MAY 1950

ARCHITECTURAL forum

THE MAGAZINE OF BUILDING

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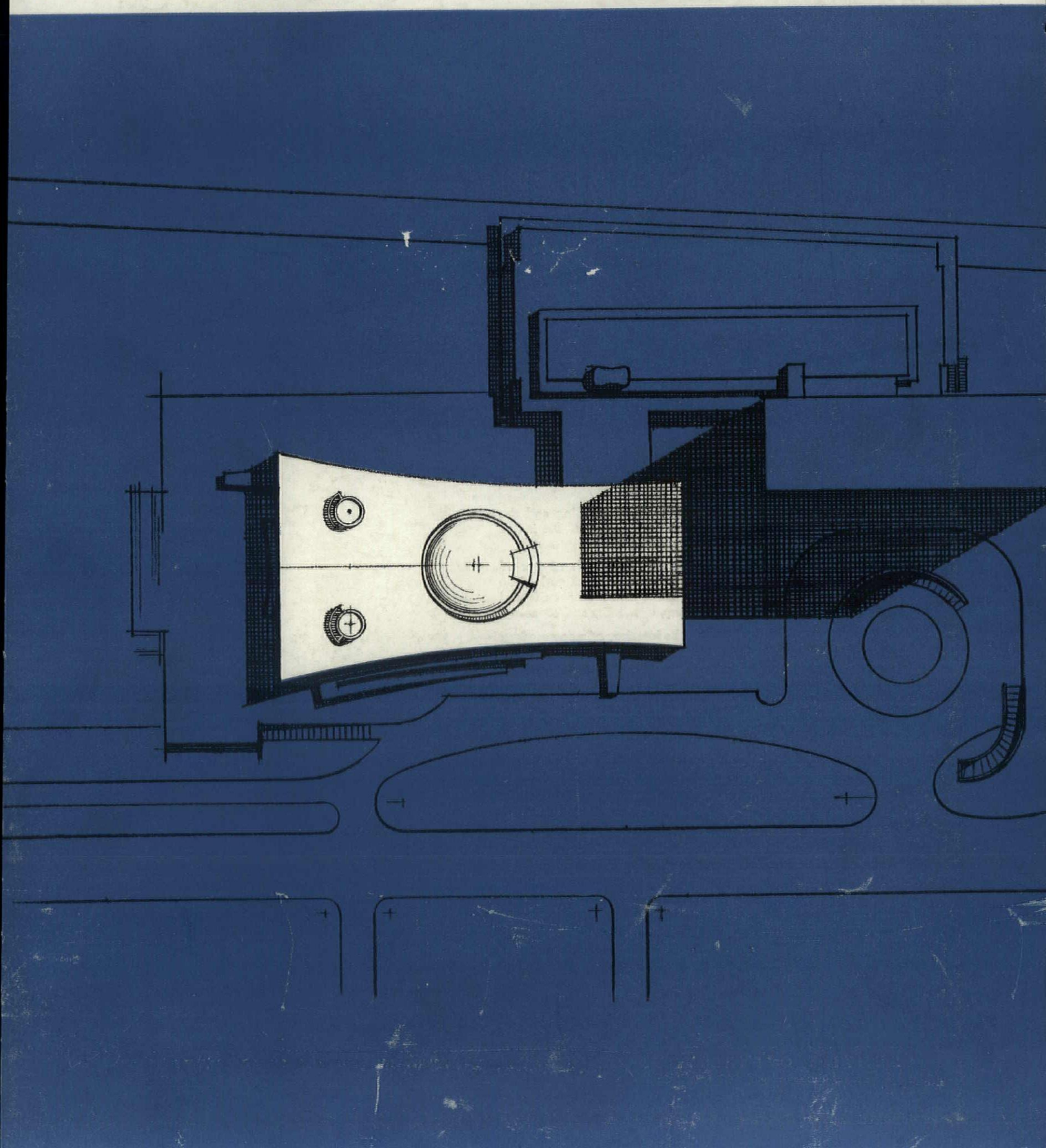

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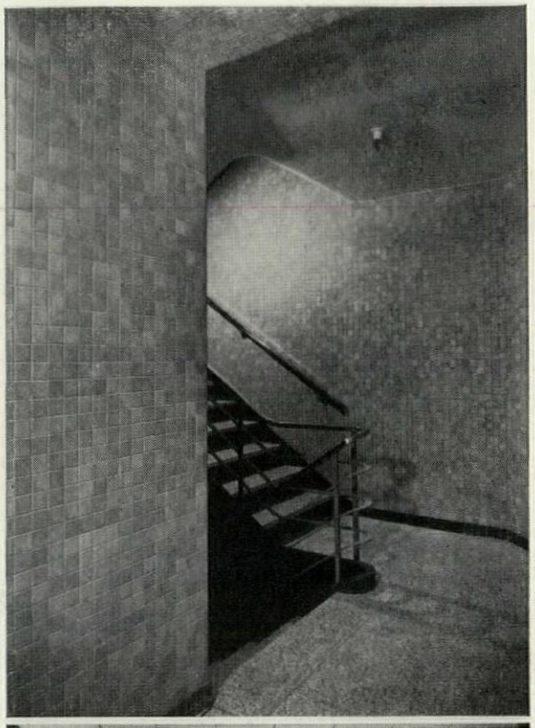

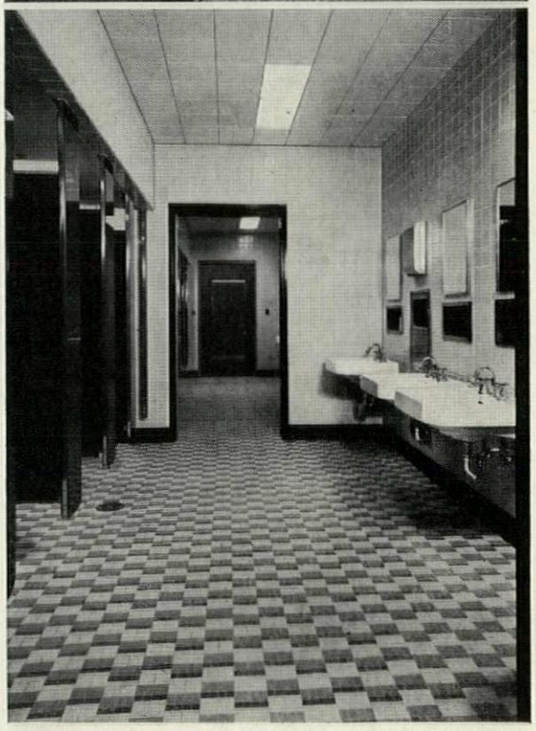

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More about

ARCHITECTS HOME BUILDERS and the MODEL T

THESE 12 pages of letters (we are sorry even 12 pages can hold less than half the total) measure the interest stirred by FORUM's Architect and Builder editorial last month.*

More important, however, they shed considerable light on the problems that must be faced when the AIA committee sits down with the home builders' representatives to work out a new basis of cooperation and compensation.

Few architects, the letters show, question the futility of asking a full fee on house designs repeated again and again with minor variations. Few builders defend their past penny folly in thinking $10 enough to pay for the plans for a $10,000 house. But between these obvious extremes the unanimity fades and a fair number of peeves and problems appear.

Some of these problems are real; some are trifling. All will be the better for a frank airing. In fact, an airing may be all that is needed to clear them away.

To us the only important questions are these:

1. Do the builders realize how much the architects can contribute to the builders' own future prosperity and progress?
2. Do the architects realize that in half a generation the merchant builder has brought the Industrial Revolution to the American home?

The builders have opened a whole new mass market for the architects —a market of 600,000 or more houses a year. But the builder who thinks he can get along without a good architect is in for the same rude awakening as came to Henry Ford, who eventually found the public would not take his designless Model T at any price.

Like Henry Ford, the builders have developed many new ways of streamlining production and have put many operations on the assembly line. The architects have much to learn from them about the economies and economics of mass production.

But again like Mr. Ford, the builders are turning out far too many Model T's. Some are already finding their Model T's unsellable. The others will soon make the same discovery.

Last fall an architectless Florida builder put up 20 more of the boxes-with-holes that he had been selling right along, was shocked to find no one would buy them even when he cut the price. An architect offered to design a new model for him, waiving any architectural fee and taking a small sales commission instead. The architect-designed houses cost less to build, but FHA gave them a higher appraisal. They are now selling faster than they can be erected at a higher price than the architectless boxes—several of which are still going begging.

Too many builders still think the architect's fee must come out of their own profits. A truer statement would be that, as the shortage-compelled demand for Model T houses dries up, the builder's profits will depend on how good an architect he employs, on whether he can now improve his design as much as he has already improved his construction methods, on what his architect can do to improve his site planning, his orientation, and a thousand and one details that add to the livability of his houses, and pride purchasers can take in them.

Home builder Coogan is right when he says it takes more skill, more knowledge, and more time to design a builder's house for quantity production than to design a larger house for a single owner. Well designed houses cost no more to build than poor ones—and they sell far better. The builder needs the architect as much as the architect needs the builder, and heaven knows the public needs both.

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* For the benefit of those who came in late, FORUM's April editorial and the comments of NAHB's President Coogan and AIA's President Walker are reproduced on the last pages of this supplement.

Supplement to the May 1950
Architectural FORUM—The Magazine of Building

ARCHITECTS:

Forum:

I am completely in accord with the spirit of your efforts. I am not quite so loud in my praise of the merchant builder.

A proper understanding between builder and architect *is* necessary if the public and this good country of ours are to get what they are entitled to. I could go further and say, before the "Master Builders" and the Real Estate Speculators completely wreck the American scene.

Architects, unfortunately, do understand the problem. I believe the average architect is willing to work for anyone who will deal fairly with him.

Your merchant-builder could feel very sorry for himself if it were not for the fact that architects do design a few buildings for him to look at.

A simple solution to the problem lies in simple means:

1. Pick the right architect (there are many of them)—not the cheapest.
2. Projects that involve large expenditure should not ignore the right to a just fee.
3. Ideas that are worth money to the builder should be worth money to the architect.
4. Give the architect a proper voice in the project development.

PAUL THIRY, *Architect*
Seattle, Wash.

Forum:

This is a subject which has needed attention for a long time and I am glad to see that the NAHB and the AIA are willing to "talk turkey." What needs to be emphasized is that the small house problem is not a *small* problem. It is not only difficult to solve on an equitable basis for both builders and architects, but it is multiplied seven hundred thousand times according to your figures of last year.

The letter by Thomas P. Coogan puts the problem very clearly. I agree with Ralph Walker that more attention should be paid to site planning in developments, but this is not the whole story. I hope that these forthcoming deliberations will not bog down with the question of architects' remunerations because unquestionably the architect can contribute not only design, but perhaps some ideas that would reduce construction costs.

HUGH STUBBINS, JR., *Architect*
Lexington, Mass.

Forum:

Your article is a fair description of the situation in this area, although the N.W. Plan Institute of the Twin Cities shows that the architects here are not insensitive to the small house problem. I feel Mr. Coogan's approach is practical and concur in Mr. Walker's statement.

I will turn this proof over to the chairman of our Chapter's Public Relations Committee with instructions to meet with our Committee on Fees and the local Home Builders Association representatives to initiate study and discussion pending the study on a national basis.

P. C. BETTENBURG, *President*
St. Paul Chapter, AIA
St. Paul, Minn.

Forum:

On Tuesday, April 25th, there was a meeting of staff members of The Institute and the NAHB preparatory to a recommendation regarding the reactivation of a former joint Committee of AIA and NAHB.

My personal comment is that it is difficult to arrive at any reliable percentage figure regarding architectural services of merchant builders since most of the stock plans must have been provided originally by an architect of some kind. In spite of the repetitive and indirect procedures, some of the architects' ideas and thinking do survive. Also many of these plans are made by young men who, although not licensed architects, are nevertheless architecturally trained. Your issue will do a great service in helping the profession and the builders to regularize, improve and increase architectural services in this field.

WALTER A. TAYLOR, *Director*
Department of Education & Research
American Institute of Architects
Washington 6, D. C.

Forum:

'At a boy! Hit 'em even harder. I mean both builders and architects. And keep pounding away at them. Maybe they will finally see the light.

BENJAMIN H. WHINSTON, *Architect*
Whinston & Whinston
New York, N. Y.

Forum:

Your editorial and the letters from Coogan and Walker interest me very much, especially as they involve the question of a fair fee, not a percentage on cost, as the only reasonable payment. . . .

R. CLIPSTON STURGIS, *Architect*
Portsmouth, N. H.

Forum:

What is so painful to me is that both builders and architects fail to develop interesting and harmonious communities for people to live in. The architect has his nose to the grindstone and sees only the house—he is more obsessed with style; and the builder with a quick turnover—the future be damned. The good examples of the development of charming communities in the past are passed off as old-fashioned. Our country is going to be left with acres and acres of monotonous boxes. The art of developing delightful communities is not recognized. Freedom of expression is more important than the cooperative blending of shape, form and color. The architect, it seems to me, should design new communities contributing variety and beauty, otherwise he is not fulfilling his obligation as a professional man. It requires more than a good site plan. It requires a grouping of interesting forms—not just a repetition of one, two or three types.

I am thinking of some of the early towns developed in England about 1900 to 1910, a housing development of the First World War by Percy, Shaw & Hepburn; some of the mill towns of the 1830's approximately, and the ideas that Williamsburg has given us—but remain unheeded because we are so style-conscious. These areas live and retain their values and do not pass into slums.

CAMERON CLARK, *Architect*
New York, N. Y.

Forum:

Why be so damn morbid about it? Cheer up! Let's give architects credit for designing about 150,000 houses last year. Maybe more next year. Huh?

JOSEPH B. REYNOLDS, *Architect*
Houston, Texas

BUILDERS:

Forum:

I am in full accord with the suggestions which you outlined. Actually, I believe few builders realize the advantage of good design. . . .

JOSEPH B. HAVERSTICK, *Secretary*
National Association of Home Builders
Washington, D. C.

Forum:

. . . This is an extremely good article, and the suggestions made should lead to a better understanding between the architect and the merchant builder.

I am not exagerating when I say our company has spent hundreds of thousands of dollars for architectural services. We were one of the first companies in the country to insist that purchasers of lots, even for small homes, must bring in to our office for our approval plans prepared by an architect. I do realize, however, that there have been many cases where homeowners were called upon to spend unneeded sums because of the lack of appreciation of dollar value by the architect and also many cases where an owner moved into a house of poor proportions that at no extra cost could have been made attractive by proper architectural advice.

Therefore, a better understanding between architect and merchant builder would be a fine thing for both the industry and for our cities.

J. C. TAYLOR, *President*
J. C. Nichols, Co.
Kansas City, Mo.

Forum:

The ideas expressed in your April issue . . . are undoubtedly of the utmost importance to the home builder today.

We felt that these ideas should be passed on to our members, so we reprinted them in our Bulletin and sent them to our entire membership. . . .

FREDERICK C. KRACKE
Executive Vice President
General Contractors Association of
Contra Costa County, Inc.
Walnut Creek, Calif.

Forum:

I have had this same trouble referred to in your article by not being able to make satisfactory arrangement with local experienced architects.

I finally compromised by hiring young graduates just out of college. This entailed a lot of work on our part, but it was certainly better than trying to build houses without the aid of an architect. I therefore fully agree with the subject as outlined in your article.

GEORGE S. CLARKE
Clarke & Clarke, Contractors
Savannah, Ga.

ARCHITECTS:

Forum:

You have done a favor to the entire building industry in focusing your spotlight on the fact that the average small house has no benefit of an architect.

Of course, architectural fees for mass-produced houses should be on a royalty basis—perhaps an initial fee plus a small royalty on each subsequent use of the original design. The architect's charges for the redevelopment of each original design to fit sites, new materials and new conditions could also be standardized.

Whether this or some other basis is used, both builder and architect should strive to arrive at a working partnership, beneficial to them both and to the public as well.

MORRIS KETCHUM, JR.
Ketchum, Gina & Sharp, Architects
New York, N. Y.

Forum:

You are doing the architectural profession a grave injustice.

The assay of the situation included in the editorial is neither complete, convincing, nor, in many respects, accurate. What I have to say does not apply to my own city, as here the architects do most all of the residential work, even including that built by the speculative builders. This is a result of an 18-year effort on the part of the Washington State Chapter of the AIA, including public information and a local ordinance which requires appointment of an architect on all work costing over $500. I think I am familiar, however, with the situation in the balance of the country and the facts are simple:

1. The taste of the average small house owner runs in other channels than that of the average architect, hence the architect feels he is limited, cannot produce an exceptional structure, and is unhappy about it.

2. It is true most builders do not want to pay much for plans. They cannot be criticized for this, since drawings required to satisfy typical demands need not be studied, nor even very complete and therefore are not worth a great deal.

3. An architect cannot do other work and contribute to the small house in his spare time. Every man sets his own standard. Once he has labeled himself as a small house architect, that is the sort of work that comes his way. If he is involved in only a few houses, it will take all of his time to do the work, leaving no time for commercial structures or a larger house practice, with which to earn a living.

Conclusion: The architect in this situation finds no delight in the design, is not accomplishing anything in the raising of standards of the small house, and is not adequately paid for his work, so what has he to comfort him or encourage continuance in such a practice?

J. LISTER HOLMES, *Architect*
Seattle, Wash.

Forum:

It's about time someone carried the ball on this very vital and prevalent problem. Architects of the Washington State Chapter AIA have made at least some slight progress on this score through their Small House Plans Bureau, in co-sponsorship with the Seattle Master Builders.

The result has been gratifying, though far from any fulfillment of the ultimate goal . . . that of full Architect-Builder cooperation.

ARNOLD G. GANGNES, *Architect*
Seattle, Wash.

Forum:

Good idea.

ROBERT A. GREEN, *Architect*
Tarrytown, N. Y.

Forum:

My suggestion is to put emphasis on both site-planning and merchant house design as a potential field for those architects who may be interested rather than the usual condemning of the entire profession for lack of interest in something that is practically out of the realm of the major portion.

LOUIS H. ROTH, *Architect*
Saratoga, Calif.

ARCHITECTS:

Forum:

Your editorial and both the statements by Mr. Coogan and Mr. Walker contain much truth. Mr. Walker's remarks about site planning hit a very sore point. But there is more to this question of the small house.

We believe in free enterprise, in as much freedom for the individual, the builder, the architect, as possible. This requires a proportionate amount of self-discipline which is too frequently lacking. The general public is unable to understand either quality of material and workmanship or to judge merits of good planning.

In every area I ever practiced there are "plan mills" where substandard plans are sold at cut-rate prices, both to the public and the builder. Some such plan mills have working understandings for mutual promotion with builders and, as long as there is a housing shortage, there is not need for special effort and improvement. The general public is helpless, much taken by appearance outside, a few obvious "talking points" inside.

In many areas there are Planning and Neighborhood Boards who believe, to serve the community interest, imposing and upholding "Standards of Design" which are mostly outdated, often prevent good land use, add to the cost of construction and often make sensible solutions virtually impossible. I have known boards without one single member who could read plans. . . .

ERNST PAYER, *Architect*
Cleveland, Ohio

Forum:

If ever a town needed some cooperation between builder and architect, Redding does! Your proposed editorial is most timely—and we are ready to meet the builder half-way!

CLAYTON KANTZ, *Architect*
Redding, Calif.

Forum:

Let the house builder build the house, and let the architect design it.

Generally, the architect has given the builder what he paid for, so I would say, let the builder pay a fair price for proper plans. Should we not be paid as much as a bricklayer?

Let him coordinate his trades properly, so that his cost can meet the economy, and he can properly pay the architect.

The builder has subordinated the architect so much in this section that few architects care to work with them.

The architect must survive. How can you say cooperate with the builder, when he does not wish the architect to survive?

J. LEONARD RUSH, *Architect*
Detroit, Mich.

Forum:

The need for improvement architecturally in the small house field is a crying need and the FORUM is to be complimented for trying to do something about it.

I do not believe there is any question about architects being able to afford entering this field if we approach it realistically. The operative builder does not need the services that an architect must give the individual client. With this in mind when our chapter got out its *Circular of Information on Architectural Services & Fees* some years ago, we included in it a Division IV which is titled *Architectural Services Performed for Operative Builders on Apartments, Houses, Sub-Divisions, etc., and Recommended Charges for Same.* This was subtitled *Volume Work.* I understand that this was the first instance where such a section was included in a Chapter Schedule. The success which these men have had in this field is proved by the fact that more and more builders are employing them and finding that their services are extremely valuable. In spite of the moderate fees charged, these architects do very well financially because so much of the work they ordinarily have to do for the individual client is not necessary when the client is both owner and builder and builds on a large scale.

SLOCUM KINGSBURG, *Architect*
Faulkner, Kingsbury & Stenhouse
Washington, D. C.

Forum:

Excellent . . . The builder likes to pay $20 for a stock plan and he gets about that amount of value. Then he may pay $1,000 to have his appendix out. The architect is proverbially a poor man; therefore the builder wishes him to draw a better house plan for $10. . . .

DANIEL D. STREETER, *Architect*
Brooklyn, N. Y.

Forum:

Aside from the stiff and often unnecessary limitations of the FHA standards we find that a major stumbling block is the fact that the would-be client has no cash for design fees and cannot get any until complete working drawings and specifications are delivered to and approved by the FHA. This means that we are forced to gamble on the outcome, in defiance of the AIA schedule of payments and, at the very best, forced to carry the office on faith until approved and thus payment is forthcoming. Obviously a young office cannot do much along this line and meet its payroll. Perhaps a change in legislation is in order to provide an advance for fees.

All this tends to force the small fellow to purchase stock plans or a house which he considers substandard. Of course, the program you suggest, wherein builders employ architects, would alleviate this to a large degree, and might even be the answer, although we believe that it is possible to do a small house for a reasonable fee and still show a profit. One major objection we have to grinding out plans for the speculative builder is that the architect cannot fulfill one of his major duties, which is to assure his client of the best possible house for the money. No matter how high his ideals, his primary client is speculating on the house and the real client, or future owner, becomes secondary and is lost in the attempt to trim down for bigger profit and the dressing up for quicker sale. The site plan is certainly one place this would not apply. . . .

HUGH MCK. JONES, JR., *Architect*
Mowbray, Jones & Hale, Associates
New Haven, Conn.

Forum:

I am glad to see this condition brought out into the open for general discussion. But how do you reconcile 10-25 per cent profits that many builders are realizing with their willingness to pay only $10-25 per plan?

JOSEPH MILLER, *Architect*
Washington, D. C.

Forum:

I think your objective is pious and worthy, and more than that, somewhat potential if it leads to anything appreciable or serious. . . .

ALBERT MAYER, *Architect*
Mayer & Whittlesey
New York, N. Y.

BUILDERS:

Forum:

Very pleased and agree wholeheartedly with your editorial. I have recently recognized these facts the hard way and am now in the process of attempting to reach an agreement with an architect for a 25-home project. . . .

TOM MCGOVERN, *President*
Tom McGovern, Inc.
Madison, Wis.

Forum:

We have read this piece with interest and have discussed it with the local architect who has done more than any other in cooperating with the home builder in this city. He also received a copy of this editorial and, based on his reaction, I would suggest that you should give a little more space to the part that the architect must play in this transition for cooperaion between the architect and the builder.

With the sole exception of this one architect, the profession generally feels no obligation to assist the home building industry in curing its ills. This is also true of the local AIA chapter. The general reaction is that the builder has no ethics and that the case is hopeless and therefore we should let the patient die. We feel that the builders may be short on ethics but he will not learn ethics by letting him continue at his present status.

Our association proposes to improve the quality of the builders and to make them more and more aware of ethics but it is a job that cannot be done alone. We have a start and builders are beginning to realize the need for architectural services. . . .

A. L. KEFFER, *Executive Director*
St. Paul Home Builders Asso.
St. Paul, Minn.

Forum:

I certainly approve. It seems to me that the problem of adequate fees to interest architects is not a major one when distributed over the number of houses in any worthwhile project. . . .

GERALD F. HEALY
Flint, Mich.

Forum:

What I would like to see is an architect who understands the fundamentals about costs. Merchant builders are trying to provide lots of home comforts at prices the public can afford.

Too many architects throw in corners and ginger-bread because they are "architecturally pleasing."

Why talk to the public about buying cake when most of them can't afford to buy bread?

One of the best architects I have hired was a former bricklayer. He knew houses from experience. You don't learn how to build houses out of books. Put some architects in overalls and we may eventually get some who will put down lines on paper with some thought and experience behind them.

JOHN BONFORTE
Bonforte Construction Co.
Colorado Springs, Colo.

ARCHITECTS:

Forum:

Congratulations . . . I recently made a proposition to one of our local merchant builders who was about to build 30 houses. I proposed to prepare six sets of plans and specifications—three variations of each of two basic designs which he had already tentatively adopted. I also proposed to prepare a site plan which would determine the grouping of the houses and the orientation and position of each house, drive, etc., on each lot. I proposed all these services for a fee which would have averaged $100 per house, only to find that the builder had in mind a similar service at a cost of only about one-third of that. No agreement was reached. . . .

DAVE P. CLARK, *Architect*
Columbia, Mo.

Forum:

Your editorial is a most encouraging development. It is high time something be done to solve the neglected problem of the builders' houses. Your clear and intelligent statement of the situation, together with that of Mr. Coogan and Mr. Walker, indicate a basis for agreement and a method for solution.

For some time I have been convinced that the "taste" of the average buyer of such houses has been depreciated by many bankers, builders and architects. In most cases, the buyers have not had an opportunity to choose between tight little houses unrelated to their surroundings and more flexible open-planned homes with closer inter-relation between inside and outside spaces. This probably is due to architect's disinterest because of cost of designing custom-houses, builders' opinions that such designs are more costly, and financial agents' belief in a theoretical and non-existent average "taste." By taste, I do not mean a superficial choice of shutters, shingles, hip-on-gable, gable-on-hip kind of thing —rather, I mean an appreciation of comfortable living space where a family can develop and mature, where the activities of the family can operate pleasantly and freely. Confusion in home environment plays a greater part in the social immaturity today than is usually believed. Simplifying that environment can help the situation materially.

I believe the buyer, if given a chance, will prefer such environment. Such planning can be reasonable in cost, if it is simply and carefully designed with regard for extreme economy of materials and workmanship, with complete elimination of non-essential, sometimes ostentatious and confusing details. I feel sure that many architects will work toward such an end and that they can afford to provide such designs for a cost that the builders and buyers can also afford.

THORNTON M. ABELL, *Architect*
Santa Monica, Calif.

Forum:

I certainly agree with your editorial . . . and admire the intestinal fortitude required to publish it.

J. M. INGRAM, *Architect*
Louisville, Ky.

Forum:

I feel that the architect is at fault for not going after this business. I can design a small house, superintend it and make a profit. I can give the owner a better job for less money than the builder. When the builder is furnished with our plans on a cut-rate basis without our supervision, we are cutting our own throat. Don't let the tail wag the dog.

RAY DIETERICH, *Architect*
Milwaukee, Wis.

ARCHITECTS:

Forum:

As one office way in the northeast, we have always tried to do any job, no matter how small, that has come to us.

We have been rather fortunate in designing a house which has been built for $5,000 with a full architect's fee which we think will be a help to solving this problem of the public's general fear of an architect on small projects. I agree that something definitely should be done so that the people or public should get the benefit of architect's services. Even though the merchant builder has done a remarkably good job by himself, there are certain items which he is not quailfied to do such as site planning which would vastly improve not only the homes but the whole neighborhood.

I agree again, it is doubtless the architect's fee which is the defying element in the whole program. However, if the architect would do to the best of his ability on the the services he claims to render, the fee would be the smallest part of the total home. I do not see how the builder can be the final decision and have successful designs executed.

EATON W. TARBELL, *Architect*
Bangor, Me.

Forum:

Am thoroughly in accord but think one of the best approaches would be through the banks—many of them now require an architect to at least check the plans. Sometimes this leads to fuller service on the architect's part. *All* banks should require this to protect their own interest, to say nothing of helping the homeowner.

EUGENE F. MAGENAU, *Architect*
Lyford & Magenau
Concord, N. H.

Forum:

I am in hearty agreement with your suggestions for cooperation between architect and builder. There are many examples of such cooperation and, as far as I know, no expelling of AIA members because of limited fees for a limited service.

The only item that made me wince was the number one item of Mr. Coogan's, "conform to standards set by various mortgage requirements." An important point is the realization that the architect is far from free in helping to his greatest ability. Often more time is spent in appeasing and educating the lending agency than is spent in designing. Finally, the architect gets "smart," stops designing and copies the last plan which received the highest loan.

WHITNEY R. SMITH, *Architect*
Pasadena, Calif.

Forum:

The real cause of the difficulty is as follows:

1. Mortgage values are set by appraisers.

2. Appraisers of necessity live in the past and are men of small imagination who are forced to guess the future by the past.

3. Appraisers look for tangibles to list and must take a defensible position based on tangibles.

4. Appraisers love the stock plan whose mortgage value has already been established.

5. The FHA is full of culls who got into the jobs during hard times and who are bound by several considerations not contributing to the quality of house.

a) The FHA must make money. (They like stock plans also.)

b) Rules must be made to keep personnel from thinking for they know they cannot hire that kind, etc.

The solution as I see it: The biggest problem in any field of endeavor is to establish incentives which will at once achieve the most satisfactory results for the participants and the best results in the end product. To accomplish this I would set up a review group of architects of note in the house field (custom and mass) and builders and mortgage loan heads. This board to review criteria, issue propaganda and make spot reviews of mortgage appraisals and issue criticism. This would do more, quicker.

FRANCIS R. WALTON, *Architect*
Daytona Beach, Fla.

Forum:

Excellent!

CLARENCE WENGER, *Architect*
Harrisonburg, Va.

Forum:

The bringing together of the speculative builder and the architect in a common enterprise sounds so simple, and yet it just does not happen. One wonders if it isn't necessary to dig deeper than the matter of money to find the real difficulty.

I have conceived the difficulty as being one of a fundamental difference in thinking—and certainly nothing could be more nearly impossible of adjustment. The speculative home builder is concerned with quick turnover. He takes a relatively large risk with the idea of a prompt sale, and a large return. He must, in consequence, think of the immediately popular thing. As an example, I cite my own city which in the past few years has been saturated with gaping "picture windows." The picture these windows generally frame is a dirty, dusty, unbeautiful street. Thus, rather than a picture window they become a show window. But, because of their immediate popularity, picture windows must go it, no matter how ludicrous they become. Unfortunately, the immediately popular thing is also the thing which the owner tires of soonest, and which eventually becomes a sales hazard.

The architect's whole training and experience is concerned with investment values, which, by contrast with the speculative viewpoint, looks to permanent value, small risk, and a safe return. It is almost impossible for an architect to design a house simply in the popular manner without reference to its logical answer to a problem.

Unfortunately, the FHA, whose viewpoint should be long-term values, generally fails to see beyond the presently popular. Good design and sound planning which, to any extent, reaches ahead of just what is being done, is hopelessly cut because it fails to conform. And so the FHA contributes not only to the elimination of the architect, but also to stagnation in home design.

