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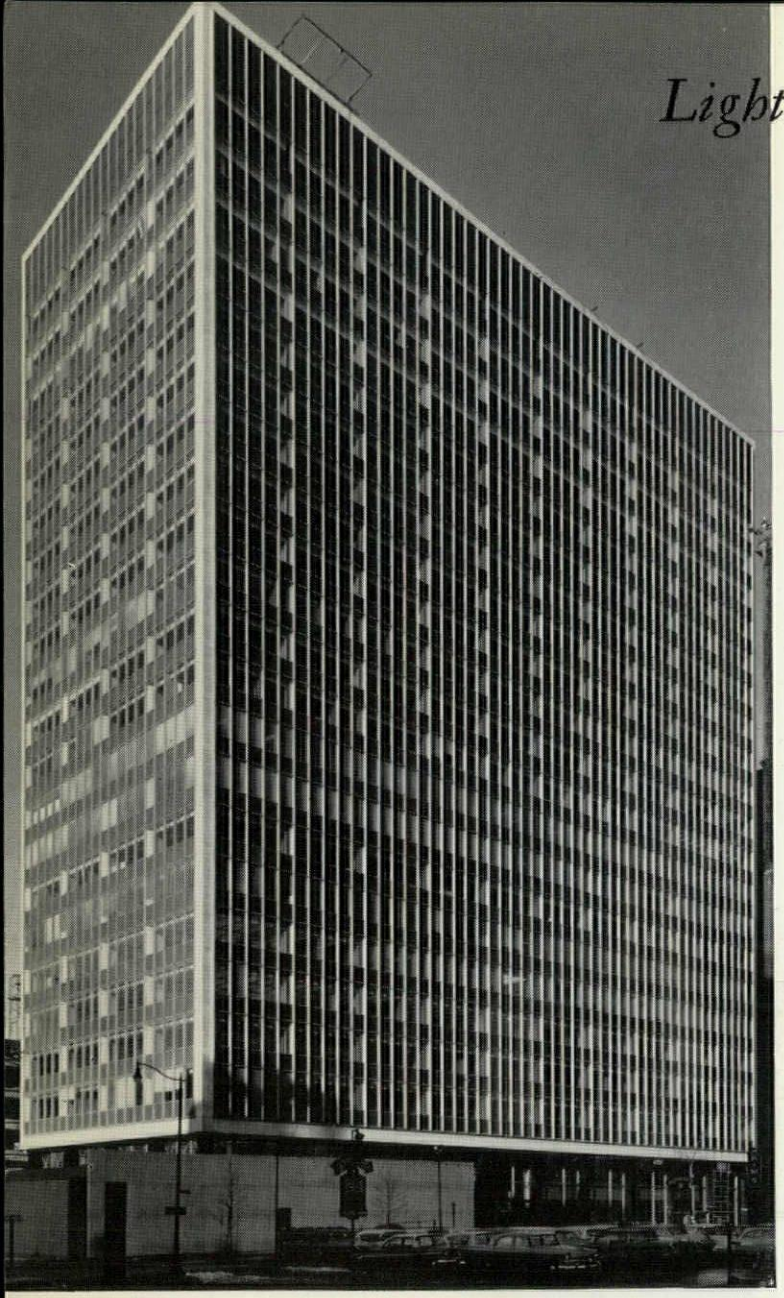

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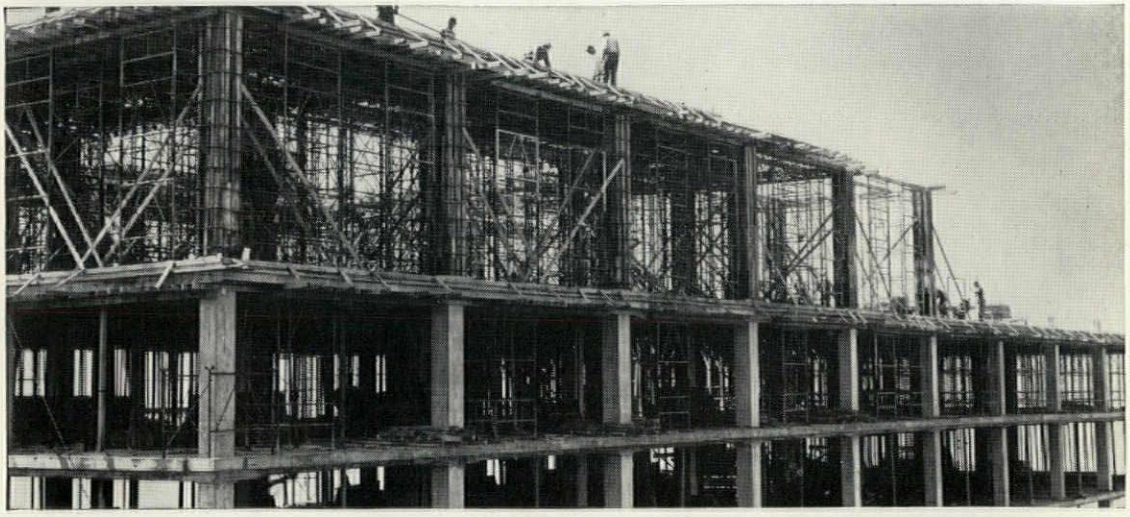

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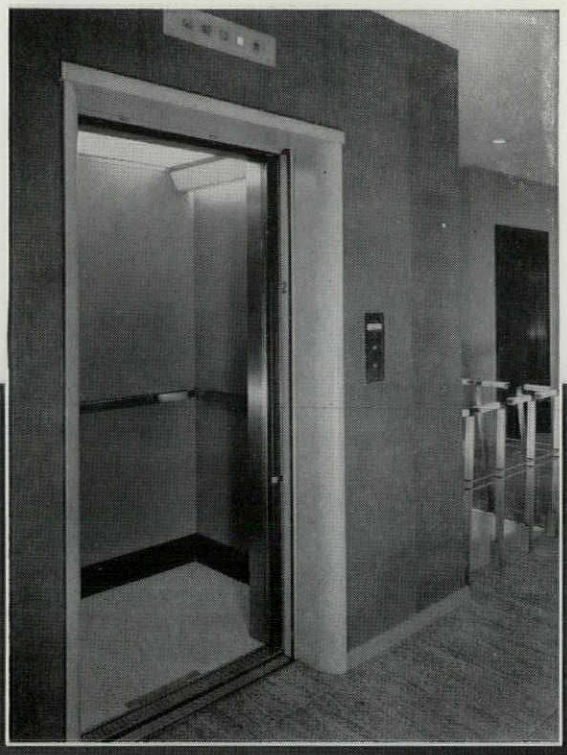

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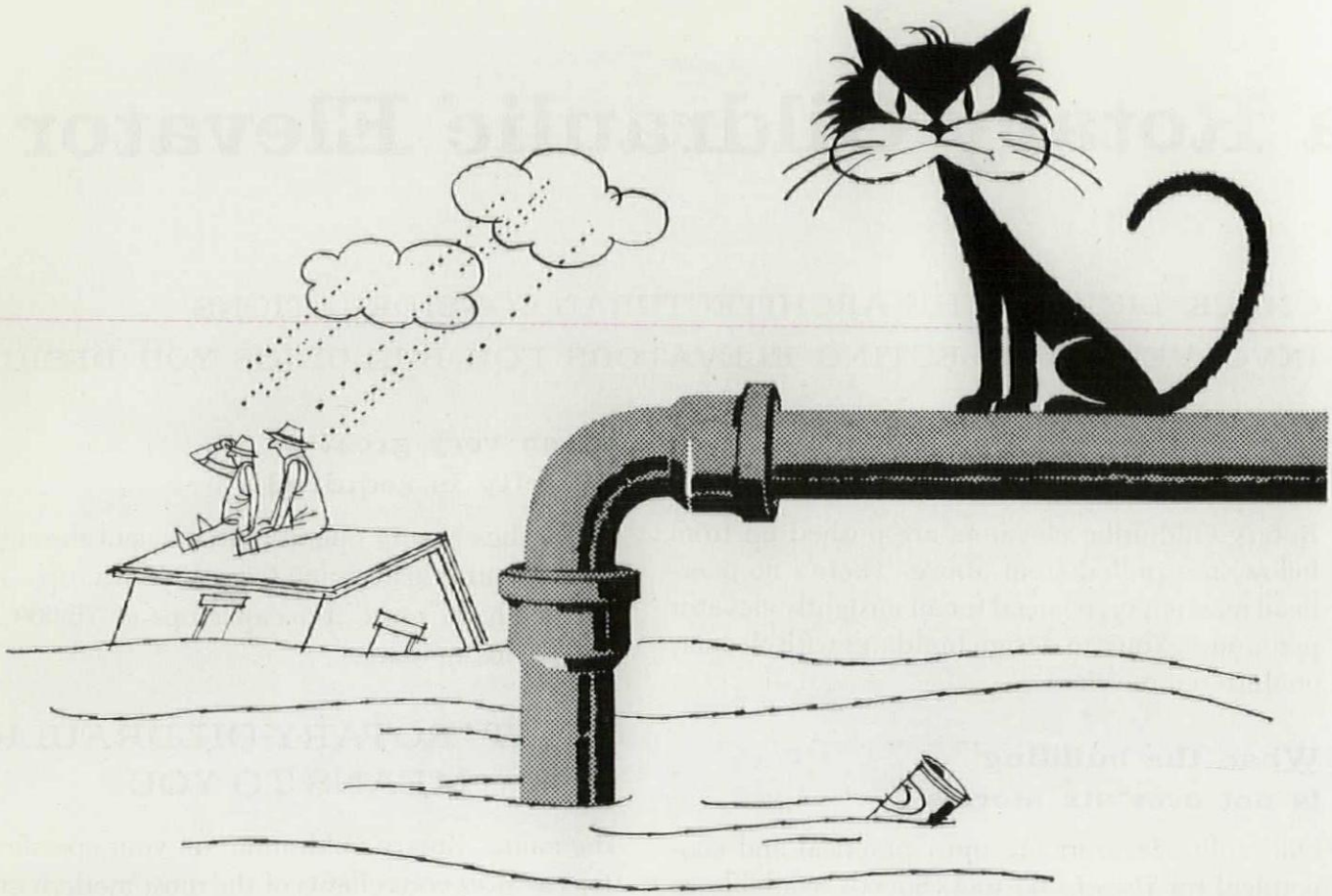

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PROGRESSIVE ARCHITECTURE

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Volume XXXIX, No. 4

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It's the Law by Bernard Tomson

Recently I was fortunate in participating in two highly successful programs conducted in states as far apart as New Jersey and California. Though as far apart in content as they were geographically, they had in common the fact that they were progressive, constructive, and forward looking.

The California meeting was a Seminar Day entitled "Operation Retread" conducted by Southern California Chapter, AIA, at University of Southern California. This was an impressively serious day devoted to re-examination of both technical and business aspects of architecture, not in the often casual manner of an evening after-dinner meeting, but in a high-level, day-long *Seminar*.

At this meeting, Julian E. Garnsey, color expert of Princeton, New Jersey, spoke on fundamentals of color selection; Robert B. Newman, of the firm of Bolt, Baranek & Newman, Boston, Massachusetts, analyzed forms in architecture resulting from acoustic studies; Jesse W. Tapp, Chairman of the Board, Bank of America, discussed aspects of construction financing; and I was asked to speak on architectural, engineering, and construction law—to an extent and at a depth greater than I usually have that opportunity except in classroom lectures. This seemed to me a serious-minded and worthwhile program for practicing architects.

The other meeting, I felt, was equally constructive, though for a different reason—the fact that another profession was brought together with architects for joint discussion. The Architects League of Northern New Jersey held a dinner meeting, at which I was asked to speak, jointly with the Bergen and Passaic County Bar Associations. I will permit an editorial from *Jersey Architect* to speak of that meeting:

"Last month, the Architects League of Northern New Jersey sponsored an experiment which too few professional organizations have undertaken in the past. The League invited members of another professional group to join its members at a meeting for their joint enlightenment and benefit.

"The occasion was a talk given by Bernard Tomson, a recognized authority on construction contracts and architectural law.

"Mr. Tomson, who has been speaking before architects and lawyers for years, said this was the first time he had ever addressed an audience comprising members of both professions.

"Mr. Tomson's advocacy of more inter-professional co-operation was supported by Paul T. Huckin, president of the Bergen County Bar Association, and Albert H. Kreamer, president-elect of the Passaic County Bar Association, both of whom were guests at the meeting.

"The unusual joint meeting came about in this fashion: After Mr. Tomson accepted an invitation to address a meeting of the League, the members decided his talk might be of interest to members of the legal profession in the Northern New Jersey area.

"A committee formed to investigate this possibility contacted officers of the bar associations to find out if they thought their members wanted to hear Mr. Tomson speak.

"The officers of the bar association co-operated by providing the League with their member mailing lists.

"The response ot the invitations was gratifying. More than 100 architects and attorneys attended the dinner-meeting at the Hackensack Golf Club.

"At the conclusion of the meeting, lawyers and architects agreed it had been a most worthwhile session.

"Why? Because they all learned something about architectural law and—more important—because they learned something about each other. As Mr. Tomson pointed out, architecture is a little-understood profession. The general public is not very aware of what function the architect performs. By the same token, architects are frequently unaware of how important a role the attorney can play in the preparation of construction contracts.

"There is a clannishness among professionals which makes this kind of exchange of ideas difficult. By and large, an attorney knows attorneys, a doctor knows doctors and an architect knows architects.

"Inter-professional co-operation offers an opportunity to overcome this clannishness. Furthermore, it presents the professional with an opportunity to broaden his cultural base by a better understanding of the people with whom he deals. Finally, it benefits the general public because co-operation between professionals inevitably leads to better service of the public.

"The meeting of minds and exchange of ideas that took place when the architects and attorneys dined together and heard Mr. Tomson speak was a good omen. It is hoped by many of those who attended the joint meeting that there will be other such sessions with other professional groups on topics of joint interest. It is also hoped that these other groups will in turn invite the architects to their meetings when a subject is on the agenda which would appeal to architects.

"Mr. Huckin told the group that the Bergen County Bar Association is contemplating the organization of an inter-professional council for Bergen County's doctors, lawyers, architects, engineers and other professionals.

"This is a move which should be greeted with enthusiasm by all professionals.

"This joint meeting of architects and lawyers is only a beginning, but all things must have a beginning. The trail has been blazed. The long-range value of such a move can only be measured by what will follow tomorrow."

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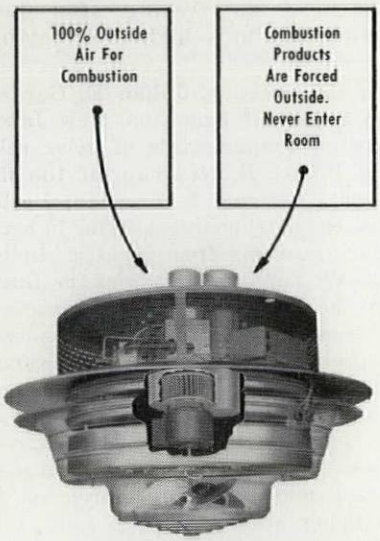

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Mechanical Engineering Critique by William J. McGuinness

P/A Office Practice *column on mechanical and electrical design and equipment, devoted this month to the effects of thermal planning on school building costs.*

School construction comprises a large part of our present building activity. The average citizen has a great interest in this kind of public building, because it directly affects the children of his community. Unlike some types of *investment* building where first cost is of primary concern, a school must show a good cost-and-operating statement over a period of 30 years, the average term of school bonds. Roofs and walls represent a large part of the total construction cost and their thermal qualities affect the cost of heating and cooling over the years.

Two architects—Wayne Farland Koppes and John Hancock Callender—have recently completed an exhaustive study of the effects of insulation on the cost and qualities of numerous roofs and walls. Owens-Corning Fiberglas Corporation, as sponsor of the research, has published a part of their report relating to seven roof types and seven wall types typical of these elements of school construction throughout the country. Koppes and Callender traveled widely to inspect schools and to interview school boards as well as school architects. They retained a panel of 14 specialists to advise them on such items as the unit costs of construction, of heating, and of cooling. The collation of their interviews and their own broad research experience lends considerable weight to the results.

Reference to the data tabulated (*right*) and the comparative graphs (*see chart following*) will provide a general concept of the work. (This data is for one of the seven roofs. Some of the other types studied were wood-deck on steel joists, wood-frame construction, steel-deck on steel joists, poured-gypsum on light-steel beams, and structural-concrete slabs.) Each of the cost graphs includes basic unit construction costs (*vertical hatching*), and financing over 30 years (*horizontal hatching*). To these have been added—for one sq ft of surface—the 30-yr unit cost of fuel to make up the heat loss (solid black); 30-yr unit cost for cooling within the months of the current school year (*dotted area*); and the 30-yr unit cost of possible cooling during the additional summer months for 12-month school use (*diagonal hatching*). EX represents the basic example of uninsulated construction; and A through E, the effects of various insulations on the same structure. The maximum saving, which is for 6 in. of insulation, is quoted (*bottom of chart*) and comparisons can be made of the relative savings in the use of insulations of other thicknesses and types. It is evident in all cases that the increase in first cost by the use of *any* insulation is well repaid in savings over the 30-yr period. The variations due to zones are of interest. Savings in heat are greatest in the cool Zone **1**, and in savings in cooling are mostly in the moderate Zone **2**. Reason why cooling has already been tried in schools in Zone **3** is found in the fact that 62% of the annual cooling degree-days are within the present school year.

Zone	Degree Days Winter	Degree Days Summer	% of Degree Days in School Year
1 Cool	9000	500	23
2 Moderate	6000	1500	40
3 Warm	3000	2500	62

Comfort and the minimizing of condensation on ceilings are matters of great importance, entirely aside from savings. In the graphs headed "Deg F Ceiling Temperature," the temperatures of ceiling surfaces are given for the several zones when the outside temperatures are: Zone **1**, —20 F; Zone **2**, zero F; and Zone **3**, 10 F. Many discussions about radiant heating and cooling have made us very conscious of the desirability of warm walls in winter and cool walls in summer. The graphs show that good insulation can effect a temperature of 74 F instead of 68 F in winter, and 76 F instead of 81 F in summer. These comparisons are with uninsulated construction. A reasonable relative humidity in schools is desirable for health. Certainly 20% is a minimum. An uninsulated ceiling in Zone **1** would not tolerate even this low humidity without condensation. A relative humidity of 40% would not be excessive and case A, which has minimum insulation, would have some condensation in Zone **1**. In the section, an arrow indicates the vapor barrier between plaster and insulation where this condensation would occur.

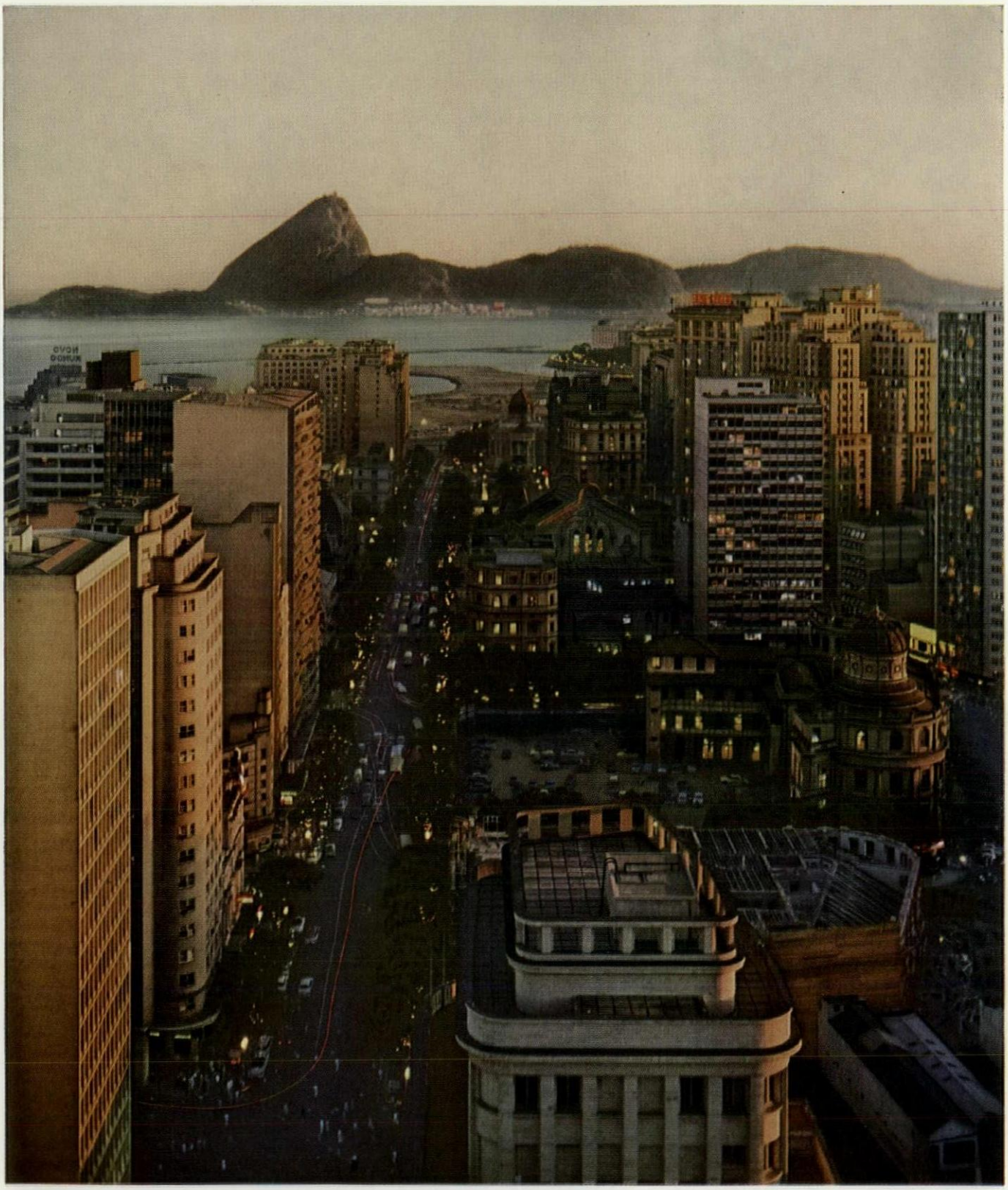
Sun effect on roofs is so much greater than upon walls that only roofs were considered in the comparison of savings in cooling expense. Walls, however, deserve special attention from another aspect. Just as roofs almost always have *some* insulation, so walls almost consistently have *none*. A number of technical difficulties have retarded the use of insulation in walls of masonry and of other fireproof materials. Even a little insulation in walls will effect great savings.

This kind of independent study by experts is fast becoming the most effective form of technical communications between manufacturer and planner. (For comparison chart, see page 11.)

Basic Data for Cost-Comfort Comparison Chart (following page)

Case	Insulation	Noise reduction coefficient, %	Cost per sq ft nat'l avg. $
EX*	none	.75	1.48
A	1½ in.	.75	1.51
B	3 in.	.90	1.59
C	2 in. (foil enclosed)	.90	1.59
D	3 in. (foil enclosed)	.90	1.62
E	6 in.	.90	1.63

*EX = Example of basic construction: steel-bar joists, poured-gypsum deck, and organic acoustical tile on wood furring; unvented air space.



RIO DE JANEIRO *is known as the "Cidade Maravilhosa" (Marvelous City). It has enhanced its natural beauty with a distinguished Brazilian style of modern architecture that has aroused world-wide admiration. It is interesting to observe how Brazil judges the quality of a building. The proud slogan "Aqui ha Otis" (Otis is here) displayed on a building is accepted as meaning that everything else in the building is also of the highest standard. This tribute to our local company ELEVADORES OTIS S. A. and our modern plant at Santo André proclaims once again that OTIS is the world's word for elevator quality.*

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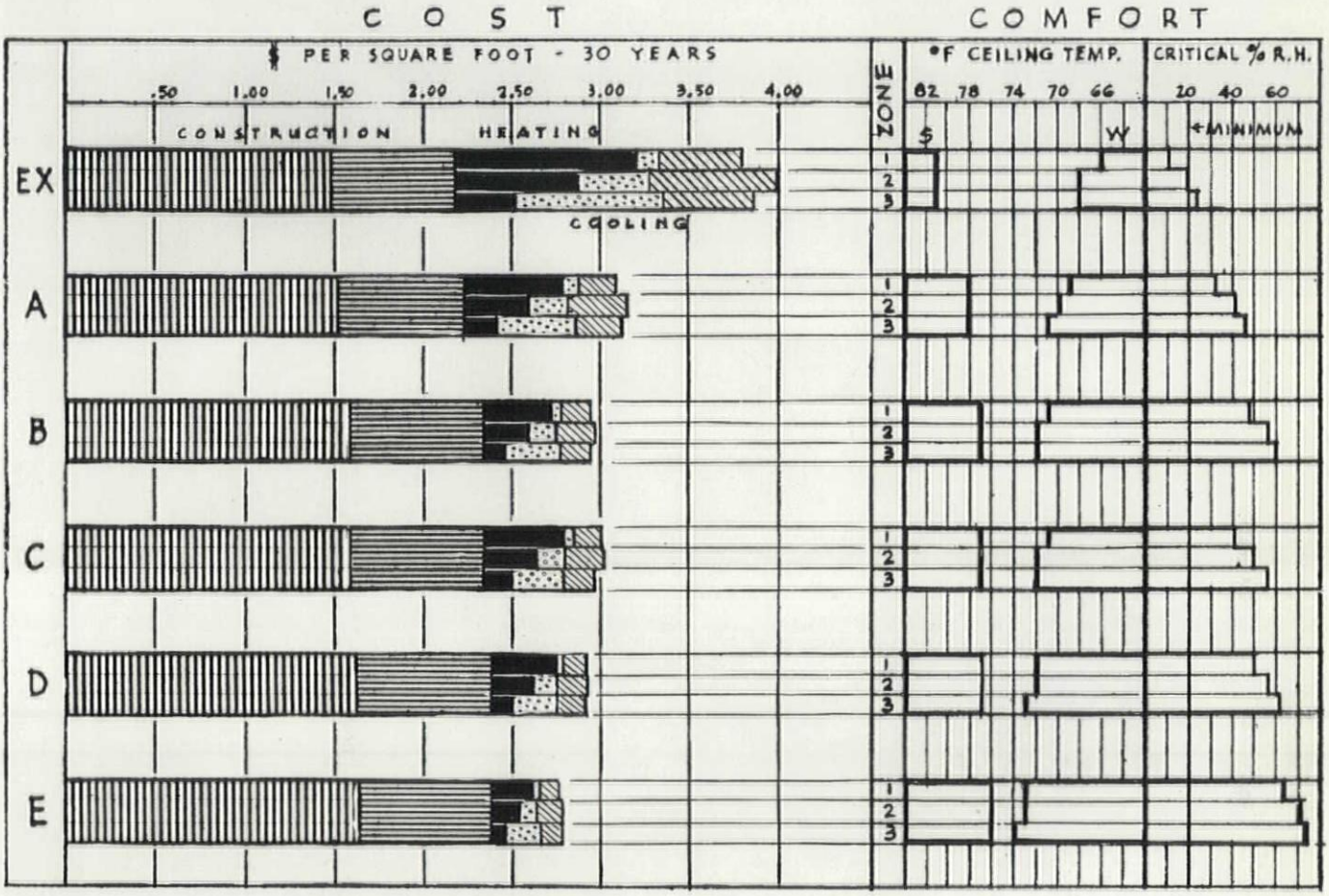
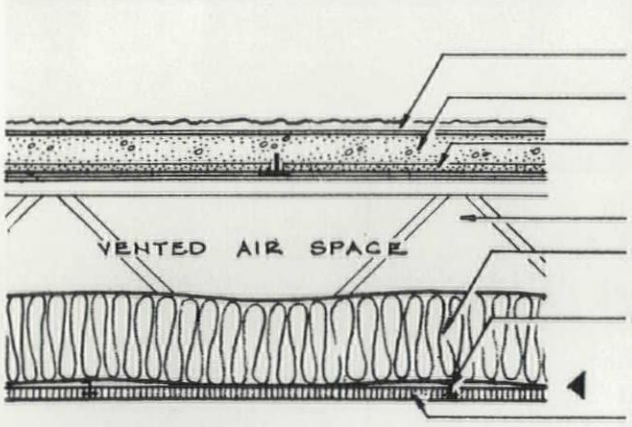
COMPARISON CHART



RECOMMENDED CONSTRUCTION

VARIATION	ZONE
E	ALL



	COST PER SQ. FT.
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2" POURED GYPSUM DECK, REINFORCED, ON 1½" x 1½" x ⅛" TEES 32⅝" O.C.	.36
½" GYPSUM FORM BOARD	.13
BAR JOISTS, SJ 145 7#, 3'-0" O.C.	.43
6" FIBERGLAS ROLL BLANKET INSULATION (2 PIECES: 1 @ 15"; 1 @ 23")	.17
¾" METAL Z SPLINES 24" O.C.	.10
¾" FIBERGLAS ACOUSTICAL TILE TXE 24" x 24" SUSPENDED	.33
COST/SQ FT - NEW YORK CITY AREA	1.80
BOECKH INDEX FACTOR	.00591
COST/SQ.FT. - NATIONAL AVERAGE	1.63

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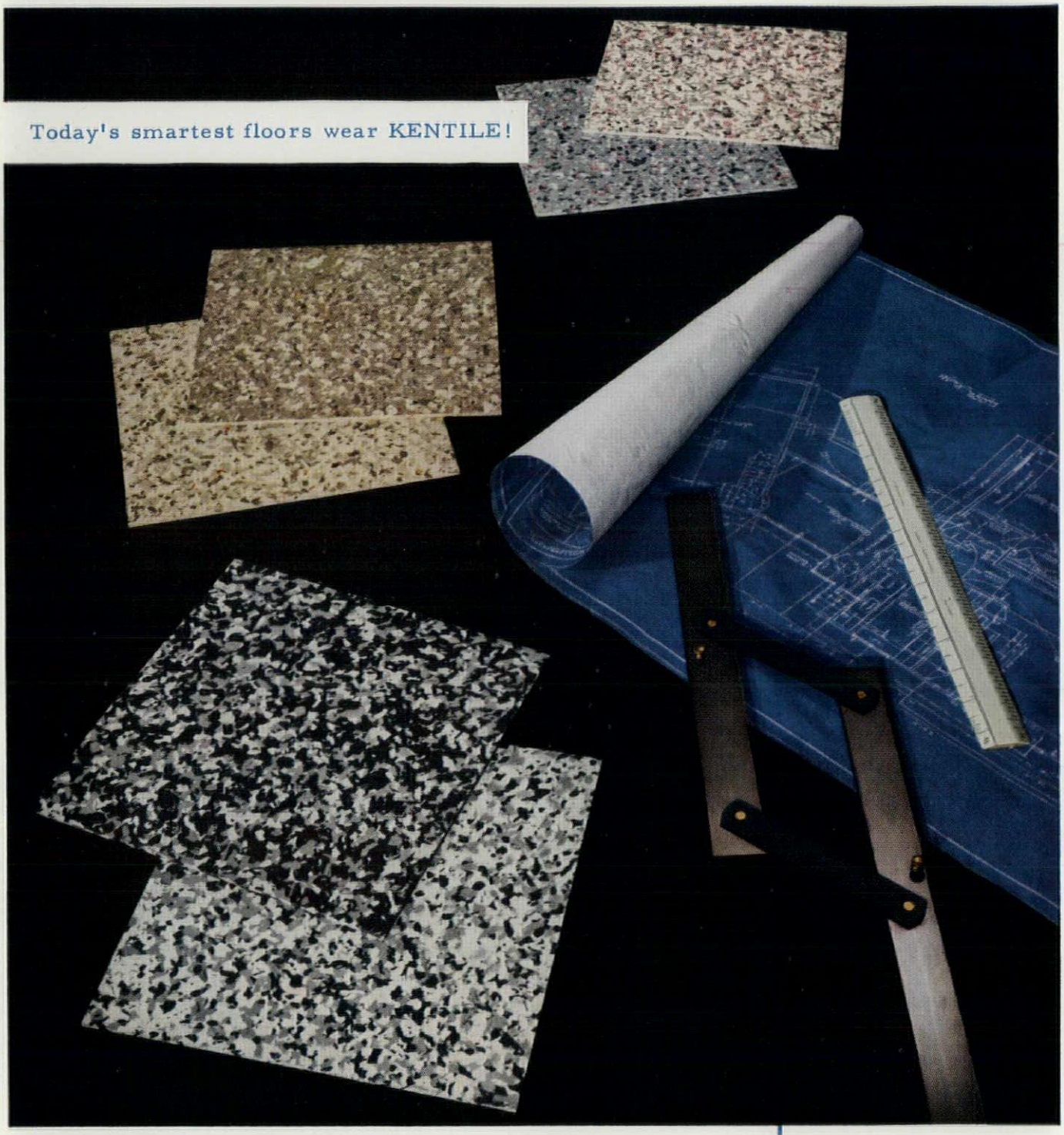

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Sandstone
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More on the "or equal" Clause

P/A Office Practice ***article continuing discussion of the "or equal" method of specifying products.***

Harold J. Rosen's SPECIFICATIONS CLINIC column in OCTOBER 1957 P/A, entitled, "Let's Omit 'or equal,'" has stirred a great deal of interest among both architectural and engineering specification writers and manufacturers of specified products. Not only have there been many "letters to the editor," commenting on Rosen's points, but in addition a number of requests for reprints of the article have been received, and the topic has become a popular agenda item for professional-society meetings. For example, the New York Chapter, CSI, has devoted one evening meeting to the subject, and the continued interest, unsatisfied by that session, has resulted in the planning of a second.

Among letters received which have not yet been published on the VIEWS page, three seem to make interesting, rather different points. One is from a manufacturer's representative in the heating and air-conditioning field, who wants his name withheld because he is "too well known among consulting engineers to get mixed up in any controversy on this subject." Discussing the "or equal" matter from the point of view of engineering specifications, he suggests an appended *list* of approved proprietary products, rather than the two or three names usually considered desirable. In certain areas of mechanical engineering, he says, only performance specifications are required, but in others there may be "good, bad, and indifferent" products.

"How many names does Mr. Rosen recommend?" he asks. "The paragraph quoted from the Building Research Institute Specification Workshop refers to 'two or more.' Mr. Rosen cites Federal Government Specifications as naming at least three manufacturers. But very often there are many more manufacturers whose products are fully the equal of the two or three Mr. Rosen might select. How do they feel about it? I can assure you they are not happy. If an engineer continues to specify the same three names on job after job, year after year, the others will finally quit calling on him and may resort to the undesirable tactic of trying to break the specification with the help of a friendly contractor. From another angle, many sales engineers not only have a superior product but are good engineers themselves and are able to pass on information of value, so if they quit calling on a specification writer both parties suffer.

"It is my conviction that specifications should be definite as to what is wanted and a list of approved manufacturers should be given to the bidding contractors. This may seem like a monumental undertaking, but actually it isn't. Architects and engineers usually have had some years of experience in which to discover the 'approved' manufacturers and all that is required is to start listing these names. These lists may be short, at first, but requests for approval from unlisted manufacturers can be acted on in a more leisurely manner than if such requests are reviewed under pressure at the time of bidding or awarding a contract. Nor does it follow that all manufacturers of a given item would eventually be included in this list. Capacity, construction, appearance and other factors enter into the picture and provide the engineer with sound reasons for withholding approval. Names do not need to be added except on request and can later be removed if the product gives trouble, which is good protection for both engineer and owner.

"For some items a 'flat' one-name specification with no 'or equal' clause is justified, such as for items covered by patents or which give a result not obtainable from others.

"Yes, by all means kick out that nuisance 'or equal' clause, but keep the specifications reasonably open to the manufacturers of sound products, not restricted to just two or three of them."

Another letter, from Herbert R. Spencer, of The Erie Enameling Company, points to the real loss in prestige the architect suffers when he resorts to the "or equal" expedient. Spencer suggests that the title of Rosen's column (which he applauds) might have been "The Architect Has Lost His Job."

"The architect wants to build as he knows it ought to be done," the letter goes on, "with materials in which he has confidence. The contractor, having bid the job at as low a price as he dares, must manage the job so as to make a reasonable profit, and will build in such a way that he will.

"A contractor can always deceive an architect, if he finds it necessary to do so. After material is in place in a building, it is often impossible to check it; for example, if ¼" glass is specified and 3/16" is used, after it is bedded in putty it is pretty hard to see the difference. Very few architects visit a job early in the morning.

"Apparently the architect is expected to know everything about everything, which is impossible.

"In Europe, the system of bidding is different. The architect specifies exactly what he wants, naming names and quoting qualities; the owner chooses half a dozen (or less) contractors, who are then invited to bid and who are paid for the preparation of their bids, each of them. The successful contractor can talk about substitute materials only after he is awarded the contract, and not before.

"This whole question is distantly related to the question which the public today is asking: 'Do I need an architect?' Or, to put it another way, has the contractor usurped the architect's function?"

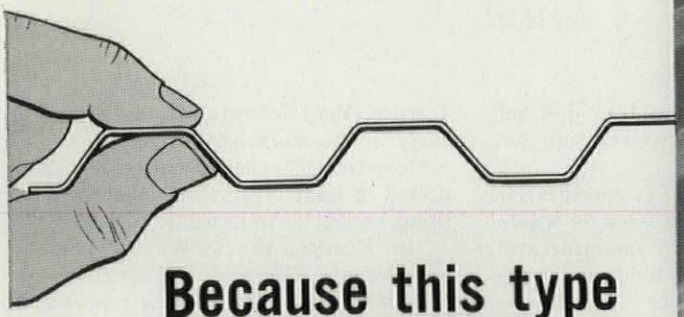
Finally, in this roundup of points of view, it is interesting to hear the official position of the United States General Accounting Office. A letter to Harold Rosen from J. E. Welch, Associate General Counsel, makes these points:

"Under laws requiring advertisement for bids and the letting of contracts to the lowest responsible bidders, there must be offered to all bidders a definite basis for competition. Hence, the specifications must define the product being procured in terms sufficiently definite to assure that every bid made in compliance therewith will be for substantially the same product.

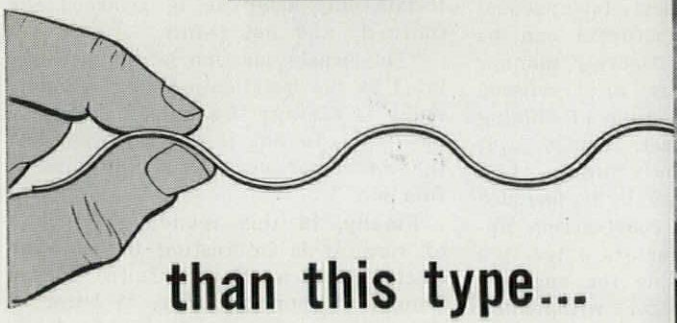
"In soliciting competitive bids the naming of a particular brand of material is justified only when an adequate specification is not available, and cannot be developed in time for use, or if the administrative expense of such development is not justified by the value of the contemplated procurement.

"The accounting officers have held that the naming of a particular brand in an advertisement for proposals to the exclusion of all others of similar or equal make or quality is not a compliance with the provisions of the formal advertising statutes. Thus, when it is necessary to name the make of a particular product, it should be followed by the qualifying phrase "or equal." See *5 Comp. Gen. 835, 10 Comp. Gen. 555, 13 Comp. Gen. 357, 33 Comp. Gen. 524.*"

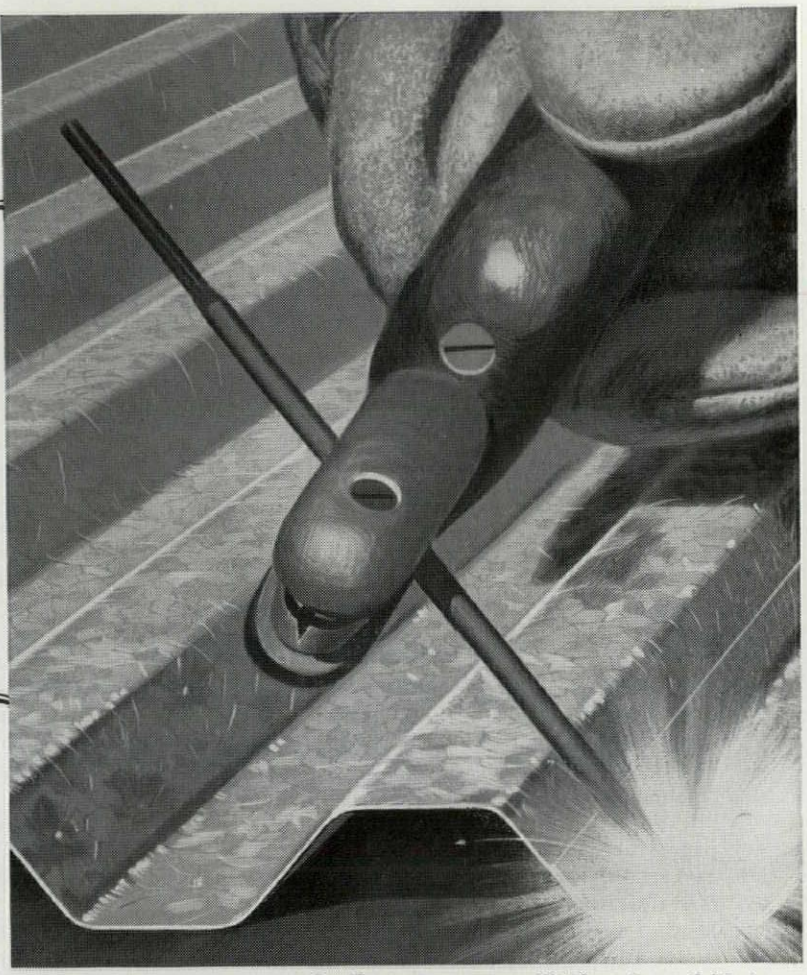
Obviously, there will be further discussion of this problem before a widely accepted answer is reached. P/A will continue, from time to time, to report developments.



Because this type of corrugation is stronger . . .



than this type...



STANDARD CORRUFORM, for floor spans up to 3½ feet, is available in

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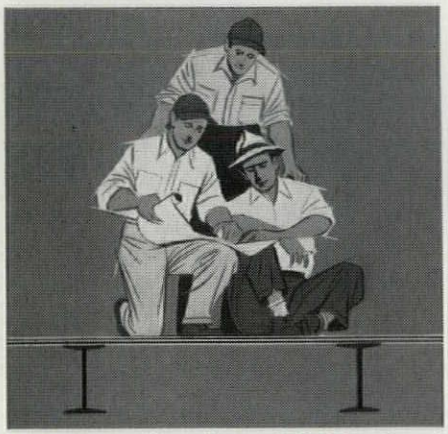
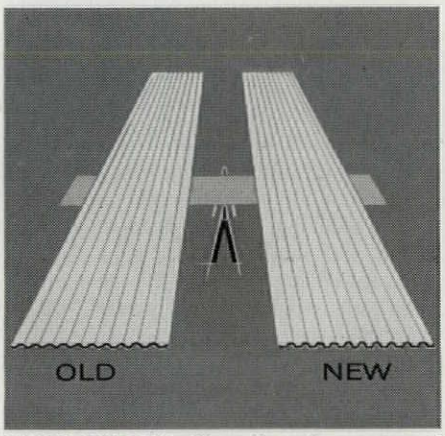
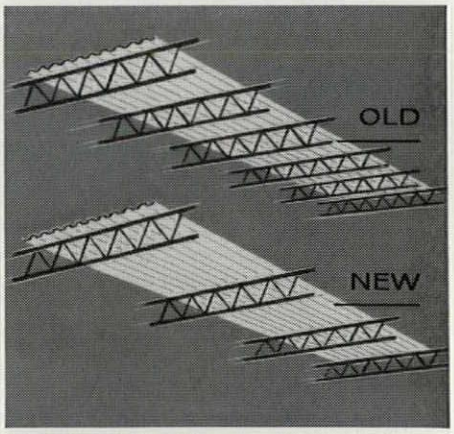
A totally new steel centering! A striking new angular pattern! Corruform looks stronger. Corruform *is* stronger! Granco has re-designed it to increase sheet strength 50 percent. *Yet, there's no increase in price!* Here's what this means to you: A stronger steel base for concrete floor slabs means safer construction . . . savings in framing and concrete . . . easier-to-finish floors . . . faster job completion. You stay on schedule! Tenants move in sooner! Today, "new pattern" Corruform is available from coast to coast. For more information, consult your nearest Granco district office, or mail the coupon at lower right.



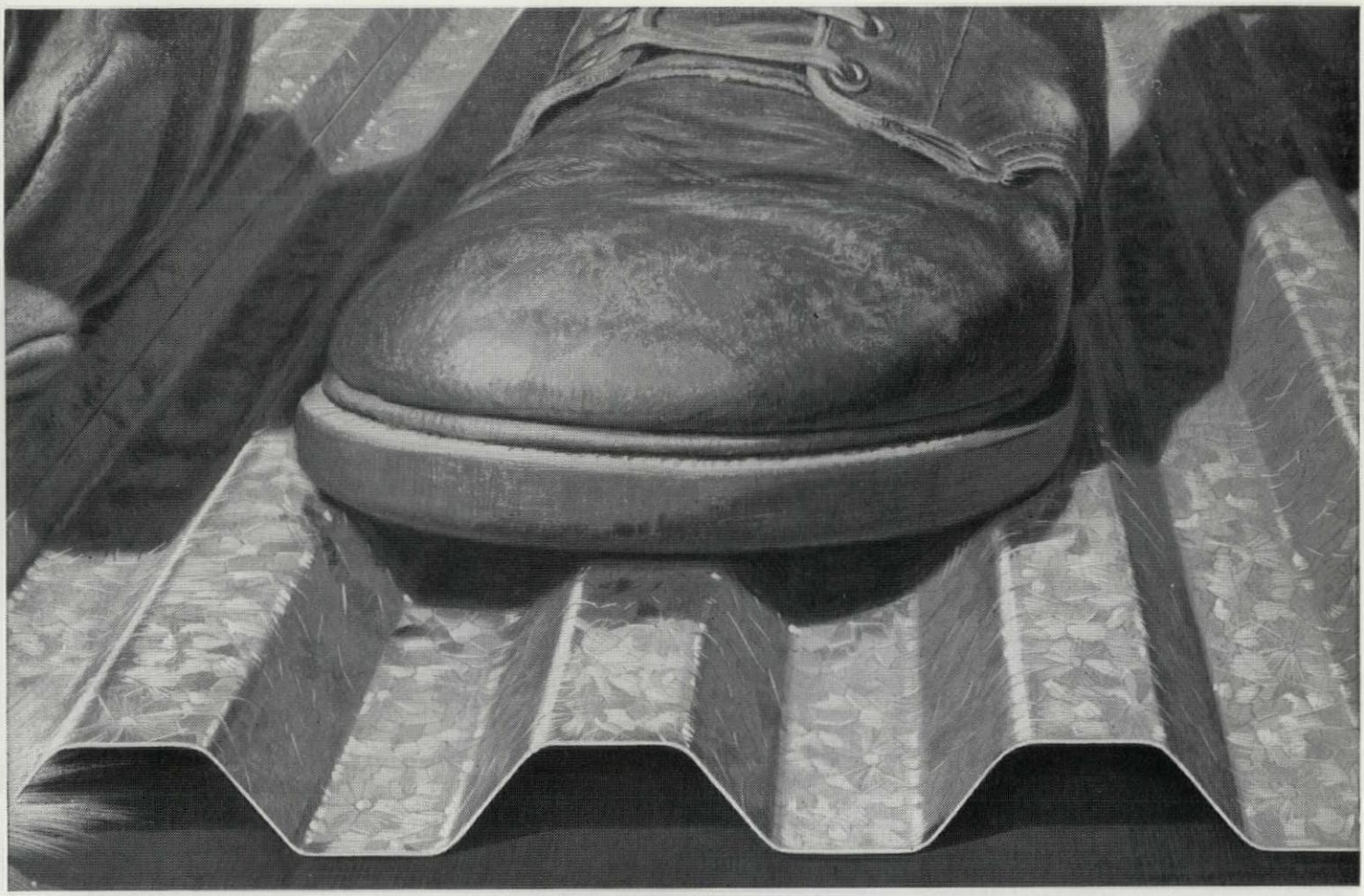
STRONGER. Corruform is 100,000-psi tough-temper steel with section modulus increased 50 percent. In place, it provides a safer work platform and a tighter solid base for concrete.



SAME WEIGHT. New Corruform strength results from *better design.* No increase in weight means no increase in price! Lightweight Corruform sheets are easy to handle.



LESS FRAMING. Stronger sheets require less support, fewer joists. Result: More economy per floor. Rigid Corruform permits slab to be cast and finished in one easy operation.



lengths up to 12 feet 3 inches. For spans from 3½ feet to 5 feet, *HEAVY-DUTY CORRUFORM* is available in lengths up to 18 feet 4 inches.

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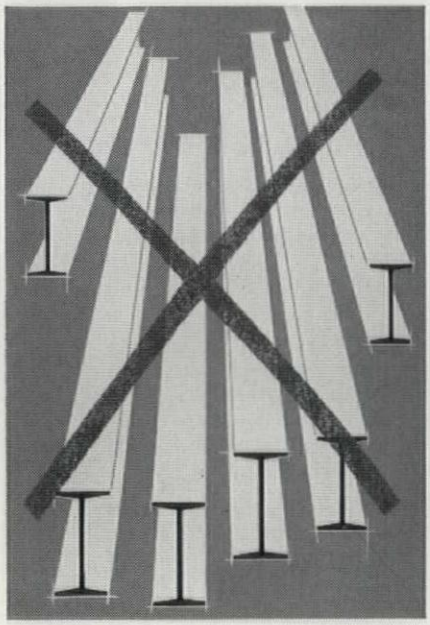
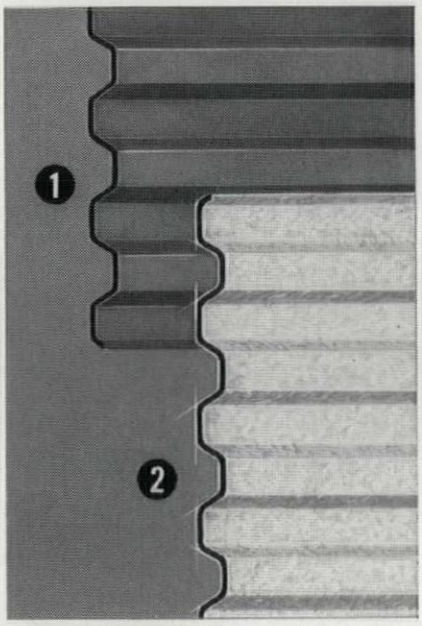


CUTS COST. Corruform reduces framing. Wide selection of gages and standard or special lengths minimize end laps. Strong rigid sheets won't sag, save concrete.



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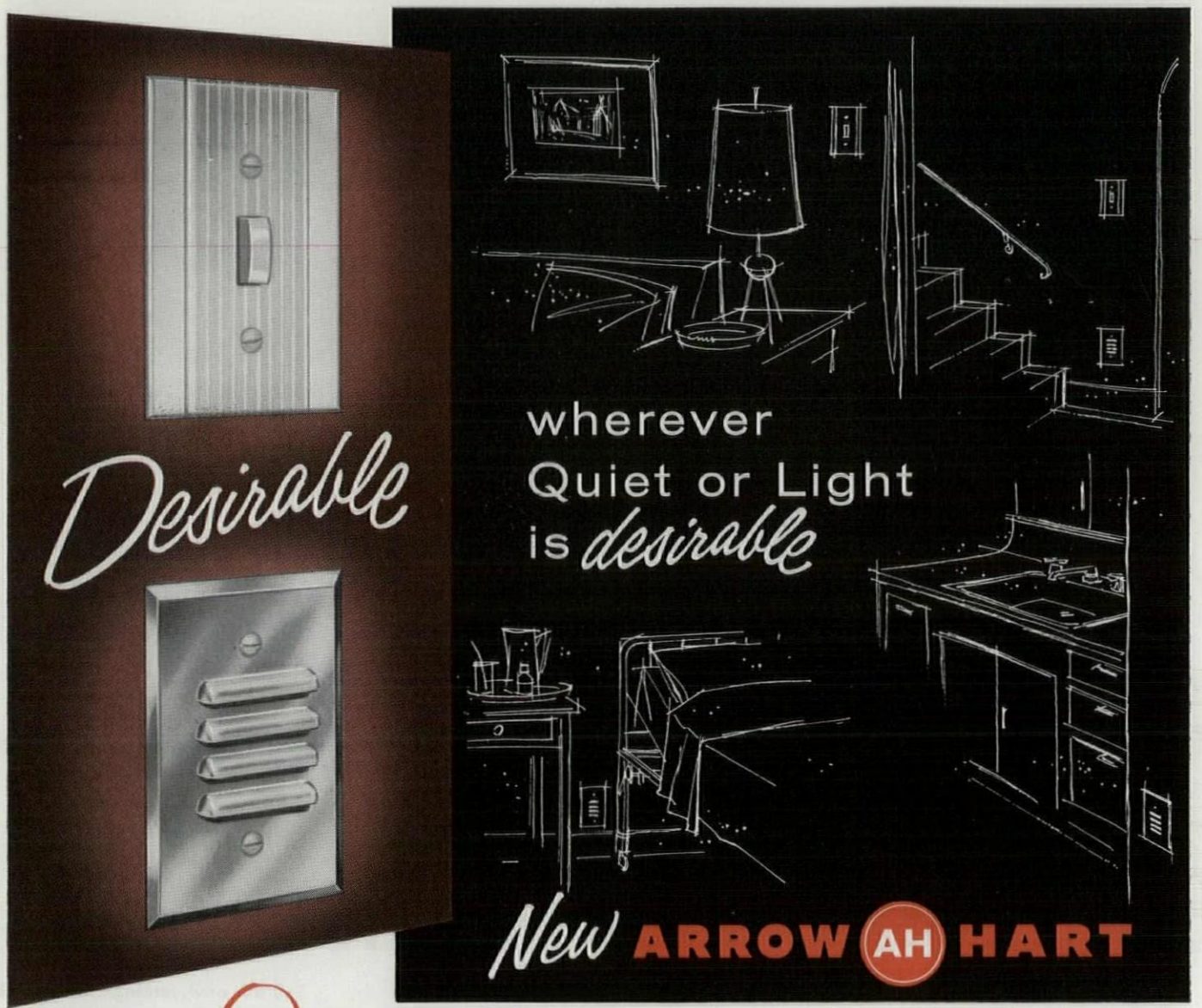

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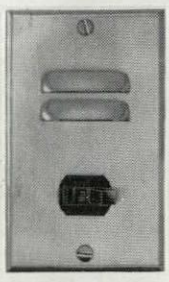

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REINHOLD

stimulus to the mind

Dear Editor: I have very carefully read NOVEMBER 1957 P/A, concerning the subject of MODULAR ASSEMBLY. To say the least, I was more than pleased with not only the content, but also the approach to the subject.

I have been a long-term subscriber to your magazine, and I find it to be one of the most informative in the architectural profession. Your approach to the subject of MODULAR ASSEMBLY has certainly maintained your lead.

Magazines such as PROGRESSIVE ARCHITECTURE have a real responsibility to the architectural profession, not only from the standpoint of current information, but as a stimulus to the architectural mind. This, I believe to be the true value of communication.

H. H. CHARLES, Director
Architectural Research & Development
Reynolds Metals Company
Louisville, Ky.

no stock sizes

Dear Editor: We all appreciated and enjoyed your handsome article describing our Tecfab factory (NOVEMBER 1957 P/A). Two points regarding our panel, however, should be made clear. There are no stock size panels—we let the architect choose his own module. The other point is that our panel is dense faced on the exterior with exposed aggregate or tile or just plain hard concrete.

TECFAB, INC.
Beltsville, Md.

using modular system

Dear Editor: I have had occasion to leaf through your NOVEMBER 1957 P/A, devoted to Modular Draughting and Design. I had no time to study the issue in detail, but I was struck by the scope and detail treatment of the subject. Our office has started to use the modular system in its latest jobs. We have already turned out one job, a motel, using the modular system of draughting. We do, however, from time to time run into problems, due to our inexperience in using the modular system.

It seems to me that your NOVEMBER 1957 P/A is the best piece of literature on the subject of modular draughting and design that I have ever come across.

CHARLES KLEMENT
Fabbro & Townend, Architects
Sudbury, Ontario, Canada

designers explain

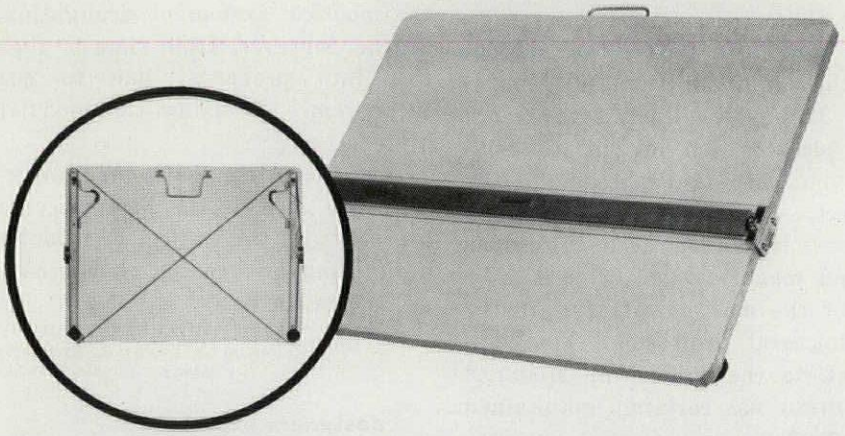
Dear Editor: In your P.S. (NOVEMBER 1957 P/A) there appeared a series of questions which we, as consulting industrial designers, viewed with great satisfaction. It may be said that we certainly can't answer them. However, some of our experiences may be worthwhile to relate in pointing out the necessity for the asking *and* the answering of those questions. For instance, "What sort of design talent does—or should—the producer use. . . ." Part of an answer here appears to be: Who feels himself qualified to convince the manufacturer of his capability with the assignment? An answer to that is: almost anyone who, with some sort of credible design background, displays an attitude to perform an arbitrary or highly compromised function within stringent cost restrictions. It is not felt that many manufacturers categorize their design needs so that a particular specialty may be given the opportunity to fulfill those needs optimally.

As to "What are the criteria that are used in design . . . ," a notable exception in your article's answers is *the maximum economic advantage.* We feel that in *any* true product design, this consideration is at the threshold of accomplishment.

Further on, a reference is made to the producer's determining esthetic-functional co-ordination. Our re-

(Continued on page 18)

DRAFTING TRENDS



This is the new, portable Paraltilt Drawing Unit for engineers and draftsmen. It is especially suitable for field use and for "after hours" projects at home.

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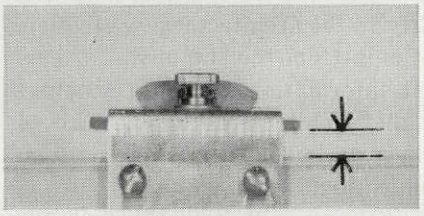

Full 1/4 inch clearance eliminates smearing and permits drawing on cardboard and metal.

With a Paraltilt Drawing Unit there is complete action over the whole drawing area—the user has finger-tip control of this well crafted drawing unit. The Paraltilt is available in a wide variety of sizes.

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For further information on Paraltilt write Frederick Post Company, 3642 N. Avondale Ave., Chicago 18, Ill.

Time saving tips WANTED!

POST periodically publishes a handbook of timesaving methods and ideas of engineers and draftsmen. This "Time Saving Tips" booklet is distributed free of charge to all companies and individuals who request it. We would like to enlist your help in compiling material for an entirely new edition now being planned for future publication. Our current book has four sections: *Drafting Shortcuts, Engineering Data Tips, Board Timesavers,* and *Calculating Ideas.* If you have a "pet" method of shortcut, we would certainly appreciate receiving your submission.

POST

SENSITIZED PAPERS & CLOTHS • TRACING & DRAWING MEDIUMS • DRAWING INSTRUMENTS & SLIDE RULES
ENGINEERING EQUIPMENT & DRAFTING SUPPLIES • FIELD EQUIPMENT & DRAFTING FURNITURE

p/a views

(Continued from page 17)

action is that manufacturers, in or out of the architectural products field, have little comprehension of that terminology or are so conditioned to being "competitive" that they ignore what good prospects for design their own inherent abilities might suggest.

Your clinical approach outline for developing a modular partition system is as well taken for general product design as for architectural products. The inhibiting questions of ethics, etc., over the original concepts of Sanders, *et al.*, also apply. Ultimately, some prime-movers may come to the fore in several fields requiring a technique for most efficient product creation. Perhaps this kind of program is best suited for sponsorship by one of the important philanthropic organizations.

E. PAUL MEYLAN, Project Director
Industrial Design Consultants, Inc.
Los Angeles, Calif.

co-ordination needed

Dear Editor: I have been reading your P.S., "Who Designs Building Products?" (NOVEMBER 1957 P/A), with great interest, inasmuch as I have felt since a long time, that before designing buildings, architects should design, or at least contribute to the design of the component parts of buildings, just as they did in the past, when architect, builder, and craftsman were working close together as a team.

The architect's imagination and overall knowledge of building qualify him best to advise manufacturers of building materials and products, beginning with *programming* and following through all phases of product development.

This is the age of specialists. Marvelous things can be created if the work of different specialists, including specialists in creative thinking, is properly co-ordinated. In building, unfortunately, this is not the case and the many specialists

(Continued on page 20)

LOWER LIGHTING COSTS

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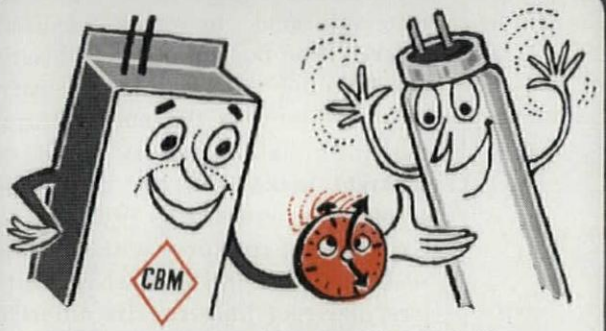

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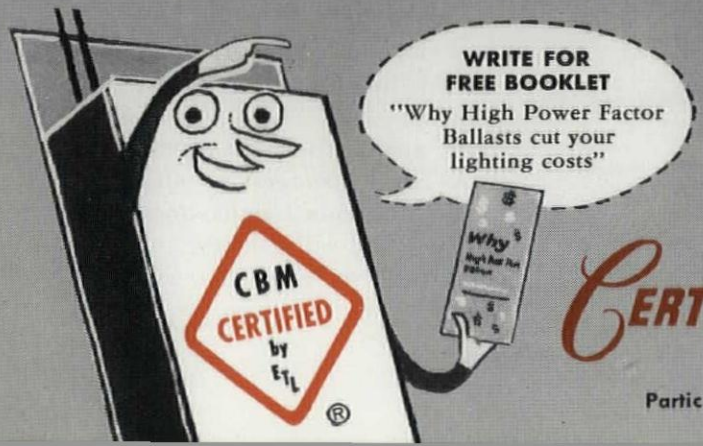

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(Continued from page 18)

involved work too often in opposite directions. Manufacturers with large research and development facilities believe generally that their organization is self-sufficient, which places their valuable specialists in a vacuum. Smaller companies, using more often outside help, remain generally in closer contact with the activities of other specialists, including architects. Both large and small companies are generally lacking imaginative advice on programming their product research, which is the real cause for the slow progress of building technology. I have seen (especially in the chemical industry) extraordinary discoveries of new materials shelved in laboratories or misused, because the specialists who discovered these materials could not possibly know enough about building and its needs, and the architect, who could have told them, knew nothing about these discoveries.

One of the most important points overlooked by manufacturers, is that the process of building is indivisible. Almost any new material or product proposed to go into a building has far-reaching repercussions on other materials made by other manufacturers. Who but an architect, seeing the building as an organic entity, can point out to the manufacturer the interrelationship of parts of different make, and the needs and obsolescence created by progress.

Example 1 Structures with concrete shell roofs in intricate shape with irregular roof lines require different wall materials from a structure of regular shape with conventional roof framing. What have manufacturers of wall materials done about it?

Example 2 In metal curtain-wall construction, the window is an integral part of the over-all design. The other day, a manufacturer of a formerly well accepted window complained to me about the lack of business. He was just discovering the existence of metal curtain walls.

During the past twelve years I worked with a few manufacturers on product programming, research, development, design, and presentation and I found this work most challenging and the results so promising that I am presently extending this consulting service to a greater number of manufacturers.

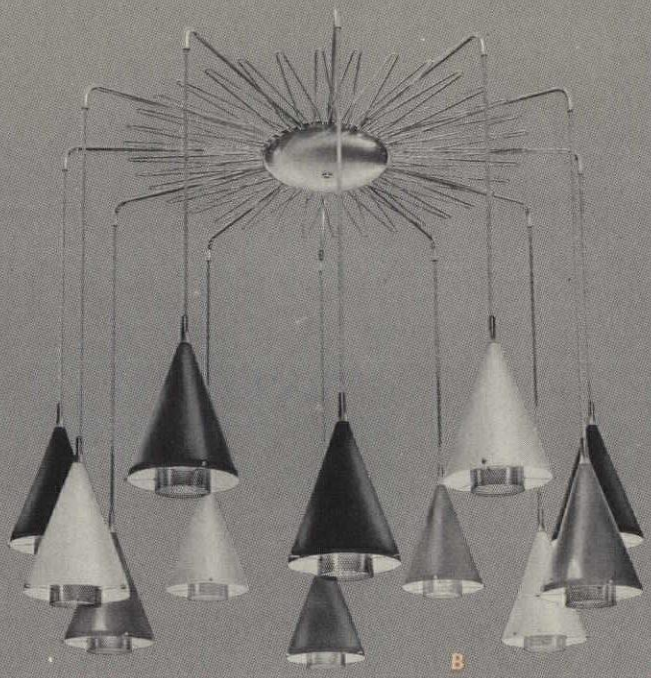
GUY G. ROTHENSTEIN
New York, N. Y.

alternative wording

Dear Editor: This is to commend Harold Rosen's article relative to omitting the "or equal" clause from specifications (OCTOBER 1957 P/A) and to suggest an alternative that our organization has found fully effective and satisfactory.

In the first place the words "or

(Continued on page 26)



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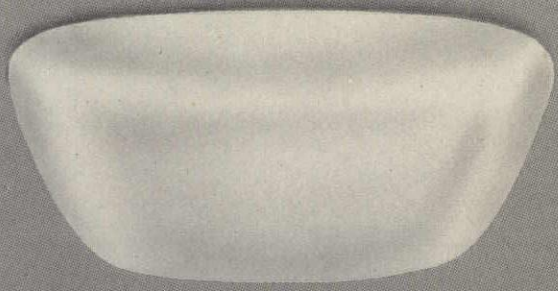

A

* 3 lighting for nearly every requirement

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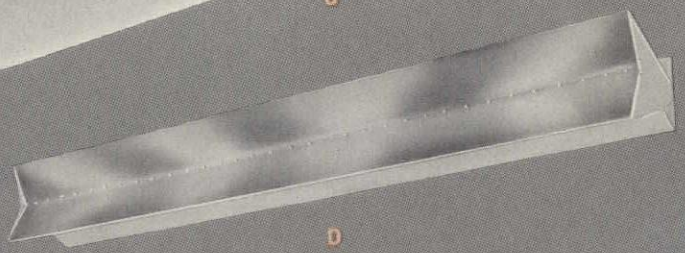

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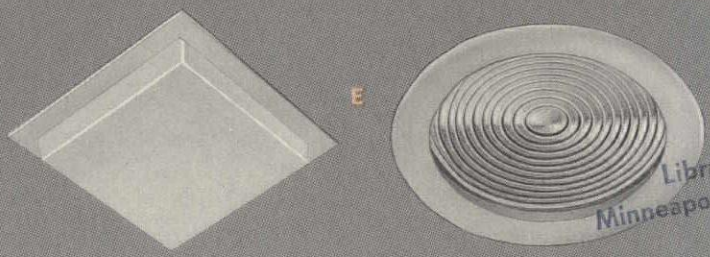

E

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B PORTFOLIO... more than 50 dramatic decorative designs... this one has 12 pendants in red, black and white mounted at random lengths from a brass canopy. Also available with glass and metal mesh pendants.

C OPTIPLEX... surface and recessed from 2' x 2' to 4' x 4', fully diffused wide-area fluorescent lighting for office, school, hospital, store. Formed plexiglas diffuser has crisp form.

D LYTELINE... four foot fluorescent wall units that can be butted end to end, decorative and functional, both up and downlight. Three attractive finishes: bone white, satin brass, walnut veneer. Ideal for over a desk or table; corridors, lobbies... motels, dormitories, offices, homes.

E CALCULITE®... a wide range of recessed incandescent units for decorative and functional accent lighting. Full Alzak reflector assures maximum light output, exclusive Colouvered® lens eliminates glare, Torsiontite† springs offer positive, safe hinging and automatic levelling.

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(Continued from page 20)

approved substitute" are used, and in the General Conditions these words are particularly defined to mean anything that *in the opinion of the Engineers* is the equivalent of that specified. *But:* Approval of anything offered in substitution *must* be obtained in writing at least 10 days *before* the date set for reception of bids, and after which date *no substitutes at all* will be considered unless the items specified become totally unavailable.

Now the great advantages of this solution to the perennial problem are these:

Since the ultimate aim is the greatest value for the client at the lowest possible cost, if a bidder offers something for approval in the stipulated time that actually is the equal (and lower in cost) then not only is it approved (in writing) but, *simultaneously,* every other bidder is so notified so that he, too, can base his bid on the substitution. Actually, certain contractors can obtain better prices than others, so no unfairness to the party initiating the request results—and the Owner benefits by the lower bid most always.

Since another aim is impartiality in dealing with bidders, with the methods suggested, no bidder can claim (particularly in public work) favoritism . . . each has the opportunity to figure on the substitution.

MALCOM E. RUNYON
Runyon & Carey Associates

safety or "taste"?

Dear Editor: For at least 22 centuries, many men of courageous action, intelligence, and taste have called themselves engineers, architects, or master builders—depending on the age, the nation, or the circumstances surrounding their education.

Only in this country, in recent times, have some people felt it desirable to draw lines of distinction between the professions of architecture and enginering. And here, apparently, the desirability is felt mainly by some members of the profession of architecture, which according to Bernard Tomson (AUGUST 1957 P/A) *should seek protection*—from encroachment by engineers.

To the apparent dismay of Tomson, the courts seem to recognize better than he that engineers and architects possess a common background. Also, they are primarily designers; both groups use science as well as art in their designs, and they share similar aspirations and inspirations.

The modern effort to divide groups is not widespread. In some countries, chiefly those European nations whose heritage of art is of long duration and distinguished charac-

(Continued on page 28)

Foyer of the Hallmark Building, Kansas City, Missouri. Welton Becket and Associates, Architects and Engineers. Long Construction Co., General Contractor. Slater Tile and Mantel Co., Tile Contractors.

Walls: Pan-O-ramic Blend 3003-26. 1⅛" squares. Gray Granite, Light Gray, White; Sand Buff and Sand Brown Textone. Floor: Gray Granite Pavers. Color Plate 376.

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(Continuedfrom page 26)

ter, there is still little distinction between the groups or jealousy among the professionals.

In our own country, PROGRESSIVE ARCHITECTURE and progressive engineers and architects have long paid tribute to the architectural (as well as the structural) merit of the works of great engineers. Tomson surely would not wish to disclaim the works of such engineers as Roebling, Eads, Nervi, Maillart, or Steinman. These men and their colleagues are members of a profession which operated on the principle that "form follows function" centuries before the phrase became artistic dogma. As a result, engineers have produced some of America's proudest architectural achievements: the great arch and suspension bridges, designed by engineers, appear to have inspired more appreciative emotions among painters, poets, and others sensitive to artistic merit than any other architectural forms save those of nature herself.

Even the skyscraper owes much of its concept to the engineer, whose early designs for tall buildings gave us the metal frame and the curtain wall (which has since become standard even for shorter buildings) and has made possible the economic and esthetic enclosure of space that characterizes modern buildings.

It would appear that engineers as well as architects can possess good taste. As for considering "what steps" the architectural profession "must take to protect itself and the public" from the "gradual encroachment by engineers on the practice of architecture," Tomson is ill-advised. The shoe is on the other foot. A century ago, many of our most distinguished public buildings were planned entirely by engineers, and many of thse are regarded as architectural milestones. Today, the engineer rarely plans buildings, despite the recognition by the courts of his legal privilege to do so, and despite the proof by centuries of precedent that he is capable of doing so.

In any case, what "protection" is needed? Certainly public safety is not in question, for the engineer without doubt is, and should be, responsible for the structural integrity of a design. Is it that Tomson wants to protect the public against alleged "poor taste"? If so, the campaign should be based on the review of individual designs of engineers and architects rather than on the professional classification of the designer. To emasculate engineering by unduly restricting its practice would render its mate, architecture, barren also, if past history can be a guide After all, if it were true that engineers, as a group, possessed demonstrably poor taste, then the public

(Continued on page 33)

4′-square PLEXIGLAS diffusers at Park Avenue office of a large New York City bank

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MATERIAL	WATER VAPOR TRANSMISSION (in *perms)	
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Sealtight "PREMOULDED MEMBRANE"	.0066	.0066
Polyethylene Film (.004 in. thick)	.097	.108
55-pound roll roofing	.030	.081
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*PERMS—grains per square foot per hour per inch of mercury difference in vapor pressure at standard test condition.

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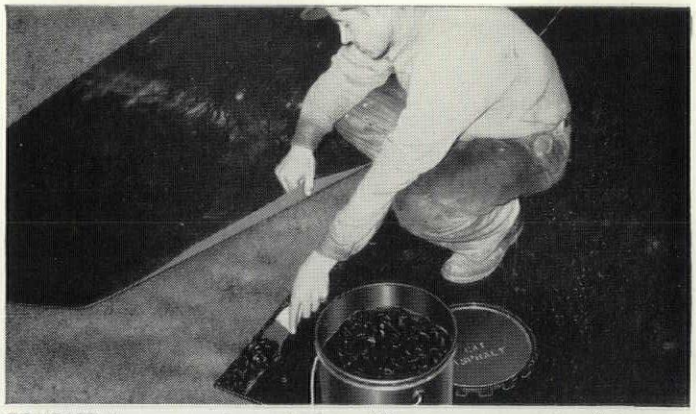

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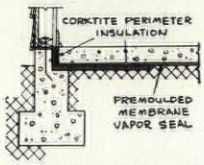

Installation of "PREMOULDED MEMBRANE" completely isolates slab from any moisture originating in the site and Sealtight Corktite perimeter insulation effectively insulates edge of the slab, thereby eliminating heat loss through the slab perimeter.

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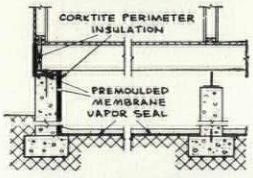

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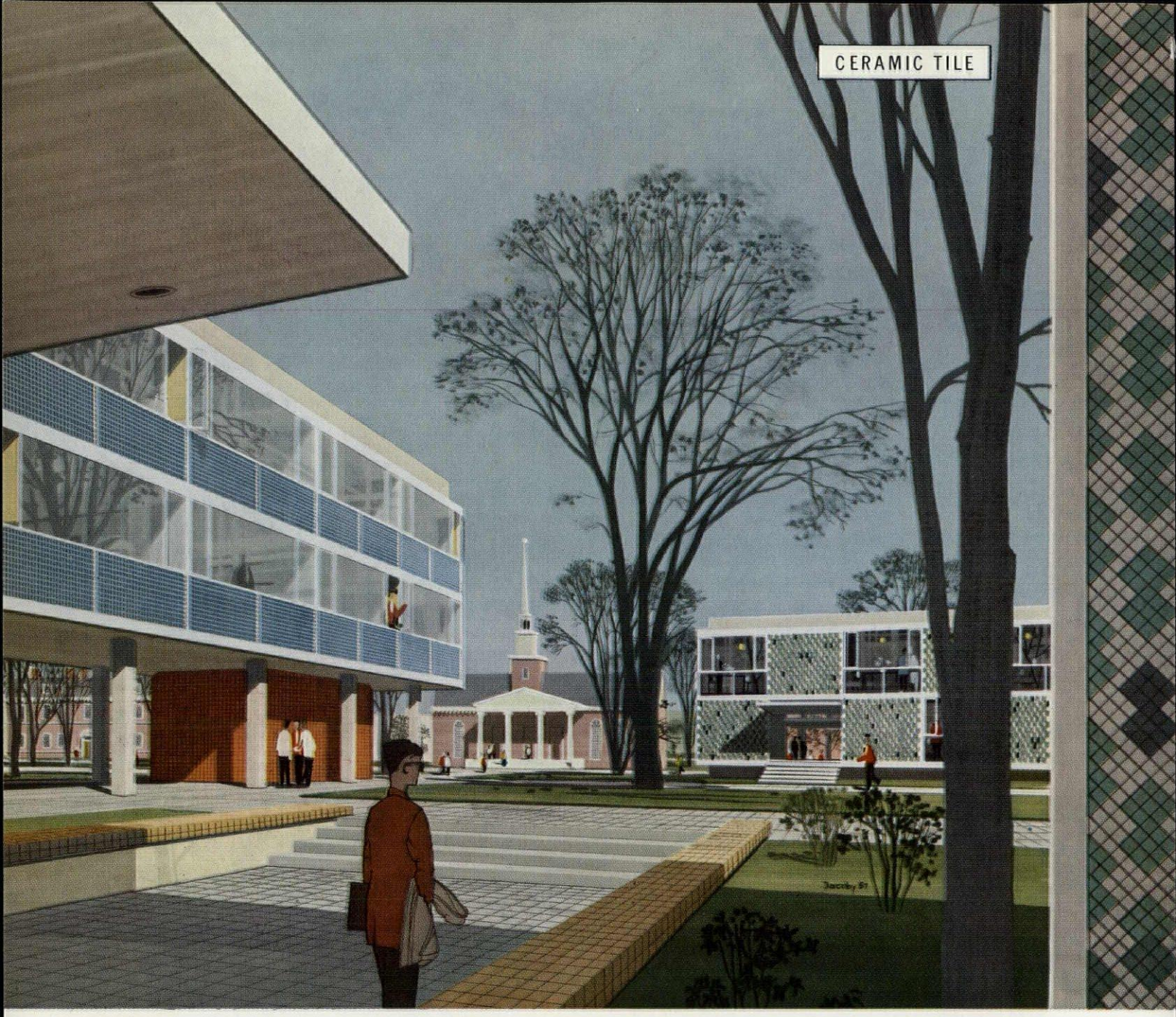

"CERAMIC TILE...COLORFUL...A VERSATILE, PERMANENT SURFACE"

KETCHUM, GINÁ & SHARP

per J.S.L.

This Ketchum, Giná & Sharp design for a college campus is a striking example of modern architecture's mating of beauty and function . . . with broad walks and an open feeling for the dignified handling of today's thronging student bodies. Ceramic tile in varied colors and units helped the architects achieve permanent, uniquely designed exterior surfaces.

Ketchum, Giná & Sharp wove flexible ceramic tile into areas where handsome focal points were indicated . . . flat planes or columns where subdued, one-tone colors were needed . . . and walks where sturdy ceramic tile units paved the surfaces and topped the copings.

Any educational institution would be glad to get ceramic tile's other long-range benefits, too: walls needing no upkeep or replacement, walks which will stand up indefinitely under heavy student traffic, and fireproof surfaces wherever ceramic tile is used.

The Modern Style of

p/a views

(Continued from page 28)

would be told, and the practice of architecture would prosper by contrast. If it were not true, the public needs no protection. The conclusion is inescapable that if the public needs "protection" the architectural profession does not, and vice versa.

It would be a mistake for architects to campaign against the decisions of the courts which fail to appreciate the modest recognition of architects that all architects are superior to any engineer.

In closing, at the risk of taking advantage of his unintended grammatical slip, I will quote Tomson himself: "If this distinction is to be maintained, the architectural profession must consider what steps can and should be taken to protect itself and the public."

ERIC TREBLE
College, Alaska

educational aids

Dear Editor: Compliments and thanks for the DESIGN AWARDS SEMINAR series. I cannot think of any other feature in an architectural magazine that could be of greater help to our thesis candidates. American students suffer from a lack of articulateness that frequently makes a thesis presentation a painful experience for both applicant and jurors. By studying the question-and-answer game on the highest level of their profession, young architects might learn how to counter intelligent objections and defend their ideas with precision and without the stammering insecurity that now so often prevails.

Since we are at praising, let me add one more note of greatest appreciation. This one for Ada Louise Huxtable's intelligent, well chosen, and well written series, PROGRESSIVE ARCHITECTURE IN AMERICA. Every presentation has been of great value to our Architectural History classes.

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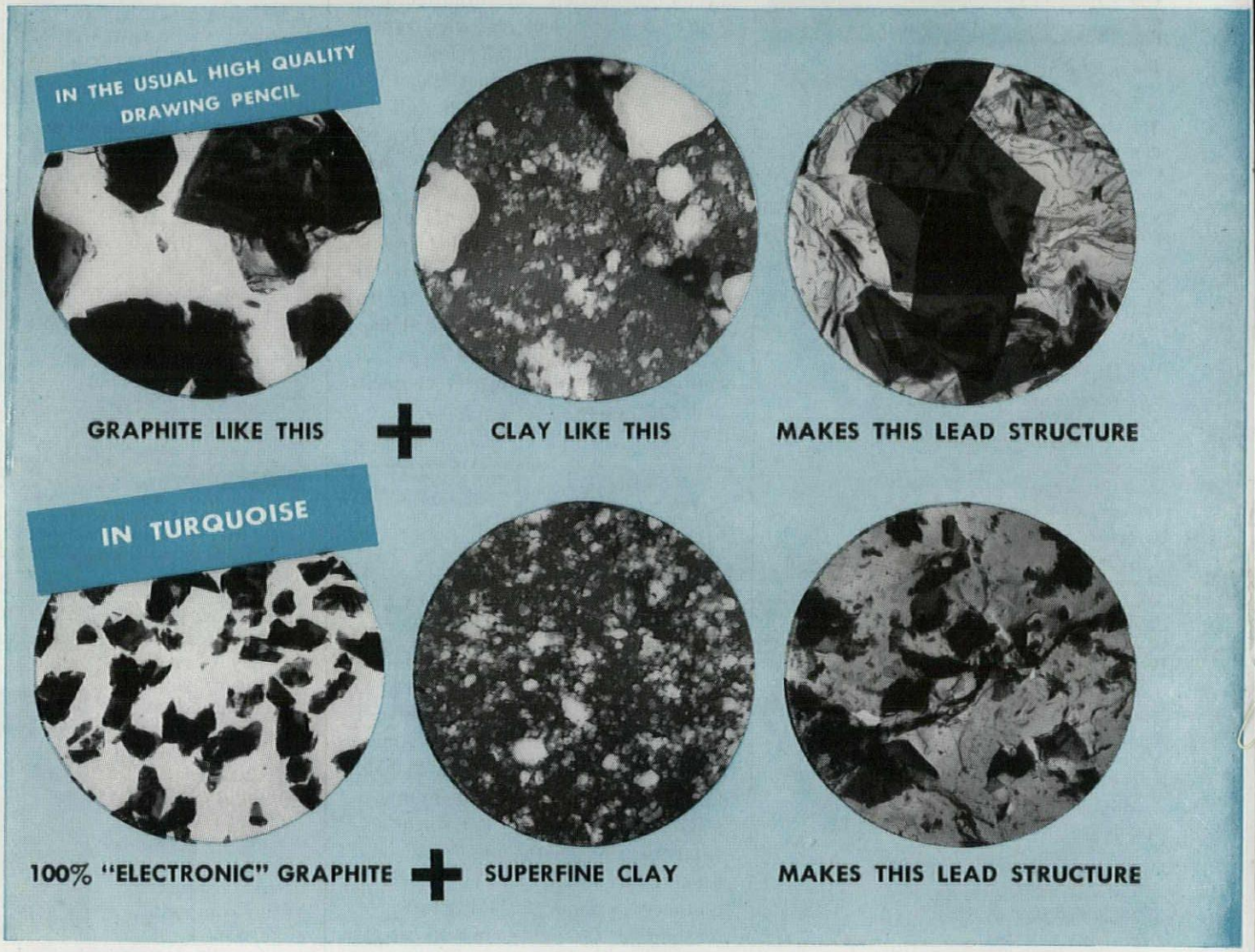

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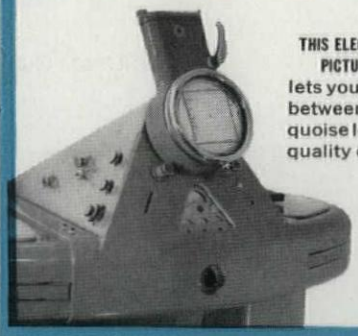

THIS ELECTRON MICROSCOPE TAKES PERFECT PICTURES 7,500 TIMES ACTUAL SIZE— lets you see the startling difference between Eagle's "Electronic" Turquoise lead and the lead in the usual quality drafting pencil.

Photographs courtesy of Ladd Research Industries, Inc.

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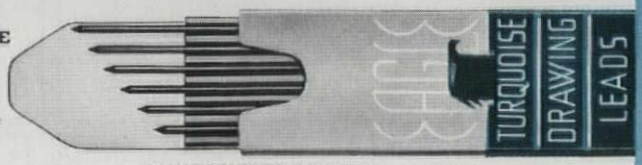

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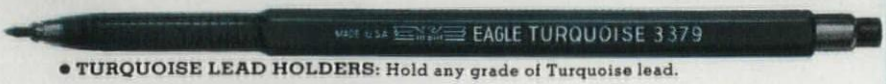

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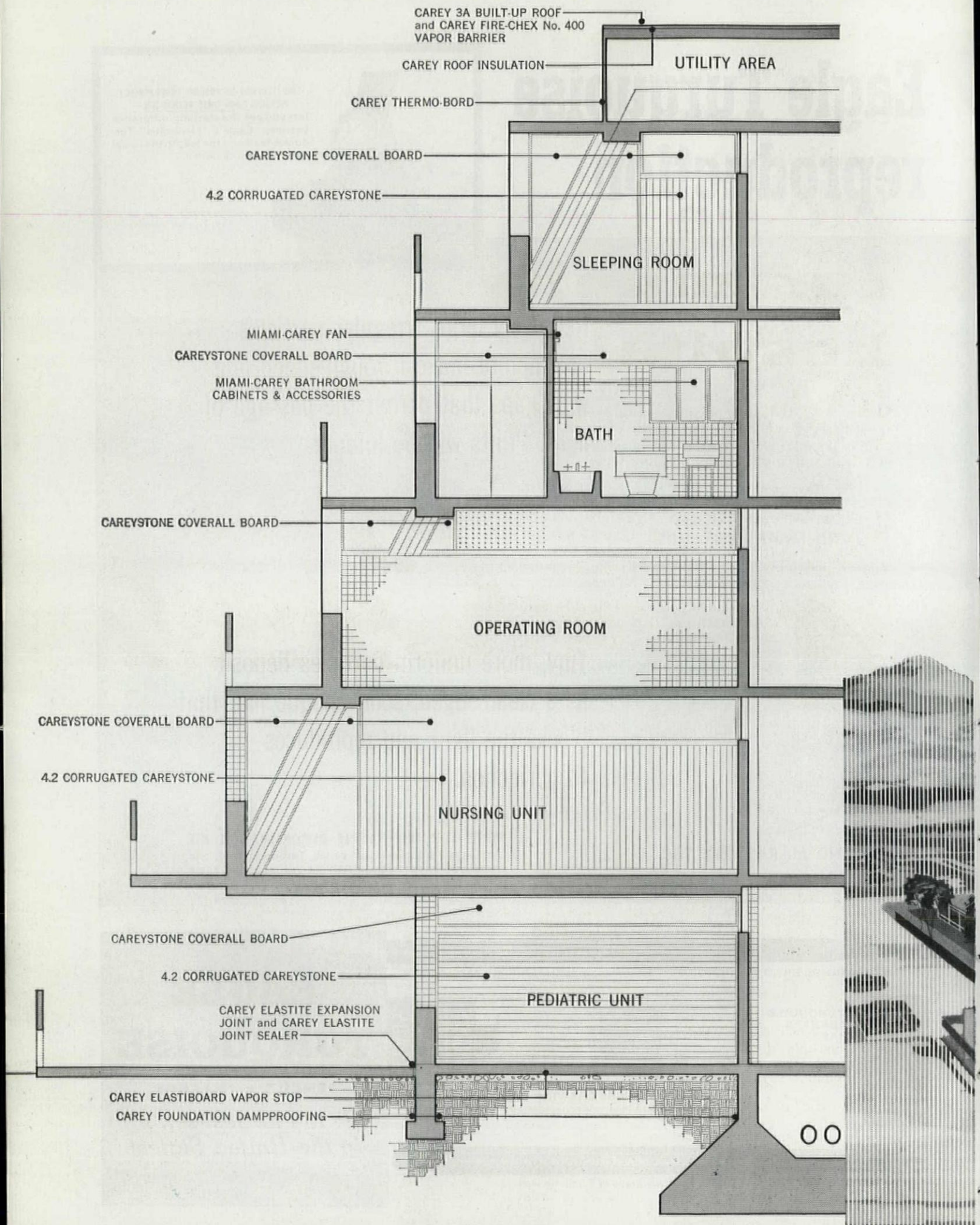
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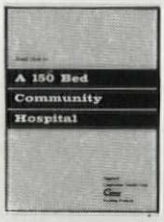
Shaughnessy, Bower & Grimaldi, A.I.A. design a 150-bed community hospital

During 1957, the value of construction-contracts* for hospital buildings in the U.S. reached an all-time high. In fact, the percentage gain in hospital building over 1956 was greater than any other commercial or institutional building type.

In their design study, Shaughnessy, Bower & Grimaldi have given today's community hospital a bright, new personality. Maximum use of natural lighting, the inclusion of exterior walkways and open courts, a unique solution to traffic flow and parking—all have helped replace the typical "assembly line" atmosphere with new-found comfort and convenience.



We believe you'll find these design ideas both practical and appealing. Plan and detail sheets showing the wide variety of Carey products that could be used in this 150-bed hospital are also available. Just clip and mail the coupon.

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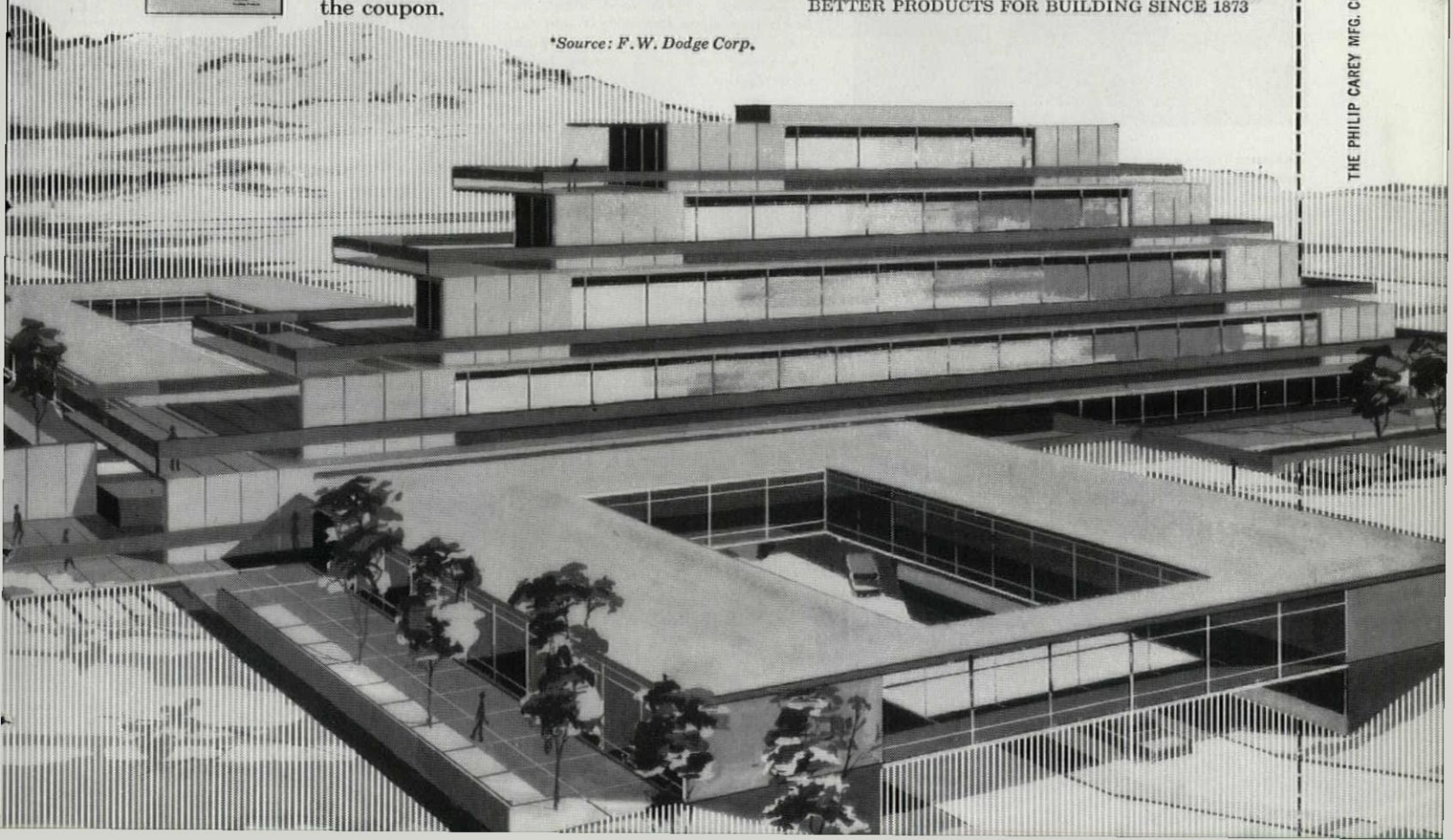

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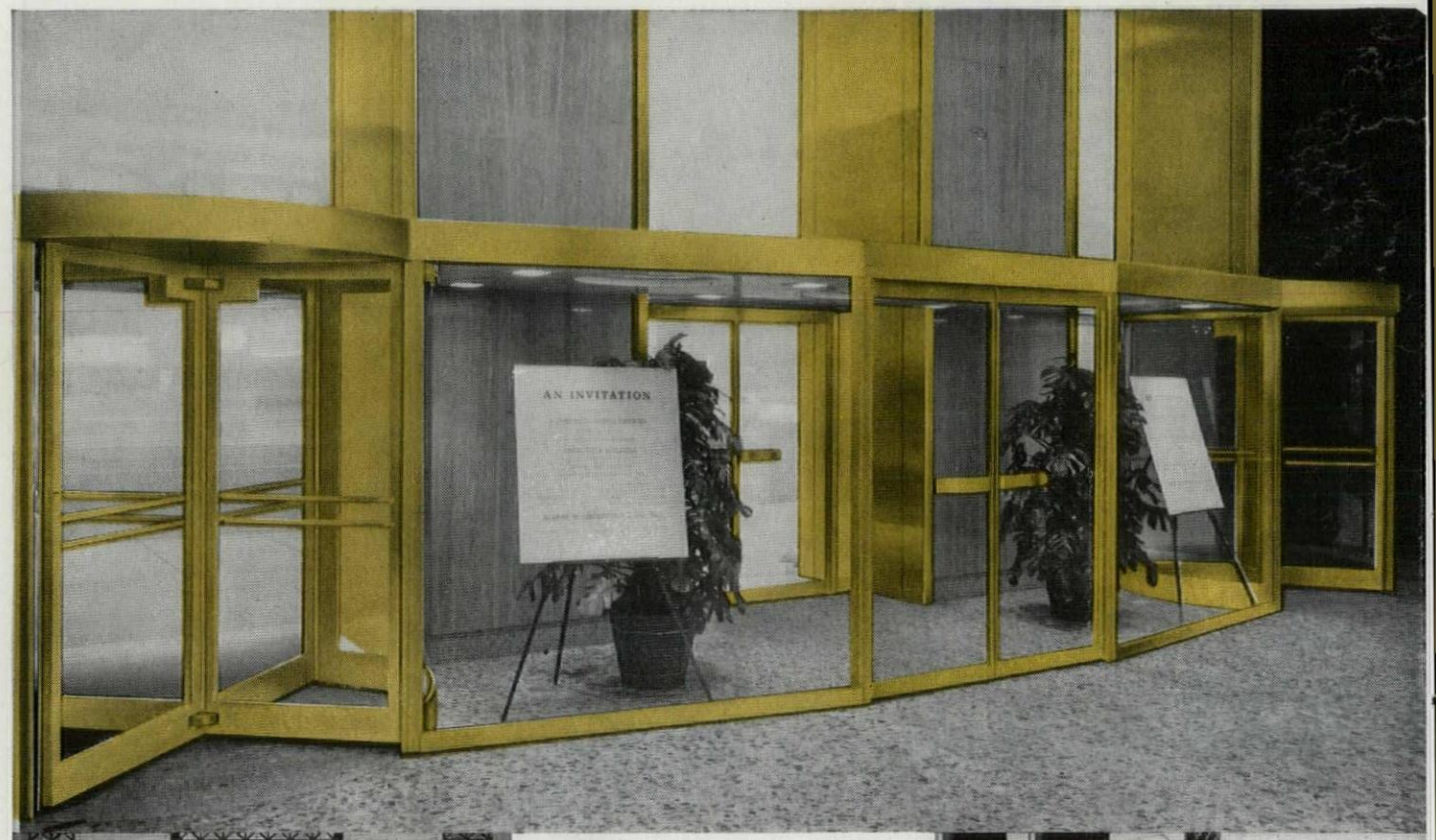
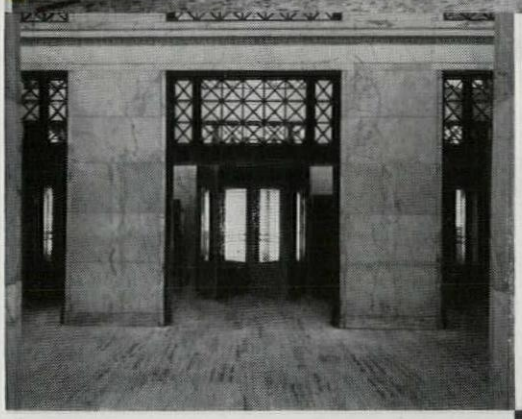
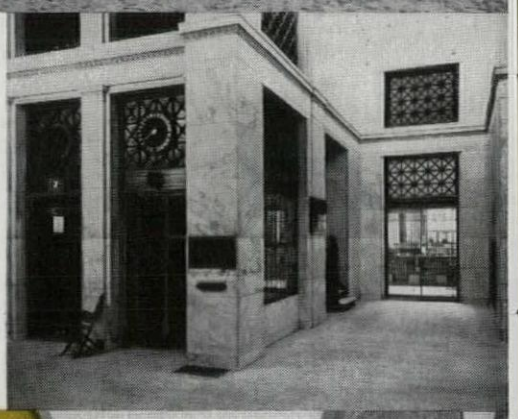


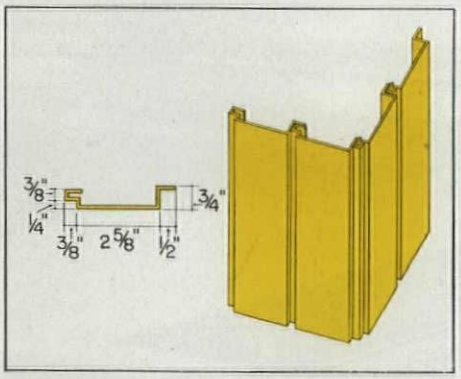


Remodeled Broad St. entrance of Land Title Bldg., Philadelphia, **above.** Bronze sheet and strip frame vestibules and door openings with warm, golden color to complement tans and browns of floor and marble veneer. Dark, closed-in original entrance, **left.**

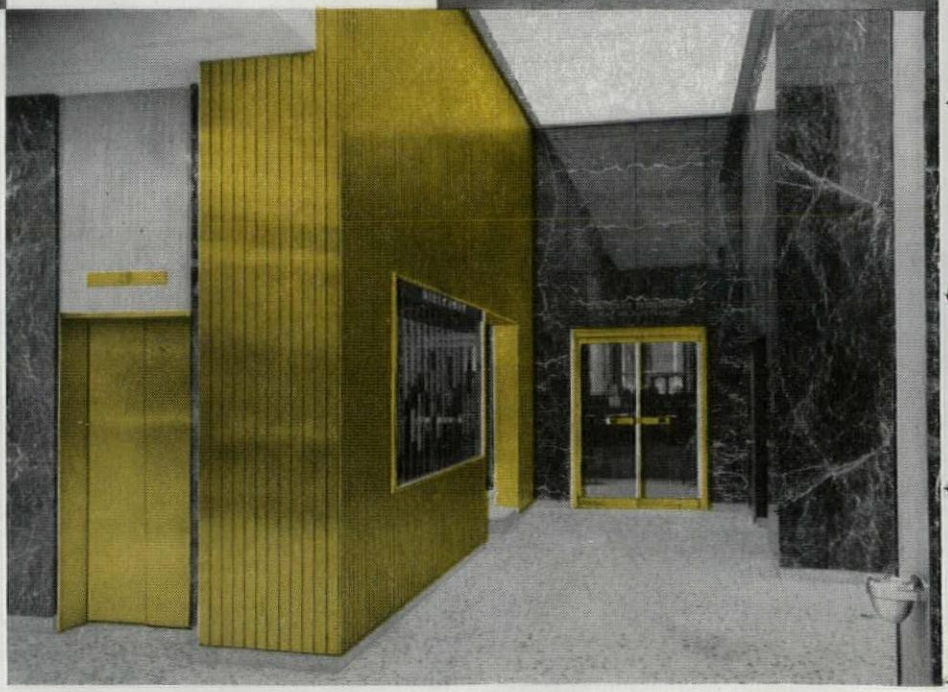
Below: Interlocking bronze extrusions with 3" exposed surfaces form smart, trim panels from floor to ceiling in the main lobby. See diagram below, left. **Right:** The same area as it looked before modernization.



