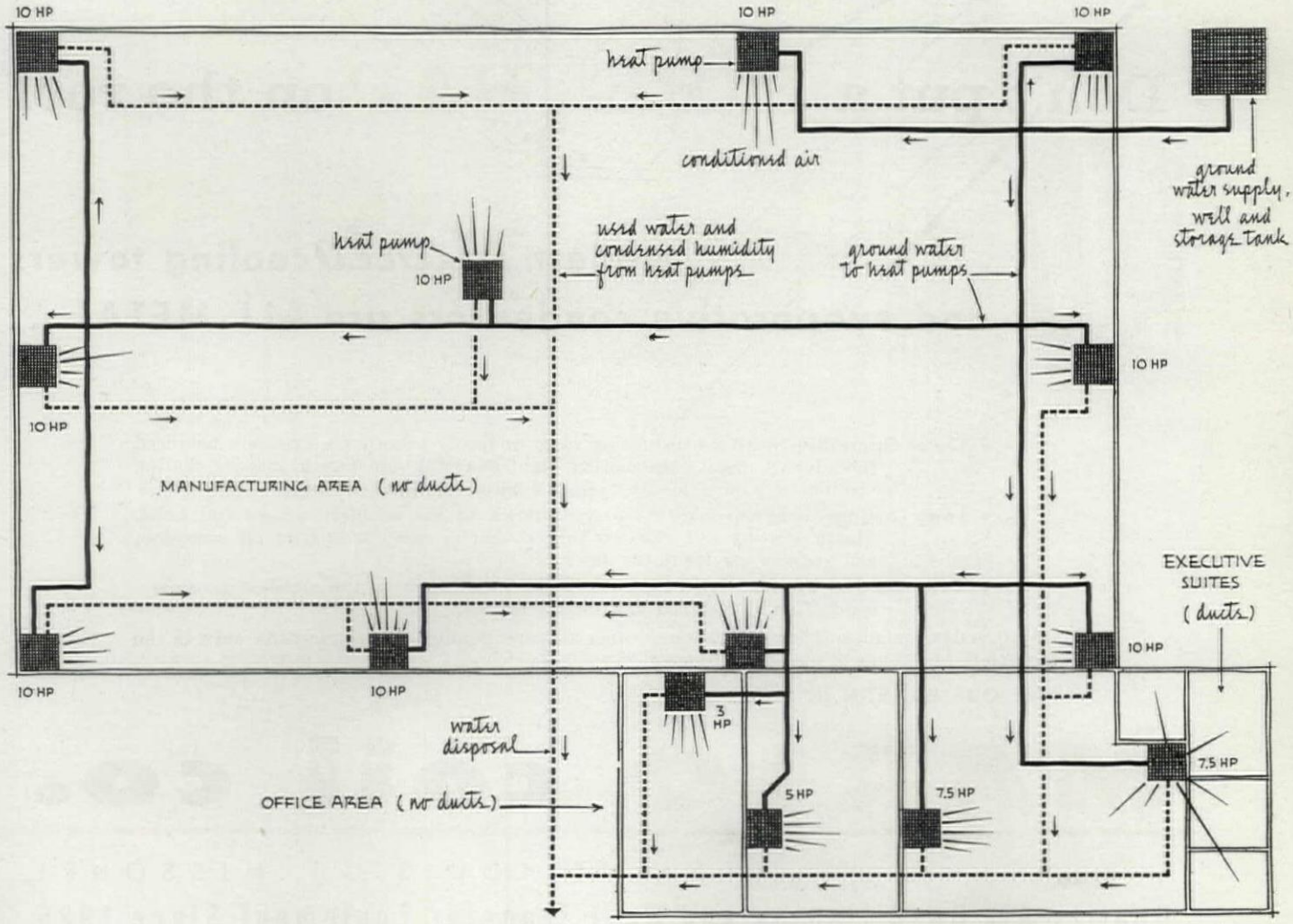
Mechanical Engineering Critique

Engineering design, in this case very effectively done by the company's own engineers, will need to be developed in areas where the heat pump is not yet understood.

possibilities

The great success of this installation and the usefulness that this system may demonstrate to others—together with the shortcomings already mentioned—have prompted Michael Parcaro, president of American Coils Company, to look into the future. He states that his company will not sell the heat pump where water difficulties are insurmountable, but foresees great use of the water-to-air principle in most areas of the United States, where water is plentiful and neutral in reaction. Neither will he permit the use of the product where engineering services are not provided to insure that it will operate correctly. In this, he feels that the utility companies which will benefit by the extra power consumed might bear part of the burden of education for proper design. The water-to-air heat pump can compete with oil heating plus air conditioning wherever electricity is less than two cents per kwhr and where oil costs 16 cents per gal.

Architect for the new building was Joseph A. Tischler, Paterson, New Jersey. Engineering was by American Coils Company.



Schematic plan of American Coils Company's plant, Farmingdale, N. J., indicates locations of 14 heat pumps of varying capacity which draw ground water from common supply to utilize it for heating or cooling.

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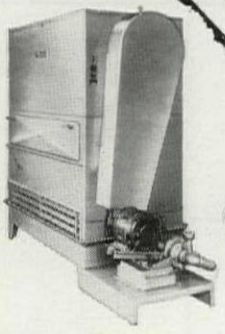

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Firm Specifications by Kenneth M. Wilson*

P/A Office Practice *discussion extracted from a speech made at a joint Producers Council and CSI Convention meeting in Washington, D.C., May 13, 1957.*

Seven years ago, our firm, having had every kind of specification trouble imaginable, decided to tighten up on its specifications. We eliminated the controversial "or equal" clause, and named specifically the products we envisioned for any given project, following the "base bid, alternate" procedure which, five years later, was recommended and endorsed by the American Institute of Architects. We knew that we could not possibly keep abreast of every new product that came on the market. We knew, too, that our clients were aware of that fact, but that they did look to us to use our best judgment and to specify products in which we had confidence, even though it was entirely possible that a better product might have been available at the time. We were particularly careful to utilize only the products of firms whose honesty and integrity were above reproach. We combined this tight specification with exceptionally sharp, well detailed drawings, and followed up the construction work very closely, at what appeared to be a considerable expense to ourselves. We also found a number of errors in our own work, and since we had such tight specifications, we had no alternative but to foot the bill for the correction of our own mistakes. To say that we were the objects of criticism for our actions is the understatement of the century! We were accused of everything from collusion, taking kick-backs from the favored few, down to outright bribery. The one gleam of light in an otherwise unhappy situation was that we were getting the kind of a building we had designed. After our reputation for sharp drawings and clear, tight specifications was established, we found that our cost of field supervision dropped to a fraction of what it had been. We also avoided a good many unpleasant arguments with contractors and owners alike, about what was or was not covered or approved in the contract documents.

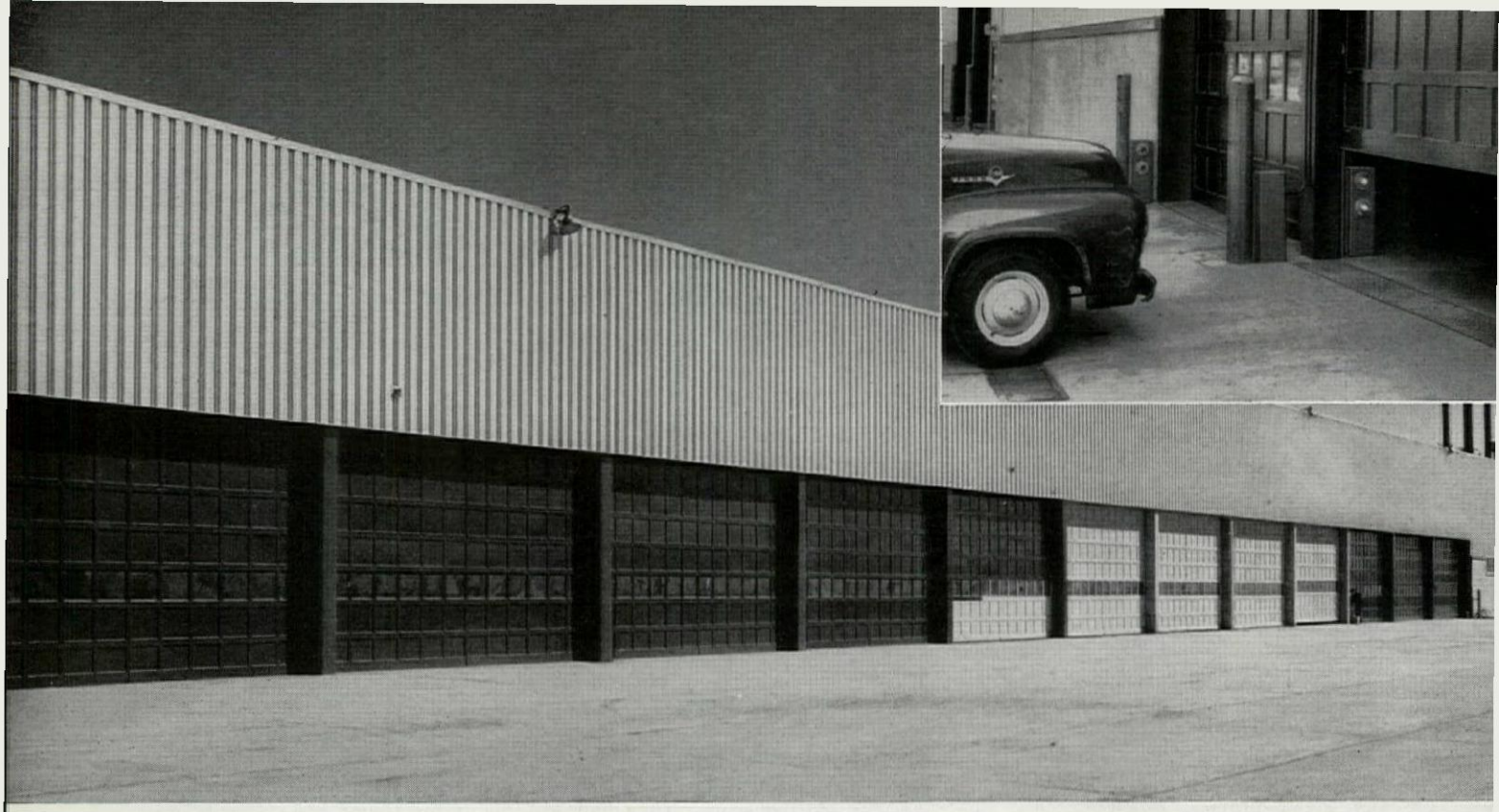
After about two years of this so-called arbitrary attitude on specifications, we found that contractors were bidding our work on a much closer margin, and that they felt no additional risk in so doing, because of the clarity of our drawings and specifications. Manufacturers, too, made their contribution. They knew that they had one chance to bid our work. They had to be in line, pricewise, on their first quote, or someone would beat them on an alternate. Suddenly they woke up to the fact that after bids were in, the contractor no longer controlled the job, and price cutting after bids were received was to no avail. Therefore they bid closer on their first quotation. The price that goes into a contractor's bid is based on the prices he receives while he is assembling his bid. A price cut after the bids are in does *not* help an owner, as his price is fixed by a bid.

During seven years of practicing with tight specifications, we have proved conclusively to ourselves and to our clients that tight specifications, combined with clean, sharp, well detailed drawings are worth from $1.50 to $2.00 per square foot of floor area on buildings in the $10 to $20 per square foot range. We are firmly convinced that the biggest contribution that the design professions can make toward the control of ever-increasing prices is to tighten up on their specifications and clean up their drawings, and combine these actions with competent and full field supervision of contractors.

One cannot enter into a study of specifications and their reception by the various segments of the construction industry, without recognizing that the specifications that we write are like a mirror. In them can be seen every strength we possess and, with equal clarity, our weaknesses too. They bring to the cold light of day, self-confidence or the lack of it. They cry out the relationship that exists between architect and engineer, between the design professions and their clients, contractors, and manufacturers. They focus attention on the failings of our institutions of higher learning to whom we look for the engineers and architects of tomorrow. The day is now past when any architect, engineer, or technician can do more than have a speaking acquaintance with more than a few of the complexities of science that go into today's modern building.

Clients come to architects and they come to engineers for the same reason that you or I go to our attorney or our physician; namely to have done for them the things that they are incapable of doing for themselves. Clients want and need our wise counsel; they want our opinions; they want our frank expressions of preference if we have any. Our clients are not particularly interested in the basis of our opinions or our preferences, so long as they are honest. We are highly skilled men; we try to assure our clients that we are proficient in our own field. Our client wants to accept that fact without qualifications. He is not particularly interested in whether we are theoretically unfair to one supplier or to another. He *is* interested in our protecting his interests and he is interested in our protecting his dollars, and he pays us a fee to do just exactly that. If we fail to make the decisions that he pays us to make, and if we fail to make them with firmness and authority, then on what do we justify our fee? If we put out a drawing or a specification that is not clear, that is full of indecision, that is full of what the trade calls murder clauses, if it is pointed at defending the consultant or the specifications writer against charges of partiality or unfairness, then how can a client help wondering if the consultant is confident of his own ability? Our clients cannot fail to wonder if the consultant he has selected is really sure of his own honesty and his own integrity, for if he were, there would be no need for all of these paper safeguards. We must approach our work with supreme confidence in our own ability, with complete faith in our own integrity. We must reflect these characteristics in firmness and decisiveness in our specifications and in our actions. We will then make our just contribution to the goal of giving our clients a dollar's worth of value for a dollar spent.

*Chief, Electrical and Mechanical Engineering Division, E. F. Klinger & Associates, Inc., Architects-Engineers, Eau Claire, Wis.



FORD MOTOR COMPANY'S NEW LINCOLN ASSEMBLY PLANT USES 38 LARGE CRAWFORD MARVEL-LIFT INDUSTRIAL DOORS—with remote control or automatic control by the vehicles using them

JOB DATA
Client:
Lincoln Division,
Ford Motor Company

PROJECT
Lincoln Division Final Assembly,
Body Painting and Finishing Plant,
Novi, Michigan.

ARCHITECTS & ENGINEERS
Smith-Hinchman & Grylls, Inc.,
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CONTRACTOR
W. E. Wood Company,
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The new Lincoln Assembly Plant at Novi, Michigan covers approximately 27 acres and has a maximum height of 60 feet. Construction is precast concrete panels and aluminum panels clipped to structural steel framing members. A total of 38 Crawford Marvel-Lift Industrial Doors are used, all with quarter-inch clear wire glass in Section and with rubber astragal on the bottom rail. All doors are equipped with operators. The twelve doors shown above are 24'0" x 14'0 and are on the loading dock which accommodates all incoming truck-delivered materials. These are operated by remote control.

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Indexed in Art Index, Architectural Index.

REINHOLD

planning or star-gazing?

Dear Editor: I have read Prof. L. Hilberseimer's *The Nature of Cities,* reviewed so voluminously in APRIL 1957 P/A, and have to disagree with the reviewer, Robert C. Weinberg, on what appear to be his main criticisms.

The reviewer states that Professor Hilberseimer's "pattern of industry, residence, and transportation" are imposed as a (1) form concept, (2) without regard to topography, and (3) insinuates that these are unrealistic "star-gazing" schemes.

First, Professor Hilberseimer's settlement units are not *form* concepts, but, as the book shows, the result of the relationship of transportation, industry, residence, and schools, with the desirable goals of sunlight and pedestrian safety.

Second, in the specific plans, such as for Chicago and Washington, the streets within the settlement units are resultant, for reasons of practicality, from existing streets and utilities, which is the reason that they do or do not follow the topographical contour. The new arteries are shown to follow these contours.

I think that this method of working from the existing city patterns answers the "practical" aspects of Professor Hilberseimer's planning. In due respect to the reviewer, the concepts themselves, we agree, are desirable.

It appears to me that the reviewer either did not understand the third part of the book, or was against the idea beforehand.

EDMOND N. ZISOOK
Chicago, Ill.

•

Dear Editor: Robert C. Weinberg's review of *The Nature of Cities,* in the April issue of PROGRESSIVE ARCHITECTURE, is uninformed and in consequence unfair.

The reviewer does not seem to know that the Hilberseimer proposals are diagrams, illustrating planning principles. He was having a field day: any resemblance to the book is purely coincidental.

The reviewer accuses the diagrams of being regimented, presuming that they are meant as actual cities. Yet the diagrams are plain enough to anyone who reads the book. Thus on page 276: "They are abstractions only; and abstract cities and regions do not exist. Until they are put to use, the elements we have developed and their manifold possibilities of combination must remain in the realm of theory. Such theory provides the necessary starting point for the discovery of sound methods of work. Our purpose has been to encourage discussion about the planning problems we must face. Understanding of a problem and its implications is always prerequisite to any accomplishment. Only when we have reached this understanding can the real work of planning begin. The applications of our principles will then be modified by reality. For planning is not an abstract task. It is the fulfillment of human needs, the realization of human aims."

Curiously unaware of the book, the reviewer could not make the moderate leap from the abstraction of a diagram to an imagined actuality. Hence the error in supposing the suggestions represent an imposed formalism. On the contrary, the diagrams represent a natural and organic development of cities based on real human needs: sunlight, gardens and parks, the proper relation of residential areas to industrial areas, safe streets, and the solution

(Continued on page 14)

DRAFTING TRENDS

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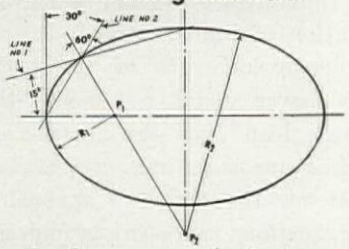
One of 22 Drafting Shortcuts



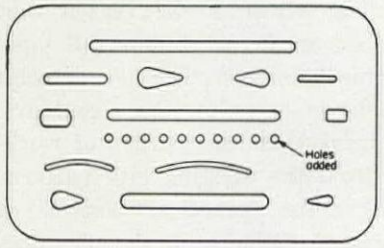
Here is what seems to be the fastest and easiest method of constructing an approximate ellipse: (1) Draw a line at 15° to major axis as shown. (2) Draw a line at 30° to minor axis as shown. (3) Draw a line at 60° to line #2 through intersection of lines #1 and #2. (4) Draw Arc R_1 from point P_1. (5) Draw Arc R_2 from point P_2.

9 tips in Engineering Data Section

Easy-to-use, practical shortcuts to formulas and other engineering data are featured in this section. Two of these time savers are faster methods of "Determining Gear Inertia" and "Interpolating Between Family of Curves."

One of 18 Board Timesavers

Fairly often when drafting it becomes necessary to change a solid line to a dotted line. By placing a series of holes in an erasing shield, as shown, it is possible to make the conversion simply by erasing through the holes.



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p/a views

(Continued from page 13)

of traffic problems. It is rather the existing city today which is "regimented"—a veritable strait jacket—and all because these human needs have been ignored. Therefore the fond and plaintive escape to the suburbs.

The comment that Hilberseimer did not learn from criticism of his earlier book is amusing! Principles still remain principles; problems still remain problems, regardless of how many persons at the moment are pleased or displeased, when they are stated. The truth is not decided by counting noses. Pasteur's germs were still germs, even when no one believed they existed. The germ theory seemed as "far fetched" to the doctors of the day as Hilberseimer's diagram of Chicago seems to the reviewer. The popular epithets—dear to heart of the mass man—"wacky," "long haired," "star gazing," "Ivory Tower" make the reviewer, I suppose, seem by contrast a sound and practical fellow.

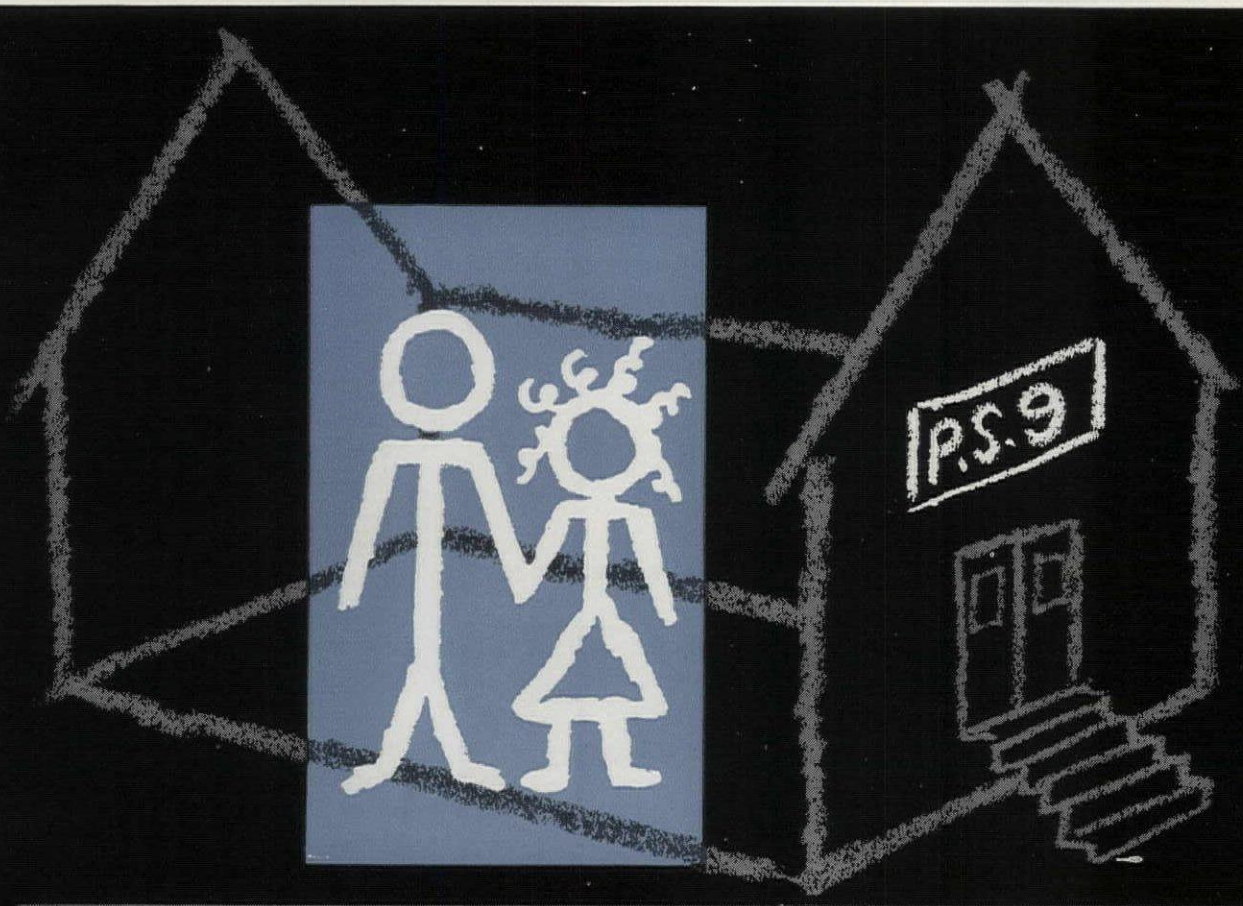
Hilberseimer, it develops, is one of the misguided Europeans who have come here in the last two decades. As for that never look a gift horse in the mouth. Hitler bled his country white. His tyranny, in the process, unwittingly bestowed upon America the finest minds of Europe. In so many fields, indeed from Einstein to Mies, America received like a legacy that excellence which neither dictatorships nor mediocrity ever want or need.

ALFRED CALDWELL
Chicago, Ill.

•

In reviewing Dr. Hilberseimer's book, *The Nature of Cities*, in the April issue of PROGRESSIVE ARCHITECTURE, I leaned over backward to give the author credit for his sound reasoning and for setting forth, so dramatically, his carefully worked-out concepts of an ideal city to which Caldwell calls further attention in his letter. I also commented on the

(Continued on page 16)



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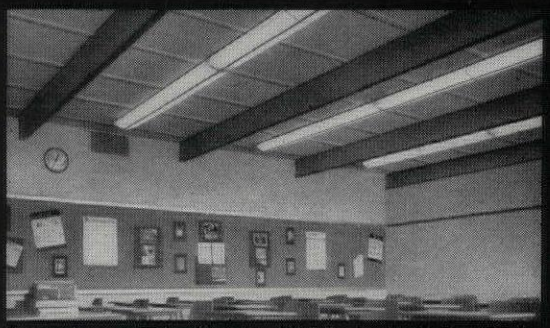

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(Continued from page 14)

fact that Professor Hilberseimer's precepts and diagrams, being abstractions, cannot be regarded as applicable cures for the ills of living cities, unless there is some over-all *force majeure* available to put them into effect.

It is here that I must take issue with Caldwell, as well as with Professor Hilberseimer. In this country, as well as in Britain and other lands with strong democratic political traditions, plans affecting people's lives and properties are not made by "modifying" the ideal concepts of a paternalistic planner to meet the "realities" of actual conditions, whether technical or political. Planning must, rather, be built from the bottom up, securely based on what the community itself wants and on where it now stands—guided to an orderly pattern, out of these often inchoate and conflicting popular wishes, by the skill and imagination of the planner.

Planning is not and never can be a pure science like that of medicine. Its truths cannot be discovered, revealed from on high and grudgingly allowed to be modified in the face of "reality," (whether the high priest calls himself H. Hilberseimer or R. Moses: they are but two sides of the same coin!). The planners' work, on the contrary, is essentially a social art, informed by sympathy and understanding of what actual communities are and what particular groups of people want; an art fortified by taste, sensitivity, and by the technical skill and knowledge which the broad training of our modern planning curricula is designed to provide.

If I appear to have disagreed, as Zisook says (*above*), with Professor Hilberseimer's basic concepts, or with his logical conclusions as he draws them from the point of view of classroom and study, I certainly failed to make myself clear in the review. My point was, and is, that as a guide for practicing professional planners, the book fails to bridge the gap between abstraction and reality.

I believe my reading of all of Professor Hilberseimer's published works has been as thorough as the next man's. This does not mean, however, that his own students, who have had the privilege of hearing him lecture, may not be better commentators on his teachings. In this connection, introducing a review of the book by one of these students, which was published in the Winter, 1957, issue of *Journal of the American Institute of Planners*, I said, editorially:

"Prof. Hilberseimer's latest book continues, in the vein of his previous publications, theories and methods of presentation of planning problems which have been regarded by many Institute

(Continued on page 20)

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(Continued from page 16)

members and others concerned with contemporary planning problems as being so far removed from practical reality as not to merit the serious consideration which they probably deserve. The *Journal* is fortunate, therefore, in having received from one of Prof. Hilberseimer's own students an analysis of his recent book written from the point of view of close association and understanding of the author's teachings.

ROBERT C. WEINBERG

roofing problems

Dear Editor: I read with interest the late Ben John Small's article on roofing failures some months ago, and would like to compliment you on some very thorough research and sound conclusions. Roofing, a field quite near my heart (and pocketbook), has needed for many years a new product which can eliminate the problems that occur in today's built-up roofing. While most other forms of construction have improved their designs, products, application techniques, and the like, the roofing industry (as a whole) has remained complacent.

Major petroleum manufacturers are striving to better their bitumen by offering new products with longer life and better weathering features, but the felt industry in general has remained dormant with their felts. The manufacturers *have* realized, however, that perforation (to give better porosity) of their products tends to better monolithic roofs.

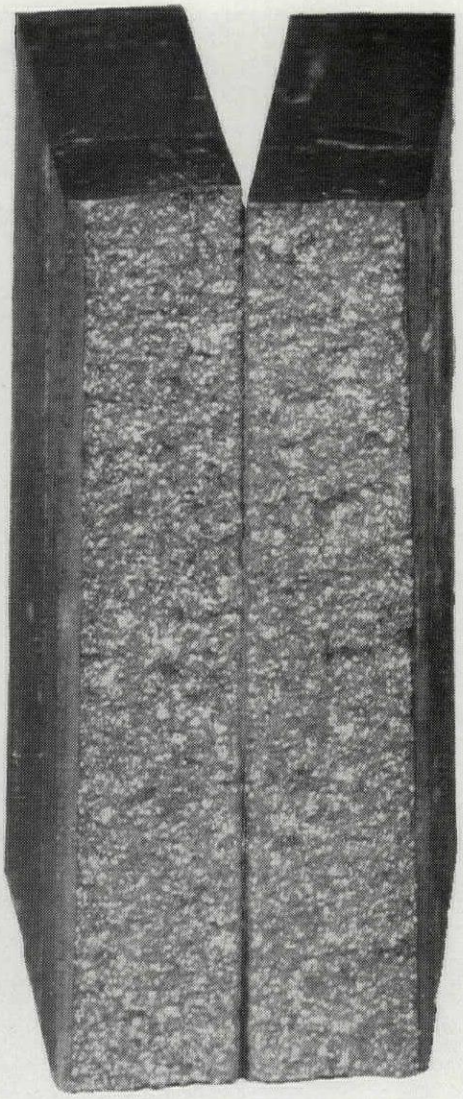
As you may know, I'm a sales representative of a company entering the built-up roofing field—Owens-Corning Fiberglas. For me to tell you that our new products, Perma-Ply No. 6, and Base Sheet, will end all problems that could possibly occur on a roof would be misleading and totally untrue. My company entered this field primarily because we felt, and still feel that the inherent qualities of glass eliminate, or reduce greatly the many causes for roof failures. Let me break this down further.

I. The basic use and need for a roof is to protect the contents beneath the roofing structure.

II. The prime function of roofing, "built-up roofing," is to protect the roof proper from the various elements and to create a watertight building. Let me add here that it is not the felts or slag that waterproof a building, it is the bitumen that does the work. The felts merely hold the bitumen on the roof and reinforce that bitumen—similar to reinforced concrete. "Rag" felts being organic, wick moisture into the roofing as well as wicking out the volatile oils of the bitumen which are the life of the waterproofing.

III. In his article, Small mentioned various types of failures—mechanical, construction, and blistering. We believe that the bonding roofing manufacturers can control the latter two types. Mechanical failure (excess traffic, heavy equipment) is a

(Continued on page 238)



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Much of the serene beauty and reverent atmosphere of the new sanctuary of the First Methodist Church, Midland, Michigan, is due to the floor of Armstrong Cork Tile. Beyond the appearance and underfoot quietness that were the prime reasons this floor was specified, its ease of maintenance is a plus factor. According to the church's caretaker, Armstrong Cork Tile is easy to clean and requires waxing only occasionally.

First Methodist Church, Midland, Michigan

architect: Alden B. Dow, F.A.I.A.

ARCHITECTS' OFFICE . . .

the flooring spec: Armstrong Cork Tile

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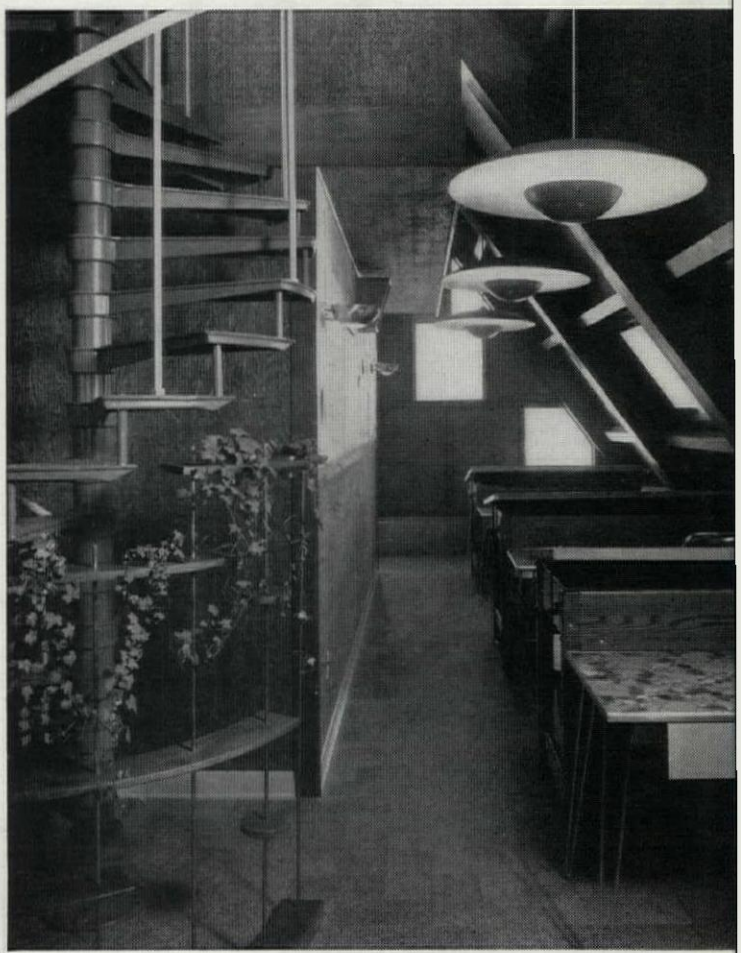
Offices of The Griffith Co., Architects, Fort Dodge, Iowa
architect: Stanford Griffith



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architect: Gerhard E. Karplus, A.I.A.

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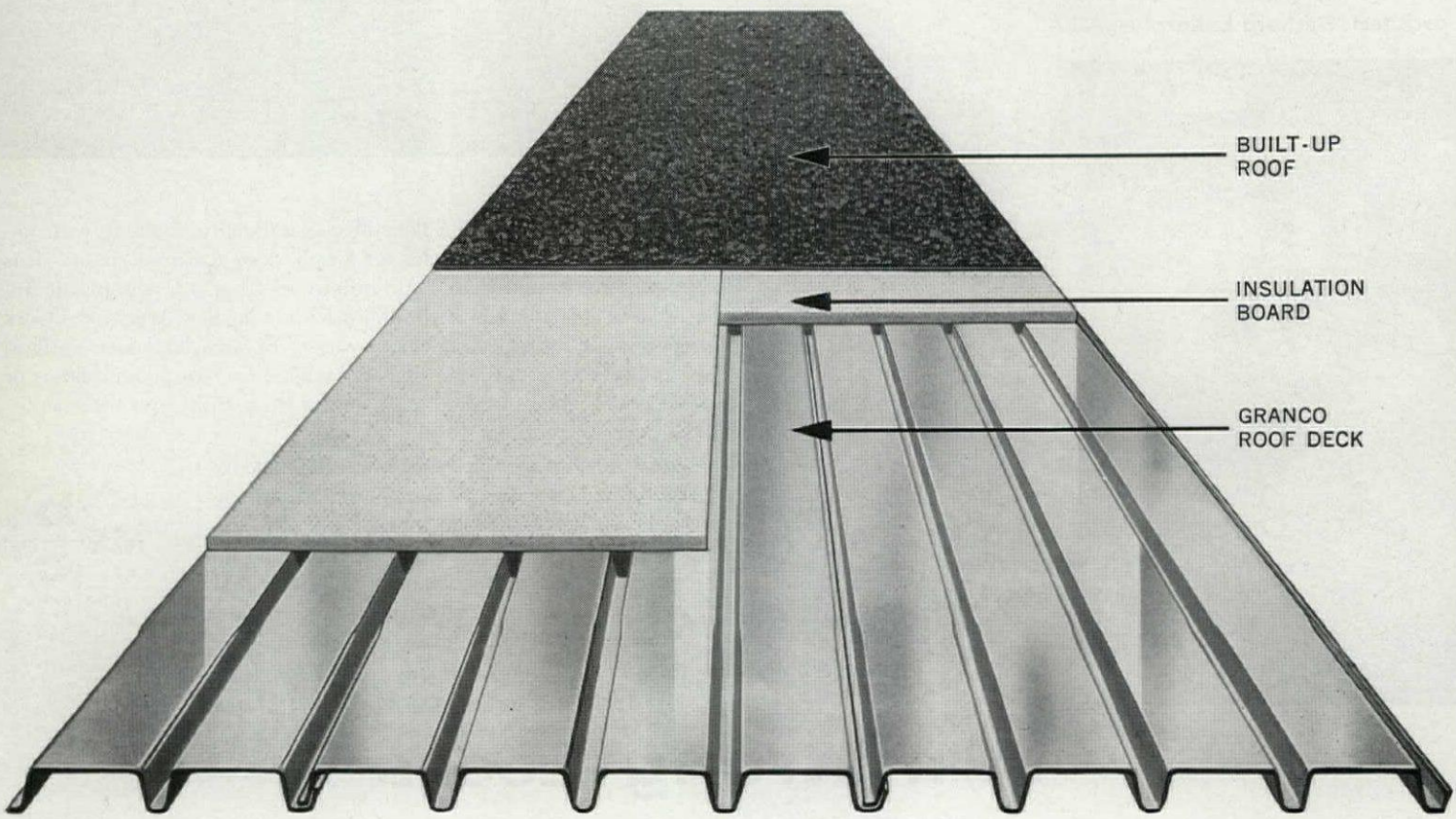

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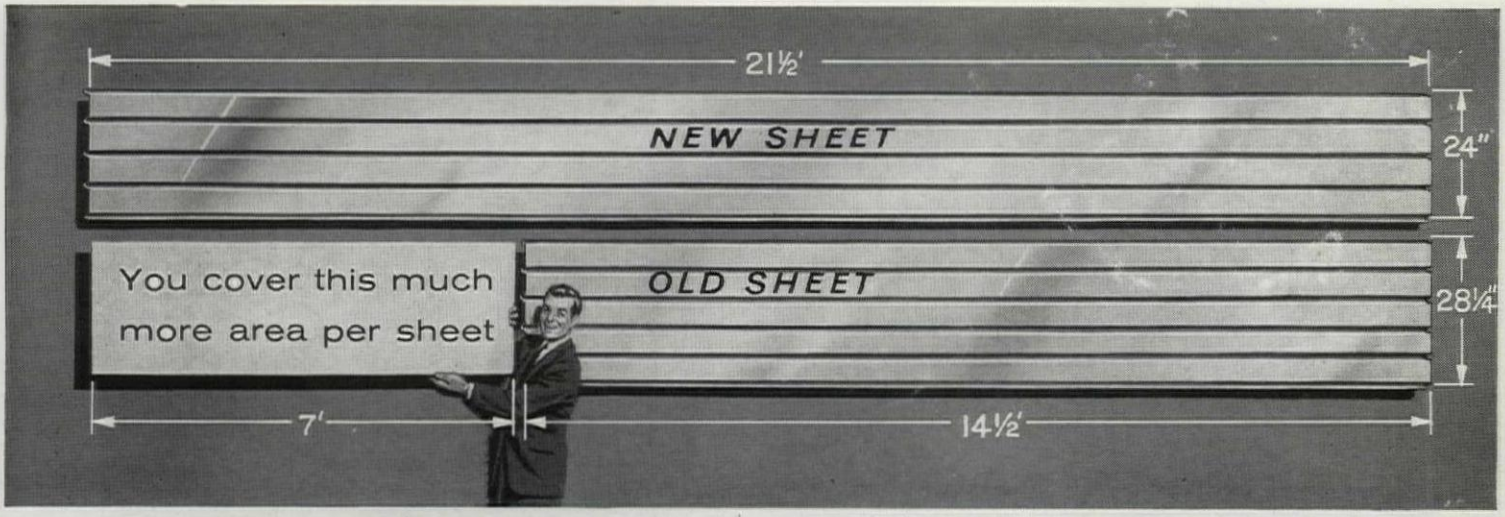

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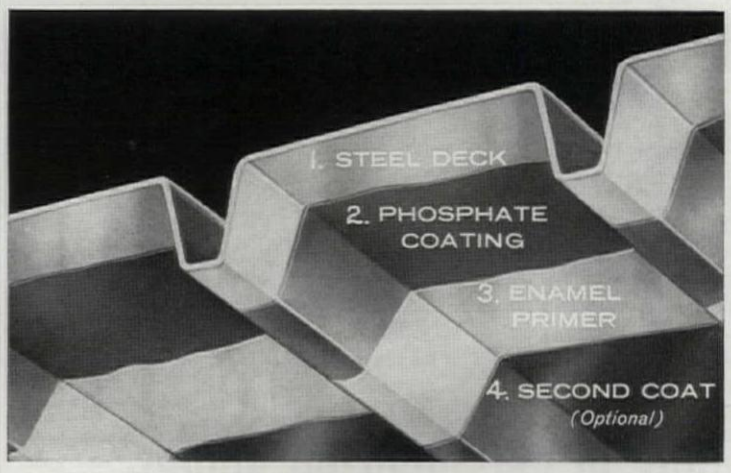

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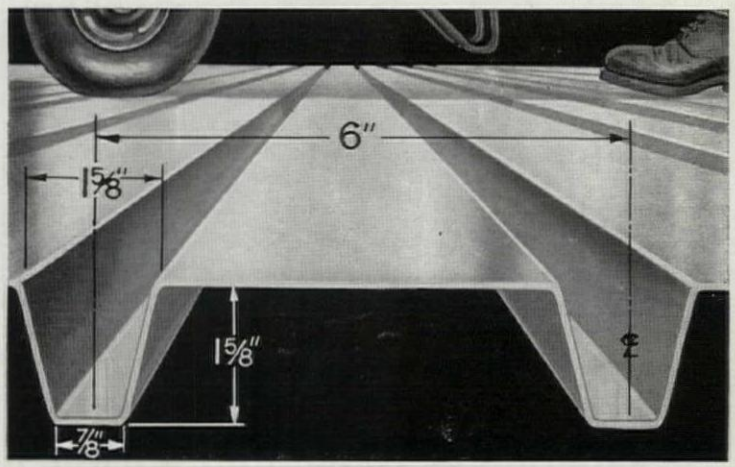

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Mr. Winters discusses the details of every home he builds with the people who will be living in it. Telephone facilities are planned for the future as well as the present.

"Concealed telephone wiring belongs in personalized homes"

—says Mr. O. C. Winters, Custom Builder of Indianapolis, Indiana

"It's good business to give customers what they need," says Mr. Winters, "and that includes concealed telephone wiring. The desire for planned and built-in telephone facilities is growing markedly. It's part of the trend of the times towards more livable homes.

A home built by Mr. Winters. Concealed telephone wiring is one of its distinguishing sales features.

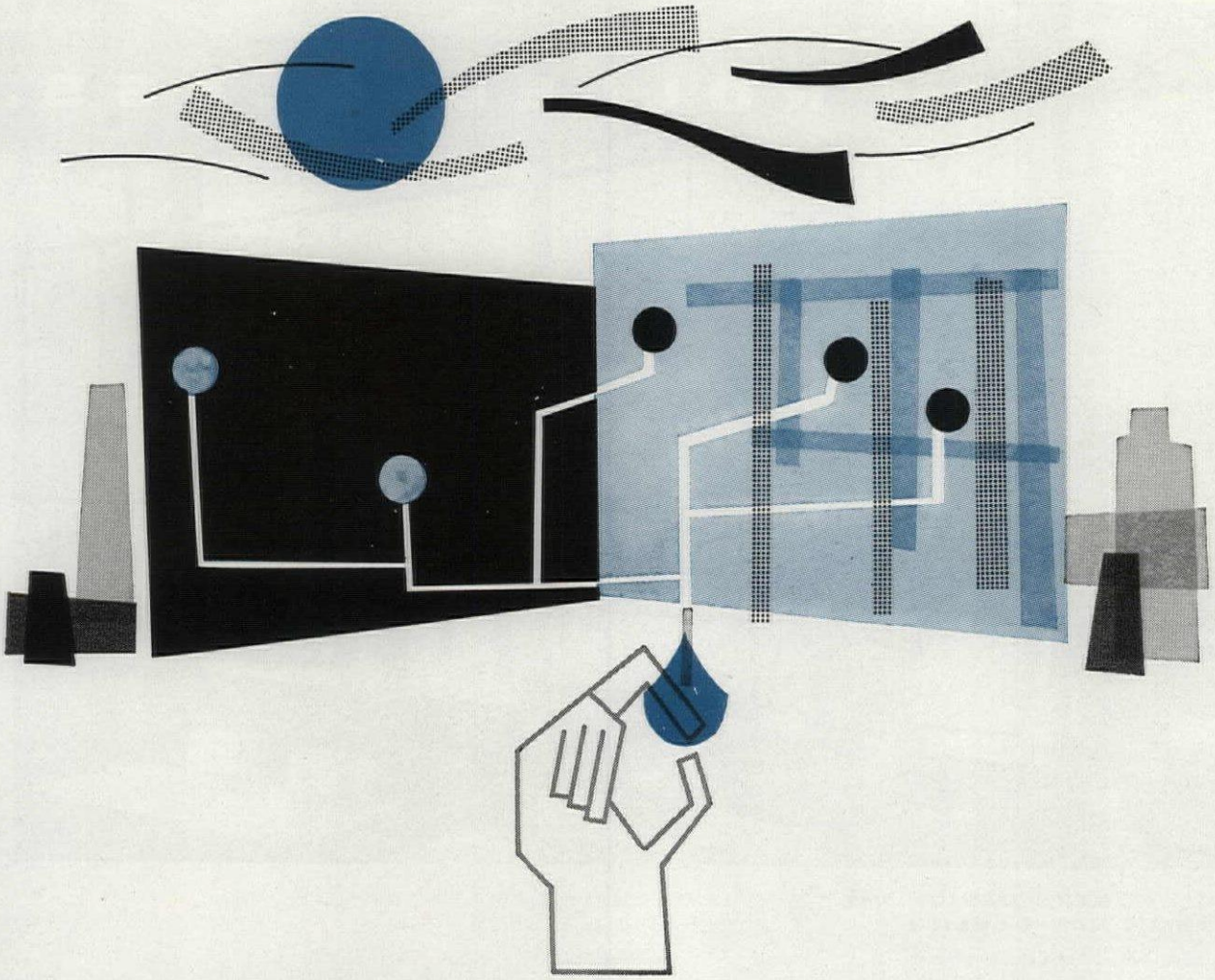
"People are discovering that concealed telephone wiring preserves the beauty of their rooms as well as adding great convenience. They're favorably impressed with the architect or builder who plans on it for them.

"Concealed telephone wiring belongs in personalized homes, and I know from experience that it helps sell them."

• • •

Your nearest Bell Telephone business office will help you with concealed wiring plans. For details on home telephone wiring, see Sweet's Light Construction File, 8i/Be. For commercial installations, Sweet's Architectural File, 32a/Be.

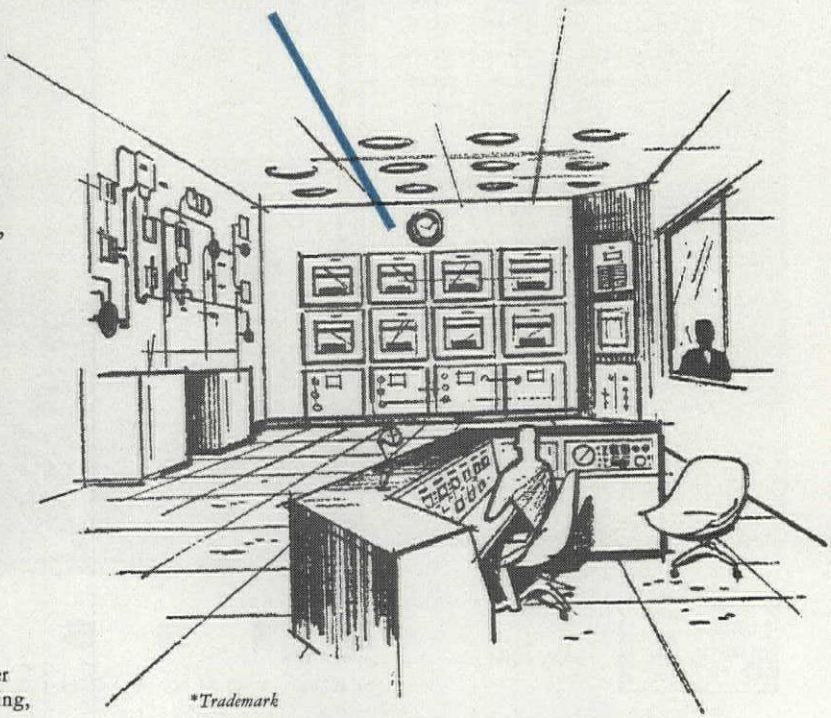
Working together to bring people together
BELL TELEPHONE SYSTEM



SUPERVISORY DATACENTER*

Nucleus for automation of an entire building

NEW IDEAS that significantly affect building design are rare—and important. The Supervisory DataCenter control panel perhaps represents such an idea. For by completely centralizing air conditioning control, it shows the way to similar economy and integration of many another mechanical function. Conception, housing and installation of the DataCenter involve creative design factors that are of first concern to the architect. Your local Honeywell man has full details.

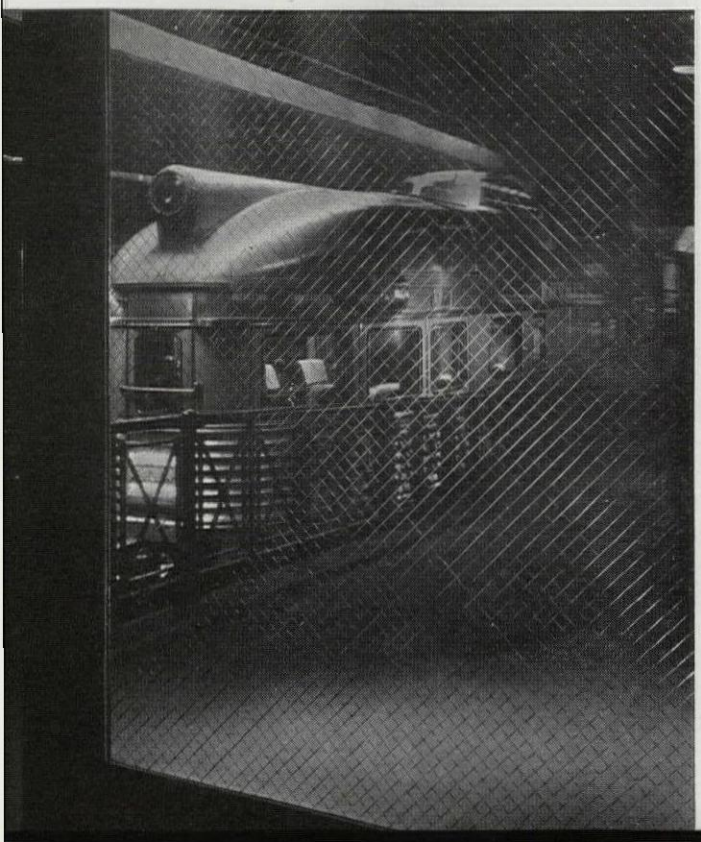


*Trademark

Minneapolis-Honeywell Regulator Company

Rendering here shows how a DataCenter might be integrally designed to incorporate a building's security system. One man observes and controls the air conditioning, plumbing network, fire prevention systems and guard posts with two-way communications to all. A similar appearing DataCenter is now operating in the Bank of the Southwest Building, Houston, Texas. Kenneth Franzheim, Architects; H. E. Bovay, Jr., and Reg. F. Taylor, Engineers.

PACE SETTER IN BUILDING PROGRESS



Combining beauty and utility in an exciting variety of residential, commercial and industrial applications, rolled glass by Mississippi offers an extensive selection of patterns with surface finishes and light transmission characteristics that fulfill the requirements of any design or specification.

Send for new free catalog 57-G.
Address Dept. 8.

MODERN VISTAS ARE CREATED WITH GLASS

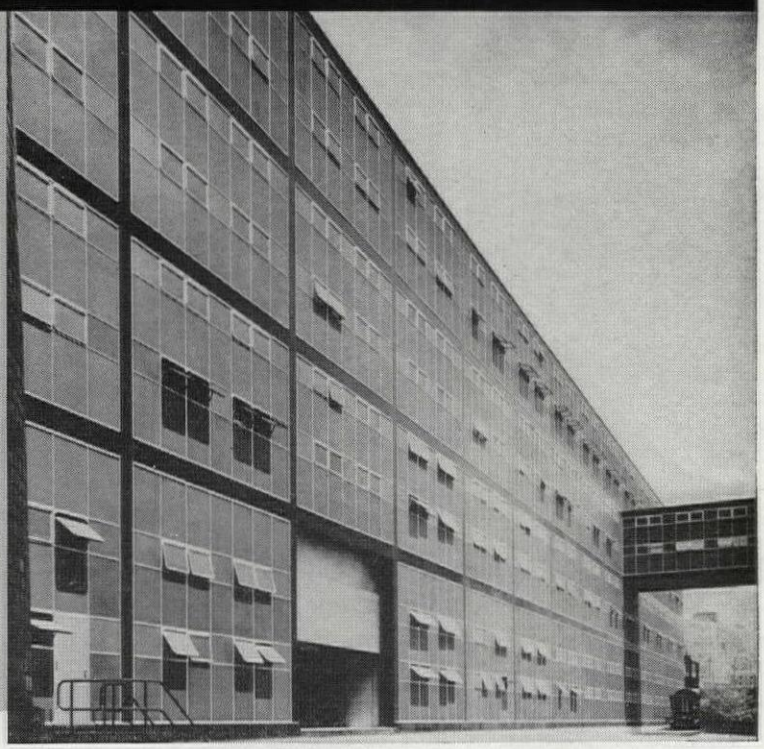
As advanced in design as the sleek California Zephyr seen through it, Polished Misco (Approved Fire Retardant No. 32) is used extensively in Chicago's Union Station to help protect its thousands of travelers. This rugged glass offers effective but inconspicuous protection at minimum cost in windows, doors, transoms, skylights, partitions . . . wherever fire and breakage protection is required.

●

COOLITE GLASS IS RIGHT VARIETY FOR HEINZ

Executed in a shimmering sweep of Coolite, Heat Absorbing, Glare Reducing glass, the Heinz Vinegar Plant, Pittsburgh, has been acclaimed "a brilliantly incisive piece of architecture." Here, employees see better, feel better, work better—for Coolite filters out unwanted factors in "raw" daylight . . . helps keep interiors cooler, more comfortable.

Architects and Engineers: Skidmore, Owings & Merrill
Photo: Ezra Stoller



G L A S S C O M P A N Y

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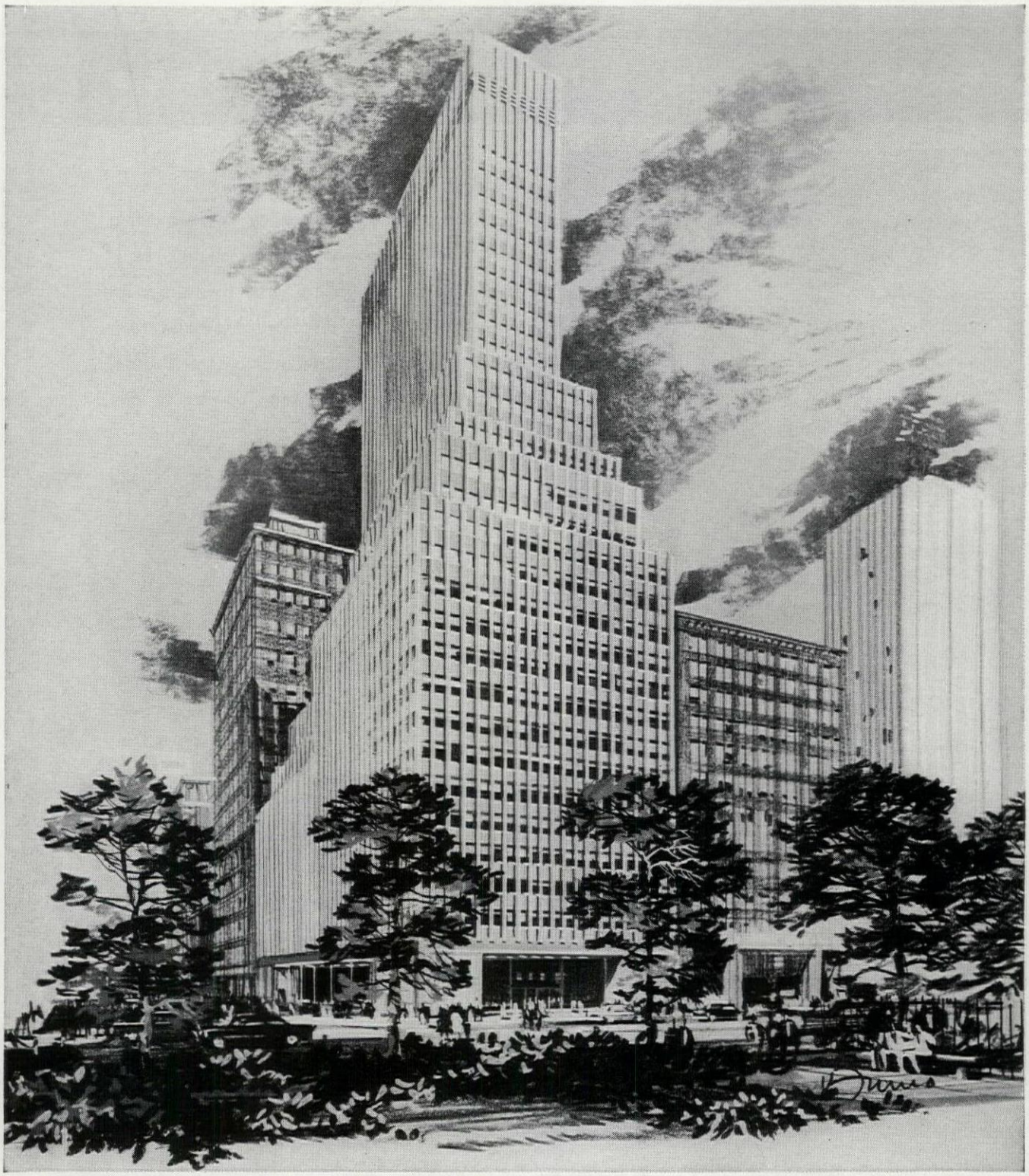

GOING UP! 111 West 40th Street Building being erected for General Realty & Utilities Corporation by George A. Fuller Company, general contractor. For this 35-story New York office building, architects Kahn & Jacobs, and Sidney Goldstone make creative use of Ceramic Veneer for vertical pier facing and coping. Whatever the building now on *your boards*, write for Federal Seaboard's colorful literature illustrating the versatility of modern Ceramic Veneer. Also without charge, we will gladly furnish construction detail, data, color samples, and advice involving Ceramic Veneer, the modern Architectural Terra Cotta.

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F S T C

WHEN RUGGEDNESS AND BEAUTY COUNT

SIMPSON FIR PLYWEAVE

Do your clients ever say "I want my family room to be attractive, but it has to be able to take a beating, too"?

Fir Plyweave is tailor made for this kind of a situation. Plyweave is a low cost plywood paneling with a beautiful, deeply-embossed, three-dimensional surface that is also extremely hard and scuff-resistant. It is ideal for boys' and girls' rooms and heavy traffic areas like hallways.

Plyweave gives architects wonderful opportunities for ingenious and dramatic uses in new homes, offices, schools, etc., or in remodeling. It can be stained, painted or two-toned. It can be put up vertically, horizontally, or in squares.

So to give your client's project a treatment that is daring and practical, too, specify exteriors or interiors of beautiful, tough Simpson Plyweave, in either fir or redwood.

You can also rely on Simpson for Acoustical, Insulating Board and Hardboard Products, plus a complete line of specialty plywood and doors.

This section of Plyweave shows the deeply-embossed pattern.

Simpson M&M

PLYWOOD & DOOR PRODUCTS

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FREE Plyweave sample together with Simpson's new 36-page booklet, "Manual on Finishing Plywood" has 68 full-color finish illustrations plus decorating ideas and suggestions for the use of plywood in the home.

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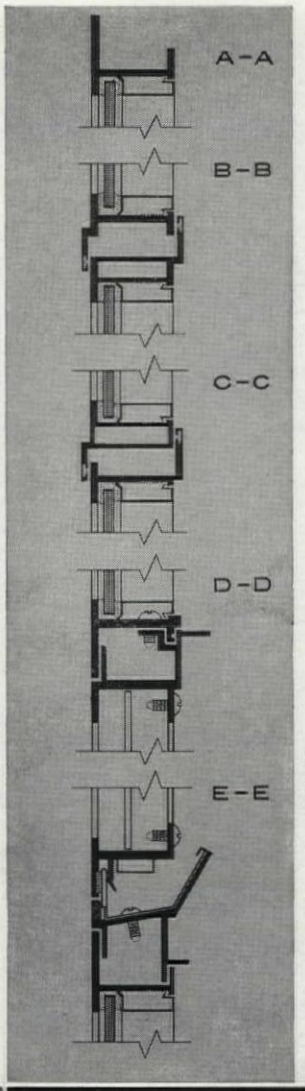
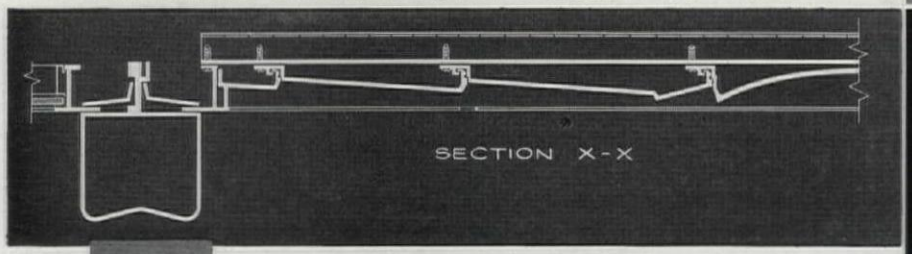
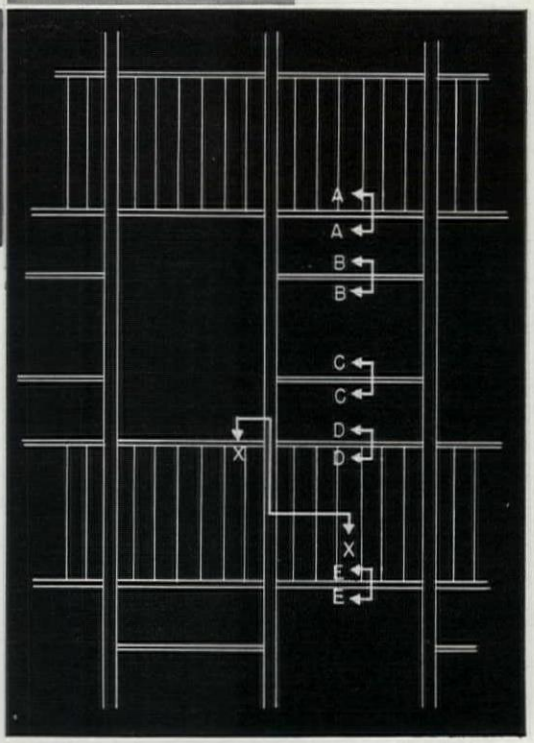


Tubular sash members show clearly in section drawing of wall.

Reynolds Aluminum Applications:
Extruded aluminum mullions anodized bright gold; pre-assembled matte gold spandrel panels made of interlocking extrusions; intermediate projected and fixed-light windows also anodized in a matte gold.

Extrusions interlock to form spandrel panels, are attached simply to mullions.





A S

ARCHITECTS' SERVICE

Reynolds Architects' Service Representatives offer specialized assistance on aluminum design problems, on applications of standard aluminum mill products, and on the use of commercially fabricated aluminum building products. They can help coordinate aluminum requirements for procurement efficiency and economy. Address Architects' Service, **Reynolds Metals Company,** Louisville 1, Kentucky.

See "Circus Boy", Sundays, NBC-TV Network. Watch for Reynolds on "Disneyland", ABC-TV Network.

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Johns-Manville Asbestos Movable Walls can be quickly changed at will

For an efficient and economical way to save space and make space, J-M Asbestos Movable Walls are the most flexible of movable partitions. They can be erected, dismantled and relocated time and time again. Yet they retain all the elements of performance, durability and attractive architectural design.

J-M Movable Walls make possible the allocation and division of space to meet the ever-changing needs of business. They help provide for better working conditions, increase the comfort and improve the morale of employees.

They are prefinished in stippled, textured colors of light green, light tan and light gray, with other solid colors available on order. Their finish is scratch- and stain-resistant. Layout changes can often be made in a few days or during a weekend.

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The new Y.M.C.A. in Stroudsburg, Pa., was designed by Rinker and Kiefer, architects. General contractor: Paul L. Edinger. Both are Stroudsburg firms.

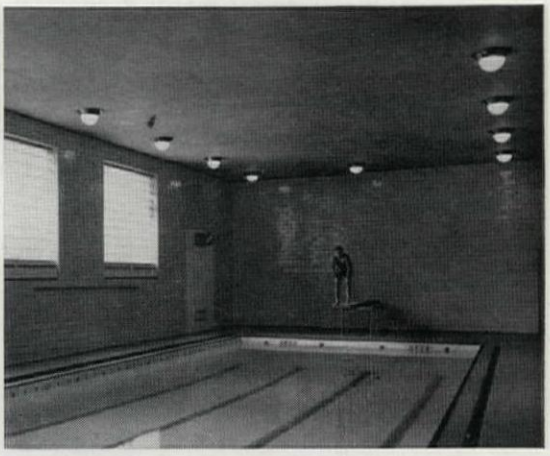
STEEL JOISTS HELP PROVIDE FIRE-SAFETY FOR Y.M.C.A. BUILDING IN PENNSYLVANIA

The attractive Y.M.C.A. building in Stroudsburg, Pa., is a three-story brick structure containing lobby, club rooms, dormitory rooms, craft shop, kitchen, gymnasium and swimming pool.

Bethlehem Shortspan Steel Joists were used in the floor structures throughout the building. These steel joists were chosen not only because they provide a rigid, non-warping construction which keeps future maintenance at a minimum, but also because they provide a fire-resistant construction. In combination with floor slab and ceiling, steel joists provide up to four hours' fire-safety.

Bethlehem Open-Web Steel Joists offered several other advantages to the builders of the Y.M.C.A. They reached the job-site fully fabricated, tagged and ready for placing. They needed only field-welding to secure them permanently in place.

In the roof structure over the swimming pool, the builders used Bethlehem Longspan Steel Joists, giving to the swimming pool maximum unobstructed space, with no need for vertical supports. Longspans also simplified the installation of the lighting over the pool, because wires and conduits as well as piping could be run right through the open-webs.



Bethlehem Longspan Joists in the roof over the swimming pool give maximum column-free space below.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

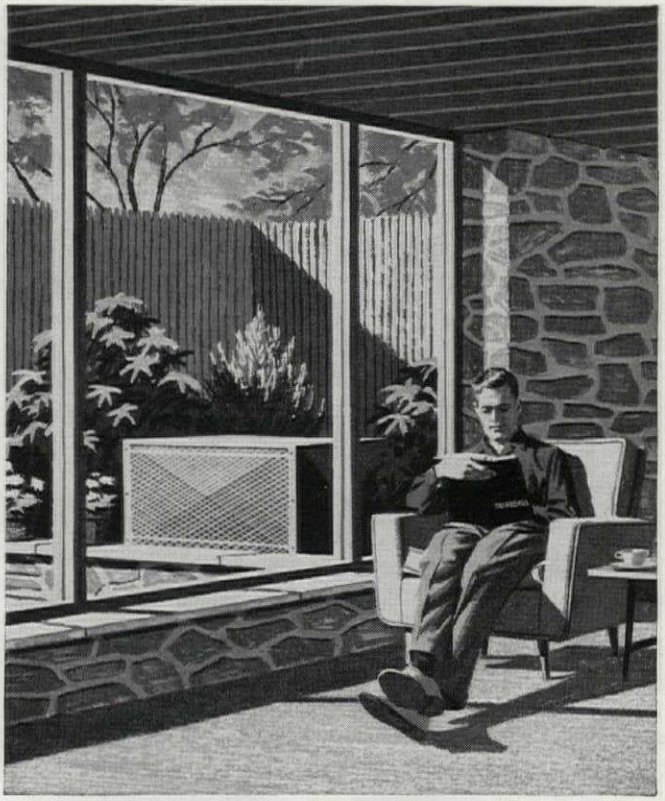
BETHLEHEM OPEN-WEB STEEL JOISTS

BETHLEHEM STEEL

Indoor section in the basement. When the Carrier Heat Pump Weathermaker* is suspended from the ceiling it takes up no usable floor space. Switching from summer cooling to winter heating is simple, just flick a switch on the all-weather thermostat.

Indoor section in the attic. The Carrier Heat Pump Weathermaker installs easily in the attic of buildings that don't have basements. It is connected to the outdoor section by small copper tubing. Water, chimneys and fuel storage tanks are not needed.

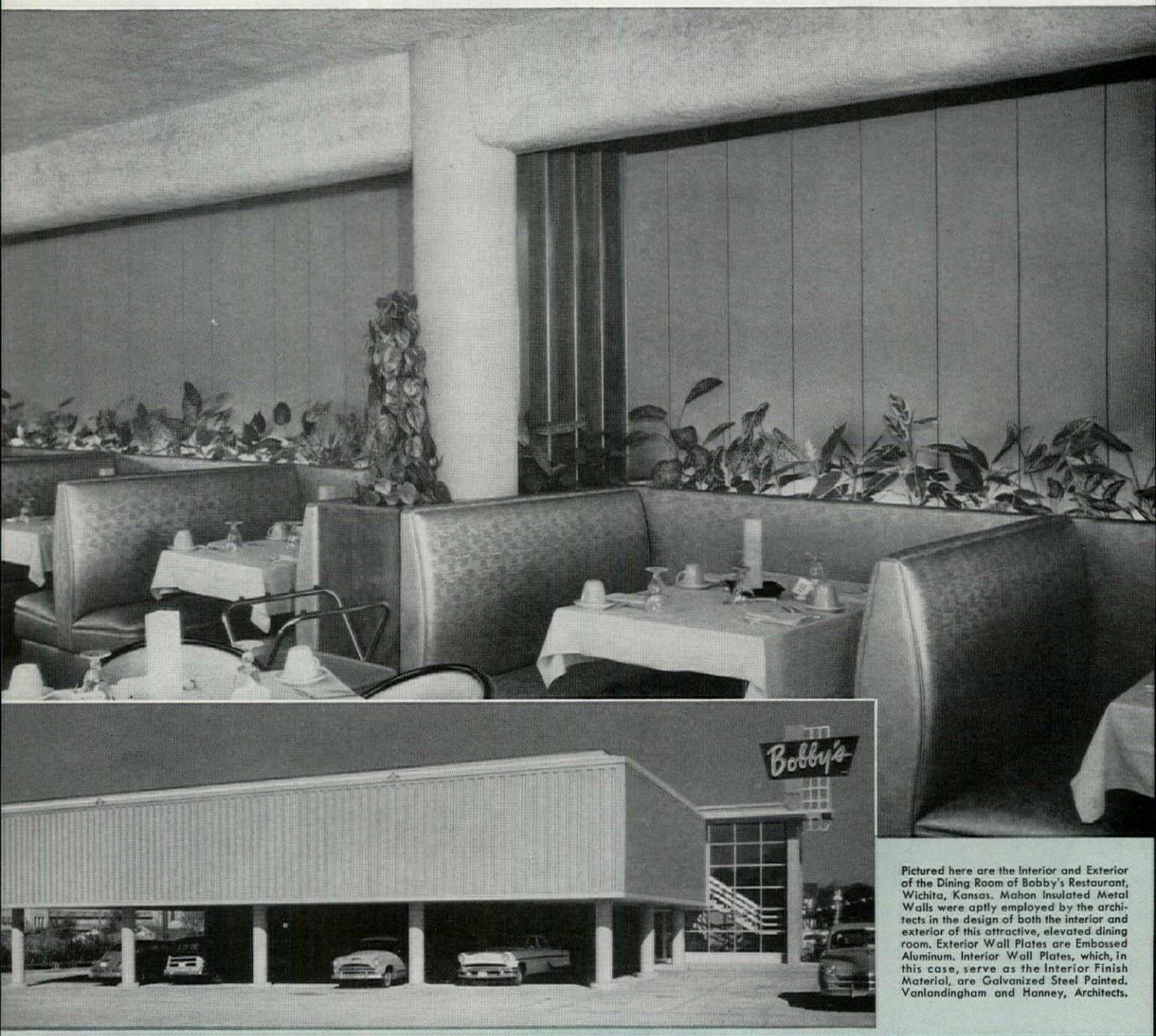
Indoor section in a closet. Another unobtrusive location for the Carrier Heat Pump Weathermaker is the top part of a utility room or closet. In every season, air is gently circulated through ducts, filtered perfectly clean, with no soot, smoke or other odors.



Outdoor section eliminates noise problems. The important moving parts of the Carrier Heat Pump Weathermaker are enclosed in the weatherproofed outdoor section. Two-section design reduces installation costs, no bulky outside air ducts needed.

*Reg. U.S. Pat. Off.

INSULATED METAL WALLS Serve as



Pictured here are the Interior and Exterior of the Dining Room of Bobby's Restaurant, Wichita, Kansas. Mahon Insulated Metal Walls were aptly employed by the architects in the design of both the interior and exterior of this attractive, elevated dining room. Exterior Wall Plates are Embossed Aluminum. Interior Wall Plates, which, in this case, serve as the Interior Finish Material, are Galvanized Steel Painted. Vanlandingham and Hanney, Architects.

ELECTRIFIED M-FLOORS

Mahon M-Floors provide electrical availability in every square foot of floor surface—safeguard buildings against electrical obsolescence in years to come.

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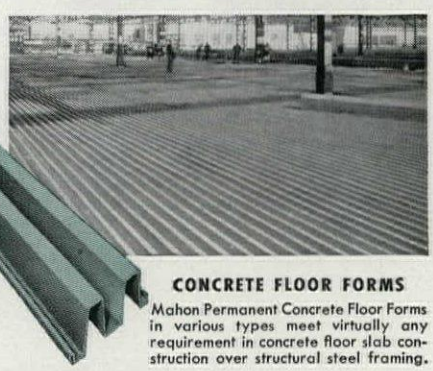
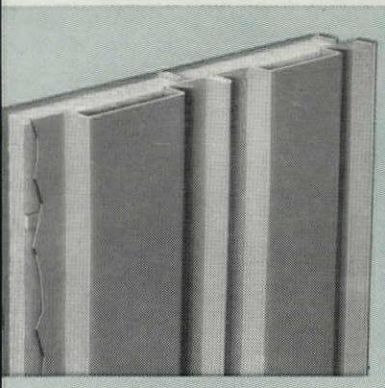
Provide an Effective Acoustical Ceiling with Recessed Troffer Lighting—Serve as Permanent Forms in Concrete Joist and Slab Construction of Floors and Roofs.



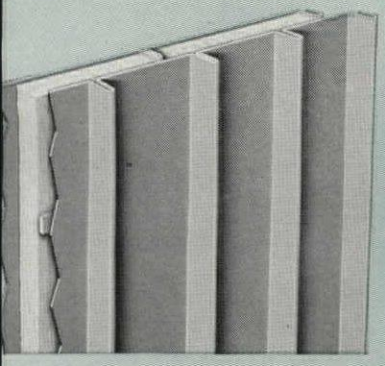
CONCRETE FLOOR FORMS

Mahon Permanent Concrete Floor Forms in various types meet virtually any requirement in concrete floor slab construction over structural steel framing.

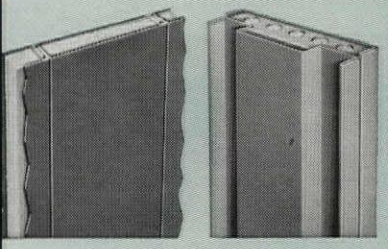
a Conventional Metal Curtain Wall and the Interior Finish Material as Well!



MAHON FLUTED WALL
FIELD CONSTRUCTED



MAHON RIBBED WALL
FIELD CONSTRUCTED



FLUSH FLUTED
MAHON PREFAB WALL PANELS

For many years architects have employed Insulated Metal Curtain Walls skillfully and to good advantage, costwise, in producing some outstanding exterior design effects in office buildings, schools, armories, sports arenas, parking garages, all kinds of industrial buildings—including powerhouses, and in some important monumental buildings.

Now you see the functional Metal Curtain Wall serve also as the interior finish material in a unique and attractive dining room which is elevated on columns to provide parking space below.

In this installation, the flush inside metal plates of the Mahon Insulated Metal Wall are employed as the interior finished wall material—the flush metal surface is painted to harmonize with and become a part of the interior decorative scheme. The over-all effect obtained by the architects speaks for itself.

Metal Curtain Walls with exterior plates of embossed aluminum, stainless steel, or cold rolled steel painted, employed in combination with brick, ornamental stone, glass block or other materials offer unlimited possibilities in architectural treatment of exterior design. The building illustrated here is a typical example.

In Mahon Insulated Metal Walls, vertical joints are invisible—symmetry of pattern is uninterrupted across the wall surface . . . and, the field constructed walls can be erected up to sixty feet in height without a horizontal joint. These two design features, which are extremely important from an appearance standpoint, were engineered into Mahon Insulated Metal Curtain Walls to give you a finer appearing wall surface with a continuous pattern free from unsightly joints.

You'll want to investigate these Mahon "better look" features before you select a metal curtain wall for any building.

See Sweet's Files for information, or write for Catalogue W-57.

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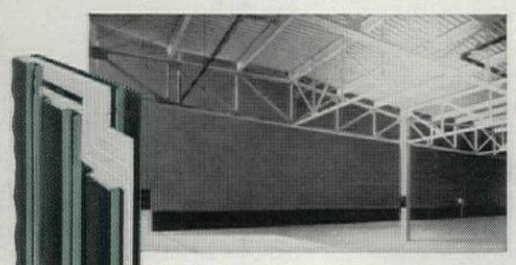

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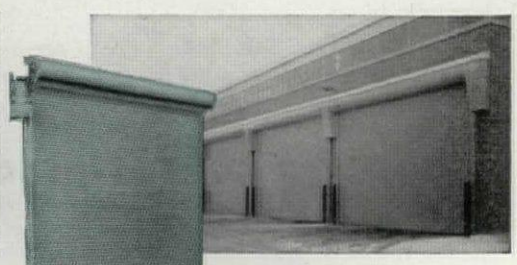
Mahon Metalclad Fire Walls carry two Hour Rating by Underwriters' Laboratories, Inc., for Use as Either an Interior Dividing Fire Wall or an Exterior Curtain-Type Fire Wall.



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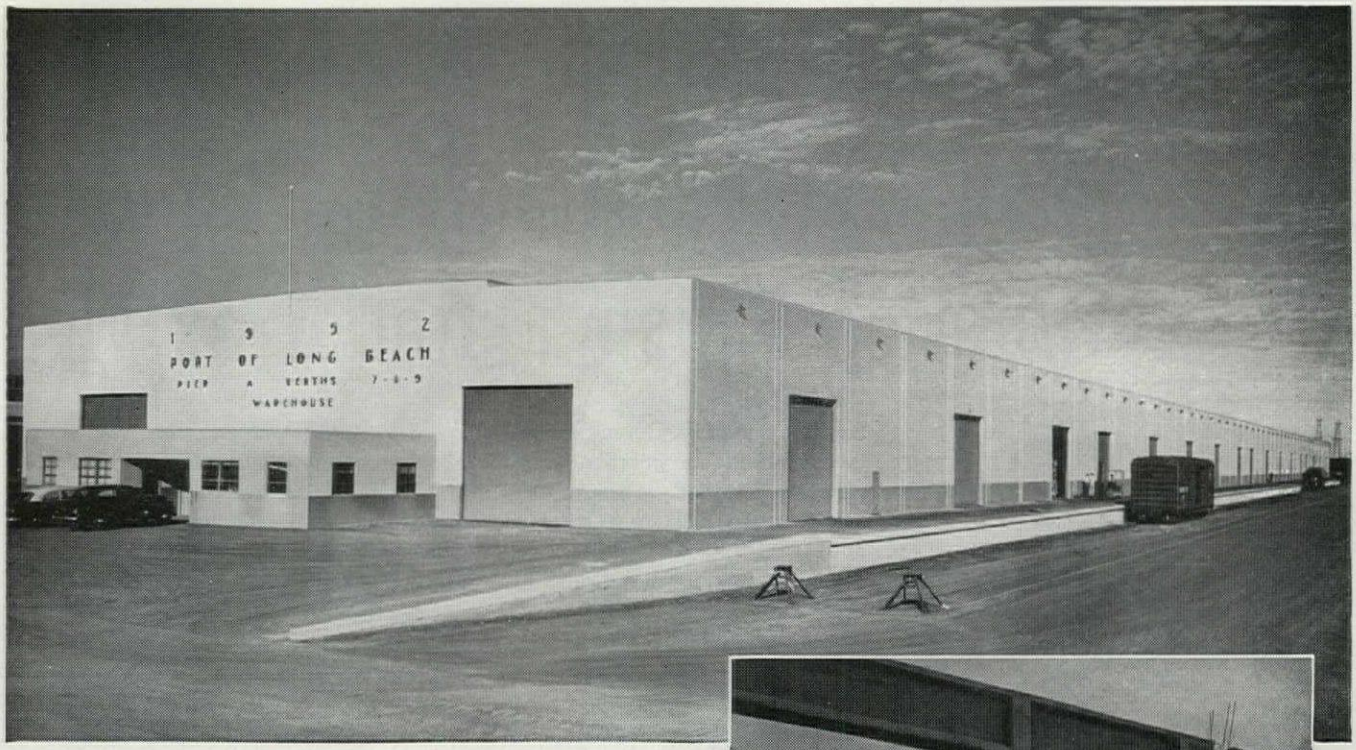


Precast and Prestressed Concrete Reduce Construction Costs

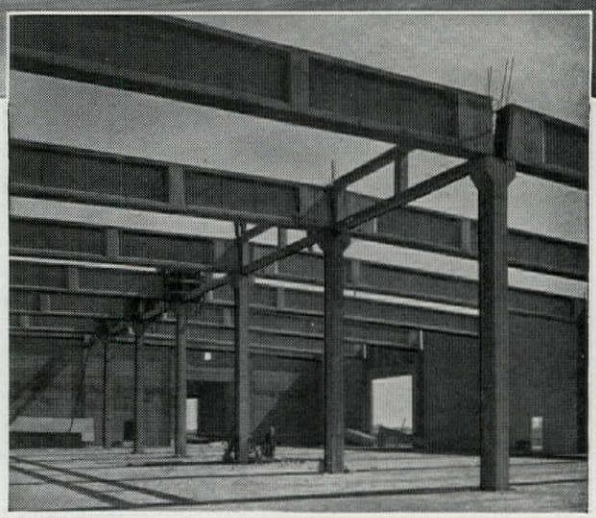
The above photo shows the "Cotton Warehouse" owned by the Port of Long Beach, Calif. It is 150 ft. wide and 1200 ft. long and has precast concrete walls, frame and roof and precast, prestressed concrete roof girders that span 75 ft. from the outside walls to a single row of interior columns down the center of the building.

This structure is an example of the savings that result from the use of precast and prestressed concrete construction. A substantial reduction in construction time resulted from (1) starting the precasting operations at the same time that the foundation work was begun, (2) re-using the formwork frequently and (3) casting the structural units horizontally at a convenient height for the workmen. This plan allowed the workers to repeat the same operations many times. Better craftsmanship and higher quality concrete were the result.

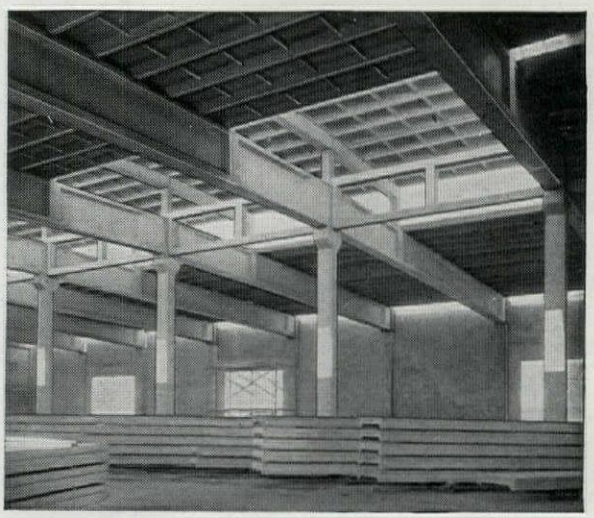
Structures using precast and prestressed concrete units have all the advantages of conventional concrete construction. They can be designed and built to conform with all applicable building codes—anywhere. And they meet all structural requirements of great strength and durability, resistance to severe weathering, long life and ***low-annual-cost*** service. In addition, they can be built to withstand violent lateral forces caused by earthquakes, hurricanes or atomic blasts.

For additional information about precast or prestressed concrete construction write for free illustrated literature. It is distributed only in the United States and Canada.

PORTLAND CEMENT ASSOCIATION
Dept. A8-25, 33 W. Grand Ave., Chicago 10, Ill.
A national organization to improve and extend the uses of portland cement and concrete . . . through scientific research and engineering field work



Top photo: general view of warehouse at Long Beach, Calif. Exterior longitudinal walls are precast concrete panels 30-ft. high, 23-ft. wide and 6 in. to 8 in. thick. Photo above shows 56 in. deep, I-shaped girders supported on cast-in-place wall columns and precast interior columns. Span of the precast girders is 75 ft.



Roof constructed of precast concrete channel slabs resting on prestressed girders and precast monitor frames. Warehouse designed by the office of the late J. H. Davies, consulting structural engineer. Structural engineer was James R. Bole of Long Beach, Calif. Contractor was Johnson-Western Constructors of San Pedro, Calif.

CASE REPORT NO. 1* **JOANNA VINYL WALL FABRIC**

Texas National Bank Building,
Houston, Texas;
Kenneth Franzheim, Houston, Architect;
Manhattan Construction Company,
Houston, General Contractor;
B. B. Bettell and Son, Inc.,
Houston, Painting Contractor.

Joanna Vinyl Wall Fabric

in the Texas National Bank Building Houston, Texas

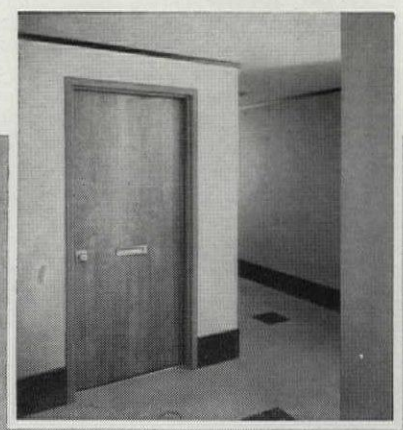
"We have paid out the original cost of our Joanna installation in paint savings alone." *Fletcher B. Emerson, General Manager and Executive Vice-President, Texas National Bank Building Corporation*

"Without question, Joanna Wall Fabric will take 300% more cleaning abuse than ordinary wall treatments." *A. T. King, Assistant Building Manager, Texas National Bank Building*

"We recommend a Joanna installation wherever possible." *H. B. Bettell, President, B. B. Bettell & Son, Inc. Painting Contractors for the Texas National Bank Building.*

These are just a few of the things they're saying about the beauty, economy and durability of Joanna Vinyl Wall Fabric in our Case Report No. 1.
For a copy of the full report, with all the facts and figures, fill in the coupon below.

Photos show
Joanna Vinyl Wall Fabric
in corridors in the
Texas National Bank Building.



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Wall Covering Division
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* COMPILED BY AN INDEPENDENT RESEARCH ORGANIZATION.