Unless there can be found some common meeting between speculative thinking and investment thinking there would seem to be small chance for the architect to enter seriously into the small house field. Such an adjustment seems to indicate some more concern for permanent values on the part of the speculator, and some yielding to popular demands on the part of the architect. It is to be hoped that the one can be done without sacrifice of profits, and the other can be done without sacrifice of good planning and designing. I hope I am wrong in suggesting the "unmeetability" of these east and west viewpoints.

GEORGE CALEB WRIGHT, *Architect*
Indianapolis, Ind.

BUILDERS:

Forum:

Those architects who have deigned to serve the builders have in the majority of cases launched themselves on an extremely profitable career. Their service has not been house by house but project by project and in the majority of cases they have collaborated with landscape architects and land planners. The net result has been communities of lasting beauty.

There is still room for improvement, and a closer relationship between architects and builders should definitely be encouraged.

MARTIN C. HUGGETT
Executive Vice President
Chicago Metropolitan Home Builders Assn.
Chicago, Ill.

Forum:

We design our own houses because we do not feel that there is a good local architect who could or would do a job for us. . . .

JOHN R. TAYLOR CO.
Greensboro, N. C.

Forum:

I am in complete accord with your expressions and believe that the architect and the merchant builder should get together in their planning. It is particularly true that a builder could use to advantage proper site planning advice. There are many fees being paid today to site planners and this could well be handled by architects.

The architect should be well informed on construction economies and standardization that would save money for the builder. If the architect provided the builder with these many factors, which in turn would also increase the efficiency of his operations, the builder could well afford to pay the architect an increased fee for provision of better architectural designing.

We have employed architects in our drafting department and, in most cases, have found too big an inclination upon their part to want to individualize the house or recommend plans that do not conform to standard mill sized windows and other important framing members of the house. These deviations necessarily cause increased material and erection costs, thus making their recommendations not feasible.

A sound approach on the part of architects would go a long ways toward supplying them with more business and improving the standards of the merchant builder's operations. . . .

FRANKLIN L. BURNS, *President*
Burns Realty & Trust Co.
Denver, Colo.

ARCHITECTS:

Forum:

It is indeed unfortunate that the great majority of the architects have taken the attitude they have toward this type of architectural work, and also that the attitude of the builders is what it is. I doubt if Mr. Coogan's opinion is that of the average merchant builder, though.

Two things seem wrong: the public taste is not such that they insist on good design and the average builder's vision is very short if he cannot see spending, say, an additional $10 per house on a large tract and some additional dollars for site planning.

LELAND EVISON, *Architect*
Pasadena, Calif.

Forum:

There was a time when I felt that the builders were more rational than the architects, especially the "arty" architects, in handling the small house problem. The co-operation which your editorial suggests could always have been fruitful but, it seems to me, would be especially fertile now. . . .

EDGAR WILLIAMS, *Architect*
New York, N. Y.

Forum:

Heartily approve . . .

ARTHUR DE GRENDON, *Architect*
Kirkwood, Mo.

Forum:

I congratulate your staff for wishing to be a mediator on this age old controversy between architect and builder: "*proper fee.*"

Of all the differences between architect and builder this has been the biggest stumbling block, the most controversial, the most misunderstood and the least solved. Yet the *most important* to both parties' welfare.

I have worked on this problem for 20 years and have reached the same conclusion formed from the start—that due to certain set costs applied to the competitive house ranging in price from $5,000 to $14,000 the builder must give free plan service in order to stay in the running with his fellow builder. Of course there is always the exception but he is in the minority, less than 10 per cent of the whole. It is true about 90 per cent of the contractors in this area are using plans made by architects but that still is not the whole story. Of 1,000 houses built here in the past several years (in the above bracket) by builders, it is safe to estimate that the architects realized only a total of $5,000 or an average of $5 each set—whereas if an average of $50 per set were received then a total of $50,000 would have been spread among 10 to 20 architects. This makes better sense. One set of plans is used many times in order to get the original cost down to an infinite amount so as not to bog the contractor down when he's competing in a highly competitive market. Although it has been tried, to compensate the architect each time his plan is used, rarely has it been carried out. Contracts mean little when a man is trying to outdo the other.

If 90 per cent of the homes built are on the above basis then it is readily understandable why architects stray from residential work of this nature.

My own solution to the problem is to have the mortgagor pay the fee just the same as he pays the attorney for closing the deal. You would then see 100 per cent use of architects' plans, and builders would take an entirely different attitude toward architects. As it is now, the architect in order to compete with the builder and his free plan system must work on a sub-contract basis. This way he can eliminate the 10 per cent general contractor's fee, give the owner a better house, and in turn obtain a fair and just fee for his services.

I have operated this way for the past 15 years and have been most successful in the residential field. Although to keep my head above water, especially doing residential work, it has been necessary to operate as a one man organization. Why?—because the free plan system has almost annihilated the architect from the small house field and is beginning to cut in the $15,000 to $30,000 class.

I am to be a delegate from the Central N. Y. Chapter of the AIA and will do my best for your proposal at the Convention in Washington.

DON HERSHEY, *Architect*
Rochester, N. Y.

ARCHITECTS:

Forum:

The editorial is a realistic approach to a time-worn dilemma. FORUM again leads the way! Architects must realize that home building is a respected business, efficiently organized, serving the public in a commendable fashion. Working more closely with home builders is long overdue for architects in general. Members of the architectural profession must make a strenuous effort to overcome antiquated psychological objections which no longer obtain. Fees are not the prime obstacle if we continue to clearly demonstrate that our services have value to builders.

Architects have found the means of serving public housing. Certainly we can function at an equal harmonious level with allied private enterprise.

PAUL GERHARDT, JR., *Architect*
Chicago, Ill.

Forum:

I endorse the policy wholeheartedly.

BRADFORD S. TILNEY, *Architect*
Pedersen & Tilney
New Haven, Conn.

Forum:

The smart builders do recognize an actual value that is put into a residence by the architect upon which they can realize a quicker sale and a higher price. I am sure that the architects need orientation from the builders as to the features of a house which appeal to the prospective buyer and which sell some houses quicker than others. These, no doubt, can be listed in a category and with priority as to costs.

The builders also have a number of systems and features of construction which prove to be economical and with which the architects should become familiar.

There certainly should be a common ground on which the architects will be able to perform adequate services and for which the builders will be able to pay a proper fee.

ROY W. LEIBSLE, *Architect*
Houston, Tex.

Forum:

The speculative builders have not endeavored to obtain architectural service for their projects. In our present locality most of the speculative builders are making use of so-called "small house designers" who have not had the proper training to render the type of service that they need. The public are therefore the ones that suffer.

I feel that one of the best aids in receiving cooperation from the speculative builders would be from the FHA and other home loan associations in that they would allow a sufficient sum in their appraisal to take care of a portion, at least, of the architectural fees. This they do not do in the State of Florida. As a matter of fact, they rather encourage the use of the so-called "designer" plans.

L. ALEX HATTON, *Architect*
Orlando, Fla.

Forum:

I like your editorial very much and I think there certainly is a need for the architect to realize the fact that he must help the low cost housing field if only in an advisory capacity, which is the method we have been using here in our own community.

We would much rather have a homeowner come in and discuss his project with us, and if he is off on the wrong track, at least we are able to assist him in some preliminary sketches so that architecturally his house will be of more value than the house-contractor or handy-carpenter-built house.

Until a home gets into the $20,000 class, it is almost impossible to break even on drafting costs, but it is indeed gratifying to have the general public have enough confidence in one's ability to come in and talk about their small homes.

DONN HOUGEN, *Architect*
Wisconsin Rapids, Wis.

Forum:

A great forward step—and that's putting it mildly. . . .

HAROLD H. HARRISS, *Architect*
Washington, D. C.

Forum:

FORUM should be congratulated in taking the lead in this program. I have not been fortunate nor unfortunate enough to participate in large housing projects but I have from time to time attempted to aid by designing the more modest home for individuals. In practically every case it has been a donation.

It occurs to me that one of the inherent evils in mass housing can be laid at the realtor's door. The developer often as not squeezes as many 50-ft. lots into a grid pattern regardless of topography or natural site advantages. As a suggestion it might be well to include a committee representing this branch of the industry for the joint discussion you advocate.

Again, as I see it, the problem, though national in scope, is also one that is influenced by geographic location and local practices. The recommendations, when and if forthcoming, should be flexible enough to fit local conditions.

The comparison between the architectural and medical practices which you refer to in your editorial doesn't quite click in my opinion. The medical profession uses a sliding scale for charges so that the well-to-do carry part of the load for the less fortunate. I doubt if the architect could juggle his fees and get away with it. It may be that the AIA committee can come up with some workable sliding scales that can be generally applied. Short of requiring all licensed architects to take a vow similar to the Hippocratic oath of the doctor I can't see any solution to encouraging the profession on housing except by the one of adequate compensation for services rendered.

PALMER SABIN, *Architect*
Pasadena, Calif.

Forum:

We are in complete sympathy with your statements, inasmuch as we are doing a large volume of work for a promoter-builder. I must say in his behalf that he "saw the light" years ago and offered his work to my former partner and me. At that time we had not seen the light and refused the work. Since establishing an independent practice, I have done all his work and both sides are well satisfied. Of course, it would be ridiculous to expect a full fee for services in which the work performed in the architect's office is very considerably less than in his normal practice. Large work other than houses, which this promoter has been able to give to us or see that we got, has added a very considerable income which we would not otherwise have gotten.

RALPH O. YEAGER, *Architect*
Vonnegut, Wright & Yeager
Terra Haute, Ind.

BUILDERS:

Forum:

It is my opinion that during the past war period the building industry developed mass production and the architects were reluctant in taking over the problem and rendering a service for the mass but were only thinking of the individual unit.

This may not be clear but in the mass production of homes they are basically alike and it is only the exterior front elevation requiring treatment. Therefore, I feel that the architect should meet the builder on the basis of a mass development rather than a single unit because in the economy housing it is impossible to build individual homes.

CARL S. CARLSON
Fair Lawn, N. J.

Forum:

I want to congratulate you on the article. . . .

I think you might be surprised to know that there are a few builders doing what you are talking about and we are one of them. I have two architects hired and one of them is a registered architect and both are very capable, contemporary designers. In fact, one studied under Frank Lloyd Wright and has his degree from the University of Kansas. . . .

TED B. BROWN, *Builder*
San Angelo, Tex.

Forum:

I am in favor of everything Mr. Walker, Mr. Coogan and you have said, to the extent that if you will send me 80 reprints I will mail them to all our members. . . .

JAMES E. COOK, *Secretary*
Home Builders Association of Westchester, Inc.
Mount Vernon, N. Y.

ARCHITECTS:

Forum:

I certainly approve of the general sentiments expressed. My practice is and has been for 25 years principally housework. I have designed and supervised the construction of houses costing from $5,000 to $200,000. I have worked with merchant builders and have even been in partnership building houses for sale. We have tried the stock plan service idea and most, if not all, of the various schemes suggested for helping the small houseowner.

Frankly, none of these schemes has worked satisfactorily. I can't agree that it costs no more for a well-designed house than a poor one. Why should it? A tiled bathroom costs more than an outhouse and people are willing to pay the difference.

We have been able, *with very little difference in cost,* to incorporate some of the conveniences and niceties of design of the large and expensive house, in the small house. But no matter how one tries, these things do cost more and the small house market is one of the most highly competitive in the country. And the successful operator is shrewd and able or he cannot survive. It is this underestimation of the small speculative builder's ability that is the real reason the prefabricated house is not successful. . . .

DONALD MCCORMICK, *Architect*
Tulsa, Okla.

Forum:

I like your lead editorial—perhaps I would have given the builder the lead in your title instead of the architect, for as you point out, he is the one who builds the small house in this country.

I have been asked by a number of them to assist in the layout of these houses and have found the contacts interesting and, above all, educational. In fact, I find these builders an excellent answer to much of the research that an architect would like to do but cannot afford the money and perhaps the time. Many a builder is using new materials and old materials in new ways; but you have to ask him to find out. Above all, he knows costs.

I feel the builder needs a little more encouragement from the architect and less criticism. I'm sure everyone could benefit as a result.

ARTHUR H. BROOKS, JR., *Architect*
Cambridge, Mass.

Forum:

During the depression, when many innovations germinated, I had an idea of merit which has during the past six months developed into a sure hit by the buying public, not however under my name. I peddled this idea to several operational builders and was told in each instance that it looked good, was economical, but to get somebody else to try it and if successful, they would go along. My reply was not contributory to further discussion. I do not believe the mentality of the average developer has improved since that time, nor does it indicate any sign of progressive contribution, notwithstanding such crusading as is conducted by your magazine.

Therefore, I feel that any attempt to assist or cooperate with this money-hungry parasite is totally one-sided. The conscientious professional man has little to gain and a great deal to lose.

CLIFFORD E. GARNER, *Architect*
Philadelphia, Pa.

Forum:

Congratulations on starting the ball rolling on a national scale.

RICHARD L. MEAGHER, *Architect*
Wells & Meagher
Roanoke, Va.

Forum:

Architects and builders have been getting along about as well as two cats with their tails tied together hung over a clothesline—and for about the same reason: The insufferable attitude of each in thinking he can get clear of the situation merely by swinging on his own tail and out-clawing the other.

As an architect since 1934 and a builder for the 13 preceding years, I feel the attitude and *modus operandi* of the architectural profession and its precious AIA has been by far the more insufferable; and it is right and proper the profession should admit it and, through an architectural publication, make the first overture toward a reasoning peace no matter what the temporary cost to the profession in loss of a jealously guarded and, except in a very few instances, self-induced, self-supporting and basically hollow prestige.

If a thing is good, it will work. The architectural profession hasn't been working.

Congratulations and blessings on you for taking the constructive and long-overdue initiative in untying the cats' tails.

HUGH E. JONES, *Architect*
Guirey & Jones
Phoenix, Ariz.

ARCHITECTS:

Forum:

The editorial consists of pure facts which are only too well known by architects who are in the small residence field. I am very pleased to see NAHB President Coogan's and our own President Walker's letters agreeing with your suggestions completely.

Congratulations to the FORUM for taking a leading role in the betterment of architecture and buildings for the American people.

GIFFORD E. SOBEY, *Architect*
Los Gatos, Calif.

Forum:

Following through with the suggestion in your editorial as to fees charged the builder, we have recently negotiated a contract with a rather large builder on a time-plus basis and have found that we can incorporate his ideas in site planning and construction of the building more quickly than we can with the individual home owner. Consequently, the total fee for the several houses that we are doing will be considerably lower than a percentage of the total cost of all of the residences and this has proved both satisfactory to the builder and this office to this point. I believe that we have not overstepped the ethics of the profession in such a contract and hoping that this might be of help to you. . . .

ALBERT L. HASKINS
Cooper & Haskins, Architects
Raleigh, N. C.

Forum:

I subscribe to your approach completely.

As for my office, we have yet to turn down a client doing any kind of house work regardless of how small or how limited the budget. If they can only afford sketches we give them sketches. If they can only afford supervision we give them supervision. At least they do get the benefit of an architect's advice and service even though limited.

STANLEY C. PODD, *Architect*
Buffalo, N. Y.

Forum:

I feel that the position of the architect on the question of all residential design should be scrutinized and re-evaluated. I would like to pass on to you recent experiences in this office on both privately constructed houses and projects for builders.

We just completed drawings for two houses, one costing $25,000 and the other $37,000. The drawings were very complete and in both instances our architectural cost, based on $6.25 per man hour, exceeded the standard fee by approximately 50 per cent. Much of this type of work would put us out of business very quickly. The only remedy open to us is a) reduce the amount of detailing and the completeness of drawings, b) charge a much higher fee for the work, or c) refuse to do residential jobs. Of these three possibilities the latter seems to be the only logical one.

Now for the case of the merchant builder. For a period of one year we performed the architectural services for such a builder, designing two separate projects. The first project consisted of houses ranging from $12,000 to $20,000 and was to run approximately 450 units. Realizing that the builder assumed some heavy financial risks in starting the project, we billed our initial work at cost and were to receive a reasonable repeat fee which would enable us to make a fairly good over-all fee if the houses were publicly received and sold and a good fee if the subdivision were completed.

While the premium project was going on, we developed a low cost house upon which we were paid our cost plus profit on an hourly basis for the original development and were to receive a $25 interest of further work we did. Soon after this, the builder hired a draftsman whose entire training has been picked up by being the "architect" for various local lumber companies. This man is now doing all of their work on a salary basis and using all of our detailing and following the basic planning required for mass production on the premium project. This has completely voided the fee arrangement wherein the initial work was done at cost and leaves us no possibility of coming out on the basis of the completed project.

The same experience is paralleled in the case of another merchant builder client. After 100 houses of 300 house project were built and all the basic planning done, the builder set up his own architectural staff on a salary basis. Two other large local builders, no clients, have likewise set up their architectural departments.

In all cases the so called architectural staffs are comprised of men either inexperienced or incapable of holding jobs in architects' offices. In some instances they have a man with a license, and in all cases they are men whose operations at the best can never be anything beyond the fringes. The builder is unable to judge quality of architectural personnel and is also offering quite high wages, which makes it attractive to some men. The pitiful part of it is that both the builder and the customer he serves are lulled into satisfaction, thinking they have architectural services.

Any discussion on better understanding between architect and builder should certainly include a point concerning good faith. I personally have reached the stage where I am extremely skeptical of all the practices of the merchant builder.

ROY A. WORDEN, *Architect*
South Bend, Ind.

Forum:

We pledge full support. I am pleased that the igniting force has come from FORUM.

GARLAND M. GAY, *Architect*
Lynchburg, Va.

Forum:

I heartily applaud FORUM's editorial urging a closer understanding and relationship between architect and builder. Your choice of housing is appropriate for the field which at present is in greatest need but your suggestion applies to any other building activity as well.

I submit that the function of the architect is the design of shelter for any activity of his civilization.

That his services are dispensed with in the majority of structures built is mainly due to:

1. The assumption of the architect's function by others.
2. The general undervaluation of the architect's services.
3. The inability of the architect to distribute his services at a cost the project can afford.

FORUM is performing a true service in attacking the last two of these causes.

I hope Mr. Coogan is met more than half way. He is farsighted in emphasising the need for research, but may have shot beyond the mark in proposing that the architects and builders "jointly find or provide funds" when Title IV of the Housing Bill to large extent is designed to serve his purpose.

HUGH PERRIN, *Architect*
Washington, D. C.

BUILDERS:

Forum:

I feel that the time has definitely arrived when builders must recognize that the homes they offer for sale should be diversified enough to, in a measure, blend with the personalities of the families who are to occupy them.

If the architects of this country would recognize that there is a need for their services in the smaller home brackets and reduce their fees accordingly, a great service would be rendered to the homeowners, builders, and the architects of the future with reacting benefit to the nation at large.

J. C. LONG
Operative Builder
Charleston, S. C.

Forum:

Excellent. There is no question of the need in establishing a closer working relationship between the architects and builders. We, in the building business, are acutely aware that we have neither the knowledge, the tools and ability to design homes—that outside assistance should be a must for all new residential construction. Further, a grave injustice has been done to the public in that, in the main today, we are still building houses which are close replicas of the houses built in 1939 and 1940. There is utterly no reason for this and is extremely poor merchandising on our part and in reality, on the over-all picture, it is costing ourselves money.

However, there is more to working out the closer coordinated working arrangements between architects and builders than an adjustment on the standard architects fees. This, of course, is a must. The standard fee is unquestionably too high, and we, as builders, do not have the opportunity of passing it on to the home buyer. But over and above this item the architects have got to realize that new design does not mean advance contemporary type of homes . . . . there is a middle contemporary level that can and must be attained.

You seek the service of a top-flight architect who has the ability to achieve what we are all trying to accomplish, this man turns the house work over to one of the students that he has working in his office; consequently, the value of the man's ability is not realized and yet the charge for his ability is being made. . . . Altogether too many of the architects design purely from the esthetic standpoints and not from the standpoint of economy in construction, livability for the home buyers and long-term stability for the mortgagee.

An extensive campaign to convince both builders, architects, and mortgage investors what a shameful job has been done in the past and the necessity for starting immediately to improve these conditions would indeed be a big step for the building industry and an extremely notable achievement for the home buying public.

WAYNE E. GUTHRIE
Regional Vice President
National Association of Home Builders
Spokane, Wash.

ARCHITECTS:

Forum:

Painfully true. It has been and is the case in this city which is probably typical of the country.

With approximately 25 to 30 practicing architects in this territory, only three or four are interested in residential work. The others pass it off as something for the draftsmen to do in their spare time, or for the small builder himself to do.

This is creating the wrong impression among the small builders and the building conscious public. I maintain that the architect should do what he can to assist the house client. I like your article which has, cleverly, hit the nail on the head, and no doubt it will arouse some needed interest in the profession. Also, the builder can benefit by realizing the architect's position and not think that the architect can turn out a set of plans for $25, either, as you so ably touched upon.

RALPH J. BISHOP, *Architect*
Spokane, Wash.

Forum:

A small house is the most expensive and unremunerative job that any architect can undertake even at the regular fee. We have consistently passed them up.

The publication of plan books and the sale of blueprints at a small price establishes the idea in the minds of builders and the public that this is all that a plan is worth. The only way that the architect can combat this idea is to give the calf more rope and let him hang himself. Locally I am convinced that this has really happened. Our largest builders have told me that they are much disgusted with the sameness in all of their buildings. They really want something different. If they want my work they will have to learn to pay for it. That is the first step. That is a proper expenditure. They can afford it and should learn that. The only way to economize is to repeat the designs with some modifications.

Then again the architect becomes disgusted with all of the FHA regulations and requirements that limit his imagination. The architect cannot be an architect when he is told what he must do. This problem must be solved at the top before any progress can be made. Great changes in the entire character of small houses are necessary before any real result can be achieved. We can do this but must not be hampered by regulations.

DON BUEL SCHUYLER, *Architect*
Tuscaloosa, Ala.

Forum:

The FORUM is to be commended. It is time something was done about this.

BENNO C. HIBLER, *Architect*
Atlanta, Ga.

Forum:

Regarding your editorial—looks like a tempest in a teapot as far as this metropolitan area is concerned. Most every development, large and small, is filed by architects and presumably planned and designed by them. Of course, they are more or less specialists in the field and so far as I know get adequate fees for their work. There is no ethical restrictions by the AIA against proportioning the fee to the work, with due allowance for repetitive phases. I believe the architects and the home builders are getting along all right together. The little fellow here and there who buys his plans over the counter is not an important element, and will do so regardless. . . .

CHARLES C. PLATT, *Architect*
F. P. Platt & Brother
New York, N. Y.

Forum:

If doctors can do so much charity work, charging higher fees to us who pay, possibly architects can find a way to get sufficiently large fees to give some of their ability to the low priced house, even at a loss. . . .

GOLDWIN GOLDSMITH, *Architect*
Professor of Architecture
University of Texas
Austin, Texas

ARCHITECTS:

Forum:

Architects should not let pass the opportunity to render a real service to the small homeowner by way of better design all along the way.

JOHN H. PRITCHARD, *Architect*
Tunica, Miss.

Forum:

You are tackling a terrifically important problem.

I believe that the development of a working agreement between the two groups is entirely possible providing some architects get away from their unbending attitude, and likewise some builders drop the opinions that no one can teach them anything.

In my own experience I have found that working with the merchant builder is a technique of its own. I have found that after an extended period of contact with some builders, a mutual cooperative method of working out problems presents itself and both the architect and builder are better off for it. The architect who claims that he learns nothing from a builder is shortsighted. The builder on the other hand who feels that he can work without the help of an understanding architect is guilty of not properly merchandising his product.

In so far as fees are concerned in the particular architect-builder relationship, the standard of percentage fees are as antiquated as the five orders of architecture. If a careful system of accounting is kept by the architect, and if methods of producing plans and specifications are thoroughly analysed, it is entirely possible to work out a fee schedule that is both realistic to the builder and profitable to the architect.

The architects have much to gain by stating their case and setting up a compatible working arrangement with the merchant builder. Professionally, it would be of great assistance to us; it would do a good deal to eliminate the unimaginative type of home being built in many parts of the country, and it would certainly help the homeowner and community at large. I hope the AIA takes immediate action on this and that in conjunction with the NAHB a workable scheme will readily be developed. You have my unqualified support and congratulations.

ALBERT MELNIKER, *Architect*
Staten Island, N. Y.

Forum:

I think your editorial on architectural services to builders is timely and sensible. We all know for many years architects have been "selling plans" to builders—not rendering them architectural services—some because it was the only work they could get and others because "other guys do it so why shouldn't I?" We know, too, that the fees—if you can call the stipends they received by that title—did not conform to what architects were supposed to charge, but nothing was done about it but *talk* . . . There is no question about the fact that the architect with any amount of business cannot afford to give full service to the $5,000—$10,000 house, even if he received a full 10 per cent fee. It would cost him more than he received. It is also true that architects with any pride in their reputations are reluctant to prepare plans and turn them over to the mercies of a contractor who will interpret them as he pleases. The results are seldom a credit to their fathers.

But it is also true that the net results would be infinitely better if all houses were designed by competent architects for the sites on which they are to be placed and with some thought of the other houses existing or to be built in the immediate neighborhood. So if some solution can be found that will allow architects to design houses that will not turn out to be blots on their escutcheons, for a fee that the commercial builders will pay, there is no doubt that the ultimate howeowner and the landscape will be greatly benefited. . . .

BROWN ROLSTON, *Architect*
Silver Springs, Md.

Forum:

We agree heartily with everything that has been said.

GLEN H. THOMAS, *Architect*
Thomas & Harris
Wichita, Kan.

EDUCATORS:

Forum:

Your effort in the direction of architect-builder cooperation in the field of the low cost home is laudable. Absurdities and atrocities due to the unfortunate and misunderstood application of contemporary planning, materials and details illustrate the crying need for the architect's services. On the other hand, the builder should see that some realistic basis of payment is made part of the budget he so anxiously whittles. The architect's fee must be related to the large amount of work and research required to solve the small house. In addition, to compensate for his basic design he should be paid a certain tangible amount for each house built from it. Too, real effort should be made to educate the caloused banks and other controlling financial agencies, who with their lethargic condoning of poorly designed houses and refusal to admit unusual and changing ideas are also doing the innocent purchaser a dis-service. There is much progress to be made in this field.

OLINDO GROSSI, *Chairman*
Department of Architecture
Pratt Institute
Brooklyn, N. Y.

Forum:

Am heartily in favor of the idea.

Before I began teaching, when I was a member of a western architectural firm, we had an arrangement with a merchant builder, in this case a lumber yard, and furnished plans in rather abbreviated form without specifications and without supervision for a nominal fee. The reason we did this was that we knew the houses would be built whether we looked at them or not and we thought we had an apportunity to better the design without treading on anybody's toes. Furthermore, these were not mass-built houses but each one was an individual job. I think the AIA and many practicing architects might frown upon this practice but we could see nothing unethical about it and believed that it accomplished some good. . . .

W. V. MARSHALL, *Ass't Dean*
College of Architecture & Design
University of Michigan
Ann Arbor, Mich.

Forum:

A very timely and needed social document. I believe you are approaching the problem properly by seeking a collaboration between architect and builder. That is the only way the problem can be solved.

As short a time as ten years ago, the leading architects of America were facade builders interested only in big plans, big monuments and, at the least, big houses. Their thinking had not been conditioned by a kind of training which demanded basic and fundamental research on every problem to be solved. The new architect, and particularly the young men coming out of the best schools today, are well qualified and interested in the problem of the small house. They are aware that it must be solved through a basic research and by experimentation in the laboratory. Such centers as the Southwestern Research Laboratory in San Antonio where, among other things, the Youtz-Slick system is being developed are being carefully studied by the competent modern architect.

By close collaboration with the builder, the modern architect must familiarize himself with all of the products and methods available. He must analyze and scrutinize. His final building must be a synthesis of the most advanced thinking and the best of the available basic research. The resultant product in sensitive and capable hands will be the small house—well proportioned, economically constructed, efficient to operate and a pleasant place for living.

HENRY L. KAMPHOEFNER, *Dean*
School of Design
North Carolina State College
Raleigh, N. C.

OTHERS:

Forum:

It is obvious that neither the architect nor the builder (each collectively) knows what he wants. The AIA has tried in the past to achieve a united front on the small house problem and I hope President Ralph Walker will succeed. If Thomas P. Coogan really speaks for the builders, the way seems to be open for constructive action.

C. H. COWGILL, *President*
National Council of Architectural Registration Boards
Blacksburg, Va.

Forum:

I am extremely glad that you have waded, neck-deep, into the subject of architect's services to merchant builders.

As one who has participated in earlier architect-builder discussions of this subject, I would assess the blame for lack of progress as more than 50 per cent attributable to the architects.

The question is not only one of fees, but also of status. The opinion that a man cannot be one of the noble company of architects if he does work on the basis of a regular retainer or salary or share of profit in a building enterprise is at the root of the problem. Many builders want the design function integrated with their general operations—not an unreasonable attitude, it seems to me. Some architects fear they will lose status if they accept payment on any but a fee basis (this is aside from the question of the amount of the fee). Consequently, the definition of the term "architect" is one of the first issues with which the proposed committee must deal.

MILES L. COLEAN
Housing Economist
Washington, D. C.

Forum:

I heartily approve.

FREDERICK KENNEDY, JR.
Pasadena, Calif.

Forum:

. . . I am heartily in accord with your proposal that the architectural profession must take some steps to cooperate with merchant builders to bring the advantages of better design and planning to as many houses, neighborhoods and communities as possible. I am greatly encouraged by a statement by Ralph Walker in which he says, "I shall be very happy to appoint a committee of the best minds of the AIA forthwith to meet with representatives designated by Mr Coogan."

WILLIAM H. SCHEICK
Executive Director
National Research Council
Building Research Advisory Board
Washington, D. C.

Forum:

Nothing could add more to the "Homes of Tomorrow" than the program you suggest for builder and architect cooperation.

Such a program must have our unconditional support because it necessarily means better homes, better communities and more enduring values.

ROBERT J. HUTTON
2nd Vice President
Michigan Savings & Loan League
Detroit, Mich.

Forum:

Excellent. . . .

J. C. LLEWELLYN
Llewellyn Realty Co.
Fort Worth, Tex.

Forum:

. . . Normally, the builder makes about 10 per cent of which 5 per cent might be net profit for his responsibility for the construction and all the risks involved. The architect, to get his full price, would get about 5 per cent and if a realtor sold it he would get 5 per cent and both of these commissions would be earned without any risk and certainly with less effort than that contributed by the builder.

We do not question the fact on a newly developed plan, the architect's fee should be something like this, but on many plans these are merely a repetition of plans such as given in your magazine, or plans that are well known and available without cost excepting the mechanical tracing and adaptation to the particular site. This is particularly true of rental housing such as our firm has often had where one building often has been duplicated 20 or 30 times.