Architects: Thalheimer & Weitz, Philadelphia.
Metal Fabricator: John G. Leise Metal Works, Philadelphia.
Elevator Entrances: W. S. Tyler Company, Cleveland.
Exterior Doors: Revolving Door and Entrance Division of International Steel Company, Evansville, Indiana.



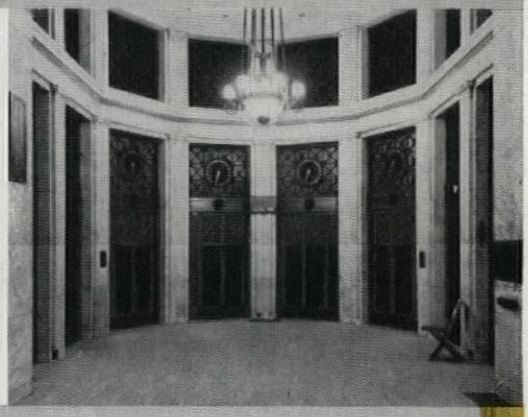
Section and isometric of bronze extrusions used in wall at right. A metal sub-frame made possible perfect alignment of the shapes. All fastenings are concealed. This special shape was designed and detailed by the architects and the architectural metal fabricator.



MODERNIZATION THAT GIVES CHARACTER TO A BUILDING REQUIRES GOOD DESIGN AND THE BEST MATERIAL • VERSATILE ARCHITECTURAL BRONZE

Facade at Broad Street entrance, **above,** was opened and simplified. Bronze sheets surround new door openings, offering an interesting contrast in color and texture with granite masonry. **Left:** The original facade.

Below: In the elevator lobby, ceiling was lowered, details simplified. Wall paneling of interlocking bronze extrusions matches in color the bronze elevator doors. **Right:** Original lobby as it appeared just before modernization work started.



A highly favorable reception to the modernized entry is reported by Albert M. Greenfield & Co., rental agents, who write: "We are most pleased with the results achieved in architectural beauty, durability, and low material cost. All of this without impairing the exterior architecture of this long-famous landmark in the heart of Philadelphia." For information on Anaconda Architectural Metals address: Architectural Service, The American Brass Company, Waterbury 20, Conn.

5881

ANACONDA®
ARCHITECTURAL METALS
made by
THE AMERICAN BRASS COMPANY

Gymnasium, Riverside School, Riverside, Ill., floor of First Grade Northern Hard Maple.
Architects: Schmidt, Garden & Erikson, Chicago. Photograph courtesy Hedrich-Blessing, Chicago.

Northern Hard MAPLE —by all means for floors meant for feet!

Physical education and athletic authorities *all* approve floors of Northern Hard Maple. Few of them will accord even reluctant acceptance to any other kind of floor. That's a documented fact.* And the reasons voiced aren't whims, but expert judgment that demands the respect of school building committees.

Certainly, genuine MFMA-millmarked Northern Hard Maple, properly laid, costs a bit more than splintering woods or makeshift synthetics. But it's *enormously* better—more enduring, more resilient, brighter, tighter, warmer, more pleasant to walk on, stand on, run on, jump on, dance on and, if need be, to *fall* on! It's backed by many thousands of dollars spent for research to improve manufacturing, uniformity of design and dimension and *proper kiln drying*. MFMA educational work on waterproofing and trouble-free installation methods is available in free booklets, pamphlets and technical research papers. See Sweet's 13j-MA.

*Ask for Coaches' Survey Summary, available to all Architectural and School people.

THIS MARK—

mill identification here

(on underside of flooring)

GUARANTEES:

that the wood is all genuine HARD Maple, grown north of the Ohio River.

that it is precision-milled, per MFMA standardization blueprint.

that milling is checked with MFMA precision gauge blocks.

that grading has been supervised by MFMA under direction of its official traveling representative.

that flooring is true to species (*acer Saccharum*), to dimension and to MFMA grading and bundling rules.

that flooring is unequivocally warranted to be a product of a manufacturer-member of MFMA, pledged to abide scrupulously by all rules of the Association, the object of which is to produce —

the finest floor that grows.

MAPLE FLOORING MANUFACTURERS ASSOCIATION
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CHICAGO 1, ILLINOIS

where wordless "welcome" softly glows . . . you'll find *the finest floor that grows*

NORTHERN HARD MAPLE

BEECH and BIRCH

Now . . . a troffer so shallow it handles like tile!

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Introducing the slender, sleek Smithcraft SLENDEX. A unique, practical answer to the absolute *minimum cavity – low ceiling* conditions dictated so often by today's construction economies. Recesses only 1⅜" . . . less than the depth of most ceiling supporting members . . . eliminates cost of cutting these members. One-man installation. Goes in FLAT, requires no extra depth for tilting. Adapts to most of today's common ceilings. 1′ x 4′ units for 2 Rapid-Start Lamps or 2′ x 4′ units for 4 Rapid-Start Lamps. Here is a clean, smoothly-styled lighting answer to a common contemporary building problem . . . simple, efficient and pleasing!

SLENDEX *Surface Units are shallow, too. Slim, trim and clean, with no light leaks, and with no dark center streak. Fixture depth 1⅜" — overall depth, including shielding, only 3".*

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CHELSEA 50, MASS.

THE MAN FROM SMITHCRAFT
Paul Wehner, Dayton, Ohio representative. Like every member of Smithcraft's nationwide organization he can help you turn any lighting purchase into a profitable lighting investment. Ask the man from Smithcraft about the new SLENDEX.

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☐ Please send me the monthly publication, "Light Side of the News", so that I can keep in touch with the latest trends in lighting.

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Buildings constructed and decorated with Stainless Steel are cleaner, more attractive places to work and live. When you're planning a building . . . design it, improve it and protect it with McLOUTH STAINLESS STEEL.

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HIGH QUALITY SHEET AND STRIP

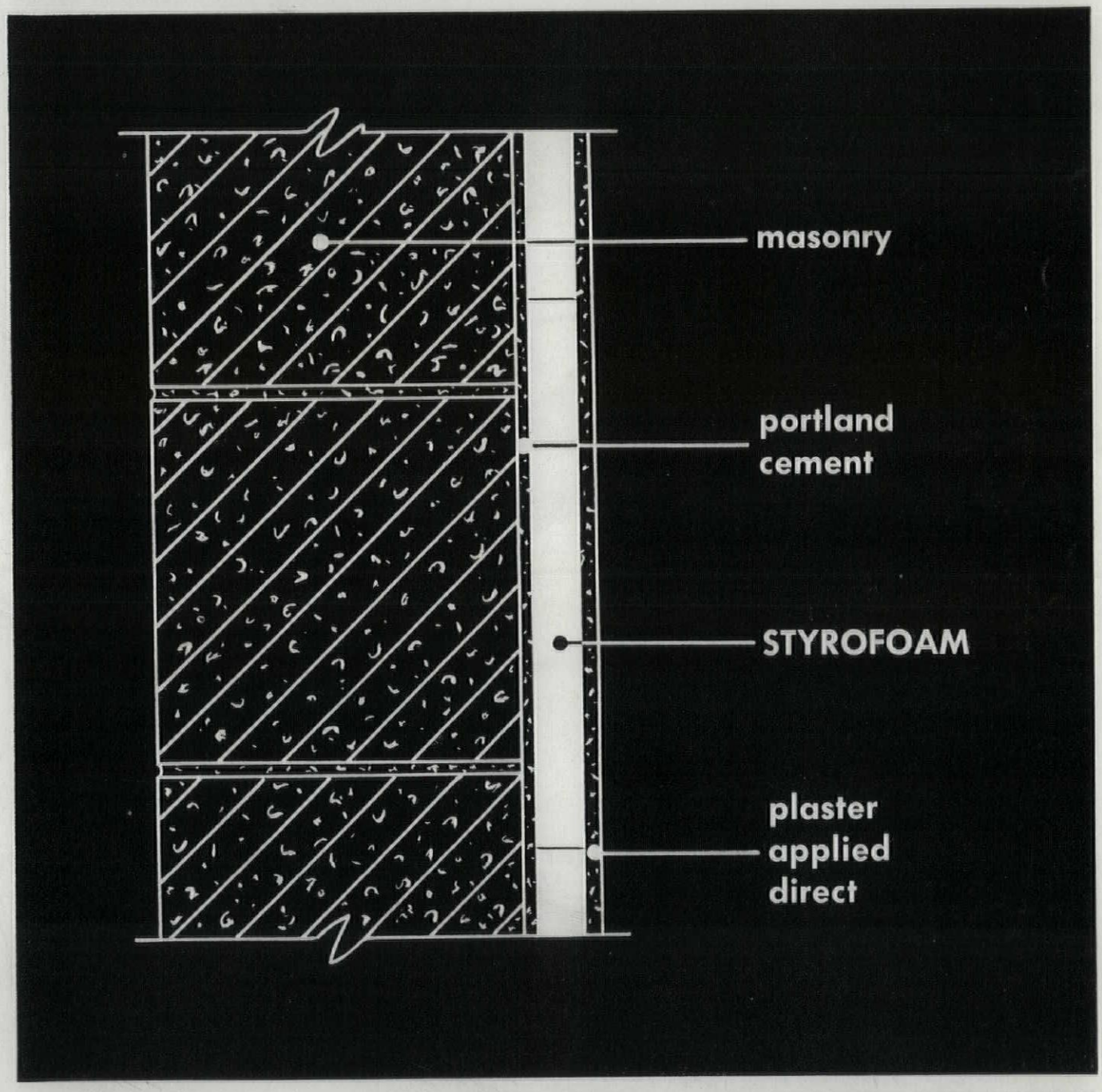
for architecture

McLOUTH STEEL CORPORATION DETROIT, MICHIGAN

MANUFACTURERS OF STAINLESS AND CARBON STEELS

masonry-insulation-plaster

new method of using Styrofoam substantially reduces costs in commercial and residential construction. Next 3 pages tell how.



STYROFOAM®

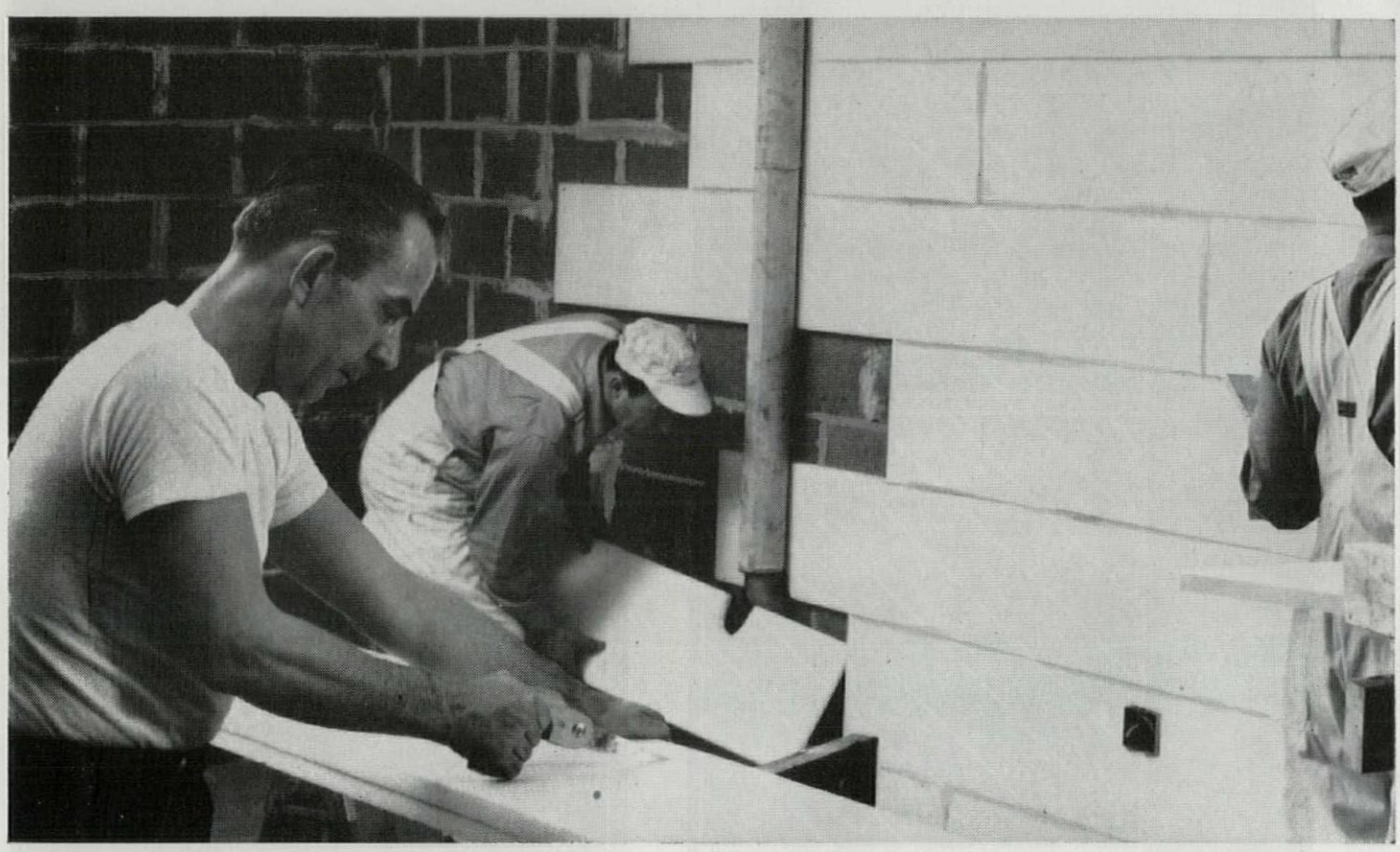
the lifetime plastic foam insulation

DOW

New insulation-plaster base

The new insulation-plaster base method is catching on fast in commercial as well as residential construction. With this method, a fully insulated masonry structure can be built for about the same cost as an identical frame siding structure!

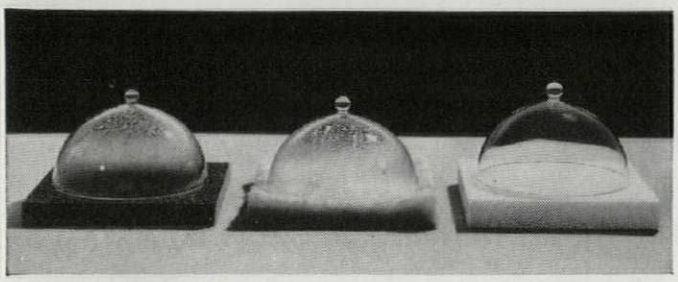
The principle of the new method is simple: A masonry wall is erected in the usual manner. Next, Styrofoam* is adhered to the wall with a thin layer of cement mortar. Plaster is then applied directly over the Styrofoam. The noninterconnecting cells



Styrofoam® offers proved, permanent, insulating efficiency

A permanent low thermal conductivity and unyielding resistance to water and water vapor combine to give Styrofoam lifetime insulating efficiency. Its lightness, new large sizes and rigidity permit remarkable ease of handling, cutting and applying. Other outstanding properties, such as high compressive strength and resistance to attack by rot and mold help make up the unmatched combination of advantages that are exclusive with Styrofoam. (See complete list of Styrofoam sizes, properties and insulation values at right.)

Styrofoam has been tested and proved by more than a decade of commercial use. A Michigan cold storage plant with a twelve-year-old installation has yet to spend its first maintenance dollar on Styrofoam. Thousands of similar installations in plants, warehouses, schools, churches and homes have proved that Styrofoam costs the least per year of service of any insulation.



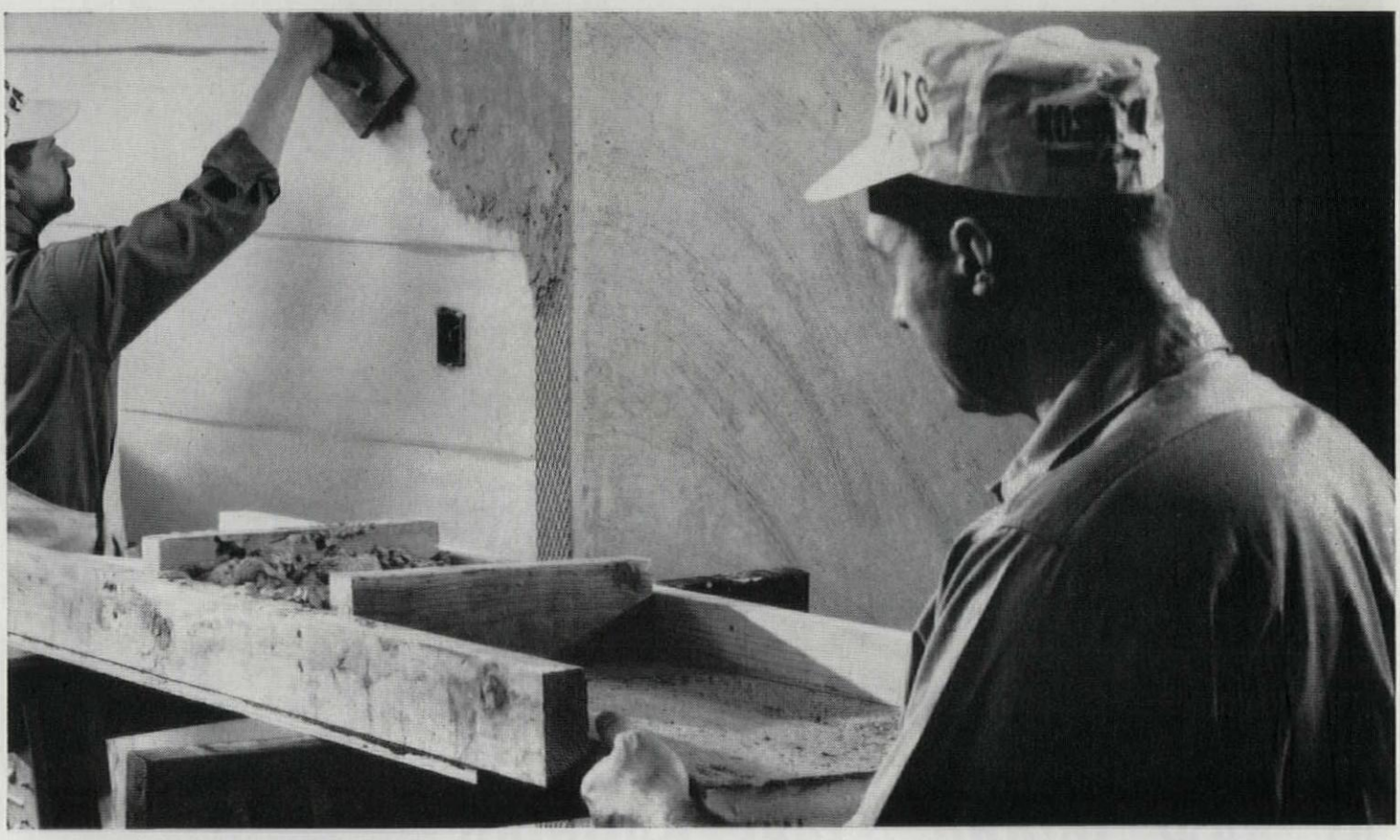
Moisture doesn't penetrate. In this moisture-absorption demonstration, Styrofoam and two other commonly used insulations are being tested. Water is heated directly under the test sample. The vapor produced must pass *through* the test sample in order to reach the inside of the glass bell. Note that the bell over the test sample of Styrofoam is clear although the other two bells are filled with condensation.

Even after hours of continuous testing, *there is no evidence of moisture penetrating the sample of Styrofoam!*

eliminates framing, lathing

on the surface of Styrofoam make an excellent base for plaster, but do not allow passage of moisture. The finished wall is strong, sound and unusually well insulated.

The insulation-plaster base method reduces labor and material costs because neither studs nor lath are needed. And mortgage loan commitments have been increased on homes in which this method is used. Specific cost figures derived from actual use in residential construction are available on request.



Easy to install. Handsaws and other common tools readily cut a board of Styrofoam sharp and clean. Or, Styrofoam can be scored with a jackknife and snapped off to any desired size. Easy to apply to any masonry surface with Portland cement mortar or other recommended adhesives.

*STYROFOAM is a registered trademark of The Dow Chemical Company

PROPERTIES OF STYROFOAM

Styrofoam is available in two standard formulations: Styrofoam 22 and Styrofoam 33 (self-extinguishing, and two special high-density forms.

WIDE RANGE OF SIZES

length (ft.)			3	8	9
width (in.)			12	16	24
thickness (in.)	1	1½	2	3	4

Note: Styrofoam is available in boards with any combination of above dimensions.

LOW "K" FACTOR

Styrofoam has a thermal conductivity ("K" factor) of 0.23—0.27 B.T.U.-in./sq. ft.-hr.-°F. at a mean temperature of 40°F.

SUPERIOR RESISTANCE TO WATER

Water absorption is less than 0.03% by volume when subjected to 90% relative humidity at 90°F. for 15 days.

SUPERIOR RESISTANCE TO WATER VAPOR

When Styrofoam acts as a barrier between spaces, the rate of water vapor transmission is only 1.0-2.0 grains/hour/sq. ft./inch of thickness/inch of mercury vapor pressure.

HIGH COMPRESSIVE STRENGTH

Average of 3,000 lbs./sq. ft. Concrete floors can be poured directly over Styrofoam without additional reinforcement.

OTHER PROPERTIES

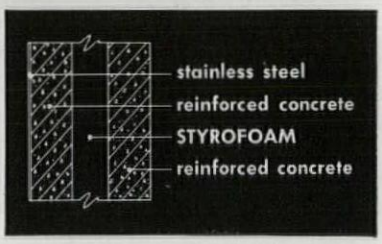
Specific heat	Styrofoam 22 0.27 B.T.U./lb./°F. at 40°F.	Styrofoam 33 0.27 B.T.U./lb./°F. at 40°F.
Resistance to heat (maximum recommended temperature for continuous use.)	170°F.	160°F.
Capillarity	None	None
Water absorption	Less than 0.15 lb./sq. ft. of area**	Less than 0.15 lb./sq. ft. of area**
Density	1.6-2.0 lb./cu. ft.	1.7-2.3 lb./cu. ft.
Strength properties (in p.s.i.)		
Compressive yield strength	16-32	16-38
Tensile strength	45-61	65-95
Shear strength	27-36	30-40
Flexural strength	42-61	48-99
Compressive modulus	1200-1700	1500-2000
Bending modulus	1000-1285	1250-1760
Modulus of rigidity	700-1600	1000-1300

COMPARATIVE (U) VALUES

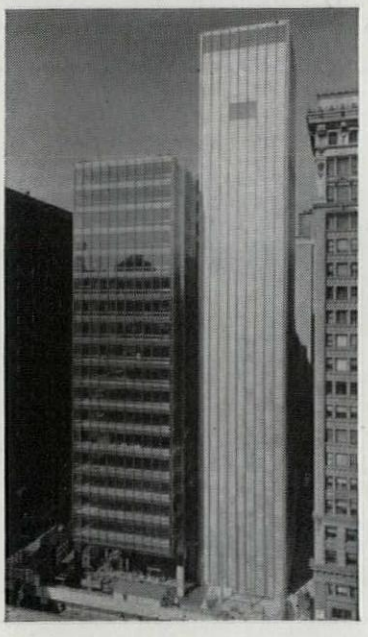
Wall Type	Wall Thickness	Plain Wall	Furred, lathed & Plastered Wall	1" Styrofoam Wall***
Brick (4" face, Rest common)	8"	.50	.30	.158
	12"	.36	.24	.139
	16"	.28	.20	.123
Concrete	6"	.79	.39	.180
	8"	.70	.36	.175
	10"	.63	.34	.170
	12"	.57	.33	.166
Concrete Block	8"	.56	.32	.164
	12"	.49	.30	.158
Cinder Block	8"	.41	.27	.146
	12"	.38	.25	.142

**Water pick-up on surface cells only
***1" thick Styrofoam with plaster direct—no furring or lathing

Panels are hoisted into position from street level and secured to the steel skeleton. The 13′ x 5′ panels are faced with stainless steel and contain Styrofoam, the insulation with lifetime insulating efficiency. Architects-Engineers: Skidmore, Owings & Merrill.



Styrofoam® selected for panels of new Inland Steel Building



A newcomer with a shiny face has taken its place in Chicago's bustling loop. It's the 19-story Inland Steel Building and it utilizes the most modern materials in its starkly simple design.

Supplementing the office building is a 25-story service tower which houses restrooms, lounges, elevators, stairways, heating and air-conditioning equipment and other services. The tower is a structural steel skeleton covered by 13′ x 5′ fully insulated panels.

The panels consist of two 1¾″ slabs of reinforced concrete and 1½″ of Styrofoam* with a 1/16″ stainless steel facing on the exterior side. The inside concrete surface can be finished if desired. These panels provide a strong curtain wall that can be erected quickly and economically and will require practically no maintenance.

The use of Styrofoam insures permanent insulation. Reasons: Millions of tiny, independent dead air cells provide excellent insulating efficiency. Styrofoam has unyielding resistance to moisture, will not rot, mold, deteriorate or "shake down".

Also, Styrofoam is lightweight, clean and easy to handle. It adds little weight in the construction of curtain wall panels. For more information about Styrofoam, write to us today. THE DOW CHEMICAL COMPANY, Midland, Michigan, Plastics Sales Dept. 1927F.

*STYROFOAM is a registered trademark of The Dow Chemical Company

YOU CAN DEPEND ON DOW

Carlton Steiner, Architect

Phil Palmer, Photo

CRA

CRA MEMBER MILLS:

Georgia-Pacific Corporation
(Hammond-California Redwood Division)

Holmes Eureka Lumber Company
Redwood Sales Co., Eastern Distributor

The Pacific Lumber Company

The Pacific Coast Company

Simpson Redwood Company

Union Lumber Company

Willits Redwood Products Company
Hobbs-Wall Lumber Co., Sales Agent

Arcata Redwood Company

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THE REDWOOD MOTEL invites the passing motorist...
its warmth of color and texture promises a restful home away from home.
Motels of redwood from coast to coast beckon the traveler... motels built
with CRA Certified Kiln Dried redwood... graded, milled
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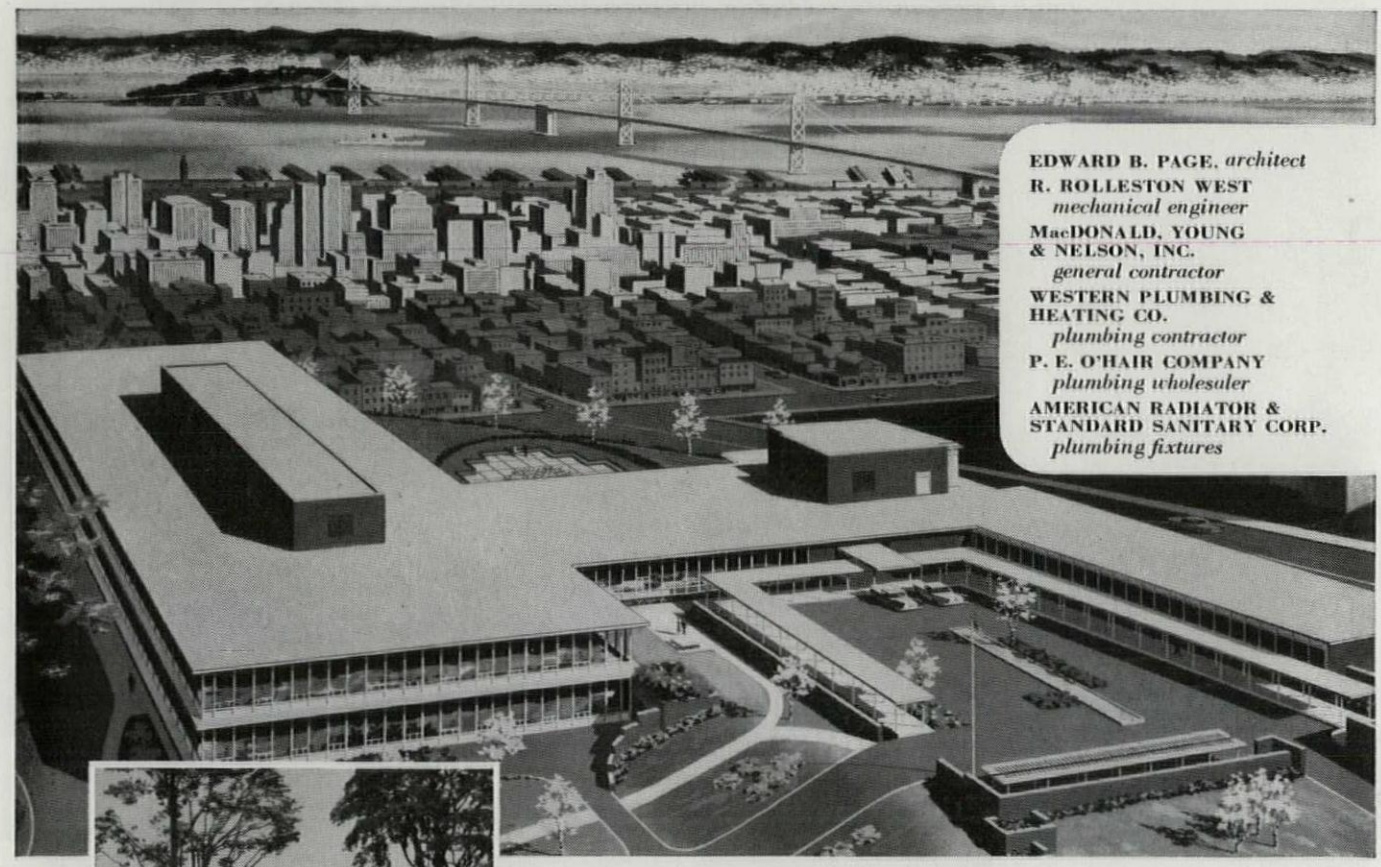
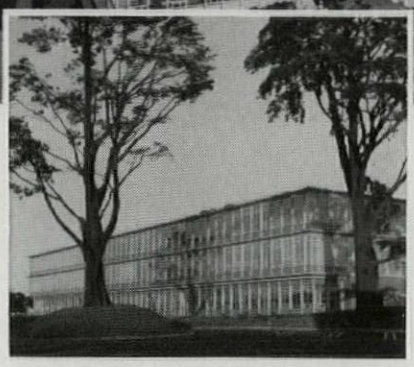
THE VAST MAJORITY OF THE NATION'S FINE BUILDINGS ARE SLOAN EQUIPPED



EDWARD B. PAGE, *architect*
R. ROLLESTON WEST
mechanical engineer
MacDONALD, YOUNG & NELSON, INC.
general contractor
WESTERN PLUMBING & HEATING CO.
plumbing contractor
P. E. O'HAIR COMPANY
plumbing wholesaler
AMERICAN RADIATOR & STANDARD SANITARY CORP.
plumbing fixtures



PAPERWORK EFFICIENCY ON SAN FRANCISCO BAY

• The FIREMAN'S FUND INSURANCE COMPANY's new home office is a beautiful example of pre-construction planning. Months of study by the architect of the peculiarities of the insurance business resulted in a building designed from the inside out for the maximum in paperwork efficiency. The building is set in a park-like ten-acre site overlooking San Francisco and the Bay, permitting a low-level construction that is amenable to the flow of work.

Outstanding features include: a central service core in the main wing; cantilevered support for the floors; exterior walls of aluminum-trimmed plate glass with ceramic coloring fused onto the glass spandrels; complete climate control plus a 600-speaker sound system; a unique new lighting system designed by the architect featuring a combination of fluorescent tubing and translucent plastic panels that virtually eliminates glare. The plumbing also reflects this detailed planning for efficiency—the flush valves, of course, are SLOAN.

SLOAN *Flush* VALVES

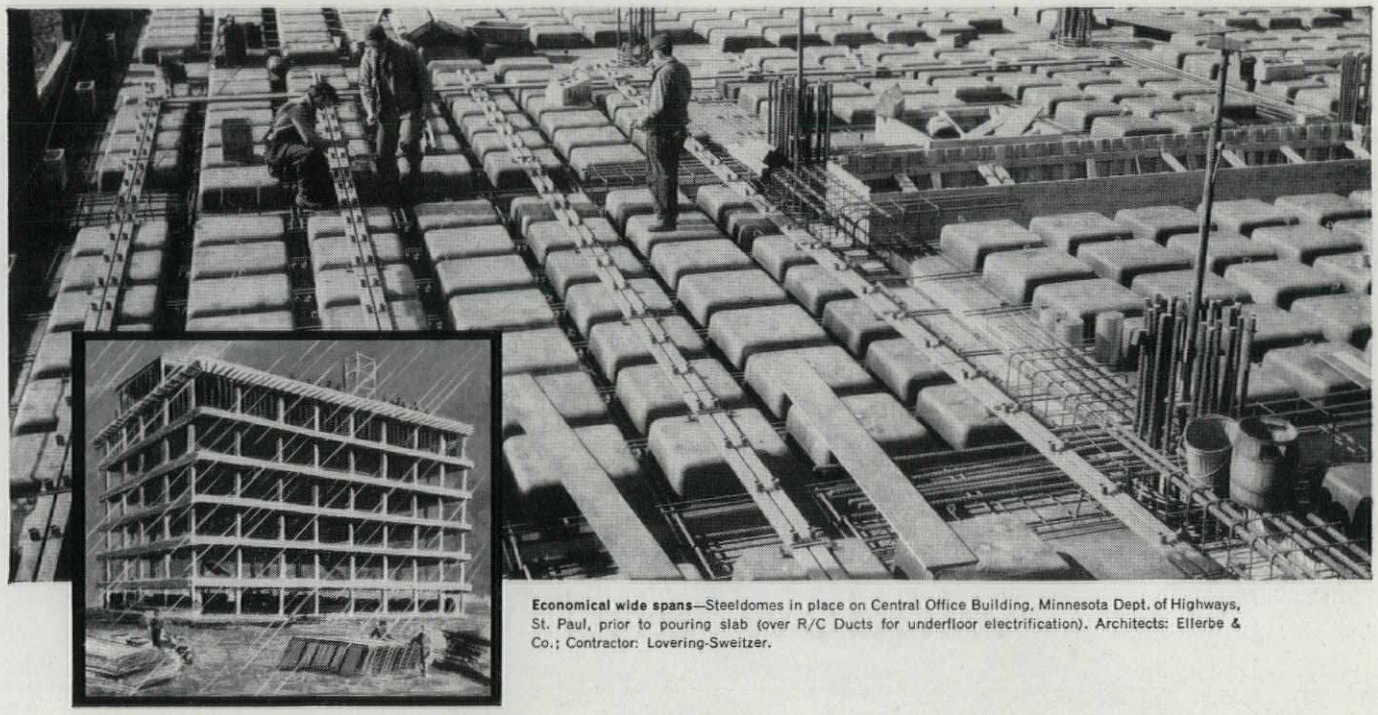
FAMOUS FOR EFFICIENCY, DURABILITY, ECONOMY

SLOAN VALVE COMPANY • CHICAGO • ILLINOIS

Another achievement in efficiency, endurance and economy is the SLOAN *Act-O-Matic* SHOWER HEAD, which is automatically self-cleaning each time it is used! No clogging. No dripping. Architects specify, and Wholesalers and Master Plumbers recommend the *Act-O-Matic*—the better shower head for better bathing.

Write for completely descriptive folder

EXPANSIVE? — YES .... EXPENSIVE? — NO



Economical wide spans—Steeldomes in place on Central Office Building, Minnesota Dept. of Highways, St. Paul, prior to pouring slab (over R/C Ducts for underfloor electrification). Architects: Ellerbe & Co.; Contractor: Lovering-Sweitzer.

WATERPROOF YOUR BUILDING BUDGET!

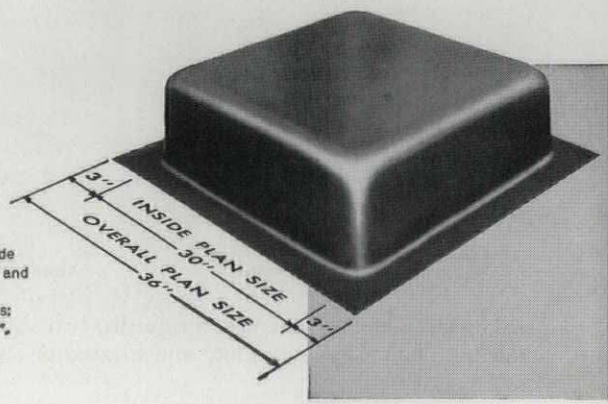
Spring Rains Can't Stop Ceco Steeldome Concrete Joist Construction

Today's emphasis on economy calls for careful control of costs. By choosing Ceco Steeldomes for waffle floor slabs, you can avoid money-consuming delays caused by rain. For Ceco Steeldomes are impervious to the elements . . . never get soggy, limp or distorted. Also, it costs less to place rebars on a rigid Steeldome deck. And Steeldomes are easily removed . . . no costly clean-up. To speed building and to keep expenses down, specify Ceco Steeldomes—the best way to form expansive two-way dome construction. Ceco Steel Products Corporation—General offices: 5601 West 26th Street, Chicago 50, Illinois. Offices, warehouses and fabricating plants in principal cities.

CECO STEEL

IN CONSTRUCTION PRODUCTS CECO ENGINEERING MAKES THE BIG DIFFERENCE

Steelforms / Concrete Reinforcing / Steel Joists / Metal Roof Deck / Windows, Screens, Doors
Cecoframe Buildings / Metal Lath



Ceco Steeldomes provide flexibility to meet span and load requirements. Available in four depths: 8", 10", 12" and 14".

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PA

New! The Andersen Strutwall...

TRADEMARK OF ANDERSEN CORPORATION

a modular component that joins window and wall!

Factory assembly gives tighter, trouble-free fit; saves labor; simplifies and speeds construction!

Here's a great advance in fenestration. A new building component that makes a quality window an integral part of the house frame. Offers tremendous advantages to architects everywhere.

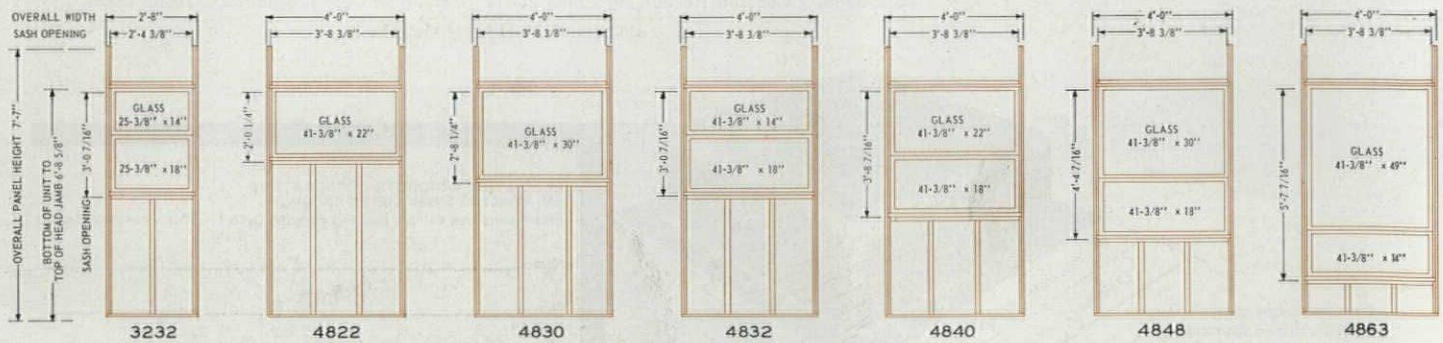
Precision factory assembly of load-bearing side struts, nailers and lower jack studs gives the new Andersen Strutwall unusual resistance to racking. Provides the tightest possible joining of window and wall. Cuts framing and installation two-thirds—from around 22 steps to 7.

To install the new Strutwall, the two load-bearing struts are cut to fit the header construction used. The component is nailed to adjacent studs, tilted up with the wall. Such simplicity practically eliminates the chance of carpentry errors—and callbacks.

There are even bigger advantages in mullions and larger openings. New Strutwalls are simply butted against each other. Because there's structural support at 4-foot intervals, nothing heavier than two 2 x 6 headers are needed in single story construction.

The new Andersen Strutwall fits any type of frame construction—including panel systems. It's been perfected and proved by field tests all over the country.

The Strutwall is sold throughout the United States and Canada. For more information or specification data, write Andersen Corporation, Bayport, Minnesota.



Available in 7 sizes, 2 styles! Andersen makes seven sizes of the new Strutwalls, two sizes of Strutwall door frames. Window components include both famous Beauty-Line* and Flexivent® styles.

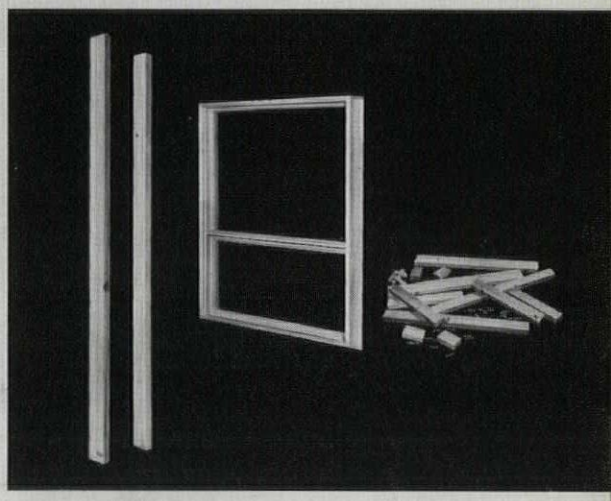
*Patent pending.

Andersen Windowalls

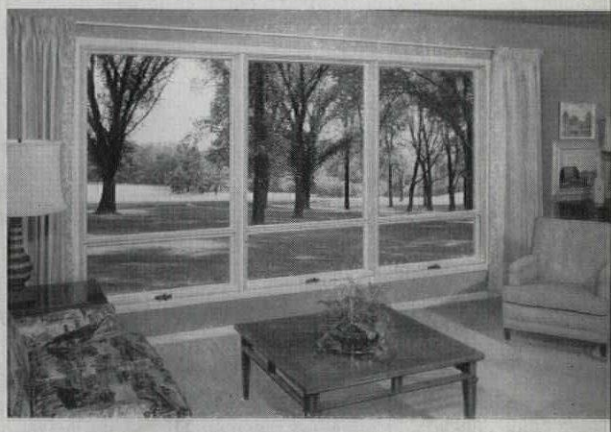
TRADEMARK OF ANDERSEN CORPORATION

ANDERSEN CORPORATION • BAYPORT, MINN.

Simple, error-proof construction! Just cut two load-bearing struts to fit header construction. Nail Strutwall to adjacent studs, tilt up with the wall. This cuts installation steps two-thirds. Practically eliminates chance of carpentry errors and callbacks.



Saves materials, costs less installed! New Andersen Strutwall eliminates the two long cripples on the left, requires two 2x6's instead of heavier headers in multiple openings. Builders report a good saving in total installed costs—even when figured against inferior conventional windows.



Fits tighter, looks better! Because all parts of the Strutwall are nailed and glued at the factory, you get unusual resistance to racking —the tightest possible joining of window and wall. Famous Beauty-Line and Flexivent styles add beauty and sales appeal to your homes.

During 1957, plants of these leading U. S. Corporations were among the hundreds roofed with

Whirlpool Corporation	I. B. M.	Firestone Tire & Rubber Company
Illinois Bell Telephone Co.	Standard Oil Company (Ohio)	LeTourneau-Westinghouse Company
Kraft Foods Company	Sears, Roebuck & Company	General Electric Company

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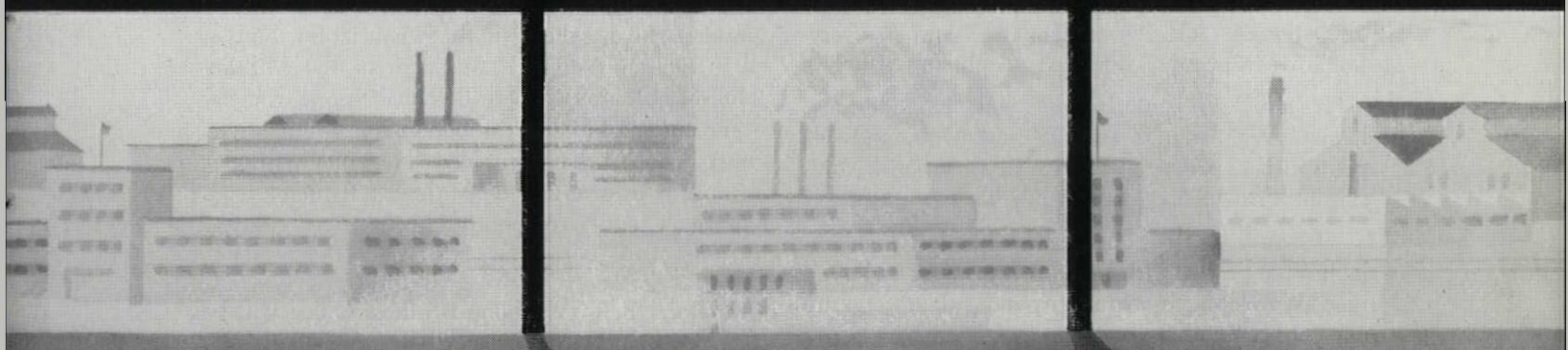
Sylvania Electric Products Inc.	Caterpillar Tractor Co.	Goodyear Tire & Rubber Co., Inc.
Ford Motor Company	Pepsi-Cola Company	Clark Equipment Company



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Eastern Office: Chatham Phenix Bldg., 29-28 41st Ave., Long Island City, N.Y.

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Manufacturer of today's finest roof insulation board

Builder Dale J. Bellamah (right) discusses the location of a telephone outlet with J. P. McBurney of Mountain States Telephone and Telegraph Company.

"Concealed telephone wiring helps me merchandise my homes"

—says Mr. Dale J. Bellamah, Builder, of Albuquerque, New Mexico

"Right now I'm building a community of some 2000 homes," says Mr. Bellamah. "And in every home we're putting concealed telephone wiring.

"It's a real sales aid. It helps me merchandise my homes. We list it in our advertisements, and we point to it as an example of what we mean by our slogan, 'First in size—first in new ideas.'

"If you're in the business of building modern homes for people with modern ideas, you can't expose the telephone wiring any more than you can expose the plumbing!"

Mr. Bellamah is the biggest builder in New Mexico. During the past ten years he has built upwards of 5000 homes. He has been on the Executive Committee of NAHB among many other positions he has held in that Association, and in 1956 he was National Chairman of the Military Housing Committee. Mr. Bellamah is one of many trend-minded builders throughout the country who are convinced that concealed telephone wiring is a modern feature that helps them sell their homes in today's highly competitive market.

* * *

Your local Bell Telephone Business Office will be glad to 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.

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WHEN YOU PLAN GYMNASIUMS . . . REMEMBER . . .
THE FINEST GYMNASIUM EQUIPMENT IN THE INDUSTRY
IS SURPRISINGLY COMPETITIVE IN PRICE.

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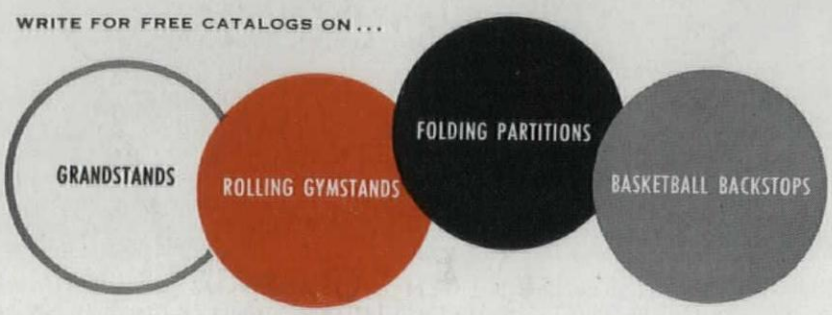

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FOR EXTRA QUIET, UNDERFOOT COMFORT,

This cross-section photograph shows how the layer of foam in Armstrong Cushion-Eze Underlayment adds extra "give" to resilient floors . . . makes them luxuriously quiet and comfortable underfoot.

AND EASE OF MAINTENANCE

the flooring spec: Armstrong Floors
(Tile or Sheet Form)

with new CUSHION-EZE FOAM UNDERLAYMENT

Here's a new product developed by Armstrong that enables you to add the underfoot luxury of foam cushioning to resilient floors—both sheet and tile form. Cushion-Eze Underlayment is a thick springy layer of foam bonded to felt. It gives resilient floors unusual comfort and quiet, as well as simplifying maintenance. You can specify it with Armstrong floors of Linoleum . . . Linoleum Tile . . . inlaid vinyl sheet Corlon . . . and Linotile. The results are revolutionary.

EXTRA QUIET

Cushion-Eze Underlayment lets the flooring surface "give" gently underfoot. This cushioning action greatly reduces the sound of footsteps, rolling carts and equipment, and dropped objects. In residential and other light construction, it also helps sound condition interiors by reducing noise transmitted through the floor and ceiling to areas below.

EXTRA COMFORT

The springiness of Armstrong floors with this new underlayment luxuriously cushions every footstep. Intriguingly comfortable and relaxing, resilient floors with Cushion-Eze Underlayment effectively reduce fatigue for people on their feet all day.

EXTRA EASE OF MAINTENANCE

The accented resiliency of floors with Cushion-Eze Underlayment helps prevent dirt and grit from being ground into flooring surfaces. Thus, resilient floors become easier to clean than ever, more resistant to scratches and marring.

EXTRA EASE OF INSTALLATION

Very light and flexible, Cushion-Eze Underlayment can be easily and quickly installed. It can be used over almost every kind of suspended subfloor. The foam construction absorbs floor-board movement and conceals minor subfloor irregularities.

FOR REMODELING PROJECTS

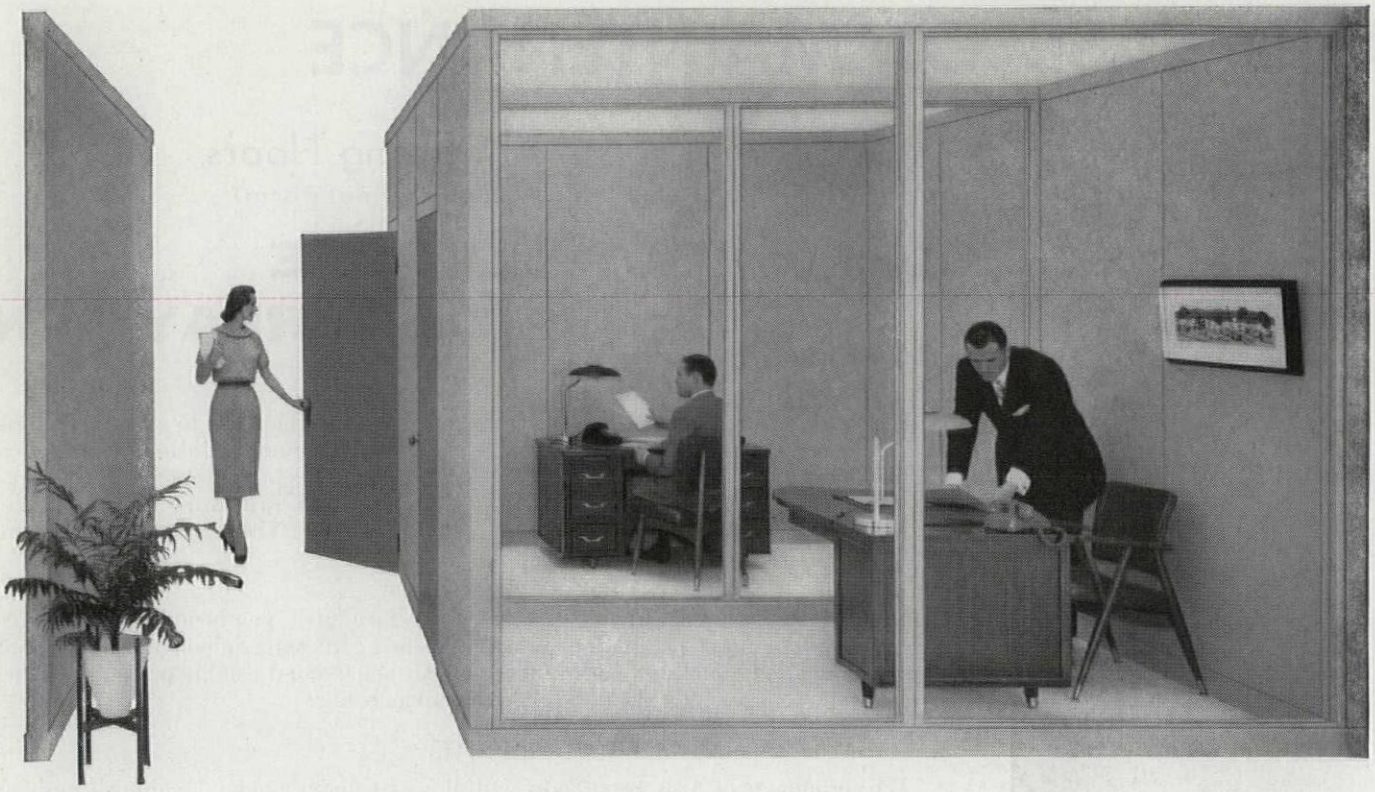
Cushion-Eze Underlayment can be used right over most old resilient floors—an important factor in residential and commercial remodeling. It makes replacing resilient floors faster, less costly and inconvenient than by traditional methods of ripping up the old floor, sanding the subfloor, or nailing down hardboard.

COST

The use of Cushion-Eze Underlayment adds relatively little to the cost of the resilient floor installation. For its extra advantages—increased comfort and quietness, lower maintenance costs—it's an exceptional value. In remodeling, it can mean a real saving where the old resilient flooring need not be removed.

For free samples of Cushion-Eze Underlayment, complete specifications and other relevant data, call the Armstrong Architectural-Builder Consultant at the nearest Armstrong District Office. Or write direct to Armstrong Cork Company, 1404 Watson Street, Lancaster, Pa. Armstrong Architectural-Builder Consultants are at your service to help you select the resilient floors best suited to any need. Armstrong makes all types of resilient floors, so "ABC" Consultants can make unbiased recommendations. And they can call in the Armstrong Bureau of Interior Decoration for design assistance; the Research and Development Center on technical problems.

Armstrong FLOORS



new low cost Hauserman Walls

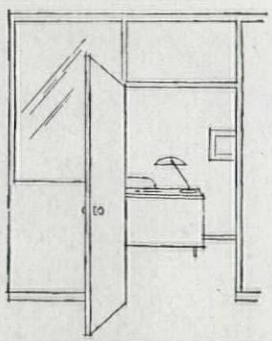
meet space division requirements handsomely

Low initial cost, streamlined appearance, complete re-usability and easy access to utilities... these are outstanding features of the newest addition to HAUSERMAN'S complete line of movable interior walls.

This entirely new wall system presents a perfectly flush appearance with thin single-line joints between panels. Its beauty is enhanced by trim 3" thickness, proportioned 4" base and slim 2½" posts between glass lites. You have your choice of baked-enamel colors, as well as clear and obscure glass patterns.

Precision engineering and manufacturing insure complete re-usability when new floor plans are desired. Rapid delivery to your job site with fast installation by expert HAUSERMAN erection crews insures early occupancy.

Consult your nearby HAUSERMAN representative for the complete story on this new low-cost wall system. He's listed in the Yellow Pages (under PARTITIONS).



42" CHAIR RAILS with glass above are offered in addition to floor to ceiling wall panels and full-lite glass panels.

A complete line to meet every space division need

MOVABLE HAUSERMAN INTERIOR WALLS

THE E. F. HAUSERMAN COMPANY
7462 Grant Avenue, Cleveland 5, Ohio
Hauserman of Canada Ltd.
91 Yonge Street, Toronto, Ontario

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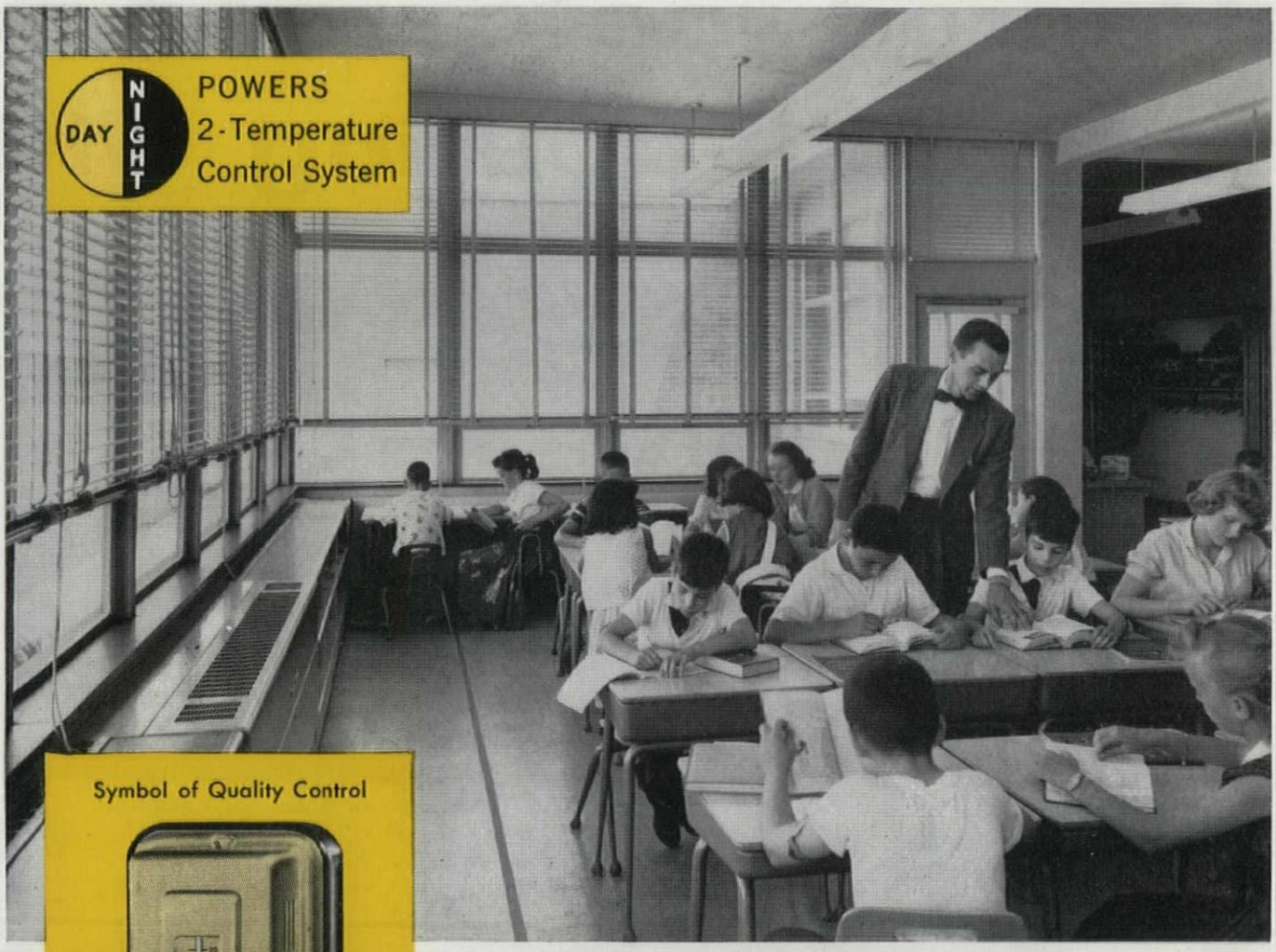
Company_____ Title_____

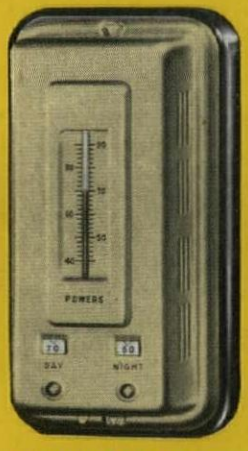
Street_____

City_____ Zone____ State_____

Free Booklet



Symbol of Quality Control



Powers DAY-NIGHT Thermostats accurately maintain set temperatures. They need no frequent checking or readjustment.

Powers PACKLESS Control Valves are labor savers. They prevent water leakage, banish packing maintenance and give better control due to reduced valve stem friction.

Fuel Savings alone pay back its cost

plus COMFORT for Teachers and Students

POWERS Quality DAY-NIGHT System of TEMPERATURE CONTROL

Good School Planning now includes Powers DAY-NIGHT Thermostats. They stop fuel losses due to wasted heat in unoccupied rooms and prevent OVER-heating in occupied rooms. Each Thermostat is adjustable for normal temperatures during occupancy and lower economical temperatures during unoccupied periods.

Low Cost Maintenance—Simplicity and reliable year after year operation with little attention, is characteristic of Powers Control. Each installation is individually engineered to give top-quality performance.

Prompt Service—if required, by skilled Powers engineers and mechanics.

Planning a New School? To get the biggest return on the investment in the heating and ventilating system ask your architect or engineer to include a Powers DAY-NIGHT Control System. For further information call our nearest office or write us direct.

(c66)

THE POWERS REGULATOR COMPANY

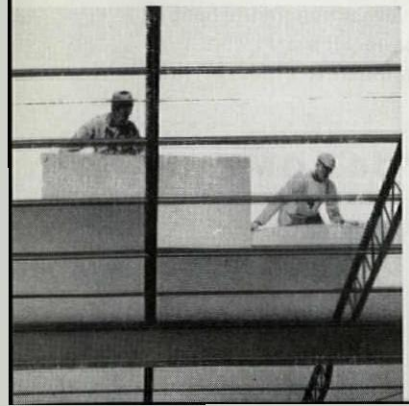
SKOKIE, ILLINOIS | *Offices in chief cities in U.S.A. and Canada*

65 years of Automatic Temperature and Humidity Control

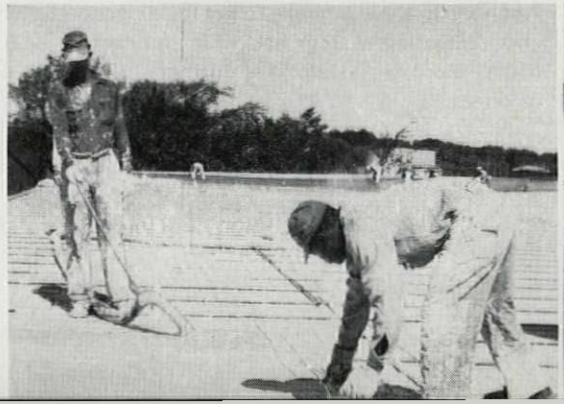
Poured roofs need no no double-pouring, with

ONE MAN quickly lifts, carries, places panels up to 12′ lengths

Primed ceiling surfaces



Quick, simple single pour with either gypsum or concrete decks



additional insulation, Insulite Form Boards

Strong, light panels, in lengths to 12 feet, carry heavier loads with less deflection

For poured-in-place roof decks, it is *not* necessary today to sacrifice strength for insulation . . . or fine appearance for speed . . . or economy for quality. You can have *all these advantages together*, by the use of Insulite Roof Form Board.

Strength? Yes. Along with its excellent insulating value, Insulite Form Board has exceptional strength. No scratch coat is needed . . . yet even with rapid single pour, minimum deflection is assured.

Economy? Yes. Insulite weighs *one-third less* than some types of boards; so two man handling is never needed. Even more important, *no additional roof insulation is needed* — a major cost-reducing factor.

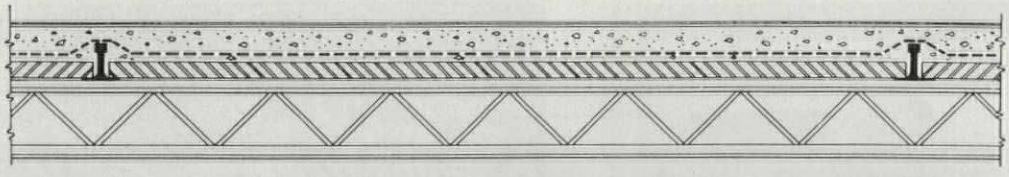
Speed? Yes. Every piece is precision cut for quick, perfect fitting between the sub-purlins. With lengths to 12 feet, workmen can speedily place Insulite Roof Form Board with all end joints falling on the joists.

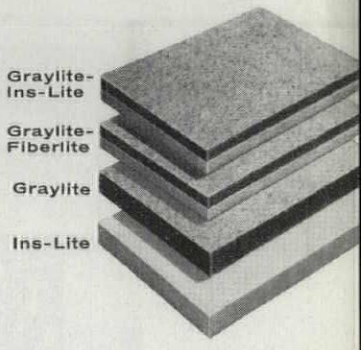
For absolute safety and satisfaction, Insulite also gives you: primed ceiling surfaces, with high light reflection . . . good acoustical properties . . . moisture and fungi resistance . . . and excellent porosity, to assist rapid drying of the deck.

Want complete information on Insulite Roof Form Board? Write us—Insulite, Minneapolis 2, Minnesota.

Choose from these 4 types:

Insulite's four versatile Roof Form Boards are made from three basic materials—Graylite, Ins-Lite and Fiberlite. All are composed of hardy Northern wood fibers. Thicknesses are 1″ and 1½″. GRAYLITE is asphalt impregnated, for special strength and moisture resistance; color is gray-brown. INS-LITE is similar to Graylite, does not have asphalt treatment, is light in color. FIBERLITE resembles Ins-Lite, but has coarser fiber, lower density, and therefore better insulating and acoustical properties. Both Ins-Lite and Fiberlite may be ordered with or without primed ceiling surfaces. Either may be ordered in combination with Graylite, as shown at right. Drawing below shows typical section of poured roof deck with Insulite Roof Form Board. Note that intermediate cross tees are not needed





build better, save labor, with

INSULITE

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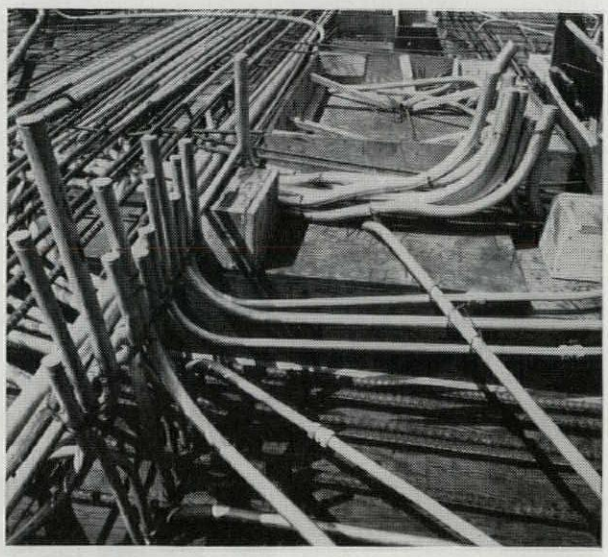
MOST FOR YOUR MONEY! Republic Steel Kitchens complete your client's home Ec Department. At minimum cost. Blend with all latest appliances. Easy to install, easy to maintain, built to serve. Wide choice of styles and sizes for design flexibility. Cabinet sinks, wall, base and special-purpose cabinets including built-in range and oven cabinets. White, Yellow, Turquoise, Pink. Send coupon.



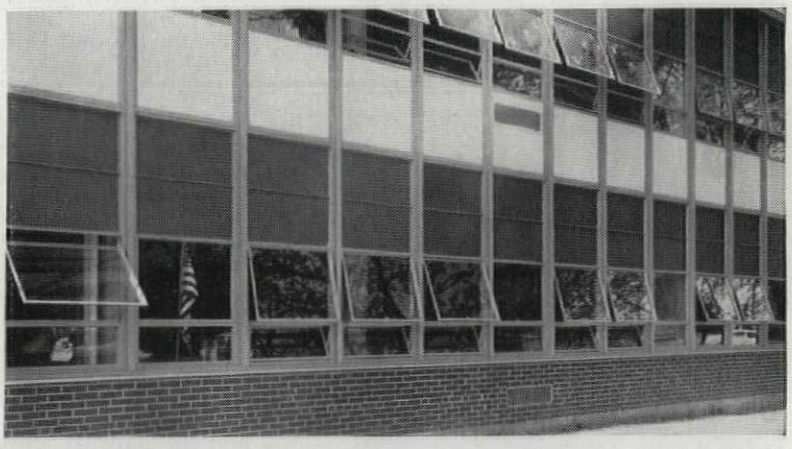
THE BEST COSTS LESS INSTALLED. That's the capsule story of Republic ELECTRUNITE® E.M.T.—the original lightweight threadless rigid steel electrical raceway. Easiest of all the install. Adequate-size ELECTRUNITE E.M.T. means electrical flexibility—a pull-in, pull-out wiring system that can be expanded as future electrical requirements, and circuits, grow larger . . . without costly remodeling. Send coupon for facts. Photo: ¾-inch and 1-inch ELECTRUNITE E.M.T. in Emory University, Atlanta, Ga. Robert & Co. Associates, architect and engineer.

BEST VALUE PER CONSTRUCTION DOLLAR

10 Reasons Why!

- **BONDERIZED!** Exclusive Republic feature. Provides superior base for enamel. Protects against rust, corrosion. Protects locker against damage due to bumps, scratches, abrasion.
- **BAKED ENAMEL!** Over clean, cold rolled Bonderized Steel. Sprayed on with latest electrostatic equipment. No dust. No dirt. In green, grey, beige, and special colors.
- **WIDEST CHOICE OF TYPES AND SIZES!** You name it. Republic's Berger Division makes it. Ten standard types may be grouped in various ways to meet your exact requirements. Space-saving, functional sizes. For corridors, classrooms, gymnasiums, auditoriums, laboratories, field houses, everywhere.
- **THREE LOCKING METHODS!** Specify standard flat key lock, padlock attachment, or exclusive Key-Control in which the key is the handle.
- **ACCESSORIES!** To meet your needs. Legs for free-standing installation. Sloping tops. "See-through" doors. Basket racks, basket trucks, baskets.
- **PLANNING AND ENGINEERING SERVICE!** Takes the whole job off your hands. Recommends the right lockers for your needs and for future needs.
- **RESPONSIBILITY FOR INSTALLATION!** Right down to tightening of the final bolt. Straight line, single source savings.
- **ON-SCHEDULE DELIVERY!** The leader in lockers delivers as-promised. General contractor schedules locker installations to conform with masons, plasterers, carpenters.
- **MASS-PRODUCTION ECONOMIES!** Republic's Berger Division is leading producer of locker equipment, geared to big volume runs. Your client saves.
- **MOST EXPERIENCED!** No other manufacturer can approach Republic's Berger Division in number of locker installations made. No other manufacturer knows this specialized business so well.

Specify Republic Steel Lockers and get most for your money.



LOWEST COST PER CLASSROOM made possible with Truscon Vision-Vent® Window Walls. Here's a completely factory-assembled curtain wall with window and insulated panel. Vision-Vent gives you all the mass-production and installation economies of standard steel windows. Designed, built and pioneered by Republic's Truscon Steel Division. Send coupon. Photo: Ludlow School, Ludlow, Ky., Potter, Tyler, Martin and Roth, architects.

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Name_____ Title_____

Company_____

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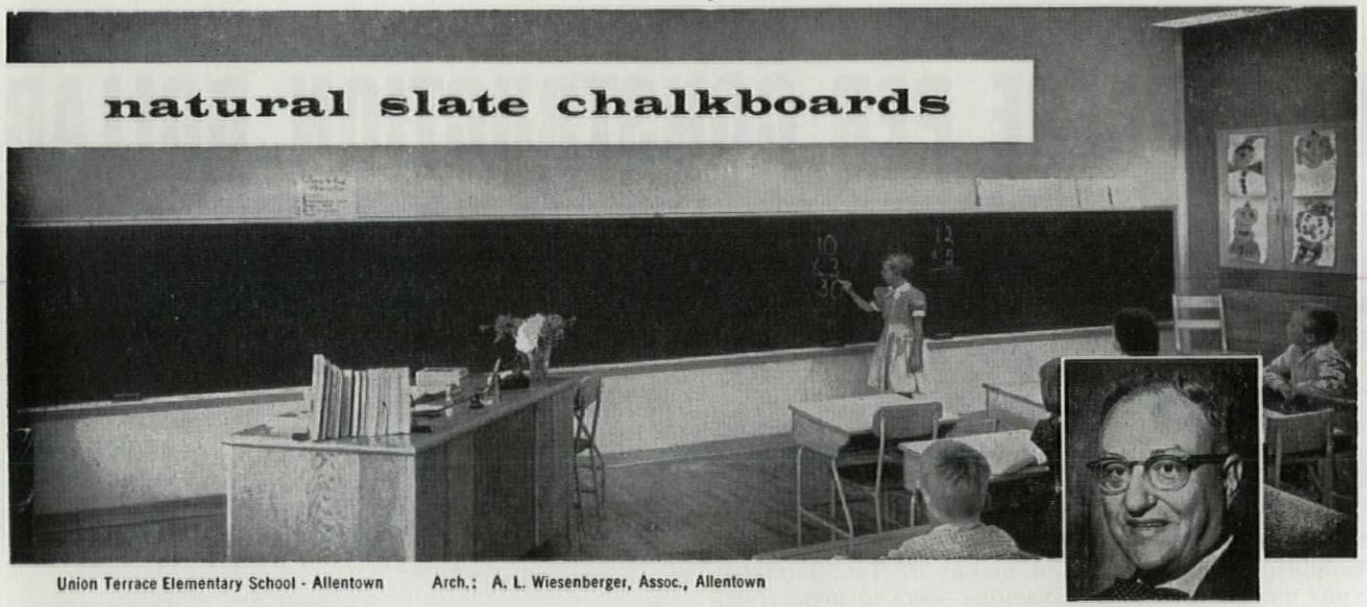
City_____ Zone____ State_____

natural slate chalkboards



Union Terrace Elementary School - Allentown Arch.: A. L. Wiesenberger, Assoc., Allentown

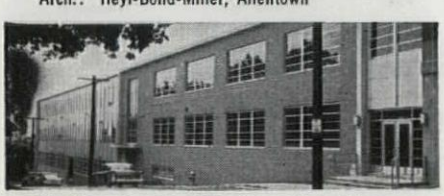
"First and Only Choice of the Allentown, Pa. School District"

. . . says Mr. Paul J. Fink, Assistant to the Superintendent of Schools

Midway Manor Elementary School - Allentown
Arch.: Heyl-Bond-Miller, Allentown

Muhlenberg Elementary School Addition - Allentown
Arch.: Lange & Everett, Allentown

South Mountain Junior High School - Allentown
Arch.: Heyl-Bond-Miller, Allentown



Vocational Annex to Senior High School - Allentown
Arch.: George E. Yundt, Allentown

"There is no substitute for the real thing! Nothing is easier on a child's eyes than the contrast of white chalk against a slate chalkboard. Words stand out crisp and clear . . . are quickly read by all."

"We have found Pennsylvania slate to be practically indestructible as we're still using some of the original slate boards in one of our recently renovated schools . . . boards installed when the school was built in 1886! After close to 70 years, these boards are still ably serving our students and teachers. What's more, they fit in perfectly with their new, modern surroundings. No wonder we are sold on slate and specify it in all our schools."

That's the feeling of Mr. Paul J. Fink of the Allentown School District. And the facts bear it out. Since 1950, this district has renovated or built additions to 7 elementary schools, built 2 new elementary schools and a junior high school, added a vocational annex to the senior high school, and construction is now under way for another new junior high school. In each case, natural slate chalkboards were specified.

Why not investigate slate chalkboards for your classrooms? You'll find for contrast, durability, easy maintenance . . . and timeless good looks . . . there is just no substitute for slate!

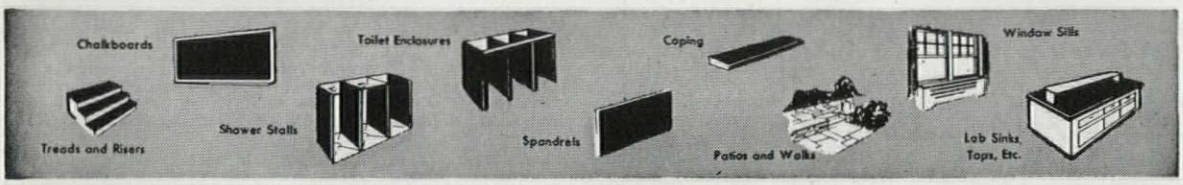
Inquiries welcomed on specific properties of slate. Write:

NATURAL SLATE BLACKBOARD CO.

THE STRUCTURAL SLATE CO. - pen argyl, pennsylvania

for your protection, insist on slate quarried in Pennsylvania

natural slate...500 million years in the making



Pictured is new B. F. Goodrich "Corinthian" Koroseal in Grecian Brown and Classic Black with brass feature strips. Just two of six luxurious colors

New 3-dimensional elegance in a vinyl tile that outlasts any other flooring!

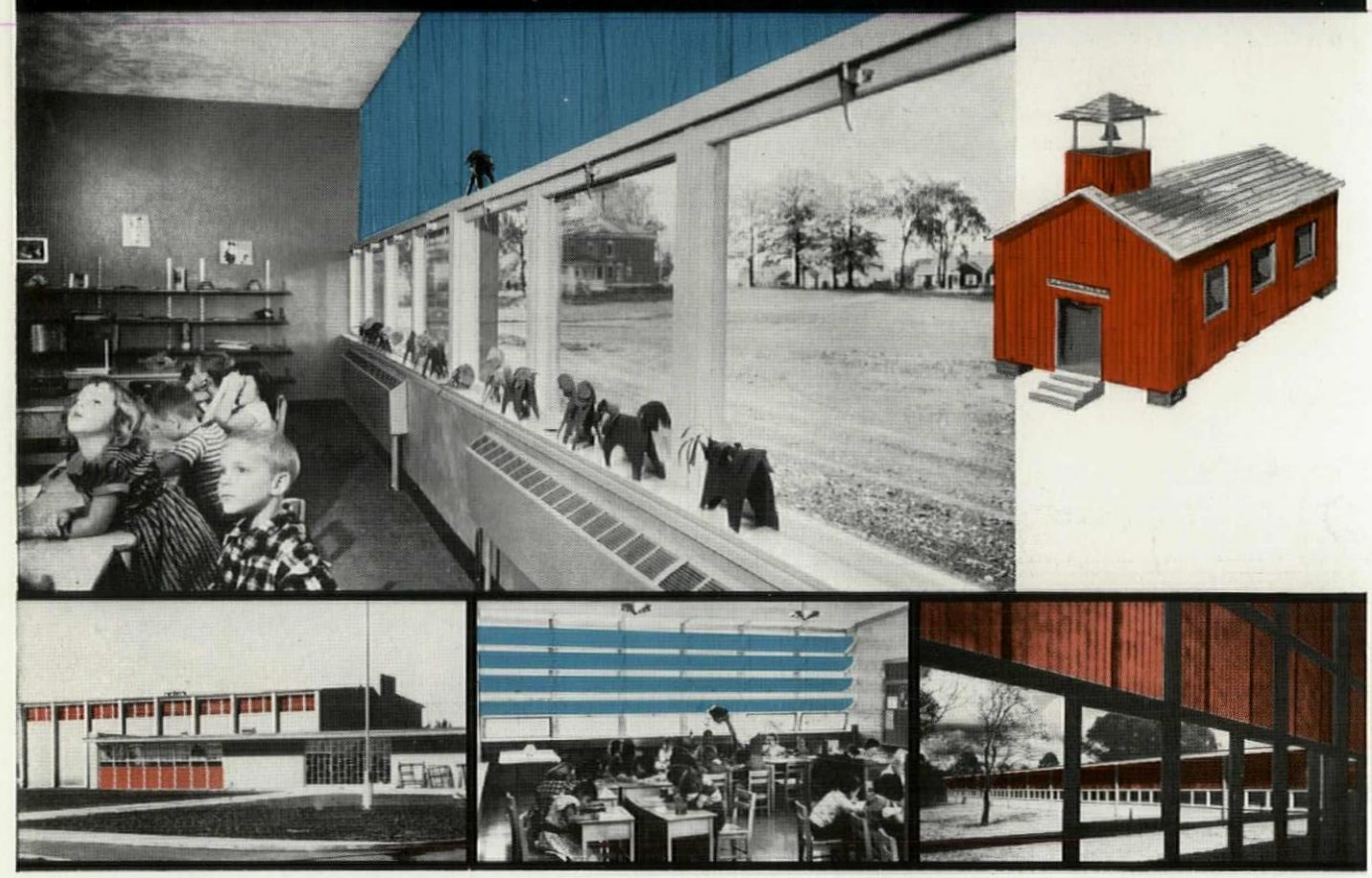
When you want sheer luxury (the ultimate in practicality, too) you want new B. F. Goodrich "Corinthian" Floor Tile. An exclusive process gives this translucent vinyl tile a marble veining of incomparable 3-dimensional beauty.

Corinthian will outwear any other flooring, yet is amazingly resilient and quiet underfoot. Its glistening slip-proof sheen is built in. Stains, oils, grease and detergents can't harm it! Use on or above grade. Tiles ⅛" thickness, 9"x9", also 36"x36" untrimmed. For further information, write:

The B. F. Goodrich Company, Flooring Products, Watertown 72, Mass., Dept. PA-4.

"CORINTHIAN"
Koroseal®
VINYL FLOOR TILE BY
B.F.Goodrich
Flooring Products

Little Red Schoolhouse–
OR MODERN DESIGN?

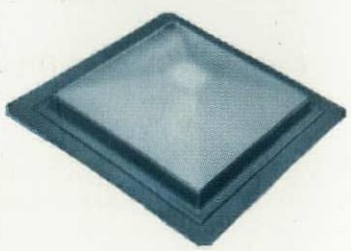


Consider Corrulux for your next school project. For sidewall glazing, covered walkways, patio covers, room dividers and many other applications, Corrulux is without equal.

This colorful translucent paneling goes up fast, can be sawed, nailed or drilled; installation cost is low, maintenance cost is nil. Corrulux transmits abundant daylight, cuts glare. Because it is shatterproof, Corrulux can be used with perfect safety anywhere.

Send for Corrulux samples and literature. Available in various corrugations and sheet sizes; smooth or resin-rich Granitized surface. Write Dept. 35.

The newest Corrulux building product—Double Dome Skylights. Write for brochure.



L·O·F GLASS FIBERS

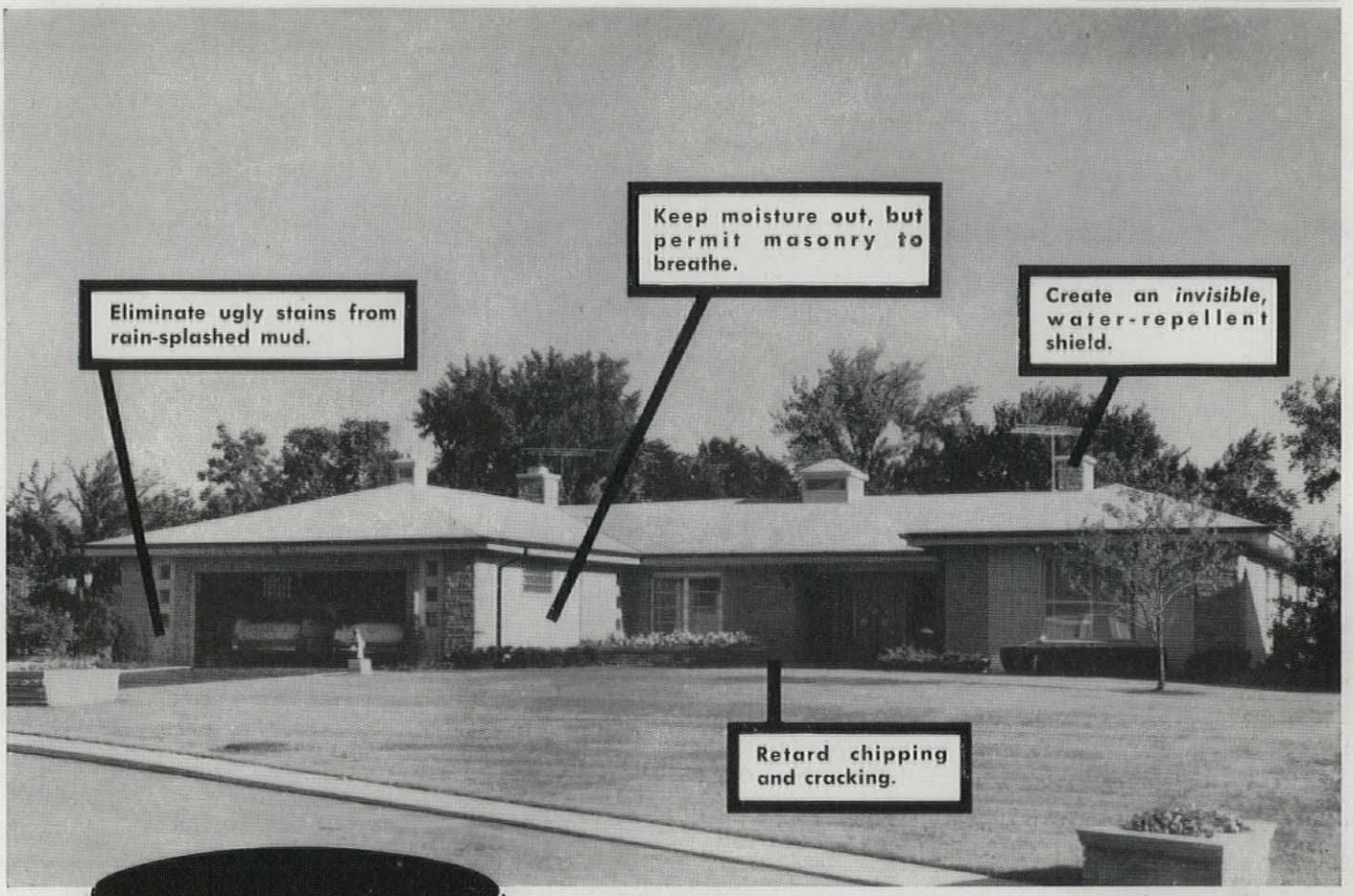
Corrulux®

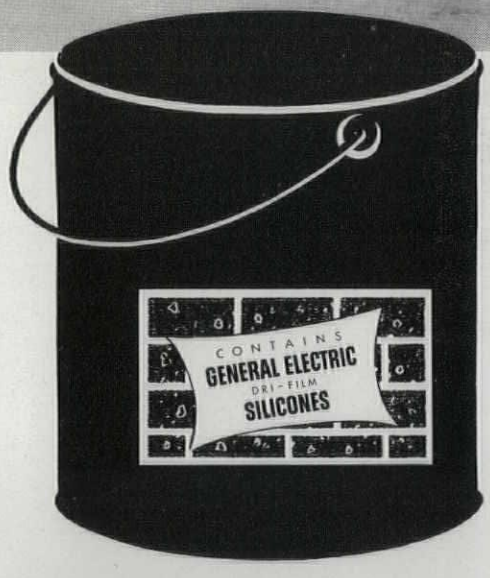
L·O·F Glass Fibers Company

P. O. Box 20026 Houston, Texas

CORRUGATED SHEETS • FLAT PANES • PYROPANL • DOUBLE DOME SKYLIGHTS

G-E silicones help new houses look better, sell sooner





Masonry water repellents made with General Electric silicones are quick and easy to apply. They penetrate *deep* into the capillary pores of masonry, forming an invisible water-repellent shield. This eliminates those ugly stains caused by rain-splashed mud or by dust and dirt on the masonry surface. Rain runs right off, carrying dirt with it.

But that's just the beginning! Silicone water repellents help prevent surface salt deposits; retard chipping and cracking; minimize water penetration and resulting freeze-thaw damage. They keep moisture *out*, yet permit masonry to breathe—thus protecting interior surfaces against peeling and flaking.

A recent survey shows that home buyers expect to pay far more for this protection than the actual cost to you. Find out more about G-E silicones and what they can do for your new homes—in appearance, protection and *sales!* Mail the coupon today.

LOOK FOR THIS LABEL!

General Electric does not market masonry water repellents — it supplies silicones to formulators. This label is your assurance of getting the very finest masonry protection obtainable.

Progress Is Our Most Important Product

GENERAL ELECTRIC

General Electric Company, Silicone Products Department, Section M4S4, Waterford, N. Y.

Please send me all the facts on the application and performance of masonry water repellents made with G-E silicones, and a list of suppliers.

☐ For immediate application ☐ For reference only

Name_____

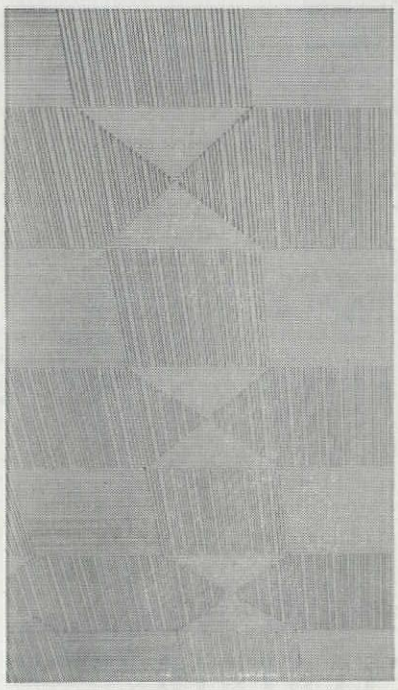
Company_____

Address_____

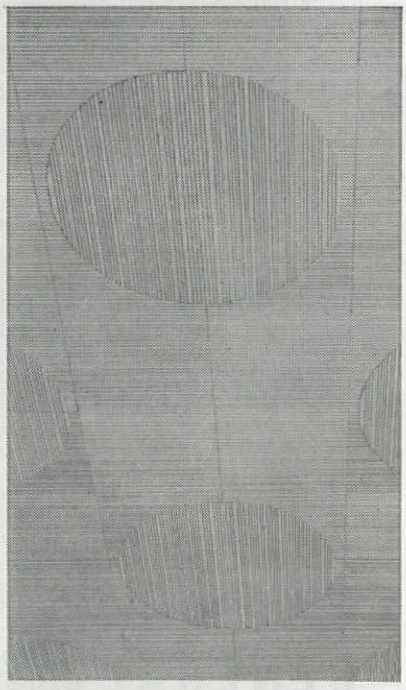
City_____ Zone_____ State_____

This distinctive ashlar-parquet ceiling design was achieved with 24" x 24" Armstrong Crestone installed in a four-sides-exposed grid system. Dumbarton Junior High School, Towson, Maryland.

Registered trade-mark of the Champion Paper and Fibre Company, one of many distinctive custom designs possible with Armstrong Crestone.

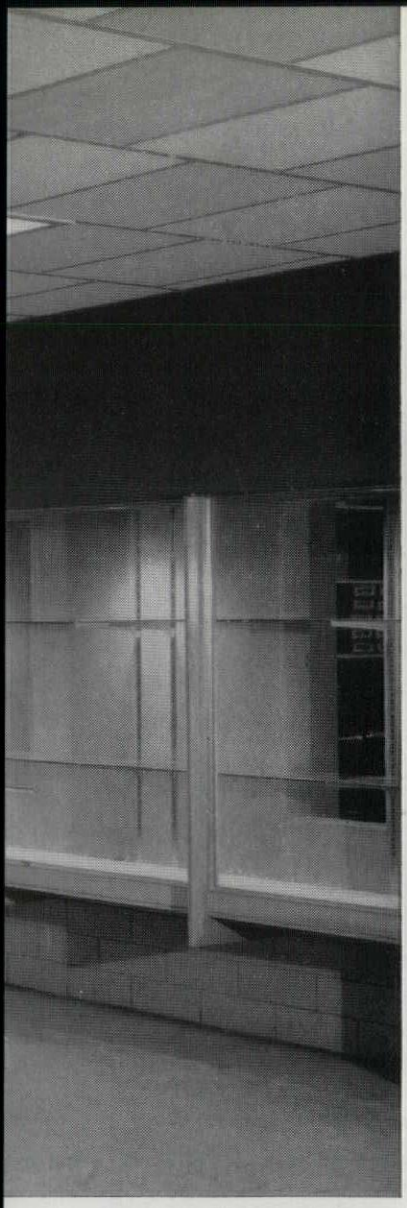


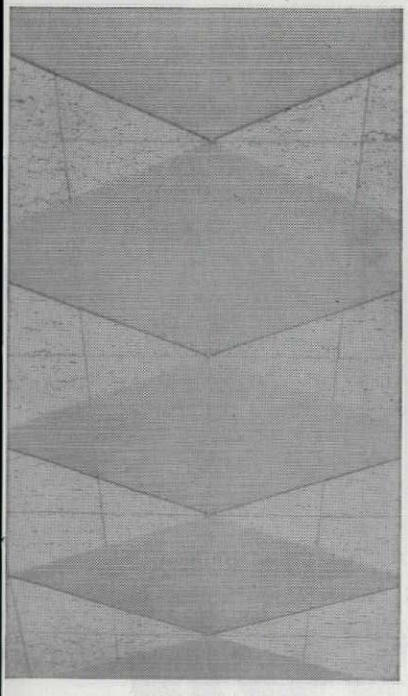
Design 021



Design 022

For the complete booklet, "Design Concepts in Acoustical Ceilings," write the Armstrong Cork Company, 4203 Rock Street, Lancaster, Pa.





Design 028
(with Travertone)

Armstrong Crestone provides unlimited freedom in ceiling design

No longer is the ceiling the forgotten element of interior design. The growing use of attractive new acoustical materials has brought the ceiling forward as a design element to be seen and admired.

No other acoustical material offers you greater design freedom than Armstrong Crestone. Crestone is striated—grooved—to create a textured surface of contemporary beauty. The ridges and valleys form strong directional lines of high light and shadow that can be used in an unlimited number of combinations to create truly distinctive ceilings.

Mineral-fiber Crestone is rated Class A (Incombustible) under Federal Specification SS-A-118b. It carries the Underwriters' Label. Finished with a washable white paint, Crestone can be easily cleaned and, when necessary, can be repainted without appreciably affecting its sound-absorbing qualities.

For full details and samples, call your nearest Armstrong District Office, your Armstrong Acoustical Contractor, or write the Armstrong Cork Company, 4204 Watson Street, Lancaster, Pennsylvania.

Armstrong

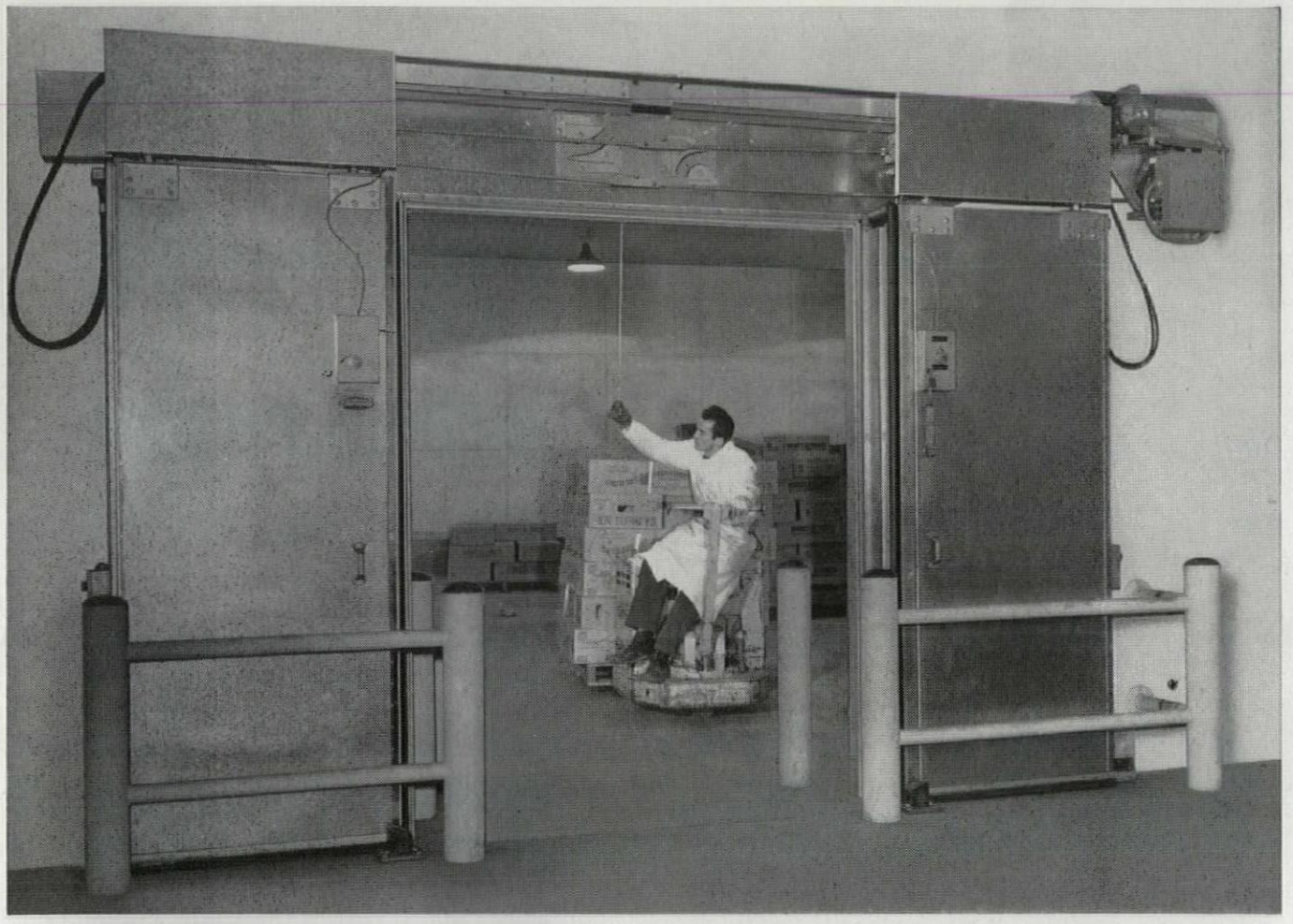
ACOUSTICAL CEILINGS

Cushiontone • Travertone • Arrestone

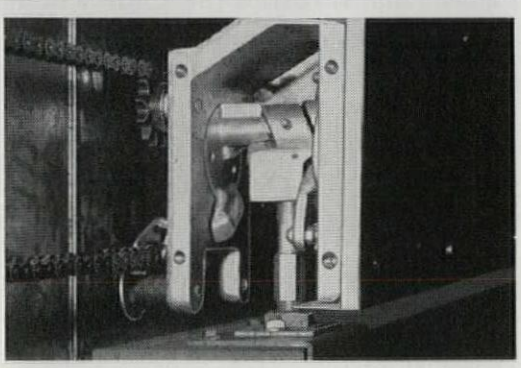
Minatone • Corkoustic • Crestone

Custom Minaboard

New Jamison *Electroglide** Power Door speeds traffic, saves refrigeration *automatically!*



Electroglide offers famous Jamison Cold Storage Door quality and performance plus a completely new design for power operation. Both bi-parting and single leaf Electroglides are available to meet all job requirements.