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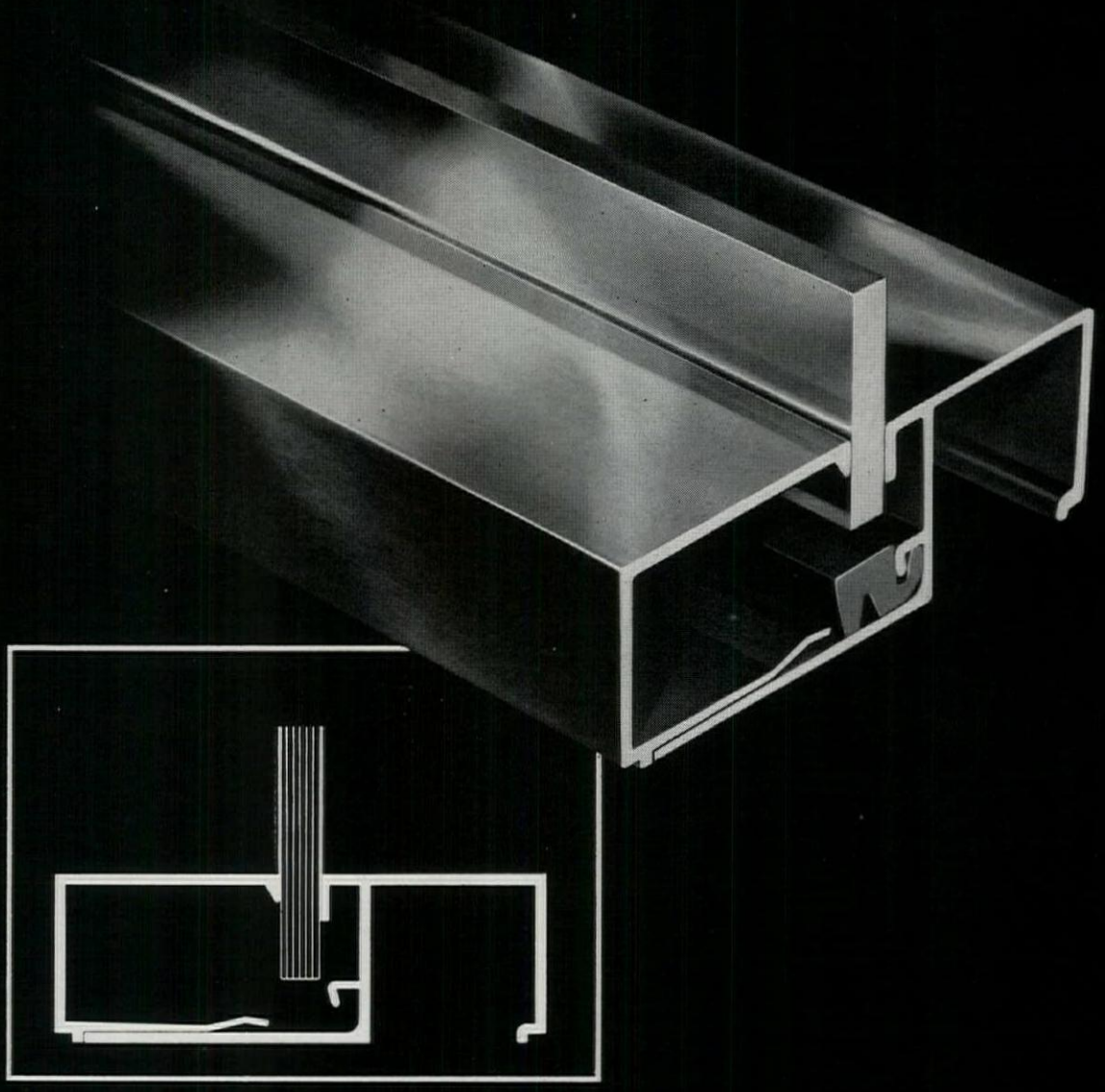

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All-neoprene batten door designed for use with power trucks

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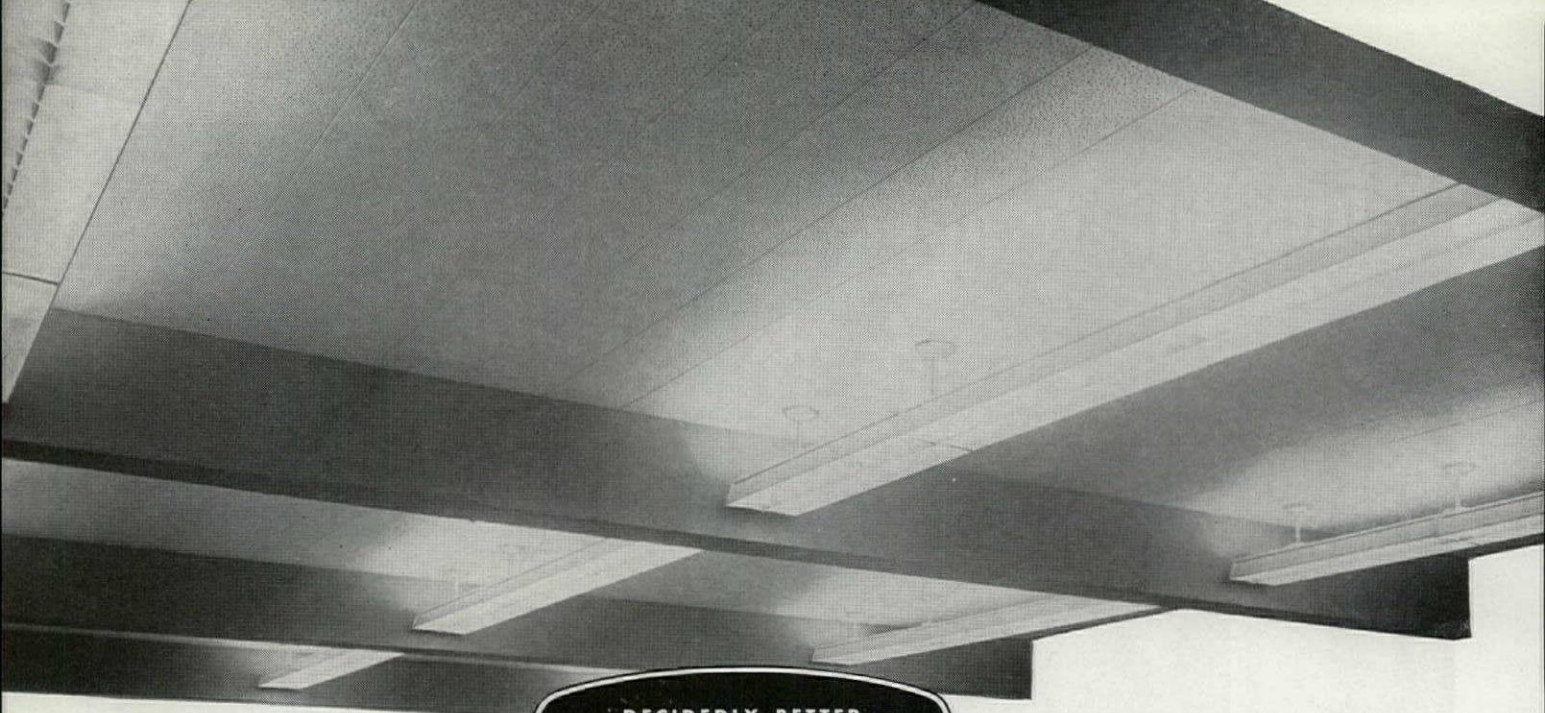

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There's no "OR EQUAL" to Day-Brite

Sound extravagant? Not when you compare these fixtures with others on the market. Compare design. See how Day-Brite fixtures flatter smart, modern interiors. Contrast lighting performance. Then, move in close. Count the Day-Brite features that reduce owner maintenance. Hand-test the strength of these fixtures. Compare beauty. Look at the difference in machine work. See how carefully tooled Day-Brite parts fit snugly together. Note the *little touches* that say, "No effort was spared to make this the world's finest lighting instrument."

You won't find Day-Brite lighting fixtures in a poor job and you'll seldom see a good job without them. Isn't Day-Brite the fixture for your next job . . . for *all* your future jobs.

DAY-BRITE LIGHTING, INC.

5405 Bulwer Ave., St. Louis 7, Mo.
Day-Brite Lighting Inc., of California,
530 Martin Ave., Santa Clara, Calif.
In Canada: Amalgamated Electric Corp., Ltd., Toronto 6, Ontario

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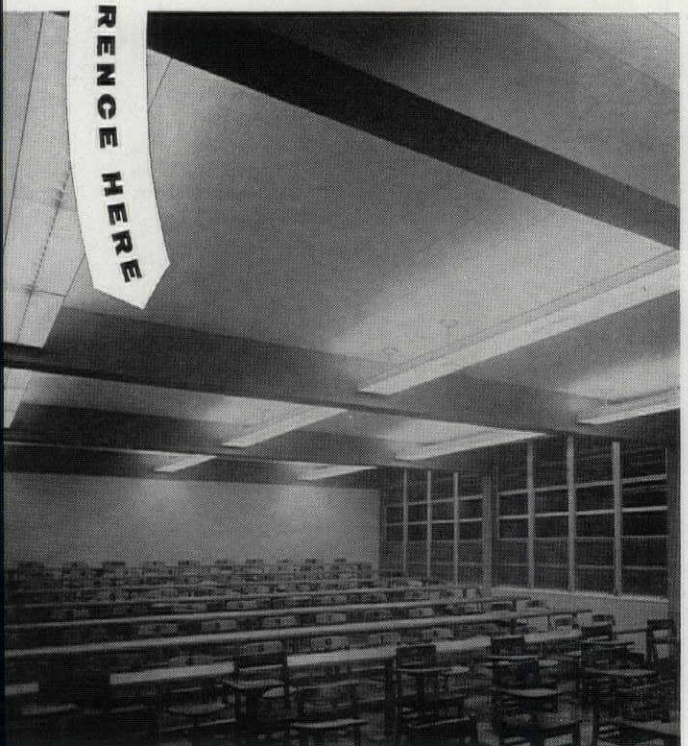
FOR FURTHER INFORMATION
SEE OUR CATALOG IN SWEET'S
OR WRITE FOR COPY

NATION'S LARGEST MANUFACTURER OF COMMERCIAL AND INDUSTRIAL LIGHTING EQUIPMENT

DAY-BRITE LIGHTING MAKES THE BIG DIFFERENCE HERE

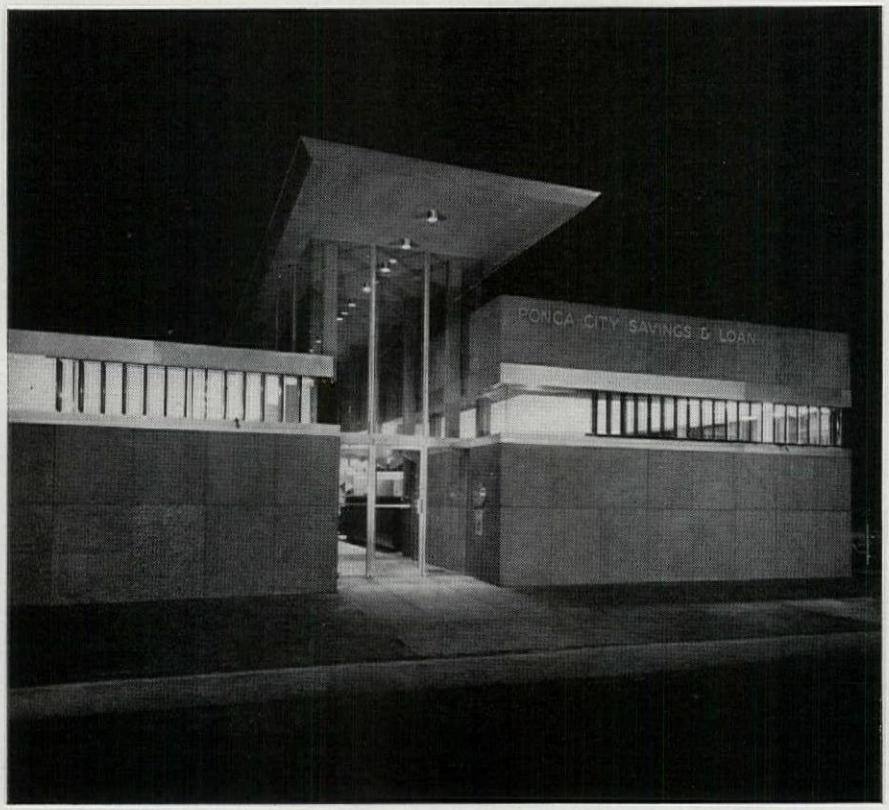
University of Miami Law Building lighted with glare-free Day-Brite fixtures. Architect: Robert M. Little; Engineers: Norman J. Dignum & Assoc.; Electrical Contractor: B & W Electric Co., Miami.



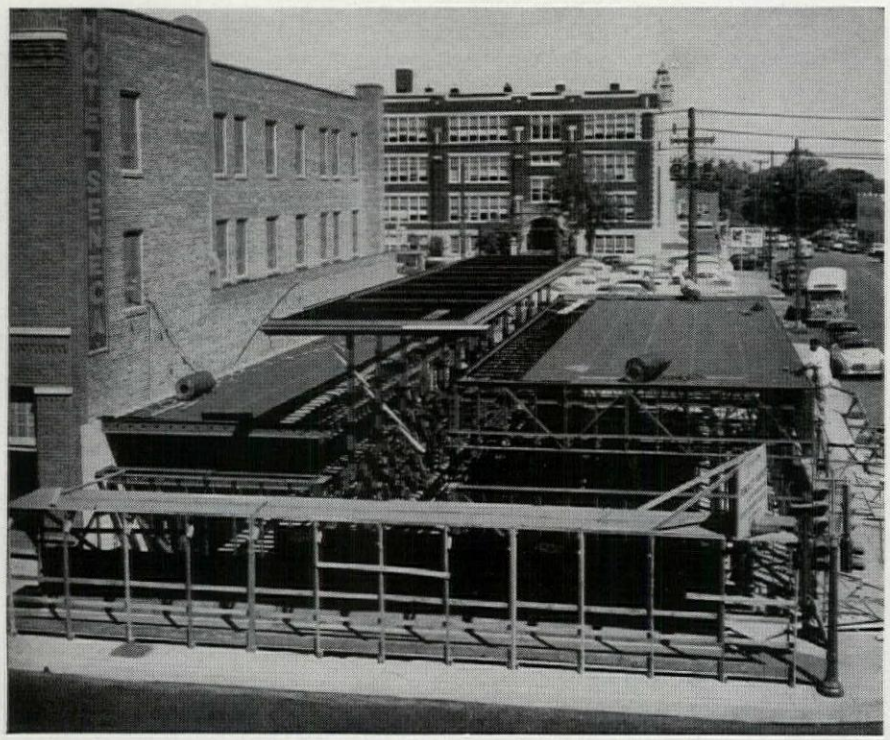
ture room, lighted with Day-Brite Luvex® fixtures, encourages concentration.

Day-Brite recessed Mobilex® fixtures flood this library with soft, full illumination.

Truly modern bank utilizes LIGHTSTEEL design flexibility



ARCHITECT: Robert E. Buchner, A.I.A., Tulsa, Oklahoma
GENERAL CONTRACTOR: H. R. Lohman Company
LIGHTSTEEL SUPPLIER: Patterson Steel Company, Tulsa, Oklahoma



The new Tulsa office of the Ponca City Savings and Loan Association is modern in every detail—from Virginia greenstone surfacing to functional interior, which employs natural filtered sunlight. Its success relies heavily on the architectural freedom afforded by LIGHTSTEEL structural sections.

Because it is a complete framing system with fully integrated components—joists, studs, track and bridging—LIGHTSTEEL imposed none of the limitations of prefabrication. Thus, any number of structural variations were possible.

The variety of collateral materials attendant to the design were easily, speedily attached, thanks to the LIGHTSTEEL nailing groove. Electrical and plumbing work was facilitated, for pipes and wires were run through the carefully engineered openings in the studs. And, of course, LIGHTSTEEL proved more economical than other investigated methods of construction.

Whenever economy must go hand in hand with advanced architectural design, LIGHTSTEEL provides the perfect answer. All the more so since it is available without delay.

Send for technical manual and catalog.

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40 Central Street, Boston 9, Mass.
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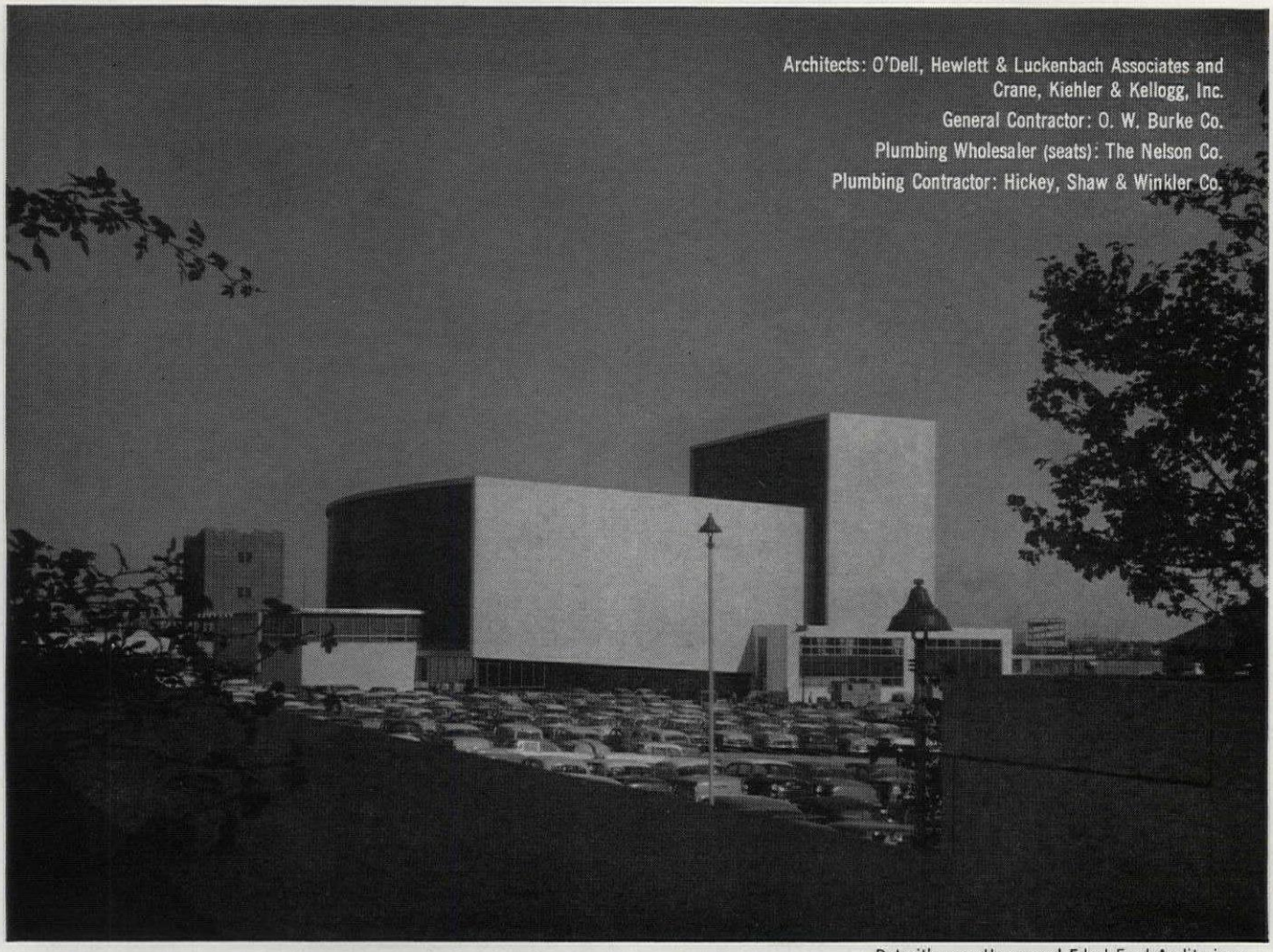
a name to remember



Detroit's new Henry and Edsel Ford Auditorium

Dream job for architects

"Only the finest" said the budget-makers for the Henry and Edsel Ford Auditorium recently completed in Detroit. Architects, engineers and specification writers literally went *to the ends of the earth* for the most resplendent materials money could buy . . . Blue Pearl Granite from beneath the faraway lands of Norway . . . Pal Deo wood paneling from the South American jungles.

But seat selection? "Only the finest" in industrial seats turned out to be Olsonite white No. 10CC.

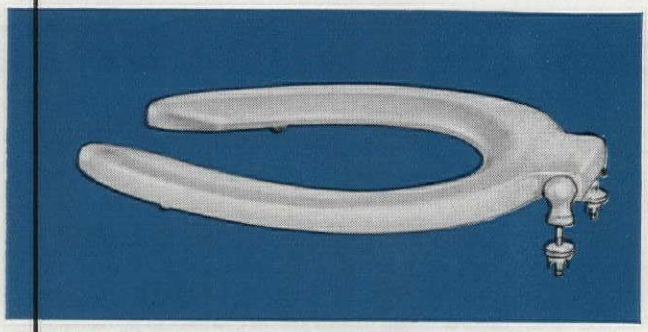
For a complete catalog of Olsonite seats, drop a note on your letterhead to:

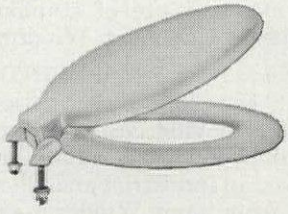
SOLID Olsonite SEATS

SWEDISH CRUCIBLE STEEL COMPANY

Plastics Division, 8801 Conant Ave., Detroit 11, Michigan

ORIGINATORS OF THE SOLID PLASTIC SEAT





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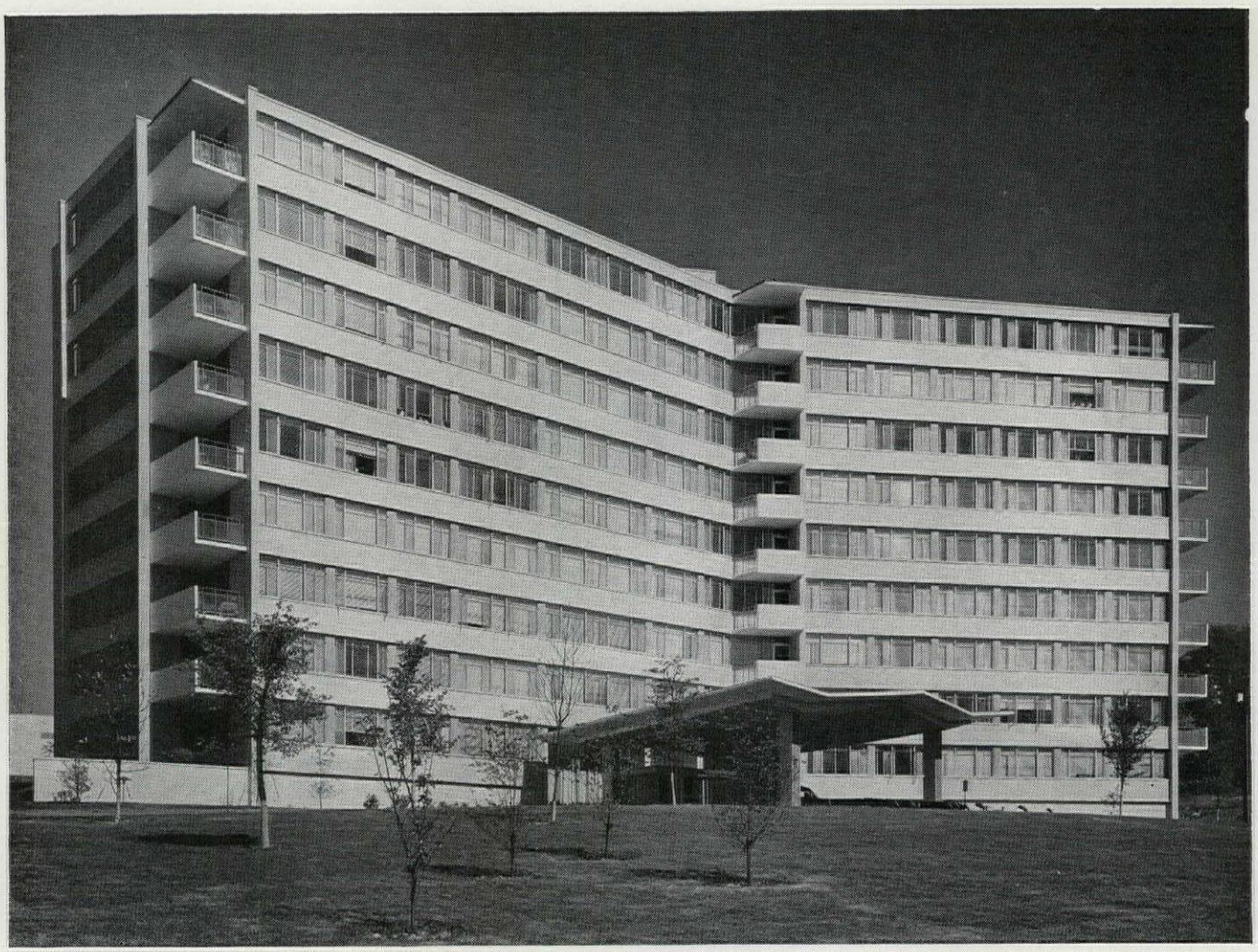
THE NEW NO. 40 SEAT

Soon to become America's most popular seat for private bathrooms, the No. 40 combines solid Olsonite construction with an exciting new design. Available in more than 35 plain or pearlescent colors. For elongated bowls, specify No. 44. 57-A1



Rittenhouse Apartments, Washington, D.C. Architects: Berla & Abel. Contractors: Morris Pollin & Sons. Photograph by Robert C. Lautman.

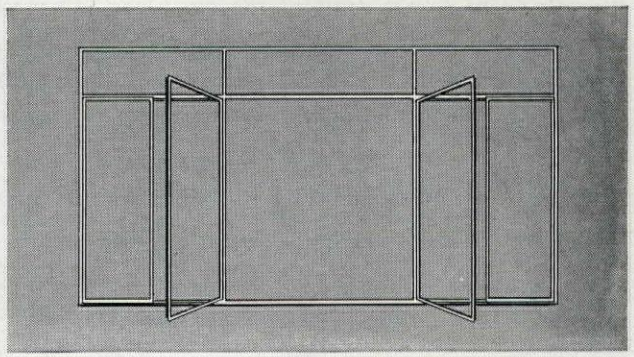
Award-winning apartment building designed with LUPTON aluminum windows

Here is another major apartment building that shows the widespread use by architects of LUPTON aluminum residential windows.

The Rittenhouse Apartments, Washington, D.C., recently received one of the Washington Board of Trade's Biennial Awards in acknowledgment of its part in the advance of modern architecture in the capital city. Selected by a jury of architects, this impressive project makes effective use of standard LUPTON Aluminum Residence Casement Windows.

The freedom of choice offered in standard LUPTON construction deserves your complete investigation. You will find many ways of achieving custom effects at low cost with economical LUPTON Windows and Aluminum Sliding Doors. And in industrial and office-building design, LUPTON Aluminum Windows and Curtain-Wall Systems offer you equal freedom and economy.

See the Michael Flynn catalogs in Sweet's (Sections 3 and 17); then speak to your nearby LUPTON representative or distributor (listed in the Yellow Pages under "Windows—Metal") about the many advantages of planning with versatile LUPTON components.



These standard LUPTON aluminum residence casements add a sleek modern finish to Rittenhouse Apartments besides providing maximum visibility and weathertight construction.

LUPTON

ALUMINUM WINDOWS · CURTAIN WALLS

MICHAEL FLYNN MANUFACTURING COMPANY

Main Office and Plant: 700 E. Godfrey Ave., Phila. 24, Pa.

Why specify light level... and take a chance on sound level?

The effect of a well-lighted room is often ruined by a noisy fluorescent ballast

It's easy to meet the sound level as well as the light level requirements for every room when you specify General Electric sound-rated ballasts for your fluorescent lighting installations. Every G-E ballast is sound-rated under G.E.'s exclusive system to meet the need of every application . . . from a quiet broadcast studio to noisy factories.

And, with General Electric's new copyrighted sound rating calculator, shown on the right, you can determine **beforehand** whether or not you will encounter a ballast noise problem. Here's how it works:

All you have to do is set the sound rating, number of ballasts to be used, the proper room constant and ambient sound level of the room on the calculator wheels and read the reaction. It's as easy as that to give yourself installations that are custom fitted to every sound requirement. When properly applied, this system will eliminate costly noise complaints.

Next time you specify a fluorescent lighting installation make certain you don't "ruin the quiet" . . . specify G-E sound-rated ballasts. For more information about how you can put "sound rating" to work for you, contact your local G-E Apparatus Sales Office and send for your copy of the G-E Ballast Sound Rating Calculator today!

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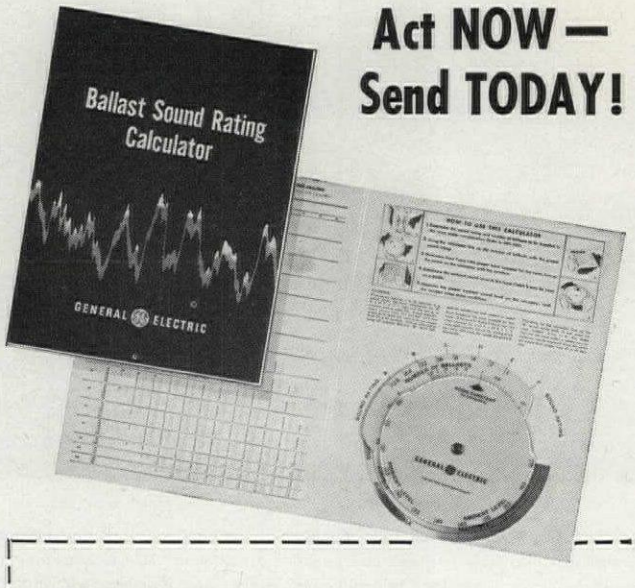

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Gentlemen:

Please send me..... copies of Ballast Sound Rating Calculator, GEN-147, at one dollar each. Enclosed is my check for .....

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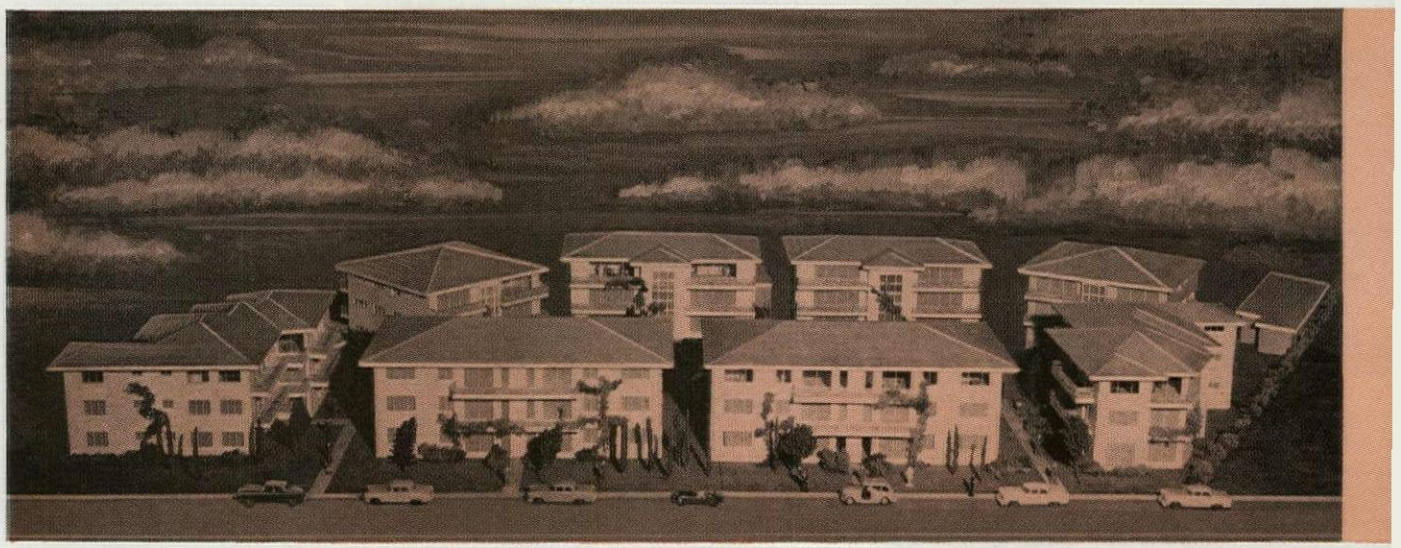
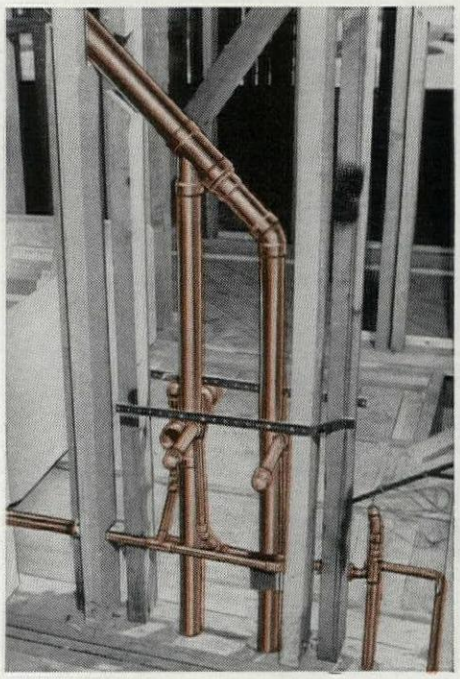
Streamline® QUALITY COPPER TUBE chosen for these magnificent apartments . . . the CAPRI AIRE and PHOENIX TOWERS . . . the ultimate in comfortable, carefree, modern living

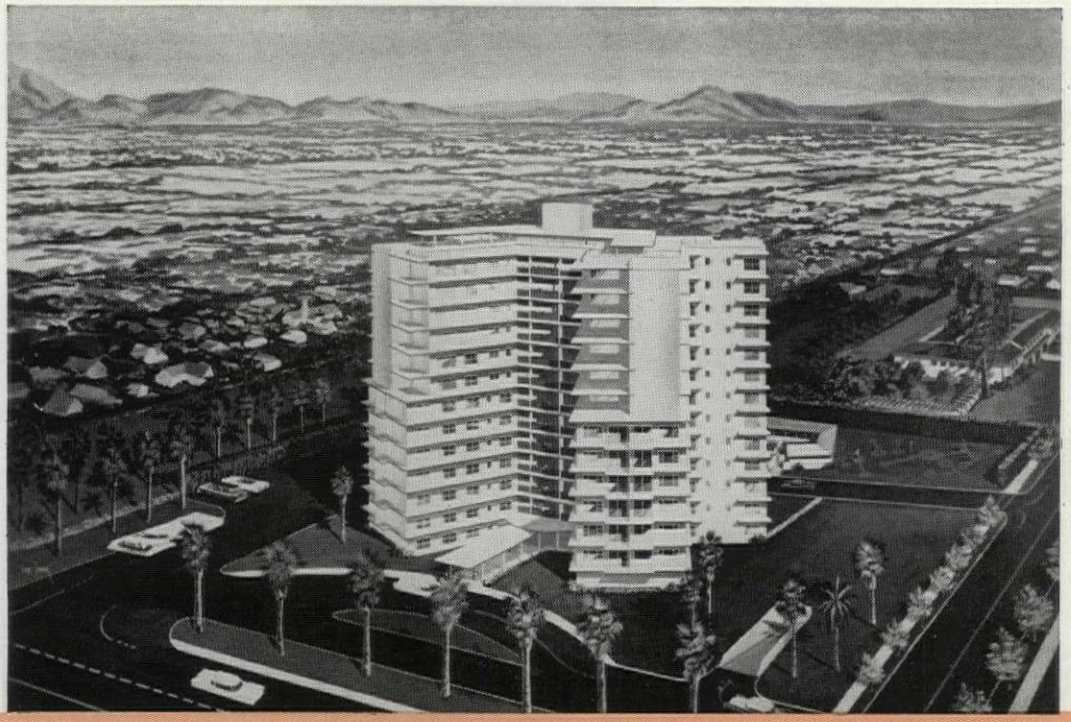
These two fabulous co-operative apartments . . . one at Phoenix, Arizona, the other in La Jolla, California . . . are setting the pace for a new kind of casual American living. Architects have designed both these luxurious buildings for an absolute maximum of comfort and operating efficiency. It was only natural that copper, the modern piping material, was used for plumbing systems in both projects . . . a decision certain to pay handsome dividends in trouble-free service for the life of the building. Rust-proof and practically clogproof, as well, copper's ease of installation is credited with keeping overall cost-of-installation below that of competitive material.



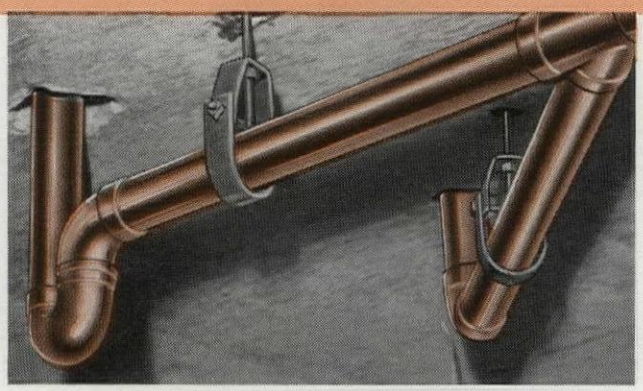
La Jolla Capri Aire, at La Jolla, California, combines outdoor and indoor living in a delightful grouping of lavishly-finished co-operative apartments in which quality materials and careful workmanship are combined to produce these attractive dwellings with distinctive California styling. Lionel V. Mayell, who has created a number of these beautiful co-operatives in other western cities is the developer of the Capri Aire project. The general contractor is the Del Anderson Construction Co., San Diego, and plumbing and heating installation is being handled by Ben Huntington and Sons, also of San Diego. These one-, two-, and three-bedroom apartment homes feature sound- and weather-conditioning, a swimming pool, ultra-modern radiant heat, and . . . of course, miles of Mueller Brass Co. Streamline copper tube.



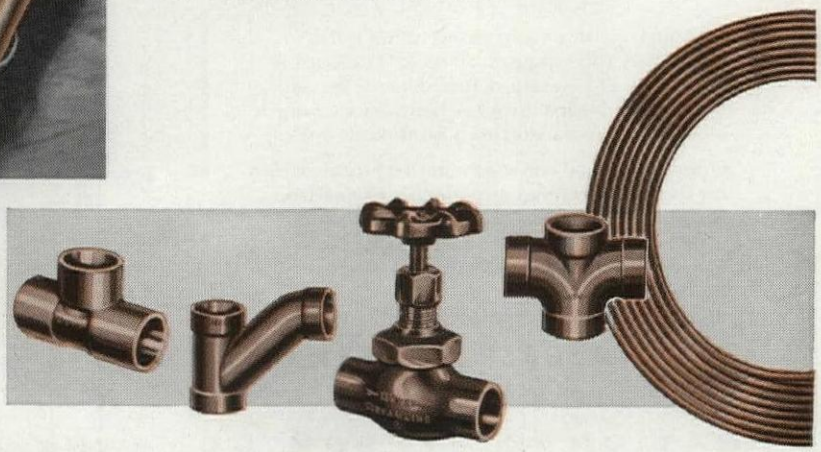
In the Capri Aire co-operative, space-saving copper tube in long standard lengths is easy to handle and quick to install.



The $3 million, 14-story Phoenix Towers (above) . . . a 60-apartment co-operative unit in Phoenix, Arizona, was designed by Ralph C. Harris. The Del C. Webb Construction Co. was the builder, and Ralph W. Applegate Realty & Investment Co. of Chicago is the agent for the building. John Armer, the plumbing and heating contractor, points with understandable pride to this carefully-installed system. Armer's general superintendent on the Phoenix Towers installation was Mr. Bud Lindquist. In reviewing the project, Lindquist was extremely enthusiastic about copper, both from a standpoint of overall economy of installation, ease of handling, and the saving of valuable space as well. Little wonder, then, that the use of copper for supply and drainage systems is constantly increasing!



Gleaming copper drain lines from lavatory and closet in the Phoenix Towers co-operative provide valuable evidence to buyers of these apartment-homes that the builders have lavished more than mere extraneous beauty on the construction of these "apartments of the future". Long-lasting Streamline quality copper, like the drainage lines shown here, will assure years of complaint-free service and reliability.



There is a complete range of Streamline tube and solder-type fittings for every installation need. Versatile, easy-to-install copper adds the finishing touch to the master plumber's finest work in *both* drainage and supply. Send today for kit No. 15 containing helpful information on copper for drainage, and Mueller Brass Co.'s catalog on Streamline copper tube and fittings, too. These two guides will help you plan better supply and drainage systems the modern way.

MUELLER BRASS CO. PORT HURON 9, MICHIGAN

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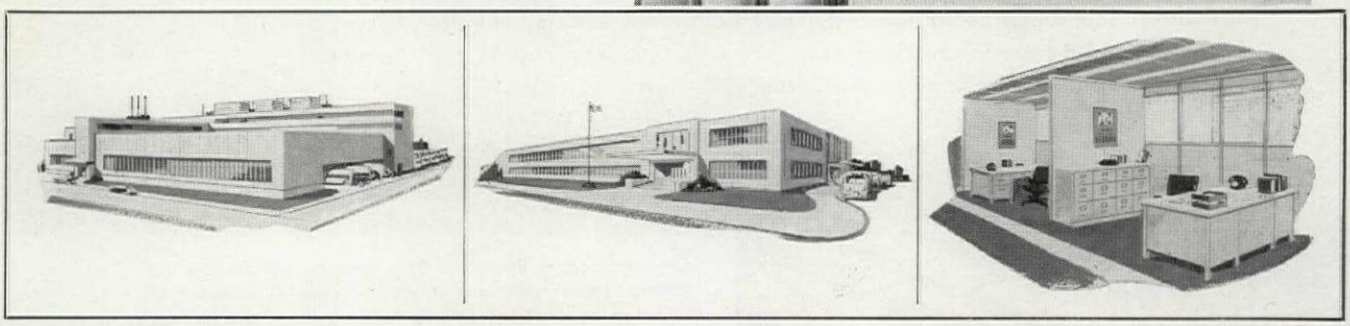
Asbestone Panels add insulation to curtain walls, and privacy to office space

With Gold Bond ASBESTONE PANELS, you can plan for the strength and permanency of stone in both exterior curtain walls and movable office partitions. These versatile, easy-to-handle panels help make planning simpler, help make construction more economical.

ASBESTONE PANELS are made of Asbestos-Cement sheets, laminated to both sides of a structural insulation core that's asphalt-inpregnated and chemically-treated to resist weather, moisture, mildew and rot. Fire-resistant ASBESTONE PANELS are four feet wide — available in 6′, 7′, 8′, 9′, 10′ and 12′ lengths...in four thicknesses. A size or thickness for every building recommendation.



CURTAIN WALLS of Gold Bond ASBESTONE PANELS save your clients' money in initial costs *and* in maintenance. They resist corrosive and acidic fumes, are fire and rot-resistant.

EXTRA STRENGTH AND INSULATION. Gold Bond ASBESTONE PANELS add extra strength and insulation when used with other curtain wall materials such as Gold Bond Corrugated "400."

MOVABLE OFFICE WALLS — to give client personnel the privacy they need *and* keep office layouts flexible. Far less expensive than permanent partitions—*and* they help reduce office noise.

The surface of a Gold Bond ASBESTONE PANEL has the strength of rock. The core is Gold Bond® Insulation Board, made by an exclusive Fiberlok process that locks strength in, keeps heat transfer to a minimum.

Our new manual contains complete information for architects' reference in planning panelized curtain walls for factories, schools, hospitals... inside or outside use. For your copy, write Dept. PA-87, National Gypsum Company, Buffalo 2, New York.

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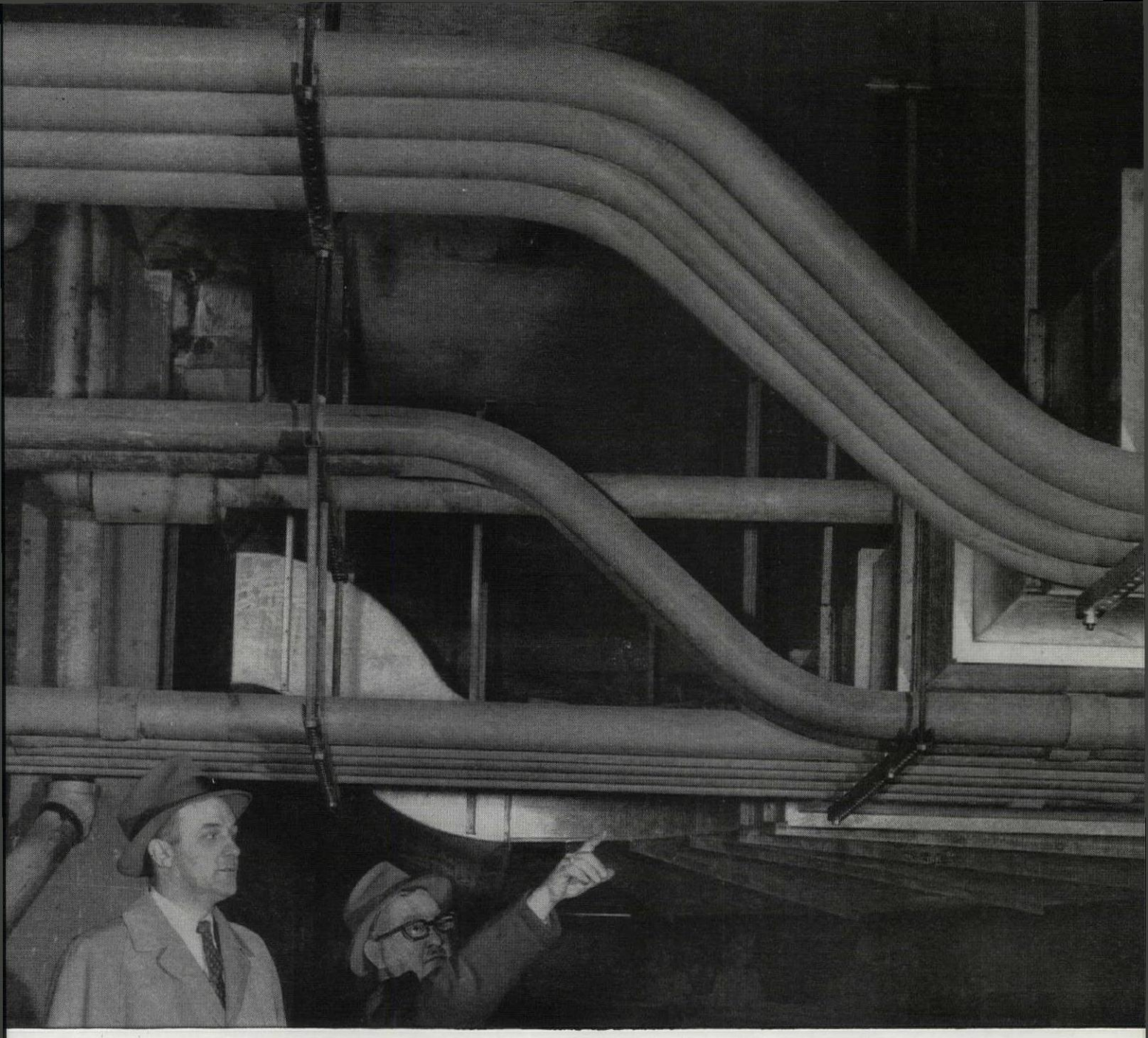
Gold Bond
BUILDING PRODUCTS



Get good bending with National Electric Sherarduct

Sherardizing gives Conduit Steel added ductility

In the Sherardizing process of dry galvanizing, corrosion resistant zinc is actually alloyed with the steel wall of the conduit.

This principal of galvanizing assures a 100% uniform protective zinc coating from end to end of every length of conduit. The gradual heating and cooling of the Sherardizing process has an annealing-like action on the conduit itself. The result . . . Sherarduct rigid steel conduit possesses added ductility that pays off in terms of good uniform bends, more easily made.

Couplings go on faster because the high ductile steel permits sharp clean threading. Threads are cut before galvanizing, eliminating any chance of rust forming on the threads.

Insist on NE Sherarduct rigid steel conduit. It helps cut construction costs and safeguards electrical wiring against corrosion for all time.

Listed by Underwriters' Laboratories, Inc.

Sherardizing is Galvanizing at Its Best—Sherarduct is Galvanized Conduit at Its Best

National Electric Products

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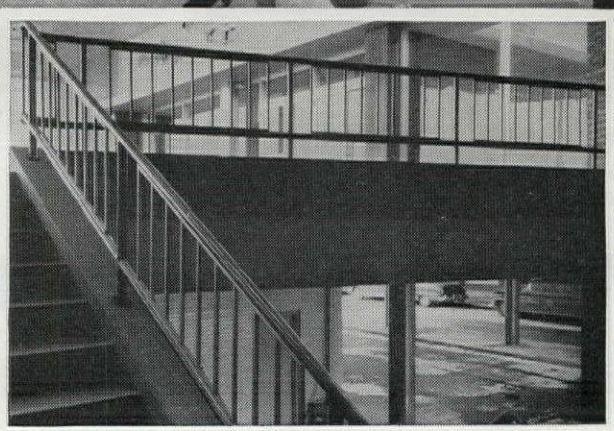
The Beauty of Stainless Steel

COMPLEMENTS AND HARMONIZES WITH MATERIALS AT CLEVELAND'S NEW

Functional and decorative use of stainless steel is shown in this section of the main waiting room of Cleveland Hopkins Airport Terminal Building. Stainless sheet was used for columns and lockers. Furniture bases were fabricated from stainless steel tubing. Architects, Outcalt Guenther & Associates, Cleveland, Ohio; General Contractor, R. S. Ursprung Company, Cleveland, Ohio.



Strength, toughness, corrosion-resistance and lasting beauty were reasons for selecting stainless steel for both indoor and outdoor stair railings.

REPUBLIC

REPUBLIC STEEL

World's Widest Range of Standard Steels

OTHER CONSTRUCTION AIR TERMINAL

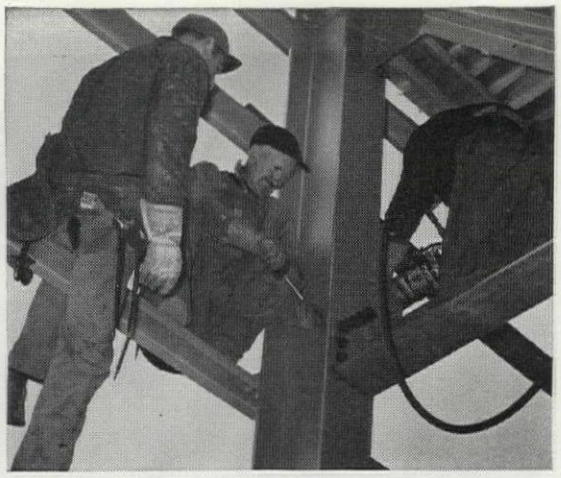
This magnificent $3,500,000 structure is another outstanding example of how stainless steel, with its lustrous beauty, can be used to both complement and harmonize with other materials of construction.

Cleveland Air Terminal architects have skillfully blended stainless steel with color-glazed brick, terrazzo, wood paneling, glass, and painted surfaces. Stainless not only adds to the over-all design, but also enhances the beauty of these other materials. And yet it does not compete for attention.

The architects also capitalized on stainless steel's strength and toughness to withstand the use and abuse of the millions of passengers and visitors who will pass through the terminal each year. Stainless steel was selected for furniture, baggage-delivery racks, baggage lockers, elevator doors and trim, ticket-counter shelves, stair railings, escalator, and for sheathing the supporting columns.

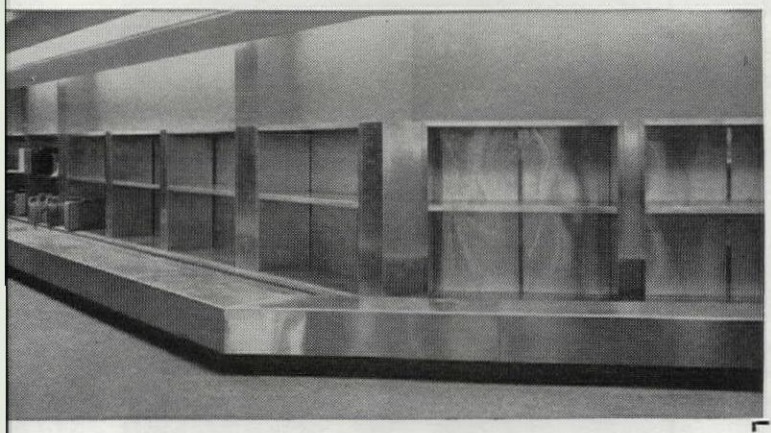
Reduced maintenance costs are an automatic benefit wherever stainless steel is used. It is easy to clean and keep clean. It offers stubborn resistance to rust and corrosion. Stainless will not discolor with age. It never needs painting. The beauty of stainless steel is enduring.

For more information and specifications on Republic ENDURO Stainless Steel for architectural applications, see Sweet's File or send coupon below.



AIR TERMINALS and other structures often go up faster and at less cost with Republic High Strength Bolts. Installation can be made without waiting for specialized riveting crews. Bolted construction provides a more positive and reliable clamping force than is ordinarily possible with rivets. The greater strength of a bolt gives it higher fatigue-resistance. Mail coupon for more facts on Republic High Strength Bolts.

CONSTRUCTION of Cleveland Air Terminal's West Concourse, shown above, was speeded by use of Truscon "O-T" Open Truss Steel Joists. These lightweight, strong, fire-resistant floor and roof supports lessen time and labor costs. They save material in supporting framework and foundations. See Sweet's File for specifications on "O-T" Steel Joists and other quality Truscon Building Products. Or send us the coupon.



AIR TERMINAL PASSENGERS coming into Cleveland pick up their baggage at this stainless steel delivery-counter. The wear-resistance of stainless makes this installation a particularly functional use of the metal. The design blends beautifully with surrounding components.

STEEL

and Steel Products

REPUBLIC STEEL CORPORATION
Dept. C-3298
3186 East 45th Street, Cleveland 27, Ohio

Send more information on:

☐ ENDURO® Stainless Steel ☐ High Strength Bolts
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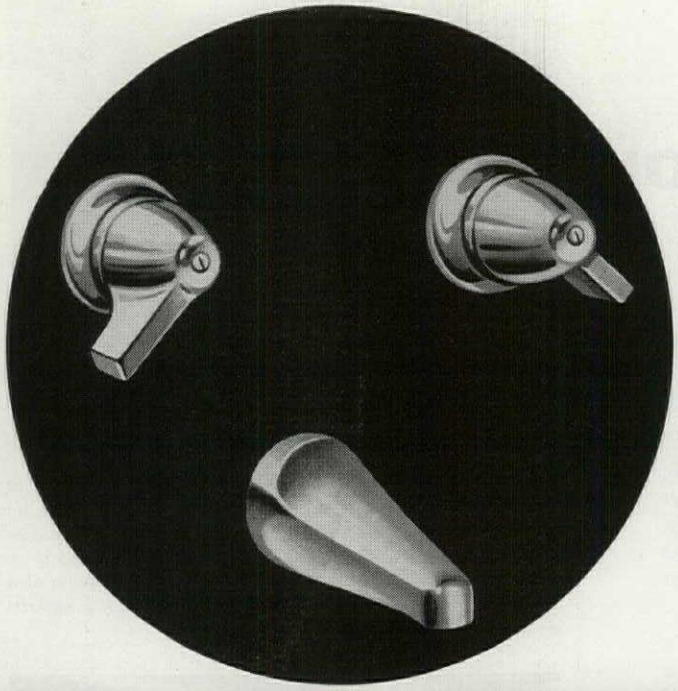


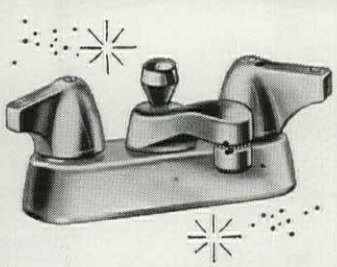
Eljer proudly presents

The Plumbing Industry's Newest and Most Modern Brass Fittings!

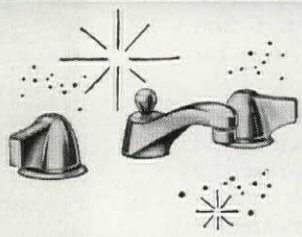
Once again Eljer makes the big news! This time with a completely new line of brass fittings . . . the most modern in the plumbing industry!

Sleek, Contemporary Styling! New Eljer fittings are compact, streamlined masterpieces of modern design! They add striking beauty to Eljer fixtures . . . are functionally styled, easy to clean.

Completely Renewable! All working parts are renewable, for easy maintenance.

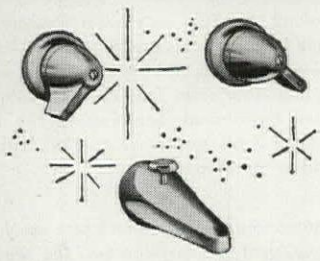


New Eljer center-set lavatory fitting.

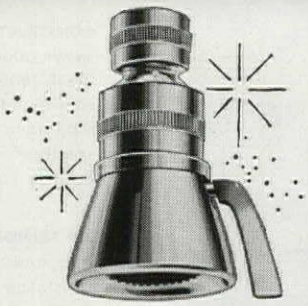


New Eljer combination lavatory fitting.

New Eljer deck-type sink fitting.



New Eljer combination shower and over-rim bath filler with diverter spout.



New Eljer Vari-Spray ball-joint shower head.

For the BIG news in the plumbing industry, keep your eye on Eljer. For information on the new Eljer brass line, see your wholesaler or write Eljer Division of The Murray Corporation of America, Three Gateway Center, Pittsburgh 22, Pa.

Traditional Eljer Quality! Made by Eljer in an up-to-date plant devoted solely to brass, this new line is manufactured, inspected and tested with the traditional Eljer emphasis on quality.

New Brass Line Backed by Eljer's Colorful National Advertising! Eljer's full-color national advertising is as exciting as Eljer's product developments. Eye-catching, modern, high style, it helps *you* sell!

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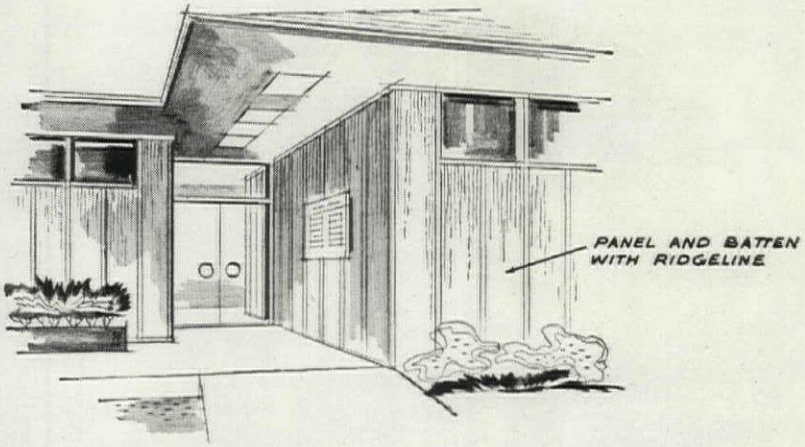
DIVISION OF THE MURRAY CORPORATION OF AMERICA

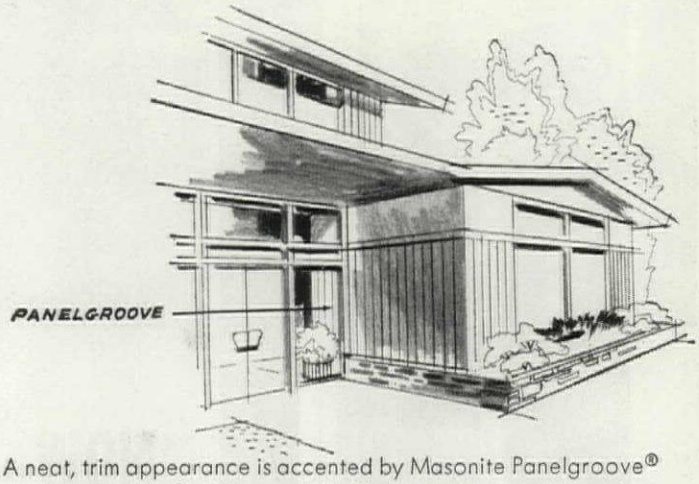
ELJER - the only name you need to know in plumbing fixtures

Notes from an architect's sketchbook



Popular on the West Coast, the panel-and-batten exterior has become enthusiastically accepted everywhere. Masonite Ridgeline®, with its combed textured surface, takes paint or stain with equal effectiveness.

There's a warm, "homey" look to Masonite® Shadowvent® Siding that your clients will appreciate. No defects —beautiful surface, wide exposure, and no nails are exposed!



A neat, trim appearance is accented by Masonite Panelgroove® or Ridgegroove®. Grooves 4", 8" on centers, or in random spacing. Finishes stay new-looking longer.

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EXTERIOR PRODUCTS

Clinics and medical centers need not have cold or austere elevations. With Masonite Exterior Panels, the medical center you plan will look cheerful and inviting, a credit to the neighborhood. And the "in-place" economies are worth knowing about. Send the coupon for more data or refer to Sweet's Architectural File.

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Firm.....

Address.....

City.....State.....

Zone.....County.....

Allison-Erwin Warehouse and Office built with deflected strand precast prestressed concrete members fabricated and erected by Concrete Materials Incorporated, Charlotte, North Carolina. The seven-wire uncoated stress-relieved prestressed concrete strands were manufactured by Roebling.

Floor bays 27′ x 27′, prestressed girders and double tees have poured-in-place cover which forms composite section. Live load 200 lbs. per sq. ft.

Roof bays 27′ x 54′, prestressed girders and double tees. Live load 30 lbs. per sq. ft.

Erection was speeded by use of precast reinforced concrete columns.

Architect-Engineer—J. N. Pease & Company, Charlotte, N. C.
Contractor—Goods Construction Company, Charlotte, N. C.

NOW—INCREASED LOAD CAPACITY with PRECAST PRESTRESSED CONCRETE MEMBERS using DEFLECTED STRAND TECHNIQUE

Many successful applications in structures of virtually every description have proved the tremendous benefits of precast prestressed concrete members using straight strands.

Now architects and fabricators are finding that the deflected strand technique *further increases* the maximum span and load-carrying capacity of precast prestressed members. In fact, the only limitations of this method are casting-bed capacity and transportation facilities.

An additional advantage can be gained in multiple span structures by the use of continuity. This is achieved by placing ordinary reinforcing bars across the construction joints and pouring a small amount of concrete in place around these bars.

For data on tensioning elements and general information on prestressed concrete, write Construction Materials Division, John A. Roebling's Sons Corporation, Trenton 2, New Jersey.

Consult Roebling . . . First in U. S. with prestressing and tensioning elements.

ROEBLING

Branch Offices in Principal Cities
Subsidiary of The Colorado Fuel and Iron Corporation

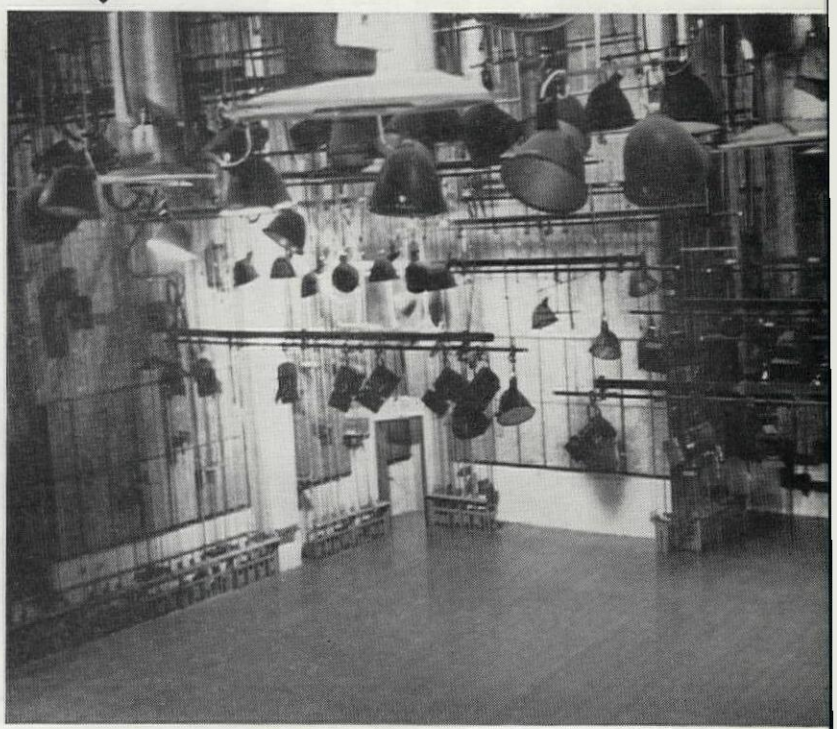
How ANEMOSTAT Air Diffusers help make movies

A carefully designed air conditioning system enables Production Center, Inc. to make movies at top speed during the hot summer months. In fact, production has been increased by three to four times, according to Center estimates.

Anemostat Air Diffusers help do this vital job. They draftlessly diffuse 20,000 cubic feet of cooled air per minute pushed by giant fans through the soundproofed ducts. The two main studios have 32 vertical ducts, ranging in diameter from 18 to 24 inches; of these, 24 are telescopic and can be raised or lowered to suit requirements. The conditioned air, efficiently distributed by Anemostat Air Diffusers, offsets the heat from the tremendous wattage of the lights needed for film-making.

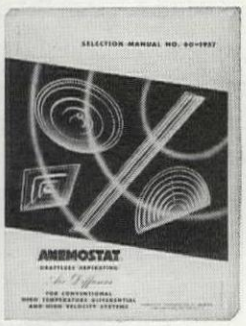
Movie-viewing, as well as movie-making, is aided by Anemostat Air Diffusers. They are installed in hundreds of theatres throughout the country. Anemostat Air Diffusers also provide *true* draftless comfort and uniform air distribution in schools, hospitals, banks and practically all types of commercial and industrial buildings.

One of three *completely air conditioned* sound stages at Production Center, Inc. in New York City.

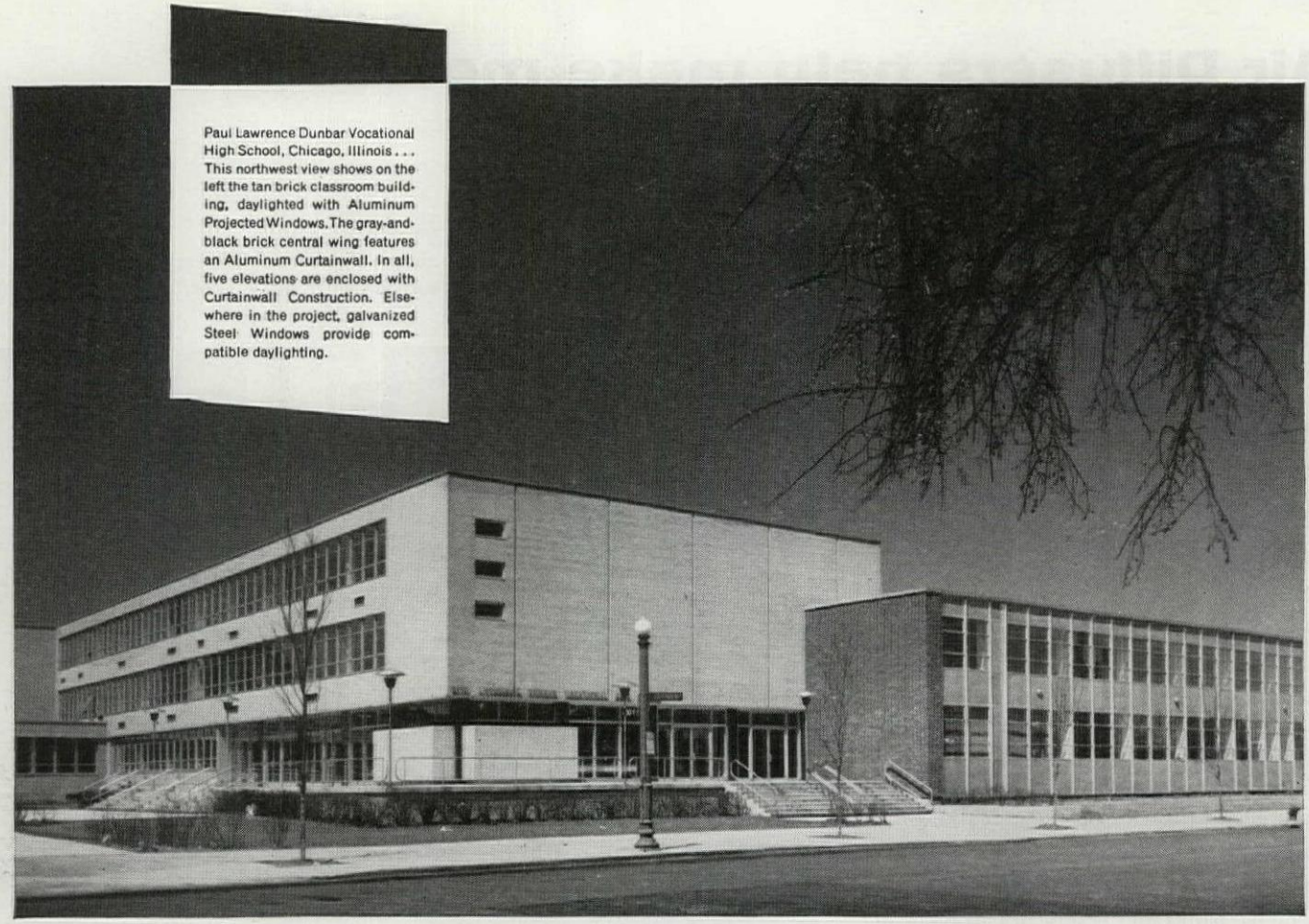


Note the Anemostat Air Diffusers installed on the telescopic ducts.

Joseph B. Klein, Architect
Robert Glenn, Inc., General Contractor
Wolff & Munier, Inc.,
Mechanical Contractors



For complete data, write for your copy of the new Anemostat Selection Manual No. 60 to Anemostat Corporation of America, 10 E. 39th Street, New York 16, N. Y.



Paul Lawrence Dunbar Vocational High School, Chicago, Illinois . . . This northwest view shows on the left the tan brick classroom building, daylighted with Aluminum Projected Windows. The gray-and-black brick central wing features an Aluminum Curtainwall. In all, five elevations are enclosed with Curtainwall Construction. Elsewhere in the project, galvanized Steel Windows provide compatible daylighting.

Architects, Holabird & Root & Burgee / Contractor, Joseph J. Duffy Company

FROM BEETHOVEN TO BASKETBALL . . . FROM CHAUCER TO CARPENTRY . . .

Architectural harmony is achieved throughout four buildings of an award winning school with variety of Ceco Window and Curtainwall treatments

Sprawling Dunbar Vocational High stands as a testimonial to the happy marriage of function and design. Challenge facing the architects was how to achieve exterior harmony throughout four separate buildings having dissimilar functions: classrooms . . . administrative offices . . . library . . . cafeteria . . . music rooms . . . gymnasiums . . . auditorium . . . industrial shops. Objective was accomplished in a major way through the tasteful blending of Ceco Aluminum Curtainwalls and Aluminum and Steel Windows. Dunbar was given an honor award by the Chicago chapter of the American Institute of Architects and the Chicago Association of Commerce & Industry.

The Ceco Curtainwalls, with specially anodized gunmetal-gray aluminum panels, ideally complement the gray-and-black pressed brick endwalls. Ceco Aluminum and Steel Windows of various types are designed harmoniously into dissimilar facades to provide required light and ventilation.

Every architect has the problem of relating design to function. Simplify your work—consult Ceco for the biggest selection—the world's widest line of quality Aluminum and Steel Curtainwalls and Windows: Ceco Steel Products Corporation—general offices, 5601 West 26th Street, Chicago 50, Illinois—offices, warehouses and fabricating plants in principal cities.

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IN CONSTRUCTION PRODUCTS CECO ENGINEERING MAKES THE BIG DIFFERENCE

Windows, Screens / Hollow-Metal Doors / Ceco-Meyer Steelforms / Concrete Reinforcing / Steel Joists / Metal Roof Deck / Metal Lath

Rose Random Tones shown. Wall base is Russet KenCove.®

It's the new look in tile floors! The textured look!
Exciting new Random Tones in KENTILE *Asphalt Tile!*

Especially created to go with either modern or traditional, the muted shadings of new Random Tones add texture interest and excitement to every floor! Another point of interest to your clients is that Random Tones (like all Kentile Asphalt Tile) have better light reflectance and a smoother, finer surface. This makes floors far easier to clean—and *keep* clean. Yet, in spite of this high styling and decorator colors, the Random Tones sell at Asphalt Tile prices. Ask your flooring contractor or Kentile Representative to show them to you. Or write in yourself for samples. Address is Kentile, Inc., 58 Second Avenue, Brooklyn 15, New York.

SPECIFICATIONS:

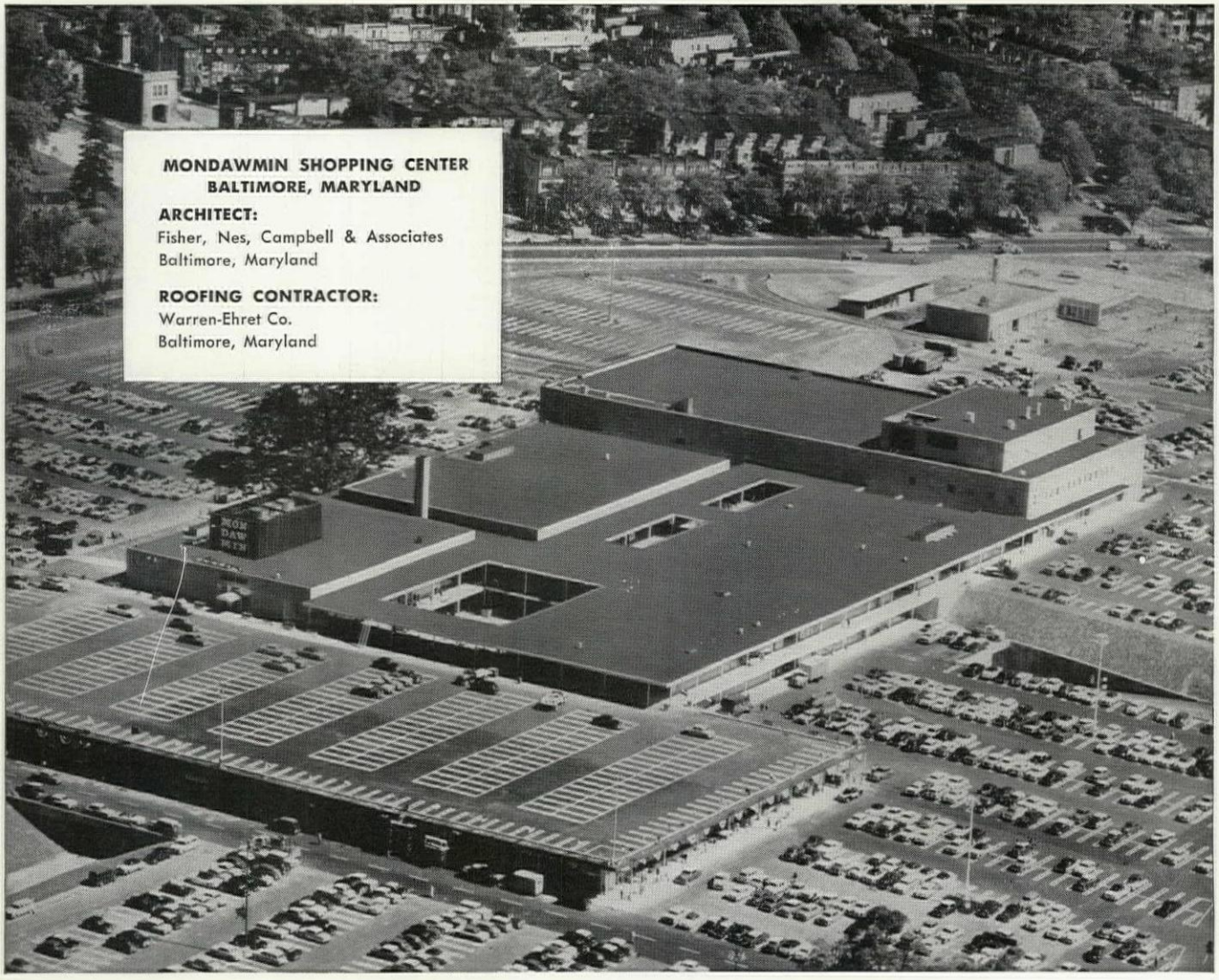
Sizes: 9″ x 9″ x 1/8″

Colors: Rose Tones Gray Tones, Green Tones.

Installation:
Random Tones are laid just as they come from the carton . . . keeping labor costs to a minimum.

KENTILE FLOORS

AVAILABLE IN: ASPHALT TILE · SOLID VINYL · VINYL ASBESTOS · CUSHION-BACK VINYL · RUBBER AND CORK TILE . . . OVER 150 DECORATOR COLORS!



On the new Mondawmin Shopping Center . . .

RUBEROID BUILT-UP ROOFING

Will assure years of trouble-free service

Whatever your roofing need, there's a Ruberoid specification to fit the job. On the new Mondawmin Shopping Center in Baltimore, for example, two different roofing specifications were used. Tested and proven on many buildings over the years, Ruberoid specifications are engineered to fit the job requirements precisely.

1. The main roof area of 1,316 squares was built up of Ruberoid Special Bitumen and Air-Vent Asphalt Felt, Specification 203A. Special Bitumen's formula means superior roof performance under any weather conditions.
2. For the 902 squares of parking deck area, a Ruberoid specification of coal tar pitch and tarred felt was used under the concrete surfacing.

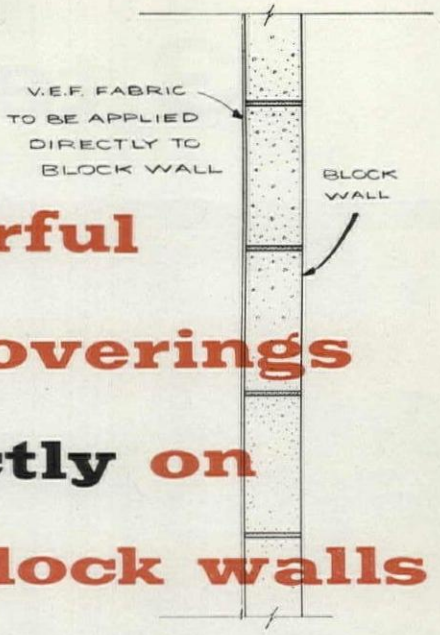
With all Ruberoid Built-Up Roofs, rigid manufacturing standards assure uniform quality on every square and more years of trouble-free service for your roofing dollar.

Consider the advantages of Ruberoid products for your next built-up roofing job. No matter what problem may be involved, there's a Ruberoid specification engineered to fit the job—ask your Ruberoid Approved Roofer.

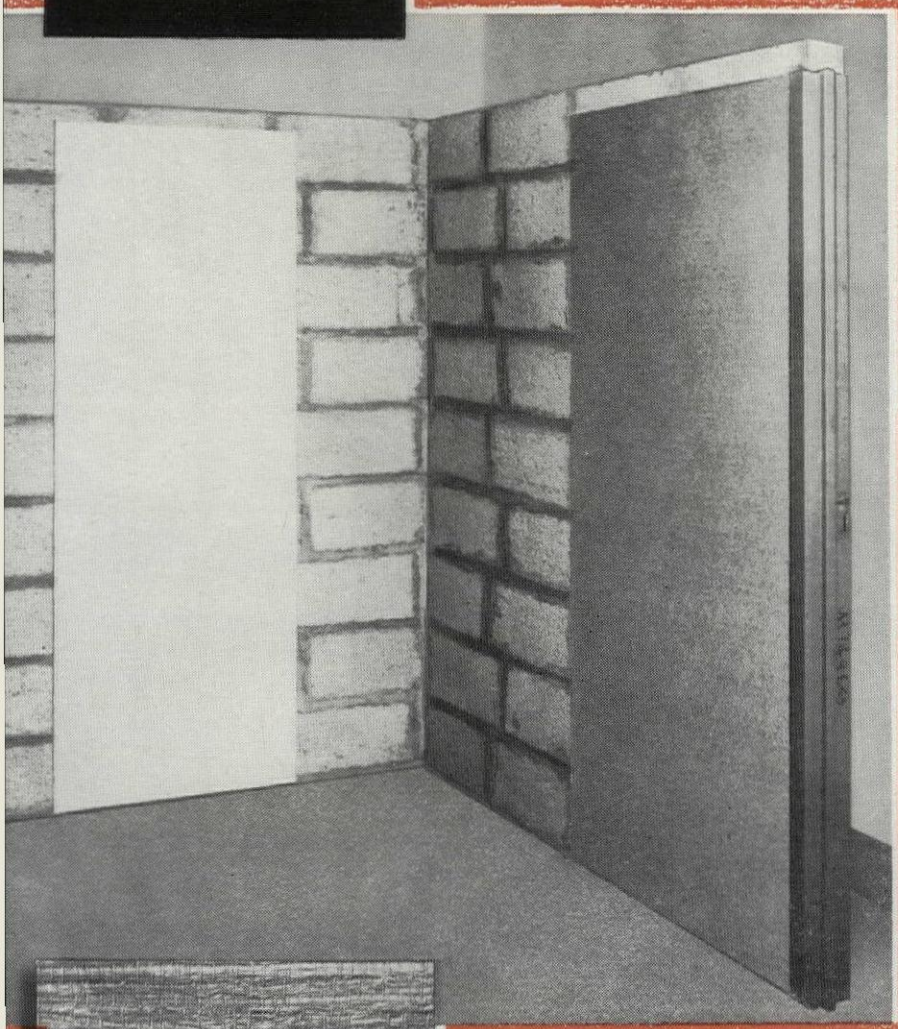
The RUBEROID Co. **Asphalt and Asbestos Building Materials**

500 Fifth Avenue, New York 36, N. Y.

another VICRTEX V.E.F. IDEA



Yes, those wonderful VICRTEX V.E.F.* wallcoverings can be hung directly on bare structural block walls



You save construction time and costs

You get beautiful, texturally interesting, colorfully "finished" walls that last practically forever

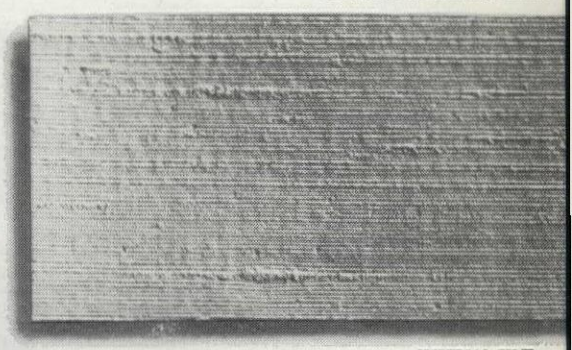
You are assured of low maintenance costs

You have wide decorative latitude

This amazing fabric-backed electronically fused vinyl wallcovering can be applied directly to any kind of structural block wall—cinder, cement, slag, etc. Tri-dimensional, strikingly effective in design, Vicrtex VEF is almost indestructible . . . won't fade, scuff, crack or peel . . . wipes clean with a damp cloth . . . provides an attractive, luxurious "finish".

More than 30 patterns . . . 30 colors and color combinations to choose from.

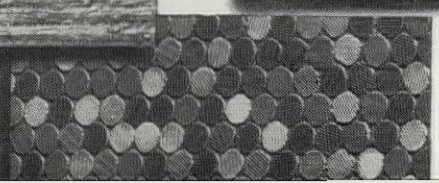
*vinyl electronically fused



IMPERIAL SILK

GRASS CLOTH

HAND LOOM

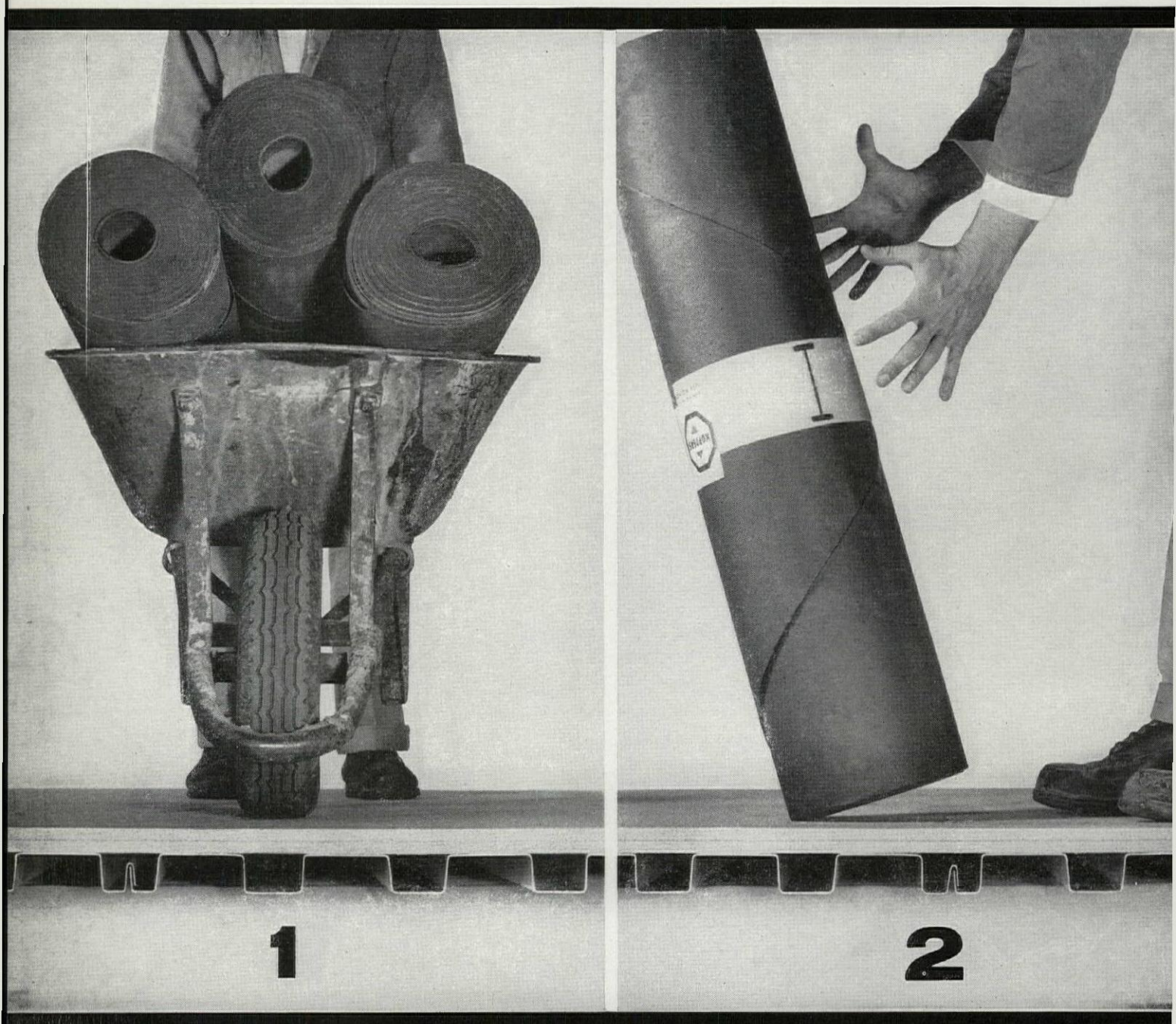


Write, wire, phone RIGHT NOW for samples, prices, suggested specifications for installation.

L.E. CARPENTER & COMPANY, INC.

Empire State Building, New York 1, N.Y.
LOngacre 4-0080
Mills: Wharton, New Jersey

3 tests of strength



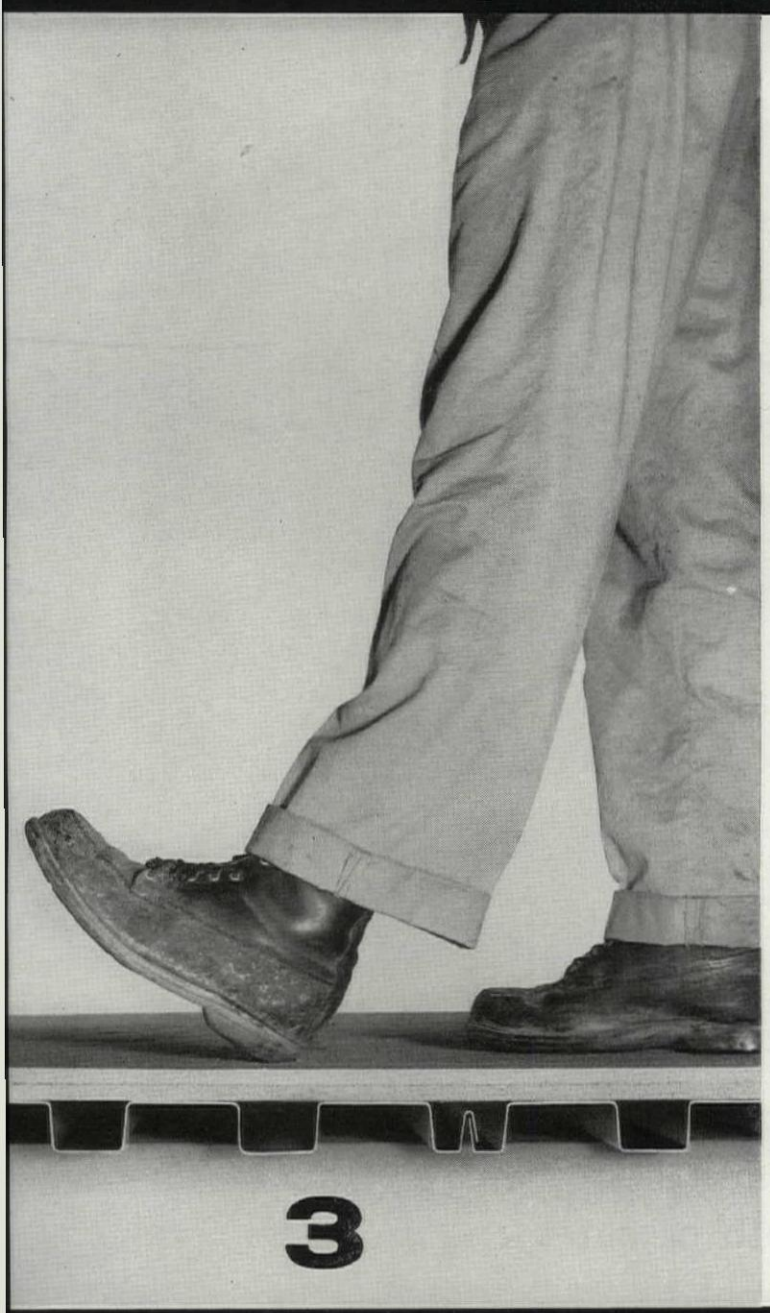
These tests can be made at any roof job: **1.** BARROW TEST. Run heavily loaded barrow on line between support surfaces. **2.** DROP TEST. From height of 12 inches, drop wrapped roll of roofing felt, letting edge strike insulation. **3.** HEEL TEST. Kick the insulation sharply, at any point between flat support surfaces. In these tests, Insulite Roof Insulation will not crack, crush or break through. 1-inch Insulite Roof Insulation was used in tests illustrated.

build better and save with

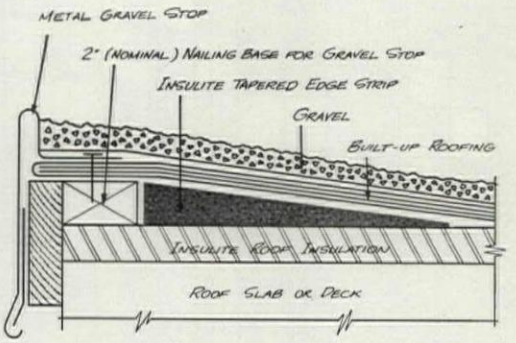
INSULITE®

INSULITE, *made of hardy Northern wood,* Insulite Division of Minnesota and Ontario Paper Company, Minneapolis 2, Minn.

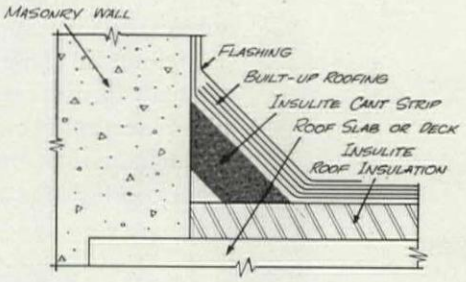
in roof insulation



For better roofs, specify these accessories



Announcing . . . Insulite Tapered Edge Strip! Here is a valuable new product—an important "finishing touch" to make roofs more perfect than ever before. Insulite Tapered Edge Strip is bevel-cut from Graylite Roof Insulation. Used at outer edges of flat roofs, it underlies felt layers, eliminates sharp angles where cracks often develop, carries felt smoothly over edge nailing member. May also be used at any point on flat roof area to channel drainage. Tapered Edge Strip measures 1⅝" at thick edge, tapering to ⅛". Width is 12". Strips are delivered in 4′ lengths.