We agree heartily with the statement toward the closing of your editorial that "we hope this will give both architects and builders a better understanding" for the reason that with competition becoming keener and the margin becoming narrower, the temptation will continue to be great for the builder to eliminate as much of the architect's expense as can consistently be done.

CARL C. WILSON, *Realtor*
Omaha, Neb.

Forum:

Terrific. . . .

GEORGE M. HOLSTEIN III
George M. Holstein & Sons
General Contractors
Costa Mesa, Calif.

This editorial is reprinted from the April 1950 FORUM, dedicated to a better understanding between

ARCHITECT and BUILDER

MERCHANT BUILDERS erected perhaps five out of every six single family homes last year—a staggerging total of nearly 700,000. Architects, unfortunately for themselves, for the builders and for the home buying public are playing no such part. Of homes costing $12,000 or less, perhaps one in three had the direct benefit of an architect's skill, imagination and training. The others "just growed."

The big news in home building this year is the unanimity with which the home builders at their annual convention recognized the importance of better planning and better design, i.e., the importance of the tangibles and intangibles the architect can and should contribute to better homes. Heretofore, it has been half the fault of the builders if the design of their homes was no better than it was. It costs no more to erect a well designed house than a poor one, but too many builders have kidded themselves they could save money by dispensing with an architect. In the past two years more and more of them have realized that this penny wisdom is pound foolish.

Says big Builder Frank Sharp of Houston: "The dollars I pay my architect add more to the value of my homes and the total of my profits than any other dollars I spend." The most cursory comparison of the builders' houses in this issue with the best builders' houses the FORUM could find for its small house issue a year ago shows how fast the builders are moving towards better design and better use of the architect's services. But too many still think they can economize by budgeting as little as $10 for the plans for an $8,000 house.

But not more than half the blame can be charged to the merchant builders for the small part the architects have played in American housing. The attitude of too many architects has been both Pharisaical and Levitical. Like the Pharisee, they have thanked God publicly that their own houses were not like the builders'. Like the Levite, they have been content to pass on the other side without lifting a hand to help the great mass of home buyers. What would we say if the medical profession, regardless of the reason, had done as little for the health of two-thirds of the tax-paying public as the architectural profession has contributed to their housing?

Granted that merchant builders have been slow to recognize the primary importance of the better design and better planning, the merchant builders can take very real pride in their achievements scince FHA financing first made it possible for them to attempt assembly-line methods to transform home building from a wasteful trade into an increasingly efficient industry. On a free enterprise basis they have created the great paradox of American housing, confounding politicians and social planners alike, by providing good homes for taxpayers at less cost than the public housing these taxpayers are being taxed to provide for people too poor to buy or rent the cheaper houses the taxpayers are proud to occupy.

Now the home builders are recognizing their need of an architect's help, and the necessity of offering a more adequate reward for that help. We hope the architects in turn will meet the builders half way and be proud, for a reasonable reward, to play an increasing part in raising the standards of American housing and American living, not alone by devising new plans for the well-to-do which can perhaps later be adapted to mass housing, but by direct participation with the builder in designing better homes for the average family. It would be a very fine thing if the heads of the A.I.A. would get together with the heads of the National Association Home Builders this spring, abandon the fiction that it is unethical for an architect to help a home builders for less than full commission, and work out a new fee basis for designing builders that would at one stroke raise the standard of American housing and open a whole new market to the architect.

This issue shows builders some of the best design ideas the best architects are now contributing to low cost housing, both custom and builder built. It also shows architects some of the difficulties the builders face and some of the excellent practical ideas the builders are working out. We hope it will give both architects and builders a better understanding each of the other's problems and services, and that from that better understanding will come a quicker and fuller partnership in meeting the great responsibility they must share—the responsibility for showing that free competitive enterprise can and will provide far better homes for the American family, and FORUM is more than pleased that NAHAB's President Coogan and A.I.A.'s President Walker agree with this suggestion as shown by their letters, opposite.

The builder needs the architect and is ready to meet him half way

—a statement by Thomas P. Coogan, President National Association of Home Builders

One of the most fertile fields for the development of intra-industry relationship lies between the merchant builder and the architect.

This is certainly a "no-man's land" at the present time, with only a few of our larger builders making effective use of good architectural service and all the remaining architects sneering at the result.

One thing is certain, the field of small homes needs the best architectural services it can secure, and at the present time it is not available. The fault lies on both sides. The builders complain that architects do not know or make any effort to understand their problem. The architects as a group have not made any effort to study the builders' problems.

It is easy to understand these difficulties when the past history of each group is studied. The architect has been accustomed to specialized design for theindividual family and has taken great pride in fitting the design to the specific needs of the family and the building site. Most of the architectural effort and research have been expended in the large homes where the fee justifies adequate study and results in good design. This has left the small house design in an undeveloped stage.

The merchant builder has been faced with fixed problems. He must build a house that will meet mortgage loan requirements; it must be economical to construct; its design and construction must be such that FHA or VA gives full value; it must fit his 50 or 60 ft. lots; its appearance must be such that it will appeal to the buying public of his area; the down payment and monthly payment must be within buying public's ability to pay; the design must lend itself to variation at reasonable additional cost.

The builder has been accustomed to using stock plans, or buying stock type plans at from $10 to $20 a house. He has been criticized for the lack of good design and realize that improvement must be made. The builders' approach to good architects has been generally discouraged by lack of understanding on both sides. The standard architectural fee, from which many architects refuse to budge, does not fit the case of the merchant builder.

As a first step the A.I.A. should set up a set of fees applicable to group housing. These fees should be the result of study and experience and should be within the ability of the builder to pay in a competitive market. Secondly, the A.I.A. should work with the builder, preferably through the National Association of Home Builders, so that a better mutual understanding couldb be developed.

These studies should cover the development of good designs that 1) conform to standards set by various mortgage requirements, 2) achieve at low cost, 3) recognize the limitations of the average city lot, 4) permit reasonable variation at moderate cost, and 5) appeal to the house buyer. These studies should also cover the development of a reasonable set of fees for architectural services to merchant builders.

The builder on his part must realize that good design is the one thing every home buyer wants, whether he realizes it or not. In dealing with architects he must remember that he is buying skill knowledge and they are intangibles that cannot be checked like lumber and cement. He must also remember that few architects have had experience with lo wcost housing, that the cost element has been missing in their calculations, except as a general consideration. He must also expect to pay the architect a reasonable fee so that sufficient time and study may be devoted to builders' problems.

In addition we must jointly find or provide a source of funds that will permit extensive research in design of small homes. No one owner or builder can afford to foot the bill for the vast volume of work that must be done. The present impasse must be broken. The builders need the designs; the architects need the experince and the buying public needs the joint result. —THOMAS P. COOGAN

The architect recognizes the problem, agrees to study it

—a statement by Ralph Walker, President of the American Institute of Architects

I am sure that the best architects of America are tremendously intereseted in the output of the merchant builders, and it is by no means the intention of leaders in architecture to stand by and watch 75 to 80 per cent of the home building in America go without architectural attention by mere default. It is true that a great deal of exploring must be done to convert architectural services, which have traditionally been done on a custom basis, to the mass market. I shall be very happy to appoint a committee of the best minds of the A.I.A. forthwith to meet with representatives designated by Mr. Coogan and to arrive at methods of work and methods of professional remuneration that will fit the needs of builders while they give architects the opportunity of an adequate livelihood.

One area which is far from having been explored is the question of site planning. It seems to me that if builders were to pay an adequate fee to qualified architects for better site plans, the savings might be so great and the enhancement of attractiveness might be so conducive to a better market that builders would derive the greatest benefit and architects could afford to take a relatively small fee for the design of the individual buildings.

However, this is merely a suggestion to be studied when representatives of both parties meet. We strongly appreciate the enlightened approach which Mr. Coogan has made. —RALPH WALKER

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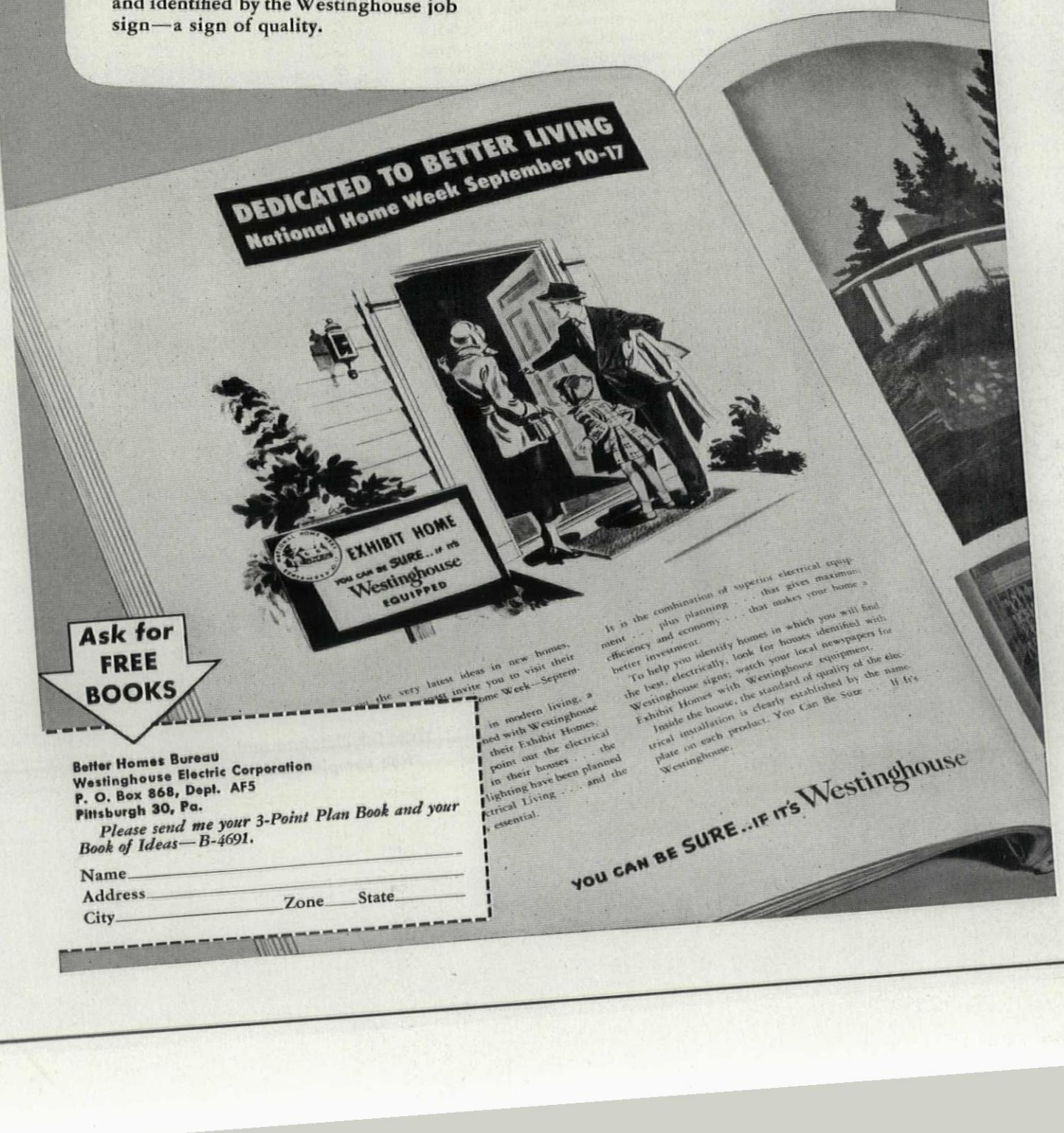

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MAY 1950

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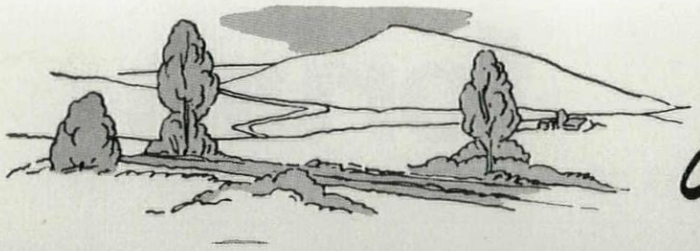

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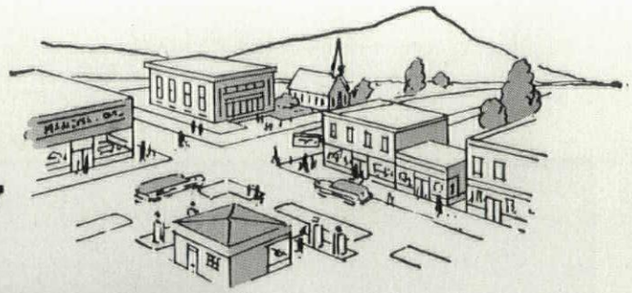

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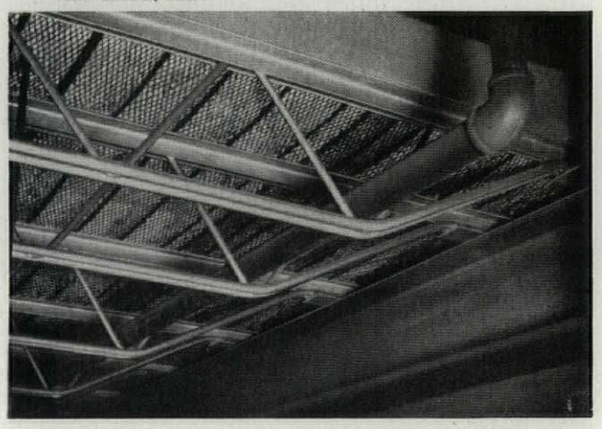

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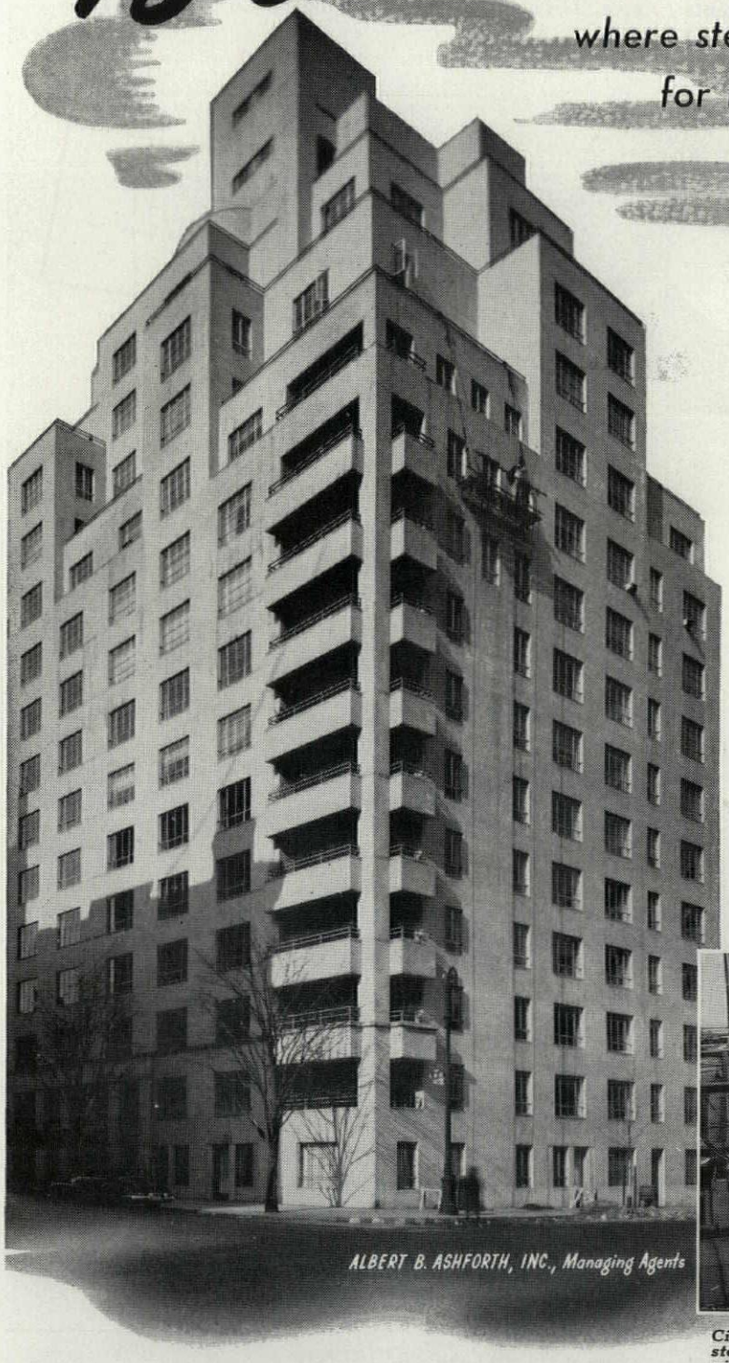

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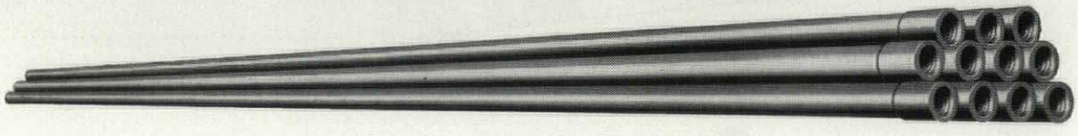

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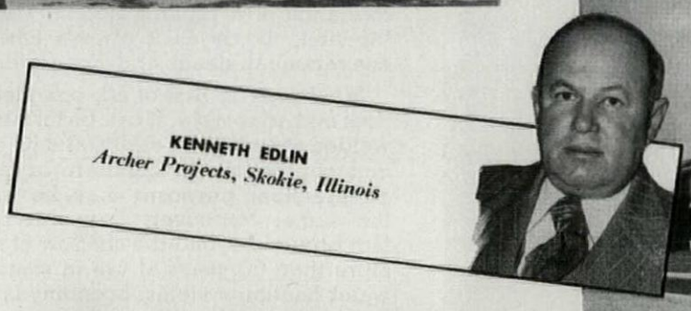

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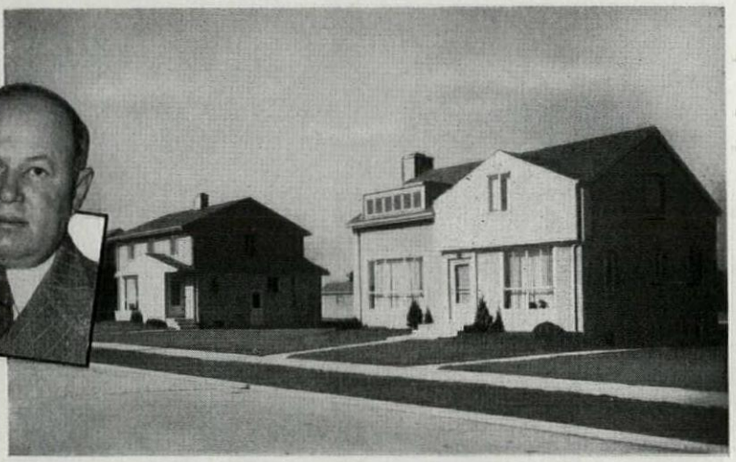

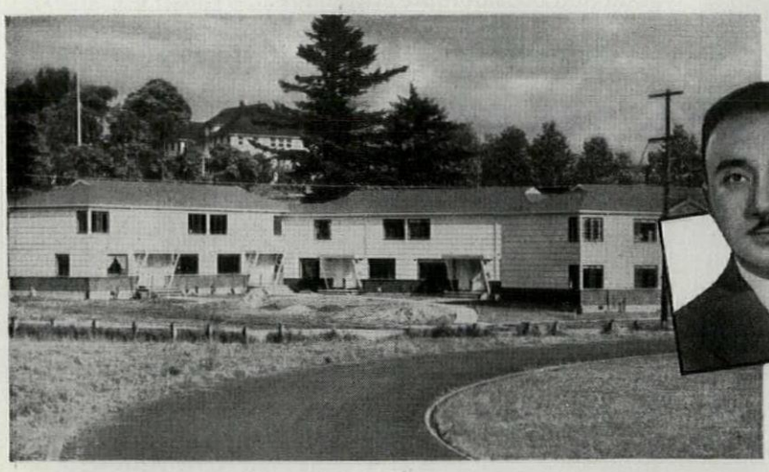

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INCREASED HOUSE PRICES—as much as 5 per cent—will be forced in many areas by high lumber and labor costs, despite a strong competitive market

House prices in many parts of the country will jump as much as 5 per cent during the next few months. In other sections, builders will attempt to forestall a price hike by cutting down on the size of their already minimal houses; others will foresake the small house market entirely, and return to the higher-priced fields they deserted a year or two ago, where they think the market will not be sensitive to price boosts.

Almost everywhere across the country last month, house builders reluctantly began to admit that they could no longer hold the line on house prices, as they had hoped to be able to do as late as mid-March (and as reflected in FORUM's Builder Survey, Apr. '50). Most builders, in the present strong competitive market (which Builder Fritz Burns has compared to the television market: everyone shops around a lot, but everyone buys) had been absorbing cost increases. And wherever it was possible, builders would continue to absorb. But by last month, it was apparent to builders in many areas that, competitive market or not, those increases could not be absorbed much longer.

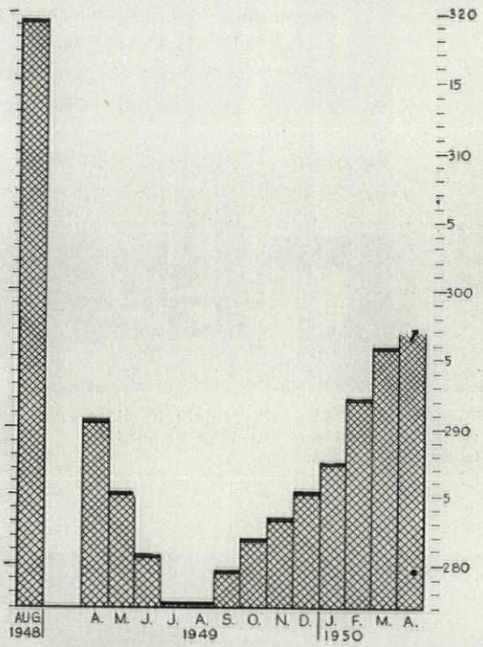
Labor-lumber. The chief culprits, of course, were labor, still going strong in its spring demands (its influence, however, was strong only in specific areas; its total effect was not particularly significant—see p. 14); and lumber, whose bout with the severe Pacific Northwest winter (FORUM, Apr. '50) had pushed the average lumber sales price in Northwest mills up 20 per cent since the first of the year. Last month, prices on orders taken at mills around Portland for summer delivery were at their highest since the peak levels of 1948; there were high premiums on quick-shipped cars. But lumber production, just now beginning to gather speed after its storm-forced lull, was almost 20 per cent behind 1948's first quarter record output. Lumbermen were cautious about predicting lumber's immediate future. Some hoped prices would level off "reasonably soon," and they pointed as evidence to the fact that logging employment had increased about 30 per cent with the melting of the heavy snows. Others were not so sure; there was still an extreme shortage of logs. In the meantime, lumber's wild spiral, along with labor's spottily hectic pattern, and the milder increases in other materials, had already left deep impressions in most parts of the U. S.

St. Louis. In St. Louis, where materials prices have increased 5 to 10 per cent in the last month, and carpenters have won a 5-cent an hour increase, Builder Ralph Duke, past president of the local Home Builders Association, soberly set the current mood: "Increases in materials costs thus far have been absorbed by the builder. By this summer, however, probably in July, from 2 to 4 per cent will have to be added to the price of finished houses."

San Francisco. In San Francisco, where one builder wailed that lumber prices "go up about $1 or $2 a thousand every time we order," and where higher labor wages (house painters negotiated a $1 a day pay boost and AFL carpenters were taking a strike vote for a 27½-cent an hour increase) had, by several builders' estimates, cancelled out the increased labor efficiency built up during the last year, industry men saw no way out but an increase in house prices. Said Builder Fred Gellert: "We haven't marked up the price tags yet, but we're going to have to very soon." His partner, Charles Finson, was more specific: the lumber-labor whirl, he guessed, would force them to add about $300 to $350 to the price of a typical 5-room, 1,000 sq. ft. house.

Houston, Chicago. Costs of fir, pine and red cedar shingles in Houston have increased 20 per cent in the last 90 days, 5 per cent in the last month. Gypsum board is in critically short supply; retailers are getting 60 per cent more than the usual price for it. P. S. Luttrell, president of the Houston Home Builders Association, looked for a 5 per cent house price increase "almost immediately." Chicago Builder Nathan Manilow, his eye on the big lumber price rise, slighter increases in gypsum board and asphalt shingles, and the welfare demands of five structural trades, predicted that "builders will do well to stay within a 5 per cent increase this year."

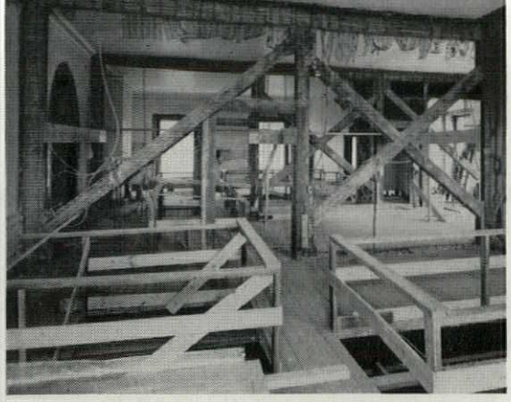
Dallas, Denver, Los Angeles. Fir in Dallas was $85 and $90 per 1,000 two months ago; now it's up to $100. Plaster board had doubled in price (from 4 and 5 cents to as high as 9); cement is scarce; builders there braced themselves for price boosts in their houses within the next month or two. The story was the same in Denver, where lumber jumped $5 per thousand in the last month, and the construction trades unions are asking a 25-cent an hour wage hike, and in construction-frenzied Los Angeles, where smaller firms set up a wail that lumber dealers were siphoning off their dwindling supplies to bigger companies.



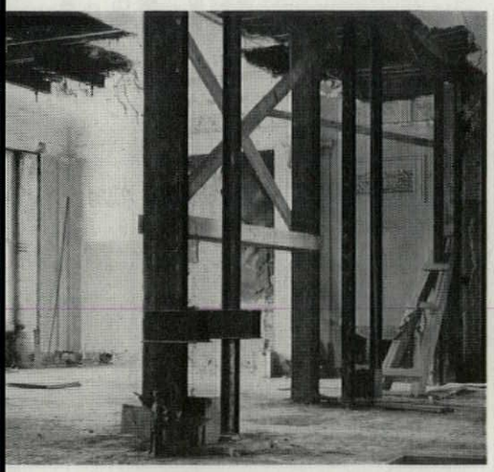
LUMBER PRICES over the past 12 months, according to B.L.S. wholesale price index (with 1926 equaling 100), hit their low point last July and August, have been swinging upward ever since. April's figure, still not determined, will be somewhat higher than March's. Prices still have long way to go, however, to hit peak level of Aug., '48 (shown in bar at extreme left.)

Detroit. In Detroit, the push upward had already begun. Spurred by a $25 lumber boost since last year and by a new 10½-12½ cent labor increase, builders were adding $300 and $400 to the price tags of their five room houses.

Boston, Cleveland. Boston builders, who have felt the pressure as much as anyone (workmen's compensation had jumped 20 per cent; lumber and nails were at peak levels) were still struggling to keep the increases out of their finished products, but they were falling back on other dodges. Explained one: "I'm still building a six-room house, but the rooms are all smaller . . . You can't reduce the price line any other way than by reducing what you put into the house." Throughout the Boston area, developers were whacking off porches, garages, fireplaces. Another builder said he would "have to start building for people who can afford to buy high priced homes." Cleveland's problem was much the same. Building trades won a $1 a day increase, and wholesale lumber prices have increased



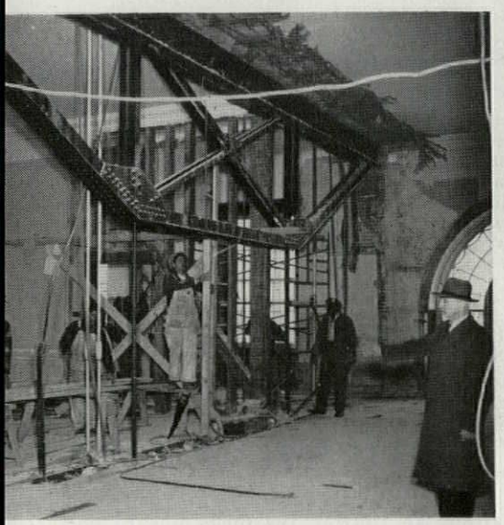
LINCOLN STUDY, on second floor, shows type of support that was used to bolster White House.



TEMPORARY BRACES remain in place until new steel columns take up load in lobby of main entrance.

Photos: Reni Photos

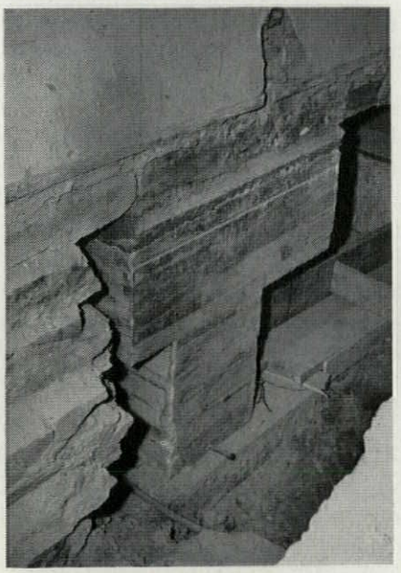
INADEQUATELY FRAMED span of East room on first floor will get new brace with steel construction.



STEEL INSTALLED in 1902 supported the suspended ceiling in the dining room on second floor.

WHITE HOUSE RENOVATORS tear down old walls, build new interior

To renovate the White House, Builder John McShain is tearing everything out but the four walls and the roof. To the visitor's eye, viewing the historic mansion from the gate outside, it is the same building has has stood for 150 years. Inside, however, where a brand new steel-supported interior will be constructed to brace the structure, is a mass of rubble of old, worn-out 2 ft. brick supporting walls, criss-crossed with temporary trusses of timber. New interior, which is being planned by White House Architect Lorenzo S. Winslow, will be much like the old one, but wall-partitions, replacing thick load bearing walls, will provide more space.



ORIGINAL FOUNDATION, consisting of 5 ft. depth of rock, is bolstered by new concrete foundation.

30 per cent. Houses put up there the rest of the year, guessed one observer, will either be upped in price or "shorn of all extras."

Middle Atlantic area. In the New York-New Jersey area, lumber stands at$90-95, is expected by some to pass the $100 mark in early May, and reach $110 in late summer; a shortage of skilled labor, and sufficient wage increases to take a big bite out of labor's recent high productivity, seem likely. Builders thought they could hold out until summer before they hiked their prices —but one builder ventured that the increase then would be as much as 10 per cent. Pittsburgh builders were still taking material prices "on the chin," as one put it, but they were sure they wouldn't be able to hold out beyond June 1, when renewed agreements are expected to up labor costs by 6 per cent.