EXCLUSIVE CAMLOK COMPRESSION SEAL—Jamison Camlok cams doors "in" against frame and "down" against floor at all points.

These other exclusive features mean dependable, smooth operation.

SHOCK ABSORBER CHAIN LINK—reduces wear and tear

SPRING LOADED SUSPENSION—minimizes power requirements

IMPROVED SAFETY EDGE—sensitive full height and full travel of door

SEALED-IN-OIL REDUCTION GEAR—trouble-free operation, minimum maintenance

High volume traffic can now speed on its way in busy cooler and freezer operations with minimum loss of refrigeration. Electroglide is specifically designed to accelerate truck movement with its instant automatic opening and closing.

Rapid smooth opening—Spring suspension helps doors open easily and smoothly. Doors move "out" and "up", riding on level tracks with gaskets clear of sill and frame.

Electroglide is made for both cooler and freezer use. Write today for new Electroglide bulletin to Jamison Cold Storage Door Co., Hagerstown, Md.

*JAMISON TRADEMARK

JAMISON
COLD STORAGE DOORS

"Personally, I always specify Lewin-Mathes Copper Tube"

We welcome stiff-necked specifications.

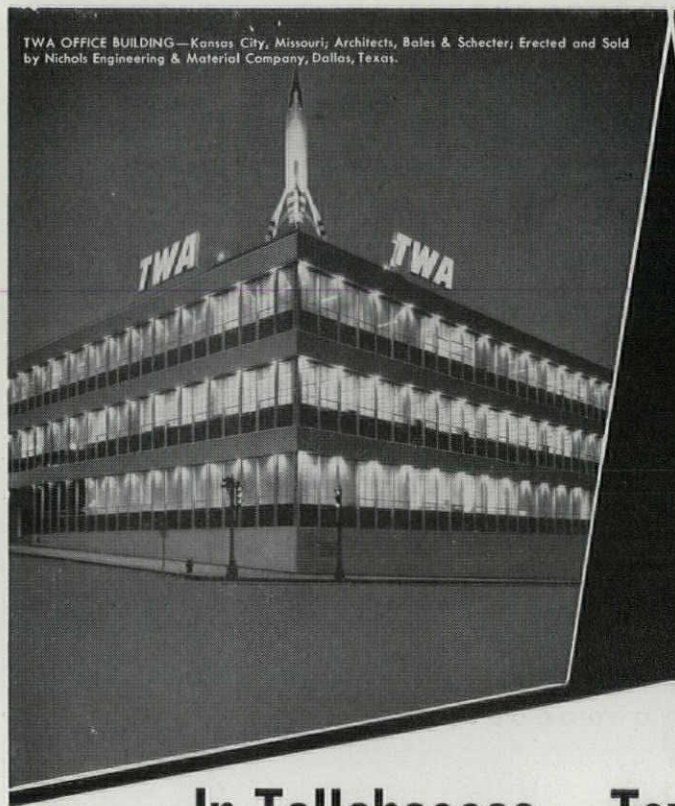
We meet them . . . because the copper we form into tube is first *refined by us* in our own plant.

We meet them . . . because Lewin-Mathes' *completely integrated operation* permits a standard of quality control—from raw material to packaged tube—that is unsurpassed anywhere in the industry.

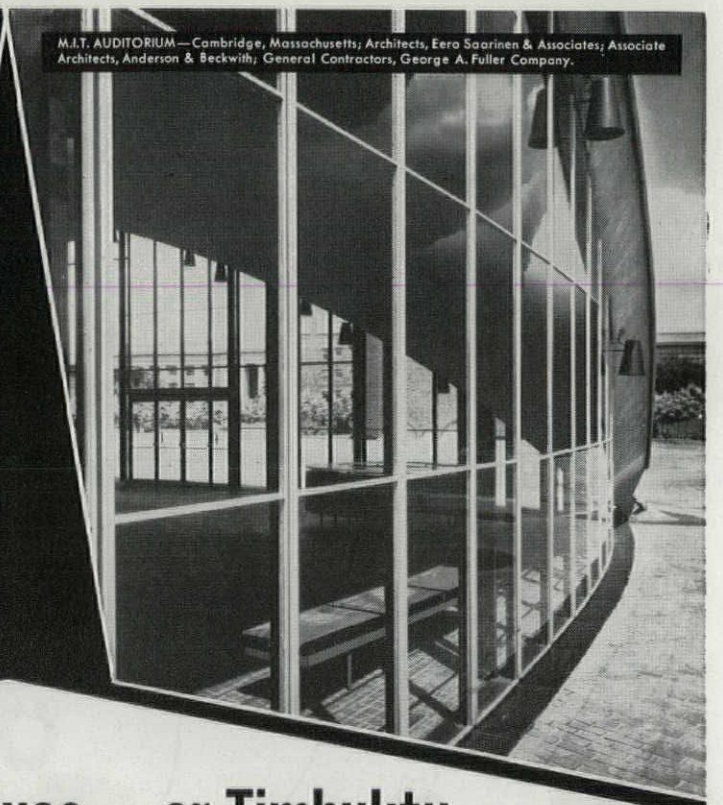
As refiners, we know the copper going into Lewin-Mathes Tube is pure. As fabricators, we painstakingly control every physical and chemical property of the finished product. And as *integrated specialists*, we take pride in delivering every foot of Lewin-Mathes Copper Tube uniform and perfect . . . to meet your most exacting requirements.

Nothing primitive about Lewin-Mathes supply facilities. Our products are available through Wholesale Distributors, serviced by Lewin-Mathes Mill Depots throughout 48 states.

LEWIN MATHES
SAINT LOUIS, MISSOURI
COPPER AND BRASS TUBE PIPE AND ROD
DIVISION OF CERRO DE PASCO CORP.

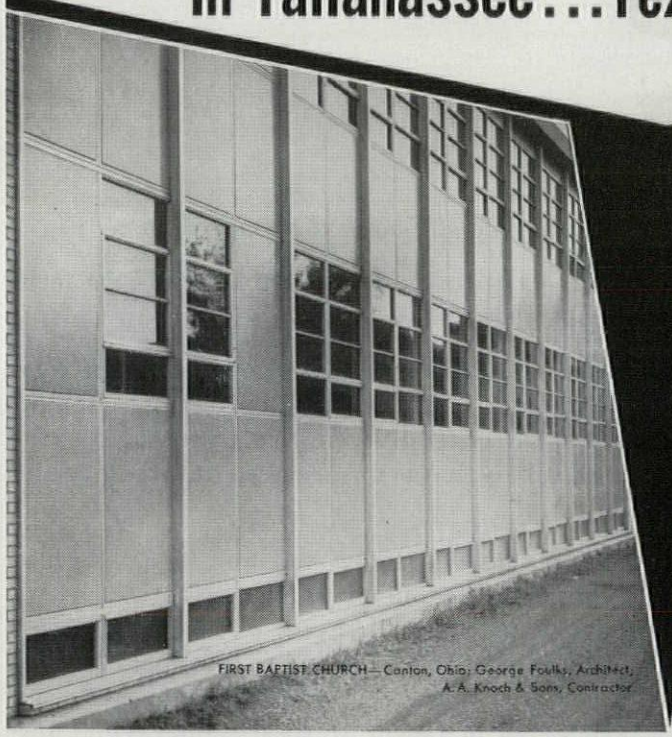


TWA OFFICE BUILDING—Kansas City, Missouri; Architects, Bales & Schecter; Erected and Sold by Nichols Engineering & Material Company, Dallas, Texas.

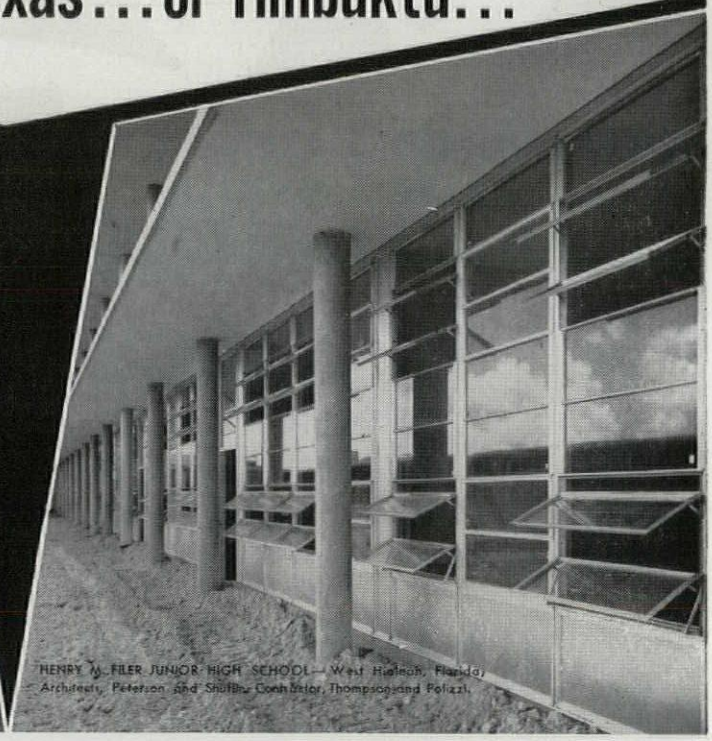


M.I.T. AUDITORIUM—Cambridge, Massachusetts; Architects, Eero Saarinen & Associates; Associate Architects, Anderson & Beckwith; General Contractors, George A. Fuller Company.

In Tallahassee...Texas...or Timbuktu...



FIRST BAPTIST CHURCH—Canton, Ohio; George Foulks, Architect; A. A. Knoch & Sons, Contractor.



HENRY M. FILER JUNIOR HIGH SCHOOL—West Hialeah, Florida; Architects, Peterson and Shutts; Contractor, Thompson and Polizzi.

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ARE CUSTOM-DESIGNED TO MEET YOUR SPECIAL NEEDS

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TOMORROW'S BRIDGE: giant spans of concrete

"These twin spans of prestressed concrete carry a thruway across a river at minimum cost, eliminating piers, reducing weight, keeping thruway lanes separated. Construction is simplified, since a single set of forms can be used to cast concrete for both spans. And for a large-scale highway program, bridge sections can be mass-produced for any number of bridges. Spans as long as one-fifth of a mile can be supported by the arches wedged within the river banks. Such practical, economical designs can now be realized in adaptable concrete."

DESIGNERS: MYRON GOLDSMITH & JAMES D. FERRIS—*Skidmore, Owings & Merrill, Architects and Engineers*
CONSULTANT: PROF. T. Y. LIN—*University of California*

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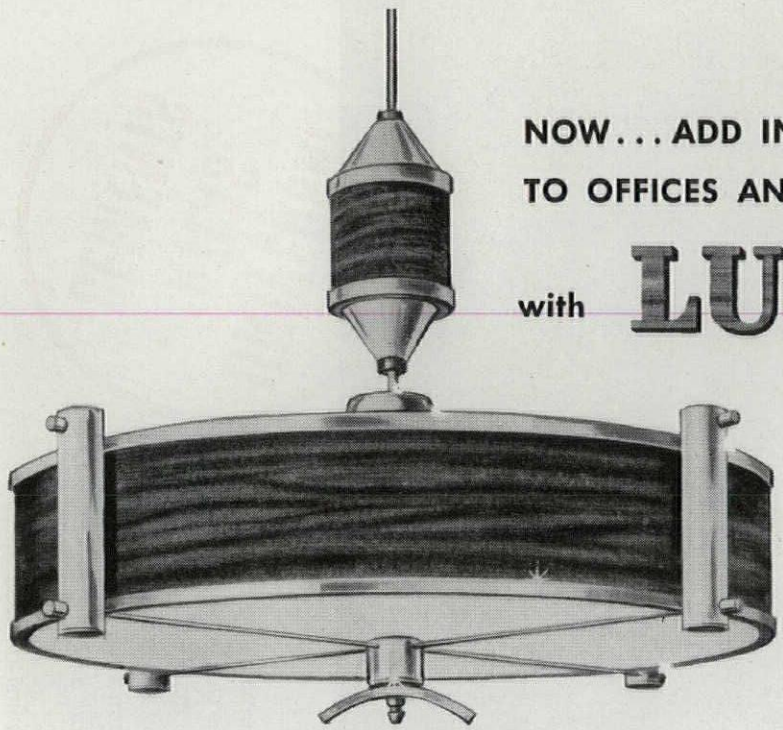
One of a series of advertisements being presented in national magazines by Universal Atlas – to promote interest in architectural contributions for a greater America through the medium of concrete.

UNIVERSAL ATLAS CEMENT COMPANY, 100 Park Ave., New York 17, N. Y.—MEMBER OF THE INDUSTRIAL FAMILY THAT SERVES THE NATION—**UNITED STATES STEEL**

ATLAS PORTLAND CEMENT • UNIVERSAL PORTLAND CEMENT • ATLAS DURAPLASTIC PORTLAND CEMENT • UNIVERSAL PORTLAND SLAG CEMENTS • ATLAS MORTAR CEMENT • ATLAS WHITE PORTLAND CEMENTS • ATLAS LUMINITE CEMENT • UNAFLO OIL-WELL CEMENT

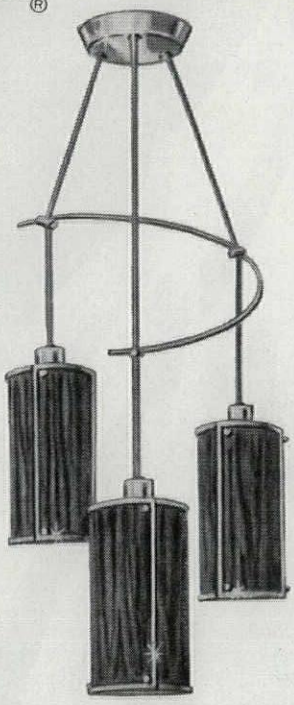
USS



NOW... ADD INDIVIDUALITY AND CHARACTER TO OFFICES AND CONFERENCE ROOMS

with LUXWOOD

BY MOE Light®



***IL FIXTURES BY MOE LIGHT** . . . real cabinet wood fixtures, translucent when lighted, with striking polished brass trim accents. For that extra decorator touch to blend or contrast with furniture, textures and tone.

Five matching fixtures include appealing 3-light cluster and versatile pull-down, together with single pendant and close-to-ceiling pieces in 18½" and 12¼" diameters. Ideal for homes, offices, conference rooms, hotels and specialty shops.

With LUXWOOD fixtures you can add dramatic individuality and a smartly "tailored" appearance that comes from the imaginative use of well-designed decorative appointments.

***Inspiration-Lighting for distinctive commercial applications by Moe Light.**

FREE! IL Lighting Booklet for Professionals

MOE LIGHT'S new commercial lighting catalog. A manual of creative ideas showing a special selection of lighting fixtures for office, hotels, stores and restaurants. Prepared with the Professional in mind. Attach this ad to your letterhead and send to Thomas Industries Inc., Louisville.

THOMAS INDUSTRIES INC.

LIGHTING FIXTURE DIVISION

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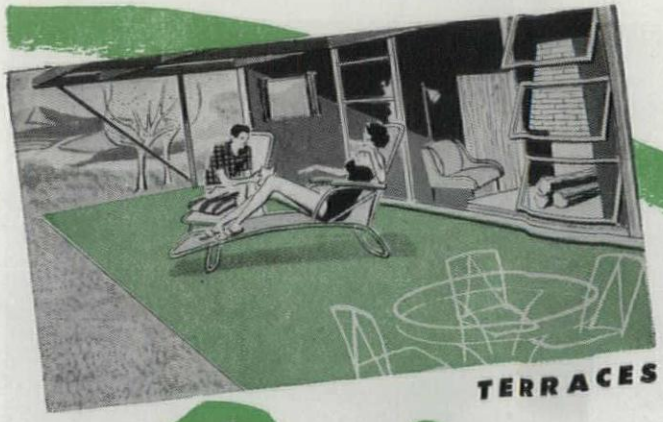
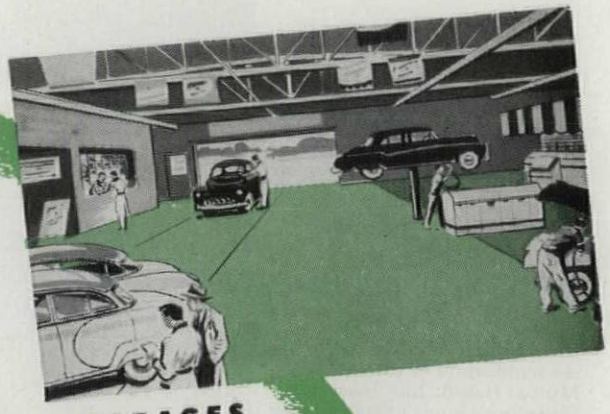
Leaders in Creative Lighting



TERRACES



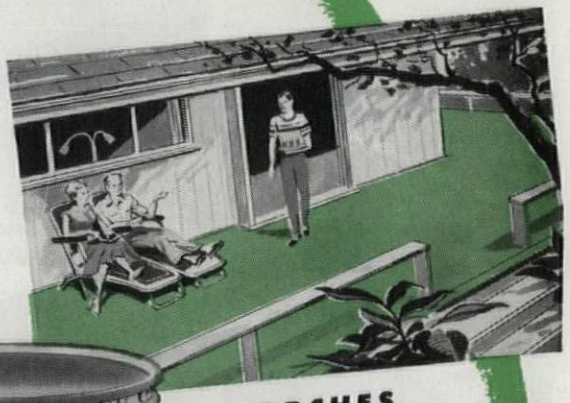
GARAGES

Color FOR CONCRETE FLOORS...

GREATER HARDNESS, TOO!

WITH TRUSCON

ART-ROC AGGREGATE



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BUILT-IN COLOR! Yes, built right into the concrete, forming an integral part of it, giving you a beautifully colored floor . . . rather than plain, drab concrete. Both colors, Tile Red and Spanish Green, have depth and brilliance. Each Art-Roc color offers its own pleasing effect—Tile Red radiates warmth—Spanish Green provides a soothing, cooling motif.

BUILT-IN HARDNESS! Concrete floors protected with Art-Roc are actually twice as hard as iron, can last up to twice as long as ordinary concrete. Art-Roc floors resist many cleansers, alkalis and rust . . . as well as *physical* abuse.

BUILT-IN PLEASURE! Color pleases. Color sells. Color makes *everyone* react favorably . . . provides tremendous contrast to lackluster, plain, neutral surfaces.

AND SINCE ART-ROC is so low in cost—and so easy to apply—it's a real pleasure to *use*, as well as to behold!

*Also used in walks, driveways, salesrooms, factories, laundries and all types of institutions, commercial buildings and residences.

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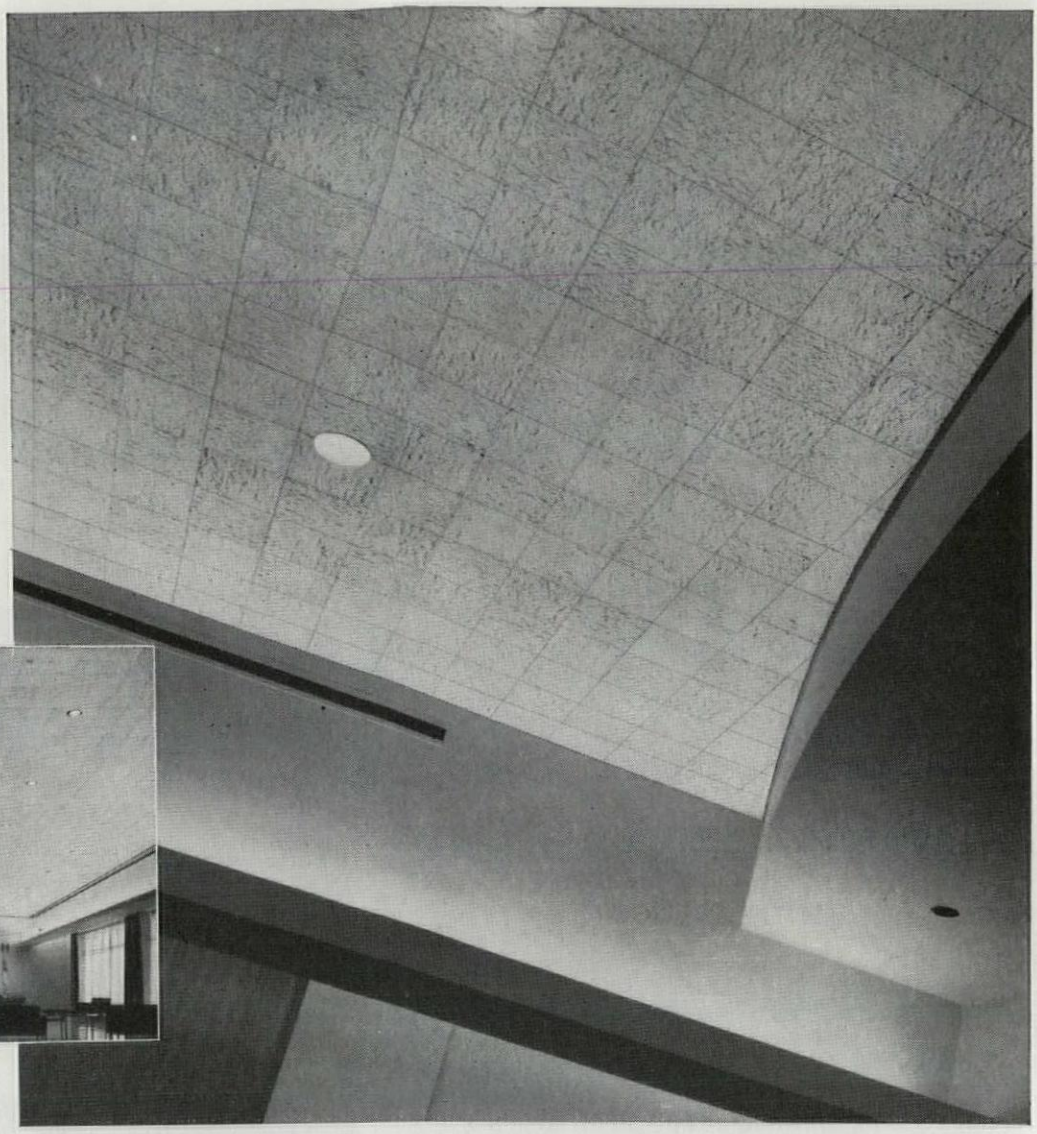
☐ *I am an architect* ☐ *Not an architect*

The stonelike texture of Permacoustic ceiling tile harmonizes with virtually any building material.



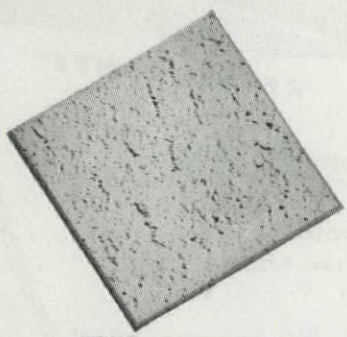
The Permacoustic ceiling in the auditorium of the Mutual Benefit Life Insurance Company's home office building assures correct hearing conditions, enhances architectural beauty.

ARCHITECT:
Eggers & Higgins,
New York, N.Y.

For Noise-Quieting and Decorative Beauty

MUTUAL BENEFIT LIFE

installed Johns-Manville Permacoustic® Ceilings



J-M Permacoustic ceiling panels assure quieter working conditions.

The J-M Permacoustic panels in ceilings throughout the new twenty-story Mutual Benefit Life Insurance Company building, Newark, N. J., provide a stonelike fissured surface with great architectural appeal. Here is a decorative acoustical tile suitable for either modern or traditional architectural design.

Permacoustic ceilings soak up noise like a sponge soaks up water. They keep noise from spreading. The result is comfortable quiet and an increase in business efficiency.

Made of noncombustible mineral wool fibers, Permacoustic ceilings reduce fire hazard. They help safeguard building investment costs.

Johns-Manville's staff of acoustical engineers, located in principal cities, will gladly make analyses and give recommendations on your acoustical problems.

For a free copy of booklet "Sound Control," write Johns-Manville, Box 158, New York 16, N. Y. In Canada, write 565 Lakeshore Road East, Port Credit, Ontario.

100 YEARS

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MicroRold® STAINLESS SHEET

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up to 48" WIDE

BRIGHTER THAN EVER!—MicroRold stainless steel Type 430 in the NEW Bright Finish is now immediately available in sheets up to 48" wide offering new usefulness and economy in stainless fabrication. Produced with the same micro-accuracy of gauge for which MicroRold 36" is well known, Type 430 Bright up to 48" wide gives greater latitude in applications for quality stainless steel.

MicroRold 430 is also available in the regular commercial finishes and MicroRold stainless in other grades are now produced up to 48" wide. Complete details sent on request.

Washington Steel *Corporation*

4-M WOODLAND AVENUE WASHINGTON, PA.

HOW

962 BECAME ONE

962 slim one-story Brown & Grist panels blanket the Pennsylvania Railroad Building in Pittsburgh. Yet the effect is harmonious oneness. Gleaming aluminum mullions lead the eye vertically, while B & G windows and colorful panels give a horizontal unity.

HOW

OUTSIDE WALLS=INSIDE JOB

Just a few men made quick work of assembling light-weight Brown & Grist panel units from the inside. Window glazing was an inside job too! B & G expansion joints are built-in to vertical and floor-line mullions. And B & G panels were factory installed to close weather-tight tolerances.

WHY

BROWN & GRIST

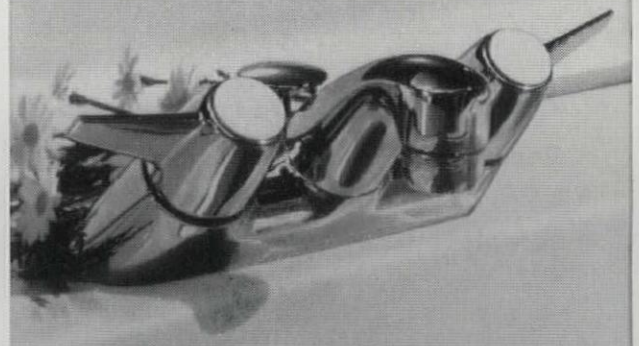
From the time the first line was drawn, B & G Window Walls were an important part of the plans. That's because the architect was primarily interested in a quality wall at a quantity price, and knew from past experience that Brown & Grist could give him what he wanted.

Pennsylvania Railroad Office Building, Pittsburgh, Pa. Hedrick and Stanley, Fort Worth, Texas, Architects. Henry C. Beck Company, Atlanta, Ga., Contractors, Byrne & Associates, Inc., Dallas, Texas, B & G Representative

BROWN & G
WINDOW W

Got a building on the board? Refer to Sweet's for B & G Window a

BROWN & GRIST, INC. B G 25 T



NEW BEAUTYWARE BRASS FITTINGS
—a new and different concept in plumbingware fittings with smooth sculptured lines in gleaming chrome-plate. If desired, interchangeable color inserts can be matched to any of the Briggs colors.

A complete line of plumbing fixtures for residential, commercial, and industrial buildings.

Briggs ideas that help sell more homes

An Early American bathroom achieved with contemporary materials

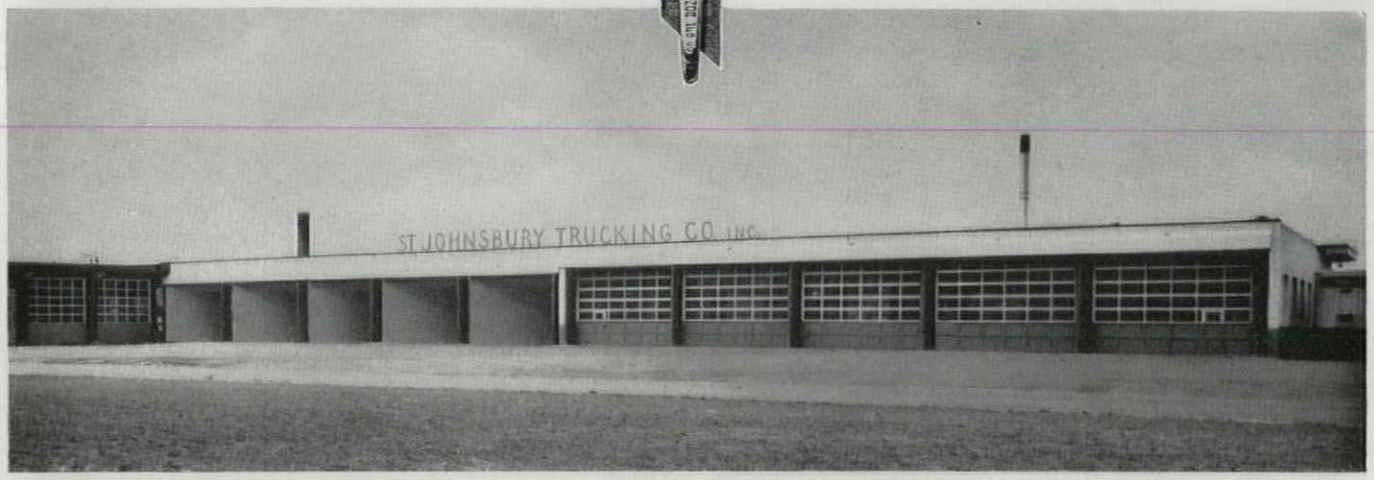
Imaginative use of modern materials can make your home a "stand-out"! This Briggs Beautyware bathroom, for instance, combines modern wall paneling, tiles and flooring to create an eye-catching Early American effect. And, of course, the key to this design is Briggs Beautyware—as contemporary as the materials used. Smoothly contoured lines, newly-designed brass fittings and six compatible colors—Sky Blue, Sea Green, Coral, Sandstone, Pearl Gray and new Autumn Yellow—allow full freedom of expression. Give your homes added appeal, added distinction. Build with Briggs Beautyware.

BRIGGS MANUFACTURING COMPANY • WARREN, MICH.

BRIGGS

B E A U T Y W A R E

for Rugged Heavy-Duty Installations specify RAYNOR

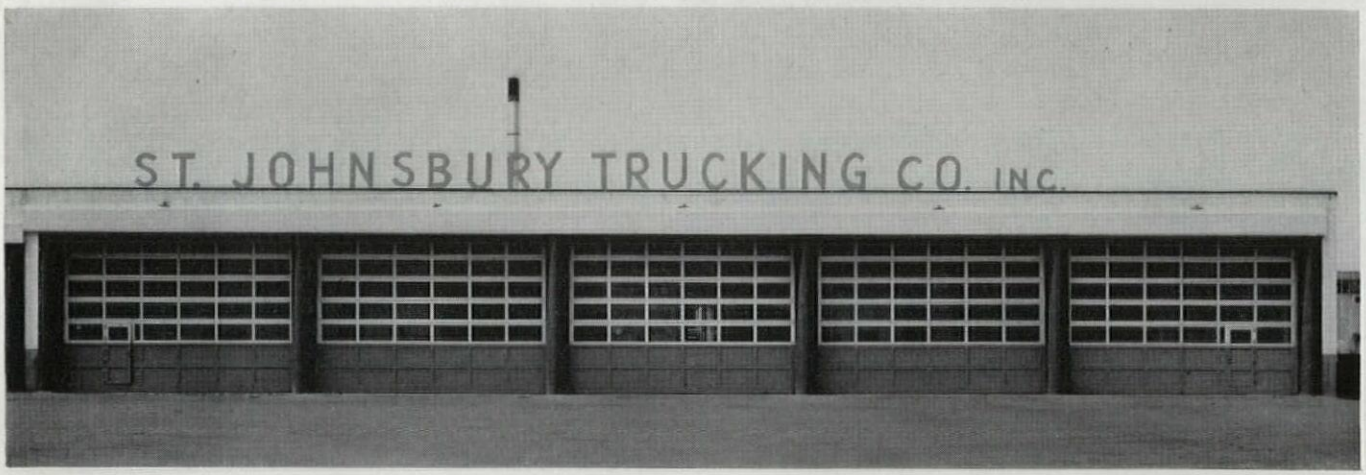


PROJECT
St. Johnsbury Trucking Company
Portland, Maine

ARCHITECT
Stewart Associates
Cambridge, Massachusetts

CONTRACTOR
Ellis C. Snodgrass Inc.
Portland, Maine

RAYNOR DOORS
sold by
Maine Home Installation Co.
Portland, Maine
M. L. True, Mgr.



This addition to the St. Johnsbury Trucking Company in Portland, Maine is another outstanding example of the ever-increasing use of Raynor overhead doors in commercial installations. In planning the addition, St. Johnsbury management specified that the 5 loading platform doors be "easy to operate, yet wide enough to accommodate two trucks at a time." The Raynor doors installed are over 20 feet wide . . . they lift easily, will never sag due to the special center support design. The next time your job calls for sturdy and dependable door installations, specify RAYNOR . . . BUILDERS OF A COMPLETE LINE OF WOOD SECTIONAL OVERHEAD DOORS.

ONLY RAYNOR OFFERS:

- ★ **finest quality construction**
- ★ **long, dependable performance**
- ★ **complete selection of designs**

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RAYNOR

RAYNOR MANUFACTURING COMPANY
Dixon, Illinois

A. G. ODELL, JR.
Architect
J. A. JONES
Contractor
Photo by KUGLERS

AS MODERN AS TOMORROW WITH VAMPCO ALUMINUM CURTAIN WALLS . . .

The beautiful new Charlotte Public Library, Charlotte, N. C. pictured above has used Vampco 200 series Aluminum Curtain Walls with 5" I Beam most effectively to provide full natural lighting and structural strength as well as to accentuate the modern lines of the building itself. A. G. Odell, Jr., Architect, has done an outstanding design job in this new building that is receiving widespread attention in the architectural field. Note the marked contrast in design to the many older buildings in the surrounding area. Vampco Aluminum Windows are available for every type of construction. They include: casement, combination casement, awning, intermediate projected, window wall of varying sizes and thicknesses, heavy construction, glass block and custom-designed types. Find out how VAMPCO's special designing service can help you solve your unusual building problems most economically and efficiently . . . mail coupon below today!

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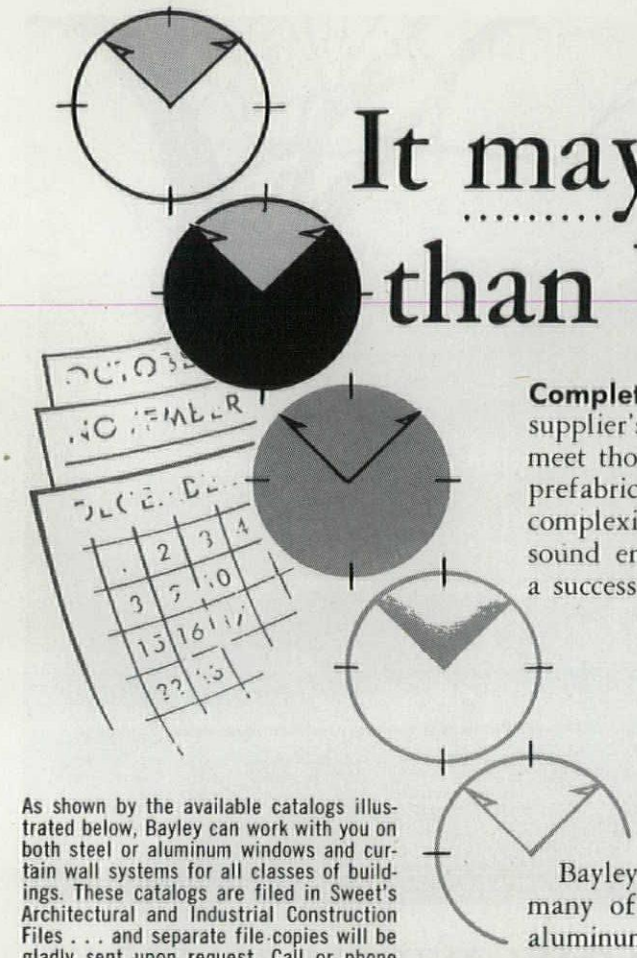
CITY.....ZONE....STATE.....

It may be LATER than You Realize!



Completion dates ARE vital. The earlier you can get your window supplier's counsel, the better service he can render in helping you meet those dates. This is more true today than ever! Windows and prefabricated curtain walls are of major importance and of increased complexity in today's buildings. Because of this, Bayley considers sound engineering service rendered to you—*early*—the essence of a successful contract.

- *It results in a sound wall.*
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- *It saves designers' time.*
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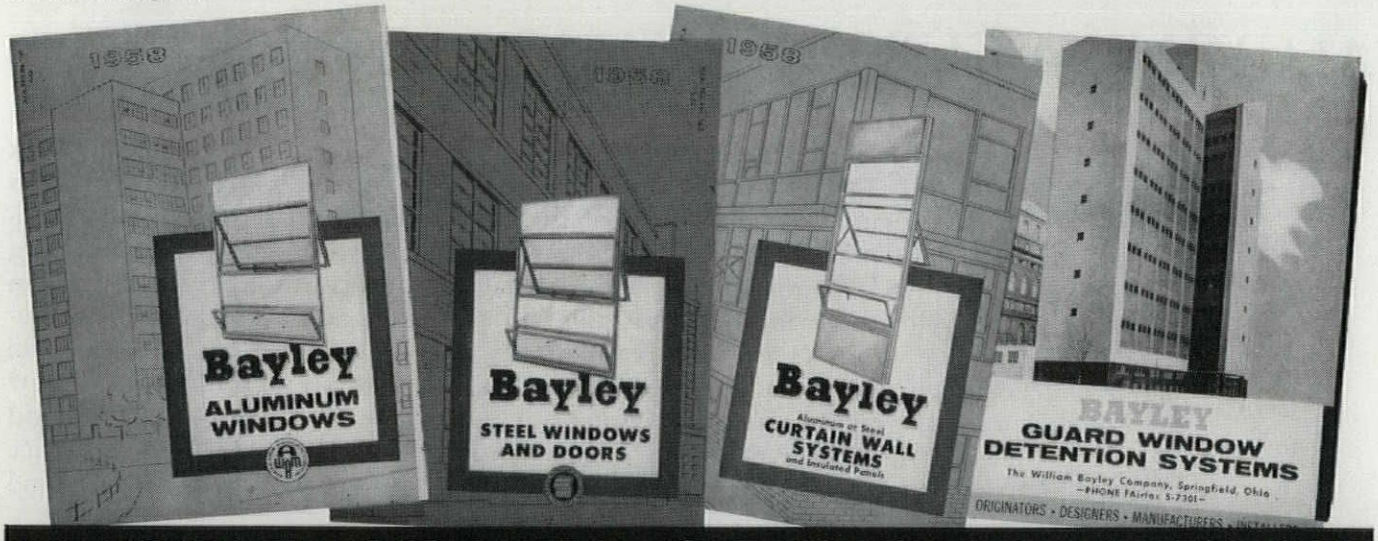
- *It effects increased economies.*
- *It permits earlier approvals.*

Bayley has had years of experience in originating and designing many of today's most important developments in both steel and aluminum windows and curtain-walls. So, when you call Bayley you are placing your requirements in "experienced hands".

As shown by the available catalogs illustrated below, Bayley can work with you on both steel or aluminum windows and curtain wall systems for all classes of buildings. These catalogs are filed in Sweet's Architectural and Industrial Construction Files . . . and separate file copies will be gladly sent upon request. Call or phone your local Bayley Representative for counsel. No obligation!



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ALUMINUM WINDOW MANUFACTURERS ASSOCIATION AWM

"I'm telling America 100,000,000 times!"

Beauty in the bathroom begins with Eljer

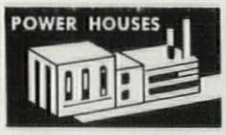
Swing to Eljer fixtures for beauty in the bathrooms of the '58 homes you're planning now. You'll find they catch more eyes, win more acceptance, sell faster! Reason? A record-breaking sales promotion that has made Eljer bathrooms the dream of all America.

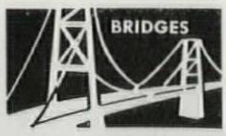
Timed to hit your markets with 100 million messages at the peak of the selling season, this Eljer drive splashes glowing colors across the pages of top Sunday magazines —*This Week* and *Parade*—and the unchallenged leaders in the shelter book field—*Better Homes & Gardens* and *The American Home*. There can only be one result—a wave of popularity that makes Eljer bathrooms a powerful stimulus to sales of the homes you design.

Make this $1,000,000 sales effort work for you. Ask your Eljer representative for a firsthand look at the complete line of fixtures, the range of decorator-tested colors, the prices to suit every style of home. Or write Eljer Co., 3 Gateway Center, Pittsburgh 22, Pa.

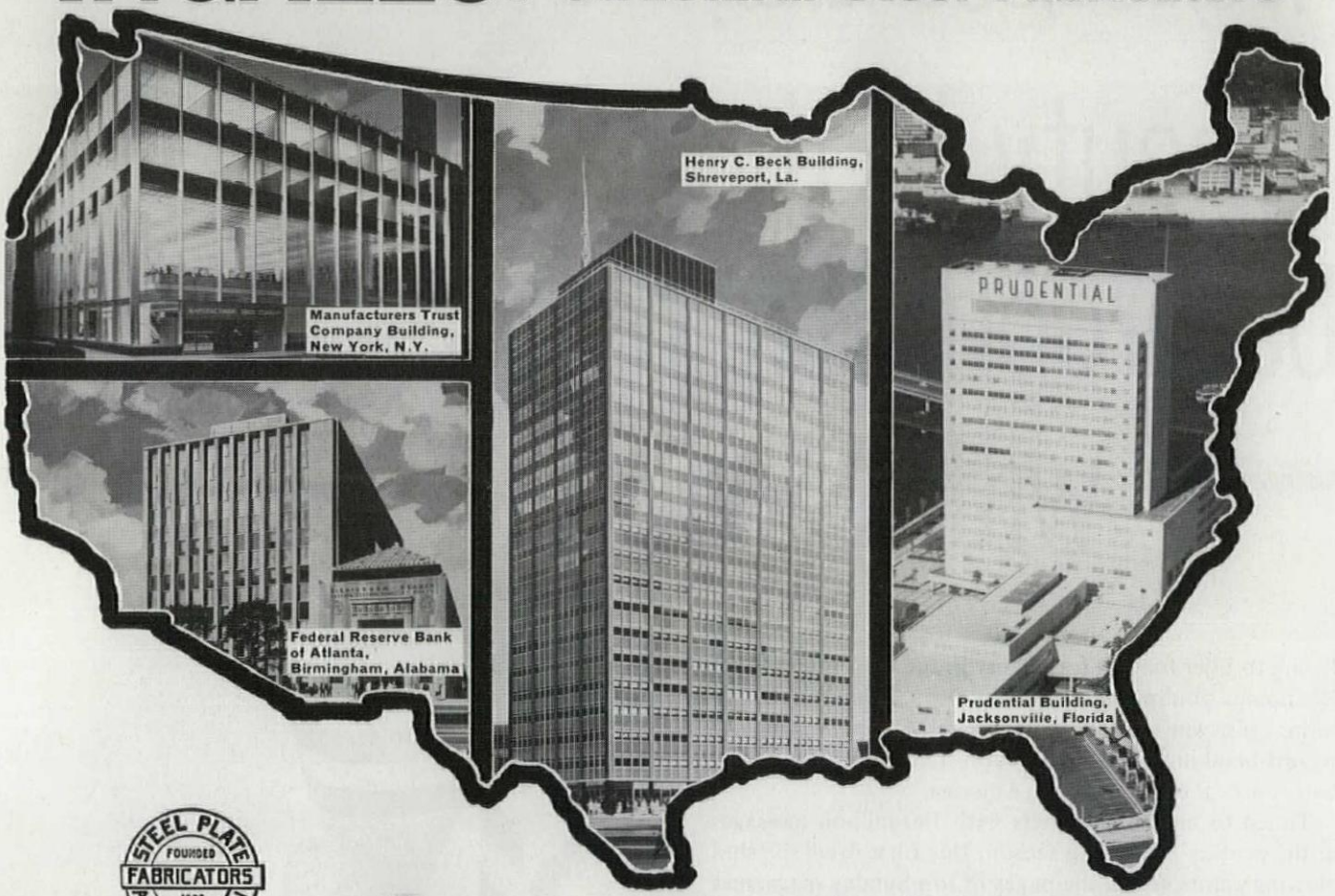
ELJER

Division of The Murray Corporation of America





INGALLS: Structural Steel Fabricators



STEEL PLATE FABRICATORS ASSOCIATION FOUNDED 1933

AISC AMERICAN INSTITUTE OF STEEL CONSTRUCTION INC. FOUNDED 1921

Modern building design requires that structural members combine great strength and rigidity with ease of erection—at low cost. More and more designers and engineers are specifying fabricated structural steel to meet these important requirements.

Ingalls is a specialist in fabricating structural steel. With facilities to meet every modern requirement for fabricated structural steel, long experience, and a proven record of service, Ingalls stands ready to serve you.

If your company is planning a building which must combine strength, beauty and economy, Ingalls can serve you. Your inquiry is invited.

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The Ingalls Shipbuilding Corporation, Shipyards: Pascagoula, Mississippi; Decatur, Alabama Sales Offices: New York, Chicago, Washington, Houston, New Orleans, Atlanta

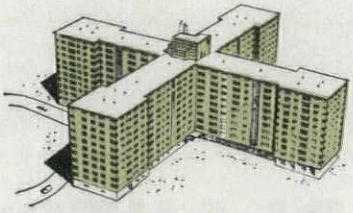
Alodine® Amorphous Phosphate Coatings as DECORATIVE FINISHES for Aluminum

By PAUL KERN
Product
Development Dept.
AMERICAN CHEMICAL
PAINT COMPANY

Amorphous phosphate coatings as applied to aluminum in the ACP Decorative Alodine chemical conversion processes perform three major functions. One, they improve the natural corrosion resistance of aluminum. Two, they produce an attractive, durable and sunfast green color. Three, they materially reduce the reflectivity of the metal. And they do all these things more economically than other commercial processes.

Grades of Decorative Alodine

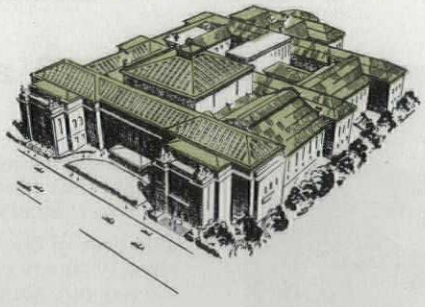
ACP Decorative Alodine is presently available in three grades: Architectural, Commercial and Industrial. Each is discussed in some detail herewith.



Architectural. This grade, with established standards for controlling the shades, offers the widest choice of matched colors. Finishes range from a colorless coating (Standard No. 1) to a maximum depth green coating (Standard No. 4). Since these standards are set up as color reference points only, intermediate colors within the established range may be obtained at the discretion of the processor. The immersion process by which it is applied includes etching, the Decorative Alodine treatment, and lacquering. The Architectural grade coating provides a pleasing matte finish with low glare properties; good self-washing characteristics due to the lacquer coating; optimum corrosion resistance; good abrasion resistance; effective color match on shades represented by the standard green colors; protection against mortar damage, no staining or pitting of the metal; a parting layer permitting machine forming of the aluminum after treatment.

Typical applications of the Architectural grade include banks, museums, institutional and commercial installations of aluminum.

Commercial. This grade provides the same service life and protective characteristics as the Architectural grade. The only differences between the two are that the aluminum is not etched prior to the Alodine treatment, and that the color selection is limited. The range of color and the coating weight (min. 250 mg/sq. ft.) are determined by mutual agreement between the buyer and the seller. The coating can be applied by either spray or immersion processes. In either case the Decorative Alodine color coating is given a finishing coat of lacquer. Commercial grade

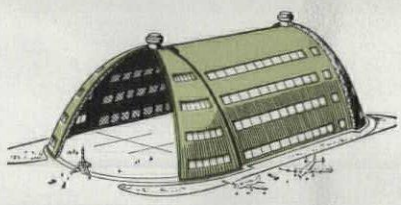


coatings provide good corrosion resistance; good self-washing characteristics; good abrasion resistance; protection against mortar damage, no staining or pitting of the metal; a parting layer which permits forming of the aluminum after treatment.

Typical applications of the Commercial grade include industrial and institutional buildings.

Both grades on embossed sheets meet the reflectivity requirements of Corps of Engineers Specification CE-222.01.

Industrial. This grade consists of the Decorative Alodine treatment only. No etching is done. No lacquering is required. It provides a preweathered surface which reduces glare. It produces an excellent base for subsequent painting. Aluminum treated with this grade, by spray or by immersion processes, is available from aluminum producers and processors.



Cost Data

Although prices for all three grades vary according to shapes, sizes and quantities, a general comparison can be made as follows:

- Architectural grade costs ½ of the lowest priced dyed anodic coating
- Commercial grade can be applied at 50 to 80% of the cost of the Architectural grade
- Industrial grade can be applied at 25 to 50% of the cost of Commercial grade

Performance Data

Several sites throughout the country have been used for a number of years to test these coatings under actual conditions. Results of these tests are available upon request.

For more complete information about Decorative Alodine, contact an ACP sales representative or write us at Ambler.

AMERICAN CHEMICAL PAINT COMPANY, Ambler 46, Pa.

DETROIT, MICH. • ST. JOSEPH, MO. • NILES, CALIF. • WINDSOR, ONT.

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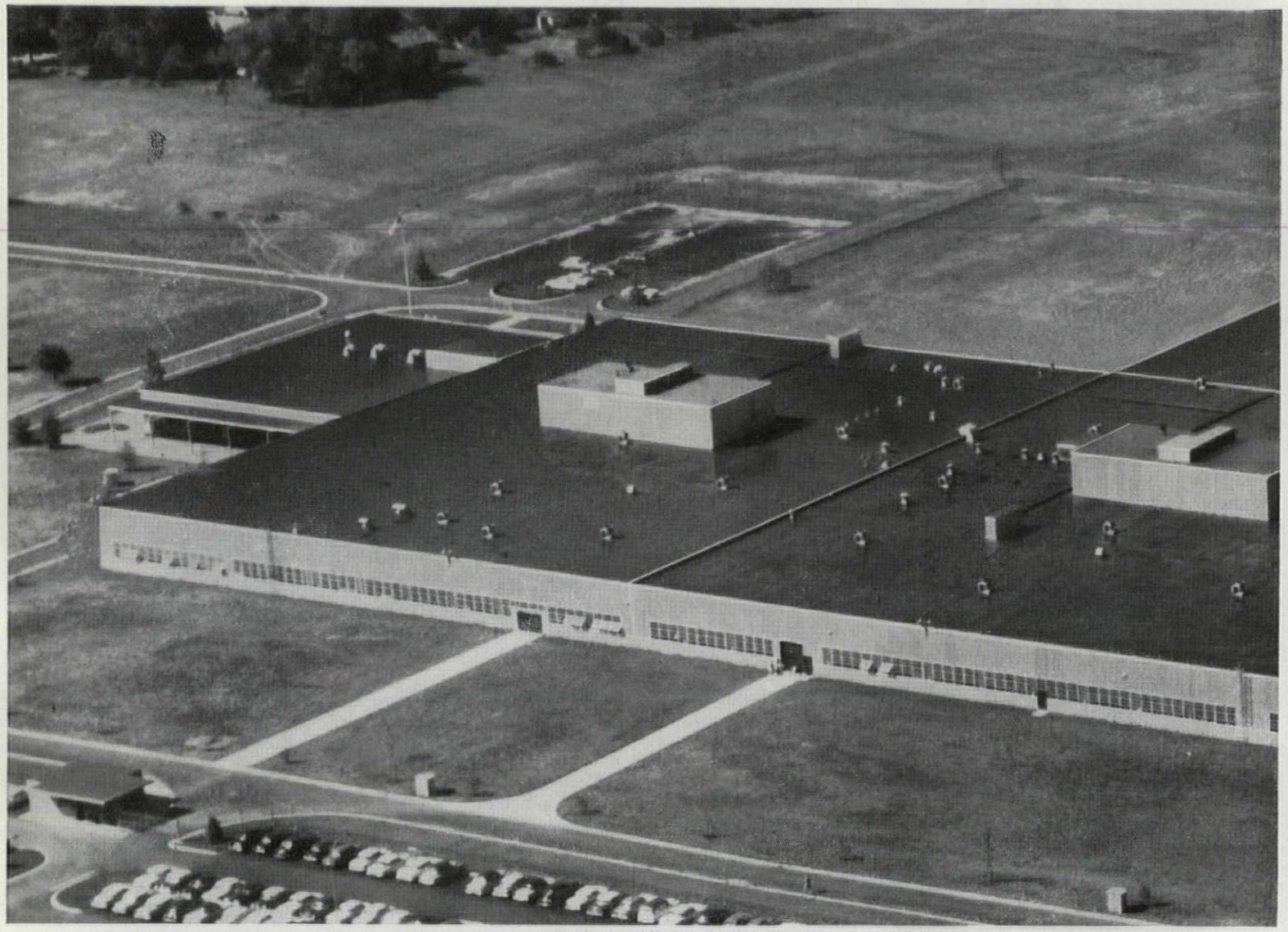


New Leeds and Northrup Co. electronic-controls plant, North Wales, Pa. Architect: L. Rossetti, Detroit, Mich.

ONE OF THE "TOP TEN" PLANTS*

TEN-LIGHT LUPTON PROJECTED WINDOWS, five lights high, blend beautifully with brick and metal sidewalls—provide abundant natural light and air to plant. All-weather ventilation, choice of location and operating position of ventilators, and handsome hardware are a few of the reasons you should specify LUPTON "Master" projected windows for your next project. Photograph by Courtlandt V. D. Hubbard.

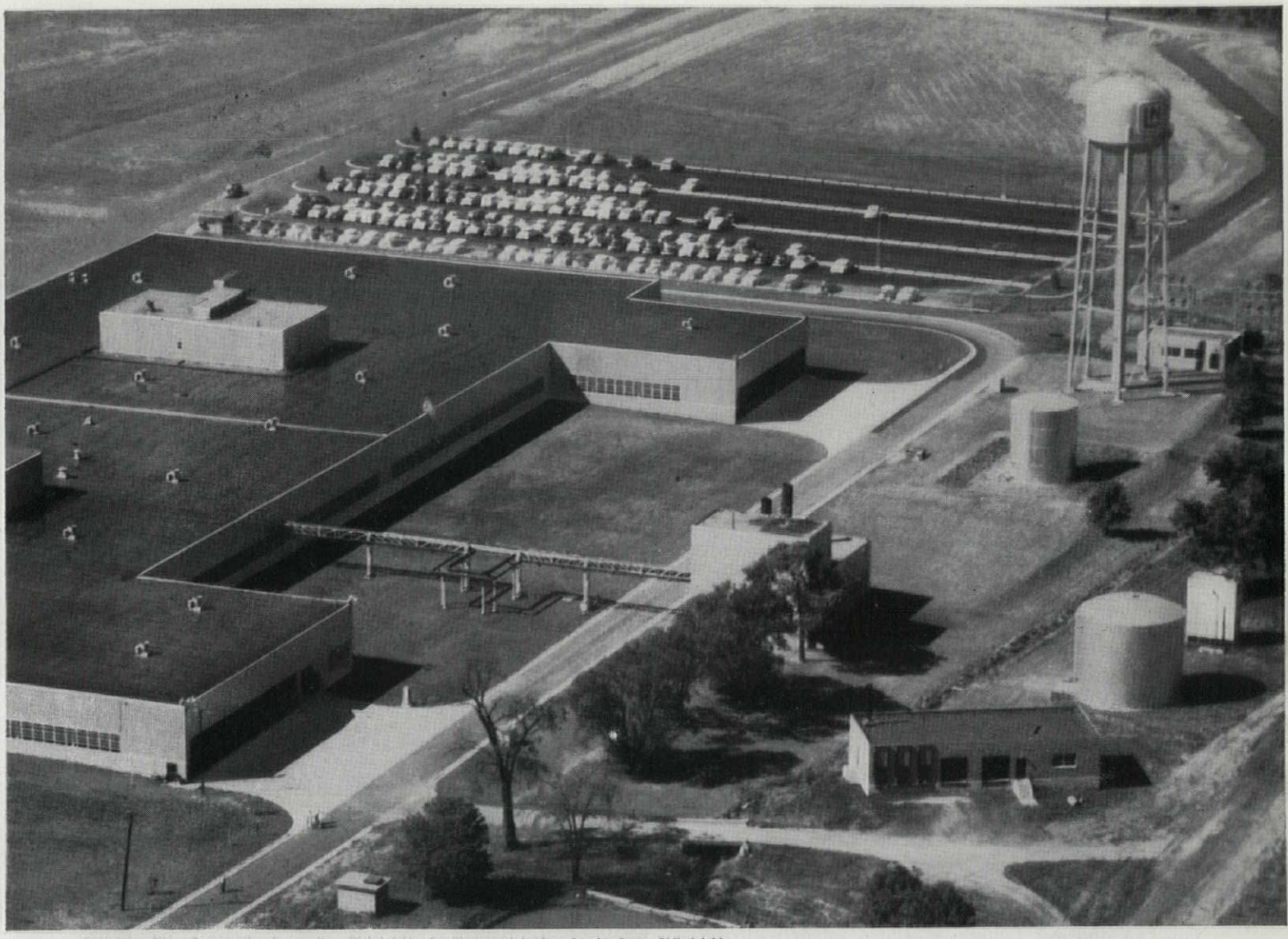
LEEDS and NORTHRUP plans

With an eye to tomorrow, Leeds and Northrup—working with architect L. Rossetti—conceived this new job shop at North Wales, Pa., as the initial building in their new electronic-controls manufacturing plant.

The first of the planned expansions of this building has already been completed. A long section of wall was moved out some 120 feet, and additional sidewall and roof were built to add about one acre to the building. The original LUPTON "Master" Projected Aluminum Windows were re-installed with no alteration whatsoever, and continue to provide a "ribbon" of controlled ventilation and light.

Apart from their flexibility—which was ideal for Leeds and Northrup's planned expansion—let's see why "Master" projected windows meet so many requirements on important projects.

ALL-WEATHER VENTILATION—Lupton "Master" windows are available with ventilators which project inwards (usually at the sill) or outwards, or both ways in the same unit. This means you can enjoy *all-weather ventilation*, free from drafts and rain damage.



Contractor: Baton Construction Corporation, Philadelphia, Pa. Photograph by Aero Service Corp., Philadelphia.

OF 1956: GEARED TO GROW!

for the future . . . specifies LUPTON "Master" windows.

MINIMUM MAINTENANCE COSTS—Lupton aluminum "Master" windows won't rust or corrode; never need painting; maintain their attractive appearance for the life of the building. They're sturdy and rugged—tight fitting and rattle-free. Most standard types can be cleaned from within the building.

NEW CREATIVE FREEDOM FOR YOU—By combining standard fixed and projected LUPTON window units, you can create smart "custom" effects that distinguish even your lowest budget projects.

For over fifty years, Lupton has pioneered products for better natural lighting and ventilation for the building industry. Such experience warrants your investigation. For complete details, consult SWEET'S Architectural File (Sections 3 and 17). And for the name of your local LUPTON representative, look in the Yellow Pages under "Windows—Metal." Or, for detailed information, write directly to us.

* "Slickest Job Shop of the Year" is what the Editors of Factory Management and Maintenance called the Leeds and Northrup building in choosing it as one of the "top ten" plants of 1956 from nominations by leading architects and builders. Of these 10 projects, *three* feature LUPTON curtain walls or LUPTON windows: Lambert-Hudnut at Lititz, Pa.; Owens-Corning Fiberglas at Barrington, N.J.; and the Leeds and Northrup plant shown above.

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METAL WINDOWS • CURTAIN WALLS

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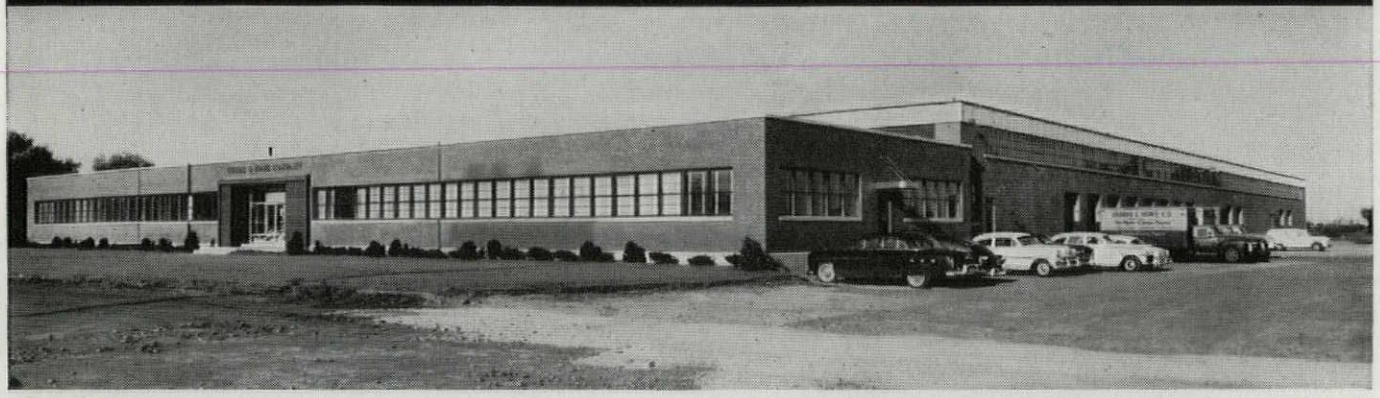

Modern warehouse, Hubbs & Howe Co., Buffalo, N. Y.
Architect: Walter F. Hebert, Kenmore, N. Y.
Contractor: Balling Bros., Tonawanda, N. Y.

● These three jobs are an indication of the diversity and quality of work for which Balling Brothers, Tonawanda, N. Y. contractors are noted.

Here's what Henry J. Balling has to say about his company's experience with Lehigh Mortar Cement:

"In our 30 years of using prepared mortar—from house chimneys to million-dollar hospitals, schools, churches and industrial buildings—our standard and most reliable mortar has been Lehigh Mortar Cement. We recommend it for brickwork that really stands out with bright joints, freedom from efflorescence, and neatness."

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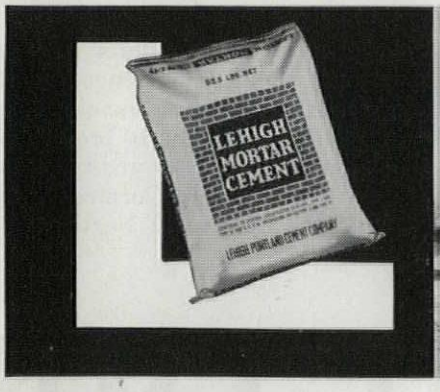
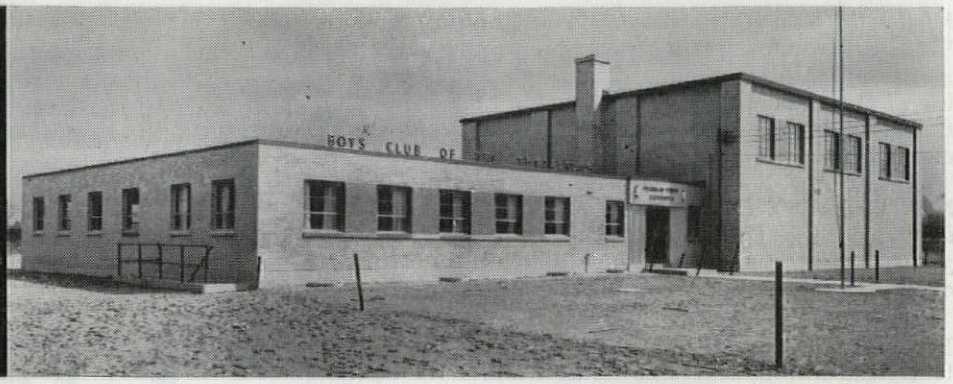
St. Francis of Assisi Church, Tonawanda, N. Y.
Architect: George Dietel & Associates, Buffalo, N. Y.
Contractor: Balling Bros., Tonawanda, N. Y.





Tonawanda Boy's Club, Tonawanda, N. Y.
Architect: William C. Lurkey, Buffalo, N. Y.
Contractor: Balling Bros., Tonawanda, N. Y.

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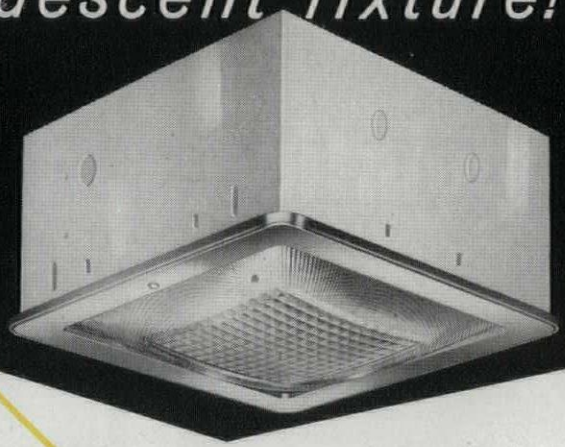

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Every Brascolite fixture, including the handsome square recessed unit shown above, has a brightness chart, coefficients of utilization and light curve, and other engineering information to help you.

And every Brascolite fixture is a carefully engineered unit, with all parts working harmoniously to produce the finest and most efficient lighting possible.

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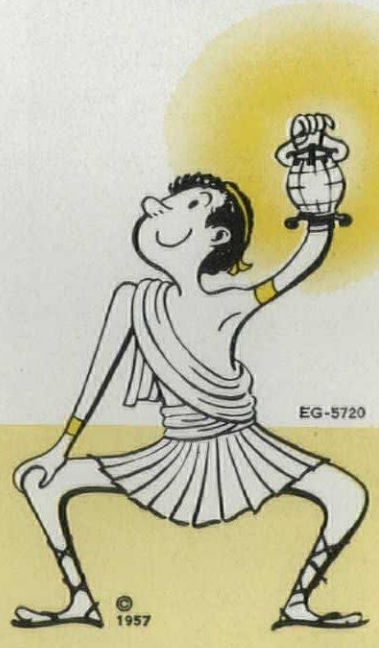

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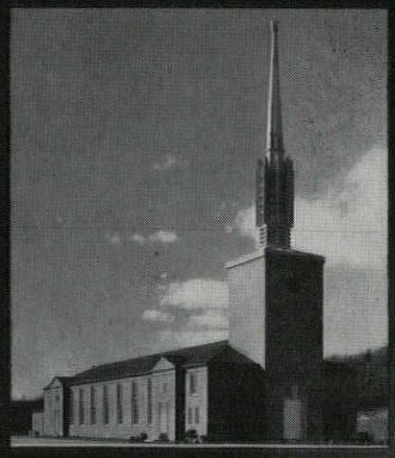

pointing to God...

Marine Corps chapel spire crafted by Overly

Pride of the Marines is a handsome new chapel on the Marine Corps base at Quantico, Virginia. Soaring 70' above its tower is this contemporary spire designed by architects Murphy and Locraft, Washington, D. C. Spire was completely prefabricated by Overly to reduce erection costs and insure a tight, true fit of joints. Maintenance-free economy was assured by use of weather-resistant ⅛ gage aluminum with an Alodine finish — a rich looking finish that effectively simulates the patina of antique copper • 70 years of building many of the finest spires in the nation qualify us to craft your designs with authority. Our system of spire building is fully explained in our 28-page brochure, "Pointing to God." Write us for your copy today.

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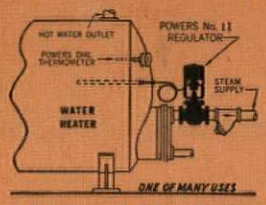

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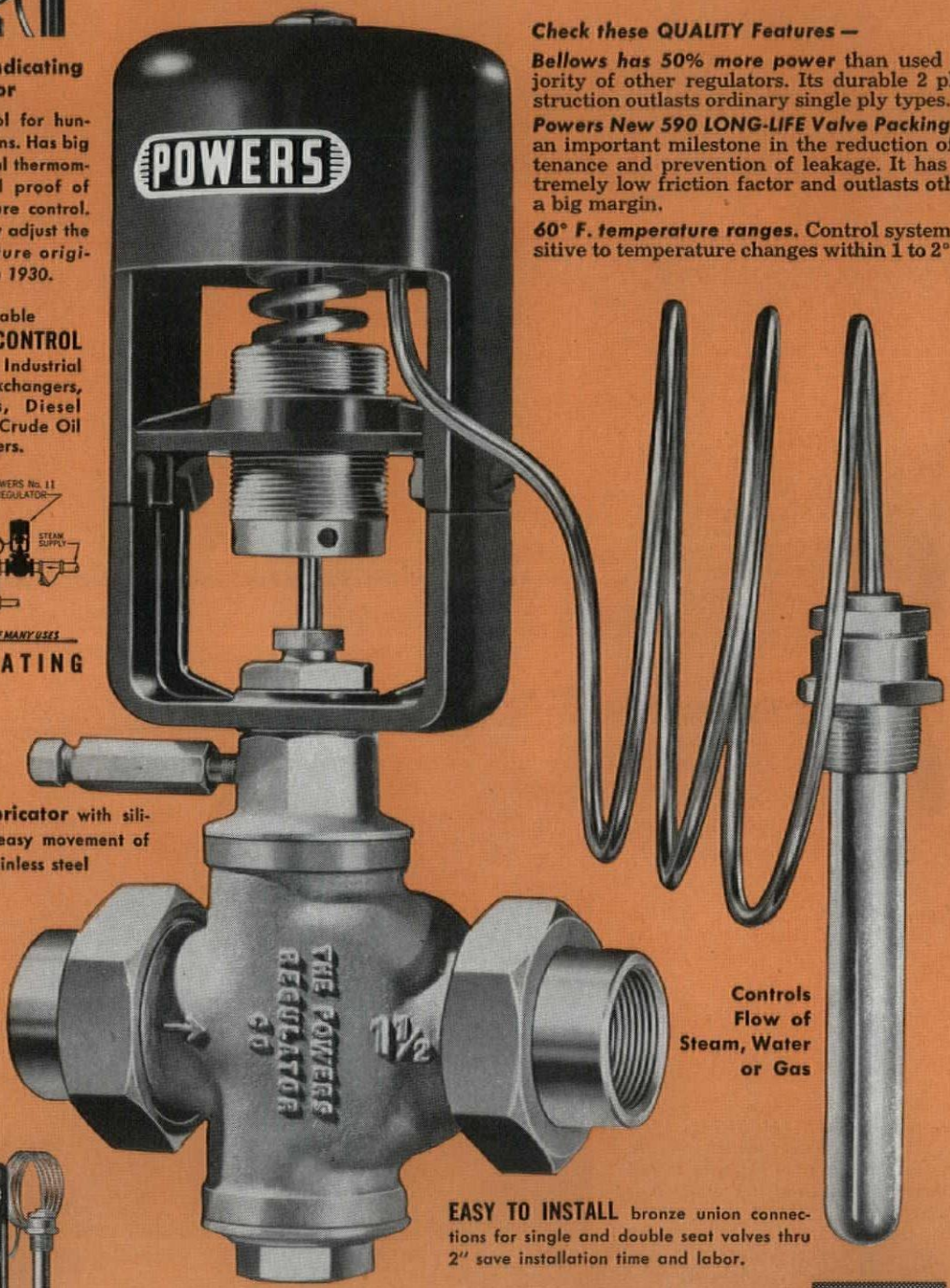

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Above: Flanged Iron Body Valve with Double Seat for sizes above 2"

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Photo from exterior. *Warren City Schools Administration Building, Warren, Ohio, is two stories high with the first floor line five feet below grade and second floor line five feet above grade. Entrances are located midway between floors.*

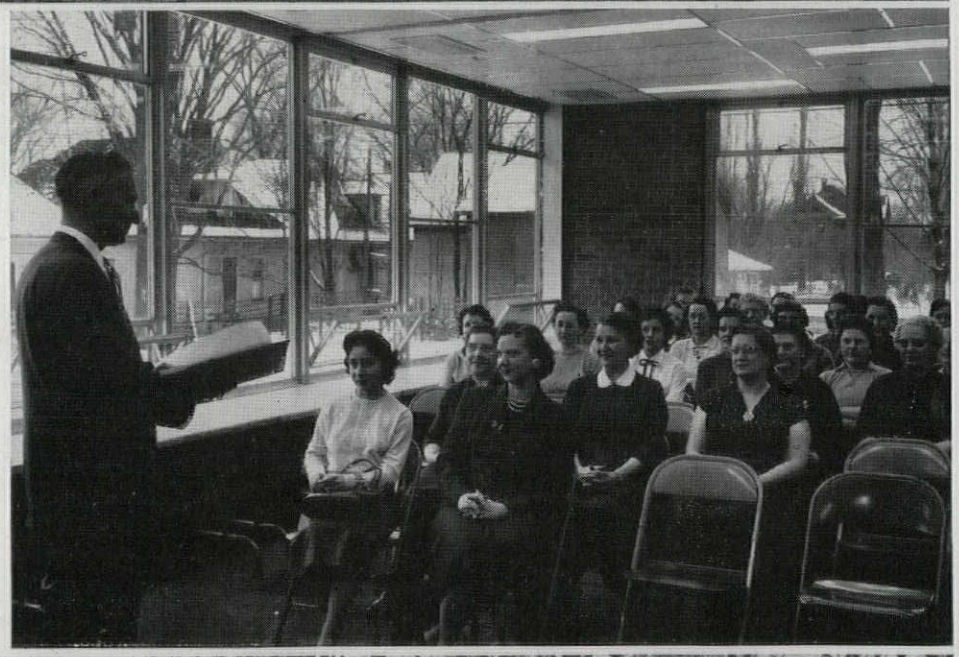
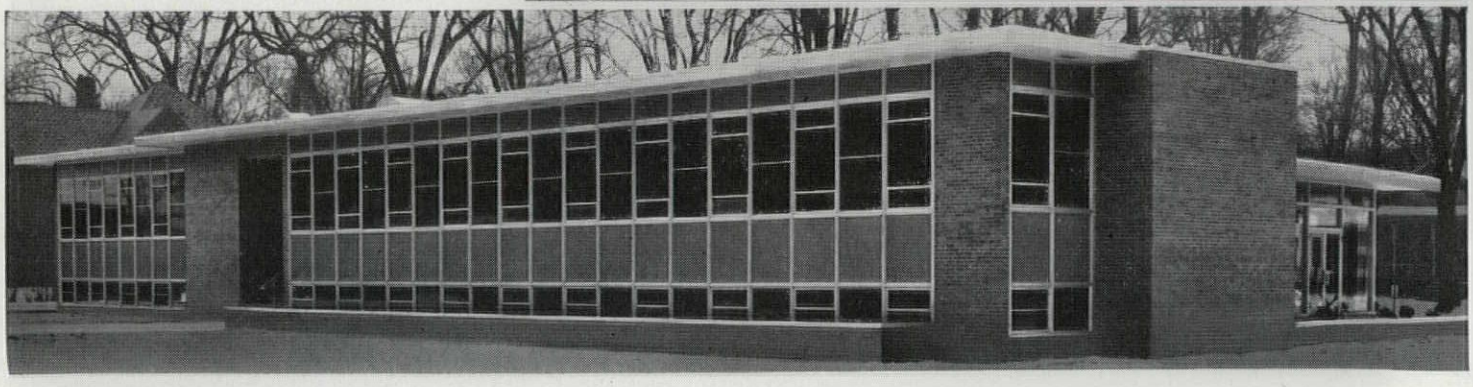


Photo from interior. *Windows of AMERICAN LUSTRAGRAY sheet glass reduce sun glare 50%, minimizing eyestrain and fatigue, yet provide excellent vision.*

Photo from exterior. *AMERICAN LUSTRAGRAY'S neutral shade blends with the aluminum sash and the green porcelain enamel panels.* **Glazier:** *Ohio Glass and Sales, Inc., Warren, Ohio.*



GLARE REDUCING SHEET GLASS

For controlled daylighting, architect Arthur F. Sidells chose

american LUSTRAGRAY

for new school administration building

One of the most impressive uses of AMERICAN LUSTRAGRAY is in this new Administration Building for Warren City Schools, Warren, Ohio. Designed by Office of Arthur F. Sidells, A. I. A., the plans and drawings for this building were selected for exhibit at the 20th International Conference on Public Education in Geneva, Switzerland.

Functional glass, like AMERICAN LUSTRAGRAY, is an important material of modern architecture. It provides controlled daylighting by reducing excessive sun glare and heat. Yet, the "clear glass" vision of AMERICAN LUSTRAGRAY creates a more spacious atmosphere so essential to task efficiency.

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This economical glare-reducing sheet glass is available through more than 500 distributors and glazing contractors. Check your classified 'phone directory for listing. For technical data, consult your Sweet's Catalog or write our Architectural Promotion Department.

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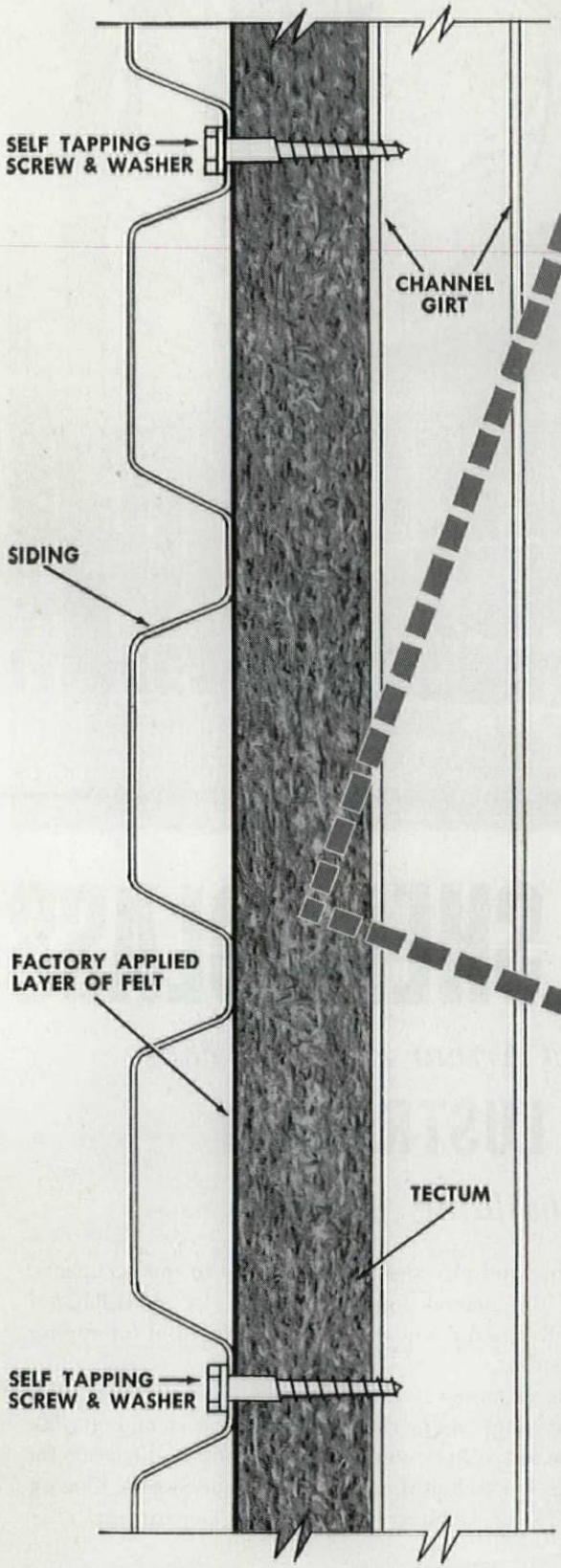

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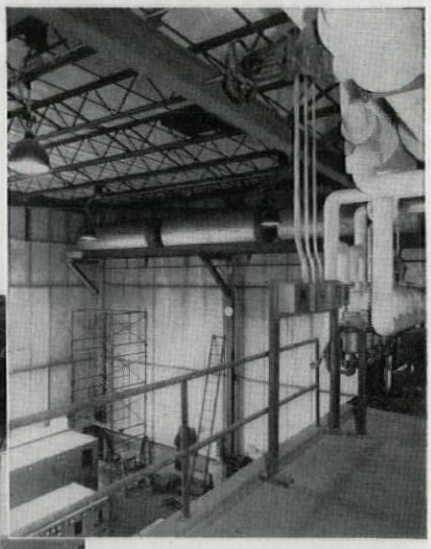

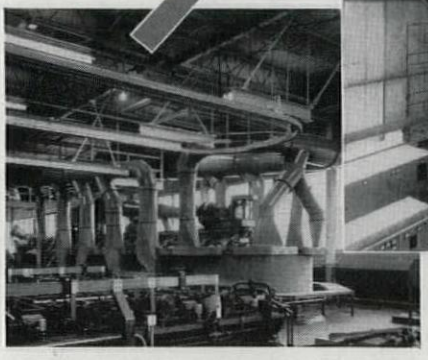

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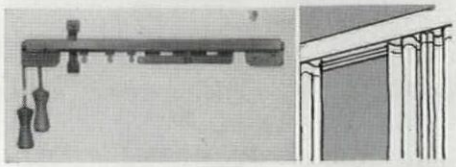

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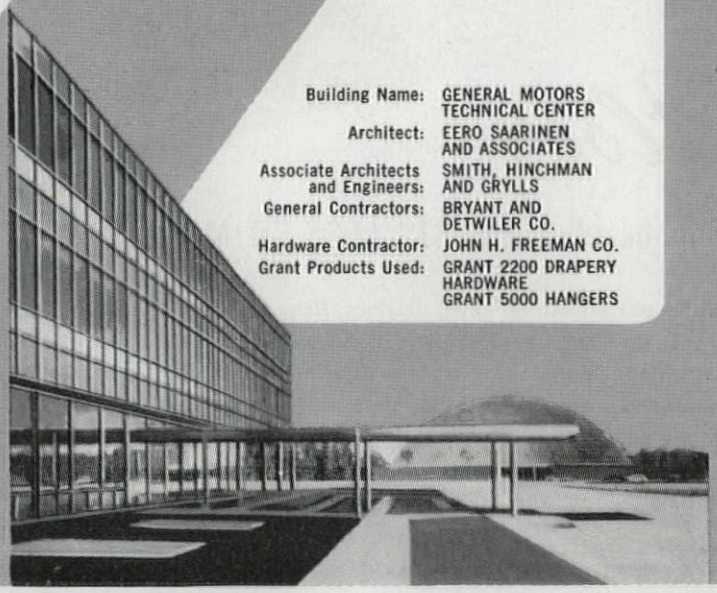

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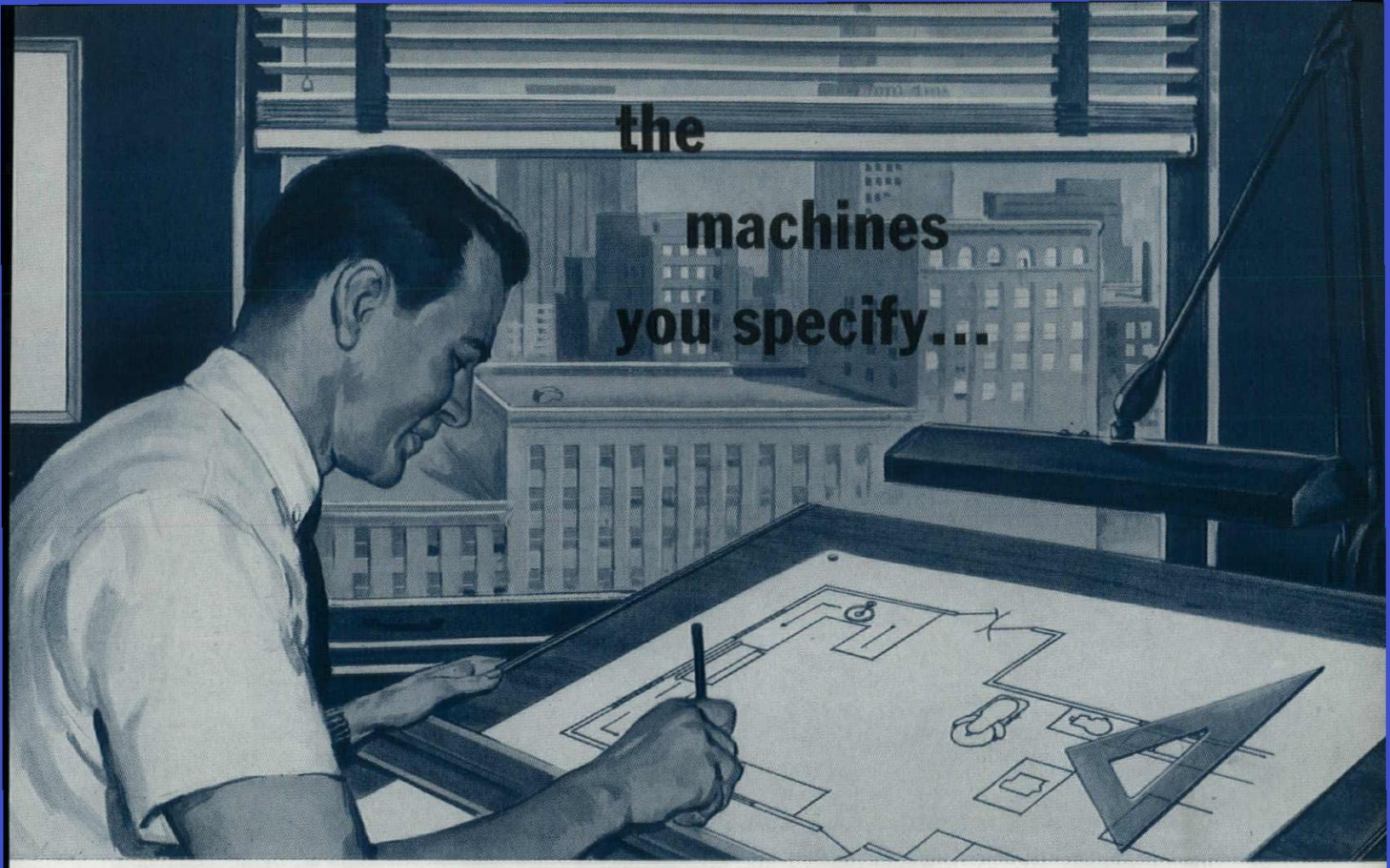

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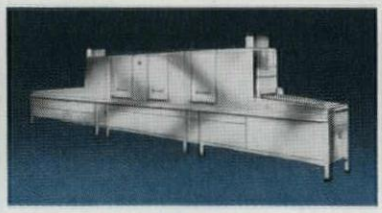
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Tile Contractor: The C. J. Page Tile Company, Detroit, Michigan

Romany-Spartan Tile sparkles

in new exhibition pool

Here, at the University of Michigan, is an outstanding example of forward thinking in competitive pool planning. Nothing has been overlooked in making this installation the country's finest. Its unique design—with the diving area adjoining, but outside the main tank—makes possible its uniform five-foot depth throughout the entire six-lane course. Both beauty and permanence were achieved through the use of Romany•Spartan small unit tile for runway and tank lining.

From natatorium to auditorium, classroom to kitchen . . . Romany•Spartan's wide range of colors, sizes and shapes, glazed and unglazed, offers tile for every purpose. For design help or information, call your nearby Romany•Spartan representative. United States Ceramic Tile Company, Dept. P-21, Canton 2, Ohio.

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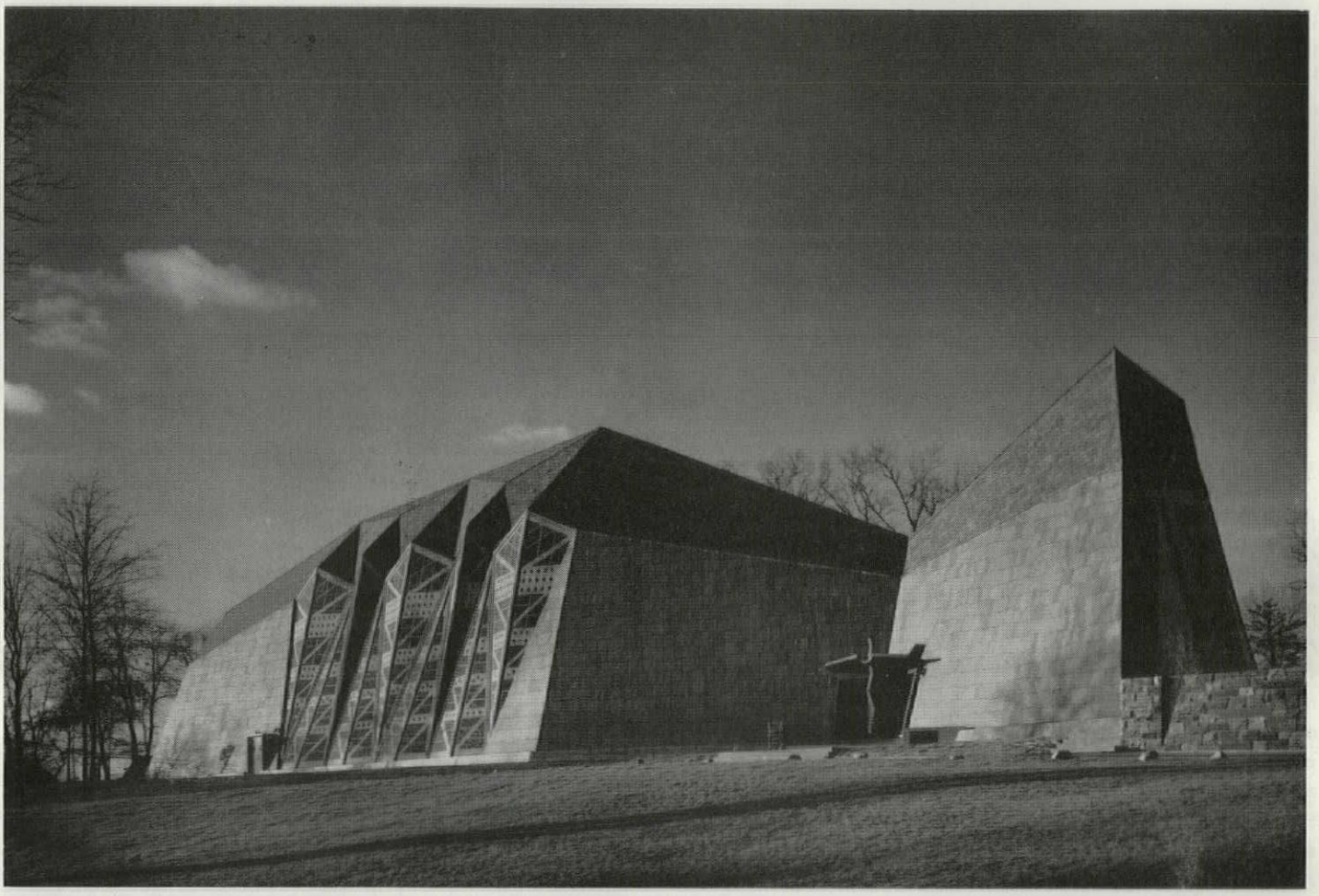
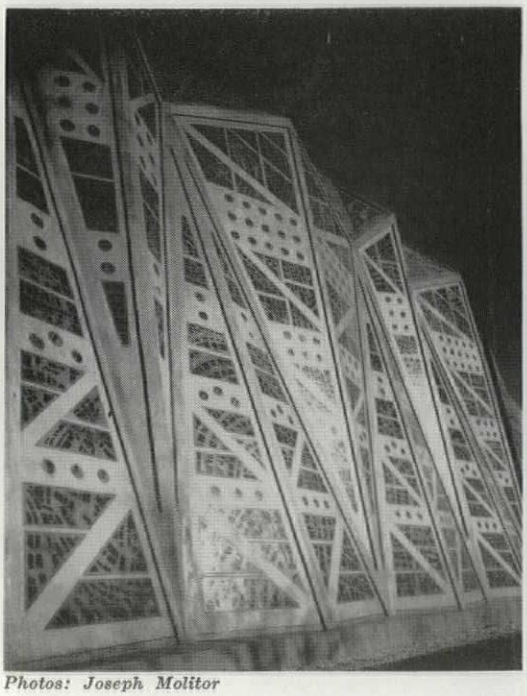
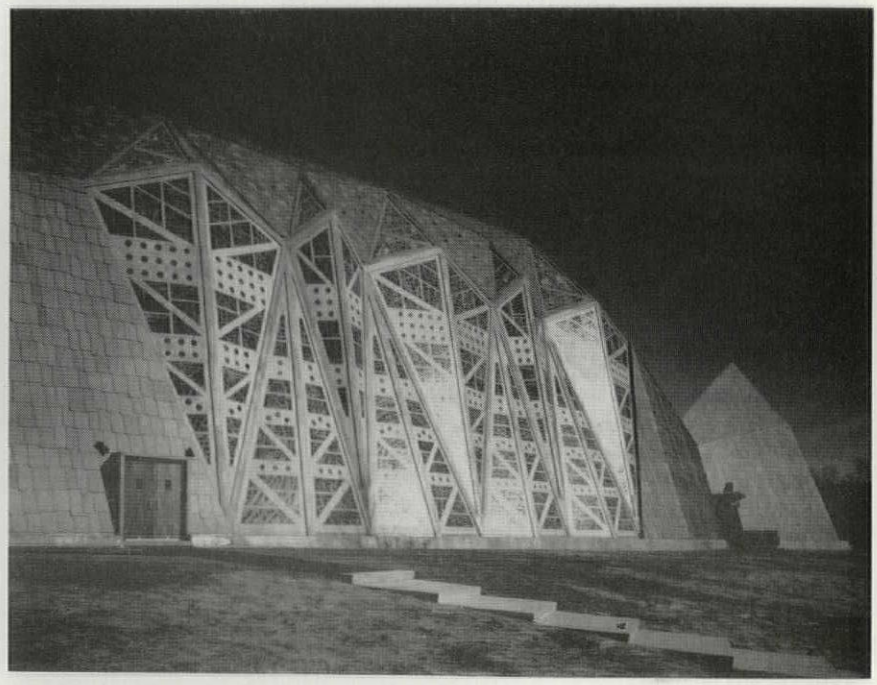


PRECAST-CONCRETE FACETS ENCLOSE PISCINE-FORM SANCTUARY

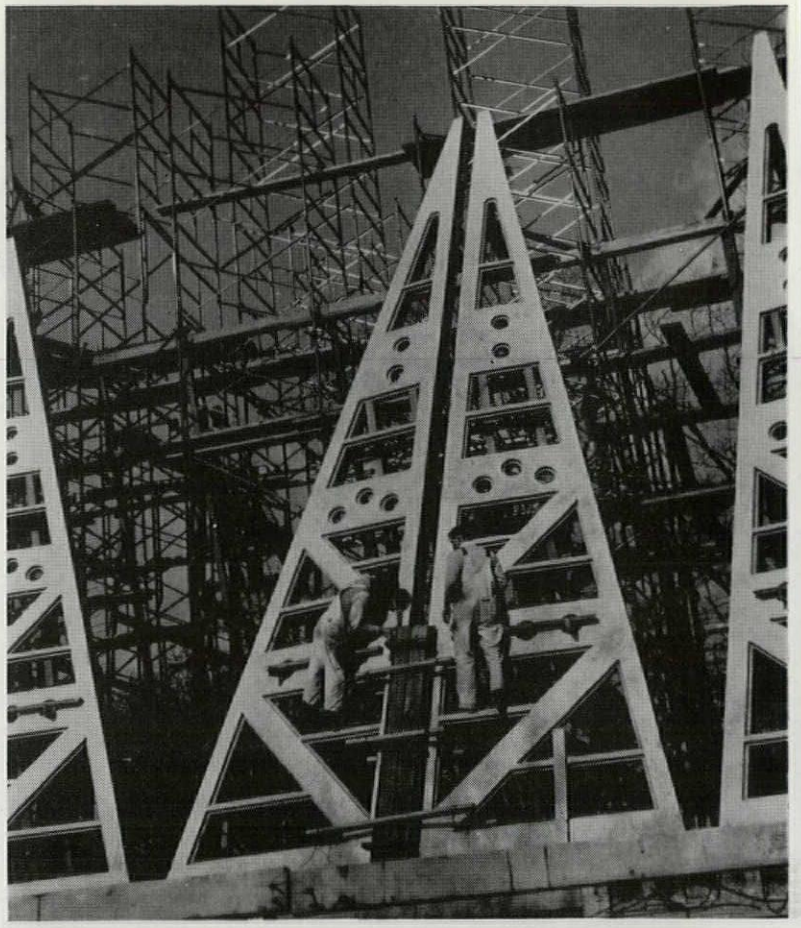


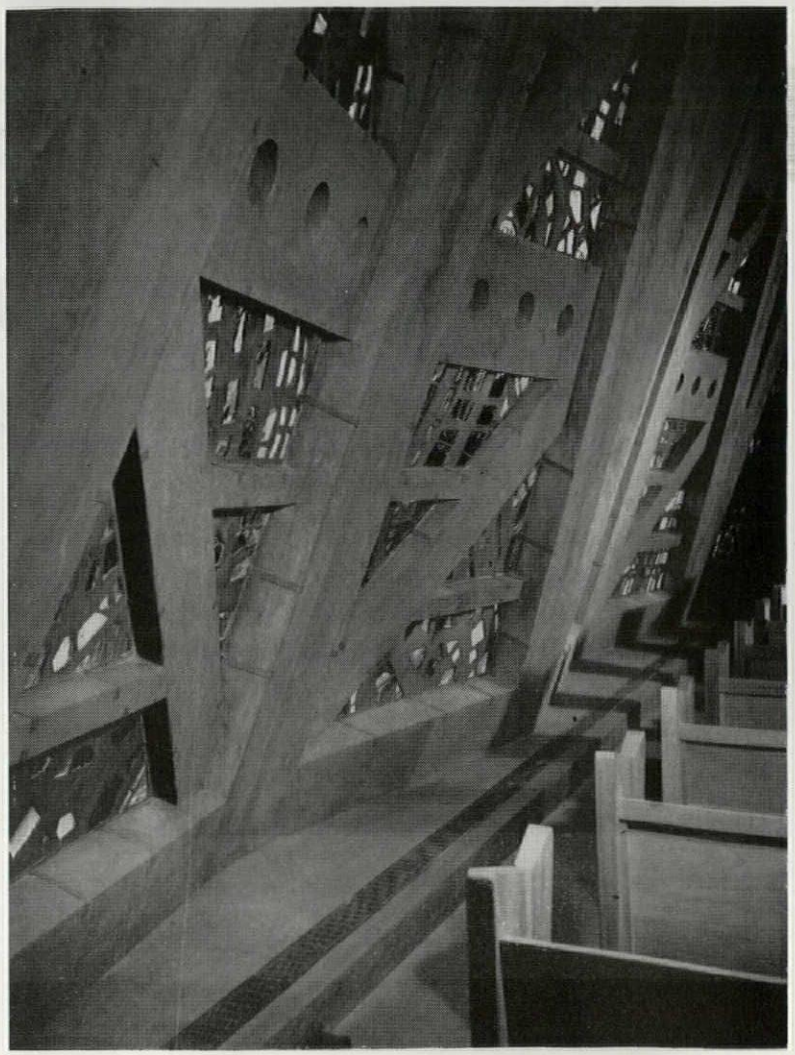


Photos: Joseph Molitor

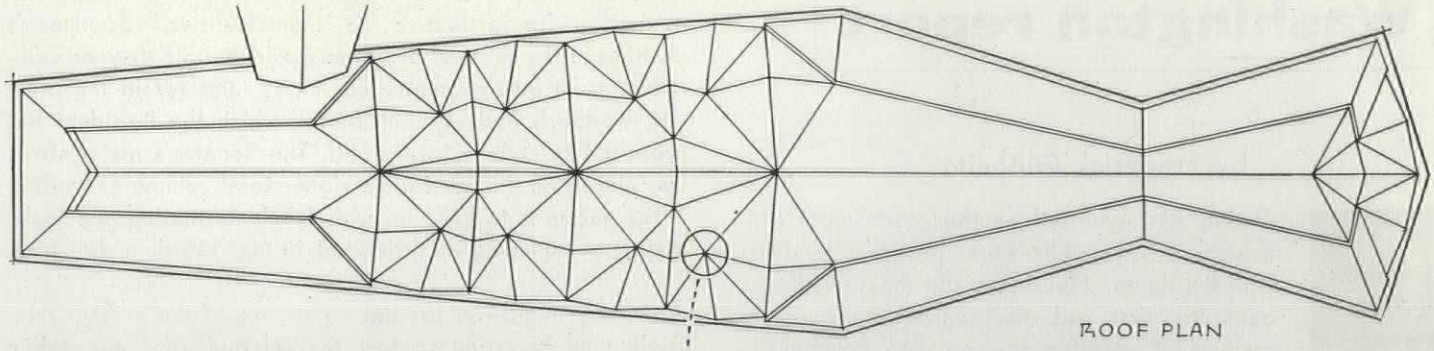
p/a news survey

Stamford, Conn., March 9—Dedicatory services for the spectacular new First Presbyterian Church were conducted here today* in a wondrous sanctuary magnificently illuminated by polychromatic stained-glass panels placed in a tremendous shell formed of inclined triangular facets and quadrangular panels. This remarkable structural design—resulting in a piscine-like form, ancient symbol of Christ, for both plan and silhouette—is unique in contemporary church construction and exemplifies the highest order of collaboration between architect, structural engineer, and builder. Respective members of this team were: Wallace K. Harrison, of Harrison & Abramovitz, Architects, New York; Felix J. Samuely, Consulting Engineer, London; and Pat Deluca, head of the construction company bearing his name in Stamford. Composed of 152 precast-concrete panels, the sanctuary was designed as a skin structure so that all of its related forces are taken within the surface of the building. North and south ends of the walls and roof are solid, and can act directly as part of the structure. To accommodate windows, however, the center is latticed and only the ribs formed by the triangulated skin resist attendant forces. As the facets were placed in position and supported by the scaffolding, spaces were left between the panels for placement of continuous main reinforcement and poured-in-place concrete (see node elevation acrosspage). Loops from each precast panel also project into this space so that any two adjoining units could be fastened together during construction, and to insure the collaboration of all precast units with each other and with the poured-in-place concrete. As a result of this design there was no need for rigid frames across the building and an 8" over-all depth was sufficient for the ribs. The smaller stained-glass insert panels (see cover detail) contain 1" thick pieces, from Chartres, set in concrete. Symbolic scenes from the Crucifixion and the Resurrection were executed in France by Gabriel Loire from templates furnished by the architect. Acoustically speaking, there is no need for corrective shaping, due to the large-scale faceting of the interior surfaces which increases diffusion of sound, uniformity of distribution, and uniformity of sound decay. There is no public-address system nor special sound-absorbing material, except that provided by the congregation and carpeting. The only reflector surface suggested by the acoustics consultants—Bolt, Beranek & Newman—was the canopy over the pulpit. Construction, an intricate problem, was not simplified by the lack of a single right angle in the structure. Node point locations were established by a system of co-ordinates and by the use of surveying instruments. Erection of scaffolding had to be extremely precise in order that the panel extremities would meet their pre-established locations. Highlights of construction were when the first panel went into position, and when the last piece of the jig-saw actually fit into its rightful place. Associated Architects: Sherwood, Mills & Smith; Consulting Structural Engineers, Edwards & Hjorth; manufacturers of the precast sections: Precast Building Sections, Inc.