Insulite Cant Strips have long been accepted as the ideal angle-breakers at points where roof surface meets any vertical surface. Made in two sizes, 3"x3" and 4"x4".

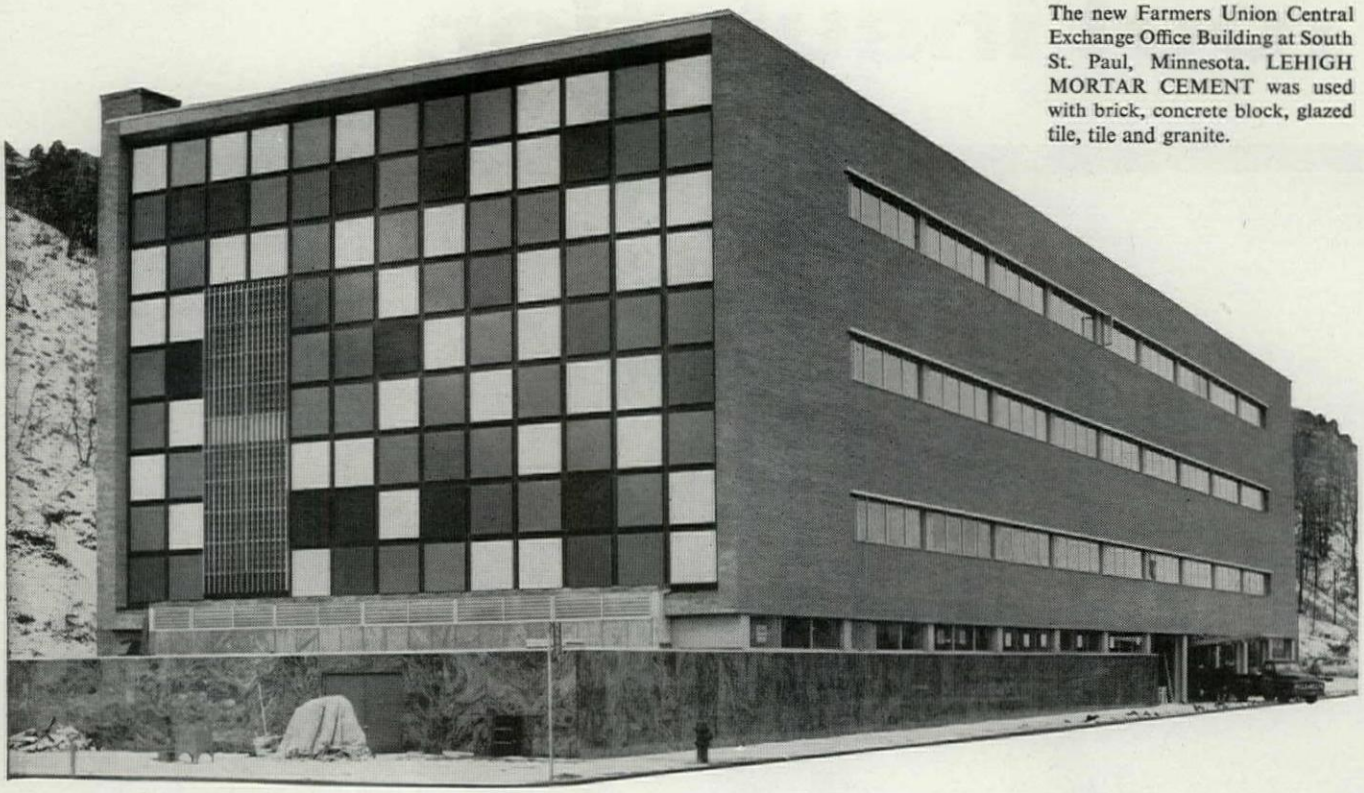
Here is practical proof of Insulite's superior strength . . . and the news about Insulite Tapered Edge Strip

For the architect who does not have time to study newest detailed technical data on built-up roofing, one simple fact may be most helpful: *today, more than ever before, a sound, trouble-free roof demands insulation with high transverse and compressive strengths.*

These strength properties are needed to resist cracking, crushing, flexing—especially with heavy rooftop equipment now in use.

To demonstrate, in the simplest possible way, the high strength of Insulite Roof Insulation, we suggest the three simple tests illustrated in the photos above. Obviously, any material that can withstand such punishment can be trusted to handle severe blows and heavy loads.

With Insulite on the deck . . . and Insulite's new Tapered Edge Strips and cant strips in place . . . a fine, long-lasting roof is well begun. Want information? Write us—Insulite, Minneapolis 2, Minnesota.



The new Farmers Union Central Exchange Office Building at South St. Paul, Minnesota. LEHIGH MORTAR CEMENT was used with brick, concrete block, glazed tile, tile and granite.

contractor reports ECONOMY, SPEED, QUALITY
WITH LEHIGH CEMENTS

"As you know," writes Mr. Frank Cahill of Graus Construction Company, "we are subject to long and very cold winters. Therefore, we chose to use Lehigh Early Strength Cement on this job. It proved to be an excellent choice as we were able to eliminate costly overtime in finishing, reduce curing time and put finished concrete into early use.

"For all masonry, we used Lehigh Mortar Cement. As masonry foreman Mike Christenson says, 'Lehigh Mortar Cement performs well in any weather and excells in workability and high bond strength.'"

Whatever your cement requirements, there are Lehigh Cements that will help produce quality work with speed and economy.

- LEHIGH EARLY STRENGTH CEMENT
- LEHIGH MORTAR CEMENT
- LEHIGH PORTLAND CEMENT
- LEHIGH AIR-ENTRAINING CEMENT

LEHIGH PORTLAND CEMENT CO. *Allentown, Pa.*

ARCHITECT:
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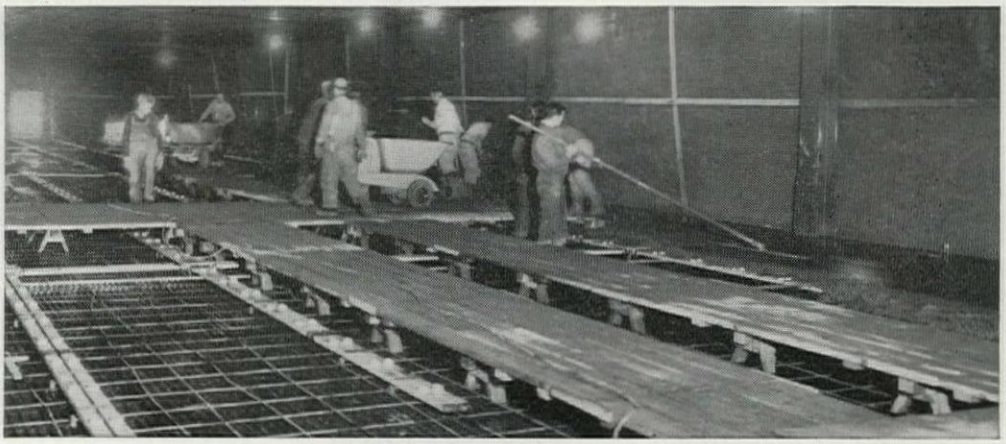
CONTRACTOR:
Graus Construction Co., Hastings, Minn.

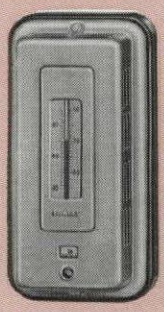
SUPPLIER OF MORTAR AND READY MIX CONCRETE:
Standard Building Material Co., South St. Paul, Minn.



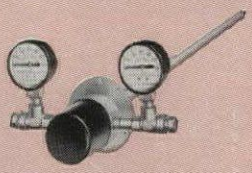
Placing concrete floor made with LEHIGH EARLY STRENGTH CEMENT. Quick-curing concrete permitted early use of this floor for storage of construction materials.

They concentrate best when temperature is right

SIMPLE • ECONOMICAL PNEUMATIC CONTROL



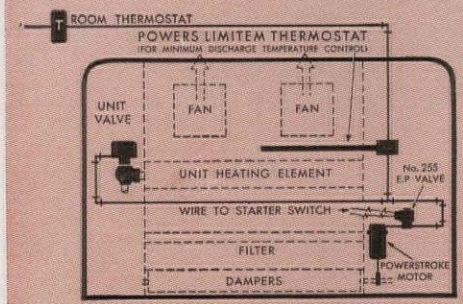
Powers PNEUMATIC thermostats maintain set temperatures constantly. They need no daily checking or re-adjusting.



LIMITEM Thermostat has a calibrated dial, adjustable sensitivity and unique supply and exhaust valve which eliminates waste of compressed air.

PACKLESS Control Valve

POWERSTROKE Motor



(c80)

POWERS Engineered QUALITY System of Unit Ventilator Control

provides utmost COMFORT at lowest cost for upkeep

Make sure Teachers and Pupils in your new school enjoy healthful comfort assured by Powers control. It meets the most important requirement for classroom comfort—accurate control of unit ventilator discharge temperature.

Powers LIMITEM Airstream Thermostat is the most accurate instrument made for low limit control of unit ventilators. Precise **direct control** holds temperature **constant** at the point desired without alternate drafts of hot or cold air. It needs no auxiliary devices.

Powers PACKLESS Control Valve gives better control due to reduced valve stem friction, eliminates steam or water leakage and banishes packing maintenance. Powers correct sizing of valves helps insure good control.

POWERSTROKE Damper Motor is compact, easy to install and maintain. Hesitation spring provides valve-damper sequence control . . . **If you are planning** a new school ask your architect or engineer to include a Powers engineered QUALITY system of control. You'll insure utmost comfort at lowest upkeep cost.

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65 years of Automatic Temperature and Humidity Control

Even in Hot Dry Climates...

Fenestra FENLITE Windows NEED NO PAINTING

Regardless of your climate or location, New Fenestra® FENLITE Intermediate Steel Windows are the answer to expensive window maintenance problems. They give you distinctive appearance, lifetime corrosion resistance without painting, *plus* the strength of steel. *And, they cost no more than ordinary steel windows with two-coat field painting.*

This new corrosion-resistant steel window is produced by an exclusive Fenestra process developed through years of research and testing. The FENLITE process alloy-bonds a lifetime zinc surface with the steel of the window. It includes a special chemical polishing conversion coating treatment that protects the surface against the natural early corrosion of free zinc. The window is also prepared for a tight glazing compound bond and for decorative painting, if desired. *Maintenance protective painting is not required.*

Precision electronic control is necessary for every step in the FENLITE process. *The windows must be completely submerged in one dip in each bath!* Fenestra's specially designed "million-dollar" plant is the only one in America with facilities to produce FENLITE.

If you have the responsibility of planning new schools or other fine buildings, Fenestra FENLITE Intermediate Windows give you other important benefits, too. Their slim, but strong, steel sections provide more daylight per window opening. Their sturdy hardware cannot loosen or "strip out". They are always easy to operate and you can clean and screen them from inside the rooms.

For more information on Fenestra FENLITE Intermediate Windows, call your local Fenestra representative—listed in the Yellow Pages—or mail the coupon below.

The Fenestra FENLITE Finish is also available on the complete line of Fenestra Industrial Steel Windows for manufacturing and commercial buildings.

Fenestra INCORPORATED | FENLITE INTERMEDIATE STEEL WINDOWS

Your Single Source of Supply for
DOORS · WINDOWS · BUILDING PANELS

Fenestra Incorporated
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Please send me more information on Fenestra FENLITE Intermediate Steel Windows.

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ADDRESS_____

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NOT A SINGLE

...on Fenestra's new

SEAM IN SIGHT

1⅜" Hollow Metal Door!

Fenestra® keeps the seams invisible on this new 1⅜" hollow metal door. No joints to mar the smooth flush beauty, either open or closed. No joints to loosen after daily use begins.

With no surface lines, cleaning is as quick as wiping a blackboard. Flush top and bottom keep dust from gathering. The edges are safely smooth.

Five other important extras enhance the door:

1. You get added strength and rigidity through Fenestra's exclusive multi-rib reinforcement.

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3. You buy a complete package: door, frame, hardware. All fitted at the factory.

4. Frames are Fenestra's famous Lock Miter joint frames. Easy to put together and install.

5. You buy these custom-quality doors at stock prices. Fast delivery when you need it is standard.

Add up the points on this new door and you'll see that a lot of time, money and old-fashioned common sense went into its development. Why not take ten minutes to get more information today. Call your local Fenestra representative or mail the coupon, below.

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HOLLOW METAL
DOOR-FRAME-
HARDWARE UNITS

YOUR SINGLE SOURCE OF SUPPLY FOR
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Please send me complete information on New Fenestra 1⅜" Hollow Metal Door-Frame-Hardware Units.

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FIRM_____

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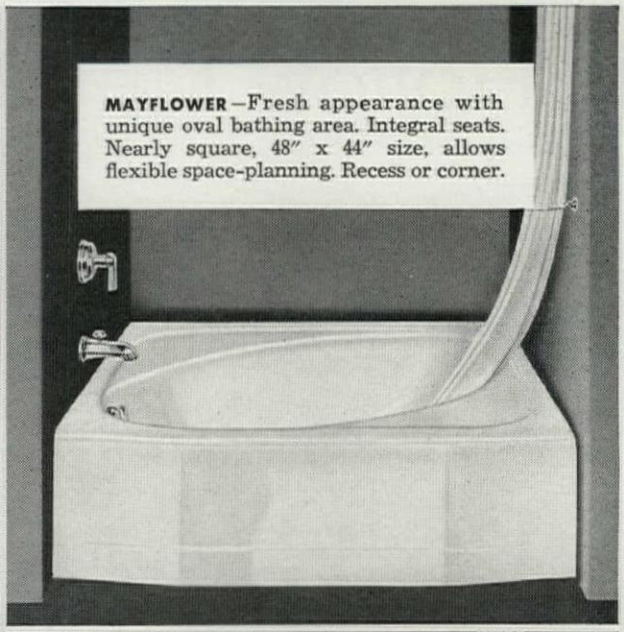
KOHLER BATHS

COSMOPOLITAN—Luxurious bath of traditional style. 6″ bench rim, wide flat bottom, slope end. 4½′, 5′, 5½′ lengths for recess; 4½′, 5′, for corners.



MAYFLOWER—Fresh appearance with unique oval bathing area. Integral seats. Nearly square, 48″ x 44″ size, allows flexible space-planning. Recess or corner.

MINOCQUA—Space-saving recess bath of full 5′ length—with 4″ bench rim, slope end, flat bottom. Trim, low design helps give spacious effect to small bathrooms.

STANDISH—Showering bath—roomy, deep—suitable for bathing. Space-saving for homes, motels, dormitories. Low front for convenient access, easy child bathing.

4 types *fill a wide range of requirements*

Kohler baths afford flexibility of arrangement, choice of style—for bathrooms of any size or shape. All are first quality, with sparkling, easy-to-clean enamel fused to a base of non-flexing iron, cast for strength and rigidity.

KOHLER CO. Established 1873 KOHLER, WIS.

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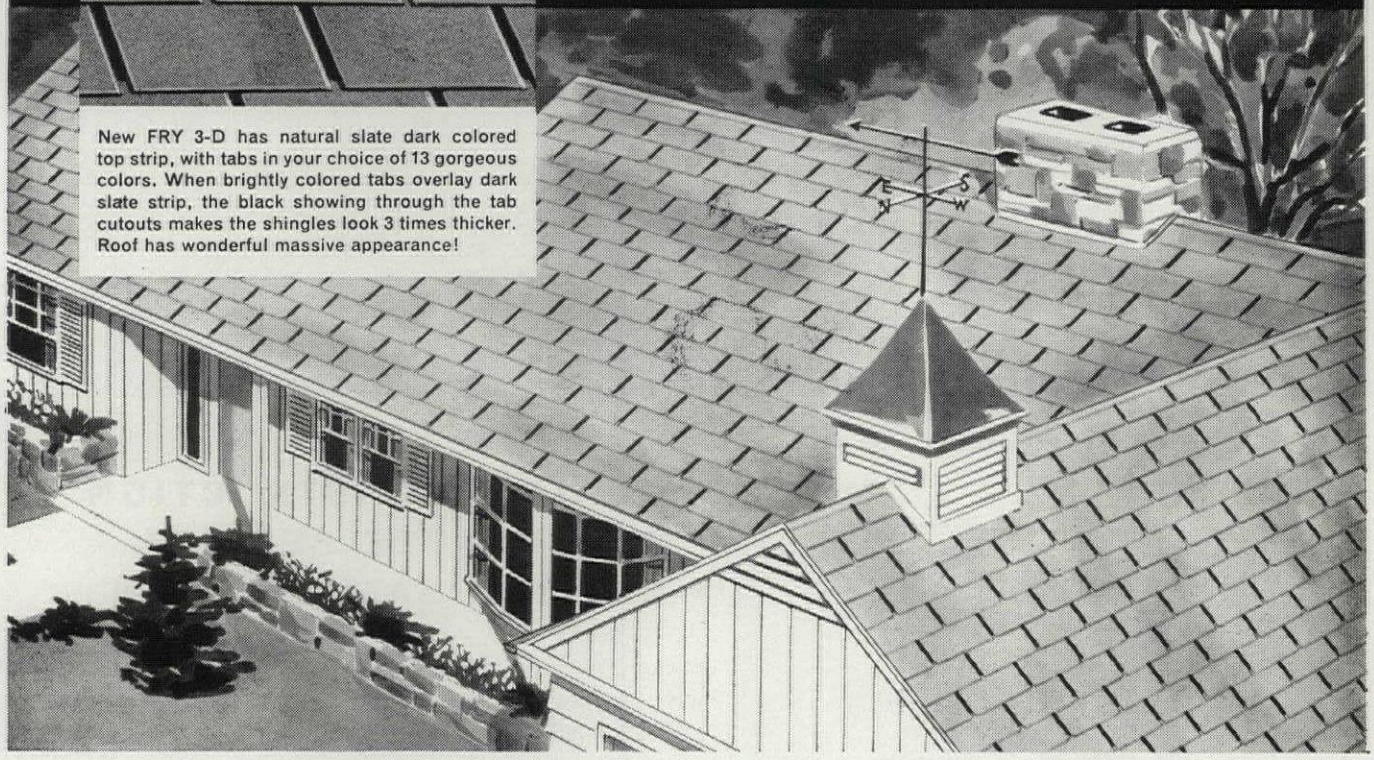
PLUMBING FIXTURES • HEATING EQUIPMENT • ELECTRIC PLANTS • AIR-COOLED ENGINES • PRECISION CONTROLS

Architects delighted with FRY 3-D Shado-Bilt dramatic new roof-effect!



New FRY 3-D has natural slate dark colored top strip, with tabs in your choice of 13 gorgeous colors. When brightly colored tabs overlay dark slate strip, the black showing through the tab cutouts makes the shingles look 3 times thicker. Roof has wonderful massive appearance!

290-LB. ASPHALT SHINGLE ROOFING

FULL-VALUE BONDED For 20 Years!

Today's decorative trend in roof effects seems to be toward a more rugged, massive appearance. *Fry* achieves this effect most dramatically because of Fry's unique tab cut-out, which is a full ¾" wide. As explained in panel above, this strongly accentuates the shadow line, giving a distinctive shingle outline on the roof. "Beauty is as beauty does," however, and we cannot too strongly emphasize the importance, to you and your clients, of the *Fry* FULL-VALUE 20-Year Bond. Unlike other roofing bonds, or "penal bonds," this covers cost of *labor* and materials (not materials alone) in the event of specified roof failures. Surely, you yourself, as well as your clients, deserve this *complete* protection!

For condensed specifications, see Sweet's 1957 Industrial Construction File: 4 a/Fr—or write us TODAY for complete details and specimen bond.

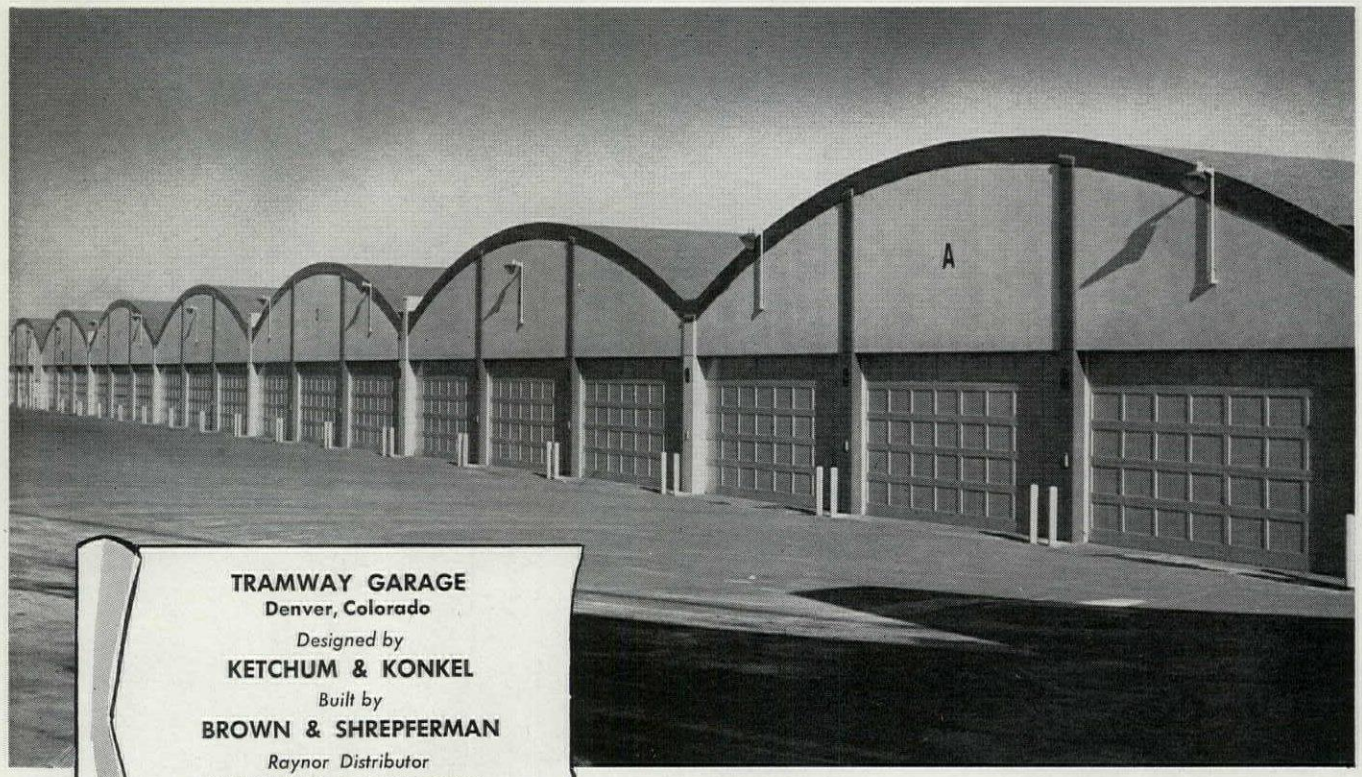
QUALITY INTEGRITY SERVICE SINCE 1933 F R Y F Y

LLOYD A. FRY ROOFING COMPANY

World's largest manufacturer of asphalt roofing and allied products—
19 roofing plants strategically located coast to coast

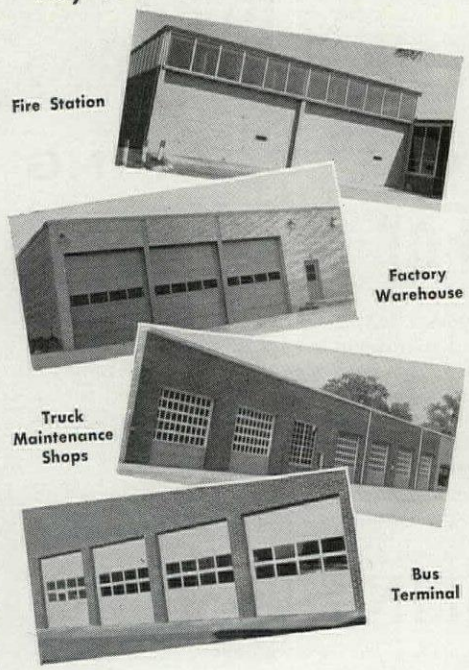
GENERAL OFFICES: 5818 Archer Road, Summit (Argo P.O.), Illinois

12,500 SQUARE FEET OF RAYNOR OVERHEAD DOORS PROVED BEST BY ACTUAL TEST!



TRAMWAY GARAGE
Denver, Colorado
Designed by
KETCHUM & KONKEL
Built by
BROWN & SHREPFERMAN
Raynor Distributor
LATCHAM & JOHNSON DOOR COMPANY

There's a Raynor Door For Any Commercial Installation



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When you specify Hobart, you are specifying equipment that is preferred by chefs and kitchen managers. Ask the man who has used Hobart machines...he'll tell you of their ruggedness, smoothness and economy of operation, and the unequaled dependability of Hobart-built motors—outstanding design and sanitation features.

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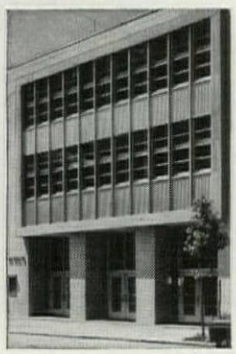
Alcoa Aluminum fabricated in **7 different ways** for Frank D. Whalen School



The versatility of Alcoa® Aluminum as a basic building material is clearly demonstrated by the ways it was used by architect and fabricator alike for Frank D. Whalen Jr. High School 135, Bronx, N. Y.

Albro Metal Products Corporation, with its complete fabricating facilities, produced curtain walls for the facing; windows and doors and their frames; spandrels; covers for masonry; and ornamentation.

Such varied uses of aluminum fitted the architect's need for a light-weight, easy-to-handle material that required no maintenance, would last indefinitely and bring distinctive beauty to the contemporary design. Exterior treatment is of aluminum paneling which blends with two-color brick.

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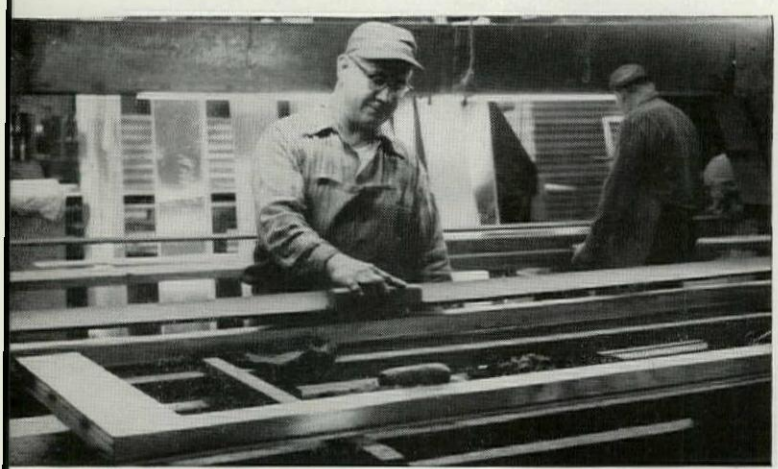
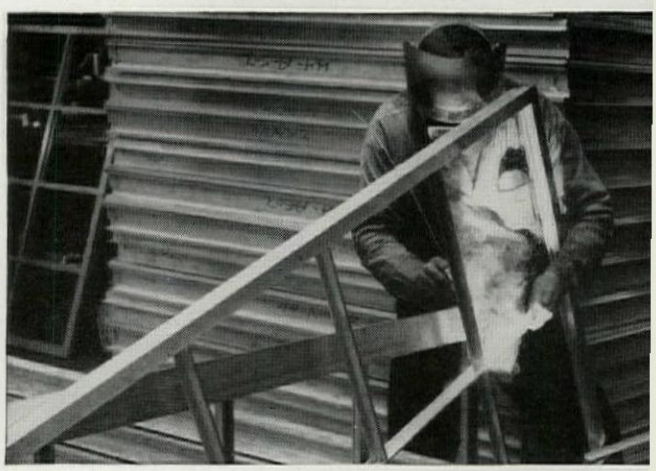
As with Albro Metal Products Corporation, Alcoa works closely with qualified fabricators on the engineering and design of wall systems and other applications of aluminum. Alcoa does not bid on these jobs.

And Alcoa architectural specialists are ready to work with you in the use of aluminum in building construction. There's a great deal of help available at your nearest Alcoa sales office. Or write Aluminum Company of America, 1890-H Alcoa Building, Pittsburgh 19, Pa.



Polishing aluminum door on moving belt at Albro Metal Products Corporation.



Welding two sections of aluminum windows together.

Owner: Board of Education of the City of New York, N. Y., William H. Correale, Director of the Bureau of Construction

Architect: Michael L. Radoslovich, AIA, Chief Architect of the Bureau of Construction, Board of Education, City of New York, N. Y.

General Contractor: Caristo Construction Corp., Brooklyn, N. Y.

Aluminum Subcontractor: Albro Metal Products Corporation, Bronx, N. Y.

Albro milling machine routes out channel for door hardware made of Alcoa Aluminum.

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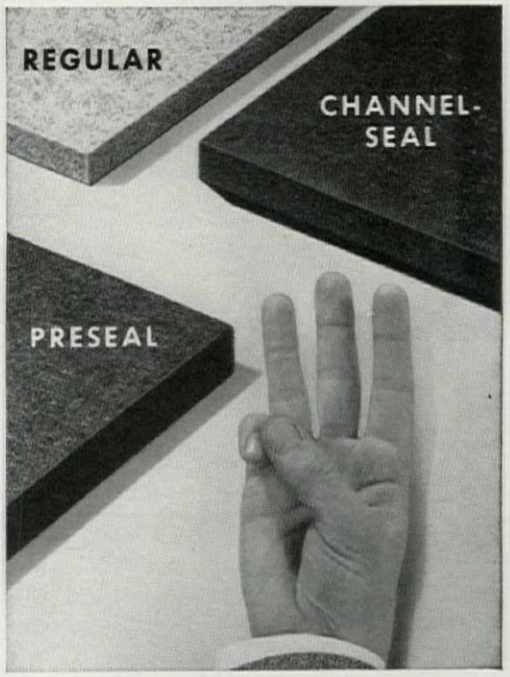
Permanently efficient insulation . . . plus important on-the-job advantages: Rugged, hard-to-damage. Lightweight, easy to handle and apply. Clean-cut, snug-fitting edges insure flush contact at joints. A smooth, solid base for roofing felts. Ideal mopping surface, excellent bond. Exclusive Ferox® treatment protects effectively against dry rot.

Performance-predictable. In Celotex Roof Insulation, you get what you specify—*and then some!* You get the assurance of dependable performance—*job-proved* ability to stand up to time, wear, weather. Billions of feet have been used on buildings of all types, all over the country. Many of these installations have been in service for twenty to twenty-five years and are as sound and efficient as when applied. And, thanks to continued research and manufacturing advances, the improved product made today is better than ever.

Wheeling and heeling hold no terrors. Celotex Roof Insulation takes heavy job and maintenance traffic in stride. Strong, rigid, crush-resistant, uniform density and thickness. Compresses only about 1% under load of 700 lbs. per sq. ft. No worry about punctures, breaks or depressions that become hidden weak spots under roofing.



A type for every job requirement. PRESEAL: Asphalt-coated on both faces and edges for greater protection against moisture pick-up. CHANNEL-SEAL: Bevels on deck-side form network of channels for equalization of air and vapor pressure, providing extra protection against blistering and separation of felt and insulation, asphalt-coated. REGULAR: Uncoated Celotex board. Recognized standard where lowest cost insulation is required. All in a variety of thicknesses.

See 1957 Sweet's Architectural File, catalog 10a Ce.

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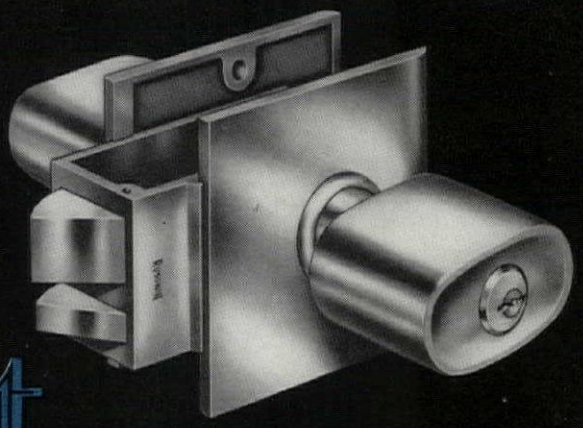
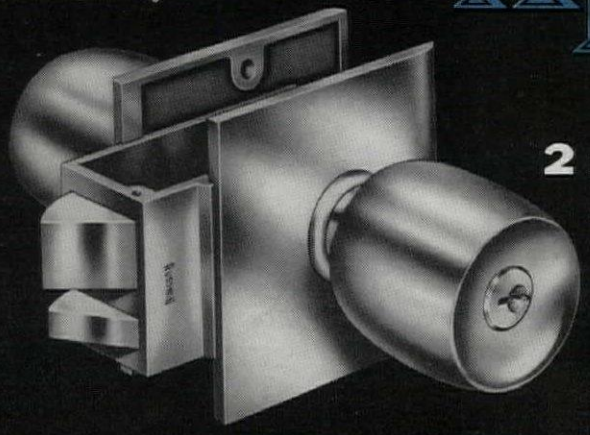
AERO DESIGN in cast brass, bronze or aluminum. Diameters: Knobs, 2-3/32" x 1¾". Escutcheons, 3⅛" x 3¼".



Client Appeal

2 new uniloc designs



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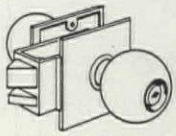
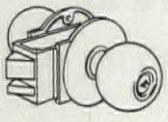
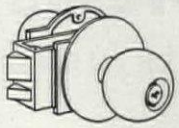


MODERA DESIGN



BRISTOL DESIGN



MONO DESIGN

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The ALEXANDER MEMORIAL CENTER *at* GEORGIA TECH *used the*

LOXIT FLOOR-LAYING SYSTEM

for both the tournament arena and the practice gymnasium

Architects: Aeck Associates, Atlanta, Ga.
Floor Contractor: Southeastern Flooring Company, Atlanta, Ga.
Director of Athletics: Bobby Dodd

The new $1,500,000 mushroom-shaped Alexander Memorial Physical Education Center at Georgia Institute of Technology, Atlanta, Georgia, which opened its doors on November 30, 1956, for the Georgia Tech-Duke basketball game, provided a dramatic example of the Loxit Floor Laying System. The auditorium floor "in the round" has 14,000 square feet of $^{25}/_{32}$" x 1½" northern hard maple flooring with all the beauty, permanence, simplicity of maintenance and economy that only the Loxit Floor Laying System makes possible. This simple, practical, mechanical system solves all the problems of wood floors laid on concrete slabs. The flooring is laid in the same way that a nailed floor would be laid, but instead of using nails to fasten the flooring, a cleverly designed metal clip is used in combination with a metal channel. The clips are slotted to adjust themselves automatically to the tongue and groove of the flooring. Loxit-laid floors COST NO MORE—usually less than conventional type nailed floors. Ask the architects, the contractors and the owners who have had experience with Loxit-laid floors, many of which have been giving fine service for more than 15 years.

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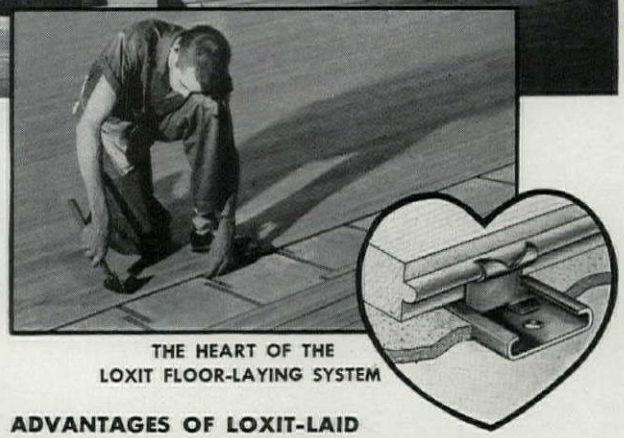

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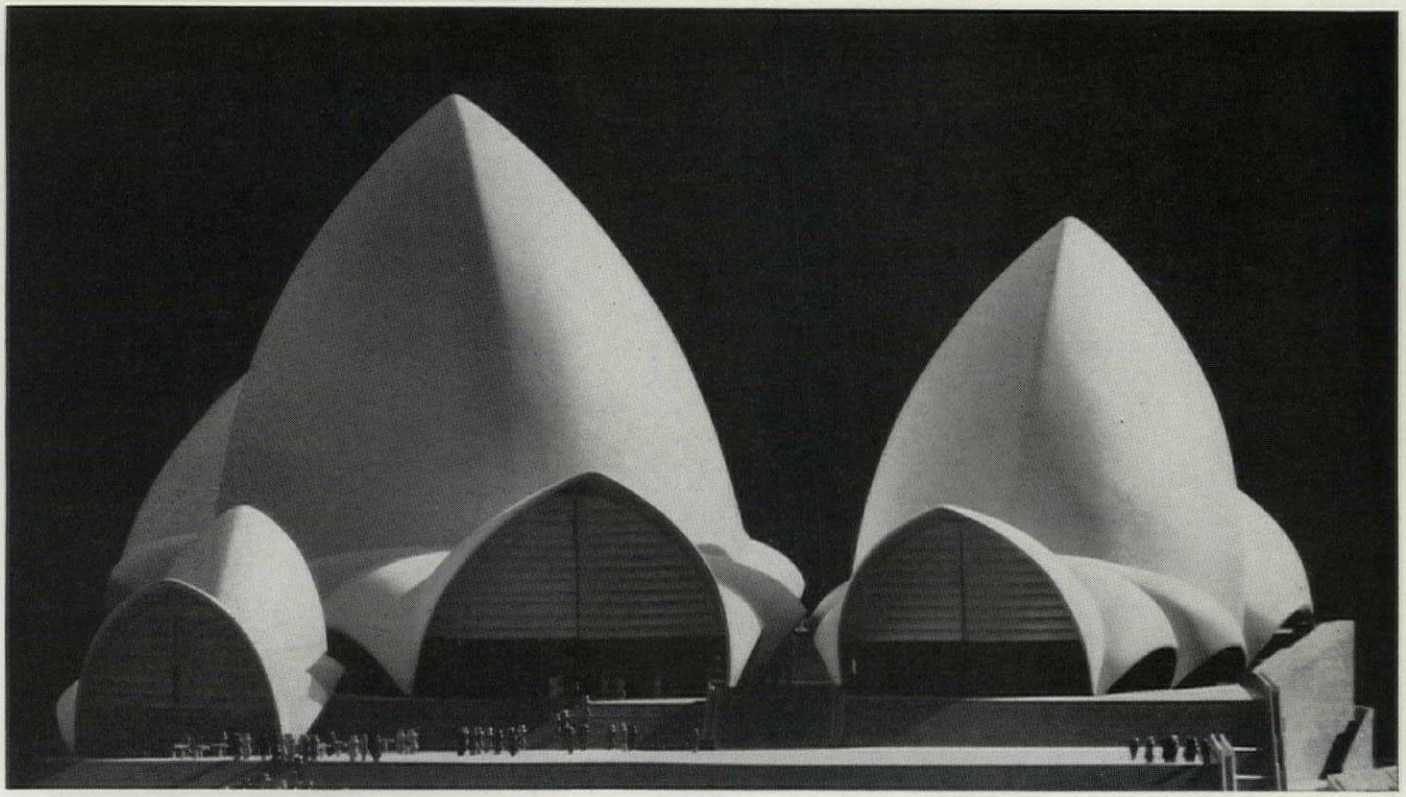
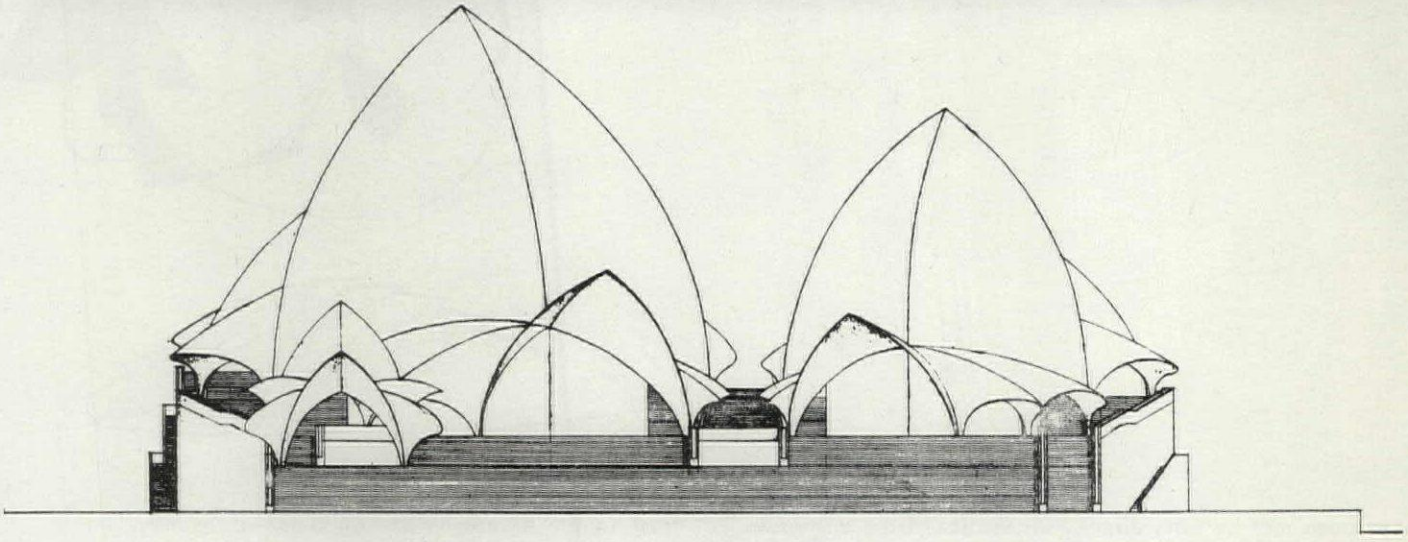




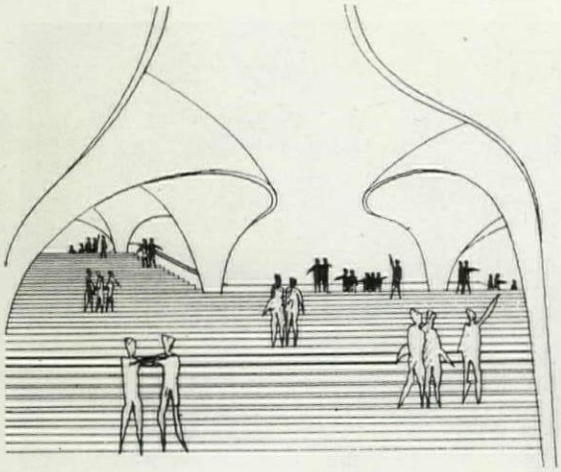
WHY UTZON WON SYDNEY COMPETITION

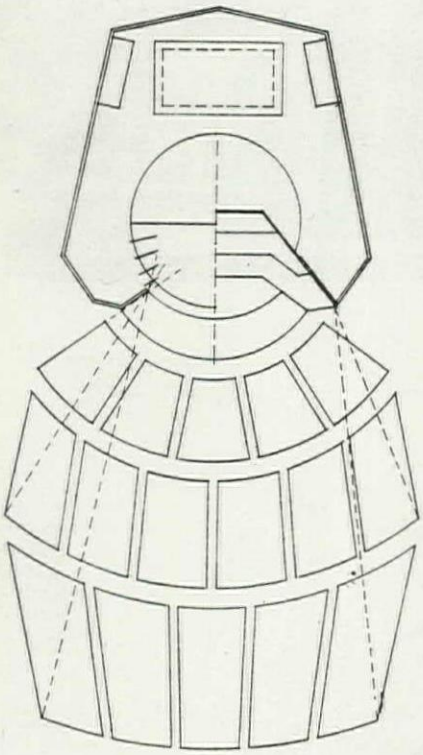
In our March 1957 News Survey, we presented preliminary data on the project by 38-year-old Joern Utzon, Danish Architect, that won the international competition for design of the Sydney, Australia, Opera House. On this month's cover and on these pages we now show the first photographs of the model and several of Utzon's drawings of the provocative scheme, with its remarkable soaring roofs composed of interlocking, concrete-shell vaults.

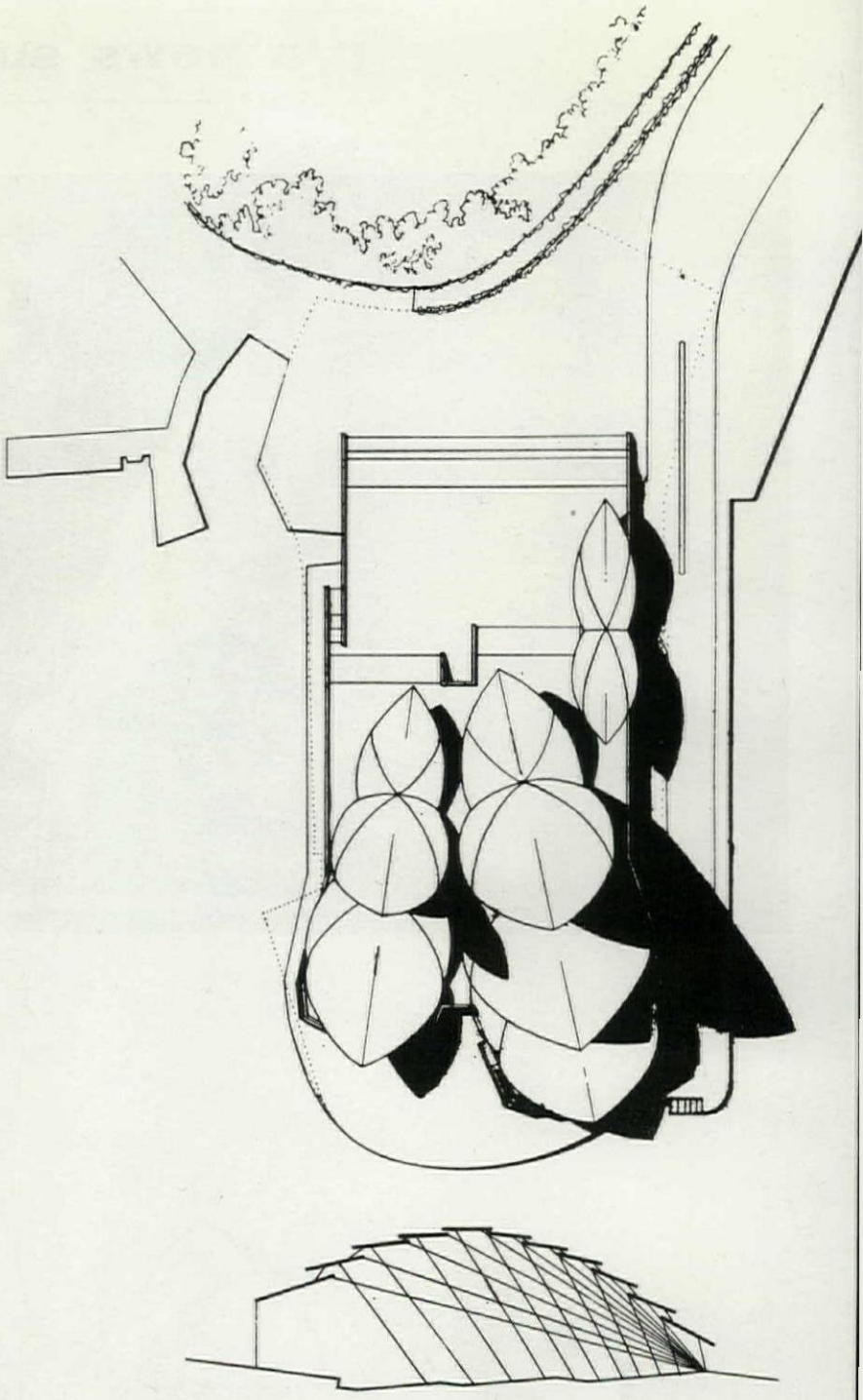
Public reaction in Australia has run the gamut, as was only to be expected: from "an immortal piece of architecture" to "a disgraceful state of affairs"; from "a delightful fantasy" to "a collection of abandoned umbrellas."

In an attempt to put the design in objective perspective, let us quote from Utzon's own comments and also from the report of the Jury. As Readers probably recall, the site is Bennelong Point, which projects into Sydney Harbor, with water views on three sides.

Utzon, commenting on his solution, says: "The architecture emphasizes the character of Bennelong Point. . . . The approach of the audience is easy and as distinctly pronounced as in Grecian theaters by uncomplicated staircase constructions. . . . The requirements of the fire regulations





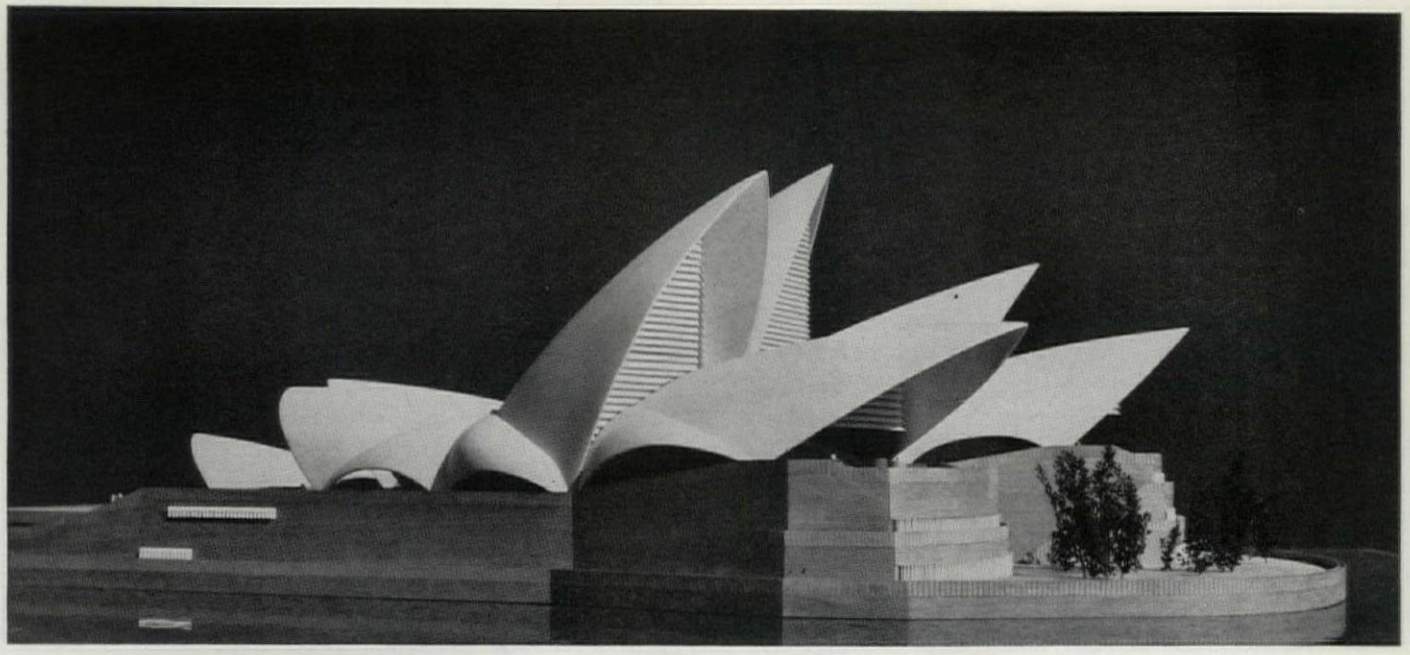


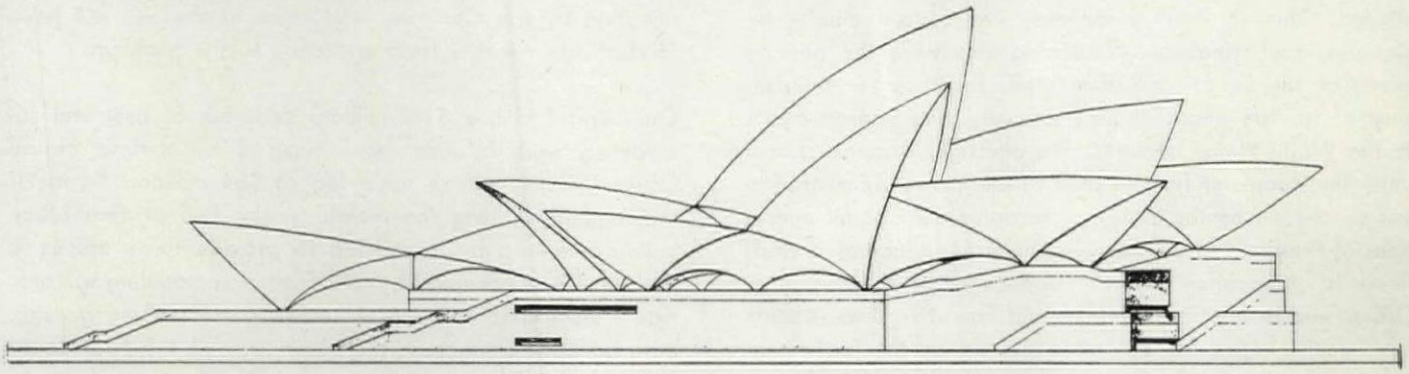
have been met by exits directly on terraces from any room in any story of the Opera House. Dead space for fire escapes has been avoided completely. The audience is assembled from cars, trains, and ferries, and lead, like a festive procession, into the respective halls. . . . Light, suspended concrete shells accentuate the plateau effect and the character of the staircase constructions. Ceiling and walls of wooden acoustical panels continue in overhead doors closing toward foyers and entrance areas, which, in their turn, are closing toward open-air areas with overhead glass doors. This construction implies the possibility of a complete opening of halls, foyers, and public areas toward open-air during intermission whenever weather permits and presents to the audience the full sensation of the suspended shells while moving through the foyers commanding the beautiful view of the harbor. . . . The whole exterior radiates lightness and festivity and is standing as a clear contrast to the square harbor buildings of Sydney."

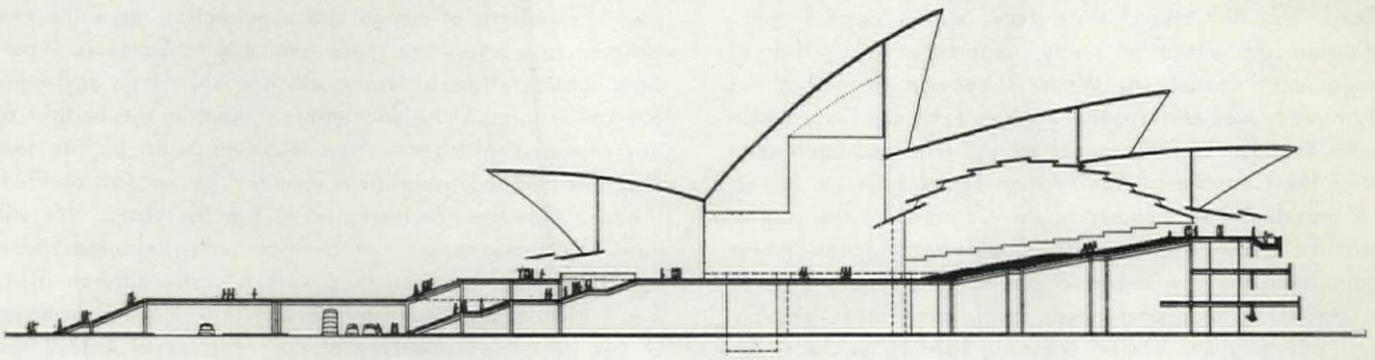
Incidentally, Utzon explains the separation between the two auditoriums which, on first glance, may appear to be a single space: "Each auditorium is enclosed by two sets of overhead doors, the exterior set of glass and the interior set of wooden panels, like the acoustical roofs as appearing in the cross-section. This means that four walls, plus open air, separate the auditoriums from each other."

The Jury, composed of J. L. Martin, Eero Saarinen, Cobden Parkes, and H. I. Ashworth, was nearly unqualified in its praise:

"The drawings submitted for this scheme are simple to the point of being diagrammatic. Nevertheless, as we have returned again and again to the study of these drawings, we are convinced that they present a concept of an Opera House which is capable of becoming one of the great buildings of the world. We consider this scheme to be the most







original and creative submission. We are . . . absolutely convinced of its merits.

"In the first place, it has the merit of great simplicity of arrangement. A massive base emphasizes the character of Bennelong Point. The auditoriums are arranged like Greek theaters in this rising base and are approached either underground from cars, or externally along a magnificent, ceremonial approach. This approach and the auditorium steps form a rising plateau in which the highest point of seating is about 40 feet above the ground. This conception solves by elimination all the complex needs of escape which form so much dead space in a multistoried building. . . .

"The great merit of this building is the unity of its structural expression. One of the most difficult problems of opera-house design is to relate the stage tower to the separate and surrounding buildings, and this becomes of particular importance on this exceptional site. The solution suggested in this scheme is that the two auditoriums should be roofed by a series of interlocking shell vaults in which the high stage is only one of a series of separate shells. This creates a striking architectural composition admirably suited to Bennelong Point. The white, sail-like forms of the shell vaults relate as naturally to the harbor as the sails of its yachts. It is difficult to think of a better silhouette for this peninsula. The dynamic form of the vaulted shape contrasts with the buildings which form its background and gives a special significance to the project in the total landcape of the harbor. . . .

"Whilst this scheme substantially conforms to the conditions laid down, we are aware that it is open to many points of detailed criticism and a number of corrections would have to be made, but we feel that, at this stage, the general breadth of the imaginative concept is an overriding consideration. . . ." *Model photos: Carl E. Rosenberg*

p/a Washington report

by Frederick Gutheim

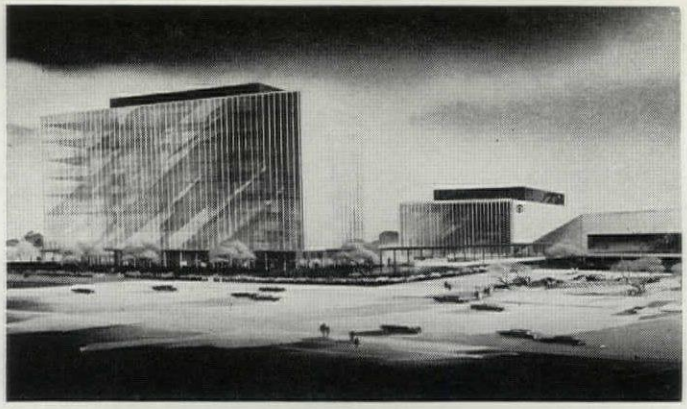
Expansion problems at both ends of Pennsylvania Avenue continue to dominate the architectural news from Washington. The White House staff needs have been widely publicized, and several ways of meeting these growing space requirements have been offered. While the controversial plan to remodel the East Front of the Capitol seems to have been shelved for this session, the Congressional needs which stimulated it remain to generate additional design ideas and building proposals.

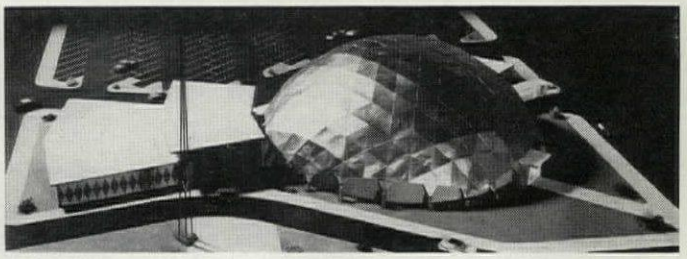
At the White House there has been some hesitation in adopting forthright and aggressive measures to get the office space required. In the remodeling of the Executive Mansion, in 1950, the White House offices were left unaltered. This, in itself a mistake, was caused chiefly by Congressional stinginess. Neglected also were the parking needs of the Executive Office staff, facilities for the millions of tourists who visit here annually, and improvements to the White House grounds. The omissions became critical when the Roosevelt-Truman style of one-man Administration was succeeded by the highly professional managerial operations of President Eisenhower and his greatly increased staff. There is no question that the operations of the Executive Office, and its control of the several Executive Departments have vastly improved. But more people on the job means super-saturation of the limited space in the White House offices. The first step toward relief was a careful space utilization and allocation study, undertaken by a firm of management consultants. When it became clear that the only remedy was additional space, an Advisory Commission on the Presidential Offices was set up. (The architect-member of the Commission was William Douglas Orr, a former AIA president and member of the Commission that supervised the 1950 White House modernization.) The newer Commission has now reported on seven alternate plans it has studied. The report passes over some other possible plans, including use of the Treasury Building, and the removal of parts of the Executive Office staff to locations several blocks from the White House. The favored plan would raze the present Executive Office building, just west of the White House. In its place would be erected a new office building to house only the Executive Office functions. This structure would be connected by a tunnel to the White House itself, and the street separating the two buildings would be closed and covered by the extended White House grounds. North of the proposed building site, facing Lafayette Square, a second new building would be built to accommodate the "other organizational units of the Executive Office" (presumably Bureau of the Budget, National Security Council, Office of Defense Mobilization, and similar agencies now located in the Executive Office building). Against this plan are those who would like to retain the architecturally flavorsome "Old State" building, and those advocating the preservation of the residential scale of Lafayette Square. If historical, architectural, and civic objectives are put aside, and the problem regarded exclusively in engineering and management terms, the recommended plan does indeed seem the best of those studied. But it seems to me highly unlikely, as well as wholly undesirable, that a decision of this magnitude should be based on such narrow criteria. Indeed, two members of Congress who are members of the Commission, have already opposed the plan on just such grounds. Furthermore, the plan ignores two specific questions that ought to have been considered in any such comprehensive scheme—the steady advance of the District highway department toward making the White House an island surrounded by main arterial roads, and the provision of adequate off-street parking for the cars of Executive Office employes. These gaps seem to me so serious that the entire plan will probably meet eventual rejection by the Congress, and some new group will have to start again with a fresh approach to the problem.

On Capitol Hill, a $100-millions program of new and remodeling work is under way, headed by a third House Office Building with a price tag of $64 millions. To maintain equality among the members, the two existing office buildings are to be remodeled to provide three offices in the space now occupied by two. Further remodeling will provide a large cafeteria and an underground parking garage, both occupying space in the courtyards of the two House Office Buildings. All of this work is being done at monumental standards of design and construction, as is the new building to increase the space available to Senators. Apart from considerations of luxury, which would startle any member of Congress if he encountered them in the budget of any Government agency, one is given pause by the fact that this building program is required by an arm of Government that has not increased in size for years. We still have the same number of Senators and Representatives. But the manner in which they work is vastly different from a half century ago, or from the way in which the members of any other parliamentary body in the world works. The elaborate network of services to constituents, the structure of committees and their staffs, the practice of campaigning the year round—these provide the occasion for the clerks, stenographers, administrative assistants, and others who must be housed, fed, their cars garaged, and their other needs served by new construction. I detect no signs of a reaction against these developments. On the contrary, every development seems to be accepted by all concerned, including the public, as necessary and desirable.

• The long controversy over a mid-Potomac crossing in the vicinity of the Lincoln Memorial appears to have been concluded by a Senate decision to construct a tunnel rather than a bridge. While I have long felt that additional crossings here would not be necessary if other bridges scheduled to be built were given priority—and much central area traffic thus diverted—a tunnel is greatly to be preferred to any bridge in this monumental area.

p/a news bulletins





• A new expansion program to be completed in 1958 will increase facilities of Television City in Hollywood, Calif. (above). Production-center addition will have an increased 160,000 sq ft while new eight-story administration building will contain 110,000 sq ft of floor space. Pereira & Luckman, architects-engineers for the CBS city, have integrated the project with the original plan. Production center will include two TV studios, rehearsal halls, other expanded facilities. Administration building will be of aluminum and glass with glass-covered spandrel construction: production center will be concrete from ground to studio level, steel frame above. Interiors will be executed by Knoll Associates, New York.

• Two international architectural competitions have been announced by Union Internationale des Architectes. Central Committee of Qaide-Azam Memorial Fund competition is for construction of mausoleum of Quaide-Azam Mohammed Ali Jinnah at Karachi, Pakistan. Winner will be employed as architect; closing date, Oct. 31. . . . Comite International d'Auschwitz, assisted by UIA, is sponsoring competition for international memorial at the site of Auschwitz-Birkenau concentration camp; closes Mar. 15, 1958. Address inquiries to UIA, Secretariat, 15 Quai Malaquais, Paris, France.

• Redevelopment program for La Guardia Airport at a cost of $32 millions has been announced by Port of Authority of New York in conjunction with six major airlines using the terminal. Improvements will provide convenient and modern facilities for expected 7-million air passengers per year. Proposed terminal featured in the project (below) will cover more than three times the total area of present building. New terminal will be a two-level building with four two-story arcades providing gate positions. Increased parking facilities and other passenger and airlines services are included in the project.

• Construction has begun on a stressed-skin aluminum dome auditorium as part of a new civic center (above) designed by Oliver & Smith in Virginia Beach, Va. First of its type erected in this country, dome is replica of auditorium recently completed at the Hawaiian Village Hotel in Honolulu (March 1957 P/A). Designed by Kaiser Aluminum, dome eliminates all interior supports, weighs less than 20 tons. Tests show dome can withstand loads of more than 100 psf. Consisting of 575 diamond-shaped aluminum panels joined by special castings and lockbolts and anchored to 25 concrete piers, dome will be erected by use of a portable mast at center of concrete floor. Two wings provide office space and other facilities for the civic center.

• Martin Meyerson has been appointed first Frank Backus Williams Professor of City Planning and Urban Research, and Director of new Center for Urban Studies at Harvard University, announces Dean Jose L. Sert of Harvard School of Design. . . . Effective July 1, University of Washington School of Architecture has been given status as a separate college—to be known as College of Architecture and Urban Planning. Board of Regents also announced appointment of Prof. Arthur P. Herrman as Acting Dean.

• Ludwig Mies van der Rohe has been named to Order Pour la Merite, Germany's highest honor in fields of science and art. . . . Jacques Binoux of MIT has won 1957 Thesis Award of National Institute for Architectural Education.

• 1957 International Lighting Competition has been announced by sponsors, National Lighting Bureau and McGraw-Hill. Competition, open to architects, engineers, electric contractors, electrical wholesale distributors, electric utilities. Closing date is Oct. 25. Address inquiries to 1957 International Lighting Competition, 330 W. 42 St., New York 36, N. Y.

p/a financial news

by William Hurd Hillyer

Inflationary fears mount to a crescendo as 1957 plows into its third quarter. This is in contrast with last year's comparable period, when a possible depression evoked by residential building shrinkages hovered spectrally on the horizon. Conversely, anti-inflation currents are discernible in little-publicized areas; and, similar to the under-drift of twelve months ago in effectiveness if not in direction, these trends are well within the area of architecture and new construction.

Copper, a commodity of prime importance in modern building, has apparently started the price-loosening process by staging a spectacular slump—falling from 60 cents a pound in the spring to below 28 cents as this page goes to press. As for steel, rising output is expected to spark a softening of quotations in that commodity. On the other hand, no letup is yet seeable along the cost-of-living front, which has touched a 119.6 record index.

• "The easy-money fallacy" is decried by an increasing number of financial institutions, led by Guaranty Trust Company of New York. Architects, who have had the word "tight" dinned into their ears of late as a monetary obstacle to new construction, will be intrigued by the statement that "excessively tight" funds are momently mythical. "Actually, the present level of interest rates is quite moderate for a time of active business," states the trust company. Commercial-paper ratio averages 4%, as compared with 7½% in 1920. Never until 1930 was a Federal Reserve rate set lower than the current 3%. Present rates appear high, only in comparison with the abnormal lows of depression years and the artificially minimized rates of war and early postwar periods. At a time of fairly full employment—human and mechanized—artificially easy money is seen to be synonymous with inflation.

• Purchasers of new and existing homes have a median income of $5640 and they paid a median price of $12,000 in 1956, as compared with the year previous, Federal Reserve Board reveals. More than four-fifths of the houses are mortgaged, the median being $8500—mostly owed by younger-bracket owners. Only one-sixth of the 65-year-old (and plus) owners have a mortgage debt, most of which have debt-ratio values of less than 50%. Older residential purchasers are apt to possess a nearly debt-free home that they can lay on the line as equity toward a new dwelling. This fact should open up neglected possibilities for architectural practice. Perhaps too much emphasis in the residential field has been placed upon young married couples as prospective purchasers, sober observers suggest.

So far as prices for homes are concerned, factual analysis yields startling results. When the construction dollar is translated into current values, a speaker before the American Institute of Real Estate Appraisers declares, the average home of 1925 actually cost $2200 more than that of '55.

The supply of mortgage funds is at last growing, according to a veteran New England authority. Increasing use of the long-neglected second mortgage is credited with part of the improved condition. Fresh capital of $65 millions for "Fanny May" (Federal National Mortgage Association) will give her an added mortgage buying power of $650 millions and should ease the situation yet further.

• Nonresidential building — embracing such edifices as schools, stores, factories, churches, hospitals — offers a healthy outlook for the remainder of '57. Such construction is rising at an 11% monthly rate, as compared with '56, and exceeded $4.7 billions for the first five months of this year.

• J. P. Morgan & Co. may have provided business construction and remodeling with a dynamic new slogan: "Under One Roof." That veteran banking firm has realized a 40-year objective by centralizing all its operations in its own building. Like Morgan, many prosperous concerns in various lines of business through the country have been overflowing into rented or adjacent quarters. Such businesses are ripe for a unified structural program. Architects will doubtless have many of these projects on their drafting boards before the year is out.

• The rest of the year will see further growth in non-Federal public construction outlays, the Federal Reserve Bank of Chicago believes. Sustained expansion of building activities by municipal and state governments, despite the statistical rise in construction costs, is seen as setting these authorities apart from business firms and private individuals. States and municipalities—unlike major corporations—do not often program their construction outlays in anticipation of need. This need has already appeared in many areas before financing and building can get under way. However, the volume of municipal bond sales in the first half of 1957 was $3.5 billions against $3.1 billions and $2.8 billions in similar halves of 1956 and 1955.

SPRAYOLITE QUIET by Gold Bond...

...adds silent beauty in Meadowbrook Country Club

Three Tulsa firms combined to produce this modern acoustical plaster ceiling. *Architect:* Donald H. Honn; *Plastering Contractor:* Harry True Plaster Co.; *General Contractor:* Horster Construction Co.

These handsome ceilings in Tulsa's new Meadowbrook Country Club have a Noise Reduction Coefficient of .55 and a light-reflection rating of 69%—and they were *sprayed on!* Gold Bond Superwhite Sprayolite was picked for this job because it combines greater sound reduction with pleasing visual appeal—*and* because it goes on fast (even over intricate contours) without leaving joinings when work is interrupted.

Sprayolite dries, rather than sets, to form a porous, sound-deadening surface of uniform color and texture. It needs no additional finishing or painting. *And Sprayolite costs only a few cents more per square foot than conventional plaster finishes.*

For information to help you plan your next ceilings with Sprayolite, see Section 12d/Na in Sweet's, call your Gold Bond® representative, or write Dept. PA-87, National Gypsum Company, Buffalo 2, New York.

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ANNUAL P/A DESIGN

PROGRESSIVE ARCHITECTURE announces its fifth annual Design Awards Program. Awards will be made to architects and their clients for PROJECTS NOW IN THE DESIGN STAGE to be built in 1958 in the United States.

PURPOSE of the Design Awards Program is to give recognition to good design in the period of design development, rather than after completion, in order to encourage the designers and owners of the projects so honored.

AWARDS will be given by a distinguished Jury to best projects chosen from nine categories—COMMERCE, EDUCATION, HEALTH, INDUSTRY, PUBLIC USE, RECREATION, RELIGION, RESIDENTIAL DESIGN, TOWN PLANNING AND REDEVELOPMENT. Awards will be on the bases of site use, choice of structural system and materials, solution of client's program, and over-all design excellence. The Jury will assign projects to the various categories, and reserves the right to withhold an Award in any category, as well as to honor additional projects by CITATIONS.

FIRST DESIGN AWARD will be given for the one best project submitted.

JURY will be composed of Arthur Q. Davis, Architect, partner of Curtis & Davis, New Orleans; Henry L. Kamphoefner, Architect, Dean, School of Design, North Carolina State College; Carl Koch, Architect, Cambridge; Ieoh Ming Pei, Architect, New York; and Felix Candela, Architect-Engineer, Mexico.

AWARDS PROGRAM

for projects not yet built

JUDGMENT will take place in New York during September, 1957. Winners of AWARDS and CITATIONS will be notified (confidentially) immediately after the Judgment.

ANNOUNCEMENT of the winning projects will be made at a presentation in the home town (if practicable) of the recipient of the FIRST DESIGN AWARD. Winning projects will be presented in January 1958 P/A. As in the past, PROGRESSIVE ARCHITECTURE will arrange for general publication of winning projects in other media, particularly those in the localities of all the AWARD and CITATION winners.

DEADLINE FOR MAILING is August 30, 1957. No application blanks are necessary. Simply send, for each project you submit:

1. Client's name; location and proper name for project.
2. Brief explanation of the program and your solution.
3. Site plan.
4. Basic plans and pertinent sections and details.
5. Perspective drawing or view of model, *unmounted photographs or photostats* (8″ x 10″)—no original renderings, exhibit panels, or models, *please!*
6. Interior plans and sketches, if available.

ADDRESS on or before August 30, 1957, to:

Awards Editor, PROGRESSIVE ARCHITECTURE
430 Park Avenue, New York 22, N. Y.

P/A will carefully guard and return all material that is submitted.

Today's Distinguished Buildings Have Won

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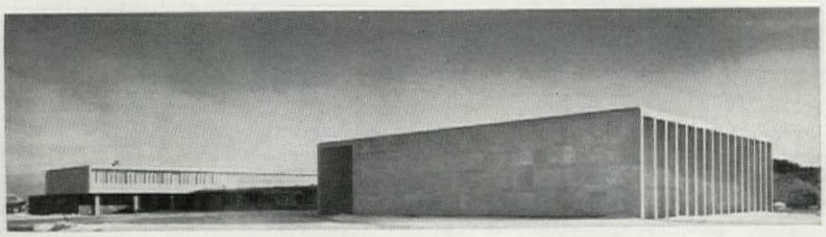

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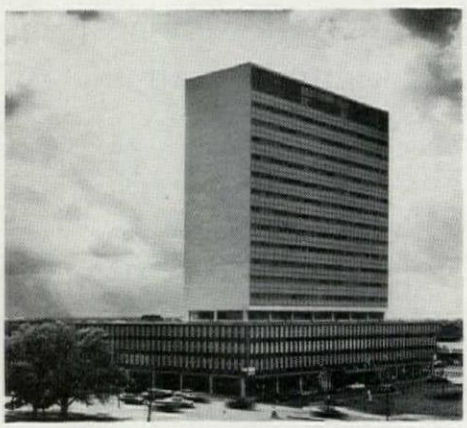
1954



3

1 Chapel, Beaumont Boy Scout Reservation, St. Louis. Eric W. Smith, Jr. 1954 Design Award for Religion (Photo: Robert Frei).
2 District Court House, Hibbing, Minn. Jyring & Whiteman. 1954 Award Citation for Public Use (Photo: Warren Reynolds).
3 Medical Towers, Houston. Golemon & Rolfe. 1954 Award Citation for Commerce (Photo: Paul Dorsey).

1

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1955

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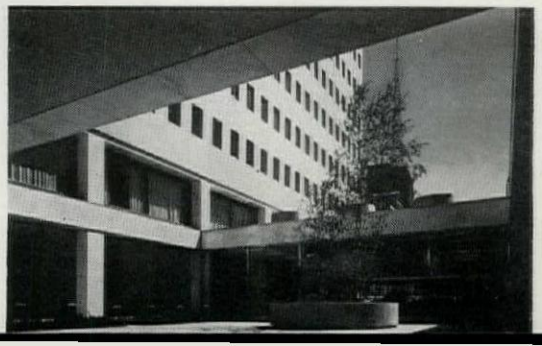

P/A Design Awards

1956

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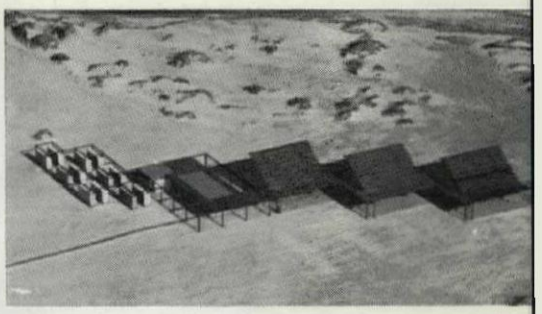

2

3

1 House, Pasadena. Carl Maston. 1956 Design Award for Residential (Photo: Margaret Stovall).

2 Coquina Beach Day Use Area, Cape Hatteras. John B. Cabot, Supervising Architect, National Park Service. Donald F. Benson, Project Architect. 1956 Award Citation for Recreation (Photo: Cape Hatteras National Seashore Recreational Area).

3 Animal Rescue League Building, Boston. Hugh Stubbins. 1956 Award Citation for Public Use (Photo: Gottscho-Schleisner).

The P/A Design Awards Program, now going into its fifth year, has brought to public attention an impressive number of* projects, *which are now distinguished* buildings. *In all parts of the country, from large structures to small ones, in every conceivable functional category, these buildings have benefited from the original recognition and the wide newspaper and magazine publication resulting from Awards and Citations received from P/A's fine Juries. A small sampling of these winning designs which are now completed structures is shown here. Many of the winners have since won other honors as finished buildings.

4

5

6

1 Riverview, Home for the Aged, Philadelphia. Bellante & Clauss. 1955 Design Award for Public Use (Photo: Lawrence Williams).

2 San Pedro Community Hotel, San Pedro, Calif. Richard J. Neutra & Robert E. Alexander. 1955 Award Citation for Residential (Photo: Julius Shulman).

3 Transportation Center, Philadelphia. Vincent G. Kling. 1955 Award Citation for Commerce (Photo: Lawrence Williams).

4 Continuing Education Center, Athens, Ga. Stevens & Wilkinson. 1955 Award Citation for Education (Photo: Robert L. McGinnis).

5 Wilson Junior High School, Mecklenberg County, N.C.—A. G. Odell, Jr. 1955 Award Citation for Education (Photo: Joe Molitor).

6 Meadowbrook Country Club, Tulsa. Donald H. Honn. 1955 Award Citation for Recreation (Photo: Bob Hawks, Inc.)

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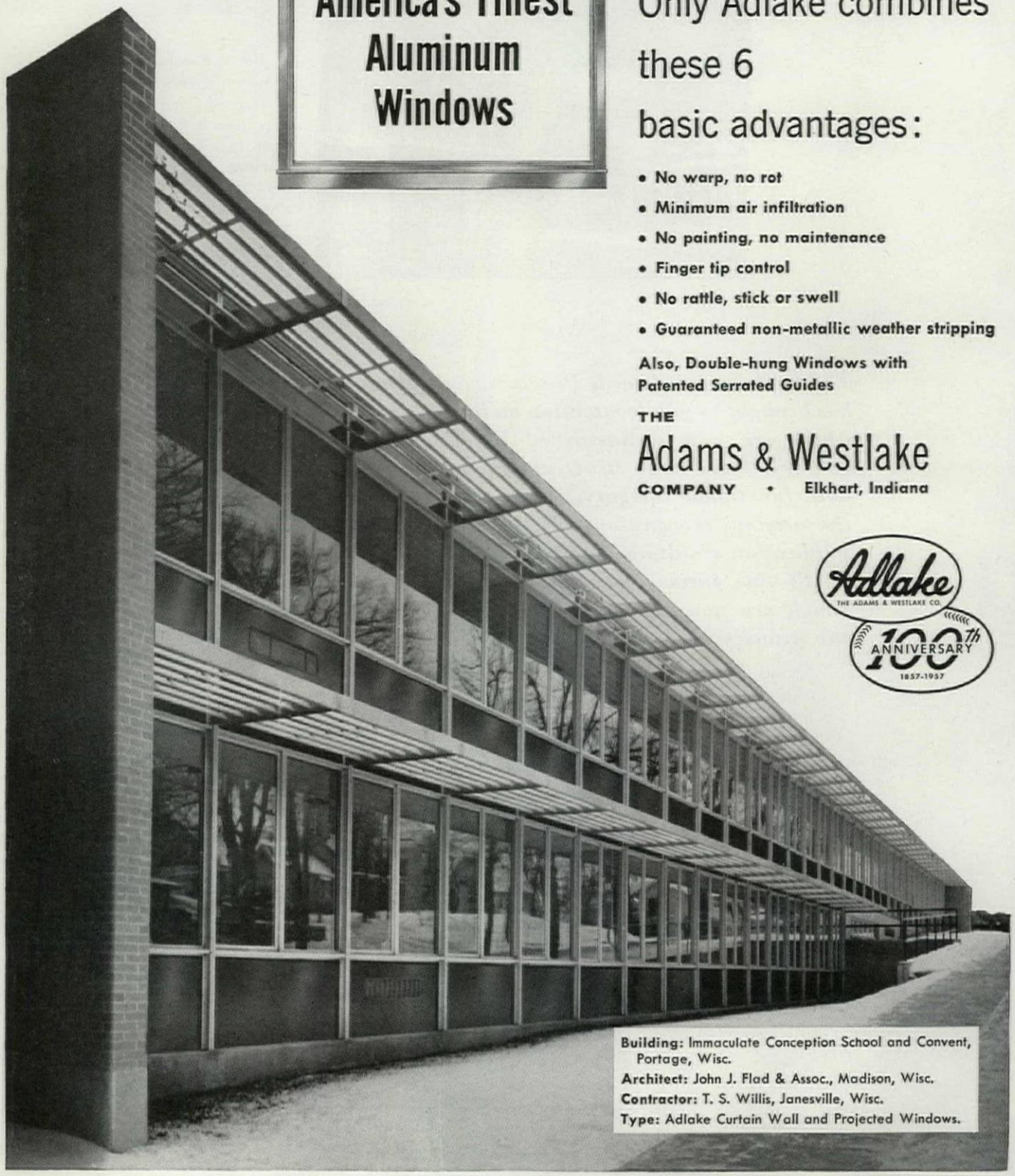
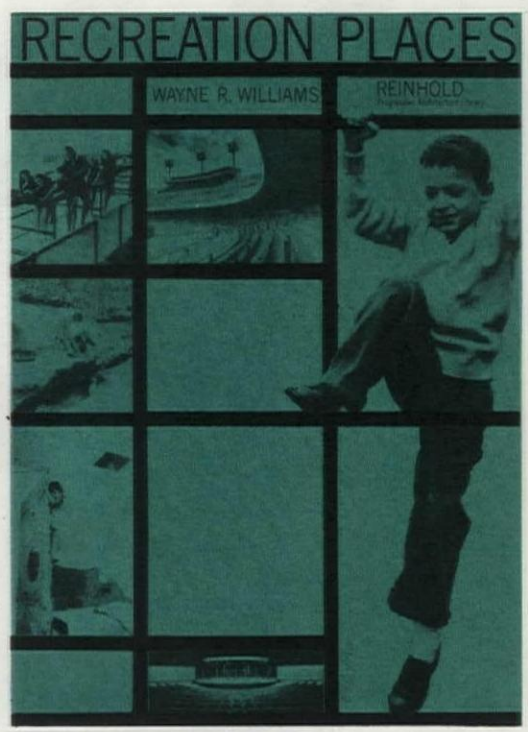


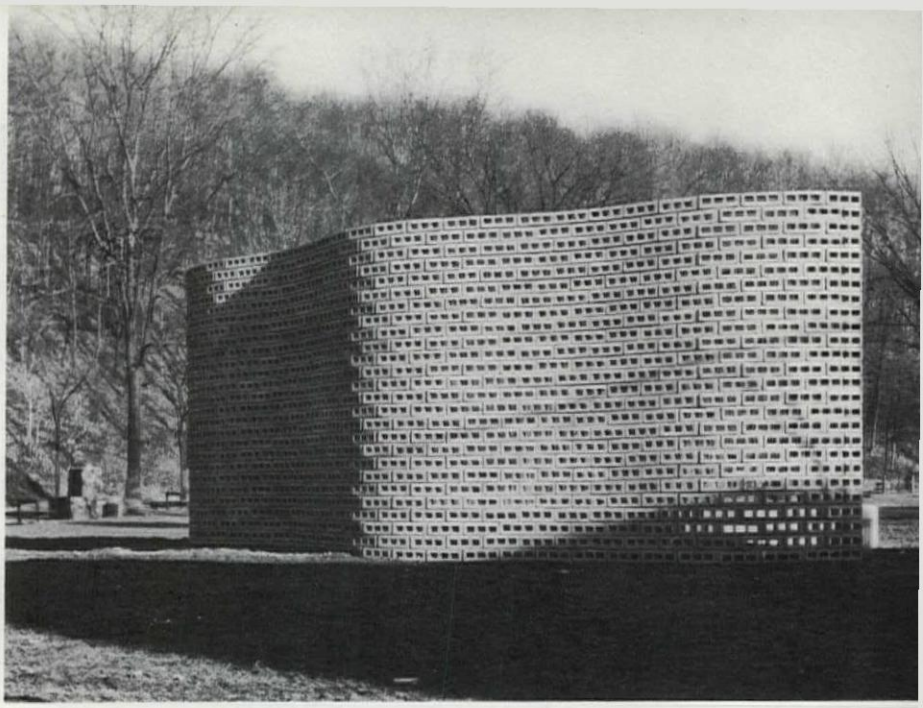
Building: Immaculate Conception School and Convent, Portage, Wisc.
Architect: John J. Flad & Assoc., Madison, Wisc.
Contractor: T. S. Willis, Janesville, Wisc.
Type: Adlake Curtain Wall and Projected Windows.

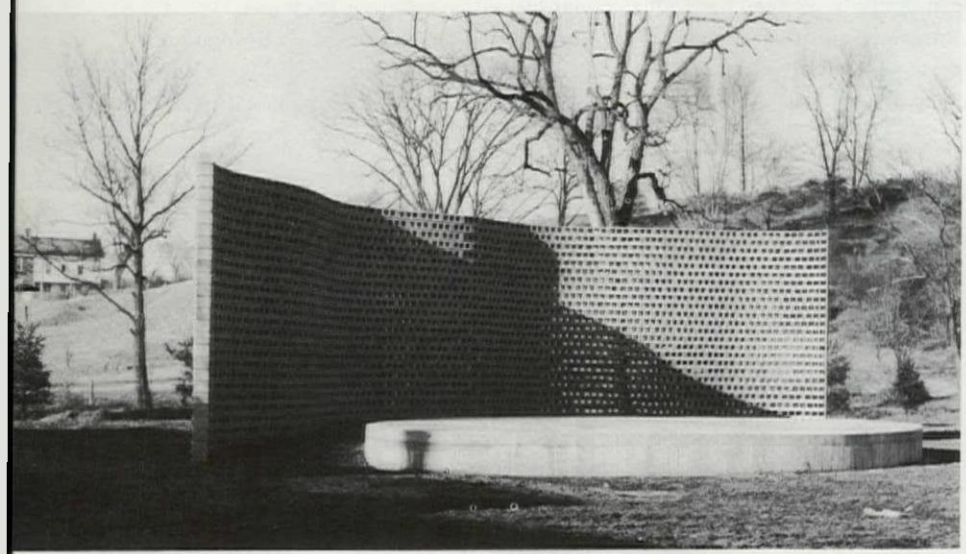
RECREATION BUILDINGS

New facilities for recreation are urgently needed—the outdated must be enlarged, redesigned, or replaced. To assist the architect in the task to be carried out and to augment the up-to-now sparse literature on the subject, this issue of P/A and a forthcoming comprehensive volume in the Progressive Architecture Library *(below)* have been prepared. The following words excerpted from *Recreation Places* point to the great need: "The continuing technological revolution that is providing all Americans with more and better goods and services and higher incomes is also supplying them with more leisure to devote to recreation. Approximately half the employed people in the United States now work between 35 and 40 hours per week, and about one-sixth work less than 35 hours. The President's Commission on Materials Policy foresees an average 34 hour week by 1957. The three-day weekend may become standard for many groups of workers. The increased leisure afforded by the shorter work week will be further supplemented by additional paid holidays—and by longer paid vacations. Although improvements in our national social security system and widespread retirement pension plans will enable elderly people to enjoy the leisure of retirement at an earlier age than in the past, many of them will decide to work beyond the usual retirement age of sixty-five. In the years ahead probably a goodly proportion of the elderly will be satisfied with about the same amount of leisure as younger workers. Great numbers of workers of all ages may gain more leisure from a significant urban development of our times—wider geographic dispersal of manufacturing plants, retail establishments, and professional and executive offices. From now on, more people may live within relatively short distances of their places of employment.... Recreation in the home community may play a far more important role than it does today."