Steady wage areas. In areas not threatened by the twin onslaught of materials and labor, it would be easier to continue to absorb the cost increases. Miami, Seattle, and New Orleans had all felt the upward pressure of materials prices, but stabilizing wage contracts would enable them to hold the line on house prices.

Bright side. Happily for the construction industry—and for the economy as a whole, which counts heavily on Building for its buoyancy—no one thought the price increases would seriously harm the market. As Builder Burns had put it, everyone was still buying, no matter how diligently he shopped; it was not likely that the 2 million shoppers who would be on the house-hunt this year and next (according to the Federal Reserve Board—see p. 14) would be deterred by the price increases in store. In just about every city where increases were expected, builders looked for their buyers to be philosophical about the whole thing. Said St. Louis' Duke: "Costs rise; wages rise; it follows that prices of finished products must go up also. The public expects that now." Perhaps a more practical reason for the buyer's philosophic acceptance of a $300 hike in the cost of his house is the explanation advanced by a San Francisco builder: the total price of a home affects sales less than the amount of the monthly payment. Dr. Arthur M. Weimer, dean of the University of Indiana School of Business and economic analyst for the U. S. Savings & Loan League, agreed emphatically. The key to housing demand during the entire decade, he told West Coast builders, will be financing—which is easy now, and getting easier all the time (see p. 11).

WASHINGTON

LOWER FHA RATE will not stop money flow, may boom VA loans

As a kind of belated Easter present, the President by late April had a prize package ready for the building industry—an entirely unexpected announcement that effective April 24 FHA's maximum interest rate would be dropped ¼ of 1 per cent on new business submitted under Title 11 and under the small home section of Title 1.

While building circles buzzed with excitement over the news, opinions naturally differed as to how it was going to affect various segments of the industry. The general view was that it was all to the good—would reduce the overall cost of buying a new home and thus make some of the provisions of the new bill (95 per cent 30 year mortgages) doubly stimulating. Chairman Burnet Maybank of the Senate Banking Committee hastened to point out that it would save the new crop of homeowners "at least $5 million a year."

Top pressure. There was no doubt in the minds of most observers that it had taken pressure from on top to get the FHA to make this move. The way it was doped out, the play had been from Truman, to Foley to the FHA. Some wondered if it might presage further White House prodding to reduce other FHA charges that might be regarded as out of line—the cost of borrowing under the Title 1 property improvement program, for instance, where the discount method of figuring the rate comes out to an interest rate of slightly over 9 per cent.

Obviously, the question most frequently asked was whether the lower rate would cause a slackening in the flow of mortgage money. Most experts felt that it would not. They reasoned that at 4¼ instead of 4½ per cent, FHA insured mortgages would still be more attractive to banks and insurance companies than the general run of safe investments.

Tapering boom? The Federal Reserve Board gave this theory a kind of left-hand indorsement by chiming out with its old dirge: "cheaper credit is inflationary." However, some government economists took the contrary view that in this case, at least, cheaper credit could be deflationary. They felt it was entirely possible that the FHA program might lose some of its popularity with bankers and that as a result, the building boom might taper off a bit.

For their part, spokesmen for the savings and loan industry (which has never participated extensively in the FHA program) were not particularly worried. True, the standard rate among their institutions is 5 per cent (borrowers with sizeable downpayments get a better break). But they called attention to the fact that FHA borrowers would have to pay 4¾ per cent even under the new deal since there was not much chance that the insurance premium of ½ of 1 per cent would be discontinued. They doubted that many loan seekers of the type who would otherwise find savings and loan financing most suited to their needs would be enticed away by such a slim margin.

VA affected? But what really had the building industry in a tizzy was trying to answer the question: Would this new development make it easier or harder for the VA home loan program to attract 4 per cent money? VA had promptly scotched rumors that it would hike its rate to parity with FHA at the new lower level. But even if the VA program were held to the 4 per cent rate, the general view was that lenders would be less inclined to shy away from it now that FHA had narrowed the interest gap between the two agencies. There was some thought, however, that the smaller margin might have the opposite effect, making VA loans still less attractive to investors. Theory advanced was that in order to maintain a reasonably high return from their mortgage portfolios, investors would have to buy a larger percentage of FHA loans than ever, since at the lower rate it would take more of them to balance out the VA loans.

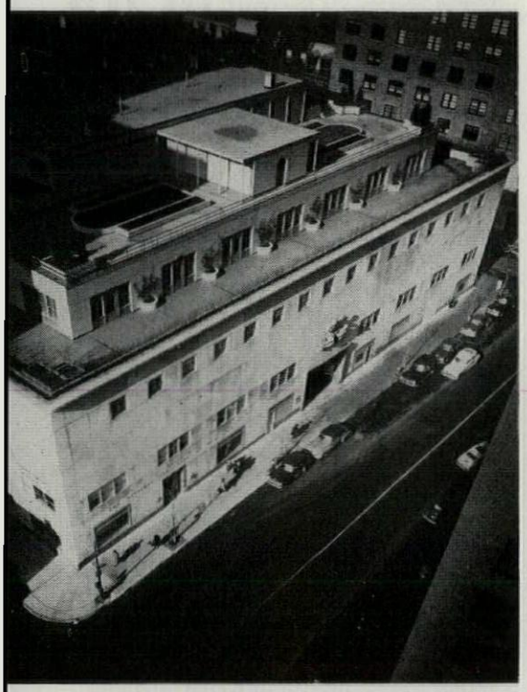
Other probable effects: Fanny May's existing portfolio of seasoned 4 per cent VA loans will be easier to sell, even at a premium. FHA might find it harder to launch its new small home program under Title I due to banker reluctance to wade into something a little different at rock-bottom interest rates. However, FHA was expected to sweeten the deal with extra fees. Combination FHA-VA loans will not be quite so attractive to lenders as before but builders have lost none of their love for them; have urged VA to prolong them the full time allowed in the new act—up to December 31. But VA took advantage of authority granted by the bill and named an earlier shut-off date: no 505(a) applications may be submitted after September 20; but VA will process applications on hand until October 20. In addition, because of the lag in time (usually from three to four months) between FHA commitment and VA approval on a combination loan, unsupervised lenders (mortgage brokers or other lenders not subject to inspection) may go until July 20 before they shift from 4½ to 4¼ per cent on the FHA first mortgage. Supervised institutions, who can make loans without advance notice to VA, have until September 20.

NEW HOUSING BILL gets going with Presidential signature

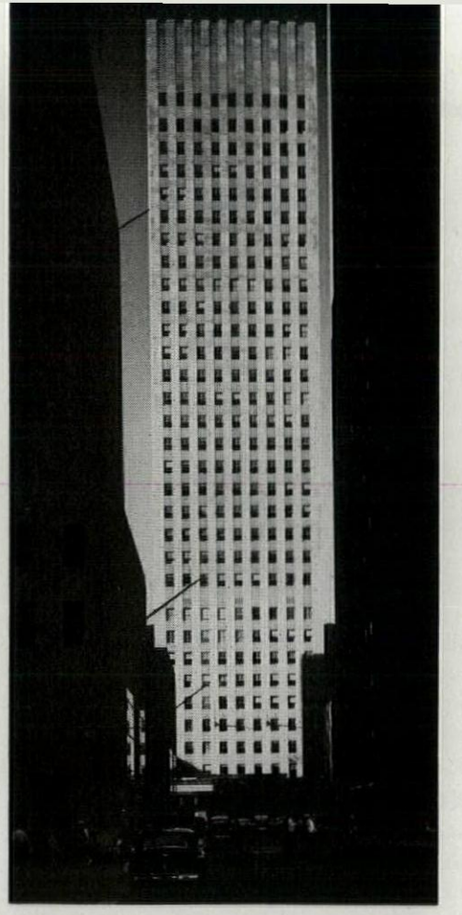
As soon as Congress had finished with the new housing bill, the various bureaus pitched into feverish activity so as to be ready when the President scrawled on his signature. Top officials went into endless huddles over the complicated language. Huge bundles of regulations, forms, and instructions were assembled for shipment to the field offices. The result was that soon after the White House gave the get-going signal, a large part—but not all—of the new program swung into operation. This included the 95 per cent 30 year mortgages under Title II on houses costing up to $7,000, the new streamlined program for suburban and rural housing under Title I, and VA's more liberal deal for veterans' housing under which it can guarantee 60 per cent of the loan up to a total commitment of $7,500.

FHA processing. Also FHA was ready to comply with the requirement that it process VA home loan applications for a fee. It had previously grumbled over the volume of inspection work it was doing for builders who later switched to VA financing. On the other hand, builders had contended that unless they started in under FHA processing they found construction loans difficult or impossible to get. Under the new arrangement, FHA will make appraisals and inspections for a fee of $45. If the builder elects to stay on under its program it will refund $15, counting on the initial mortgage insurance premiums to pay back part of the cost of putting the business on its books. If the builder wants to sell to a veteran and transfers to the VA program however, he does not get a refund. Builders are not expected to object to the size of this fee. It is much less than the $75 that FHA previously talked about.

By month's end, FHA was still in a stew over what areas it would name under the escalator clause authorizing increases ($850) in Titles I and II mortgages in high cost areas. Congress had issued a stern

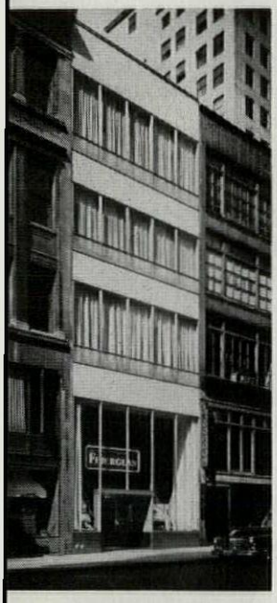


PARKE-BERNET Gallery—"best new building under six stories." (Archts.: Walker & Poor.)



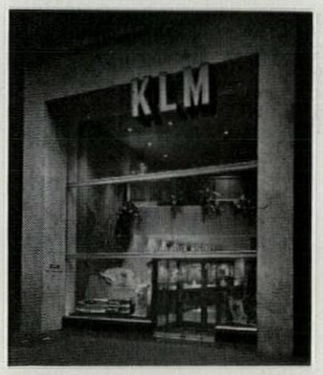
ESSO BLDG., part of the Rockefeller Center group—"best large new building." (Archts.: Carson & Lundin.)

Photos: Richard Garrison, Ezra Stoller, James C. Hornbeck, Wheaton Galentine, Browny Studios, Gottscho-Schleisner.



OWENS-CORNING FIBERGLAS Corp. —"best in completely remodeled group." (Archts.: Skidmore, Owings & Merrill.)

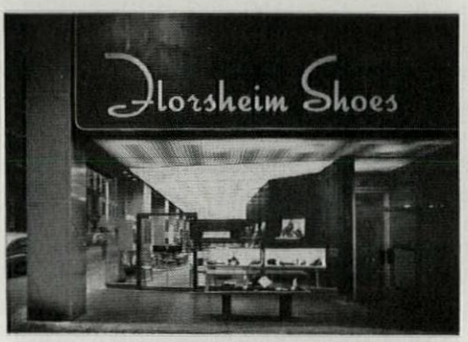
BONNIER'S Book Store—"best partially remodeled building." (Archt: Warner Leeds.)



KLM Royal Dutch Airlines—"best store front alteration involving two stories." (Architect: James E. Casale.)

"BEST" POSTWAR BUILDINGS in New York are honored

New York City's Fifth Avenue Association keeps a sharp eye on the "esthetic development" of that famous street and all the blocks adjoining it; to a large degree it controls the buildings erected in the center line of Manhattan. Since the war, it has been particularly watchful, and last month it passed judgment on Fifth Avenue's "best" postwar buildings—the ones shown on this page.



FLORSHEIM Shoe Salon for Women—"best store front alteration of one story." (Archts.: Ketchum, Gina & Sharp.)

warning that this provision was to be used sparingly; was not to be given a blanket application. There were even some rumors that FHA might not exercise the privilege at all. Consensus was that it would move in slowly after a thorough study of costs in particular areas.

Co-op face-lifting. Another new section FHA was devoting extra time to was one giving the cooperative housing part of its present act a general face-lifting. Strangely enough, this section received scarcely any attention when the bill was before Congress. Those who had caught a glimpse of it apparently felt that under the FHA setup a cooperative would have to pay its own way and would not constitute discrimination between various self-supporting groups of the population. The new language puts the FHA insured mortgages for this type of housing on a current cost instead of a long range value basis, strikes out the requirement for "economic soundness," and steps up the mortgage base from 90 to 95 per cent if 65 per cent or more of the members of a co-op are veterans. Also it gives FHA clear-cut authority to lend cooperative groups a helping hand in respect to counseling them on their initial organizational and planning operations. In the past, many projects have withered on the vine because they lacked this kind of guidance—got hopelessly tangled up over costs or became overloaded with land. All felt that the FHA and builders too would turn every possible somersault to make the new co-op program work. If it flopped, the proponents of the spoon-fed co-op plan that Congress had tossed out of the bill would be given some more ammunition.

On some of the other provisions of the Act, Congress had granted extra time in starting operation: VA had until the latter part of July to work out the procedure for direct 4 per cent loans to veterans. Also its obligation to develop minimum construction standards similar to FHA's would have a delayed action effect; would apply to construction started 60 days from the signing of the act which postpones activation until late in June. HHFAdministrator Raymond Foley was believed to be holding back his program for assisting colleges with their student housing (by advancing low interest loans) until Congress finished with the reorganization move that would shift a kindred program over to his fast-growing agency. This was the Presidential request for transferring the Bureau of Community Facilities from the General Services Administration to HHFA. Main activity of this bureau is making loans available to

states and cities for the advance planning of their public works. With this advance planning aid program in his shop, Foley would have the type of trained personnel that would be the most likely to know how the housing assistance program for colleges should be operated.

LUSTRON will be sold under the hammer, probably early in June

After trying everything—even receivership—RFC finally decided the only way it could dispose of Lustron Corp., its $37.5 million adventure in prefabrication, was by selling it under the hammer. RFC instructed its lawyers to go to court May 5 and ask the court to name the day. Under Ohio law, which stipulates that 28 days at least must be allowed for public advertising, Lustron probably will discover its new owner early in June.

RFC was not going to duck out of the picture completely, however. Estimating Lustron's inventory and equipment at $15 million, it announced that it would be on hand with a bid of its own in case the offers were too low. (According to one widely-circulated rumor, it had already turned down one hotel chain's offer of $5 million.)

VA FORECLOSURES may become heavy if market drops or even levels off

Because of conflicts in its basic law, the Veterans Administration has always had to play something of a Jekyll and Hyde role in running its home loan program. It was instructed to combine extreme credit generosity (100 per cent loans) with a collection policy that would minimize any bag-holding the government might be called upon to do.

But few mortgage men—and fewer veterans—suspected that even when it was talking out of the tough side of its mouth, it would go back to the dark days of home financing and start insisting on deficiency judgments. Last month, VA reluctantly admitted that it had no alternative—in some cases it would have to resort to this outworn procedure. It called attention to a previous administrative decision to the effect that every effort possible would have to be made to collect the balance due if liquidation of the loan failed to recover the full amount of the guarantee paid the lender. Actually it has put the screws on only a handful of veterans in this respect.

So far, so good. So far, defaults have not presented a serious problem. Since the beginning of its program, VA has had only 124,141 loans go sour out of a total number of 1,774,466, with a dollar volume of $10 billion. Moreover, 67 per cent of these defaults were "cured" before the liquidation stage was reached. The small number that have gone through the wringer have not nicked the government for much of a loss because enough has usually been realized through the resale of the houses to cover the entire amount due.

In various ways, VA tries to help a veteran keep his head above water if, through unavoidable causes such as sickness or loss of job, his debts begin to swamp him. First, it urges the mortgage holder to wait for a reasonable period before filing a claim—at least three months. Then if the veteran is still floundering, the case is referred to a committee on "waivers and compromises." There is one in each of its 67 loan guarantee offices. These committees decide where collection would impose a real hardship. They may recommend against withholding insurance refund payments and other emoluments due from VA as well as determine what should be done in respect to deficiency judgments.

Scanty margin. Crux of the problem, of course, is the scantiness of VA's margin. When a veteran moves into a house with little or no down-payment, VA obviously faces a tight squeeze if the loan bounces back in the first few years. As long as the market kept rising it had little to worry about. It will be a different story, however, when real estate values begin to dip or even level off.

Biggest headache in store for VA has to do with the thousands of veterans regarded as "unwilling" participants in the program. These are the ones who decided to take advantage of their loan opportunity merely because they could not find rental housing at rates they could afford. Most of them had no firm plans to remain in the communities where they found themselves after the war even though they were married and had good jobs. As they figured it, they had nothing to lose since they could move into a house without a down payment and their monthly charges would be less than rent. When they find it is going to be harder than they had supposed to move on to greener pastures and tell VA they are willing to call it quits, they can be expected to do some vigorous squawking. The echoes will reach Capitol Hill and undoubtedly will cause Congress to look again at the GI bill.

VA HOSPITAL PROGRAM gets $237 million shot in the arm

Putting reverse English on the Congressional economy drive, the House late last month pushed through a 16,000 bed, $237 million expansion of the veterans hospital program. This bill overrides the President's cutback last year in veterans hospital construction, when he knocked 24 new projects out of the program and reduced the size of 14 others. However it still must pass the Senate and even if it makes the grade there, it is virtually certain of being slapped down by a veto when it reaches the White House.

Meanwhile, VA feels encouraged over the way contractors' bids for hospital construction are tumbling. Checking back over its figures, it found that the price per bed is now running a little under $15,000 while in 1947 and early 1948 it reached a high of $25,000. Most of the decline is attributed to stiffer competition among contractors. However, spokesmen for contractor groups, while conceding that competition is getting tougher, deny that this factor alone would account for such a drop. They believe that VA has quietly modified some of its plans; eliminated arbitrary requirements that add unnecessarily to cost.

ECONOMY

ALL-TIME BUILDING HIGH is reached in first quarter, but weak spots show up

When all the construction reports for the first quarter of 1950 were in, everybody took a look at the figures and beamed. It was much better than the optimistic predictions at the end of 1949. March's whopping construction total of $1.5 billion had pushed the quarter's building output to $4.4 billion; housebuilding's amazing energy—45 per cent stronger than the previous quarter and 60 per cent above the first quarter of 1949—accounted for almost half (44 per cent) of it. April followed suit and rose seasonally—$1.7 billion worth of new construction put in place; 11 per cent more housebuilding than in March.

Because of Building, and such other healthy industries as automobiles and electronic equipment, business generally was holding up well, and looked a lot more encouraging than it did last April, when Recession was poking its head around every corner. Building itself was probably the healthiest of all. It was sustaining the demand for television sets, furniture, and other household appliances; and by keeping crews in these industries busy, it was helping to relieve the unemployment figures, which had had the forecasters more worried than anything else. (Unemploy-

NEW CONSTRUCTION ACTIVITY (Millions of dollars)

Type of construction	First 3 mo. 1950	Per Cent Change from 3 mo. 1949
Total new construction[1]	4,391	+ 18
TOTAL PRIVATE	3,332	+ 17
Residential (excluding farm)	1,800	+ 44
Nonresidential building	741	— 9
Industrial	208	— 33
Warehouses, office and loft buildings	73	— 10
Stores, restaurants and garages	153	— 3
Other nonresidential building	307	+ 14
Religious	84	+ 12
Educational	61	— 3
Hospital and institutional	72	+ 125
Social and recreational	52	— 10
Remaining types[2]	38	— 7
Farm construction	42	+ 5
Public utility	689	— 2
TOTAL PUBLIC	1,059	+ 21
Residential	68	+ 162
Nonresidential building	433	+ 27
Educational	230	+ 25
Hospital and institutional	124	+ 44
Other nonresidential building	79	+ 13
All other public	558	+ 10

[1] Joint estimates of the Department of Commerce and the Department of Labor.
[2] Includes hotels and miscellaneous.

ment in March declined to 4,123,000, down 561,000 from February's eight-year high.

What's ahead? Would the good feeling last? Most observers were too cautious to attempt to project the general boom beyond the next few months. But there were plenty of untimid suggestions that the bulwark of Building, at any rate, would continue to grow. Melvin H. Baker, president of National Gypsum Co., thought 1950's construction volume would top 1949's by 5 per cent. The Federal Reserve Board said more than 1 million customers intended to buy new houses this year, and another million-plus in 1951; moreover, the demand for television sets would increase (twice as many wanted them this year as last); the market for other large appliances would stay steady. The Department of Commerce estimated that, although two-thirds of the backlog of demand which existed at the end of the war had been met, housebuilders could keep going at their present rate for another three years to satisfy the rest of that backed-up demand, plus normal demand.

Cautious spots. This happy outlook was not without caution, however. A survey of the first quarter's heavy activity (see chart above) shows that private construction was up 17 per cent only because of housebuilding and institutional building. Most other private investment construction was significantly down, and would probably be even weaker in the total construction picture this year than it was during 1949. The whopping overall total was bolstered mainly by government stabilization—both by government credit supports for private residential work, and by direct public building.*

Government support had meant, of course, a tremendous increase in mortgage credit. To one expert observer, it seemed time to figure how much higher mortgage debt could go. Said Dr. Edwin G. Nourse to the Investment Bankers Association: ". . . One does not have to suggest that a single one of these mortgages is overextended or inadequately secured. The mere fact that so much stretch has taken place in that part of our economy and that recent and current strength rests in some part on that expansion raises a cautionary signal for the future. Is similar expansion in this area going to contribute to the maintenance of the present rate of prosperity? And what will be the consequences of a possible slowing down of this rate of expansion of long-term credit?"

There were other questions that could be raised, as well. Would the boom continue to rest so heavily on government support? Or would private investment in building step in to accompany this government stabilization? Almost every forecaster thought this unlikely unless the tax laws were amended to encourage large-scale capital expenditure. How long, then, would the government be able to maintain stability? Here it was anybody's guess. But one Washington economist at least was willing to give it a try. Said Economist Miles Colean, bluntly: "Five years."

* Government's influence in housebuilding during the first three months, however, was milder than many had thought. A total of 88,696 units were started with FHA financing. VA 501-insured figures (not yet available) would probably add another 10,000 units to those started with government help, adding up to a total of almost a third of all house starts, somewhat less than the average ratio of last year.

LABOR

LABOR WAGES have risen less than 1 per cent this year

Although builders in many cities, shelling out a 15 cent hourly increase to their carpenters while they try to hold down the price of their finished houses (see p. 9), may have the uneasy feeling that Building Labor is shooting sky-high, BLS has some calming figures on the overall labor picture. After taking a look at seven major crafts in 85 cities, BLS noted that union wage scales of workers in the construction trades advanced only three-tenths of 1 per cent during the first quarter of 1950, just slightly more than the two-tenths of 1 per cent advance in the quarter preceding. Of the 525,000 workers included in the survey, only about 6 per cent had received higher pay scales—most of those for 10 and 12½ cents an hour. (Negotiations were in progress at the time of the survey, however, for 61 local unions in 16 of the cities studied.)

The average hourly scale of union building labor, by BLS' figures, is $2.22, a 3 per cent jump over last April's wages, (compared with the 9 per cent increase registered from April 1948 to April 1949). Viewed from 1939, however, building labor's increase has been staggering—73 per cent.

Below is BLS' survey of labor's increase during the first quarter of 1950. It does not represent total hourly earnings, since it excludes premium and apprentice rates, and overtime payment. (All figures are of April 3.)

Trade	Per Cent	Cents Per Hour	Rate Levels Low	Average	High
Bricklayers	0.3	0.9	$2.13	$2.77	$3.25
Carpenters	.2	.4	1.63	2.29	3.00
Electricians	.5	1.3	1.83	2.53	3.00
Painters	.4	.8	1.38	2.21	2.50
Plasterers	.5	1.4	2.00	2.70	3.25
Plumbers	.2	.6	1.90	2.55	3.00
Building laborers	.6	.8	.80	1.50	2.13

MARKET

CAMPUS CONSTRUCTION may become good market for builders

With the government's gift of low-interest loans to colleges and universities for the construction of student and faculty housing (see p. 12), the neglected area of campus residential building becomes a significant potential of the builder's future market. To test this market, FORUM last month queried

AN EXAMPLE of university work planned for construction this year is a concrete residence hall to house 400 students at the University of California. Architects: H. E. Goodpastor and W. E. Hays.

274 colleges and universities throughout the country, and discovered the following market facts:

▸146 institutions have built 21,685 units (both permanent and temporary) for faculty and married students since the war. Of these, 40 or more acquired war surplus or other government aid.

▸116 institutions still need 12,506 units for their faculty and married students—an average of 107.81 units per college.

▸11 institutions plan to build a total of 583 addition units for faculty and married students this year (an average of 53 units per institution) at a total cost of $6,418,374 (an average cost of $11,009 per apartment unit).

▸114 institutions would be interested in having privately built and operated apartments to accommodate faculty and married students; 18 others would possibly be interested. Of the 114 total, 92 would be interested in acquiring 9,155 units (an average of 99.51 units each) at an average rental ranging from $45.03 to $68.61. However, only 69 institutions were sure they had desirable land available at reasonable terms.

▸109 institutions plan to build enough domitory facilities this year to house a total of 32,375 students—(an average 311.29 students for each institution) at a total cost of $98,147,000 (an average of $3,031.57 per student). An additional 5 colleges said they would possibly build domitories (to house 2,255 students, at a cost of $4,500,000).

▸27 institutions plan to build other types of residential housing: 17 fraternity or sorority houses, one university inn, one residence hall, two student union buildings, one "self-liquidating" residence, four faculty house, one women's co-op.

▸32 institutions plan to modernize existing residental buildings during the next two years, adding another 2,157 residential units. Seven expect to modernize at a cost of $1,176,000, without adding any residential units.

PUBLIC HOUSING

CO-OP HOUSING not dead; housing group sets its sights on next attack

As the National Housing Conference met in annual session in New York last month, the same ardent, battle-scarred group who had labored mightily (under the name of the National Public Housing Conference) for public housing, sat down to evaluate the progress made since public housing's passage last year, and to scrutinize the future.

President Truman's opening message spelled out to just about everybody's satisfaction what the future would be. He promised to "continue to press for legislation to provide more adequately for the housing of middle-income families." If there was any doubt at all, HHFAdministrator Raymond Foley was on hand to dispel it. Said he: "I am disappointed . . . that we could not . . . have obtained authority to launch the much broader program that was presented to the Congress for assistance to a large number of families who still find no ready answer to their problem on the current housing market. I do not feel, however, that the failure of enactment of this legislation has permanently shelved either the proposal or the problem."

FOLEY

Housing sights set. Friendly congressmen (Rep. Jacob K. Javits, Sen. John J. Sparkman) pressed the matter further, calling on the housers to marshal as much support as they could for the next attack. As speaker after speaker took to the podium—David L. Krooth, former general counsel to the National Housing Agency (under Wilson Wyatt) and newly-elected president of NHC, Presidential Economic Adviser Leon Keyserling—it became pointedly clear that NHC (and the Administration) still had its housing sights set on nothing less than the government-aided-co-op provision already defeated by Congress.

JAVITS

Keyserling, whose housing sights are perhaps the highest in the country, set the goal for the next decade: "We should strive for an annual *average* of at least 1¾ million new units of residential construction in urban and rural areas, reaching an annual rate of about 2 billion a decade hence." He wanted, however, to "avoid misunderstanding;" he explained: "it should be stressed that the preponderant portion of this investment should be by private enterprise. Only a minor fraction of it should be in the form of supplementary public stimuli . . . ."

Public Housing disappointment. The delegates were disappointed with public housing's record to date. Said Javits: "Assurances were given last year when the bill was under debate that 50,000 units could be built in the first year . . . Present indications are that not more than 15,000 units will be started and it is doubtful that any will have been completed." PHA Commissioner John Taylor Egan staunchly defended his agency's part in all this, blamed instead the three-month congressional delay in appropriating funds, and the lack of "initiative on the local level." Said he: ". . . When a city asks itself whether or not it will have public housing, there is no positive assurance of what the answer will be." What was called for, he thought, was an all-out campaign to educate the people on the "facts of public housing."

EGAN

Other notables who addressed the conference: Catherine Bauer, NHC first vice president; AIA President Ralph Walker; New York City Architect Albert Mayer; General Thomas F. Farrell, chairman of the New York City Housing Authority.

NEWS

DESIGN

PRIX DE ROME goes to New Yorker

The Prix de Rome fellowship in architecture for 1950 was awarded to Joseph Amisano, New York City architect associated with Ketchum, Gina & Sharp.

"NATURE CULT" provides Gibbings with new attack fodder

T. H. Robsjohn-Gibbings, who has made his name a household product not only with his furniture designs but with his best selling attack on modern art (*Mona Lisa's Mustache*), decided last month that the market would take an all-out assault on indoor-outdoor architecture. Casting an appalled eye at the rubber plants often found in open-planned living rooms, Gibbings solemnly warned a New York convention of the American Institute of Decorators against the insidious plan of the modern architect to ensnare them and the rest of society in "the cult of the return to nature and the cult of the pseudo-primitive."

First, said Gibbings, tracing the cult's stealthy history, "architects began by spreading a whispering campaign that the garden should be allowed to come into the house." Once that had been accomplished, there was just no end to what they would bring into a nice clean living room: dirt, shrubbery, driftwood (which Gibbings himself has found appropriate for his showrooms), and finally—Gibbings shuddered to think of it, but there it was—a California house with a "live redwood tree plumb in the middle of the entrance hall." Now even the decorators were helping the architects in their conspiracy by covering draperies with "thin scrawling abstractions, hitherto reserved for carved African fetishes," and bedspreads with "geometric designs lifted from the tapa cloths of Polynesia."

It all sounded sensational enough to make another best seller, and Gibbings even had a fitting quotation for the dust jacket. Seeing jungle fear lurking in the leaves of a rubber plant he cried: "We have spent thousands of years freeing ourselves of the fears and taboos of the jungle. . . . The year 1950 is no moment to reverse this progress."

Ralph Walker, A.I.A. president, and Julian Clarence Levi were among the 40 U. S. architects who attended the VII Pan-American Congress of Architects in Havana last month. For the first time, U. S. architecture was well represented in the exhibit line (with a 1¾ mile string of 600 panels and models); the U. S. received the Grand Prize of Honor for the best exhibits in all fields.