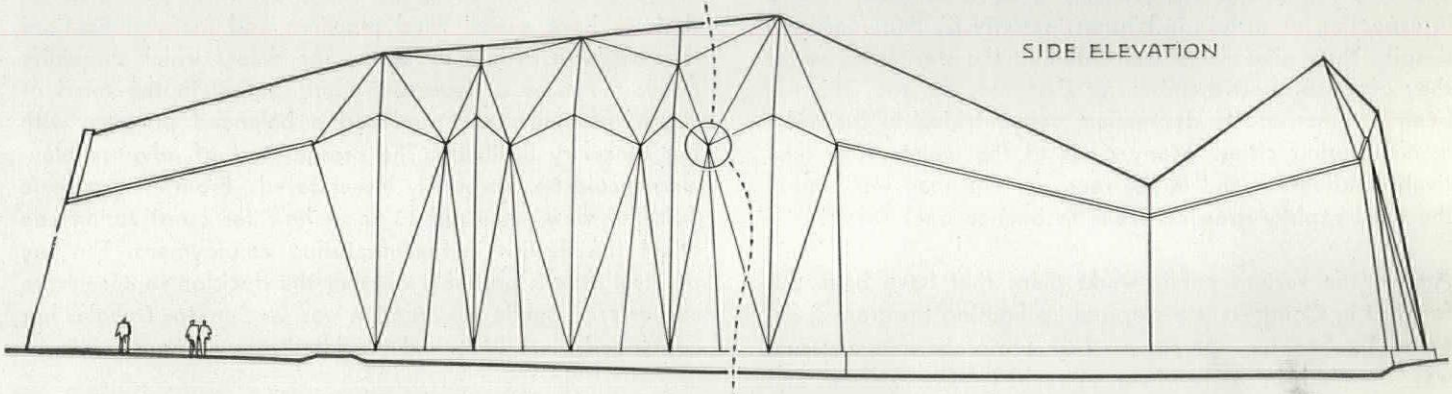


*Fellowship hall and educational buildings were presented in MARCH 1957 P/A.



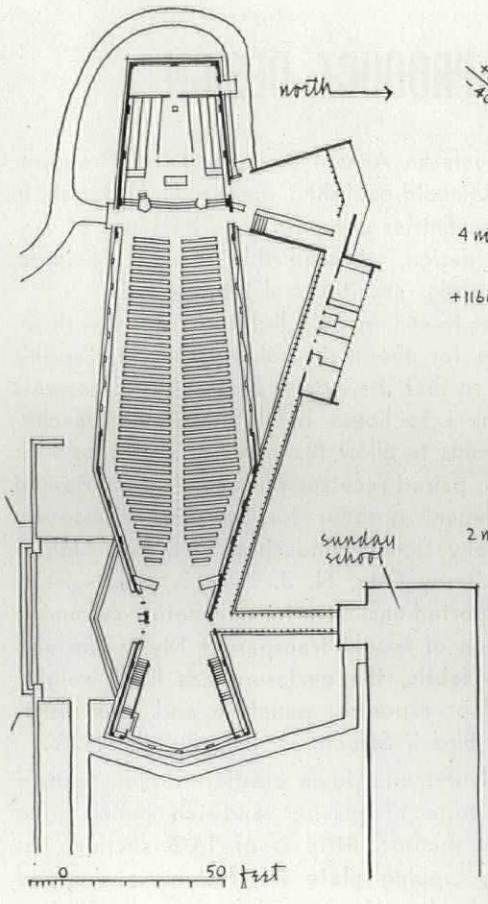
ROOF PLAN

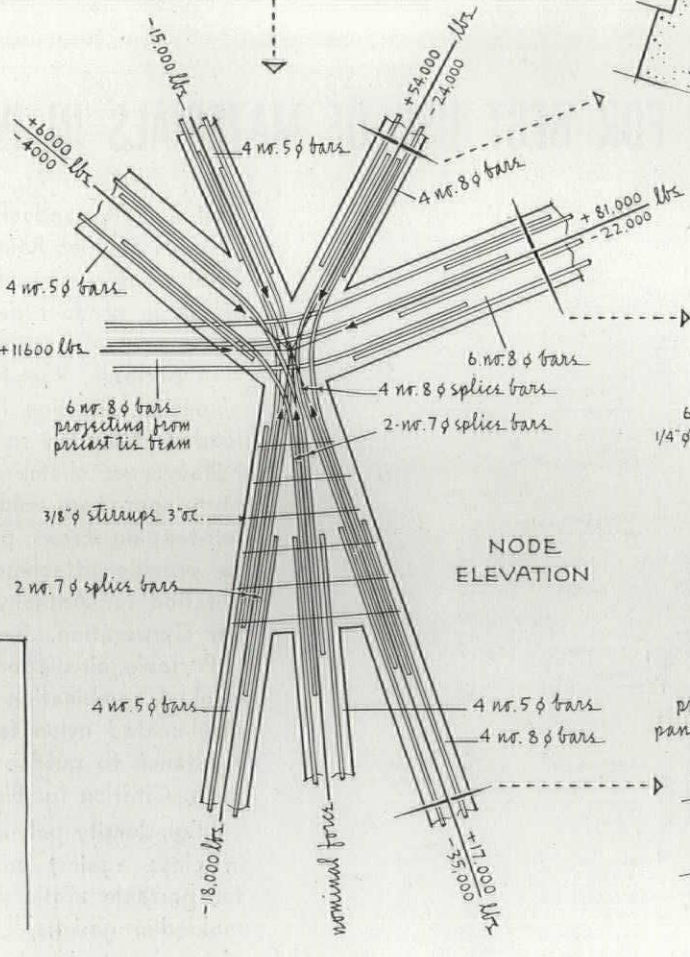
0 25 feet 0 5 meters



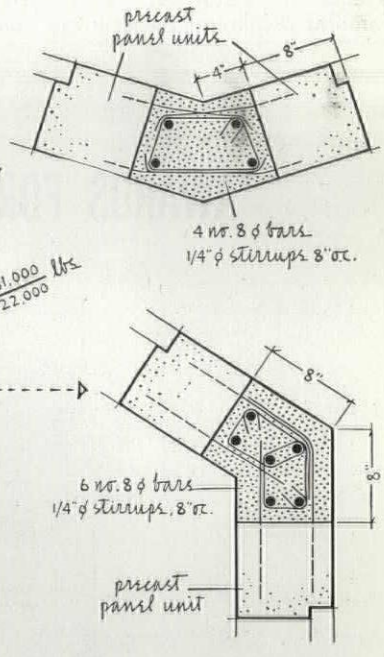
SIDE ELEVATION

FLOOR PLAN

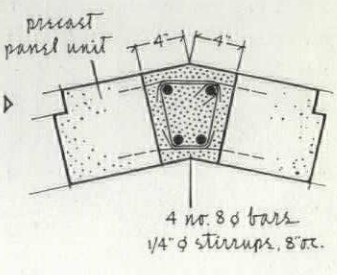




NODE ELEVATION



SECTIONS
3/4" scale



Washington report

by Frederick Gutheim

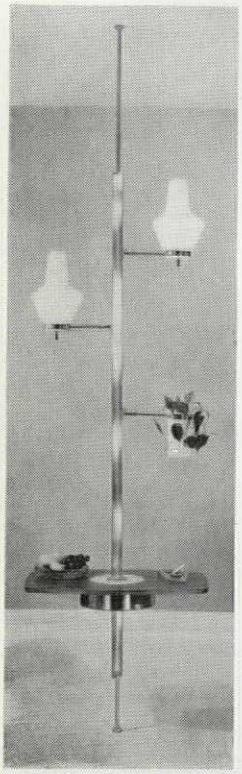
Timing has emerged as the most important aspect of any public works program to deal with the slump. Housing-credit measures have been the first and most universally popular method of meeting the growing volume of unemployment, now at its highest point in 16 years, because they promise to have some effect upon the economy this spring. The Administration is perfectly sincere in expecting an upturn in business activity by mid-year; and despite their gloomier statements and the sterner measures they propose, most members of Congress do, too. This has been a rather spotty depression, concentrated in the older manufacturing cities. Many parts of the country are relatively unaffected, and in the recovery one may well expect the most rapidly growing areas to bounce back faster.

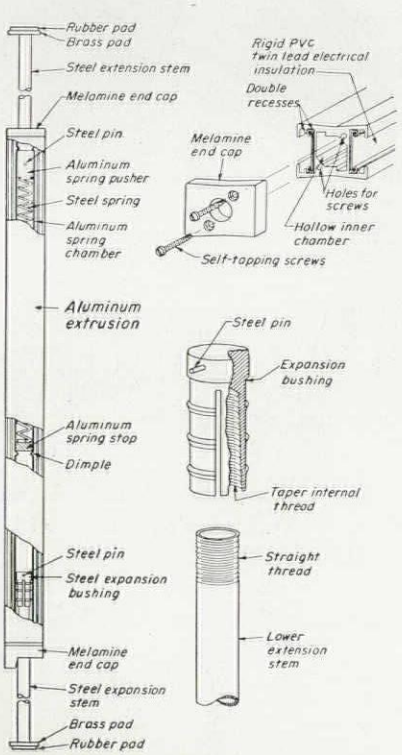
Among the various public works plans that have been put forward in Congress is a stepped-up housing program sponsored by Senator Sparkman. This comprehensive measure was detailed in a two-hour speech to the Senate and promptly became a major plank in the Democratic program. It involves expanded private housing, a greatly enlarged public housing program, with especial emphasis on aiding families displaced by highway construction and urban redevelopment activities, and significant changes to make urban renewal more attractive to municipalities. Sparkman's changes in the renewal program would permit six-year commitments to assure greater continuity, and retain the present two-thirds Federal contribution which the President has proposed to reduce to one-half. The Senator's major stress was placed on the need for a higher total volume of housing if the nation is to keep up with family formation and make a start at replacing an estimated 13,000,000 slum dwellings.

Architects might well use the experience of the present relatively mild recession to test the adequacy of our public works planning. There has been an advantage, certainly, in stimulating through Federal action the preparation of long-range construction plans. But there is little evidence, so far, that we have a well filled pipeline; and many indications that we have neither overcome the delays which disqualify public works as a depression-fighting tool in the mind of many economists nor produced a balanced program with the necessary flexibility. The present test of advance planning should be thoroughly investigated. From an economic point of view, we need to know how far construction can offset the decline in manufacturing employment. The key political issue is probably whether the decision to accelerate and enlarge public construction was, as Senator Douglas has contended, "too little and too late."

• The success of the last-ditch fight to halt the destruction of the East Front of the Capitol has greatly heartened the architectural preservation movement everywhere. At a moment when it appeared that the Architect of the Capital

AWARDS FOR BEST USE OF MATERIALS IN PRODUCT DESIGN





Just as P/A conducts an Annual Design Awards Program, so does another Reinhold-published magazine: Materials in Design Engineering. Entries compete for "best use of materials in product design." Among this year's 16 awards, three were of particular architectural interest:

A portable, floor-to-ceiling pole lighting fixture, with an aluminum extrusion for the main column section, "spring loaded at the top so that it supports itself." Main features: hollow inner chamber to house height-adjustment mechanism; continuous voids to allow fastening of end caps with self-tapping screws; paired recesses for electrical inserts and to provide attachment grooves for lighting accessories. Citation to: Anthony Donato, Industrial Designer, Lightolier Corporation, Jersey City, N. J.

Portable, air-supported enclosure for all-weather swimming pool. A combination of tough, transparent Mylar film and vinyl-coated nylon fabric, the enclosure has light weight; resistance to outdoor exposure; puncture and tear resistance. Citation to: Birdair Structures, Inc., Buffalo, N. Y.

High-density polyurethane (foam plastic) edging, foamed in place against edge of plastic sandwich panels used for portable arctic shelters. Strip is of T&G section, has molded-in gaskets, tapping plate for fasteners; chopped glass-reinforced polyester skin for reinforcement. Citation

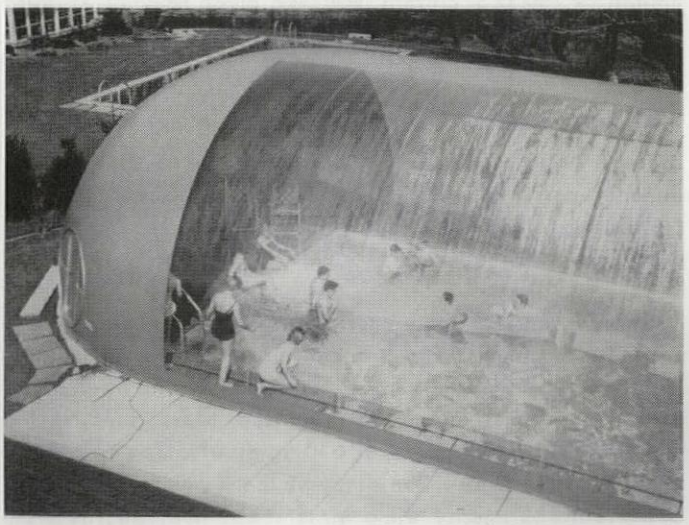
and his chief professional adviser, John Harbeson of Philadelphia, had succeeded in getting their secretly prepared plans under contract, a half-dozen Senators woke up and demanded to know what was going on. The Public Works committee unanimously approved S. 2883, amending the

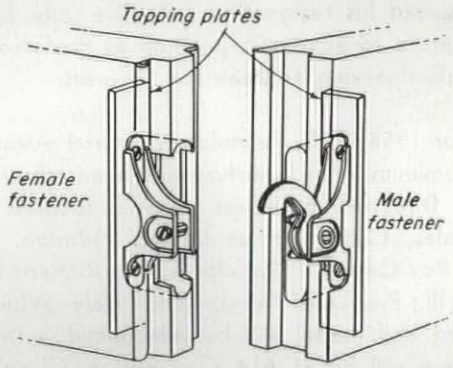
"Can't Be Spending Money Foolishly, You Know"

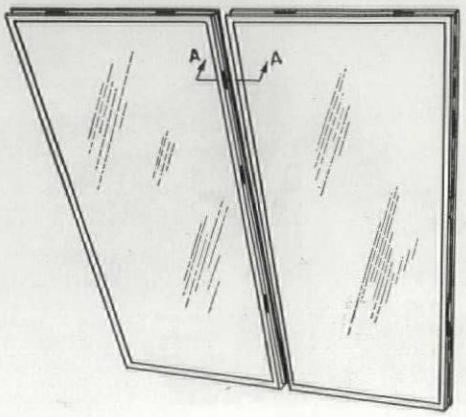
earlier authorization which appeared to require the extension, and this bill seems assured passage in the Senate. The question now is whether the enormous power of Speaker Rayburn can block this measure in the House. Certainly there is no indication the Speaker has budged from his advocacy of this lamentable scheme.

• Some further steps have been taken to assure the use of the building sites facing the Mall between the Capitol and Washington Monument, for museums and other cultural buildings. This entire area is now in need of some comprehensive architectural planning to prevent it from becoming a piecemeal and unco-ordinated development. National Gallery of Art, National Museum, and Smithsonian Institution are already located here. The new Museum of History and Technology is under way. A new cultural center for the performing arts in this area is proposed by bills introduced last month by Rep. Frank Thompson of New Jersey and Senator J. William Fulbright. This would occupy a site south of the National Gallery, earlier contemplated for an enormous Air Museum which certainly does not belong in this part of the city.

• One of those vaguely worthy patriotic ideas—to construct a so-called Freedom Shrine on a site adjoining the Arlington National Cemetery—happily seems on the way to a quiet burial. Plans for this over-ambitious development, carrying a price tag that has fluctuated between $15,000,000 and $25,000,000 have indicated an atrium-like enclosure, 90 feet high, within which would be displayed various documents illustrating the development of our political freedoms. The funds would be raised by private subscription. Aside from the very practical objection that the site is needed for the enlargement of the Cemetery, the uncertainties surrounding any venture of this sort certainly justify the Congressional attitude that no construction should be commenced until the funds are in hand. Dubious aspects of the design itself have yet to be tested by submitting them to the Fine Arts Commission, or to planning agencies.







to: D. E. Pulsifer, Supervisor of Defense Projects Research; and B. L. Waterhouse, Plastic Engineer, Kawneer Company, Niles, Mich.

The Jury consisted of Joseph L. Bonanno, Chief Engineer, Lionel Corporation; Peter Thomson, Industrial Designer, Raymond Loewy Associates; John P. Nielsen, Chairman, Department of Metallurgical Engineering, New York University; and Victor F. Sepavich, Manager of Research and Development, Crompton & Knowles Corporation.

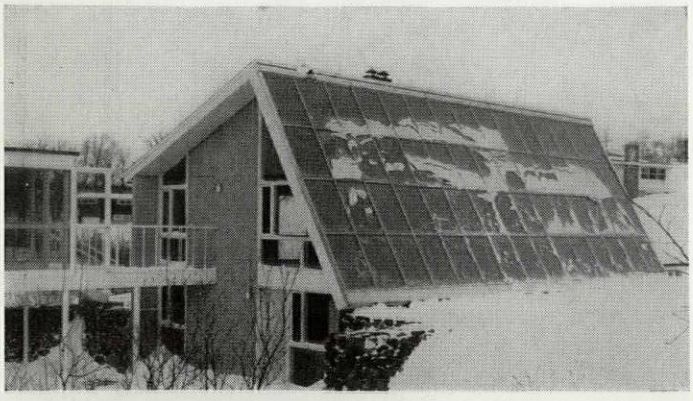
p/a news bulletins

• The Museum of Modern Art, New York, is planning exhibition of revolutionary building in museum's garden. Architect Frederick Kiesler's "Endless House," utilizing principle of continuous construction without right-angled intersections, will be shown. Grant of $12,000 from D. S. and R. H. Gottesman Foundation will be used for preparation of working drawings, engineering studies, models. Structure will be approximately 40'x60' and 25' high. All drawings will be carried out by firm of Kiesler & Bartos.

• The Hawaii Chapter, AIA, has instituted the Pan Pacific Architectural Citation, to be awarded each year to an architect from one of the countries bordering the Pacific Ocean. First winner is Japanese Architect, Kenzo Tange, for his de-design of The Children's Library in Hiroshima. Purpose of award is to establish a professional unity among architects of the Pacific countries.

• D. Kenneth Sargent, senior partner of Sargent, Webster, Crenshaw & Folley, has assumed duties as Director of School of Architecture, Syracuse University, following retirement of L. C. Dillenback. . . . Sidney W Little, Dean of School of Architecture and Allied Arts of University of Oregon, has announced his resignation, effective July 1, from that post to return to academic position as Professor of Architecture, after serving as Dean for 12 years.

• Jury for 1958 R. S. Reynolds Memorial Award for best use of aluminum in architecture has been selected by AIA Board of Directors. Members include: Richard J. Neutra, Los Angeles, Calif.; Arthur Loomis Harmon, New York, N. Y.; J. Roy Carroll, Philadelphia, Pa.; Richard M. Bennett, Chicago, Ill.; Pier Luigi Nervi, Rome, Italy. Winner of $25,000 award and medal will be announced in May; formal presentation will be at AIA Convention, Cleveland, Ohio, July 7-11.



• New project sponsored by The Producers' Council, Inc., is Architectural Sales Representatives Institute, which is conducting a series of regional training courses designed to improve the effectiveness of architectural selling. First session, held at Renssalaer Polytechnic Institute (Jan. 20-24) under direction of Dean Harold D. Hauf and Professor Harry E. Rodman, was attended by 37 building products salesmen, who studied specification writing, design appreciation, organization of architectural firms, how to approach the architect, etc. Next session will be held at Ohio State University week of May 19.

• Phillip L. Goodwin, Architect, designer with Edward D. Stone of New York Museum of Modern Art, died Feb. 13, in Tucson, Ariz.

• Lead Industries Association has retained Skidmore, Owings & Merrill, Architects-Engineers, to make a study of present and potential uses of lead in building construction. General partner John B. Rodgers will supervise the investigation.

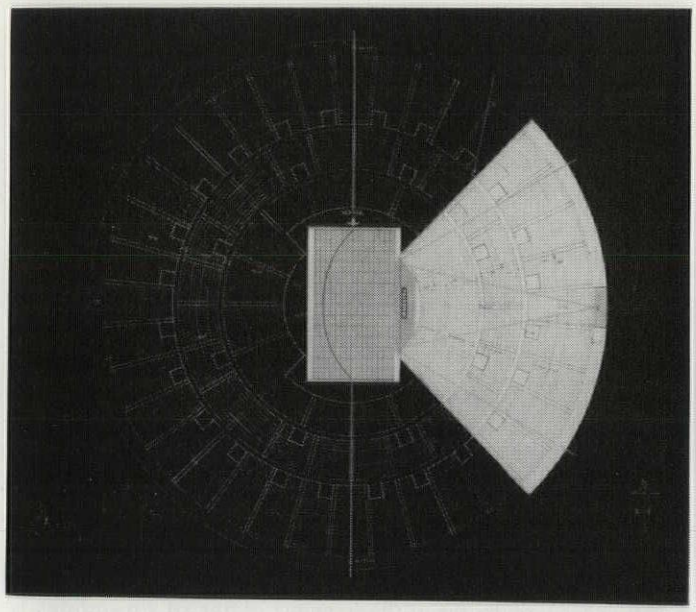
• Ronald L. Dirsmith, Chicago, Ill., and Sanford Hohauser, New York, N. Y., have been awarded Rome Prize Fellowships valuing $3000 each for one year announced Michael Rapuano, President of American Academy in Rome.

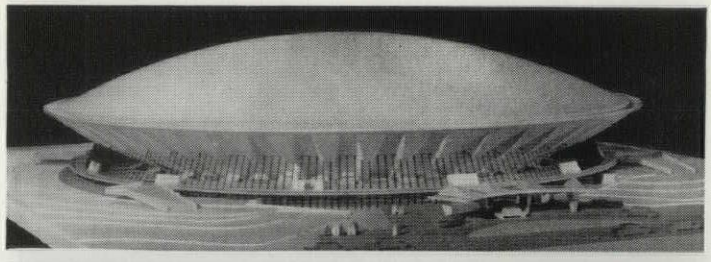
• John Douglas Forbes, editor of Journal of the Society of Architectural Historians, was recently presented with certificate of honorary membership in AIA by President Leon Chatelain.

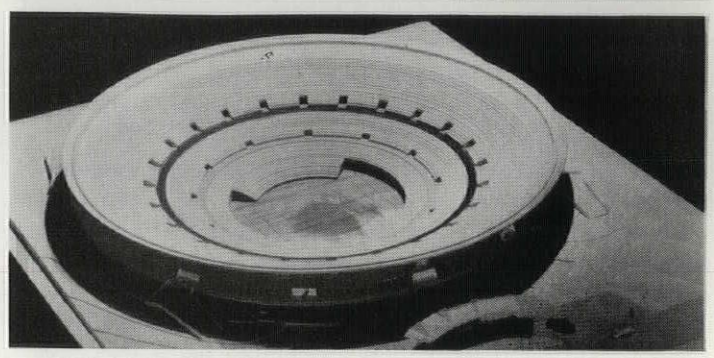
• National Institute of Arts and Letters has admitted Edward Durrell Stone, Architect, to life membership in the Department of Art for his outstanding contributions to the field. Formal induction in the Institute, whose membership is limited to 250 U.S. citizens, will take place May 21 at Joint Annual Ceremonial of National Institute and American Academy of Arts and Letters.

• Domestic construction of new chemical production facilities in 1958-1959 wil be approximately $2.54 billions, announced the Manufacturing Chemists' Association. Estimate is based on 322 projects now under construction and 119 buildings scheduled for completion before 1960.

• Twenty years of solar energy research at Massachusetts Institute of Technology has produced the first full-scale residential house using hot-water solar system of heating. Solar House (left), located in Lexington, Mass., features the solar collector. Collector has 640 sq ft of glass, two layers thick, installed over a thin sheet of black-painted aluminum. Sheet absorbs energy while glass keeps heat energy from escaping. To store energy for use, water is circulated through copper tubes attached to the aluminum sheet. Hot water thus acquired is stored in basement tank and air heated by it is circulated through house by duct system. Glass is used for complete roof and south wall. Living room is on second floor and is connected to screened-in porch adjacent to building by a flying bridge. Usable floor space in house is 1450 sq ft. House will be sold to private owners, but MIT will continue to gather data on system's performance.







• Plans for a new Assembly Hall at University of Illinois were recently approved. Designed by Harrison & Abramovitz, Architects, structure will resemble a saucer, will have a maximum seating capacity of 20,000 for speeches, and will also be used for basketball games and other activities such as concerts, fairs, pageants. Plan (above) shows how curtain walls will be used to shut off areas for specific uses. Building will be of reinforced concrete with lightweight roof. Principal advantage of plan is lack of obstructing pillars. Renderings (above right) show proposed outside view and general picture of completed building. Structural Engineers for project are Ammann & Whitney; Mechanical-Electrical Engineers: Syska & Hennessy; Acoustical Consultants: Bolt, Beranek & Newman; Seating Consultants: Ben Schlanger. Completion is set for 1960.

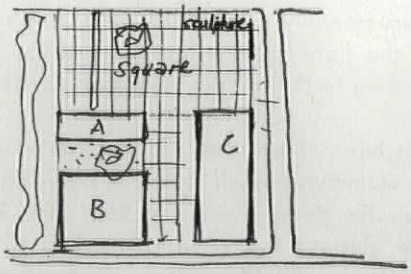
• Winner of International Competition for Qaide Azam Ali Jinnah Mausoleum, Karachi, Pakistan, was Raglan Squire & Partners, London, England. Competition was judged by: Prime Minister of Pakistan; Eugene Beaudouin, France; Robert H. Matthew, Great Britain; Pier Luigi Nervi, Italy; Gio Ponti, Italy; Georges Candilis, International Union of Architects.

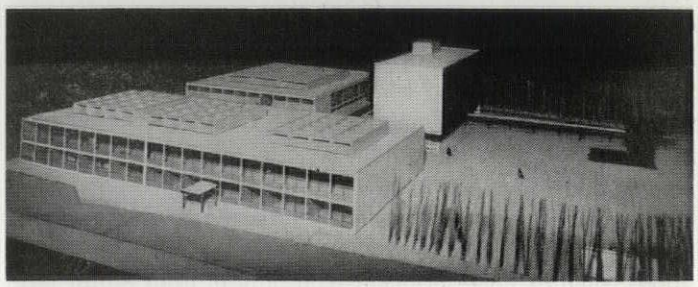
• The prize-winning design of an architectural competition, sponsored by the Turkish Government, is presently under construction in Adapazari, capital of Sakarya. Program requirements were to provide headquarters for governmental branches of the newly established province. Building A (sketch right), the city hall, contains offices for the mayor and his various departments; B serves the treasury and internal revenue departments; C is the court house. The tallest of the three structures, the city hall, has been designed on a 3'-6" module, and will have movable partitions. Treasury building will be two stories high, upper floor being reached by a ramp. In the third building, five court rooms will be located on the upper floor; lower floor will contain library, archives, and other services. A large square separates the three buildings from the main thoroughfare. The award-winning architects—all recent graduates of the Technical University of Istanbul—are: Enis Kortan, Harutyun Vaporciyan; Nisan Yaubyan; Avyerinos Andonyadis.

• Edwin F. Harris, Jr., has been awarded Lloyd Warren Fellowship, Paris Prize in Architecture, by National Institute for Architectural Education, for his design of a national cultural center for a metropolitan city. Plan was selected from field of 80 entries. Fellowship carries stipend of $5000 for year's travel here and abroad. . . . Winner of 1958 Arnold W. Brunner Scholarship of New York Chapter, AIA, has been revealed as Harry A. Anthony, city planner and assistant professor of planning and housing at Columbia University.

• Recent election results of interest to architects and industry are: Lester A. Jacobson, Berkeley, Calif., president of American Institute of Timber Construction; Richard B. Alexander, Andersen, Ind., president of Tile Council of America; Douglas McHenry, Chicago, Ill., president of American Concrete Institute; August P. Petrillo, Mount Vernon, N. Y., president of Building Stone Institute.

• Mutual Benefit Life Insurance Company Building, Newark, N. J., designed by Eggers & Higgins, Architects, received award as "Office of the Year" in survey conducted by Office Management magazine.





p/a financial news

by William Hurd Hillyer

Contrary to widely accepted claims that inflation can be "controlled" or "combated" and that a recession can be "halted," the current "readjustment" continues to reveal itself as a cyclical phenomenon, progressing in fairly predictable stages. The earliest of these is invariably a severe capital shortage: this phase was reached during the latter half of 1957, with high interest rates as an exponent. That has now definitely passed and interest is cheaper today than it was before the cycle began. The part played by the Federal Reserve Board in moderating the severity of the high interest stage, or perhaps in hastening its completion, was less than is commonly supposed. Actually, the part played by basic capital accumulation should be primarily credited. So much for developments thus far.

What concerns architects and construction men presently is the foreseeable supply of fixed capital. As estimated by the banking house of R. W. Pressprich & Co., the supply of long-term funds for the first half of '58 will fall short of the investment demand by $1.6 billion, this sum being arrived at by setting forth a $14.1 billions net increase in savings as against a $15.7 billions capital investment demand for the period. More than offsetting this figure, a seasonal accumulation of $7 billions Treasury surplus plus $700 millions bank loans will result in a net half-year surplus of funds amounting to $6.1 billions dollars. This follows the classical pattern of capital accumulation in the course of a recessionary phase.

• The economy is now approaching the end of what Prudential Insurance's president, Carroll M. Shanks, calls a "dip down." He predicts that business will "level out by mid-year"; he calls the attitude of many important men and economists "unreasonably pessimistic." His prophecy should be viewed in the light of previous experience, which reveals a slower swing to the middle stages of a negative cycle.

• Again comes news of worldwide price cuts in non-ferrous metals such as aluminum, which Russia is now "dumping" at $25 a ton below the pegged price of $551. The Soviets are also said to be glutting the Western markets with tin and other alloy metals, useful in modern construction. On the other hand, iron-ore prices for '58 will be unchanged from last year, independent producers announce.

New and unfilled orders in manufactured products amounted to $51 billions on January 1—down some $14 billions from the year previous—with "durables" leading the decline. In a frenzied effort to bolster sales, makers and dealers are cutting prices throughout a diversified area of consumer goods, such as home appliances, furniture, used autos, farm equipment. This price sag marks the second stage of the recessionary syndrome.

• The recession (now rightly labeled "depression" in the highest official quarters) is breeding numerous efforts at Federal and local levels to stem the adverse tide. Not least of these is an ambitious residential program for the older-than-sixty-five contingent of the country—now exceeding 15 millions. This program includes direct Federal loans to elderly homebuilders as well as indirect loans to foster the construction of the last-named type. As cited by The Wall Street Journal, the 132-unit development by the Omaha Educational Association Senior Citizens for retired school teachers has been awarded $1,144,000 of FHA mortgage money. Concurrently the Senate has before it a measure designed to lift residential starts above one and one-third million a year.

• An exception to the disheartening roster of downslides is afforded by the production of "man-made" fiber, such as textile glass, which broke all records, having climbed above a 1.7-billion-pounds annual rate by January 1. This was 100 million pounds over the '56 total and reflects a 250% upswing since 1941. Further cheer: machine orders rise.

• A little-noted bit of information broke recently that may carry a message of hope for architects beneath its manifest content. Following three years of study, the joint committee of the AFL-CIO Building Trade Department and the National Constructors Association announce that three million building mechanics have received definite instructions from their union leaders to comply with a ten-point code designed to do away with "featherbedding" and all other forms of manpower wastage. A veteran New England authority sees in this move a possible reduction of building cost for both home and nonresidential construction. Building activity in general should be stimulated thereby.

• Forecasts for the remainder of 1958 envision "strong cross-currents in construction activity," as analyzed by experts at the Federal Reserve Bank of Richmond. It is their belief that factory building will decline from the year-earlier peak, while "construction outlays of state and local governments" are viewed as in a "rising trend." Increased Government outlays on Federal, state, and local levels—already running far ahead of 1956-57—are cited by the Federal Reserve as factors of construction strength. Shrinking interest rates meanwhile make financing easier. Municipal bonds continue to be in demand, thus augmenting the funds available for public buildings. At this writing more than $1.5 billion of state, county, and city loans have come into the market since the first of January—a yearly pace of some $9 billions —with huge offerings yet to appear. So large is the total of projected issues that bonds are beginning to pile up, unsold. This congestion has been aggravated by the U. S. Treasury overhang of $1.25 billion long-time 3% obligations.

Encouraging final note: "Country" banks are no longer primarily farm financers, says Virginia banking conference speaker; they are increasingly concerned with small-town urban developments and other projects often assigned to architects.

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VA Hospital, Pittsburgh, Pa., *Architects:*
Altenhof & Bown *Ingham Boyd & Pratt*
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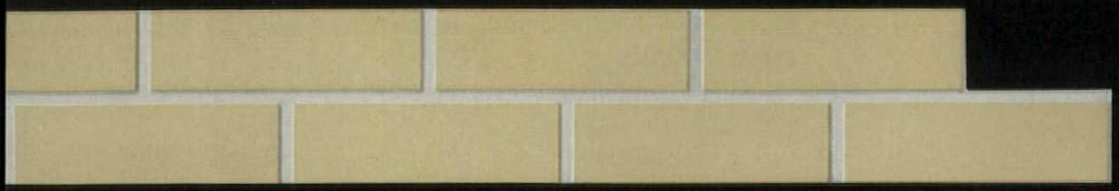

Hanley Smooth Cream Brick No. S-32

Central Dauphin Joint High School, Harrisburg, Pa., *Architect: Edmund George Good, Jr.*

Hanley Smooth Dark Gray Speckled Brick No. S-93

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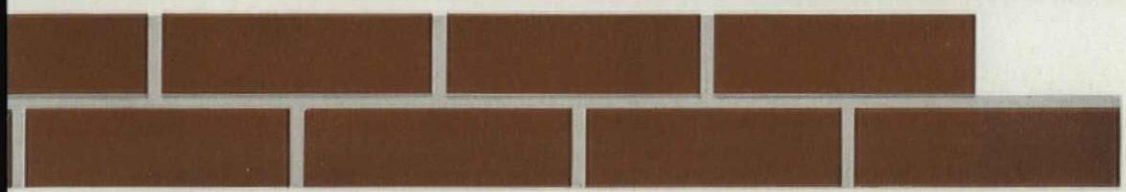

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for may

PROGRESSIVE ARCHITECTURE

HOUSES: THE SPACE FACTOR

MAY P/A will present a number of houses in which architects have provided notably interesting and pleasant living spaces. The issue will include: a house/pavilion/dance deck in a garden; a house with a garden room; a house with a two-story studio; a house bridging its own garden; a ski lodge/vacation house; and a suburban house opening toward its view.

LIVING AREAS IN HOMES

Interior Design Data for May will be devoted to residential living areas, including houses in Palm Springs and San Francisco, California, and an apartment in New York.

MATERIALS AND METHODS ARTICLES

Four informative articles will appear in MAY P/A:

"Calculation of Residential Cooling Loads," by Groff Conklin.

"Specifications for Lawns and Planting," by Lee Circle.

"Antidote for Nail Pops," based on material from the Gypsum Association.

"Why Not Pest-Preventative Construction?" by Hubert Frings, Professor of Zoology, Pennsylvania State University.

PROGRESSIVE ARCHITECTURE

means

ARCHITECTURAL PROGRESS

Yale's Hospital-Design Fellowship

Since 1949, the Department of Architecture at Yale University has been recipient and co-sponsor of an unusual Fellowship, conceived and designed to stimulate advanced study in the design of hospitals. The Magnus T. Hopper Fellowship in Hospital Architecture, as it is designated, has been carried on through the efforts of Charles F. Neergaard, "retired" hospital consultant who continues to maintain a lively interest in hospital programming and hospital architecture.

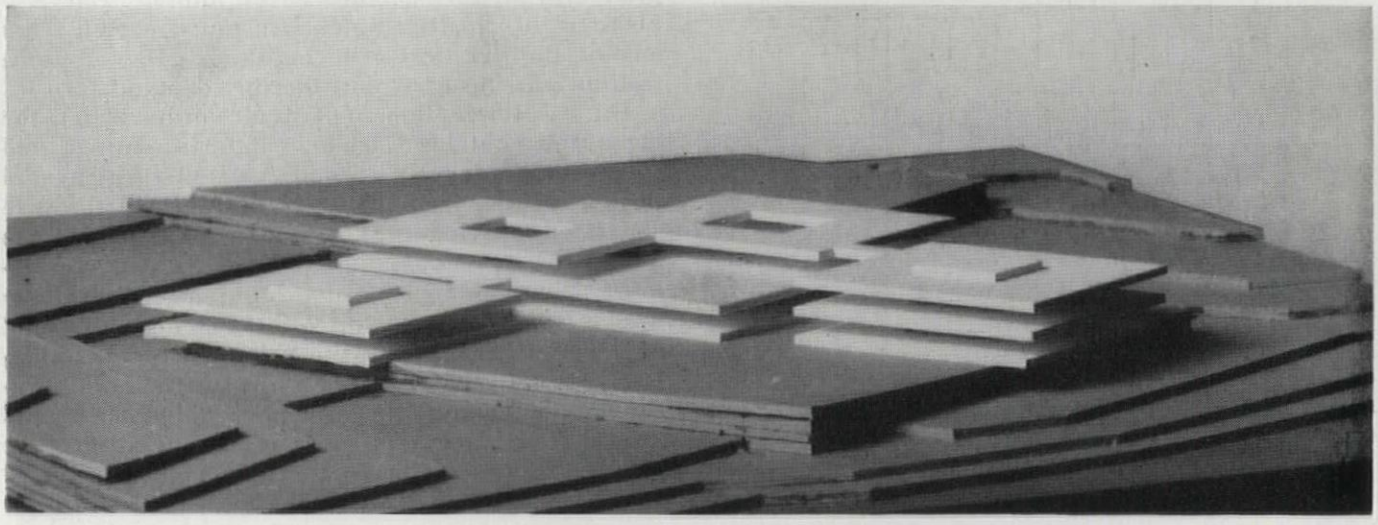
In memory of Dr. Hopper (who was for 25 years Medical Director of Carson C. Peck Memorial Hospital in Brooklyn, New York, and a progressive hospital superintendent interested in advances in design), Neergaard has raised each year, through the Hopper Fellowship Committee, a gift of $2500, of which $1500 is allocated for the Fellow's tuition and living expenses, $500 for books and travel, and the remainder for costs of conducting the Fellowship competitions.

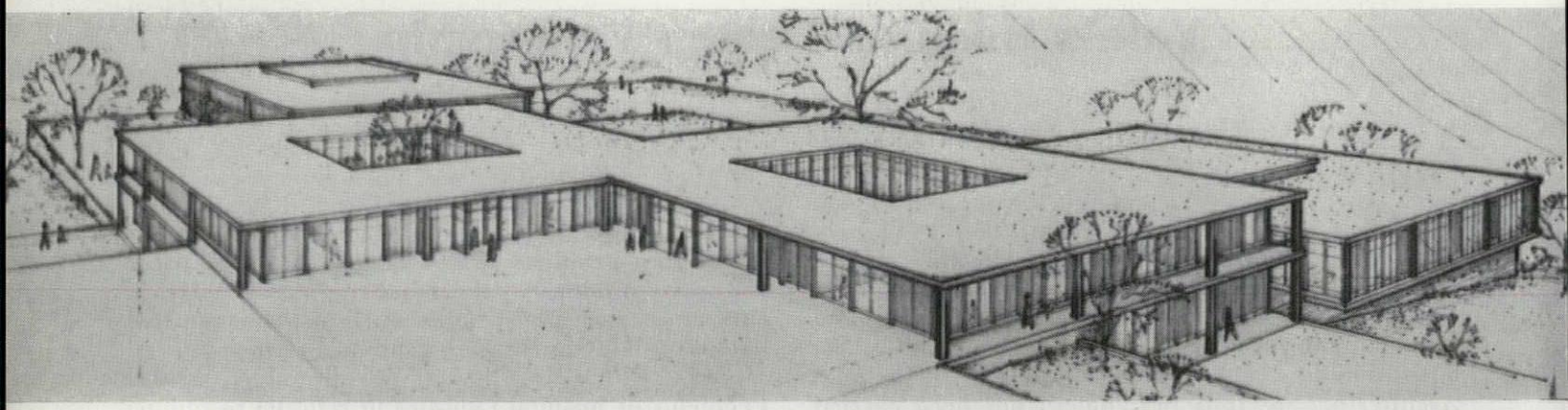
Under the direct conduct of the Department of Architecture, but with a visiting critic who has special knowledge of and experience in hospital design, the problems have been given each year to advanced students. At the conclusion of the problem, and after normal grading by the Department faculty, a special Jury is called in to help determine the winner of the Fellowship. The specialized study in hospital design thus permitted to the winning student is invaluable in preparing him for further work in the field—either in office work or in additional research. The experience record of the Hopper Fellows since graduation is an impressive one.

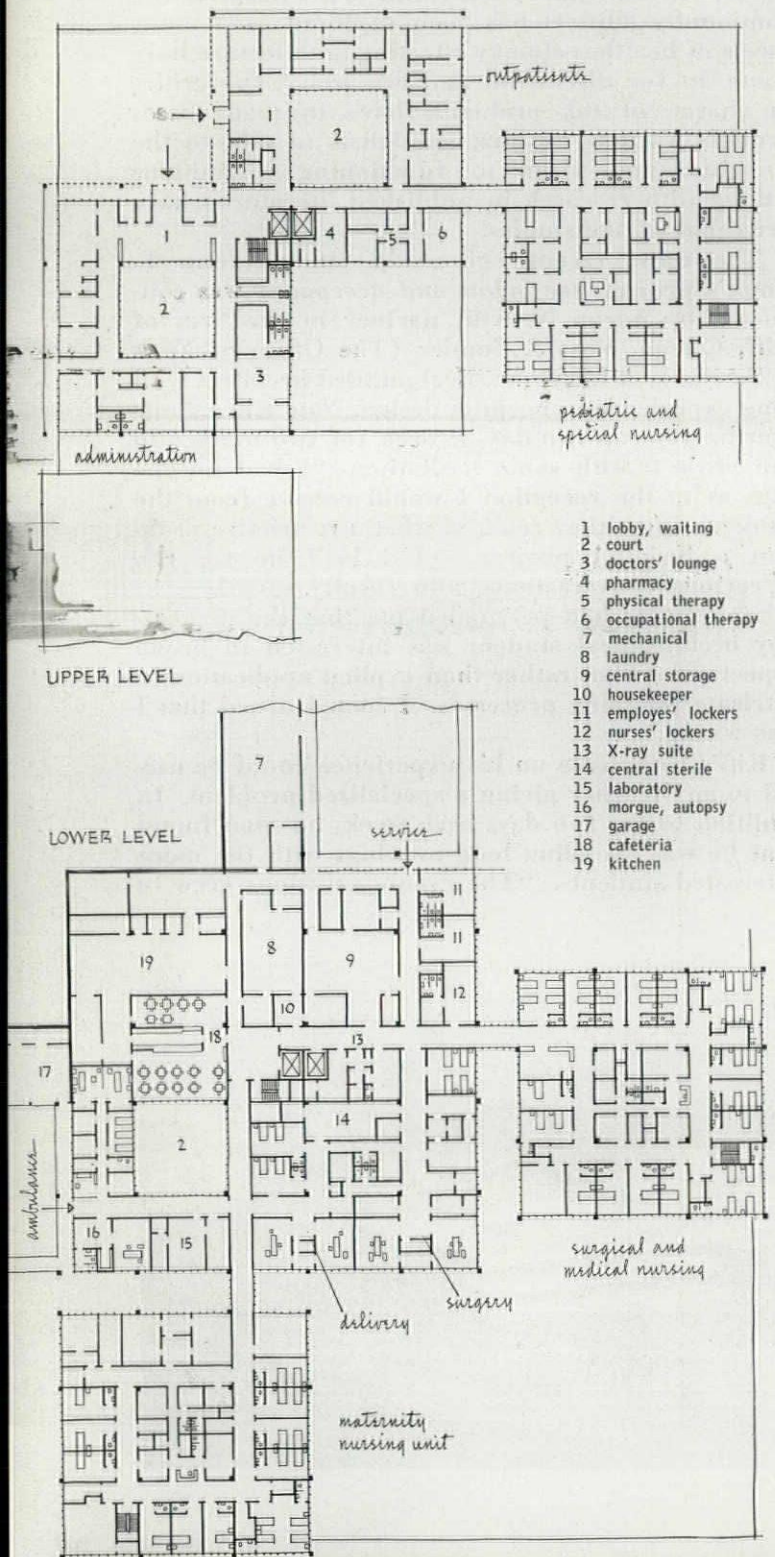
Programs for the Fellowship competitions have varied from straight hospital design problems—"A Hospital for an Industrial Town" was the subject of the first problem, in 1949, and "A Hospital for a Rural Community" the most recent, in 1957—to extremely specialized ones such as the unusual hotel-hospital combination (*shown on the following spread*), which was the 1956 Fellowship winner. Problems of hospital facilities in relation to public-health activities have been studied; the hospital as a community adjunct has been explored; and many facets of health-sociology affecting architecture have come up for discussion and research. The critics in charge of the problems have in many cases brought various hospital specialists to talk to the students, and visits to functioning institutions (along with research in published literature) have been part of the studies.

The most recent Fellowship study (John F. Houk's project, *see below and overpage*) was conducted by Aaron N. Kiff, partner in the firm of Kiff, Colean, Voss & Souder (The Office of York & Sawyer). A busy, practical-minded architect with long experience in hospital design, Nate Kiff admits that he gave up two days a week for two months to the project, with some hesitation. "I had misgivings as to the reception I would receive from the students when they realized what a restrictive problem a hospital project would be," he reports. "Previous conversations with faculty members in other schools had persuaded me that the present-day architectural student was interested in broad aspects of design rather than explicit application to intricate planning processes. I soon learned that I was wrong."

Kiff's comments on his experience could be useful to any teacher giving a specialized problem. In addition to the two days each week, he soon found that he was spending long evenings with the more interested students. "The evening sessions grew in







number each week, as interest in the problem likewise grew. I found the students gathering momentum and becoming more and more interested in the hospital as a planning problem. . . . A study of the final designs showed that almost all students had come up with solutions equal in a practical sense to those one would expect from experienced designers or draftsmen in an office."

Kiff came to the conclusion that practicing-architect critics are welcomed by students—when they really work at this assignment. "In any involved building problem, students need concentrated effort on the part of their instructors, and if a practicing architect is to be of any real assistance he must be willing to give the students lots of time at the drafting board."

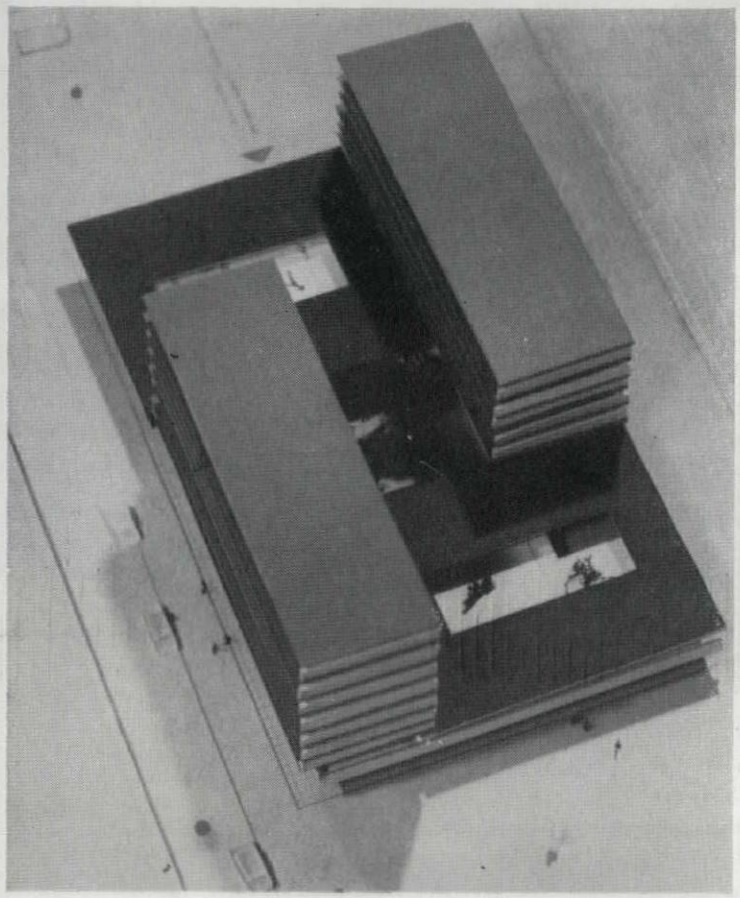
The Hopper Fellowship program has brought to Yale considerable practicing-architect talent, which has concentrated on highly specialized problems.

•

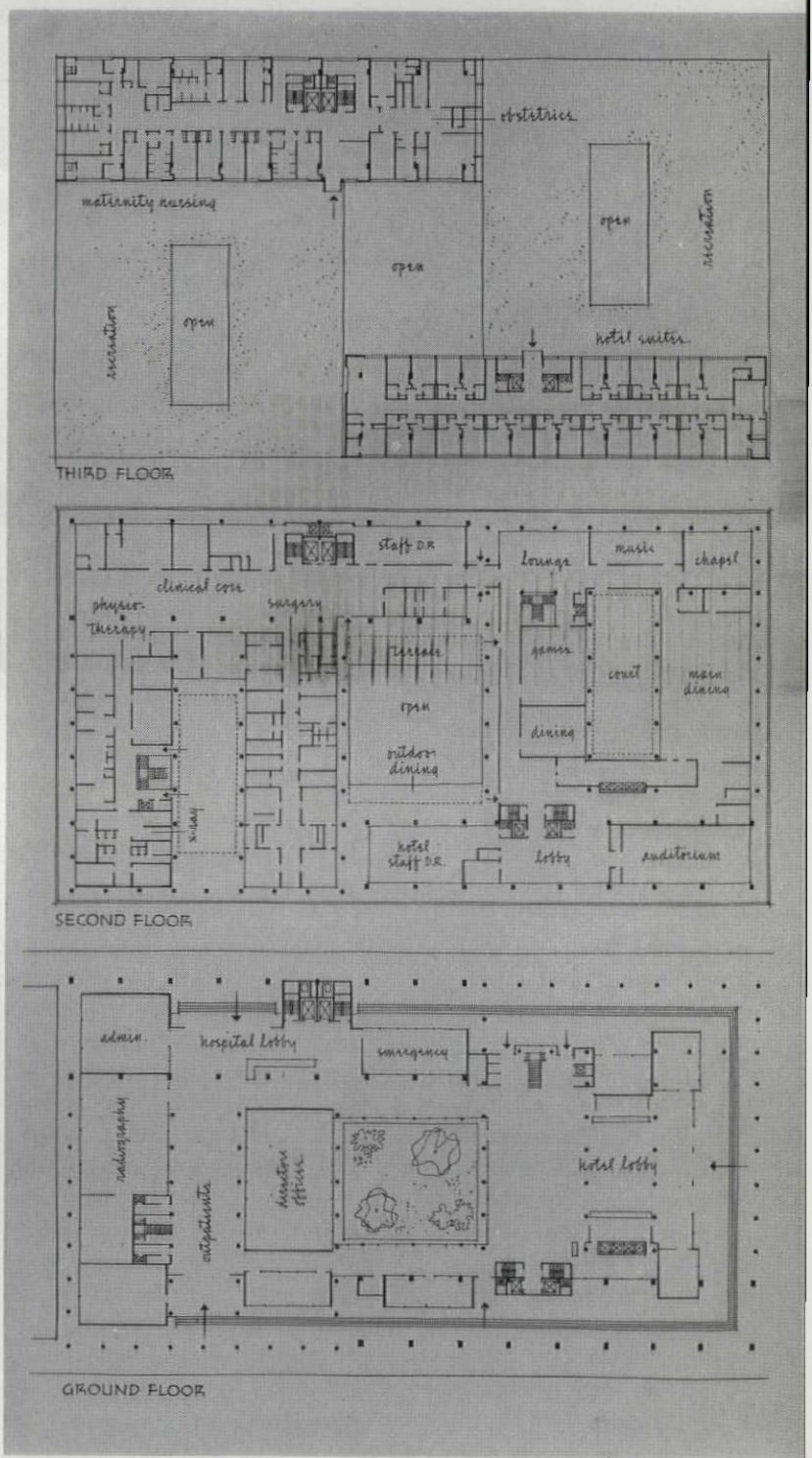
The 1957 Hopper Fellowship was won by a third-year student, John F. Houk, with the project shown on this page. The problem was a hospital for a rural community, and the solution, on a sloping site adequate for a decentralized scheme, explodes the plan in such a way that individual nursing units become almost separated pavilions, yet well connected to the central administration and joint-facilities unit. The result, the Jury felt, was a hospital with an unusual degree of human scale and pleasant informality, which had not departed from any of the practical criteria which good administration, nursing care, and therapy demand.

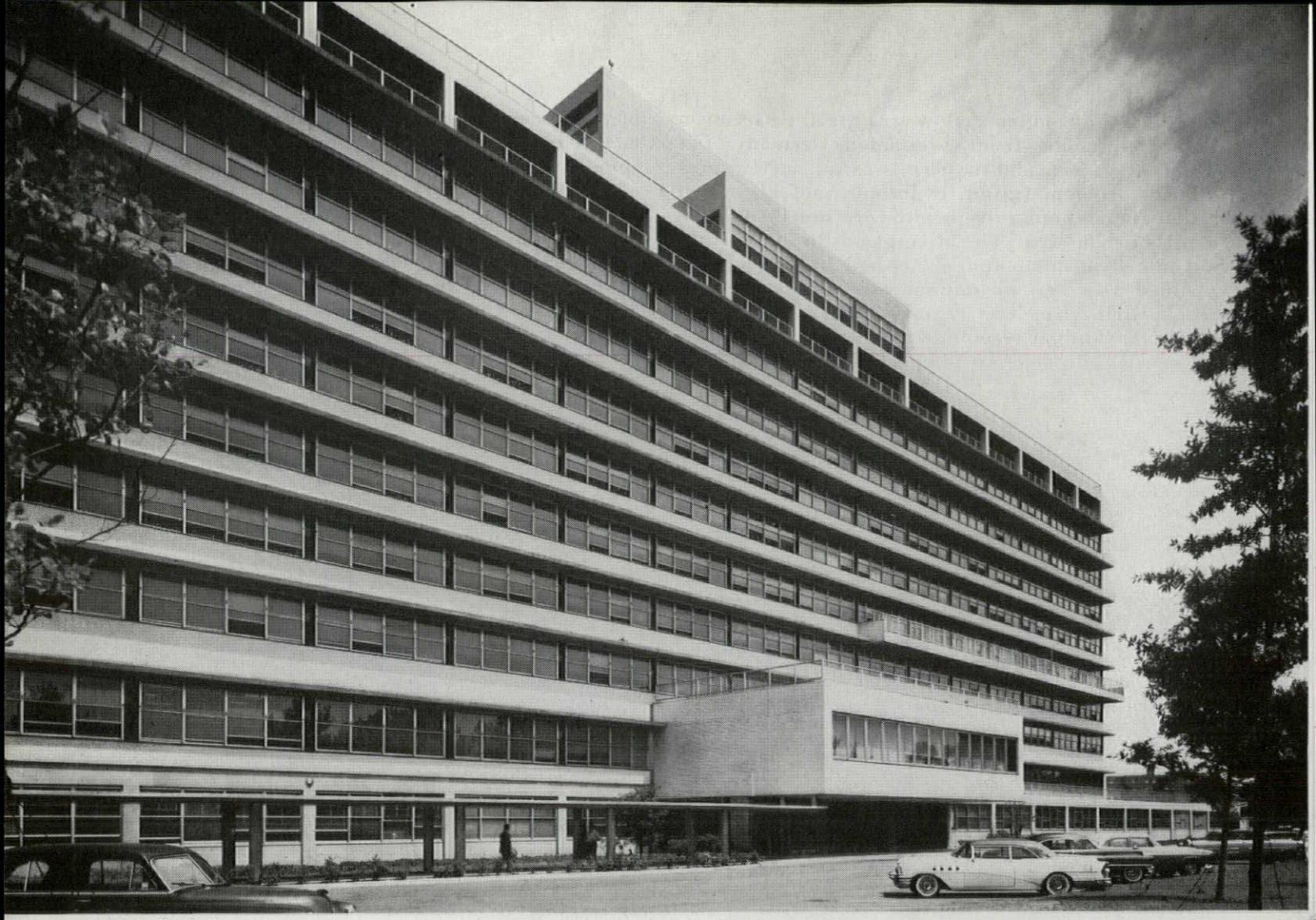
On the lower floor (plan at *bottom left*) the large unit contains kitchen, cafeteria, storage and such spaces, as well as well isolated surgical and obstetrical departments. On this level, the two separated nursing-unit pavilions are devoted to maternity and surgical-medical cases (directly related to the appropriate operating spaces). On the upper level (plan at *top left*) the main hospital entrance occurs, and in the principal block administrative and related spaces are planned. One pavilion has a second floor—devoted to pediatric and special nursing cases—immediately connected to the outpatient and special therapy rooms.

In 1956, the Hopper Fellow was Martin Kirchner, Fulbright Scholar from Wiesbaden, Germany. His winning project, shown here, was an answer to a difficult problem (given by Joseph Neufeld) which called for a community health-care unit in a high-density urban area. The attempt was to see whether a 150-bed hospital and a 200-bed hotel could be planned together to mutual advantage. "It was emphasized," Kirchner reports, "that hospitals and hotels face similar economic problems in the course of a year, and that an integration of the two elements under one administrative group could facilitate savings in daily running expenses. Hospitals in general show a decrease in occupancy during summer months; every hotel in turn has to struggle with periods of low occupancy. The combination offers striking advantages: patients ready to care for themselves but needing some medical facilities could move into the hotel . . . single and double rooms could be used alternately . . . common kitchen facilities, storage, and general administration would make savings possible."



Hotel block rises eight stories; hospital six floors. Low buildings house administration and public spaces for each unit, with possible common rehabilitation or convalescent spaces. The two units are interconnected on lower floors.





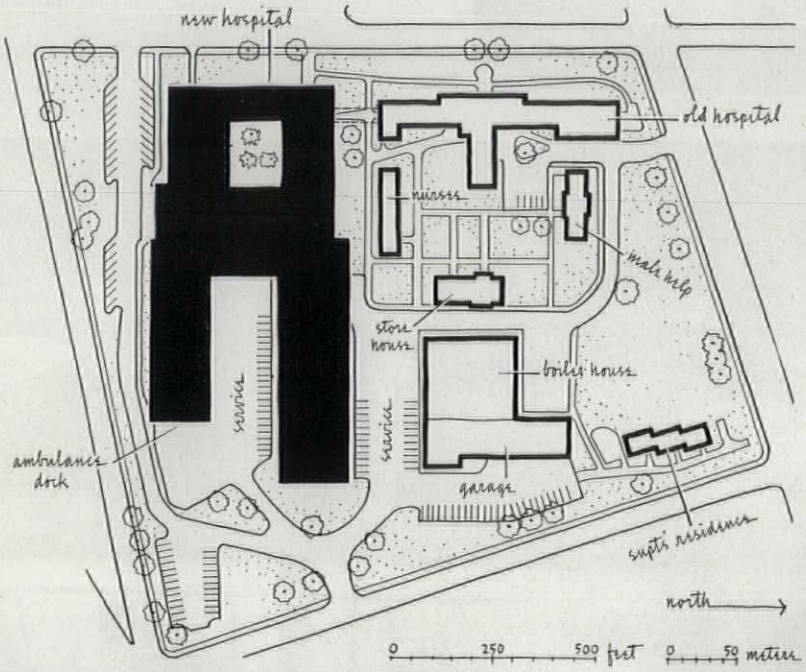
Photos: Ezra Stoller

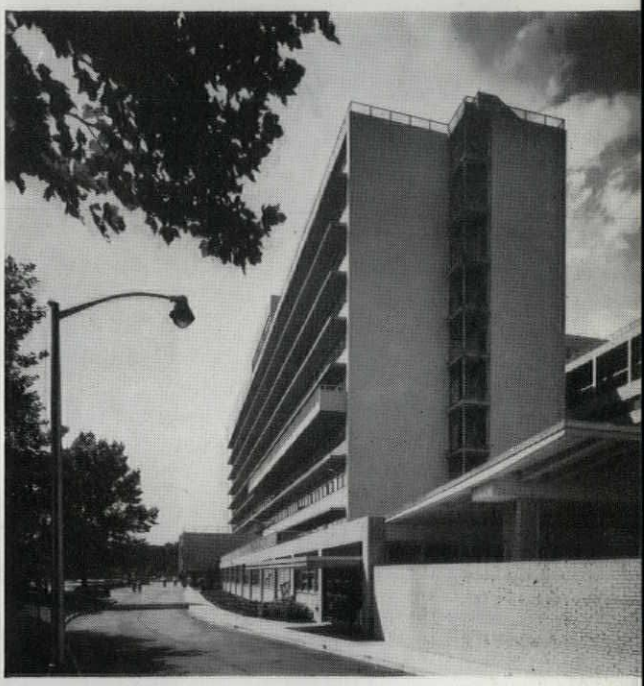
general hospital

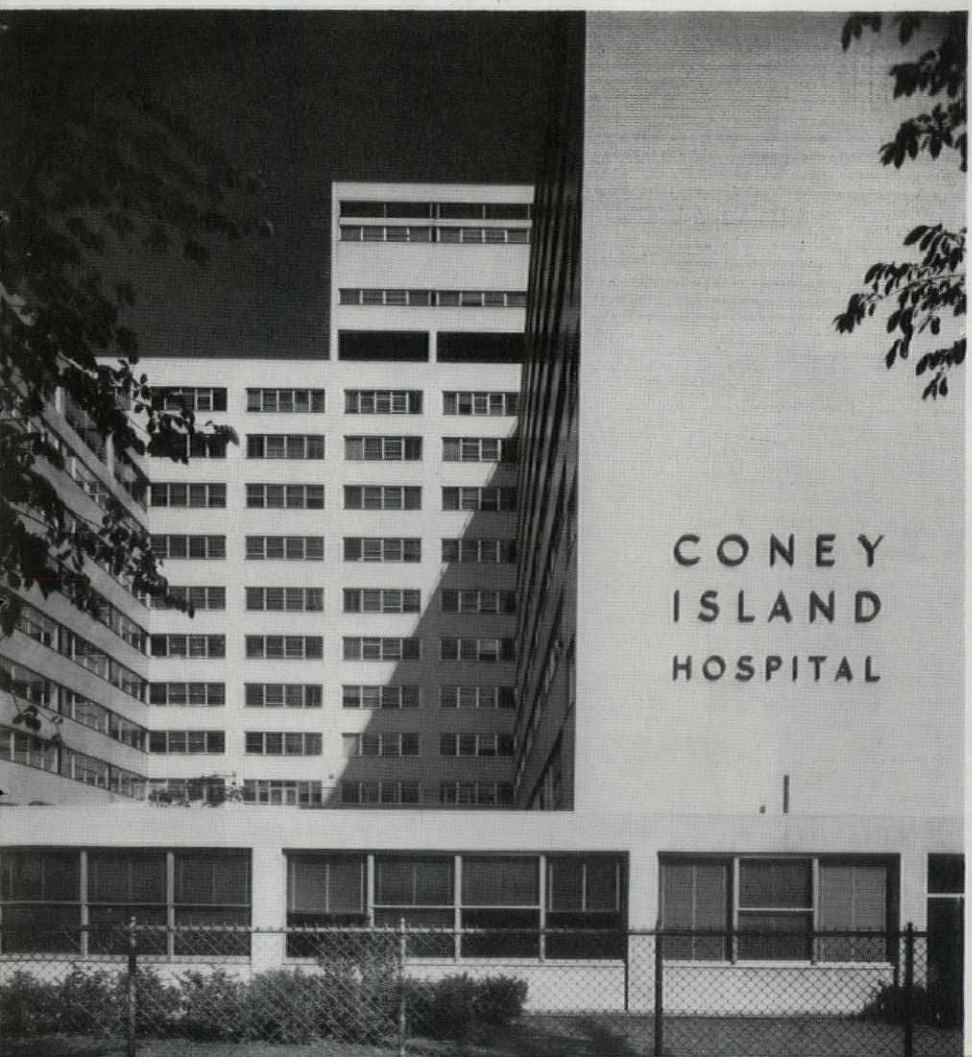
location	Brooklyn, New York
architect	Andrew J. Thomas
associate architects	Katz, Waisman, Blumenkranz, Stein, Weber
landscape architect-site planner	Leo A. Novick

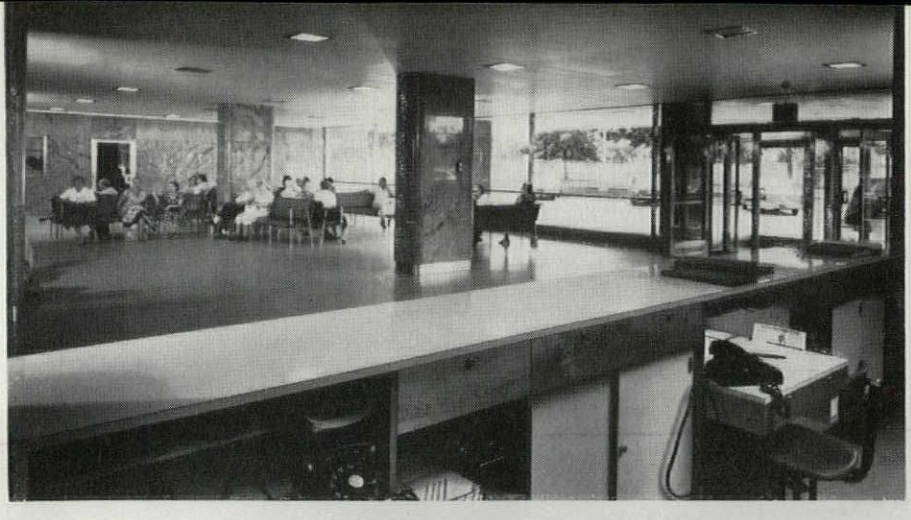
This hospital is a recent addition to an existing plant comprising a general hospital, staff quarters, and boiler house. The new structure, a 500-bed acute general hospital is also a teaching center for the care and supervision of inpatients, as well as a center for outpatients and rehabilitation patients. Conversion of the existing general hospital into a facility for the chronically ill is presently under way. A connecting bridge between the old and the new buildings will make joint use of the diagnostic and treatment facilities possible. Total bed capacity exceeds 800. The building site measures about 10 acres, of which the least encumbered area to the south was used for the construction of the new building. Nursing units have been oriented toward the south, facing ocean and a parkway which precludes the erection of other buildings within 450 ft of the south façade. The hospital is in the form of an H—the south leg forming the inpatient block, the east-west crossbar containing the main circulation core with departmental administration offices, the north leg occupied by the outpatient departments as well as the ancillary services. The outpatient department has been intentionally isolated in order to segregate heavy outpatient traffic from persons visiting inpatients. At the same time a wider wing was necessary to accommodate the equipped services. The building is supported on cast-in-place concrete piles with reinforced pile caps. These support slab, columns, and grade beams. Because of the near sea level site the space below the first floor slab is devoted only to pipe space. Walls in these areas are hydrolithically waterproofed and the floor is a 15″ gravity slab. The super structure is a steel frame, used in combination with short span, lightweight concrete arch construction. To provide pipe chases, beams were framed into girders made up of two channels straddling the columns. Peripheral columns along north and south walls are set back to provide space for heating risers. Heating is performed by a two-pipe forced circulation down-feed reversed return, hot-water heating system for floors two to nine. The first

floor and portions of the second floor are heated by a two-pipe vacuum return system. The tenth floor and penthouse residence floors are radiantly heated. Complete air-conditioning systems have been installed for operating rooms, delivery suite, animal rooms, fluoroscopy and radiography, central supply, auditorium, and encephalography. Design and construction of this building for the Department of Hospitals of the City of New York were under the supervision of Frederick H. Zurmuhlen, Commissioner of the Department of Public Works—Albert Bauer, Senior Architect, Alexander Beresniakoff, Project Architect. V. L. Falotico & Associates were Mechanical Engineers; Farkas & Barron, Structural Engineers; Gerace & Castagna, General Contractor.









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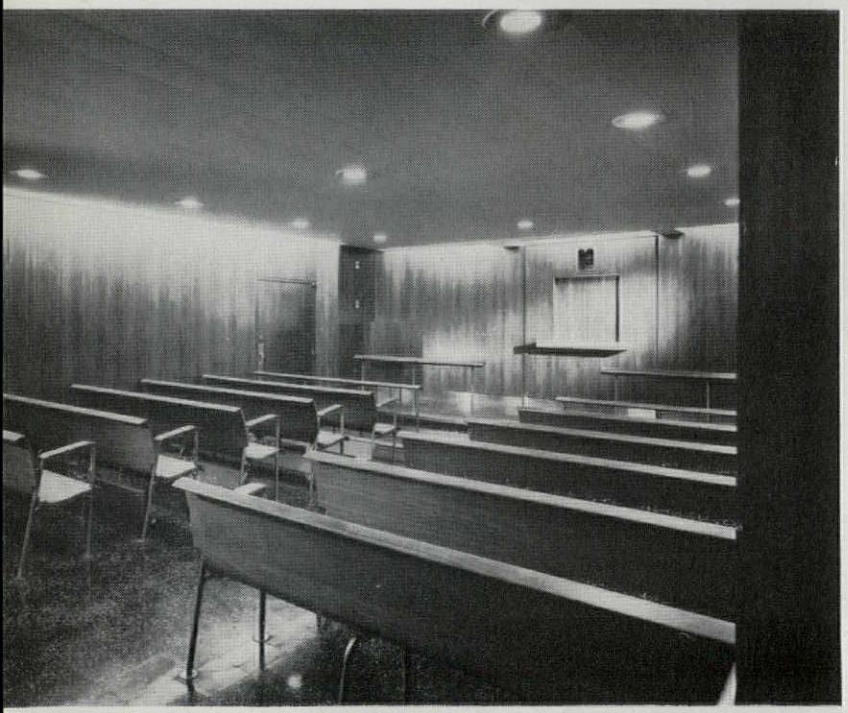

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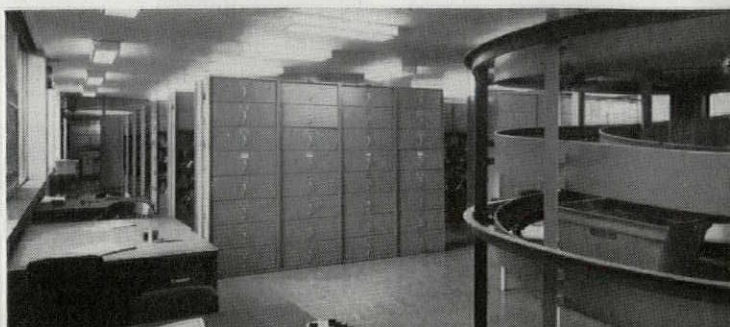
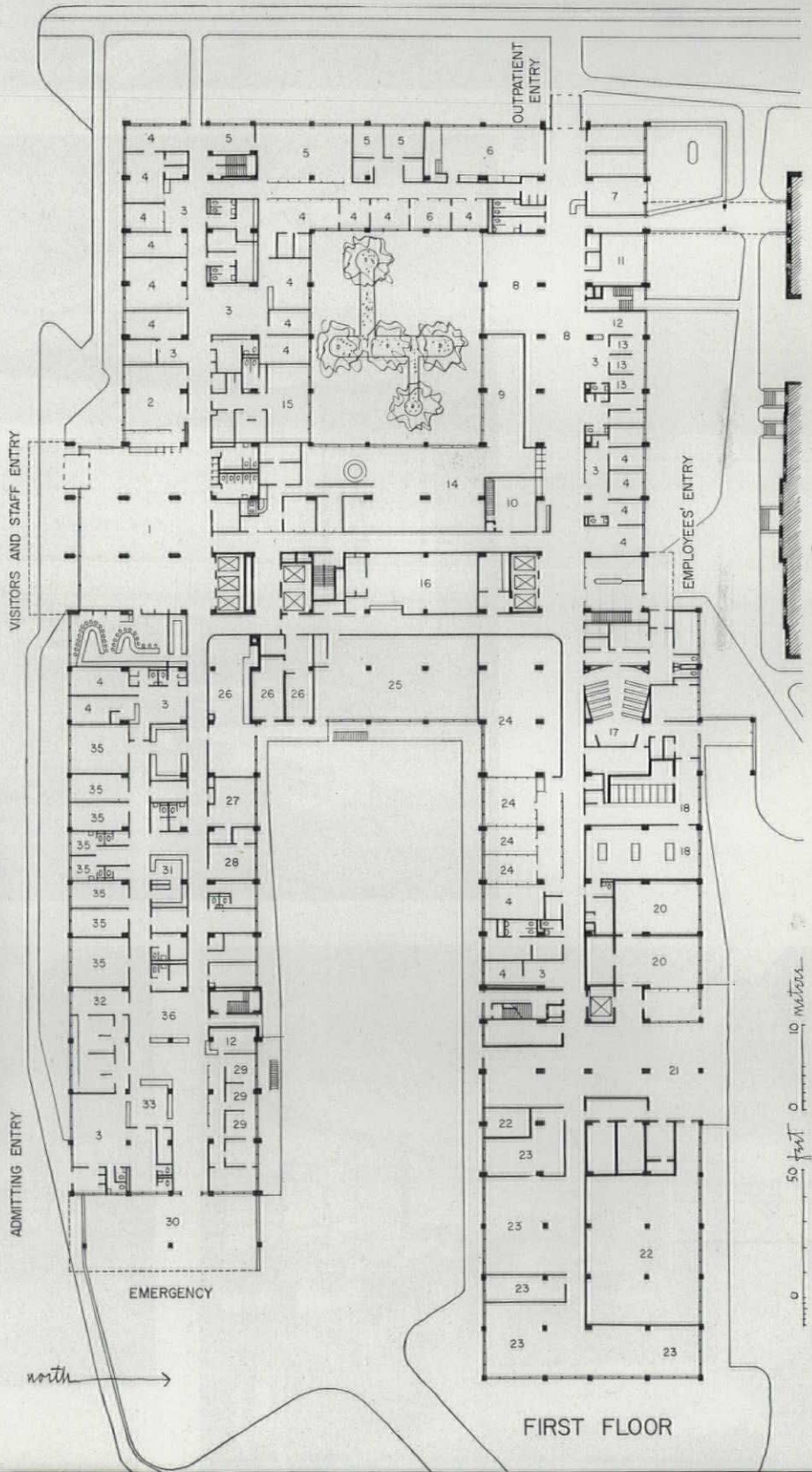
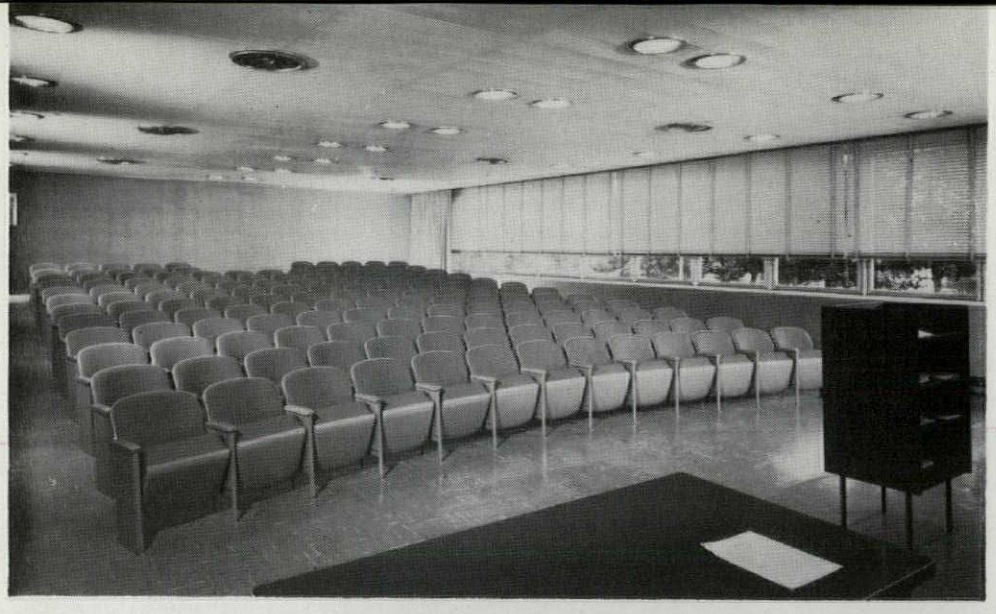


In arranging the multitudinous functions of this hospital, the architects attempted to achieve a reasonable balance between horizontal and vertical traffic, a directness of traffic flow, and noninterfering circulations. Equally important was the interrelationship of inpatient services and the outpatient, diagnostic, and therapeutic services, to facilitate the work of physicians and personnel who serve in both departments. Results of the careful balancing of all the hospital functions are evident on all floors but in particular on the first floor. Here the admitting division is located in the south block; medical record room (**4**), social service, and business offices form the link between inpatient and the outpatient department in the north wing. All points of entry and departure—for visitors, staff, outpatients, ambulatory and emergency admissions, supplies, trash and soiled linens—are on this floor. A lobby to the south (**1**) serves visitors and staff. Outpatients enter from the west into a waiting room (**2**) which opens onto a garden court. Cubicles (**5**) serve as registry points for new patients of the outpatient division. Also on this floor are the mortuary services of which the chapel forms a part. Another similar chapel (**3**) on the third floor is for the use of the patients.

1 main lobby
2 information/telephones
3 waiting
4 office
5 volunteer & social services
6 conference room
7 children's playroom
8 outpatient waiting
9 registration
10 dispensary/pharmacy
11 fluoroscopy
12 doctor
13 examination
14 record/file room
15 doctors' lounge
16 patients' clothing
17 chapel
18 morgue
19 autopsy
20 meat preparation
21 receiving
22 storage
23 shop
24 linen
25 mechanical equipment
26 refuse & soiled linens
27 X-ray/radiography
28 plaster
29 emergency treatment
30 ambulance port
31 nurses' station
32 minor operating
33 admitting office
34 serving pantry
35 admitting division bedrooms
36 stretchers/wheel chairs

5





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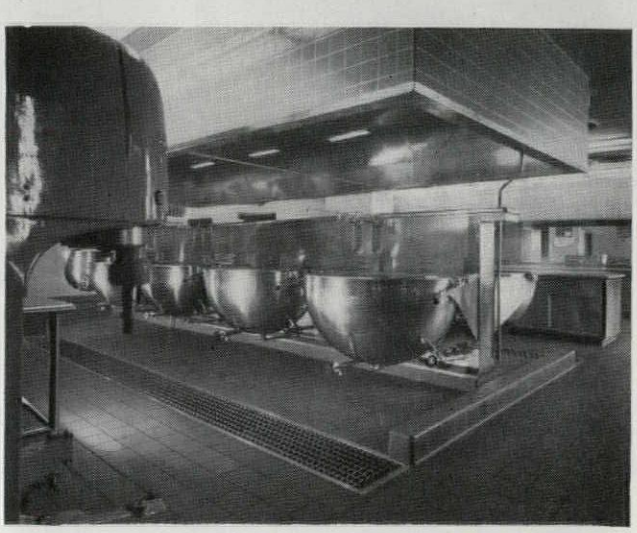

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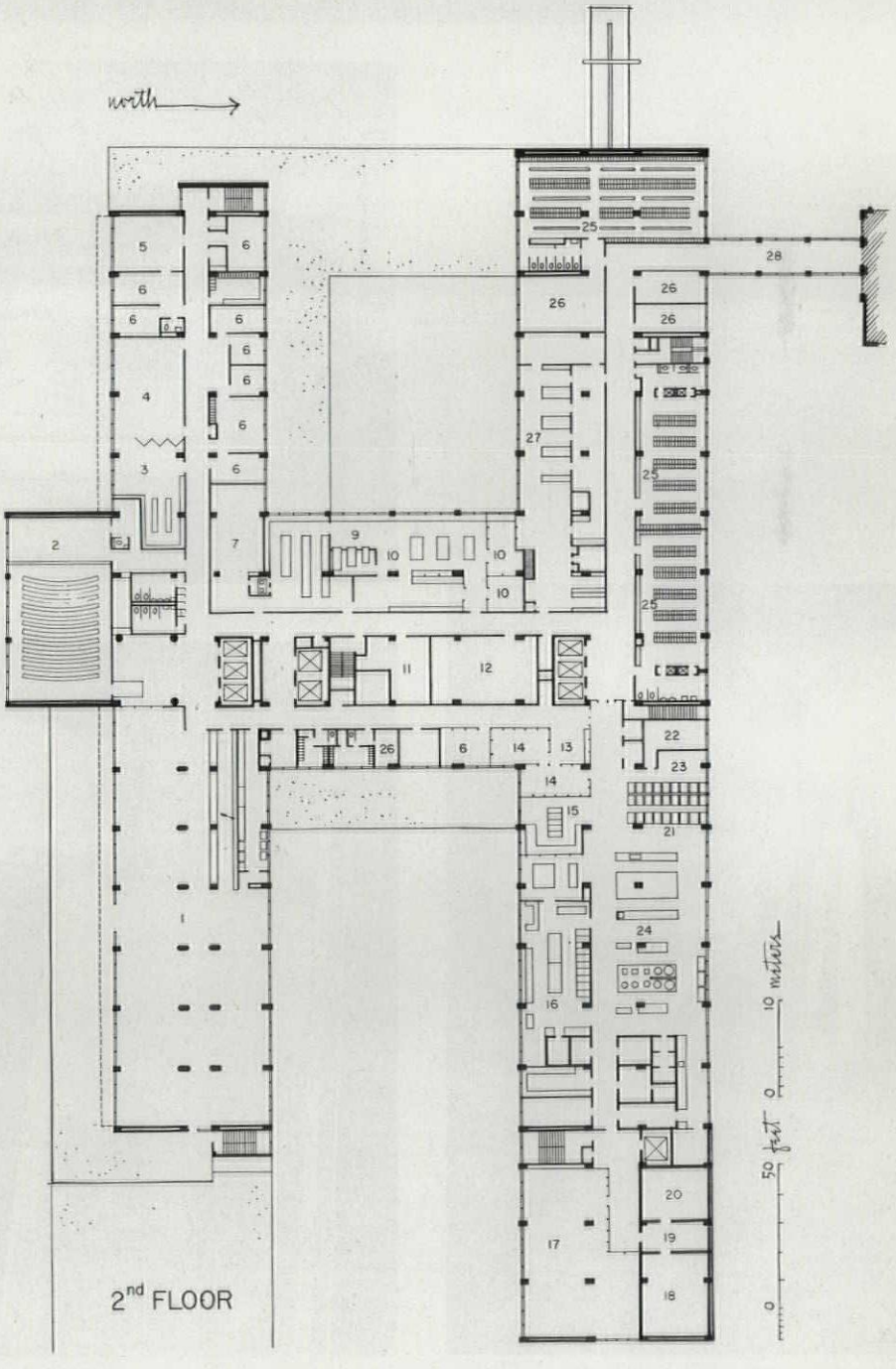
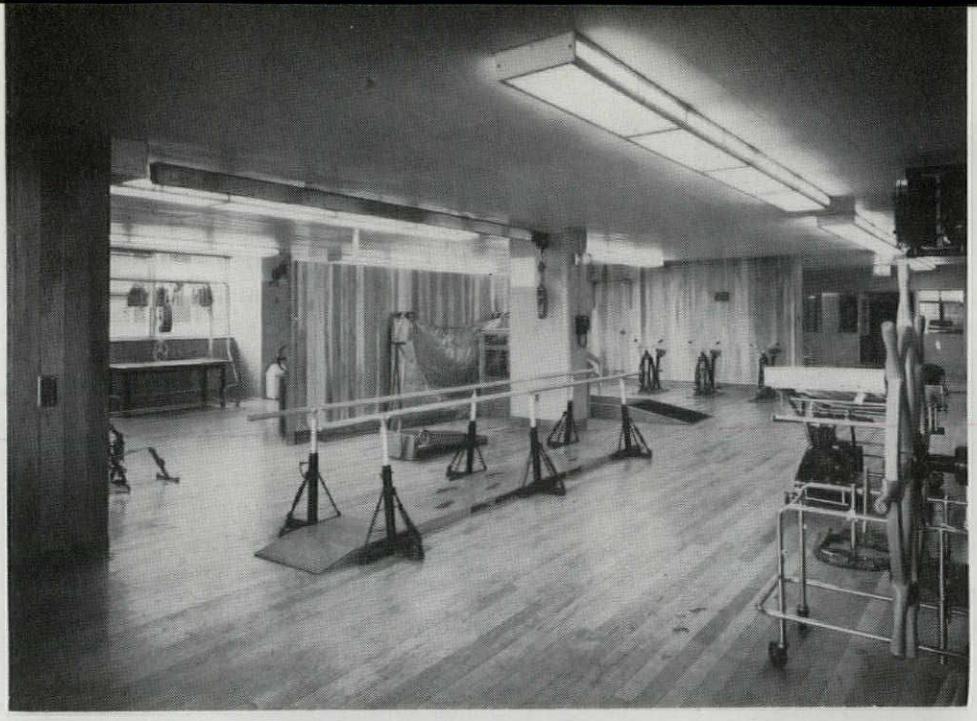
The second floor is entirely devoted to nonpatient facilities. From here all food, pharmaceutical, and sterile supplies (**2**) are distributed to the two hospitals. Specially assigned elevators and a centrally located conveyor system, using baskets on two moving belts, are used for vertical distribution. Horizontal distribution is achieved via an enclosed bridge which connects at this level with the hospital for the chronically ill. The kitchen (**5**) takes up the entire width of the rear wing, has excellent natural light, and through-ventilation as well as mechanical ventilation. Production flow has been carefully determined and interior finishes were selected on the basis of cleanliness and low maintenance. This area is acoustically insulated by a perforated-metal-pan ceiling with aluminum finish and glass-fiber insulation. The kitchen also services a cafeteria (**4**) for personnel and staffs of both hospital buildings. From the cafeteria an outdoor terrace is accessible. Medical and nursing administration offices are located on this floor as well as a medical library and boardroom (**3**) which may be combined to form one large space. Also available is an auditorium (**1**) equipped for demonstrations by audio and visual aids and closed-circuit TV from operating suite.

1 dining room
2 auditorium
3 medical library
4 medical board room
5 medical superintendent
6 office
7 equipment storage
8 sterile storage
9 sterilizers
10 central supply
11 surgical supplies
12 pharmacy storage
13 waiting
14 dietitian's office
15 scullery
16 bakery
17 dry storage
18 frozen food storage
19 cool room
20 vegetable refrigeration
21 food carts
22 cleaning room
23 truck wash
24 main kitchen
25 lockers
26 rest room
27 pharmacy
28 bridge to old hospital





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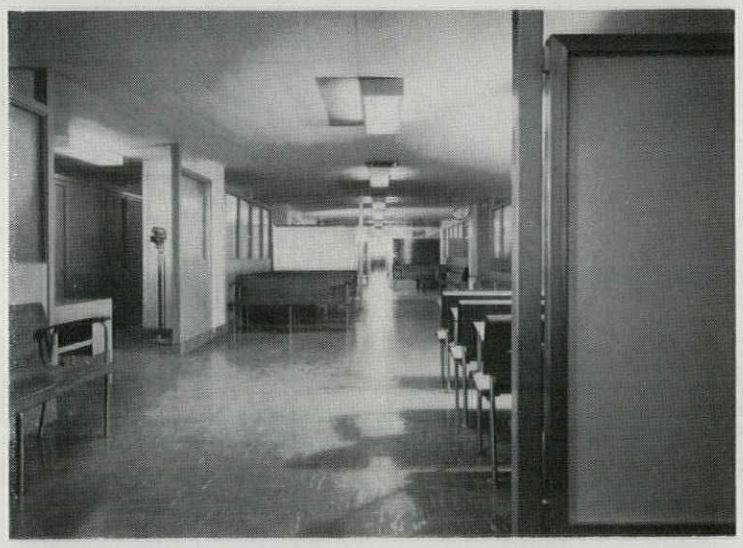

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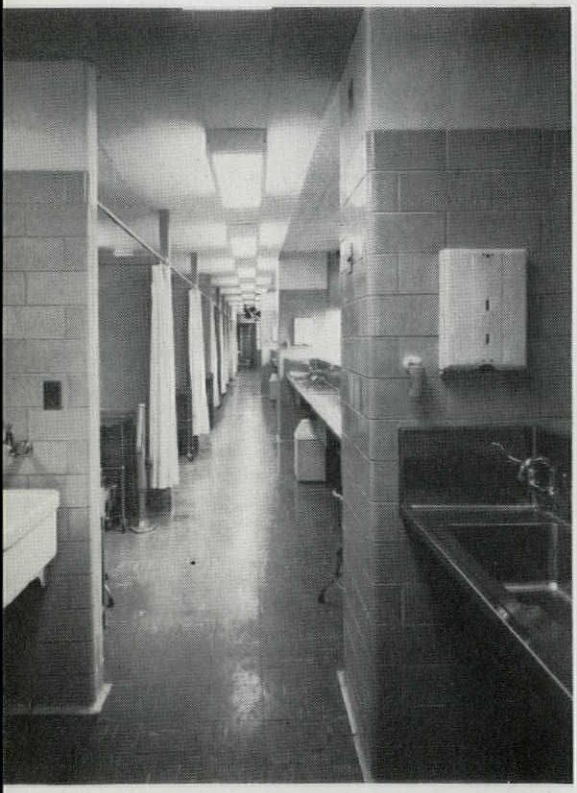
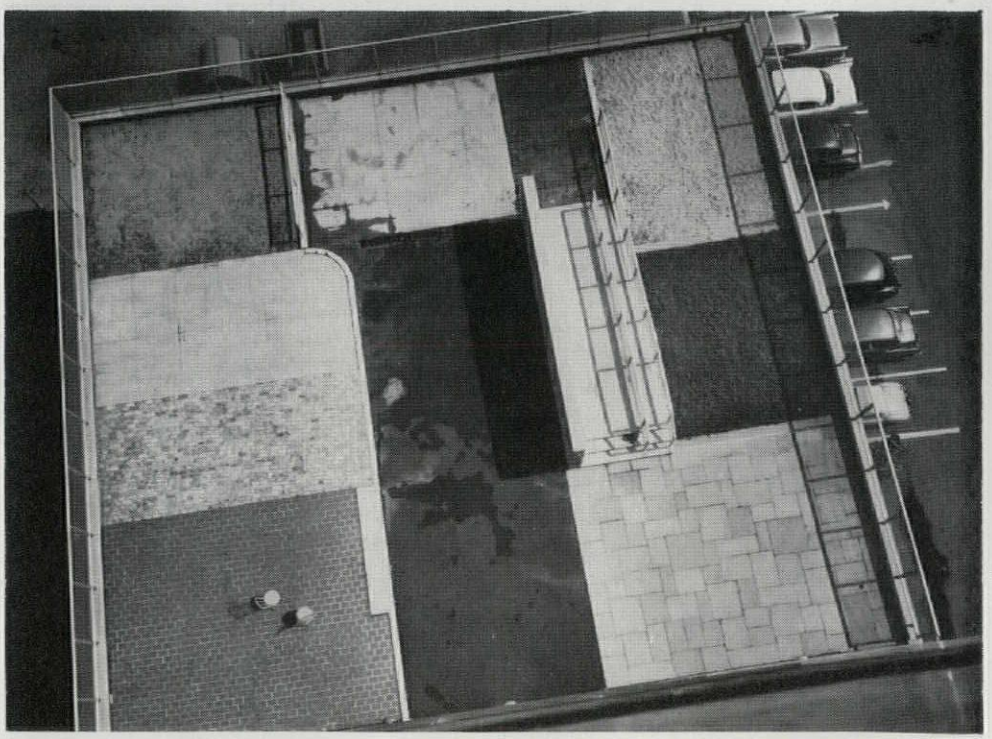
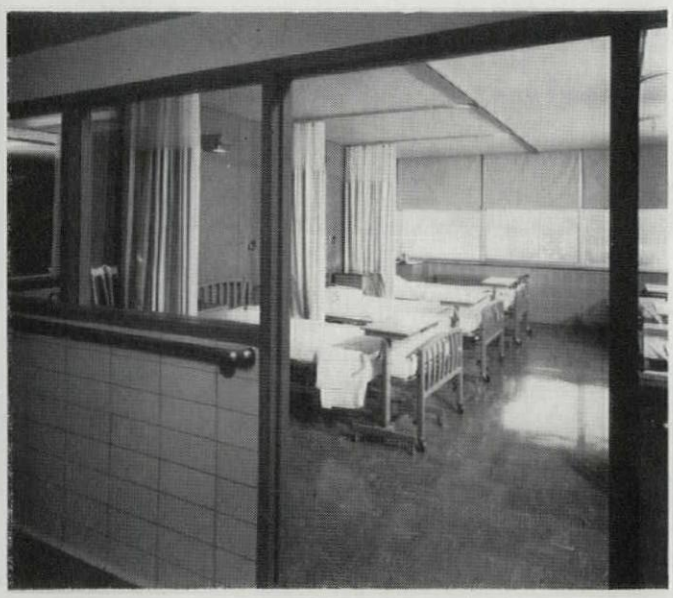




The third floor was chosen to house the rehabilitation department since the roofs of the second floor extensions could be utilized as outdoor exercise spaces. There are three such spaces: a terrace off the dayrooms with south exposure, sea breeze, and view; a protected west terrace above the landscaped court; a varisurfaced deck (**3**) off the exercise room (**1**) intended to prepare patients for conditions to be met underfoot on return to streets and parks. A demonstration apartment was designed to simulate typical indoor conditions.

Of note are the design details of the general medical clinics and special outpatient clinics on the fourth floor. Here the corridor has been widened into waiting areas (**2**) furnished with benches designed by the architects. Small intimate spaces have been created out of the corridor by means of screenwalls, brightly colored for identification and decorative purposes. Treatment rooms with dressing cubicles are centered between two corridors; one to provide access and space for history files, the other for the doctors, who have the use of a continuous countertop (**4**) along the window wall.