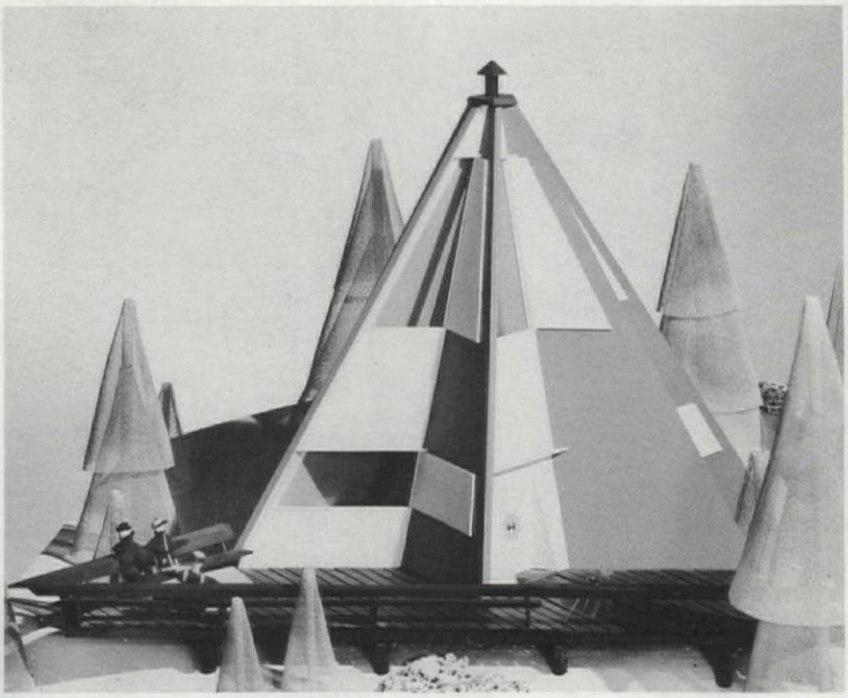
Recreation Places *by Wayne R. Williams, Architect and Planner. Reinhold Publishing Corporation, 430 Park Avenue, New York 22, N. Y. Scheduled for publication in September 1957. $12.50*



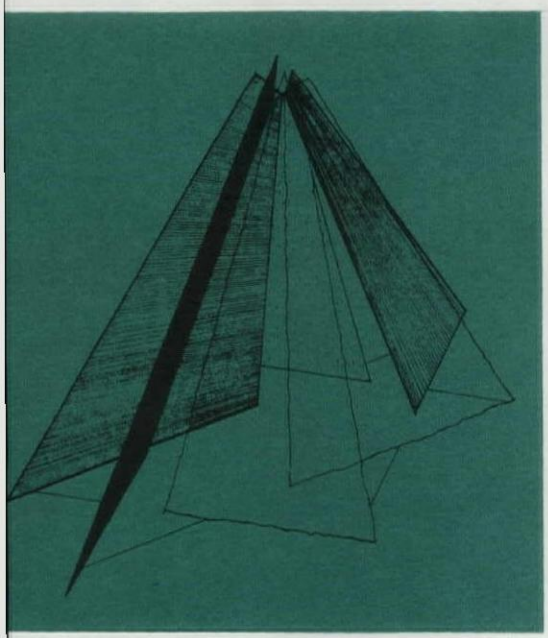


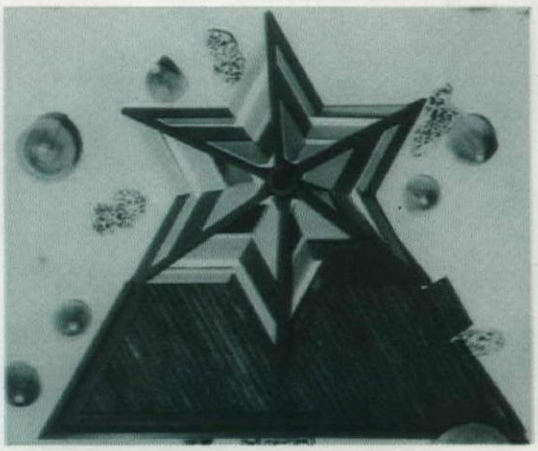
Purpose of the wall was not to reflect or deflect sound but rather to lend interest and focus to a sprawling ten acres of ball fields, tennis courts, and picnic areas. Oval concrete platform is used for concerts, graduations, and other ceremonies. Undulating backdrop of 6"x8"x18" red anthracite cinder blocks gives sense of enclosure. Jules Gregory, Architect. Photos: Frederic Ramsey, Jr.

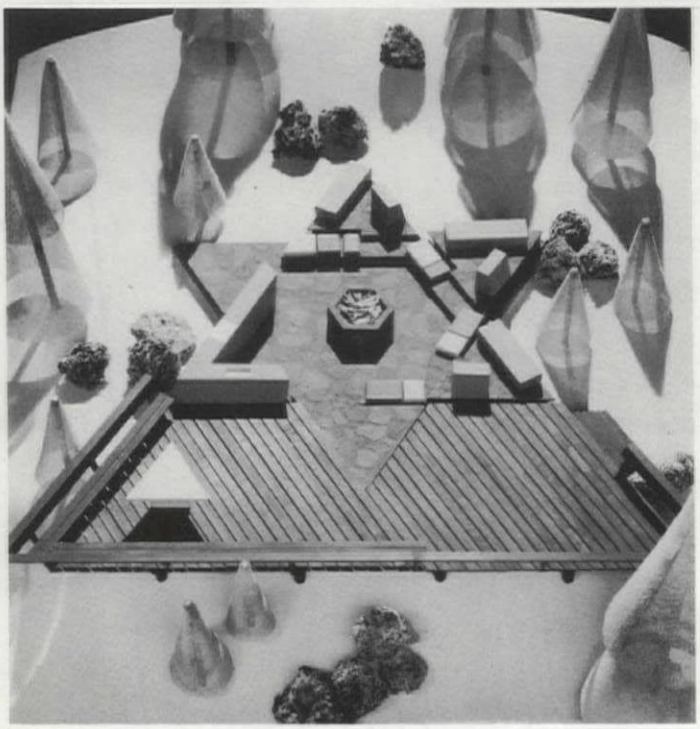
RECREATION, a broad definition by John E. Burchard, Dean of Humanities and Social Studies, M.I.T. (excerpts from *Recreation Places*): "An age of specialization levies its tolls. Not the least of these is the insistence that specialism remain specialized. Thus, the word 'recreation' has come to have a limited meaning for most of us. 'Recreation facilities' at once conjures up swimming pools and gymnasia and playgrounds and, perhaps, stadia and indoor sports palaces. We will only by some unnatural stretch of our imagination be led to include theatres and opera houses and concert halls and cinema palaces. And museum directors have so operated, on the whole, that we will not think of museums at all. Yet it is not farfetched to include all these things within the comprehensive term. Perhaps we should include more. . . . After all, 'recreation' does mean 'refreshment of the strength and spirits after toil; diversion; play.' It is in forgetting the word 'diversion' that specialism may lead us astray.... All our recreational activities, except perhaps one or two of the outdoor ones like skiing, seem to have suffered by too much concentration on making the main activity work well. The main activity must of course work well. But a little more attention could be paid to the side facilities. . . . Life is a rounded thing and is not parceled out quite as our recreational buildings assume it to be. . . . Many recreation places are handsome, convenient, admirably calculated to take care of the direct need which brought the public to them; but very few show the integration of recreation activities for which I seriously plead. I remember once hearing Alvar Aalto criticize a set of student designs for a progressive school. All knew the heights of the little desks and other things that little ones need in a progressive school. Each had incorporated radiant heating and north light and color and whatever else you have to incorporate. But all of the designs looked alike. Aalto had a simple but devastating question. 'Tell me,' he said, 'where does the lion come in the window?' We need more lions coming in the windows of recreational buildings. All it takes is a little more gumption, a little more imagination, a little courage to do something crazy. Very few important works have been accomplished by the thoroughly sane or are the product solely of inexorable logic. Orderly recreation, concentrated recrea-



High altitude snow-shedding trees inspired the design of this playful structure. The star-shaped plan has in its center a campfire area, slightly below floor level. Three of the six points of the star are used as sleeping cubicles, the others serve as entry, bath, and kitchen. Stressed-skin plywood panels are the suggested structural wall material for the ski lodge. Campbell & Wong, Designer & Architect. Model photos: Morley Baer



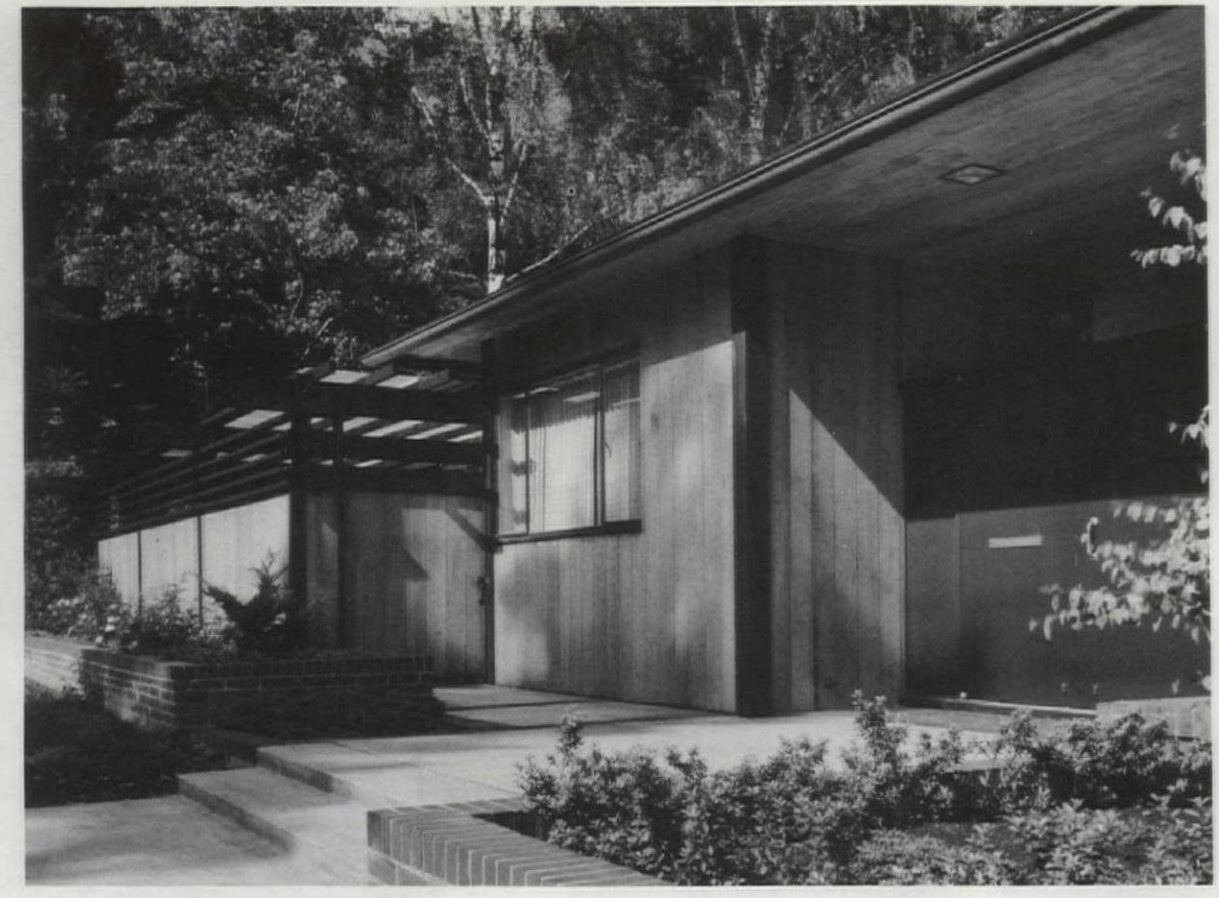


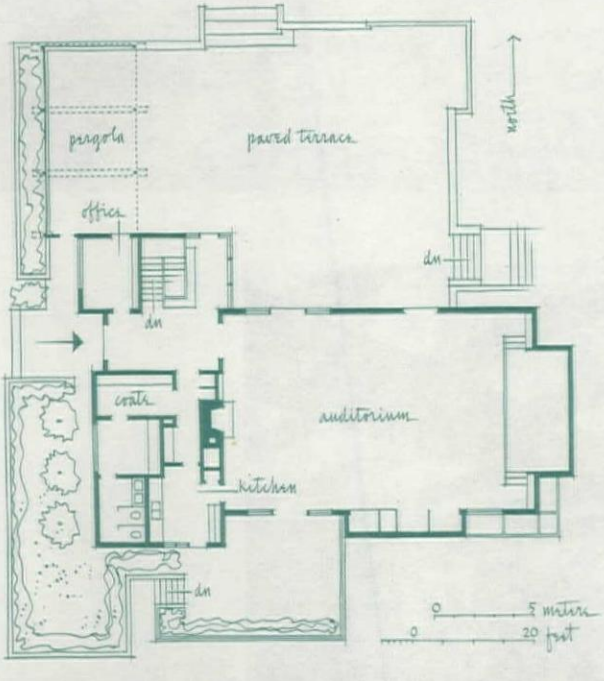


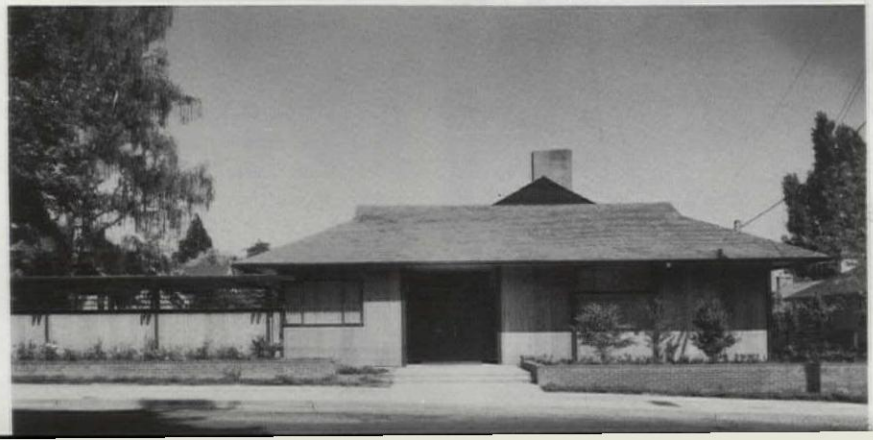
tion, specialized recreation are almost a contradiction in terms. Let us have more lions and fewer directional signs. . . . The utmost imagination may indeed result in buildings in which it is not too all-fired easy to reach the place where you can do the thing you want to do but have to encounter something else on the way. But neither should the whole business be so infernally flexible that you can do anything anywhere but nothing very well anywhere. Rather, the recreational complex will consist of very specially functioned spaces put together like a great encyclopedia which educates us, not by what it tells us about the subject we were looking up, but by the other unexpected things we find on the way to the truth we were seeking. This is what I think Aalto meant by his lion."

garden club

location	Portland, Oregon
architect	John Storrs
associated architects	Scott & Payne
landscape architects	Lord & Schryver

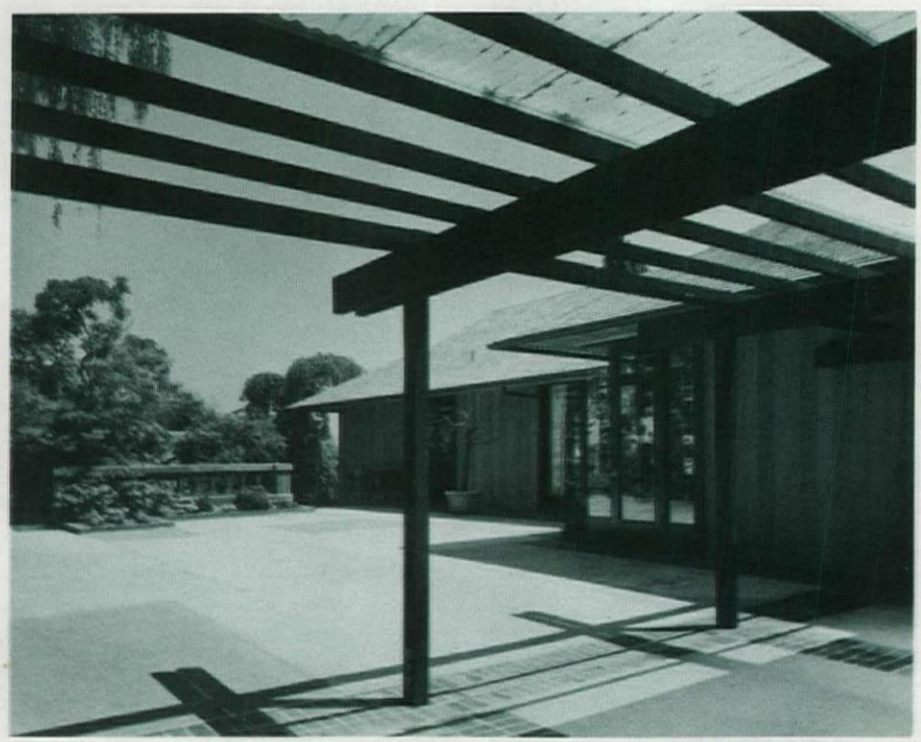






Estimable advantages of the 100′x250′ site selected for the Portland Garden Club were that it had been the location of an old house, existing foundations could be re-used, and trees and plant materials were already beautifully established. Planning requirements were: room for garden and flower shows; meetings of up to 200 persons; a space that could be rented readily to other clubs or groups; a central headquarters for keeping of records; and—of course—a garden. Because of the fall-off of the land at the south end, a full (above-grade) workroom, with separate entrance, could be included at a lower level. The shape of the plan forms a sheltered courtyard that adjoins the relatively level garden expanse, northward.

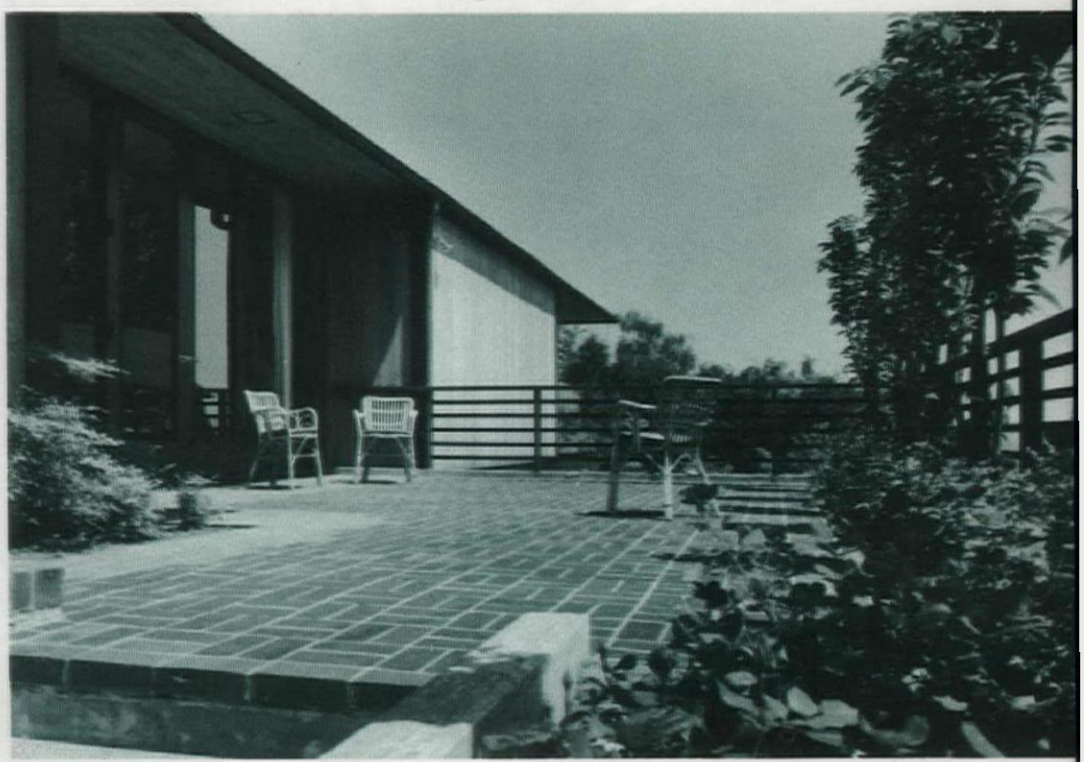
The architect worked to develop a residential character and to provide simple backgrounds for flower displays, plus a measure of elegance for an unusually discerning membership. Standard wood frame, natural-wood finishes (chiefly redwood outside and hemlock indoors) distinguish the design. Steel sash. Club is heated by an oil-fired, forced warm-air system. General Contractor: Norman Builders.

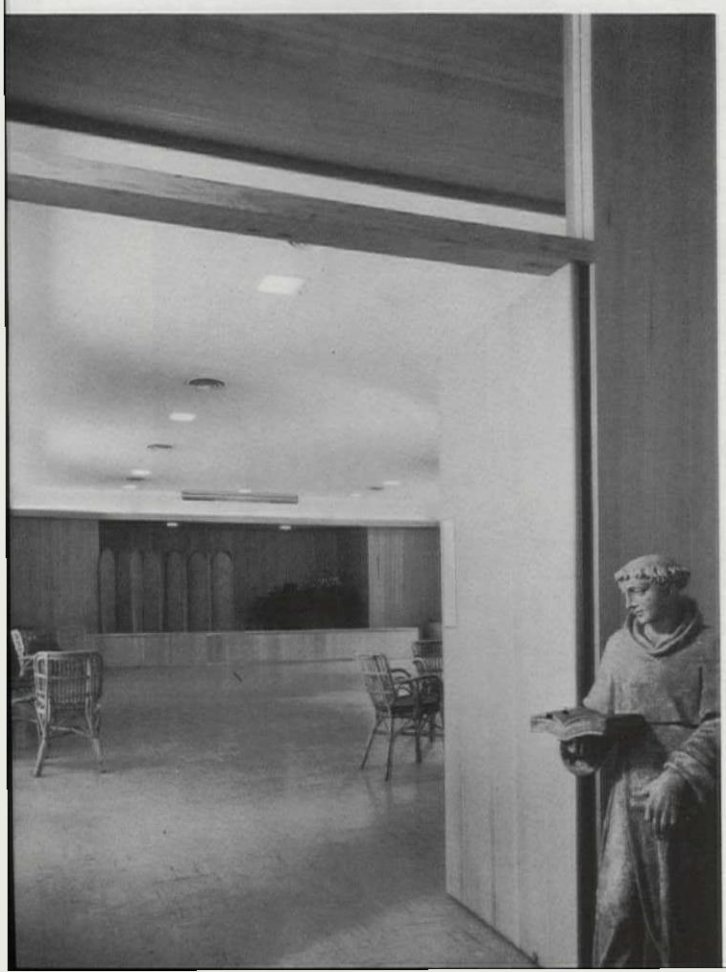


The neo-Oriental feeling is "due in part to the fact that many of the members like and know a great deal about Japanese gardens," the architect comments. "If you want to call it an 'Oriental monochromatic,' I guess you can."

Photos: Dearborn-Massar

The hemlock-walled main auditorium opens both to the garden courtyard to the north, and to a lofty terrace on the south (below) *that overlooks the city and distant Mt. Hood.*



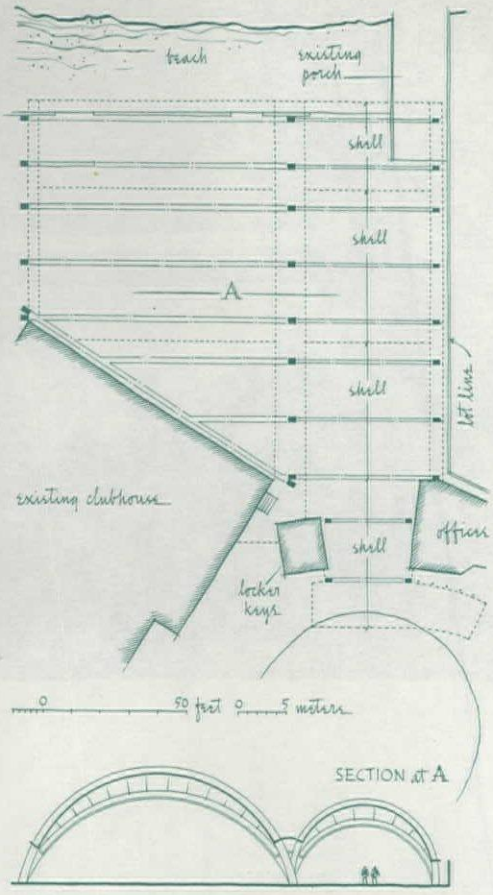


Asphalt tile used for main floor areas approximates the light tone of the hemlock paneling —"here, again, in an attempt to create restful space and background for flowers and display."

club nautico

location | Marianao, Havana, Cuba

architect | Max Borges, Jr.



In bold sweeps recalling the waves of the ocean, these concrete shells now link a number of formerly unconnected structures on the beach. Purpose of the arched roof was to provide a cool, airy sun shelter. Two small enclosures provide the entrance-control points for the club: one for offices, the other for lockers and keys.

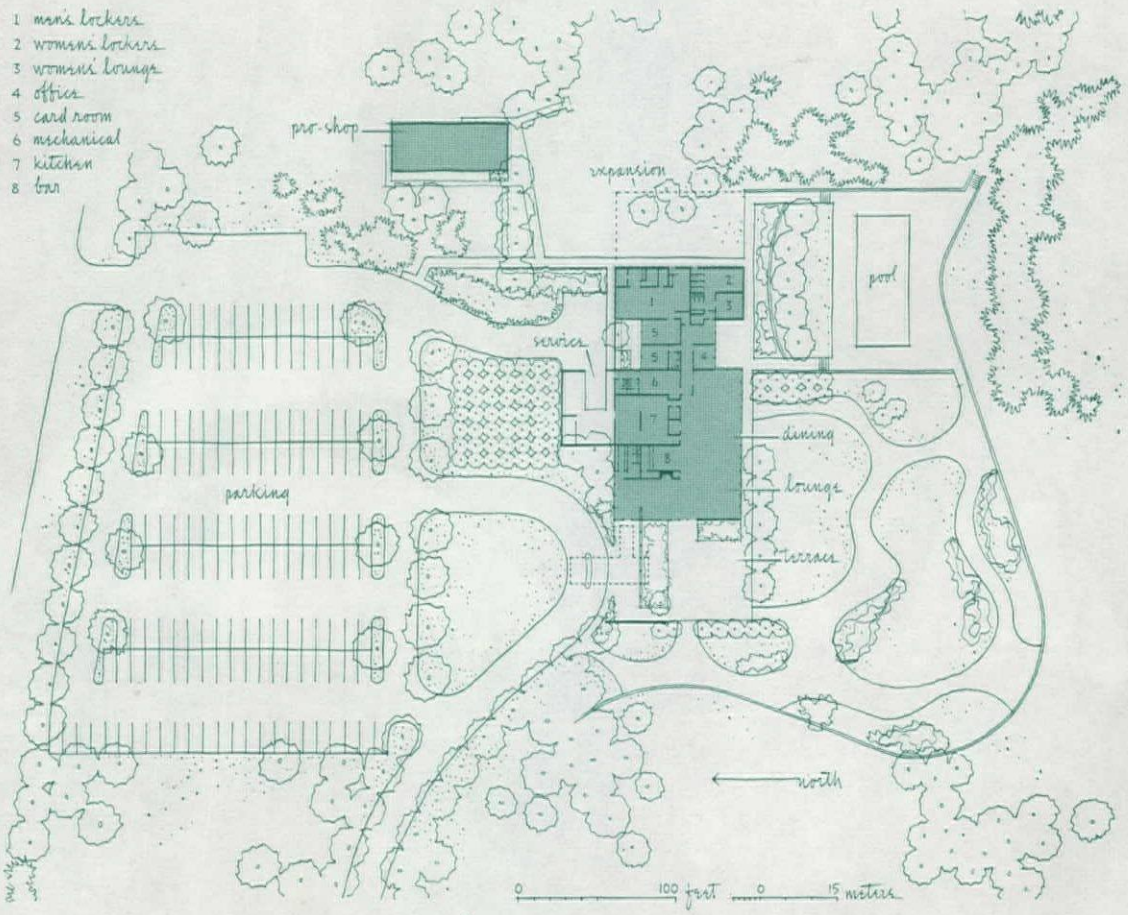
Foundation and superstructure of the arches are of reinforced concrete. Floors are paved partly with terrazzo, partly with concrete; walls and ceilings surfaced with acoustical plaster. Cuban clay tiles provide the outer roof skin. Partitions of the small, air-conditioned office unit are of local brick and glass.

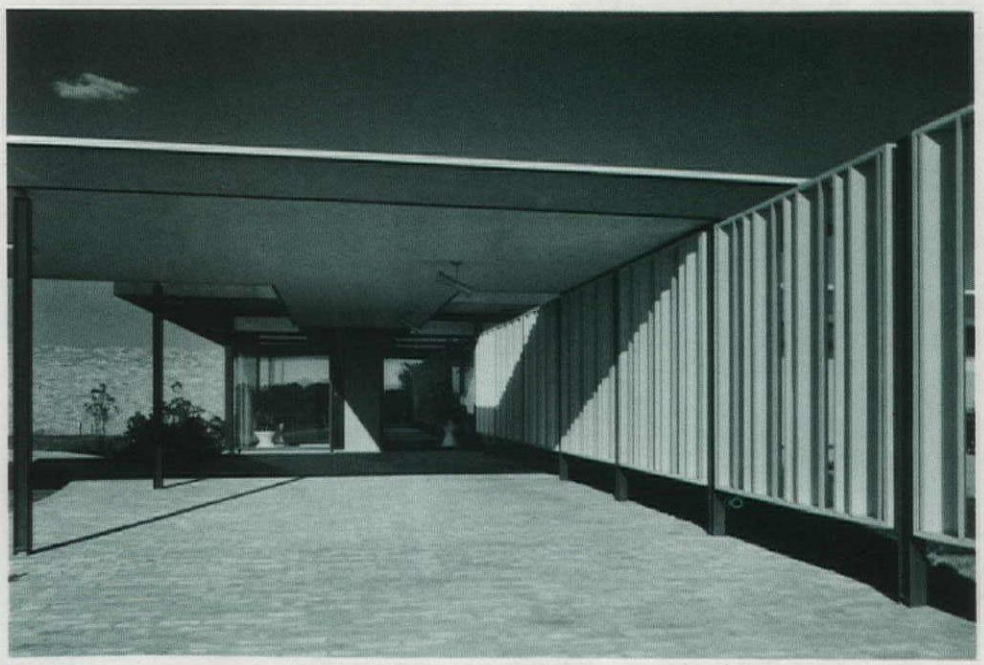
Max Borges & Sons, General Contractor.

Photos: Alexandre Georges

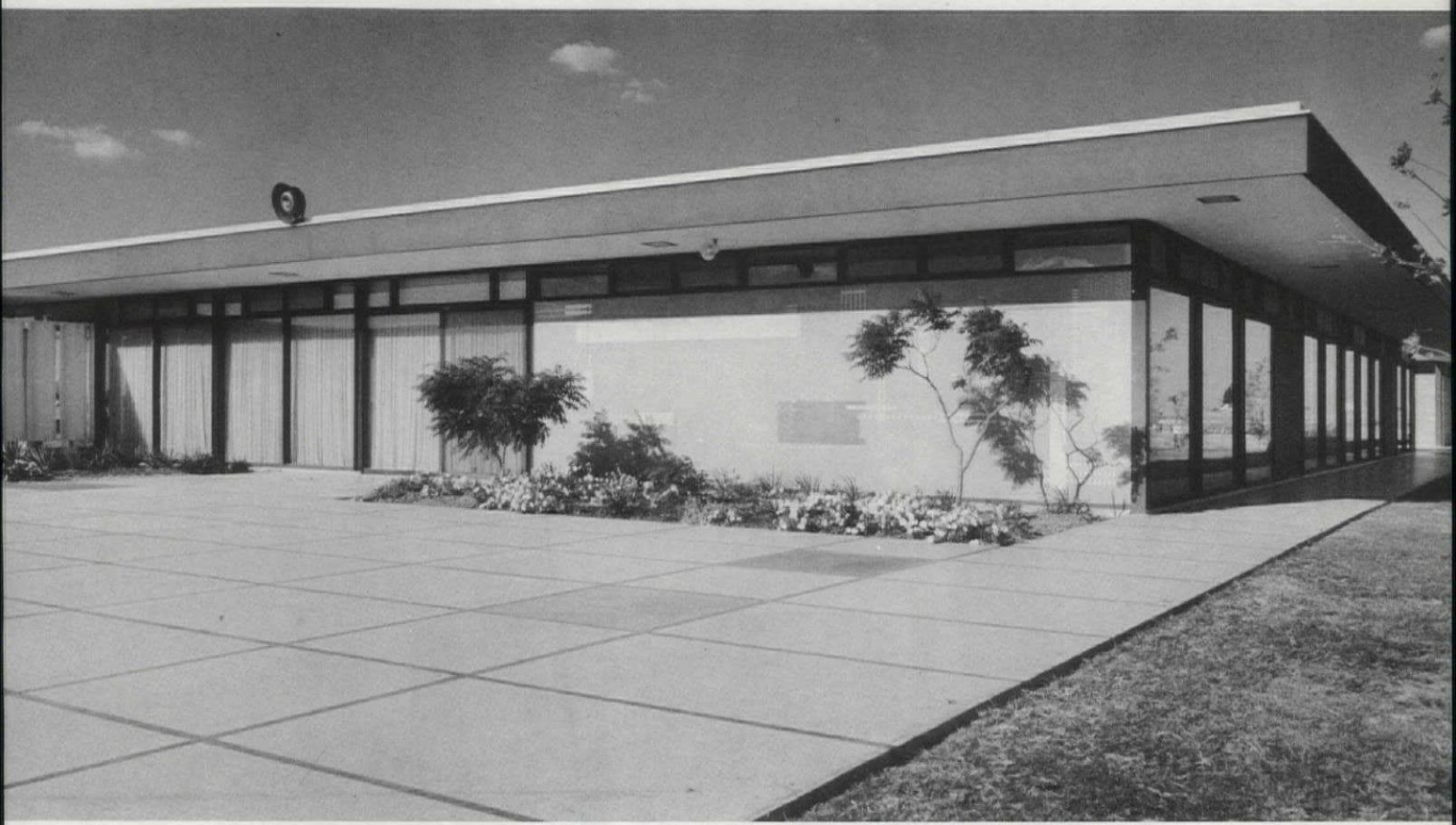
country club

location	Tulsa, Oklahoma
architect	Donald H. Honn
landscape architects	Sasaki & Novak
interiors	Knoll Planning Unit





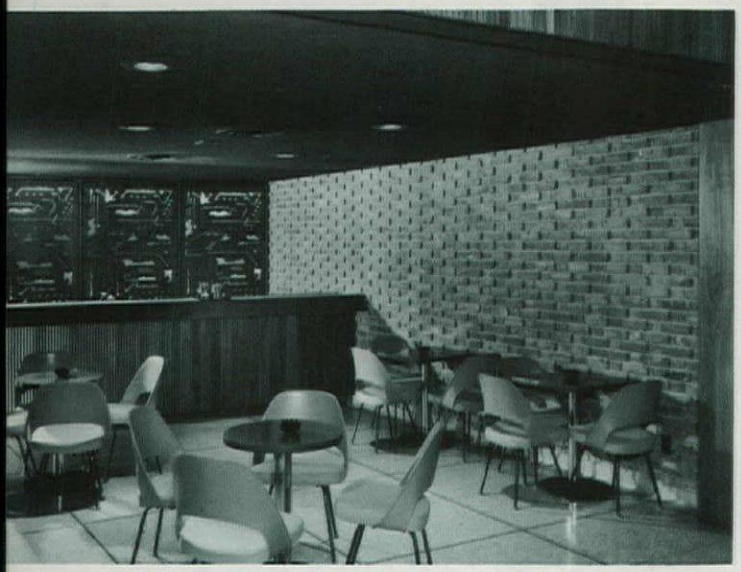
Painted screen at the entrance porch (right) *is built of 7/8" redwood. The terrace behind it* (below) *includes inset panels of ceramic tile (within redwood spacers) that echo the tile mural.*
Photos: Bob Hawks, Inc.



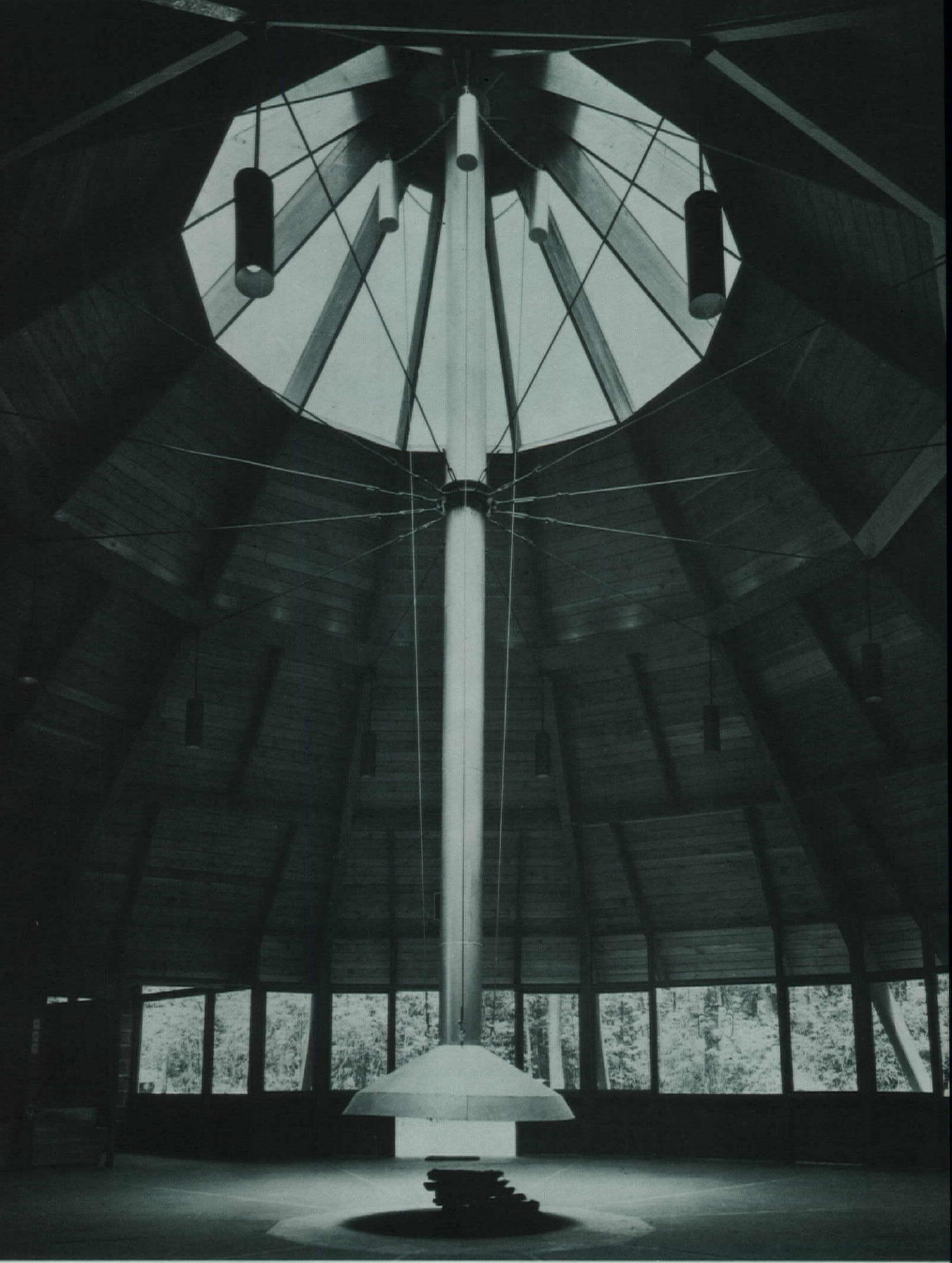
A Citation winner in P/A's Second Annual Design Awards Program, Meadowbrook Country Club was built for a newly organized group that wanted complete country-club facilities, with a special request that lounges and dining areas be as spacious as possible within a limited budget. It is built on the high point of the 160-acre property and overlooks the golf course. To achieve the desired spacious effect, the lounge, main dining room, private dining room and bar are all treated as one huge room, with alcoves.

The building has a light steel frame, organized in 16-ft. bays; the exposed columns also serve as window frames. Durable and easily maintained finish materials include terrazzo floor; used-brick, cavity, filler-wall panels; a colorful ceramic-tile abstract mural on a portion of the exterior wall; a large brick mural for the fireplace side of the lounge; and walnut paneling in the dining and bar areas. The building is fully year-round air conditioned. Sash are steel intermediate projected, with 1/4" polished plate glass. Natural light is controlled by 6-ft roof overhangs and fishnet draperies, as well as (later) by the developed landscaping.

Klein & Magnuson were Structural Engineers; James C. Netherton, Mechanical Engineer; Horster Construction Company, General Contractor.



On turning the corner at the far end of the fireplace wall of the lounge (above), *one enters the walnut-paneled main dining room* (below). *Treated as a large alcove off the dining room is the bar* (left) *with walnut-faced counter and decorative over-bar wall panels of ¾" solid-core walnut plywood. Floors throughout this area are terrazzo; ceilings surfaced in acoustical plaster.*



girl scout lodge

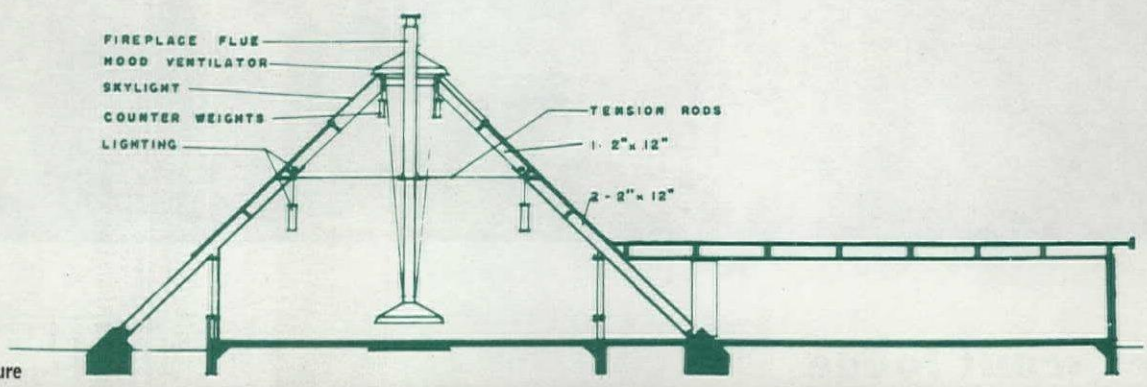
location | Annapolis, Maryland

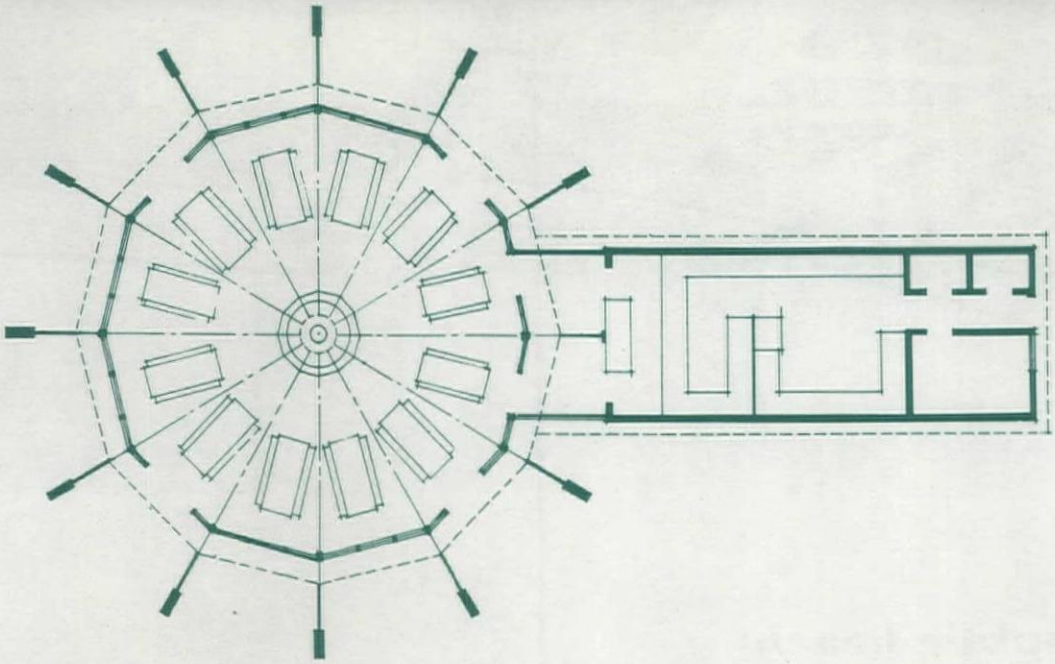
architects | Rogers, Taliaferro & Lamb

A wooded hilltop (acrosspage bottom) *near the center of the camp provided dramatic views, good drainage and soil-bearing conditions for the lodge.*

Fireplace hood in center of twelve-sided room may be elevated above eye level for dining and games (above), *or lowered for campfire ceremonies* (left).

Photos: M. E. Warren

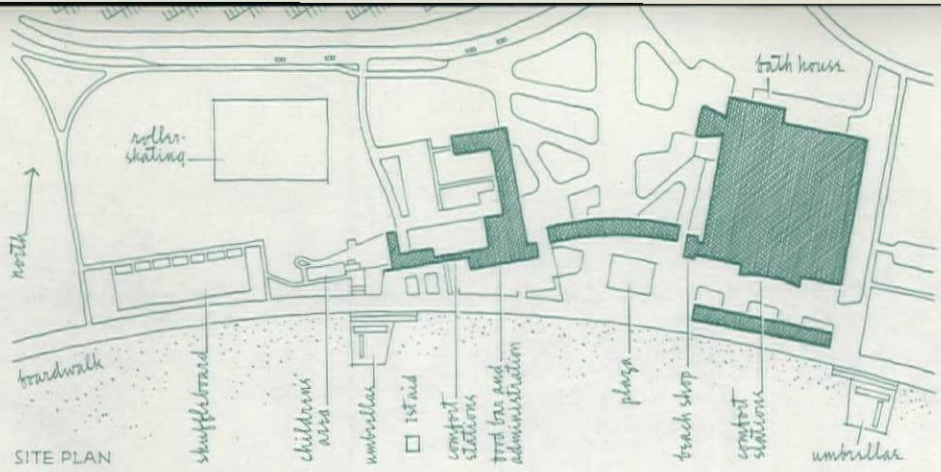




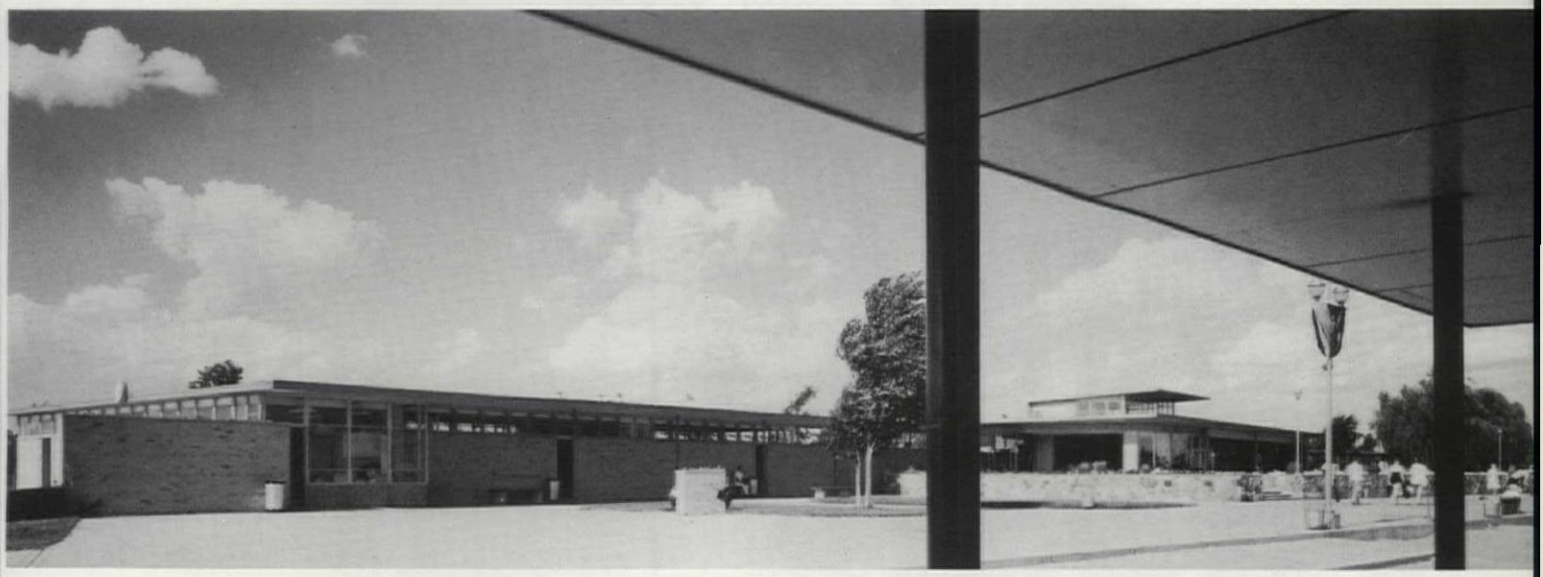
It would be difficult to imagine a more direct and pleasing architectural solution to the housing needs of 100 Girl Scouts, than this one. These were the requirements: a space suitable for indoor dining and recreation; a fireplace as focal point of the room for camp-fire ceremonies; the area to be well lighted and ventilated for predominant summer use; the structure to be erected at lowest possible cost, using amateur volunteer labor; adequate kitchen and service facilities; provision for a future administrative wing. The architects' solution: a twelve-sided conical structure with a fireplace in the center, circled by twelve dining tables. For dual use of the room, the hood of the central fireplace may be raised or lowered *(opening page and* SELECTED DETAIL). Ample light enters through the screened windows around the perimeter and through an apex skylight. Natural ventilation is induced by a ventilator at the peak of the cone. By using the skin of the building as a structurally integral part, framing members were kept to minimum size and weight. Kitchen and administrative wings were kept low to dramatize the bold form of the lodge.

public beach

location	Lake St. Clair, Michigan
architects	O'Dell, Hewlett & Luckenbach Associates
associate-in-charge	George K. Harris
landscaping	Huron-Clinton Metropolitan Authority



SITE PLAN



Metropolitan Beach, a lakeside public resort developed for the five-County Huron-Clinton Metropolitan Authority, is 22 miles from downtown Detroit. The 550-acre property, which has parking for 6000 cars, a boat basin, extensive picnic grounds, and various on-land recreational facilities (including an 18-hole golf course), is of interest, architecturally, both for its over-all plan and for the group of buildings disposed along some 2400 feet of the beach bordering Lake St. Clair.

Outside the complex shown in the aerial photograph is a dance area *(across-page bottom)*, with 40′x80′ floor, stage, canopies, and seating along the sides.

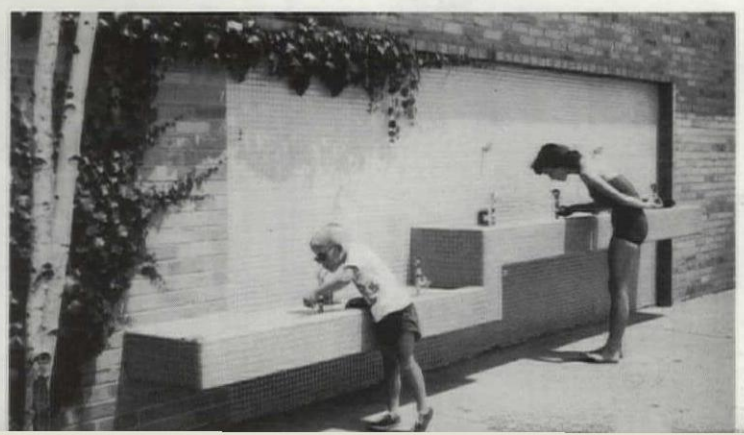
Consultants to the architects were E. R. Little Associates, Engineers; and William Housel, Consultant on soil conditions. Required sizes of the bathhouses and other major facilities were determined by the Huron-Clinton Metropolitan Authority, with Earl Andrews serving as Consultant. The Architects wish special credit given to the Authority's Director, Kenneth L. Hallenbeck, and to Klenner and Lamley, respectively Chief Engineer and Landscape Architect for the Authority.

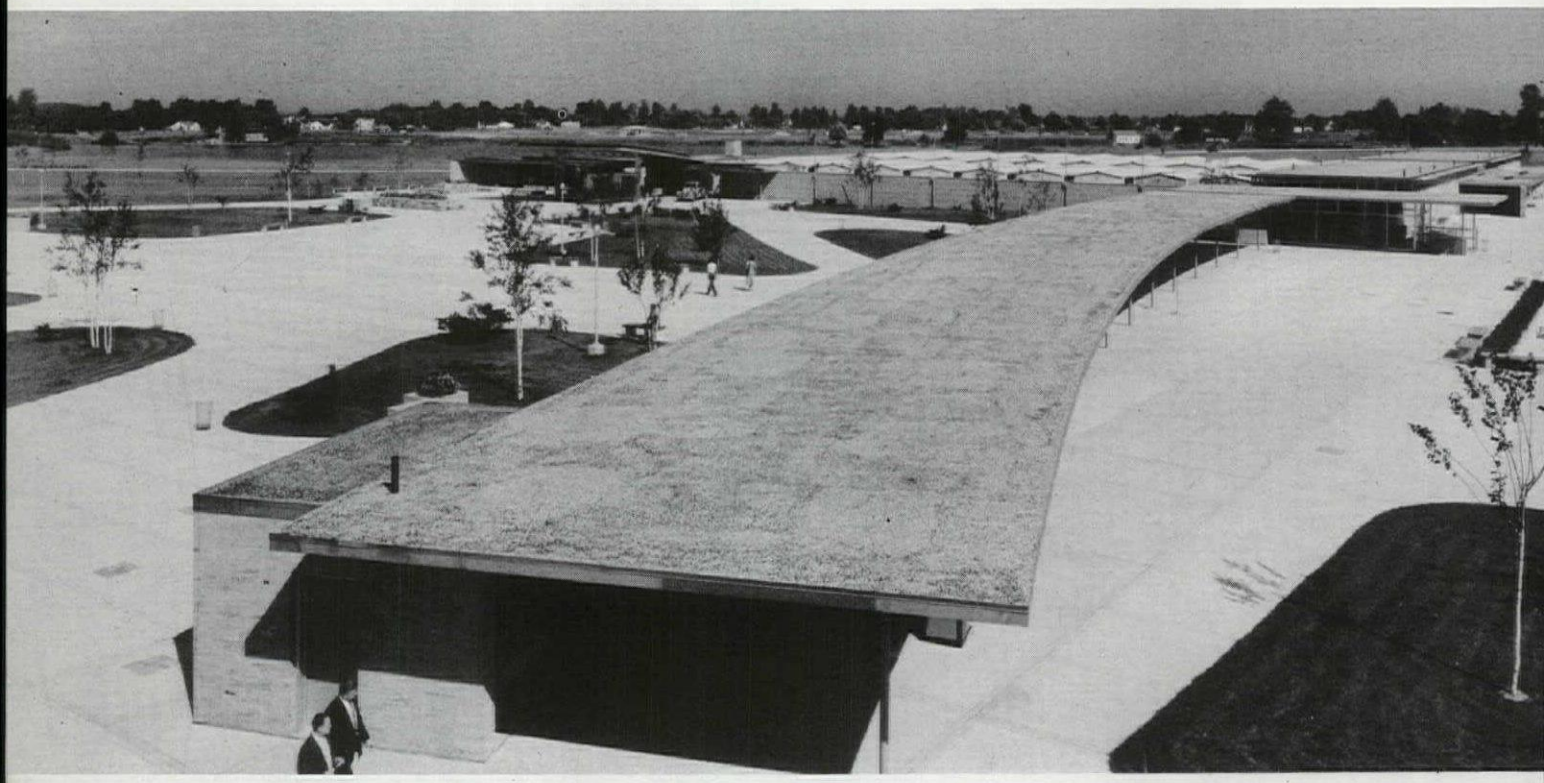
The main building group is organized in a crescent following the curve of the 300-ft-deep beach. The First Aid Building and main Food Bar and terrace *(above)* are joined by a canopy. To the rear of the latter is the Administration wing. Future units will include an Olympic-size swimming pool, continuation of the boardwalk, overlook buildings at either end of the walk, and an artificial skating rink.

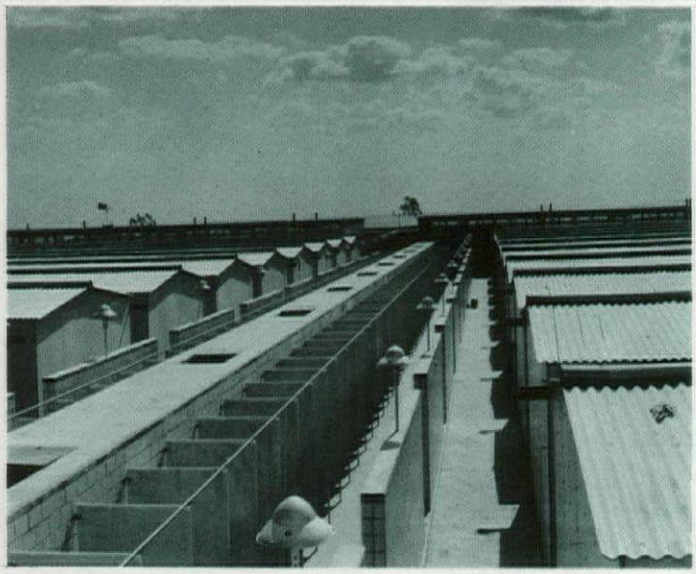
The buildings chiefly rest on concrete piles and wood piles (undeveloped site was a swampy area); main units have steel frames, masonry walls, and concrete floors and roofs. Sash are aluminum. Both incandescent and fluorescent lighting are used. The whole developed area has area lighting, or provision for its installation in the future.

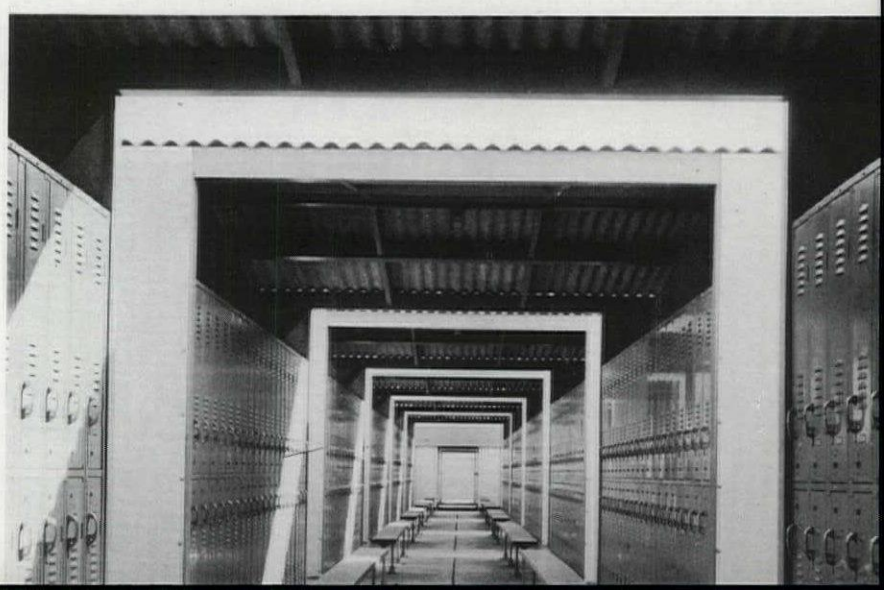
General Contractors for various units: C. E. Tackels, Barton Malow Company, George W. Auch Company, and Whitman Construction Company.

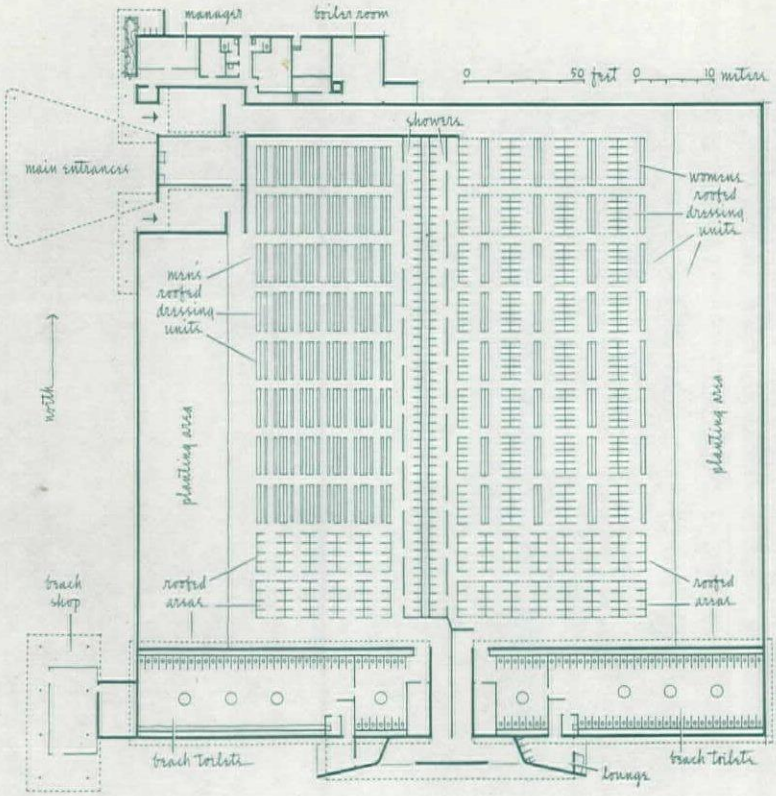
Photos: Joe Munroe; Lens-Art

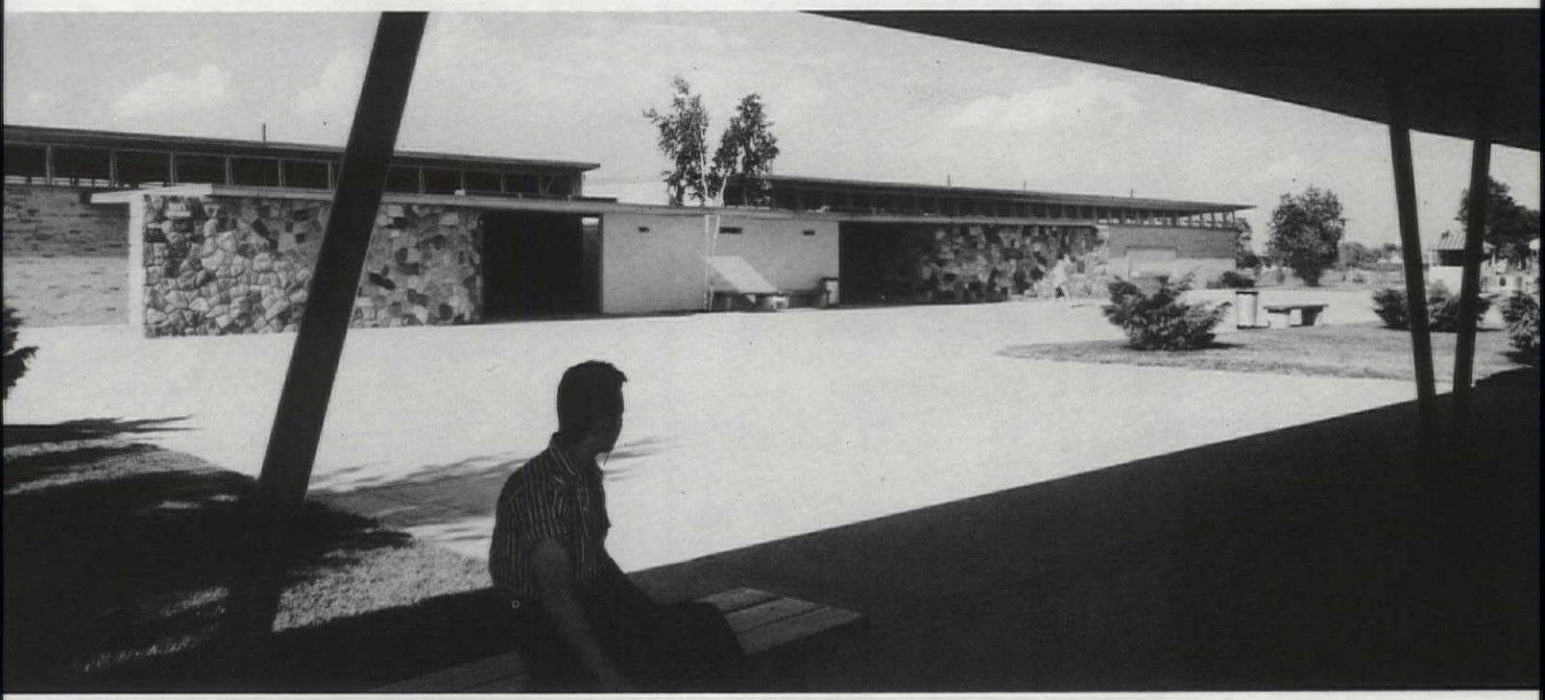




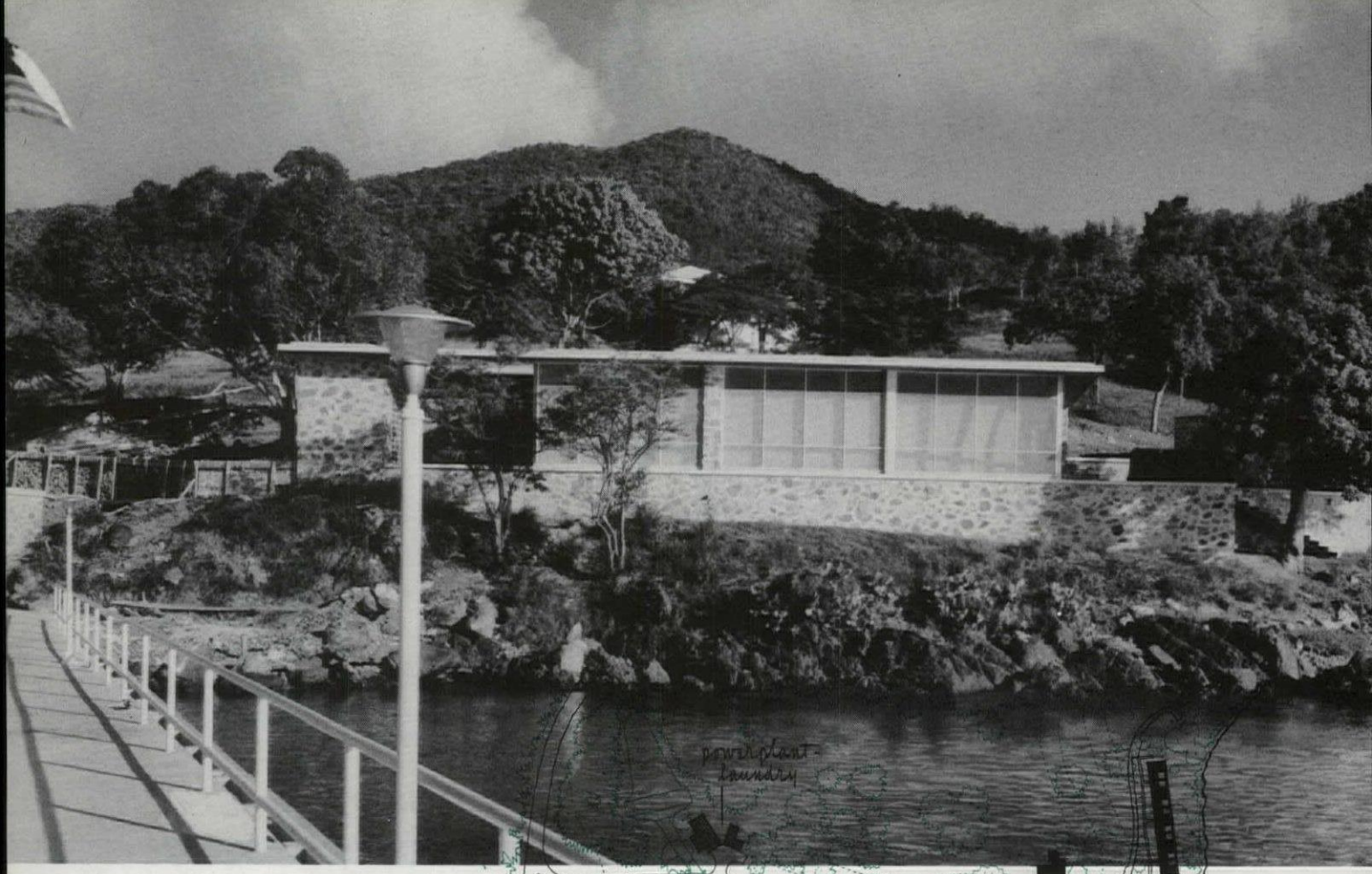


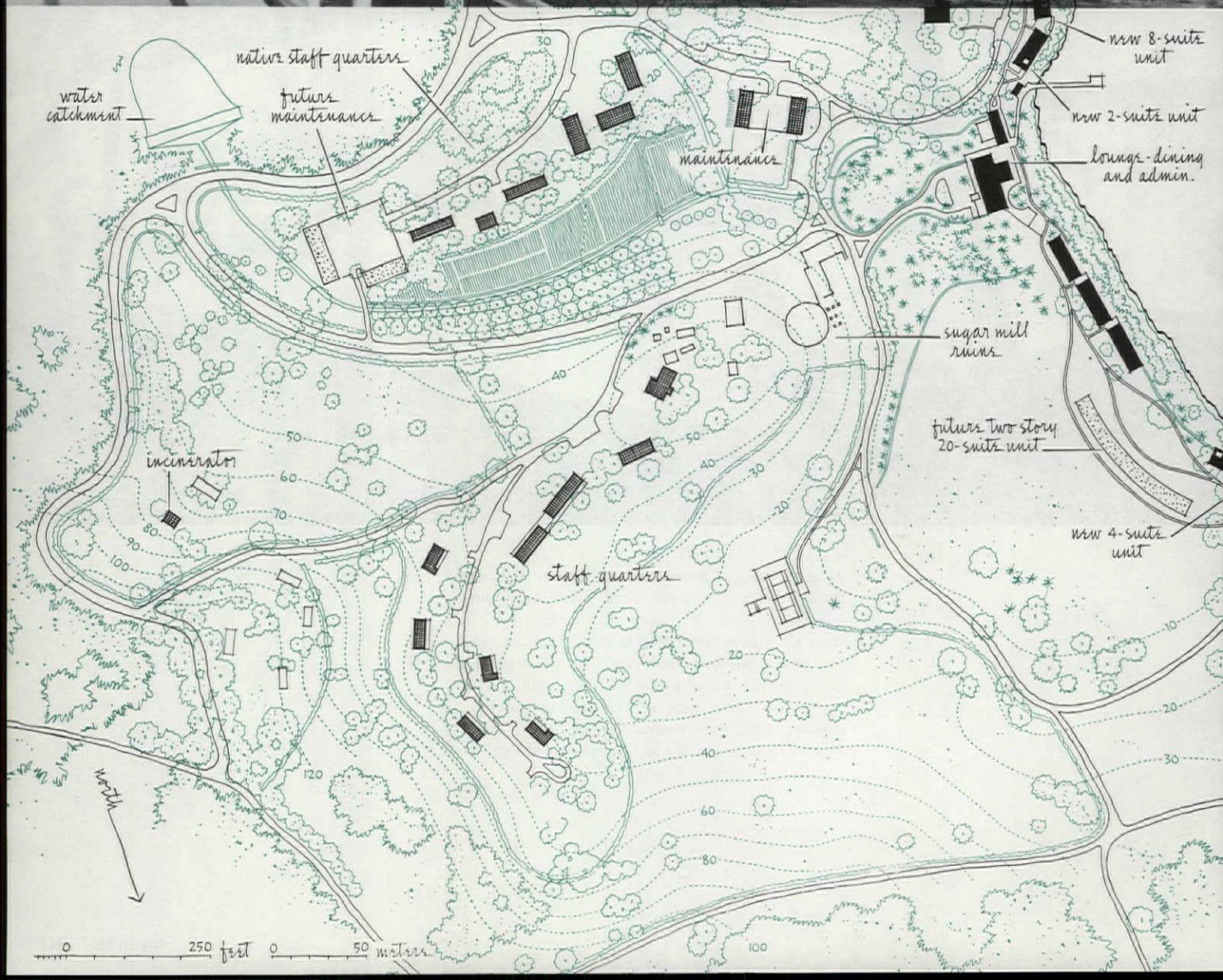






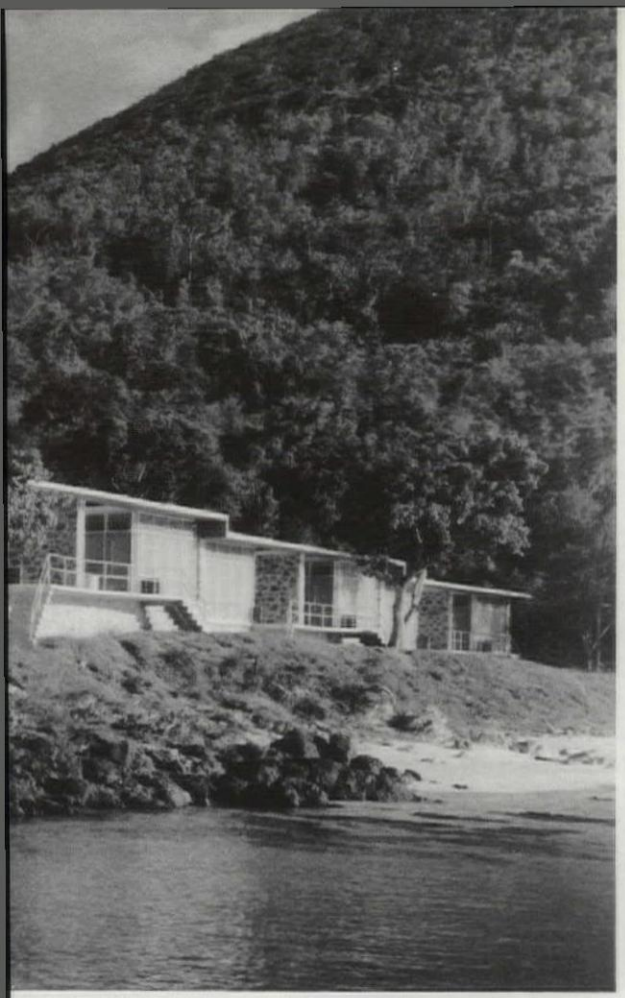
A curved canopy (acrosspage top) *borders the central plaza and leads from the Food Bar (out of photo, foreground) to the bathhouse (background). The latter* (above) *contains 6000 lockers, 192 private dressing rooms, showers, and rest rooms. Locker units* (acrosspage), *while protected from rain by short canopy roofs, are open to sun and air. Banks of shower stalls, with central service core, form the division between men's and women's dressing areas.*




power plant-
laundry
native staff quarters
water
catchment
future
maintenance
maintenance
new 8-suite
unit
new 2-suite unit
lounge-dining
and admin.
sugar mill
ruins
future two story
20-suite unit
new 4-suite
unit
incinerator
staff quarters
north
0 250 feet 0 50 metres

island resort

location	St. John, Virgin Islands
architects	LaFarge, Knox & Murphy
partner-in-charge	L. Bancel LaFarge
site planner-landscape architect	Bryant J. Lynch
interior decorator-color consultant	Ann Hatfield



Alexandre Georges

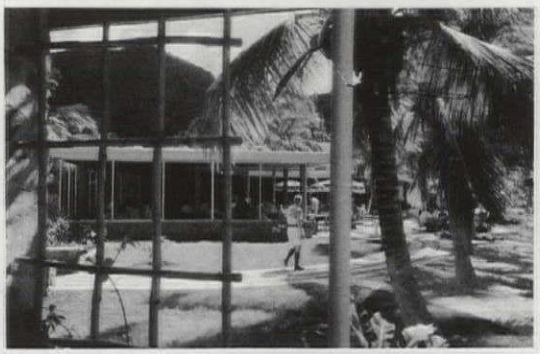
Sam Falk

island resort

The northwest tip of St. John, the smallest of the three (U.S.) Virgin Islands and also the site of a new National Park, is the location of Caneel Bay Plantation. This beach resort takes its name from the picturesque ruins of an 18th Century Danish sugar mill on the 600-acre site. The prime objective of landscape planner and architects has been to maintain the primitive beauty of this remote island. Guest houses informally follow the southwestern seashore and all are oriented toward the magnificent views. At present, including some previously existing buildings which have been rehabilitated, the resort can house 90 persons. Total occupancy, on completion, will be limited to 130. Overlooking a yacht basin and a new boat dock is the central building, which contains kitchen, bakery, stores, office, gift shop, manager's quarters and dining and cocktail terraces. A lounge with roof deck adjoins the central building. Equally well sited and carefully incorporated into the total plan are the housing units for the permanent resident staff. These cottages are remote enough from guests accommodations to insure complete privacy. Another cluster of living quarters toward the south has also been set aside for the staff. All of the new construction employs local-stone masonry or stuccoed-cement blocks. Foundations are poured concrete. For guest facilities, reinforced-concrete slabs were chosen to provide structural stability against hurricanes. Staff and service buildings have roofs of pressure-treated wood or corrugated asbestos. Unusual factors, such as the direction and strength of the prevailing trade winds, occasional hurricanes, the necessity for importing all materials except local stone, the lack of native skilled or even unskilled construction labor presented many design and construction problems and resulted in delays and unusually high building costs. "If this had been fully realized at the outset," writes Architect LaFarge, "termite-treated wood-framed roof construction might have been preferable, but the factor of hurricane damage is ever-present." Numerous engineering problems, to be solved because of the remote and primitive nature of the site, included the installation of a water catchment, storage, and purification system; layout of the electrical distribution system; sewerage and storm water diposal; and construction of a public highway to connect with Cruz Bay. Praeger-Kavanagh were Structural-Mechanical Engineers. Richard Kelly was Lighting Consultant.

Alexandre Georges

Alexandre Georges



Sam Falk

Cottages for permanent resident staff (above).
Dining terrace for guests (left *and* acrosspage).
Guest lounge (below).

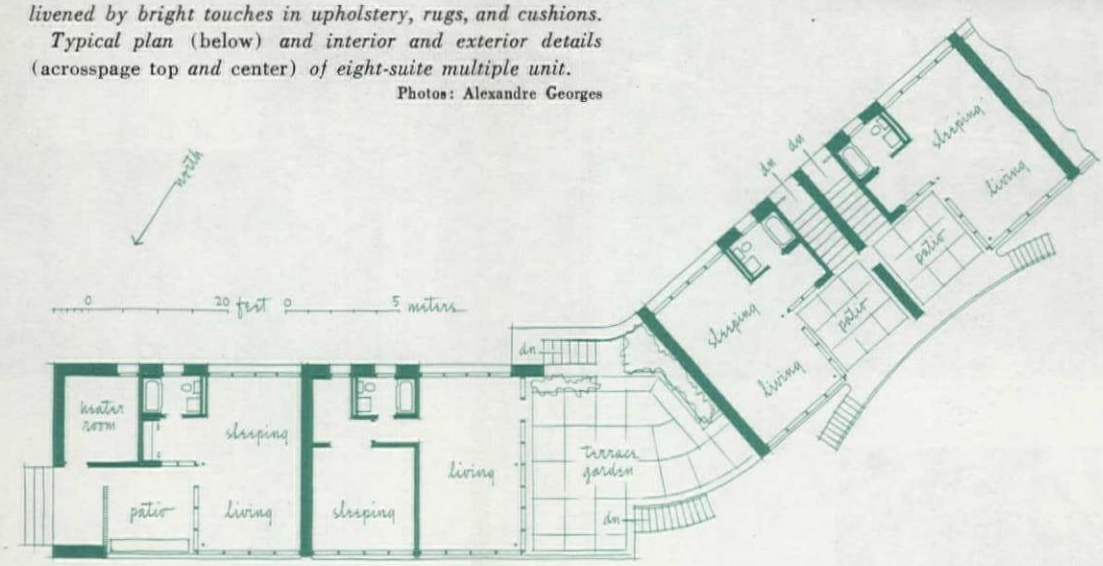
Henry Ries

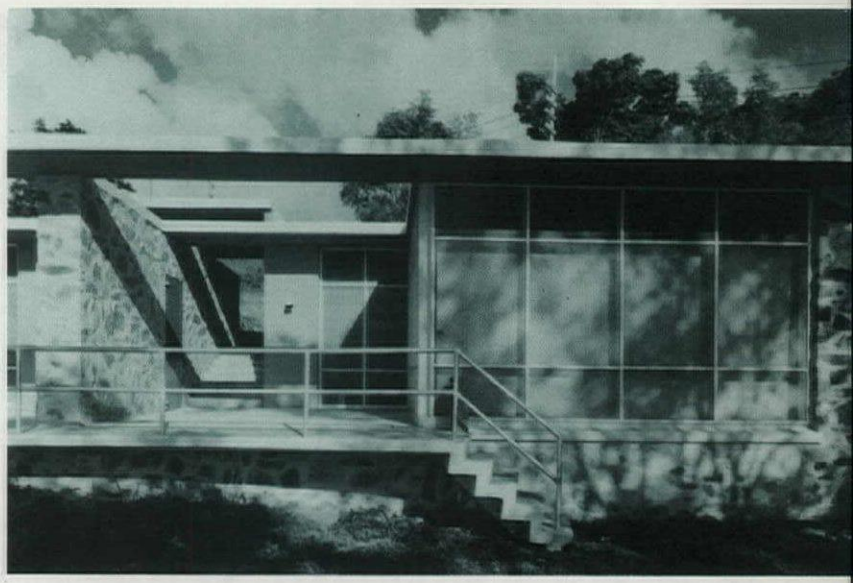
New "guest and staff accommodations," write the architects, "were oriented as much as possible to catch the prevailing breezes. Air is channeled on the 'venturi' principle through each suite." Wind and rain are controlled by aluminum-framed jalousies employing redwood or glass blades. Wood-slat window shades provide privacy, control sun and light in each suite. Patios have openings in the roof slab for air movement.

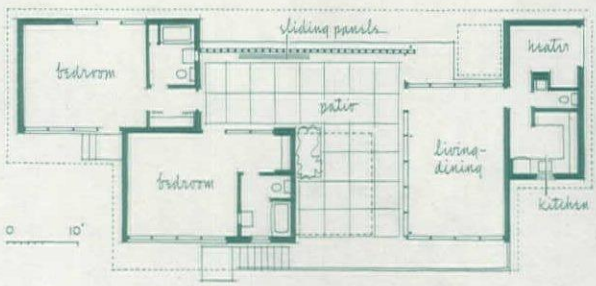
The interior color scheme is based on earth tones, enlivened by bright touches in upholstery, rugs, and cushions.