PEOPLE

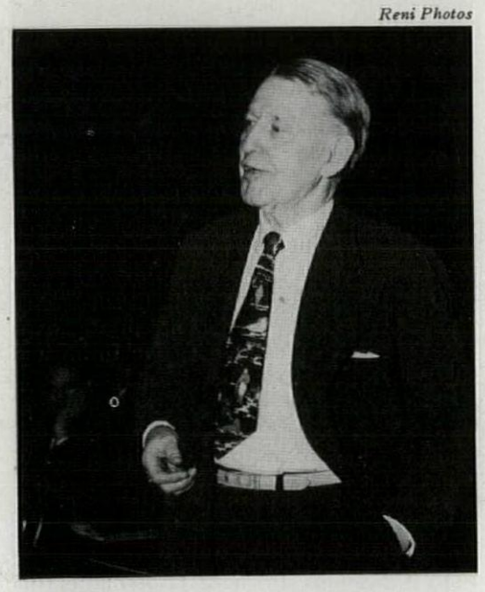
Robinson Newcomb, construction expert on the staff of the Council of Economic Advisers to the President, who has been friendly to the construction industry and supplied it with helpful advice and information, resigned last month to accept a position with the Maritime Commission. His departure left no one on the Council or its staff with the same attitude or knowledge.

The council, meanwhile, was still casting about for a chairman to succeed Dr. Edwin G. Nourse. The once-hot rumor that the chairmanship would go to Acting Chairman **Leon Keyserling** had paled; latest contender was rumored to be **John Maurice Clark,** whose recent book, *Alternative to Serfdom*, would indicate the character of his politico-economic philosophy to be a mild and reluctant interventionism: he is dubious of the ability of a private enterprise system to operate without some conscious stabilizing direction. He hopes that a good deal of this could come from individual or association activity by private industry, but he has no particular fear of governmental measures in support of a stabilizing policy, if they should seem necessary. His book is obviously an effort to seek a middle ground between central planning and the uncompromising individualism of Friedrich Hayek's *Road to Serfdom*.

James R. Price, president of National Homes Corp., and president-elect of the Prefabricated Home Manufacturers Institute at the Institute's annual convention in Cincinnati last month, saw a happy future ahead for prefabrication. Growing acceptance of prefabs by the general public, government agencies and private financers (35,000 single family units were produced last year, 16,000 of which were insured by FHA) should "make it easy for the industry to reach its goal of 50,000 homes this year." Prefabers were off to a good start toward that goal: "prefabricated home shipments during the first quarter of 1950 showed an increase of 200 per cent."

Executive Vice President **Herbert Nelson** of the National Association of Real Estate Boards, who has made headlines every time he got in hot water with the public (once it was by linking Senator Taft with communism) was in front page trouble again last month with at least half the public—the women. A senate committee investigating lobbyists released a personal letter Nelson once wrote putting forth his opinion that women should never have been given the

Reni Photos



NELSON

vote. Other samples of Nelson's personal philosophy gleaned from the letter, which NAREB claimed had been "leaked" in "violation of fairness": "We do not have a democracy in this country. We have a republican form of government. . . . I do not believe in democracy. I think it stinks." Another NAREB spokesman also found himself under fire last month. President **Robert Gerholz,** speaking to St. Louis realtors on the need for political action, departed from his prepared text to remark: "Maybe it's about time we used shotguns and rifles, and you know what I mean." A visiting Democratic alderman stalked indignantly from the meeting, and the St. Louis *Star-Times* thought the alderman's action was "understandable." "There is a difference of opinion concerning what Mr. Gerholz meant," said the newspaper, "but there can be no argument that he should not have said it. . . . This is no time for loose and lurid talk."

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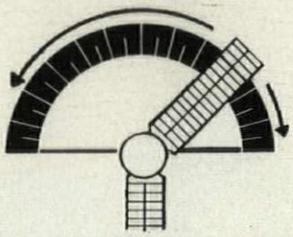

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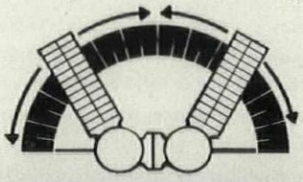

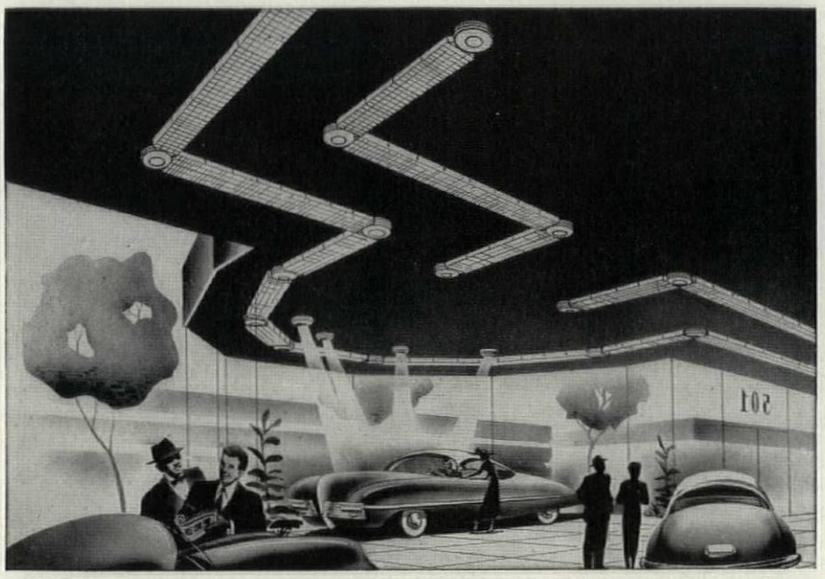

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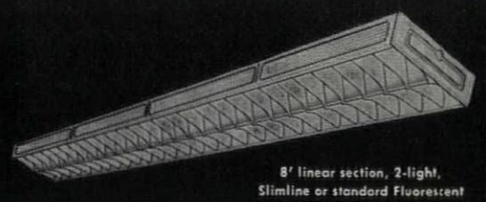

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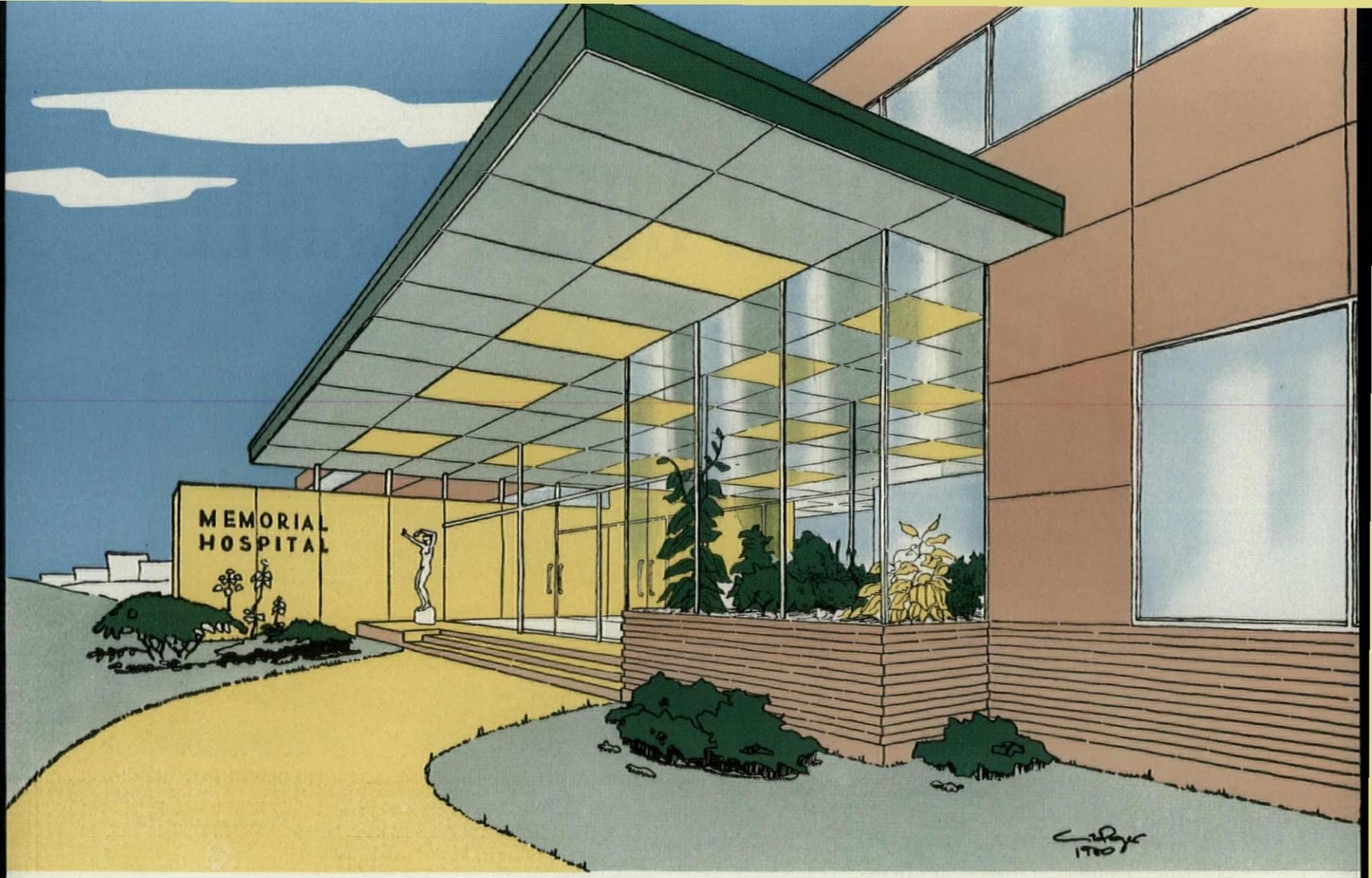

Color WORKS MAGIC IN MODEL HOSPITAL

Inside and out, *color* has an important place in modern hospital design. Color serves *functionally* in eliminating depressing "tunnel" effects in long corridors . . . in relieving eye strain and distractions in operating rooms . . . in providing a more cheerful and homelike atmosphere for patients . . . in adding distinctive charm and beauty to the exterior of the building.

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The modern hospital shown on these pages makes extensive use of Porcelain enamel—for interior walls, partitions and doors, as well as for the exterior. Pastel colors are used throughout, produced in a rich semi-matte finish. All are nonfading, scratchproof, easy to keep clean and sanitary.

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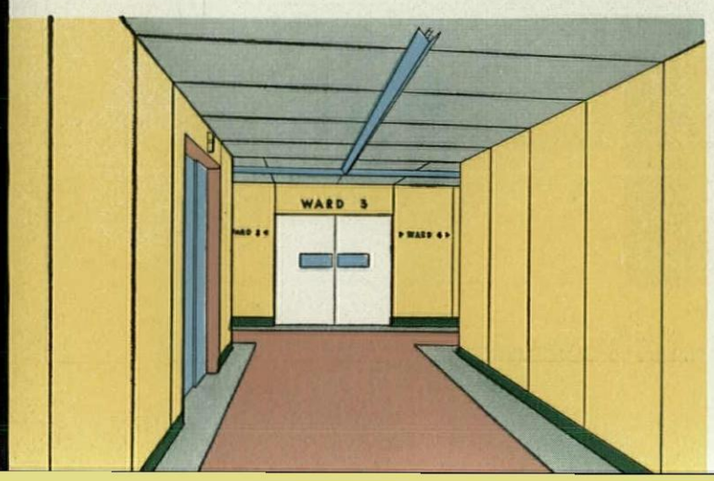

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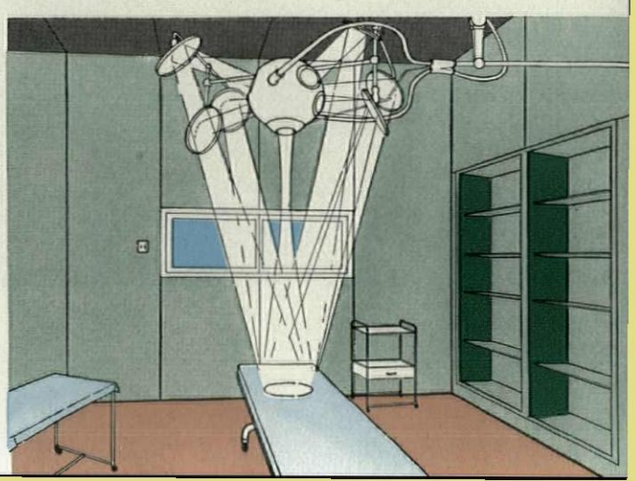
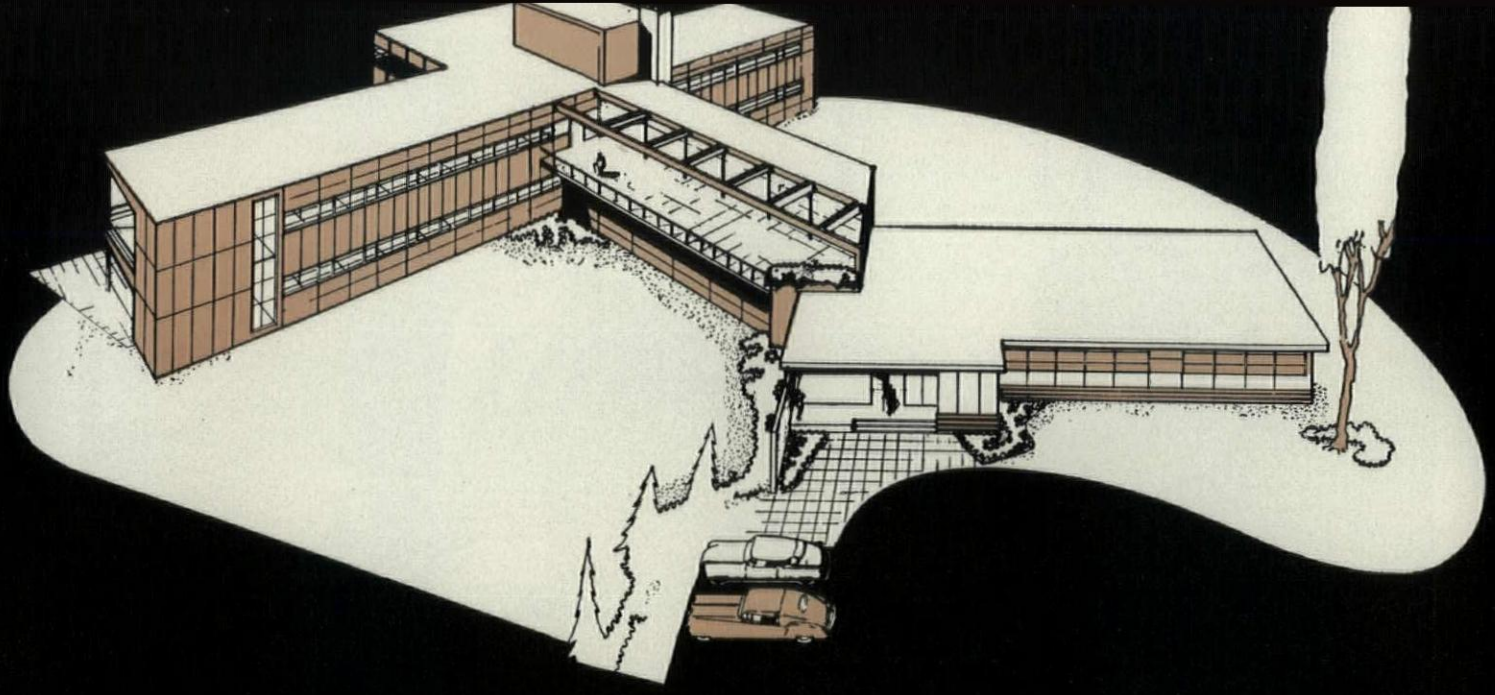
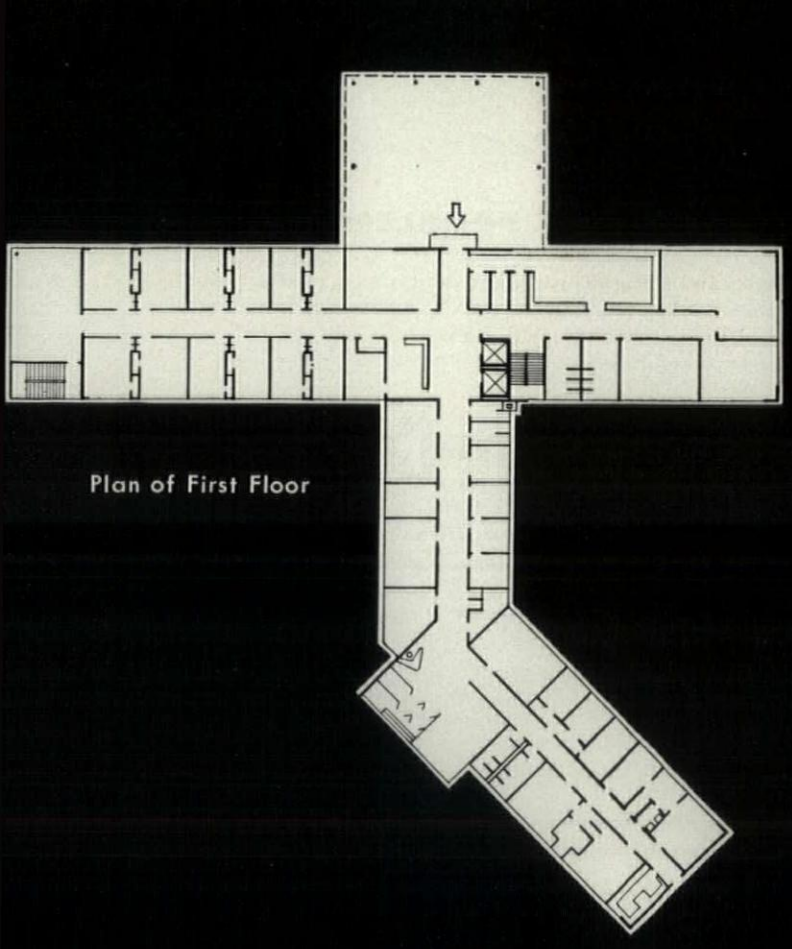


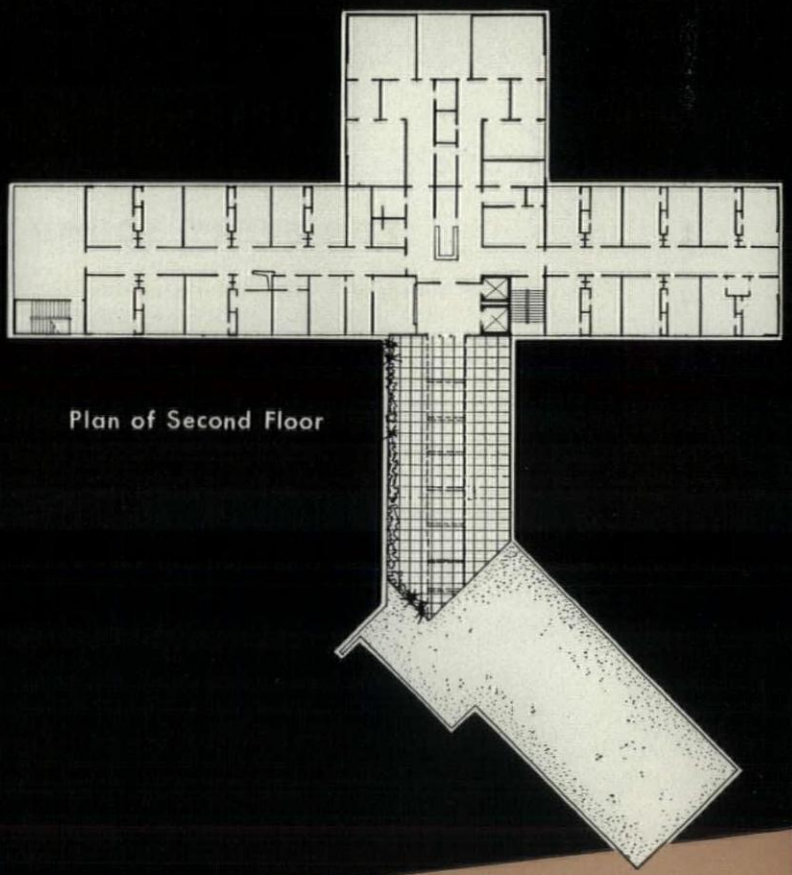


50-bed Community Hospital . . . with emergency, public health and social service facilities in one-story wing

(Note part of this roof used for open solarium)



Plan of First Floor



Plan of Second Floor

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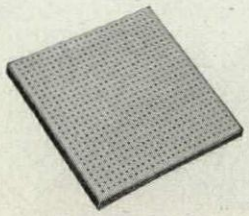

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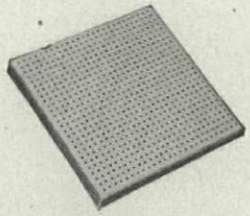

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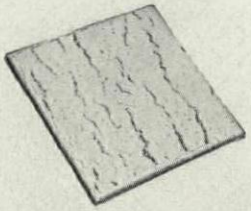

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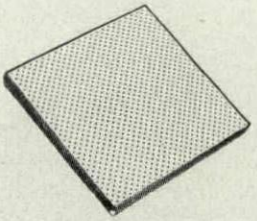

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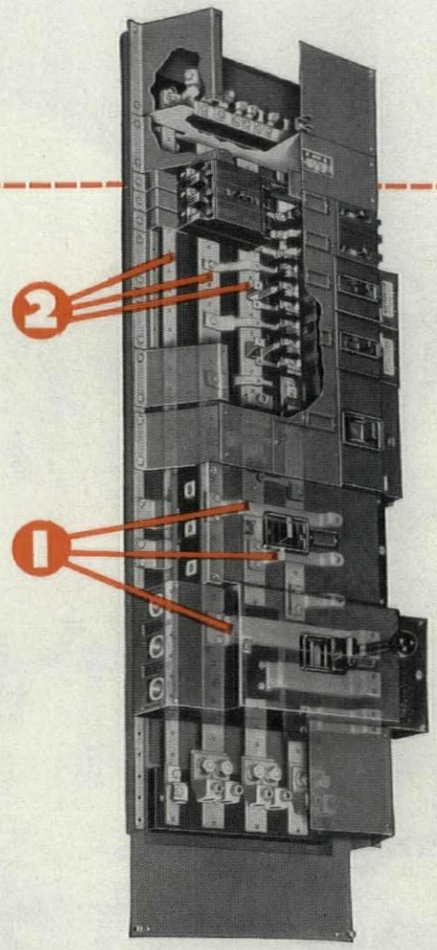

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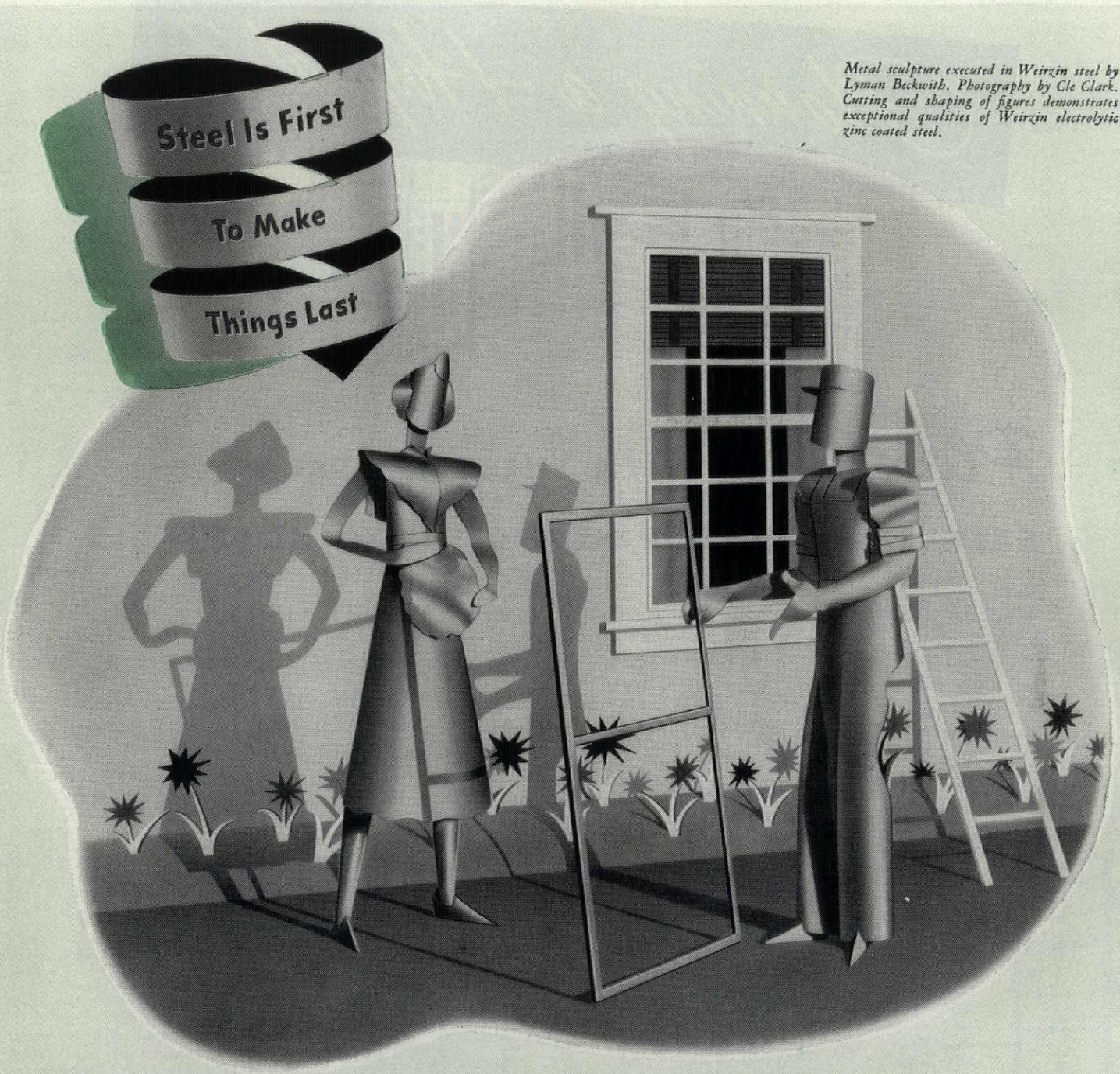

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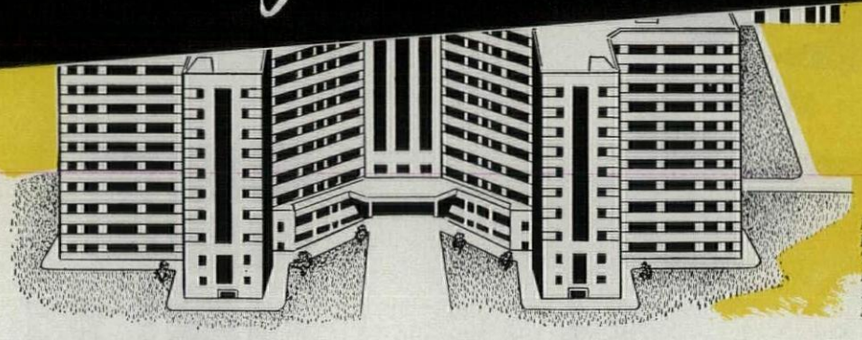
Division of NATIONAL STEEL CORPORATION, Executive Offices, Pittsburgh, Pennsylvania

WEIRTON STEEL COMPANY

Planning a Hospital?



New Veterans Administration Hospital, Buffalo, New York. Truscon Series 46 and 138 Double Hung Steel Windows, Metal Lath and Accessories, and Screens used in large quantities.

Plan well WITH THESE TRUSCON STEEL BUILDING PRODUCTS FOR HOSPITALS

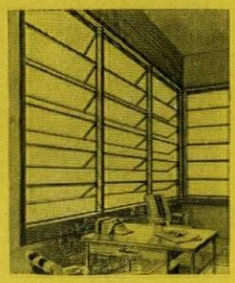
● Truscon's complete line of building products affords you an opportunity to create safe, beautiful hospitals. When you plan with these time-proven units, you can be sure that your exact requirements will be met—sure, too, of fire-resistance, low installation and maintenance costs.

Check over the items listed on these pages. Every one of them is scientifically designed and factory produced. That's why buildings in which they are used have beauty and long life that enhances the reputation of architects and increases customer satisfaction.

Concentrate on Truscon as the major source of your steel building products—for dependability, for responsibility, and for designing, engineering and delivery service, no matter where you or your job may be.

DONOVAN AWNING TYPE WINDOWS

These windows are basically practical in the correct admission of light and proper ventilation without drafts. Sturdily built of unusually heavy special casement sections, they are positively and easily operated. Assure a high quality product incorporating features not available in any other window design.



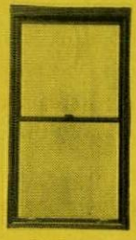
"MAXIM-AIR" WINDOWS

This window incorporates all of the desirable features of the Donovan Awning Type Window. Lighter in construction, it is lower in cost. It is suited for use in warm climates, for enclosed porches or solariums where free circulation of air is important in inclement weather as well as sunshiny days.

DOUBLE-HUNG WINDOWS
In Two Types—Series 138 and Series 46

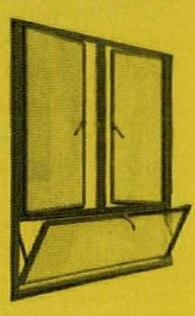
Series 138 Windows are equipped with positive action motor-spring type balances and completely weatherstripped with stainless steel. Made from electro-galvanized strip, these fabricated windows are bonderized and finished with a baked-on prime coat of paint. Available in single units or in integrally built twin, triple and panoramic window units all are available with or without sill ventilators.

Series 46 windows are of the counterweighted or spring balance design. Single or twin units may be had in either standard or special sizes and are available with or without sill ventilators. Made from new billet steel, electro-galvanized. Windows are bonderized and finished with a baked-on prime coat of paint.

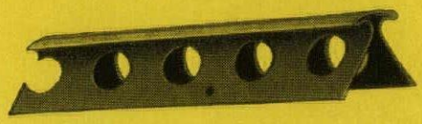


INTERMEDIATE COMBINATION WINDOWS

Incorporates side hinged casements and projected ventilators in one design. Fabricated from specially rolled steel casement sections of substantial weight and original design, providing advantages, weathering features and attractive architectural appearance. The wide selection of sizes and designs add to the adaptability of the window to a wide range of architectural use.

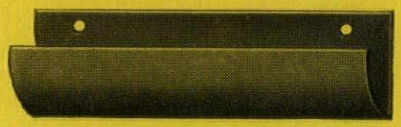


CORNER BEADS



Recommended as an exposed corner reinforcement. The round nose is strongly reinforced by a deep groove which holds the plaster flush for a perfect bond. It can be wired, stapled or nailed to any kind of wall construction without the use of clips.

METAL CASINGS

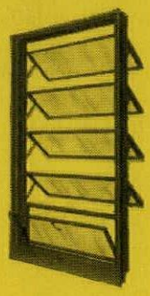


Meet a definite demand for an artistic, sanitary method of trimming around doors and windows. Afford many architectural effects. Metal casings are fire-resistant, vermin proof, easy to maintain and do not shrink or warp.