Typical six-bed wards (**5**) are sunny and pleasant. Concrete sunshades on all south facing window openings are pierced to permit air circulation. Underside of canopies is painted blue to cut glare. Rooms in the rehabilitation section have patients' lockers adjoining each bed. Nurses' stations (**6**) are equipped with linoleum and stainless steel work counters, chart carts, and wall cabinets.



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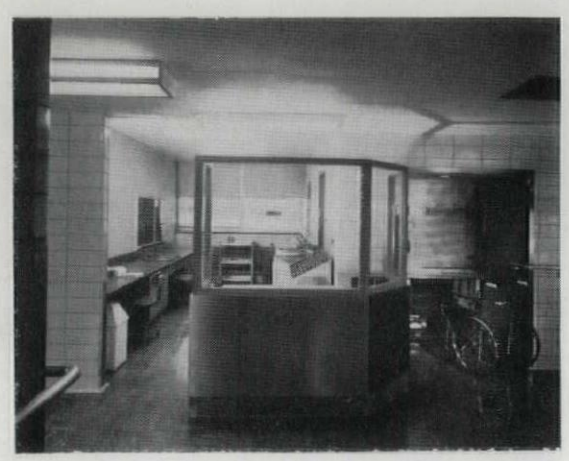

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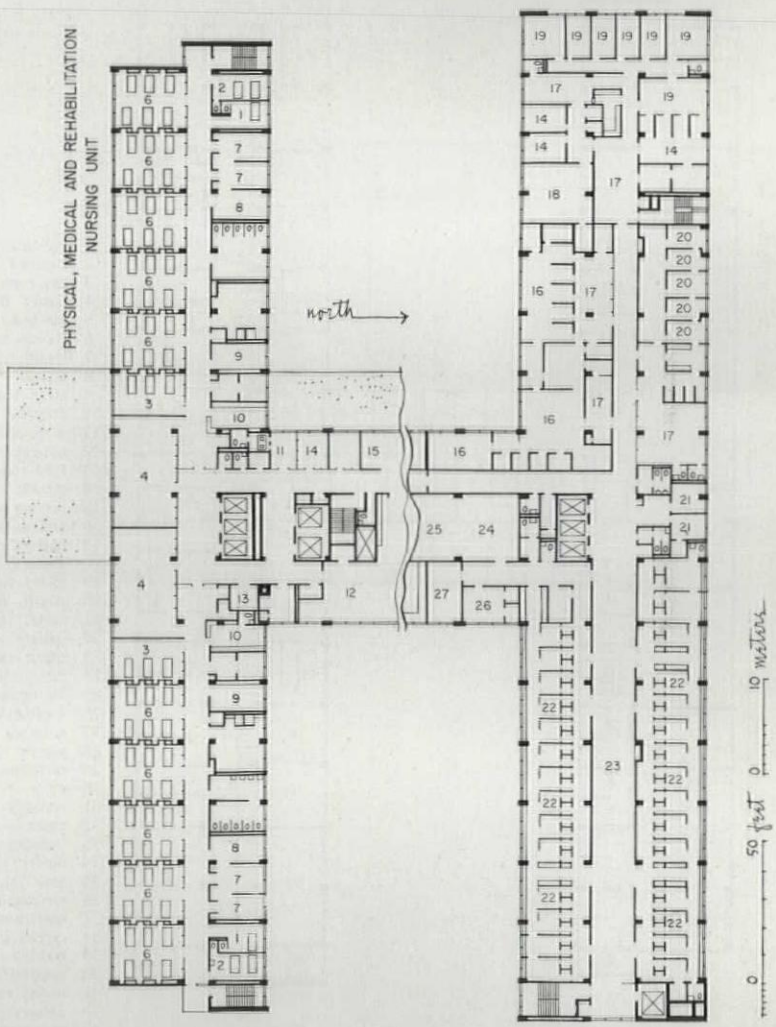
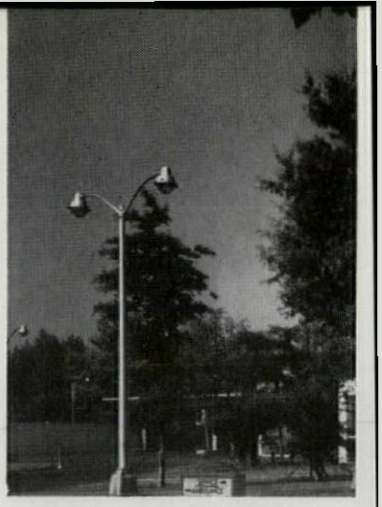


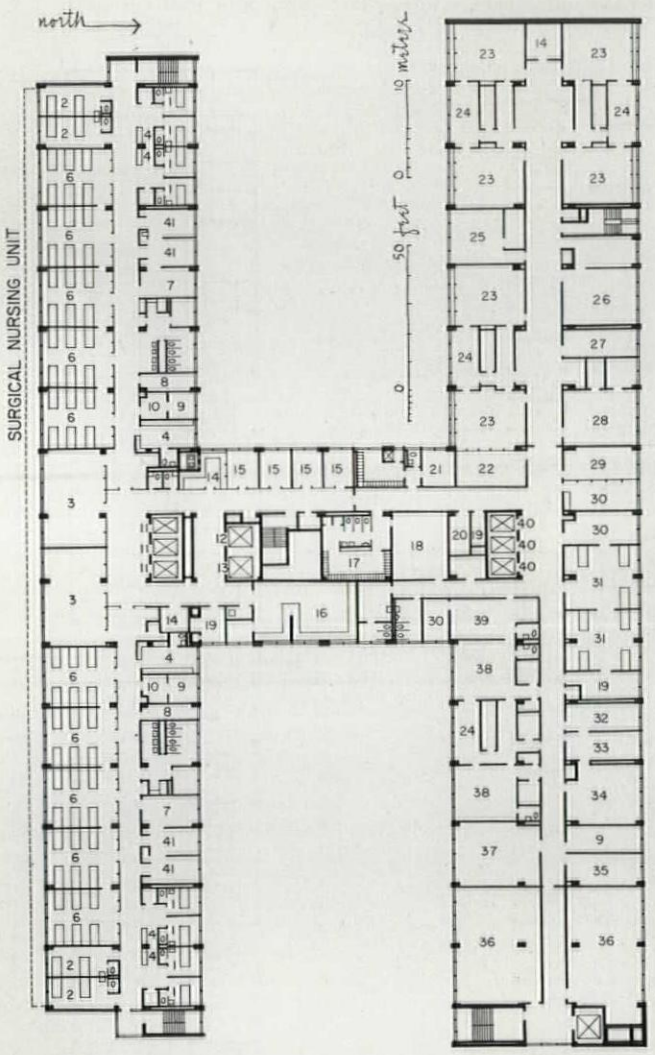
3th FLOOR

4th FLOOR

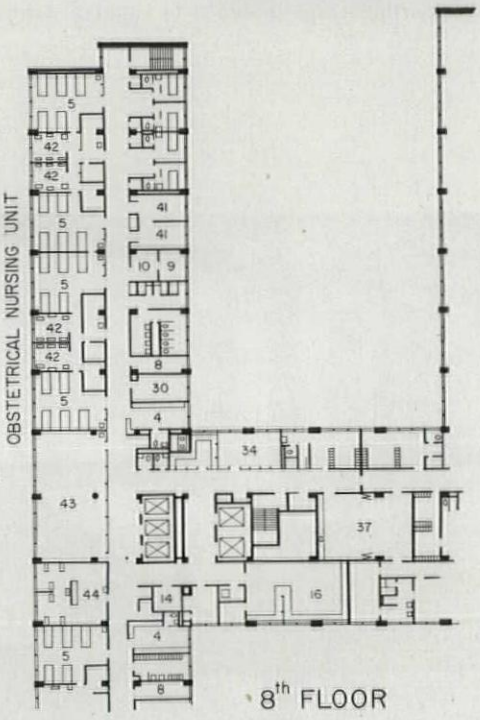
1 one-bed room
2 two-bed room
3 three-bed room
4 day room
5 roof deck
6 six-bed room
7 utility
8 treatment
9 kitchen
10 nurses' station
11 supply storage
12 serving pantry/dishwashing
13 storage
14 office
15 chaplain
16 eye clinic
17 waiting
18 clerical/records
19 mental hygiene clinic
20 pediatric clinic
21 social service
22 medical/surgical clinic
23 waiting corridor
24 demonstration room
25 conference room
26 plaster
27 minor operating

The fifth floor has nursing units in the southern block; radiography, radiation, dermatology, and TB clinics in the north wing. Rooms in the TB section are provided with balconies. Extraction clinics, blood bank, and pathological laboratories occupy the sixth floor with nursing units. The seventh floor (*plan below*) houses two surgical nursing units and the operating division (**2, 3**). Operating rooms are equipped with color-corrected, dome-type optical systems on 7-ft tracks. Natural light is controlled by adjustable aluminum fins set vertically between two sheets of heat absorbing glass. The delivery suite is directly above; a few special patients' rooms are in the north wing; normal obstetrical nursing units (*plan below*) in the south wing. The ninth floor houses the pediatric nursing units with classrooms and a roof playground. The tenth floor is planned as a residence for male interns. All rooms (**1**) open onto a continuous roof terrace.





1 one-bed room
2 two-bed room
3 day room
4 nurses' station
5 five-bed room
6 six-bed room
7 treatment
8 kitchen
9 clean linen
10 stretcher/wheel chair storage
11 staff/visitor elevator
12 patients' elevator
13 food elevator
14 storage
15 nursing unit administration
16 serving pantry
17 doctors' lockers
18 doctors' rest room
19 soiled linen
20 sterile supply room
21 nurses' rest room
22 gallery
23 operating
24 sub-sterilizing
25 TV equipment
26 anesthesia
27 clean-up
28 plaster room
29 dictation
30 office
31 recovery ward
32 clean instruments
33 instrument washing
34 nurses' work room
35 bone bank
36 air-conditioning equipment
37 conference room
38 cystoscopy
39 waiting
40 patients' elevators
41 utility room
42 nursery
43 day/dining room
44 suspect nursery



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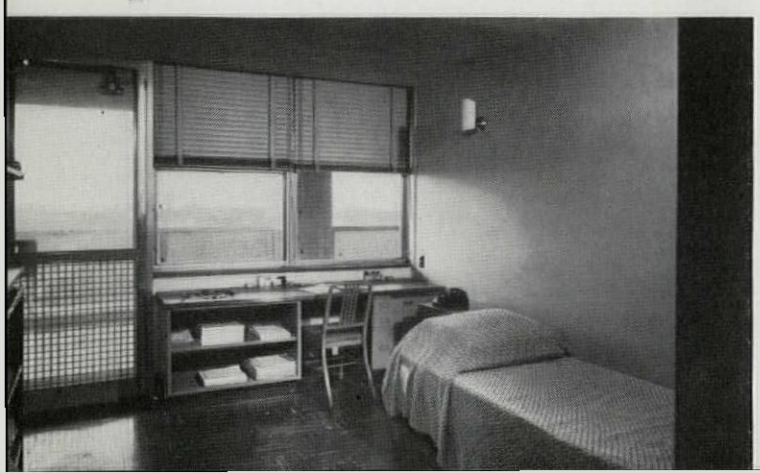

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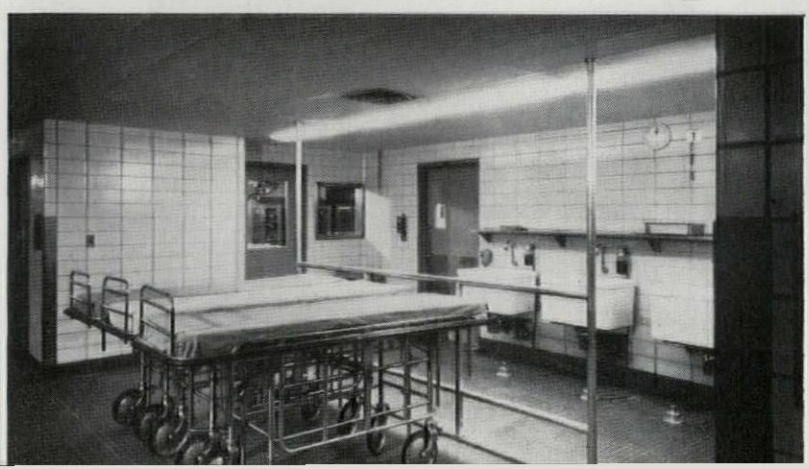
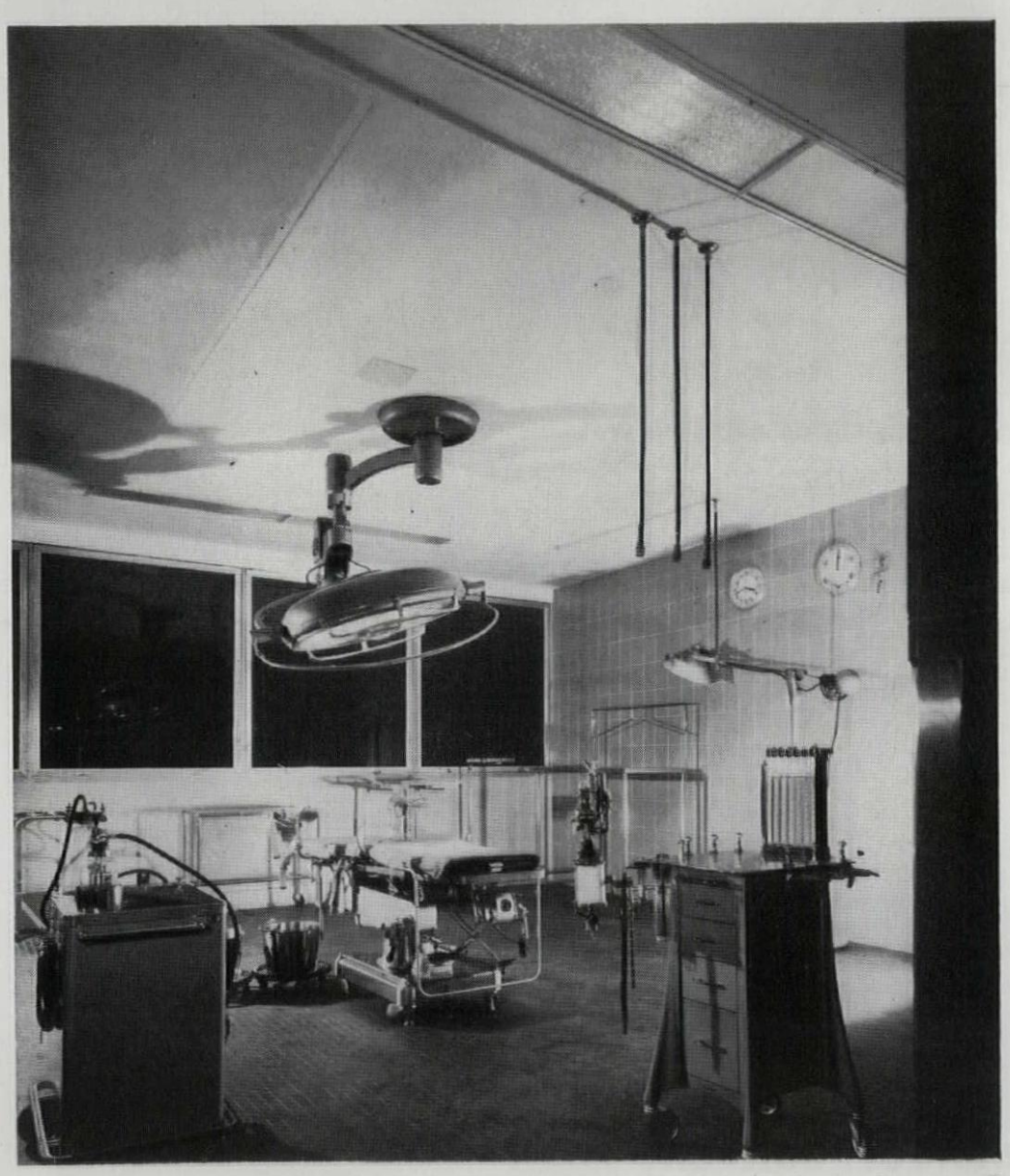




3

Materials and Methods

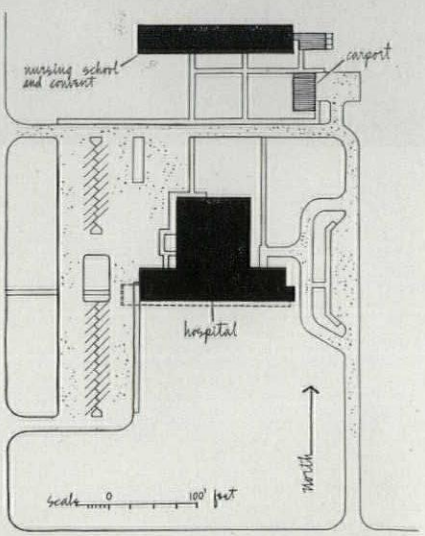
construction

Foundation: cast-in-place concrete piling with reinforced-concrete caps and footings—Raymond Concrete Pile Company. **Structure:** frame: structural steel—Harris Structural Steel Company; walls: cavity, masonry; floors and roof: reinforced-concrete slabs—Lehigh Portland Cement Company; miscellaneous—Hygrade Iron Works, Incorporated. **Wall Surfacing:** exterior: granite water table, visitor's entrance column, wall facing; first floor facing: limestone; tread aluminum and extruded-ribbed aluminum—General Bronze Company; speckled glazed brick—Hanley Company, Incorporated; pediatric roof: terra cotta panels—Federal Seaboard Terra Cotta Corporation; porcelain-enamel soffits—Seaporcel Metals, Incorporated; interior: lightweight masonry blocks with structural glazed tile or plaster finish—The Waylite Company; rest rooms: ceramic glazed tile—Mosaic Tile Company. **Floor Surfacing:** first floor entrances and lobbies: venetian terrazzo; operating rooms: conductive mosaic tile; toilets: mosaic tile; kitchen areas: quarry tile—Mosaic Tile Company; special services: asphalt, rubber, cork tile—Robbins Floor Products Company. **Ceiling Surfacing:** patient and treatment areas: hard white plaster—National Gypsum Company, Ohio Lime Company; public and administrative areas: perforated-metal pans, white finish and rock wool—Simplex Ceiling Corporation; kitchen and pantries: alumium finish with glass fiber; sound-proof areas: perforated asbestos cement and glass fiber—Johns-Manville Corporation. **Roof Surfacing:** roof terraces: quarry tile—Mosaic Tile Company; nontraffic roofs: built up roofing—Koppers Company, Incorporated, Barrett Division, Allied Chemical & Dye Corporation; exercise deck: vari-surfaced with bituminous paving, asphalt paving block, granite pavers, quarry tile, flagstone, sand, loose gravel, grass, with curbs, curb cuts, ramps, steps—Hastings Pavement Company. **Waterproofing & Dampproofing:** continuous cement coat waterproofing on walls and slabs below grade; external walls of stairways and elevator shafts: continuous preformed membrane waterproofing — Brisk Waterproofing Company; calking — Pecora Paint Company; one gas joint compound for water stops—Sika Chemical Corporation. **Insulation:** acoustical: perforated-metal pans and asbestos cement with glass fiber—Simplex Ceiling Corporation; thermal: glass-wool batts on exposed soffits—Owens-Corning Fiberglas Corporation; rigid roof and cork refrigeration insulation. **Partitions:** interior: utility and maintenance areas: glazed clear structural tile—Hanley Company, Incorporated; corridors and patient areas: color-glazed block—Belden-Stark Brick Corporation; office partitions: steel and glass—Aetna Steel Products Corporation; vinyl plastic over plaster; corridors, pediatric treatment, and waiting rooms: sheet rubber wainscots—The R.C.A. Rubber Company; stainless-steel panels —General Bronze Corporation; auditorium: teak plywood paneling; vertical wood siding; surgical suites: glazed ceramic tile—Mosaic Tile Company. **Windows:** sash: aluminum strip unit of fixed and double-hung with anodized pipe shaft covers, tubular aluminum entrances and openings to roof terraces—General Bronze Corporation; aluminum casements, projected aluminum storefronts; operating and delivery rooms:

(Continued on page 258)

hospital / nursing school / convent

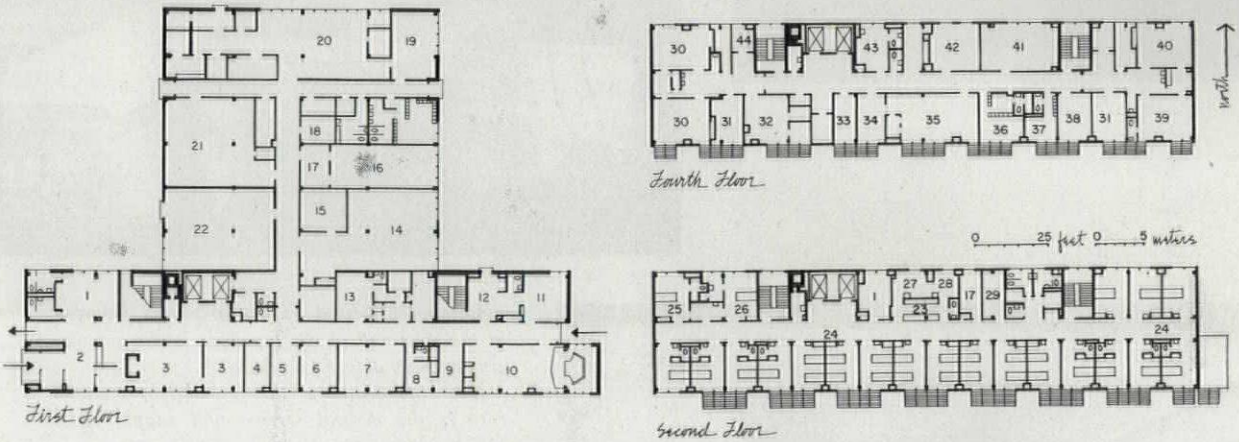
location	Blackwell, Oklahoma
architects-engineers	Coston-Frankfurt-Short
associate architect	Edward J. Romieniec



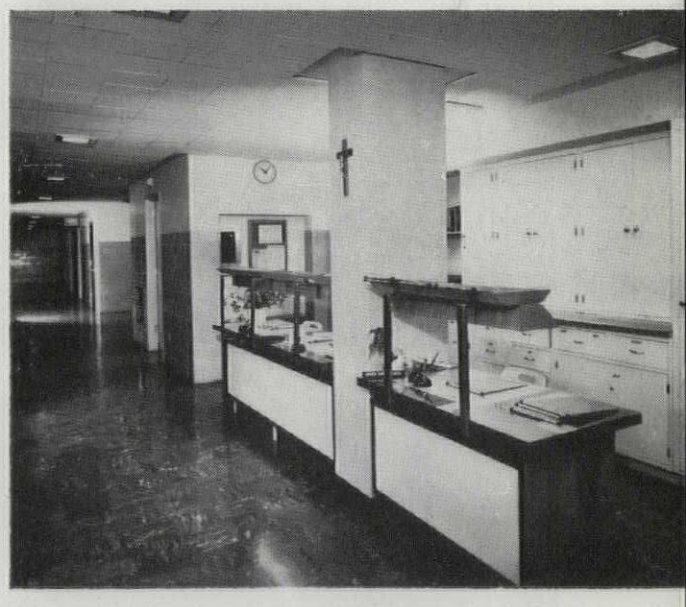
The Blackwell General Hospital, School of Practical Nursing, and Convent is comprised of a 60-bed hospital, school for 20 student nurses, and convent for 20 nuns. Among program requirements were that the hospital be a multistory unit, include a chapel, and that there be total separation between patients and the medical core—surgery-obstetrics, technicians, doctors, labs, X-ray departments, and central service. The solution was to place the latter on the top floor; plan nursing units on the second and third floors; reserve the ground floor for business offices, diagnostic facilities, and general services.

The nursing school and convent are organized in a single, separate building (*plans overpage*), with ground floor devoted to school, living, and utilities; upper floor, for study and sleeping. The two units are separated by a mechanical area on first floor and a lounge for the nursing school, upstairs.

Both buildings are of reinforced-concrete beam-and-joist pan-type construction. Exterior walls of the hospital proper are of glazed brick, while in the nursing-school/convent building, considerable cypress is used "to create a more residential feeling." Heating of both elements is by means of low-pressure steam and hot water, with distribution in school and convent via convectors on exterior walls. The hospital is fully air conditioned, with individual fan-type units in rooms with exterior wall surfaces, and central-type low-pressure primary conditioned air introduced through these units. Interior zones use standard, fan-coil heating and cooling units, while operating rooms and obstetrical delivery rooms employ sprayed coil heating and cooling units with humidity controls using 100-percent outside air. D. C. Bass & Sons Construction Company was General Contractor.



1 waiting room
2 reception
3 business office
4 director of nursing
5 accounting
6 pharmacy
7 laboratory
8 bedroom
9 meditation
10 chapel
11 emergency
12 vestibule
13 radiography
14 laundry
15 central linen
16 sisters' dining
17 pantry
18 chaplain's dining
19 dining room
20 kitchen
21 stores
22 mech. equipment
23 nurse's station
24 nursing units
25 psychiatric
26 isolation
27 dirty utility
28 clean utility
29 linen
30 operating
31 clean-up
32 fracture
33 recovery
34 central storage
35 central service
36 doctors' lockers
37 nurses' lockers
38 fathers
39 labor & emergency
40 delivery
41 staff lounge
42 records & library
43 cystoscopy
44 sterile storage

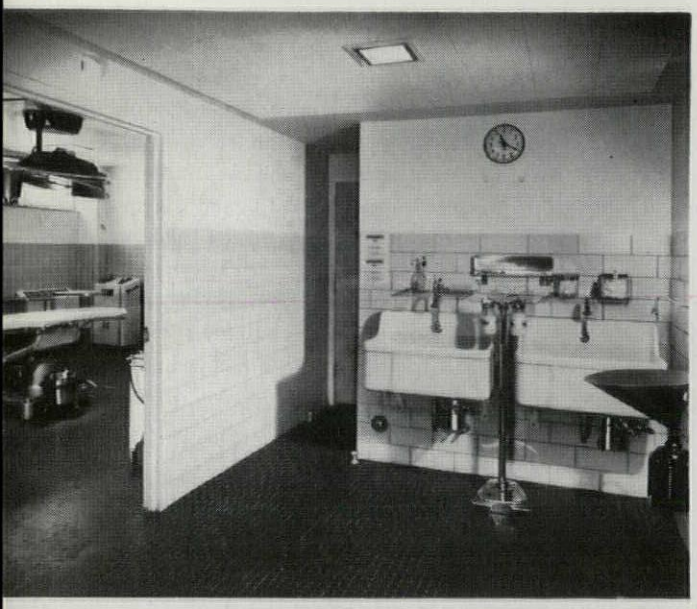


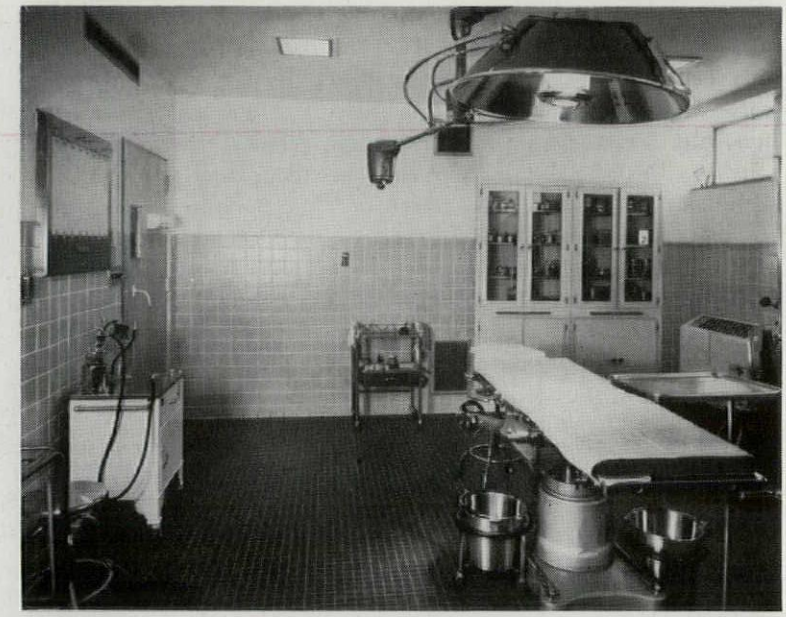
On the south face of the hospital (across-page), *5-ft-deep aluminum, louvered panels exclude unwanted sunlight.*

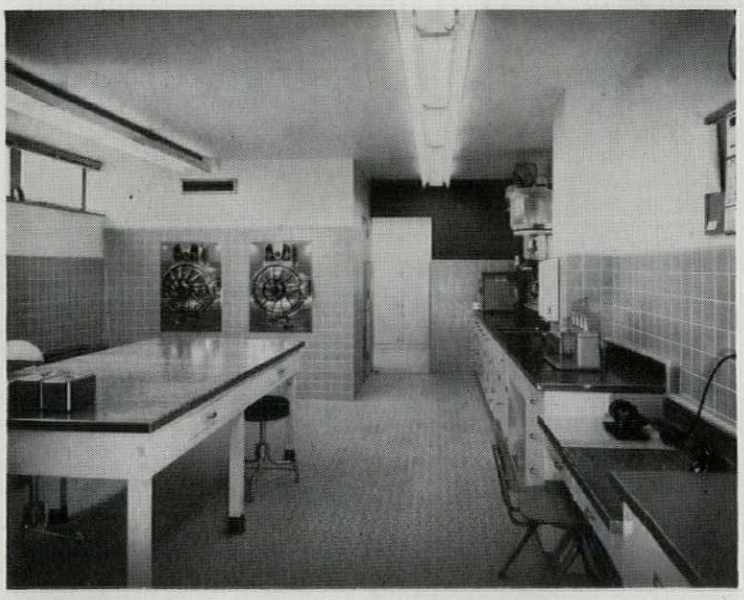
At the center of each of the nursing floors is an efficient nurses' station (above).

Certain patients' rooms (left) *look across landscaped areas to the school and convent.*

Photos: Julius Shulman

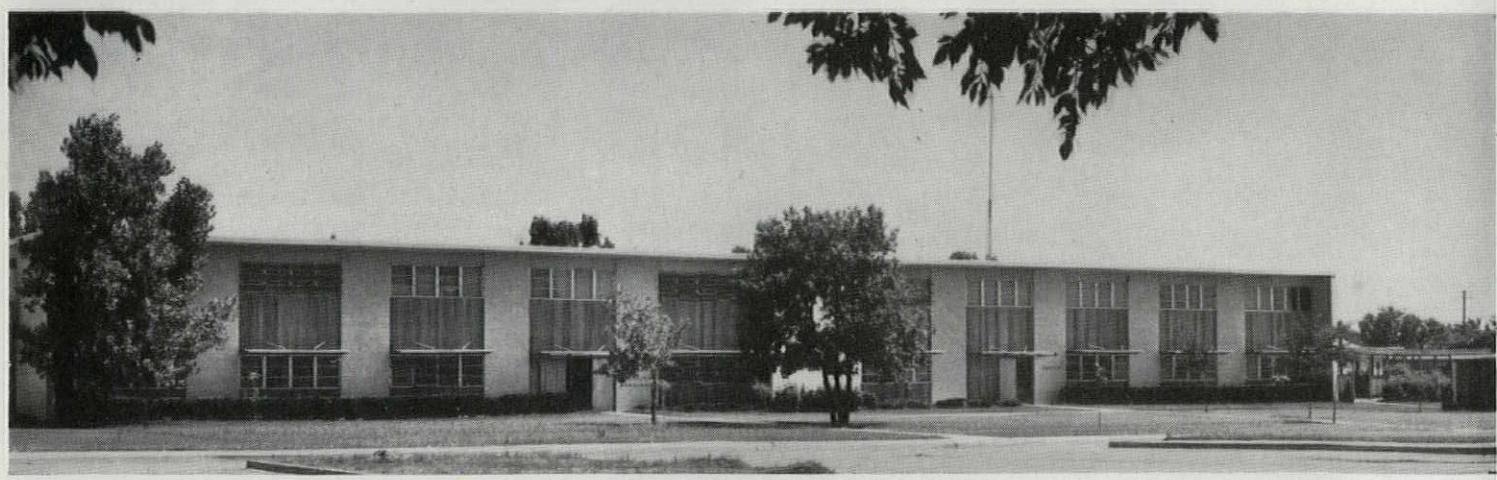




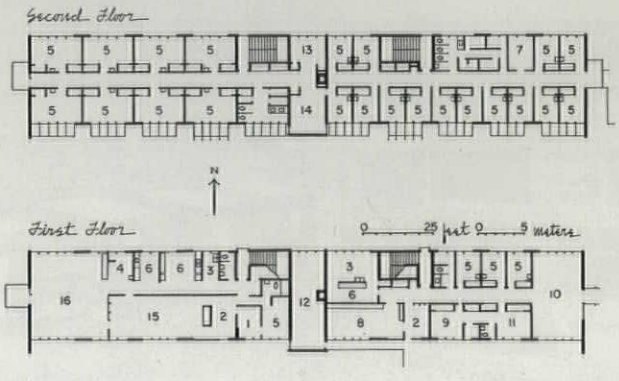


Between the paired operating rooms (above) *at the west end of the top floor is the customary scrub-up alcove* (above left).

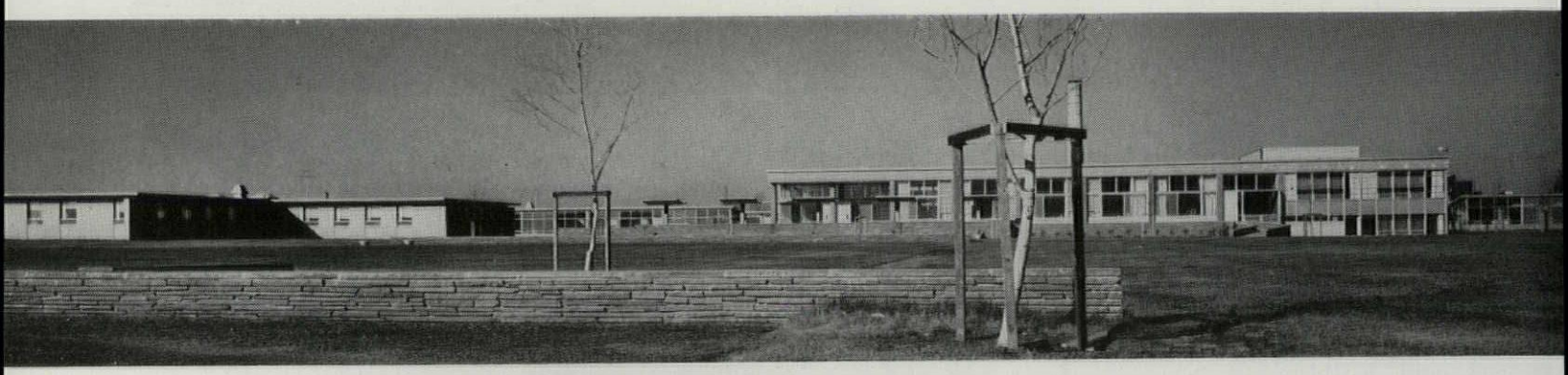
Near the center of the fourth-floor medical core is the central service and supply room (left).



At the north end of the "campus" is the combined nursing school and convent (acrosspage *and* above). *Solar barriers are used above ground-floor windows, while a deep roof soffit shields upstairs rooms from too much sunlight. Paneling in the window bays is cypress; piers are finished in the same glazed brick as that used on the walls of the hospital.*



1	business office	9	superior
2	vestibule	10	community room
3	laundry	11	assistant
4	laboratory	12	mech. equipment
5	bedroom	13	general utility
6	kitchen	14	lounge
7	linen	15	family living
8	trunk storage	16	lecture & library

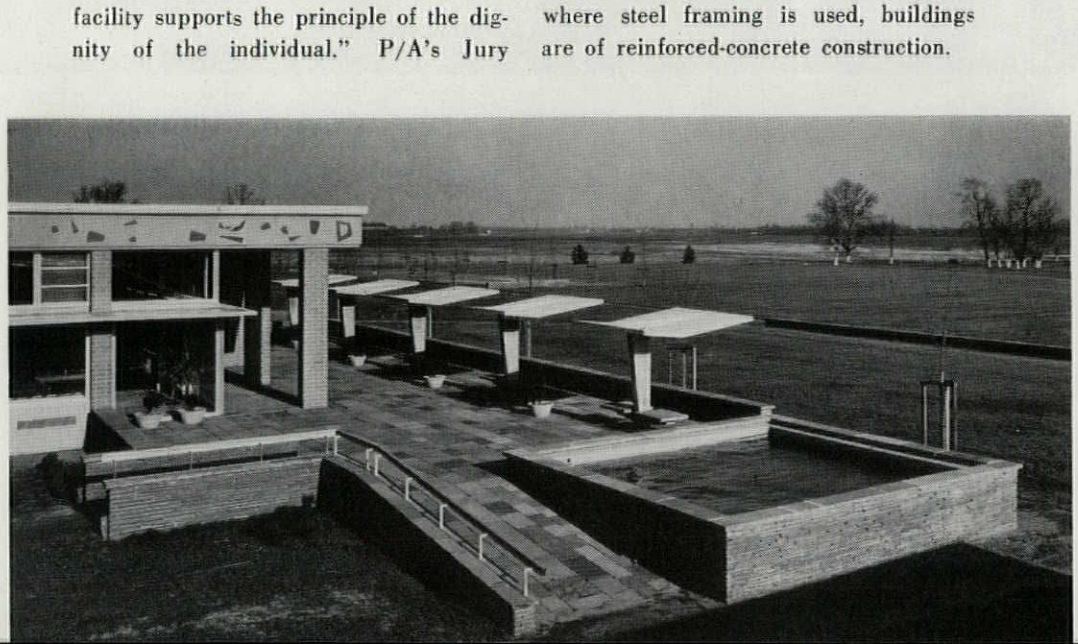


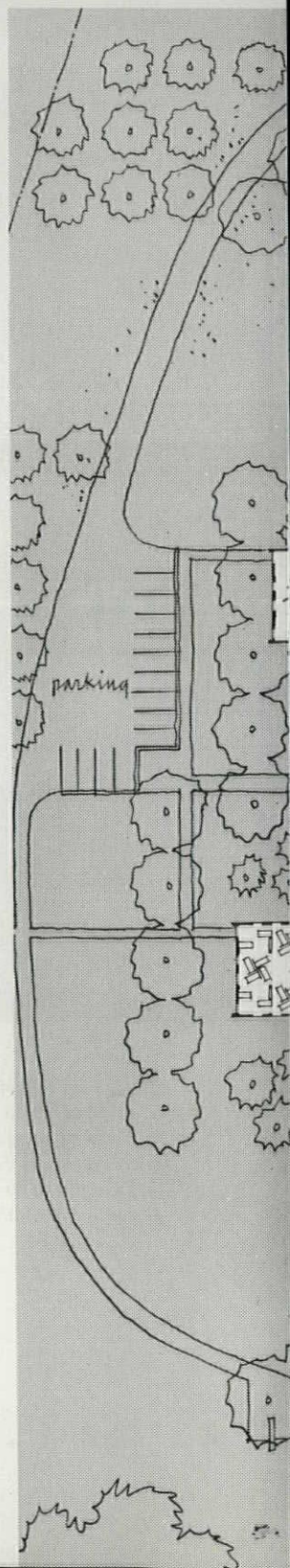
home for aged

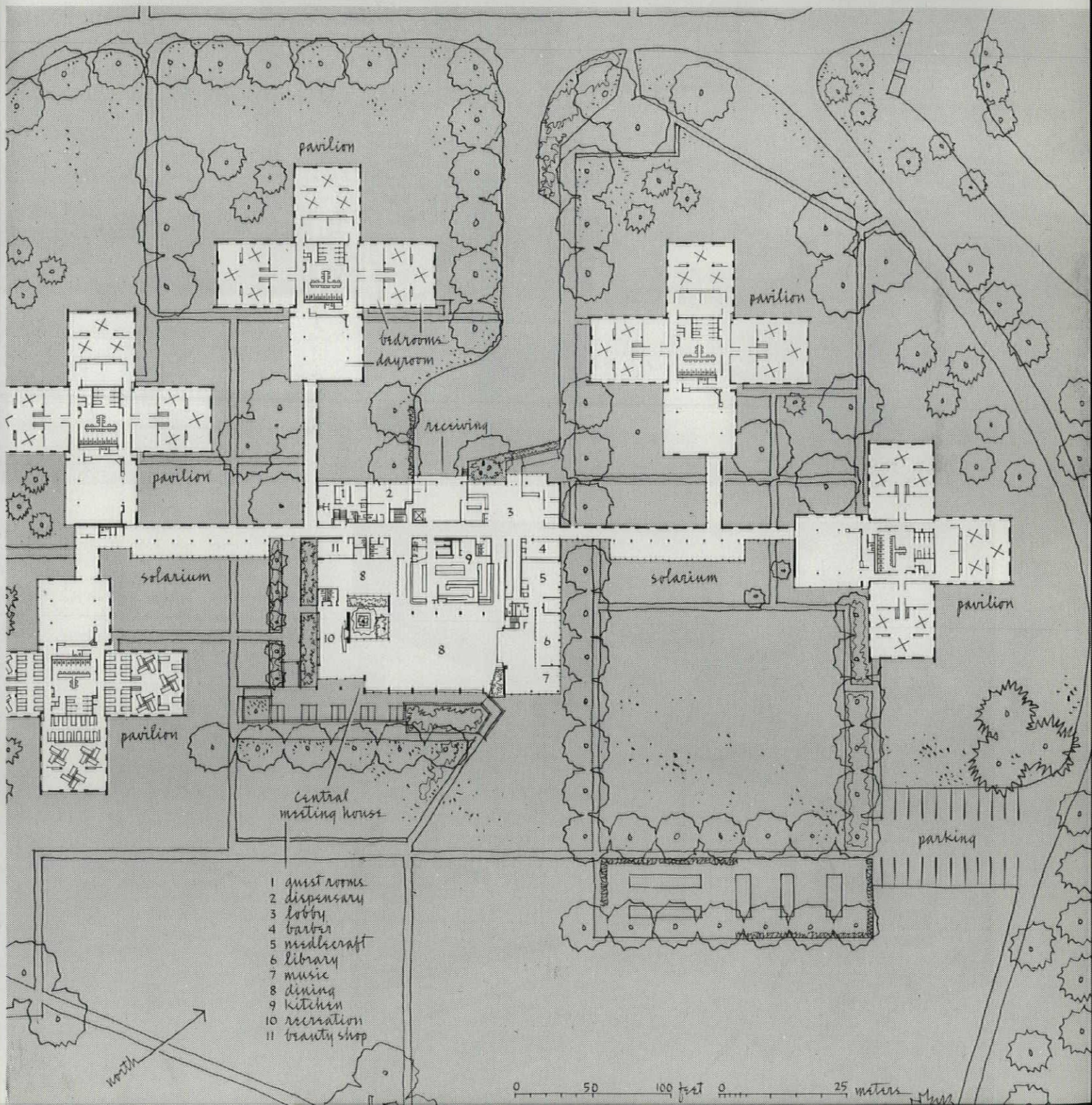
location	Philadelphia, Pennsylvania
architects-engineers	Bellante & Clauss
design architect	Alfred Clauss
project architect	William C. Cranmer
interior designer	Trudy Slaven

Operated by the Department of Welfare of the City of Philadelphia, the Riverview Extension Home for the Aged is a remarkable (possibly unique) institution of its kind. Winner in a citywide design competition; an Award winner in P/A's Second Annual Design Awards Program, it is colorful, bright, and cheerful—attributes that would never describe almshouses of the past. The Jury in the Department of Welfare's competition unanimously heralded the design for solving "human aspects with great sensitivity. The particular arrangement of pavilions, around a central meeting facility, gives naturally a free choice of movement and environment to the occupants. In detail, the planning of the pavilions and central facility supports the principle of the dignity of the individual." P/A's Jury praised it for its noninstitutional character and for "setting a fine example as the first of its kind in the country."

The site is on land bordering the Delaware River, with its busy traffic. Each of the five cross-shaped cottages has sleeping quarters in three wings, a day room in the fourth, and plastic-skylighted bath and toilet facilities in the center. All are joined to the central meeting house by solaria or windowed passages. The meeting house includes a main dining and recreation center, complete with stage, and occupational therapy rooms of many kinds. A terrace, with concrete benches and sunshades, provides grandstand seats for the river view. Except in long-span areas of the meeting house, where steel framing is used, buildings are of reinforced-concrete construction.






pavilion
bedrooms
dayroom
receiving
pavilion
solarium
pavilion
solarium
pavilion
pavilion
central meeting house
parking
1 guest rooms
2 dispensary
3 lobby
4 barber
5 needlecraft
6 library
7 music
8 dining
9 kitchen
10 recreation
11 beauty shop
north
0 50 100 feet 0 25 meters

In the dining-recreation area of the central meeting house (above), *floors are terrazzo; walls, glazed brick; ceiling, wood over acoustical plaster. Mural of animal life, as well as the porcelain enamel frieze on the exterior of the building* (see preceding pages), *are the work of Jean Francksen. Generous solaria* (left), *with sliding, aluminum window panels, join cottages to main meeting house. Floors, benches, and plant boxes are terrazzo.*

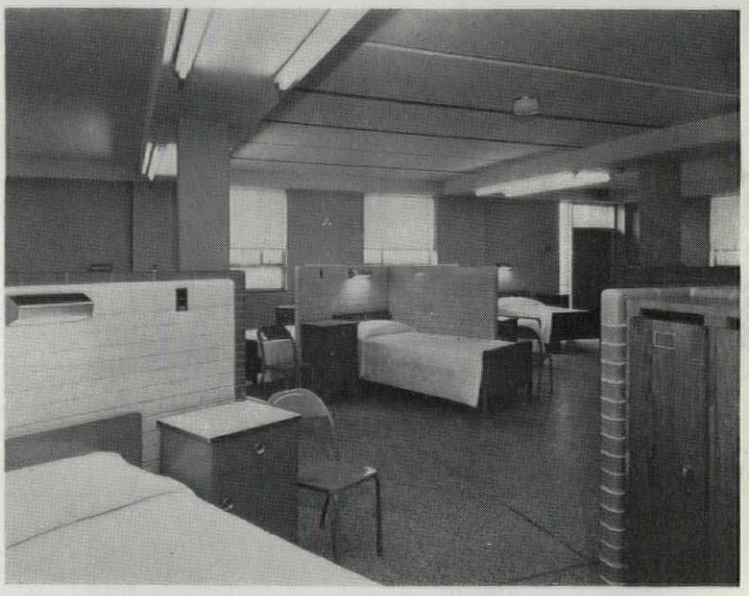
Photos: Lawrence S. Williams

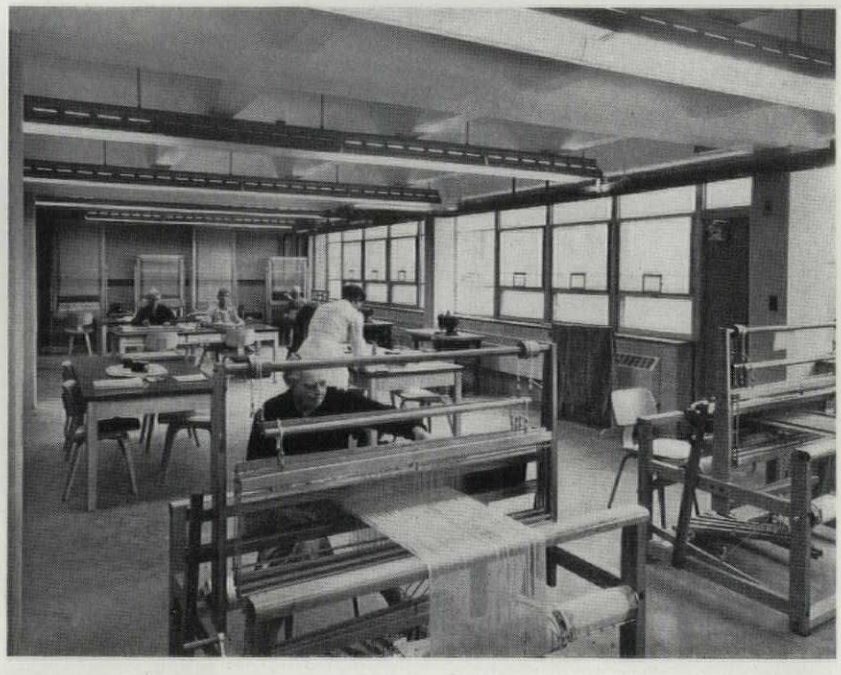
Each cottage has a sunny dayroom (above) *with walls of glazed brick, plaster, and Philippine mahogany. Chairs, many of molded plastic, are in several colors. Each room has a television set.*

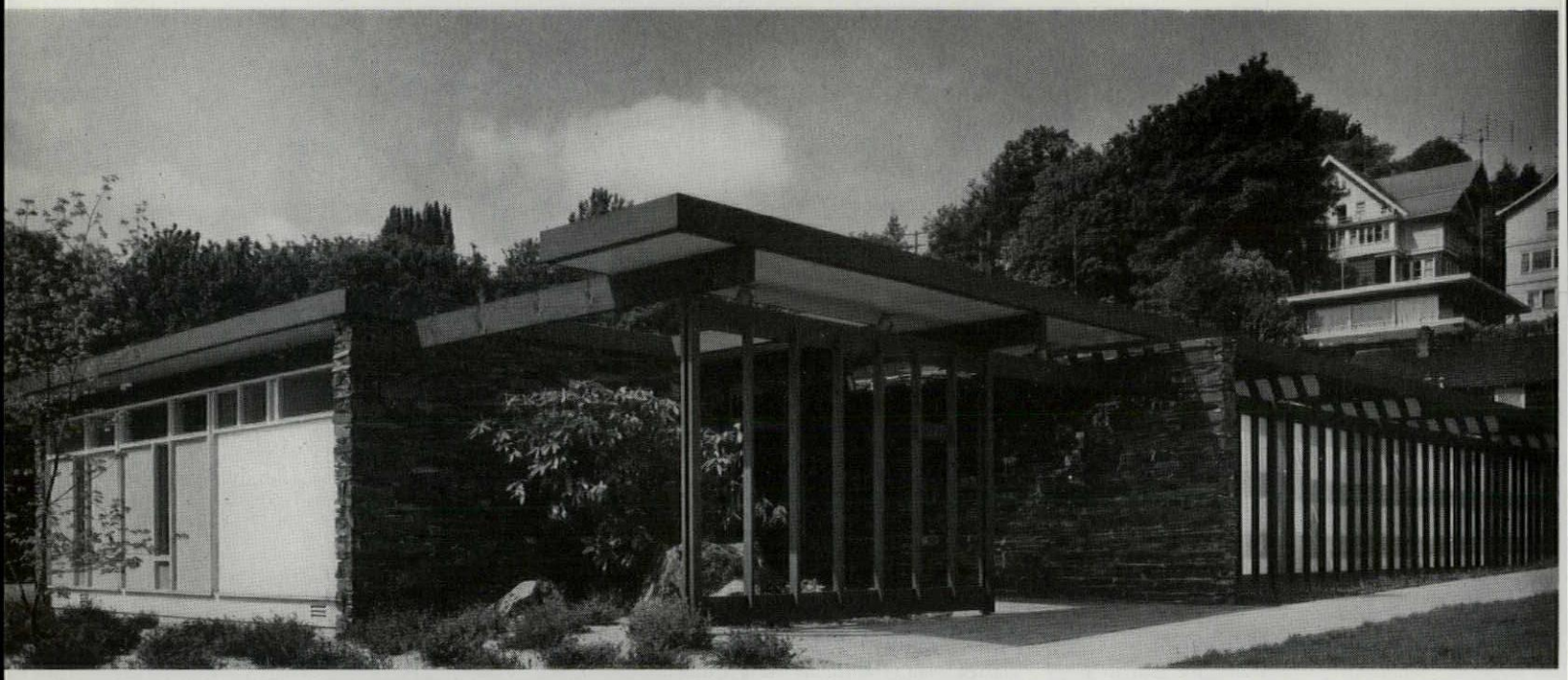
Typical sleeping rooms (right), *with beds arranged both in alcoves and around "pinwheels," are also colorful, with oyster white and light green glazed brick walls in the men's pavilions; yellow and pink tones, in the women's pavilions. Floors are terrazzo; ceilings, acoustical tile between exposed-concrete beams.*

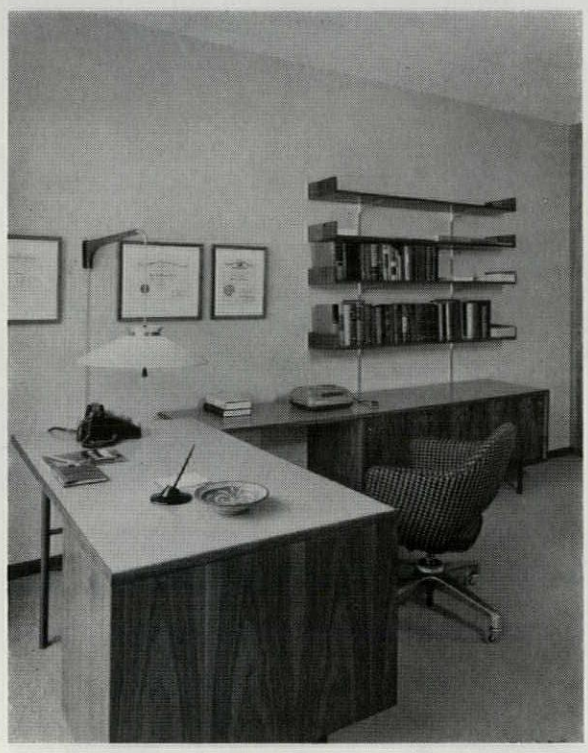
In the central building are a barber shop for men and a beauty shop (below left) *for women.*

On the lower floor, reached by gentle ramps, are occupational therapy rooms, such as the loom room shown (below right).







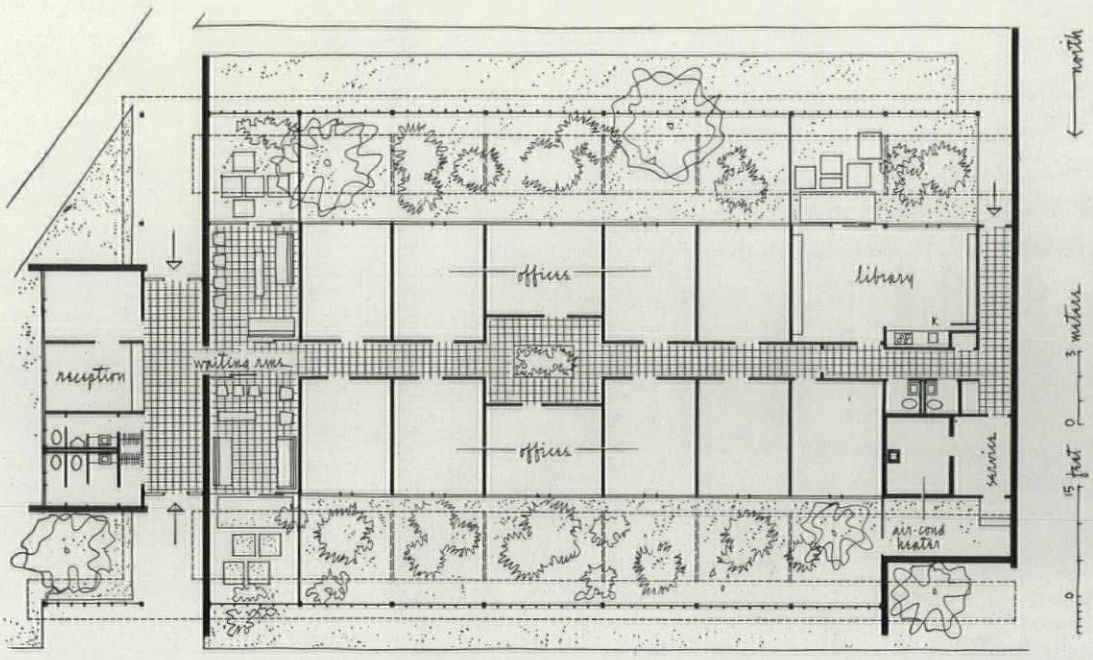


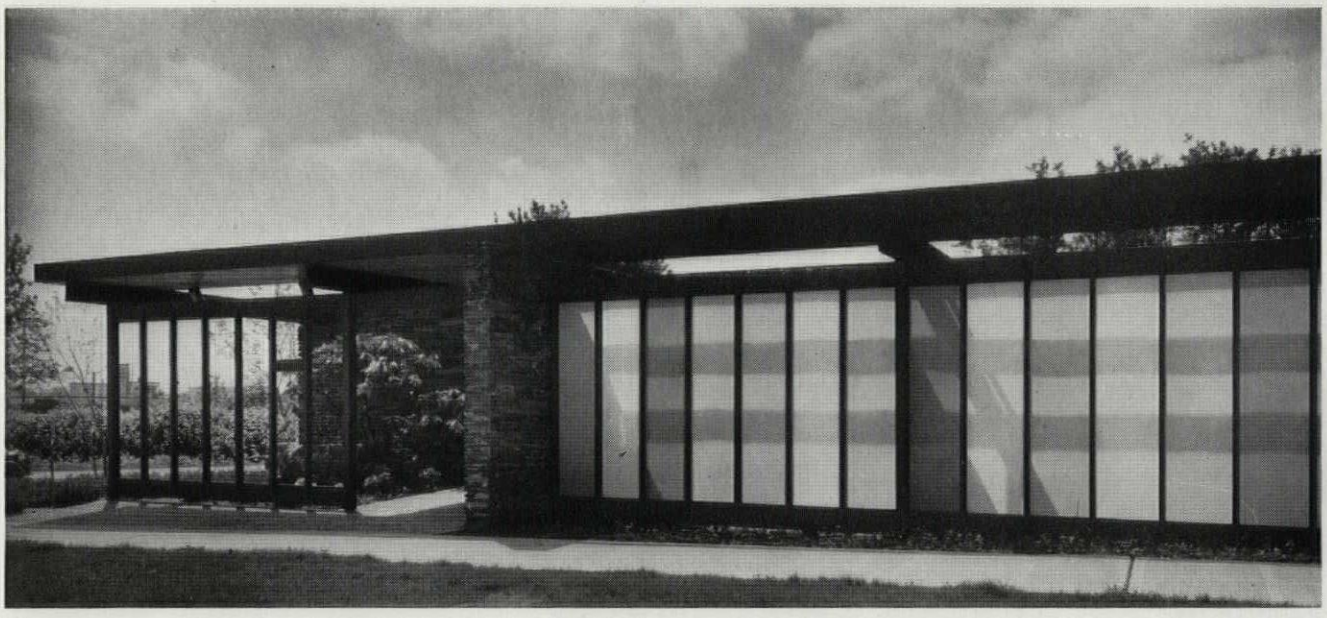
psychiatric group clinic

location	Seattle, Washington
architects	Paul Hayden Kirk & Associates
associates	Donald S. Wallace; David A. McKinley, Jr.
landscape architect	Glen Hunt
interior design	Miller-Pollard

Typical of the 11 doctors' offices that comprise this clinic is the one shown (above and right)*—residential atmosphere; carpeted floor; ceiling of acoustical tile. Exterior trellises help control daylighting.*

Photos: Dearborn-Massar

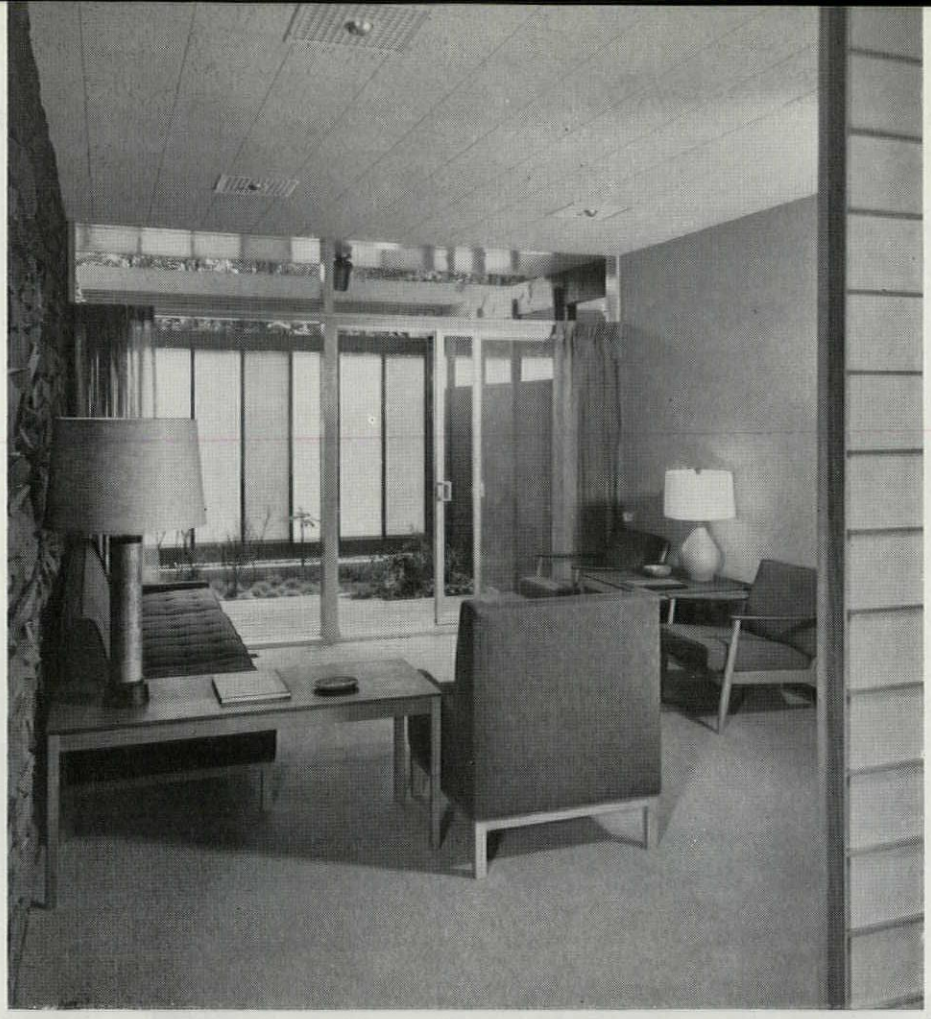


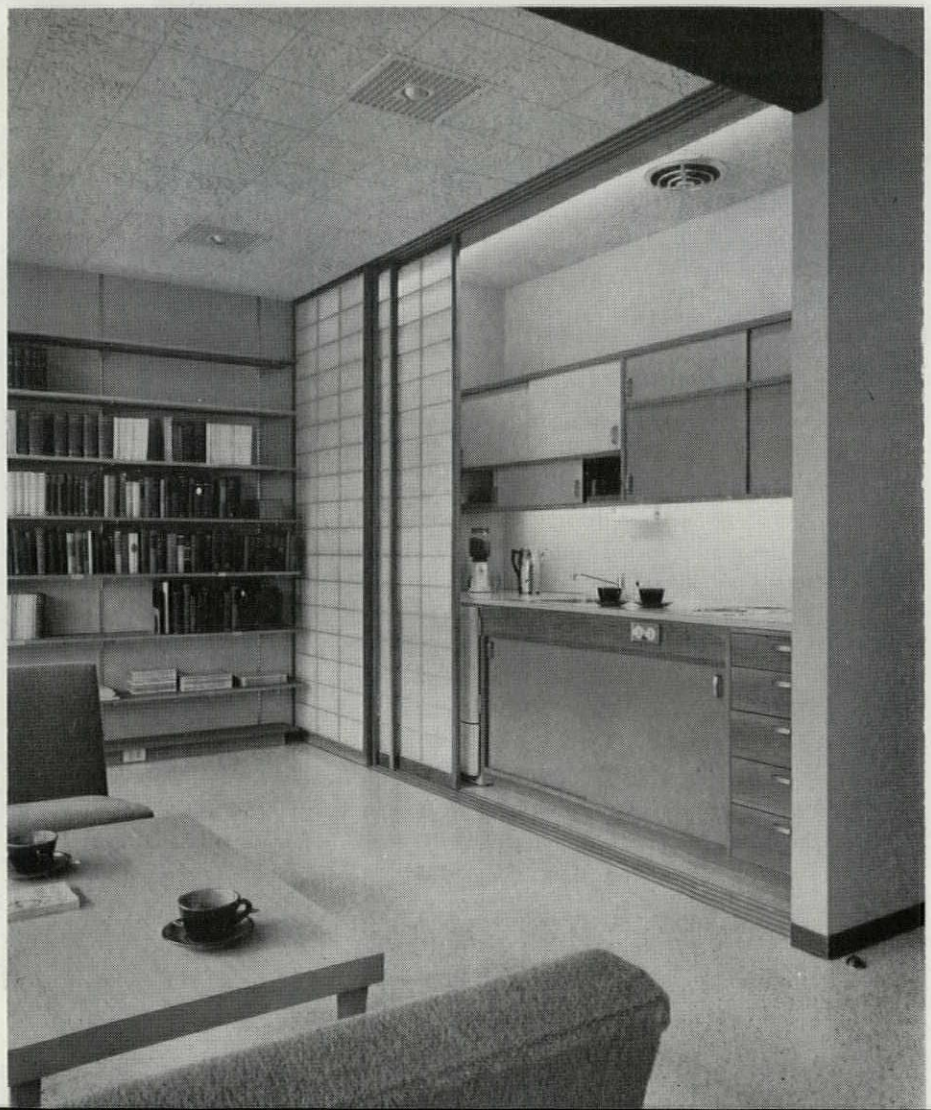


This exceptional facility houses the offices of 11 psychiatrists. Design goals included provision of privacy for each doctor's office and a quiet, friendly, unclinical atmosphere. Achievement of these ends involved resourcefulness in both planning and structural scheming. The parallel rows of doctors' offices, arranged at either side of a plastic-skylighted and planted central corridor, have visual outdoor extensions onto a gracious garden which, in turn, is protected and enclosed by a colorful fence composed of frame-supported, translucent, sheet-plastic panels. In addition, the atmosphere of serenity and relaxation is furthered by use of domestic-scaled furniture; the richness of carpeting; and combined use of wood and stone in their natural state. Glazing of the garden-facing ends of the offices extends from wall to wall and comes down to the floor—with fixed panels at either side and a central panel of operable glass jalousies. For sound control, both the party walls between offices and walls between offices and corridor are of double construction, with quilt insulation woven between the members of the staggered 2″x3″ framing.

Due to the floor-to-ceiling glass along exterior walls and inability to use walls separating suites for roof joist bearing (because of split plates), a ledger beam system of framing was employed for exterior walls, and corridor walls are load-bearing. The glazed walls were made up as panels in the millwork shop to speed construction and keep them dry. The wall to the east, bordering the waiting rooms, is solid masonry. The clinic is heated by a forced-warm-air system.

Stern & Towne, Mechanical Engineers; Thomas E. Sparling, Electrical Engineer; Ray W. Kenworthy, Acoustics; Hainsworth Construction Co., Contractor.



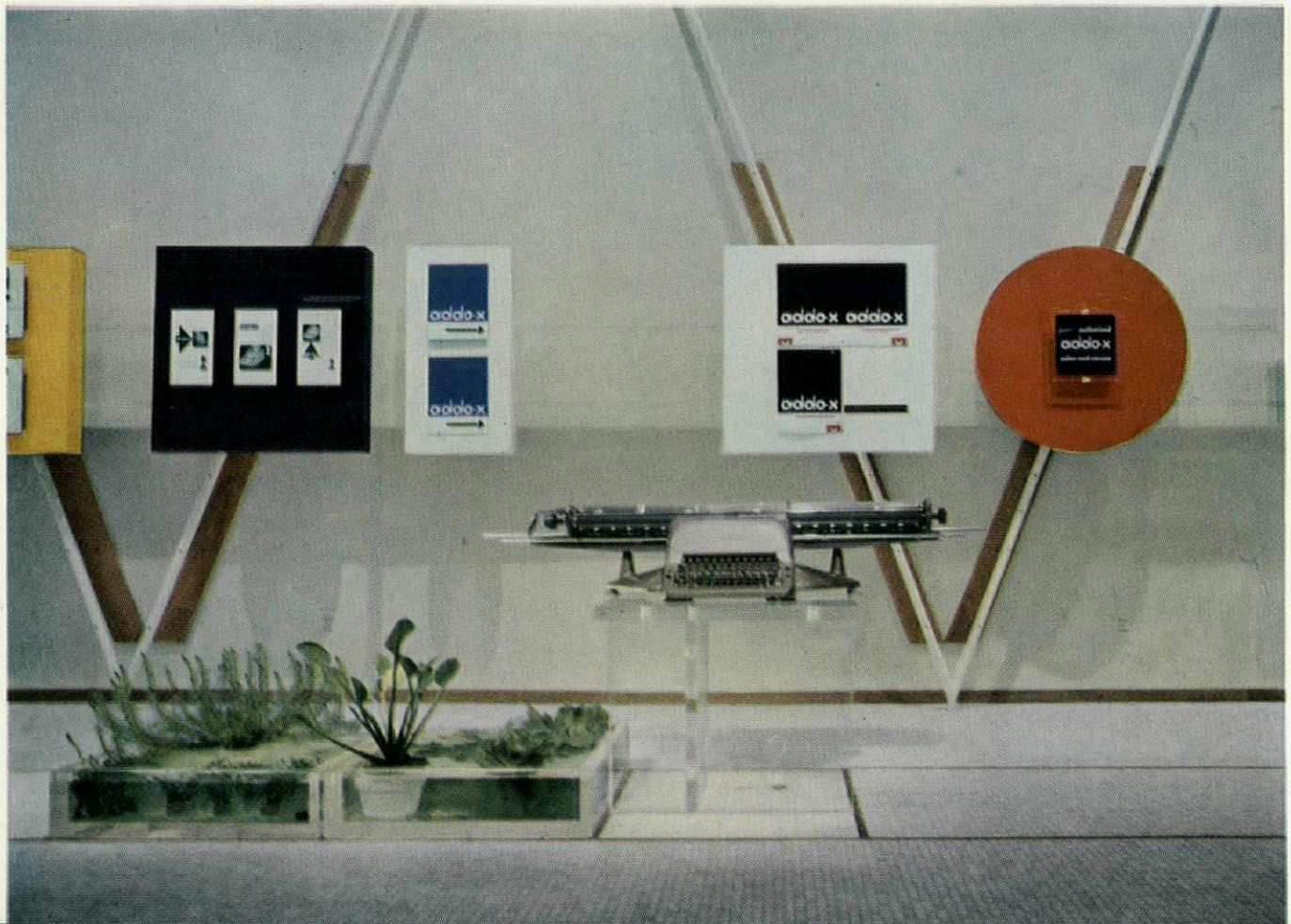


Each of the paired waiting rooms (top) *has a sliding aluminum-framed panel that opens to a fenced garden.*

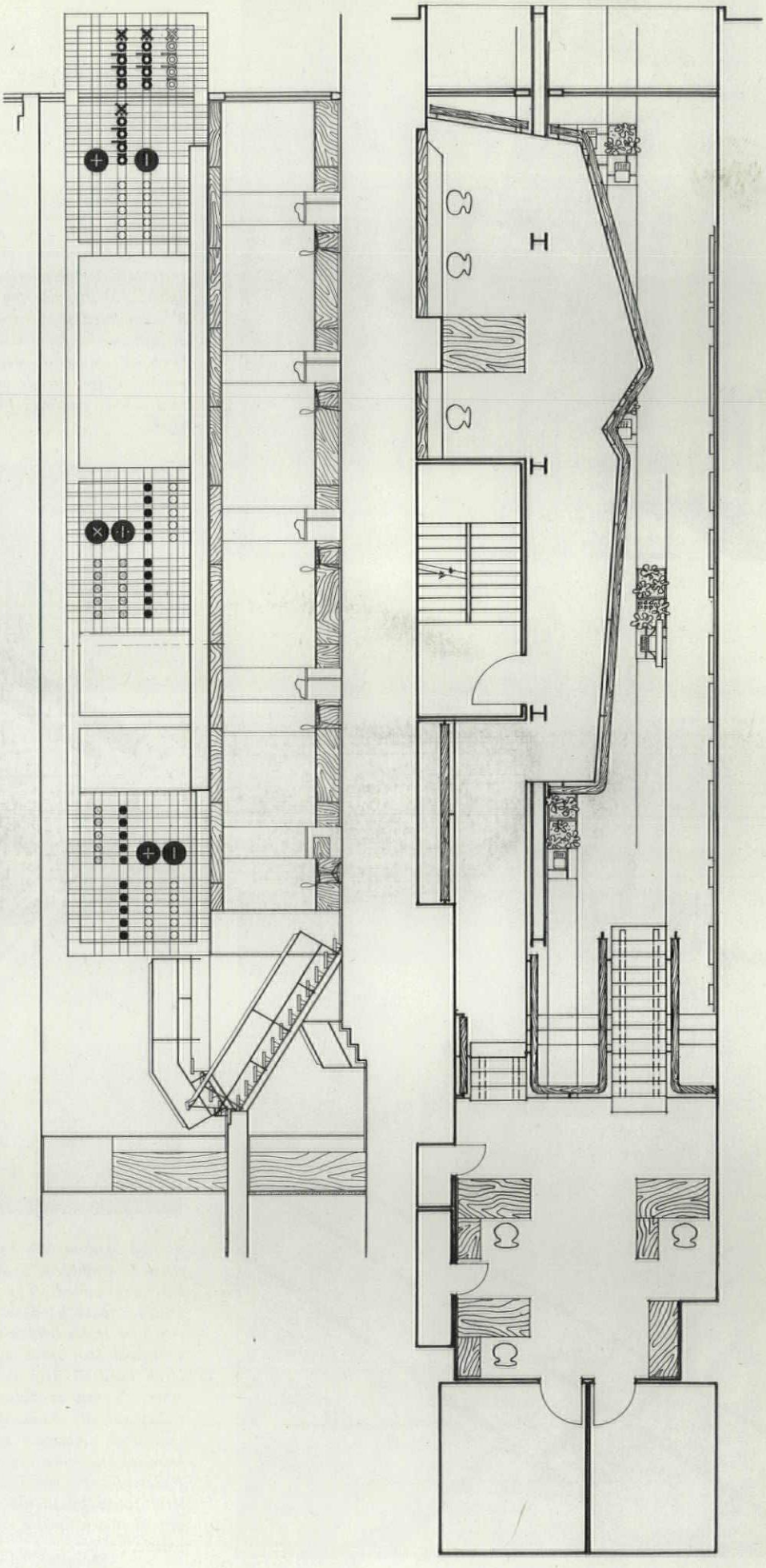
At one end of the library (bottom) *is a kitchenette, concealed when not in use by sliding shoji screens. Flooring is vinyl tile.*

The fence of bright, translucent plastic panels (acrosspage) *provides a cheerful background for the garden outlook from each doctor's office.*

business-machines showroom



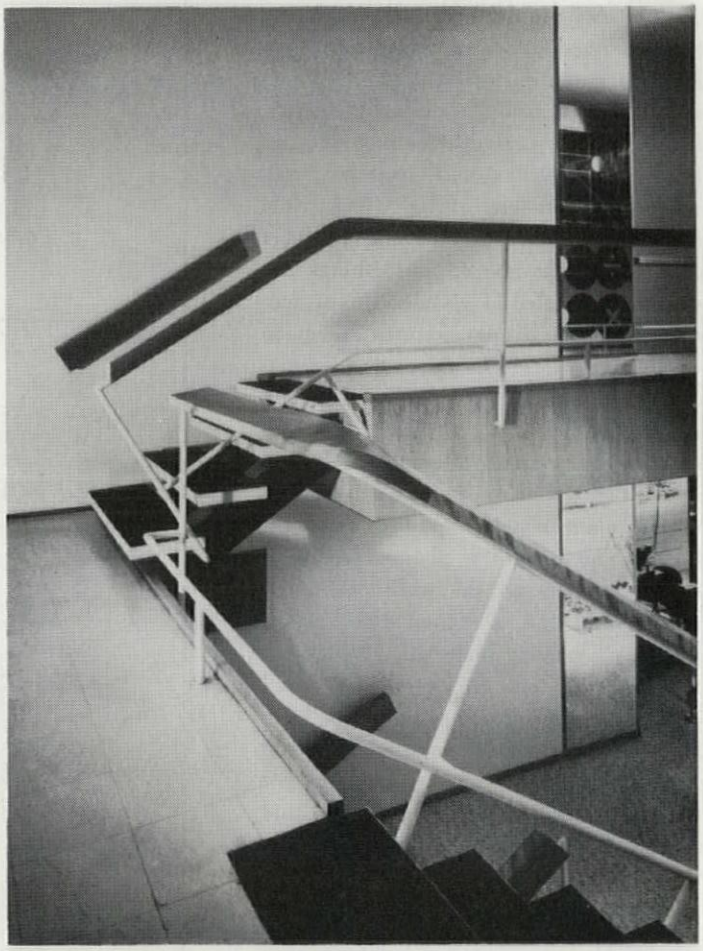
location	New York, New York
designers	Batir Design Associates*
graphics	Ladislav Sutnar
plant material	Poul Krarup

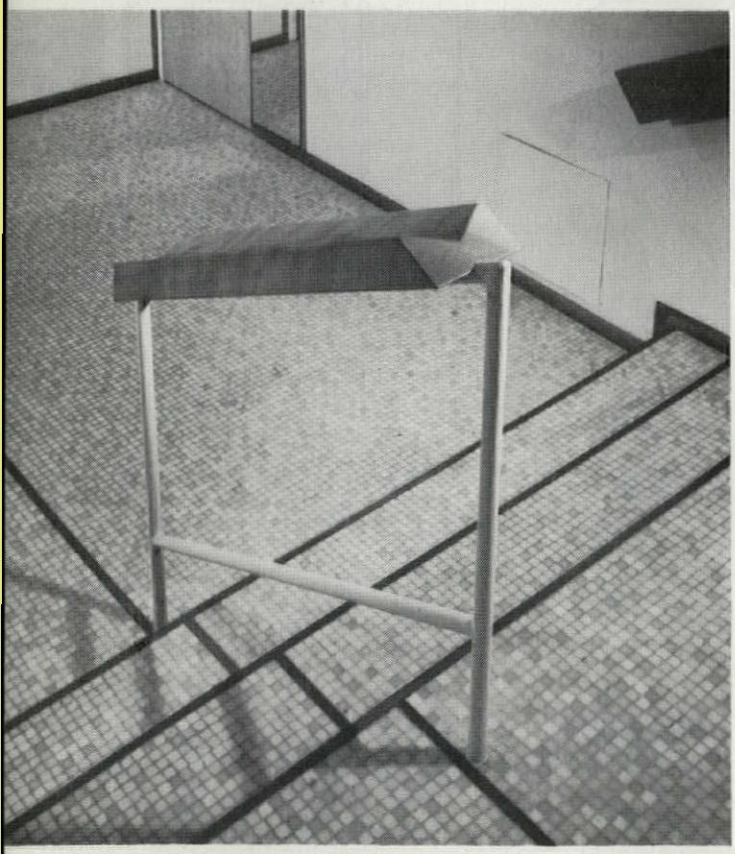


This showroom was designed to display three European imports: a Swedish computer, a West German typewriter, and an English duplicator. Offices for the client, a Swedish manufacturer of calculating machines, and his sales force, occupy the remainder of the small (20′x100′) three-story building in mid-Manhattan. A number of architectural devices including an irregularly receding and projecting balcony, abundant use of light and white color, successfully averted the prospect of a tunnel-like space. Furnishings are either underscaled or visually almost nonexistent (since display fixtures are made of clear plastic). In this way the machines on display become the dominant element in the total composition. To offset the sharp and cold surfaces of the space the designers introduced natural woods, plant material, and colorful exhibits. The first of a planned series of exhibits focuses on the work of Sutnar, who devised and co-ordinated all of the company's graphic material. His layouts for stationery and brochures are based on the logotype developed by Lindblom and Nitzchke for a large sign screen *(elevation right)* which reaches almost the entire length of the showroom and out beyond the glass line. The front of the building, comprising the two-story façade of the showroom and the front of the president's office on the top floor, is composed of large sections of plate glass set into stainless steel frames. The face of the building has been set well back from the property line to avoid reflections. Cheek walls are faced with sheets of bronze and stainless steel. The floor, a handsome white Swedish glass mosaic, has been carried out to the property line, contributing much to the fresh and crystalline quality of the showroom. Uris Brothers was General Contractor.

*Hans Lindblom and Oscar Nitzcke.

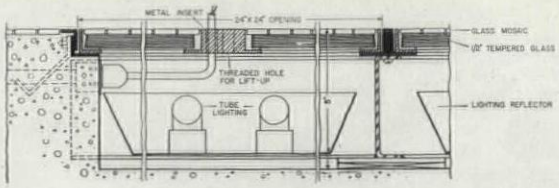
Space frame of 1¼" pipe serves three purposes: (1) mounting of displays, shelving, or perforated metal panels; (2) support for spot lights; (3) disguise for air-conditioning duct. White-painted pipe-frames are again employed as supports for handrails of oil-finished natural birch. Framing of stair treads is of metal, painted white; treads are covered with industrial rubber matting; I-beam supports painted black. Photos: Louis Reens



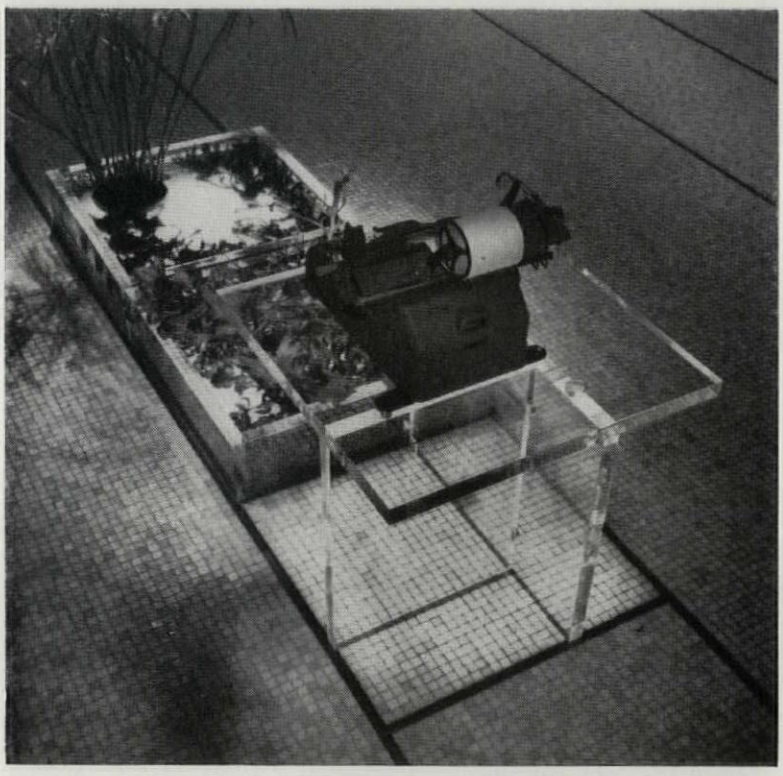


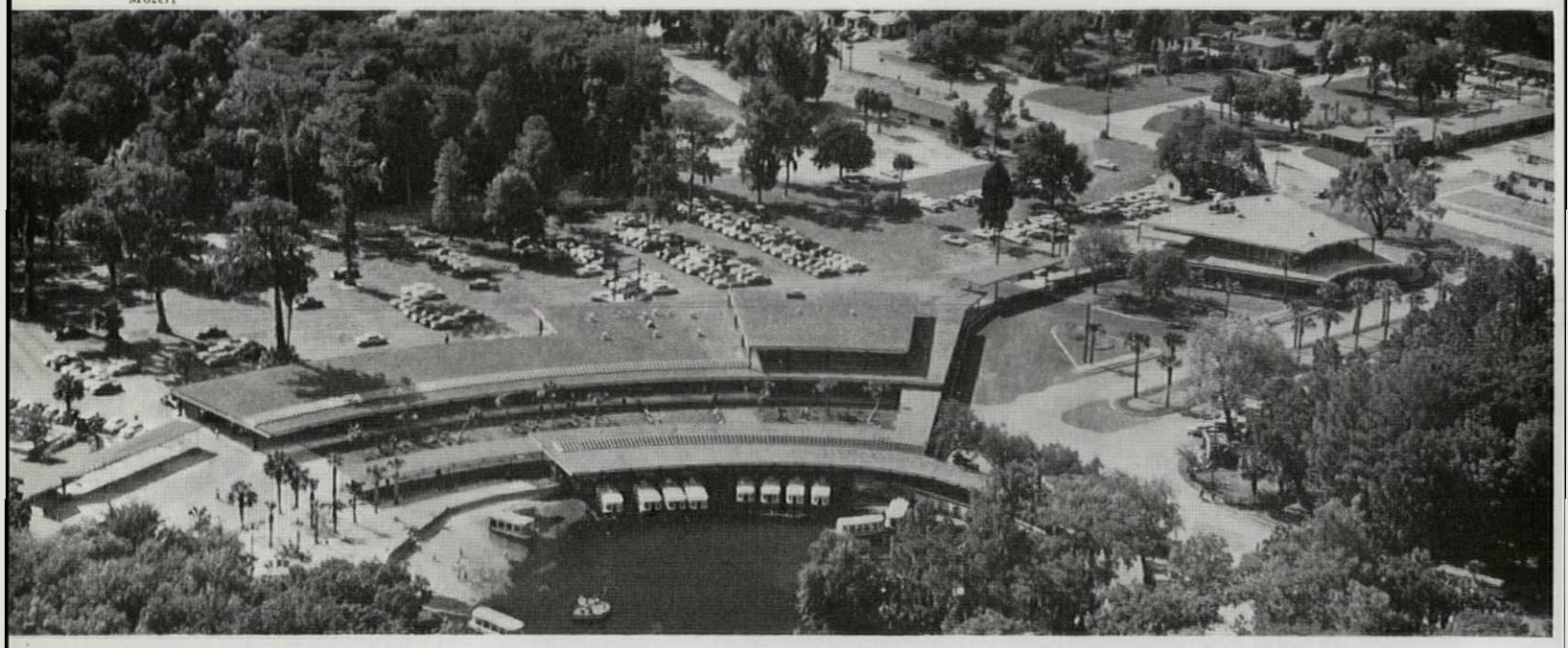
At rear of showroom (acrosspage), *away from visitors' traffic, a comfortable lounge area has been gained. The mezzanine floor above provides space for desks of salesmen. The various floor levels lend width and interest to the elongated floor space and the bold lines of the birch handrail help to link one level to the other. Screen at balcony* (acrosspage upper right) *extends almost the entire length of the showroom. Abstract symbols, which at the front of the store are combined to form the trademark, are mounted to the blue-enameled steel frame by stainless steel wires. Symbols are of black, white, red, yellow, and clear plastic.*


Cup'n Saucer
COFFEE HOUSE



Display fixtures are made up of slabs of clear plastic, 1¼" thick fastened together with plastic dowels. Light from a source under the mosaic floor illuminates the edges of the plastic slabs. Clear plastic is also used to fabricate water-tight containers for aquatic plants and fish. A light source under these boxes furnishes the required warmth for waterlife and plants and serves to heighten their brilliance.



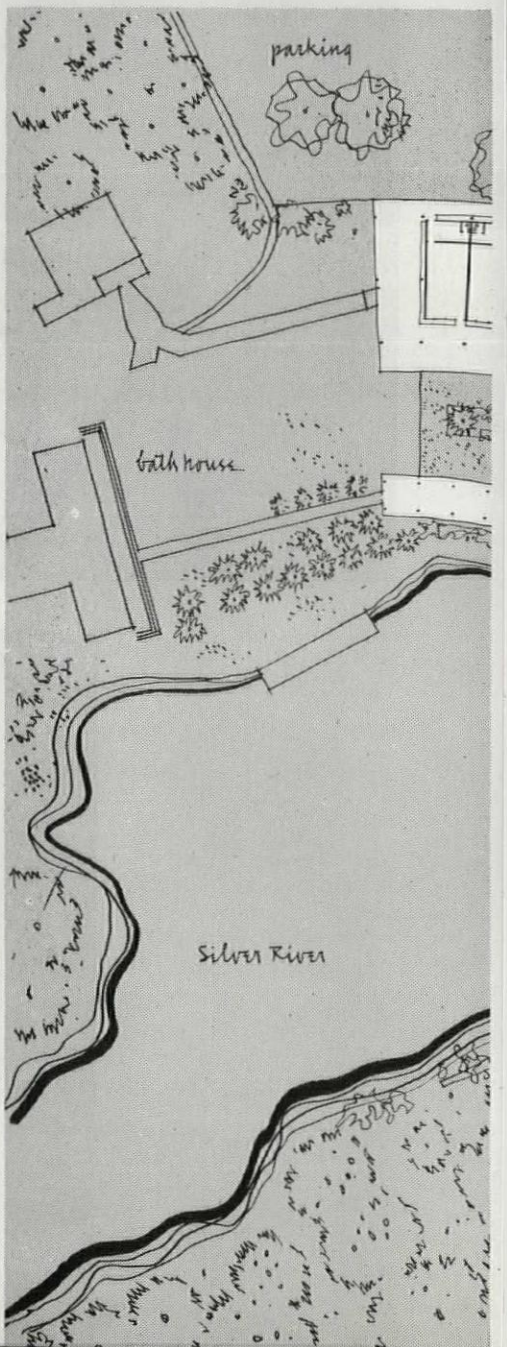


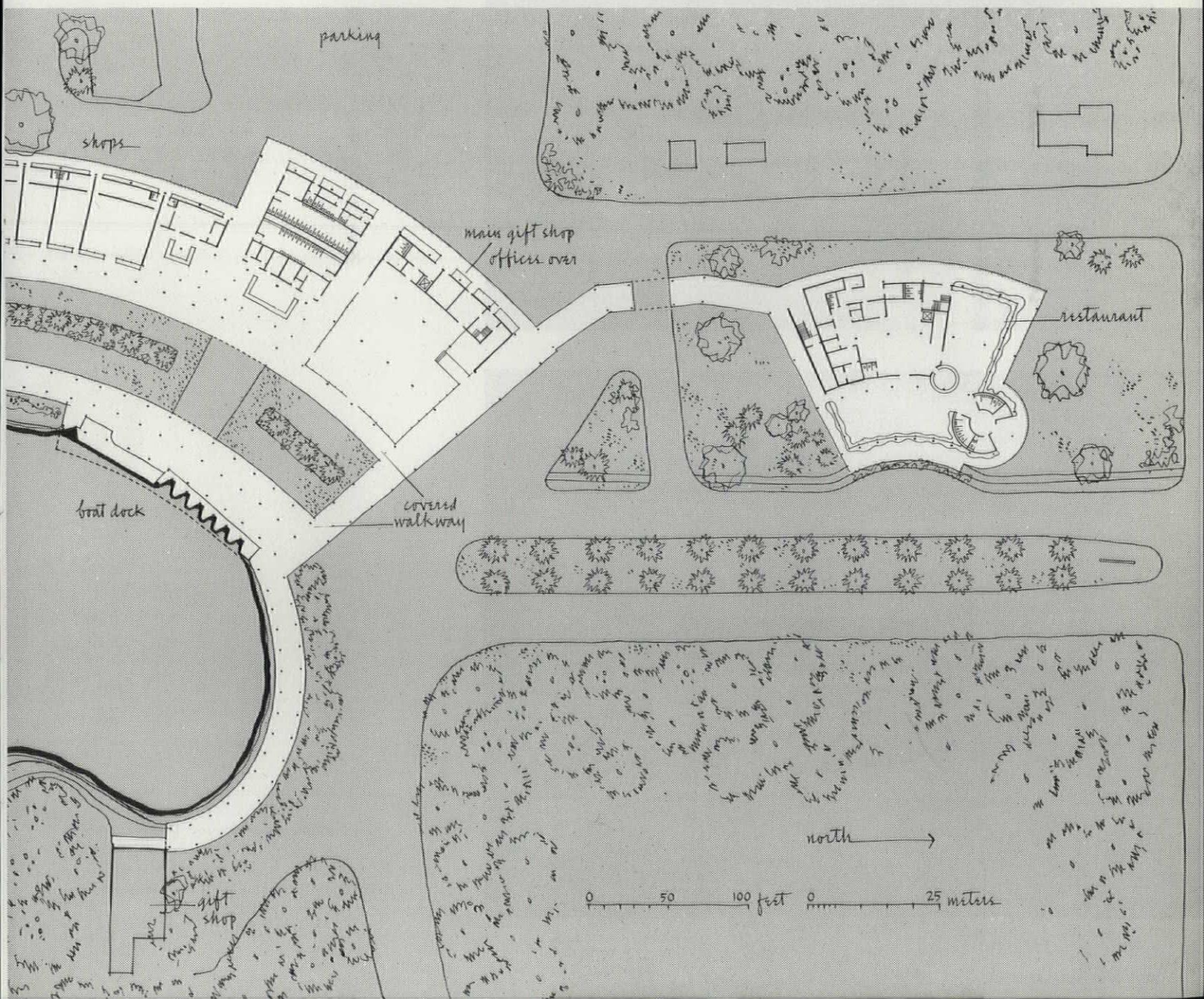
tourist center

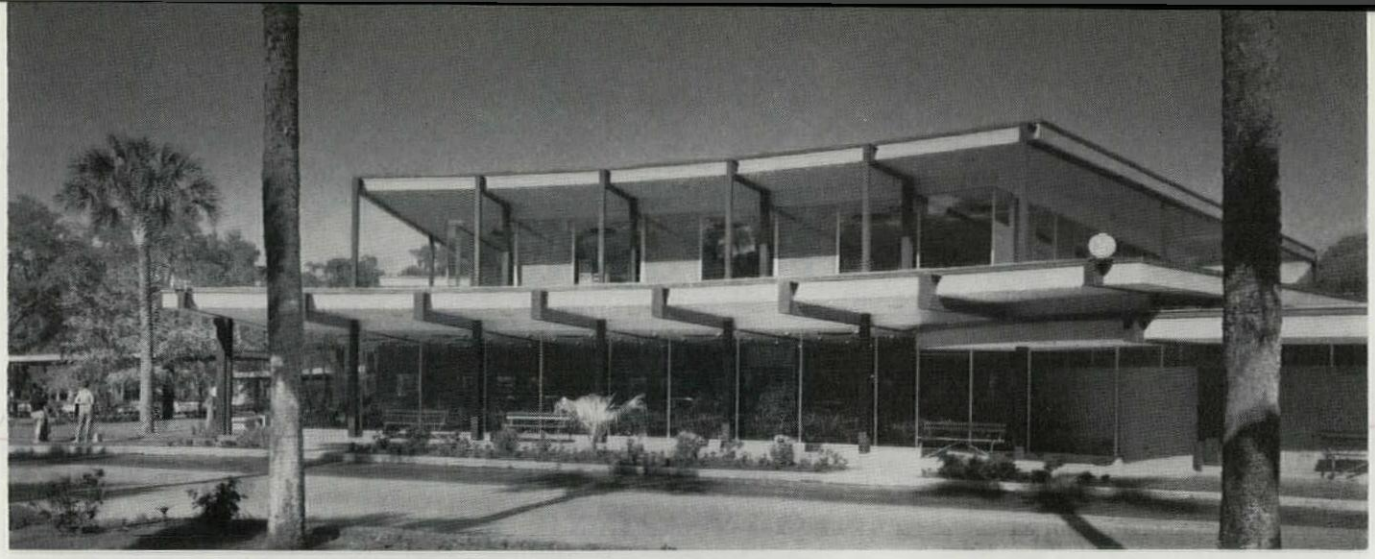
location | Silver Springs, Florida
architect | Victor A. Lundy

This group of structures—a restaurant building; a curved structure with shops on the ground floor and offices in a partial second floor; a boat dock; and a series of interconnecting, covered walkways—serves a popular tourist resort, one of whose main attractions consists of rides in glass-bottomed boats to view the wonders of subterranean life through the crystal-clear waters. A Citation winner in P/A's Third Annual Design Awards Program, the group was designed to replace buildings that had been destroyed by fire.

All of the structures are steel-framed, with main radial beams and columns articulated throughout and exposed to form the main design pattern. Ceilings, floors, and roof planes float independently of all exterior walls, which extend only to door height; the space between the tops of these masonry walls and ceilings is filled with glass. Wide roof overhangs are provided to protect the crowds from sun and rain. The walkways around the boat docks continue the lines of the main radial beams, in miniature; gypsum and concrete-slab roofs are supported on bar joists. Floorings include terrazzo, with zinc screeds; asphalt tile; and cork tile. Sash, storefront frames, and skylight frames are aluminum. Heating and air conditioning is supplied from a heat pump, with well, ceiling ductwork, and air-handling unit; forced warm air and cool air enter rooms from ceiling grills. Artificial lighting combines both fluorescent and incandescent fixtures. John Rasmussen was General Contractor.




parking
shops
main gift shop
offices over
restaurant
boat dock
covered
walkway
gift
shop
north
0 50 100 feet
0 25 meters



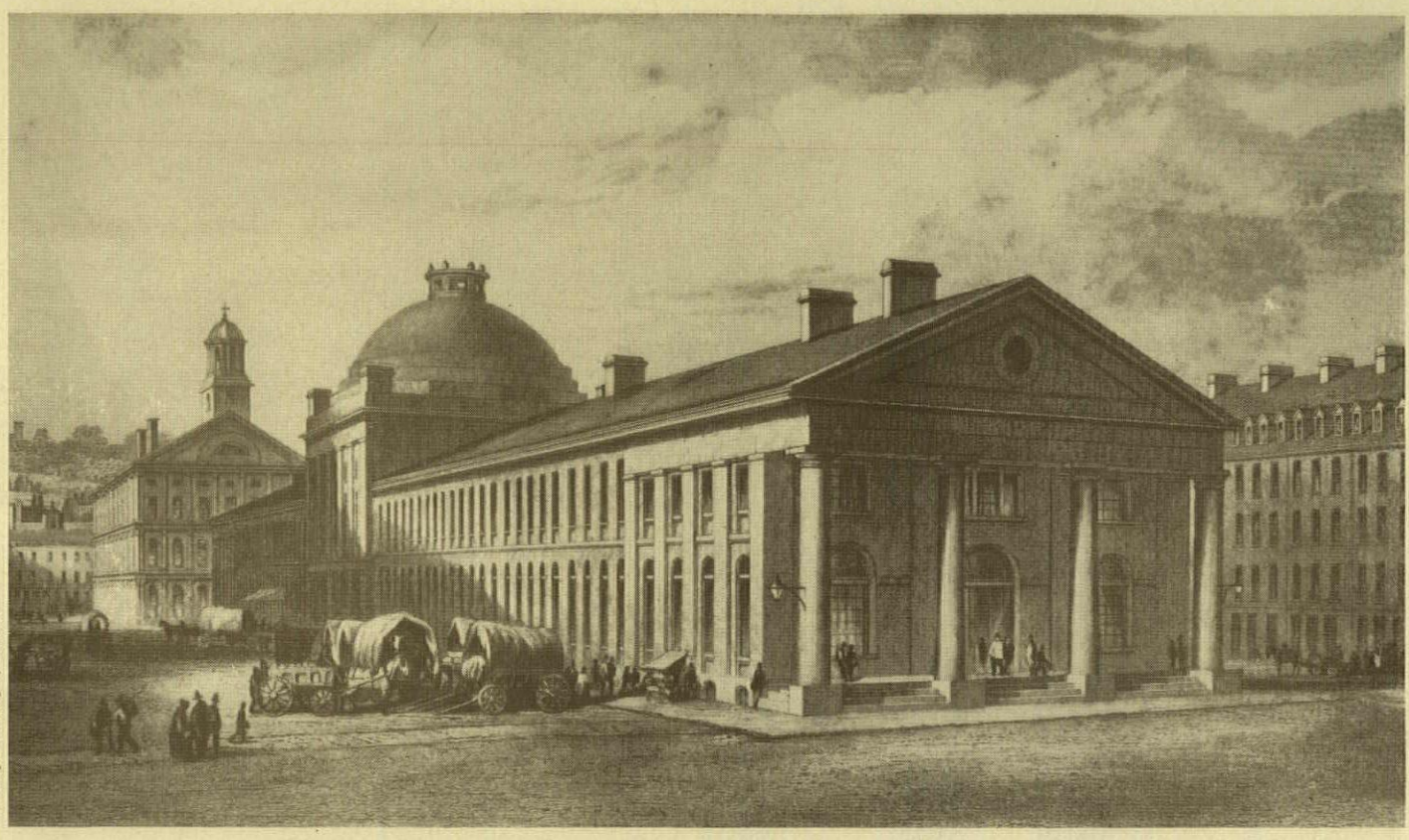
The restaurant building, located near the main highway to attract transients as well as sightseers, has a dining room and coffee shop for from 250 to 300 on the ground floor and a banquet hall above that accommodates 500.