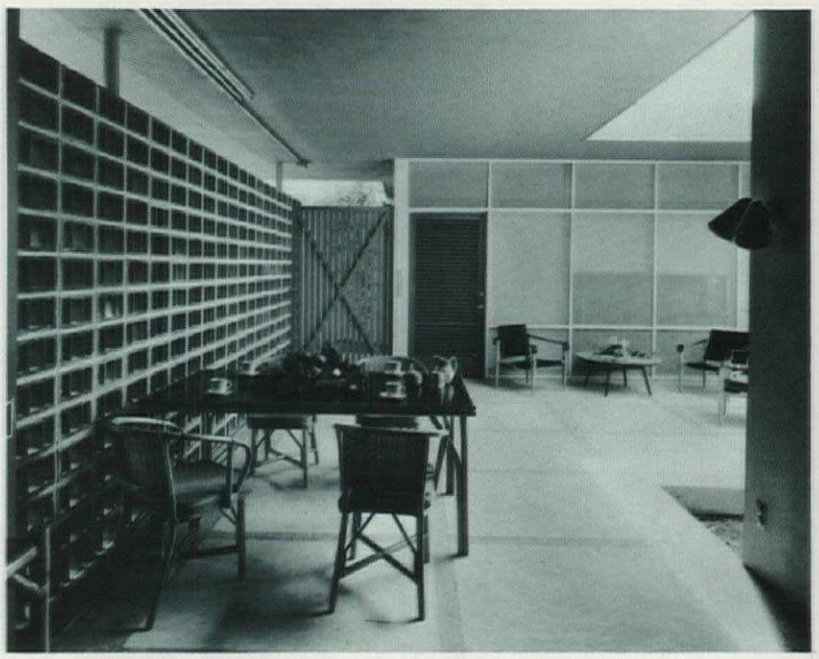
Typical plan (below) *and interior and exterior details* (acrosspage top *and* center) *of eight-suite multiple unit.*

Photos: Alexandre Georges





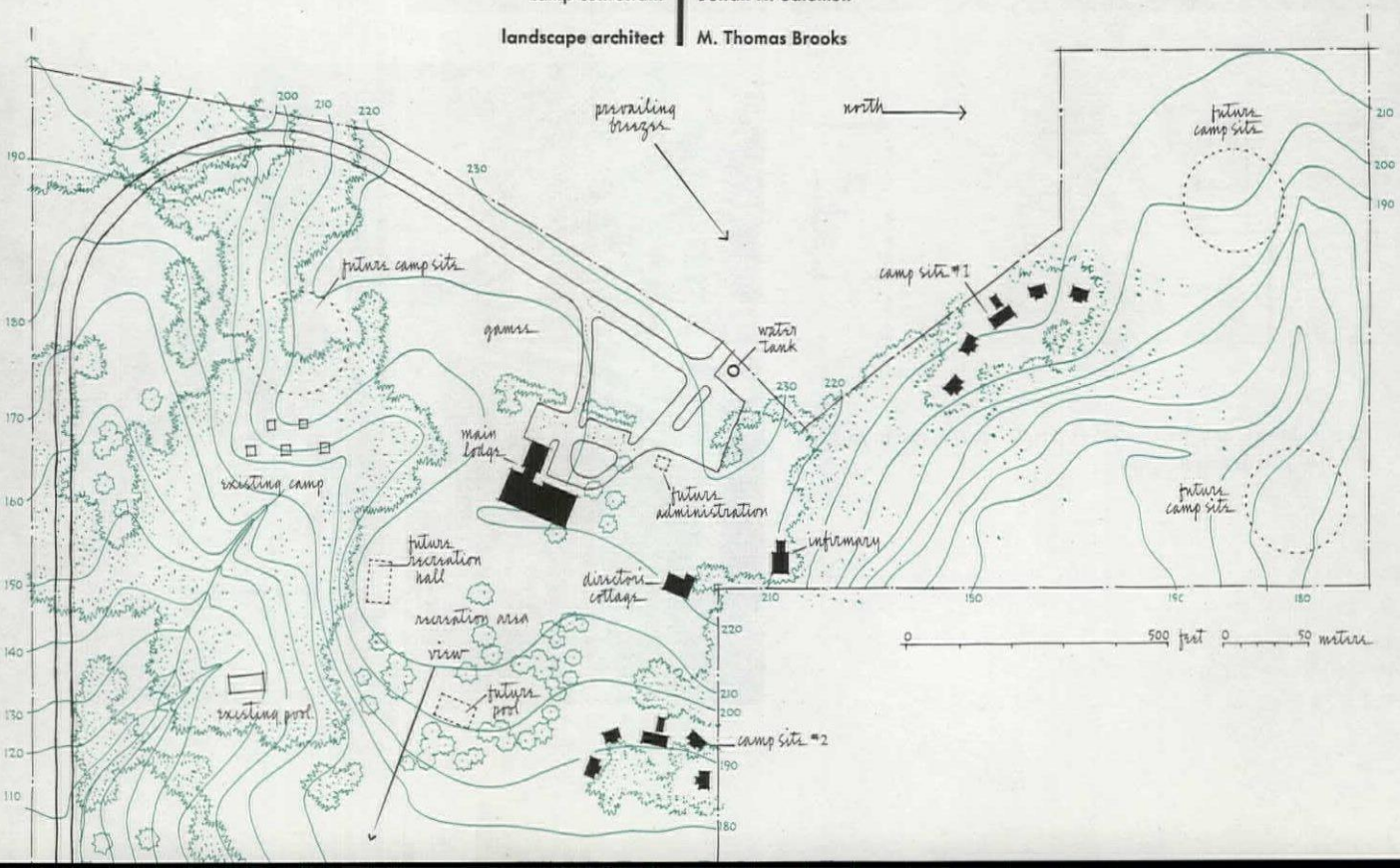


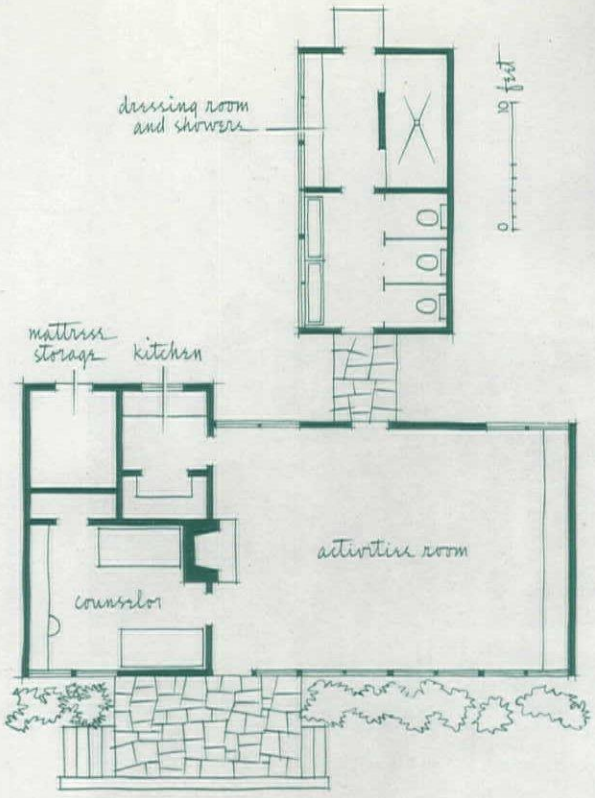


Plan (above) *and patio details* (right *and* acrosspage bottom) *of two-bedroom cottage.*

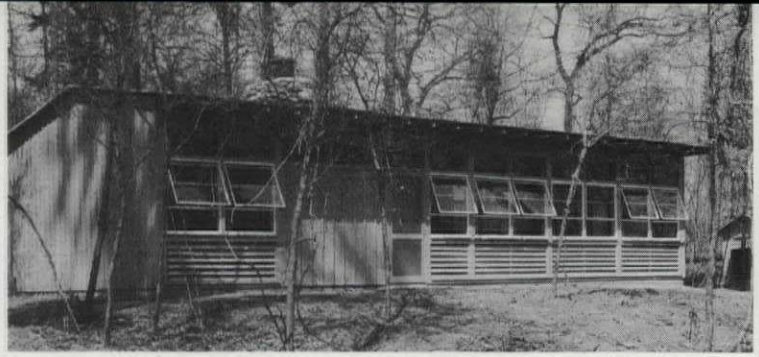
YWCA camp

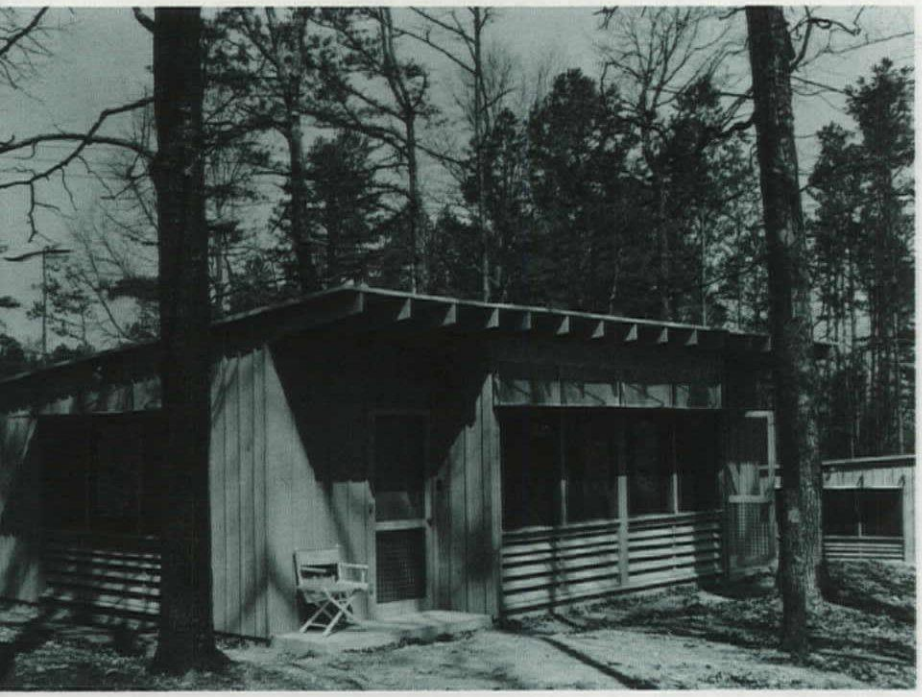
location	Elmore County, Alabama
architects-engineers	Sherlock, Smith & Adams
architect-in-charge	Eugene T. Millsap, Jr.
camp consultant	Julian H. Salomon
landscape architect	M. Thomas Brooks

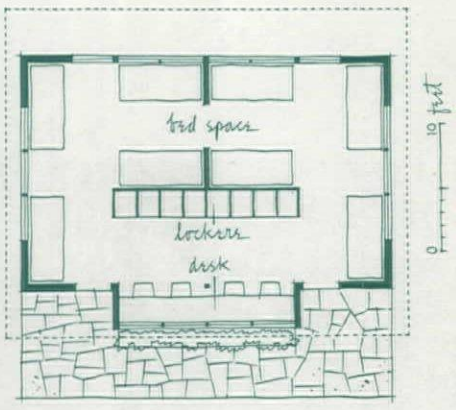




Typical unit-activities building



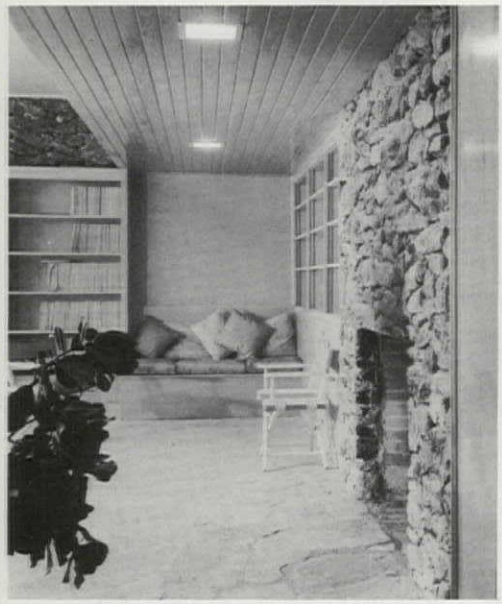


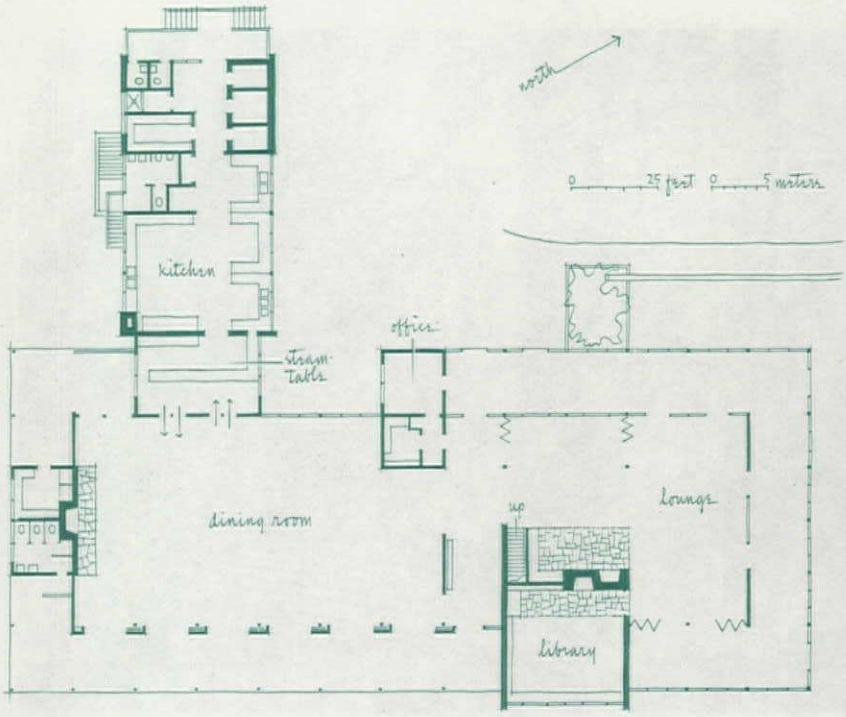


Typical cabin for eight

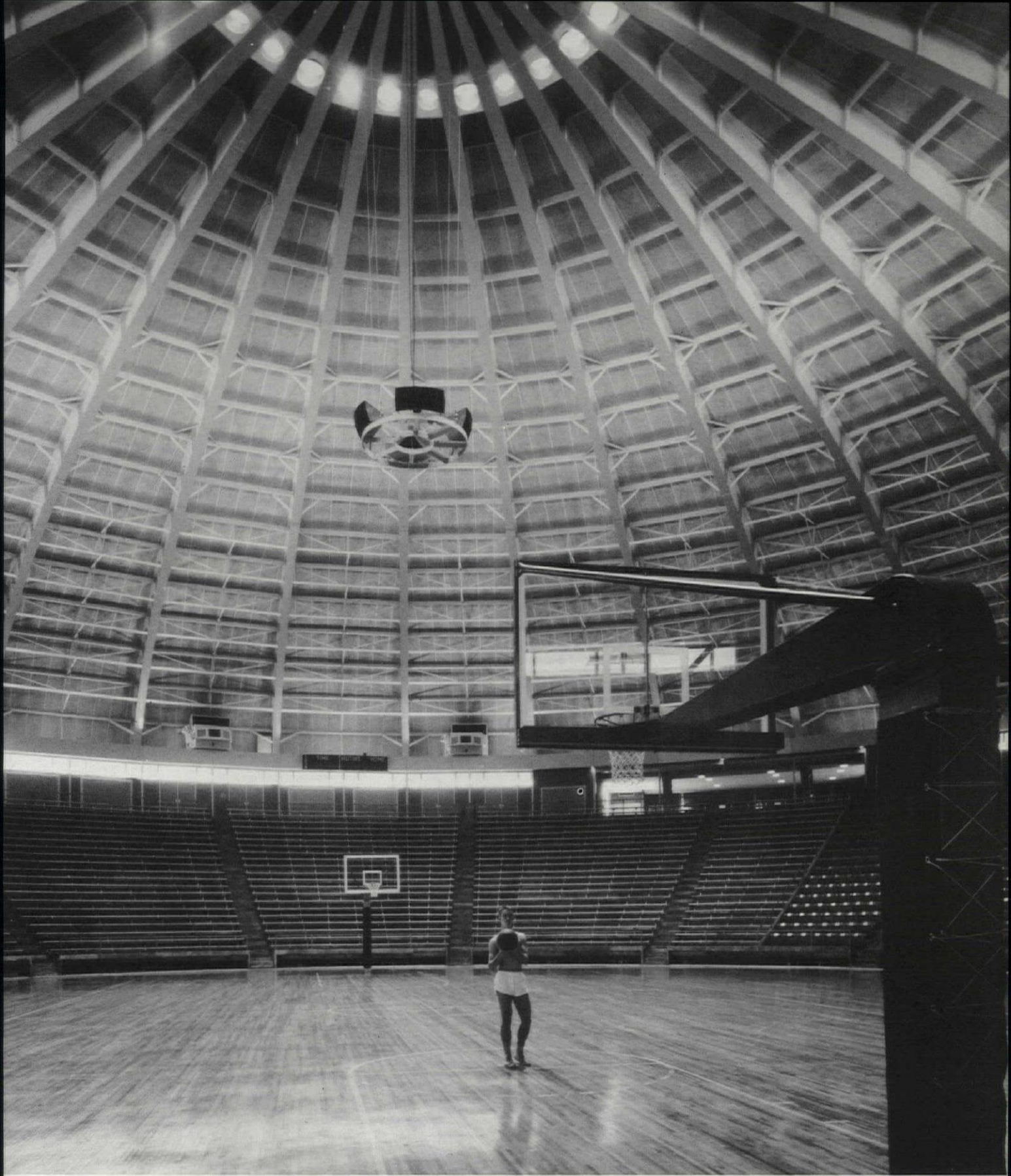
The program for Camp Grandview, built for the Montgomery, Alabama, YWCA, involved preparation of a master plan for the rebuilding of its inadequate and antiquated camp. Located on a richly wooded, rolling 65-acre site, the camp is planned for eventual year-round use by religious and civic groups; adults, as well as children. First completed units are the main lodge; director's cottage; infirmary; two camp units (each with four cabins for eight persons, plus a unit-activities building); and the entrance gate. From the outset, the architects determined to save trees wherever possible, and the building-design approach was to "maintain a rustic quality, while striving for a contemporary design character." Floors of all units are plain, smooth concrete for the present; roll roofing will be replaced with a built-up roof with white-marble chips when funds allow. Structures are mainly wood framed, including roof trusses and joists; wall areas are of wood board-and-batten or native stone. All wood walls are stained warm gray to harmonize with the stonework. Sash are steel throughout.

Thomas D. Champion was Structural Engineer; Templeton & Mason, General Contractor. *Photos: Betty Baldwin*





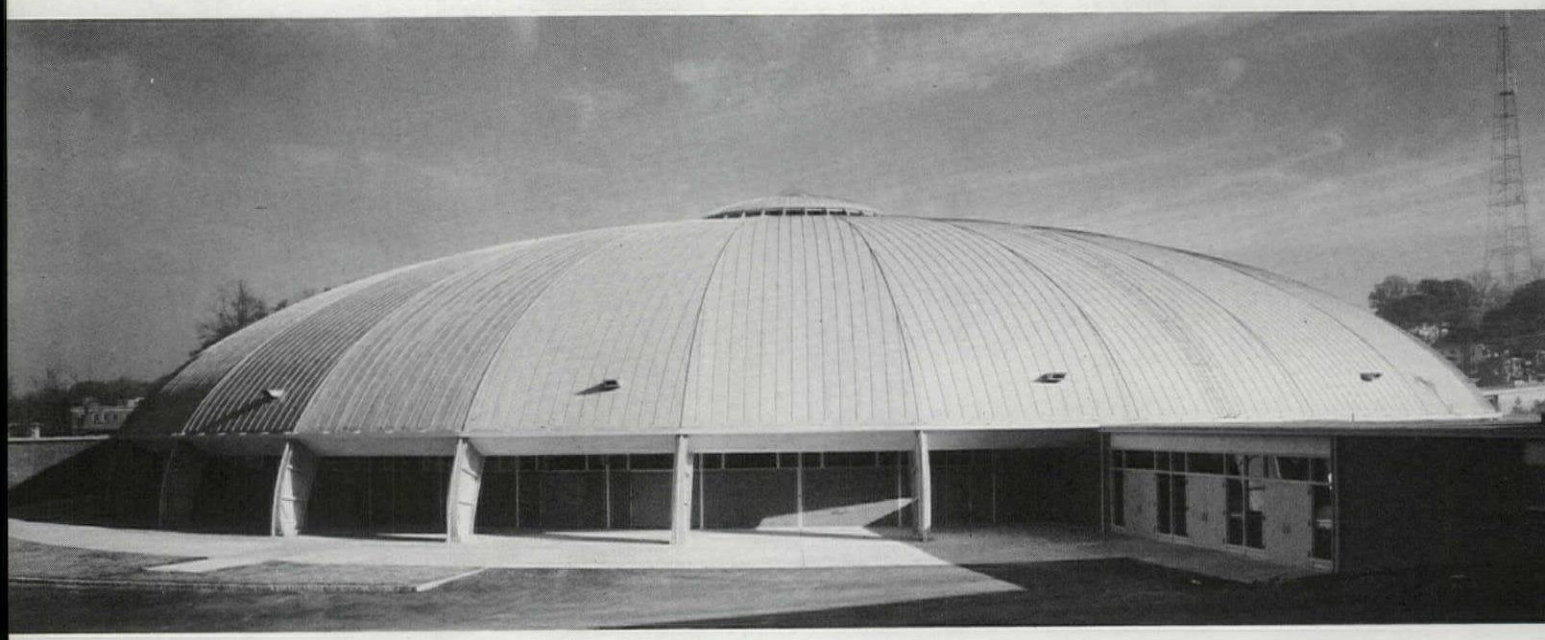
With the exception of the library (above), *the public-use space in the main lodge is essentially one large area, for lounging, play, and dining, with screen partitions that can separate the different areas. Wide porches almost completely surround the public areas.*

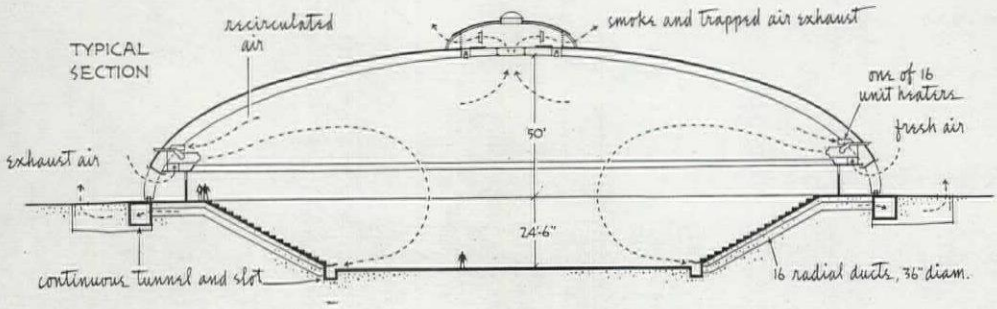


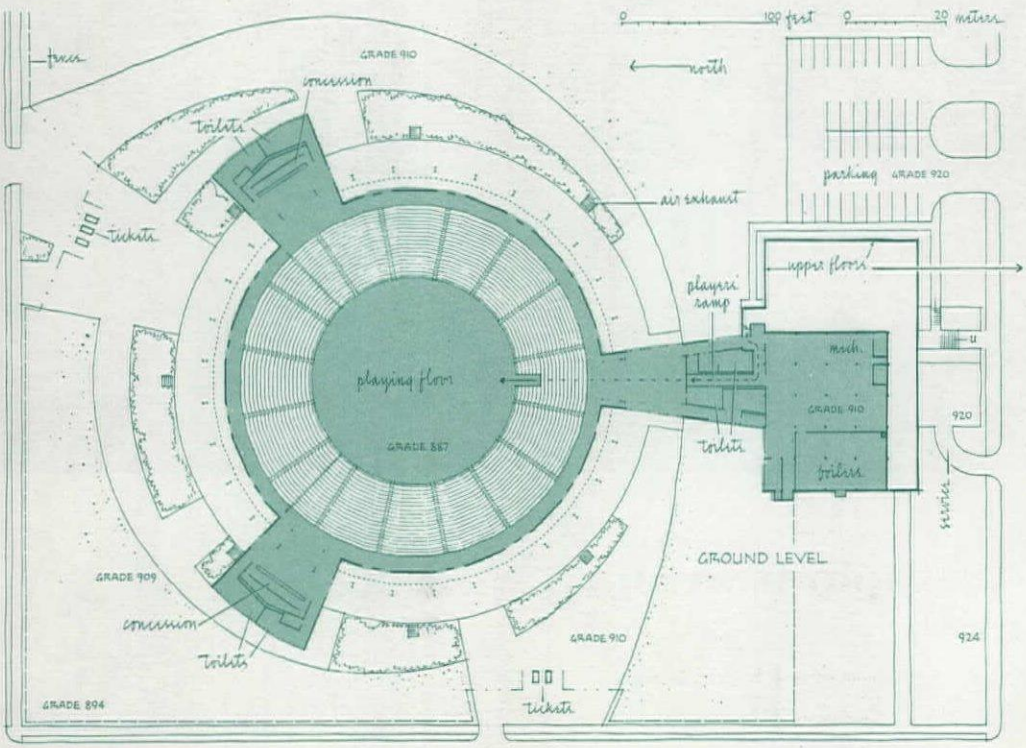
sports arena

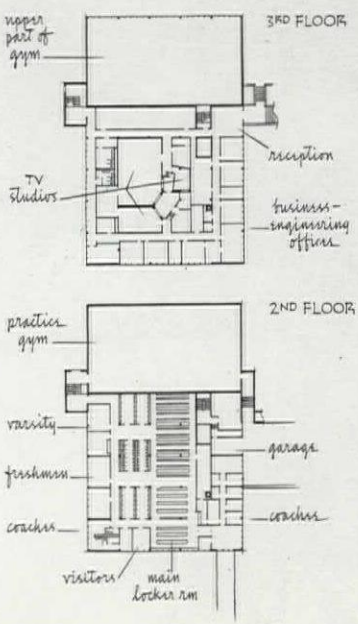
location | Atlanta, Georgia

architects | Aeck Associates




TYPICAL SECTION
recirculated air
smoke and trapped air exhaust
one of 16 unit heaters
fresh air
exhaust air
50'
24'-6"
continuous tunnel and slot
16 radial ducts, 36" diam.


100 feet
30 meters
north
fence
GRADE 910
concession
toilets
tickets
air exhaust
parking GRADE 920
upper floors
players ramp
mech.
playing floor
GRADE 887
GRADE 910
toilets
toilets
920
service
GROUND LEVEL
GRADE 909
concession
toilets
GRADE 910
924
GRADE 894
tickets

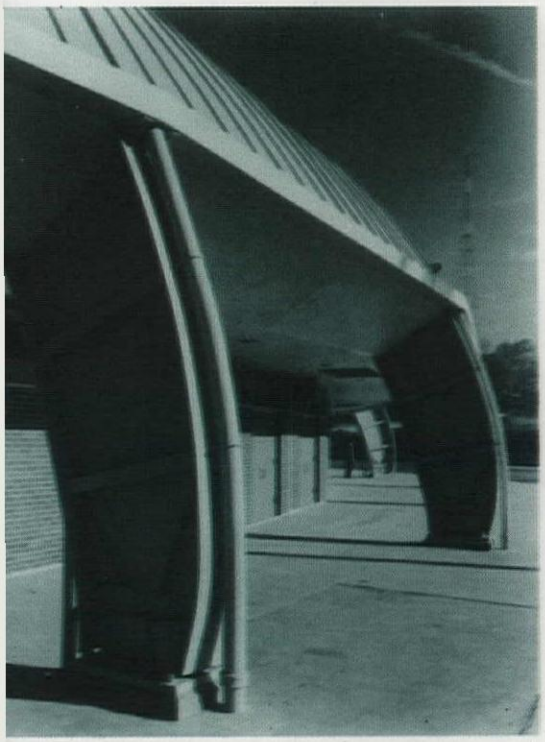

upper part of gym
3RD FLOOR
reception
TV studios
business - engineering offices
practice gym
2ND FLOOR
varsity
garage
freshmen
coaches
coaches
visitors
main locker rm

Perhaps the most remarkable thing about this striking new arena — the Alexander Memorial Center, designed and built for the Georgia Tech Athletic Association on the Atlanta campus—is that approximately one-third of it (the banks of seating and the playing floor) is below grade; side walls are almost nonexistent; the arched ribs that frame the domed roof are the whole structure of the building. Many economies resulted from the scheme. Each of the 32 elliptical, built-up, welded girders (3 ft deep at foundation and at top where they meet on a 10-ft circular crown girder; 4½ ft deep at the haunch) are identical which, according to Aeck, effected "a great saving in steel design and fabrication." The bowl of the stadium was scooped out of the earth, and the concrete seating was poured on grade. The arena portion of the Center (a separate structure houses mechanical room, dressing rooms, practice gym, and the Georgia Tech radio station) came to less than $15 per foot, complete with indirect lighting, speakers, etc.

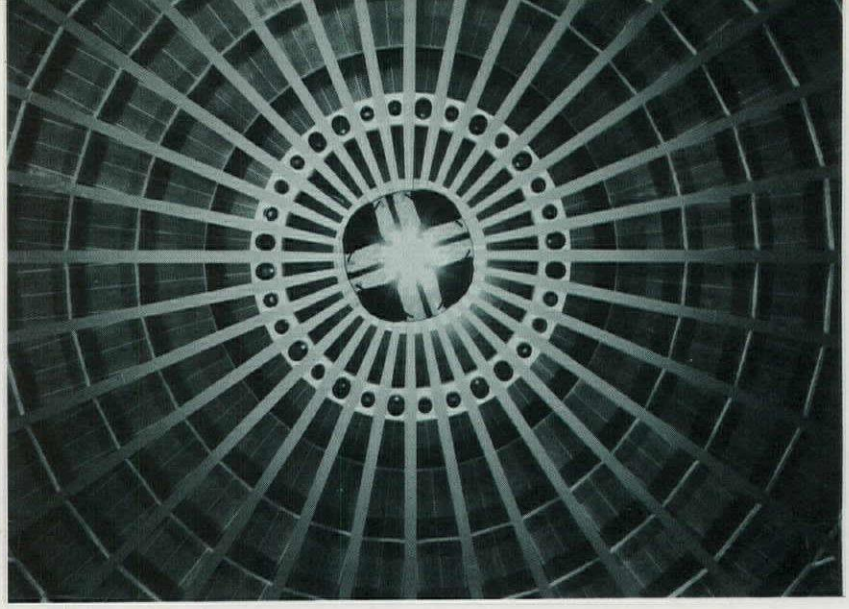
The arena structure is 270 ft in diameter, the dome soaring 50 ft above grade, and the playing floor occurring 25 ft below grade. Atop the big dome is a secondary dome structure 38 ft in diameter that contains fans to exhaust stale air and adjustable floodlights for the playing floor.

Above the 26 pairs of entrance doors and completely encircling the building is a deep cove *(see section)* in which 12 unit heaters are located—units that also move fresh air when heat is not needed. In this same recess there are general-lighting fixtures, and six platforms that give unrestricted vision for television and movie cameras, radio and public-address announcers.

Associated on the job were Morris, Boehmig & Tindel, Inc., Structural Engineers; Charles F. Howe, Electrical Engineers; Donald F. Lindstrom & Associates, Mechanical Engineers; and Mion Construction Company, Inc., General Contractor.



The elliptical, built-up, welded girders span 130 ft from hinged foundations to a circular girder at the crown, 10 ft in diameter. The ribs consists of a web plate and two flange plates, with bulb tees for stiffeners. Wood-chip concrete boarding is the sheathing, and the roof surface is 40-lb standing-seam metal. Photos: Joseph W. Molitor



Diameter of the hard maple playing floor is 132 ft—large enough for an exhibition tennis court, including backstops, or two basketball courts. Topping the 38-ft dome structure (that houses ventilating fans and floodlights) at the peak of the big dome is an 8-ft-diameter plastic skylight.

Materials & Methods

construction

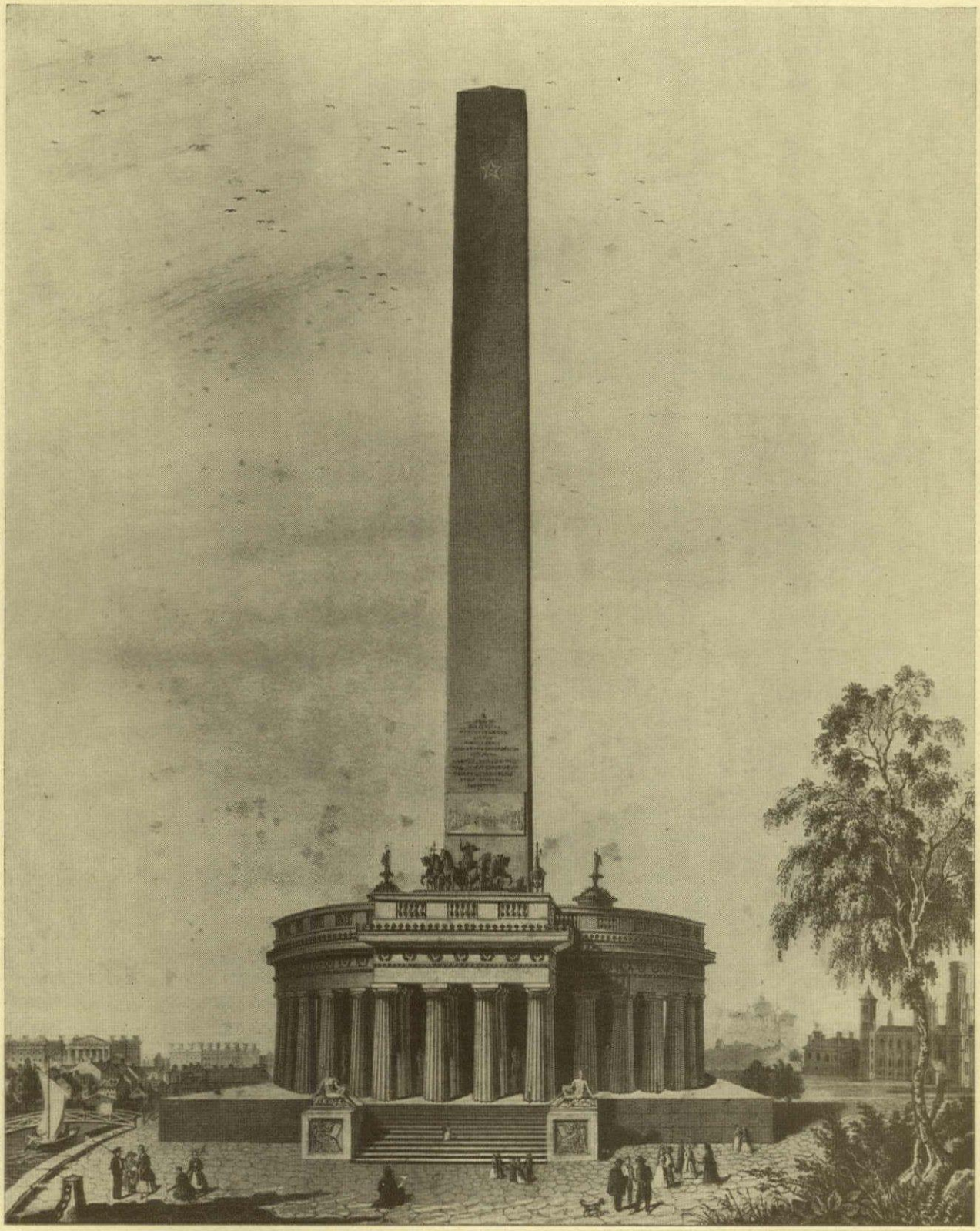
Foundation: steel piles – Raymond Concrete Pile Company. **Structure:** frame: structural steel–Calvert Iron Works; walls: brick and concrete; floors: concrete: reinforcing steel–Atlantic Steel Company; roof concrete slabs. **Surfacing:** walls: outside and inside: face brick; rest rooms, toilets: structural glazed tile–Arketex Ceramic Corporation; floors: cement finish; northern hard-maple gym floors–Loxit Systems, Inc.; ceiling-exposed structural steel; wood-fiber-cement slabs – Porete Manufacturing Company; roof: standing-seam type. **Waterproofing & damproofing:** three-ply membrane under wood floors. **Insulation:** acoustical–Celotex Corporation. **Roof Drainage:** drains: wrought-iron pipe. **Partitions:** interior: concrete block and brick. **Windows:** steel sash–The William Bayley Company; acrylic-plastic dome skylights–Wasco Products, Inc. **Doors:** steel interior and entrance doors–Superior Fireproof Door & Sash Company. **Hardware:** lock sets–Schlage Lock Company. **Paint & Stain:** exterior–Tnemec Company, Inc.; interior–The O'Brien Corporation.

equipment

Specialized Equipment: public address–Altec-Lansing Corporation; stadium chairs–American Seating Company: **Lighting Fixtures:** auditorium area: mercury-vapor floodlights–Westinghouse Electric Corporation; stage area: incandescent floodlights. **Electric Distribution:** service entrance switch, panelboards–Westinghouse Electric Corporation. **Plumbing & Sanitary:** American Radiator & Standard Sanitary Corporation. **Heating:** boiler – Orr & Sembower, Inc.; unit heaters–Dravo Corporation; ventilators–American Blower Corporation; controls –Minneapolis-Honeywell Regulator Company.

PROGRESSIVE ARCHITECTURE IN AMERICA

THE WASHINGTON MONUMENT—1836-1884
Washington, D. C.
Robert Mills, Architect
Col. Thomas A. Casey, Engineer



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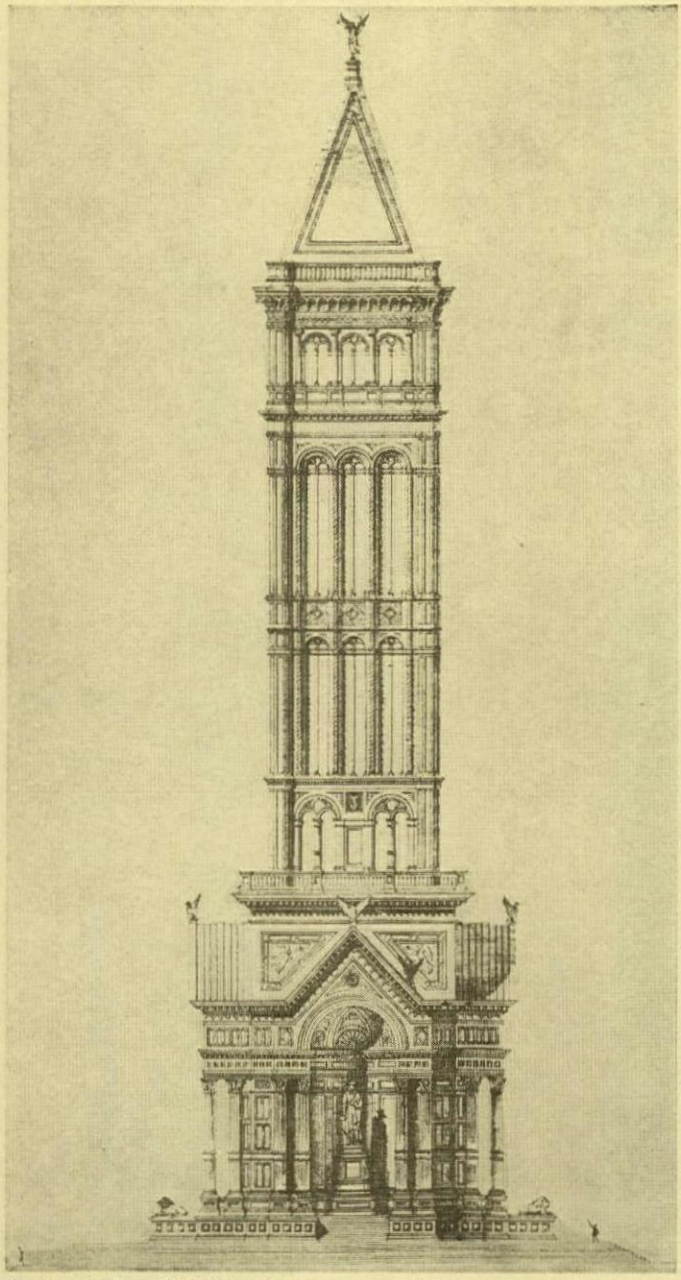
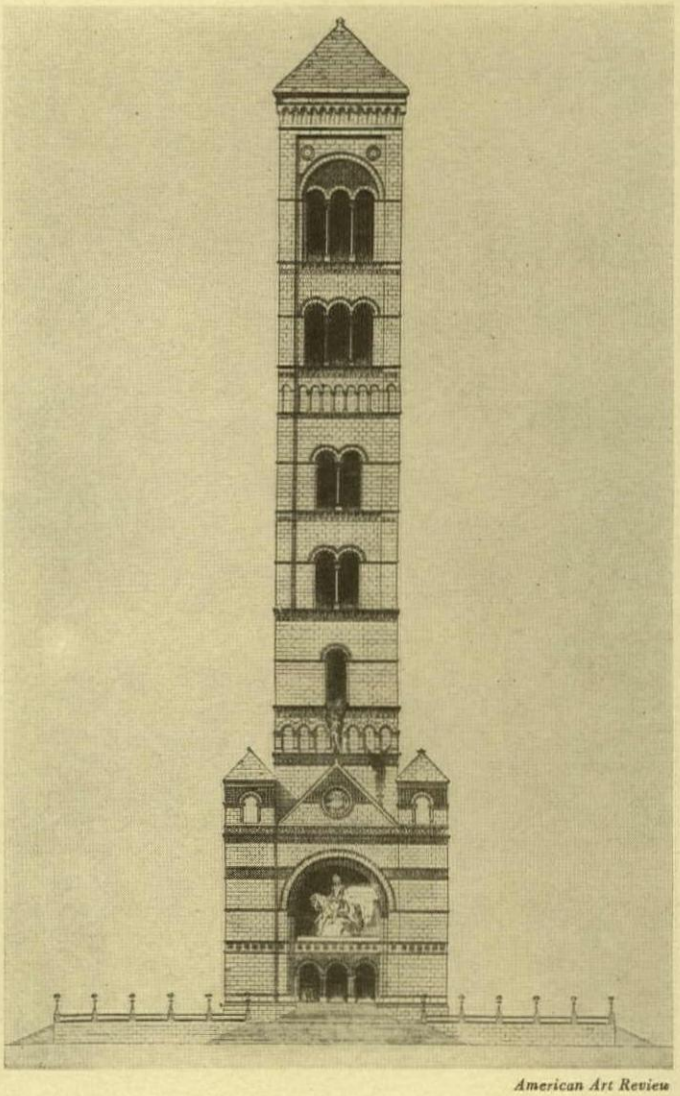


American Architect & Building News

The partially completed obelisk, rising sheer from the Mall, was so offensive to Late Victorian esthetes that an official suggestion to submit designs for concealing the existing shaft produced a number of schemes notable for their picturesque complexities.

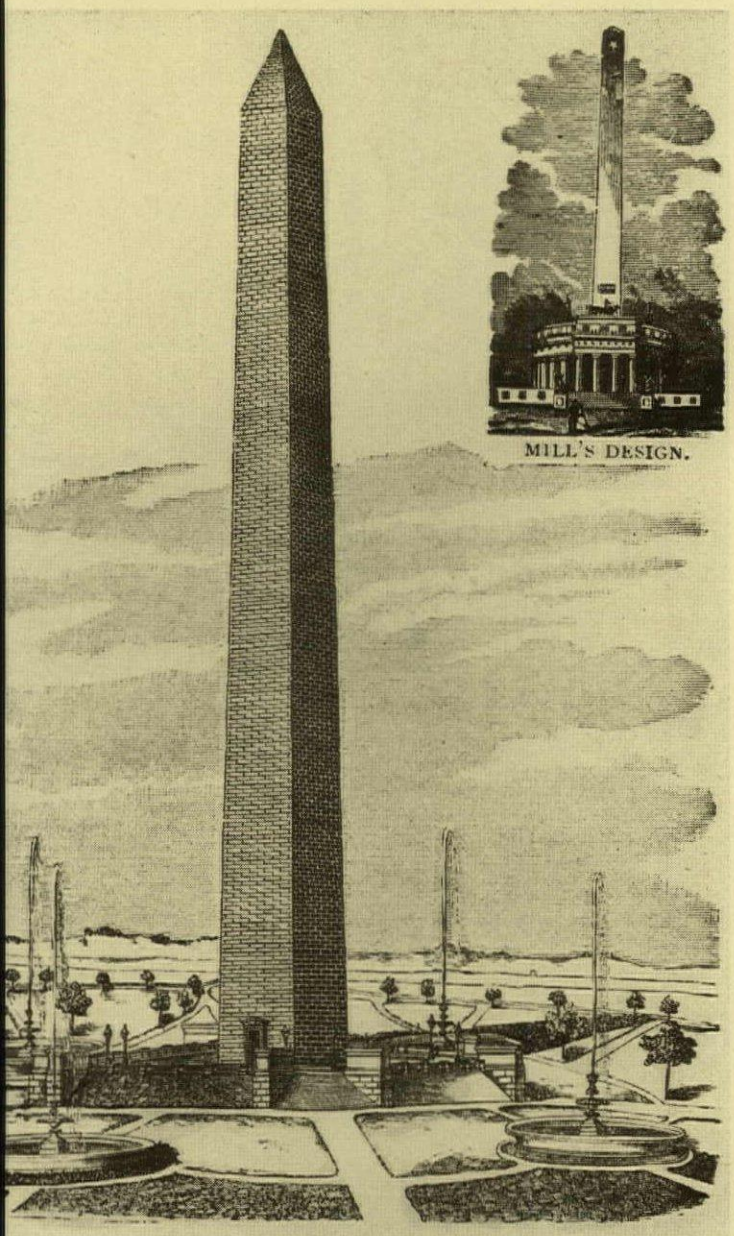


American Art Review

For many years, the Washington Monument has been accepted as one of the world's most successful commemorative structures. Its severity and size, the classic simplicity of its abstract geometric form, have established it as a timeless symbol and a great work of monumental architecture. And yet the story of its design and erection is an interesting, entertaining, but often irritating chronicle of the vicissitudes of architectural progress.

This unadorned obelisk, which took more than a million dollars and almost a century to build, involved four Government investigations, caused bitter artistic controversy, and an international diplomatic scandal, and is as much a symbol of the provocative and significant division between 19th Century architecture and engineering as it is of national unity. It is also a unique cultural monument, in the sense that its form evolved through a natural, cumulative process, not as the work of one designer but as the result of many forces over a considerable period of time. It was begun, according to Frederick Gutheim, "in the spirit of romance," "completed in the spirit of cold rationalism and science," and designed by "the spirit of the age."

After several false starts, including Congressional authorization of an equestrian statue as early as 1783 and the substitution of a mausoleum in 1800 (to be "of American granite and marble in pyramidal form"), the Washington Monument Society was organized privately in 1833. In 1836, a design (see preceding page) by Robert Mills, architect of the Treasury Building, was accepted. It called for a 500-foot obelisk, surrounded by a massive, colonnaded Pantheon. The top of the obelisk was almost flat and the shaft was to be ornamented with a plaque and inscription at the base, a Masonic star at the top. The total height of the structure was 600 feet; its cost was estimated at $570,000 for the Pantheon and $550,000 for the obelisk. In 1848, Congress authorized the Washington Monument Society, which had $87,000 on hand, to go ahead with the million-dollar scheme. Optimistically, the cornerstone was laid on July 4, the dedication speech equating the virtues of the monument and the man, in the savored purple oratory of the day: "Build it to the skies—you cannot outreach the loftiness of his principles; found it upon the massive and eternal rock—you cannot make it more enduring than his fame; built it of the whitest Parian



MILL'S DESIGN.

THE WASHINGTON MONUMENT. (OBELISK)

Keim's Illustrated Handbook of Washington And Its Environs

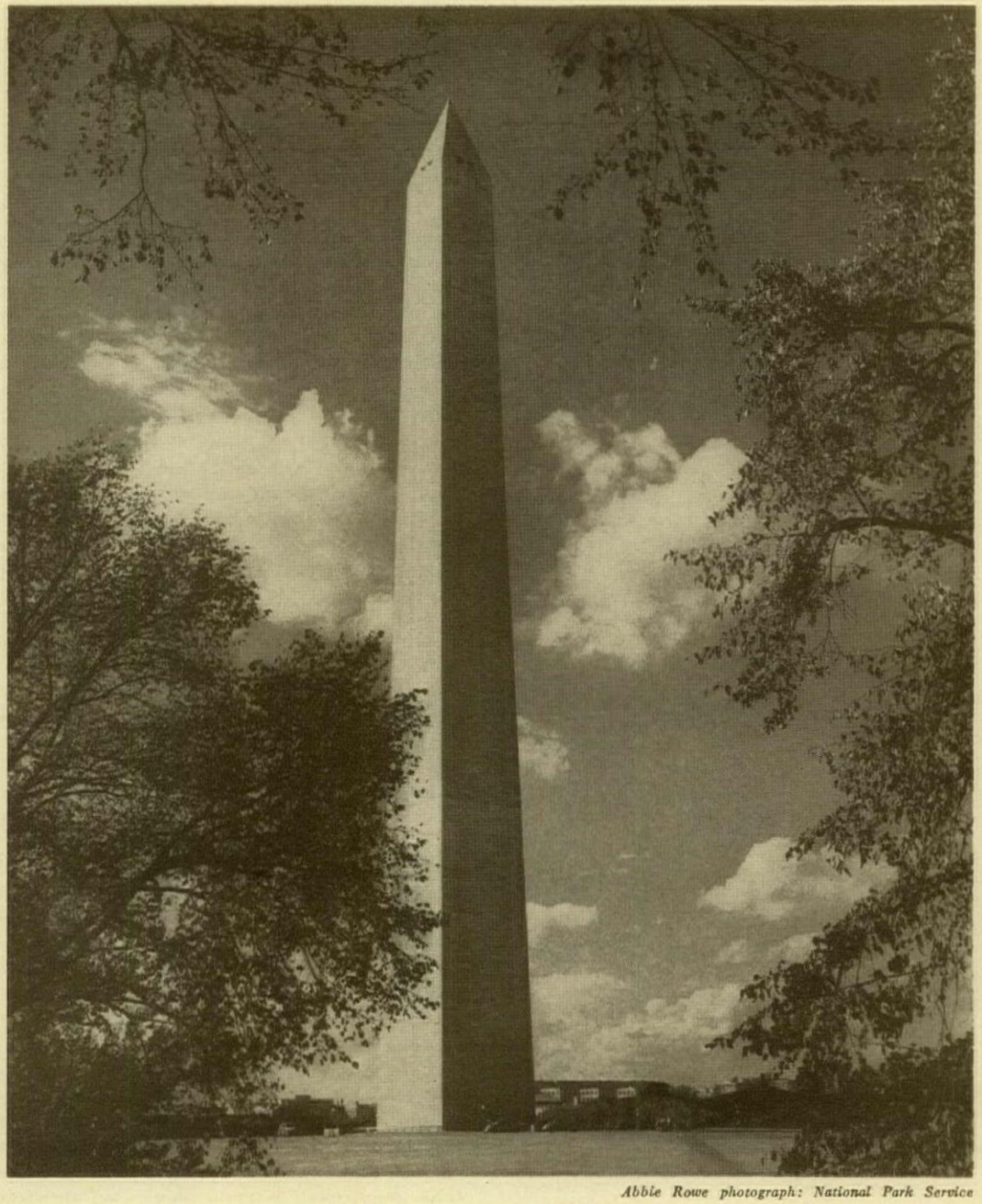
marble—you cannot make it purer than his life."

It was not long, however, before it became apparent that sandy clay, not eternal rock, was providing an inadequate foundation for the mammoth scheme — and even more apparent that there was an acute shortage of funds. Contributions of commemorative stones kept the work going until 1854, when international repercussions caused by the shocking theft of a large stone presented by the Vatican brought a complete halt to all operations. For the next twenty-odd years the unfinished monument stood as a picturesque ruin on the Washington plain, a romantic point of pilgrimage for sightseers and lovers, and a bit of a blot on the national pride. After the Civil War, reconstruction brought a new impetus for its completion and, as the Federal City refurbished in the 70's for the Centennial Year, the Government took over the project. The questionable foundations became the subject of a number of investigations by U.S. Army Engineers. In 1873, one of their reports suggested that the original, elaborate Pantheon be supplanted by a simple terrace, which would also serve to conceal the foundation injuries. In 1874, after a more careful examination, the Chief of Army Engineers recommended that the shaft be reduced one third, that it be built with thinner walls and lighter materials, and that architects be asked to suggest some way in which the monument might be finished without adding to its height.

This request was the signal for an esthetic argument seldom equaled in gentlemanly virulence, and a series of substitute designs unsurpassed for ambitious vacuity. As examples of wedding-cake eclecticism, they comprise a fascinating record of the approved academic architecture of the age—and the reactions of "informed" architectural criticism. When the foundations of the monument were strengthened with concrete, from 1877 to 1880, and Congress authorized funds to go ahead with construction, the controversy raged in earnest. Architects united in a body against the Army Engineers, hurling every rule in the current book of architectural esthetics at their heads. There was no question in anyone's mind that it was a crucial issue—a question of art versus mathematics—and that national honor was at stake. *The American Architect and Building News*, calling it, "an undertaking so conspicuous and so deliberate that it will be accepted by the world as a type of our best progress," urged architects to meet the emergency with "at least a respectable show of art," and damned the stripped-down design as "a monstrous obelisk, so cheap to design but so costly to execute, so poor in thought, but so ostentatious in size." Mills himself had said that his obelisk, shorn of its Pantheon, would look like "a stalk of asparagus." It was called "one of the blankest, meanest, ugliest, and most unmeaning piles that ever encumbered the globe . . . ," and was likened to a great, bald factory chimney, perhaps the "tallest and ugliest in the world." All men of culture agreed unanimously: "This form of monument is the refuge of incompetency in architecture."

The Victorian architect based his judgments on a very conscious set of esthetic rules. If he condemned all that was simple, symmetrical, and unadorned, he admired all that was intricate, irregular, and complex. The varied, picturesque outline, with its subtle changes, was considered more "artful" than regularity. A plain shape or unrelieved surface was "monotonous" and "unimaginative"; infinite and multitudinous variations of form, scale, and ornamentation, preferably of an exotic nature, were the mark of creativity. The degree of controlled complication dictated the degree of esthetic success. This led to the kind of *precieux* nonsense that made it possible for a respected critic like Henry van Brunt to suggest in *American Art Review* (1880) that while a certain design for revision of the monument might be a bit "enthusiastically overloaded in respect to detail," it was commendable for its "strong points of affinity with some of the better Hindu pagodas," and to describe it as "the outline of a heroic poem, crowded with incidents, set forth with a degree of rhetorical elegance which is full of promise." A much simpler, but equally preposterous scheme by one John Frazer, which would have disguised the monument's stump as a 12th Century North Italian bell-tower, was thought to be a "careful, timid, precise work of archeological design," unpleasing in its "monotonous, round-arched openings," the "recurrence of similar heights of stories," and its "bald and unstudied outlines." Restraint or rationality was obviously considered equivalent to lack of inspiration. Never a word was said about the suitability of these *recherché* cultural themes for a monument of specifically national character.

It was only to be expected that a design of this nature should be solemnly considered as a substitute for the "stalk of asparagus." The Joint Commission of Congress and the



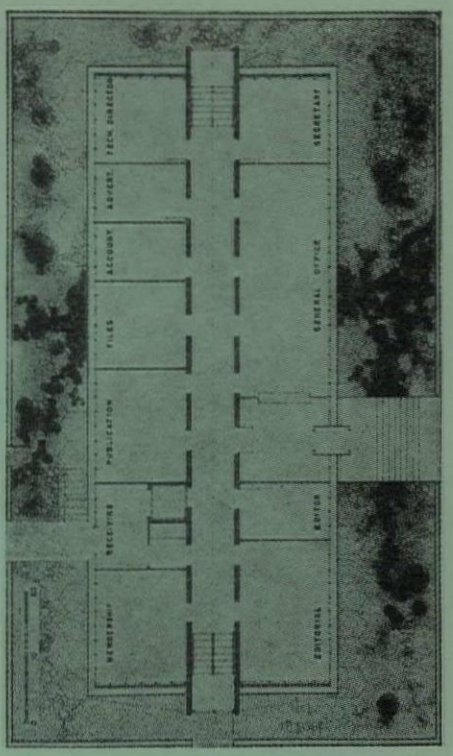
Abbie Rowe photograph: National Park Service

National Monument Society, established in 1876 to complete the monument, approved a well promoted solution by Sculptor W. W. Story, in 1879. According to the *American Architect and Building News* (December 13, 1884), " . . . the entire obelisk was to be embellished by an ashlar covering of porticos, pilasters, and niches, changing the character from an obelisk to a campanile," one of those miraculous transformations that was not at all disturbing to our grandfathers. For Henry van Brunt, this design was much too plain. Based on the Florentine Gothic or Giotto's Campanile, it was in acceptable taste, but lacked the multicolored enrichment of the original, and was a poor, dull thing by comparison. He added, with a sudden flash of insight: "What is to be said for an envelope so enormous and costly as this, which depends for its character entirely upon the disposition of 44 blank windows?" As this scheme would have cost more than three-quarters of a million dollars, Congress finally rejected it, and after the foundations had been sufficiently strengthened, the monument was approved as a simple, 550-foot obelisk.

Under the supervision of Col. Thomas A. Casey of Army Engineers, the work was completed in 1884. Upon Colonel Casey's request, the American Minister to Rome, George Perkins Marsh, provided accurate, scientific measurements for the obelisk, probably taken from one of Rome's authentic examples. On December 6 of that year, the marble capstone was set in place. Aluminum was used for the pyramidal apex, a material then so rare and new that the 9½"x5½" tip cost $225, and was put on display in a Washington jeweler's store. The Engineers were victorious at last: their majestic shaft was a logical triumph of the growing scientific spirit over the formulas of academic design. It was deeply significant for the future that engineering and mathematics had succeeded in carrying the day to create a monument of austere and enduring simplicity. It is noteworthy, too, that popular opinion was apparently considerably ahead of academic doctrine, as evidenced by a commentary in *Harper's Weekly* (November 29, 1884): "No one can examine this remarkable column without feeling that a new advance has been made in architecture . . . ," says the unknown correspondent. "Why should we not have houses as tall? Why abandon the upper regions of the air and cling so closely to the tainted earth?" In Chicago, in the same decade, the question was already being answered by American architects and engineers.

ADA LOUISE HUXTABLE

p/a design awards seminar III



This is the third in a series of Case Study Seminars published from tape recordings of discussions held last January at the School of Architecture of Tulane University, in conjunction with the announcement of results of the P/A Design Awards Program. Once again the Editors would like to remind the readers that it is the *best* project that becomes the target for critical analysis. Out of 800 entries, what Harry Weese called the "five-sixths of the iceberg that you don't see" (the unpremiated submissions) are much more open to criticism—but of course are much less interesting to analyze.

Project: **Office Building**
Client: **American Concrete Institute**
Location: **Detroit, Michigan**
Architects: **Yamasaki, Leinweber & Associates**

Presentation:
Minoru Yamasaki

This project, as you know, is an office building for the American Concrete Institute, and it had to be made of concrete. It is really a very small building — about 90-ft long — with offices on both sides of a double-loaded corridor. As we thought about this building we wanted, of course, to use concrete in an attention-getting way, but we have designed concrete buildings before and in each instance I felt that concrete looked as though it were a very heavy material, and so in this case we wanted to find a way to use concrete and still keep it looking very light. That is the reason for this *parti*, and I am really not very sure of its final appearance; when we designed the St. Louis airport we found that when the shell was without glass it looked a lot better than when it was finished.

This project is based on a cantilever resting on the two corridor walls, which are parallel to each other and run the entire length of the building, and which will be stabilized by the basement. The cantilever fits on top of the structure.

It is very important then that the glass wall look nonbearing—otherwise the cantilever loses its whole sense. The scheme does provide us with a means of bringing concrete very much to the attention of the public and gives us a device by means of which we can use a very light and thin looking concrete structure. Amman & Whitney, the engineers, have worked it out so that the edge of the roof will be only about three to three and one-half in. thick, so that we should get a crisp and thin looking building. We have a 19-ft cantilever—14 ft for the office width and five ft beyond that—which is quite a long cantilever for this depth of structure. After we had gone through our preliminary thinking Amman & Whitney wanted us to use the window wall for bearing. We said no, we can't do that. So the engineers went back and figured the structure again and raised it a little in the center. Now we have a possibility of an inch and a half deflection at the point of the window wall but the wall is not bearing and the cantilever actually works.

The long faces are oriented north and south and will be protected by the overhang. The west wall and the east wall were a different problem; since we didn't want to use solid masonry walls there we are working out a kind of precast grill. Now Harry Weese has made a good suggestion today: he thought that if the glass did not go all the way to the undersides of the roof there would be less feeling of bearing, and I think that may be very true.

The outside basement wall will be a special precast block. The screen that you see in the model—the basement grill—screens the window for the basement area. We made it concrete rather than having it glass so that there would be a continuity of the basement, indicating that it was a box that stabilizes the vertical wall. We have now provided struts at 4'4" center points and put the diamond grill between them as smaller precast elements.

One of the things that the client asked us to do in designing this building was to use as many kinds of concrete as possible. One suggestion made by the Committee was that we put a concrete-block entrance motive, carved, at the entrance point. There were other really troublesome suggestions that we had to meet.

Now in doing the roof, using the cantilever, we wanted to get a skylight. We have been using skylights a great deal in our buildings because they give that wonderful third dimension of light. In any building they provide a kind of surprise element and take the curse off a long corridor. However, in order to get a skylight we had to pierce the slab at the wrong place. We made about fifteen different models, trying to

figure out a way by which we could structurally carry this scheme through, and we finally ended up with an X structure.

We deliberately projected the building out at the end of the corridor walls so that the glass walls would not look as though they were bearing surfaces. We would have liked to make that projection more pronounced but the basement would have become too large.

The wall around the site is not an enclosing wall to keep us away from the neighbors, but one which we thought would become part of the building. Since the glass in the building itself goes down quite far and we are close to the sidewalk, rather than raising the window sills or using venetian blinds for office privacy, we could accomplish the purpose by a wall about 6½ ft high and would at the same time use concrete in another way for the clients.

We have eliminated a vestibule and made the entrance itself into a vestibule so that we would not have the problem of having a box out in front of the building.

***Discussion:* Robert Schenker**

I think this building is a very interesting one for a number of reasons, and perhaps it is a very controversial one for a number of reasons. Primarily it is interesting because of its experimental nature. To me it recalls something of the past. I compare it with a building, let's say, of Henri Labrouste back in 1850. He was experimenting with cast iron and perhaps couldn't carry his experiments to completion because he was dealing with a new esthetic form. And I get the same sort of feeling in this building in concrete: that there is a new esthetic developing here and a new use or a new development of the use of concrete. This perhaps leads to some indecision or reservation which I think I sense in Mr. Yamasaki's design, and perhaps leads to some complications in the design. This happens, I think, when you have a transference from an old esthetic to a new, where the new structural characteristics lead to the feeling or the sense of beauty that is developing. Labrouste attempted to ornament his cast iron to make it seem less bare and less dramatic and I think some of the same feeling persists in this project. I feel that the building lacks a continuity from top to bottom. I think the roof structure is very interesting and then down below we get back to a different sort of motif. This particular molded type of construction attempts to give form to space in a new way. For example, there is a directional feeling in the corridor which is expressed in the structure and its connections and the way the skylighting has been achieved. However, I think this sense is lost around the entrance, which is a very dominant element in the design. One reason that difficulty developed at that point, I think, is that there is no structural change here and no emphasis of change in direction. One feels that the skylight openings in the roof, for example, are an integral part of the structure; one does not sense that the entrance doorway is again an essential opening.

I think also that there is a difficulty in being able to complete this form. This is a form whose elements can be repeated over and over again, and the stopping point becomes a very difficult thing.

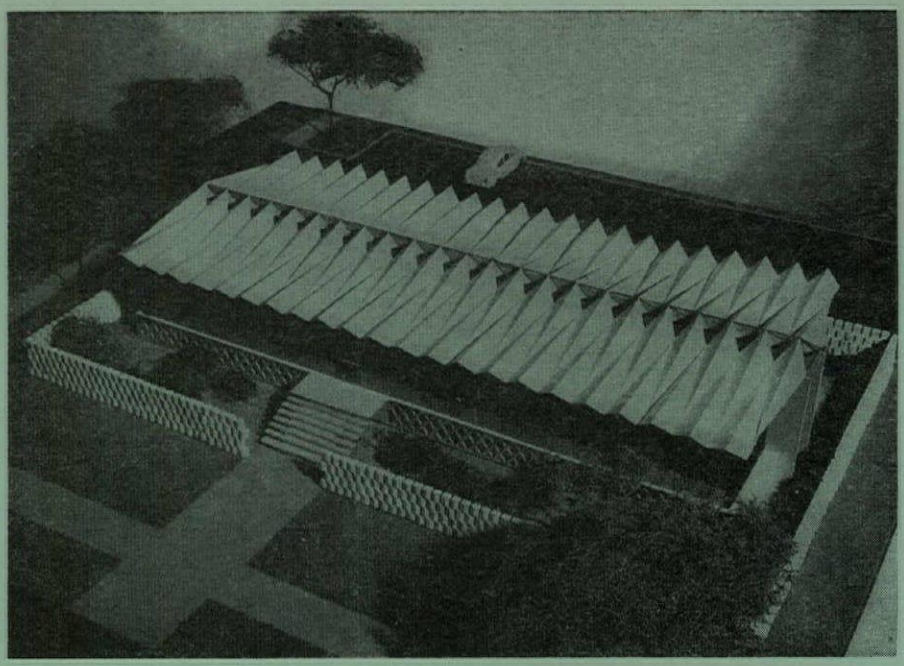
With all of these comments I think the project should be commended because of its very fine experimental nature and its outstanding contribution. I think that it marks a new direction that architecture is moving in.

Yamasaki: I did not mean to imply, by the fact that I said I was not sure that this building would come out in a particular way, that if I did it again I would not do the same thing. I am not apologizing for the design. What is in my mind is that this design is valid because of its particular use.

If someone came to us with an office building this size to design, without this concrete exhibition characteristic, I don't think we would do this building. I think that a structure with the problems raised by this kind of roof should be bigger for one thing. In this case we kept it in the small scale deliberately and adapted the 4'4" bay centers so as to keep the structure in scale with the small size of the building. The project has a definite exhibition character. For example, in Detroit, the Code requires 10x12 in. minimum concrete columns and if we had not done a cantilevered structure we would have had a 90-ft long building, looking very crude because of the tremendous columns (which, in steel, would be 4x4 in. or 3½x6, or something like that). So we deliberately avoided a post and lintel sort of building and adopted the cantilever scheme. Obviously, if we hadn't had a concrete office building to do we might have done it in steel. On the other hand if we had a hangar to do, with a large span and open sides, this design would be very exciting; but our problem here *was* a small office building to demonstrate the use of concrete.

Schenker: Don't you feel that the entrance to the building is not strongly defined in terms of the structure? It's part of an over-all grid pattern and could be placed almost anywhere.

Yamasaki: I think that may be true, but on the other hand if we had adopted a cross scheme—a transept, or whatever — we would have destroyed the continuity of the slab. In our mind the slab was the governing principle for the building and therefore if we did have boxes or vestibules or entrances, or entrance



". . . a new esthetic and a new development in the use of concrete."

decorations, we felt that they would destroy the simple continuity of the slab. This building is on a main street in Detroit—Seven Mile Road —where there are many automobiles passing by and the significance will be the slab. Consequently we felt that the entrance is almost secondary because when you come up to it we do have a way of distinguishing it.

Victor Gruen: I think that every project has to be judged on its aim and the problem that was posed. The problem in this case was not that the building be just an office building —in fact that might be a secondary consideration—but that it should be a building that would promote concrete and the use of concrete, and I believe that what is decisive in judging this project is that it has fulfilled its task, which very easily could have been solved in a cheap, commonplace way. Here the solution shows great inventiveness, great originality, and excellent taste, and for that reason I think the project should be judged as highly successful. The fact that it is located along one of those rather ugly main traffic roads in Detroit means that it has two things to do: it has to catch the attention of the driving-by audience; and once it has stopped them it has to fill them with enough interest so that it will stay in their memories. By these standards I feel that this building is a success.

Richard Aeck: I like the delicacy of the roof structure and the end enclosures, and I would like to ask Mr. Yamasaki if a study was made with a much lighter garden wall treatment, in place of the rather heavy material indicated.

Yamasaki: No. We hadn't actually considered it and I think that may be a good criticism. Since it is frankly a wall which rose up from the ground I thought it should be just a heavy wall, but perhaps I am wrong about that; I'll take another look.

Gwen Lux: I just want to remind Mr. Yamasaki that he said earlier in the Seminars he didn't believe in sculptural architecture. I think that this is very sculptural.

Yamasaki: I'd like to ask others to get in on this. I feel this way about sculpture and architecture: I feel that in order to vary our horizons and to express the personality of our society that it is very important that we use all legitimate forms in architecture. I feel, however, that those legitimate forms should necessarily arise from a valid structural reason, rather than from an impulsive emotional reason, such as sculpture might have. Consequently, I wonder about Le Corbusier's Ronchamp Chapel, for instance. As beautiful as it is, and I'm sure that it is one of the most beautiful buildings in the world and may be valid for its use, if we did an office building in a manner like Ronchamp I think we would really be in trouble. We have to have a valid discipline and I think as we go back through the ages that there is a lot of what you may call sculpture in architecture — Gothic architecture, or the roofs on Japanese buildings, the Taj Mahal, and so forth; I could think of so many— but most of those buildings arise from a valid structural concept. They come from a system of building that those people were very familiar with and understood far better than we understand our own technology. That kind of validity, I think, has to premiate our forms, and in that way, I believe we will arrive at a valid architecture.

Thomas Creighton: I wonder if you would agree with this, Yama? Granted the premise that there must be a structural validity for the sculptural form and even a functional reason for it, isn't it true that a very bad sculptural result may come about if there is not a sculptural understanding?

Yamasaki: Oh, yes.

Creighton: I say this with rather strong conviction because in our Design Awards Judgment we had a number of submissions (from people whom all of us would consider good architects), in the medium of plastic forms, hung roofs, and so forth, which failed badly, the Jury felt, simply because the sculptural result was not good sculpture.

Lux: I do think more sculptors should be given a chance to work with architects from the very beginning of a project where they could integrate their thinking and perhaps help the architecture in a sculptural sense.

John Dinwiddie: This subject of sculpture in architecture is a very touchy one with me and I have frequent discussions with the students about it. In sculpture you work with your materials and you respect the integrity of your materials. When you work in wood you do only what wood will do. You don't try to bend it like wire. When it comes to architecture then a sculptor seems to think we can take a basic structural form and do things that it is not normally supposed to do. Just because it is a good form it is not necessarily good architecture and not even good sculpture.

Lux: I wonder if you aren't thinking of architecture in a modern sense and sculpture in an old-fashioned sense. A good sculptor also respects the integrity of architectural forms and tries to understand what materials would do best.

James Lamantia: I want to say, with everyone else, that I am fascinated with this roof structure. I think, however, it is hard to visualize its scale. We tend to look at buildings today in model form, forgetting the effects as we move into and around a building. I am inclined to agree with Schenker about discontinuity when we move from the roof to the rest of the building. What happens when we get to the entrance of the building and face the fenestration of the lower wall and the pattern of the wall itself? I wonder how much attention was given to those things which will characterize the building itself rather than its roof.

Yamasaki: As far as the bottom of the building is concerned we have studied it a great deal. I think I explained that. The purpose was to get the feeling of the continuity of the box, so that the box would look heavy and stabilize the verticals. Now, I don't really understand how we could connect the roof to the bottom of the structure.

James Lamantia: I feel a disassociation between the pattern of the verticals of the building itself and the design of the outside wall.

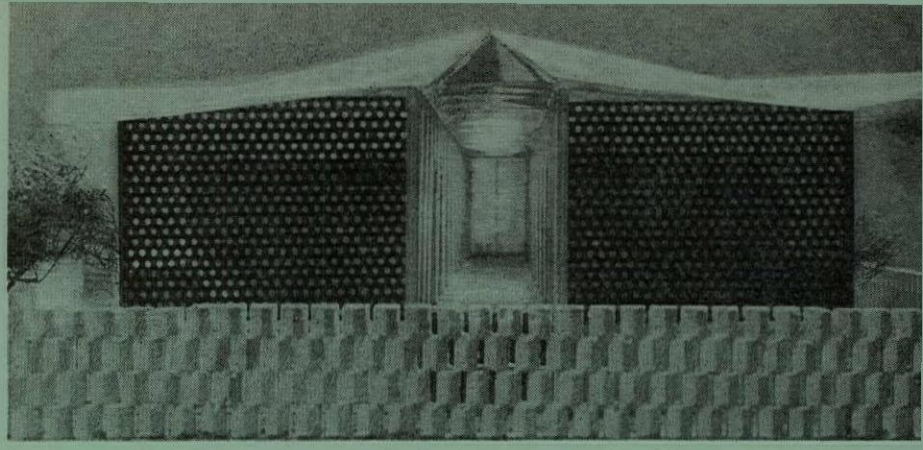
Yamasaki: I think that if we had repeated the pattern of the outside wall in the building it would be dead wrong. I feel that everything should look the way it is. In other words, the wall ought to look as though it was put up block by block and the base of the building ought to look as though you had punched holes in the wall. They are two entirely different things and for that reason we deliberately changed.

Lamantia: It is true that they are two different things. Might it not have been wise to make less of the basement fenestration and let the wall be more forcible?

Yamasaki: Well, I think if you look closer at the model, you will realize that in plan the outside wall is triangular also. The blocks are wide in the middle and they grow narrower. In this sense we did repeat an idiom but we hoped that we had used the two elements in a way which was natural to their type of construction.

Question: There seems to be a question in your own mind concerning the mullions and the treatment of the glass. I wonder if you considered the possibility of beveling the glass rather than making it flat, thus attempting to carry the roof form down.

Yamasaki: Yes, we tried that. It made the glass look too structural; it looked as though we were trying to hold the building up with glass,



". . . to get a skylight we had to pierce the slab . . . and ended with this X structure."

because it was a positive form. Another thing: why make the design even more busy than it is?

Gordon Bunshaft: Speaking about the honesty of the roof design, I think that it is perfectly fine for what you are doing. The only bad thing about it is that a few hundred students are going to be cribbing it without knowing the basis for the design. It will be all over the country in five-story buildings, two-story buildings, and so on.

Creighton: If we were really worried about that situation, Gordon, we would stop publishing magazines.

Harry Weese: Well at least Yama is the first one to build it. I think we may be overly preoccupied with the roof form because we are looking at it from above, where one would never see it. This is simply a roof with the structure exposed. If we exposed concrete joists in the same manner we wouldn't have this argument. This, however, is a very sophisticated use of a material which is not yet in our technology—but I think it's coming. It is inevitable to precast and prestructure and soon we will begin to get more and more into this plastic thing and, for better or worse, we're going to have to develop a new discipline with which we will be able to handle it.

Question: Has there been any indications in the development of the structure that there would be any chance of excessive flutter?

Yamasaki: Yes! The structural engineer wanted us for that reason to make our mullions bearing. But I could picture us having steel columns inside the walls, which would really be terrible, so what the engineer did was to increase the height in the center which was perfectly O.K. with us. By doing this he decreased the deflection to 1½ in. which we can control with a loose joint, as you see at the top of the window.

Bunshaft: Harry Weese and I have been detailing your job, Yama. The question is: do the partitions go to the ceiling?

Yamasaki: Yes they do, but they are glass from 7 ft up.

Bunshaft: Do the two bearing partitions go to the ceiling?

Yamasaki: They do go all the way up. They had to, because otherwise they wouldn't be bearing.

Bunshaft: As long as all the other partitions don't go all the way up I'm satisfied, because the roof is actually what you see and I think that the ceiling is important.

Yamasaki: I agree.

Eberle Smith: On that same question: it seems so important to see the whole of the roof from inside; couldn't there have been some way to support the roof on posts rather than bearing walls?

Yamasaki: It's a good question but we felt that with the cross partitions stopping at 7 ft, with glass above, you could stand in one room and look quite a distance down and see a lot of the structure. I felt that it would have been wrong to use posts instead of the bearing partitions because the posts would have been 4 ft on centers and that is so close that it might as well have been a wall. Does that answer the question?

Creighton: I think you've answered the question but not the objection.

Question: I want to ask a couple of technical questions: one, what kind of roofing you are going to have, and two, how you will handle the lighting?

Yamasaki: About the roofing: we have been checking on plastic roofs, which we wanted to use because, although we know there may be problems involved, if you used a plastic roof on this building and it worked it would make a concrete roof like this much more valid. We figure that this concrete roof might cost about $3.00 to $3.50 a square foot (Boyd Anderson of Amman & Whitney thinks it may be less) and with a plastic roofing, that would add only a cost of 50 cents a square foot, which would make the total roof construction within the realm of possibility. The other way to do it would be to be really sure and put on an aluminum roof, which would immediately add at least $1.75 per square foot, which might throw this kind of roof construction out of the picture. So we went to the Building Committee of the American Concrete Institute and told them that we had checked on plastic roofs and that although we have assurances we can't guarantee a thing. We told them that we thought they should experiment before other people do and they agreed and we are going to use a plastic roof.

About the lighting: we started out with lighting that was hung below the ceiling but now we have a system with long lighting troughs in the valleys, at 4 ft centers. This should give a very good light.

Alfred Clauss: What about roof insulation on this thin shell?

Yamasaki: That's another question on which we have lost a lot of sleep. If we put insulation on top of the roof (which is the logical place with a concrete roof, because then the concrete doesn't move with the sun and the heat), we negate the concrete itself. So we have decided to put the plastic on top and we are furring on the underside with acoustical plaster and placing thin insulation under the ribs. We know that that is O.K. in the offices but in the corridors we have the X construction, which is more difficult to insulate. We checked on some buildings which had concrete posts and so on exposed to the weather and found that they become cold but do not sweat. Since this building is going to be air conditioned we can control the humidity to some degree. Therefore we have told our client that we are not going to insulate the corridor roof.

Question: Did you consider the possibility of extending the corridor walls beyond the end walls of the building perhaps two or three bays and bringing the roof over them?

Yamasaki: They do extend considerably beyond the building. I don't see the need for carrying them farther out. If you establish a point I don't believe that you need to exaggerate it.

Creighton: I think that Yamasaki established a number of points. We have given him a rather tough time and he has been most patient—and has come out of the discussion with honors. This is an example of the fact that the most imaginative and the most exciting design is the one that will stir the strongest reactions, and provide the most interesting and fruitful controversy.

silicone water repellents

by T. D. Daniels*

In a brief decade, the organopolysiloxanes, or silicones as they are commonly called, have become the most widely specified and applied masonry water repellents. Since their introduction, the types of silicones used by the construction and building materials industries have recorded sales increases approximating 20 percent annually.

In a sense, the silicones are synthetic hybrids of inorganic silica and organic carbon containing compounds. The simple chemical formulations shown (*Figure 1*) illustrate the close similarity of silica, or sand, and a silicone resin commonly used as a masonry water repellent. The

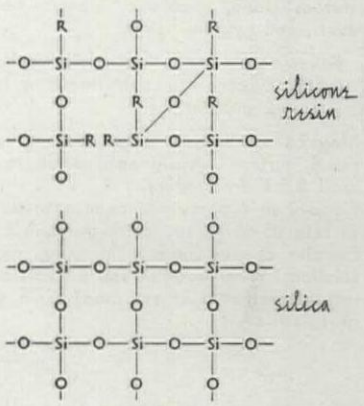


Figure 1—molecular formulas show similarity between silica (quartz, sand) and a typical silicone material.

organic groups, represented by the letter R, give the silicone-molecule water repellency, flexibility, and solubility, while the Si-O-Si-O, etc., chains provide chemical stability, durability, and inertness. All of these properties are necessary in materials applied to masonry.

No one had masonry water repellents particularly in mind when research on the silicone polymers was accelerated during World War II. Researchers soon were impressed, however, with the outstanding ability of the silicones to impart water repellency to such materials as cloth, paper, and masonry. Even more startling was the discovery that this repellency could be achieved without interference with the normal "breathing" of these porous substances. Soon after World War II, a series of silicone products became available to exploit this performance.

To the building industry, the hydrophobic or water-hating silicones made possible products to impart water repellency to masonry structures of brick, concrete, stucco, concrete block, slag, and cinder block, as well as to building materials such as mortar, asbestos siding, and asbestos shingles.

silicone water repellents benefits

The silicone materials used in imparting water repellency to above-grade masonry are resin solutions with strong chemical affinity for masonry surfaces. Penetrating as much as ¼ in. into the masonry and forming an invisible, water-repellent coating on the surface of each pore, they reduce the damaging absorption of water through the structure to a harmless minimum.

Silicones are especially effective in combating freeze-thaw damage and spalling. Results of continuous freeze-thaw cycles obtained in accelerated laboratory tests are illustrated (*Figure 2*). The silicone-treated concrete sample, at top, was far more resistant to freezing-thawing action than either untreated samples or those coated with other materials. By halting penetration of water, the silicones also protect interior surfaces which are extremely vulnerable to damage and discoloration by water. They also serve to protect the appearance of masonry while protecting actual masonry itself.

Efflorescence can be minimized by applying silicones to newly constructed or existing, clean masonry structures. This performance, as demonstrated on a laboratory test basis, is shown (*Figure 3*). Resting in a 10 percent salt solution, treated half of brick remains clear and dry while thick coating forms on untreated portion.

Buildings treated with silicone remain cleaner and, since they are water repellent, will be easier to clean than untreated structures. This feature is sometimes the primary purpose for using silicone. Water will wash dirt particles away rather than into masonry pores—a characteristic of particular interest to owners of pastel-colored stucco or concrete-block homes, and buildings in the South and the West.

Many masonry paints lose opacity because of water absorption, and change color when wet. Since silicones repel water, they make possible attractive continuity of surface color regardless of weather.

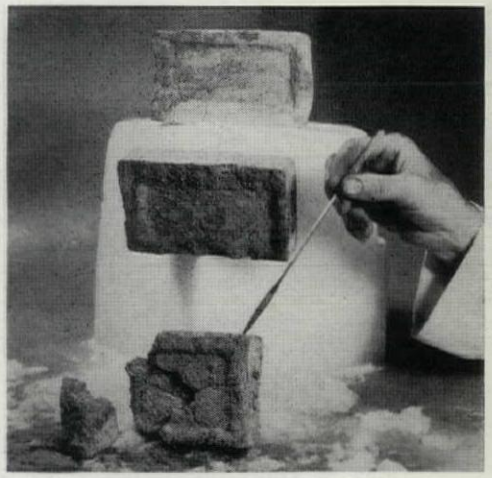
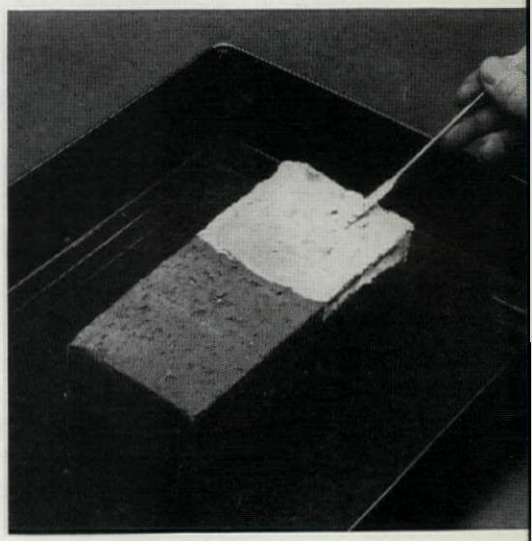


Figure 2—freezing-thawing test.

Figure 3—test for efflorescence.



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An application of silicone to either newly constructed or long-standing buildings helps to reduce the maintenance costs. The need for frequent inspection, mortar pointing, and other repairs is greatly reduced. Of major importance to building owners is the savings in labor.

By keeping walls dry, silicones also help to improve the thermal insulating quality of masonry buildings, since air is 30 times more effective as a heat insulator than water. Some savings in heating and cooling costs can, therefore, be realized.

In some cases it may be desirable to paint a building after a silicone water repellent has been applied. Oil-base or latex-base paints may be used with good results. Cement-base paints should be avoided, because they must have a wettable surface to cure thoroughly and provide satisfactory adhesion.

not "water proofers"

Silicones are water repellents and not "water proofers." Since they function by preventing capillary absorption, they are not generally effective against hydrostatic pressure. Hence, they are not recommended for subgrade surfaces such as basements, swimming pools, cisterns, or underground concrete piping. In some cases, however, they have been used in reducing the transfer of water through damp basement walls.

Further, they cannot be expected to work on faulty construction where large cracks, holes, and other apertures prevail. Where the silicones are to be used on large-aggregate concrete blocks, an undercoat of a cement-base paint is recommended.

The silicones used as water repellents for masonry seem to provide little protection to wood and are not recommended as a protective coating for the material. The resin solutions are not harmful, however, to either bare or painted wood surfaces.

types of silicone available

Silicone masonry water repellents may be used on most types of above-grade masonry. More specifically they have been applied to exterior structural and retaining walls, asbestos siding and shingles, mortar joints, stone edifices, sidewalks, driveways, curbings, steps, abutments, and chimneys. For best results mortar should be aged 30 days before the silicone is applied.

There are two basic types of silicone solutions (solvent soluble and water soluble) available from several hundred manufacturers throughout the United States and Canada. The more common type, a silicone resin dissolved in a petroleum solvent, becomes effective within 24 to 48 hours after application. Both laboratory tests (*Table I*) and industrial experience have indicated that products containing a minimum of five-percent silicone resins solids give most effective performance. Increased percentages do not appear to provide additional protection in proportion to added cost. Application should be made on dry surfaces and, to insure proper penetration, at least three to four days after any period of wet weather. If rain is anticipated within two hours of application, the silicone solution should not be applied. The material may be applied at any temperature between 0 and 100 F, although to hasten evaporation of the solvent, application temperatures above 40 F are suggested.

application techniques

Prior to application the surface should be thoroughly cleaned of loose particles and dirt. Cracks and mortar joints should be repaired. If efflorescence is present, this may be removed from the surface by washing with a five percent solution of muriatic acid. The surfaces should have a plain water rinse both before and after the acid wash. After the surface has dried the silicone may be applied by brush, roller, or low-pressure spraying equipment. Since the solution has a low viscosity, the latter method is preferred. Spray-gun pressures of not greater than 10 psi should be maintained so that the

Table I: Water Absorption of Silicone Treated Masonry
(Laboratory test results: solvent type)

Masonry material	Exposure hrs	Percent water absorption Control	2% silicone	5% silicone
Common brick	24	16.37	0.21	0.00
	168	16.94	0.23	0.01
Concrete block, fine aggregate	24	2.42	0.23	0.01
	168	2.58	0.81	0.10
Cinder block	24	7.39	1.49	0.23
	168	7.21	2.45	0.30

The preceding specimens were given a five second total immersion dip with subsequent drying period of 48 hrs. Samples were tested for water absorption by immersion face down into ¼-in. water.

Technique for Applying Silicone Water Repellents

Solvent-soluble type

Suggested for brick, siliceous stone, concrete block, stucco, mortar joints, and colored asbestos-cement products.

1. Remove surface dirt and loose particles.
2. Repair cracks and mortar joints.
3. Remove efflorescence with a 5 percent solution of muriatic acid. Rinse surface with plain water both before and after acid treatment.
4. Apply 5 percent silicone resin solution at atmospheric temperatures between 40 and 100 F.
5. Apply to dry masonry, or three to four days after a rain.
6. Apply by flooding surface with low pressure spray equipment. Allow fluid run down of 6 to 12 in. If sprayer unavailable apply solution by brush.
7. Exercise caution in handling and applying solvent solutions. Use a respirator which prevents the passage of solvent mist.
8. Proper coverage may vary between 75 to 250 sq ft per gal depending upon the porosity of the masonry. (See chart across-page on recommended coverage for different types of surfaces.)

Water-soluble type

Suggested for structural concrete and slab, calciferous stone, uncolored asbestos-cement products, and gypsum board.

1. } Follow recommendations for solvent type
2. } except silicone concentration may be as
3. } low as 2 percent.
4. }
5. May be applied to damp, but not saturated, surfaces. Avoid application to colored brick or masonry.
6. Flood 2 to 3 percent silicone onto surface at rate of 50 to 100 sq ft per gal.
7. Exercise caution normal in using caustic solutions. Wear goggles and suitable clothing to protect eyes and body from spray or splash-over.

surface is flooded and a run down of six to 12 in. is obtained. Following this technique, between 75 and 150 sq ft of surface can be covered with a gallon of solution, depending of course on the type of surface being treated. On dense structures one gallon of solution may cover as much as 200 sq ft. In such cases two coats are recommended to provide optimum results.

Since these silicone solutions contain inflammable and toxic solvents, normal care should be exercised in handling and applying. Open flames should be kept away from the container, and the applicator should avoid breathing the vapors for any prolonged period of time. A respirator which will prevent the passage of solvents mists should be worn during the spraying application.

The water soluble type, a solution of sodium methyl siliconate is also available from several sources of supply. Its effectiveness is roughly equivalent to the solvent-based material. The material is quite alkaline, however, and should be handled with the same caution exercised with any caustic solution. The applicator should wear goggles and suitable clothing to protect his eyes and body from the spray or splash-over. It is recommended that the water solution be flooded on the surface until it is quite wet. Between 50 to 75 sq ft per gal provides the best coverage. Using this technique, a solution having a silicone concentration of two to three percent is usually adequate for good protection.

Once deposited on the surface, the water soluble silicone converts chemically in the presence of air to become an insoluble water repellent. When proper cover is initially given to the treated surface, a second coat is usually unnecessary. If it must be applied, the second coat should be made within two to three hours after the first to insure penetration. The water soluble silicone should not be applied at temperatures below 40 F.

An advantage of using the water soluble silicone, as compared to the solvent type, is that it can be applied to damp surfaces. It also appears to give superior performance on gypsum board, asbestos siding, and limestone. Due to the variable absorbency of masonry, an excess of the water-soluble solution, beyond that which the substrate can absorb, may leave a slight white deposit. For this reason it has found most acceptance for application to concrete walls and slabs.

Silicone water repellents are far more durable than organic waxes or oils. Accelerated laboratory aging tests, as well as prolonged freeze-thaw experiments, have demonstrated this point. Structures properly coated with silicones have given good performance during the past seven years since the silicones were first made available to the building industry.

Protective coating manufacturers are presently marketing formulations containing silicones at prices ranging from $2.00 to $6.00 per gal. Part of the difference in cost may be indicative of the percent of silicone solids present in the solution; it is necessary for the purchaser to know the silicone content of the material. If this information is not available on the label, a simple weight loss determination can be made by taking a known quantity of the solution and evaporating the solvent at 220 F. A five-percent silicone-resin concentration in proper solvent gives good performance.

In review, silicone water repellents provide these benefits to masonry surfaces:

1. Increase masonry life: (a) protect exteriors from weathering and moisture; (b) retard spalling and cracking.
2. Protect interior finishes: (a) minimize peeling and flaking.
3. Preserve masonry beauty: (a) minimize efflorescence; (b) keep surfaces clean.
4. Reduce maintenance costs.
5. Improve thermal insulation.

This discussion has been primarily concerned with job-site applications. These represent the broadest use of silicones in the construction industry today. However, silicone use is increasing on mass-produced building materials as well. A leading use is a water-repellent coating for asbestos shingles and siding. The silicone protects these materials against deleterious effects caused by continual absorption of water and minimizes discoloration when wet. Paint manufacturers are also using silicones in cement and latex paints to improve performance and durability. There is a great need for protecting and enhancing the natural texture of cedar and redwood used as exterior surfacing for residential dwellings. Future silicone research and product development may provide materials useful in prolonging the life of wood.

Application of Silicones to Masonry Structures

Construction	Silicone coverage* sq ft per gal	Surface preparation
Asbestos-cement structural products	100-150	Apply to dry, clean surface. Bloom may be removed with weak acid rinse.
Block		
Cinder	75-100	Remove loose particles. Repair mortar joints and cracks. Fill large apertures with cement base paint.
Concrete, fine aggregate	100-150	
Concrete, coarse aggregate	75-100	
Pumice	75-100	
Slag	75-125	
Brick		
Common	100-150	Clean surface. Remove efflorescence with weak acid rinse. Repair mortar joints and cracks. Apply to dry surfaces.
Tapestry	125-175	
Concrete		
Structural	90-110	Remove dirt.
Paving, curbing, steps		
Stone		
Bluestone	100-150	Clean surface. Repair mortar joints.
Granite	200-250	
Limestone	150-200	
Marble	200-250	
Sandstone	100-150	
Stucco	100-150	Clean surface. Repair cracks.

* These figures represent coverage usually expected by applicators.

heating historic structures

by Robert H. Emerick*

When a project comes into the office for the restoration or conversion of an old mansion, we soon face these questions: "What is the best way to heat this aged pile of materials and history? Can we do with simple heating, or is some form of summer cooling and humidity control essential? Must the system be invisible in all its parts?"

In a syllabus (*Table I*), the usual purposes for old mansion conversions are tabulated, together with the requirements peculiar to each. Of their individual needs, the demand for invisibility evokes the greatest ingenuity, the treatment of multiple buildings the most considered judgment, and the integration of mixed usage, the knottiest technical problems. How each of these factors may be handled, will be discussed in turn, with case histories.

problems of invisibility

In restored historic shrines, the sight of convectors, grills, and registers constitutes an anachronism, and must be avoided. Less severe, but more often encountered, are the requirements of public and semipublic buildings, banks and insurance companies, where invisibility is desired, but inconspicuousness will be accepted.

Invisibility is the result, primarily, of a successful marriage between the designer's imagination and the building's natural structure, but we can approach the problem from at least four points of departure.

First of these is the fireplace. By setting a register or grill well back under the andirons or charcoal grate, and flush with the hearth, it becomes invisible to 99 percent of those who happen to glance at the fireplace. This opening may be used either as a warm-air supply, or as a return. A tightly closing damper in the flue is essential, of course, to keep air movement on the right track.

The duct serving the fireplace opening may either connect to a central-duct system, or be a short stack originating in an indirect heater under the floor. The first use of this expedient may have occurred at Mount Vernon, Virginia, immediately prior to the present century, where the forgotten designer installed indirect hot-water coils in the basement, and kept the water hot with boilers in an outbuilding, 150 yd distant.

Twenty years later, in 1917, similar use was made of the first-floor fireplaces in Washington's quarters at Valley Forge, Pennsylvania, even to the extent of bringing the hot water through underground pipes from the superintendent's house, approximately 100 yd distant. However, at Valley Forge some thought was given to heating the bedrooms on the second floor—a short stack, or warm-air flue being run from behind the lintels of the first-floor fireplaces to the hearths in the upper rooms. At Mount Vernon, the only heat for the upper floors reaches there by way of natural draft, up the stairwells.

For a restoration project, adaption of the Valley Forge scheme to heat upper floors without direct equipment has excellent possibilities; some control of air movement through the auxiliary flues becomes essential, however, to keep the balance. (*Figure 1 illustrates these fireplace techniques.*)

For a second excursion into invisibility, we can use the doorway-cornice design (*Figure 2*). Since this scheme puts the grill approximately seven ft above the floor, it becomes invisible to all normal traffic in the room.

Cornice grills have been used most expertly at Monticello, Virginia, where an all-year heating and cooling system was installed by the Thomas Jefferson Memorial Foundation in 1954. Incidentally, this latest restoration of Monticello, with its all-year atmosphere control, sets an unmistakable pattern for future projects in historical preservation. The objective is not human comfort, but to delay the decay of the aged fabrics, manuscripts, and furniture normally on display in the rooms and halls. As an indirect benefit, the building itself will last longer, since the controlled humidity and temperature discourage termites and dry rot. We can expect more of this in the future, not only for new projects, but also for additions to the old; the reasons are sound.

A third method, invisibility by concealment, is of course an obvious expedient. Except for running the ducts, it is especially suitable for warm-air systems, since the registers or grills slip easily into positions behind draperies, or behind plate rails high on the walls. Compared with cornice grills, which must be sized and manufactured especially for the purpose, the put-it-behind-something approach has the advantage of using more or less standard equipment. We might save a little money that way—providing we can reach the opening with a duct.

Fortunately, the business of hiding an air entry in some unlikely position has much less influence on ultimate room comfort than originally was thought to be the case. If we can get enough Btu into a room to meet its needs, even if the point of entry is behind the valance over a window, these bearers of comfort will

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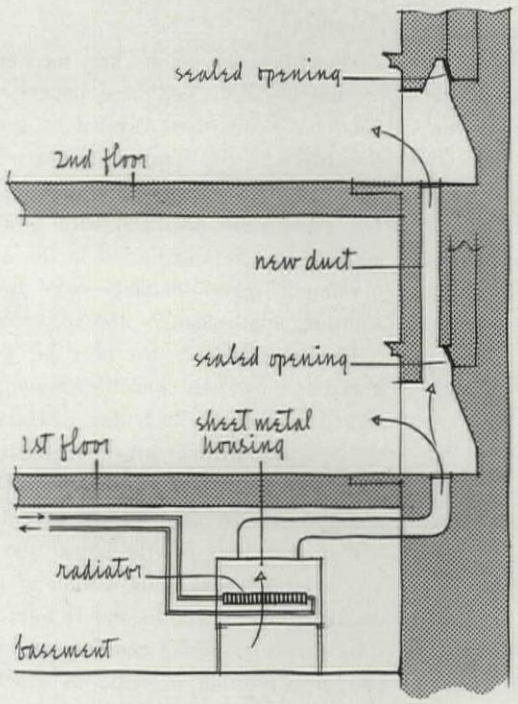
get around everywhere, sooner or later. This is not efficiency, we recognize, for hot spots and perhaps a cool corner might be found; efficiency, however, in these jobs comes second to invisibility, and certainly a livable atmosphere is established, unseen.