FERROBORD STEELDECK ROOFS

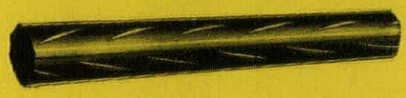
Truscon Ferrobord provides a fire-resistant, economical roof deck for all new construction or replacements. Covered with insulation and waterproofing, it weighs approximately 5 pounds per square foot.

INTERMEDIATE LOUVER WINDOWS



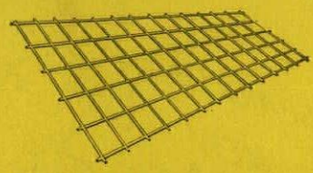
For typical hospital, school, office or institutional buildings requiring the majority of window units in normal size openings. Provide special features offering unusual operating convenience at minimum cost.

CONCRETE REINFORCING BARS



A special rolled section of high grade steel, with a series of longitudinal and diagonal ribs, so designed to provide the maximum bond with the enclosing concrete.

WELDED STEEL FABRIC

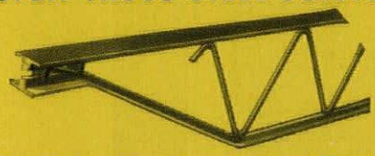


Truscon Welded Steel Fabric is made in various sizes for concrete reinforcing in all types of structures. Each joint is electrically welded for permanence.

CURB BARS

Protect exposed corners of concrete curbs, walls, steps, etc. Designed to give positive anchorage into the concrete. Plate surrounds and protects the corner without splitting concrete into two portions.

OPEN TRUSS STEEL JOISTS

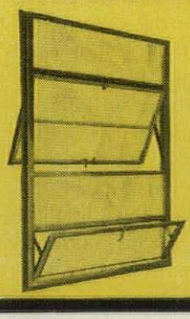


Truscon developed the open truss steel joists to meet the demand for economical, light weight, fire-resistant floors in hospitals, and other light-occupancy buildings. They are easy to install. Completely shop fabricated, they reach the job ready for placing.

METAL BASE SCREED

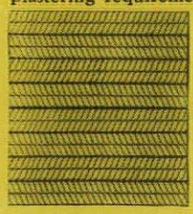
Fabricated from tight coat galvanized steel. Used principally for separating two plaster materials such as plaster walls from cement, terrazzo, or composition base, and separating a cement wainscot from ordinary plaster. Another function is to give a permanent straight edge to which both trades work.

ARCHITECTURAL PROJECTED WINDOWS



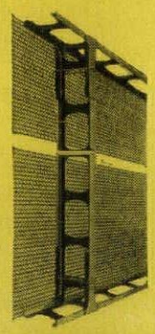
Attractive in appearance and convenient to operate. Provide maximum daylight, ventilation and freedom from drafts. Heavy one piece casement type sections in ventilator assures rigidity. Hardware is solid bronze. Screens and underscreen operating hardware are available for all ventilators.

METAL LATH



There is a Truscon Metal Lath for every plastering requirement. Flat laths for ceilings and sidewalls; rib laths to reinforce concrete floors or plaster ceilings; expanded laths for stucco reinforcement; Corner Beads and Cornerite, to protect outside and inside corners.

HOLLOW PARTITION STUDS



Truscon hollow partition studs assure permanence, rigidity and economy. They are fire-resistant, provide excellent heat insulation and sound resistance, are rodent and termite proof. They will not swell or warp and will resist impact, vibration or plaster cracking.

TRUSCON STEEL COMPANY
Reg. U. S. Pat. Off.
YOUNGSTOWN 1, OHIO • Subsidiary of Republic Steel Corporation

Manufacturers of a Complete Line of Steel Windows and Mechanical Operators... Steel Joists... Metal Lath ... Steeldeck Roofs ... Reinforcing Steel ... Industrial and Hangar Steel Doors ... Bank Vault Reinforcing ... Radio Towers ... Bridge Floors.

LETTERS

CURTAIN WALLS

Forum:

Your "Curtain Walls" article (Mar. '50) was excellent. Your staff is to be congratulated on the thoroughness that was exemplified on this subject.

The engineering problems, cost figures, codes, and inconsistencies that exist in construction and design were well explained. It is my hope that this type of information will arouse architects and engineers in becoming interested in building codes and legislation. Today, too much of this is handled by politicians and pressure groups.

All reputable manufacturers like ourselves are heartily in favor of this approach in the industry. Let's have more of it.

A. W. HEDGREN
Vice President
H. H. Robertson Co.
Pittsburgh, Pa.

Forum:

. . . You have done a splendid job in your presentation of the curtain wall development.

We feel sure that the dramatic and comprehensive way in which you have presented this subject will do much to advance the development of the lightweight wall in modern building construction.

R. A. DADISMAN, *Manager*
Market Development Div.
Armco Steel Corp.
Middletown, Ohio

Forum:

. . . While I disagree with some of the statements in regard to thin wall construction, the article is certainly constructive and very timely. Your editors are to be congratulated on the research . . . and the way in which it was presented.

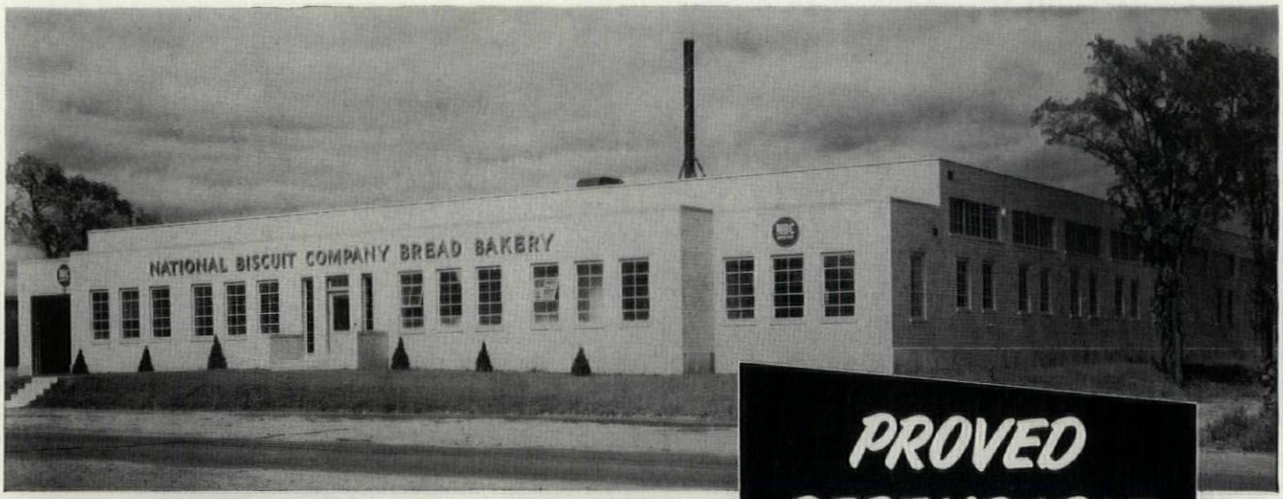
While the statements as a whole were very accurate they overlooked in the various building codes the range of selectivity in assembly to produce the specified rating. Merely specifying a two-hour wall or a three-hour wall means very little unless there is wide selectivity in assemblies to meet the rating.

This article might well have stated that the monopoly in the fixing of key rates by the insurance interests was largely the cause of the present excessive ratings on nonbearing walls and that the building code groups of America have gone a long way toward their reduction in view of the handicaps imposed.

We are gradually bringing our rating down on exterior nonbearing walls as safely and as rapidly as possible. But we still have the key basic rates, and no city will adopt a code where they are threatened with rate increases because of fire resistive ratings on exterior walls. . . .

M. L. CLEMENT, *Director*
Southern Building Code Congress
Birmingham, Ala.

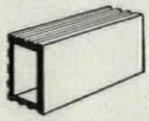
(Continued on page 30)



National Biscuit Company Building, at Plattsburg, New York. Natco Manganese Spot Dri-Speedwall Tile for Exterior Walls. T-series Ceramic Glaze Vitritile for Interior Walls. Contractors—Wright and Morrissey.

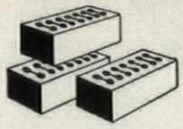
PROVED DEPENDABLE FOR EVERY STRUCTURAL NEED

Ceramic Glazed Vitritile
8" x 16" Nom. Face Size



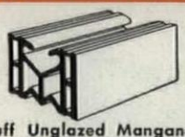
Ceramic, salt and clear Glazed Vitritile
5⅓" x 12" Nom. Face Size

Ceramic, salt and clear Glazed Vitritile
5⅓" x 8" Nom. Face Size



Salt Glazed Brick
2⅔" x 8" Nom. Face Size

Red Shale Dri-Speedwall Tile
8" x 12" Nom. Face Size



Buff Unglazed Manganese Spot Salt Glazed, Red Textured Dri-Speedwall Tile,
5⅓" x 12" Nom. Face Size

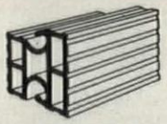
Tex Dri-Wall Tile
Red Range, Flashed Red Range, Buff Range
4" x 12" Nom. Face Size

Split-Tex Roman Face Brick Red Mingled and Buff Mingled Shades
2" x 12" Nom. Face Size

Raggle Blocks
Red Mingled Shades
4" x 5⅓" x 12" Nom. Size

Loadbearing Tile scored and unscored 12" x 12" face size in standard wall thicknesses

Non Loadbearing Tile scored and unscored 12" x 12" face size in standard wall thicknesses



Speed-A-Backer Tile For backing Brick Faced Walls
12" long Varying Heights

Face and Common Brick

Salt Glazed Segmentile
12" x 12" Face Size
in 6" and 8" thicknesses

RadianTile
For warm air Radiant Panel heating systems

NATCO CLAY PRODUCTS SINCE-1889

NATCO Structural Clay Tile meets all modern building requirements for strength, permanence and architectural beauty . . . and gives added advantages of low cost erection with practically no maintenance for the life of the building.

The fact that architects for many prominent manufacturers have specified Natco Structural Clay Tile in plant buildings all over the country attests to its reliability for continued satisfactory service and life.

Natco Structural Clay Tile is adaptable for every structural purpose both exterior and interior—for buildings of every type—commercial and industrial, schools and colleges, hospitals and public institutions, farm buildings and homes. Write for a copy of Catalog SA-50 for detailed information or see Sweet's Section 4 D-8.

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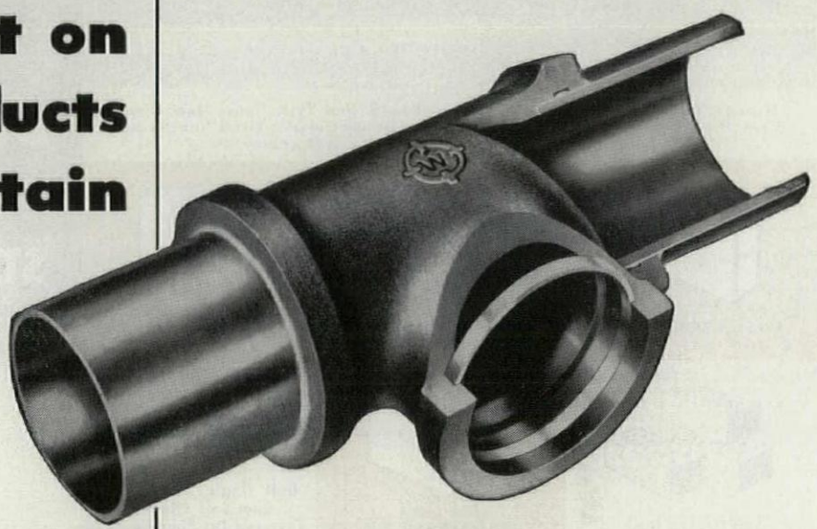
DON'T BE SATISFIED WITH HALF-WAY MEASURES...

insist on Walseal® products and be certain



– the FACTORY INSERTED Ring insures FULL PENETRATION of the Silver Alloy . . . a perfect joint

Today, contractors . . . builders . . . architects are using brazed connections, in ever increasing numbers on their brass and copper pipe runs. However, they must be certain that the correct brazing alloy is used; that the joint has penetration of alloy up the shoulder of the fitting.

That's why more and more are turning to Silbraz® joints made with Walseal valves, fittings and flanges which assure the proper amount of alloy with no waste. They know that the finished joint not only will withstand hydrostatic pressure, but it will also withstand terrific impact and vibration – in fact, no correctly made Silbraz joint has ever been known to creep or pull apart under any pressure, shock, vibration or temperature which the pipe itself can withstand.

Furthermore, it is a relatively simple operation to make a Silbraz joint – no heavy scaffolding need be erected . . . just cut the pipe, flux, assemble, then braze, following the technique recommended by the Walworth Company. A silver brazing alloy – FACTORY INSERTED – in each port flows out when heated with the oxyacetylene torch, making a joint that is stronger than the pipe itself . . . a one-hand operation, with the mechanic out of the path of the deflected heat – at all times.

For full information about Silbraz joints made with Walseal products, write for Circular 84

WALWORTH

valves and fittings

60 EAST 42nd STREET, NEW YORK 17, N. Y.

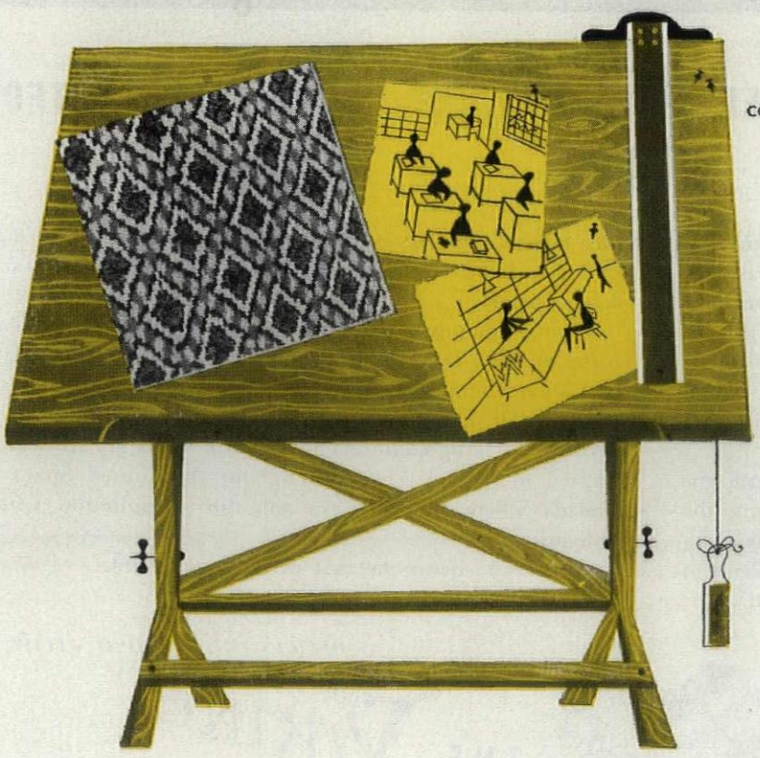
DISTRIBUTORS IN PRINCIPAL CENTERS THROUGHOUT THE WORLD

Business is on the carpet

and carpet is our business

You want the best carpet your clients' money can buy. You want the right weave, for the wear the carpet must take. You want the right color and design, for the decorative effect you have in mind. Your local Alexander Smith-Masland carpet contractor will show you the different carpet weaves, and tell you the wear you can expect from each. He will show you the dozens of patterns and colors Alexander Smith and Masland offer you in contract carpeting. He will estimate the cost, for you, of any carpet installation. He is a contract carpet specialist.

Let him help you. Call him, today.



Alexander Smith
and
C.H.Masland

CONTRACT CARPETS

295 Fifth Ave., New York 16, N.Y.

MODERN SKYLINES DESERVE MODERN VIKING SPRINKLER PROTECTION

The beautiful buildings you design deserve the modern protection you get from a Viking Sprinkler System. Just as construction methods have been improved, Viking Sprinkler Systems have been streamlined and simplified for greater efficiency, better water distribution, and dependability. Supervisory control units have been perfected to make the system more automatic. Every possible chance for the factors of human failure has been eliminated.

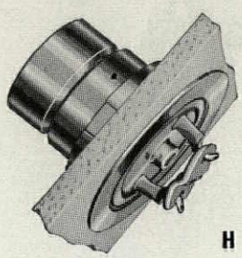
In 25 years of controlling every type of fire hazard, the Viking Company has forged a place for itself among the leaders of the industry due to advanced engineering developments. Two of these achievements are the Tyden Dry Pendant Sprinkler and the Viking Flush-Type Sprinkler Head. The idea behind both has been to provide maximum water distribution without interfering with the symmetry of the architects' designs.

Viking equipment is approved by Underwriters' Laboratories and the Factory Mutual Laboratories. Each installation is Viking engineered and installed to relieve you and your client of all detail. It is specifically designed for the hazard involved. Viking engineers and Viking crews are strategically located in Viking offices throughout the United States and Canada where they are available for consultation without obligation.

Give your clients the best protection possible . . . specify Viking.

VIKING PIONEERS IN MODERN SPRINKLER PROTECTION

The new Viking Flush Type Sprinkler Head which helps the architect preserve the lines of modern design was developed exclusively by Viking. It is ideal when a semi-invisible sprinkler head is desired to prevent the disturbance of clean, modern lines and surfaces. This, like all Viking equipment, is fully approved by Underwriters' Laboratories and Factory Mutual Laboratories.



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THE VIKING CORPORATION

HASTINGS, MICHIGAN


DON'T WORRY...IT'S
GENUINE CLAY
tile
Floors and walls *stay* good-looking . . . despite little heros with big bats and sharp cleats. Genuine Clay Tile advantages are *all* hits! No scrubbing, waxing or polishing . . . defies stains, scratches, burns and scars . . . good for a lifetime . . . rich decorator colors . . . wide variety of patterns . . . low cost . . . *fired-in* colors . . . never needs replacement . . . best of all—you no longer have to talk "substitutes." Genuine Clay Tile is available *now!*
The Tile Council of America, Room 3401: 10 East 40th Street, New York 16, New York. Room 433: 727 West Seventh Street, Los Angeles, California.
PARTICIPATING COMPANIES:
American Encaustic Tiling Co.
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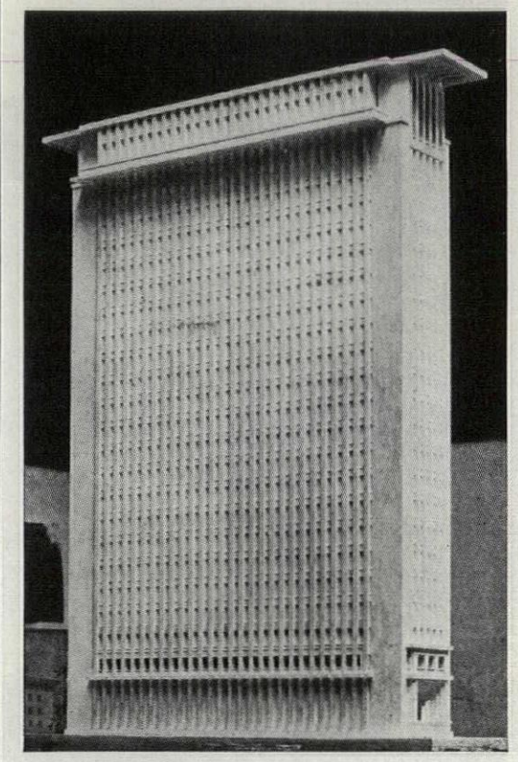
Carlyle Tile Company
General Tile Corporation
Gladding, McBean & Co.
Mosaic Tile Company
Murray Tile Company, Inc.
National Tile & Manufacturing Co.
Olean Tile Company
Pacific Clay Products
Pacific Tile and Porcelain Co.
Pomona Tile Manufacturing Co.
Robertson Manufacturing Co.
Summitville Face Brick Co.
United States Quarry Tile Co.
THE MODERN STYLE IS CLAY TILE

LETTERS

F. LL. W. AND UN

Forum:

I propose that Frank Lloyd Wright be paid a fee he justly deserves for designing the UN Secretariat almost 40 years ago. . . .



Wright's Press Building

The design for the Secretariat (FORUM, July, '49) is esthetically not as graceful, nor as pleasing, nor as forceful as Wright's San Francisco Press Building proposed in 1912 (see cut). . . .

CLYDE EDRINGTON
New York, N. Y.

DESIGN AT $4,999

Forum:

Your March issue brought me out of my lethargy with its endorsement of the "$4,999 Builders House" in Seattle, Wash.

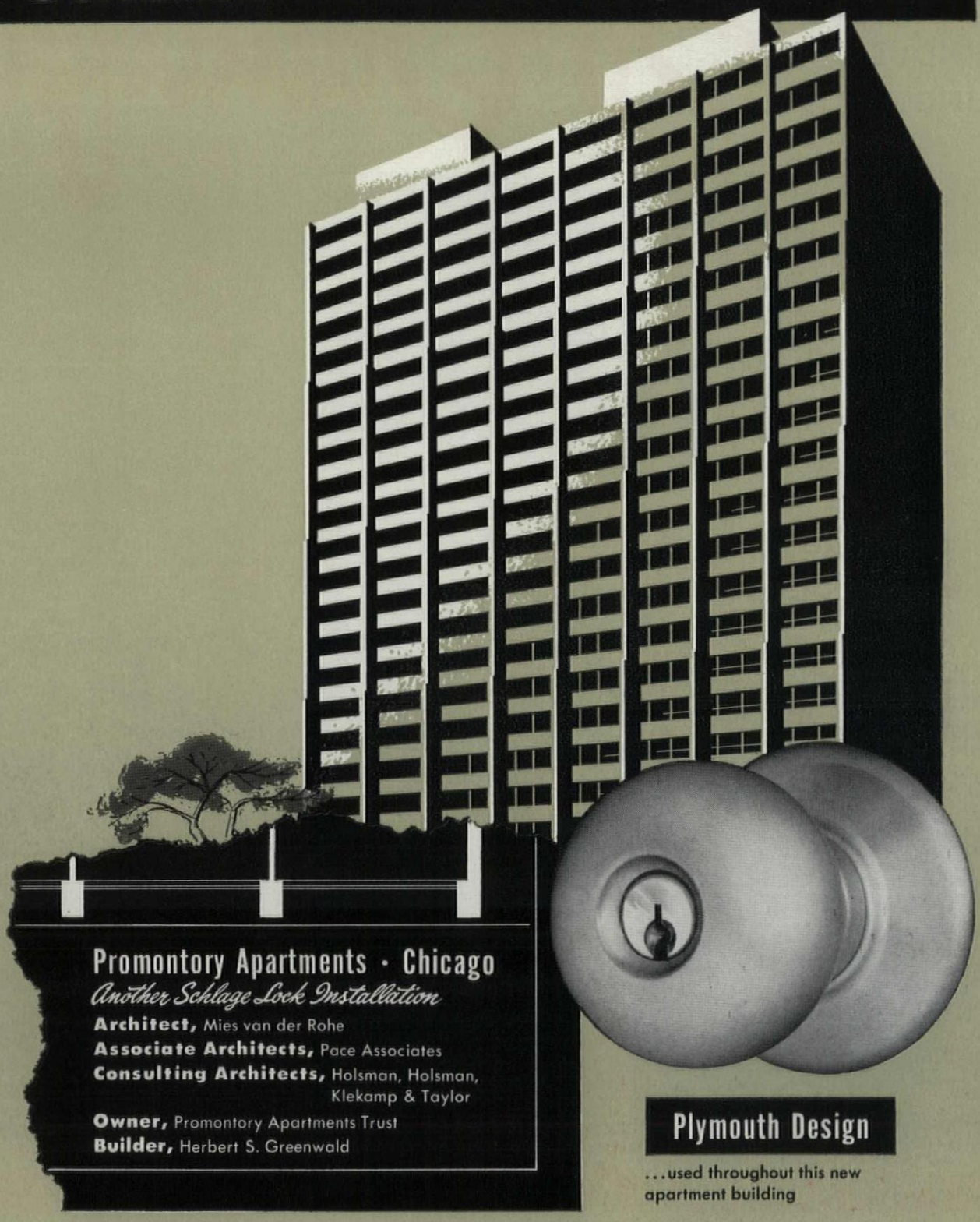
. . . Deadly, monotonous rows of block houses, painted in a wild assortment of *moderne* pastel colors on a barren field completely stripped of any vestiges of trees. (The project boundaries can be readily discerned by where the ax has fallen.) Houses, obviously loaded with the gimcracks you mention—tricky fences, trellises, strange variations in roof line—for the apparent reasons of making them "different." Is this organic architecture—at any price?

Where are the amenities? For 1,800 families there is no play space. . . . I cannot believe that any consideration was given to the closeness of schools, present shopping, churches, places of amusement, and other social necessities; as the site is quite remote from any of these. . . .

Your features of low cost masonry construction

(Continued on page 36)

SCHLAGE® . . . first name in cylindrical locks



Promontory Apartments · Chicago

Another Schlage Lock Installation

Architect, Mies van der Rohe
Associate Architects, Pace Associates
Consulting Architects, Holsman, Holsman, Klekamp & Taylor

Owner, Promontory Apartments Trust
Builder, Herbert S. Greenwald

Plymouth Design

. . . used throughout this new apartment building

SCHLAGE®

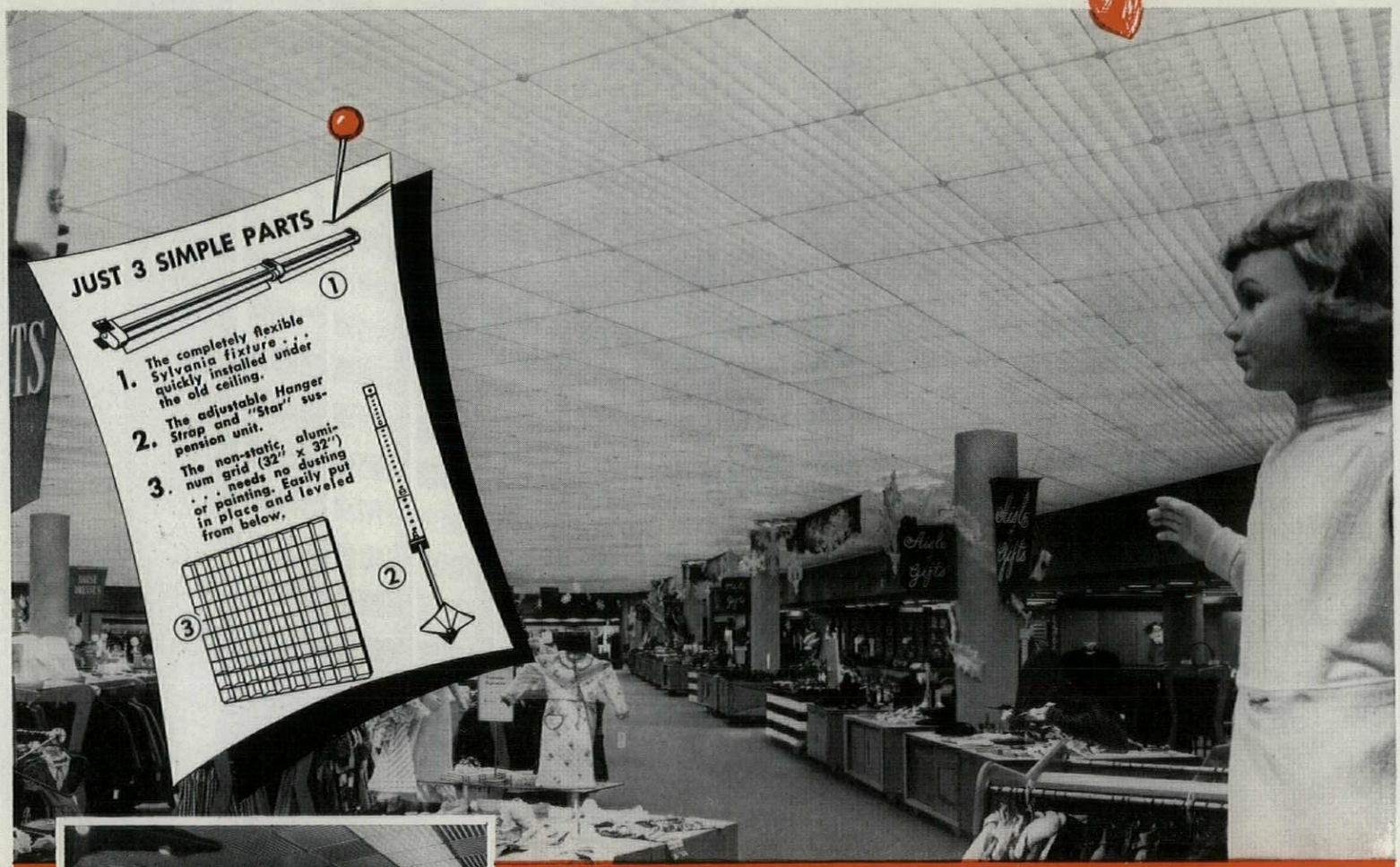
SCHLAGE LOCK COMPANY

Bayshore Blvd.
San Francisco

Empire State Building
New York

SYLVANIA "FLEXI-MODULE" LUMINOUS CEILING . . .

So Beautiful . . .



A Sylvania "Flexi-Module" system brings modern lighting with unusual flexibility to the department store. Each department has the level of lighting needed: some have "egg-crate" louvers for high-level, non-glare lighting (large photo above); some, like the furniture display room (left) require the softer, more diffused lighting ideally provided by the new "Parallite" louvers; some combine several types for special effects. "Flexi-Module" is simple to install, simple to change if departments are moved, simple to clean and maintain. Yet the cost is surprisingly low. You, too, will find that the attractive louvers and amazing flexibility will allow you to design exactly the effects you want—at costs that will both surprise and delight your clients.

FLUORESCENT LAMPS, FIXTURES, SIGN TUBING, WIRING DEVICES; LIGHT BULBS; RADIO TUBES; TELEVISION PICTURE TUBES; ELECTRONIC PRODUCTS; ELECTRONIC TEST EQUIPMENT; PHOTOLAMPS; TELEVISION SETS

SYLVANIA

it makes every showroom a showplace!

Beautiful!... and efficient

At last! A ceiling designed for beauty and efficient lighting too. The "Flexi-Module" system makes a ceiling the attractive background it should be . . . yet provides the correct amount of light. Ideal for display rooms . . . pleasing, harmonious surroundings always mean increased sales. Ideal for offices, stores, classrooms, cafeterias, for converting factory or warehouse space into modern rooms. Can be installed anywhere!

Beautiful!... and flexible

In planning a ceiling, you'll find many possibilities for attractive effects. You can form patterns with solid modular units in aluminum color or contrasting shades. You can use luminous panels and plastic panels. You can combine "Flexi-Module" units in hundreds of ways with convenient ceiling material. No matter what the condition of the present ceiling, no matter how many telephone or electrical wires or air-conditioning ducts there are, "Flexi-Module" covers them all.