Photos (except as noted) : Alexandre Georges

The covered walkways bordering the shops are furnished with benches. The extra-wide overhang in front of main shops (center) *is broken by a continuous skylight glazed with blue-green, glare-reducing, heat-resistant glass.*

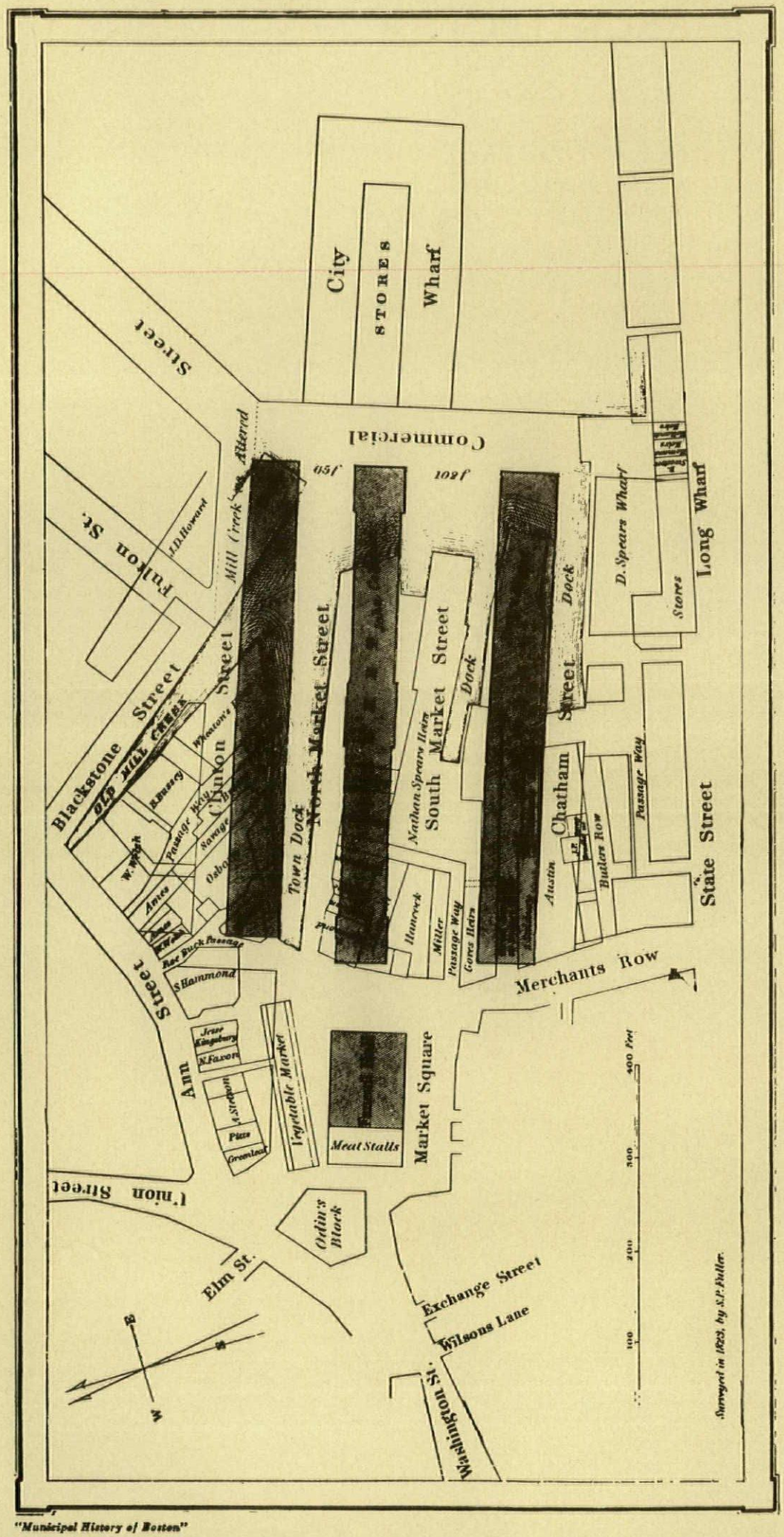
PROGRESSIVE ARCHITECTURE IN AMERICA

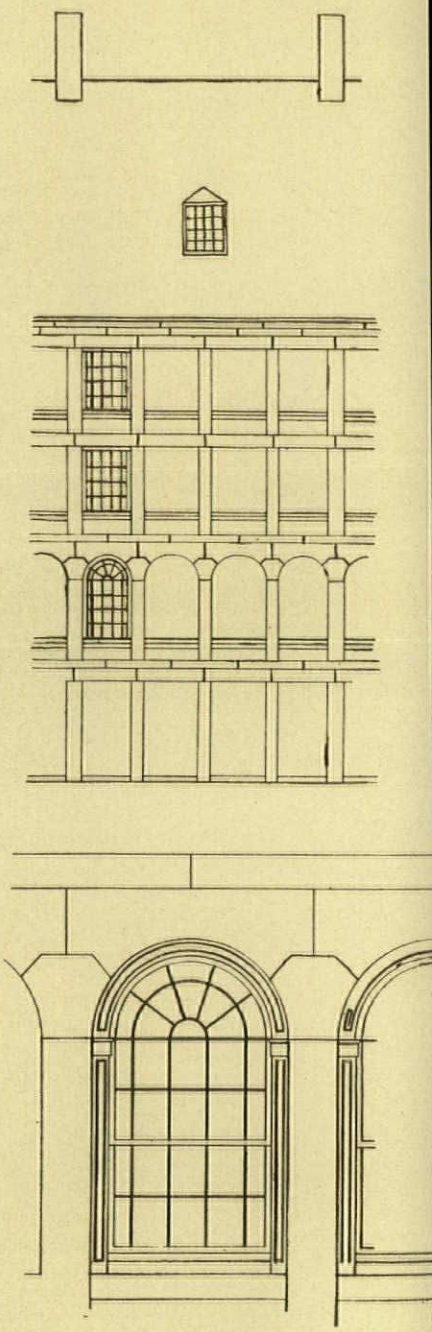
QUINCY MARKET—1825-1826
Boston, Massachusetts
Alexander Parris, Architect



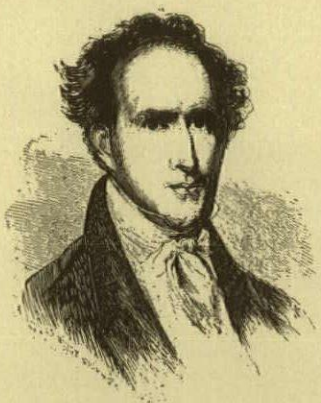
"Municipal History of Boston"

Boston Athenaeum





Storefront elevations, North and South Market Streets. Granite-slab "skeleton" construction. Drawing by Robert B. Newman, courtesy of Henry-Russell Hitchcock.



"Municipal History of Boston"

Josiah Quincy

The peculiar American ability to "think big" dates back to the early days of the young Republic. By the 1820's, the country's course of unparalleled physical and economic expansion had become clear, and established seaports, like New York and Boston, had already outgrown their simple, colonial beginnings. Boston, in particular, had a firm eye on the future, and under the leadership of one of her most dynamic mayors, Josiah Quincy, executed an architectural plan to expand the Faneuil Hall market area—a project still remarkable for the extent and daring of its concept and the finesse of its design.

So big, in fact, was Mayor Quincy's scheme for a new market development to replace inadequate quarters in the handsome old Faneuil Hall, that he adroitly sold the idea piecemeal to the city and the public, revealing new additions and extensions only as each previous point was gained. At its start, the supplementary market voted by City Council, in 1823, was to be no more than a large, wooden, vegetable stand to the north of Faneuil Hall. As finally completed, in 1826, an impressive Greek Revival building dominated an ambitious and excellently integrated redevelopment plan in which dock and wharf rights were obtained, the waterfront partly filled in, property bought and condemned, buildings demolished, six important new avenues built and a seventh widened, and an architecturally unified group of buildings erected, of a design distinction that has rarely been surpassed. The "concentrated richness . . . broad simplicity and feeling for large scale" of these buildings is the essence of the Greek Revival style as defined by Talbot Hamlin; it was a manner well suited to the big plans of an ambitious new country.

The temple-like granite market building, 535′x50′, with east and west porches of monolithic Doric columns, is flanked by two long blocks of store buildings with harmonizing granite fronts facing a 65′-wide street to the north and a 102′-wide avenue to the south. (The surprising disparity in widths resulted from a legal maneuver by which the street to the south was widened to permit condemnation of a crucial central property that the owners refused to sell.) For the haphazard complexities of a substandard waterfront area east of Faneuil Hall was substituted a serene and orderly arrangement of unusually handsome buildings—an early realization of the American classical ideal. The complete redevelopment was carried out at a cost of $1,141,272 for the market, land, street and other improvements (the building itself cost $150,000); an immense sum at that date, particularly since the original appropriation for market improvements was only $15,000. All this was done, according to Quincy's own discreetly boastful account, "in the center of a populous city, not only without any tax, debt or burden upon its pecuniary resources . . . but with large permanent additions to its real and productive property."

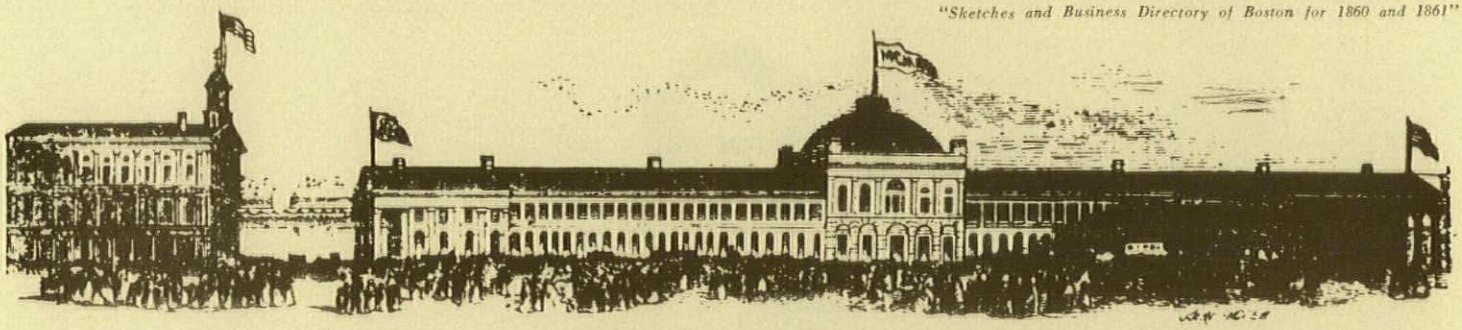
If the design seems simple and direct, its execution was not. There were the inevitable obstacles: wariness of the size of the scheme, skeptical real-estate interests, excessive price demands by alert property owners, legal problems of condemnation rights, heirs who refused to sell. It was called an impractical, visionary dream and was "opposed by several citizens of wealth, talent, and eloquence," who denounced it scathingly as "the mammoth project of the Mayor." The arguments have a depressingly familiar ring. It was warned that the plan would lay the foundation for an enormous city debt, and that "schemes of this kind had better be left to the enterprise of individuals, who do them better and cheaper than corporations. It was denied that a great market was wanted." As each battle was won, Quincy enlarged the territory until the original 36′x80′ market addition was expanded to a redesigned city area of 167,000 square feet.

At no time in Quincy's account of the project in his *Municipal History of Boston* is there any mention of that forgotten man: the architect. There is only a brief word, in 1824 (after modest preliminary presentation sketches had been noted), that the ground plan of the market house was settled, "and walls to be laid in conformity with it," and that elevations and interiors were to be ordered! In September, 1824, the Building Committee "determined upon the plan and elevation of the new market house and that it should be of stone." (The building is described in all later guidebooks as being of Quincy granite, although the cornerstone, laid in 1825, was Chelmsford granite, from the Chelmsford quarries opened about 1803, the main supply source until 1826, when the large quarries in Quincy began functioning to supply stone for the Bunker Hill monument. However, the use of outsize slabs and monolithic columns was supposedly made possible by Quincy quarry methods and machinery.) The plan and elevations were then sanctioned by a resolution of the City Council, which also ordered that the buyers of the city-owned store lots opposite the market conform to a stipulated plan and material in erecting their buildings. These façades were constructed of undecorated, monolithic "skeleton" slabs of granite—lintels and sills in single, huge, structural pieces of dramatic functional simplicity.

Alexander Parris, now identified as the man responsible for the character and quality of the Quincy Market buildings, was both architect and engineer, one of those versatile early American practitioners who received his training as a carpenter's apprentice. If Mayor Quincy, in the words of a later historian, gave to Boston "a new watchword, *Progress*," Parris helped to translate that word into lasting architectural terms. According to Hamlin's *Greek Revival Architecture in America,* the Quincy Market buildings are Parris' best and most radical work, giving "to that part of Boston a kind of aristocratic atmosphere that still remains, clear and strong." Even the barbarism of succeeding generations of store owners who have remodeled, revised, and otherwise wilfully defaced the façades of North and South Market Streets—which were part of a group composition as pleasing in its planned order as the refined symmetries of the Place Vendôme—failed to obscure completely the scale and elegance of the original design.

ADA LOUISE HUXTABLE

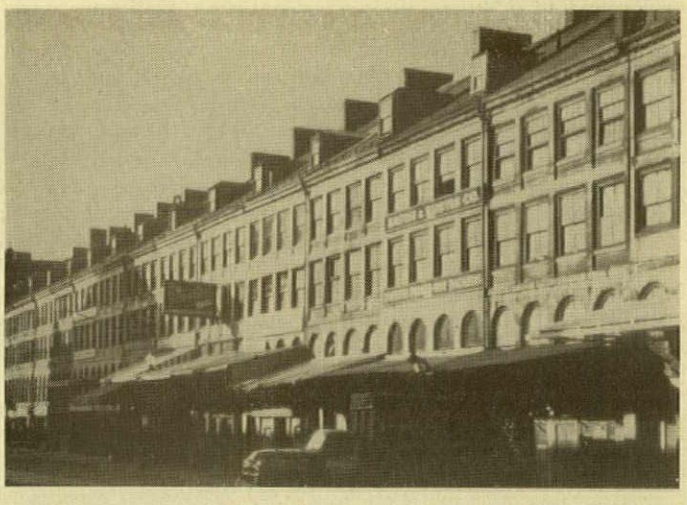
Assistance from Boston Athenaeum, Bostonian Society, and Boston Public Library is gratefully acknowledged.



"Sketches and Business Directory of Boston for 1860 and 1861"

Massive granite slabs of unusual structural directness face the market building and the well proportioned storefronts opposite, their proto-modern simplicity of design and construction still recognizable today, in spite of neglect and commercial defacement.

Photos: Garth Huxtable



new joint system for metal walls

One of three types of experimental wall systems presented in "Curtain Walls of Stainless Steel"—a research report prepared by Princeton's School of Architecture and sponsored by the Committee of Stainless Steel Producers of the American Iron and Steel Institute—was an industrial system.[1] Since that time further detailed development work on this system has taken place under the direction of Dean Robert W. McLaughlin and Wayne F. Koppes, and recently a report of the investigation was announced to members of the architectural and engineering press.[2]

[1] October 1955 P/A

[2] *Presented concurrently were the results of four additional studies:* Joints in Metal Curtain Walls, Reflective Method for Testing Metal Panels, Curtain Wall Costs, and Thermal Behavior of Metal Curtain Walls in Relation to Cooling Costs and Shading Devices.

Before the research began, the following self-imposed design criteria required that the system be: (1) uniquely appropriate to stainless steel; (2) weatherproof; (3) maintenance free; (4) quickly installed; (5) economical; and that it (6) use no sealer or gasket; (7) allow freedom of movement due to thermal effects; (8) take advantage of the strength-durability properties of stainless steel.

The resulting current design, like its preliminary version, uses thin, vertical facing sheets of stainless steel sprung into concave curvature to provide a shallow-fluted wall surface. A prime advantage of this kind of design is that it permits free movement resulting from thermal effects. Movement of this type effects only the radius of curvature of the sheets and acts uniformly over the wall surface.

the joint system

The joint system has two basic parts: a retainer channel and an insert batten strip *(Figure 1)*. The channel used on the experimental work was formed of 20-gage (.038″) stainless steel, and the batten is a plain strip of half-hard stainless steel, .005″ thick. These two parts act in opposition to each other, clamping between them the rolled edge of the facing sheet.

The steps involved in assembling the joints are shown *(Figures 2, 3, 4,* and *5)*. The retainer channels are placed vertically on the wall 16″ o.c., and are attached to it either by bolts or screws spaced 24″ o.c. Neoprene-stainless steel

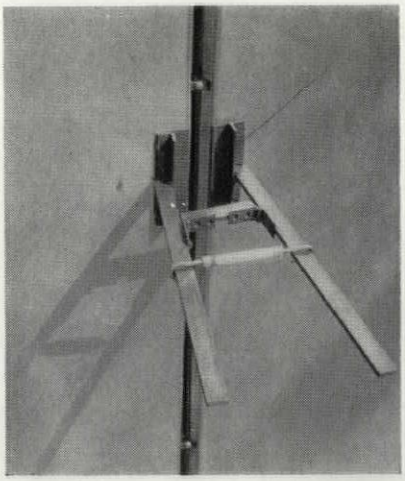
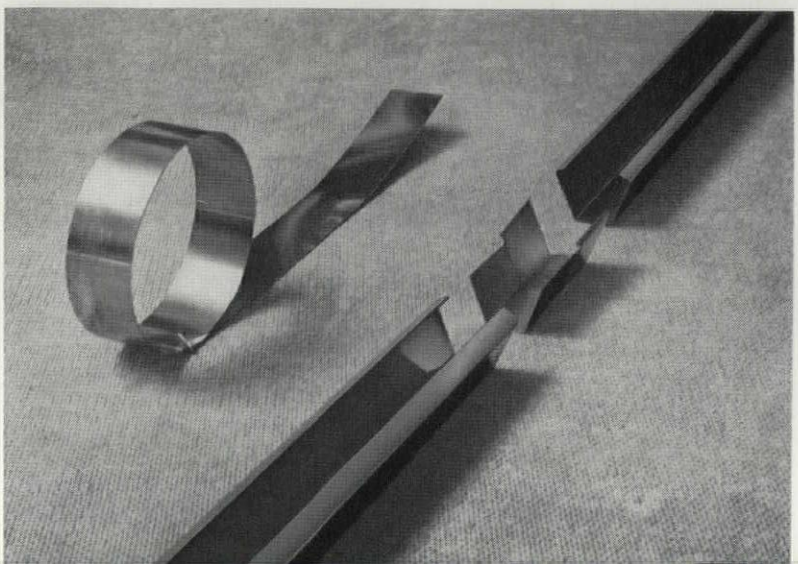


Figure 1—basic parts of new joint system for metal walls (below): *insert batten strip, left; retainer channel, right (shown with offset sleeve).*

Figure 2—installation detail (left) *shows spreader in place springing channel preparatory to installation of batten strip.*



washers are used under the bolt heads to seal the bolt holes, since channels also serve as continuous vertical gutters—a secondary defense against possible leakage of water at the joint. Long channels may be spliced at any point between attachment bolts by an offset sleeve *(Figure 1)*.

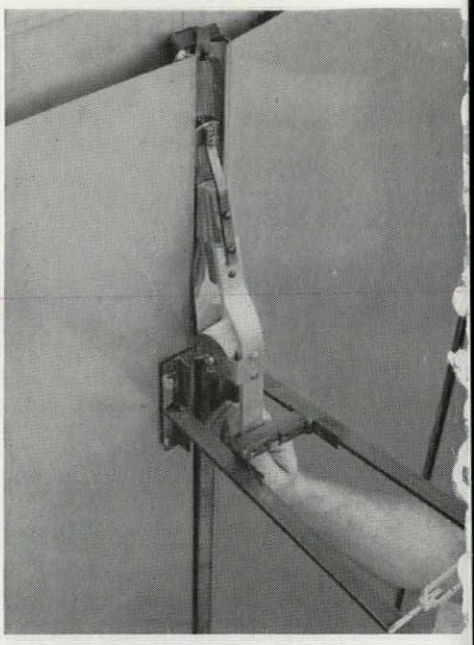
Facing sheets are mechanically anchored to the wall by means of a loose anchor tab on the channel attachment bolts, which engages spaced slots in the formed edges of the sheets *(Figure 5)*. This anchorage provides only a loose primary attachment of the sheets, preventing their removal under negative loading; the joint is sealed by the subsequent insertion of the batten strip, providing a secondary attachment of the facing sheets to the channels.

Installation of the batten is accomplished by the use of a spreading mechanism, which bends the facing sheet concavely, engaging its formed edge with the flanges of the spread channel *(Figure 2)*. A bent batten strip is inserted into the spread channel by use of a "threading tool" *(Figures 3, 4,* and *5)*. With the removal of the spreading mechanism, the facing sheet, channel, and batten strip all tend to assume their original shapes—the action of the channel being opposite to that of the strip. Both sheet and strip assume curved forms under continuing compressive action, automatically sealing the joint.

applications

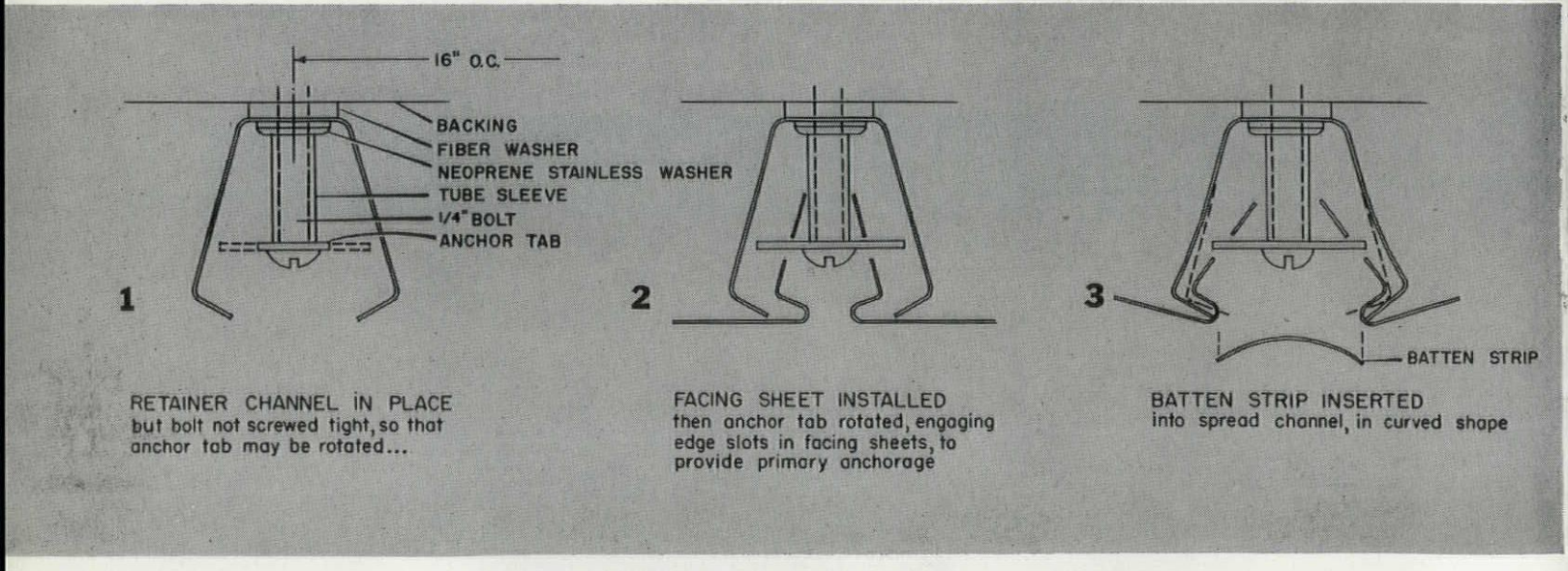
Two applications of the joint system were studied: (1) as part of an all-metal wall assembly *(Figure 6)*; (2) as a metal facing only, for the walls of any construction. In addition, the following basic details were solved: external building corner, base details, cornice details, splicing sheets, and treatment around wall openings.

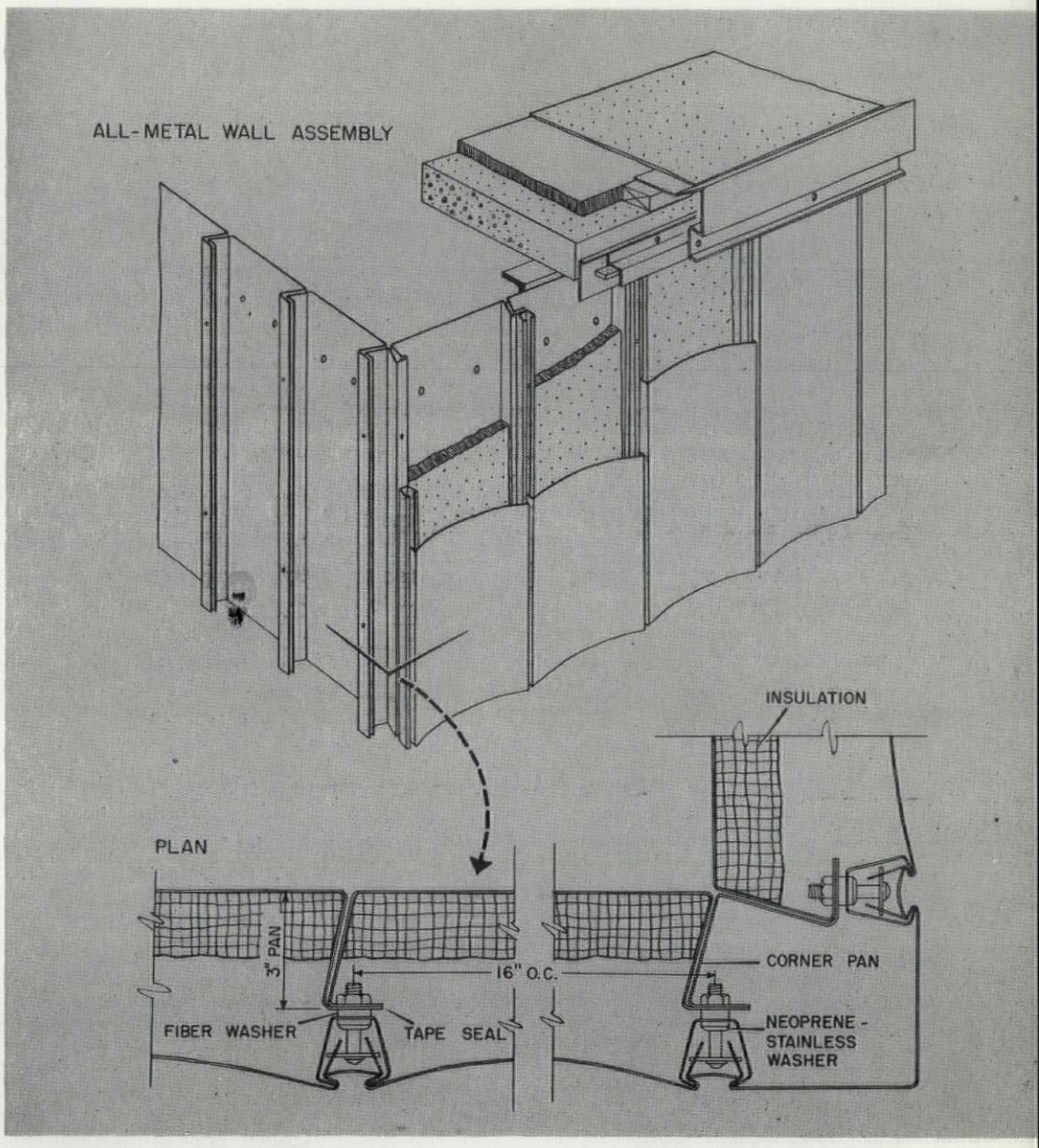
Costs were consistently kept in mind during the design development, and it is believed that the processes involved are all appropriate to low-cost mass production.

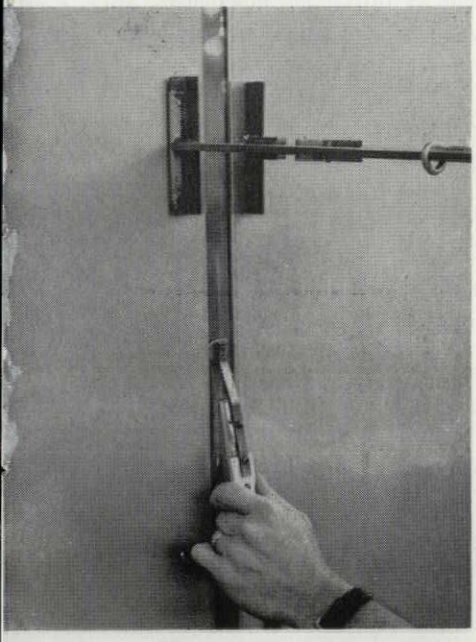


Figures 3 and 4—threader tool has begun to reel off batten strip (above) *and continues down joint* (acrosspage) *with channel still sprung by spreader.*

Figure 5—four steps in joint-assembly procedure (below *and* acrosspage).







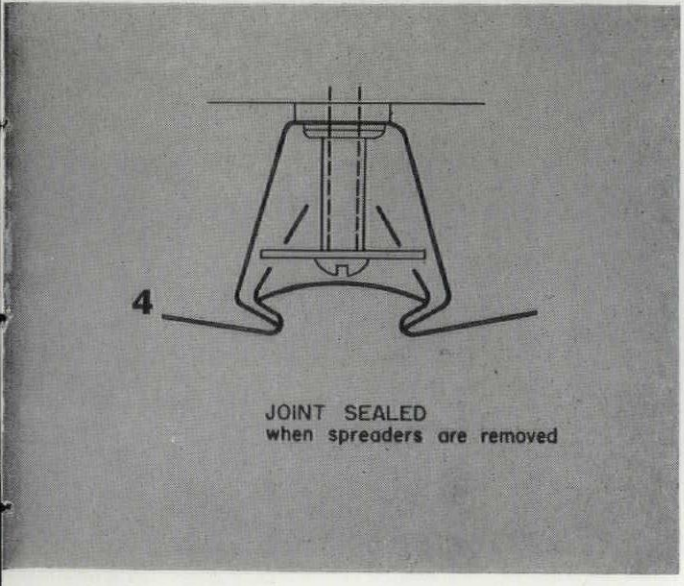


Figure 6—one application for new joint system for metal walls (above): *all-metal wall assembly.*

gray glass by Charles C. Persun*

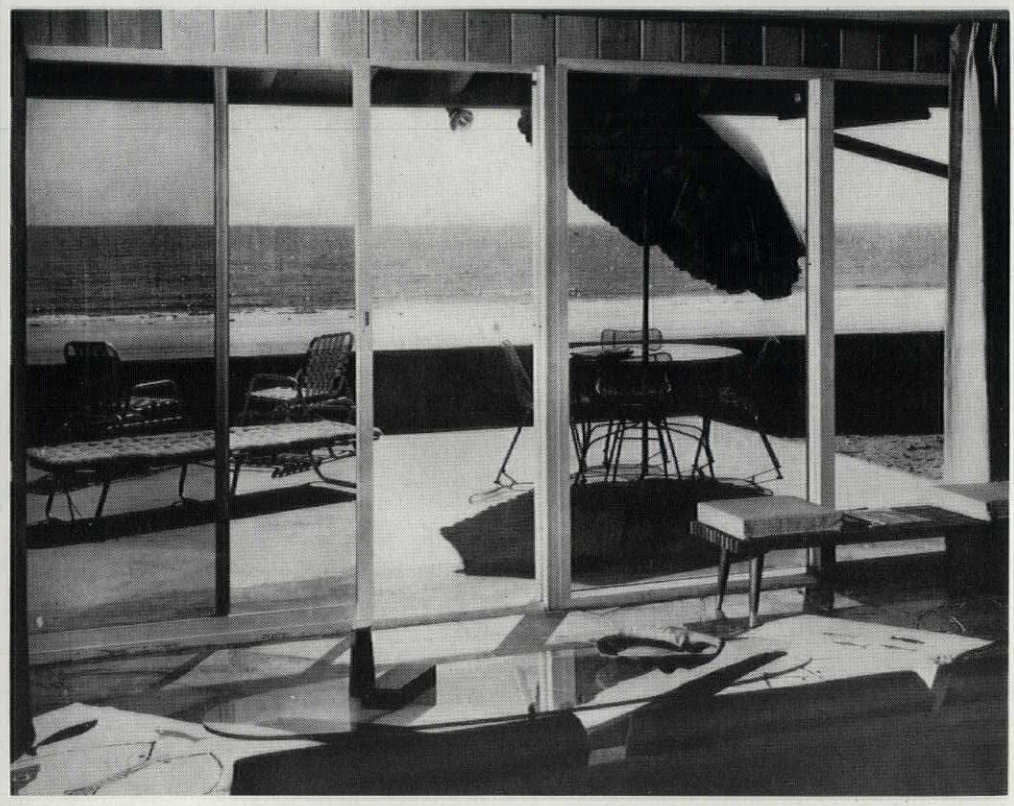
Habitable space in new multistory commercial and institutional buildings has undergone dimensional changes as dictated by increasing building costs. Offices and rooms have been reduced in size and increased in unit numbers, consistent with economy and practicability. Concurrently, designers have increased the use of glass. While this opening of rooms to the outside has helped psychologically in overcoming the space-reduction problem, it has spawned new obstacles. Large window areas let in more light, and brilliant sun brings with it annoying glare which results in eyestrain and fatigue. Countering this problem with venetian blinds and sun shades defeats the purpose of large windows, and thus a cycle is started. Creating the feeling of spaciousness through increased window area poses another problem: in summer, excessive sunlight overheats the interior.

Costly overhangs or louvers provide some of the solutions to these problems, but many architects believe that the real answer may be in the glass itself. Heat-absorbing green glass has been tried, and today many modern buildings testify to the fact that the use of this glass is successful in some respects. One limitation of green glass is its use with the colors of some other exterior building materials. Another is its characteristic of casting colored light into rooms, which may play impish tricks with color schemes. Recently, a new glazing medium—glare-reducing gray glass—has found acceptance by architects for use in office buildings, schools, hospitals, churches, government buildings, industrial plants, homes, and apartment buildings.

Gray glass reduces glare, reduces heat transmission, provides excellent visibility, and is neutral in color.

This unique glass is produced in commercial quantities by several firms, including American Window Glass Company and Pittsburgh Plate Glass Company—manufacturing an inherently colored gray sheet, and Franklin Plate Glass Company—marketing gray plate glass. Recently, Pittsburgh Plate Glass Company produced gray plate glass, and was followed by Libbey-Owens-Ford Company with a similar plate glass. Gray glass is essentially a mixture of nickel, cobalt and iron, added to the basic ingredients of sand, soda, and lime. Characteristics of the gray sheet glass manufactured by one of these manufacturers are shown *(Table 1)*.

* *Architectural Representative, American Window Glass Company, Pittsburgh, Pa.*



Gray glass, viewed from the exterior (acrosspage), *appears as a dense, fairly opaque, glazing material. An inside viewer is unaware that he is looking through anything but clear glass. Aetna Life Insurance Building, Denver: Architect, Thomas J. Moore.*

This new glazing material reduces glare (above), *reduces heat transmission, provides good visibility, and is neutral in color.*

TABLE I: Physical Characteristics of Gray Glass

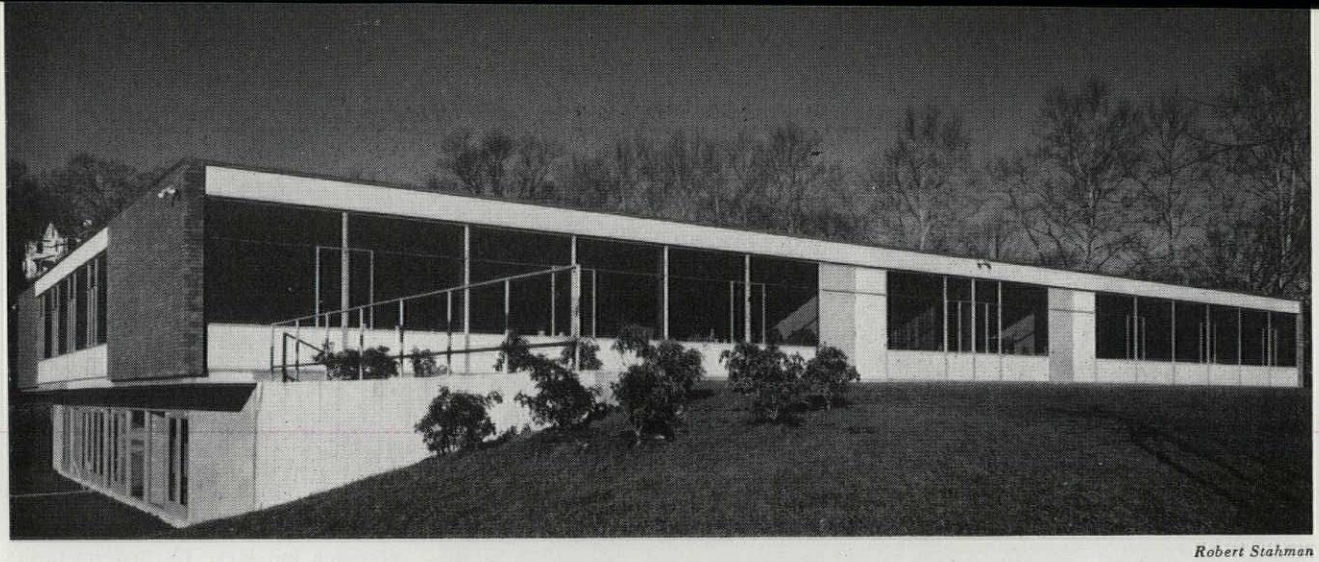
Strength types	Total visible light transmission	Solar Radiation Transmission[1]			
		[2]Total incident ultraviolet	[2]Total incident infrared	[2]Total average daylight (visible light range)	Total solar radiation
3/16"	61.8%	63.7%	73.4%	64.2%	68.9%
7/32"	58.8%	63.0%	71.7%	61.8%	66.3%
1/4"	55.0%	61.0%	68.5%	57.7%	63.1%

[1] Average radiant energy at normal incidence with energy distribution equivalent to air mass equal 2.
[2] Sun's energy consists of 2.77% ultraviolet, 52.42% visible light and 44.80% infrared.

Early in 1954, when a bright new television picture tube was produced for the television industry, TV manufacturers requested a gray glass to be placed in front of the tube, acting as a glare-reducing filter for bright areas, sharpening gray tones in the picture, and doubling as an implosion plate to protect viewers in the rare event that the tube exploded. Glass producers brought out a safety glass whose gray color came from a thin, gray, plastic sheet placed between two layers of clear glass. Regular safety glass is produced the same way except that the plastic is uncolored. Later the TV industry requested gray sheet glass, inherently colored. This request came at about the same time that architects began to take notice of the desirable properties of gray glass.

To what can be attributed the wide acceptance of gray glass? Without question, it is the fact that it has met the pressing needs of architecture for a multifunction glass. Certainly, one of its greatest characteristics is its property of appearing two-faced: while the outsider looks at a dense and fairly opaque glazing material, the inside viewer is unaware that he is looking through any but clear glass. Another desirable characteristic is that the shade relationship of colors is not affected by light transmitted by gray glass. Thus the interior decorator is permitted complete freedom to use interior color without being inhibited by the glazing material. Another outside factor comes into play which points up an advantage of gray glass. A hodge-podge of color from room to room as viewed from the street, especially in apartment houses, frequently destroys the design mass of the building's exterior. Gray glass, by giving uniform outside appearance, masks diversified interior decoration.

There are low-light-transmission gray glasses on the market available in varying light transmissions ranging from 12½



Robert Stahman

By providing more uniform outside appearance, gray glass permits more diversified interior decoration. Rehabilitation Center, Stamford, Conn.: Architects, Sherwood, Mills & Smith.

percent through 53 percent. It appears that higher transmission glass in this range will eventually prove most desirable. Living behind gray glass 24 hours a day, occupants are faced with light intensities varying from bright midday summer sun to dreary, cloudy-day dusks. Such conditions must be met with a glass that can manage the brilliance of peak sunlight; yet its light transmission should be high enough to keep overcast lighting conditions from being oppressive. Thus, while light transmission and glare reduction are important promotional factors, it is vital that architects not lose sight of the fact that overdoing a good thing can be just as bad as not doing it at all. Light transmission should be considered in a positive dimension, keeping in mind that the purpose of a window is to let light in and to permit seeing out.

The answer to light transmission in gray glass rests in the role glass must play. Undoubtedly there will be, in the future, a market for extremely low-transmission glass, but, in all probability the major market will be divided between medium- and medium-high-transmission gray glass. In the above-noted low-transmission range, it is important to understand that at present, continuous-process gray glass manufacturers are not offering more than one light-transmission glass. As the demand grows sufficiently to warrant placing additional gray-glass furnaces in production, the product from these furnaces may have light transmission factors to meet changing requirements.

In order to change the light-transmission factor of a gray glass produced in a continuous furnace, it would be necessary to cool the furnace and remove all remaining glass in the tank, change the formula, and reheat for continuous production. In other words, only one light-transmission factor gray glass of consistent thickness can be drawn from a furnace at one time without jeopardizing color control.

Another consideration in this subject of light transmission is glass thickness. With the exception of the pot-process glass which can be manufactured as plate glass in relatively small amounts with varying intensities of gray color, and thus different light-transmission values, the thickness of the glass to be glazed must be determined by the light transmission required. There are obviously other determining factors which must be considered, such as size of the opening to be glazed and intensity of the gray tone. In clear glass there is only one major determining factor—size of the opening to be glazed—since thickness has no material effect on light transmission. The larger the opening, the thicker or stronger the glass needed.

In gray glass, however, the thicker the glass the greater the reduction in light and heat transmission, and the more dense the gray tone. Therefore, the architect is cautioned that a uniform thickness for all openings is desirable if the gray tone is to be consistent.

The use of glare-reducing gray glass, both sheet and plate, in new curtain-wall construction has already proved to be of value in so far as outward appearance is concerned. Viewed from the exterior it has enough visual density or opacity to give the feeling of a skin, thus hiding interior structural materials. When used in corner windows, body or density greatly reduces the saw-toothed edge effect where windows normally disappear or blend into the sky. As previously mentioned, its neutral color compliments, almost without exception, mullions or spandrels of any color.

Both gray plate glass and gray sheet glass will tend to distort reflections viewed from the outside. In the case of plate glass this is due to pressure created during glazing which causes the flat surface to be slightly bent. In high quality gray sheet glass, distorted reflections are more likely to be caused by glazing pressure than by inherent distortion. Glazing pressure distortion is invisible to the interior viewer.

There are certain size limitations in the application of gray sheet glass. As now produced by one company, its maximum dimensions are 6′x10′. Plate-glass sections can be made available in somewhat larger sizes.

The future of glare-reducing gray glass seems assured. Its acceptance at this time is attested by the many buildings, both simple and imposing, which utilize gray glass.

Reaction to this functional glass has been extremely encouraging. Architects have given enthusiastic acceptance of gray sheet glass as well as gray plate glass, and many have become active boosters of this new development in curtain-wall construction. Clients of architects who have used gray glass have been vocal in their praise of it and thus have encouraged its repeated use in newer projects.

mechanized window-washing platforms

by Walter Veit*

Dictates of modern building design, using lightweight metal and fixed-glass panels to form the skins of buildings, suggest some mechanized means for cleaning and servicing the acres of glass and metal involved. A motorized-elevator work platform, suspended from the building roof, is a logical answer to the problem of keeping completely sealed new buildings gleaming.

The entire operation of washing window walls has not yet been mechanized to the point of automatic soaping, rinsing, and drying, but the men who perform these operations can now move up and down and from side to side by push-button control of motorized platforms. Even with some mechanized assistance, maintenance of large structures is barely completed before it is time to start all over again. Without such equipment, the cleaning and maintenance job would be almost impossible, especially in the case of completely sealed buildings.

Each large office building designed and erected today is a carefully designed structure, different from similar buildings in its details. Therefore, cleaning and maintenance problems are apt to be different in each building, and to require custom-designed, carefully engineered mechanisms. Structures planned for erection in highly developed land areas are of tower design. Other contemporary buildings planned for suburban communities may cover large areas. The expanse of window walls for both types of buildings requires mechanization for frequent and efficient cleaning.

* *Manning & Lewis Engineering Co., Newark, N. J.*

Stated in its simplest terms, a "window-washing machine" designed for servicing a modern sealed building consists of a roof car on which is mounted mechanical hoisting equipment together with controls necessary for safe operation. The roof car is provided with electric motors to drive its wheels along trackage mounted near the rim of the building. Remote-controlled locking devices permit exact positioning of the car at predetermined stations. Suspended from the roof car is an operator's platform, about two and one-half ft wide and up to 25 ft or more in length, which travels vertically on guide rails set into the face of the building. The entire machine is push-button controlled, and an amazing variety of control devices engineered into it to ensure fool-proof operation and maximum safety.

Lever House, in New York, is generally considered the prototype of the modern glass-and-metal "tower" building and represented a great element of pioneering by Architects Skidmore, Owings & Merrill (DECEMBER 1950 P/A), and their mechanical consultants. The design of that building required a self-contained mechanized platform for cleaning and servicing purposes. Everyone concerned with the planning of the new structure was interested in maximum safety precautions—not only for the maintenance men who would use the platform, but also for the thousands who daily would pass Lever House on the streets below.

Until this time, window servicing equipment had been used with varying degrees of success, although there had also been some notable cases of failure. Generally, such devices had been mere extensions of scaffolding used in construction, or developments from industrial monorail equipment. Furthermore, they had been used only on buildings of relatively low height.

For the Lever House installation, there was agreement that because of the height of the building and other design considerations, the machine could not be simply a modified scaffold, but must be a carefully engineered piece of equipment embodying the most advanced control and safety concepts of the elevator industry. The approach was to provide automatic safety controls rather than to rely on compliance by the operator with even the best of instructions. Thus, the machine was completely interlocked to enforce operation of the machine in the manner intended.

The success of that machine led to the custom installation of a similar machine on the Ford Central Staff Office Building at Dearborn, Michigan *(Figure 1)*. There, some four acres of glass are kept gleaming by a two-man window washing team which can circle the building once about every eight working days. When not in use, the rig and cage are switched onto a rooftop sidetrack, out of sight.

Problems connected with providing equipment for the new Connecticut General Life Insurance Company Headquarters Building near Hartford, Connecticut, were considerably different from those previously faced. The building is only three stories high, yet occupies a fairly large area, thus creating a need for extensive horizontal travel *(Figure 2)*. The main part of the structure measures

326 ft wide by 470 ft long, containing four courtyards, each 68 ft sq, and is linked by a passageway to the north wing of executive quarters housed in a four-story building.

The solution was a rooftop track-mounted machine designed to operate over short radius turns. The usual T-rail with limited span was abandoned in favor of structural beams spanning 12 ft between supports, thus cutting by one-quarter the necessity for penetrating the roof to provide supports. Communication between the main outside rail and four courtyards was provided by arranging for the machine to be moved on transfer cars which interlock with building trackage. Suspended from the roof car is an operator's platform engineered to prevent any sway, although it receives no stabilization from the building itself. This is done by providing five rigid telescoping aluminum frames which interlock with each other as successive sections reach their lowest points. The equipment contained several unique features, including a special tractor-type traversing drive articulated to permit negotiation of sharp track curves, timing and track interlock devices to enforce raising of the operator's platform to clear canopies and other obstructions, provision of an operator's platform extension to permit him to move underneath the first floor soffit, and telephone service through spring-reel wound flexible cables so that the operator can be in contact with the building superintendent at any time.

Other installations embodying the same general principles outlined above, either completed or in advanced planning stages include: Heinz Building, Pittsburgh; Union Carbide Building, Chase Manhattan Building, and the new Time-Life Building—all in New York; Crown Zellerbach Building, San Francisco; and Inland Steel Building, Chicago *(Figure 3)*.

The advantages of sealed construction are numerous and are becoming better recognized by building investors as well as by architects, engineers, and contractors. An entirely sealed building per-

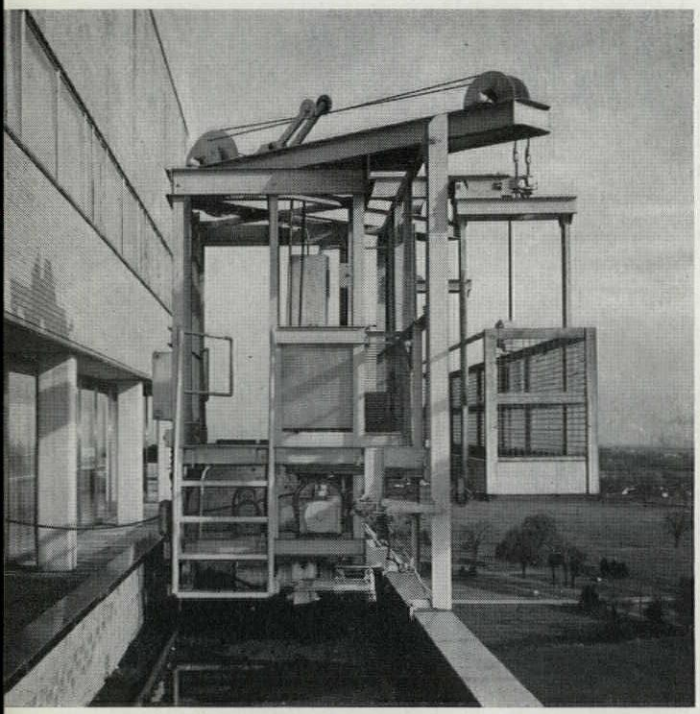


Figure 1—Motorized platform at 12-story Ford Company Office Building, Dearborn, Mich. (above *and* right) *travels vertically between curtain-wall mullions. Skidmore, Owings & Merrill were Architects for this building and those illustrated acrosspage.*

Photos: Manning & Lewis Engineering Co.

mits a considerable saving of heat leakage and provides ideally controlled air flow from air-conditioning ducts. Greater internal building cleanliness is a secondary benefit of this. The ease with which the outside of the building can be cleaned by window-washing devices leads to regularly scheduled upkeep sufficient to keep the building sparkling. At the same time, the building interior can be cleaned at much less frequent intervals, which sometimes results in over-all savings in cleaning costs.

Architectural appearance is most frequently the initial reason for considering elimination of operating sash. In many cases, however, fixed glass is actually cheaper in cost, to the point that savings more than offset the cost of special window-washing equipment.

Cost of the described machines, together with the structural provisions necessary to support them, is substantial. But the equipment usually pays off two ways on a dollars-and-cents basis—savings in cost of the building skin and savings in maintenance. By using these machines, one man generally can cover up to three times as much surface as he could by old-fashioned methods.

Before these machines can be put into service, they must meet very exacting safety requirements of state and city labor departments. Not only have officials in those departments been quick to give their endorsement, but also window washers themselves have been enthusiastic about the devices, even in the face of greatly reduced cleaning time.

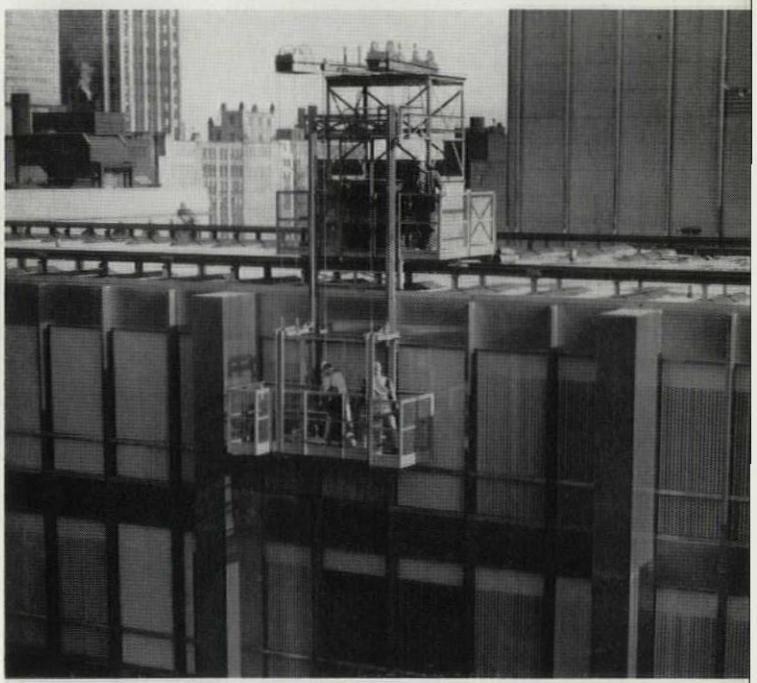
Application of maintenance equipment in the design of modern architecture is still growing. Machines of the type already developed are becoming more and more commonplace. Machines to traverse larger buildings—including vertical travel up to 800 ft—are already on the drawing boards of specialized engineering firms. Machines for such buildings will provide their own water supply, more safety devices, and other conveniences planned to make mechanized maintenance come of age.

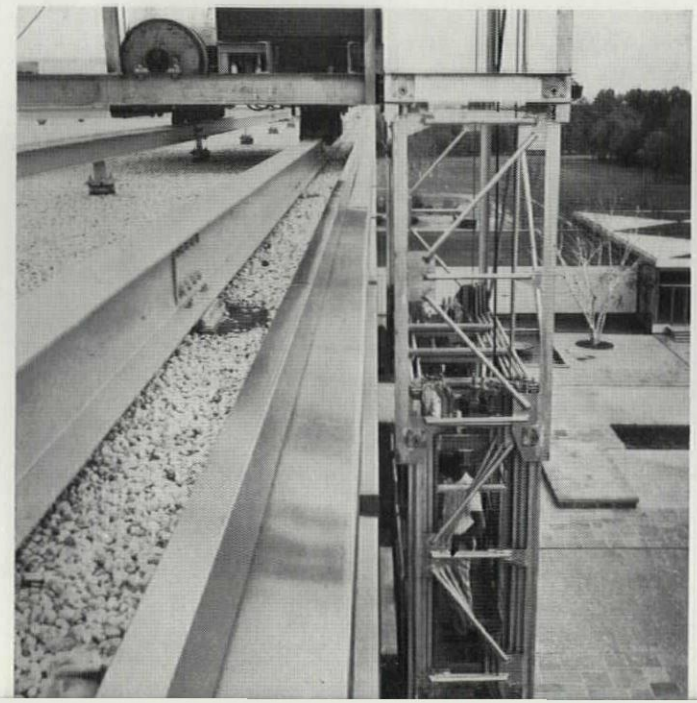
Figure 3—Automatic scaffolding for 19-story Inland Steel Building, Chicago (right *and* below). *Roof car houses hoist and propelling units, electrical controls, and conductor reels. Turntables at building corners facilitate negotiation around sides of building.*

Photos: Economy Engineering Co.

Figure 2—Three-story Connecticut General Life Insurance Company Office Building, near Hartford (below), *required a different solution. Rigid telescoping aluminum frames extend vertically to reach lower windows; entire assembly, however, travels horizontally.*

Photos: Manning & Lewis Engineering Co.





joining marble with epoxy resins

by Harold Gillum*

We took two large pieces of marble and butt-joined them with an epoxy-resin adhesive, allowed the adhesive to cure thoroughly, and then tried to smash the bond with a hammer. The marble splintered into fragments every place but at the bond line. That rugged test was our introduction to a new type of joining compound that has proved to be stronger than the base material. The adhesive will join not only marble but also granite, limestone, ceramics, glass, porcelain, stone and metals—to each other and to dissimilar materials.

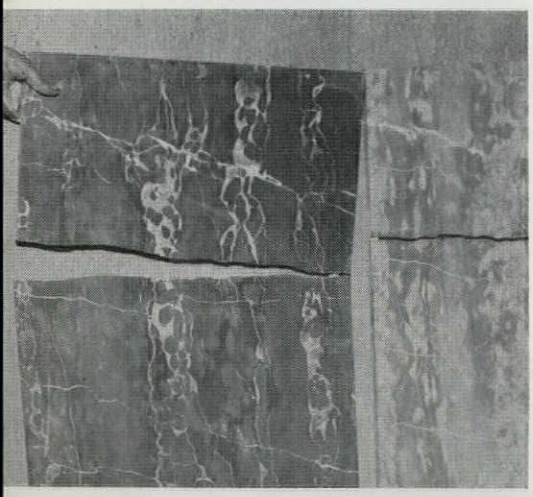
That actual physical damage would not impair the bond was important to us, for joining marble is as much a part of our business as cutting and polishing. Effective, durable repair of cracks and flaws has long been a problem for marble fabricators, because almost all highly decorative marble is basically unsound. Marble is sawed into slabs of varying widths from huge blocks weighing upwards of 10 tons. Only when the marble is in slab form do we know what we actually have—flaws such as iron compounds and soft-mud deposits invariably show up in the varicolored seams that give marble its distinctive appearance. Holes and voids are other defects which must be filled before the marble surface is finished.

Because flaws develop into cracks that weaken the marble, slabs often split into many jagged chunks along the fault lines, despite the care taken in processing and handling. With the marble in its unfinished state representing a sizable cost per square foot, the fractures must be repaired, and repaired so well that the cracks will neither weaken in service nor be readily visible.

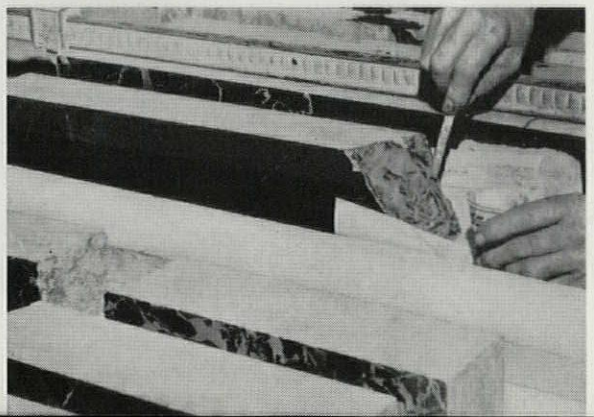
For many years, the standard repair material in the industry was brown-stick shellac. To use it successfully, the marble had to be heated with a blow torch along the edges of the crack, the shellac had to be melted against the broken surfaces, and the two pieces of marble then had to be cooled and hardened. After this treatment, it was necessary to doctor the cracked area to match the color of the rest of the slab. Surface appearance was also affected by the process, since on some types of marble, the pigment bleaches out under direct heat. Repair with shellac could not be considered satisfactory, for eventually the shellac bond failed—particularly if the marble were exposed to the sun.

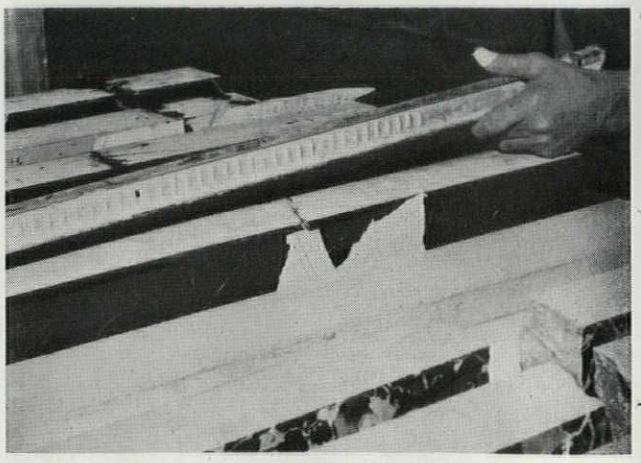
Several years ago we tried a polyester-resin adhesive. Although it was an improvement over shellac, it was more expensive and did not provide a permanent bond, resulting in many complaints of joint failure. For some reason, too, the

* *Superintendent of Works, Locarni Marble Company, Carthage, Mo.*



After decorative marble has been sawed into slabs, natural flaws develop into cracks and breaks (left). *To repair these marble blocks* (below), *epoxy adhesive was spread on one surface and the two parts pressed together. Bar clamp is attached to both ends of block and pressure applied on the joint for about 30 minutes* (right).





polyester adhesive had a tendency to harden while still in its container, making it unusable.

It was some time after this that we tested a modified epoxy-resin adhesive.[1] This adhesive is a two-component system consisting of a blend of resins[2] and a separate activator. It has the conveniences of curing at low pressures and at low temperatures and will retain its bond strength even at highly elevated temperatures.

The adhesive is now used to repair all of our decorative marble: Class A, requiring no sticking[3] or waxing; Class B, some waxing; Classes C and D, being more fragile than the others, and requiring both sticking and waxing.

To repair a slab of fractured marble, just enough of the epoxy-resin adhesive is prepared for immediate use, since it sets hard in 20 to 30 minutes. We mix 20 drops of the activator with a tablespoon of the resin in a small unwaxed paper cup. A large-diameter, shallow container, rather than a tall, slender one, is recommended by the manufacturer, to prolong the pot-life of the mix.

The two materials are blended thoroughly and the mixture is then applied directly to one of the cracked surfaces. Since the marble is rough, there is enough "tooth" on the material for the adhesive to bond well. Film thickness is not critical; strong bonds will result with glue thicknesses varying from .003 in. to .010 in. The adhesive is neutral in color but can be pigmented with a standard mortar-colorant to match a particular shade of marble.

The two pieces of marble are then pressed together with a bar clamp and held for about 30 minutes, sufficient time for the adhesive to set so that the clamp can be removed.

The curing time for the adhesive bond is directly related to temperature—at 70 F to 90 F, handling strength is reached in less than six hours, maximum strength in a week. Faster cures will result at elevated temperatures: 120 F to 130 F, 90 minutes; 150 F to 160 F, 60 minutes; and 175 F to 185 F, 35 minutes.

During the summer in Carthage, room temperature ranges as high as 100 F in the shop, and no additional heat for curing is required. But in the winter and during cool weather, we speed up production by curing the adhesive under a battery of infrared lamps for about one hour. Doubling the amount of activator also accelerates the curing process without affecting the strength of the bond.

Because only a small amount of adhesive is required, the hairline joints are practically invisible. In most cases, it is impossible to tell which of the multicolored seams has been repaired.

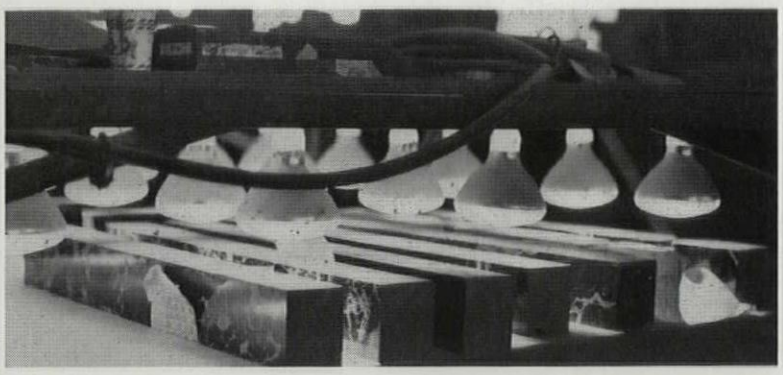
We fill in heavy voids and holes in the marble slabs with a mixture of one part of 200-mesh lime and one part of epoxy adhesive. The lime acts as a stiffening agent without impairing strength, adhesion, or length of setting time. The same lime mixture, colored to match the marble, is also used to fill in any slight depressions along the crack line.

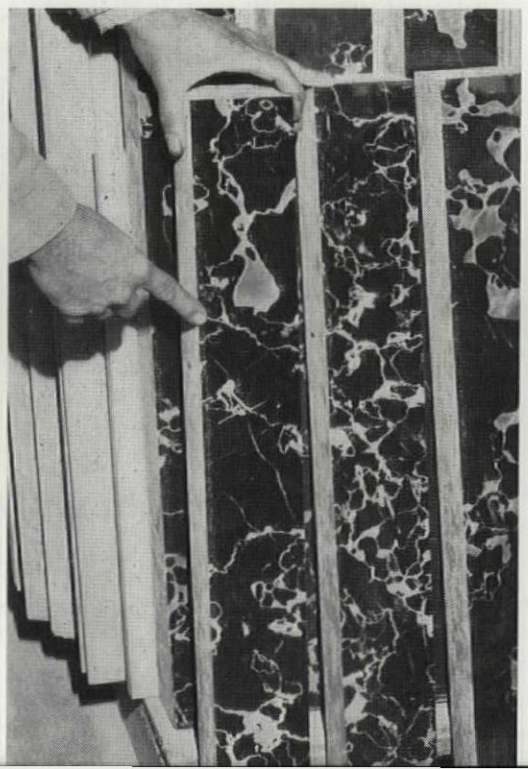
We have repaired slabs with as many as 10 separate fractures and the result has been a single unit with exceptional strength. In some cases, polished marble slabs have been broken in transit to customers; but the breaks were in new places, not in the repaired areas. For the marble industry, as well as others with joining problems, epoxy-resin adhesives offer a most effective solution.

[1] *Samples of C-14 supplied by Cycleweld Products Division, Trenton, Michigan.*

[2] *"Epon" resins produced by Shell Chemical Corporation.*

[3] *"Sticking" is a marble industry term for joining two broken pieces.*





In cold weather, marble is placed beneath battery of infrared heat lamps to speed up cure of epoxy resins (above). *One hour under the lamps is usually sufficient to effect cure. Marble blocks after repair* (right). *Worker points to crack which follows the original seam so closely that repair cannot be detected.*

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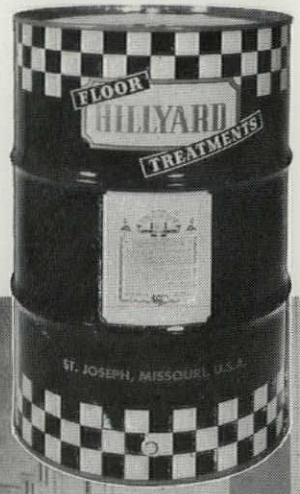

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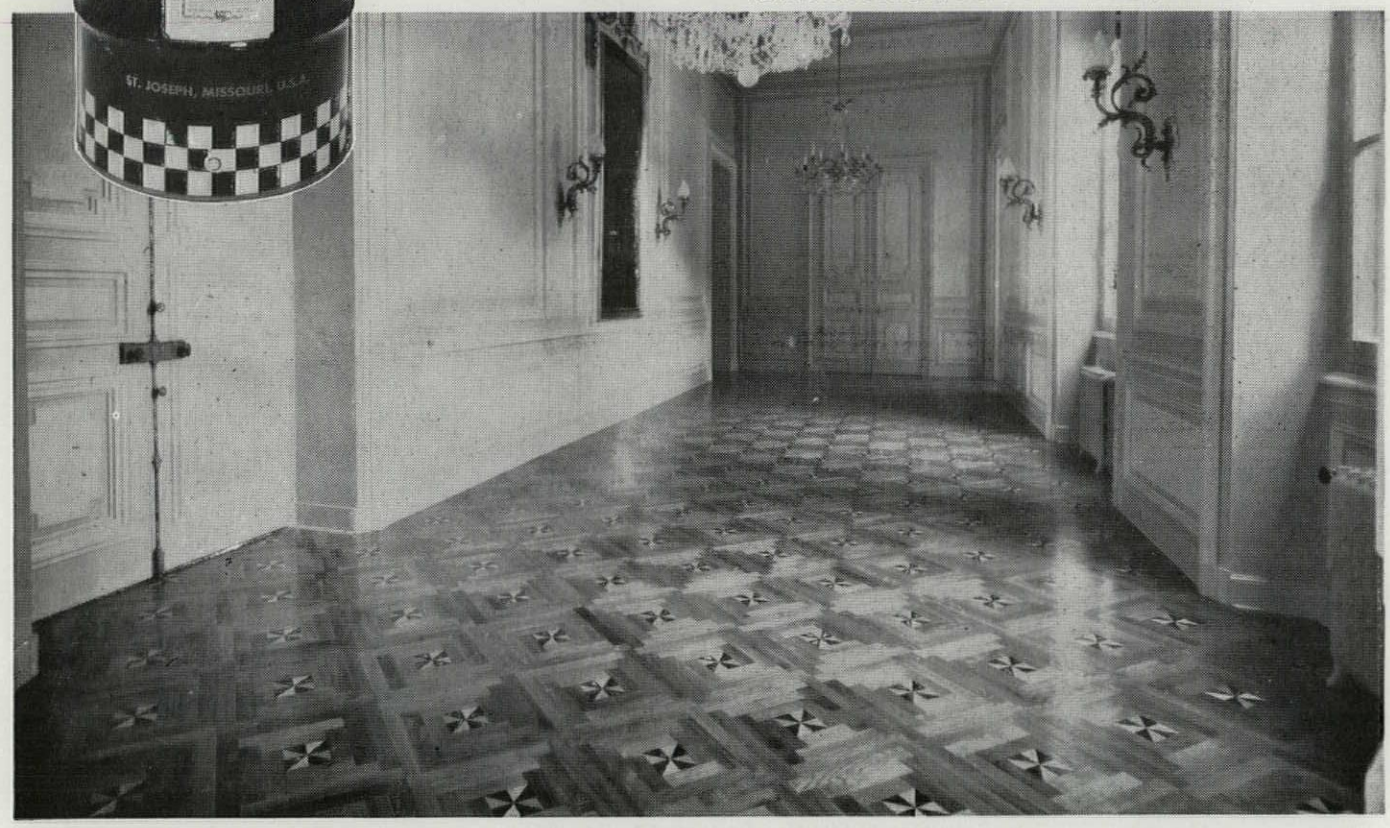

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Ventilating Roof Insulation by Harold J. Rosen

Built-up roofing failures are the result of many factors. However, one of the major causes can be the use of insulated roof assemblies. Entrapped air and water vapor in the voids of insulation, with certain changes in temperature produce blisters that contribute to roof failures. This observation was made by Building Research Advisory Board in a report entitled, *Roof Decks and Built-Up Roofing*, issued in 1955. One of the conclusions drawn by the BRAB report concerned the venting of roof assemblies, to permit the escape of moisture vapor. While vents and venting were mentioned throughout the report, responsible people in the roofing industry were not yet ready to advocate the general use of vents.

The Barrett Division, manufacturer of built-up roofing materials, has included in its architects' and engineers' reference manual for 1958, specifications for ventilating roof insulation. It has been recognized that moisture vapor gets into built-up roof assemblies and in order to prevent blisters and roof fractures, the vapor movement must be controlled by venting to a pressure release located at roof-deck peripherals.

Moisture can be entrapped in roof assemblies from any number of sources. It can be sealed within the insulation and within structural roof decks. Lack of a vapor barrier below the roof insulation, permits the migration and build-up of moisture from within the structure. Some of this moisture within the roof assembly can be sealed in during the construction period.

Moisture vapor sealed in and between built-up roofing, insulation, and vapor barriers has no means of escaping when rising outside temperatures occur, unless means are provided for venting. The air and vapor expands when the sun heats the roof; the pressure, if not otherwise relieved, enlarges the void by pushing the roof up. On cooling, the bitumen solidifies, preventing the blister from returning to its original size. The cycle repeats, the blister grows and eventually the roofing is ruptured. The Barrett Division recommends the following method for ventilating roof insulation assemblies for all heated buildings located in areas having average January temperatures of 40F which have not less than 1″ of roof insulation installed over vapor barriers. Apply a vapor barrier over the roof decking. Suitable vapor barrier membranes may be constructed by using 2 plys of 15-lb felt and bitumen.

At parapet walls, install and secure mechanically an acceptable vent panel composed of a wood fiber portland cement slab, approximately 2″ thick and 32″ wide. The upper edge of the panel shall be not less than 9″, plus the thickness of the insulation, above the vapor barrier at the low point of the roof. Its lower edges shall be fitted to conform with the incline of the roof and have complete bearing on the vapor barrier. Joints between panels shall be plum. The panels shall have a factory-applied ⅝″ nailable cement parge coat that covers the width of each panel to a point not less than 4″ from the upper edge to receive and retain required nailing of composition flashing.

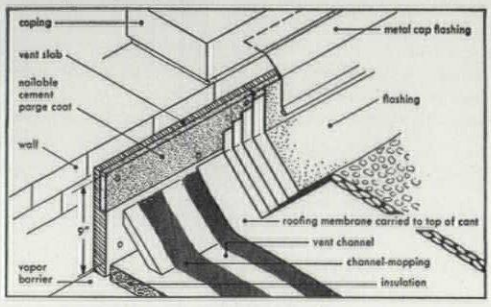
Metal cap flashing shall be installed above vent elements at parapet walls. Cap flashing shall extend into wall not less than 1½″ in a mortar joint or raglet which is not less than 3″ above top edge of the vent element. Metal cap flashing shall be carried down at an angle of approximately 45 degrees to outside edge of vent element and then turned down to form a cap extending not less than 4″ below the upper edge of base flashing.

Over the vapor barrier, apply a heavy uniform coating of bitumen and embed the roof insulation up to the vent element. Install a suitable cant against the vent element and secure mechanically to the deck. Channel mop the insulation to receive the built-up roofing. Such channels, between moppings of bitumen should be not more than approximately 6″ wide and should be in one continuous direction to parapet walls to face of cant up to vent element. The bitumen shall be spaced approximately 3″ apart. The built-up roofing shall then be applied in accordance with manufacturer's instructions. Roofing shall be carried up face of cant and cut off at vent element. Apply felt base flashing in accordance with manufacturer's instructions.

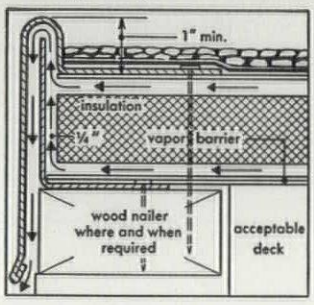
At edges requiring metal gravel stops, roof insulation shall be held back ¼″ from the outside edge of the deck. Apply vapor barrier and then embed insulation in a heavy uniform coating of bitumen. The insulation used must be rigid, nailable and of low compressibility to receive and retain required nailing of the roof flange of the metal gravel stop.

Over insulation at all peripheral edges requiring gravel guard, install pitch dams of metal compatible with the metal used for gravel stop. The horizontal flange of such pitch dams shall be 3″ wide, nailed through insulation with nails spaced not less than 4″ apart and having a shank of sufficient length to penetrate the insulation, vapor barrier and into the wood nailer not less than ¾″. The vertical leg of the pitch dam shall be of a height approximately ⅛″ less than the minimum height of the gravel stop. All joints of the pitch dam shall be made tight against the seepage of bitumen. Starting at right angles to the pitch dam, channel mop the roof to insulation and horizontal flanges of metal pitch dam as hereinbefore described. Over the roof membrane, install the metal gravel stops in a manner that will permit the metal pitch dam to be enclosed within the one inch gravel stop. The roof flange of the gravel stop shall be not less than 4″ wide and shall be secured with nails having shanks that will penetrate through insulation and into wood nailers not less than ¾″. Nails shall be spaced not more than 3″ apart. All flanges shall be primed and felt-stripped.

Venting at parapets.



Venting at edges.



garden court

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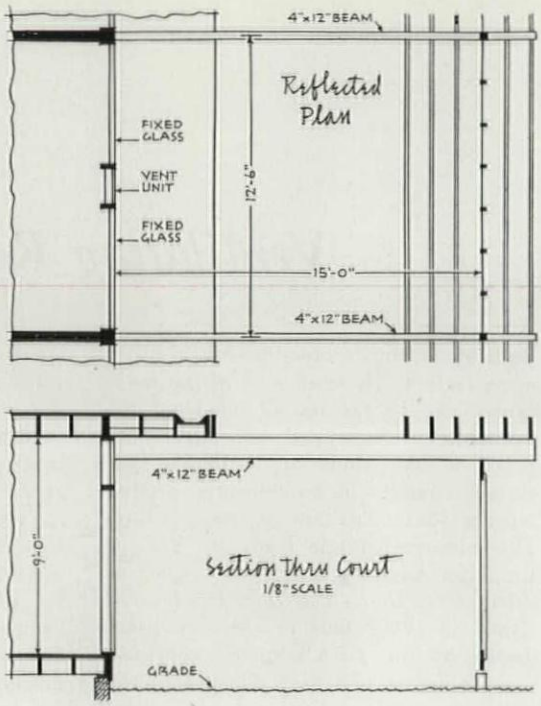
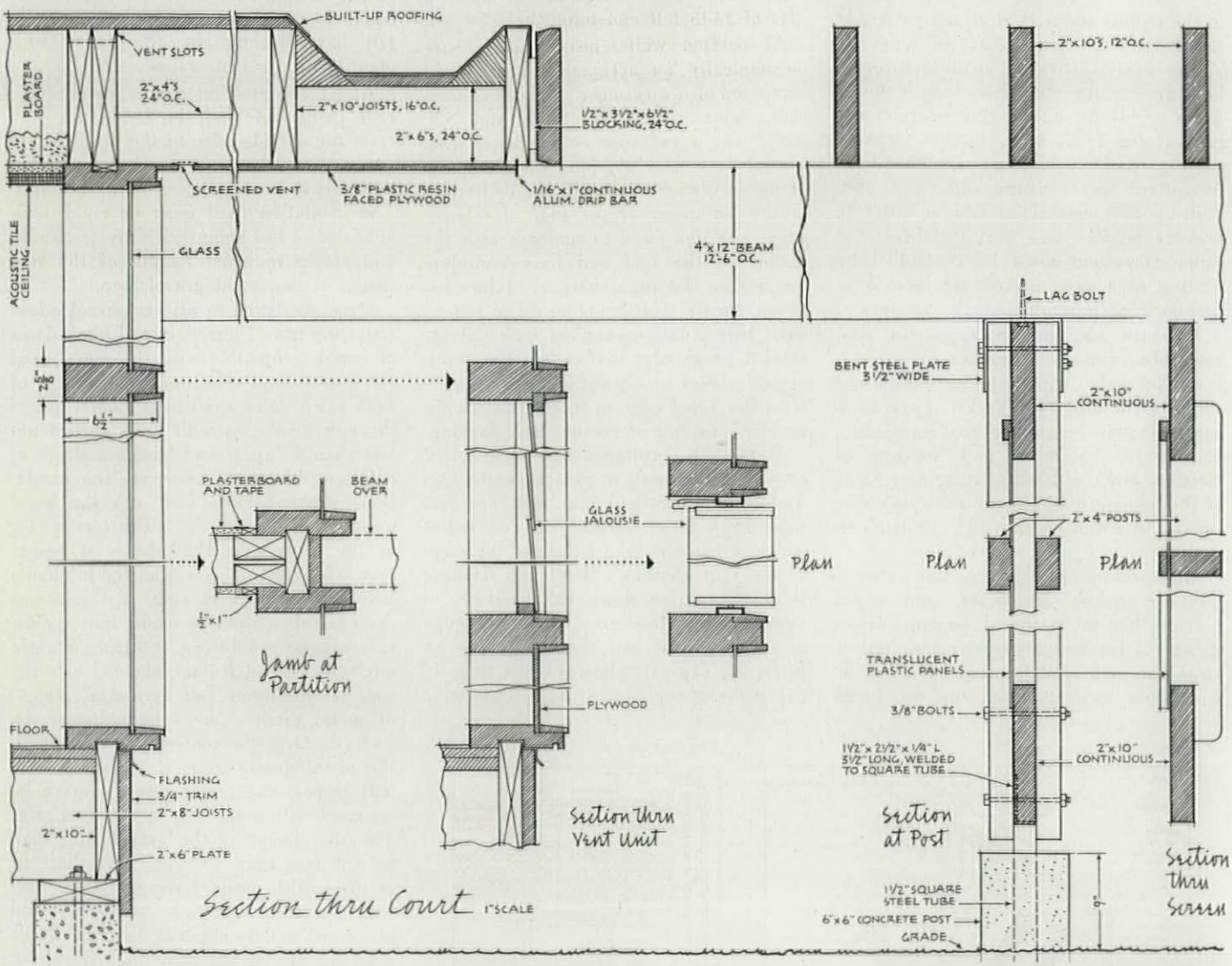
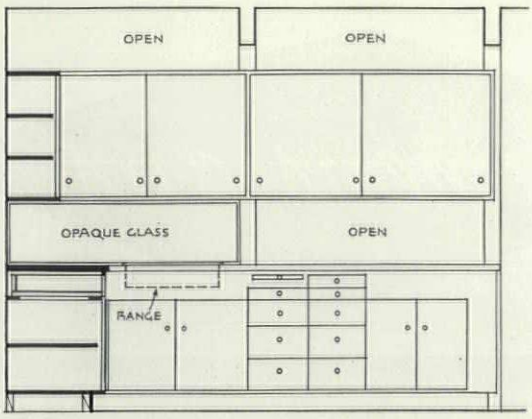




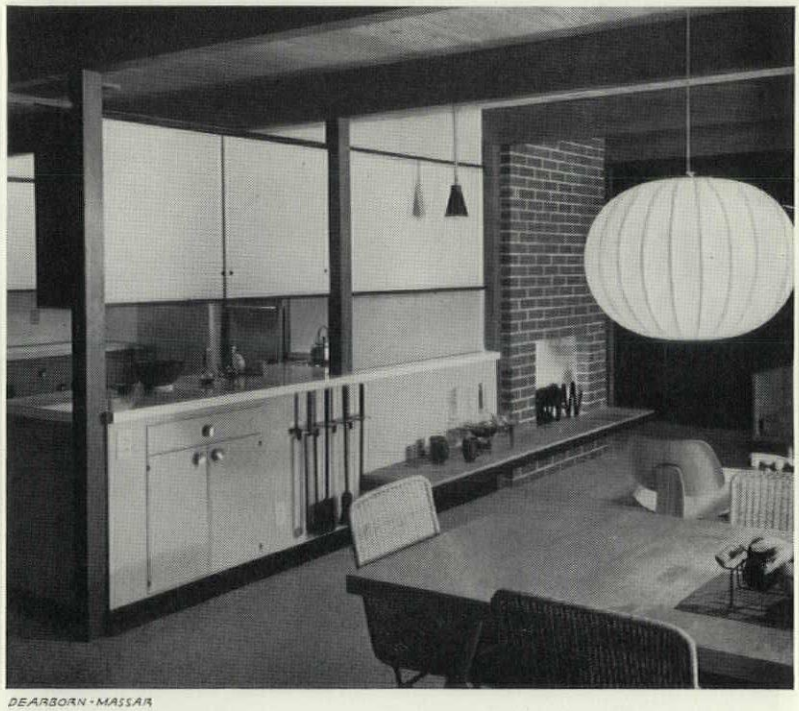
MEDICAL CLINIC, Seattle, Wash.

Paul Hayden Kirk, Architect

serve-through



Rear Elevation
1/4" SCALE



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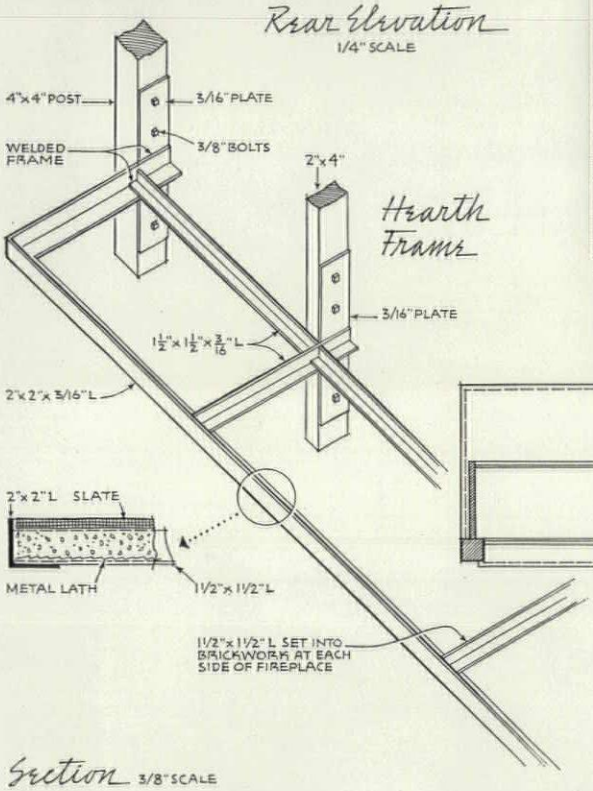
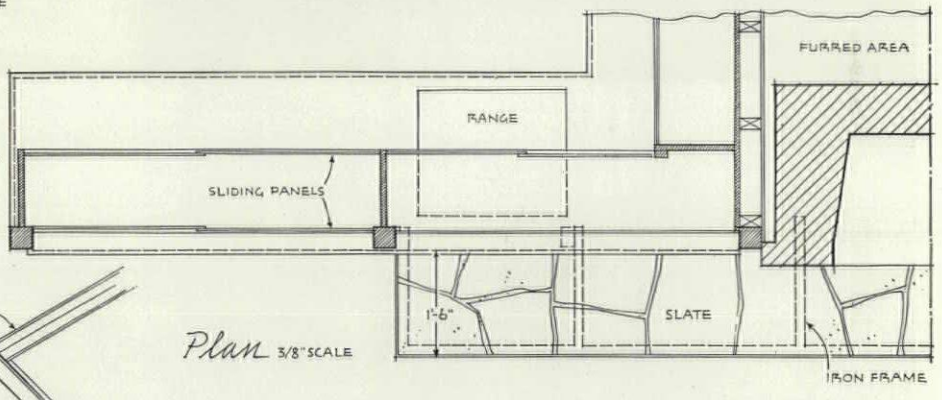
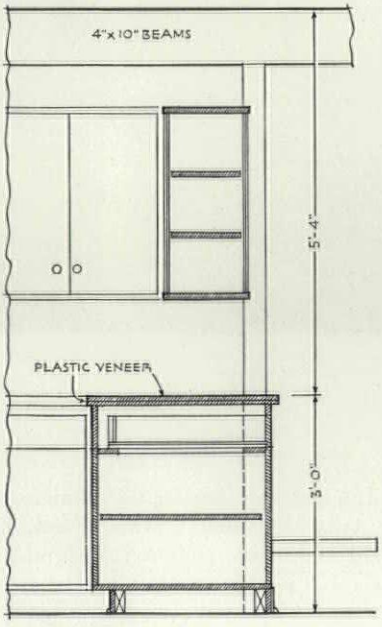


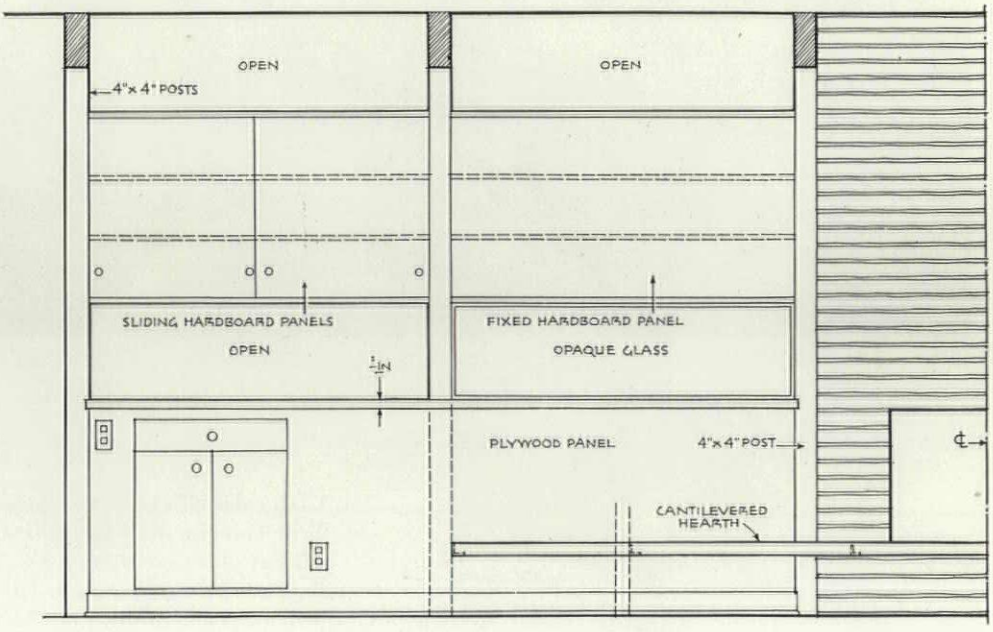


Plan 3/8" SCALE

Section 3/8" SCALE



Front Elevation 3/8" SCALE



RESIDENCE, Tacoma, Wash.
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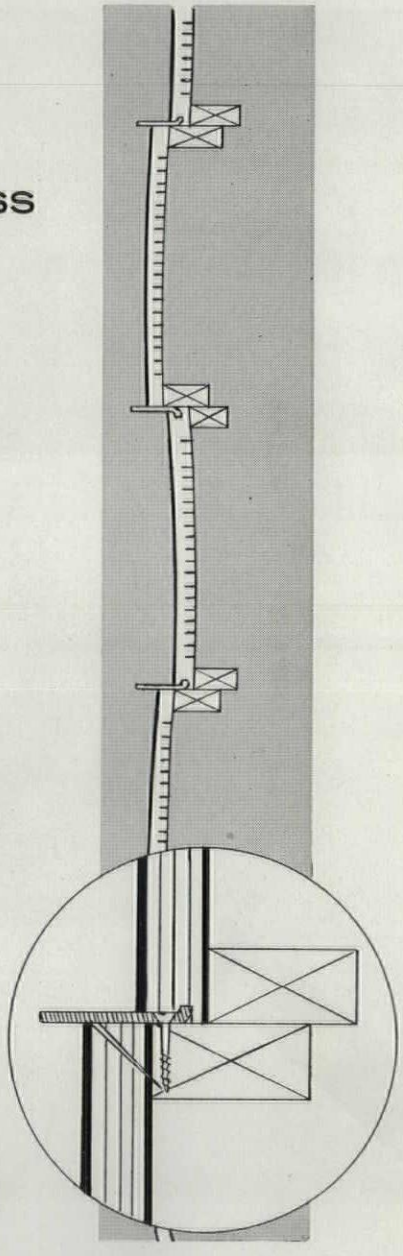
This serpentine wall is made up of 4′ panels of plywood scored or kerfed from the back for bending to proper radii. Using Formica Fast Dry Contact Bond Cement, 1/16″ decorative Formica and Formica backing sheet were veneered to either side of the formed plywood. The panels were shop assembled in sections and screwed and glued to vertical and horizontal framing.

Standard grades of Formica are completely satisfactory for any large radius of this type and no heating is required.

The brass divider strips were handled in accordance with the detail drawings.

A wide variety of Formica wall treatments can be obtained either through shop veneering or on-the-job application. Multicolor effects in random planking or geometric designs can be done with standard material.



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Louise Sloane

hospital areas

Almost as marked an advance as the evolution of "miracle drugs" (and very nearly as therapeutic) is the contemporary approach to interior design in hospitals. This is most effectively expressed in Naramore, Bain, Brady & Johanson's Swedish Hospital, where every effort was made to avoid a cold, sterile hospital atmosphere and to establish a functional, yet esthetically pleasant, environment for patient and hospital staff. Warm, muted colors, used in varying combinations; natural materials, texturally contrasted; sensitive design details—all contribute to comfortable security.

Photos: Chas. R. Pearson

client	The Swedish Hospital
location	Seattle, Washington
architects	Naramore, Bain, Brady & Johanson

data

cabinetwork, doors

Patients' Rooms, Cafeteria: birch/ Johnson's Millwork, Inc., 2319 S. Tacoma Way, Tacoma, Wash.

windows, partitions

Windows: Fentron Industries, Inc., 2801 Market St., Seattle, Wash.

Partitions: Aetna Steel Products Corp., 730 Fifth Ave., New York, N. Y.

equipment

Cafeteria: Dormann Hotel Supply Co., 1900 15 Ave. W., Seattle, Wash.

furniture

Patients' Rooms: Hill-Rom, Inc., Batesville, Ind.

Cafeteria: Thonet Industries, Inc., 1 Park Ave., New York 16, N. Y.

Chapel: oak/ Ransom-Raab, Custom Furniture, 4544 Union Bay Place, Seattle, Wash.

fabrics

Patients' Rooms: draperies/ S. Harris & Co., Los Angeles, Calif.

Cafeteria: Fiberglas draperies/ Dan Cooper, Inc., 30 Rockefeller Plaza, New York, N. Y.

Chapel: pew pads/ Jack Valentine, Inc., 32 E. 57 St., New York 22, N. Y.

lighting

Patients' Rooms: installed/ Seattle Lighting Fixture Co., 222 Second Ave., Seattle, Wash.; portable/ Hill-Rom, Inc.

Cafeteria: Columbia Electric & Mfg. Co., 2310 N. Fancher Way, Spokane, Wash.

Chapel: Gotham Lighting Corp., 37-01 31 St., Long Island City, N. Y.

walls

Patients' Rooms: enameled plaster.

Cafeteria: enameled plaster/ Bubb brick planter and end wall/ Washington Brick & Lime Co., Spokane, Wash.

Chapel: "Flexwood"/ United States Plywood Corporation, Flexible Materials Div.; grasscloth/ Oriental Grasweaves and Burlap Wall Papers, Inc., Oakland, Calif.

ceiling

Patients' Rooms: enameled plaster.

Cafeteria: "Sonofaced Fiberglas" tile/ Owens-Corning Fiberglas Corp.

Chapel: Enameled plaster.

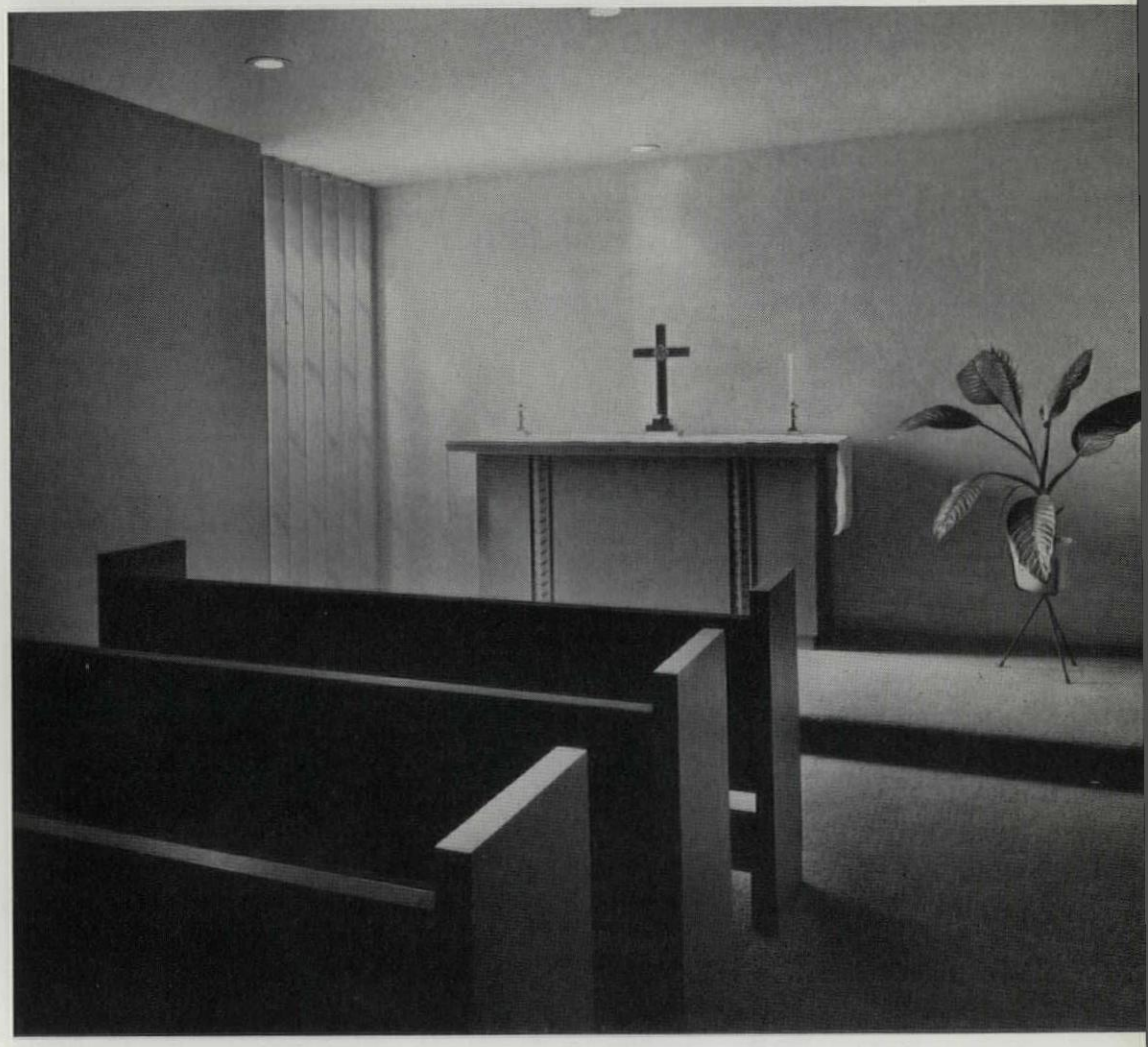
flooring

Patients' Rooms, Cafeteria: vinyl tile/ Goodyear Tire & Rubber Co., 1144 Market St., Akron, Ohio.