The fourth approach to invisibility is camouflage: We make our heat sources look like something else. A corner cabinet *(Figure 3)* to the unsuspecting viewer, for example, is actually a circulating stack for a hot-water convector.

Camouflage is particularly suited to wet heat, steam, and hot water, since radiators and convectors are bulky and require some air movement over them for best results. Openings for the air circulation dare not use screens or grills to avoid the appearance of unfinished voids, consequently some other form of masking is needed. Decorative pickets do this admirably *(Figure 3)*.

The corner-cabinet device is used in the dining room and study of Pennsbury Manor, William Penn's restored country estate on the banks of the Delaware, about 20 miles above Philadelphia. Incidentally, this project uses hot water and convectors throughout, not all of them effectively concealed.

Regardless of our choice of system, the problem of invisibility is complicated by the difficulties of delivering heat to the room dispensers. Piping is moderately easy to handle, primarily because



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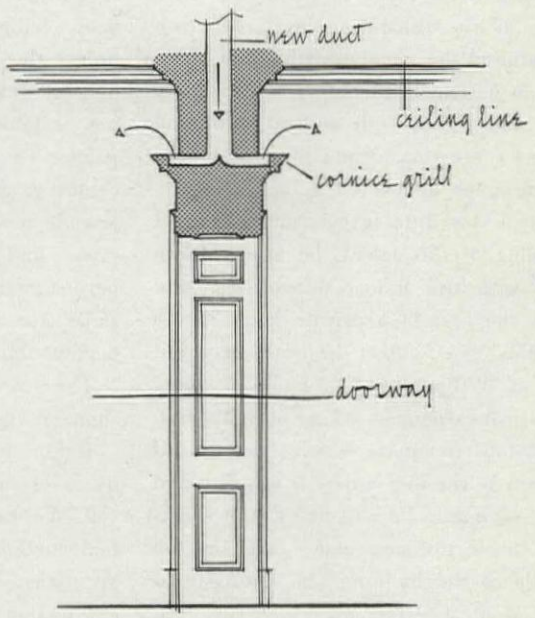

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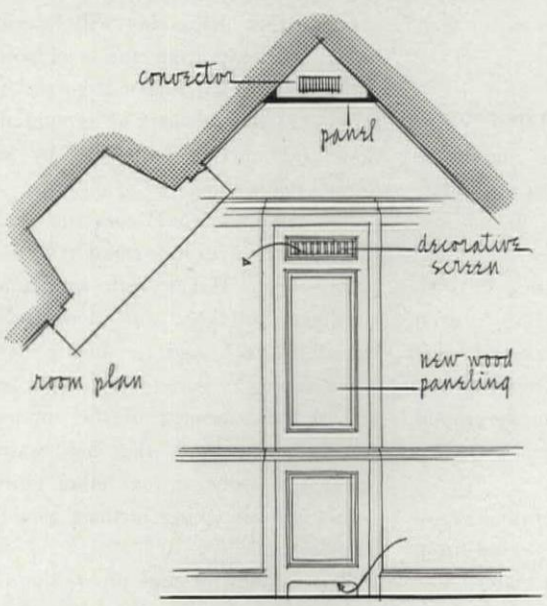

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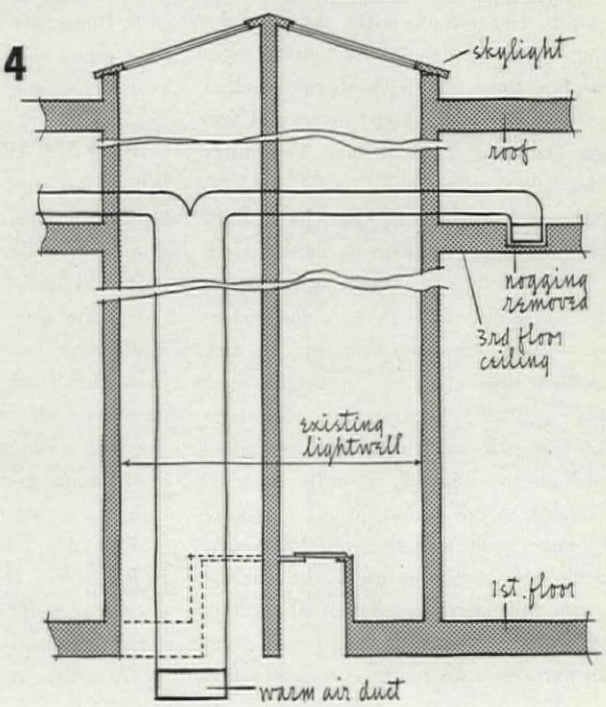

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of its small bulk; at Pennsbury Manor it reaches the corner cabinets from the basement simply by rising through the floor. Elsewhere, considerable snaking is possible.

By contrast, the ducts from a central system can dismay the designer. At Monticello, for example, the solid masonry walls are at least 16 in. thick, and numerous; moreover, between the floor joists at the third-floor level, Jefferson had stuffed the nogging of his day. This was an arrangement of bricks packed in clay, and served both as heat insulation and as a fire stop. Amid these obstacles, the designer discovered a lucky feature. Jefferson loved to invent, and during a bubbling of this talent, he fitted Monticello with two indoor necessaries, said to be the first in a private home in the Colonies. (A similar device is in a jail cell at Williamsburg.) Each of these necessaries occupied a kind of light shaft, about four ft square which extended all the way to the roof, where it was crowned by a skylight. Doubly lucky, the shafts were back to back and nearly in the middle of the building. So, into one of these went the riser duct that now conveys treated air to the third floor *(Figure 4)*. Bricks and clay were taken from between the floor joists, in a total amount of nearly 100 tons, to make room for the branch ducts and rock-wool batting. Returns find their way back to the machinery room, in a wine cellar, by way of fireplace grills on the first floor and ducts in the basement.

All old mansions do not have light shafts, but many of them do have sealed-off voids that run from basement to attic. A likely place to look for one is along side a fireplace chimney, an area in which these "secret" passages seem likely—probably because wide chimneys were the rule and a few extra inches would not be noticed. Usually there is no record of these voids, their existence may have been forgotten for 100 years, and the designer, hunting a duct chase, has no alternative but to go about tapping walls.

In extremes, we might even use a fireplace flue itself, either as a pipe chase or as a duct to the upper floors. The point is that somewhere, someway we can take advantage of the peculiarities of the building. What is needed is a combination of imagination and observation, in order to single out the peculiarity we can use.

Invisibility, of course, is inherent to radiant-panel designs, whether in the floor, ceiling, or walls. Unfortunately, unless the project happens to be a 100 percent restoration, radiant panels are not suitable from a construction viewpoint. To apply pipe coils, or electric cables to a ceiling or a floor, we must provide new surfaces—of plaster or concrete—and the result can never be a perfect match with the original. To do so is guaranteed to make antiquarians deeply unhappy.

The invisibility problem can be summed up in this way:

1. For historic restorations, invisibility is essential.

2. We have case histories illustrating four methods of achieving it, but there are many others waiting to be created by our imaginations.

3. Taking advantage of structural peculiarities is a prime route to a satisfactory installation.

4. Ducts are more difficult to handle than pipes, but registers fit in easier than convectors.

pros and cons of group heating

Which is better for heating a number of buildings: a single plant with an underground distribution system; or a local heater in each?

Experienced judgment, sitting in criticism on an economic comparison in each case, is the only source of answer to this question. The major factor concerns the life and maintenance of the underground distribution system, and here are some interesting records.

At Valley Forge, the restoration group includes five buildings, all served from a central-boiler plant by hot water. The original installation was made about 1917, using oversize iron pipes as conduits for the hot-water supply and return lines, which were also of ferrous material. By 1949, replacements of the underground system became necessary—the new construction employing steel pipes insulated by wool felt and protected by modern conduits of clay tile. In this case, therefore, the service life was about 32 years, although some trouble had been experienced with leaks long prior to the replacement.

Mount Vernon got its first mechanical heating in 1900. Coal-fired boilers energized hot water that traveled by gravity circulation to the mansion, to the offices, museum, and living quarters of employes. The pipes were insulated with cork, set inside clay tile, and buried in the earth. Maximum travel distance was to the mansion, approximately 150 yd away.

Thirty years later, the need for a new distribution system demanded action. Designed by Prof. C. W. Killan, of Harvard, the new arrangement provided pumps for positive water circulation, and set the piping inside a concrete-pipe tunnel five ft high and three ft wide. Since the tunnel is large enough for a man to move through its full length, and is lighted, a close watch of piping conditions and the prompt correction of leaks is practical.

This is an excellent way to build a distribution system; personal inspection suggests that the piping will last indefinitely, at least from the standpoint of external attack. Internal corrosion, of course, is independent of ground conditions and must be fended off by proper water conditioning.

The joker in tunnel construction is its cost; can the project stand it?

Pennsbury Manor with its numerous auxiliary buildings was completely restored in 1937, and the heating system dates from the same year. The boilers are in the basement of the superintendent's house, and the hot water is pumped to three or four other buildings —the mansion being farthest away, perhaps 250 yd.

This system of steel pipes, thoroughly insulated, and borne on rollers in clay-tile conduit, is presently experiencing

some leaks. There is only one way to cure them—by digging down to the pipe—and this will involve time and expense. There is some anxiety, naturally, over the condition in which the piping will be found after 20 winters of service; extensive replacement might be needed. Also, how much longer will the system be likely to last?

Monticello, likewise a group restoration project, cannot as yet present evidence one way or the other: it is too new. However, the system design approximates that of Pennsbury Manor, with steel hot-water pipes extended from the old Weaver's Cottage to the museum, office, superintendent's quarters, and the mansion, where the heat is transferred from the water to the forced-air system. The pipes are encased in modern clay-tile conduit.

How many of these leaks and replacements originated in ground attack on the piping, or from internal corrosion, or a combination of both, we do not know. However, in the absence of exact knowledge to the contrary, we might conclude that: (a) the life of underground-piping systems for hot-water heating may be expected to run from 20 to 30 years; (b) boiler-water conditioning should be regarded as an essential economy. We might also note that a single, central plant is the traditional way to heat a group of buildings.

Presently the concept of the separated, local heating facility is gaining favor, primarily because the traditional reasons for the single plant no longer exist. Fifty years ago, a boiler needed somebody to shovel coal and take out the ashes, and by concentrating these needs in a single boiler room, the designers saved operating labor. As a second reason for keeping boilers out of historic basements, the existing fireplace chimneys, more often than otherwise, were crooked, unlined, and fire hazardous. This meant the erection of a new chimney, somewhere, for the new boiler—a bit of construction hardly in keeping with the spirit of the mansion or its architecture. In the circumstances, locating the boilers in an auxiliary building was the simplest solution.

Today, thanks to automatic firing and the availability of gas and oil fuels, one man cares for three boilers as easily as he cares for one. He can go about his duties in a coat and tie, if he wishes. As for the aged chimneys, we have flues that can be inserted from the roof and even go around corners, staying gas tight and safe all the way. A new heater in an old basement, therefore, is no longer impractical.

Which system is better will show up, to some degree, in a comparison of owning costs. On one hand we have three or four boilers, three or four chimney remodelings, three or four oil tanks or gas connections. On the other hand is a single boiler, one chimney, one fuel system, and a network of distribution piping, all new. These constitute the capital investment, and for each alternative we must add the maintenance costs expected over the next 20 years. In this way we come to the predicted owning costs; and whichever is the least will have a strong claim on our acceptance.

Predicting maintenance costs is where judgment becomes of prime value. A suggested formula based on the records of other systems, similar to the construction of the new project, follows:

$$M = \frac{X \times Z}{Y} \times 20$$

M = predicted maintenance for a period of 20 years.

X = total recorded maintenance costs for one average year of three or four similar systems.

Y = total linear feet of underground piping in the systems included in X.

Z = total linear feet of underground piping in the project for which the prediction is being made.

20 = twenty years.

Developing the comparative owning costs over a 20-year period is desirable for accuracy, since maintenance needs seldom become important until the second decade of service.

situation with mixed usage of historic structures

Mixed usage follows conversions rather than restorations. It means that part of the converted building will be satisfied with simple heating and part will require all-year air conditioning; or that part of it must be ventilated positively, while the remainder does very well with infiltration. Any of these combinations can be additionally complicated by differences in the hours of use.

The prescription for handling these diverse situations must be tailored to fit the peculiarities of each case. For example, consider a conversion to a school, with classrooms needing daily ventilation on the lower floors, and dormitories needing simple heating on the upper. The solution can be in either of two forms: (1) a duct system throughout, with the designer running his air channels as best he can, and zoning with motor-operated dampers both time and temperature controlled; (2) the so-called split system, which is widely liked, has simple radiators or convectors in the dormitory, and hot-water or steam coils in the air ducts that serve the classrooms. The basic heater for a split system is a steam or hot-water boiler.

Occasionally, two separate heating systems will be selected, based on the assumption that operating two small units at high efficiency is economically preferable to a large one that merely simmers at very low efficiency much of the time.

The Irish castle reproduction of the Carrolls, built on a hilltop and frowning over the Hudson at Tarrytown, New York, provides an illustration of the two-system treatment. Constructed during the 1890's, it was originally heated by warm-air ducts operating on gravity; conversion, however, caught up with it 50 years later. Today the great baronial hall, with its knights' shields and heraldic devices, is a truly imposing office, and in the rooms and cellars below, typewriters click and filing clerks hustle from one stack of steel cabinets to another throughout the working day. The

Table I: Syllabus of Building Factors

Proposed use of building	Humidity control[1]	Summer cooling	Integral[2] ventilation	Multiple buildings	Invisibility
Offices	No	Yes	Possibly	No	Sometimes
Orphanage	No	No	No	Yes	No
Convalescent home	No	No	No	No	No
Home for Aged	No	No	No	Possibly	No
Historic shrine	Yes	Possibly	Yes	Yes	Yes
Classrooms	No	No	Yes	Yes	No
Dormitories	No	No	No	Possibly	No
Country club	No	Partial	Partial	Possibly	No
Museum	Possibly	Possibly	Possibly	Possibly	No
Insurance or foundations	No	Yes	Yes	Possibly	Sometimes
Lodge rooms	No	Perhaps	Perhaps	No	No
Religious	No	No	No	Yes	No

[1] All year control.
[2] Integral with either the heating or summer cooling system.
NOTE: This syllabus applies to the average project. Deviations will be encountered from time to time.

old gravity ducts are still there, but served by a modern oil-fired heater with a fan to keep the warm air moving.

Meanwhile, in a wing built about 1900, the present owner lives, and since home life does not shut down for nights, Sundays, and holidays, a different heating schedule is appropriate. Comfort comes to these rooms from a hot-water boiler and circulating hot-water pumps in the basement.

Once in a lifetime, we might find a combination of heating and ventilating problems largely solved for us by the designer of the original mansion. This is true of Biltmore House, near Asheville, North Carolina. More than 60 years ago, during the building of this massive French chateau, vertical masonry air stacks, approximately 10 x 14 in. inside dimensions, were incorporated in the walls perhaps 50 in all. In the base of each stack is a horizontal steam radiator; the air that is heated by these radiators and rises to the rooms above is 100 percent fresh air, inducted from an air tunnel as shown (*Figure 5*).

From an engineering viewpoint, this arrangement is wanting in two aspects. First, air movement is not subject to close control—meaning that rooms can be overheated or underheated; second, 100 percent fresh-air makeup is plain waste of heat. Should Biltmore House ever come up for conversion, the designer's first step would be to provide recirculating connections in the basement, and his second would be to introduce fans for warm-air propulsion. Nonetheless, this early dream of air treatment is remarkably adaptable to present practices. Any converting architect or engineer would be lucky to find another like it.

Summarizing the heating problems of restoration and conversion projects, we observe that the guides to their solutions look like this:

1. Invisibility is essential for historic projects. It can be achieved by four established methods, plus those born in our own imaginations.

2. The heating of multiple buildings is in a time of transition. We must evaluate a single, central plant against a group of scattered local units, paying particular attention to the life and health expectancy of underground piping systems.

3. Mixed usage is all engineering, involving the applications of warm air, steam, and hot water in different parts of the same building, and perhaps the relative hours of service. We can mix the systems as necessary to satisfy the mixed demands.

4. Nothing is impossible, but the cost of doing the impossible might be unacceptably high.

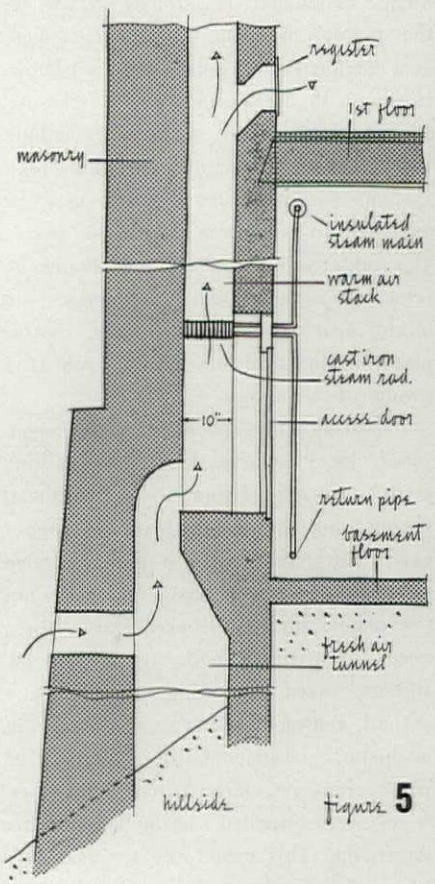


figure 5

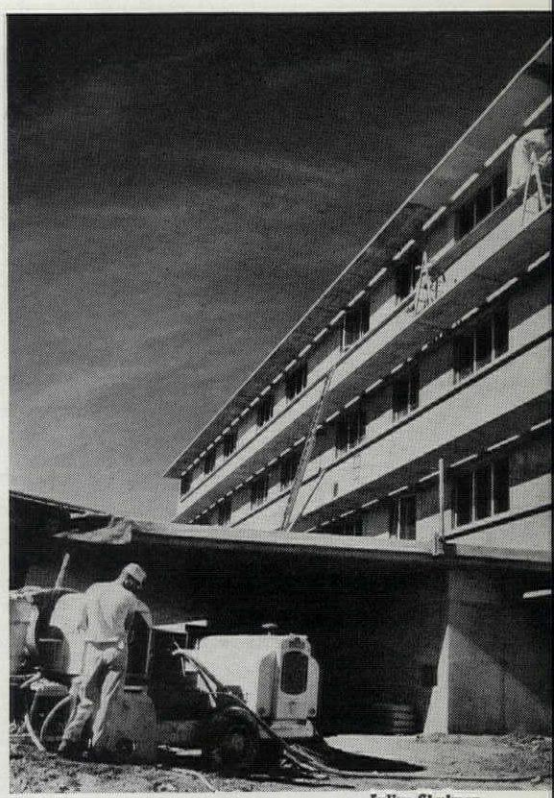
mechanization in plastering

Mixing boxes and hods—once familiar objects at almost any building construction site—are now being replaced (particularly on the West Coast) by a variety of mechanical mixers and pumps, as well as guns with interchangeable orifices to meet any job requirement. Now, all three plaster coats—scratch, brown, and finish—can be applied by the same gun. The particular requirements of each application are met by proper selection of nozzle openings, hose sizes, and pressures. Since perfected models are capable of pumping all types of plaster mixes as high as 135 ft, most multistory structures present no problem *(photo at right)*. Even fibered plaster is being applied without incident.

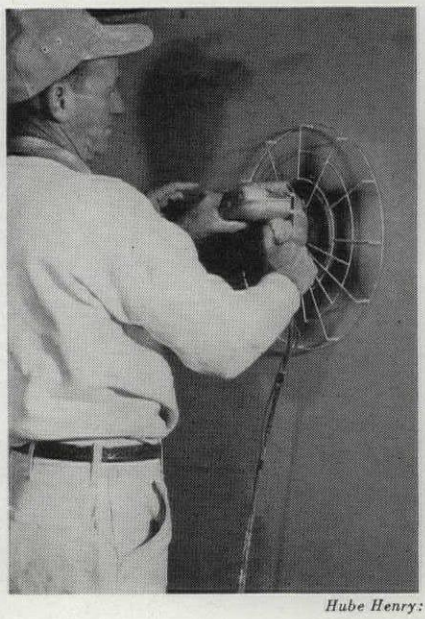
One of the most recent innovations in this field is the mechanical trowel. Weighing only six lb and equipped with interchangeable flexible and rigid blades, it resembles a hand-held electric fan *(below left)*. As blades rotate, a finger-controlled water spray is played on the plaster surface.

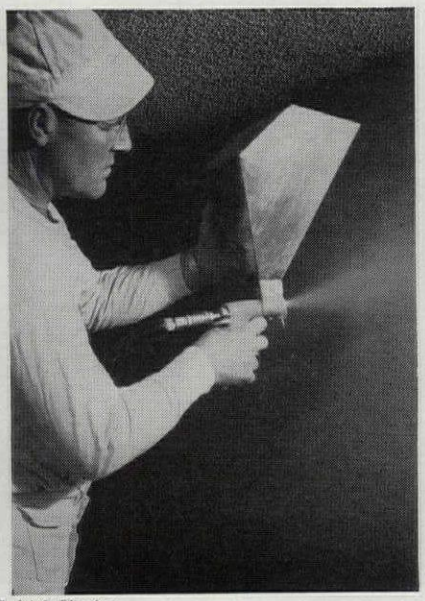
When colored, acoustical plaster is sprayed to base coat *(below center)*, the journeyman's right hand triggers gun to achieve a variety of textures, while left hand supports hopper and aids in guiding spray.

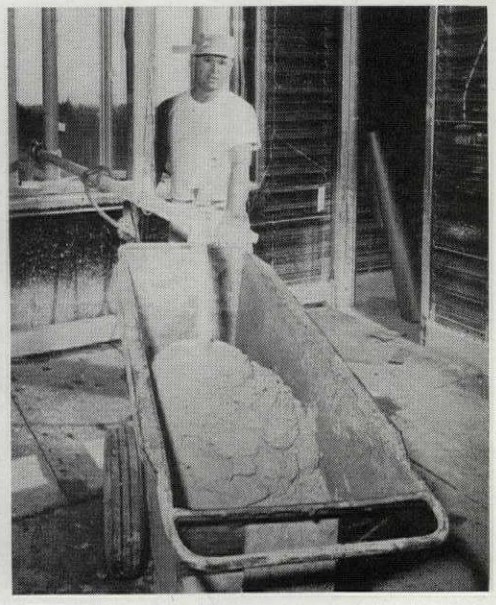
Many contractors have reported improved efficiency and uniformity of workmanship. When these tools were first available, it was felt that younger journeymen would be the most receptive to mechanization; however, experience has proved different. Young and old alike have demonstrated eagerness and pride in learning these advanced application methods. Some journeymen, no longer able to stand up under eight hours with hawk and trowel, have been lured back into the trade by the easier working conditions.



Julius Shulman







Hube Henry: Hedrich-Blessing

mutually-supporting long-span roofs

Most recent addition to TWA's new overhaul base at Kansas City, Missouri, is its $8-millions Airframe-Overhaul Building. Of unusual interest to architects and engineers is the innovation of a structural design that has been used for the first time in hangar construction: thin-shell, reinforced-concrete corrugated slabs supported at outer ends by high-strength steel suspenders.

This immense structure has a center section 1000 ft long and 100 ft wide—a three-story core containing floor space for auxiliary shops and administrative functions—which is flanked on each side by a hangar bay 816 ft long, 160 ft wide, and 45 ft high. As both bays are roofed by a cantilevered system, the space below is unobstructed by columns and 12 four-engine aircraft can be accommodated in each area at the same time. Since the client also wished to have unobstructed shop floor space at ground level of the center section, the second and third floors were suspended from the cantilever roof anchorage walls at roof level (*section acrosspage*).

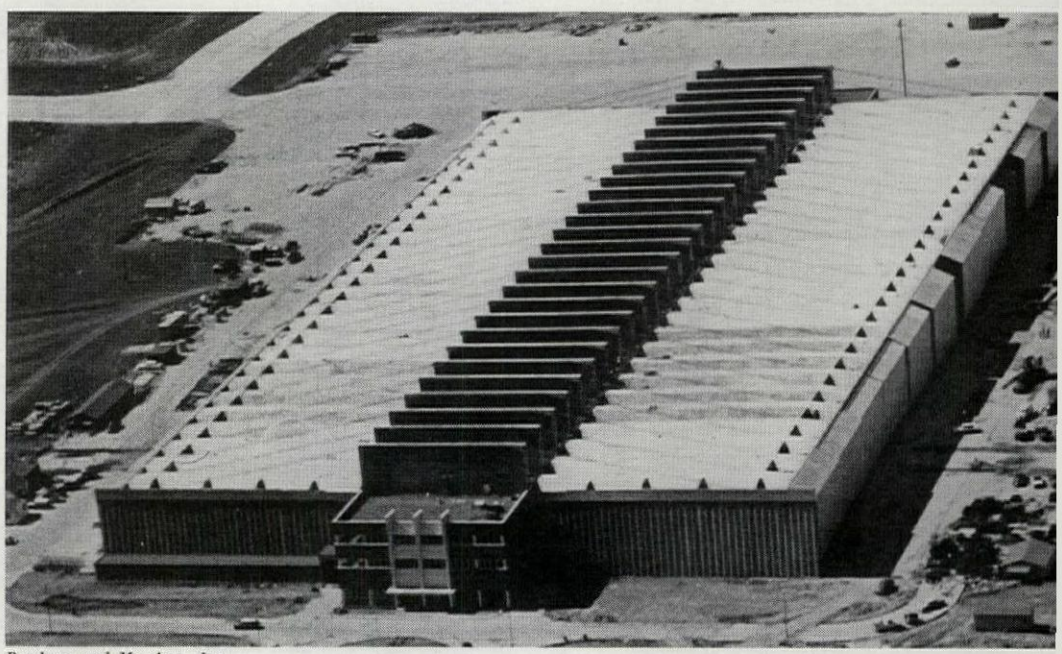
Essentially, the hangar was built around a balanced design, where the cantilevered roof was balanced against the weight of the suspended floors of the center section. Included in the design were all possible variations that might enter the loading picture—such as variations in erection, wind load, dead load, as well as all other safety factors appropriate for a design of this type. The stability of the final structure would not be impaired even if two strands, of each set of four, were to fail for some extraordinary reason. In the event of a terrific fire or if a plane should crash into one of the roofs, causing it to fall, the opposite roof would still remain in position. In addition to the many variables, the basic design load for the corrugated roof was 30 psf live load and 56 psf dead load.

A total of 284 strands is used to support the roof slabs. Anchorage pylons for the strands are 30 ft on center and from each side a set of four strands extends to a mating anchorage located 10 ft from the end of the slab. In the bulb—across the top of each pylon—two additional strands, plus enough reinforcing steel to compensate for the difference between the two omitted strands and the balancing force of the hung floor loads, were used as ties. Exposed strands are 2½ in. diameter while those embedded in the bulbs are 2¼ in. Each of the former strands is composed of approximately 150 wires and weighs about 13 lb per ft. (Strand and not cable, incidentally, is the correct terminology, since a cable would be made up of a number of strands.) Working stresses assigned to the strands were 70,000 psi with a modulus of elasticity of 24,000,000.

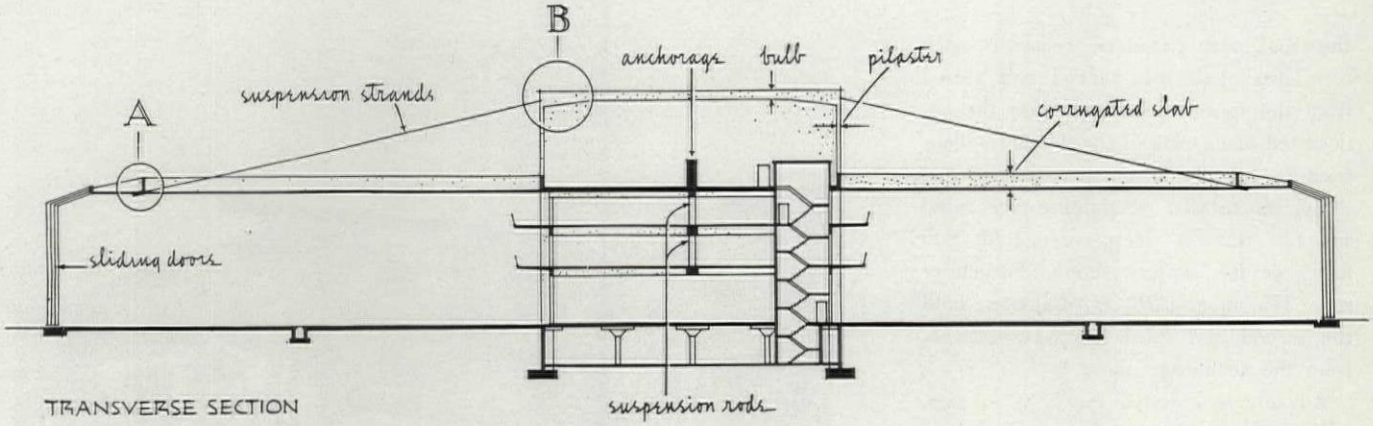
Lightweight concrete in the corrugated roof, weighing 100 to 110 lb per cu ft, developed an ultimate strength of 4,500 psi; air entrainment was specified. The design of the slabs required relatively little flexural steel due to the short span between the hips (not exceeding 9 ft) and the use of the horizontal component of the prestressed strand force in the direction of the cantilever. The pressure line actually never goes outside the flanges.

Metal forms were repetitively used for

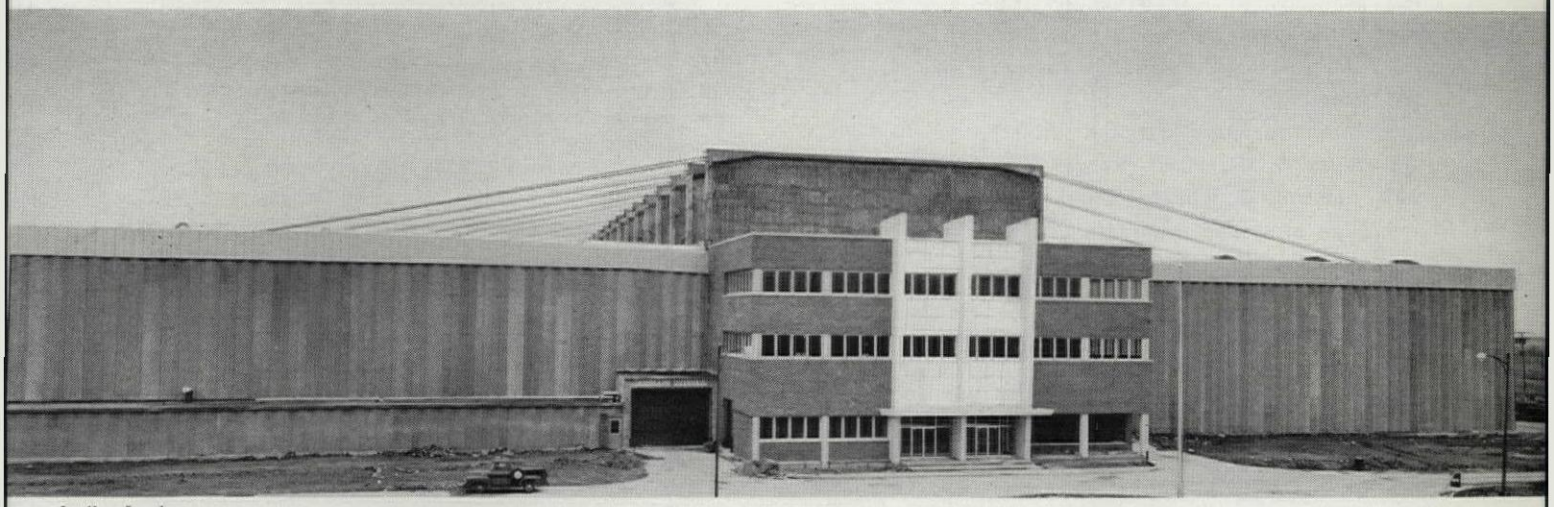
Weight of roof is more than adequate to offset upward wind forces. The canopy above the hangar door moves in concert with the movement of the roof, under variations in roof load.



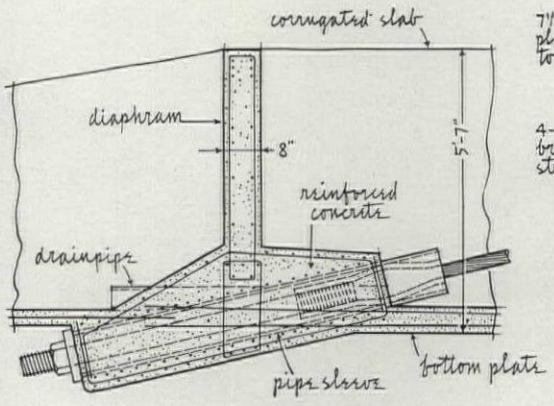
Randazzo and Morrison, Inc.



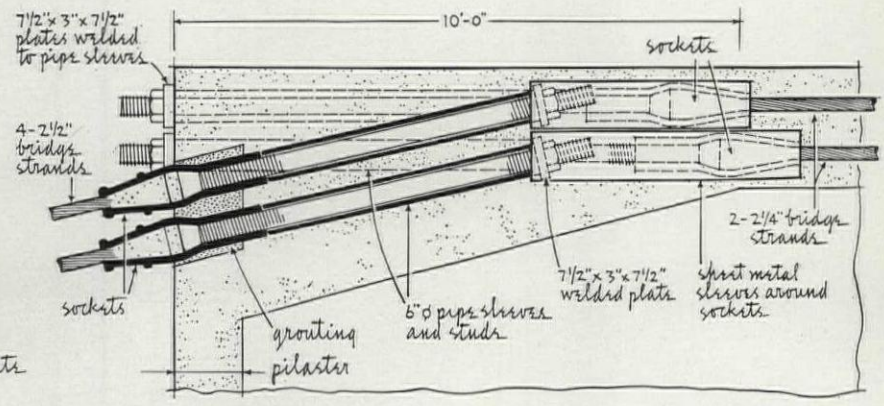
TRANSVERSE SECTION



J. Alex Langley



SECTION at A

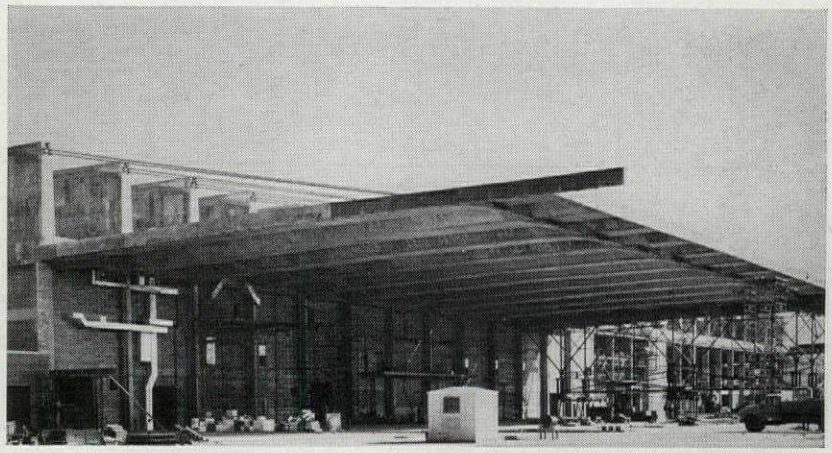


SECTION at B

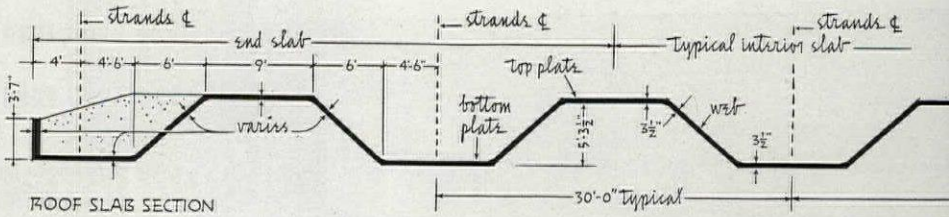
the roof slabs; before removal, each cantilever shell was jacked and raised from the forms to accommodate the anticipated elongation of the strands—about four in. elastic strain per unit. Wood forms on tubular scaffolding was used for the three-ft deep corrugated-slab floors of the center section. Suspender rods, 1⅞ in. and 2½ in. diameter, hold the second and third floors respectively from the anchorage above.

Advantages claimed are: (1) as compared with conventional concrete methods: savings in material and weight; (2) as compared with a cantilevered-steel truss system: cheaper, more durable, less maintenance, and, in case of fire, safer.

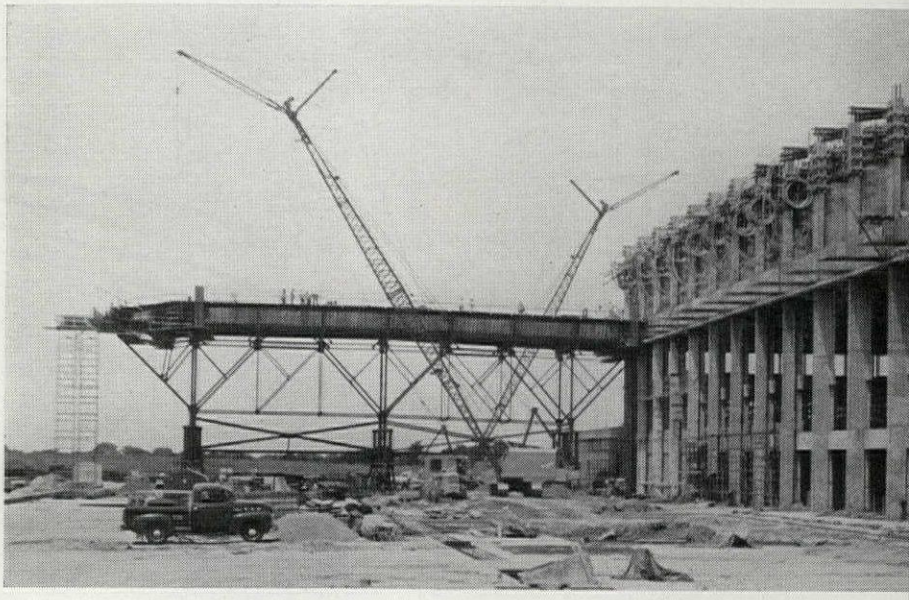
Architects-engineers for the project are: Burns & McDonnell, Kansas City, with Ammann & Whitney, New York, acting as consulting engineers.



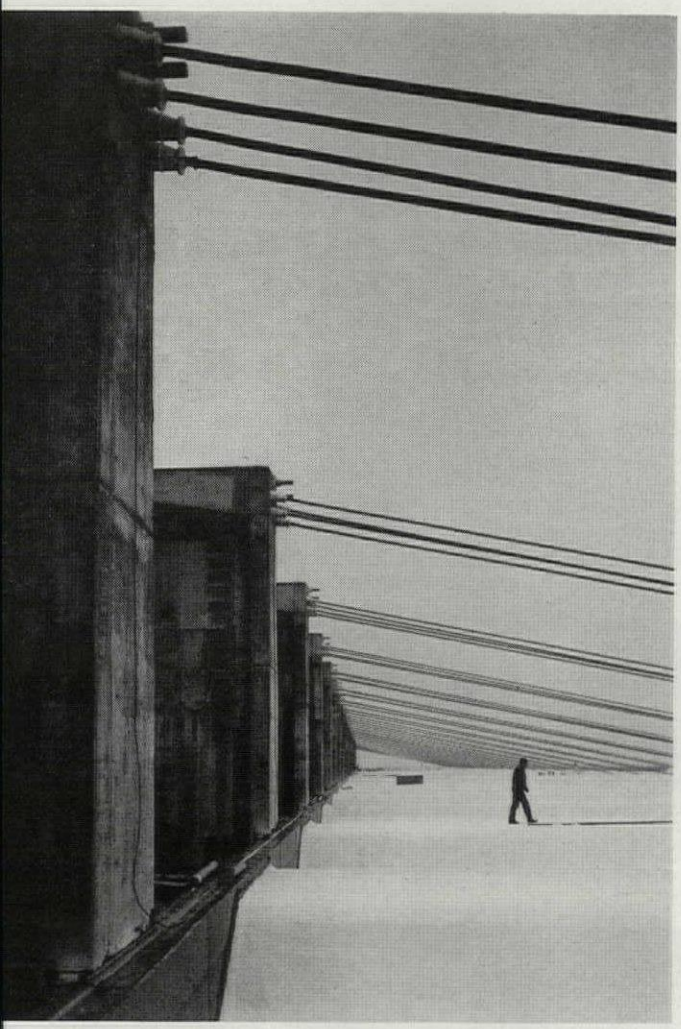
Construction-progress photo (above) *shows soffit of corrugated-concrete-slab roof after metal forming has been removed. Section through slab* (below) *indicates slope and dimensions of end and typical slabs.*

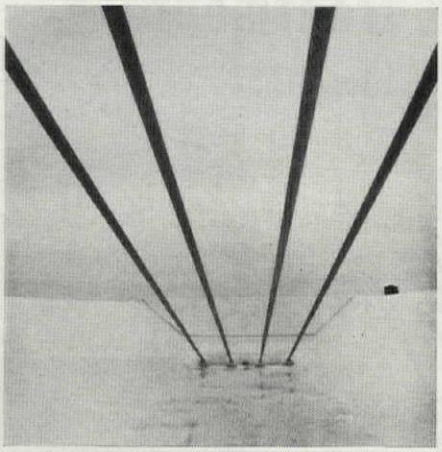


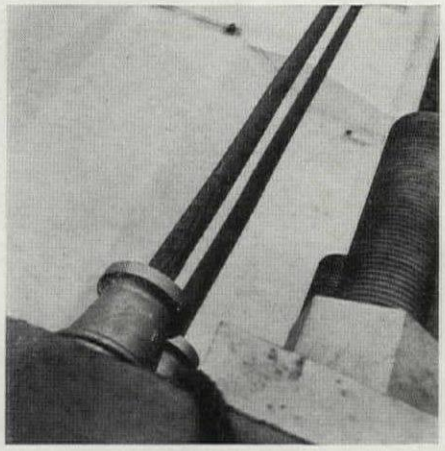
ROOF SLAB SECTION



Before being anchored to ends of cantilevered slabs, strands are coiled at tops of pylons (right). *Slabs are jacked and raised from the forms, before removal, to accommodate elongation of strands.*



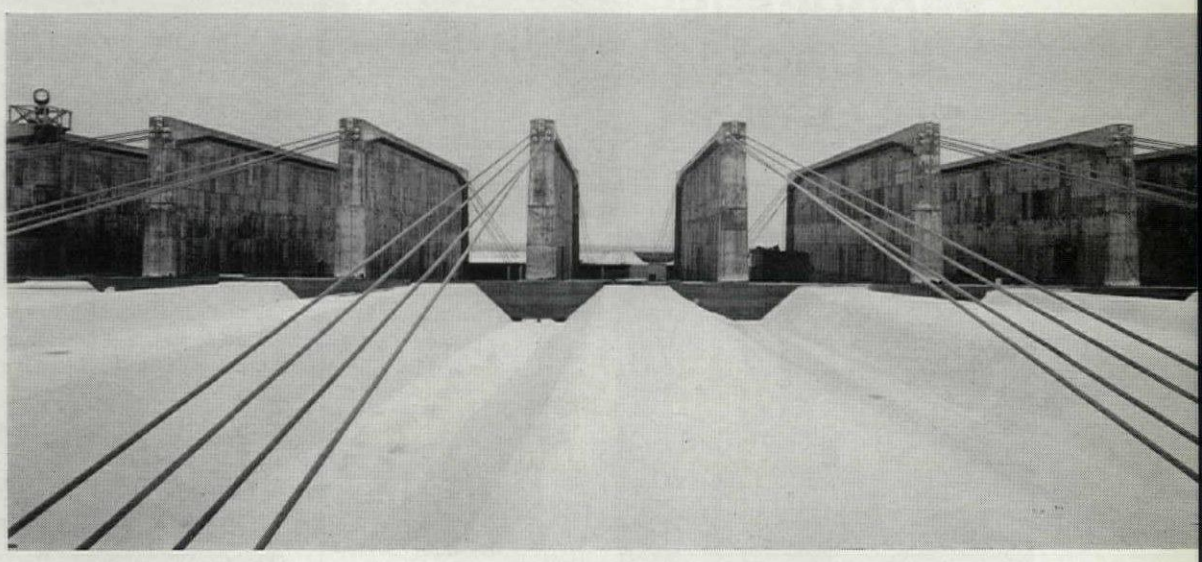




Detail of pylons (above left) *shows pilaster, bulb, and strands. Pilaster was designed to stabilize edges of walls as well as to carry load to ground. Emulsion-type acrylic paint was sprayed on top surfaces of roof slabs.*

Details of sockets and strands are shown (above).

Photos: J. Alex Langley



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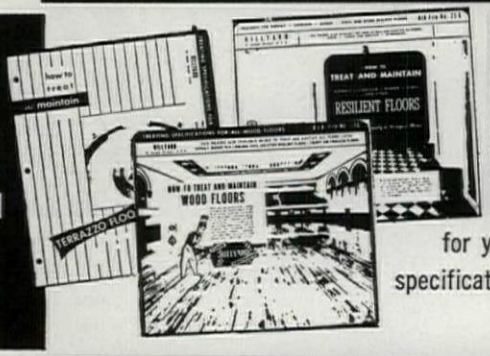

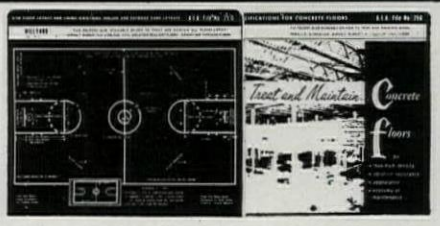

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Scope of Work by Harold J. Rosen

A common form of duplication in specifications writing which is superfluous and may be dangerous is the use of a subhead entitled, *Scope of Work*, or, *Work Included*, in which the work specified in detail in the ensuing section is summarized in outline form under this heading. Many specifications writers may disagree with this assertion and I cannot hope to make any converts out of this group. However, a review of the fundamentals of specifications writing will convince the specifications trainee that the *Scope of Work* subhead, as written by some practitioners, is redundant, dangerous, time-consuming, and simply amounts to padding of the specifications.

The proper relationship between specifications and working drawings must be well understood. These two documents which together with the Agreement or Contract form the contract documents should be complementary, and they must interlock, not overlap. The drawings should show what is to be done, and the specifications should tell how to do it. The specifications describe the qualities of material and mode of construction, and the drawings show location and extent of the materials. Inasmuch as the necessary information for the construction of a building is given to the contractor in two forms, graphically by means of the drawings and in writing by the specifications, each should tell its own part of the story completely and neither should repeat that part of the story which belongs to the other.

The danger in preparing a *Scope of Work* lies in duplication. If this duplication were exact in each instance and remained so, it might be harmless at best; but, too often, the information given on the drawings and that in the specifications either do not agree in the first place due to lack of co-ordination or, owing to necessary changes and to errors in making them, develop differences which later create trouble. For example, I have seen specifications with a *Scope of Work* written for masonry which goes into such detail as follows:

scope of work

The work under this contract shall include all labor and materials required for the construction of the masonry work as follows:

(a) Exterior face brick in cavity-wall construction with concrete-block back-up.
(b) Exterior face brick with stone-concrete back-up.
(c) Exterior face brick with common-brick back-up for parapets.
(d) Common brick for interior partitions where noted.
(e) Concrete block for back-up in exterior masonry walls.
(f) Concrete block for interior partitions where noted.
(g) Structural facing-tile for interior partitions.
(h) Structural facing-tile soaps at exterior walls.

This is not quite the end of the *Scope of Work*, as it goes on ad infinitum, ad nauseam. What has the specifications writer accomplished? Has he given the estimator information to price the work, the builder's superintendent directions in construction, or the architect's supervisor a check on the character and quality of materials and workmanship?

The drawings, if properly drawn, will indicate the location of all of the above materials. The specifications should not and need not describe their location, since the draftsman may make subsequent changes without notifying the specifications writer. Another danger that sometimes results is that this *Scope of Work* list is not expanded upon later in the specification, leaving only a brief outline in the *Scope of Work* which is incomplete and forms no sound basis for bidding. The estimator cannot use the *Scope of Work* as complete, for fear that he will not make a comprehensive take-off. The danger with the *Scope of Work* paragraphs is that they are not complete but only indicate the major portions of the work under the Section. The estimator may accept the *Scope of Work* as complete and fail to read the remainder of the specifications, which contain much other information essential for an accurate estimate.

In Prof. Goldwin Goldsmith's book, *Architect's Specifications—How to Write Them*, numerous illustrations are cited on certain references which have *Scope of Work* headings listing items that are not completely described in the subsequent specifications, or describing items which are not listed in the *Scope*. A contractor may contend that he should not be required to furnish anything not listed in the *Scope of Work*. Lawsuits have been started on lesser grounds, but this is not the only problem. It is the incident trouble and annoyance to the owner and the possible delay to the job that must be avoided.

The argument in favor of *Scope of Work* clauses is that they are a convenience to the contractor. Such clauses tend to lead the estimator, when pressed for time, into the too-common error of accepting the *Scope of Work* as sufficient in itself—with disastrous results.

ARTICLE 2 of the A I A General Conditions states that the Contractor shall furnish all labor and materials necessary for the proper execution of the work. The General Conditions, in turn, are a part of the specifications and when the trade sections are written specifying clearly all materials and labor and everything necessary to secure the construction of all that part of the building properly included in that trade section a *Scope of Work* becomes redundant. Specifications written by the Veterans Administration, the Corps of Engineers, and the Public Buildings Service have no *Scope of Work* heading—or a very general and innocuous Scope that does not go into the detail previously illustrated. This lack of *Scope of Work* or very general description has not resulted in any extras, to my knowledge.

As a corollary to the *Scope of Work* heading, the *Work Not Included* has likewise gotten out of hand. A typical *Work Not Included* in the Painting Section sometimes reads as follows:

work not included

(a) Painting of asphalt tile
(b) Painting of glass
(c) Painting marble

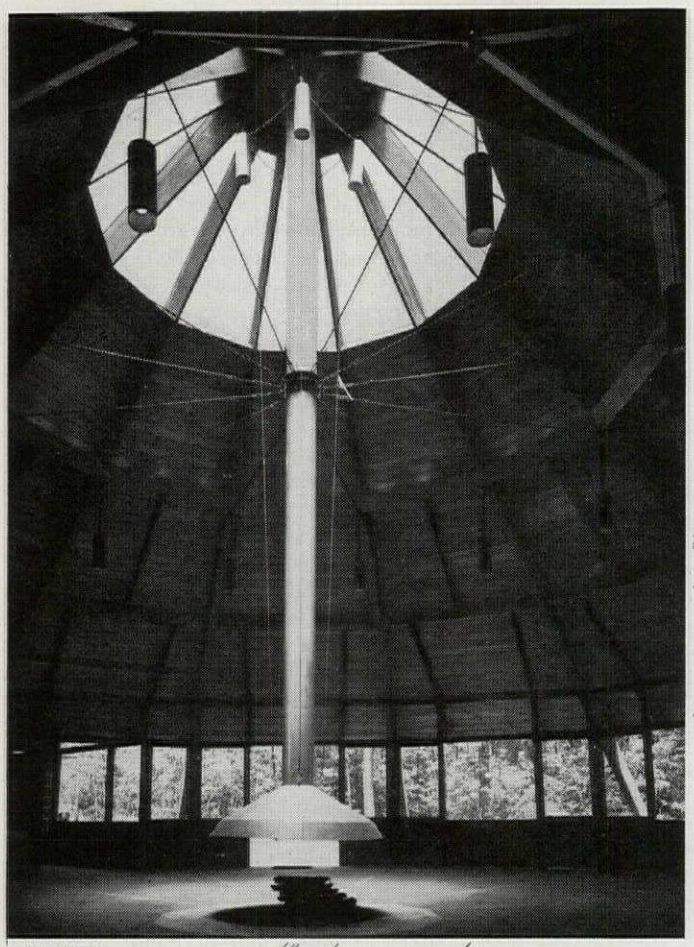
Certainly, if the specifications writer describes paint materials and their application on specific surfaces—such as ferrous metals, wood, plaster, and concrete block—the contractor will not paint asphalt tile, glass, and marble whether listed under the *Work Not Included* heading, or not.

Let's not encumber, pad, and list in the specifications items which properly belong on the drawings or are described elsewhere in the specifications.

A *Specifications Outline* prepared by the Michigan Joint Cooperative AIA-ACC Committee does not list a *Scope of Work* in the Outline for the General Construction trades, but does for Mechanical trades. If we can reach the architects, we will take care of the engineers in due course.

The *Specifications Outline* may be obtained from the Associated General Contractors of America, 716 South Capitol, Lansing, Mich. for $1.00 per copy. (The *Specifications Outline* recommends permanent specifications division numbers, a subject discussed in this column, JULY 1957 P/A.)

fireplace

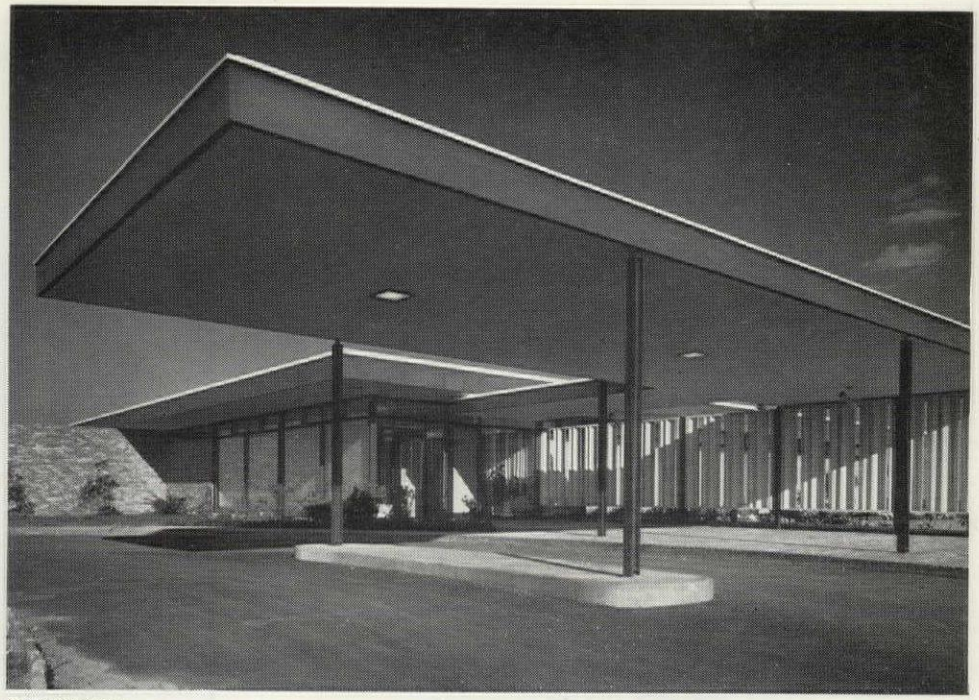


M. E. WARREN

GIRL SCOUT LODGE, Annapolis, Md.

Rogers, Taliaferro & Lamb, Architects

porte cochere



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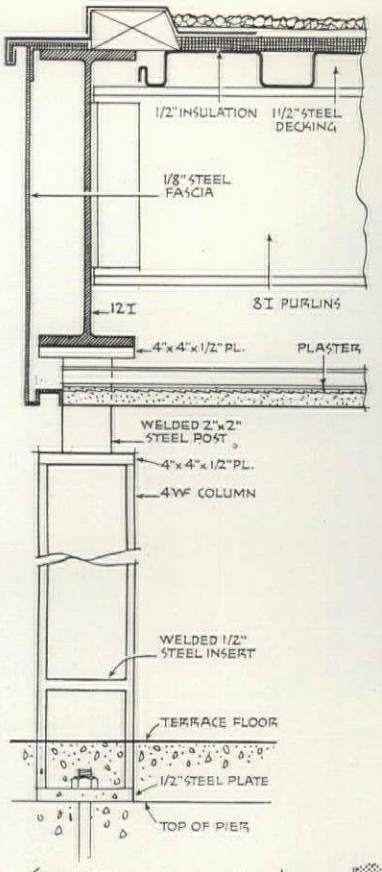
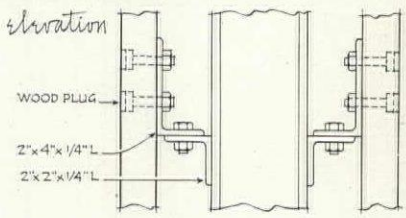
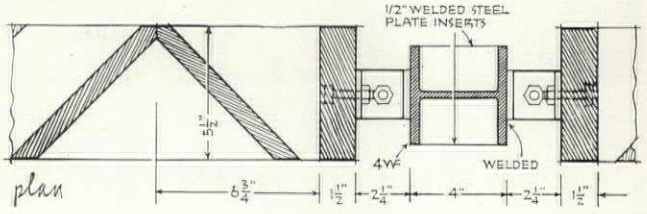
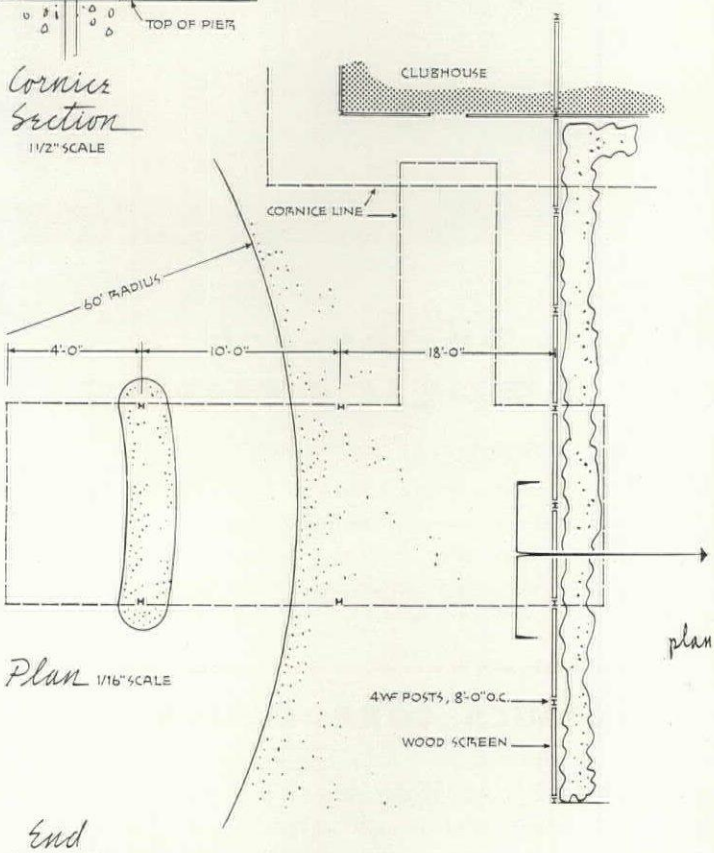


Cornice Section
1 1/2" SCALE

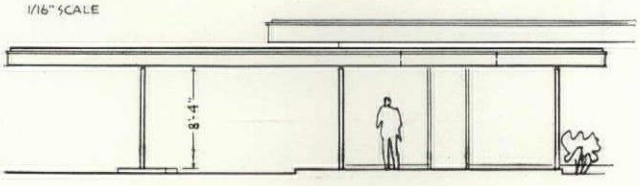


Screen-Post Assembly
1 1/2" SCALE

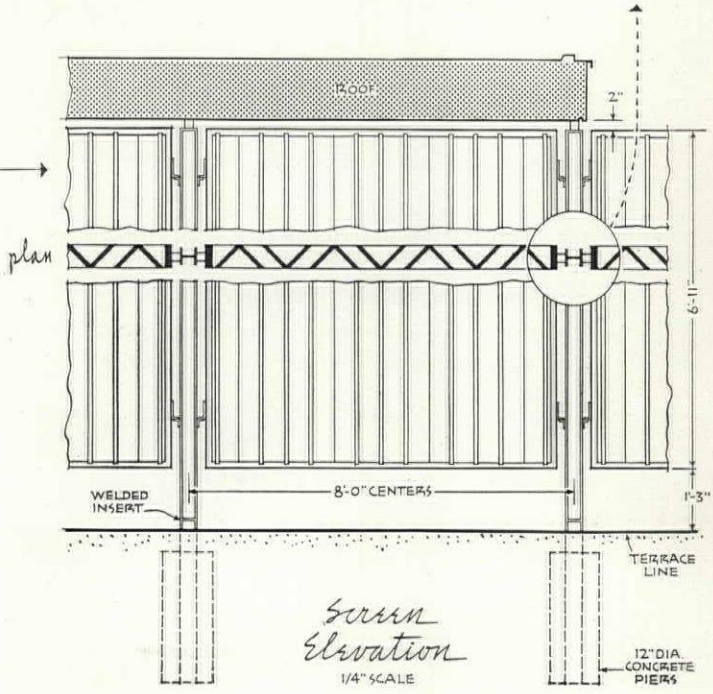




Plan 1/16" SCALE



End Elevation
1/16" SCALE



Screen Elevation
1/4" SCALE

COUNTRY CLUB, Tulsa, Okla.

Donald H. Honn, Architect

Cut Costs with FORMICA® On-the-Job WALL APPLICATIONS

New methods of applying Formica to wall areas with Formica Fast Dry Cement have architects and building management specifying huge areas of what was once considered a luxury material.

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Please send me your new booklet "Vertical Surfaces" Form #670.

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Louise Sloane

remodeling-2

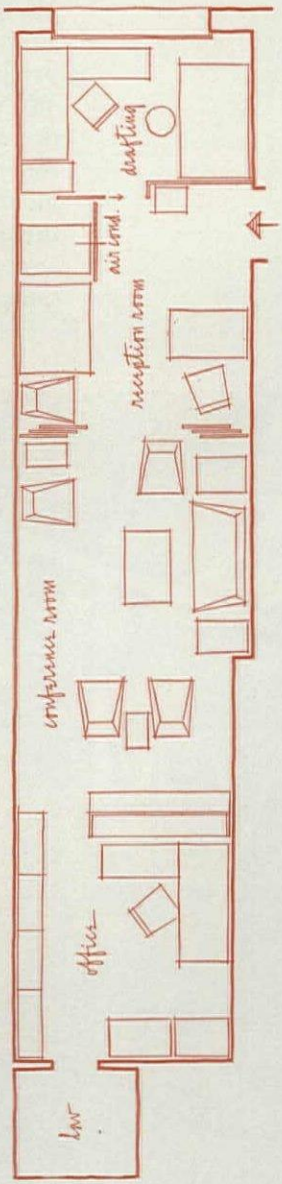
Continuing our presentation of remodeled interiors, we show an extraordinarily skilful conversion of a 10′ x 40′ shop into a compact office suite; and the interior updating of a century-old hospital.

In transforming a dilapidated, narrow shop into suitable offices for their own interior design activities, Kim Hoffmann & Stephen Heidrich chose a uniformly light, over-all color, to create a feeling of spaciousness. Natural light-oak paneling covers the walls, the floor tiles are beige and taupe, furniture color accents are coffee-brown, old gold, and orange. To effect square room proportions instead of oblong ones, the ceiling was lowered, large mirror areas were introduced, and sliding wall panels (completely removable) provided as area dividers. By means of the ingeniously contrived wall panels, it is possible either to throw open the entire room length when desired, or to achieve separate areas for consultation, promotion and display, design, bookkeeping, sample storage.

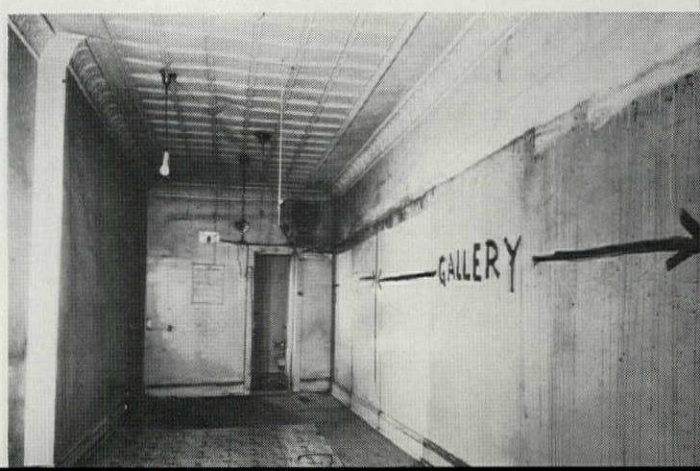
Entrance area accommodates receptionist, Hoffmann & Heidrich-designed wall-hung display units, dimmer controls for spotlight-plus-decorative-fixture lighting scheme. Spotlights focus on a loan exhibit of paintings, decorative fixtures provide focal area lighting. Custom-designed furniture is beige-painted wrought iron, and natural oak with glass, lightly scaled to room's proportions.

remodeling

client	own offices
location	New York, New York
designers	Kim Hoffmann & Stephen Heidrich



Vermeer and other Dutch masters inspired the floor design, the sparing use of decorative accents—such as antique fixtures, Oriental rug, heavy silk drapery—to animate the modern design. Acrosspage photograph returns to entrance area, showing wall opposite entrance door. Woven-wood panel, in metallics and vivid colors, conceals air-conditioning system, and is set at right angles to mirrored wall to form a storage niche. The ceiling-track-hung wall panels that close off the office area are equipped with retractable closet fixtures, consistently making maximum use of limited space.



data

cabinetwork, furniture

All: Hoffmann & Heidrich designed/ woodwork executed by Rigon Woodworking Co., 417-419 East 93 St., New York, N. Y.; wrought-iron executed by Ironmasters, Inc., 220 N. 10 St., Brooklyn, N. Y.

equipment

Air Conditioning: Carrier Corporation, Syracuse, N. Y.

fabrics

Handwoven Upholstery: designed by Ellen Siegel/ Rancocas Fabrics, Burlington, N. J.

Antique-Silk Drapery: Scalamandre Silks, Inc., 598 Madison Ave., New York, N. Y.

Woven-Wood Panel: Window Modes, Inc., 196 E. 75 St., New York, N. Y.

walls, sliding divider panels

All: prefinished, sliced oak/ U. S. Plywood Corp., 55 W. 44 St., New York, N. Y.

Mirror: "Paralleloplate"/ Libbey-Owens-Ford Glass Co., Toledo, Ohio.

ceiling, flooring

Ceiling: "Celotex"/ United States Gypsum Co., 300 W. Adams St., Chicago, Ill.

Floor: rubber tile/ Armstrong Cork Co., Lancaster, Pa./ executed by Simon Manges & Sons, Inc., 575 Madison Ave., New York, N. Y.

lighting

Spotlights: General Lighting Co., 1527 Charlotte St., New York, N. Y.

Antique Dutch Fixtures, Brass Table Lamps: Hoffmann & Heidrich, 208 E. 73 St., New York 21, N. Y.

Dimmer Control: "Luxtrol"/ Superior Electric Co., Bristol, Conn.

art exhibit

Dutch Paintings: Dr. Hans Schaeffer Gallery, 52 E. 58 St., New York, N. Y.

remodeling

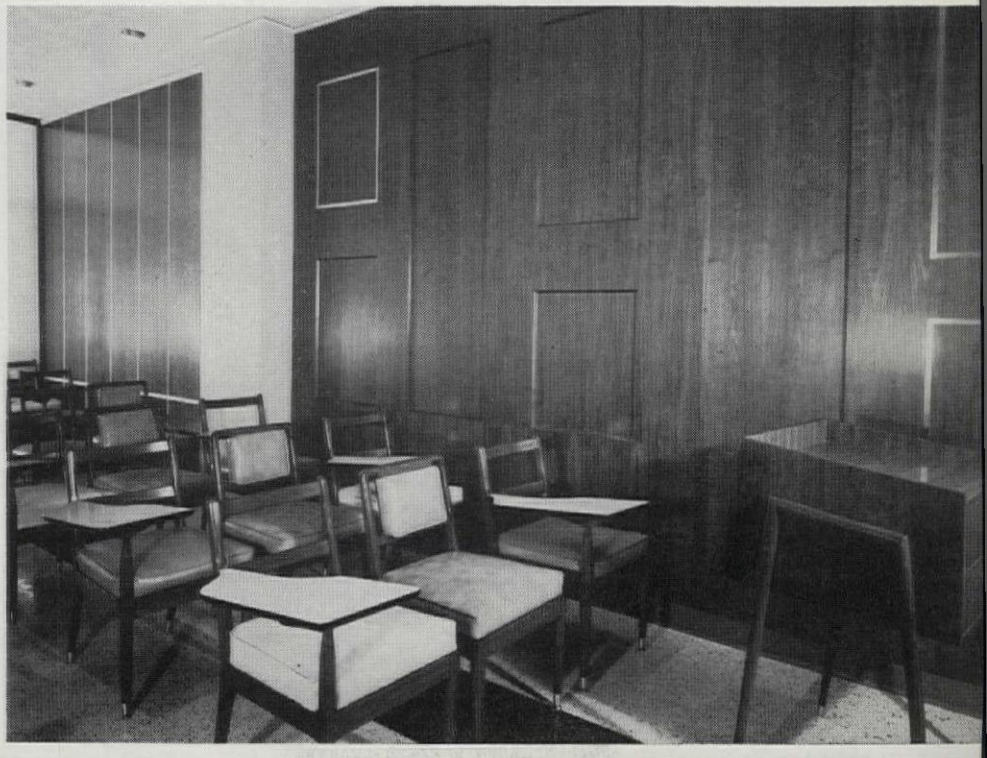
client	St. Joseph's Hospital
location	Philadelphia, Pennsylvania
designers	Ken White Associates

In modernizing a century-old hospital (built in 1849), the designer's problem was to realize the maximum in efficiency and economy, and the solution was based on creative use of contemporary materials, together with imaginative handling of color.

In the Lobby, walnut-plywood paneling covers the walls, encloses columns, and is used for a decorative door; a luminescent ceiling brightens the entrance; vinyl-tile flooring provides a colorful design in white with blocks of yellow, blue, orange and green. Furniture, light both in color and in scale, and simple planting, complete the fresh new look.

Admissions Office ("*before*," left; "*after*," above) *introduces privacy for the interviewees by means of pegboard dividers, painted white with natural-walnut edging. Desks, ceiling, and pegboard panels are white, against a light-blue wall; chairs are blue-green; floor is umber-gray streaked with terra cotta, black, and white.*

Conference Room (below) *uses interesting contrasts in natural woods—natural walnut with brass molding for the foreground wall; light mahogany with gray stripping for rear wall; ebonized-birch framing for Polyplastex screen in far rear. Chairs are natural walnut, upholstered in gray, beige, or turquoise; lecturn is natural walnut. Floor is beige with terra cotta spatter, center stripe in charcoal, spattered in beige and terra cotta.*



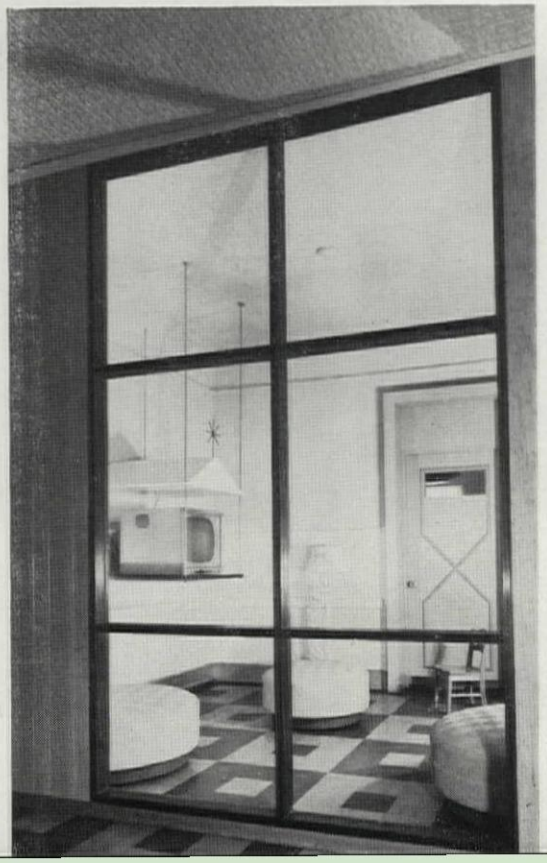
remodeling

St. Joseph's Hospital (*continued*)

Dramatic change in Administrator's Office was effected by covering one wall with nautral-cypress planks, the others with deep blue monkscloth, and introducing a beige, tan, and deep brown geometric vinyl-tile floor. All of the furniture is white except the walnut chairs with natural string. The wovenwood blind repeats the beige-white-brown and deep-blue color plan.

Doctor's Lounge ("*before*," left; "*after*," above) *has a restful blue-and-white color scheme, a suggestion of Oriental calm in its grouped ceiling lanterns, its shoji-like wall of Polyplastex framed in deep red mahogany.*

Children's World (below) *comforts small patients with hassocks and television, the former upholstered in pink, blue, and turquoise, the latter housed in a "birdcage" suspended from the ceiling.*



data

lobby

Furniture: Shelby Williams Co., 2500 W. Ogden, Chicago, Ill.

Luminescent Ceiling: Livezey Corporation, 3426 Conrad St., Philadelphia, Pa.

Walls: U. S. Plywood Corporation, 55 W. 44 St., New York, N. Y.

Paneled Ceiling: Bakelite Division, Union Carbon & Carbide Corporation, Bound Brook, N. J.

Floor: Robbins Floor Products, Inc., Tuscumbia, Ala.

admissions office

Cabinetwork: Brooklyn Cabinetworks Corporation, 391 Leonard St., Brooklyn, N. Y.

Chairs: Richards-Morgenthau Co., 225 Fifth Ave., New York, N. Y.

Lighting: Mobilite, Inc., 5 E. 102 St., New York, N. Y.

Pegboard Panels: U. S. Plywood Corporation.

Ceiling: United States Gypsum Co., 488 Madison Ave., New York, N. Y.

conference room

Cabinetwork Lectern: Conrad Protzman, Inc., 8 W. West St., Baltimore, Md.

Chairs: Thomas Furniture Co., High Point, N. C.

Upholstery: "Kalistron"/ U. S. Plywood Corporation.

Lighting: General Lighting Co., 248 McKibben St., Brooklyn 6, N. Y.

Walls: "Roddiscraft"/ Roddis Plywood Corp., 620 6th Ave., New York, N. Y.

Ceiling: United States Gypsum Co.

Floor: Mastic Tile Corporation of America, Newburgh, N. Y.

administrator's office

Cabinetwork, Desk: Brooklyn Cabinetworks Corp.

Wovenwood Blind: Window Modes, Inc., 196 E. 75 St., New York, N. Y.

String Chairs: JG Furniture Co., 543 Madison Ave., New York, N. Y.

Bench: Armstrong Furniture Co., P. O. Box 636, Martinsburg, W. Va.

Upholstery: "Koroseal"/ B. F. Goodrich Division, Marietta, Ohio.

Lighting: Raymor, 225 Fifth Ave., New York, N. Y.

Walls: "Fabrikona"/ H. B. Wiggens Co., Bloomfield, N. J.

Ceiling: United States Gypsum Co.

Floor: Robbins Floor Products, Inc.

doctors' lounge

Cabinetwork: Brooklyn Cabinetworks Corp.

Chairs: Shelby Williams Co.

Lighting: Howard Miller, Richards-Morgenthau Co.

Wall: Polyplastex United, Inc., 441 Madison Ave., New York, N. Y.

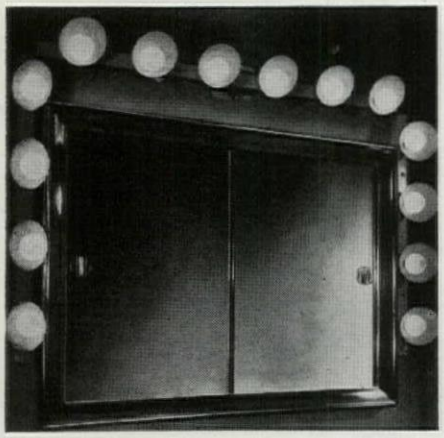
Ceiling: United States Gypsum Co.

children's world

Cabinetwork: Modern Store Fixture Co., 242 W. Exchange St., Providence, R. I.

Ottomans: Armstrong Furniture Co.

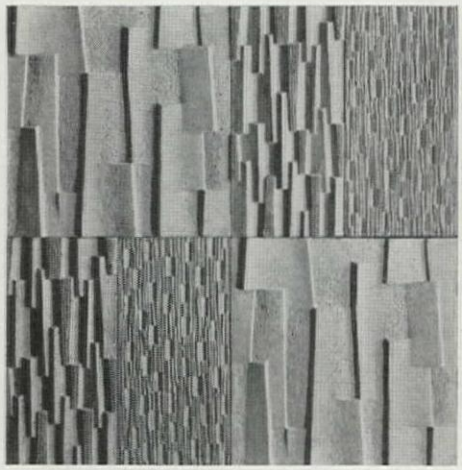
Upholstery: "Koroseal"/ B. F. Goodrich Div.



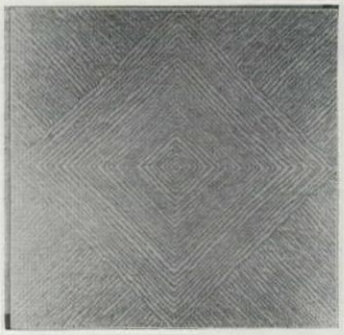
Wall Panel: "Tenex"/ waferwood textured panel, 1/4" thick/ shown in setting designed by Henry Hill/ 4'x8' sheets cut into rectangular panels, finished with rubbed gold paint, adhesive-applied/ **Pack River Tree Farm Products, Spokane, Wash.**

Floor Tile: "Scored Tile"/ glazed ceramic/ 4 1/4"x 4 1/4", with straight grooves cut into surface/ cement grout flows into grooves just as it does into joints around unit, creating the effect of individual tiles/ tiles with self-spacing projections are set individually/ full color line/ **American-Olean Tile Co., Lancaster, Pa.**

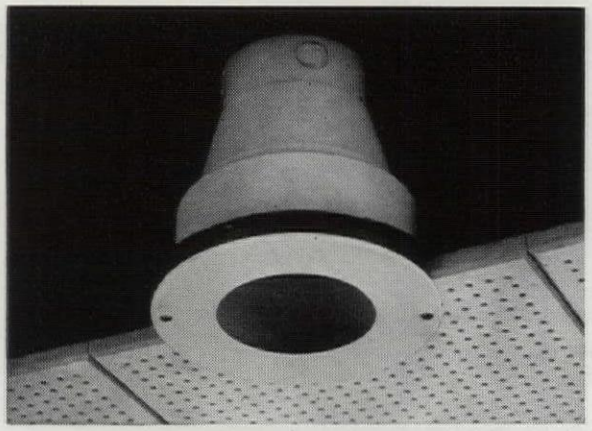
Make-Up Lighting: "Vanity Fair"/ adaptation of theatrical lighting system for home use/ series of metal strips, 24", 36", 48" in length, supporting, respectively, 4, 6, or 8 frosted bulbs of 15- or 25-watt intensity/ each bulb set in a "Perfalux" cup reflector tinted to diffuse a soft pink glow/ strips may be used in vertical side pairs, as a single strip across mirror top, or in triplicate/ chromium plates provide corner fittings for U-shaped unit of 3 strips/ **retail:** 24"-4 lights, $24.90; 36"-6 lights, $36.60, 48"-8 light, $48.75, corner bend, $6 pair/ **Lightolier, Inc., Jersey City, N. J.**

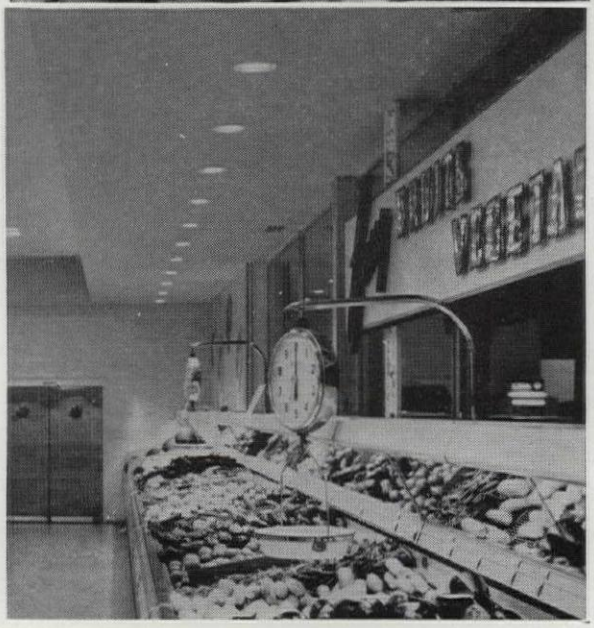


Sculptured Wall Facings: clay tiles in a variety of patterns, some boldly strong in high relief, others in quiet textures, to be used for a custom-wall treatment/ range of glazed and unglazed colors/ almost unlimited variety of effects possible/ waterproof, weather-resistant/ may be set in place on wood, stone or masonry/ sizes range from 4 1/4"x8 1/2" to 18"x 18"/ **retail:** from $3.60 to $6.25 per sq ft/ designed by Lee Rosen/ **Design-Technics, 4 E. 52 St., New York, N. Y.**



Decorated Ceiling Tile: "Temlok Tile" in "Diamond" design/ beige imprint over white ground/ 12"x 12", 1/2" thick/ tongue-and-groove joints permit blind-nailing, stapling, or cementing/ **Armstrong Cork Co., Lancaster, Pa.**





Silver-dot

THE MOST EFFICIENT ALL-PURPOSE DOWNLIGHT FOR ALL RESIDENTIAL and COMMERCIAL APPLICATIONS

LAMP COST *at one-third of other units*

Silver-Dot units use low cost silvered bowl lamps. The lamp renewal cost for equivalent burning hours is approximately ⅓ that of equipment using reflectorized lamps. In addition, the labor cost of replacement is reduced because all Silver-Dot units can be relamped with pole type lamp changers.

POWER COST *at two-thirds of other units*

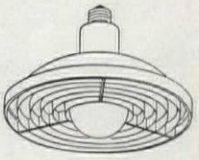
Many recessed downlights are designed for 150W lamps. Silver-Dot 100 Watt units therefore require just ⅔ as much electricity.

LIGHT OUTPUT *of three times other units*

Silver-Dot line units will provide up to 3 times as many foot-candles as other units of similar application. This impressive increase in illumination is more precisely controlled with less objectionable glare from the unit itself.

ADAPTOR TYPE SILVER-SPOT

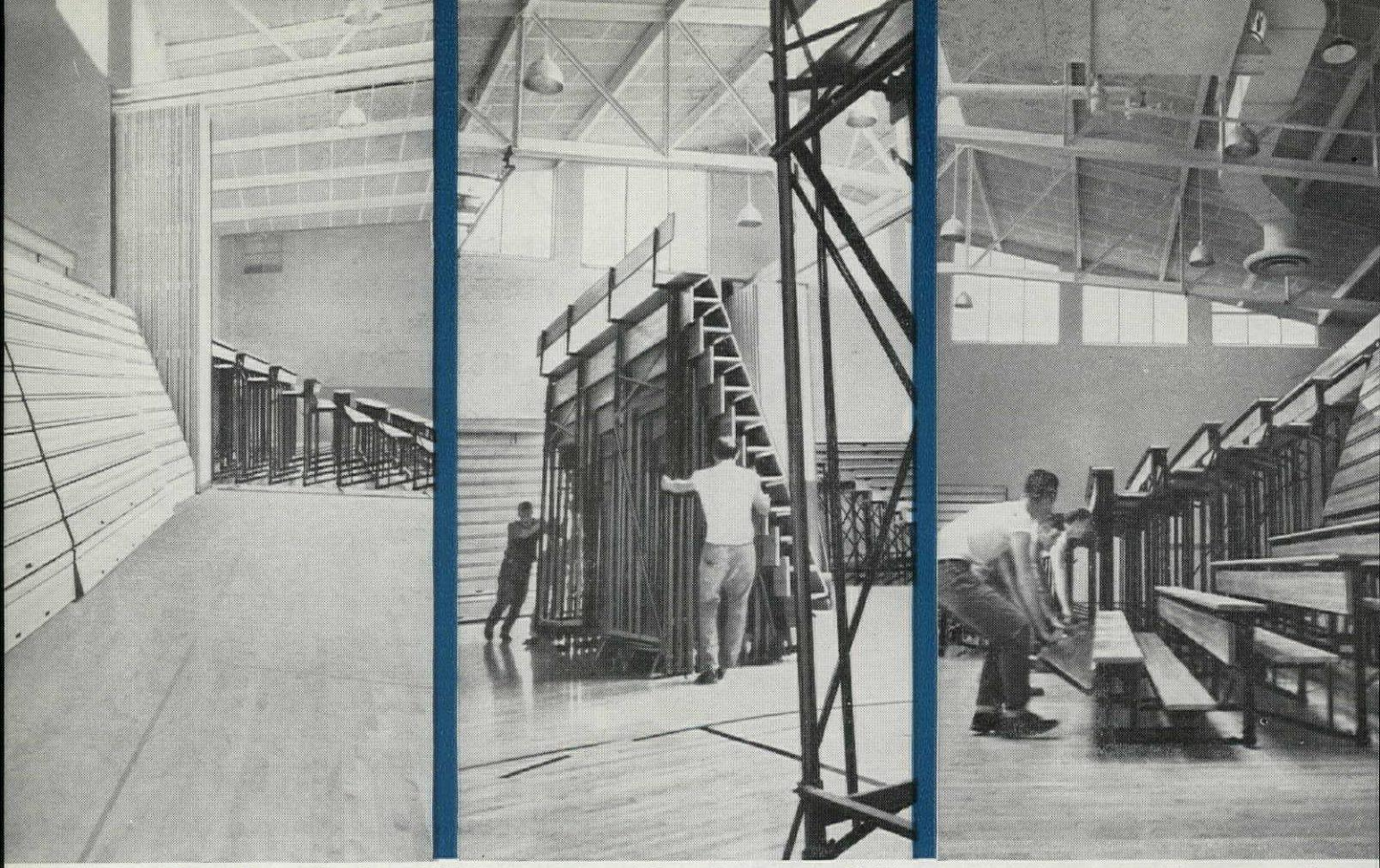
Designed for use in any porcelain receptacle or swivel fitting as an effective and inexpensive way of providing supplementary or special effect lighting. Colored light available with interchangeable color reflectors



Send for your FREE
SILVER-DOT OPERATING COST COMPARATOR

Provides relative operating cost (Lamp renewals and electricity only) per lumen delivered for 1000 hours of operation for several types of downlights tested under identical conditions. Send request on letterhead to

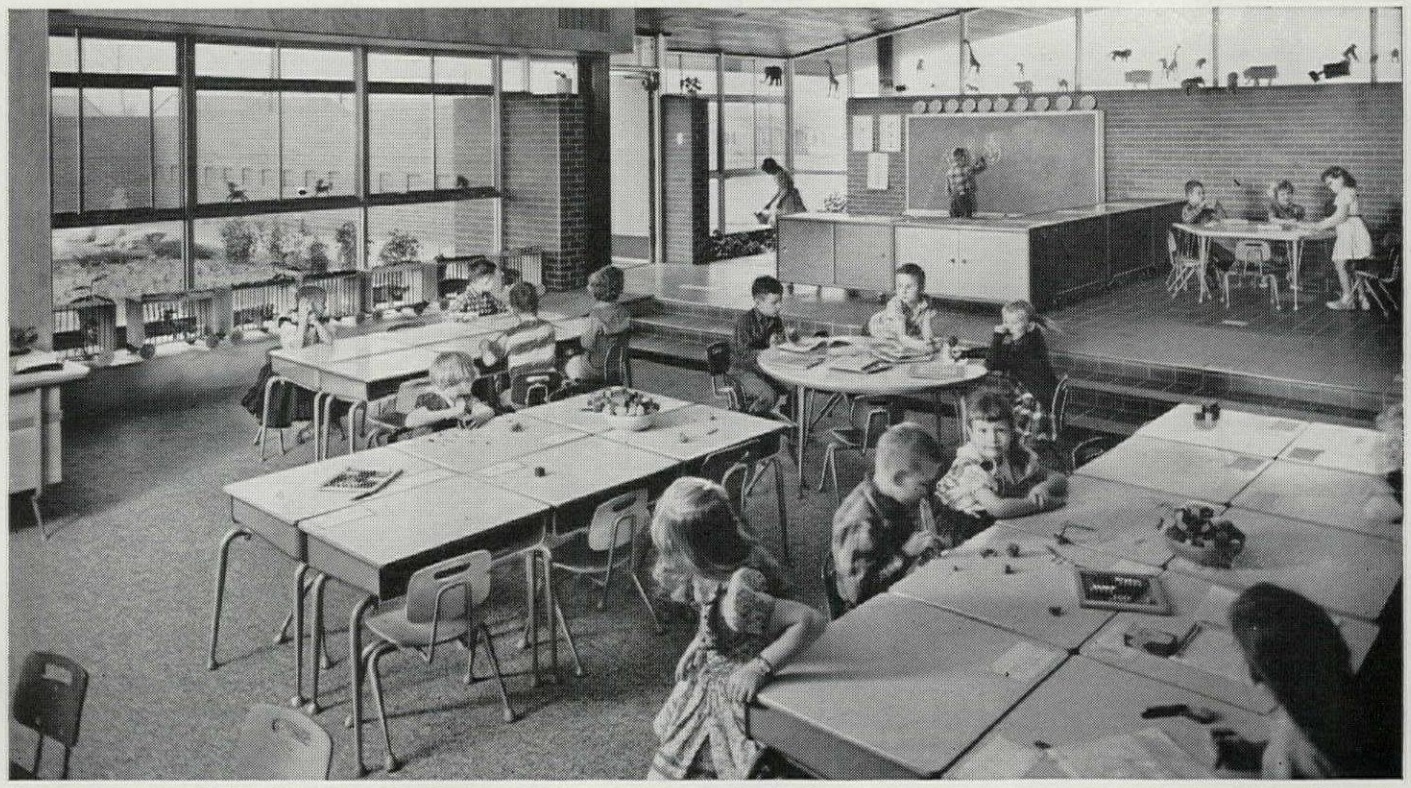
SKYLIKE LIGHTING, INC.
A SILVRAY ASSOCIATED COMPANY
BOUND BROOK • NEW JERSEY



Hugs the wall when folded . . . even mobile units are available . . . opens in one continuous motion,

Brunswick Folding Gymnasium Seating

Another example of why Brunswick's complete line of school equipment is your best investment



Brunswick School Furniture is as flexible as today's teaching techniques! This classroom at Peter Pan School in Andrews, Texas demonstrates Brunswick flexibility in action. The *only* stacking line, it moves, nests and groups to meet every need.