Beautiful!... and economical

"Flexi-Module" gives a beautiful effect, but it's economical too – to install and to maintain. It's just a 1-2-3 operation: 1 – Sylvania fluorescent fixtures are hung on the original ceiling or overhead supports; 2 – the uniform (32″ x 32″) modules are attached to and suspended by adjustable hanger straps; and 3 – the modules are leveled from below – no tools required. No expensive buried-in-concrete construction. The fixtures are easily relocated and easily serviced.

Beautiful!...more business for you

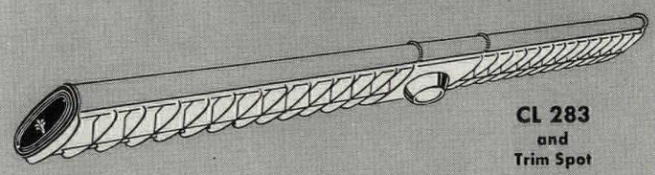
Sylvania "Flexi-Module's" attractive efficient lighting will delight your clients, as will its low installation cost. Each system you put in will be a salesman for you!

When planning new construction or remodeling – specify Sylvania "Flexi-Module" – for beauty of design, for the best in lighting.

New, illustrated literature gives full information on construction and installation. Mail coupon today for your copy.

NEW TRIMLINE FIXTURES – FOR THE RIGHT LIGHT

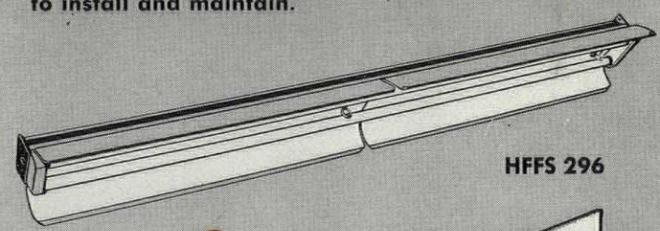
Sylvania's 13 new Trimline fixtures bring unequaled flexibility and lighting efficiency to stores, schools, and offices. For "spotlighting," the new Trim Spots can be mounted with Trimline fixtures . . . in continuous rows, at ends of rows, or on the corners to form varying ceiling pattern such as rectangles and "U" shapes.



CL 283 and Trim Spot

WHEN YOU PLAN FOR INDUSTRIAL LIGHTING

Specify Sylvania's HFFS 296 for direct lighting. Two 8-foot *instant start* lamps in a rugged, long-lasting fixture . . . can be mounted in any of seven easy ways . . . corrosive and rust resistant . . . Weatherized . . . easy to install and maintain.



HFFS 296

MAIL COUPON TODAY

Sylvania Electric Products Inc.
Advertising Dept. L-1105
1740 Broadway, New York 19, N. Y.

Please send me full information on the new Sylvania "Flexi-Module" Lighting System.

Name_____

Address_____

City_____ Zone_____

State_____

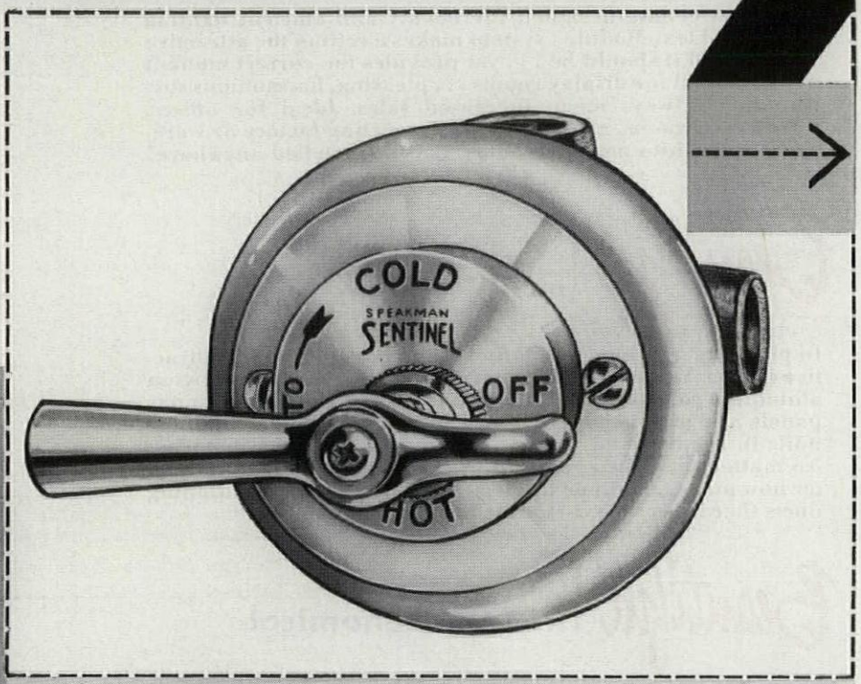
ELECTRIC

TRADITIONALLY THE BEST IN BRASS

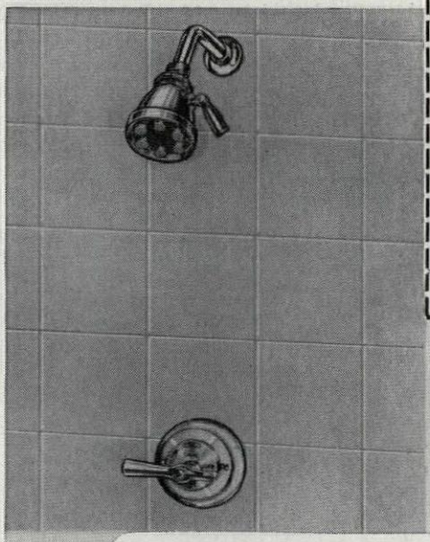
There's No Other Shower

SPEAKMAN *Sentinel*
Balanced Pressure Mixing Valve

. . . gleaming chrome plating . . . easy-reading dial . . . working parts renewable from face of valve. Size ½" I.P.S.



S-1700 SPEAKMAN
Concealed *Sentinel* Shower. ½" I. P. S.



SPEAKMAN
SI-Flo Flush Valve (K-9000-BSP)

Compact . . . quiet operating. All wearing parts of the valve (except handle) are contained in a single piston unit—easily replaceable in less than 5 minutes. Where quiet is a must, Si-Flo is the valve. Adjustable connection between valve and stop cuts installation costs. For schools, hospitals, hotels, theatres . . . a type for every job.

SPEAKMAN
Self-Closing Metering Lavatory Fixtures . . . cut water-waste tremendously . . . cut maintenance costs, too. Water volume may be regulated from a "dash" to 1½ gallons per valve. Non-clogging—non-hammering.

In Our Eighty-First Year

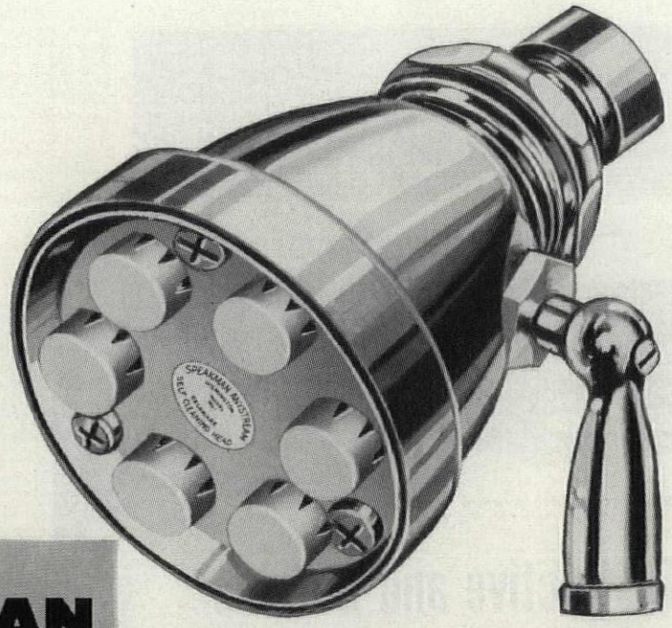
SPEAKMAN

SHOWERS AND FIXTURES

SPEAKMAN COMPANY, WILMINGTON, DELAWARE

SPEAKMAN
ANYSTREAM Shower Head

. . . Handsomely designed for smart appearance . . . easily installed . . . used in finest hotels, clubs, schools, institutions and homes in America. Integral ball joint . . . concealed volume control. Can be equipped with Allen Set Screw to prevent vandalism. ½" I.P.S. female inlet.



like the SPEAKMAN ANYSTREAM SENTINEL!

a turn of the lever gives

NEEDLE SPRAY *for stimulation*

NORMAL SPRAY *for relaxation*

FLOOD SPRAY *for no-splash rinsing*

NEVER THIS! *Anystream is self-cleaning*

You'll find the ideal shower combination for schools, hotels, apartment houses, clubs, institutions and homes is the Speakman *Sentinel*—consisting of the famous Anystream Shower Head and the *Sentinel* Balanced Pressure Mixing Valve. It's the shower that meets with instant, all-round approval because it gives perfect bathing comfort, hot-water economy and remarkable ease of maintenance.

ANYSTREAM Shower Heads

Thousands of Anystream Self-Cleaning Shower Heads have already been installed in leading hotels. This water-saving shower head won't clog . . . has no pin-point holes . . . gives bathers a choice of showers—normal, needle, or flood. Durable and dependable, it makes possible as much as 50% lower water consumption, depending on pressure.

SENTINEL Balanced Pressure Mixing Valve

The Speakman *Sentinel* Balanced Pressure Mixing Valve holds shower temperatures steady *despite water pressure fluctuations.* The miraculous f-l-o-a-t-i-n-g piston in the valve works on water pressure alone. It prevents sudden surges of icy cold or steaming hot water that often causes injury. The piston is easily removed for servicing *without shutting down the water supply.*

Speakman Showers and Fixtures are distributed nationally through wholesale plumbing supply dealers and contractors. From *Si-Flo* Flush Valves—the valve that whispers—to Speakman Self-Closing Metering Lavatory Fixtures that cut water-waste, it pays to specify Speakman—traditionally the best in brass. It lasts a lifetime!

In Our Eighty-First Year

SPEAKMAN

SHOWERS AND FIXTURES

SPEAKMAN COMPANY, WILMINGTON, DELAWARE

see our CATALOG in SWEET'S FILE ARCHITECTURAL

See Sweet's Architectural File for condensed catalog or write directly.

LETTERS

and an obvious aggressive selling program are valid, but "good design"—gentlemen!

Good design to me necessarily should be a comprehensive thing, including *even* those social amenities mentioned. Thus, I can only conclude that in the search for low cost housing of note, you have lost a sense of values—human values. If it is mere shelter we are creating, let us label it thus. . . .

They are minimum houses for those who are still encumbered with the cultural lag of "my home—my castle—my little ivy covered cottage" *at any price*. Here we have temporarily satisfied one aspect of this price—the pocketbook—but the price, in terms of time, lack of necessities and dignity, remain overwhelming. . . .

Your review of *Switzerland Builds* was excellent.

M. R. WOLFE
Seattle, Wash.

• Unfortunately, few merchant builders can build low cost communities which have everything. Convenience to parks, schools, churches, shopping centers and amusement places is reflected in high land costs. This particular builder chose the low cost horn of the dilemma and tried, with above-average success, to make the most of it. FORUM was mainly excited about the houses' low $7.09 per sq. ft. cost and was pleased to report that, despite this figure, the design of houses and their site planning constituted "a welcome change from the plucked-chicken appearance of most minimum cost subdivisions."—ED.

PROFIT AT $4,999

Forum:

Regarding the $4,999 Builder's House (Mar. '50), how can this operation be successfully carried out with a margin of $136 profit?

. . . Unless this operation is carried on purely to develop mortgages, in which the builders seem quite interested probably from a servicing contract angle, it would seem that a display of such a house and the carrying of the thought that such houses could actually be built on such a close margin, is very misleading. . . .

Even adding their overhead ($195) and profit, the return would not be sufficient, except if the builders were carpenters working on the job for day wages.

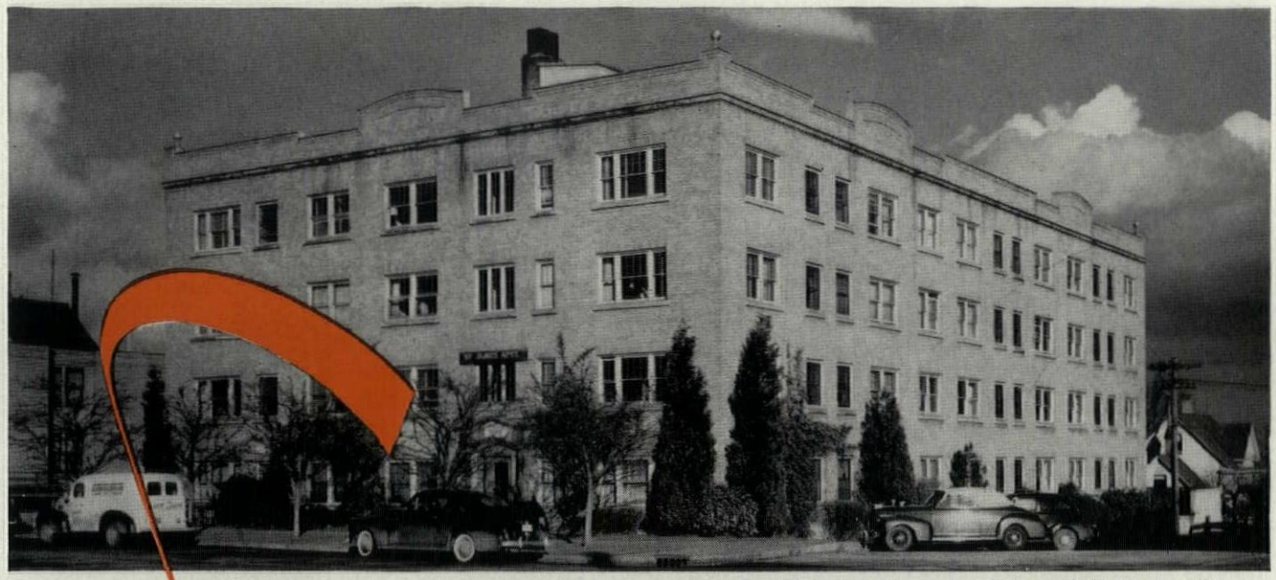
. . . We have seen too many operations started on the premise that overhead and profit were not important, including allowance for waste, defective material, etc., and have seen the builders start off with a bang, disturb the market and then eventually go broke, carrying others with them, who did not make due allowance in their figures for the old "bugaboo" of the profit and loss system, to wit: loss.

J. F. WISHART, *President*
Wellswood Inc.
Tampa, Fla.

Forum:

We are now in a position to more clearly

(Continued on page 42)



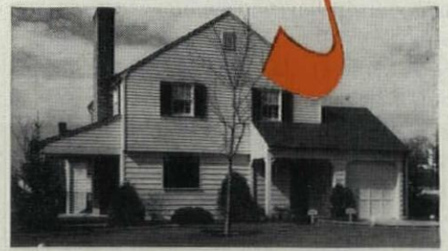
In apartment houses, B & G Hydro-Flo Heating remedies the lack of proper heat control. Apartments can be zoned for individual temperature control.

NO JOB TOO BIG OR TOO SMALL FOR B & G Hydro-Flo* HEATING

Adding up all the advantages of B & G *Hydro-Flo* Heating results in an impressive total—reveals why it is today's fastest growing type of system. Mechanically circulated water is the ideal heating medium and B & G *Hydro-Flo* Equipment supports its fundamental superiority with top operating efficiency.

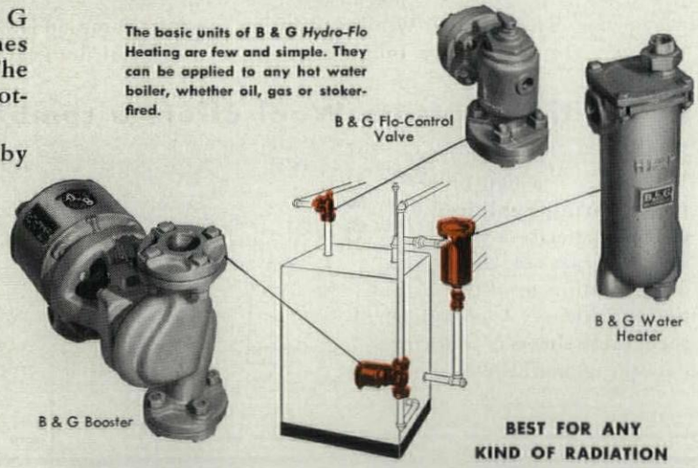
No matter how large the installation, B & G *Hydro-Flo* Heating equipment never becomes complex nor requires critical adjustment. The basic units are the same, whether heating a cottage, apartment or industrial building.

The close control of temperature afforded by B & G *Hydro-Flo* Heating leads to two great benefits. First, *comfort!* Always the same uniform temperature—regardless of how rapidly or sharply the weather changes. Second, *fuel economy!* Since the heat supply is matched to outdoor temperature, fuel is never burned needlessly.



No over-heating—no under-heating—no fuel waste in this small home . . . it has B & G Hydro-Flo Heating.

The basic units of B & G Hydro-Flo Heating are few and simple. They can be applied to any hot water boiler, whether oil, gas or stoker-fired.



BEST FOR ANY KIND OF RADIATION

Radiators Convectors Baseboards Radiant Panels

BELL & GOSSETT Company

Dept. BM-10, Morton Grove, Ill.

Canadian Licensee: S. A. Armstrong, Ltd., 1400 O'Connor Drive, Toronto 13

* Reg. U. S. Pat. Off.

WHY SHOULD AN INSULATION BE WINDPROOF?

A 15-mile wind penetrates a 13-inch plain brick wall at the rate of 7 cubic feet per square foot per hour. It penetrates a conventional frame wall at .13 cubic feet per square foot per hour. If occupants of the house are to be comfortable, an efficient insulation must guard against such air infiltration.

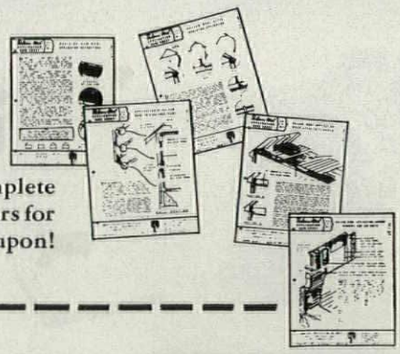
The Balsam-Wool insulating mat is completely enclosed in a tough covering with special flanges for adequate windproof application of the insulating blanket. This *completely sealed* feature of Balsam-Wool reduces wind infiltration through a frame sidewall to .000242 cubic feet per square foot per hour—an almost irreducible minimum. Practically no cold air gets through to increase the fuel consumption and add to the heating costs.

No wonder, Balsam-Wool is *windproof* in its design!

In addition, Balsam-Wool offers a combination of advantages found in no other insulation—

- *Integral continuous vapor barrier*
- *Sturdy wind barrier*
- *Double air spaces*
- *Special spacer flanges*
- *Double bonding of mat to liners*
- *Rot and termite treatment*
- *Highly fire retardant*
- *Rigid quality control*

You'll want a set of Balsam-Wool application data sheets—a valuable library of data on insulation application problems. A complete set of these sheets is yours for the asking, mail the coupon!



Balsam-Wool*

SEALED INSULATION

BALSAM-WOOL • *Products of Weyerhaeuser* • NU-WOOD*

*REG. U. S. PAT. OFF.

Wood Conversion Company
Dept. 147-50, First National Bank Building
St. Paul 1, Minnesota

Please send me a set of Balsam-Wool Application Data Sheets

Name.....

Address .....

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

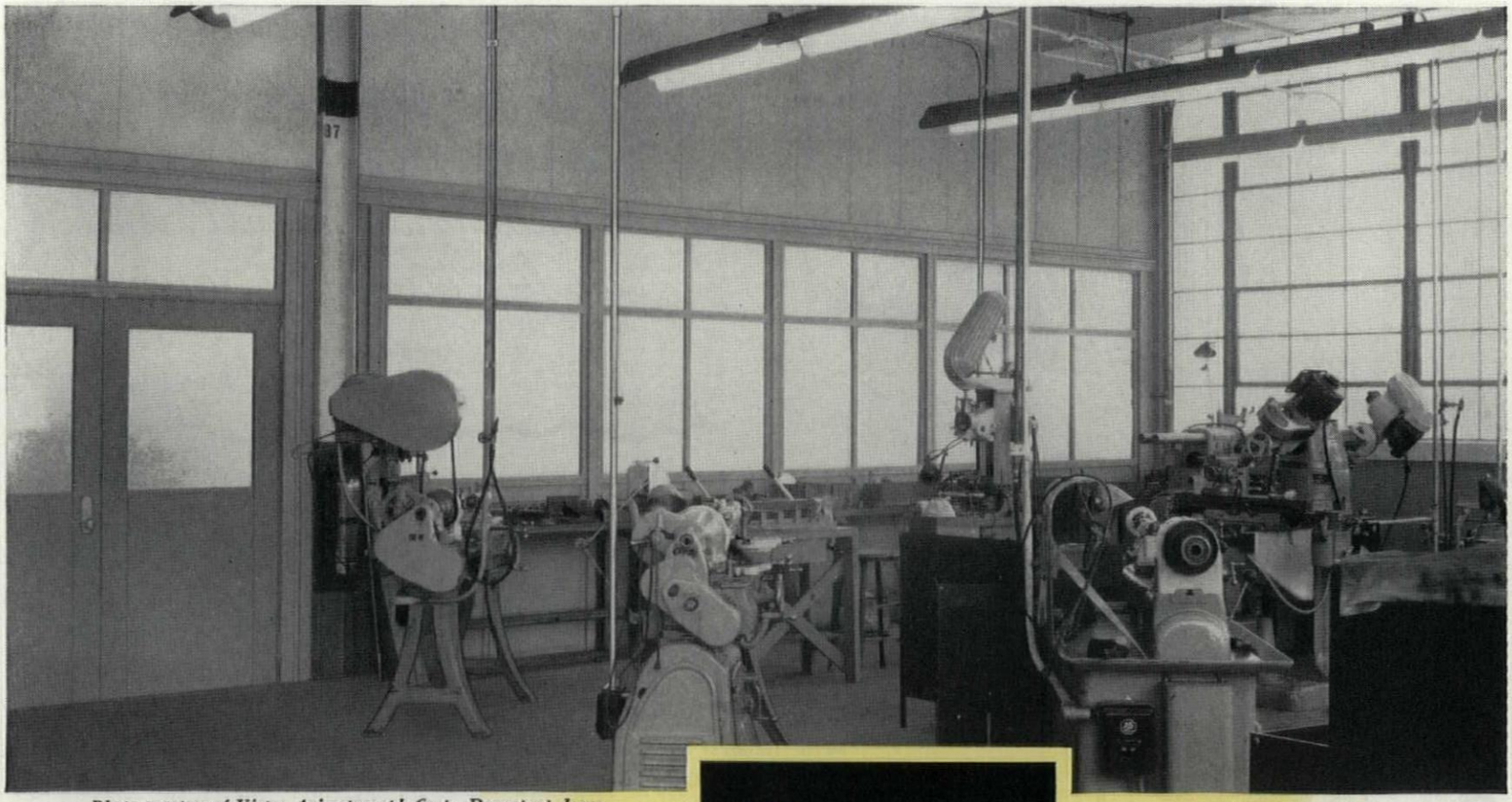


Photo courtesy of Victor Animatograph Corp., Davenport, Iowa

WILL THIS DEPARTMENT BE *here* NEXT YEAR?

That's a good question. Especially today when rapid technical developments often make it necessary to move old departments, create new ones and reallocate space generally.

Thousands of manufacturers have met this problem by installing Hauserman *Movable* Steel Interiors in every department . . . from the president's office to the shipping room.

They know from experience that Hauserman Interiors can be moved quickly and inexpensively whenever new floor layouts will promote production or administration efficiencies. What's more, there's a suitable Hauserman Interior for every operation and construction requirement.

A Hauserman representative nearby will be glad to show you all the many Hauserman advantages. Just write or call him, or contact *The E. F. Hauserman Company, 6762 Grant Avenue, Cleveland 5, Ohio.* There's no obligation, of course.

Our fully-illustrated, 60 page catalog will show you how Hauserman Interiors can be adapted to your building. Just drop us a line and a free copy will be on the way to you.

Organized for Service Nationally Since 1913

HAUSERMAN
Movable Steel Interiors

Partitions • Wainscot
Railings • Acoustical Ceilings
Complete Accessories

"it snaps into place"

"from inside"

"A real advancement in window screening, easy to handle and install, and architecturally sound."

Harold Straus, Sec'y
Harris Contr. Corp., Brooklyn, N. Y.

DURALL ALUMINUM TENSION SCREENS

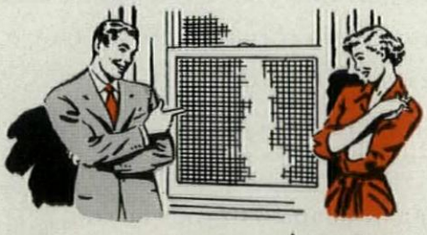
"so light and flexible"

"it rolls up for storage"

"no rust or stains"

"aluminum! needs no painting"

"so good looking"



"so snug fitting"

Home owners and builders who know Durall are saying all the things you read above, and more!

With its first introduction, this remarkable new kind of window screen captured the imagination—and appealed to the good sense and pocketbooks—of home owners and builders alike. Over 2,000,000 are in use today!

FREE BOOKLET! Get our special, free Durall booklet, showing complete specifications and prices—for your A.I.A. Files. Write today, Dept. AF-5. See Durall at your building supply dealer's.

West of the Rockies ask for Ry-Lock

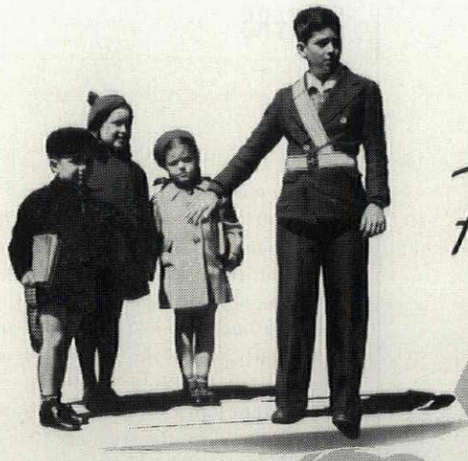
"IT'S EASY TO OWN A GOOD AMERICAN HOME"

and only $3.75 for average size

Guaranteed by Good Housekeeping — Replacement or Refund of Money — If Not As Advertised Therein

DURALL
ALUMINUM TENSION SCREEN

NEW YORK WIRE CLOTH COMPANY · 445 PARK AVENUE, NEW YORK 22, N. Y.



Have you made it SAFE for them IN school as well as out...

by specifying NORTON non-slip STAIRS and FLOORS?

. . . For positive, permanent non-slip protection plus exceptional wear-resistance, thoughtful architects are cooperating with practical-minded school boards in specifying Norton non-slip stairs and floors where slipping hazards and resistance to heavy foot traffic are both important. Many falls occur on stairs, but slipping accidents frequently occur on many walking surfaces when they become wet. Norton stairs and floors provide permanent non-slip protection, even when wet, and extreme resistance to heavy foot traffic. They are non-resonant and comfortable under foot. A wide selection of colors is available.

Small and large schools across the country have combined safety, economy and attractiveness by taking advantage of the non-slip qualities of long-wearing Norton stairs and floors. **See our catalog in Sweet's, or write for free catalog No. 1935.**

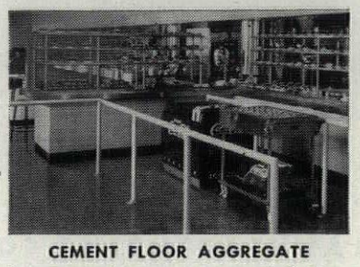
4 CHOICES—ALL NON-SLIP AND WEAR-RESISTANT!

TERRAZZO AGGREGATE

Specially prepared for monolithic or precast terrazzo. Applications: lobbies, foyers, corridors, auditoriums and as precast treads for stairways.

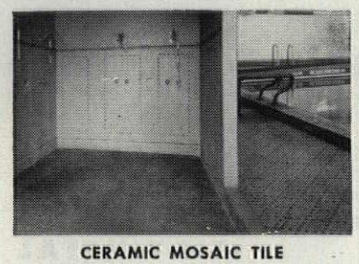
STAIR AND FLOOR TILE

Available in nine colors and eight sizes for stairs, walkways and ramps; recommended as step nosing for marble, tile, terrazzo, concrete, or steel stairs.



CEMENT FLOOR AGGREGATE

Incorporated in cement or asphalt floor in proper proportion, it reinforces the cement and increases durability several times. Used in cafeterias and washrooms.



CERAMIC MOSAIC TILE

Provides non-slip protection for attractive mosaic floors around swimming pools, in shower and washrooms, and around the counters in cafeterias.

NORTON COMPANY NORTON **WORCESTER 6, MASS.**

LETTERS

analyze our profit than when the $4.999 Builder's House article was written. We find our actual advertising and selling expense was cut one-half from our $265 estimated cost breakdown figure. This was accomplished through the rapid selling program once interest was aroused.

Secondly, we sold 750 electrical appliances (each appliance sold increased the sales price by the retail price of the appliance). We purchased these appliances at 40 per cent markdown from retail. The 40 per cent was net profit to us, as storage costs were absorbed in the cost breakdown. Service and guarantee on the appliances were included in the price to us as we dealt directly with the factory.

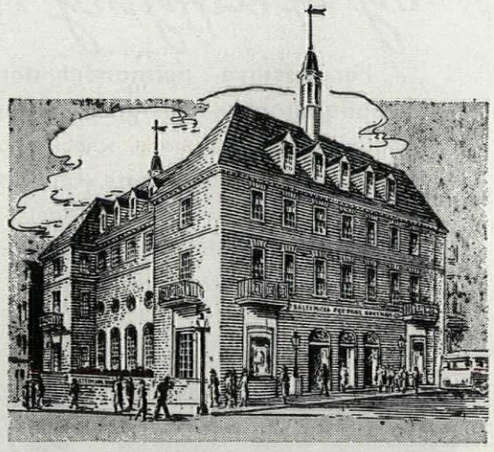
JAMES R. SCOTT
Sales Manager
Carroll, Hedlund & Assoc.
Seattle, Wash.

FRAUD

Forum:

If our postwar building has been distinguished by its amazing profusion, it is just as distinguished for its nearsightedness of planning, dullness of conception and clumsiness of execution. . . .

A case in point is the new Federal Building now under construction on one of the busiest downtown intersections of Baltimore. The building has an up-to-date steel framework including the dormers and the finial towers! That elevators are a part of this fine Williamsburg building goes without saying; I wonder whether their doors will be genuinely Colonial?



Baltimore's new building

I think that the FORUM could do an invaluable service to American architecture by not only printing and discussing the finest that is being done in the field, but also by pointing out some of the worst frauds and travesties being put over on an unconditioned public even in this day and age. . . .

ERIC G. YONDORF
Baltimore, Md.