Chapel: carpet/ Don Frazier, Los Angeles, Calif.

accessories

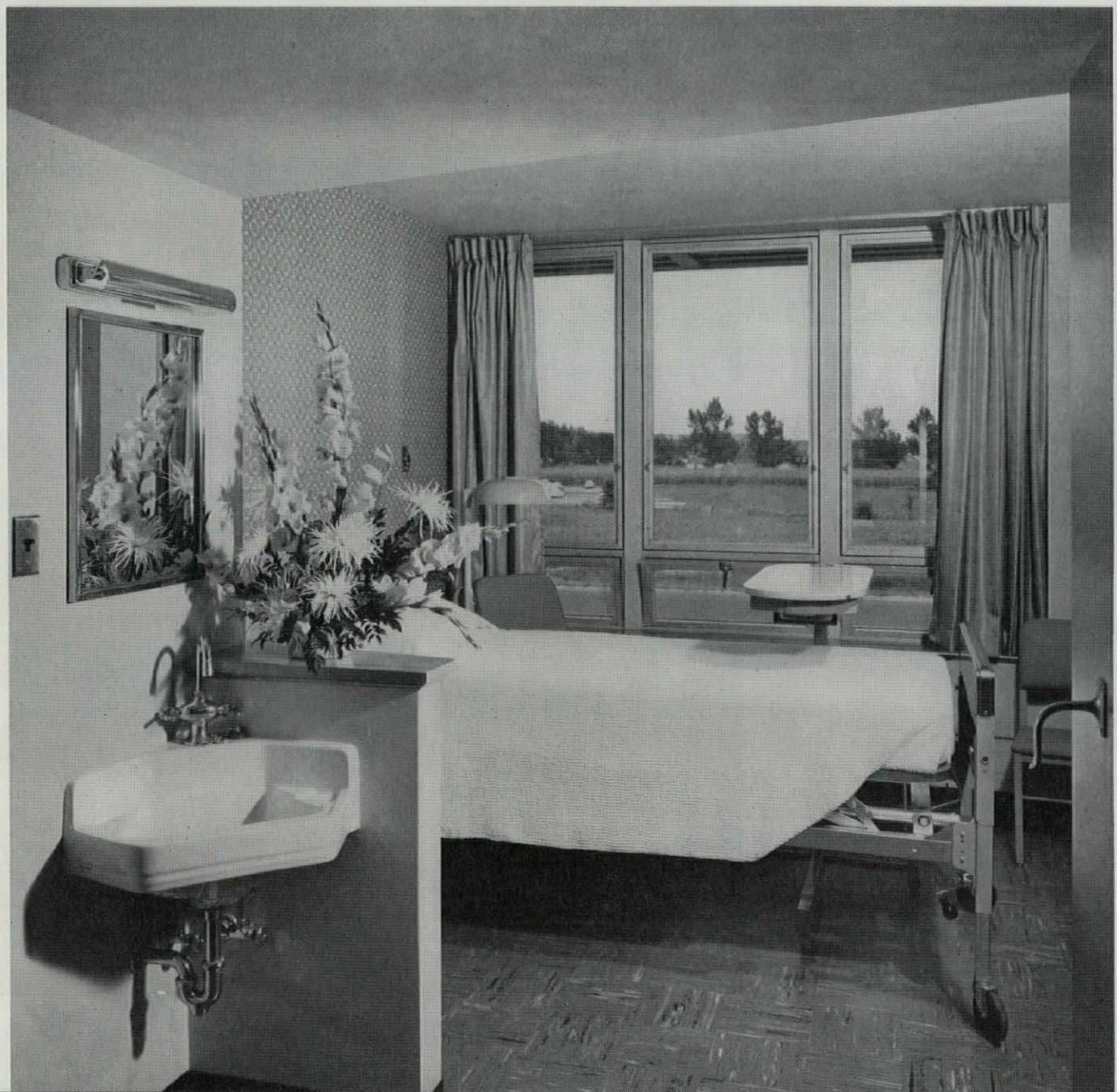
Patients' Rooms: Hall-Mack Co., 1380 W. Washington Blvd., Los Angeles, Calif.

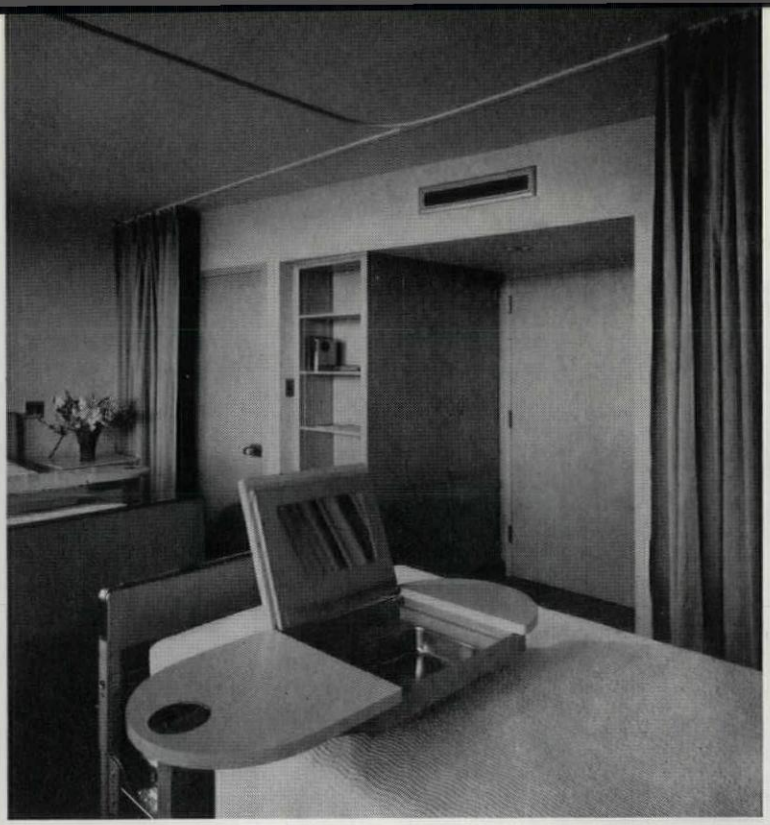


hospitals

Since the Rockford Hospital was conceived as a "hotel for people who are ill," prime design consideration was focussed on patients' rooms, both private and semi-private. Turning the average two-bed hospital room 90 degrees, so that the long wall became the window wall, made it possible to place patients' beds end to end, allowing both equal view through windows that run from ceiling to within 27 inches of the floor. A ceiling-hung curtain, on flush-mounted track, permits privacy for one patient and also use of lavatory and built-ins by the other. In public areas, as in patients' rooms, color, materials, and furnishings are freely used for warmth and livability.

Photos: Hedrich-Blessing





client	Rockford Hospital
location	Rockford, Illinois
architects	Perkins & Will
associates	Hubbard & Hyland

color plans

Patients' Rooms: Geometric wallpaper in buff, gray, greens, with other walls painted to match paper background; window draperies, green; divider curtain, gray.

Nurses' Station: Driftwood-finished birch cabinetwork; walls painted Honey Yellow.

Entrance Lobby: Normandy Gray plaster walls; vestibule wall in full range of red face-brick; gray asphalt-tile floor; furniture, light brown wrought-iron with straw-colored vinyl upholstery; draperies, natural matchstick bamboo.

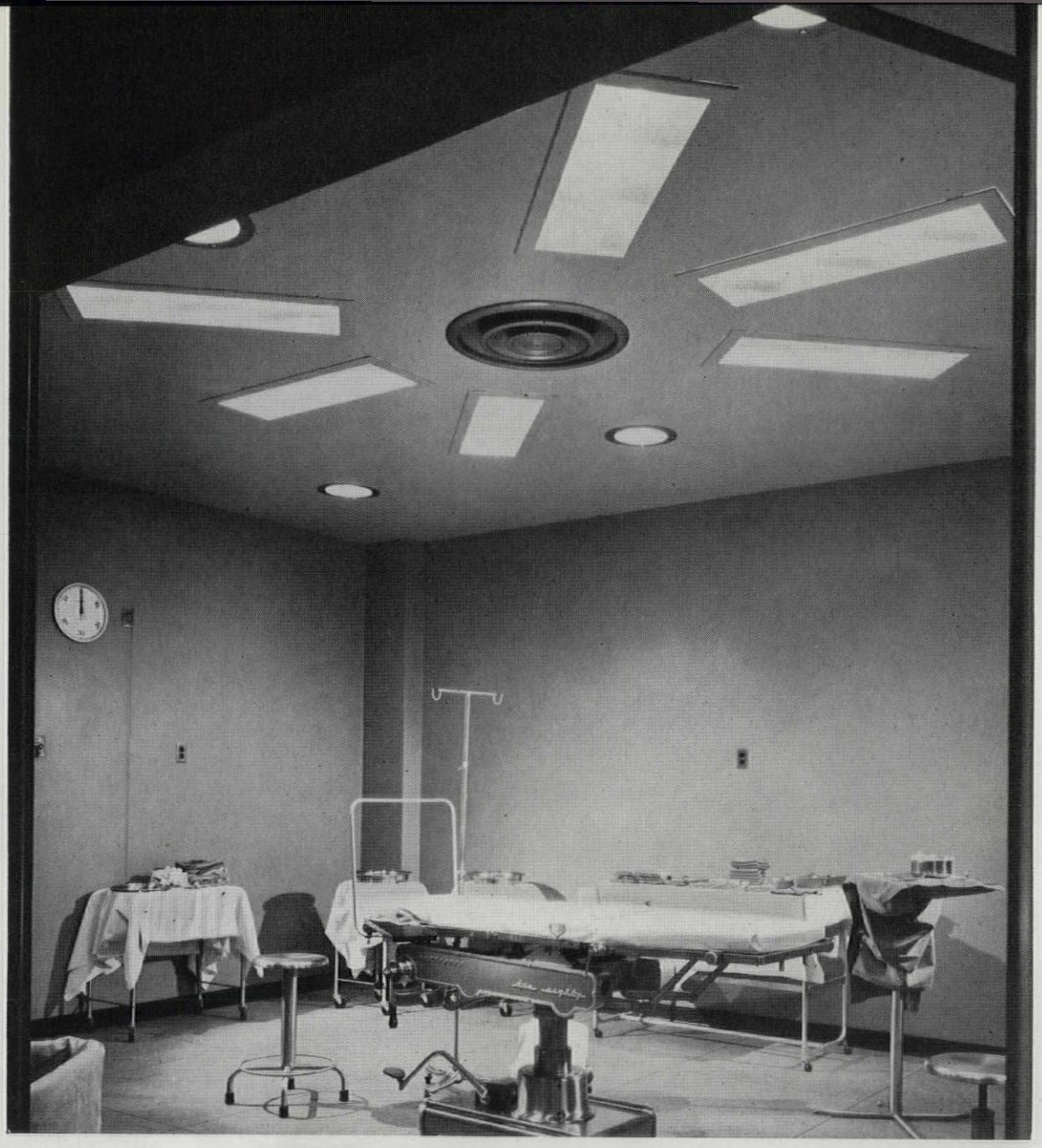
Waiting Room: floor, buff asphalt tile; walls, buff Mankato; stone; draperies, natural matchstick bamboo; furniture, natural birch, with upholstery of deep yellow and dark olive green.

Upper Floor Lobby: walls, Normandy Gray with Swedish Red behind desk; counter, driftwood-finished birch; draperies, natural matchstick bamboo; furniture, wrought-iron, upholstery in rust, straw, turquoise.

Operating Room: floor, carbon-black conductive terrazzo; walls, green.

hospitals

Rockford Hospital (*continued*)



data

cabinetwork

Storage Cabinets: Wood Metal Industries, Inc., Lancaster, Pa.

doors, windows

Doors, Millwork: Ebenreiter Woodworking, Sheboygan, Wis.

Steel Door Frames: Overly Manufacturing Company, Greensburg, Pa.

Windows: The Adams & Westlake Co., Elkhart, Ind.

walls, ceiling, flooring

Service Area Corridors; Operating Room: "Kalistron"/ plastic sheeting/ United States Plywood Corporation, Flexible Materials Div., Box 85, Shelby Station, 2921 S. Floyd St., Louisville 17, Ky.

Plaster Walls: "Coralux"/ perlite aggregate/ F. E. Schundler & Co., Inc., 504 Railroad St., Joliet, Ill.

Ceiling: "Gold Bond"/ acoustical tile/ National Gypsum Co., 325 Delaware Ave., Buffalo 2, N. Y.

Asphalt-Tile Flooring: Kentile, Inc., 58 Second Ave., Brooklyn 15, N. Y.

furniture, fabrics

Lobbies, Waiting Rooms: wrought-iron/ Lee L. Woodward Sons, Owosso, Mich.; coffee-tables/ Huntington Chair Corp., Huntington, W. Va.

Patients' Rooms: Simmons Co., 300 Park Ave., New York 22, N. Y.

Upholstery: "Naugahyde"/ U. S. Rubber Co., Naugatuck, Conn.

Window Curtains: "Fiberglas"/ Owens-Corning Fiberglas Corp., Nicholas Bldg., Toledo, Ohio.

Drapery Track: Jiffy Join, Inc., 153 W. 23 St., New York 11, N. Y.

lighting

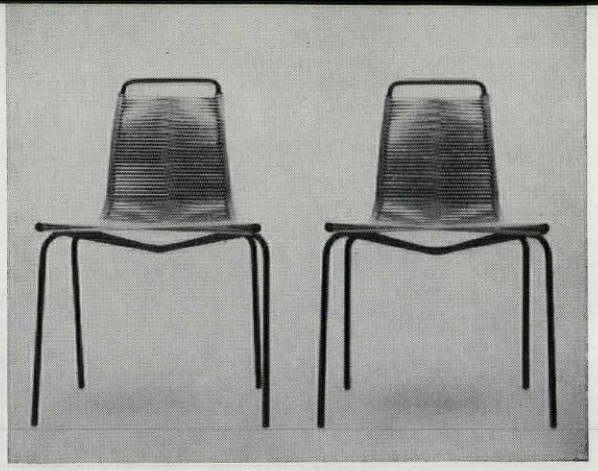
Installed: Day-Brite Lighting, Inc., St. Louis 7, Mo.

Operating Room: directional recessed fixtures/ Holophane Co., Inc., 342 Madison Ave., New York 17, N. Y.

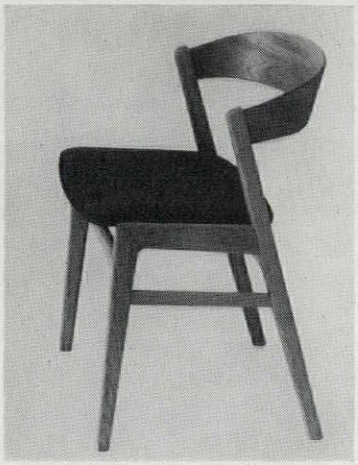
equipment

All: American Hospital Supply Corporation, Evanston, Ill.

p/a interior design products

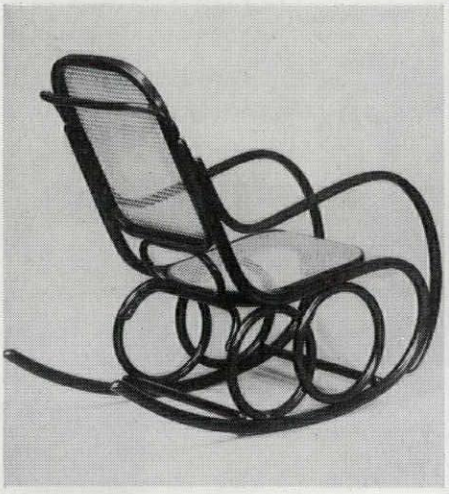


Side Chair: (above) black steel frame, woven back and seat of natural-hemp flagline/ **retail:** $36/ also available in chrome-plated steel, with seat and back of cane/ **retail:** $51/ designed by Paul Kjaerholm/ from new collection of Scandinavian designs/ **Georg Jensen, Inc., 667 Fifth Ave., New York 22, N.Y.**



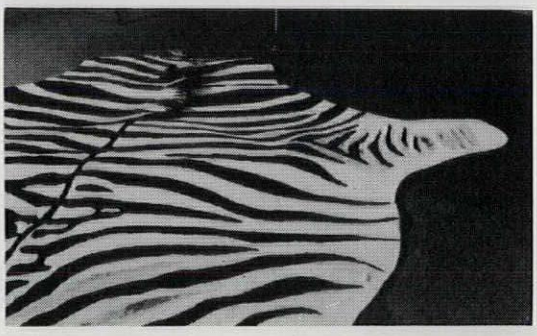
Pull-Up Chair: (left) beech, in walnut or dark-smoked-oak finish, with upholstered seat/ 20" wide, 21¾" deep, 18" seat, 29" back/ **retail:** $42, in customer's own fabric/ **Dux, Inc., 390 Ninth St., San Francisco 3, Calif.**

Bucket Lounge Chair: (above) button-tufted, leather-upholstered/ satin-polished cast-aluminum base with leveling feet/ stationary or swivel/ **retail: $695/** designed by Ward Bennett/ **Lehigh Furniture Corporation, 16 E. 53 St., New York 22, N. Y.**

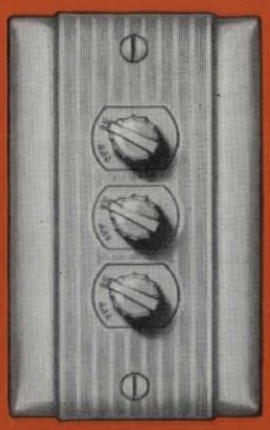


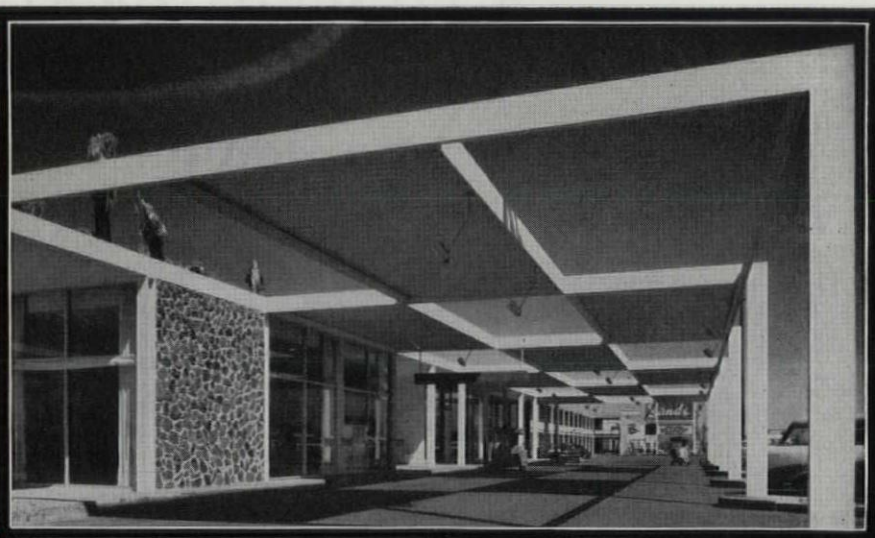
Bentwood Rocker: (above) 1890 Thonet design reproduced by hand from original molds/ steam-bent beechwood in natural, walnut, or ebony finish/ cane seat and back/ imported/ **retail:** $190/ **Charles W. Stendig, Inc., 600 Madison Ave., New York 22, N.Y.**

Zebra Skin: (below) genuine African zebra/ usable as rug, wallpiece, upholstery/ available in three sizes/ standard, approximately 60"x45"/ **retail:** $67.50; medium, 78"x54"/ **retail:** $87.50; large, 96"x64"/ **retail:** $117.50/ **Usher of Usher Co., 505 Fifth Ave., New York, N.Y.**



Drapery Fabric: (right) "Views of Paris" by Steinberg/ black on white opaque "Fiberglas"/ **Witcombe - McGeachin, Inc., 509 Madison Ave., New York, N.Y.**





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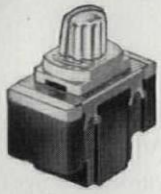

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A.I.A. FILE NO. 15-M-1

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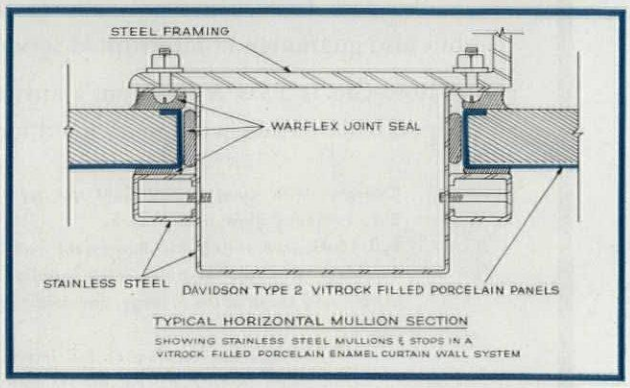

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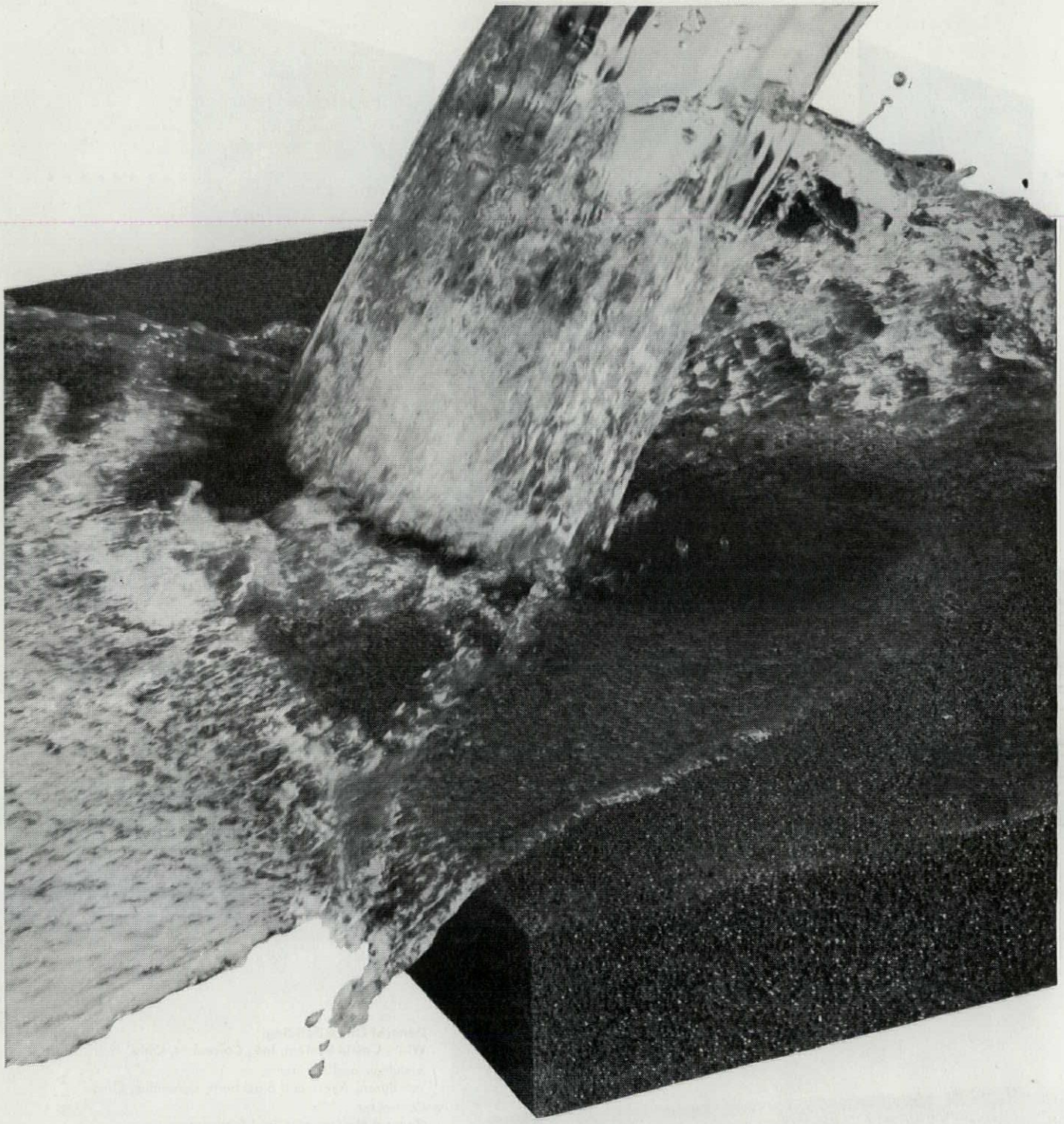

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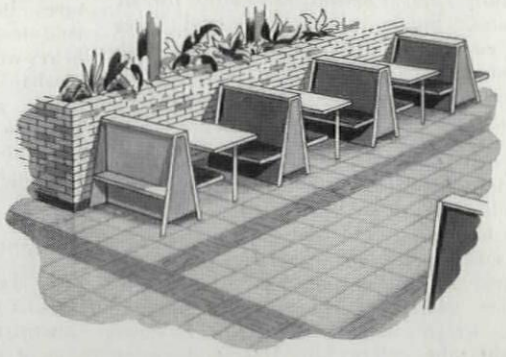

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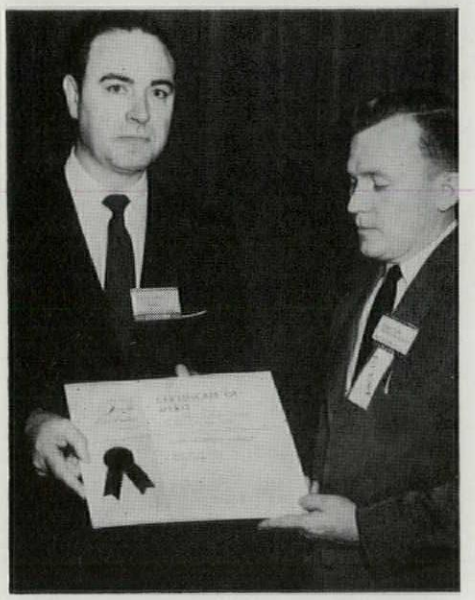
p/a manufacturers' literature



Recipient of award in "1957 Ideas for Home Builders Contest," sponsored jointly by Producers' Council, Inc. and National Association of Home Builders, was Timber Engineering Company for booklet Design and Use of TECO Trussed Rafters *(reviewed in this column, starred item, MARCH 1958 P/A). Certificate of Merit was presented* (left) *to Mortimer B. Doyle, executive vice-president of National Lumber Manufacturers and chairman of board of directors of Timber Engineering Company, by Francis X. Brown, Executive Assistant of Producers' Council at NAHB convention.*

202. Design and Use of TECO Trussed Rafters, *AIA 19-B, 24-p. Timber Engineering Company.*

★ *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

158. Polar Pak, 4-p. brochure discusses waterless central air-conditioning unit. Complete package may be installed in attic, crawl space, or outside home. Unit can be connected with distribution system using prefab duct or perimeter systems, or can be tied into existing forced-air system. Two-compressor model offers constant humidity control as well as cooling for all climates. Single-compressor model gives 2-hp cooling capacity for operation with forced-air distribution system. Components pictured; specifications and dimensions given. The Colman Co., Inc.

159. M & L Fuel Oil Heaters, 20-p. booklet describes fuel-oil heaters for schools, institutions, housing projects, office buildings, industrial plants. Data for determining oil-heater capacities for standard use and unusual applications is given. Heaters described by capacities, dimensions, weights—2-pass, 6-pass, cross-flow, straight tube, safety, pipe line, tank-outlet or suction-oil types of heaters included. Diagrams give installation information. Manning & Lewis Engineering Co.

★ **160. Lennox Landmark,** 20-p. booklet describes new year-round air conditioning units. System features up-flow of air by using one blower for both heating and cooling—sound, air resistance is reduced. Basic elements of system are in separate, matching cabinets—air filters and blower, heating section (gas, oil, or electric resistance heat), cooling coil or combination heating-cooling coil using heat pump. Various combinations of these units make all types of conditioned air possible. Detailed drawings, photos show operation. Specifications, performance data, descriptions of components given. Lennox Industries, Inc.

161. Central-Plan Air Conditioners—Flexazone, AIA 30-F-2, 4-p. folder furnishes data for horizontal, vertical unit for multizone heating, cooling, ventilating. Can be floor mounted or ceiling suspended; large doors reduce maintenance time, are felt-sealed to prevent air leakage. Lubrication fittings, damper motors on outside. Nine models, 32 arrangements, offer various capacities. Zone can be changed in the field by varying damper sections. Features include corrosion-resistant, galvanized-steel housing, glass-fiber insulation; heavy-wall copper tubing, aluminum fins mechanically bonded into fin collars; motor and drive; high- or low-velocity filter sections. Detail drawings, tables show available models. Drayer-Hanson, Div. of National-U.S. Radiator Corp.

construction

292. Lone Star Masonry Cement, 18-p. booklet discusses use and value of masonry construction. Properties of this particular cement are detailed with photos, data, and tables. Section given to performance shows photos of actual applications, with some text explanation. Reference tables for estimating quantities given. Strength, durability, workability are stressed. Lone Star Cement Corp.

★ **293. Kaiser Aluminum Industrial Building Products,** AIA 12-C, 16-p. booklet concerns roofing and siding for industrial construction. Advantages of aluminum construction include: light weight, strength, durability, versatility, economy, low maintenance. Detail drawings show ribbed siding—4″ and 8″ pitch, 5.33″ pitch; also v-beam roofing and siding, industrial corrugated roofing and siding, with weight and coverage tables. Application for sandwich walls given. Installation details, flashing and accessories, typical uses, specifications included. Kaiser Aluminum & Chemical Sales, Inc.

294. M-Floors, AIA 17-A, 16-p. booklet contains information on Cel-Beam Sections for light weight, electrified, cellular-steel sub-floors. Sections consist of flat plate with two roll-formed hat section beam members. Sections are 24″ wide, can have members furnished in several depths. All members are 6″ wide. Space for electrical wiring and telephone cables is provided. High strength/weight ratio featured; galvanized finish and roll-formed structural-gage steel used. Full description, engineering data, section property tables, load tables, specifications given. Framing detail drawings, electrification, installation and welding procedures given. The R. C. Mahon Co.

295. Kawneer Unit Wall, AIA 17-A, file folder contains data for prefab curtain-wall units. Modular units are offered in standard or optional types, sizes, arrangements. Features are split mullion design to allow expansion and/or contraction, puttyless glazing, concealed fastening, flush interior frame surfaces, operable sash, economy. Construction details, specifications, installation instructions (shown by drawings), charts, drawings of individual components are included in folder. Kawneer Co.

296. Angle-Rite, 4-p. brochure describes 3″ metal fastener with angled points, used for locking gypsum lath at inside corners and ceiling angles. Unit gives floating corners, eliminates cracks usually found from expansion and contraction of studs and joists. Nailing is rarely required. Angle should be placed every 16″ in hori-

zontal and vertical angles, and where pieces intersect. Photos show effective usage. Butcher & Hart Mfg. Co.

297. Structoglas "A", AIA 26-A-9, 8-p. catalog features reinforced-plastic corrugated building panels and flat panes. Results of exposure tests illustrate weather resistance; mechanical and physical properties, chemical resistance, colors and finishes given. Specifications and technical data included. Installation instructions with detailed drawings shown for sidewall mounting, roof construction, patio design, skylight construction, continuous windows. Fasteners and fastening methods, window glazing details included. Structoglas Div. of International Molded Plastics, Inc.

298. Insulated Porcelain Enamel Panels, 20-p. manual discusses development of curtain-wall construction, stresses advantages of improved methods and modern metal units. Featured type of box panel, mechanically assembled and tape sealed, is described as to uses, fabrication, lamination process. Interior and exterior types illustrated by drawing, description. Installation, moisture control properties given. Insulation is preformed glass fibers; porcelain-enamel finishes available in range of colors, degrees of reflectivity, textures. Modifications for special applications can be manufactured, notably type called U-16, for greater rigidity, improved fire resistance. Shapes and sizes, other modifications, gasketing materials discussed; specifications given. Erie Enameling Company.

299. Lascolite Fiber Glass Building Panels, AIA 26-A-9, 4-p. booklet concerns glass-fiber panels reinforced with polyester resin for application in home, industry, farm buildings. Seven standard shapes available; special sizes on request. Advantages of translucent panels include diffusion of light, light weight, high strength, resistance to acids and alkalis, fire. Fireblock panels—self-extinguishing—obtainable. Structural details and types of installation given—factory windows, luminous ceiling, patio roof, partition, side lights, skylight, railings, corner assembly. Product data—panel shapes, sizes, colors—and specifications included. Lynch Asbestos Co.

201. New Horizons in Exterior Design —Romany Spartan Panels, AIA 17-A, 4-p. illustrated brochure describes four standard types ceramic-tile curtain-wall panel available in various thicknesses. Series 1500 has ceramic-tile exterior face, core of reinforced lightweight-concrete cast monolithic with styrofoam insulation. Series 1600: exterior face — ceramic tile; skin — aluminum; insulation — styrofoam. Series 1700: exterior face—ceramic tile; skin—aluminum; insulation—glass foam. Series 1800: face—ceramic tile; skin—aluminum or galvanized steel; core—aluminum or paper honeycomb. Each type shown by drawing; data included for various thicknesses of insulation, panel, psf, "U" value. Panels furnished in all sizes to 5′ x 12′; mounting constructed to fit standard or special frames. Sixty colors—variety of finishes, textures available. Standard dark gray, weatherproof grout. Small unit—1″x1″, 1″x2″, 2″x2″— tile used. Ceramic Tile Panels, Inc.

Horn Construction Data Hand Book, 108-p. book gives general information for architects, engineers. Subjects covered include calking and glazing compounds, defects in painting, floor materials, how to measure flat surfaces, moisture repellents, admixtures, paints and coatings for interior and exterior application, roofing products, products and purpose indexes. Featured material: construction details, measuring tables; description, use, covering capacity, color of various products. Write direct on letterhead: A. C. Horn Co., Inc., 252 Townsend St., San Francisco 7, Calif.

doors and windows

★ **335. Kennatrack Gliding Door Hardware,** AIA 27-A, 32 p. booklet concerns hardware for interior gliding doors, folding doors, packaged units. Nylon wheels allow easy gliding action with little noise. Features include expansion sleeve mounting, self-aligning wheels, adjustable precision ball-bearing hanger, step-up design for cabinets. Various series available for specific installations. Drawings, photos, specifications included; numerous accessories are available. Kennatrack Corp., subsidiary of Ekco Products Co.

336. Pella Wood Folding Doors, 8-p. booklet of folding door line. Available in pine, birch, oak and Philippine mahogany woods, doors are noted for durability. Features include concealed track, head stop with spring-action catch, free-riding hangers, wood handle and spring latch, spring hinges, laminated panels. Dimensions for detailing, size chart, recessed application drawings given. Construction details and specifications. Rolscreen Co.

337. Aetnapak Door-and-Frame Packages, 12-p. booklet announces 1958 line of complete package door-and-frame units, including hardware. Sixteen basic door types of swing and sliding hollow-metal doors allow various combinations. Flush-door type is featured. Specifications for doors and door frames, hardware, painting and glazing data given. Construction details show features. Aetna Steel Products Corp.

338. Sandwich Panel Skylights, AIA 12-J, 4-p. booklet gives data on lightweight sandwich panels, having face sheet of glass-fiber polyester sheets with specially-processed weathering surface. Curb-mounted, surface mop-in, flush-deck mop-in types available. Panels have widths of 24″, 36″, 48″, and lengths varying from 2′ to 10′; thicknesses from ½″ to 6″. Light transmission available from 5% to 75%, depending upon specification. Various core materials available — patterns shown by photos. Mounting drawings included. Architectural Plastics Corp.

electrical equipment, lighting

447. How Fluorescent Lamp Ballasts That Bear the CBM Emblem Insure Your Lighting Investment, 16-p. booklet lists benefits found in items tested by the Electrical Testing Laboratories, Inc. for the Certified Ballast Manufacturers. Conformance with CBM specifications provides good lighting performance—positive starting, high-level illumination, quiet action assured lamp life, etc. Specifications are detailed. Certified Ballast Manufacturers.

448. What to Look For in School Lighting, 8-p. brochure lists essentials of good lighting in classrooms. Recommended lighting levels are given for various types of classrooms. Discussion of what makes comfortable lighting includes such points as properly shielded light source, uniformity of diffusion, balanced fixture and room brightness contrasts. Economics of lighting included, as well as photos of installations in schools. Garcy Lighting Div., Garden City Plating & Mfg. Co.

449. Fluorescent Lamp Ballast Data Book, 14-p. publication includes information on ballast circuits—preheat, slimline instant start with lead lag or series sequence circuit, rapid start. Each is shown by drawing. Fluorescent lamp ballast con-

(Continued on page 190)

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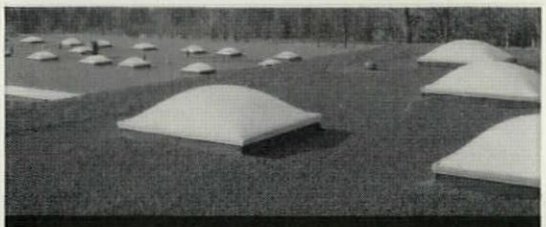
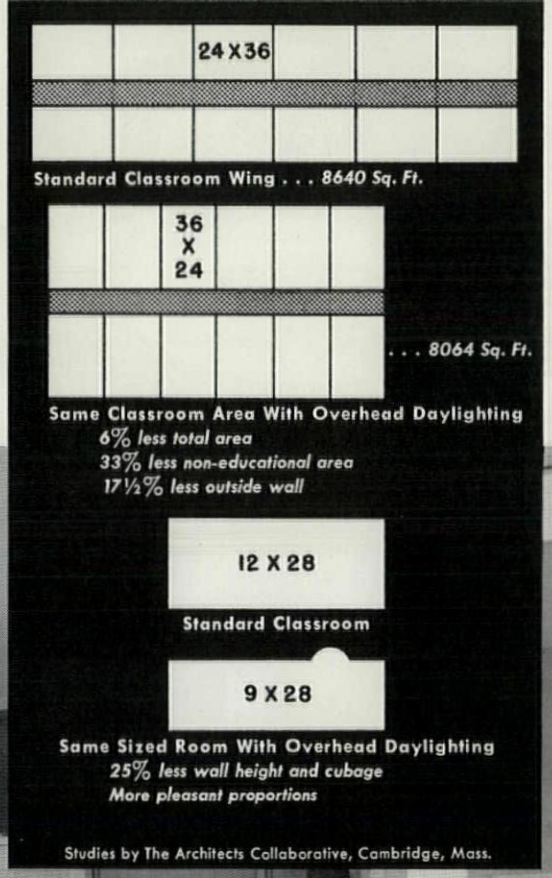
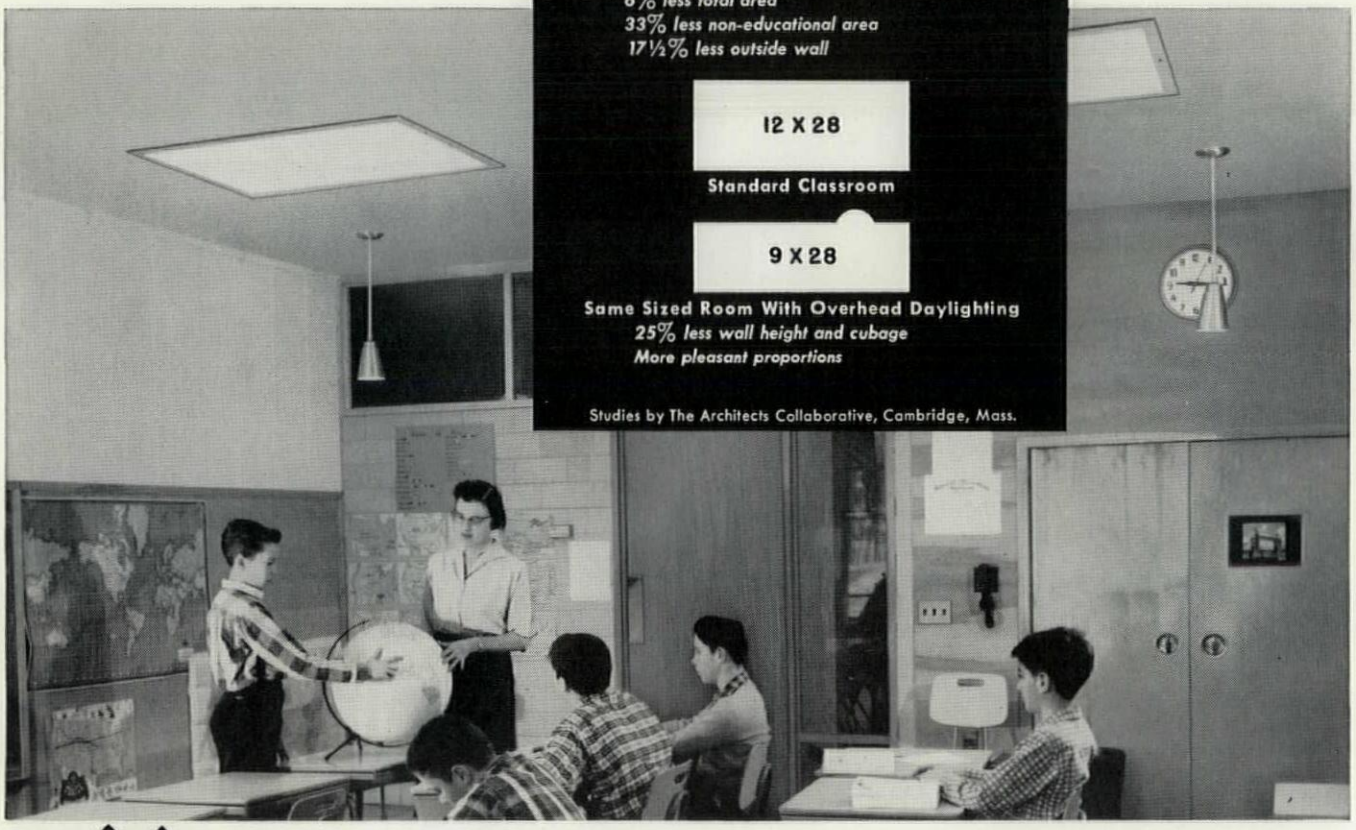




The Architects Collaborative specified, as a standard, Wascolite Skydomes® throughout the John Eliot Elementary School, Needham, Mass.



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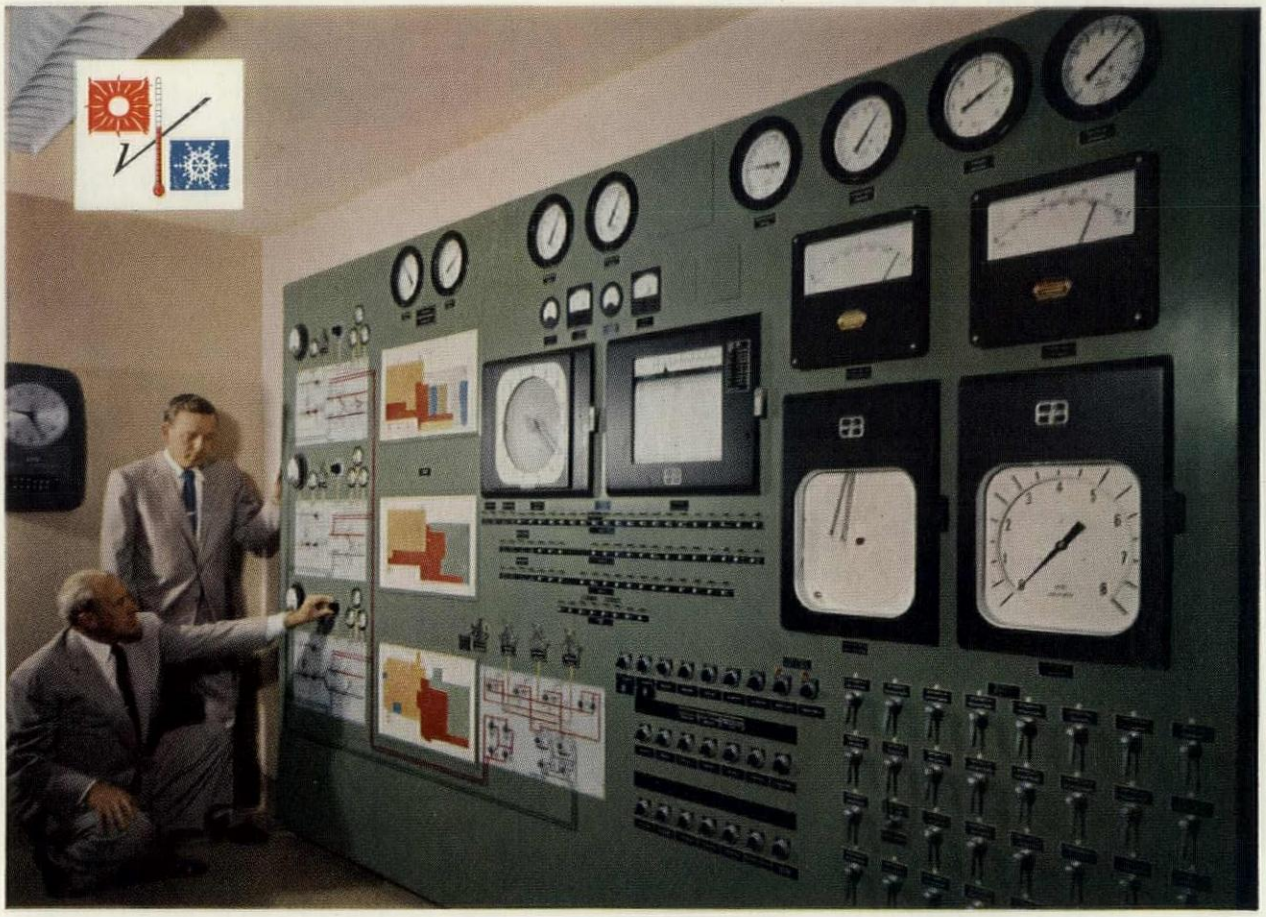

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p/a manufacturers' literature

(Continued from page 185)

struction illustrated by photos. Installation and operational data given—supply voltage and frequency, radio interference, ventilation, and cold weather operation. Tables for testing and quiet rating chart featured. Ballasts meet or exceed CBM specifications. Advance Transformer Co.

450. Plugmold Multi-Outlet Systems, 6-p. brochure covers system of rigid-steel cover and base with outlets at frequent intervals. Can be installed in continuous strip along any surface; painted to match decor. Benefits listed include: easy installation with few fittings, ability to adapt to special applications, flexibility. Available in several types: 20 amp in multi-outlet or combination multi-outlet, baseboard, metal raceway for home, office, store use; 30-amp series accepts devices in raceway—suited to industrial, commercial applications; 50-amp system designed primarily for test benches, laboratories, assembly lines. Specifications, fittings, given. Photos of installations in home, industry. Special 15-amp series designed for light service. Accessories pictured. The Wiremold Co.

451. Lightolier Style Book, 98-p. catalog showing hundreds of fixture styles for commercial or residential applications. Includes recessed, pendent, ceiling-mounted, floor, and wall-mounted models to complement traditional or contemporary room decor. Sketches show fixtures installed in exterior and interior settings where such factors as sloping ceilings, exposed beams, multipurpose rooms, and furniture create unusual lighting problems. Covers fluorescent, incandescent, and strip lighting. Cross-reference chart serves as convenient guide to choice of proper fixture for specific lighting situation. Lightolier, Inc.

finishers and protectors

548. IFCO Catalytic Protective Coatings, 8-p. booklet discusses protection of metal in industrial and equipment usage. Resistance to most types of corrosion is featured characteristic. Material also has good adhesion, durability, wear and heat resistance. Results of laboratory and field tests given. Application data included. Industrial Finishes Co., Inc.

549. Architectural Alodine Process, 4-p. brochure discusses new protective, decorative finish for aluminum. Properties of finish include: resistance to corrosion and mortar staining, permanence, little maintenance; feature is claimed reduction of reflectivity of more than 30%. Available in several colors—samples of finish included in catalog. Suggested applications for doors and windows, curtain walls, roofing and siding, decorative panels and partitions, with corresponding finish for each shown. Process data chart gives time for process, coating weight, reflectivity, color variation for four finishes. American Chemical Paint Co.

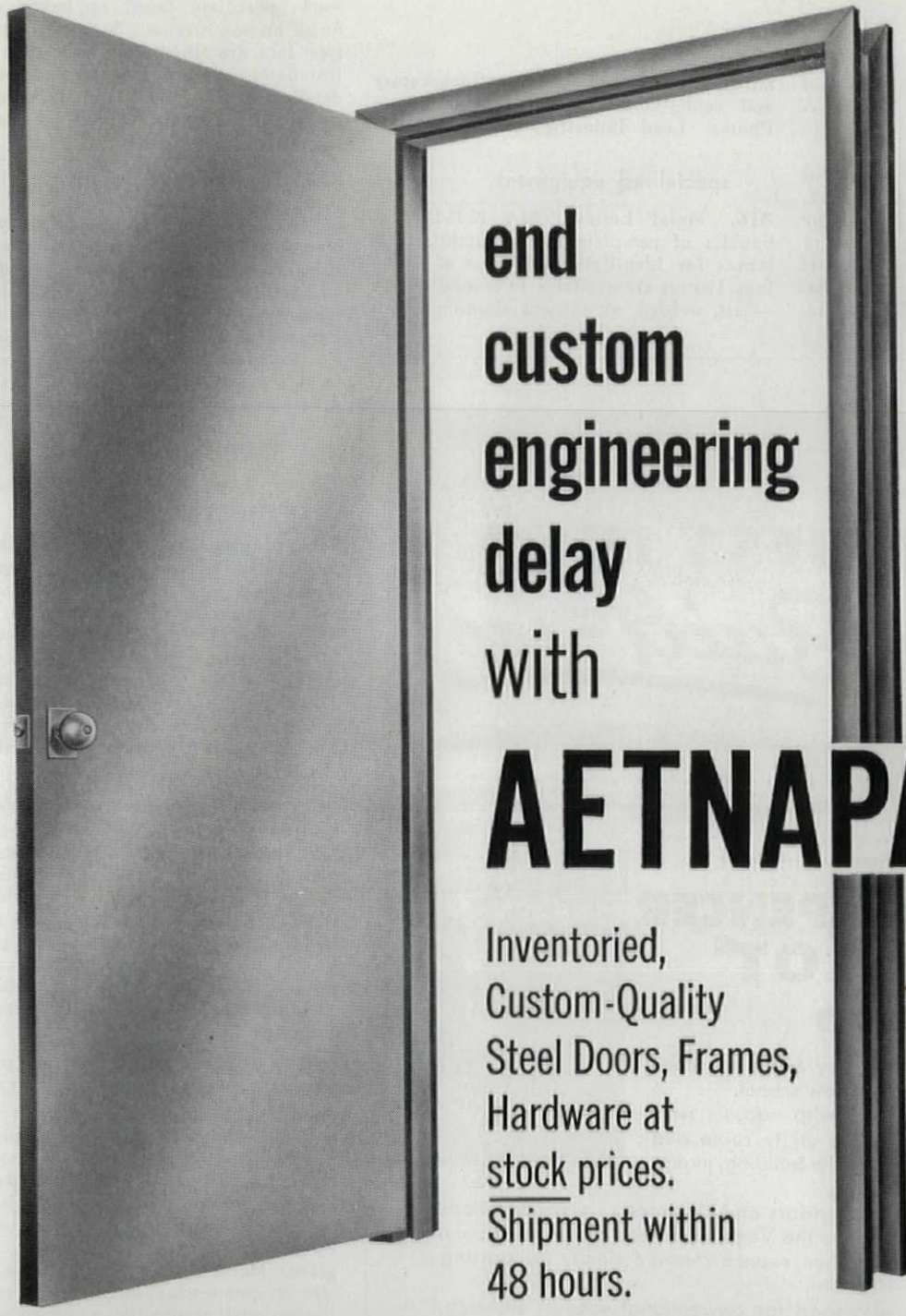
insulation (thermal and acoustical)

655. Foamglas for Perimeter Insulation, 4-p. folder discusses application of perimeter insulation in industrial, commercial, residential constructon. Data for recommended procedures of installation of this rigid, cellular-glass insulation materials. Foundation wall and slab border methods shown by drawings. Perimeter duct heating discussed. Pittsburgh Corning Corp.

sanitation, plumbing, water supply

753. Sanymetal Toilet Compartments, Shower Stalls, Hospital Cubicles, AIA 36-H-6, 28-p. 1958 catalog describes and illustrates complete line of products. Ceiling-hung, floor-supported, overhead braced, toilet and shower compartments shown. All units are made with flush partitions, doors, pilasters. New construction features—concealed door latch and stirrup bracket supports—given. Construction details and typical floor plans shown, as well as color chart of available surfaces. Specifications,

(Continued on page 198)



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p/a manufacturers' literature

(Continued from page 190)

photos of installations. Shower stalls and hospital cubicles also detailed. The Sanymetal Products Co., Inc.

754. Specification for Lead Chemical Laboratory Drainage Systems, AIA 35-E-1, 4-p. bulletin shows advantages of lead for chemical laboratories. Highly resistant to most types of corrosion, lead piping is useful in this area. Bonded joints, adaptability are features. Specifications are detailed, include drawings for wall-laboratory and center-laboratory table installations. Photos. Lead Industries Association.

specialized equipment

816. Metal Letters, AIA 15-R-1, 22-p. booklet of complete line of architectural letters for identifying all types of buildings. Letters are available in several metals —cast, welded, or cut out aluminum, cast or fabricated bronze, stainless steel, sheet steel; porcelain faced or baked enamel finish on some types. Numerous styles of type face are illustrated, as well as actual installation photos. Fastening methods are detailed; specifications and standard color chart for baked-enamel and porcelain letters given. Spanjer Brothers, Inc.

817. Design Specialties, 12-p. booklet illustrates collection of rubber stamps of frequently-used architectural symbols. Stamps give fast delineation of site plans, titles, trees, furniture, other symbols used by architects, engineers, city planners, landscape architects, interior designers. Patterns are available in various sizes. Combinations of leaf and shrubbery patterns are easily achieved, as well as tonal differences. Symbols were designed by an architect. Main advantage is saving of time. Design Specialties, Inc.

surfacing materials

976. Monile, 8-p. brochure describes surfacing material consisting of a copolymer liquid and solid composites. Material is said to be highly resistant to acids, grease, oil, water, and impact. Characteristics include 40-times bonding strength of concrete, 12-times concrete flexural strength. Test data given for applications of ½" of finish in various types of applications. Application instructions. The Master Mechanics Co.

977. Marlite Plastic-Finished Wall and Ceiling Paneling, AIA 23-L, 8-p. catalog shows available types — hardboard-patterned, tongue-and-groove planks, and blocks, rigid hollow-core — of plastic-finished paneling for covering old or new walls. Types are described and pictured in color, with size and pattern information given. Installation data and aluminum moldings available included. Marsh Wall Products, Inc.

978. Nevamar Decorative High-Pressure Laminates, AIA 35-C-12, 4-p. folder containing color and patterns in high-pressure laminate line. Material is impregnated fibrous material with thermo-setting resins, bonded under controlled heat and high pressure. Nonporous material is easily maintained, resistant to heat and stain. Sizes, thicknesses, application process given. Meets NEMA standards for decorative thermo-setting laminates. Useful for institutional, residential, commercial installations. The National Plastic Products Co.

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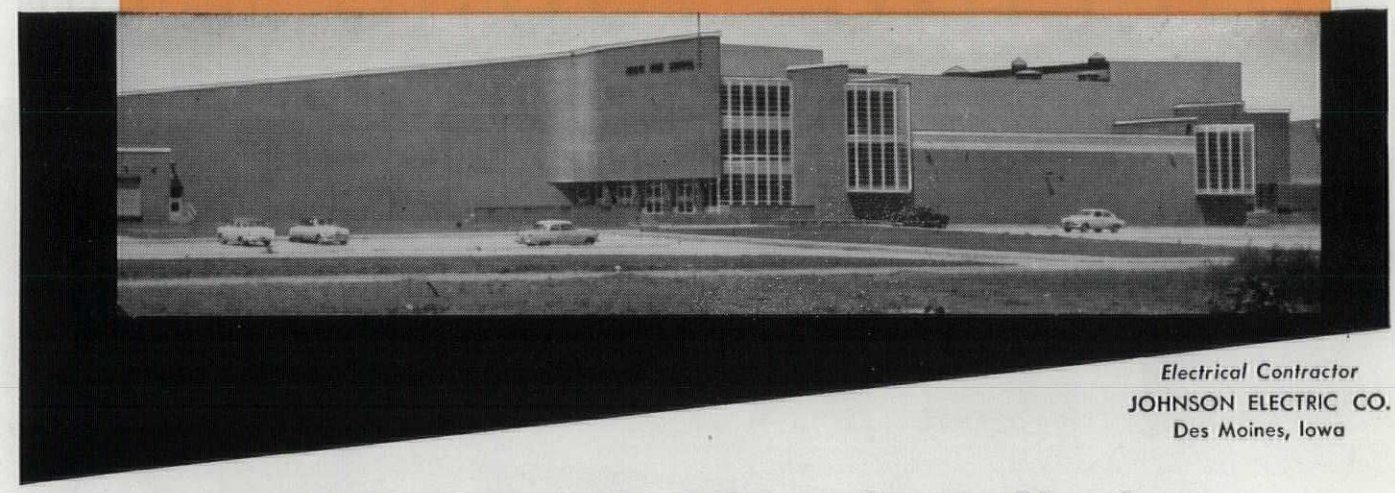

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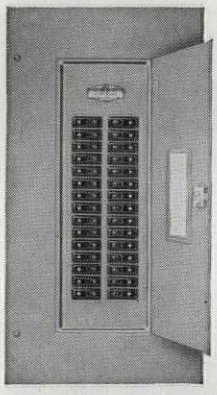

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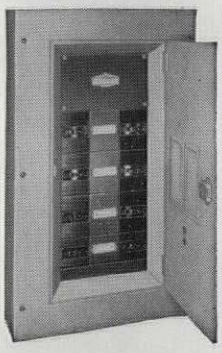

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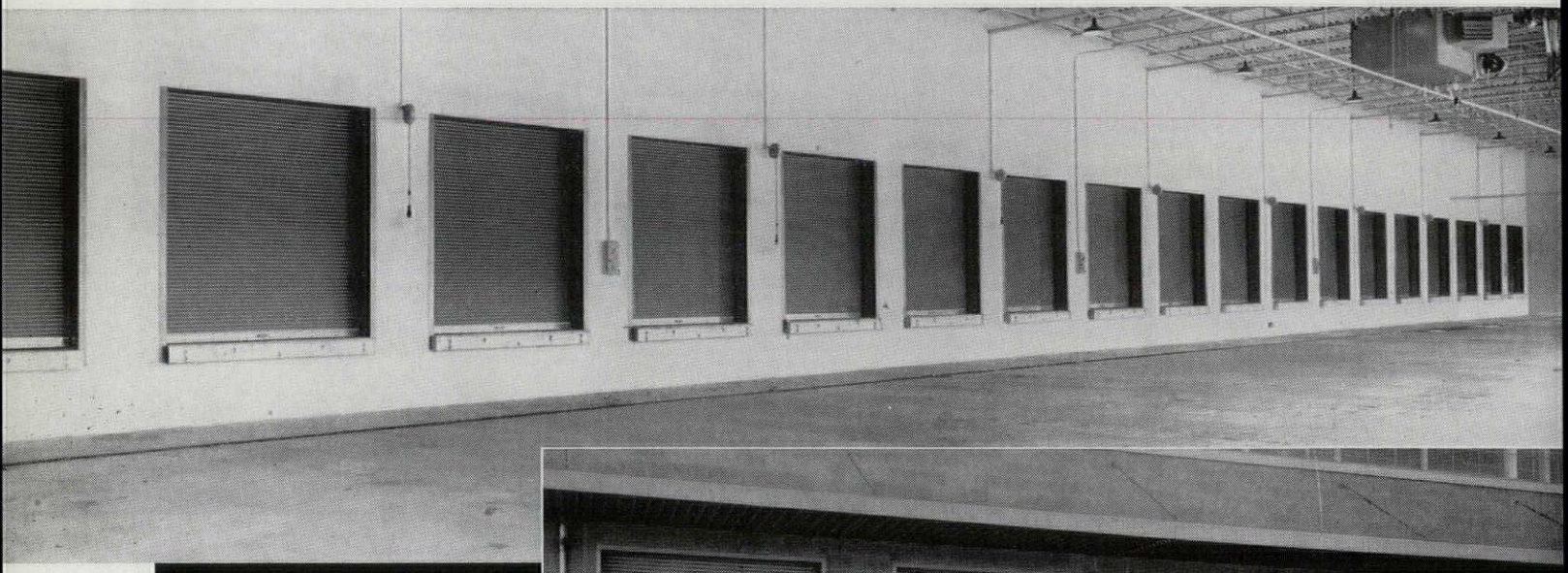

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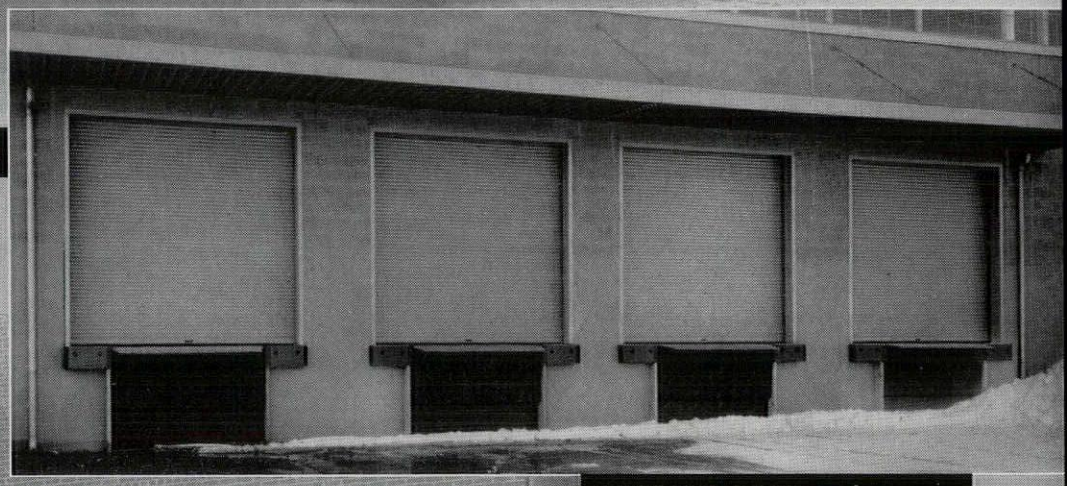

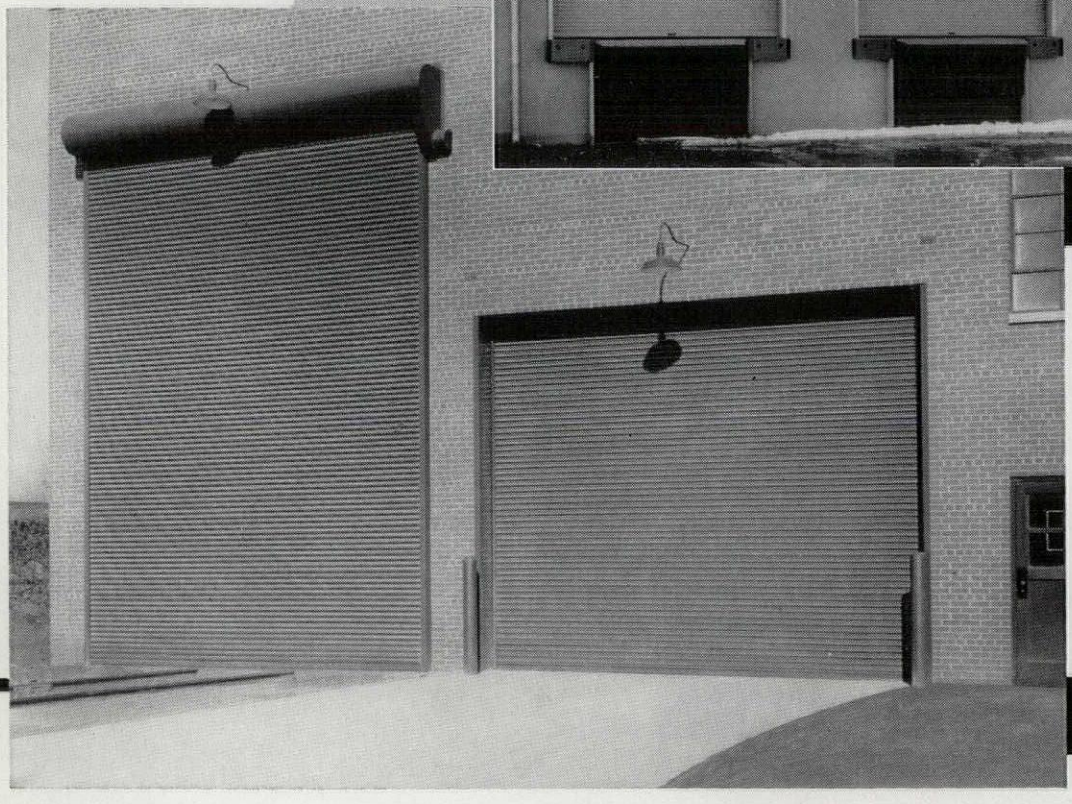

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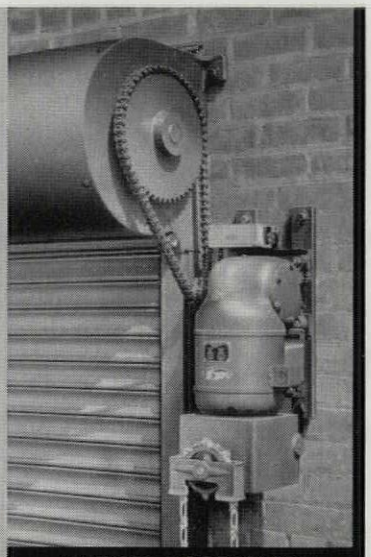

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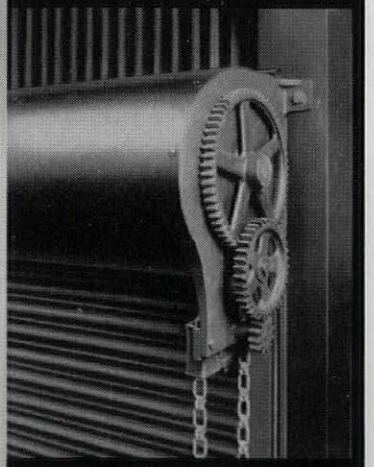

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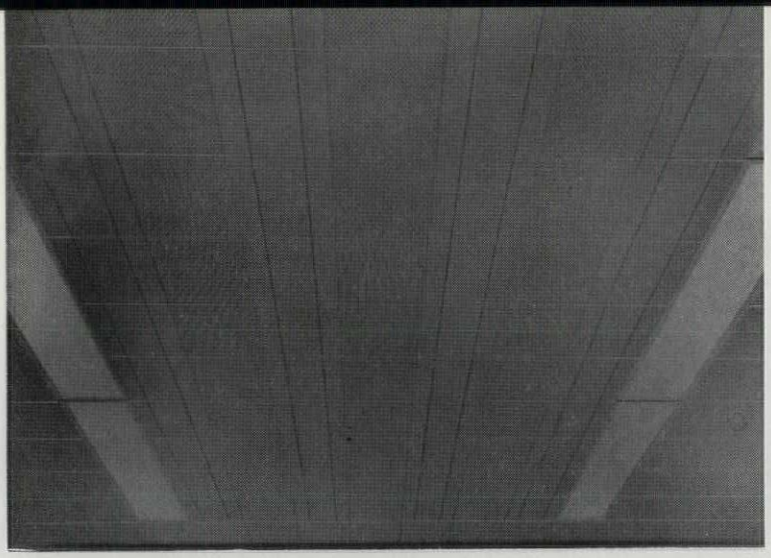
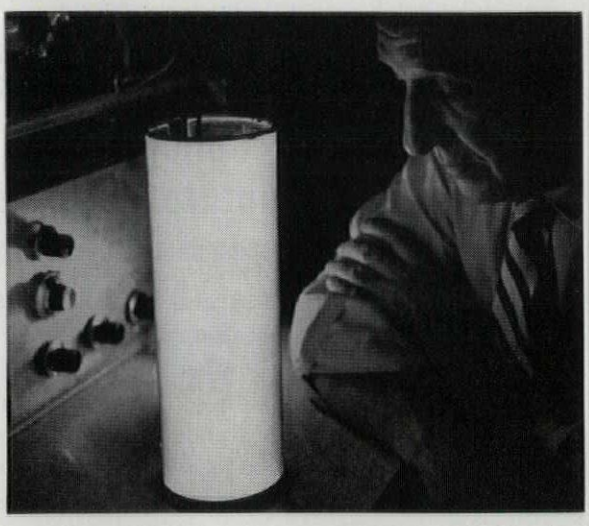
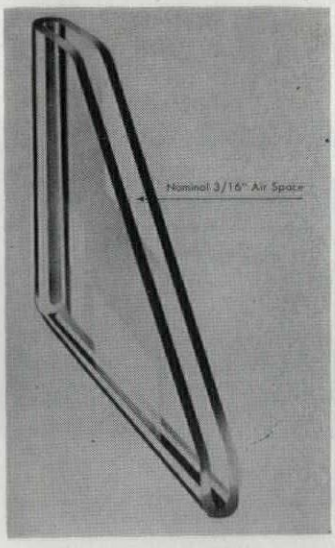


Radiant heating and cooling ceiling (above) *has 12" x 24" aluminum panels that can be integrated with standard acoustical tile. Back of each panel has two large-cross-section heat bridges which contact water pipes, above, fed by special headers. Airtex Corp., 2900 North Western Ave., Chicago 18, Ill.*

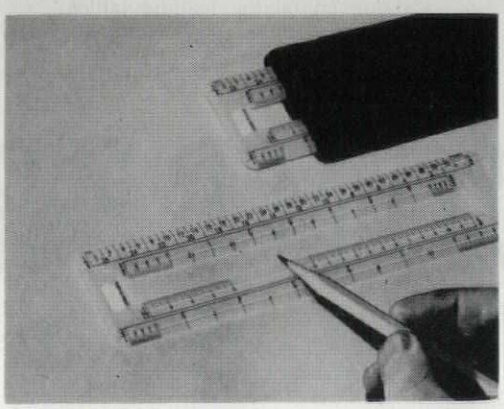
Opaque fabric woven from stainless-steel wire becomes a flexible light source when coated with phosphors and transparent conductive material (below). *Before curled, fabric was 12" square. Light output visible resulted from application of 250-v at 4000-c. Westinghouse Electric Corp., Box 2278, Pittsburgh, Pa.*



Sump pump (above), *operating by means of ordinary water pressure rather than electrical motor, was developed from aspirating-jet principle. No float is used since a pressure-sensitive diaphragm is activated by the water from the sump to turn the pump off and on automatically. Special shut-off valve prevents back flow. Jet-Heet Inc., Englewood, N. J.*



New acrylic measuring instrument displays eight scales on a single side (below). *Each has its own straight-edge, calibrated to professional standards. Six-in. leather-sheathed pocket model, $2.25; unsheathed 12" desk scale, $3.00. A. Lawrence Karp, 16 Putnam Park, Greenwich, Conn.*



All-glass insulating double-window unit (above) *is manufactured from two lights of double-strength "A" quality sheet glass; has nominal air space of 3/16". Over-all thickness is slightly under ½". Sizes available vary from 14" to 38" in width and up to 62" in height. Libbey-Owens-Ford Co., Toledo 3, Ohio.*

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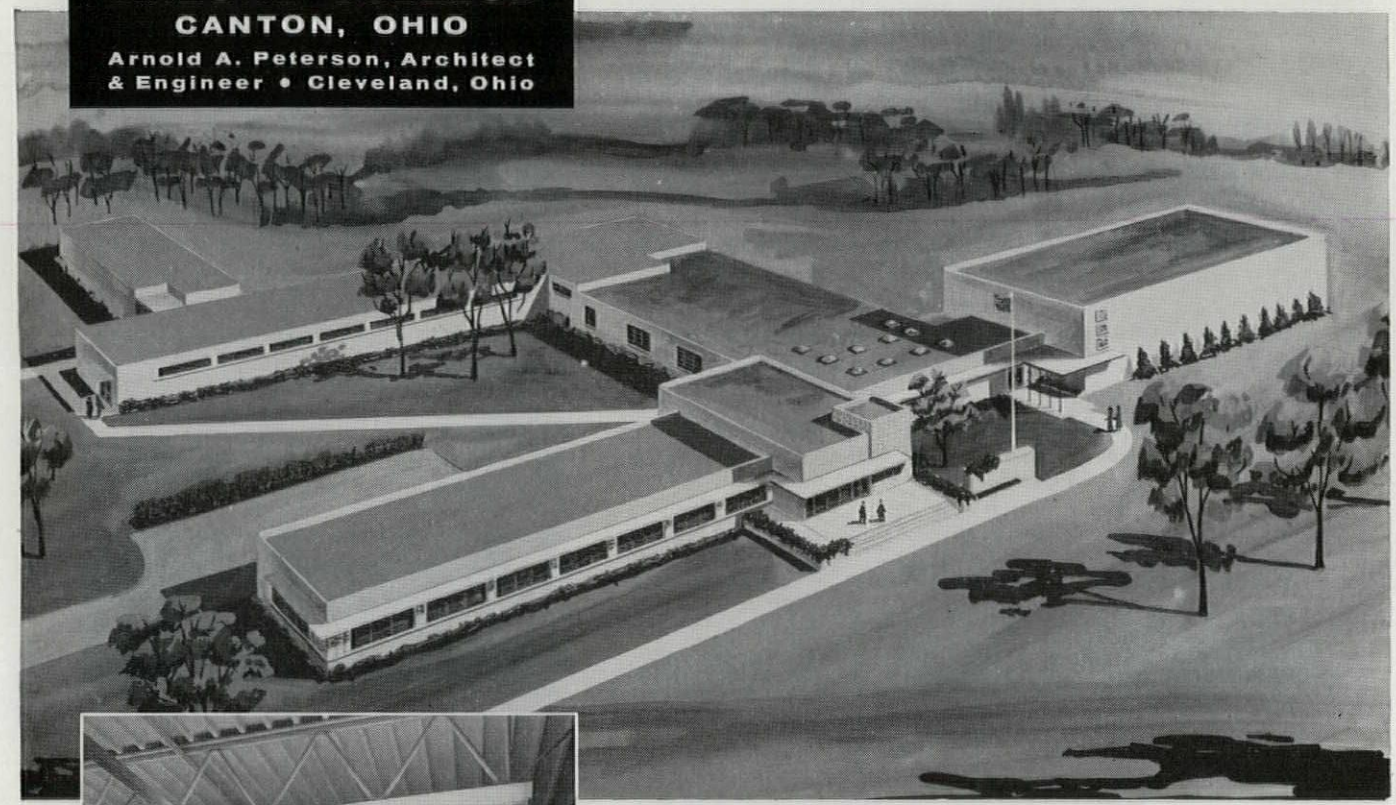
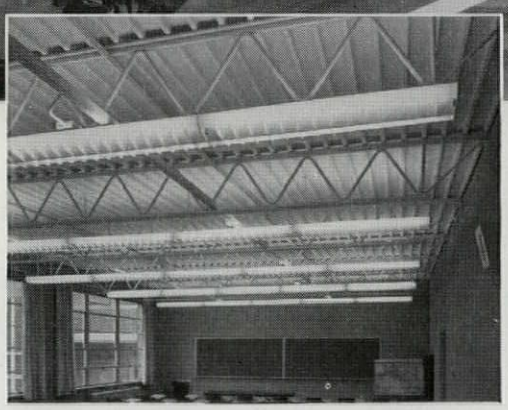




MACOMBER V-BEAM and STEEL DECK in classrooms illustrate structurally sound, yet attractive appearance. Macomber V-GIRDERS were used for longer spans.

In addition to V-BEAMS, MACOMBER "nailable" LOAD-BEARING PARTITIONS were supplied for use in corridors of offices, classrooms and dormitories.

MACOMBER V-BEAMS

gave Malone College a stronger structure at lower cost!

6 new buildings completed in 240 working days

Macomber V-BEAMS and V-GIRDERS meant substantial benefits to Malone College and to the builder. The exclusive Macomber cold-formed chords and webs, besides providing extra structural strength, contributed an appearance factor that saved ceiling finishing costs and made lower ceiling heights possible without detracting from the pleasing architectural effect.

Macomber V-BEAMS are available for spans to 48 feet, V-GIRDERS to 96 feet. Quality control? — It's *continuous* at Macomber — by Pittsburgh Testing Laboratory resident inspectors.

Write for this Macomber V-BEAM Catalog containing loading tables, chord dimensions and designs, anchoring and bridging information. A new catalog on V-GIRDERS is also available.

MACOMBER

CANTON 1, OHIO

NAILABLE V-BEAMS | V-LOK STEEL FRAMING | METAL DECK AND SIDING | V-BOWSTRING TRUSSES | V-GIRDERS STEEL JOISTS

An actual example of Rusco Window Modernization: a midwest department store, with 196 openings.

RUSCO Window Modernization

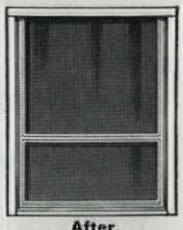
Improves Appearance, Comfort and Maintenance In 1 to 2 Hours Per Opening

Custom-fitted Pre-assembled Windows and Frame Liners Eliminate Scaffolding, Gutting . . . entire installation is made from inside. Interior trim is undisturbed.

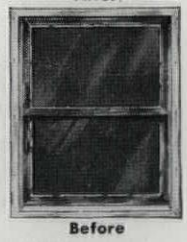
Tenants are happier with cleaner, more comfortable space. Rusco's "Easy-slide" feature eliminates window operation complaints. Optional insulating sash helps maintain a 15° differential in summer, draft-free comfort in winter, and provides draft-free ventilation.

Heating—cooling—maintenance costs go down because Rusco's felt weatherstripping stops infiltration. All glass is removable for washing inside.

There is a Rusco Replacement Window to meet your architectural requirements. Satin finish aluminum or hot-dipped galvanized steel with baked-on enamel for low maintenance and long wear.



After



Before

THE F. C. RUSSELL COMPANY, Columbiana, Ohio

In Canada: Toronto 13, Ontario

Write Dept. G-4 for further Window Modernization information.

"Always one step ahead of the weather" with **RUSCO**

Also available: Architect's Steel and Aluminum Prime Window Catalogs and literature on Rusco combination windows and doors, porch enclosures, sliding glass doors, steel garage doors, electronic garage door operators.

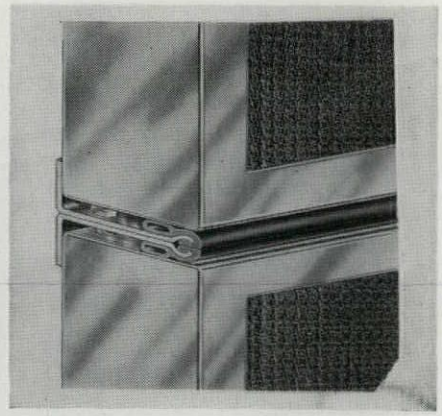
p/a products

(Continued from page 203)

air and temperature control

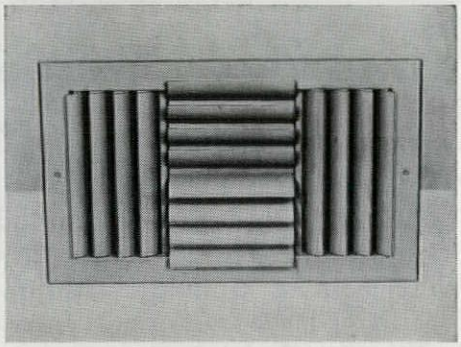
Cooling Tower: compact, low cooling tower unit with 15-200 gal per min capacity has been developed. Multifinned internal decking of noncorrosive plastic and notched plastic sheets give additional water-to-air exposure. Water enters at tower top under low pressure, flows to drawer receptacles. Internal decking easily removed for cleaning purposes. Finish not necessary. Binks Mfg. Co., 3122 W. Carroll Ave., Chicago 12, Ill.

Ductaire Air Conditioner: new 2-hp unit especially adaptable to small businesses needs only electrical connections. Package includes prefab insulated ducts, two outlet grills. Unit will deliver 590 cu ft cooled air per min — circulates air constantly, removes moisture. Westinghouse Electric Corp., 401 Liberty Ave., Pittsburgh 30, Pa.



Seal Tight Gasket: newly-developed polyvinyl chloride gasket which pressure-locks filter into holding frame is feature of filter-bank assembly. Gasket precludes need for clips or locking devices and molds itself to line of filter. A sealing pressure of 4.1 lb/psi is maintained toward air filter. Gasket is resistant to oil and moisture. Photo (*above*) shows gasket action between frames of heavy-gage steel—gasket is built into front of air inlet side and holds filter frame while sealing it on all sides. Aluminum filter is held in frame by friction. The George Evans Corp., 37th St. at River Dr., Moline, Ill.

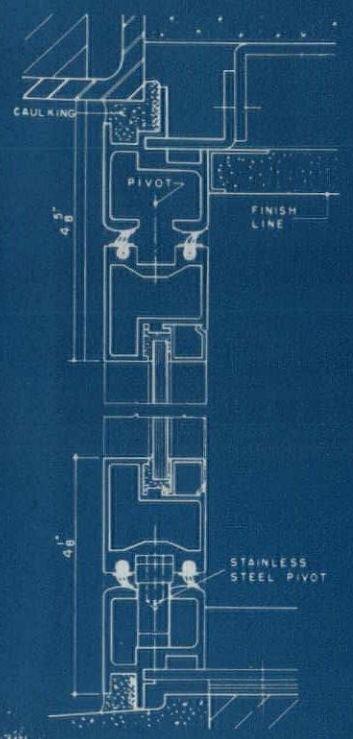
Four-Way Air Flow Registers: line of grills and registers have adjustable curved louvers which can be arranged to give a four-way air flow from one register



(*above*). Fabricated from extruded aluminum, louvers can be horizontal or vertical, or simultaneously two-way. Additional control over air flow can be found by using straight adjustable louvers behind the curved louvers. Waterloo Register Co., Inc., Waterloo, Iowa.

Thermolier Unit Heaters: single-coil heaters utilizing horizontal and vertical delivery—propeller-fan type—give moderate temperature rise on high-steam pressure. New design eliminates heavy header and uses brazed-tube joints instead of roller expanded joints. Units are available with two-speed motors for rapid heating. Continuous-tube construction allows use of steam or hot water, steam pressures up to 200 psi. Grinnell Co., Inc., 260 W. Exchange St., Providence 1, R. I.

(Continued on page 214)



FOR THE NESTLE COMPANY'S NEW HOME OFFICE

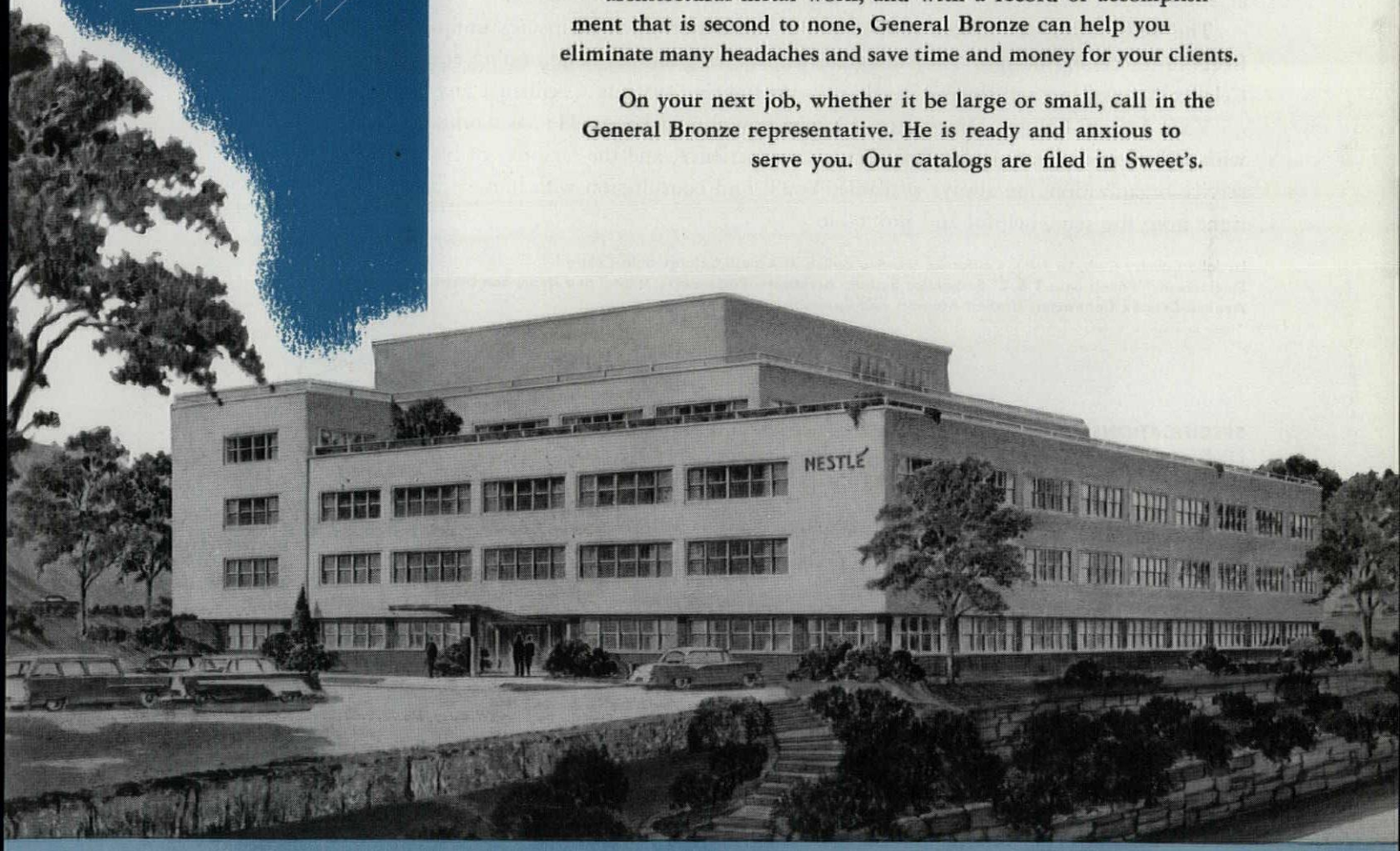
Aluminum WINDOWS

by GENERAL BRONZE CORPORATION

"WINDOWS by GENERAL BRONZE" has long been a favorite specification of leading architects. Experience has shown them that this is the sure way to simplify fenestration problems, regardless of style of window or type of metal involved.

As pioneers in the design and fabrication of bronze, aluminum and stainless steel windows, curtain walls and architectural metal work, and with a record of accomplishment that is second to none, General Bronze can help you eliminate many headaches and save time and money for your clients.

On your next job, whether it be large or small, call in the General Bronze representative. He is ready and anxious to serve you. Our catalogs are filed in Sweet's.



Home Office—Nestle Company, Inc., White Plains, N. Y.
PERMATITE fully reversible aluminum windows
Architects: Eggers & Higgins
Contractor: Hegeman-Harris Co., Inc.

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ACOUSTI-*

...for ceiling ideas unlimited

Almost limitless design potential is opened to the architect who plans with Acousti-Celotex Sound Conditioning products.

Shown at the right is an interesting example in which Celotex Acoustical Materials have been used with outstanding effect . . . integrating color- and design-ideas to create an unusually attractive ceiling appearance at a moderate cost yet with high sound absorption and easy maintenance.

The wide range of Celotex products and installation systems insures unique planning freedom for ceiling design. They integrate with heating and air conditioning equipment, Celotex Acousti-Lux translucent panels or other lighting systems . . . enhance any design motif.

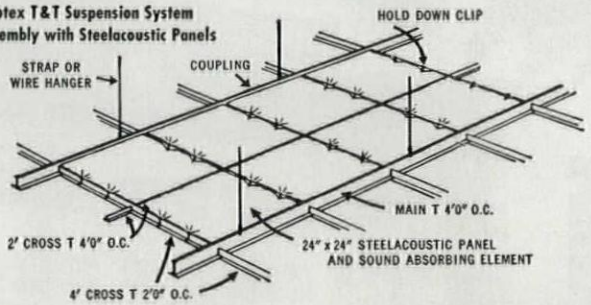
Your Acousti-Celotex Distributor is a man you should know. He has worked with architects on every type of project. His experience, and the facilities of his trained service organization, are always available. You'll find consultation with him, right from the start, helpful and profitable.

La Jolla Country Club, La Jolla, California, showing ceiling of Acousti-Celotex Stria-Colored Steelacoustic* Panels on a T & T* Suspension System. Architects: Paderewski, Mitchel and Dean, San Diego. Acousti-Celotex Contractor: Hackett Acoustics and Specialties, Inc., San Diego, Cal.

*TRADE MARK REG. U. S. PAT. OFF.

SPECIFICATIONS: Write for portfolio of specifications, including detail drawings, covering this and other ceiling assemblies and Acousti-Celotex applications.

Celotex T&T Suspension System Assembly with Steelacoustic Panels



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Tucson . . . . . Garrett Building Specialties

ARKANSAS
Little Rock . . . . . Acoustics & Specialties Co.
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Glendale 4 . . . . . The Harold E. Shugart Co., Inc.
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COLORADO
Denver 1 . . . . . Lauren Burt, Inc. of Colorado

CONNECTICUT
West Haven . . . . . Thermal Acoustics, Inc.

DELAWARE
Baltimore 11, Md. . . . . The Hampshire Corp.
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DISTRICT OF COLUMBIA
Bladensburg, Md. . . . . The Hampshire Corp.

FLORIDA
Jacksonville 4, Tampa 5, Orlando . . . . . Acousti Engineering Co. of Fla.
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New Orleans 12, La. . . . . Acoustics & Specialties Co.

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Atlanta 3 . . . . . Acousti Engineering Co.
Chattanooga 4, Tenn. . . . . Hale & Wallace, Inc.

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Salt Lake City, Utah . . . . . Lauren Burt, Inc.
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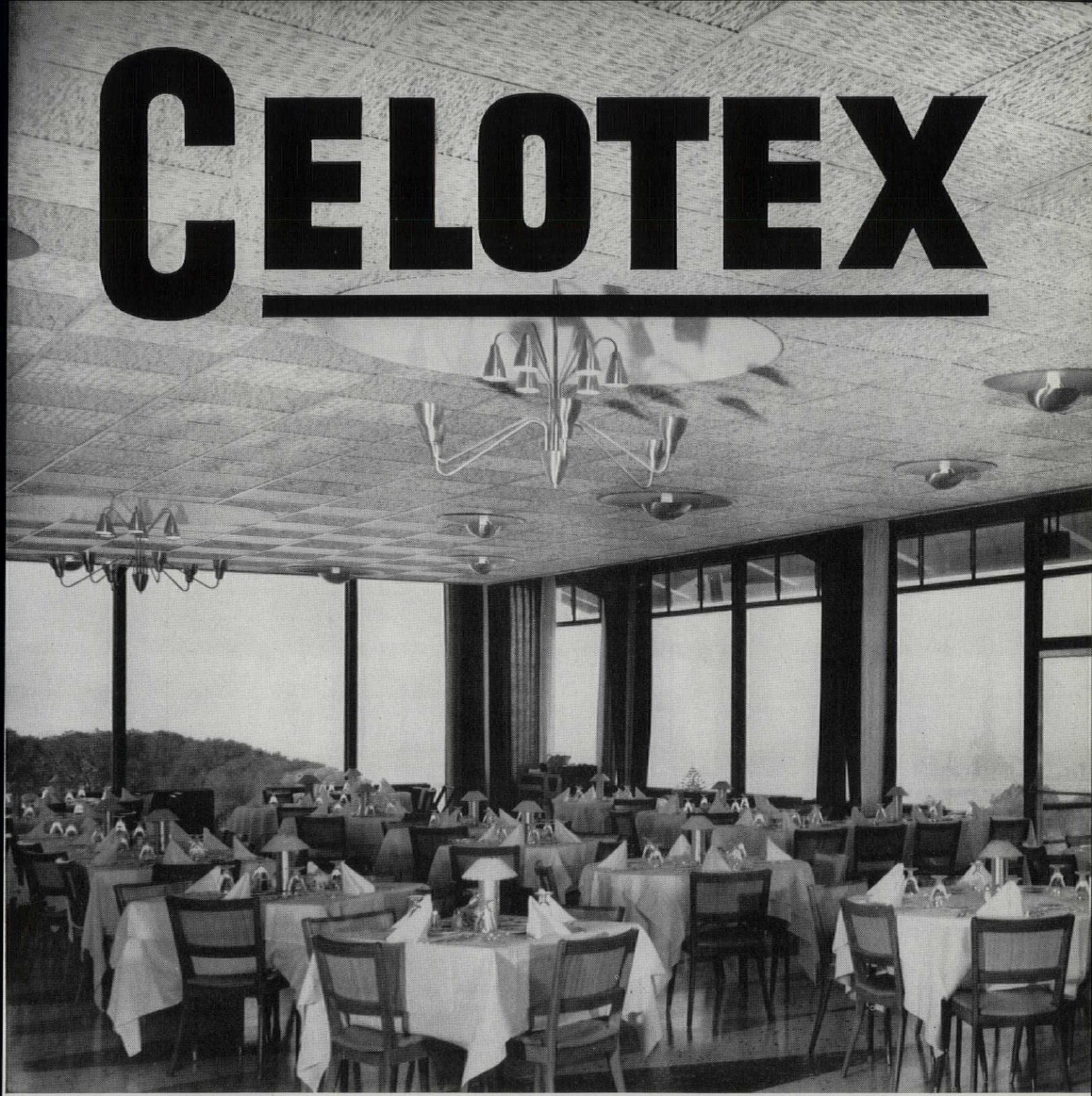
Salt Lake City 4, Utah . . . . . Lauren Burt, Inc.



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Buffalo 2, Jamestown . . . . . Western New York Collum Acoustical Corp.
New York 17 . . . . . Jacobson & Co., Inc.

NORTH CAROLINA
Charlotte 3 . . . . . Acousti Engineering of Carolinas, Inc.
Norfolk, Va. . . . . The Hampshire Corp.

NORTH DAKOTA
Minneapolis 15, Minn. . . . . Insulation Sales Co., Inc.

OHIO
Cincinnati 2, Dayton 5 . . . . . E. C. Decker & Co., Inc.
Cleveland 13, Columbus 8, Akron 4, Pittsburgh 12, Pa. . . . . The George P. Little Co., Inc.

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Tulsa . . . . . Oklahoma Acoustical & Specialties Co.

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Baltimore 11, Md. . . . . The Hampshire Corp.

RHODE ISLAND
Providence . . . . . Pitcher & Co., Inc.

SOUTH CAROLINA
Charlotte 3, N. C. . . . . Acousti Engineering of Carolinas, Inc.

SOUTH DAKOTA
Minneapolis 15, Minn. . . . . Insulation Sales Co., Inc.
Denver 1, Colo. . . . . Lauren Burt, Inc. of Colo.

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Memphis 3 . . . . . Acoustics & Specialties, Inc.
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Midland . . . . . West Texas Brick & Tile Co.
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El Paso . . . . . Southwest Acoustical Company

UTAH
Salt Lake City 4 . . . . . Lauren Burt, Inc.

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Baltimore 11, Md., Bladensburg, Md. . . The Hampshire Corp.
Richmond 22, Roanoke 2, Norfolk . . . . The Hampshire Corp.

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Portland 10, Ore. . . . . Noise Control of Oregon, Inc.
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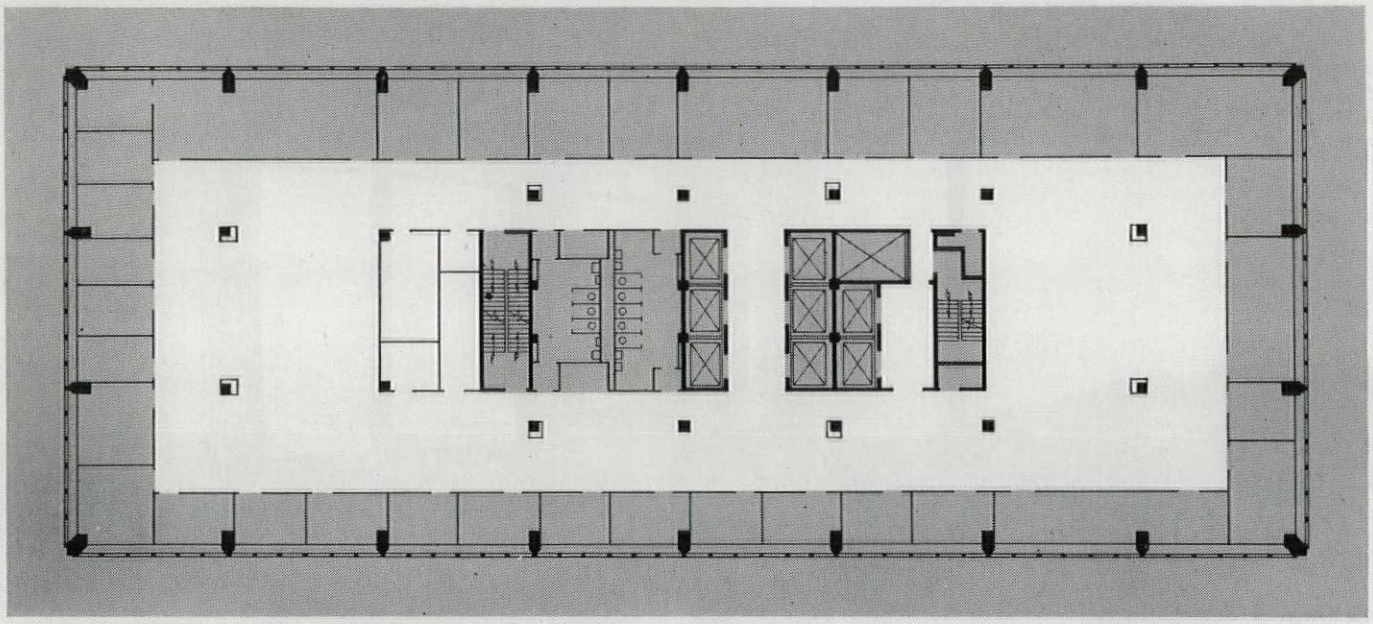
St. John's, Nfld., Halifax, St. John, N.B., Montreal (Home office), Ottawa, Toronto, North Bay, Hamilton, London, Winnipeg, Regina, Saskatoon, Calgary, Edmonton, Vancouver . . . . . Dominion Sound Equipments, Ltd.

Which is the best way to air condition interior areas of an office building?



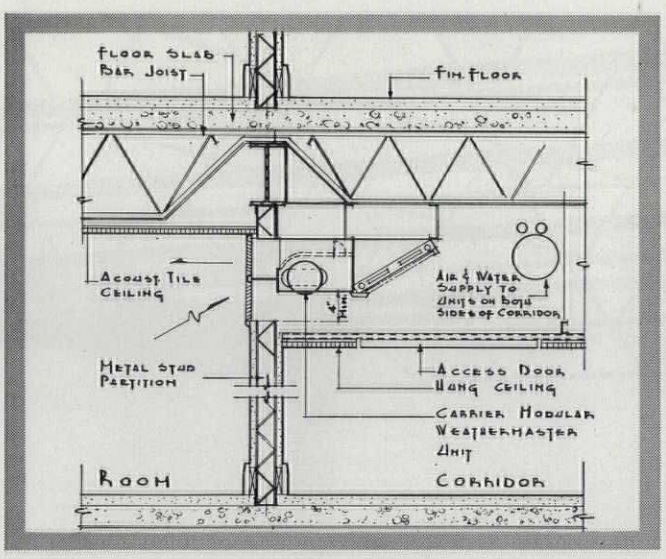
That depends on the amount of heat generated within the interior areas. In most Class A office buildings this heat load is increasing. It is moving up year after year because of the greater use of electronic office equipment and more intense lighting.

This trend should be considered when planning air conditioning both for new and existing buildings. Recent studies prove that it is more economical to use the new air-water Carrier Horizontal Weathermaster* System than any type of all-air system to handle higher heat loads in interior zones. This new Carrier method saves space, costs less to own and less to operate because water is 250 times more effective than air, by volume, in removing heat. In addition, it is capable of handling increasing heat loads as they develop, without costly system changes.