Action photos taken at Lake Park High School, Medinah, Illinois

with exclusive row locking . . . turns the gymnasium into a dollar-earning auditorium.

pays for itself as you use it

Brunswick Folding Gymnasium Seating soon pays for itself in convenience and earning capacity. It lets students use every inch of activity space. And it quickly converts the gym into an auditorium for paid-admission events. Besides gym seating, Brunswick makes folding partitions, stages, basketball backstops, wardrobes and closet walls. Brunswick School Furniture includes chairs, desks, tables, cabinets . . . everything for the classroom. All offer a unique combination of advanced features and quality exclusives you'll find in no other line.

Complete Flexibility: Brunswick folding equipment and furniture makes every area of the school multi-purpose. It saves space, cuts maintenance costs, too. And Brunswick furniture is the *only* stacking line. It moves, nests, stores, and groups in countless combinations. You'll find Brunswick as ideal for after-school uses as for schoolday activities. The company pioneered the concept of flexibility . . . and is now taking the lead in further advances. No other line can offer such proof-in-use by hundreds of schools throughout the country.

Functional Beauty: Brunswick's unique combination of flexibility and beauty makes classrooms living rooms for learning. Functional designs and harmonious colors create surroundings that actually improve teacher and pupil efficiency. See the beauty of Brunswick furniture and equipment at neighboring schools, and get the opinions of other school authorities. They can tell you that the Brunswick line is an investment in beauty . . . the perfect partner for modern teaching methods.

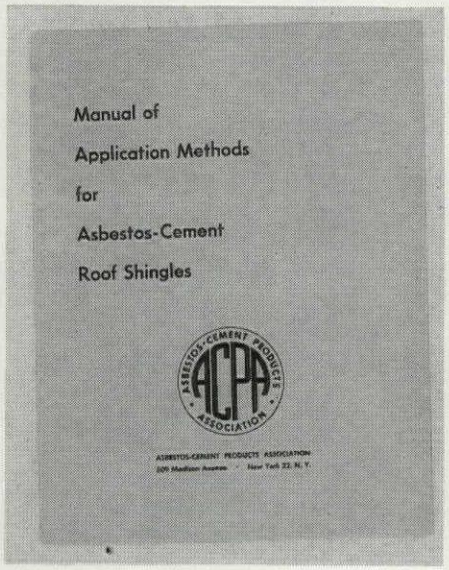
Rugged Construction: Many manufacturers have found inspiration in Brunswick's designs. But Brunswick quality is unique. No other line is engineered and constructed with such careful attention to quality. Every piece of Brunswick equipment is built as an investment . . . not merely a purchase. From concept to smallest detail, Brunswick furniture is rich with quality exclusives. Your representative can explain in detail how Brunswick is built for years of trouble-free use.

Dependable Service: Brunswick regards service as "quality in action". Your representative's service *begins*, not ends, when you buy. He is always on call. And Brunswick is the only line offering both folding equipment and furniture. You buy from a single dependable source . . . know exactly where to turn for service. Brunswick backs every sale with a quality reputation that has been bright for 112 years.

For complete information, write to The Brunswick-Balke-Collender Company, 623 South Wabash Avenue, Chicago 5, Illinois.

Brunswick

the investment line



To promote use of sound application methods for installing asbestos-cement shingles, the Asbestos-Cement Products Association has, for the first time in its history, issued a manual of application methods for asbestos-cement roof shingles.

Featured in this manual is the new "low-slope" method for applying shingles to roof decks sloped as low as two in 12 in.; standard methods apply to slopes of five in 12 in. or greater. The new "low-slope" method is recommended for shingles of four basic types, each of which is applied in a different manner to give the roof a distinctive appearance. By interlacing the asphalt-felt underlayment, as prescribed in this manual, a waterproof roof can be obtained even at an extremely low pitch.

The manual, complete with index, covers all phases of shingle application, from general discussion of available designs, through job planning, preparation, and installation on various roof types. Text is illustrated with explanatory drawings.

Copies of "Manual of Application Methods for Asbestos-Cement Roof Shingles," 20-p., are available from the Asbestos-Cement Products Assoc., 509 Madison Ave., New York 22, N. Y. R. C.

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

air and temperature control

123. Copper Tube Panel Grids, 28-p. guide to installation and design of residential radiant heating system using preformed, copper tube panel grids. Discusses principles of radiant panel heating; explains advantages of new system with flexible center spacing that simplifies adaptation to any plan arrangement. Diagrams suggest variety of grid designs for floor and ceiling as well as methods of indicating grid layout in drawings. Gives installation procedure with photo illustrations. Charts, drawings. The American Brass Co., Waterbury 20, Conn.

★ **124. Norman Heating & Ventilating System,** 48-p. spiral-bound notebook describing gas-fired forced-air heating and ventilating system designed especially for schools. Full-page drawings show: location of gas connections and window openings for installed units; assembly of furnace compartment, corner and filler sections; shelving connections. Brochure insert discusses operating characteristics. Specifications. Norman Products Co., 1154 Chesapeake, Columbus, Ohio.

125. Aerovent Blade Fans, AIA 30-D-1, 4-p. brochure and insert covering characteristics of seven-blade propeller fans for use in medium pressure ranges. Photos show range of chassis designs for specific industrial applications. Dimensions and capacity data included. Aerovent Fan Co., Inc., Piqua, Ohio.

construction

★ **212. Architectural Grade Weldwood,** AIA 19-F, 32-p. handbook covers all major aspects of interior design with plywood panels. Provides general data on grades, types, veneers. Features construction details for paneling typical room: layout, elevations, furring, joints, corners, curved panels. Also gives details for counterfronts, furniture, custom stile-and-rail panel design. Photos, specifications, charts, sizes. United States Plywood Corp., 55 W. 44 St., New York 36, N. Y.

213. Relgrit Non-Skid Grating, AIA 14-D-1, 4-p.

214. Reliance Grating, 4-p. Two brochures providing data on electro-pressure welded grating and safety treads. Photos in first brochure show various installations of nonskid grating with abrasive-embedded surface and safety treads with abrasive-metal nosing. Safe-load table, bar spacing chart, dimensions. Second brochure illustrates available grating designs—rectangular, U-type, knurled surface. Load-distribution diagram, tables, photos, drawings. Reliance Steel Products Co., McKeesport, Pa.

215. Toplite Panels, AIA 12-J, 16-p. guide to use of prefabricated glass-block toplighting panels for year-round control of sunlight in homes, offices, factories, or schools. Describes features. Plans and section drawings indicate panel locations in different building types. Gives design data for calculating daylight illumination system. Panel-joint details, standard panel sizes, construction layout, construction details, installation procedure, specifications, technical data. Owens-Illinois Glass Co., Ohio Bank Bldg., Toledo 1, Ohio.

★ **216. Glass-clad Buildings,** AIA 17-A, 16-p. booklet outlining completely integrated curtain-wall system of steel and aluminum supporting members coupled with structural-glass panels for vision and spandrel areas. Four-color renderings and photos show esthetic possibilities in design of facades for industrial and school buildings, shopping centers, and multi-story structures. Perspective section drawing, details, structural-glass color charts. Specifications and large detail sheet are inserted in brochure pocket. Pittsburgh Plate Glass Co., 632 Fort Duquesne Blvd., Pittsburgh 22, Pa.

217. Uni-Crest Polystyrene, 4-p. pamphlet describing applications for new polystyrene product—as ready to use expanded boards or tiny unexpanded granules ready for molding. Suggests use for perimeter or interior insulation, partitions, doors, curtain walls, siding. Photos show: slab, block, and molded shapes; variety of textures and finishes; structural panels of polystyrene laminated with wood, plastic, or metal. Physical properties chart. United Cork Companies, Kearney, N. J.

218. PC Glass Blocks, AIA 10-F, 24-p. catalog contains data on glass-block types for toplighting, light-directing or light-diffusing in commercial, industrial, and public buildings. Functional-block selection chart facilitates choice of block for particular location on facade or roof. Daylight performance data: typical daylighting surveys and illumination values. Decorative block patterns are illustrated; block-panel layout table is based on modular coordination. Gives installation details for interior and exterior panels as well as sash and block combinations. Installation procedure, specfications, photos, drawings,

charts. Pittsburgh Corning Corp., Pittsburgh, Pa.

219. Weatherban Curtain Wall Sealers, 4-p.

220. Weatherban Sealers, 4-p.

Two file folders describing family of polysulphide rubber-base sealers for curtain-wall panel construction where durability, flexibility, and strength are required. First brochure discusses features of sealers in reference to 11 case histories. Photos illustrate varied applications. Lists physical properties. Second folder outlines properties of sealer and black synthetic-rubber ribbon which serves as secondary weather seal. Engineering details, specifications. Minnesota Mining & Mfg. Co., Adhesives and Coatings Div., Detroit 2, Mich.

221. Mahon Products, 74-p. spiral-bound notebook contains brochures with technical data on electrified structural floor systems, steel decking, insulated metal walls, and prefabricated-wall panels. Provides photos, section property tables, load tables, specifications, perspective installation and welding details, construction details. Catalog of rolling steel doors is illustrated with photos and mechanical details. Includes chart listing of types of structural roof materials, spans, dimensions, costs, and thermal properties. The R. C. Mahon Co., Detroit 34, Mich.

222. Steel Joist Bridging, AIA 13-G, 16-p. synopsis of tests made on short-span open-web joists to determine most effective type of bridging. Presents charts compiled from results of three series of tests along with observations and conclusions. Drawings, diagrams, and photos illustrate report. Steel Joist Institute, Dupont Circle Bldg., 1346 Connecticut Ave., N. W., Washington 6, D. C.

223. Mills Movable Walls, AIA 35-H-6, 68-p. catalog featuring series of modular movable metal partitions designed for office and factory interiors. Details construction features and application of three incombustible, acoustical partition types. Perspective drawings suggest applications using alternate jamb, head, and base details. Covers installations for particular room requirements; details for wall linings and railings. Also, catalogs accessories: transoms, louvers, bookcases, sliding doors, hardware, electrical outlets—giving details for installation. Photos, drawings, specifications, exploded views. The Mills Co., 993 Wayside Rd., Cleveland 10, Ohio.

224. Davidson Architectural Porcelain, AIA-17-A, 20-p. reference catalog with data on porcelain-enamel panels for commercial and institutional buildings. Section on curtain walls provides details and elevations showing installation of single and double-wall panels via mechanical connections. Section on facing panels shows clip attachment for screw connections and gasket-type joints. Gives typical trim and opening details. Illustrates variety of panel surface patterns and channel letter designs. Photos and drawings show: installation of decorative facing panels and louver inserts; exterior remodeling job; installation of checkered-panel pylon. Davidson Enamel Products, Inc., 1104 E. Kibby St., Lima, Ohio.

225. Milcor Metal Trim, AIA 20-B-1, 20-p. catalog illustrating types of interior steel trim for various installations. Features standard wall units for window openings—consisting of head and jamb sections, window stools, and convector enclosure panels; gives full data and installation details. Includes sections on plastered-in and clipped-on bases, picture molds, fillet molds, and blackboard trim. Provides installation details for each unit. Photos, specifications, dimensions. Inland Steel Products Co., 4143 W. Burnham St., Milwaukee 1, Wis.

doors and windows

313. Modernfold Doors for Schools, 8-p. pamphlet illustrating numerous applications for accordion-folding fabric-covered doors in schools. Photos and sketches show units installed in study halls, classrooms, gymnasiums, auditoriums, and libraries—as partitions, stage curtains, and wardrobe or closet doors. Cutaway photo shows construction features. New Castle Products, Inc., New Castle, Ind.

314. Norton Door Closers, AIA 27B, 20-p. catalog exhibiting line of surface-mounted door closers for all common door types as well as special closers for concealed installation in mortise or lintel and air-controlled screen-door closer which eliminates disturbing door noises. Diagrams explain operating principle; photos show component parts. Catalog section shows arm types, brackets, and completed installations. Details, photos, drawings, dimensions. Norton Door Closer Co., Berrien Springs, Mich.

315. Plexiglas Louver Panels, AIA 26-A-9, 18-p. pamphlet serves as pictorial guide to use of one-piece acrylic-plastic louver panels for sun control and daylight diffusion. Sketches explain panel construction and application. Utilizes basic lighting data to determine type and location of panel for particular global areas, orientations, temperature levels, and seasonal sun position. Covers principles governing choice of horizontal or vertical, transparent or translucent louvers. Recommends panel and louver dimensions, cut-off angle, installation method, typical construction details, specifications. Rohm & Haas Co., Washington Sq., Philadelphia 5, Pa.

electrical equipment, lighting

497. Lo-Brite Concave Controlens, AIA 31-F-23, 4-p.

498. Mercury Vapor Lighting, 4-p.

Two folders presenting additions to manufacturer's line of lighting fixtures. First brochure describes low-brightness incandescent lighting unit consisting of square reflector with dome-shaped top section and concave lens. Installation data and drawings, photos, specifications, photometric test report, charts, tables, dimensions. Mercury vapor lamp with prismatic-glass reflector and ventilated socket housing is subject of second brochure. Photos suggest wide industrial applications for low-bay areas. Section drawing, engineering data. Holophane Co., Inc., 342 Madison Ave., New York 17, N. Y.

499. Power Distribution Library, file folder containing first two of series of tab-indexed bulletins on planning load-center systems for industrial power distribution. First brochure covers fundamentals of system, circuit arrangement, size and location of substations, equipment. Second bulletin covers short-circuit protection. Photos, diagrams. General Electric Co., Schenectady 5, N. Y.

401. Wilson Luve-Tile, AIA 31-F-2, 16-p. guide for planning and installation of 12" square louvered tiles of molded plastic material for ceiling-light diffusion. Drawings explain suspension system which permits hinging from either side. Photos show tiles installed over entire ceiling and in decorative patterns. Discusses key factors in planning. Sample layout; wall sections; analysis of basic elements; pictorial instal-

(Continued on page 180)

p/a manufacturers' literature

(Continued from page 179)

lation and maintenance instructions. J. A. Wilson Lighting & Display, Inc., 260 Delaware Ave., Buffalo 2, N. Y.

★ **402. Flexicore Electrified Floors,** 36-p. guide to installation of complete electrified-cellular concrete-floor system for office buildings. Describes how use of system facilitates office-building design. Gives sample structural design problem with drawings of typical floor, sections, and structural details; photos show full installation procedure. Also section on design of underfloor electrical distribution system: step-by-step procedure; typical distribution layouts; isometric wiring diagram. Additional data on floor openings, fireproofing, suspended ceilings, floor finishing. Structural and electrical specifications. The Flexicore Co., Inc., 1932 E. Monument Ave., Dayton 1, Ohio.

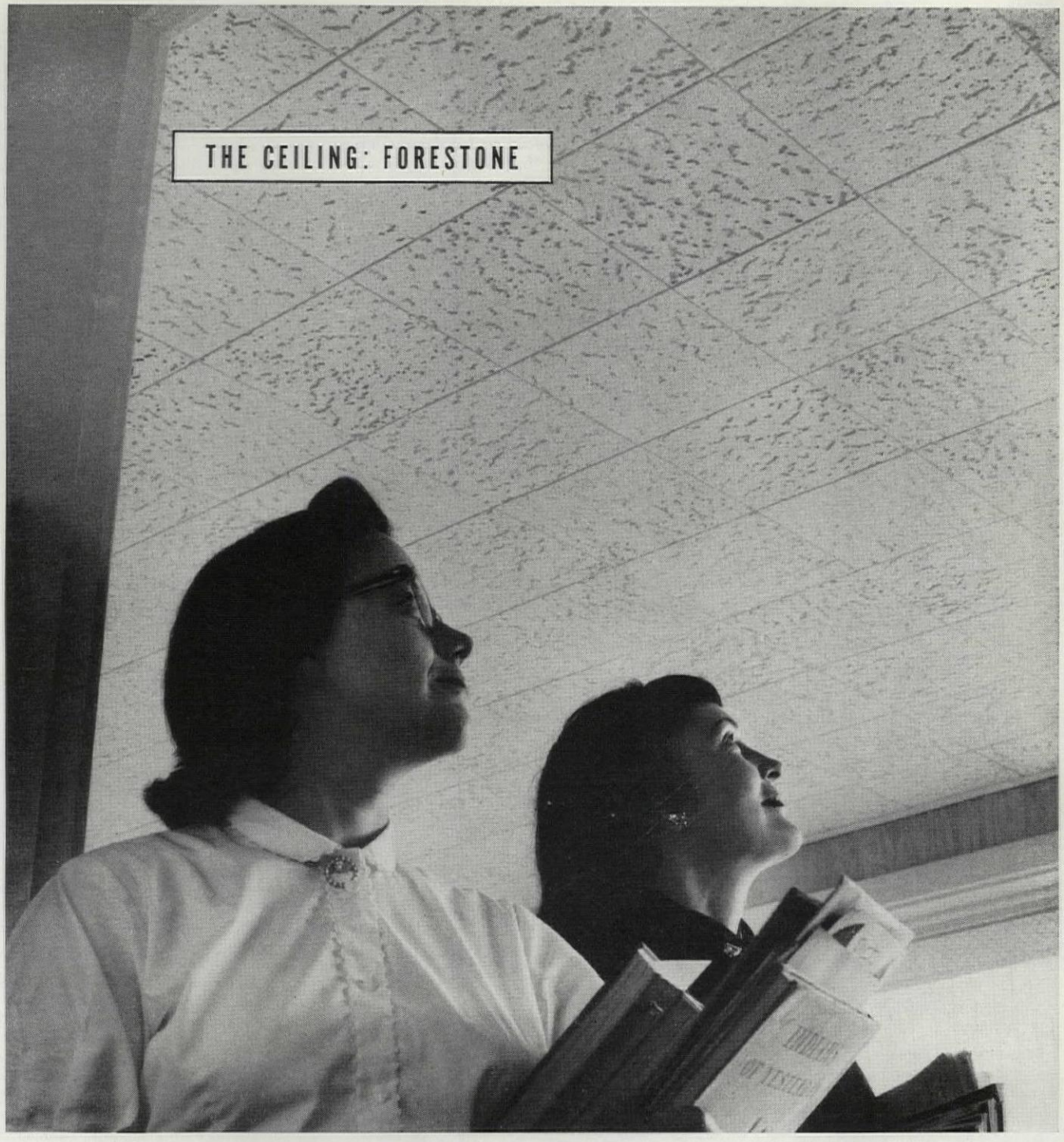
★ **403. Panelescent Lamp,** 4-p. brochure details construction and characteristics of new ceramic-on-metal panel lamp using electroluminescence principle—for low brightness surface lighting. Among applications suggested in photos are: radio-clock face, radio dial, thermometer, luminous house numbers, glowing switch plate, self-illuminating sign. Also illustrates ceiling panel for soft-interior lighting. Sylvania Electric Products Inc., 1100 Main St., Buffalo 9, N. Y.

404. Interior Lighting Design Data, 52-p. manual intended as basic reference book for architects and engineers designing interior lighting installations. Describes footcandle levels required for such seeing tasks as drafting, bookkeeping, and machine operating; levels are assigned to specific interior areas of all conceivable types from armories and airplanes to textile mills. Also, suggests methods of calculating light quantities as well as selecting lighting systems, maintenance factors, and locations for luminaires. Provides tabulated textbook data on room indexes and coefficients of utilization in addition to series of charts that facilitate computations. Westinghouse Lamp Div., Bloomfield, N. J.

405. Modular Lighting Systems, AIA-31-F, 12-p. pamphlet discussing features of modular ceiling lighting systems and pendant lighting units. Describes and illustrates systems designed to coordinate acrylic diffusers, suspended acoustical baffles, sprinklers, air diffusers, and movable partitions. Photos show actual installations; drawings explain assemblies. Catalog section shows variety of pendant lamp designs; includes engineering data. The Wakefield Co., Vermilion, Ohio.

406. Twinduct Electrical Distribution System, AIA 31-C-62, 4-p. brochure featuring electrical raceway unit with dual channels for accommodating both high and low potential service lines. Installation photos show units mounted flush with and on

(Continued on page 182)



Forestone Acoustical Ceilings – the economical key to happier, better teachers

A moment ago this hallway was filled with youngsters hurrying to class, but it wasn't noisy because the clatter of their feet and the hubbub of their voices were absorbed by the economical Forestone ceiling.

It's quiet in the classroom, too, where quiet is even more important. The teacher's words are better understood (and her nerves will be calmer) when classroom noise is effectively quieted by modern, beautiful Forestone ceilings. Forestone fissured woodfiber acoustical tile costs no more than popular thicknesses of perforated woodfiber tile. It absorbs sound as well as equivalent thicknesses of perforated woodfiber or fissured mineral tile.

Ask your Simpson Certified Acoustical Contractor about Forestone for the ceilings of your school. Write to Simpson Logging Company, 1005 White Building, Seattle 1, Washington, for the name and address of your nearest acoustical contractor.

Forestone®
FISSURED WOODFIBER ACOUSTICAL TILE

Simpson®
SIMPSON LOGGING COMPANY
SHELTON, WASHINGTON

AC-74

p/a manufacturers' literature

(Continued from page 180)

wall surface where ease of access and large capacity permits additional lines to be installed as needed. Sketches show installation procedure. Also provides data on components and fittings. National Electric Products, 2 Gateway Center, Pittsburgh 22, Pa.

sanitation, plumbing, water supply

741. Filtrine Water Coolers, 24-p. catalog showing range of concealed, remote, and cabinet-type stainless-steel water coolers for factories and institutional buildings. Includes special coolers for cafeterias and restaurants. In addition, covers selection of water purifiers and drinking fountains for installation in or on the wall. Photos, drawings, selection tables, dimensions, engineering data. Filtrine Mfg. Co., 84 Prospect St., Waldwick, N. J.

Commercial-Industrial Water Heating, loose-leaf notebook, over 200-p., is stocked with data on hot-water heating equipment and methods for apartment houses, restaurants, schools, laundries, and plants. Stresses economical considerations and performance. Contains Sweets Catalog inserts, specification sheets for gas-fired water-heaters of automatic storage or instantaneous-heating type, circulation diagrams, temperature charts, installation cost data, sizing guide, FHA requirements for multiple dwelling water heating, fuel cost analyses. Photos, details. Direct inquiries to: Mr. A. Grimm, Ruud Mfg., 2025 Factory St., Kalamazoo, Mich.

specialized equipment

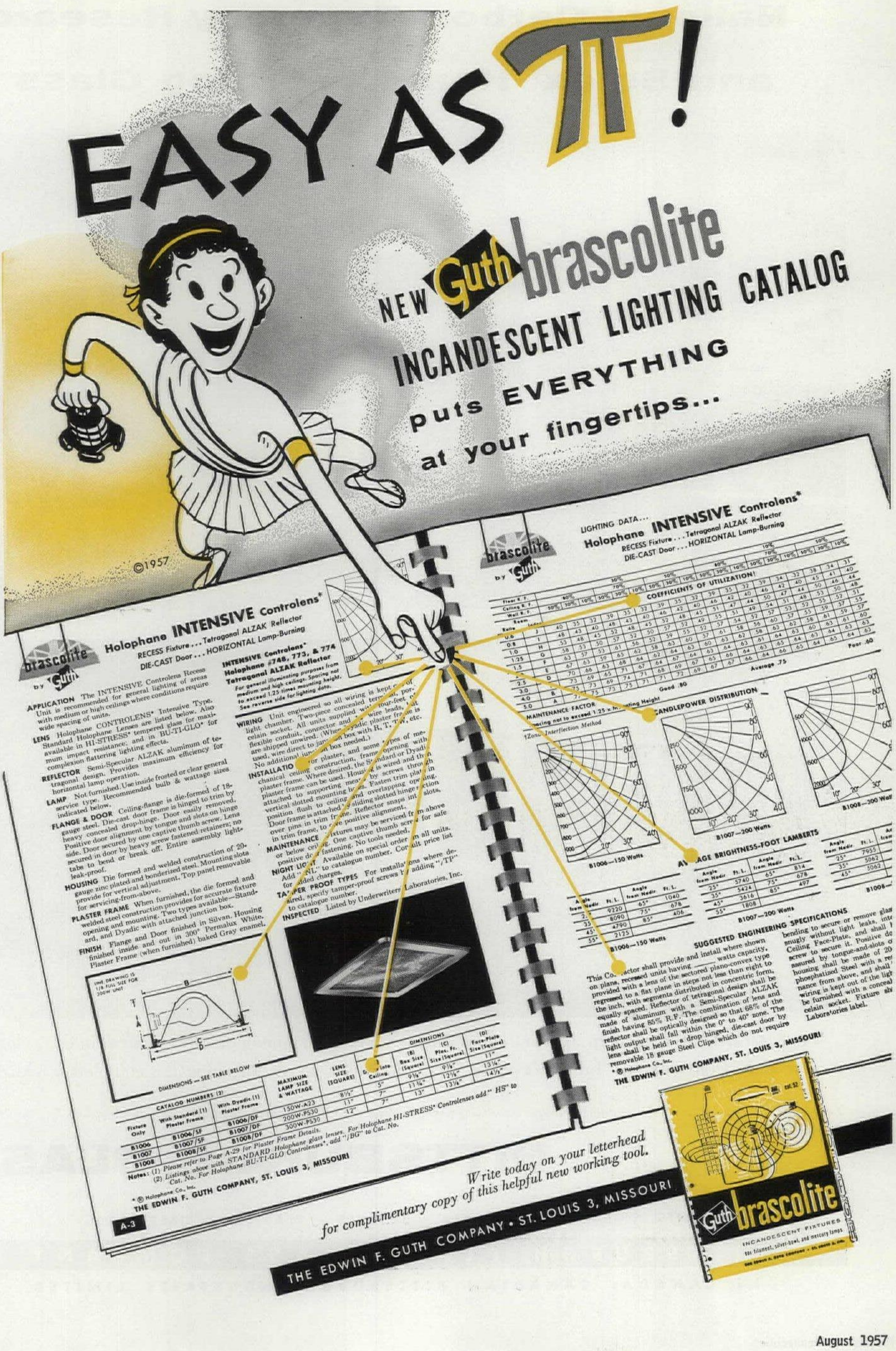
872. Metal Toilet Compartments, AIA 35-H-6, 8-p. publication illustrating line of metal toilet compartments for public washrooms. Provides photos and construction details for ceiling-hung and floor-supported models as well as headrail-braced types with flush or panel partitions. Also shows standard fittings. Baked-enamel finish color chart, specifications, sizes. Accurate Mfg. Co., 7934 S. Hoyne Ave., Chicago 20, Ill.

873. 1956 Peabody Press Jacket, folder containing specification sheet and six photo plates illustrating contemporary-styled, molded glass-fiber seat units with integral free-form tablet arm as well as individual seat and desk units—for school use. Lists construction and design features, dimensions. The Peabody Seating Co., Inc., N. Manchester, Ind.

874. Flexalum Blinds, 20-p. pamphlet illustrating design features of aluminum Venetian blinds, draw draperies, and audio-visual blinds. Gives component test data to substantiate that slats resist bending, are non-corrosive, washable, and heat-reflective. Shows various decorative applications of blinds used for single or multiple windows. Specifications, installation details. Hunter Douglas Aluminum Corp., Chrysler Bldg., 405 Lexington Ave., New York, N. Y.

875. Methods for Plant Layout, 44-p. catalog showing materials and methods for making plant layouts or scale models without preliminary drafting. Describes two-dimensional system using grid sheets, templates, and tapes to create layout from which blueprints are made in usual manner. Drawings show available replicas of piping sections with brass-pin connections; pumps; compressors; ladders and stairs; laboratory furniture; refinery equipment and even scale figures for building miniature assembly lines and fully equipped model plants to facilitate visualization. F. Ward Harman Associates, Halesite, Long Island, N. Y.

876. Curtis Kitchens, 24-p. catalog brochure illustrating range of wood cabinets and closets for designing attractive contemporary kitchens. Illustrates several complete kitchens stressing color variety in natural wood or painted effects. Shows selection of storage units with pull-out trays, swinging doors, and spinning shelves as well as storage walls and island units. Scale outline drawing of wall and base cabinets facilitate kitchen planning. Photos. Curtis Companies Service Bureau, Clinton, Iowa.



EASY AS π!
NEW Guth brascolite
INCANDESCENT LIGHTING CATALOG
puts EVERYTHING
at your fingertips...
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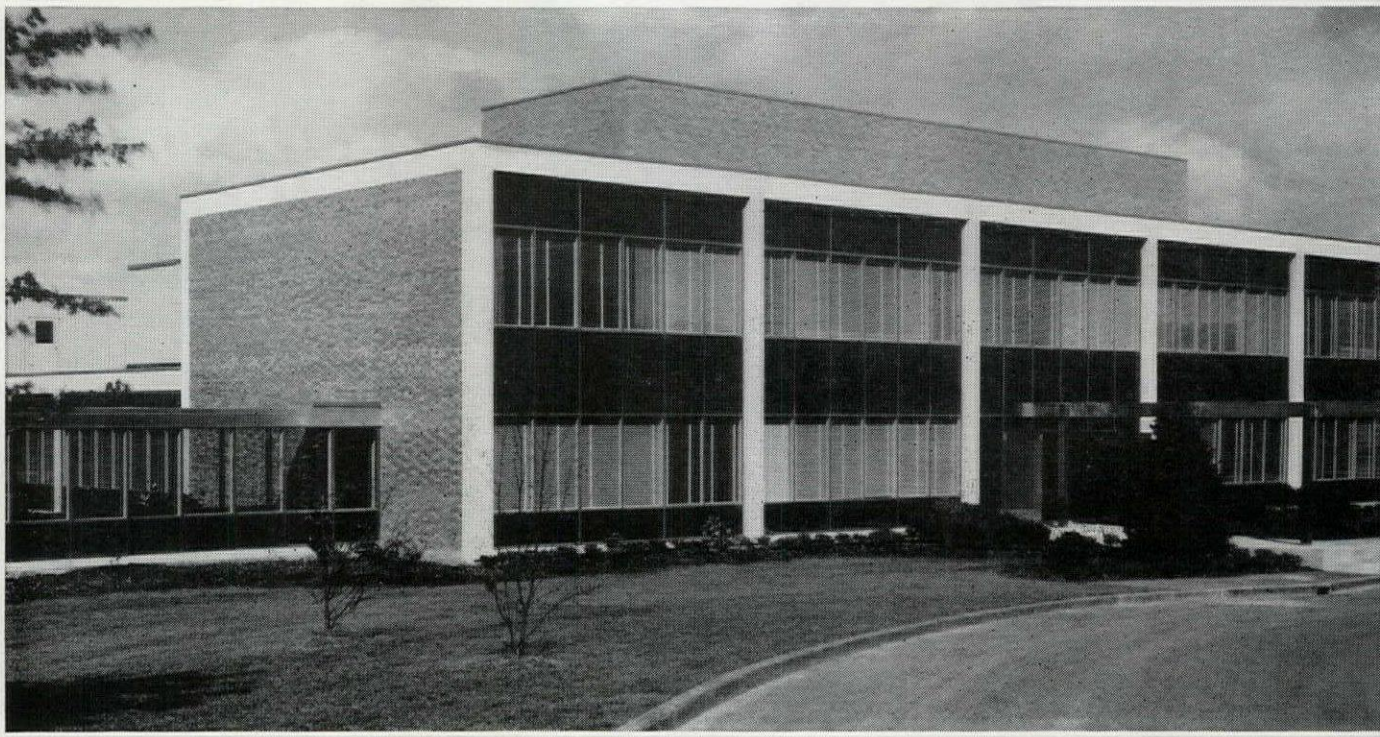
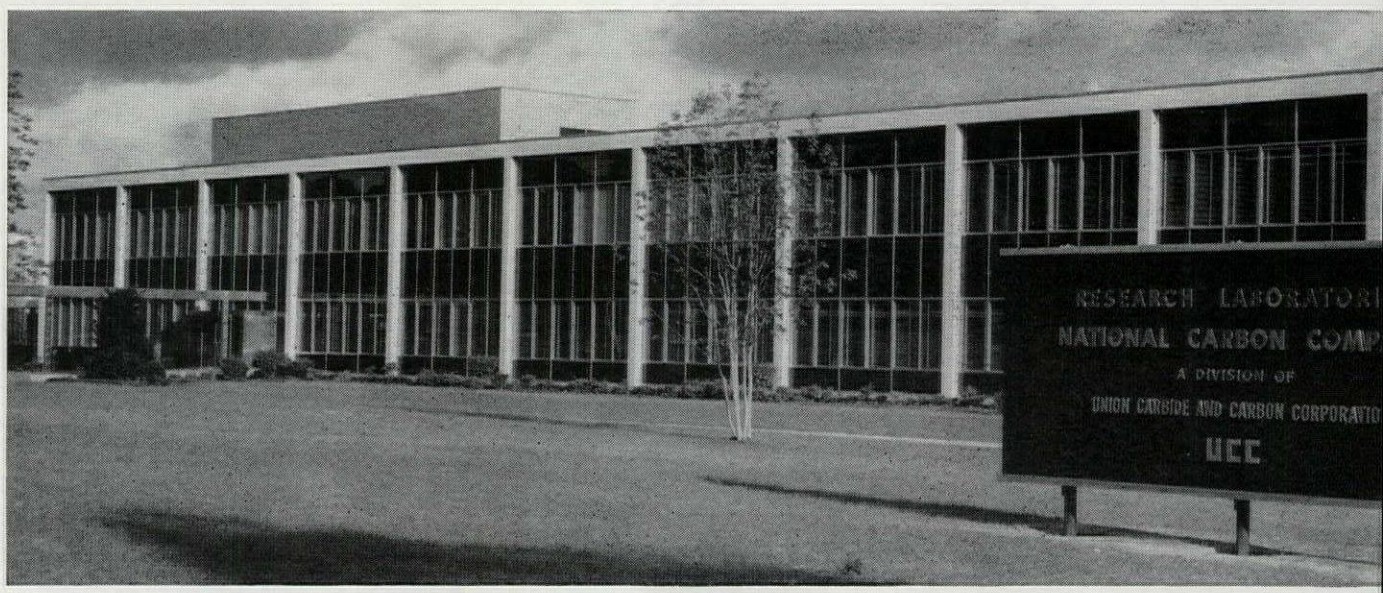
Holophane INTENSIVE Controlens*
RECESS Fixture . . . Tetragonal ALZAK Reflector
DIE-CAST Door . . . HORIZONTAL Lamp-Burning
LIGHTING DATA...
COEFFICIENTS OF UTILIZATION
CANDLEPOWER DISTRIBUTION
AVERAGE BRIGHTNESS-FOOT LAMBERTS
SUGGESTED ENGINEERING SPECIFICATIONS
THE EDWIN F. GUTH COMPANY, ST. LOUIS 3, MISSOURI
Write today on your letterhead
for complimentary copy of this helpful new working tool.
THE EDWIN F. GUTH COMPANY • ST. LOUIS 3, MISSOURI
Guth brascolite
INCANDESCENT FIXTURES

National Carbon Company Research and Solex® Heat-Absorbing Glass to





The graceful, modern appearance of this new structure is immediately apparent in this exterior view of the front. Here, the full effect of the SOLEX and SPANDRELITE curtain wall is completely realized.

Your Sweet's Architectural File contains detailed information on all Pittsburgh Plate Glass Company products—Sections 7a, 13e, 16d, 21.

Design it better with **PITTSBURGH GLASS**

PAINTS · GLASS · CHEMICALS · BRUSHES · PLASTICS · FIBER GLASS

PITTSBURGH PLATE GLASS COMPANY

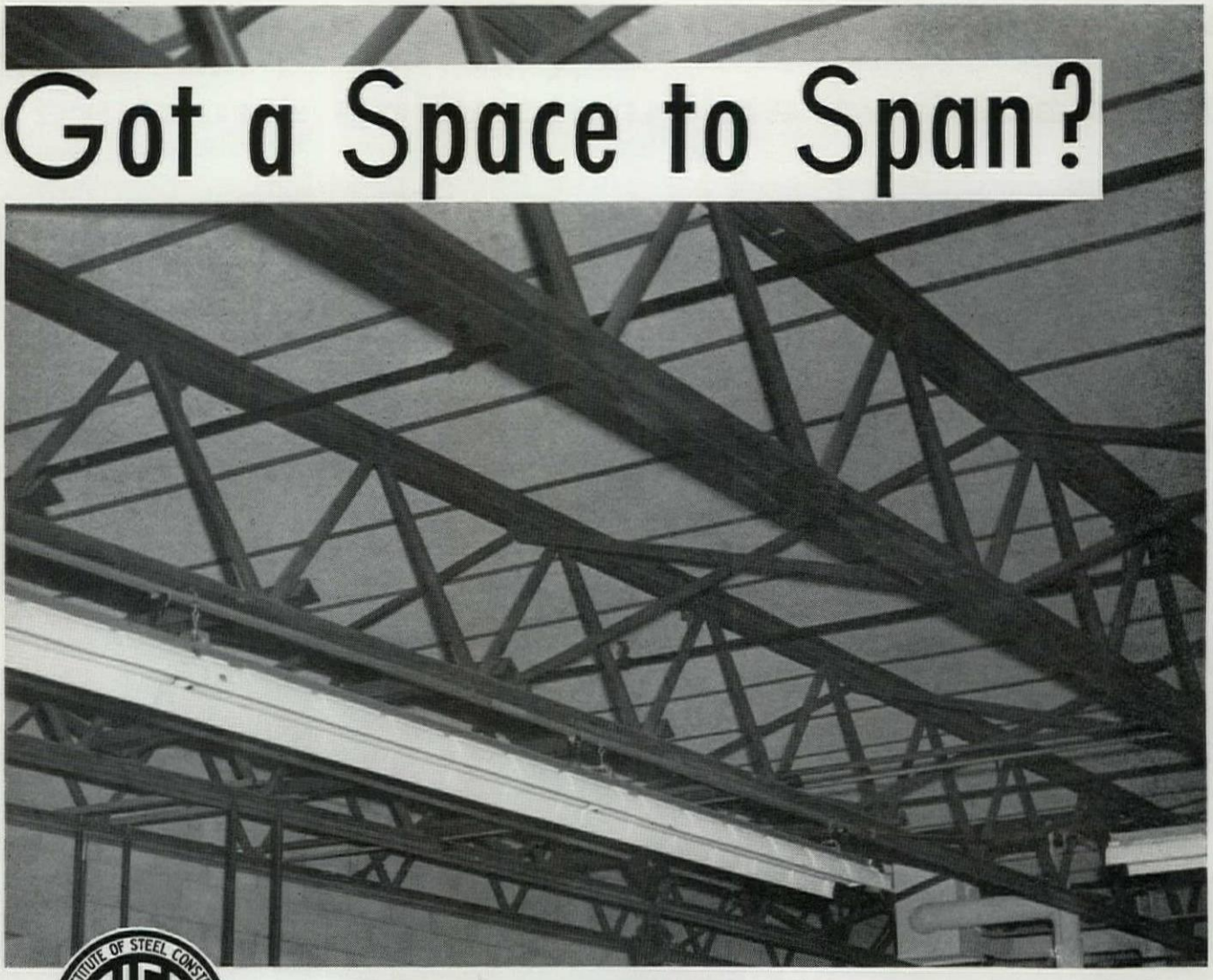
IN CANADA: CANADIAN PITTSBURGH INDUSTRIES LIMITED

Laboratory is clad with Spandrelite® help achieve an outstanding structure

This building, housing the Research Laboratories of the National Carbon Company at Parma, Ohio, combines *Pittsburgh's* SOLEX Heat-Absorbing, Glare-Reducing Plate Glass and SPANDRELITE —the new *Pittsburgh* heat-strengthened glass which can be supplied in an almost unlimited variety of fused-on, ceramic colors—to give this structure color, beauty and functional values. All walls of this building are "glass clad." Additionally, PITTCO® Premier Metal, Pittsburgh Paints and interior mirrors made from Pittsburgh Plate Glass were basic to the architectural plan. Architects: Skidmore, Owings & Merrill, New York City.

This view shows the SOLEX wall area in the cafeteria. SOLEX keeps interiors more comfortable by reducing solar glare and heat entering a building.

Got a Space to Span?



AMERICAN INSTITUTE OF STEEL CONSTRUCTION INC. AISC FOUNDED 1921

MACOMBER V-GIRDERS

COMBINE THE BEST IN DESIGN AND STRUCTURAL ADAPTABILITY

A STRONGER FLOOR AND ROOF SUPPORT 40′ TO 76′ SPANS

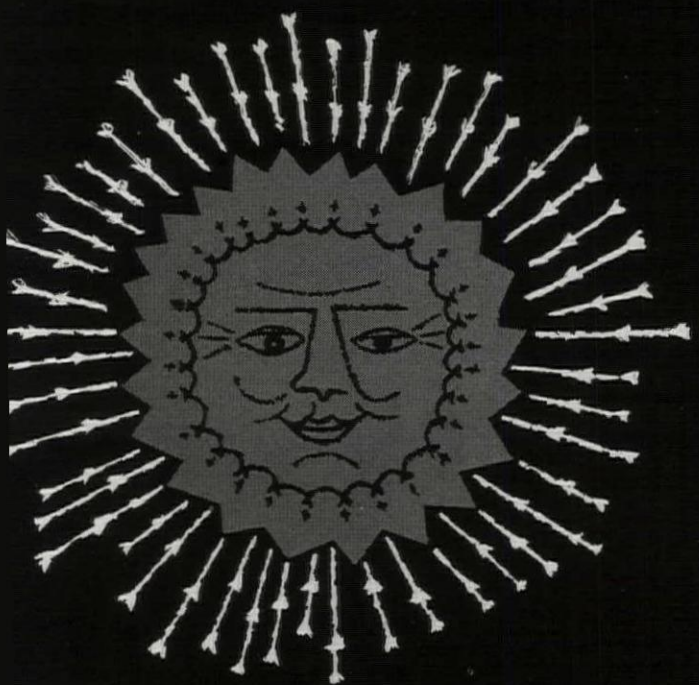
Check your loads and spans with a V-Girder Catalog and ask for a quotation. One job will be convincing.

SEND FOR CATALOG

MACOMBER

MACOMBER CANTON 1, OHIO

NEW WASCOLITE REFLECTADOME* WITH SOLATEX SILVER



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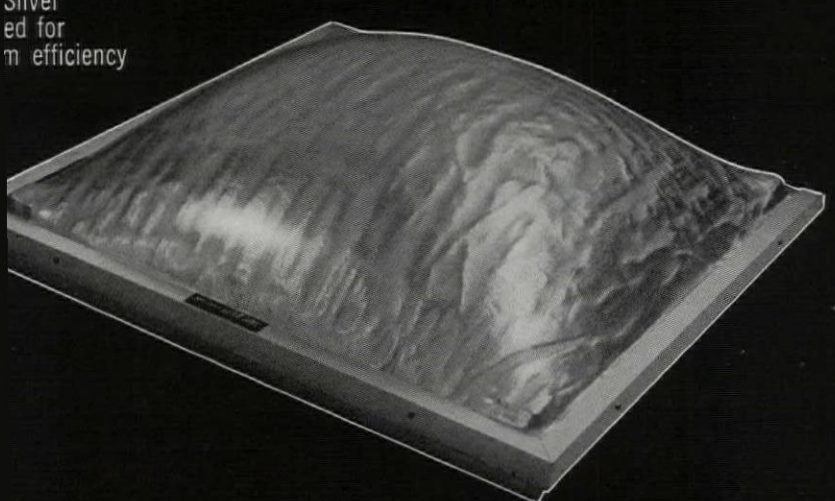


WASCO PRODUCTS, INC.

Bay State Road, Cambridge 38, Massachusetts
Wasco Chemical (Canada) Ltd., Toronto 12, Canada

the skydome that does all 3 reduces heat . . . eliminates glare . . . controls daylight

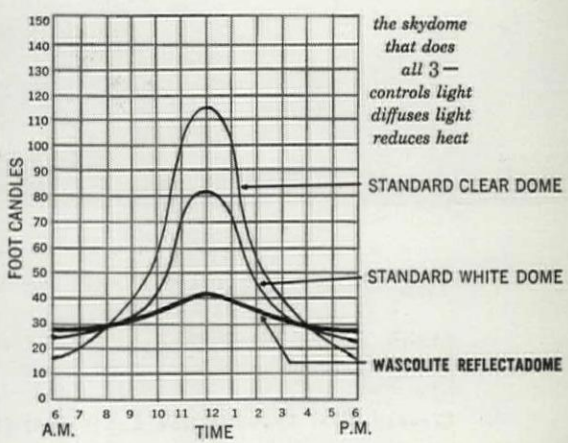
After years of development and research Wasco Products, the company that originated Skydomes, now offers you a revolutionary new overhead daylighting unit. It's Reflectadome, the one dome that reduces objectionable solar heat gain, eliminates glare and controls daylight —without supplementary light control fixtures.

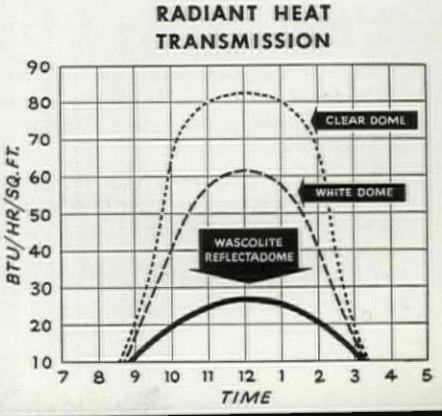
Reflectadome's secret is Solatex Silver, a special material embedded (not laminated) right into the acrylic dome. Reflectadome produces a remarkably level lighting curve to keep interiors evenly illuminated throughout the daylight hours for top visual performance.

Naturally, Wascolite Reflectadome features all the improved functional advantages of the Wascolite Skydome. Solatex Silver embedments are available only from Wasco, so specify Wascolite Reflectadome by name.

Write immediately for full details on exciting new Reflectadome, the one Skydome that does all 3!—reduces heat . . . eliminates glare . . . controls daylight.

*Trademark of Wasco Products, Inc.





Are you sure of the

Setting up guarded hot plate console for "k" test on Fesco Insulation Board

THE TERMS: What is "k", "U", "C"?

British Thermal Unit (Btu): a unit of heat required to raise the temperature of one pound of water one degree Fahrenheit.

Overall Heat Transmission Coefficient (U): the heat transmission in Btu per hour, per square foot, per degree F of temperature difference from air to air of a given building section. This is always the final calculation, used to determine insulation specifications.

Thermal Conductance (C): the number of Btu per hour transmitted between surfaces of a square foot of a material of given thickness per degree F temperature differential between surfaces.

Thermal Conductivity (k): the number of Btu per hour transmitted between surfaces of a square foot of a material one inch thick, per degree F temperature differential between surfaces.

Thermal Resistance (R): the reciprocal of thermal conductance (1/C) or thermal conductivity (1/k).

U VALUES for standard roof deck constru

Construction: Roof Deck Type and Thickness	**Without Ceiling Underside of Roof Exposed**					**With Metal Lath Gypsum Perlit Plaster Ceilin**			
	Insulated with Fesco Board					Insulated with Fesco			
Fesco Thickness	2½"	2"	1½"	1"	¾"	¾"	1"	1½"	2"
4" Concrete	.11	.14	.17	.22	.27	.19	.17	.14	.11
6" Concrete	.11	.13	.16	.22	.26	.19	.16	.13	.11
1" Wood	.10	.12	.15	.19	.22	.16	.15	.12	.10
2" Wood	.09	.11	.12	.15	.17	.14	.12	.11	.09
3" Wood	.08	.09	.11	.13	.14	.12	.11	.09	.08
2½" Gypsum Fiber Concrete over ½" Gypsum Board	.10	.11	.13	.16	.19	.15	.13	.11	.10
2½" Gypsum Fiber Concrete over 1" Rigid Ins. Board	.08	.09	.10	.12	.13	.11	.10	.09	.08
2" Perlite Concrete (1:6) on Steel form	.08	.10	.11	.13	.15	.12	.11	.10	.08
6" Hollow Core Precast Slab	.11	.13	.16	.20	.24	.18	.16	.13	.11
Steel	.12	.14	.18	.24	.29	.21	.18	.14	.12

"K" in your "OK"?

A Schundler "k" is not a "sometimes" thing. It is a stable figure, constantly verified on the research-standard guarded hot plate console installed in our modern laboratory. Here, at any hour, "k" tests can be run that are accurate to within three one-thousandths of one BTU.

But a laboratory "k", no matter how accurate, is a theoretical thing. It can be maintained on the job only if the product is highly moisture resistant — all "k" tests are run with dry materials; as moisture increases so does thermal conductance. But here, too, Schundler products meet the test. Fesco Board, for example, will absorb only 0.6% water by volume on 2 hours of total immersion. When you approve Fesco Board in a roof deck you can be sure of the "k" in your "ok".

And a uniform, low "k" is only one of the properties found in every Schundler product. Principal Schundler products are formulated with a volcanic glass, known as perlite — and from this natural glass comes incombustibility, permanence, sound absorption, feather-light weight. Fused at temperatures of 1800°F, the physical properties of this volcanic glass are permanently set.

Schundler is a major producer of perlite crude ore, and today's leader in the development and production of expanded-perlite products.

F. E. SCHUNDLER & COMPANY, INC.

504 RAILROAD STREET • JOLIET, ILLINOIS

Eastern Office: Chatham Phenix Bldg., 29-28 41st Ave. Long Island City, N.Y.

RATED FIREPROOF MATERIALS - ACOUSTICAL & INSULATING
Developers and producers of incombustible mineral products including Ebbtone Acoustical Tile, Fesco Insulation Board, Coralux Acoustical Plaster, Coralux Perlite Aggregates, Mica Pellet Vermiculite, High Temperature Insulating Blocks and Insulating Cement.

incorporating Fesco Board

1. U values are expressed in BTU/SQ. Ft./Hr./Degrees F temperature differential, still air inside and 15 MPH wind velocity outside.

2. Coefficients and procedures used for determining U values are in accordance with current edition of A.S.H.V.E. Guide.

3. For suspended plaster ceiling section, air space between ceiling and deck assumed to be from ¾" to 4".

Fesco Board is Approved by the Bureau of Standards and Appeals for use in New York City as incombustible roof insulation — under Cal. No. 442-56-5M.

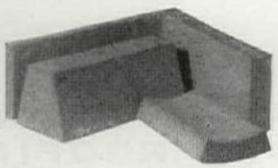
SCHUNDLER PRODUCTS
for Fire, Temperature and Sound Control

Fesco Board

Coralux Perlite Aggregates

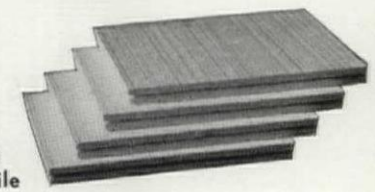
Coralux Acoustical Plaster

Insulating Cement



153 High Temperature Insulation Blocks

Mica Pellet Vermiculite



Ebbtone Acoustical Tile

building design changes...

1935: Building Number 8
Gulf Research & Development Company,
Harmarville, Pa.

1957:
Production Research Building
Gulf Research & Development Company,
Harmarville, Pa.
Engineers & Constructors: Wigton-Abbott Corporation,
Plainfield, N. J.

but

KOPPERS COAL-TAR PITCH

is still the preferred roofing material

The buildings at Gulf's Research laboratories trace in their design the architectural trends since the establishment of this activity in 1935. Building 8 is one of three original structures; the latest addition to Gulf's extensive research facilities is the Production Research building, designed by Wigton-Abbott and now nearing completion. Both have one thing in common: they are protected with 20-year Bonded Koppers Coal-Tar Pitch Built-Up Roofing.

All the flat-roofed buildings at Gulf's modern research center are covered with Koppers Bonded Roofing, including the new, staff-designed Nuclear Science building and the Automotive Products laboratory, widely acclaimed as a model of its type.

Proved protective ability is a prerequisite in the selection of a roofing material for research buildings housing expensive equipment. That's why Gulf and its architects specified *coal-tar pitch.* And the excellent service record of the Koppers Roof on Building 8 during, *and beyond,* its 20-year bond period is typical of the long-lasting, trouble-free protection which only coal-tar pitch, with its unique waterproofing and "cold-flow" properties, can give.

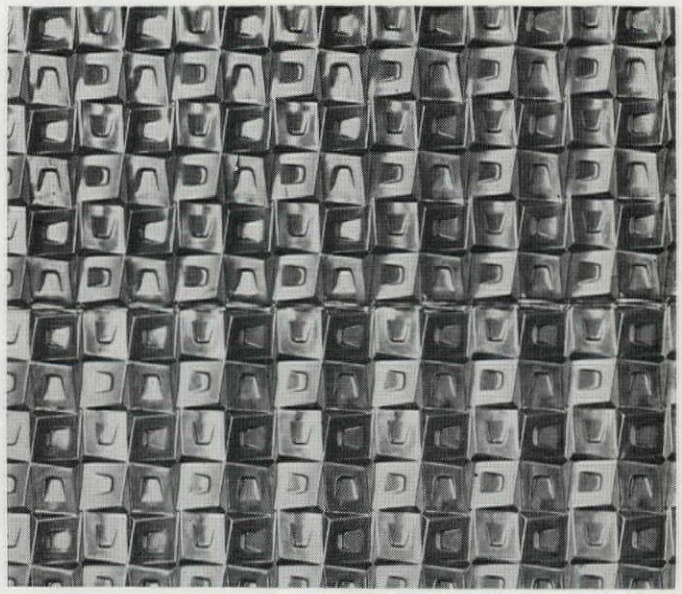
Recommend Koppers Coal-Tar Pitch, the quality roofing material, to safeguard your client's investment. You'll find helpful specification information in our Sweet's Architectural File 12-B, 8a/Ko. The Koppers representative in your area can provide additional data and render valuable service. Koppers Company, Inc., Tar Products Division, Pittsburgh 19, Pa. District Offices: Boston, Chicago, Los Angeles, New York, Pittsburgh, and Woodward, Ala.

KOPPERS®

KOPPERS
COAL-TAR PITCH
BUILT-UP ROOFING

Offices of the new Remington-Rand Univac Laboratory, St. Paul, will be air conditioned and all other areas will be ventilated. To minimize operating costs, and provide more comfort, precast, Permalite-aggregate concrete slabs were installed in the roof (above) *which will be pooled with water during summer months. These insulating slabs have more than adequate strength to support additional load of water and make possible the 0.18 U-factor of the completed roof. Great Lakes Carbon Corp., Perlite Div., 612 S. Flower, Los Angeles, Calif.*

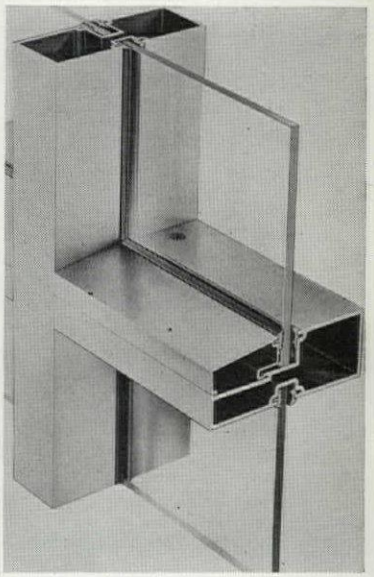
New Rigid-Tex Metal pattern (right), *No. 1-RL, has been specially designed for architectural applications. Available in all metals and colors, the pattern is suitable for exteriors of curtain-wall panels or interior partitions. Maximum dimensions are: width: 48"; gage: .062"; depth: .073. Over 4000 reflective levels per sq ft help strengthen metal both horizontally and vertically. Rigidized Metals Corp., 688 Ohio St., Buffalo, N. Y.*



Ventilator for built-in ovens (left) *incorporates 300 cfm twin centrifugal blowers. Two hood styles in 24", 27", and 33" lengths for single ovens, and a 45" length for double ovens, are available. Finishes are antique copper, stainless steel, and copper. Trade-Wind Motorfans Inc., 7755 Paramount Blvd., Rivera, Calif.*

C W Topseal Fastener (below), *for field-assembled curtain walls, attaches entire curtain-wall assembly with single fastener. Three-in-one feature includes a self-tapping portion to anchor interior sheet to girt, unsheathed part over which to impale insulation material, and a threaded exterior end to fasten outer covering. Upset shoulder prevents crushing of insulation and acts as a support for the exterior sheet. Fabricated Products Co., West Newton, Pa.*

By spiraling scales around a tube, this calculator (below) *achieves graduations equal to those of a 66" slide rule. When closed, size is 6"x1¼"; price: $19.95. Arthur F. Smith Co., 311 Alexander St., Rochester, N. Y.*



Kawneer building-front and wall system uses only few standardized, glass-framing members (above). *"Narrow Line" system of extruded-aluminum components features puttyless, flush glazing throughout. Built-in, glass-holding channels eliminate extra protruding glazing members common to other systems. Vinyl-plastic weather-repellent glazing is rapidly installed and is resilient to pressure. Vertical support measures 1¾" x 4½". Kawneer Co., Niles, Mich.*

p/a products

(Continued from page 193)

air and temperature control

Mo-De-Co Radiant Ceiling Heater: new radiant ceiling heater of satin-finished aluminum is designed to look like attractive light fixture. Concave reflector attached to stem distributes heat evenly while perforated, circular guard shields heating element. Pendent unit, 12" long, heats instantly, has no moving parts, and operates silently. Prewired heater, equipped with standard 4" outlet box utilizes 120v, AC or DC current. Mo-De-Co, Box 196, Encino, Calif.

AL-Metal Propellers: large-diameter propellers for cooling towers and heat exchangers feature interchangeable, cast-aluminum blades. Heavy-duty cast-steel hubs, with bolted blade sockets assure high resistance to vibration and stress. Blade roots are keyed into socket. Propellers—equipped with four or six blades—range in diameter from 14 to 18 ft. Acrovent Fan Co., Inc., 700 E. Ash St., Piqua 64, Ohio.

Combination Fan-Light-Heater: unusual recessed unit for installation in bathroom ceiling combines heater, fan, and two incandescent lamps in single housing which fits between standard joists on adjustable mounting brackets. Heater—with chrome-nickel coil—reflects heat downward. Squirrel-cage type fan has automatic damper to prevent back drafts. Lamps are situated on either side of unit, behind flat heat-resistant diffusing lenses. Facing grill, attached to arms extending from housing, fits flat against ceiling. Housing is only 14"x8"x8". Emerson-Pryne Co., Pomona, Calif.

construction

Nervastral Rigid: low-cost substitute for metal flashing—durable, waterproof, and corrosion-resistant plastic material—can be preformed in shop or on the job site and applied with either nails or cement. Material—recommended for through-wall flashing, spandrel-beam waterproofiing, construction joints, termite shields, and similar applications—is available in rolls 144' long and 12", 24", or 36" wide. Rubber & Plastics Compound Co., Inc., 10 Rockefeller Plaza, New York 20, N. Y.

Hosking "300": low-cost, one-piece aluminum-alloy combination fitting—which holds both vertical and horizontal tubing—replaces two ordinary fittings in construction of storage racks, scaffolding, work tables, stalls, docks, or catwalks. Pipe is attached—without welding, threading, or special tools—by slipping fitting on and tightening set screws with hex wrench. Unit can be detached and reused frequently when employed in temporary structures. Tapered-diamond screw design gives additional holding strength. Fittings are available in four standard iron pipe sizes and four sizes for heavy-gage steel or aluminum tubing. John H. Hosking Co., 1704 Howland Ave., Cincinnati 23, Ohio.

Mark 16 Plywood Paneling: durable as porcelain and beautiful as wood are characteristics claimed by new hardwood plywood paneling featuring surface of bonded vinyl plastic which permits common stains—such as lipstick, crayon marks, fruit juices, alcohol, merthiolate, mustard, and grease—to be removed with soap and water, detergent, or cleanser. Finish requires no waxing and is said to be permanently stainproof, crackproof, peelproof, unaffected by humidity, and color-fast. Recommended for nurseries, game rooms, kitchens, and offices, ¼" thick panels—cut in 8' lengths, 16" widths—are available in nine woods. Aetna Plywood & Veneer Co., Chicago, Ill.

Synroflashing: new synthetic roof flashing unit made from Neoprene rubber. Resistant to cracking, peeling, rotting. Absorbs mast vibration and reduces strain. Collar clamp seals collar to mast to give weather-tight fitting. Available for 2" and 2½" pipe sizes. Blackhawk Industries, Dubuque, Iowa.

(Continued on page 198)

Pentland & Baker, *Architects*

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OFFICES OF R. LAIDLAW LUMBER CO. LTD., WESTON, ONTARIO, CANADA

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Construction Details on Opposite Page

GOOD THINGS
(LIKE HIGH PRESSURE STEAM)
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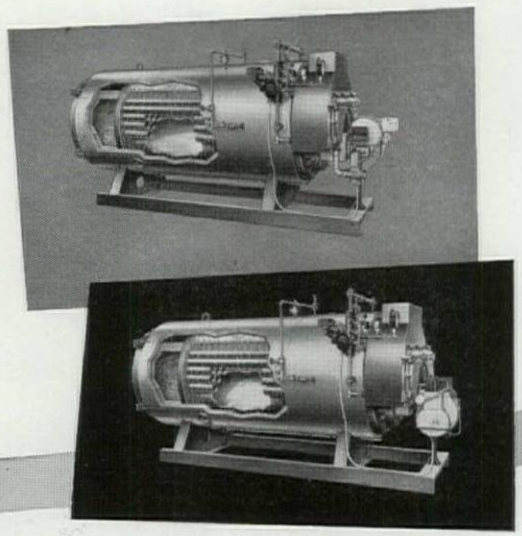

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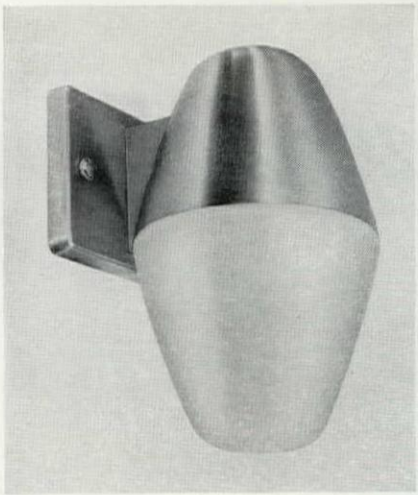
p/a products

(Continued from page 194)

Formic Walls: prefabricated Formica walls bonded on ½" cycle plywood requires little cutting on the job. Walls are fastened directly to studs without use of bonding. Manufacturer claims resistance to heat, acid moisture, water; nonporous finish. Package contains all parts necessary to installation. Topcraft, Inc., 4207 Menlo Drive, Baltimore 15, Md.

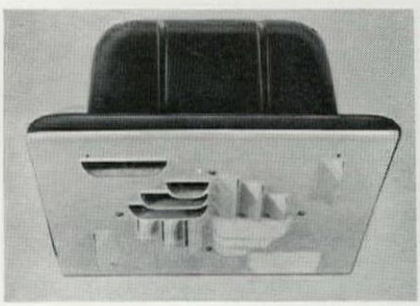
electrical equipment, lighting

Wall-bracket Fixture: new die-cast aluminum wall-bracket lighting fixture *(right)*, designed for interior or exterior commercial installations, may be rotated 180° and adjusted at desired angle by tightening nut. White-opal globe enclosure which accommodates 150-w lamp is screwed into base. Fixtures are available in standard satin-chrome or gloss gray finishes and selection of six colors. Prescolite Mfg. Corp., 2229 Fourth St., Berkeley, Calif.



specialized equipment

Spiral-Sound Baffle Unit: constructed of high-impact plastic, new low-level sound baffle *(above)*—said to eliminate metallic resonance and disperse sound evenly—is comprised of plaster ring, bass reflex enclosure, and novel faceplate which incorporates directional ports to provide 360° dispersion pattern. Protective housing keeps rodents, dust, and dirt out. Unit accommodates any 8" speaker. Fourjay Industries, 2360 W. Dorothy Lane, Dayton 9, Ohio.



Ventilating Hood: new heavy-gage sheet steel ventilating hood is attached to special wall cabinet which houses and conceals duct. Corners of hood are mitred to permit full opening of cabinet doors. Prewired vent hoods—equipped with washable 9" diameter filter—come in 30", 36", or 42" widths and enameled-coppertone or brushed chrome finish. Axial flow air-removal system employs specially-designed fan blades and standard 7" round duct. Cabinets are 18" high. Youngstown Kitchens, Div. of American Radiator & Standard Sanitary Corp., Warren, Ohio.

Contemporary Copper Lock: polished copper tie-bolt lock—claimed to be first in field to utilize solid copper for knob, roses, faceplate, and strike—is installed in 1-⅝" hole through door at either right or left hand. Interior components are made of cold-rolled steel. Lock is available in highly polished, tarnish-resistant, copper or lustrous satin finish. Dexter Lock Div., Dexter Industries, Inc., Grand Rapids, Mich.

Weldwood News *for* Architects

UNITED STATES PLYWOOD CORPORATION

COLORFUL, PORCELAIN-FACED BUILDING PANELS OFFER NEW DESIGN OPPORTUNITIES

This bright store front will stay bright easily. Colors won't fade; limited maintenance required.

Weldwood Porc-Lin-Ply is weatherproof, easy to install

Here's a building panel that combines the beauty and durability of a porcelain-on-steel face with the moisture resistance of waterproof plywood. The name is Porc-Lin-Ply®. And it's not only beautiful and durable, but it's easy and inexpensive to install, too.

Porc-Lin-Ply's face is Architectural Porcelain Enameled Steel. It resists scratching, denting, marring, chipping and fading. Won't peel, crack or stain. It comes in black, white, and 7 standard colors.

The core of Porc-Lin-Ply is Weldwood exterior plywood, and that is backed up with rust-resistant metal for maximum stability. These extremely flat panels can be cut with ordinary power saws, and can be easily and inexpensively installed with special Weldwood extruded aluminum moldings.

Porc-Lin-Ply is finding wide use as fascias for exteriors of commercial buildings such as stores, gas stations and theaters, and for soffits, shower stalls, walls, ceilings and countertops. Every Porc-Lin-Ply panel, when properly installed, carries a complete guarantee against defective material and workmanship. Sizes: 36″ x 96″; thickness is 5/16″. Panel weight: 1.75 lbs. per square foot.

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Today, more and more architects are specifying pine plywood for built-ins and cabinets. And with good reason, too.

First, for appearance! Weldwood California Pine Plywood has ideal painting qualities—no discoloration, less checking, less grain lift, and less paint needed to cover. That means a better looking product. Next, Weldwood California Pine Plywood is *all* pine, so it's easier to work, produces less edge-splintering. And Weldwood Pine has greater stability because of the lower moisture content during manufacture. Furthermore, it's made with exclusive, mold-resistant L-1R glue.

Weldwood California Pine is actually lower in cost than panels with equivalent paintability. And the superior finished product insures complete satisfaction for you, for the builder, and for the home buyer.

Overlaid Lap Siding Cuts Building Time and Costs

Workman installs special aluminum corners on Duraply-built home. Corners save construction time, cost only pennies—are available from United States Plywood branches.

Keeping siding costs down and quality up is the job for lap-cut Duraply®—the plywood with a special medium density fused overlay.

This permanent surface (phenolic resins and cellulose fibers) needs less paint than ordinary wood surfaces; is weatherproof. And Duraply lap-cut siding comes in big widths up to 16″ (96″ length) so less courses are needed to close in a house. Furring strips are preattached to bottom edge, and back-up wedges are included in every carton of 10 pieces. Duraply is EASY to work with ordinary power tools. Painted Duraply resists serious checking, won't develop paint blisters, no matter how severe the weather.

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☐ Please have Architects' Service Representative call.

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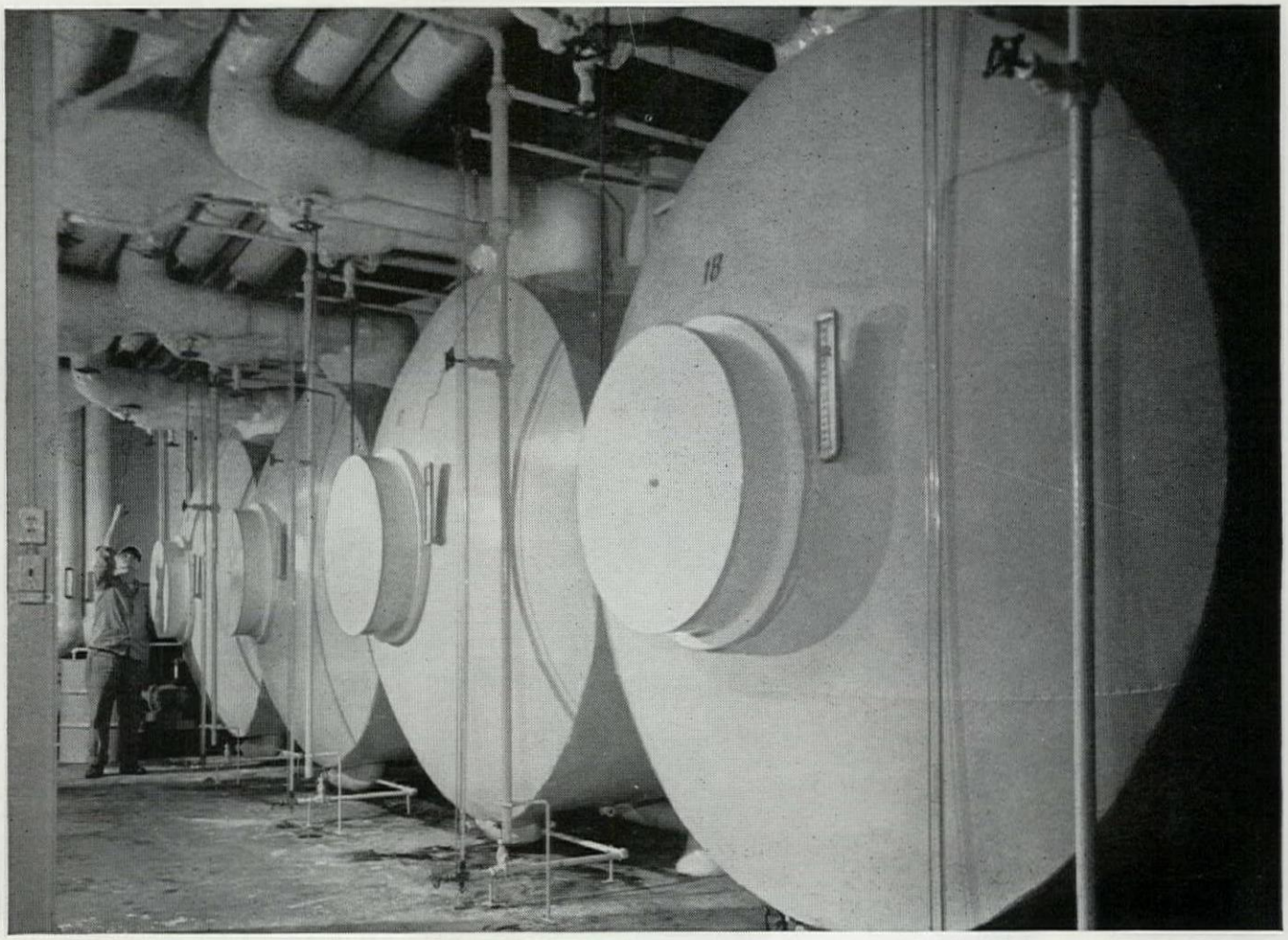

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Light Weight	X		X	
Superior Resistance to rot and vermin	X	X		
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Permanent "K" factor average, 0.25. Avg. density, 1.8 lbs. per cu. ft. No odor. No food value. Pleasant to work with. Fabricates with common tools. Does not crumble or settle.

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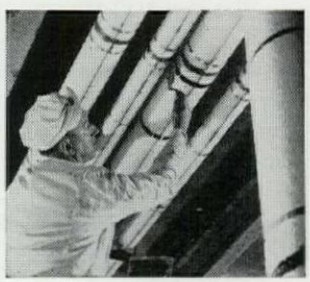

The makers of Hellmann's Mayonnaise first used Styrofoam* (a Dow plastic foam) in 1952. That was to insulate egg-storage rooms. The results have been so satisfactory that when Best Foods planned a new unit for making salad oil, Styrofoam was specified for 40° insulation in the winterizing cells (see illustration).

When you specify easy-to-install Styrofoam for low-temperature structures or refrigerated equipment, you are ahead with the unique combination of superior properties found only in Styrofoam (see chart). For complete information, write THE DOW CHEMICAL COMPANY, Midland, Michigan–Plastics Sales Dept. PL1714M1.

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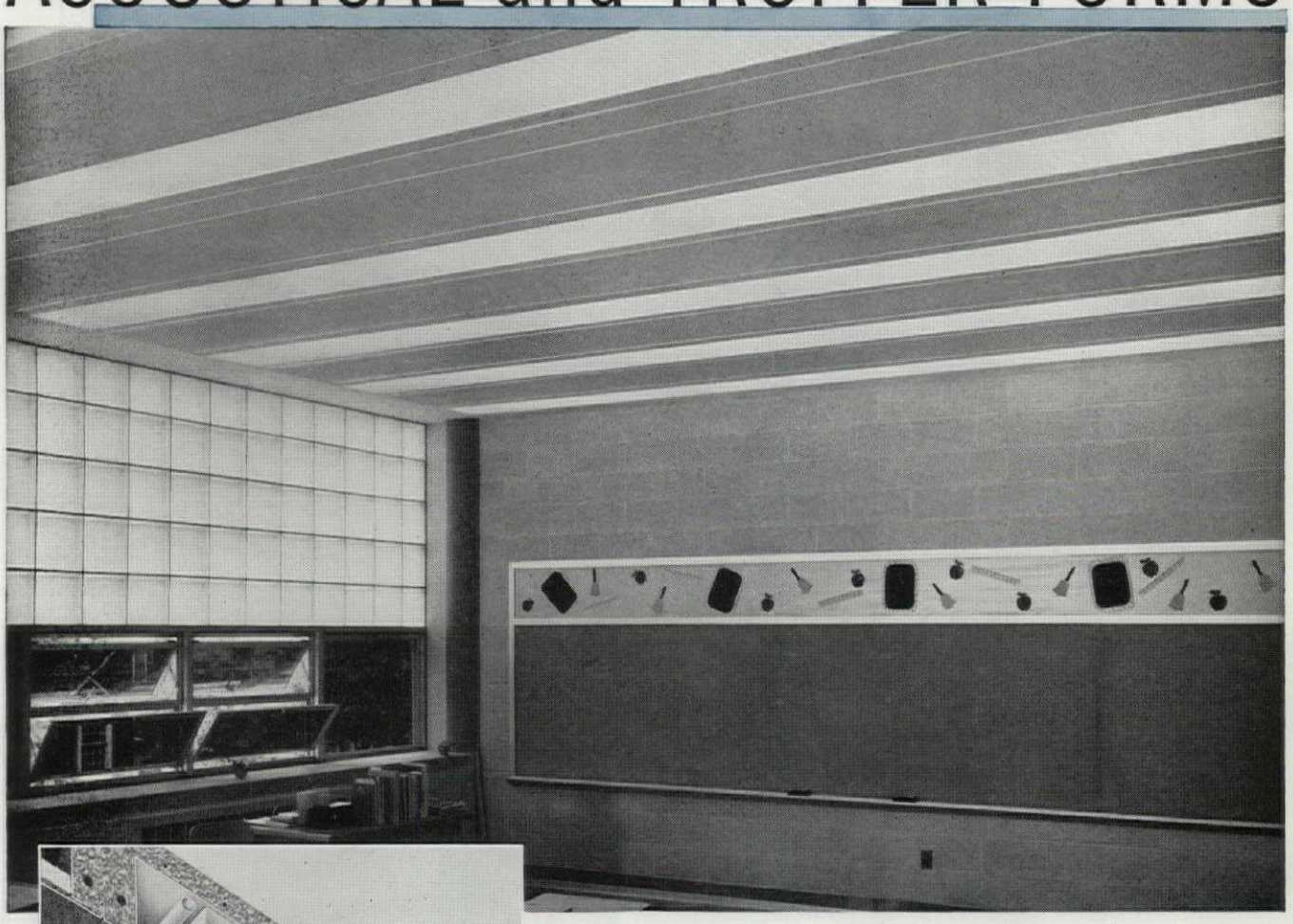

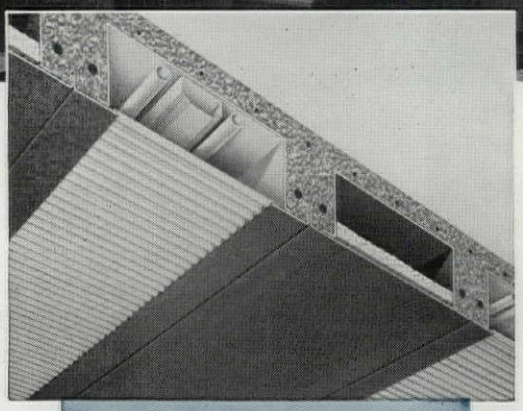

MAHON
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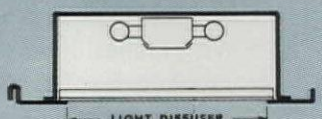
SECTION M1A (Acoustical)



SECTION M1T (Troffer)

Above is a typical Classroom in the Eugenia Mettatal School, Detroit. It is One of 50 Rooms—including the Auditorium—with Mahon Acoustical-Troffer Ceilings. Shreve, Walker & Associates, Inc., Architects. Alfred A. Smith, Inc., Gen. Contractors.

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MAHON

books received

Egypt: Architecture, Sculpture, Painting in Three Thousand Years. K. Lange & M. Hitmer. Phaidon Publishers, Inc., 1956. Distributed in U. S. by Garden City Books, 575 Madison Ave., New York 22, N. Y., 362 pp., illus., $12.50

Architecture for Adult Education. Adult Education Assoc., 743 N. Wabash Ave., Chicago 11, Ill., 1957. 74 pp., illus., $2

Biographical Dictionary of American Architects (Deceased). Henry F. Withey & Elsie Withey. New Age Publishing Co., 1542 Glendale Blvd., Los Angeles 26, Calif., 1956. 678 pp., $15

The English Home. Doreen Yarwood, Charles Scribner's Sons, 597 Fifth Ave., New York 17, N. Y., 1956. 391 pp., illus., $10

1857-1957 One Hundred Years of Architecture in America. Frederick Gutheim. Reinhold Publishing Corp., 430 Park Ave., New York, N. Y., 1957. 96 pp. illus., $4. Frederick Gutheim, author of P/A's WASHINGTON REPORT, was called upon to assemble a photographic exhibition of outstanding examples of American architecture over the past hundred years for the AIA Centennial in May, 1957. This was the first architectural show and also the first photographic show ever presented in the National Gallery of Art. The present volume is a permanent record of that exhibition.

the Temple revisited

The Temple of Jerusalem. *André Parrot. Philosophical Library, Inc., 15 E. 40 St., New York, N. Y., 1955. 112 pp., illus. $2.75*

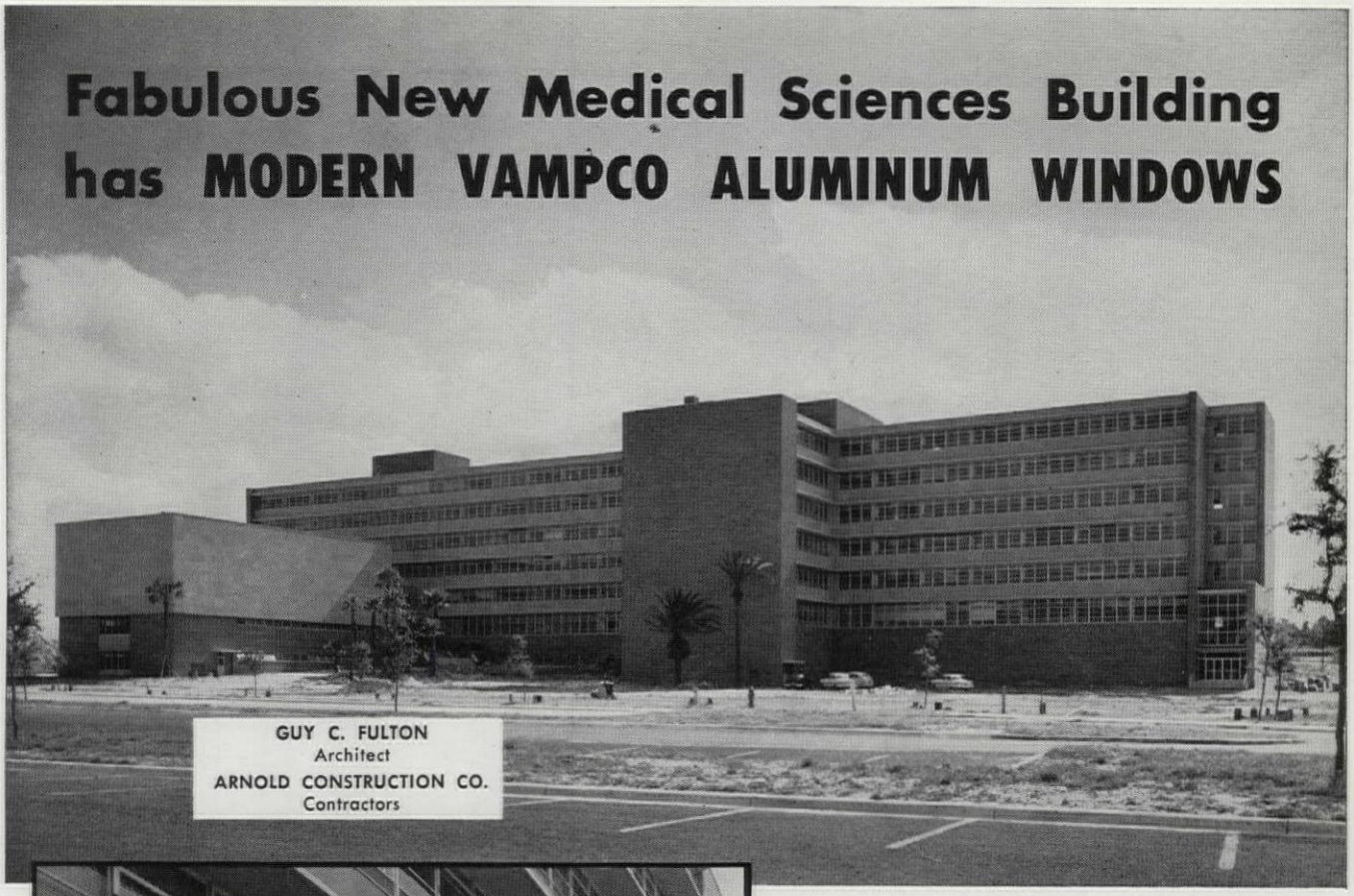
Prof. André Parrot, celebrated French archeologist and antiquities scholar, has written a fascinating little treatise about the site of the T mple of Jerusalem.

King Solomon built the early Temple which was, perhaps, the most famous structure mentioned in the Old Testament; and its magnificence has been attested. The second Temple was built when the Jews returned to the Holy Land, after their captivity in Babylon which was defeated by Cyrus in 539 B.C. The third Temple was that of Herod, who, having been born of mixed racial stock, attempted to win over the Jews by building a Temple which was to correspond to the prophet Ezekiel's vision of the Temple. In 70 A.D. the Roman Emperor Titus had the last Temple destroyed as Christ had prophesied. The old and handsome Harem esh-Sherif, called the Mosque of the Rock, now occupies the site.

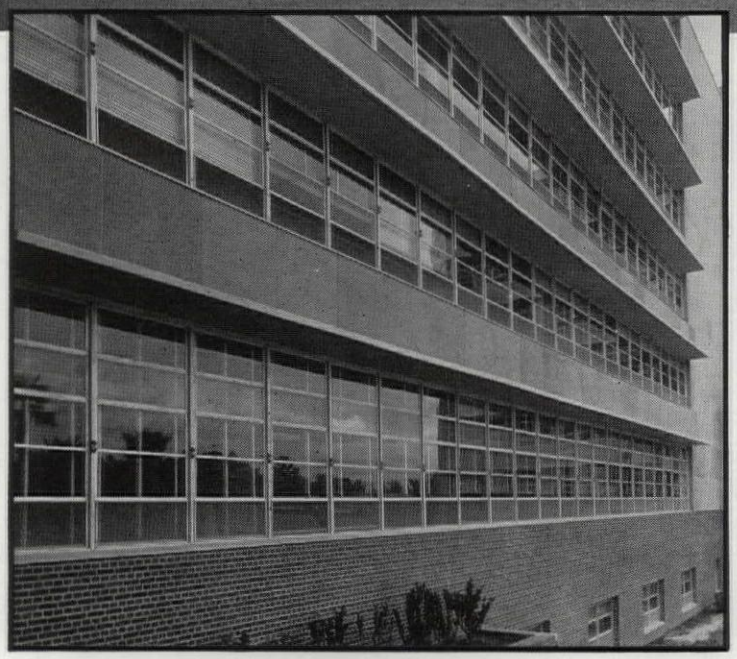
With biblical interest so very much aroused today, Professor Parrot's study is timely and contains a wealth of brief but thorough archeological and historical detail. What is more, it is well written. Plans, photos, and drawings complement the illuminating text. F.J.S.H.

(Continued on page 206)

Fabulous New Medical Sciences Building has MODERN VAMPCO ALUMINUM WINDOWS



GUY C. FULTON
Architect
ARNOLD CONSTRUCTION CO.
Contractors



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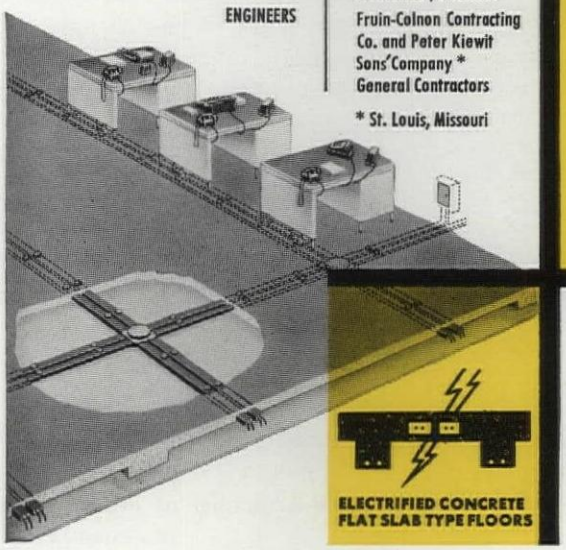

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(Continued from page 202)

exotic flowering

Modern Architecture in Brazil. *Enrique E. Mindlin. Reinhold Publishing Corporation, New York, N. Y., 1956. 256 pp., illus., $12.50*

Mindlin's book presents the plastic profile of a country and, at the same time, stimulates a chain of thoughts. The growth and flowering of Brazilian architecture has a miraculous and irrational aspect: miraculous because it seems to stem from nowhere. Architectural pioneers, those rediscoverers of lost truths who spend a major part of their professional lives facing public resistance, were not to be found in Brazil. There was neither a sound of Sullivan-Wright voices and chats, nor a sight of the learned, but rare, examples of Garnier and Perret. And it seems irrational also because no historical determinism could justify this architectural movement which started in the absence of any large cement or steel industries and which even today, more than twenty years later, outdistances the industrial capabilities of the country. As late as 1930, we see in Brazil buildings designed in the grand manner following the teachings of Grandjean de Montigny—a sort of practical Ledoux—together with regionalistic expressions appearing in moderate-size *fazendas* and inspired by the more lofty Colonial examples. At the same time, in Paris, the *"nobles façades"* of Lomaresquier were going up while, in the suburbs, the quaint roofs of Josephe Marrast were reminiscent of the three basic regional shapes: of Normandy, of Basque Country, and of Savoy. We may say that architecture was situated inexorably between two poles, the metropolitan and the regional, between pomp and an often ostentatious humility. Then, suddenly, modern Brazilian architecture exploded like the bursting of a tropical flower. To quote Lucio Costa: "Never before had architecture passed through such a transformation in such a short period of time as it did in Brazil from 1930 to 1940." Author Mindlin, a Brazilian architect and an important member of this movement, points out the only tangible if not cryptic explanation of the phenomenon: the ability of the Brazilian architect to teach himself—an "autodidact"—and "the intellectual preparedness of the national frame of mind." In addition to this, Dr. Giedion offers the suggestion that the *good client* may exist in Brazil; but no one can be certain that the idea of a good client is not a myth developed at the time Adam faced the Tree of Knowledge and witnessed the effects of duality. And the influence of Le Corbusier? It is true that Le Corbusier had visited Brazil on two occasions, in 1929 and in 1936, each time staying for a period of a month or less; but he also visited a number of other countries,

(Continued on page 208)

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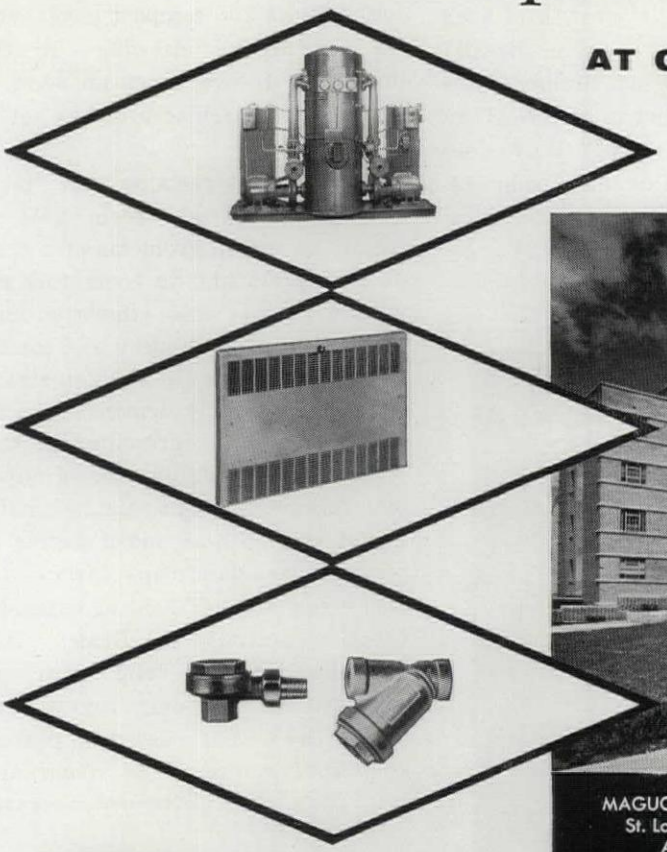

AT CARDINAL GLENNON MEMORIAL HOSPITAL FOR CHILDREN IN ST. LOUIS

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Continued from page 206)

Dr. Giedion reminds us, without producing any similar results.[1]

What are, then, the condition of architecture and the prerequisites of an architectural climate? A poetic state, mass optimism, a happy conscience, and the ability of the creator to get hold of and express the moment are certainly necessary; but what prepares the ground, furthers, or simply allows the growth of such a movement as is seen in Brazil? What convergence of circumstances must take place, what historical coordinates must meet? Why does architecture inhabit near-polar regions (Finland) and semi-tropical areas (Brazil)?