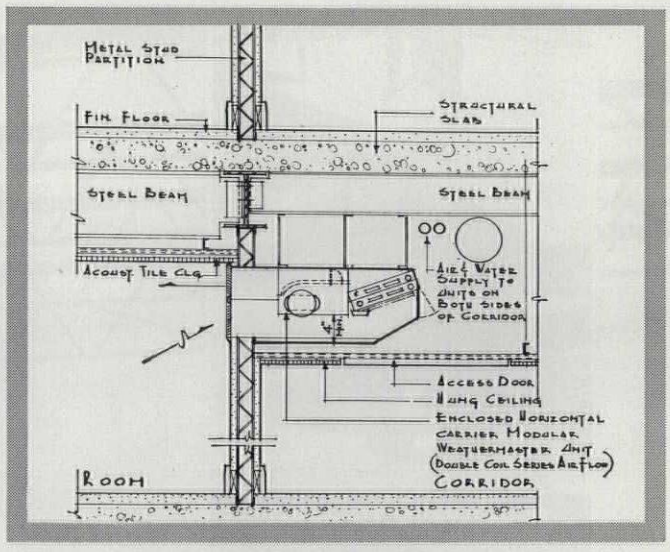
The Horizontal Weathermaster Units adapt readily to any interior situation. On the page at right are six typical arrangements—and there are many more. For complete information, call your nearest Carrier office. Or write Carrier Corporation, Syracuse, New York.

*Reg. U.S. Pat. Off.

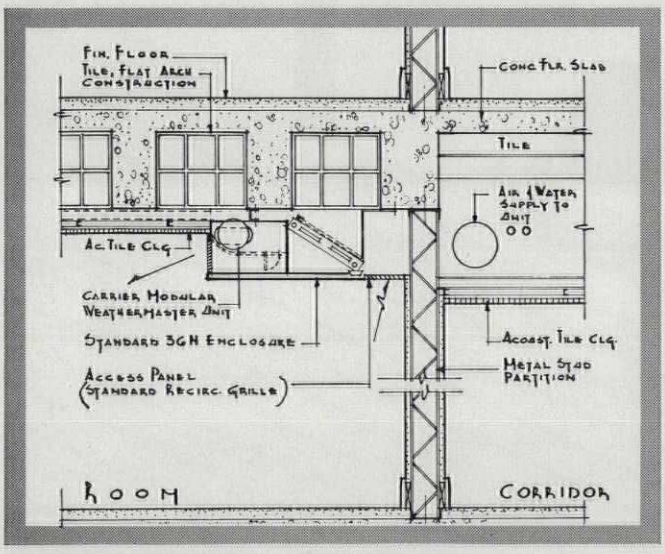
Carrier Air Conditioning · Refrigeration · Industrial Heating



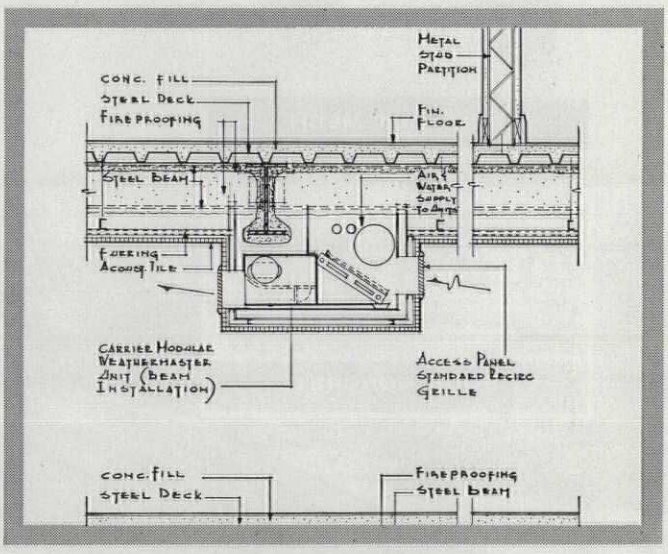
Corridor installation with the unit, supply air conduit and water services concealed above hung ceiling.



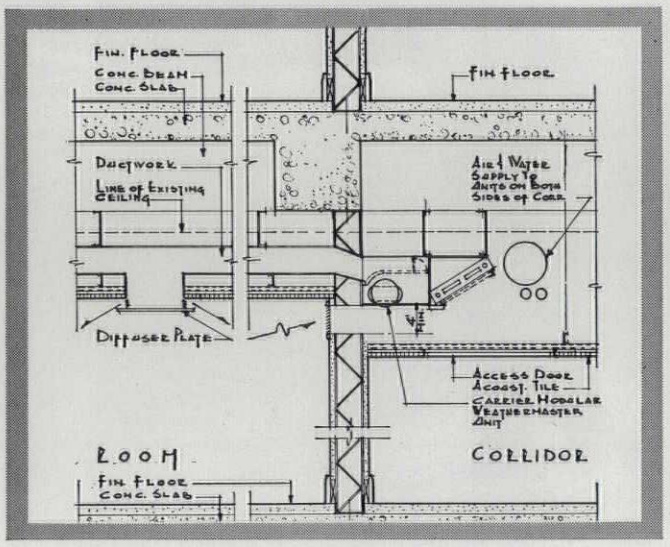
Corridor installation featuring twin coils for extra capacity. Enclosed unit prevents cross circulation.



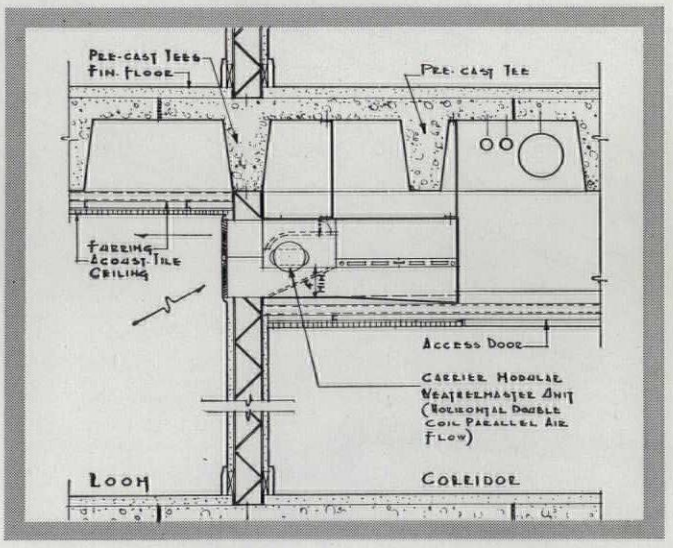
In-the-space installation with standard unit and standard enclosure eliminating need for furring-in.



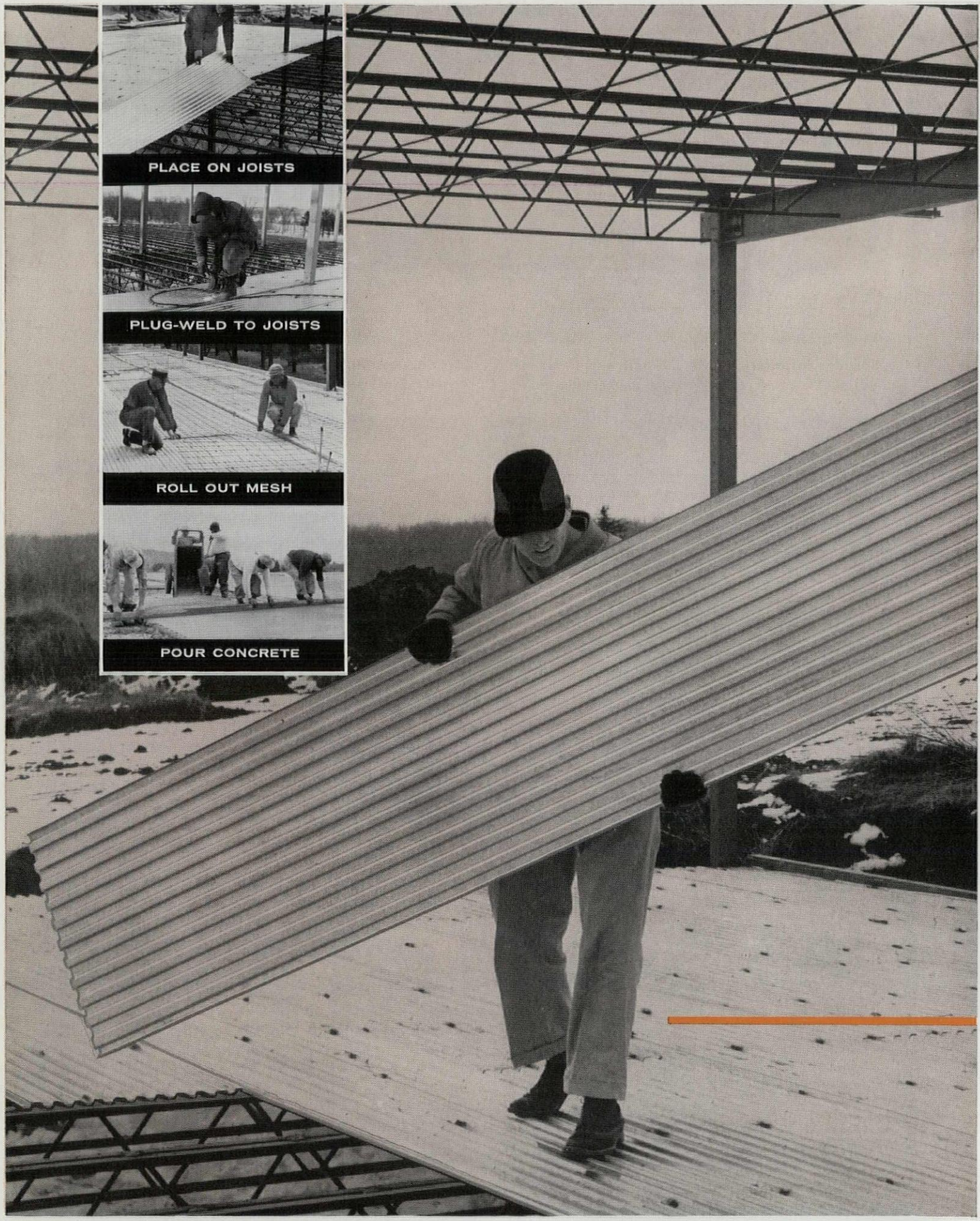
In-the-space installation where structural framing requires unit be tightly fitted against fireproof beam.

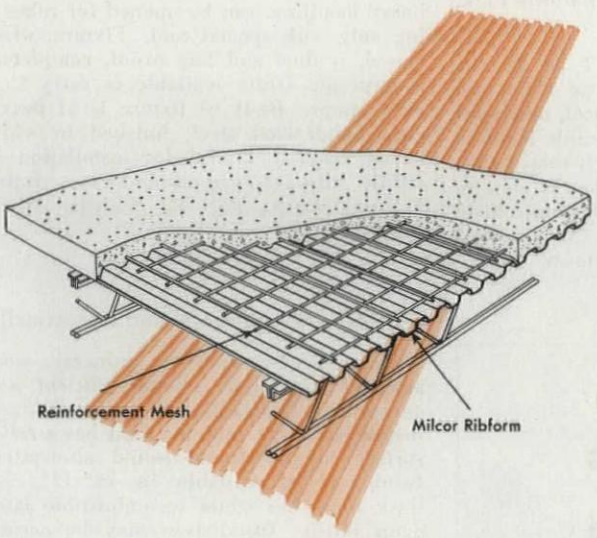


Corridor installation using short duct from unit to standard diffuser plate outlet for ceiling distribution.



Corridor installation featuring twin coils in parallel mounting to attain extra high cooling capacity.


PLACE ON JOISTS
PLUG-WELD TO JOISTS
ROLL OUT MESH
POUR CONCRETE



Short-span concrete slabs cost less with Milcor Ribform

Ribbed, high-tensile steel form is stronger than ordinary corrugated patterns

Ribform is a permanent, rigid base for concrete floor and roof slabs over spans up to 5'-0".

It goes down fast—is easy to install over pipe trenches or in other inaccessible locations where it is impractical and expensive to strip wood forms. Temporary bracing of joists is unnecessary. Scaffolding is eliminated.

Ribform uses as much as 20% less concrete than flexible types of centering. The slab is poured and finished in one operation. The rigidity of Ribform permits monolithic finishing — eliminates costly topping.

See Sweet's, section 2h/In — or write for catalog 245.

MILCOR® Ribform

It pays . . . in many ways . . . to specify Milcor Steel Building Products

MILCOR CELLUFLOR	MILCOR WALL PANELS	MILCOR ROOF DECK	MILCOR METAL TRIM	MILCOR CONVECTOR ENCLOSURE WALL UNITS
Sweet's, section 2a/In	Sweet's, section 3b/In	Sweet's, section 2f/InL	Sweet's, section 12b/In	Sweet's, section 30h/In

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RD-15

p/a products

(Continued from page 206)

construction

Vista Block: concrete block has diamond- and triangular-shaped openings, can be used as a veneer or decorative, separate unit. Each unit measures 4"x8"x16" and can be used with 4", 6", or 8" blocks. Material is lightweight—available in gray-pink and suntan colors. Suggested applications include cover in front of modern strip-type windows, vertical panels in arcade walls, garden walls. O'Kelley-Eccles Co., 4846 Azusa Canyon Rd., Baldwin Park, Calif.

Armco Aluminized Steel, Type 2: material has surface properties of aluminum while retaining strength of steel, making it useful for support of heavy cable loads in cable support systems. Steel is coated with special aluminum coating that is said to resist corrosion three times longer than zinc-coated galvanized steel. Armco Steel Corp., 199 Curtis St., Middletown, Ohio.

electrical equipment, lighting

Security Lighting Fixture: fluorescent fixture fits flush with ceiling or wall and is particularly sturdy. Plexiglas lens resists heavy handling, can be opened for relamping only with special tool. Fixture, when closed, is dust and bug proof, completely waterproof. Units available to carry 2, 3, or 4 lamps. Body of fixture is of heavy-gage bonderized steel, finished in white baked enamel. Useful for installation in public subways, gymnasiums, etc. Ruby-Lighting Corp., 802 W. Whittier Blvd., Whittier, Calif.

insulation (thermal and acoustical)

Embossed Travertone: mineral wool acoustical material is both efficient and decorative. Designed for commercial and institutional interiors, material has a relief surface for additional sound absorption. Insulation is available in 12"x12", ¾" thick tiles—has white incombustible latex paint finish. Installation may be accomplished by cementing tile to existing ceiling or by original suspension. Armstrong Cork Co., Lancaster, Pa.

sanitation, plumbing, water supply

Water-Filtration Unit: "Dynion" active filter candle is principal component of water-filtration unit. Candle is hollow tube of porous, ceramic material impregnated with activated silver ions—one end closed. Open end is attached to manifold, forcing all water to pass through porous sides of candle. Sides destroy all micro-organic life—are self-sterilizing. Adaptable to homes, institutions, restaurants, farms. Water Conditioning Div., J. H. Scharf Mfg. Co., 6120 Binney St., Omaha 4, Neb.

surfacing material

Antique-Gold Finish: newest type of porcelain-enamel finish is metallic gold in color. Finish of tile is textured—retains durability and ruggedness required for porcelain-enamel curtain walls. Panels can be fabricated to architect's specifications. Architectural Porcelain Enamel Div., Caloric Appliance Corp., Topton, Pa.

Amtico Conductive Vinyl Flooring: recently developed tile is static proof and especially adaptable for use in hospitals, laboratories, munitions plants. Possibility of explosions is reduced—tile gives protection against electrostatic discharge from equipment, etc. Tile is 3/16" thick, available in several color combinations. Easy maintenance and comfort are featured qualities. American Biltrite Rubber Co., Trenton, N. J.

Arvinyl Wall Paneling: vinyl-metal laminated panels consist of a sheet of vinyl fastened to sheet steel with an adhesive under pressure and heat; edges are tongue and groove. Panel is then backed by particle board for rigidity and strength. Laminate resists abrasion and will not change color; maintenance is minimum. Arvin Industries, Inc., Columbus, Ind.

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books received

A Century of Baltimore Architecture. Wilbur H. Hunter & Charles H. Elam. The Peale Museum, 225 N. Holliday St., Baltimore, Md., 1957. 48 pp., illus. $1

College Housing. American Institute of Architects, 1735 New York Ave., N. W., Washington, D. C., 1956. 40 pp. $1

Counter-Attack Against Subtopia. Ian Nairn. The Architectural Press, 9-13 Queen Anne's Gate, London S. W. 1, England, 1957. Illus., 12s. 6d.

Learning to Paint in Oil. Jerry Farnsworth. Watson-Guptill Publications, Inc., 24 W. 40 St., New York, N. Y., 1957. 125 pp., illus. $8

Planning the Hospital Library. United Hospital Fund of New York, 3 E. 54 St., New York, N. Y., 1957. 12 pp., illus.

Planning Functional School Buildings. Merle Sumption & Jack Landes. Harper & Bros., 49 E. 33 St., New York, N. Y. 1957. 302 pp., illus. $7.50 (professional edition)

Data Book for Civil Engineers. Vol. II. Specifications and Costs. Revised 3rd Ed. Elwyn E. Seelye. John Wiley & Sons, Inc., 440 Fourth Ave , New York, N. Y., 1957. $20

Evergreen and Flowering Shrubs for Your Home. Katharine Cloud. Greenberg, Publisher, 201 E. 57 St., New York, N. Y., 1957. 248 pp., illus. $4.95. That shrubs are the frame of any garden is the thesis of the present volume. The author discusses: (1) care of shrubs, soils, transplanting, etc., (2) classifications of evergreen, and (3) flowering shrubs. Ninety photographs illustrate the possibilities for all kinds of garden arrangements.

a basic approach

Native Genius in Anonymous Architecture. *Sibyl Moholy-Nagy. Horizon Press, Inc., 220 W. 42 St., New York, N. Y., 1957. 224 pp., illus. $7.50*

The intriguing title reveals the nature of the material presented in this well written book. Unfortunately so much architecture in the world is anonymous and will always remain so. Anonymity has doomed countless structures to subordinate status in terms of a creator even though they may be important as expressions of the needs of people in a social and economic environment. This book serves a real purpose by bringing into focus the significance of the simple houses, barns, churches, and minor structures presented here so cleverly by the text and photographic reproductions.

The approach of this book is basic because it presents native architecture of the Americas in terms of the traditions and customs of those early settlers who changed the boundaries of frontiers, generations ago. It deals in an interesting way with the growth of vernacular architecture and its modification as it shifted location and came under the influence of a new environment. The book shows that local materials—whether field stone, hand-made bricks, or adobe blocks—could, under sympa-

(Continued on page 218)

AGAIN

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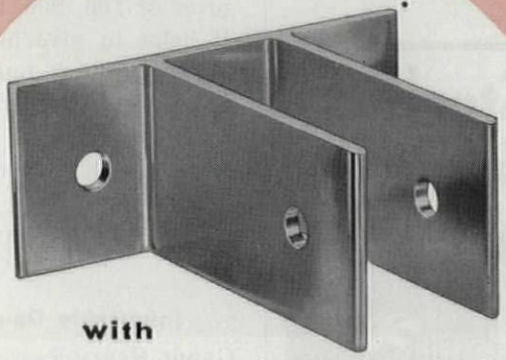

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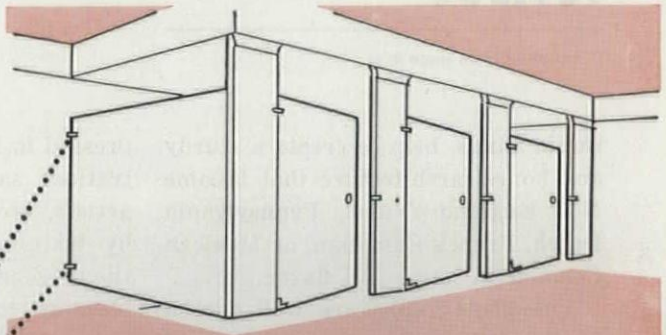

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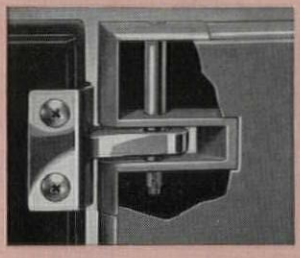

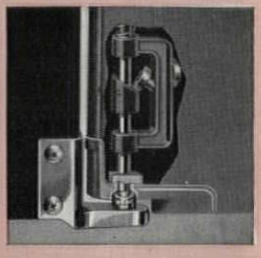

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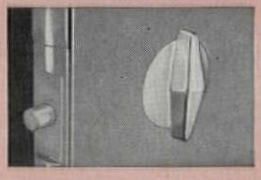

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(Continued from page 216)

thetic hands, help to create a sturdy and honest architecture that became New England Yankee, Pennsylvania Dutch, French Canadian, or Mexican Colonial in name and flavor.

The photographs are well chosen to show the influences of site and climate on form and function, as expressed in local materials. The illustrations satisfy the critical eye of artists, architects, and laymen who, by training or intuition, recognize the presence of good composition and pleasing tonal values of light and shade. However, photographs alone do not always tell a complete or accurate story; therefore, in order to remedy this deficiency, an adequate text explains the illustrations in an interesting manner and gives a desirable continuity to the presentation. Each illustration is accompanied by ample adjacent written material that emphasizes the message of the picture.

The major thought left to the reader of the book is that these anonymous early buildings in North and South America are important functionally and esthetically and significant as an expression of the cultures of 100, 200, or 300 years ago. It helps to give belated importance to the minor buildings that are present but not always seen. Now we shall observe this indigenous architecture with keener interest.

E. PICKERING, Dean
College of Applied Arts
University of Cincinnati

inimitable Gaudi

Gaudi. *Henry-Russell Hitchcock. Published by The Museum of Modern Art. Distributed by Simon & Schuster, New York, N. Y., 1958. 52 pp., illus. $1.95*

"Bizarre" may be the word to sum up an individual's first reaction on seeing Gaudi's work, a representative selection of which was recently on exhibit at the Museum of Modern Art. Superficially, Gaudi's style appears to be a combination of Disney's Fantasyland, the wildest elements of the Baroque and Rococo, and medieval and Gothic architecture as designed by someone in a nightmare. The immediate question that arises is, what this type of architecture can mean to us today.

Judging Gaudi and his works in the light of today's architecture, with its emphasis on linear values and mass, is impossible. Henry-Russell Hitchcock, in his analysis, summarizes the difference of approach which exists between Gaudi and the majority of today's architects, "The slanting piers, the strange non-geometrical forms of the arches and vaults, the sudden shift in material: all suggest the work of

(Continued on page 222)

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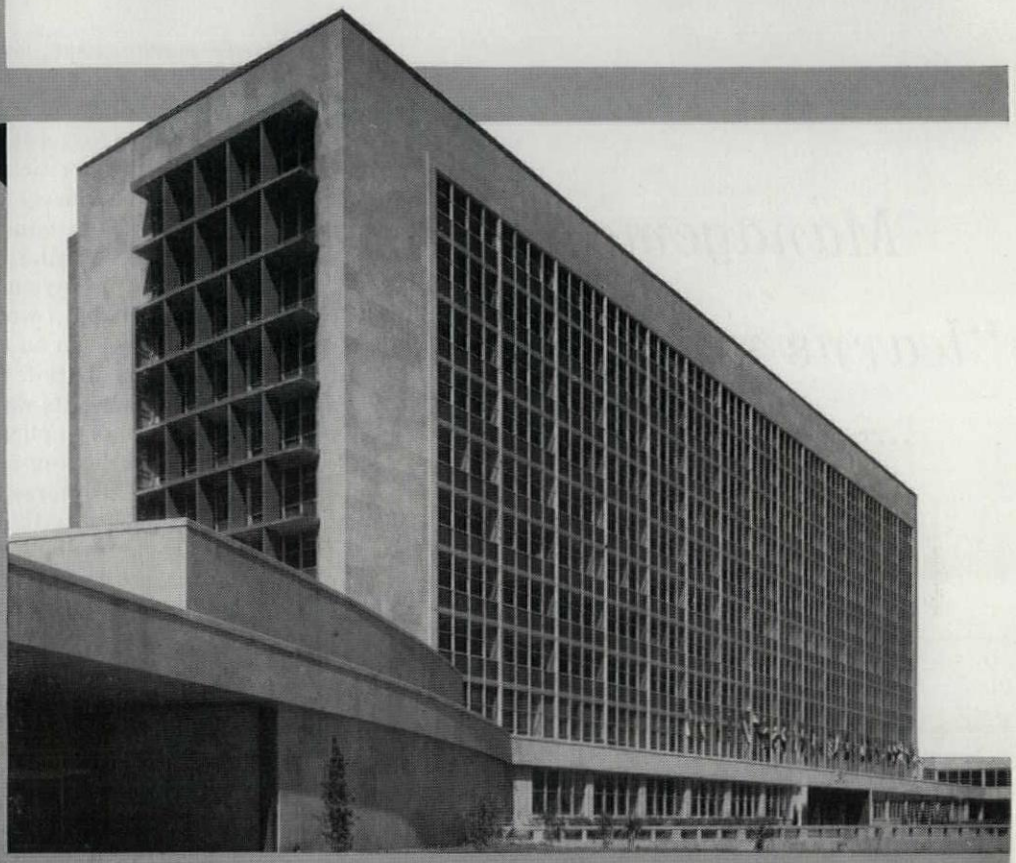

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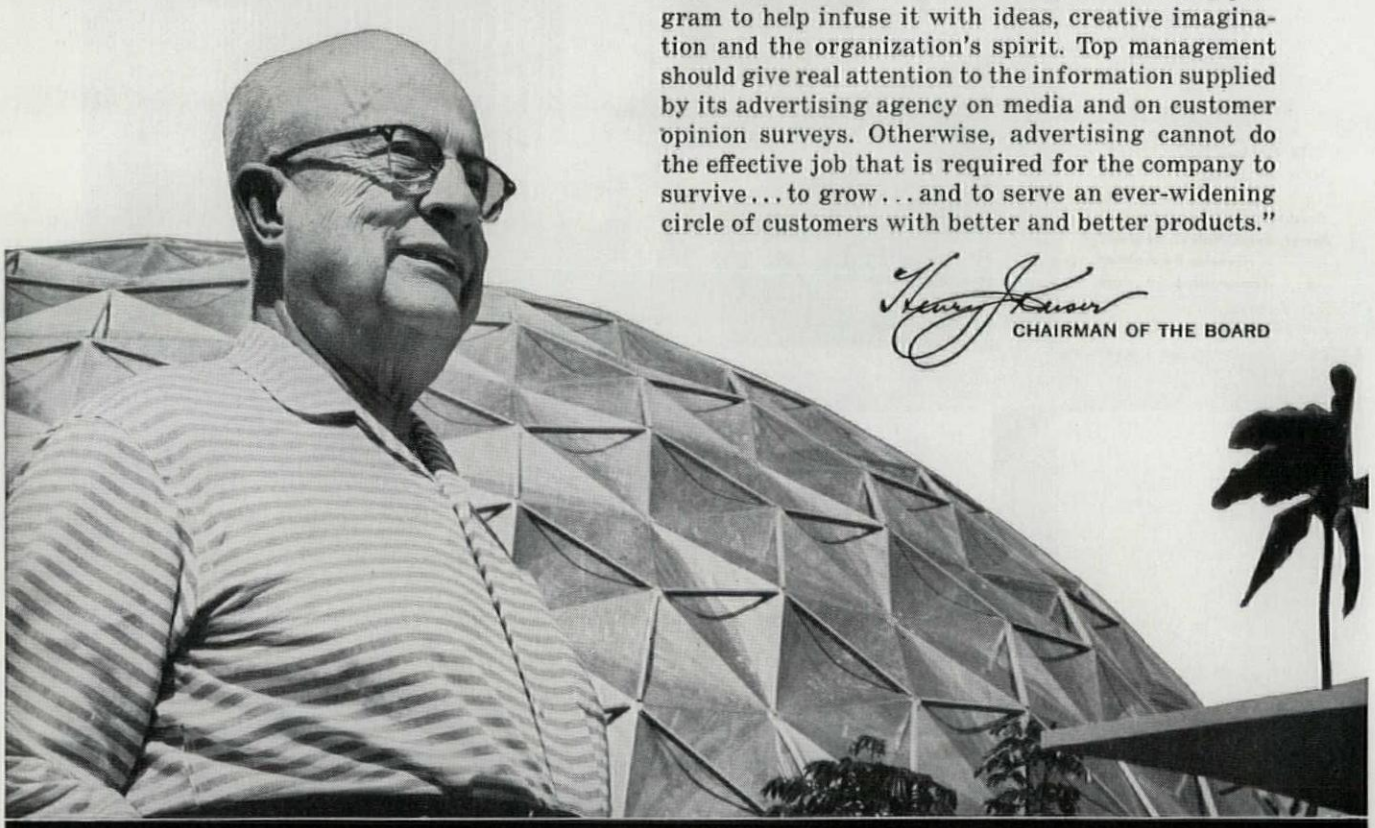

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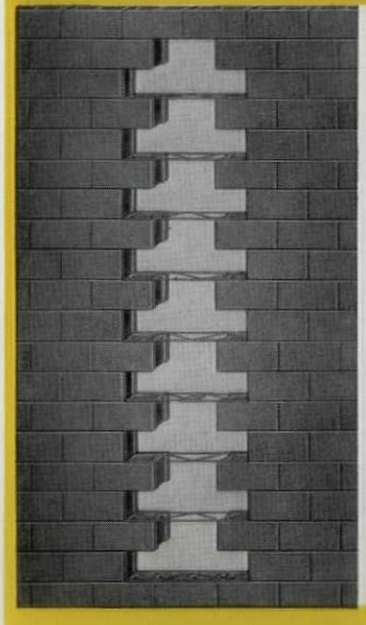

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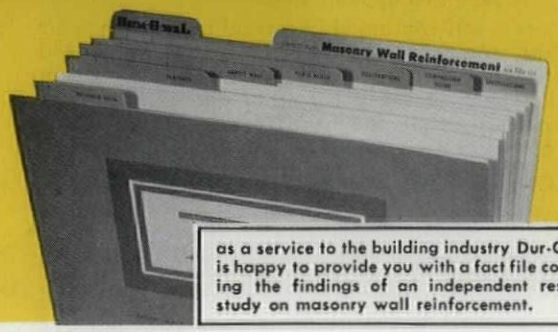

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(Continued from page 218)

a genial amateur, master of statics and mad about the expression of forces, rather than an architect working out his buildings with T-squares and triangle." Gaudi cannot be compared and he cannot be imitated. His buildings, both in design and construction, are an expression of his personality. The only way Gaudi can be judged is on his own terms and it is precisely because of this that he can still be meaningful today.

In evaluating Gaudi, even on his own terms, two factors have to be borne in mind—time and place. Gaudi managed to free himself from the former but was influenced by the latter. He lived from 1852 'til 1926 and the majority of his work, except for the unfinished Church of Sagrada Familia, on which he worked 'til his death, falls in the period from 1880 to 1910. Stylistically, this period is identified in its beginnings with the formal academicism of *L'Ecole des Beaux Arts* while toward its close it overlaps the era of the Art Nouveau. Gaudi did his work in and around Barcelona and the influences of his environment are visible in his work. His use of tile, ornametation, and especially wrought metal, is in the direct line of the Spanish architectural heritage, even though his use of these elements is a new departure.

Gaudi's rejection of the prevailing eclecticism and his exploration of a different line of approach to architecture is what makes him significant. There is a tendency to lose sight of this fact. Attempts are being made to cast Gaudi as a precursor of various trends in modern art, if not in architecture. It cannot be denied that elements of Gaudi's buildings—such as his chimneys, ventilators, and finials—resemble modern, abstractionist sculpture. The mosaics which adorn his façades find a parallel in non-objective painting. His preoccupation with undulating walls and flowing surfaces remind one of Le Corbusier's work. More significant than Gaudi's possible role as a precursor of this or that style is that in all his work Gaudi emerges as a man who has remained true to himself.

In expressing his faith in himself, Gaudi explored a distinct line of architectural styling. It is easily possible not to like Gaudi's ideas (that remains a question of individual taste). But by following his convictions, Gaudi has shown that there remain other vast fields of architectural development for exploration. His work causes one to re-examine generally accepted ideas. His buildings—which are an inseparable blend of structural engineering, ornamentation, and metal working, and in which an astonishing use of materials is employed—call to mind

(Continued on page 228)

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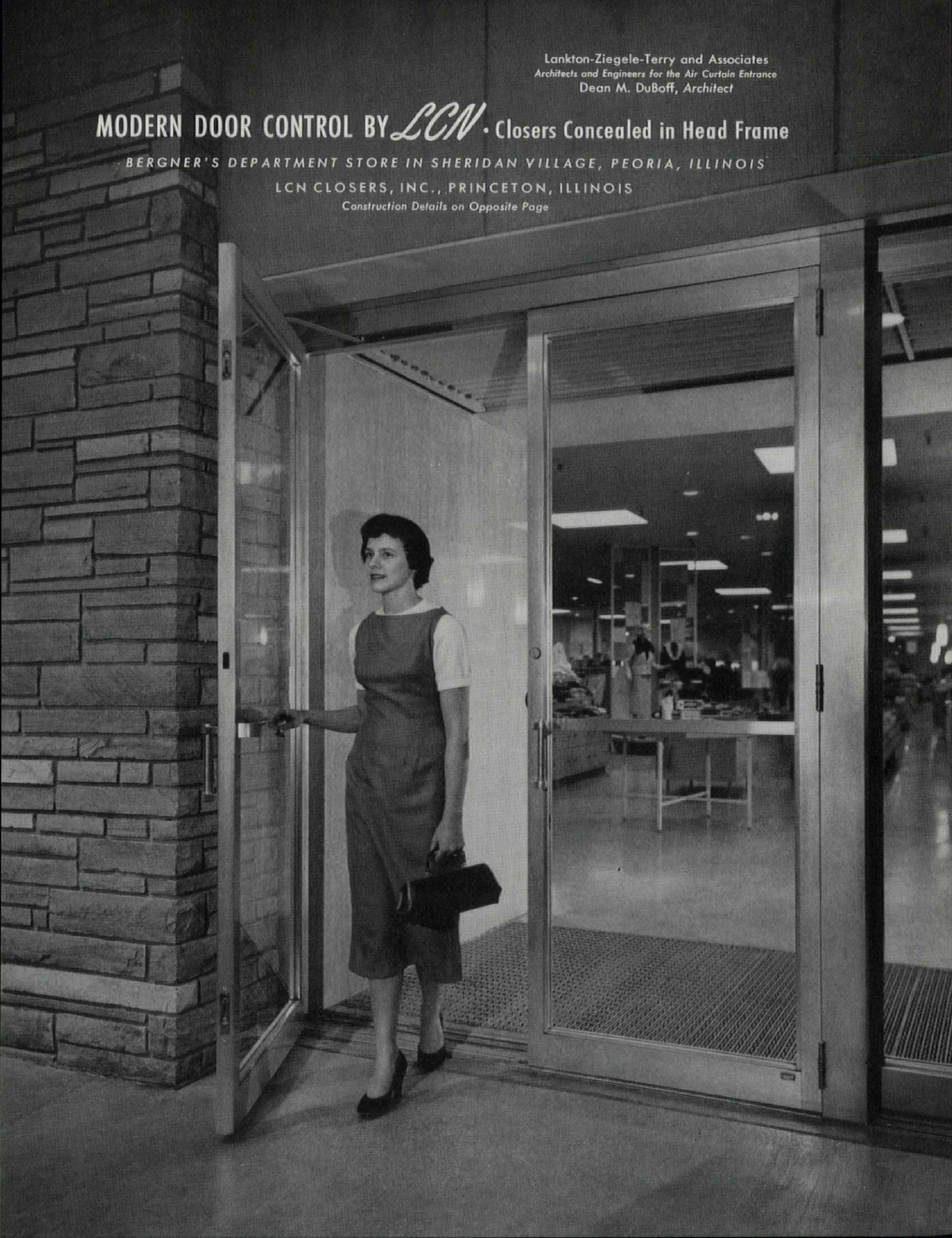

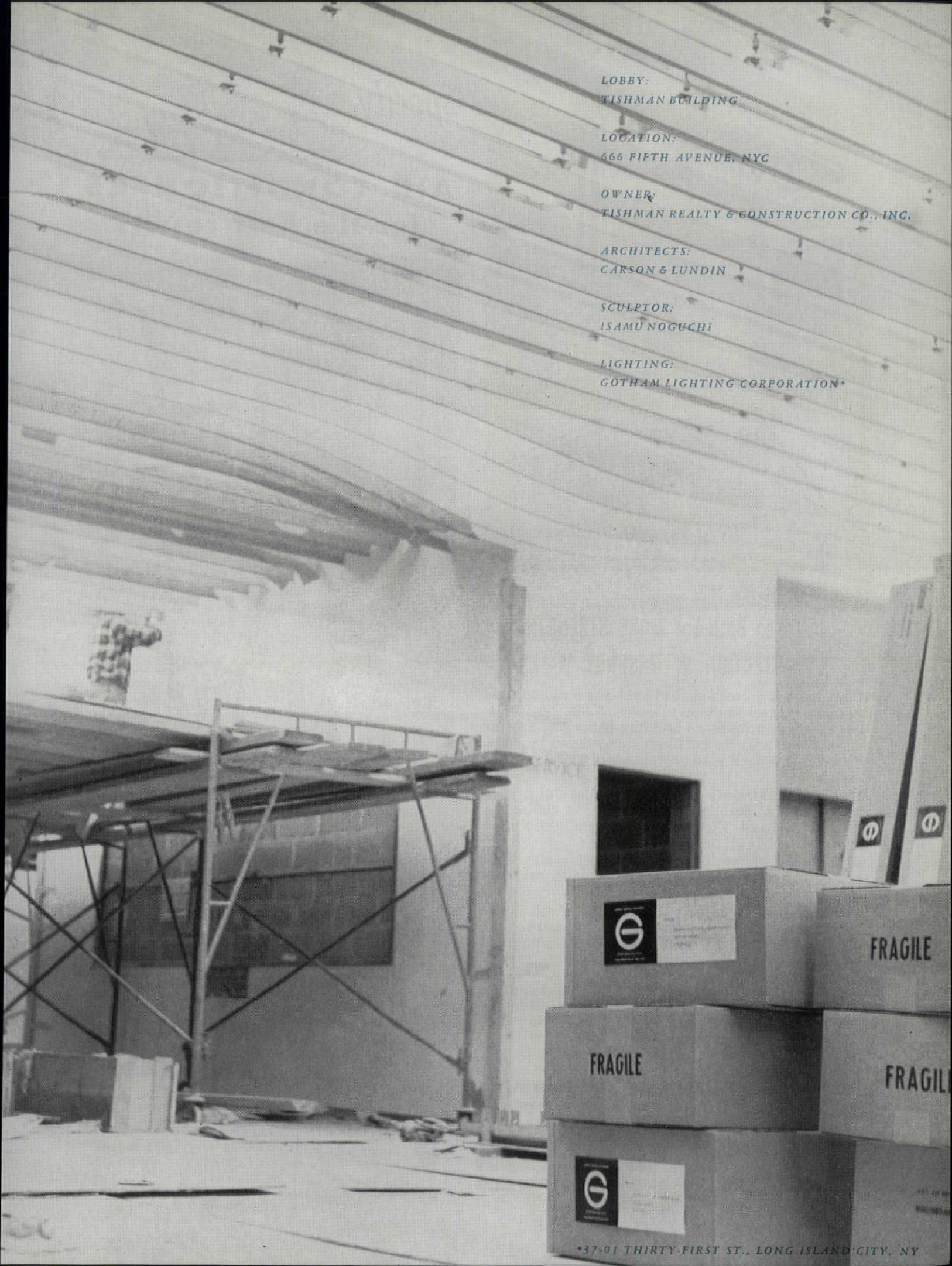

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ARCHITECTS:
CARSON & LUNDIN

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LIGHTING:
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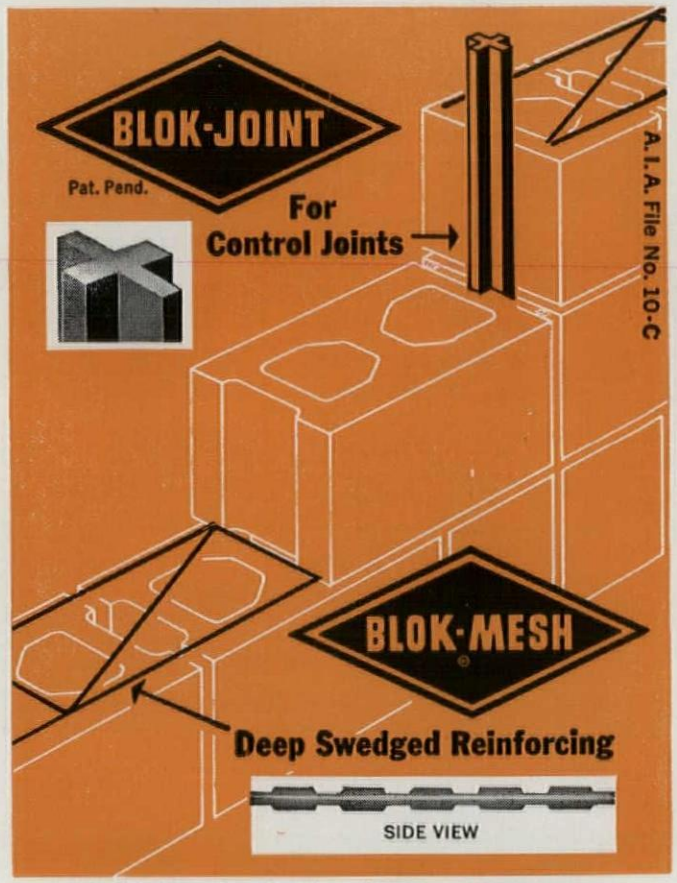

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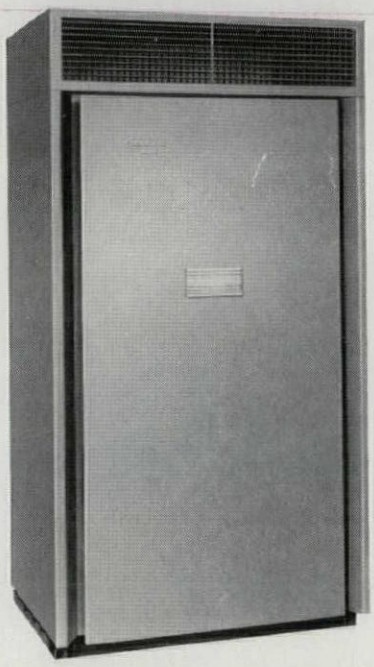

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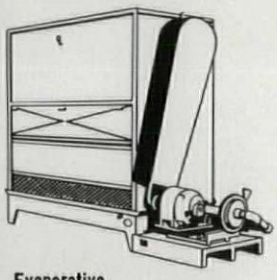

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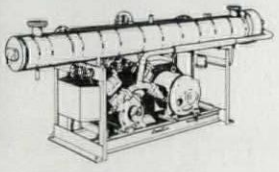

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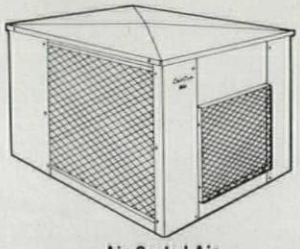

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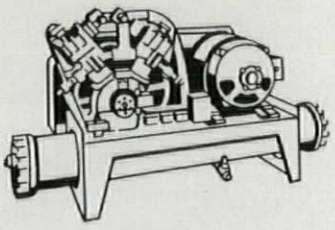

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reviews

(Continued from page 222)

that architecture is not simply engineering but is an art form to which other arts and sciences contribute elements. Gaudi also stands as a reminder that architects should not be afraid of their own imagination and of their ability to dream a little.

DR. FREDERICK HERMAN
College of William and Mary
Department of Social Studies
Norfolk, Virginia

Apollo and the machine

The Modular Number Pattern. *Ezra Ehrenkrantz. Alec Tiranti Ltd., London, England, 1957. Distributed in U. S. A. by Transatlantic Arts Inc., Hollywood-by-the-Sea, Fla., 1957. 82 pp., with mountable plastic number pattern tables inside back cover. $6.75*

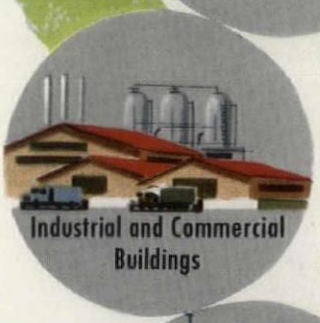
According to Plato,[1] "all things received their shape from the Ordering God through the action of Ideas and Numbers." Machines now shape things through the action of numbers and in a seemingly disorderly and haphazard fashion. Proportional systems based on Euclidean geometry, that is to say on man's empirical use of space, became clouded in the not-so-distant past. Pythagoras and Leonardo, Vitruvius and Palladio were relegated to the neolithic age, as their acquisitions could not be of any usefulness to what followed the Industrial Revolution. Our tools are different and this fact presupposes that our use of space must also be different,[2] subjected only to quantitative analysis. To "factorise" a building—a term used by Ehrenkrantz — has been the concern of many people for some time: from Boston's Bemis and his Evolving House to the famous A62 Project of the Producers Council - American

(Continued on page 238)

[1] *Timaeus*

[2] *Henri Poincaré describes on a practical plane the Riemann geometry as being more appropriate than the Euclidean to two-dimensional beings living on or under the surface of a sphere* (Science et Hypothèse); *this perhaps, explains the popularity of some medium-size "geodetic" domes.*

Gain new individuality for Shopping Centers with . . .



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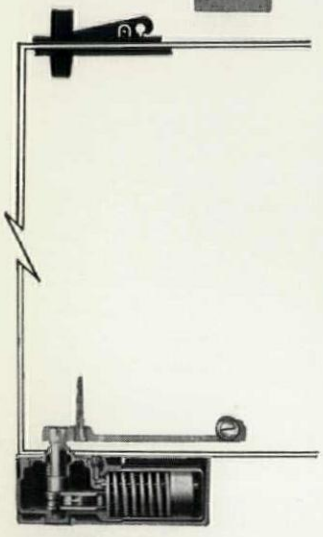

Push the door either way—the return to closed position is gentle and quiet, making two-way door traffic safer and more rapid. RIXSON Duo-checks are especially desirable for doors where busy people pass through with loaded arms . . . carrying trays, pushing wheeled carts, etc. Where specified, a hold-open is built in that automatically holds the door when pushed open to 90° on either the right or left swing or both. A gentle push or pull releases the hold-open.

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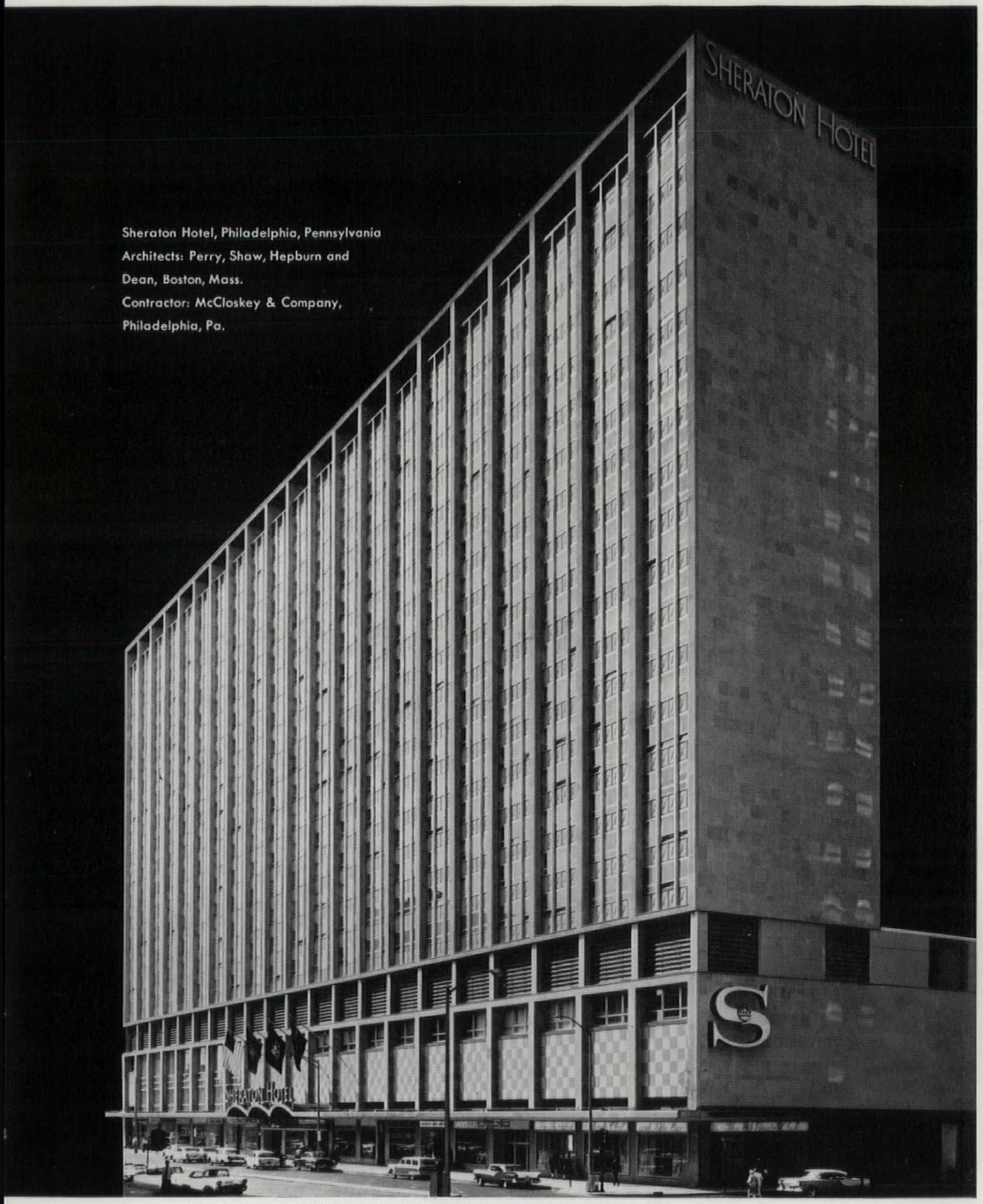

Sheraton Hotel, Philadelphia, Pennsylvania
Architects: Perry, Shaw, Hepburn and Dean, Boston, Mass.
Contractor: McCloskey & Company, Philadelphia, Pa.

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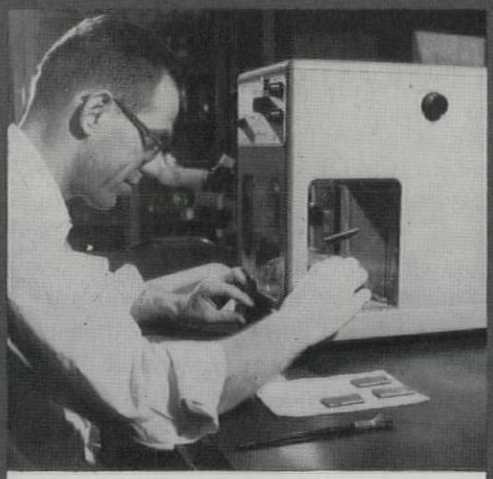
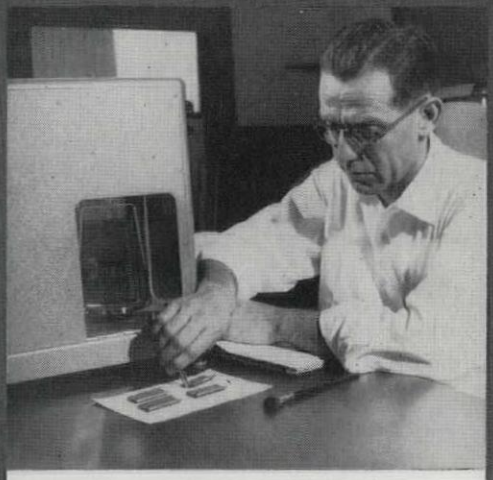


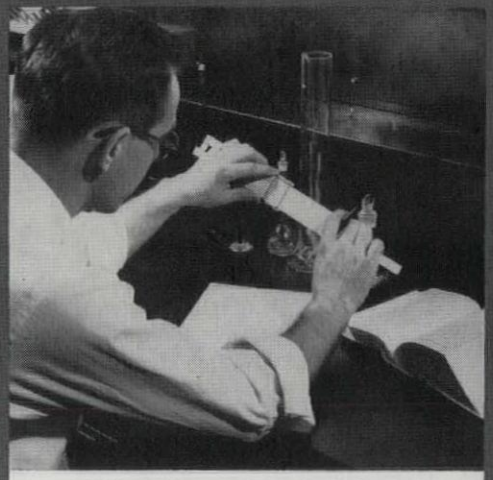
1 Analytical weighing of specimens prior to testing

2 Steam condensate corrosion test

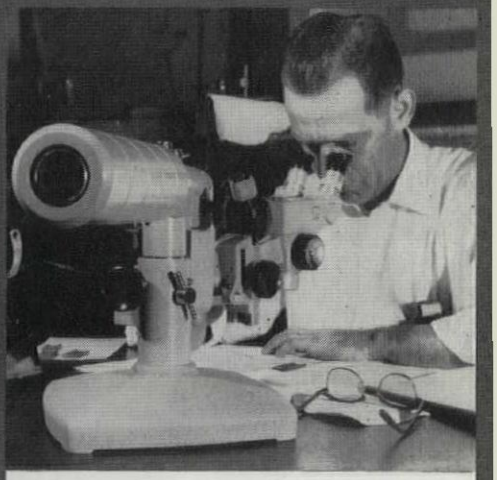
3 Cleaning specimens with inhibited hydrochloric acid



4 Second analytical weighing to determine corrosion weight loss



5 Calculation and statistical analysis of laboratory test results



6 Final examination of specimens under low power magnification

Extensive testing program proves new 4-D Wrought Iron more corrosion-resistant than ferrous substitutes

Test results from the Byers Research Laboratory lend documentary support to the superiority of new 4-D Wrought Iron—over standard Wrought Iron as well as ferrous substitutes.

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BYERS WROUGHT IRON

Comparative Analysis of 4-D Wrought Iron Corrosion Tests

Tests	4-D Wrought Iron	Standard Wrought Iron	Ferrous Substitutes
Severe industrial atmospheric continued exposure 17 years	Corrosion weight loss 540 grams/sq. ft.	Corrosion weight loss 655 grams/sq. ft.	Not included in test
Steam condensate return line	*At least 25% greater corrosion-resistance than standard Wrought Iron	No failures 10 years (still in service)	Complete failure after 2 years
Aerated salt water—5 weeks (Short term test—points indicate 4-D Wrought Iron curve flattening out at much lower rate of attack)	Corrosion weight loss 146 mg/sq. in.	Corrosion weight loss 170 mg/sq. in.	Corrosion wt. loss 226 mg/sq. in.
Brine piping	*At least 25% greater corrosion-resistance than standard Wrought Iron	No failures 23 years (still in service)	Complete failure after 7 years
Salt water, Gulf of Mexico ¼ inch plate—17 years	Corrosion weight loss 4 mills/years (minimum plate thickness now 3/16") Still in excellent condition	Not included in test	Corrosion weight loss 30 mills/years; plate badly pitted, perforated
Downspout	*At least 25% greater corrosion-resistance than standard Wrought Iron	No failures in 29 years (Still in service)	Complete failure after 18 years

*In this application no long term test data yet available on 4-D Wrought Iron. Results shown are derived from short term tests.

reviews

(Continued from page 228)

Standards Association-AIA, where layers of bricks and window sashes were interchanged and reassembled in a formidable number of ways. Basic numerical values were proposed, some related to the materials or their handling, some to the processing machines, some to facilitate assemblies, and some to unify the foot-metric systems (4 in. or 10 cm modulus). Behind this was, perhaps, the dream of a unified human environment made of standardized buildings with only quantitative variations: more or less windows, more or less layers of brick, etc.

However, the search for a set of particularly chosen set of numbers suitable to both men and machines, rather than for a single size modulus applicable to everything, was also intensified during the last decade. Le Corbusier's Modulor starting with a basic dimension related to the human body and with 51 numbers in two sets of ϕ progressions remains essentially a design tool more useful in the drafting room than in industrial production, if we make exception of certain prefabricated assemblies of Jean Prouvé. Alfred Neumann in *Humanization of Space* presented shortly after Modulor 1 a more extensive set of numbers (also in ϕ progression, based on "anthropometrics" and a "geometrical unit") which he called the Mϕ System.

Ehrenkrantz now offers the Modular Number Pattern, both as a design tool and for the dimensioning of industrial products and assemblies. He is well aware of the ways of the machine (the first listing in his bibliography is Samuel Butler's *Harmondsworth*, where man-made machines swallow up, at the end, man and machines). But, first, we must congratulate the author for the wisdom and clarity with which he formulated the problem: to seek a set of numbers which will offer a clear relationship between man and product, which will further the

(Continued on page 242)

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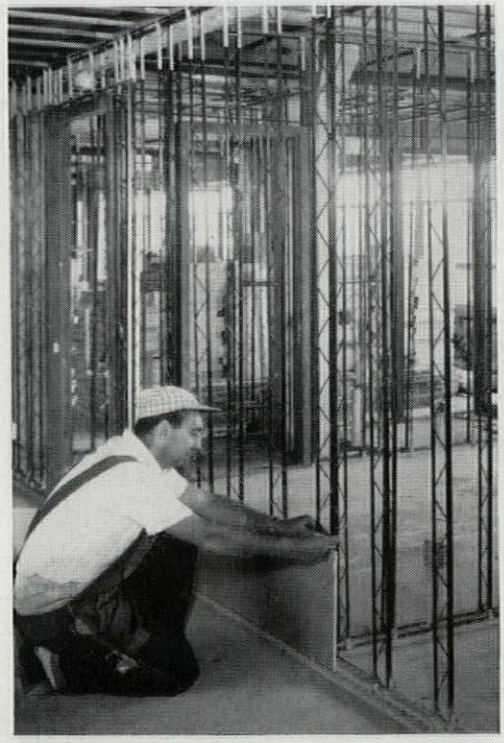
Suburban Community Hospital, Cleveland, Ohio.
Architect: Dalton-Dalton Associates; *General Contractor:* The H. L. Vokes Co.; *Lathing and Plastering Contractor:* J. N. Marino Plastering Co.; all of Cleveland.

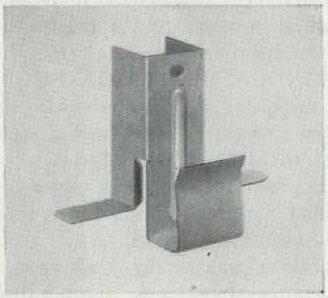


Holostud's *fast clip* holds the stud and starts the gypsum lath—*in one operation.*

Holostud with Gypsum Lath

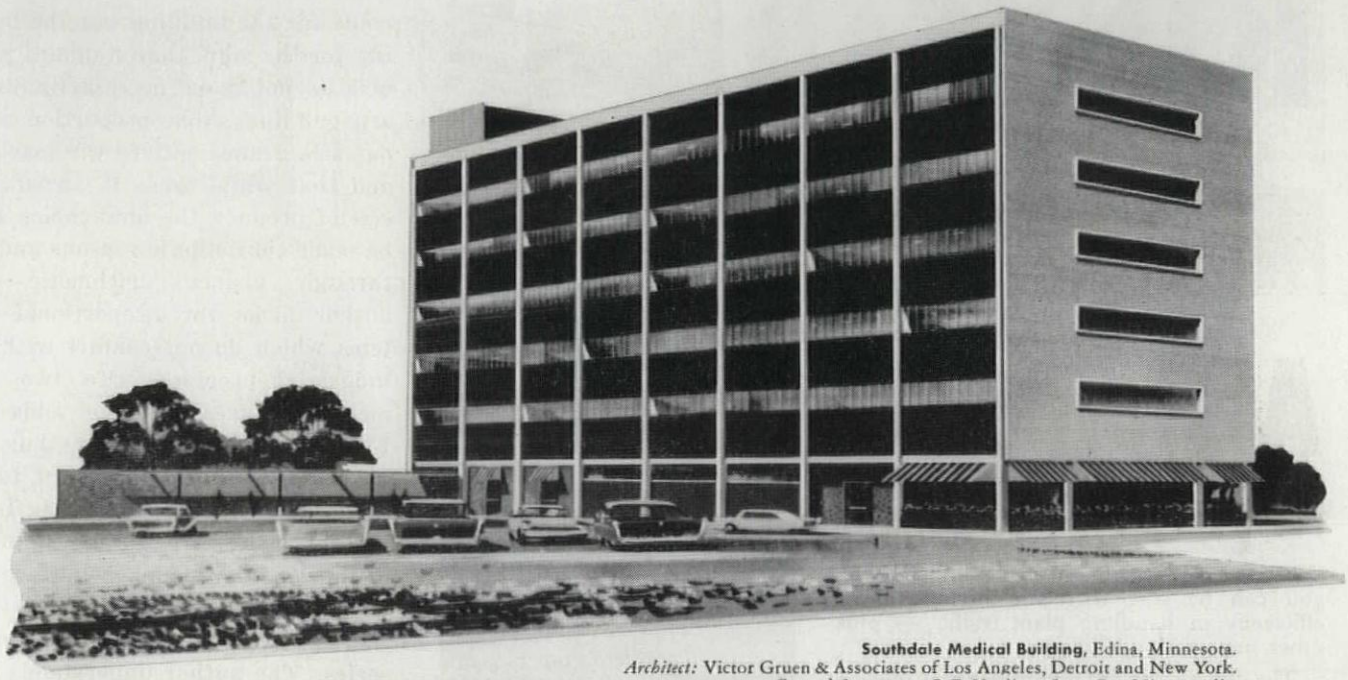
Construction savings count—and the money saved by Holostud in Cleveland's new $2,000,000 Suburban Community Hospital was available for other vital hospital facilities.

Gold Bond's Holostud Wall System for non-load-bearing partitions makes installation faster—the new combination stud shoe and starter clip shown here, for example, saves up to 2½ minutes on every stud. Holostud's open-strut-type construction speeds and simplifies routing of utilities horizontally as well as vertically.

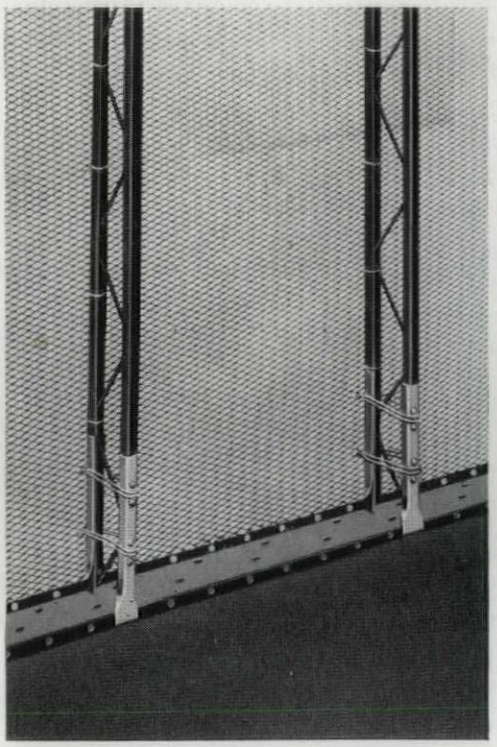


Gypsum lath was used with Holostud here—a system that gives a sound transmission loss rating up to 50 decibels. Gypsolite, the mill-mixed lightweight Perlite plaster, was used as base for Gold Bond Hydrated Finish Lime.

Holostud wall system strength and versatility



Southdale Medical Building, Edina, Minnesota.
Architect: Victor Gruen & Associates of Los Angeles, Detroit and New York.
General Contractor: C. F. Haglin & Sons Co., Minneapolis.
Plastering Contractor: Conroy Brothers, Minneapolis.



No special tools are needed to install Holostud as *neatly and firmly* as this.

Holostud with Metal Lath

The new Southdale Medical Building in Minneapolis is another place where Gold Bond Holostud gave exceptional strength and rigidity to non-load-bearing partitions—with substantial savings.

Gold Bond Holostud, composed of prefabricated steel studs, tracks and shoes, is available in 2½", 3¼", 4" and 6" widths. Studs are made with ½" x ½" angles securely braced by struts welded at 8" intervals. Floor and ceiling tracks are one-piece channel-shaped units with ½" flanges, perforated at intervals for easy lath attachment.

Gold Bond® 3.4 diamond mesh lath was used here, saving labor and material costs because it lies flat, has straight and true edges and *laps evenly.*

For more information on how Gold Bond's Holostud Wall System . . . with either Gypsum or Metal Lath . . . can add economy, strength and versatility to the next building you plan, write Dept. PA-48, National Gypsum Company, Buffalo 2, N.Y.

Gold Bond
BUILDING PRODUCTS
NATIONAL GYPSUM COMPANY

reviews

(Continued from page 238)

standardization of parts, and finally, which will guarantee the designer a maximum of esthetic freedom. Being aware of usually forgotten truisms—such as, that man is not made for the building but the building for the man, that standard products do not make necessarily standard buildings, that proportion without size cannot satisfy the machine, and that while there is an efficient size of product, the final choice must be made for esthetic reasons and not through chance arithmetic — the author looks for proportional systems which do not conflict with the industrial processes. To two geometric progressions, he adds the Fibonacci series, assuring, thus, the basis for an "organic" design, to use the cryptic battlecry of Frank Lloyd Wright. The 107 terms comprised in the Modular Number Pattern are whole and additive but the ϕ proportion is there by way of the Fibonacci series. The author understands well that irrational numbers can be replaced with whole ones in the building field without any noticeable distortions. In addition to this, the reviewer has observed that other systems of proportions are included here, making a total of eight out of ten systems established by the Neopythagorean school, namely:

1. *Arithmetic proportion:* c –b over b –a equals c over c; 1, 2, 3, 4, 5, etc. (prime numbers 7 and 11 are omitted[3]).

2. *Geometric proportion:* c –b over over b –a equals c over b: 1, 2, 4, 8, etc. /1, 3, 9, 18, etc.

3. *Harmonic proportion:* c –b over b –a equals c over a: 2, 3, 6 / 4, 6, 12 / 6, 9, 18 / 12, 18, 36, etc.

(Continued on page 244)

[3] *Due to the omission of 7 and of some of its multiples the last two harmonic proportions cannot be included. However, if we accept additions for substitutes of whole numbers as the author sometimes suggests (4 and 3 for 7, etc.) then all ten systems become applicable: 9. c –a over c –b equals c over a; 6, (7), 9 / 12, (14), 18 / 24, (28), 36, etc., and 10) c –a over b –a equals b over a; 4, 6, (7) / 8, 12, (14) / 12, 18, 21 / 16, 24, (28), etc.*

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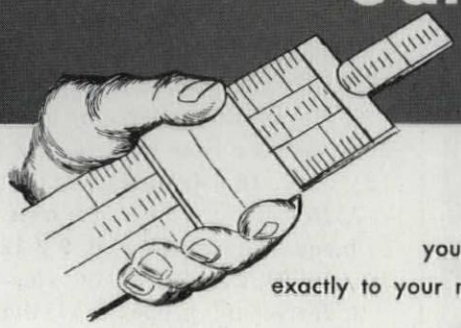

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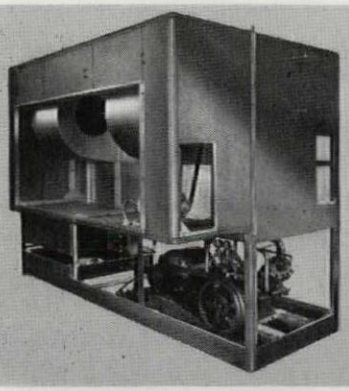

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reviews

(Continued from page 242)

4. *Harmonic proportion:* b –a over c –b equals c over a: 3, 5, 6 / 6, 10, 12 / 12, 20, 24 / 24, 40, 48, etc.

5. *Harmonic proportion:* b –a over c –b equals b over a: 2, 4, 5 / 6, 12, 15 / 8, 16, 20 / 10, 20, (25),[4] etc.

6. *Harmonic proportion:* b –a over c –b equals c over b: 1, 4, 6 / 2, 8, 12 / 3, 12, 18 / 4, 16, 24, etc.

7. *Harmonic proportion:* c –a over c –b equals c over a: 6, 8, 9 / 12, 16, 18 / 18, 24, 27 / 24, 32, 36, etc.

8. *Harmonic proportion* (the Fibonacci series): c –a over c –b equals b over a: 1, 2, 3, 5, 8, 13, 21, etc.

There is no doubt that the MNP offers a vocabulary rich enough to satisfy the industrial production of building parts and the esthetic idioms of contemporary designers, and is capable of reconciling eventually man and machine by the creation of a less antagonistic or arbitrary environment. Its esthetic freedom—unlike the Modulor which, according to Einstein, makes bad design difficult and good design easy — will probably result during the early stages of application in indifferent if not semi-automatic patterns. The architectural examples included in the book are in the nature of shop drawings and contrast sharply with the brilliant illustrations of Modulor 1 and Modulor 2. Nevertheless, it would be a mistake to attribute this to an inherent weakness of the Pattern: esthetic freedom may become the greatest asset of the MNP.

STAMO PAPADAKI

film previewed

"Planning A School Library." *Remington Rand Div. of Sperry Rand Corp., 315 Fourth Ave., New York 10, N. Y.*

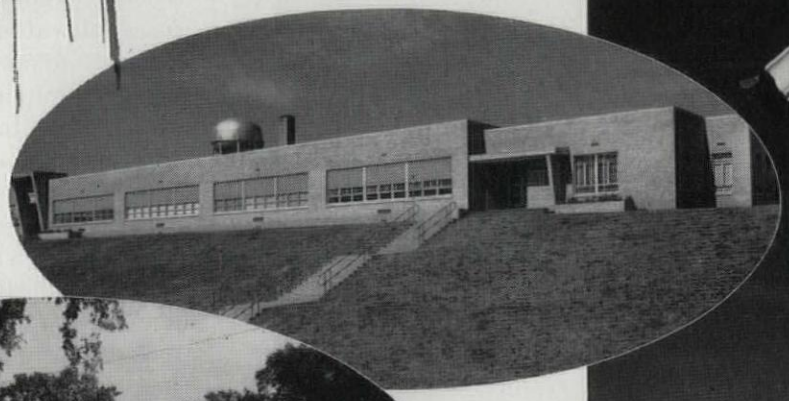
A tasteful and informative, 23-minute, 16mm color film covering a wide

(Continued on page 246)

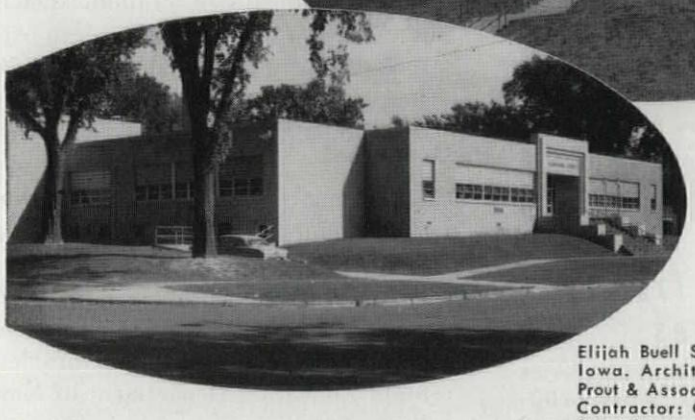
[4] *Numbers in ( ) are not included in MNP.*

in the

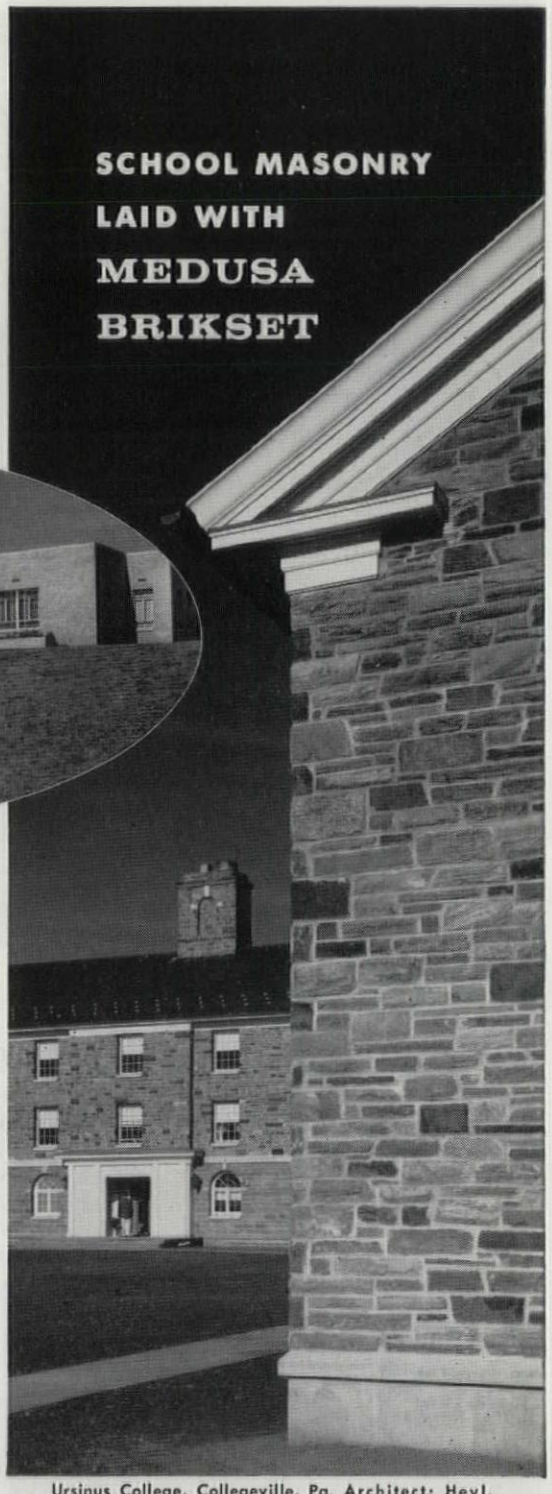
EDUCATIONAL SPOTLIGHT



Henry Sabin School, Clinton, Iowa. Architect: McCann-Prout & Assoc. General Contractor: Clinton Engineering Co.



Elijah Buell School, Clinton, Iowa. Architect: McCann-Prout & Associates. General Contractor: O. Jorgensen & Sons Construction Company.



Ursinus College, Collegeville, Pa. Architect: Heyl, Bond & Miller. General Contractor: Irwin & Leighton. Subcontractor: John Conti Company Incorporated.

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reviews

(Continued from page 244)

range of library planning techniques was recently previewed in New York.

Of interest to architects as well as school administrators and librarians, the film demonstrates how the efficiently designed library serves the educational objectives of the modern school. Problems involving correct space allocation, placement of the library, arrangement of various types of equipment, the purpose and uses of furniture, kinds of lighting effects, and floor coverings are considered.

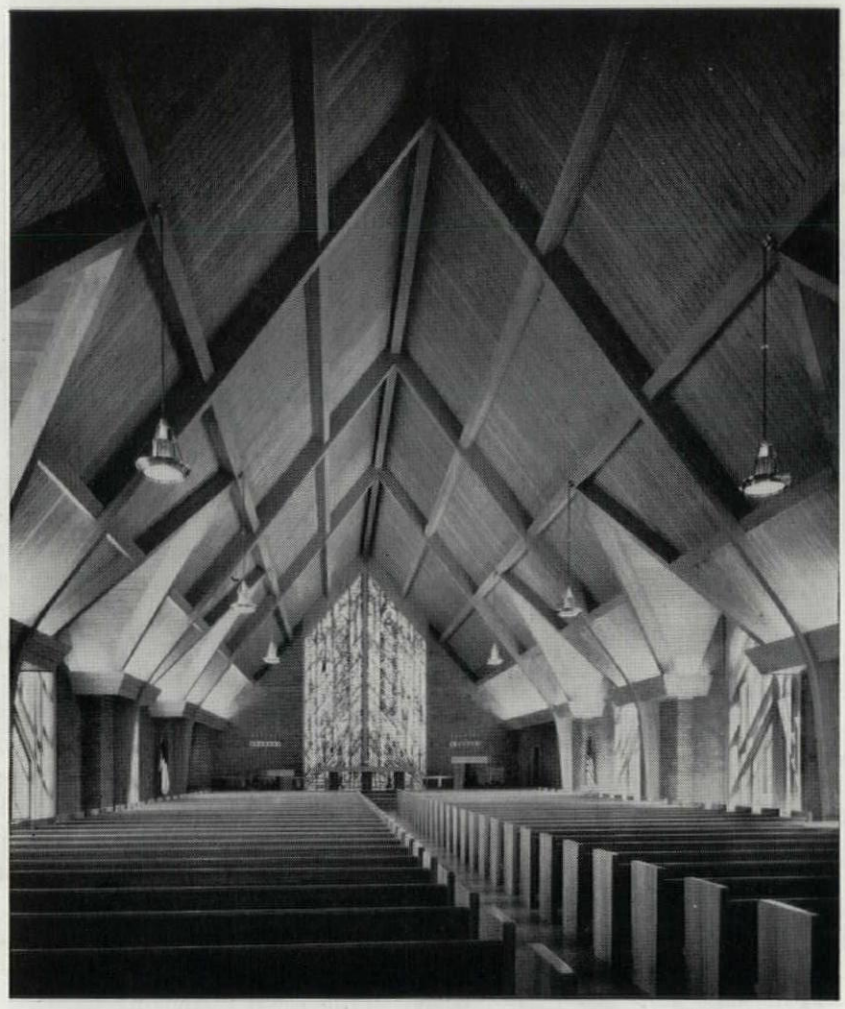
Some of the important library-field figures who attended the preview included Dr. Lillian Lewis Batchelor, President, American Association of School Libraries; Miss Dorothy P. Nassau, Assistant Director, Philadelphia School Libraries; Miss Jane B. Hobson, New Jersey Department of Education; Dr. Maurice Tauber, Columbia University School of Library Service; Miss Mary Bier, New York Bureau of Libraries; Miss Anna Clark Kennedy, Supervisor of School Libraries, State Education Department of New York.

Representatives of Columbia University, Pratt Institute, Queens College, St. John's University, New York high school libraries, and professional magazines, as well as New York architects were present.

The film may be borrowed by architectural and educational associations, individuals engaged in planning new school buildings, school libraries, and national or state libraries. Available in 45 Remington Rand branch offices across the nation, arrangements for borrowing the film may be made by contacting any local sales office or by writing Remington Rand Division of Sperry Rand Corporation, 315 Fourth Ave., New York 10, N. Y. Descriptive folder No. LB-804, highlighting the film, is also available. B. M.

(Continued on page 248)

"the fine line of RILCO"



Rilco arches span 43' 6", spaced 23' 6", center height 38' 8".
Rilco purlins, 9" x 13".
Twelve dormer valley beams, 7" x 13".

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"We were completely happy with the cost, the erection, the appearance, and the grade of the arches," adds the architect.

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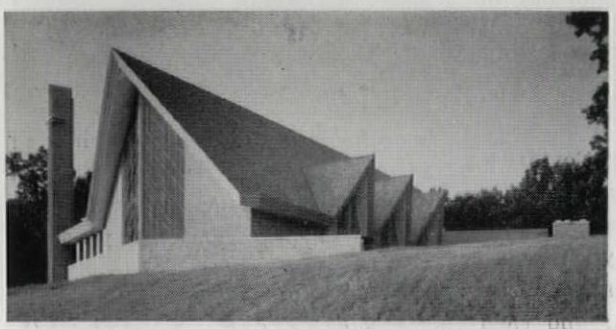

Zion Evangelical Lutheran Church, Kalamazoo, Mich.
Architect: Charles Edward Stade, Park Ridge, Illinois
Contractor: Miller-Davis Company, Kalamazoo, Mich.
Photos: Hedrich-Blessing

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reviews

(Continued from page 246)

the factory-built house . . . ?

Fabricating Houses from Component Parts. *Norman Cherner. Reinhold Publishing Corp., 430 Park Ave., New York 22, N. Y., 1957. 208 pp., illus. $7.95*

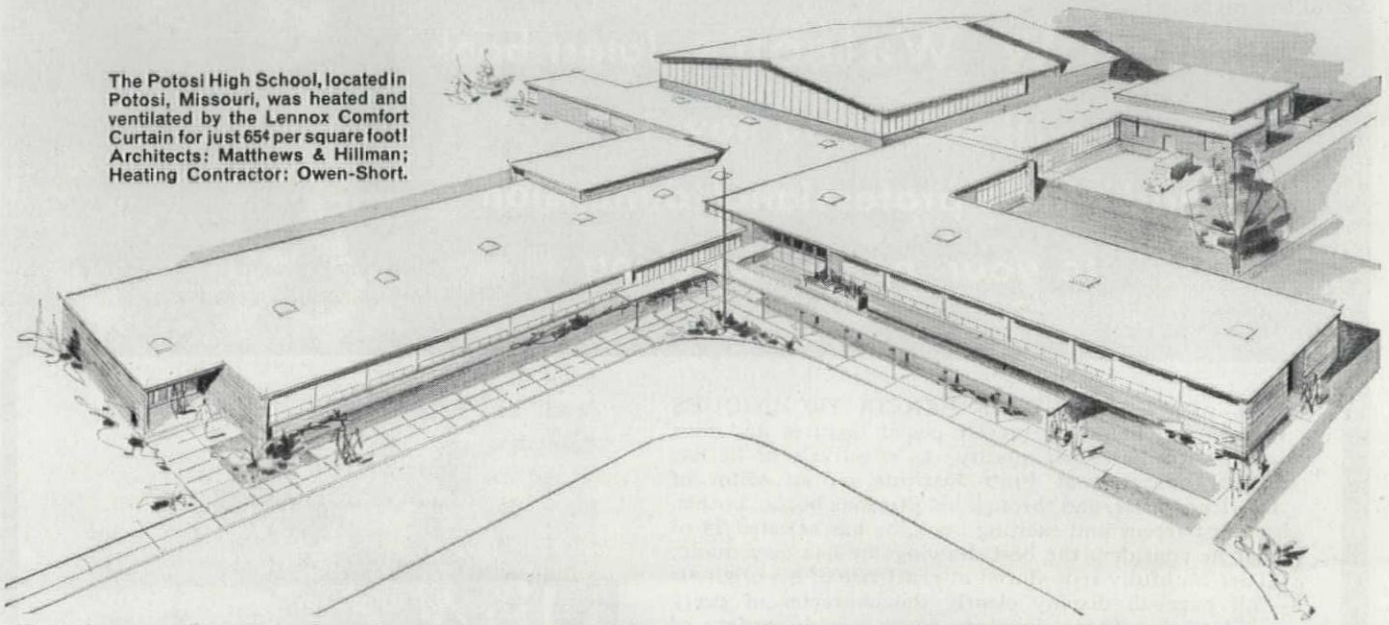
Author Norman Cherner, in the Preface to his book, states: "If the rate of growth of prefabricated houses is an indication, the trend in residential architecture is toward a factory-built house." Long a student of low-cost housing, Author-Designer Cherner has oriented his book primarily to the consumer. With his text and illustrations, he presents a "workbook for people of average income" intended to enable the budgeted-but-brave amateur to achieve, through the substitution of his own labor for his limited funds, a "livable, esthetic house under six thousand dollars, adaptable to low cost Title I FHA Housing."

The book has been published simultaneously in two editions—a hard-cover volume with the above title and a paper-back volume titled *How to Build a House for $6000.* The latter is priced and packaged to appeal to the readers of *Woman's Day,* a consumer magazine with a wide mass-market circulation. The editors of *Woman's Day* actually executed two of the book's house designs as a workshop project, to determine their practicality and building costs.

For the architect, Cherner's book might act as a capsule refresher course on current developments in fabricating houses from component parts. The first part of the book presents fifteen houses, four in Panel Construction, three in Bent Construction, four in Girder Construction, three in Masonry and Foundation Construction, and one in Quonset Construction. Each type of construction is shown through "explosion," details, and types; and each house is shown in photograph or

(Continued on page 252)

Potosi school gets the finest in fresh air heating and ventilating—installed complete with automatic controls—for just 65¢ per square foot!



The Potosi High School, located in Potosi, Missouri, was heated and ventilated by the Lennox Comfort Curtain for just 65¢ per square foot! Architects: Matthews & Hillman; Heating Contractor: Owen-Short.

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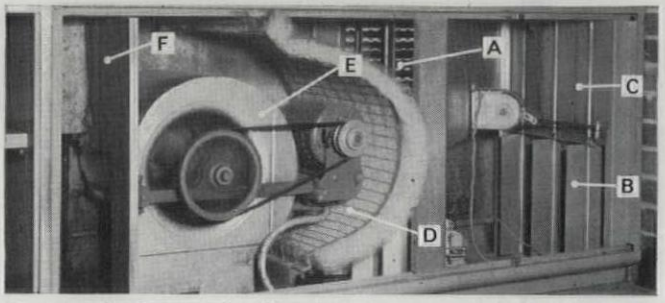

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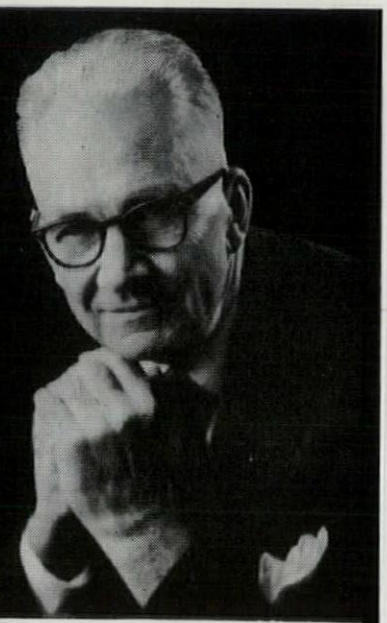

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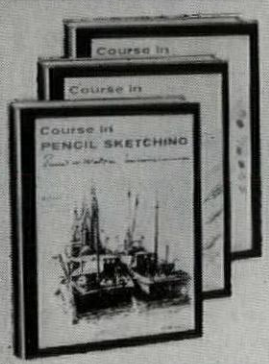

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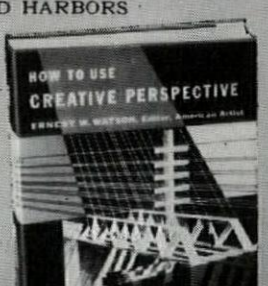

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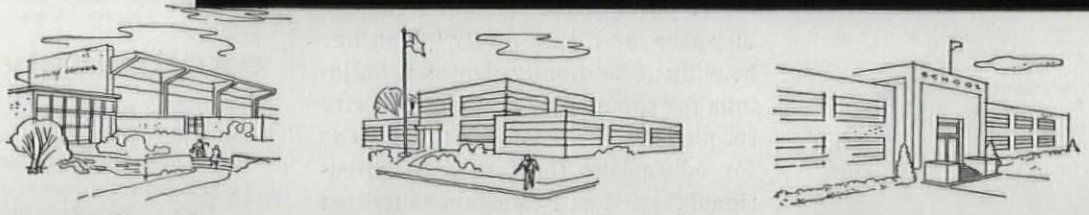

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reviews

(Continued from page 248)

rendering, plans, elevations, sections, and expansion. The second portion of the book analyzes the building materials selected and used during the execution of the two example houses—illustrating them and listing producers' names and addresses in directory form.

Although there is some question as to the possible end-results for the architectural profession of a book that sells the "every-man-his-own-architect" theme, unquestionably the exposure of good design to this new and vast mass-market can result only in an increased awareness of—and hence, we hope, responsiveness to—progressive architecture. L.S.

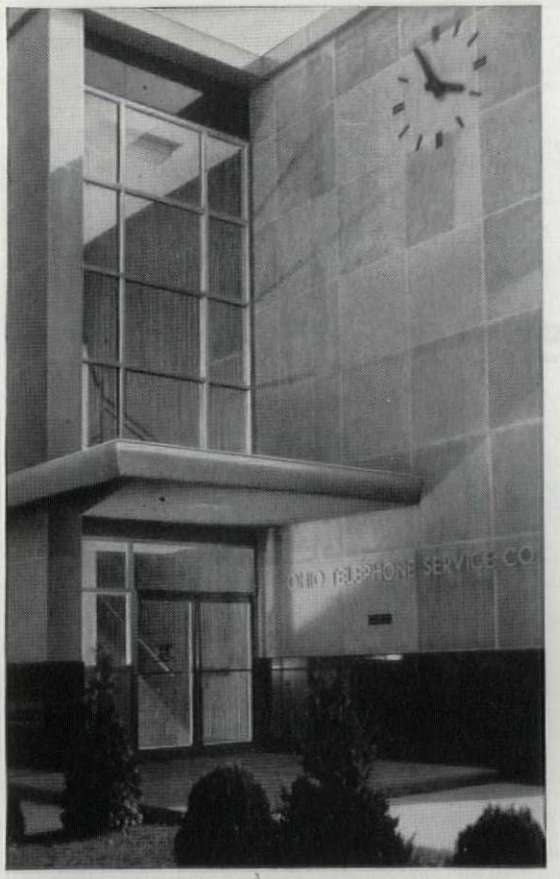
useful reference

Handbuch Moderner Architektur. *Safari Verlag, Berlin. George Wittenborn, Inc., 1018 Madison Avenue, New York, N. Y., American Distributor, 1957. 959 pp., illus., German text. $25*

This book's subtitle, "a history of architecture of our time from the one-family house to the city plan," clearly points to its wide scope and purpose. The following building and planning categories are covered in the 12 parts of the volume: structure in space and time; city planning; housing; one-family houses; buildings for commerce and industry; city reconstruction; hospitals; buildings for education; theaters and recreational facilities; Protestant churches; Catholic churches; buildings for travel. Experts in each of the fields —all of them prominent German architects—have prepared the various sections. Discussions and a total of 1334 illustrations of the best of modern architecture from all parts of the world cover not only specific design problems but also give a comprehensive picture of today's architecture. The book should serve as a useful reference work for practicing architects, educators, students, and interested laymen. I.M.R.

General business office of the Greenville, Ohio, Telephone Company, with Consoweld Platinum Walnut woodgrain pattern on the walls. Consoweld was applied directly over gypsum board. It is also used in the entry, stair halls and corridor, operators' lounge, long-distance operating room, and the manager's office.

Consoweld Laminated Plastic Beautifies Walls, Saves Construction Time on Telephone Building



Entrance to the attractive new building of Greenville, Ohio Telephone Co. Freytag and Freytag, AIA, Sidney, Ohio, were the architects; Fry Construction Company, Greenville, O., was the builder. Consoweld was supplied by Fiddes-Moore, distributors, at Dayton, Ohio.

The use of Consoweld laminated plastic as surfacing for walls cut construction time three weeks on the Greenville, Ohio, Telephone Company building, according to C. W. Fry, of Fry Construction Company.

Consoweld Saved 3 Weeks . . . The architect, Ferd E. Freytag, recommended laminated plastic to eliminate the three-weeks' drying time for plaster before delicate electronic equipment could be installed. Another brand of conventional 1/16-inch thickness, originally considered, would have had to be cemented to plywood. Consoweld 10, 1/10-inch thick, could be applied directly over the gypsum-board walls. Another factor in the choice was Consoweld Twin-Trim matching mouldings, which provide unbroken areas of color.

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(Continued on page 256)

case study

Ironbound floor in Case Institute of Technology fieldhouse, Cleveland, Ohio. Architect: Small, Smith, Reeb and Draz, Cleveland. General Contractor: Sam W. Emerson Co., Cleveland. Installer: Ironbound Co. of Cleveland.

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(Continued from page 254)

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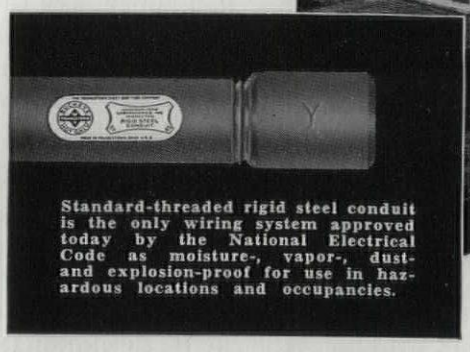

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materials & methods

(Continued from page 127)

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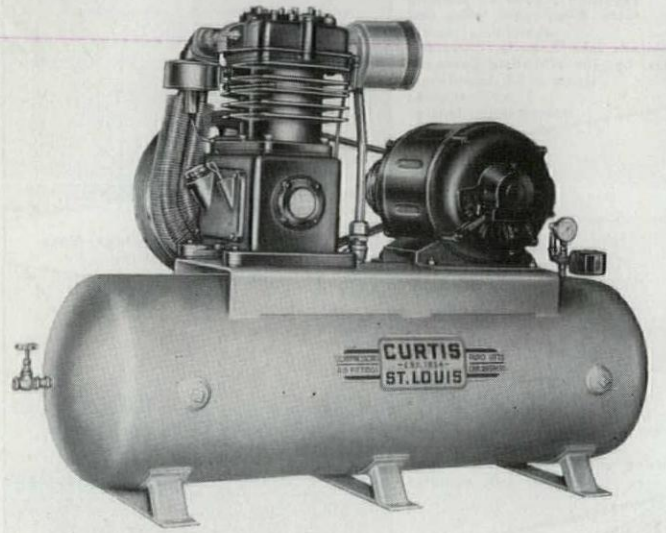

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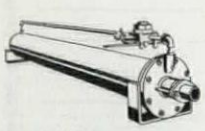

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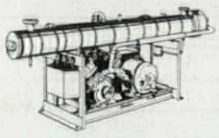

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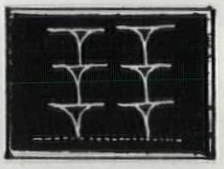

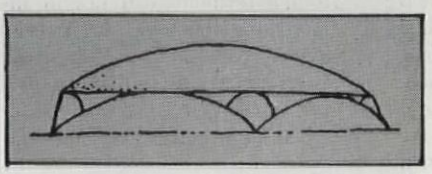

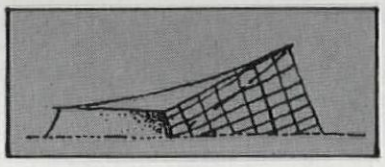

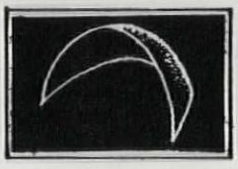

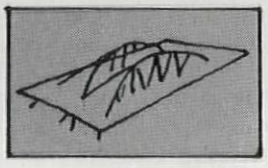

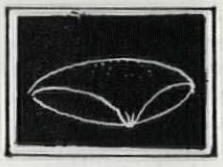

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designing a camel

The building industry in the United States today is not suffering from any serious lack of efficiency or, as is often charged, from a technological lag in industrial production methods. It is perfectly possible for competent combinations of architects, engineers, manufacturers of products, and builders to produce structures that are both handsome and efficiently constructed.

The fact that this desirable result is often *not* accomplished is due to confusion as to proper organization of this complicated combination of design and construction processes, which is not so much an industry as it is an art, in the full sense. It is a tremendously complex art, with many functions that must mesh perfectly for maximum efficiency. All too often each part is unsure of its true and complete function, and all too often each part is trying to do the work of *other* parts. This leads to the danger of each part not doing its *own* job as well as it might.

We are perhaps too eager to accept the current concepts of *team, committee, group,* and similar collective terms; and as a result we may have lost individual punch and original creative direction. Not only in the building industry but also in all of American life, we are: (a) too inclined to settle for group action at the expense of creative individuality; (b) too anxious to supervise, or give advice, in areas in which we are not skilled.

There is a lot of joking about the committee attitude, or what has become known as group action. Students of the social scene are seriously worried about some of its imports. A comment which I heard first about a month ago has been widely published since: the one that says that a camel is a horse designed by a committee. And yet, despite joking and worry, we still seem to revere committee, team, group decisions.

Like many other things that have later degenerated, this attitude began as a good move, applauding and stimulating cooperative effort. But it has passed through various phases to low points like the one that is known as brainstorming. Have you ever sat in a brainstorming session? The idea is that the *group* generates creative thought—the individual is there only as a part of the group. The ideal group leader in a brainstorming session is one who is scarcely noticeable as an individual, but simply serves to keep the group groping.

The point, obviously, is that no one in the group must claim ideas as his own, because he will then be considered *unteamlike;* nor must he admit that ideas have come from another, because then he will be admitting his own inadequacy, by comparison, as a *contributing team member.* The whole idea will, eventually, be self-defeating: the latest book on the technique of brainstorming advertises that it teaches also personal, private, brainstorm methods. Each person, that is, can be a committee of one. Personally, I find that thought enervating; it's hard enough to be an individual today without trying to be a group.

The danger is equally obvious, I think. It is that this technique—the leaderless and coachless team, the brainstorm session, committee decisions, and group action—leads to atrophy of the creative process and general debilitation of the individual. It is, in short, a means of avoiding the decision to let each one do his task without interference and of avoiding the question: Who should do what?

Translating this into terms of architecture and the building industry, I believe that too many architects are trying to poke into the business of contracting and building; too many manufacturers are trying to poke into the business of design of component parts of buildings; too many builders (especially in the residential field) are moving over into the area of design and planning; and too many entrepreneurs and financiers of construction, who have become owners and clients, are messing in design and specification matters.

I could carry this little diatribe even further if I wanted to. I could ask what right a Robert Moses has to function as a city planner—or non-planner. I could ask, on the more constructive side, whether many branches of design engineering have really been given their due places in the building-design process. I could ask also whether any true, demonstrable function is being served by some newer "elements" in the industry: the package dealer, the ladies-finishing-school decorator, and so on. I could question whether these committee members should have any voice at all in building-industry collaborative efforts.

I think that the reason these questions must be asked is that the loose concept of a "team" that both designs and constructs buildings leaves no one an apparent responsibility of his own. And the architect, or the architect-engineer, knows that he has, in the long run, both a moral and a legal responsibility for design—for design concept, design expression, design specification, and design supervision. If the users and the viewers of buildings don't like those buildings, they're not going to blame any committee; they're going to blame the architect. And if legal questions arise, no argument that a decision was group judgment is going to free the architect from legal hooks having to do with items in his contract documents.

At the moment there seems to be a hesitation on the part of some architects to do their full design jobs with authority. (A prominent, highly respected member of our profession recently said for publication: "Architecture today is produced by men sitting around a table, and the man who makes the most intelligent suggestion is in point of fact the architect, whether or not that is his title.")

There also seems to be a hesitation on the part of some builders to develop the most efficient construction and job-management techniques. (A large builder recently said in a meeting that I attended that he knew the least efficient way to build curtain walls was to split them up into a dozen trade divisions, but, he said: "That's the way the architects organize them in their specs.")

And there seems to be a hesitation on the part of some producers of building components to find the most efficient production techniques. (A large producer of millwork products wrote us recently: "We will produce anything the architect wants. If an architect insists on standardized modular products, we'll make them for him special.")

That last one is worth dying awake worrying about at night.

In short, it might be said of the building industry, as I believe it can be said of any aspect of productive activity in life:

If each creative individual uses his own productive function to the fullest, and if each profession makes its collective achievement the proud aggregate of those individual creative fulfillments; then society as a whole and the various co-operative groups and collaborative committees which develop in society will all benefit.

If, on the other hand, the individual is thought of only as a unit in a group, and is made to feel hesitant about individual effort and bashful about individual accomplishment, then no part of collective activity will be accomplished to its optimum potential.

Thomas H. Creighton