These are the inevitable questions which will arise from even a superficial examination of this imposing book. The answers are not to be found in its 256 compact pages, nor, we are afraid, elsewhere in the immediate future, since an *oecological* study of architecture has yet to be made.[2]

But the fact remains that "most Brazilian architects seem able to tackle the varied problems of a complex program and to come forward with a concise and simple ground floor plan and with clear and intelligent sections," as Dr. Giedion states. This is thoroughly demonstrated by the 118 examples presented in this volume. All buildings are grouped by function, residential, institutional, etc., with an added section on planning and landscape design—the last being another field of extensive creative activity in Brazil. Biographical notes are brief, sober, and informative. We only regret that, due to the author's desire to present completed works, some remarkable

(Continued on page 212)

[1] *Le Corbusier published the impressions of his visit to Latin American countries in* Precisions; *as* When the Cathedrals Were White *is the log of his trip to the United States. A comparative reading of the two books may shed some light on the state of the influenced and the techniques of influencing.* S. P.

[2] *It is also time that a dynamanalysis of architecture should be undertaken if any deeper understanding is expected of the architectural imagery. For example: looking at man's architectural expressions, not as perceived forms but as an activity, we may see the carved, the molded, and the assembled; the chaitya-halls of western India, the hangars of Orly, and the Eiffel Tower or the Lever Building in New York are the work of the stone carver, the potter, and the assembler, or the result of the sensibility of the sculptor and the skill of the mechanic. From depth psychology we know that the forces of the counter (the against, the contrary forces) in a synthesis of the will and the imagination, and within the dialectics of hard and soft, come into play in the work of the "stone eater" (the lithophagous) and of the potter or the bread kneader. Of this, much is understood. What archetypes are in action in the imagery of the mechanic and the assembler (who is not to be confused with the blacksmith and the rites of fire)? Does the act of combining, of producing common areas between a variety of materials in joints, which may or may not retain any of the physical or oneiric characteristics of the materials, have any relation with the alchemists' dream of a mineral universe? Or is it merely a technique which is more sympathetic, more given to statistical solutions and quantitative relationships because of its very nature of remaining on the surface of substances? About this we know very little. "Beautiful architecture is the one which produces beautiful ruins," said Perret, with the insight of the artist. If this is to be understood at all, a building is not only a perceived image but also an imagined one: a substance behind ephemeral, changing aspects upon which there is action of archetypes. Stone reverts to stone; but what image in depth could result from the scrap pile?* S. P.

Supreme Court Building

Brooklyn, N. Y.

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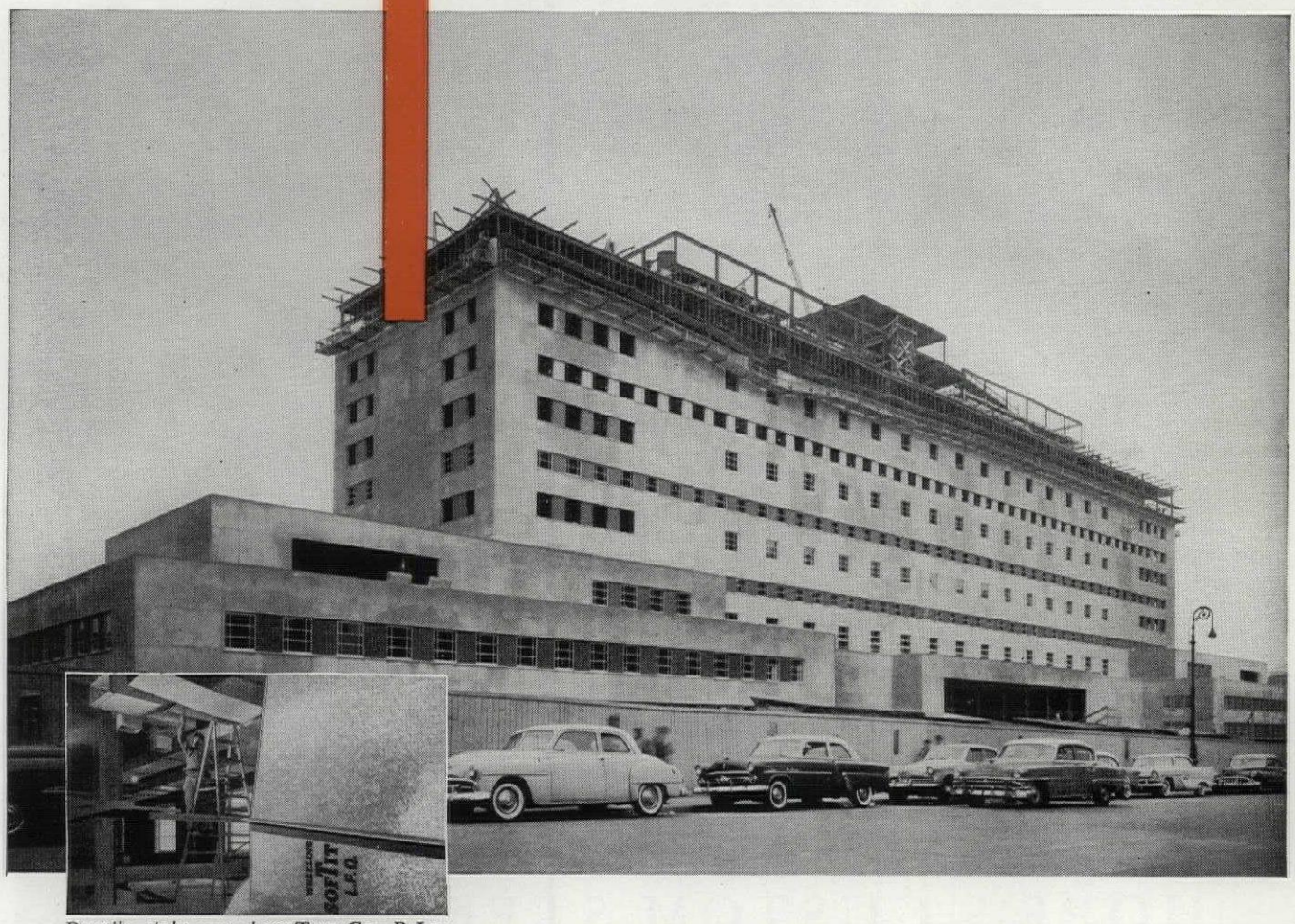

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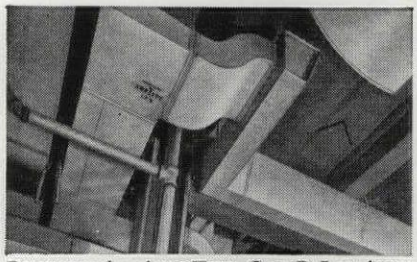

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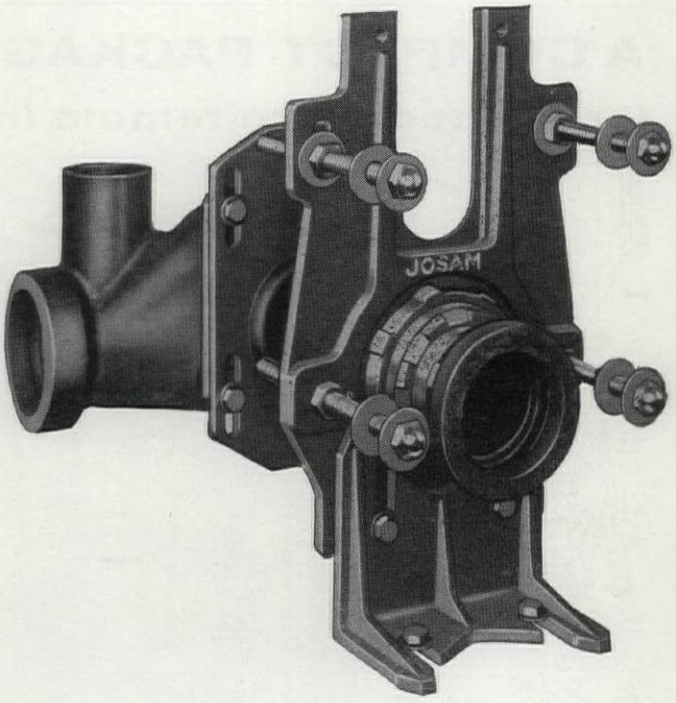

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(Continued from page 208)

buildings not yet finished appear in small photographs of models in a separate section of the book; we hope, however, that these buildings, now in various degrees of completion, will be the subject of a future volume, trusting, as we do, Mindlin's true devotion to the cause of architecture.

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basic and practical

Masonry Simplified, Vol. I. *J. Ralph Dalzell & Gilbert Townsend. American Technical Society, Chicago, Ill., 1956. 461 pp., illus. $5.40*

This second edition of a book first published in 1948 has been revised and updated to include much new material, particularly on concrete masonry.

The book is basic and practical. It is intended for study by masons and builders and also as a reference work for architects and draftsmen. Emphasis is placed on the fundamental aspects of masonry, including concrete work of minor or intermediate character. Early chapters deal with the manufacture and uses of cement and lime; there are also extensive chapters on concrete masonry, clay tile, and brickwork. These deal informatively with mortar joints, bonding, details at openings, etc. A chapter on driveways and walks is quite valuable. It is regrettable that some space is not devoted to stone masonry.

Each chapter of the book is followed by a group of representative review and test questions for self-study purposes. It is profusely illustrated with drawings and isometric sketches. A very complete, illustrated dictionary of masonry terms covers 96 pages as an Appendix. It is a worthwhile book for all who make masonry their day-to-day interest.

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Project Engineer
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orderly presentation

Capital Formation In Residential Real Estate: Trends and Prospects. *Leo Grebler, David M. Blank and Louis Winnick. Princeton University Press, Princeton, N.J., 1956. 519 pp., $10.50*

Capital distribution and ownership have long engaged the attention of serious students. On the other hand, capital formation has been by comparison a neglected field. This fact is indeed surprising because such a study is manifestly the more basic. To the architect, especially, capital formation should be of interest, because therein lie the seeds of his practice. Along with other professional men whose work impinges on the realm of economics, he will therefore welcome this highly informative volume.

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(Continued on page 216)

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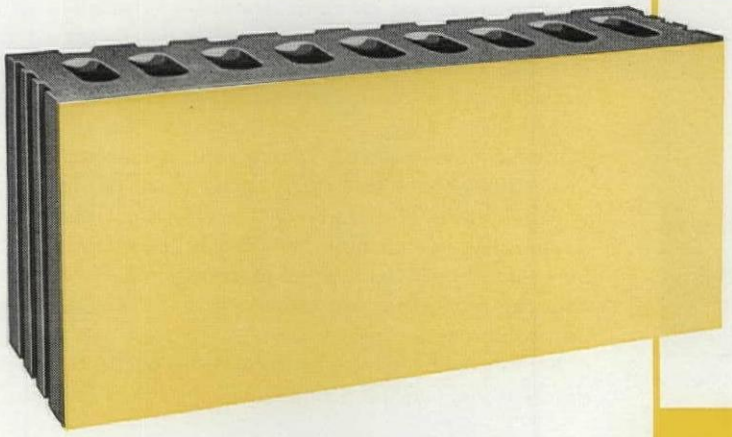

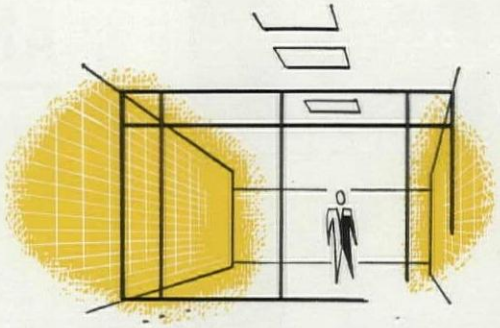

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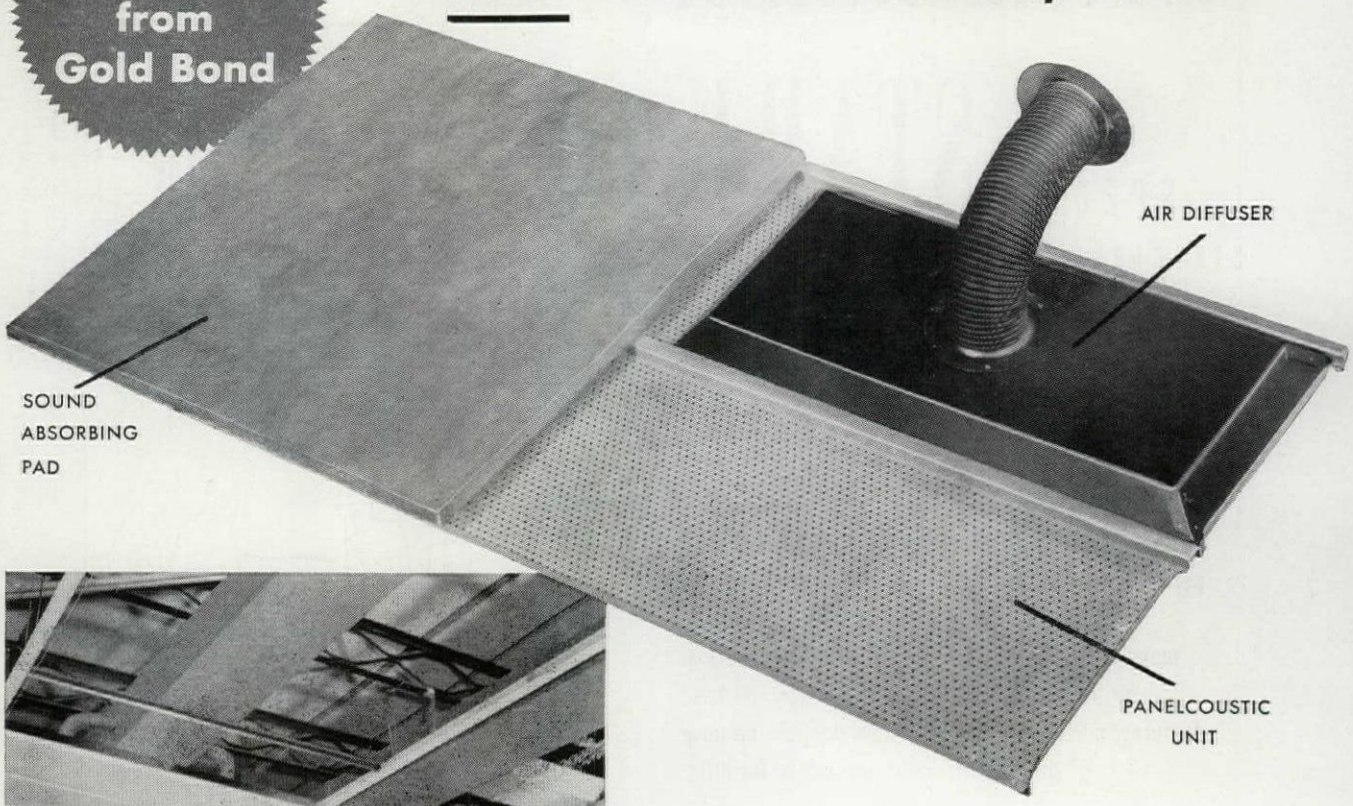

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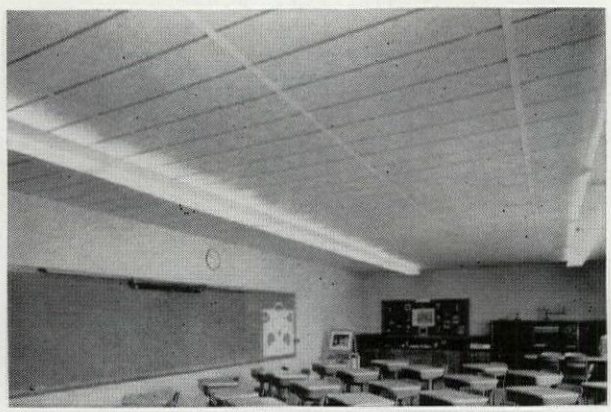

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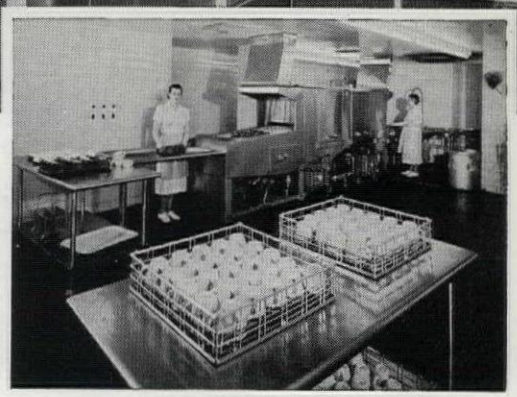

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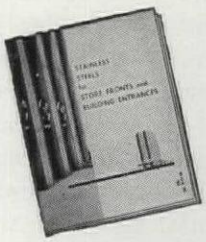

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(Continued from page 212)

phasis on capital as a handleable entity, rather than upon the aspects of its creation, has been a clash of semantics. Confusion has arisen, even among economists and business writers, as to the respective word-values of "forming," "accumulating," "owning," "assembling," "distributing" productive and constructive means. Since such means properly include labor and materials as well as money, these three elements are often ill-distinguished in a complex civilization.

We can simplify these forms at a primitive level. As many of our readers know, certain Pacific Coast aborigines have an economic system based, not primarily on barter or sale, but on bestowal by gift. A tribal chieftain or man of importance spends a long time getting together a hoard of valuable goods—such as furs, furniture, food supplies, clothing and even slaves—for the avowed purpose of giving them away to his guests at a grand function known as the "potlatch." These goods, considered as capital, are thus successively fashioned or bred, assembled, owned and finally distributed, possibly to be used by the recipients in their own potlatches, all within one sphere of operation.

So much for the movables. Houses, on the other hand, are entirely outside the potlatch cycle and in general are owned by the community rather than by individuals. The capital going into them is "formed" by the contributed labor of various craftsmen and is never "distributed." Here is capital formation in residential real estate, reduced to its lowest terms.

The authors of the present volume have been singularly successful in avoiding blurred definitions. Their presentation is orderly without being pedantic and is marked by uncommon clarity. They develop their thesis somewhat as follows, beginning with a presentation and analysis of private residential construction over more than six decades (1899 to 1953):

Adjusted to current prices and examined for secular trends, construction expenditures show a long-term increase. But there has been a marked change in the rate of growth for gross capital formation. Averages for three long swings show a substantial rise from the 1892-1905 cycle to that of 1905-25 and a leveling from the second cycle to the third (1925-50). This pattern is consistent, no matter what measurement is used—whether annual number of dwelling starts, constant-price expenditures for new units, or such expenditures plus additions and alterations.

Dwelling unit starts per annum averaged two-thirds more during the

(Continued on page 220)

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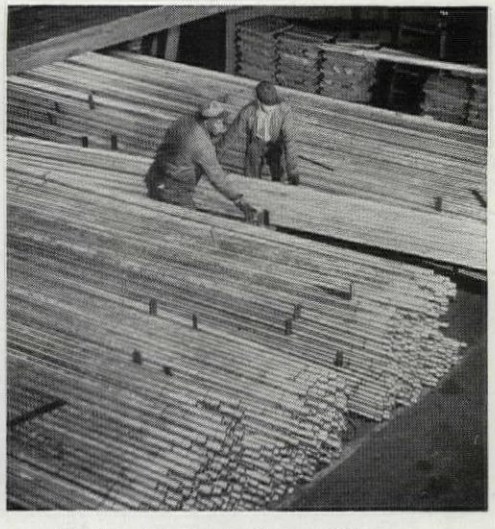

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reviews

(Continued from page 216)

second cycle than in the one preceding, it transpires. During the third cycle, however, they were barely 4% more than in the second. Thus the secular growth of capital formation in residential real estate, beginning far back of the nineties, "seems to have come to a halt during the 1925-1950 period."

The annual averages of "deflated" expenditures from 1946 to 1953 were only a trifle higher than in the decade of the 20's; yet the number of dwelling unit starts averaged nearly one million annually during the eight postwar years, as compared with 700,000 during the twenty-thirty decade. Furthermore, additions and alterations are increasingly important in the formation of gross capital.

The fourth chapter of the book is devoted to analyses of net capital formation—which is obtained "by subtracting capital consumption allowances from gross investment." Averages for the three long swings of *net* capital formation in constant prices exhibit a rise of only 5% from the first to the second cycle as against the one-third increase for *gross* capital formation. These averages also show a drop of nearly two-fifths from the 1905-25 to the '25-'50 cycle—compared with a leveling for gross. The authors attribute this marked difference between gross and net trends to (a) the increase in physical stock of housing, (b) a rise in total capital consumption, and (c) a substantial decline in gross formation relative to aggregate physical value. In sum, the ratio of gross capital formation relative to residential capital prices fell from an average of 74% in 1890-1909 to 56% in 1910-29 and only 24% in 1930-45. Capital consumption allowances, considered crucial, consist for this purpose partly of a constant annual 2% depreciation charge figured on net cumulated structure values, and partly of estimated demolition losses.

(Continued on page 222)

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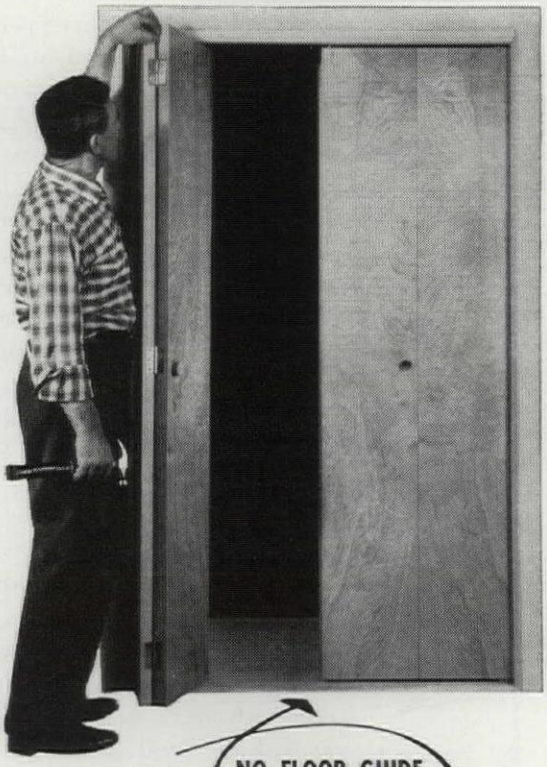

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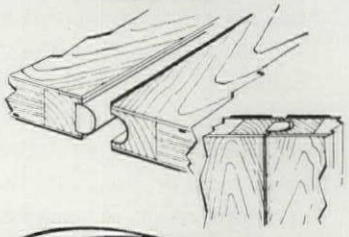

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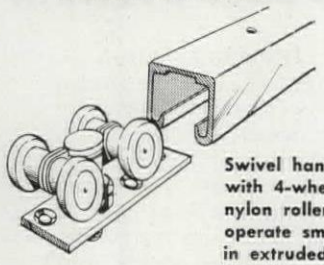

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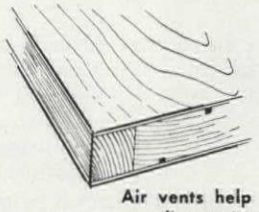

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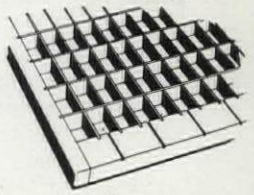

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reviews

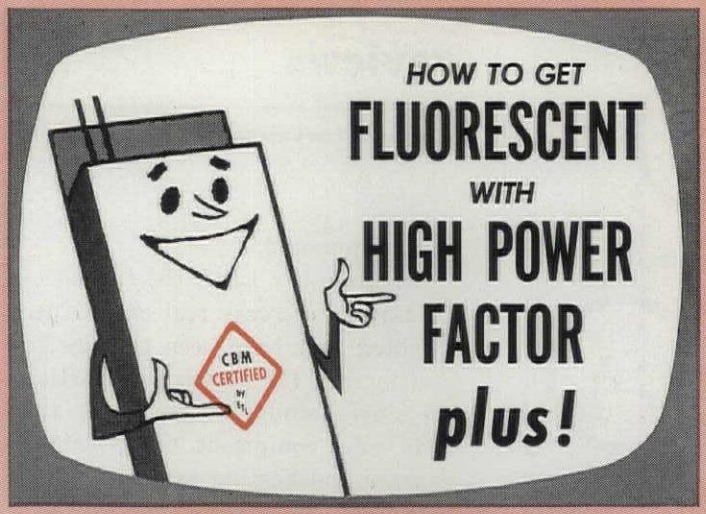
(Continued from page 220)

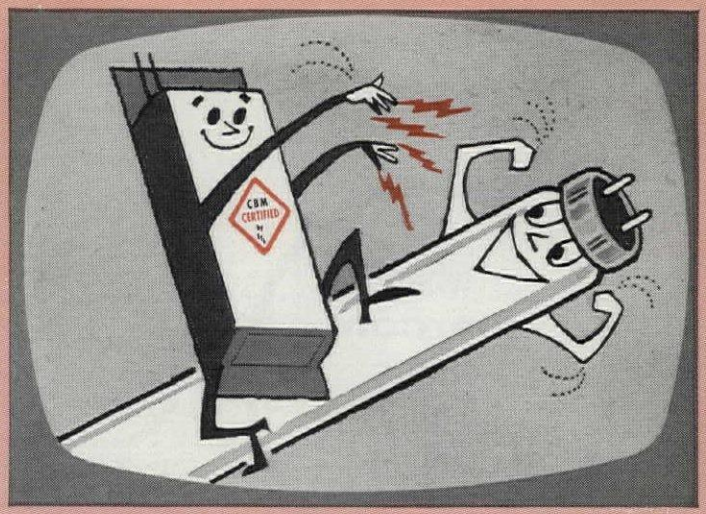
At this point our authors make a sobering declaration: *Gross residential capital formation is on a long-swing decline.* For three periods of the six decades studied—in each of the World Wars and during the Great Depression—"there was actual net disinvestment"! Furthermore, while the number of dwelling units standing has continued to grow during those six decades, the rate of new dwelling units started, compared with the inventory of existing units, has shown "a marked downward trend." Taking all factors into consideration, the authors have discovered that the long-term record of residential capital formation "points toward arrested growth or actual decline in real terms," depending upon whether gross or net additions to capital are considered.

Chapters V, VI, and VII examine the forces underlying this apparent trend and bring to light the *modus operandi* of "real input" per dwelling unit. Incidentally, the smaller decline in household growth-rate, compared with that of population, is attributed to a 20% fall in the size of nonfarm households from 1900 to 1950. Another putative reason has been the establishment of households by "social units" rather than by "biological families."

The principal factors *reducing* real capital per new dwelling are found to have been (1) the increasing proportion of housing in the West and South where climate makes possible an input per dwelling unit much lower than in the East and North; (2) the larger proportion of construction in rural nonfarm areas; (3) a decline in the average size of household and dwelling units; (4) the tendency toward lighter materials and construction; (5) long-term increase in the cost of house-building relative to other prices, and possibly (6) the occupancy of new dwellings by an increasing percentage of families "farther down in the

(Continued on page 224)





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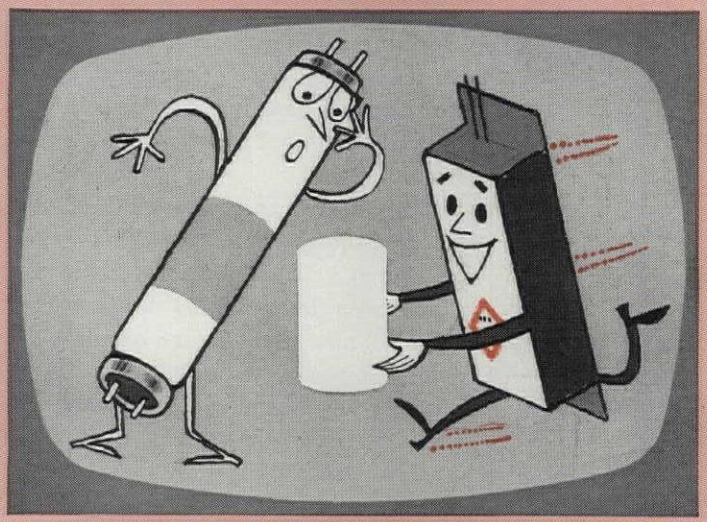
CBM GIVES JUST WHAT YOU NEED for proper fluorescent lamp operation. These ballasts are designed to give just the right amps and volts for peak lighting performance.



CBM BALLASTS GUARD YOU FROM LOSSES IN LIGHT OUTPUT. . . can save you up to 30%. For CBM means full, rated light output. And you get long ballast life, and up to 2500 hours more lamp life.

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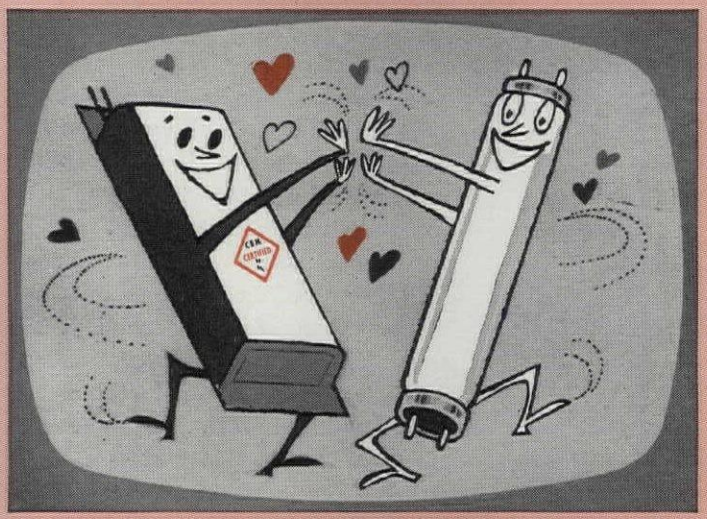

MADE FOR EACH OTHER. Certified CBM standards are "tailored to the tube". So to get more for your money, be sure the fixtures you use are equipped with CERTIFIED CBM BALLASTS.

WRITE FOR A COPY of the free booklet, "Why it pays to use CERTIFIED CBM BALLASTS in fluorescent lighting fixtures". You'll find it helpful in knowing your best buy in fixtures.

Seven leading manufacturers now make up

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reviews

(Continued from page 222)

income pyramid."

On the other hand, the influences tending to *increase* real capital per dwelling unit have been the rise in real income, the growing proportion of single-family houses, and the addition of equipment items, such as garages and heating systems.

However, a puzzling anomaly remains. Since 1890 there has been a spectacular increase in per capita real consumption of nearly all classes of consumer goods other than dwellings. The authors are prompted to ask, "Why have consumers failed to demand housing of such high quality that real input per new unit would rise?"

A tentative answer to this query is developed in Chapter VIII: the consumer's residential preferences have been impaired by the emergence of newer goods and services—such as the auto and TV, to say nothing of "eating out." It strikes this reviewer that right here the architect may (and perhaps already has) come to the rescue with attractive, livable design.

The remaining seven chapters are devoted to technical and well documented studies of mortgage and equity data, with particular reference to Federal aid in financing. Of these chapters the last two seek to trace a "time pattern" and evaluate recent developments. In general, the authors conclude that the difficulties arising from the unbalanced condition of residential capital formation can be resolved by the community at large, "in the face of social pressures," through careful weighing of "long-term benefits" against real or apparent "short-term advantages."

Twelve copious Appendices, together with thirty charts and an index, and more than a hundred statistical tables, round out and implement this truly valuable work. In addition, the book is well written and well printed.

WILLIAM HURD HILLYER
Economist and Financial Historian

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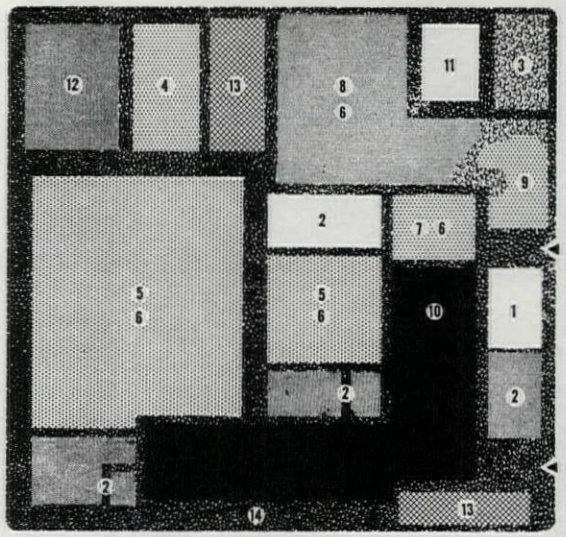
space requirements for recreation parks

To round out this special issue on recreational structures and to supplement the presentation of completed buildings shown on the previous pages, the Editors offer some basic data which would be useful in the planning and programming of recreation centers. Considerable research has been conducted in this field by the California Committee on Planning for Recreation, Park Areas, and Facilities and their findings have now been collected into an excellent document entitled, "Guide for Planning Recreation Parks in California." Although directed to the California audience, the guide should be a valuable source for all concerned with the planning and administration of recreation areas throughout the country. The three most prevalent local topographic conditions—coastal, mountain, and desert regions—are independently researched; and, because of this great geographic diversity within the State of California, the data is applicable almost anywhere in the country. Following are excerpts from the Guide. I. M. R.

Neighborhood center adjoining an elementary school. Diagram, not a plan.



the neighborhood recreation center

"A combination school and park that provides space for outdoor and indoor recreation activities primarily for children from approximately five to fourteen years of age and for family groups. Also, a separate recreation park that is designed to serve neighborhood recreation needs and is located within walking distance of most of the homes in the neighborhood."

"1. PLAYLOT AND MOTHERS' AREA *.25 acre* in coastal and mountain regions to accommodate the desirable range of facilities, including swings, slide, sand box, an open area for free play, "gopher holes," climbing maze, wheel-toy freeway, play sculpture, playhouse, shrubs and trees, and a shelter with benches for mothers. Additional *.10 acre* in valley and desert regions for greater number of shade trees and for spray pool or other water feature.

"2. PLAY AREA FOR ELEMENTARY SCHOOL-AGE CHILDREN *.35 acre* in coastal and mountain regions to accommodate the following: a safe apparatus area (6000 to 10,000 sq ft) with swings, traveling rings, horizontal ladder; large-scale play sculpture that children can envisage as a space ship, a lookout tower, or a deep sea monster; and a "vacant lot" area in which children can dig caves and trenches, stage mock battles, build crude huts, or pretend they are hunting in the forest. Additional *.05 acre* in valley and desert regions for shade trees and protective planting.

"3. NATURE AND SCIENCE HOBBY AREA *.30 acre* to provide sufficient space for serious pursuit of scientific and mechanical interests. Requirements: garden plots and a lath house; area for group science activities and outdoor display of hobbies and collections. Some recreation agencies may consider *.30 acre* inadequate and may wish to provide as much as *.50 acre.*

"4. PAVED AREA FOR COURT GAMES The area includes any desired combination of tennis, volleyball, and basketball courts and a paved slab for all-purpose use. *.50 acre* in coastal and mountain regions when recreation center adjoins school. *.75* acre in valley and desert regions when recreation center adjoins school, because adults use lighted courts extensively in the evening. *1.00 acre* in coastal and mountain regions when recreation center is separate. *1.50 acre* in valley and desert regions, because of intensive night use.

"5. FIELD FOR SPORTS *4.00 acres* at separate recreation center to provide field space for a softball diamond and for field games of hockey, speedball, soccer, and touch football. *2.00 additional acres* if a hardball diamond is provided. In the desert region one additional acre should be provided in a recreation center adjoining a school, so that adequate windbreaks and screen planting may be included.

"6. NIGHT LIGHTING *.25 acre* provides 10-foot strips along two sides of the sports field (length 400 ft) to accommodate light poles and masking shrubs.

"7. INSTRUCTIONAL SWIMMING POOL *.20 acre* in coastal and mountain neighborhood recreation centers at elementary schools. Dimensions of pool: 30 ft by 60 ft. Additional *.05 acre* in valley region and *.10 acre* in desert region, because of more intensive use. This type of facility is not ordinarily included in a separate recreation center.

"8. FAMILY PICNIC AND BARBECUE AREA *1.50*

acre in coastal and mountain regions. Average space required: 2500 sq ft per family. Total space allotment accommodates approximately 17 families, with privacy afforded each family by proper arrangement of trees and shrubs. Additional *.25 acre* in valley region and *.50 acre* in desert region, because of greater family use in warm climates.

"9. **PARKLIKE AREA FOR FREE PLAY** The free play area is largely spacious turf, bordered by trees and shrubs. Logically located next to the picnic area, it provides "elbow room" for parents and children before and after the picnic dinner. It is also the one area in the neighborhood that can be enjoyed just as green open space. *.50 acre* in coastal and mountain regions when recreation center adjoins school. *.75 acre* in valley region and *1.00 acre* in desert region when recreation center adjoins school, because of greater family use, as in picnic area. *1.00 acre* in coastal and mountain regions when recreation center is separate. *1.50 acre* in valley region when recreation center is separate, and *1.75 acre* in desert region, where use is greatest, especially after sundown during warm months.

"10. **NEIGHBORHOOD CENTER BUILDING** *.35 acre* at separate recreation center to provide space for a building with 5000 sq ft of floor area surrounded by 10,000 sq ft of grounds, including a terrace, walks, and

planting areas. School serves as center when recreation area adjoins elementary school.

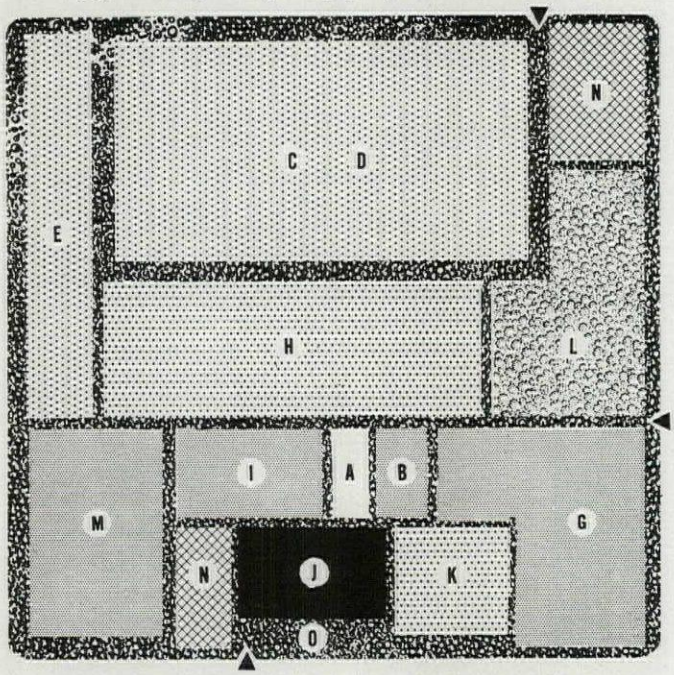
"**11. QUIET AREA** *.25 acre* near recreation center building in coastal and mountain regions. Additional *.25 acre* required in valley and desert regions. Larger areas are needed in warmer climates because more people wish to be outdoors and a greater amount of shaded area is necessary.

"**12. OLDER PEOPLE** *.50 acre* for turfed area in coastal and mountain regions. Turf used for bowling, croquet, pitch and putt, and horseshoe courts. Additional *.10 acre* in valley region and *.25 acre* in desert region to accommodate intensified use in warmer climate, especially in evening. *.10 acre* for paved all-purpose area for games and social activities in all regions of the state. *.10 acre* needed in and around the recreation building for the exclusive use of older people—a floor area approximately 40 ft by 50 ft inside and an equal amount of area outside . . .

"**13. OFF-STREET PARKING** *.40 acre* when recreation center adjoins elementary school, which also provides some off-street parking space. Allowing 300 sq ft per automobile, this area provides parking for 58 automobiles. *.60 acre* when recreation center is separate. Allowing 300 sq ft per automobile, this area provides parking for 86 automobiles. . . ."

the community recreation center

A recreation area serving a community and providing outdoor and indoor facilities to meet a much wider range of recreation interests than the neighborhood center; primarily for young people and adults.



Community center away from a secondary school. Diagram, not a plan.

"A. PLAYLOT AND MOTHERS' AREA *.25 acre* in coastal and mountain regions to provide the same kinds of facilities included in the neighborhood recreation center. Additional *.10 acre* in valley and desert regions for greater number of shade trees and for spray pool or other water feature.

"B. PLAY AREA FOR ELEMENTARY SCHOOL-AGE CHILDREN *.35 acre* in coastal and mountain regions to provide the same kinds of facilities included in the neighborhood recreation center. Additional *.05 acre* in valley and desert regions for shade trees and protective planting.

"C. FIELD FOR SPORTS *1.00 additional acre* for general community use when recreation park adjoins the school. *7.00 acres* in separate community recreation park to accommodate a baseball diamond and two softball diamonds, field for hockey, speedball, soccer, and touch football, bleachers, and dressing rooms. One baseball diamond sufficient if some neighborhood recreation centers also include baseball diamonds. In desert region *8.00 acres,* in order to include adequate windbreaks and screen planting.

"D. NIGHT LIGHTING *.25 acre* provides 10-ft strips along two sides of the sports field (length 400 ft) to accommodate light poles and masking shrubs.

"E. PAVED AREA FOR COURT GAMES Community recreation park adjoining junior or senior high school: *1.35 acre* in coastal and mountain regions to provide supplementary tennis, volleyball, and basketball courts for community use. *1.50 acre* in valley and desert regions because of greater demand. Separate community recreation park: *2.00 acres* in coastal and mountain regions to accommodate desired combination of tennis, volleyball, and basketball courts. *2.35 acres* in valley and desert regions, where use is more intensive after sundown. Night lighting required in all regions.

"F. CONCRETE SLAB FOR SKATING AND DANCING *.15 acre* in all regions of the state, regardless of whether recreation park is separate or adjoins a school. Approximate area of slab: 6000 sq ft. Night lighting essential.

"G. FAMILY AND GROUP PICNIC AND BARBECUE AREA *3.00 acres* in coastal and mountain regions in recreation parks adjoining junior or senior high schools, as well as in separate parks. *1.0 additional acre* in valley and desert regions, in order to accommodate greater use and to provide more shade trees, shrubs, and lawn. Night lighting especially in valley and desert regions.

"H. PARKLIKE AREA FOR FREE PLAY Community recreation park adjoining junior or senior high school: *2.00 acres* in coastal, valley, and mountain regions. *3.00 acres* in desert region to accommodate greater use, especially after sundown. Separate community recreation park: *4.00 acres* in coastal, valley, and mountain regions. *5.00 acres* in desert region, where use is intensive and more lawn and shade are needed.

"I. AREA FOR SPECIAL EVENTS *1.00 acre* in all regions in recreation parks adjoining junior and senior high schools, as well as in separate parks. Area accommodates agricultural exhibits, science fairs, and outdoor art displays at various times during the year and leaves parklike area available at all times for free play and passive recreation.

"J. COMMUNITY CENTER BUILDING *.75 acre* in all regions adjoining schools. *1.00 acre* in all regions in separate community recreation parks. It is assumed that in parks adjoining schools the school and recreation agency will jointly use arts and crafts, science study, and multipurpose rooms, all together totaling about 11,000 sq ft. In separate parks the community building should provide approximately 11,000 sq ft for such rooms. Under either plan approximately 20,000 sq ft of additional space will be needed for social halls, teen-age lounge, senior citizens' rooms, kitchens, hallways, storage, display space, sanitary facilities, and administra-

tive offices. For grounds around the building, including patio and fireplace, 7000 sq ft are needed when the building is located in a park adjoining a school, 12,000 sq ft when the building is in a separate recreation park.

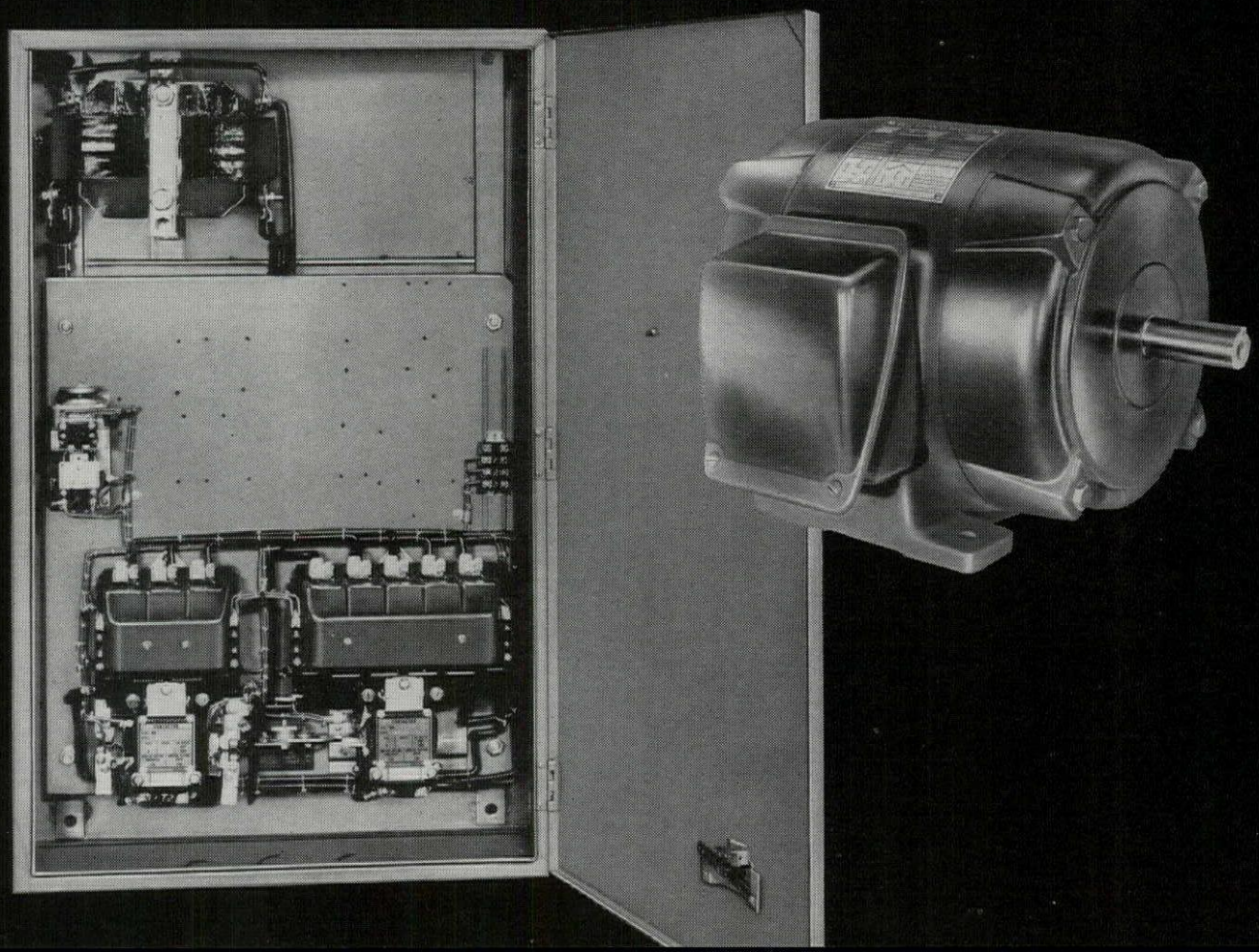
"K. REGULATION SWIMMING POOL Community recreation park adjoining junior or senior high school: *.50 acre* in coastal and mountain regions. *1.00 acre* in valley and desert regions, because space surrounding pool must be larger to accommodate a substantial number of users who remain several hours for sunbathing and general relaxation. Separate community recreation park: *1.00 acre* in coastal and mountain regions. *2.00 acres* in valley and desert regions for reason stated above. Night lighting desirable in all regions.

"L. NATURAL AREA *2.50 acres* in coastal, valley, and mountain regions in recreation parks adjoining junior or senior high schools, as well as in separate parks. *1.00 additional acre* in desert region, because of greater need for change in environment. Space must be of sufficient size to create distinct change in outdoor scene and be attractive for day camping for small groups, for nature study, and for archery.

"M. OLDER PEOPLE'S CENTER *2.00 acres* for turfed area in coastal and mountain regions in parks adjoining schools, as well as in separate parks. Additional *.20 acre* in valley region and additional *.50 acre* in desert region, where use is greatest and shady bordering area is essential. Area accommodates lawn bowling, shuffleboard, croquet, and horseshoe courts. *.10 acre* in all regions of state for paved all-purpose area for games and social activities. *.10 acre* in all regions of state for building space for exclusive use of older people. Provides social hall, kitchen, arts and crafts rooms.

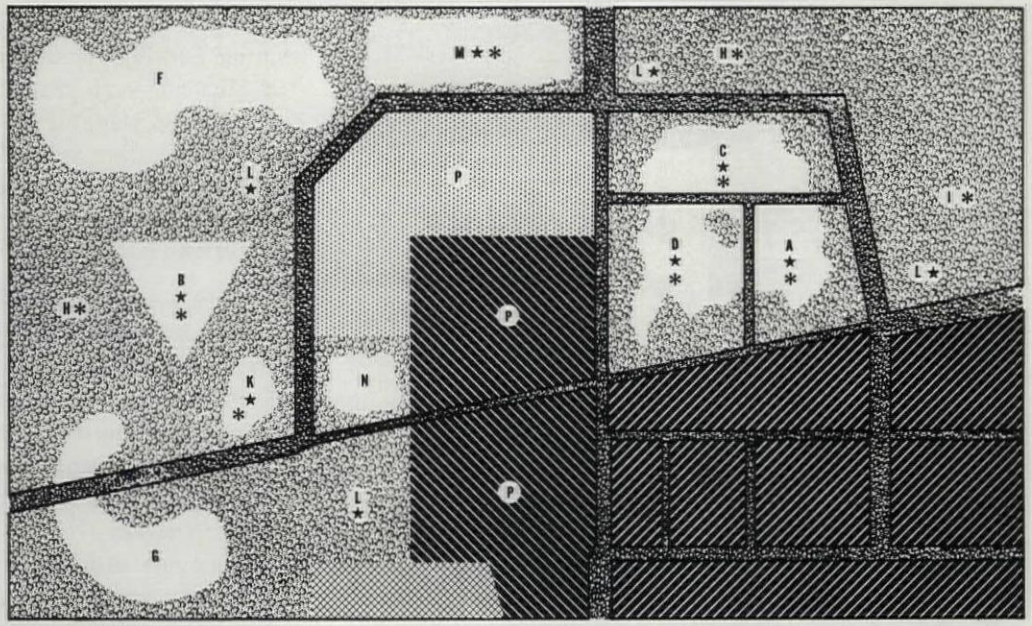
"N. OFF-STREET PARKING (based on allowance of 300 sq ft per automobile) Community recreation park adjoining junior or senior high school: *1.00 acre* in coastal and mountain regions to provide for 144 automobiles. It is assumed that the perimeter of the park will be available for curb parking and that the school also will provide some off-street parking. *1.25 acre* in valley and desert regions for 180 automobiles. Greater area needed because of more intensive use. Same assumption concerning perimeter parking and school provision of off-street parking. Separate community recreation park: *1.50 acre* in coastal and mountain regions for 216 automobiles. *2.00 acres* in valley and desert regions for 288 automobiles, because of increased use. Perimeter parking at separate park assumed."

ARCHITECTURAL BEAUT



the citywide recreation center

A large area of natural or man-made beauty that serves all the communities within a municipality or urban area (approximately 100,000 population) and provides major recreation facilities not usually duplicated in other recreation parks, such as sports center, golf course, lake for boating, and an area for day camping.



the citywide recreation center

"CULTURAL CENTER (adjoining a major educational institution when practical)

"A. Drama and music center—auditorium for 1000; intimate hall for chamber music: *10 acres* required; includes parking for 300 cars (300 sq ft each).

"B. Outdoor theater: *20 acres* including parking area for 600 cars.

"C. Junior museum—science, crafts, arts: *15 acres* including parking for 30 cars.

"D. Museum—art center with art gallery and studios for painting, sculpture, and crafts; floral display hall: *15 acres* including space for 300 cars

"E. Landscaping: *15 acres.*

"RECREATION PARK

"F. Open meadow area: *30 acres.*

"G. Natural areas, trails, lake or water course: *45 acres;* parking for 150.

"H. Picnic and barbecue areas for families and groups: *30 acres;* parking for 300.

"I. Day and weekend camping for families and groups: *30 acres;* parking for 300 cars.

"J. Golf courses—one 18-hole course for 20,000 population, plus one 18-hole course for 30,000 thereafter: *640 acres;* parking for 1600 cars.

"K. Children's wonderland—combined with children's zoo: *5 acres;* parking for 100 cars.

"L. Play area for preschool children and apparatus section—four of each widely separated: *3 acres.*

"M. Adaptable space for circus, carnivals, outdoor conventions: *20 acres;* parking for 600 cars.

"N. Corporation yard: *10 acres.*

"O. Landscaping: *70 acres.*

"SPORTS CENTER

"P. Stadium, swimming pool, athletic fields, courts: *50 acres;* parking for 1300 cars.

"CIVIC CENTER

Administrative offices, auditorium and exhibition hall: *30 acres;* parking for 600 cars.

"PLAZAS AND SQUARES

20 percent of commercial district.

"GREENBELTS

Strip parks and tree-lined walks connecting squares, neighborhood recreation centers, community and city-wide recreation parks, and the civic center. Tree-lined boulevards and parkways linking larger parks. Waterfront developments along ocean, bays, lakes, and rivers."

p/a views

(Continued from page 20)

fate of the times and our only outlet is safety precautions.

(a) Construction failures can be controlled by rigid inspection, good workmanship, and good materials.

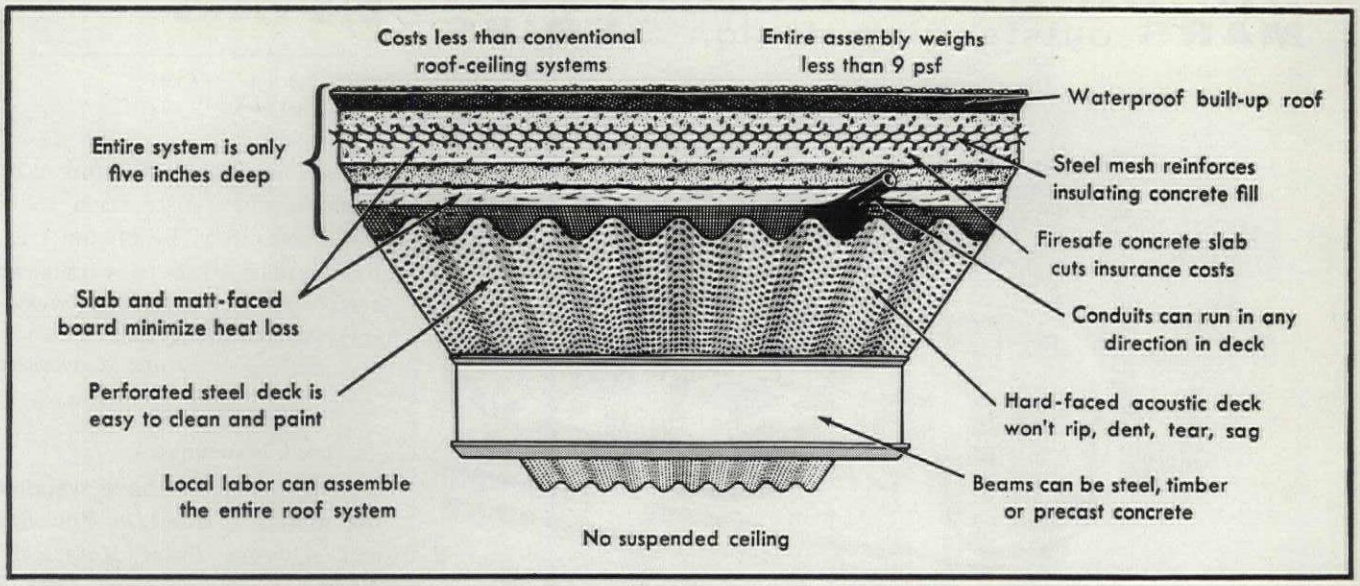
(b) Blistering—we believe can be done away with by choice of materials and proper initial application. Blisters are caused either by weathering or by expansion of trapped air and gases which accumulate during the laying of the felts.

Our company feels that Porosity and Non-Blistering are, in essence, one and the same thing. If the felt is porous enough to allow all trapped air and gas to escape during application, blisters will not form unless other moisture is within the deck. This is so because both the causes of structural blisters are absent. Weather blisters, Small has stated, are the result of natural weathering. It makes sense then, I believe, that inorganic (glass) felts are superior in weathering properties to any organic (rag) felt which may rot, decay, and finally disappear.

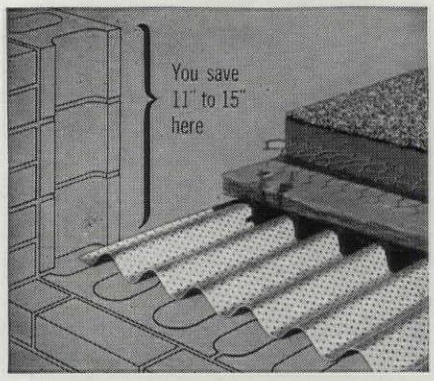
IV. Let me discuss just one more topic. It has been proved that a thick unreinforced layer of bitumen will crack quickly and often cause disastrous results. In short, too much of a good thing sometimes becomes faulty.

On the other hand, reinforced layers can withstand the elements, won't crack or run off. Thin layers of bitumen are pliable. Rag felts were used originally to reinforce the bitumens and to maintain thin layers of the bitumen, and in part they perform satisfactorily. With the development of reinforced plastics, and worldwide use of glass filaments in corrosion protection for underground piping, it was a logical step for us to develop the use of glass as a reinforcement for built-up roofing. Any bitumen is a plastic, and glass is an inexpensive reinforcing agent that is strong and pliable and inorganic. Putting them together we are offer-

(Continued on page 240)



New idea in school ceiling-roof construction



5-INCH SYSTEM. A suspended ceiling system usually requires 16″ to 20″ in depth. Only 5″ deep, the Structur-Acoustic system saves 11″ to 15″ in wall height, saves thousands of dollars in materials and labor.

GOOD ACOUSTICS. Tests conducted by Riverbank Acoustical Laboratories indicate that Structur-Acoustic system with 2½″ slab provides Noise Reduction Coefficient of .80. Clean, corrugated underside of Structur-Acoustic reflects light, can be painted to matching color scheme. Hard surface won't dent, *stays* attractive. Heat loss is kept to minimum with U factor in excess of 0.14. Firesafe system protects both building and contents, helps reduce owner insurance costs.

NEW STRUCTUR-ACOUSTIC DECK MAKES 5-INCH ROOF SYSTEM POSSIBLE

EASY TO ASSEMBLE, USES LOCAL LABOR

A *new combination* of building materials, the Structur-Acoustic roof system eliminates suspended ceilings, offers one-third more roof for your dollar than conventional school roofs with similar features. Heart of the system is Structur-Acoustic—a galvanized, corrugated, *perforated* steel sheet that weighs only 2 psf. Strong but lightweight, these high-tensile, tough-temper steel units are easy to handle and place, form a firm structural deck for the ceiling-roof assembly. Entire system can be assembled by local labor—no bulky prefabricated assemblies to ship long distances at high freight rates. For schools, one-story offices, factories, stores—wherever sound control is desirable. For more information, contact Granco home or district office, ATTN: Dept. P-711.

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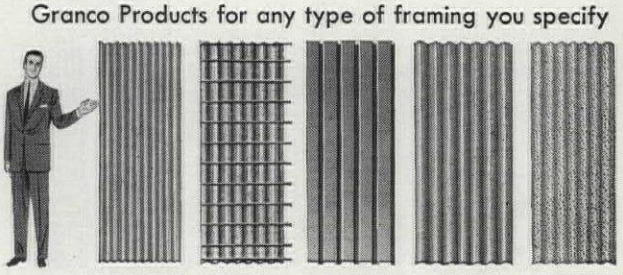

p/a views

(Continued from page 238)

ing a Glass Plastic Reinforced roof—a monolithic construction that will last indefinitely, be blister free and have great strength versus a layered, organic, relatively weak, absorptive blistering roof.

JOHN W. TAUSSIG, JR.

best insurance

Dear Editor: We have weighed all the angles (*"How Do You Specify and Approve Paint Material?" by Harold J. Rosen, April 1957 P/A*) and are of the opinion that the best insurance is to select or accept the material recommendations of large, reputable paint manufacturers. In this way, the architect can be assured of quality products — and if any difficulty should arise, resulting in unsatisfactory performance, any reliable organization would co-operate to the fullest extent to make certain a thorough analysis of the trouble is made, to enable all parties to arrive at a common agreement.

R. H. HILL
General Manager
Transportation and Industrial Maintenance Sales
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notices

new partners, associates

GEORGE R. KENNADAY, GEOFFREY W. FAIRFAX, DON E. STOVER, new associates in the firm of WURSTER, BERNARDI & EMMONS, Architects, 202 Green, San Francisco, Calif.

ROBERT KLIEGMAN, Architect, 8588 Melrose Ave., Los Angeles, Calif. and, M. TONY SHERMAN, 1101 N. E. 79 St., Miami, Fla., announce an association with consultations to be arranged at either office.

JOHN VASSOS, Industrial Designer, has announced an association with T. H. YARDLEY, Architect, Stamford, Conn.

(Continued on page 244)

It Takes Both For MORE STRENGTH & PROTECTION IN MASONRY WALLS

Blok-Joint is a cross-shaped rubber extrusion used to make control joints in masonry walls. No special blocks are required—no building paper and mortar fill is necessary. No cutting or sawing to be done. Blok-Joint is used with any standard metal window sash block.

The secure interlock provided by Blok-Joint adds to the lateral stability of the wall. It allows for contraction **and** expansion while maintaining a firm joint.

Blok-Joint is effective in single block walls, with brick and block backup and at pilasters and columns.

The big advantage you get with Blok-Mesh is the exclusive "Deep-Grip" swedging. It allows the mortar to get a real bite on the reinforcing yet requires no more area in joint than other types of superficial deforming.

Blok-Mesh is designed to eliminate cracks above lintels and below sills. It minimizes ordinary shrinkage cracks. Notice in the illustration how the "Deep-Grip" swedging of Blok-Mesh is large, deep and well-defined to form effective dovetailing.

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and literature on Carter-Waters 2-point better masonry wall design.

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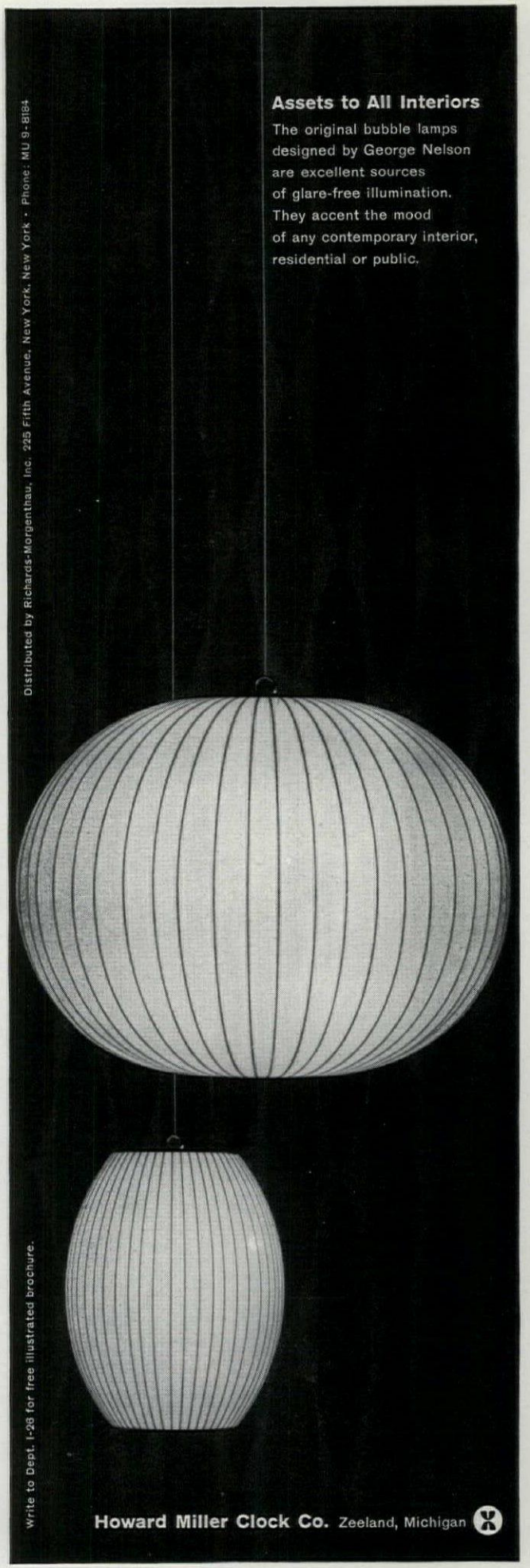

TWA TICKET OFFICE, ROCKEFELLER CENTER

Interiors with sales appeal have wall-to-wall Honeylite.

There's a big reason why two major transportation companies in one month have chosen Honeylite for their important Manhattan ticket sales offices. The reason is customers like a Honeylite atmosphere and buy! (Employees like Honeylite, too, and make fewer errors because their eyes are fresh and rested all day long.)

Why does the public like a Honeylite ceiling so much? Well, first of all, Honeylite is always spotlessly clean. Dust and dirt just fall through—can't stick to Honeylite because it's non-static. Honeylite rooms have a cool and airy feeling. Overhead air-conditioning systems are actually made more efficient by the thousands of little hexagonal "wind tunnels" in each square foot of Honeylite...(yet these unsightly utility systems are obscured). And, of course, Honeylite casts a completely glare-free flattering light—with nearly perfect efficiency.

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(Continued from page 240)

IRVING E. GERSHON, Chief Designer, HARRY J. HARMAN, Charge-of-Planning, ESTELLE BEAL, Executive Secretary, named Partners; and VICTOR J. GORLACH, new Associate of EMERY ROTH & SONS, 575 Madison Ave., New York 22, N. Y.

T. PAUL DWYER and BILL M. KITE have formed partnership at 15 W. 10 St., Kansas City, Mo. Firm will be known as DWYER & KITE, Consulting Engineers.

DAVID F. M. TODD and RICHARD W. SNIBBE, Architects, have become partners in the firm of WILLIAM F. R. BALLARD, Architect, 123 E. 77 St., New York 21, N. Y. Firm will be known as BALLARD, TODD & SNIBBE.

WILLARD D. JOHNSON, Architect, has become a partner in firm of LONERS & STROEBE. New firm name to be LONERS, STROEBE & JOHNSON, 418 North 25 St., Billings, Mont.

W. RAY MERCER, new Associate Architect with W. D. HARPER & SONS, 327 W. Palmetto St., Florence, S. C.

ASA HANAMOTO and DAVID R. MAYES are new Limited Partners of ECKBO, ROYSTON & WILLIAMS, Landscape Architects-Planning Consultants, San Francisco and Los Angeles, Calif.

MARIO CAMPIOLI, Architect, now head of Washington office of DEWITT, POOR & SHELTON, Architects, will become an Associate of ALFRED EASTON POOR, New York, N. Y.

CHARLES C. CAMPBELL, Engineer and ROBERT B. JARVIS, Architect, have been named Associates of firm of MARSHALL & BROWN, Architects-Engineers, Kansas City, Mo.

ROBERT GEORGE MUNCASTER, announces the association of NORBERT WELS PIEPER as partner. Firm name will be MUNCASTER & PIEPER, Architects, 75 Malaga Cove Plaza, Palos Verdes Estates, Calif.

notices

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EDWARD B. MOEBUS, and SAMUEL B. ROBERTS, newly elected Vice-Presidents of LOCKWOOD GREENE ENGINEERS, INC., 41 E. 42 St., New York 17, N. Y.

GEORGE A. COONEY, Special Consultant on Production in the firm of CHARLES C. ZOLLMAN & ASSOCIATES, 3605 Chapel Rd., Newtown Sq., Pa.

LOUIS E. NEWMAN, named President of A. L. SMITH IRON CO., Chelsea, Mass.

S. J. MCCARTHY, recently elected Vice-President of CLAD-REX CORP., Denver, Colo.

JOHN FEDICK, new Advertising Manager of CALDWELL MANUFACTURING CO., 64 Commercial St., Rochester 14, N. Y.

JAMES W. HERRON, named General Sales Manager of H. H. ROBERTSON COMPANY, Pittsburgh, Pa. Also elected were ROBERT FINLAYSON to Product Manager for Q-Floor, and DONALD HAVLISH to Product Manager for Ventilators.

JOHN M. HEAVEY, appointed Architectural Representative in the Philadelphia Sales District, and WOODWARD J. BRUNER in the Cincinnati District for KAISER ALUMINUM & CHEMICAL SALES, INC.

F. A. LOEBACK, Manager of Architectural Sales, KAISER ALUMINUM & CHEMICAL SALES, INC., Oakland, Calif., appointed to head committee to investigate methods for distributing curtain wall data.

DONALD H. UFFINGER, named General Sales Manager, and WILLIAM E. NEWMAN, new Contract Sales Manager of KENTILE, INC. Plants located in Brooklyn, N. Y., Chicago, Ill., South Plainfield, N. J.

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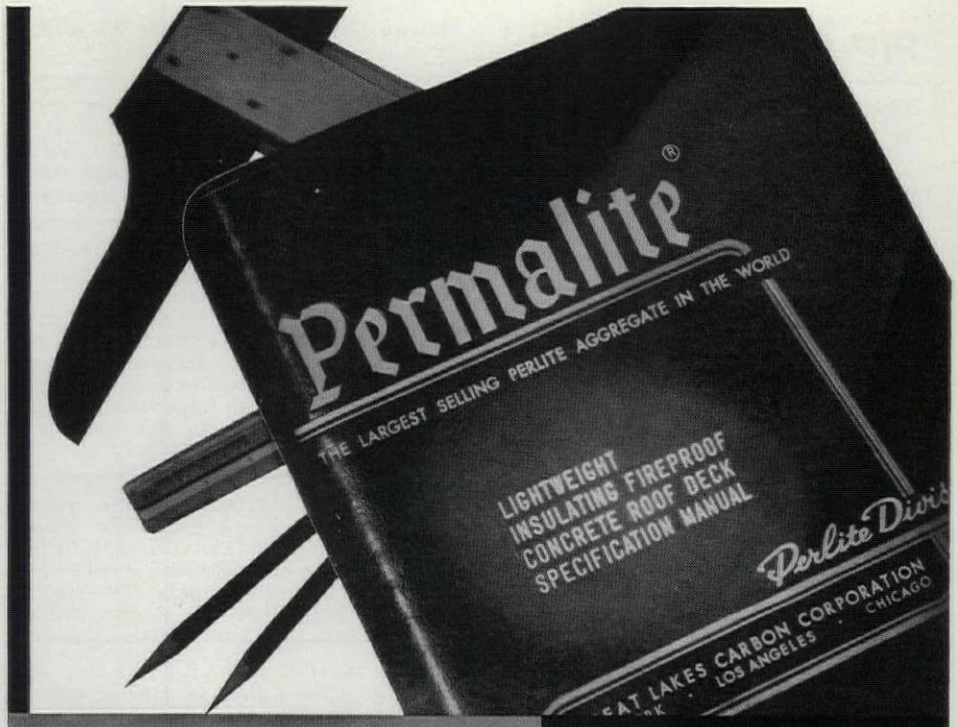

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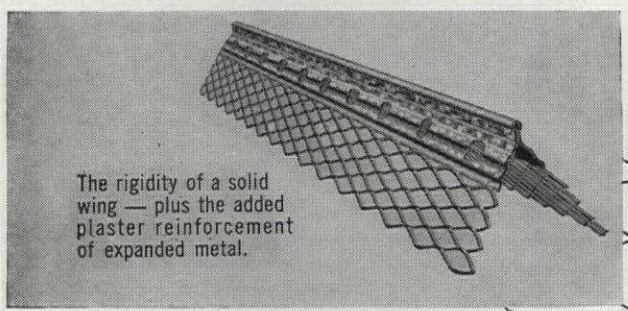

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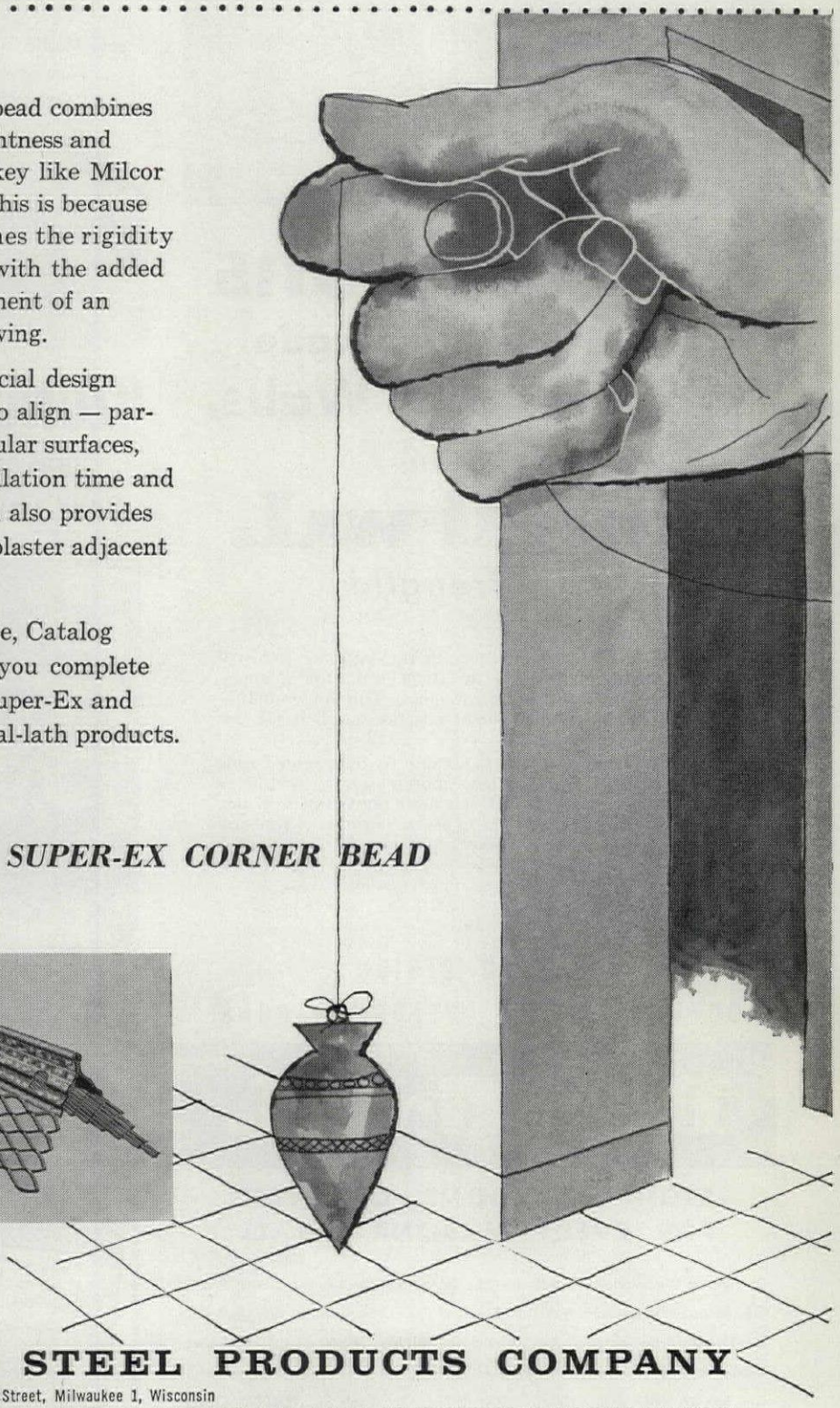

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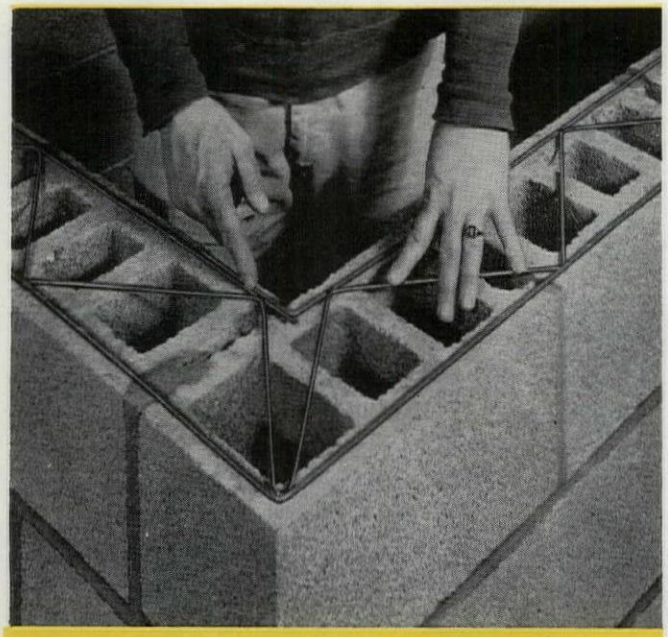

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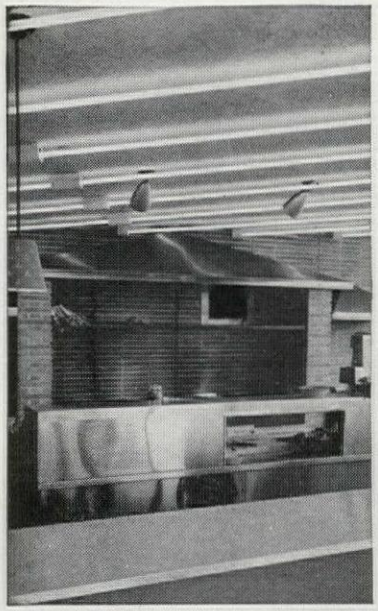

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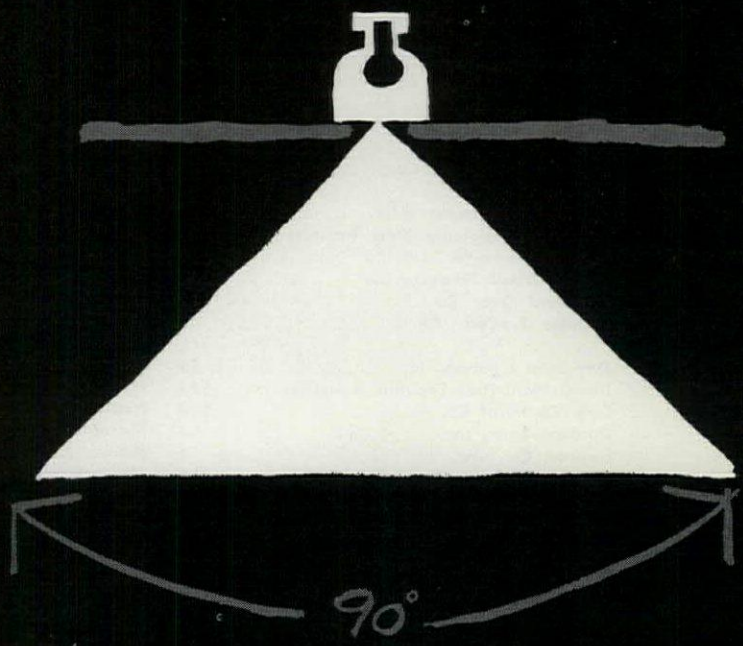

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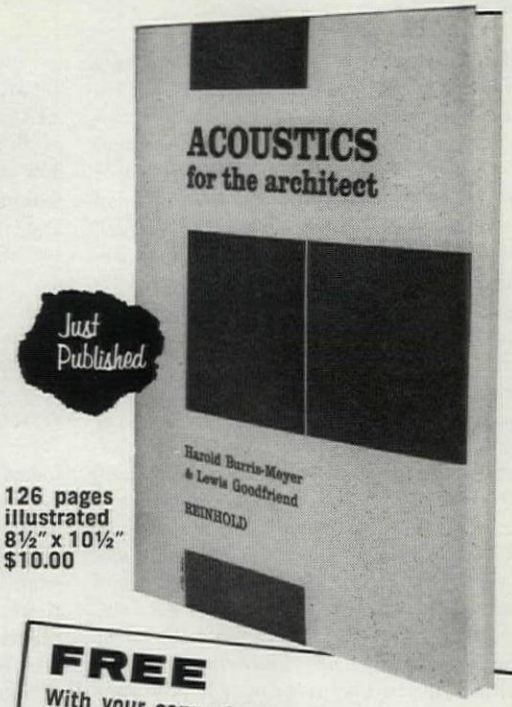

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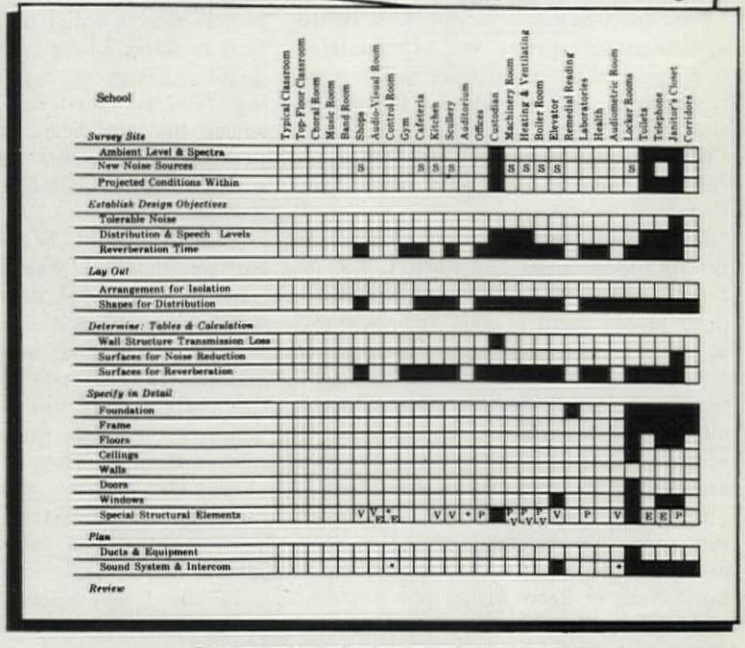

CONTENTS

1. The Problem; 2. What Sound Is and How It Behaves; 3. Structure; 4. Materials; 5. Shapes and Surfaces; 6. Electronic Devices; 7. Surveys, Computations, and Tests; 8. Acoustical Design Procedure.

THE AUTHORS:

HAROLD BURRIS-MEYER, a pioneer in applied psychoacoustics, is a consultant on Acoustics in Washington. He was formerly Professor and Director of Research in Sound at Stevens Institute of Technology. He developed *Synthea*, a device for controlling acoustical conditions on the concert and opera stage, conducted the first definitive studies of music in industry, and developed the first complete control of sound in the theatre.

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P.S.

what is paid advertising?

The Editors of P/A believe strongly in the need for maintaining ethical professional standards in the practice of architecture. The *Standards of Professional Practice* of AIA have been a useful guide in this area, pointing the difficult road between unrestricted, competitive business practices and an unrealistic withdrawal from the commercial world in which architecture must be practiced. However, the understanding of ethical practice has apparently been confused rather than clarified by several recent rulings by the Board of AIA. Last year we pointed to the widening of the generally accepted restriction against paid advertising by the ruling prohibiting pictures of the architect (but not names or illustrations of his work) in advertising paid for by others. Now the definition of paid advertising has been further extended by a recent resolution adopted by the Board at its pre-Convention meeting. Although you may have seen it published in a recent MEMO, we repeat it here for your information:

"Whereas, the existing Mandatory Rule of the Institute prohibits the use by an architect of paid advertising and
"Whereas, the indiscriminate distribution of brochures, reprints, etc. is considered to be paid direct advertising and as such is damaging to the status of the profession, and
"Whereas, there is need for more accurately defining such paid advertising, therefore, be it
"RESOLVED that paid advertising, as referred to in Rule 12 of Part II, *Mandatory Standards* AIA Document 330, is defined as any form of paid announcement or printed material in the public press or circulated indiscriminately by an architect to the public or a segment thereof, intended to aid directly or indirectly in securing actual commissions for that architect, with the following exceptions:
"Brochures containing factual information concerning an architect's work; reprints made at the architect's expense, or in his behalf, of items in the public press; and announcements, reports, analyses, and descriptive data relating to an architect's work shall not be considered to be paid advertising, provided their direct distribution by the architect is limited to persons with whom the architect has had previous professional or personal contact."

The underlining is AIA's. The Board adopted this resolution as a result of a report from a Special Committee on Fees, Advertising and Solicitation, composed of the following members: Secretary Edward L. Wilson, chairman; 2nd Vice-President Philip Will, Jr.; Kenneth E. Wischmeyer; Allan H. Neal; Nelson Smith.

Since reading this report, I have talked about it to perhaps a dozen respected AIA members—several of them Fellows of the Institute. Almost all of them are now disobeying the new interpretation by making reprints of published material and/or brochures describing the work of the office, available to others than "previous professional or personal" contacts—and all those who are, say they intend to continue. Among those I have talked to —those who do and those who don't—only one felt that the new ruling was reasonable, and he said frankly that he "resented the fact that he had no published work to distribute." His is not an ethical objection; it is competitive business jealousy.

It might be well at this point to re-examine the *reasons* for ethical injunctions. These are well stated in the AIA report, *The Architect at Mid Century:* "As long as the relationship between individual practitioners (in any profession) remains at the level of ruthless unbridled competition, low quality tends to drive out high, and unsuspecting clients discover too late the penalties of cut-rate service . . . codes of professional behaviour, far from being idle pretenses, become fundamental aids to social utility." The architects to whom I have talked are not "low-quality" designers, nor are they providing "cut-rate services." Yet *they* are among the ones being restricted by this new ruling. Something seems to have gone wrong in implementation of the original purpose.

Next, it might be well to examine whether codes of ethical practice (with constantly extended definitions) are not sometimes used by the less competent to restrict activities of the more competent, and by the well established to restrain the newly arrived professionals. For example, is the young, talented practitioner, now restrained from distributing brochures and reprints, given a fair advantage against the larger firms, ethically permitted to retain permanent public relations counsel?

Finally, I very much fear that this will be an injunction as unenforceable as was the prohibition of liquor—so difficult to interpret that a latter-day Solomon will be needed on the Judiciary Committee. For example, after reading the phraseology in the resolution, how would *you* answer the following questions:

1. Does "indiscriminate distribution" (which is now forbidden) mean simply distribution to those with whom one has not had "previous professional or personal contact," or is there some other shade of meaning? Would handing reprints of a published school or a brochure containing "factual information" to members of a new school board be "indiscriminate"? If not—if this is allowed—where does the break-point come between discriminate and indiscriminate?

2. What is the meaning of "paid" announcements and printed material? All announcements and printed material are paid for by someone. Does this restriction apply only when the *architect* pays? If so, is it then ethical to have reprints distributed when they are paid for by a manufacturer? If a magazine distributes reprints, is this ethical?

3. Who is to determine whether distribution of printed material is "intended to aid directly or indirectly in securing actual commissions"? Is there an area in which one can assume an *educational* purpose in such distribution (many architects claim this, very sincerely); or simply professional pride? Or is it to be assumed that every time an architect sends out reprints of published work, he is doing it to secure "actual commissions." Who can read the architect's mind in this respect?

4. Many architects send out press releases (literature distributed by AIA itself explains how to prepare an effective release). Press releases are paid for, as are reprints and brochures. Going to newspapers, they reach the public indiscriminately. They are certainly (see last paragraph in the resolution) in the category of "announcements, reports, analyses, and descriptive data relating to an architect's work" which are not "limited to persons with whom the architect has had previous professional or personal contact." Presumably these are now considered unethical?

5. If an architect has an *article* published (not a description of a building, but a statement on philosophy, practice, or technics) and distributes reprints, is that unethical? If an effective speech is made, and copies are distributed, is that prohibited? These cases would seem to come under the category of "paid announcement or printed material." Or is it simply reprints of *building design* that are considered likely to result in "actual commissions"?

I assure you that I am not trying to quibble in raising these questions. Those of us on the magazine staffs are going to be asked many like them (as advertisers ask our advice about the use of architects' credits in advertising, even though we direct them to AIA for answers). And more important, many sincerely puzzled architects are going to want to know what is now ethical public relations and what will be considered to fall within this greatly broadened definition of "paid advertising."

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