(Continued on page 48)

specify DETROIT CERTIFIED CONTROLS

IT'S THE "SMARTEST" THING TO SPECIFY!

National advertising by DETROIT has made millions of home owners and home builders the country over, *Timed Cycling* conscious! For DETROIT'S remarkable *Timed Cycling* Room Thermostat and complete line of heating controls give assurance of fuel economy and perfect heat control by eliminating over and under heating! Moreover, DETROIT controls are the *only* ones in the field certified for reliability, performance and operating economy! So specify DETROIT'S "Thermostat with a brain" and full line of heating controls on all your jobs. It's the smartest and surest way of bringing complete and lasting heating satisfaction to all your clients!

Look for this Certificate — only Authorized DETROIT *Wholesalers sell certified Controls.*

DETROIT
LUBRICATOR COMPANY

5900 TRUMBULL AVE., DETROIT 8, MICHIGAN
Division of AMERICAN RADIATOR & Standard Sanitary CORPORATION
Canadian Representatives: RAILWAY & ENGINEERING SPECIALTIES, LTD.—Montreal, Toronto, Winnipeg

"DETROIT"

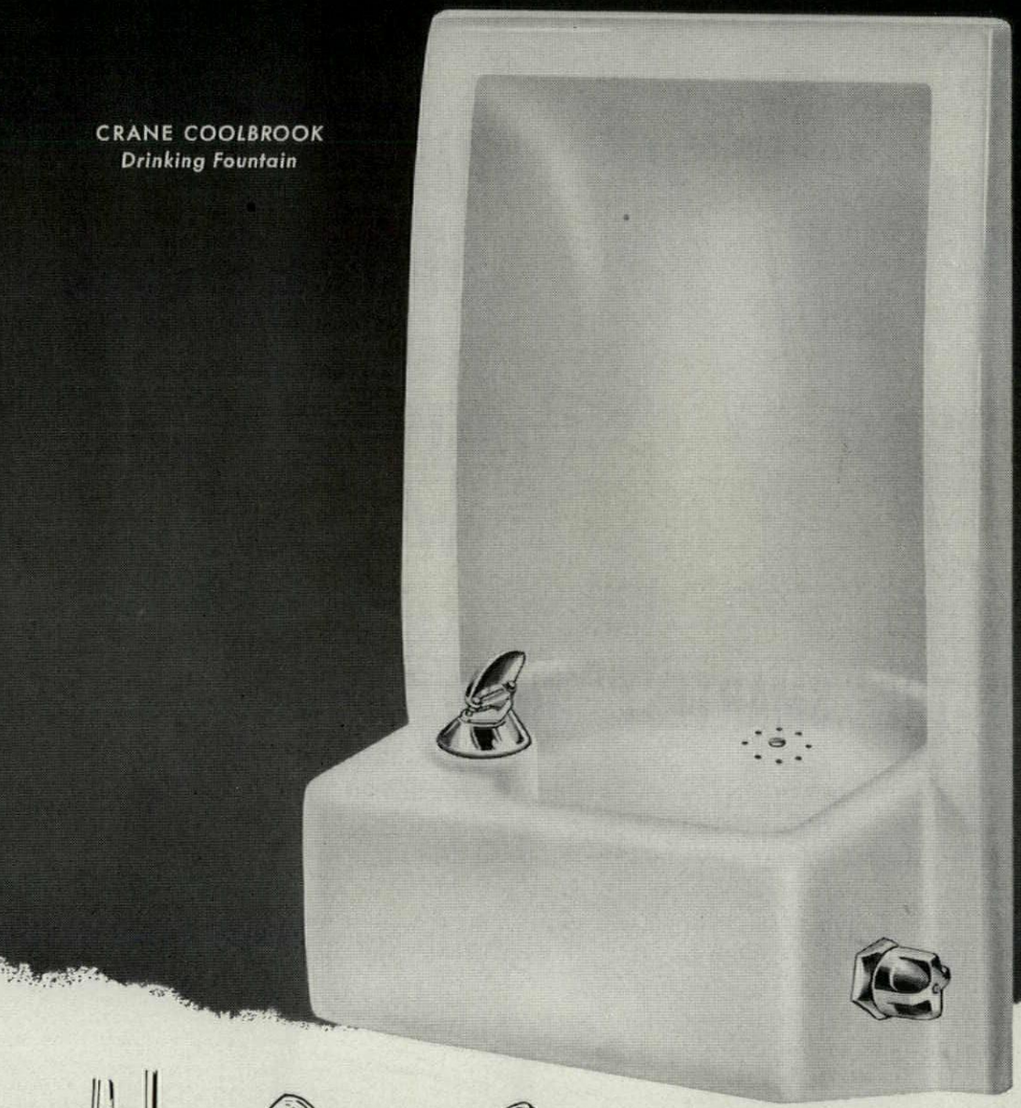
DETROIT HEATING AND REFRIGERATION CONTROLS • ENGINE SAFETY CONTROLS • FLOAT VALVES AND OIL BURNER EQUIPMENT • DETROIT EXPANSION VALVES AND REFRIGERATION ACCESSORIES • STATIONARY AND LOCOMOTIVE LUBRICATORS

Serving home and industry AMERICAN-STANDARD • AMERICAN BLOWER • CHURCH SEATS • DETROIT LUBRICATOR • KEWANEE BOILERS • ROSS HEATER • TONAWANDA IRON

CRANE

the preferred school plumbing

CRANE COOLBROOK
Drinking Fountain



One of a complete new quality line ideal for school installations. Removable cover plate for easy access . . . bright vitreous china for quick cleaning . . . durability to withstand years of tough school usage. For everything in school plumbing, consult your Crane Branch or Crane Wholesaler.

CRANE

CRANE CO., GENERAL OFFICES:
836 S. MICHIGAN AVE., CHICAGO 5

PLUMBING AND HEATING
VALVES • FITTINGS • PIPE

You can save on plant wiring

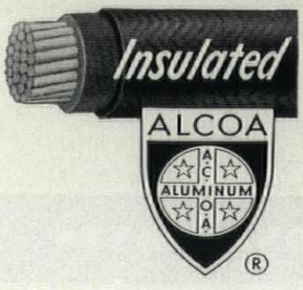
Unless you figure power and feeder cable in Aluminum, you don't

figure low

Have your plant feeders figured both ways—in aluminum and in copper. See for yourself the difference in cost on cable alone. In cases of heavy power demand, you can figure a further saving because lighter aluminum often eliminates extra roof truss bracing.

For prices, call one of the manufacturers listed below.

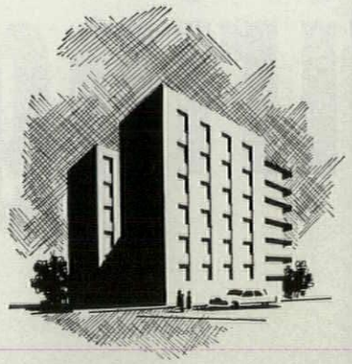
For copy of "Installation Questions and Answers on Alcoa E. C. Aluminum", call your nearby Alcoa sales office, or write ALUMINUM COMPANY OF AMERICA, 1778E Gulf Building, Pittsburgh 19, Pennsylvania.

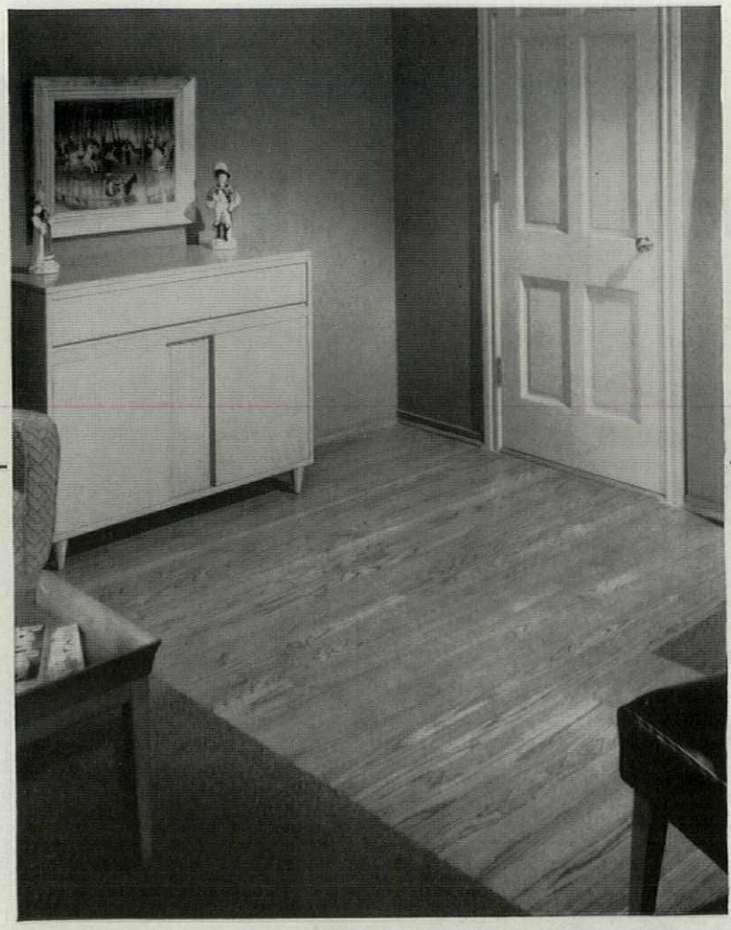


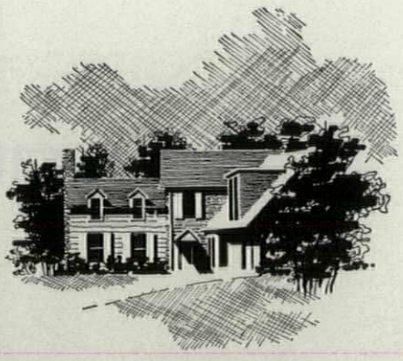
Aluminum Conductors

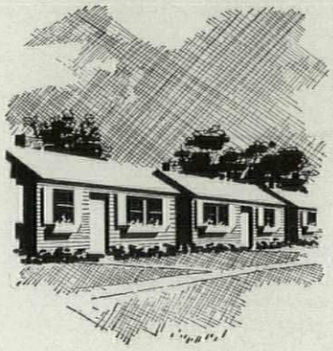
of ALCOA EC ALUMINUM are made by

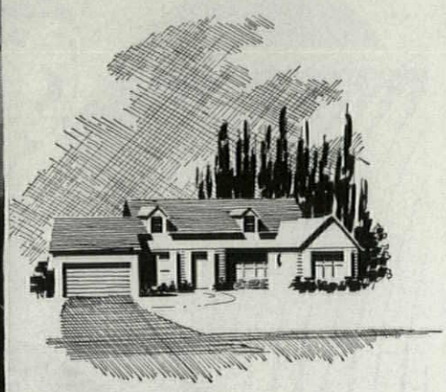
- Collyer Insulated Wire Company
- The Okonite Company
- United States Rubber Company











It adds value, it's durable, it's OAK

You just can't compare any other flooring material to oak when it comes to adding resale value, all-over attractiveness, easy upkeep and a lifetime of service as good as the first day the floor was laid.

That's why 85% of all prospective home buyers want oak flooring in their next homes. And they really are looking for oak, too, because the first thing a prospect notices as he or she enters the door of a new house is the flooring. If it's oak, prospects will be put into a frame of mind that will cause them to look with favor upon the other splendid features of your house.

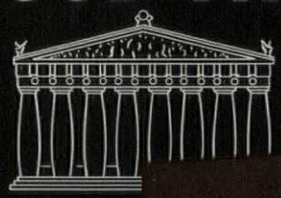
There is a grade of oak flooring for homes in all price ranges and every style, so it's easy to give home buyers the flooring that *is* their first choice. *See our catalog in Sweet's.*

NATIONAL OAK FLOORING MANUFACTURERS' ASSOCIATION

DEPT. 7-5 • 814 STERICK BUILDING • MEMPHIS 3, TENNESSEE

OAK, THE FLOORING THAT HAS EVERYTHING EVERYONE WANTS

NEW WOOD FIRE DOOR BY FOX



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Provides a beautiful pre-finished laminate in natural or simulated wood finishes that resists scratches, burns, acids and water . . . will retain original beauty throughout the years—and never need refinishing.

PROTEXOL IMPREGNATED WOOD CORE

Gives complete safety from the spread of fire . . . and assures dimensional stability and freedom from damage by rot or vermin. Fox wood fire doors have been tested and approved by national fire authorities—and are available in 45, 60 and 90 minute ratings.

MELAMINE PRE-FINISHED FIREPROOFED PANELING ALSO AVAILABLE

Fox Bros. furnishes this beautiful material either in custom millwork to your specification, or as a basic material. SEND THIS COUPON for a free sample and complete information.

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☐ Send me a sample of your new melamine pre-finished fireproofed wood.

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LETTERS

MILITARY HOUSING

Forum:

. . . Let me enumerate some of the erroneous impressions given by the article "Military Housing" (Mar. '50, p. 11).

You say the program "had been a flop right from the beginning." It has been an outstanding success. . . . Within one year after passage of the bill, one-half of the building projects needed by the Military would have been actually started, if there had not been outside interference by some "experts," which culminated in an ill-advised "freeze order" on December 15—literally paralyzing the entire program.

You say: "Builders had two main complaints." Builders have no legitimate complaints. . . . So many builders became interested at every base that the program understandably bogged down, because the building analysts, with limited staffs, could not study the proposals fast enough. . . .

You say: "Builders feel the Military tries to hold rents down to unreasonably low levels." The Military does not try to hold rents down to unreasonably low levels. The builders have always been permitted a fair return for their investments—ingenuity, work, and money invested. . . .

The article infers that because building under the Wherry Bill failed—the Senate approved a $500-million appropriation for housing on military bases. . . . The $500-million appropriation approved by the Senate is intended to provide houses for the higher ranking officers, such as long-time colonels and generals whose income enables them to live in much better homes than those which will be available under the Wherry Bill with its $9,000 average per unit cost limitation and $8,100 mortgage insurance provision.

You say: "Builders could not stretch their equities and write-ups of land costs." Why should a builder who pays nothing for a piece of land be permitted to have it appraised for any more and get mortgage insurance on such a basis. . . .

SENATOR KENNETH S. WHERRY
U. S. Senate
Washington, D. C.

● Despite Senator Wherry's rebuttal to the contrary, the facts indicate that the Military Housing Program has been far from successful.

Because of the difficulties encountered in this program, it has come to a virtual halt—only two projects had been insured by the first of the year.

If the program had been progressing satisfactorily, it is unlikely that the Defense Department would have called in experts to find out what was wrong and to devise a remedy.

Congress apparently recognized the need for corrective action by adopting an amendment to the legislation under the unanimous consent procedure. This procedure would not have been possible if there had been any Congressional opinion that the present program was meeting with reasonable success and did not need to be changed.—ED.

(Continued on page 54)

NOW! RADIANT HEAT FOR LOW-COST HOMES!

Cleveland Builders Specify A. O. Smith Gas-Fired Boilers

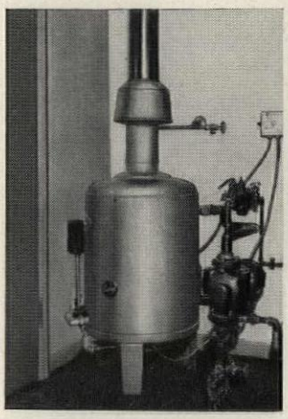
Multiple-Unit Installation for Radiant Ceiling Panels in 10-Suite Apartment

The first new apartment building in the Cleveland area to be heated with a radiant ceiling panel system, and 100 small homes in a new 200-house development, are two recent A.O.Smith HotWater Boiler installations that demonstrate the advantages of radiant hot water heating.

The A. O. Smith gas-fired boiler has a "water-wall" combustion chamber of copper tubing, plus a finned heat exchanger. Much lighter in weight, it is actually stronger. Water touches nothing but copper, brass, or bronze for rust-free protection.

For specifications on boilers shown here, and A. O. Smith "package" boilers also, send the coupon.

100 SMALL HOMES in Parma Heights, Cleveland, are equipped with A. O. Smith gas-fired, forced-circulation hot water boilers for radiant floor panel installations. Precision Housing Corp., Morris Fishman, president, built the hundred houses in 1949. One hundred more of these homes will be built in Parma Heights this year.



TYPICAL HOUSE (above) and utility-room boiler installation (left). Installations were by City Plumbing & Heating Co., 2614 St. Claire Avenue, Cleveland.

EUCLID, O., APARTMENT, Jos. Augustas, builder and architect, 25941 Lake Shore Blvd. City Plumbing & Heating, pioneers and largest installers in the midwest of radiant heating, were contractors and engineers for this installation also. Dr. S. T. Thomas is the owner. The Baird-Foerst Corporation, Cleveland, is the A. O. Smith distributor.

MULTIPLE-UNIT INSTALLATION of ten A. O. Smith Model HW-109 Boilers in the 10-suite apartment shown at left, for radiant ceiling panel installation.

A. O. Smith Corporation,
Dept. AF-550, Toledo 7, Ohio
Send us complete specifications on A. O. Smith Gas-fired, Forced-circulation Hot Water Boilers.

Name_____

Firm_____

Street_____

City_____ State_____

A.O. Smith today Smith 76th ANNIVERSARY 1874 · 1950

A.O.Smith

FORCED-CIRCULATION GAS-FIRED

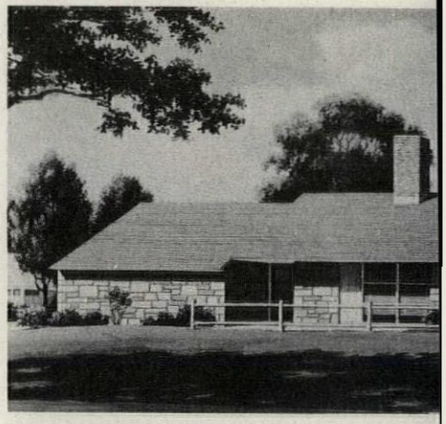
HOT WATER BOILERS

Boston 16 • Chicago 4 • Houston 2 • Los Angeles 14
Milwaukee 2 • New York 17 • Pittsburgh 19 • Salt Lake City 1
Seattle 1 • Washington 6, D.C. • International Division: Milwaukee 1

5000 BRIGGS BATHROOMS IN COLOR

William J. Levitt . . . dynamic spark-plug of Levitt & Sons, Builders, Manhasset, Long Island.

world's biggest builder knows what it takes to sell houses



Country Club district features spacious, individual homes like this. There will be a select 500 of them built this year at prices from $17.500 to $22,500—each furnished with two de luxe Briggs bathrooms in color.

WHATEVER Levitt does . . . it's always BIG! When they start building houses—a city of 40,000 springs up almost overnight. When they overhear people say that they want colored bathroom fixtures—they order them by the thousand.

Five thousand, to be exact . . . and every single one of them Briggs Beautyware!

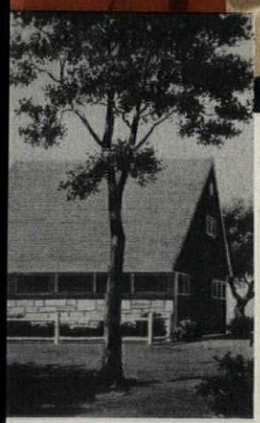
Knowing Levitt, there must be good reasons for this big change in contract. And knowing Briggs, there are!

First, Briggs is the only plumbing ware manufacturer whose methods of making fixtures is as modern and streamlined as Levitt's way of making houses. That's why Briggs alone can sell a complete set of colored fixtures (including brass fittings) for only 10% more than white.

Second, Briggs colored fixtures have style appeal. They look smart and *expensive*—without adding any expense worth mentioning to the overall cost of the house.

And last, they have the famous lightness of weight and exact dimensions of all Briggs fixtures. Installations are faster, easier, "right on the nose" every time.

Yes! Levitt & Sons know and act on a good thing when they see it. And when they saw Briggs Beautyware in color they knew homeseekers would act on it—with *cash!* Why not start cashing in on it yourself, today!

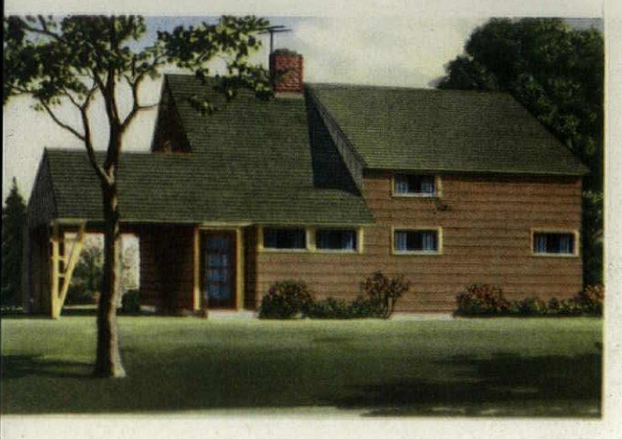


"You should see their faces light up when the women first walk into this bathroom. There's no doubt about it, the luxury-look of Briggs Sandstone fixtures is a deciding factor in many a 'one look' sale." That's what Bill Levitt says about the Exhibit Home bathroom shown here. All the other houses in this class have the same modern layout and enamel tiling *plus* Briggs ultra-modern Sandstone fixtures.

BRIGGS *Beautyware* **PLUMBING FIXTURES**

Sea Green *Ivory* *Sparkling White* *Sandstone* *Sky Blue*

Whether you choose the Sandstone now being used in Levittown, or any other one of Briggs beautiful decorator colors, you will find that it adds immeasurably to the quick-sale value of all your homes. *Briggs Manufacturing Co., 3001 Miller Ave., Detroit 11, Michigan.*



Typical of Levitt & Sons latest full-size houses on a pint-size budget. 4000 of these $7990 homes are going up now, all equipped with television and Briggs Sandstone fixtures.

TIME to get them on your side

FINAL TABULATIONS NOW READY ON NEW SURVEY OF 226 OFFICIALS OF LARGE-VOLUME BUILDING MATERIAL DISTRIBUTORS.

TWO QUESTIONS ASKED..

"WHAT MAGAZINES DO YOU READ REGULARLY./"

"WHAT ARE YOUR FIRST AND SECOND CHOICE MAGAZINES./"

MORE OF THESE EXECUTIVES READ TIME REGULARLY THAN READ ANY OTHER MAGAZINE EXCEPT LIFE ... TIME OUT IN FRONT AS "FIRST CHOICE" BY ALMOST 2 TO 1.

/MORE KOMING/

FIGURES JUST RELEASED ON CONSUMER GROUPS INTERESTED IN BUILDING MATERIALS AND HOUSEHOLD FURNISHINGS AND EQUIPMENT.

TIME LEADS ALL OTHER MAGAZINES IN "FIRST-CHOICE" MENTIONS AMONG..

1,404 TOP CONSUMER CUSTOMERS OF PITTSBURGH PLATE GLASS

1,976 REPRESENTATIVE BUYERS OF A&M KARAGHEUSIAN RUGS

/KILL ALL PREVIOUS HOME FIGURES ON TIME FAMILIES/

LATEST AUDIENCE STUDY SHOWS THAT AVERAGE TIME-READING FAMILY.S RESIDENCE HAS AN AVERAGE OF 6.5 BASIC ROOMS /DOES NOT INCLUDE BATHROOMS, KITCHENS, ETC./. IMPORTANT - TIME FAMILIES HAVE THE INCOMES TO FURNISH THESE ROOMS.

MORE FACTS COMING IN THIS SPACE NEXT MONTH ... WATCH FOR THEM OR WRITE FOR INFORMATION ON YOUR OWN BEST CUSTOMERS.

THOMAS E. RYAN, TIME RESEARCH
9 ROCKEFELLER PLAZA, NEW YORK 20, N. Y.

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KEY DISTRIBUTORS OF building services and supplies.

Families who can spend more than twice the U. S. average on their homes.

To get them on your side, reach them in their first-choice magazine.

TIME

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means QUALITY in Hollow-Core

FLUSH DOORS

1 Balanced seven-ply construction to provide controlled reaction in changing weather conditions.

2 Hardwood construction throughout—stronger, more durable, free from grain-raising, more easily and economically finished.

3 Exclusive Insulok grid core material has inherent resiliency, cannot cause warping, nor transfer grid pattern to faces.

4 Greater strength. Adequate core stock surface area provides maximum gluing surface and resistance to warpage.

5 Precision key-locked dove-tail joinings of stiles and rails add strength and stability.

6 Ready to finish. Door faces are smoothly belt-sanded. Stiles are machine-planed at factory—prefit to standard book sizes.

7 Fully guaranteed. Each door must meet rigid quality control standards and constant inspection throughout manufacture.

8 Mengel Flush Doors are economical—no mouldings to paint—no corners to collect dirt. Smooth hardwood surfaces are less absorbent and less costly to finish—easier to clean and longer-lived.

Write for complete specifications. Use the coupon.

Also see—
MENGEL STABILIZED SOLID-CORE DOORS
the finest products of their type on the market.

The Mengel Co., Plywood Division
2313 South Fourth Street, Louisville, Ky.

Gentlemen: Please send me, without obligation, full specifications on ☐ Mengel Hollow-Core Flush Doors; ☐ Mengel Stabilized Solid-Core Doors.

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Street_____

City_____ State_____

The place of Aluminum in modern building

The place of aluminum, in building, has been attained far more swiftly than that of any other metal. Building uses of other materials took centuries to develop. Aluminum, in commercial production scarcely more than half a century, has been used architecturally from the very beginning—as on the dome of San Gioacchino in Rome, on the roof of the Chief Secretary's office in Sydney, on the Washington monument.

The reasons lie in aluminum's inherent properties: lightness, strength, rustproof permanence, and a unique capacity to reflect radiant heat. In roofing and siding all of these characteristics are important. In insulation, emphasis is on aluminum's heat-reflective property, plus the vapor-barrier protection afforded by moisture-proof aluminum foil. In windows, the strength of aluminum permits narrow frames and greater visibility area. In rain-carrying equipment as well as in all other uses, aluminum's rustproof nature eliminates the need for painting. And aluminum nails prevent disfiguring stains, with no need for deep setting and puttying.

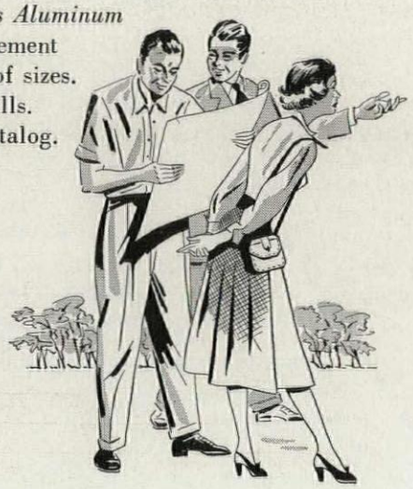
The architect will consider these functional properties together with the *appearance* of aluminum—its softly gleaming neutral tone, that weathers attractively and never stains. This appearance is distinctively modern in large-area exterior applications. It is definitely a design advantage for windows and for gutters, in combination with *any* exterior facing.

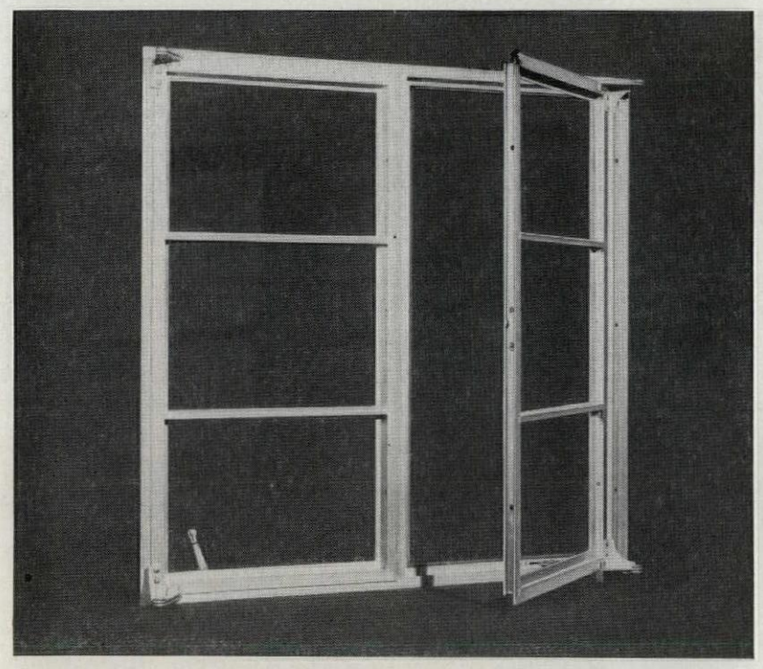
For literature in A.I.A. file form, please write to... **Reynolds Metals Company,** Building Products Section, 2019 South Ninth Street, Louisville 1, Kentucky.

Window Shopping Stops At...

REYNOLDS ALUMINUM WINDOWS

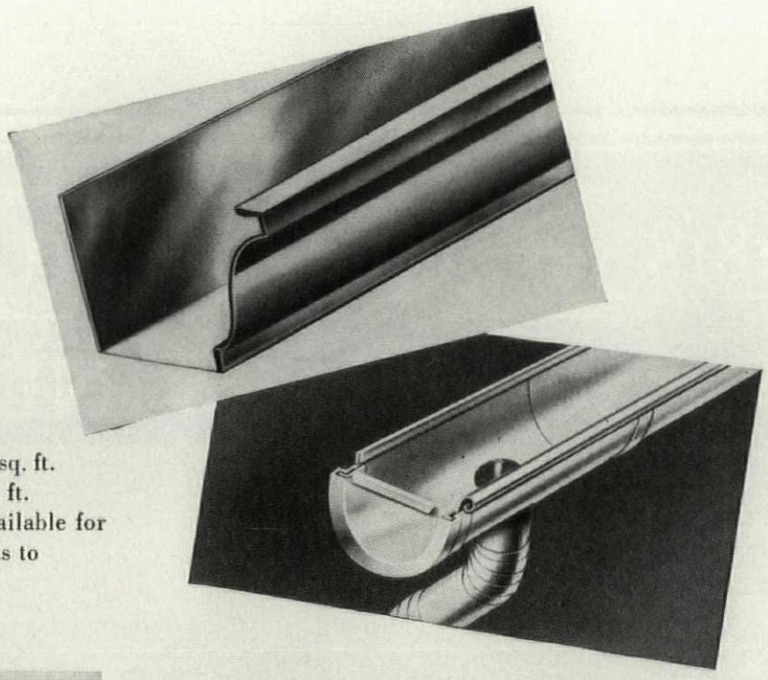
For rustproof permanence, freedom from maintenance and smooth operation, nothing equals the roto-operated aluminum casement window. Reynolds Aluminum Residential Windows, casement, fixed and picture types, are soundly engineered—with flash-welded corners for extra rigidity and weathertightness. They are outstanding for beauty of design and finish. *Reynolds Aluminum Screens* fit all metal casement windows. Full range of sizes. Also window jambs and sills. Write for detailed catalog.



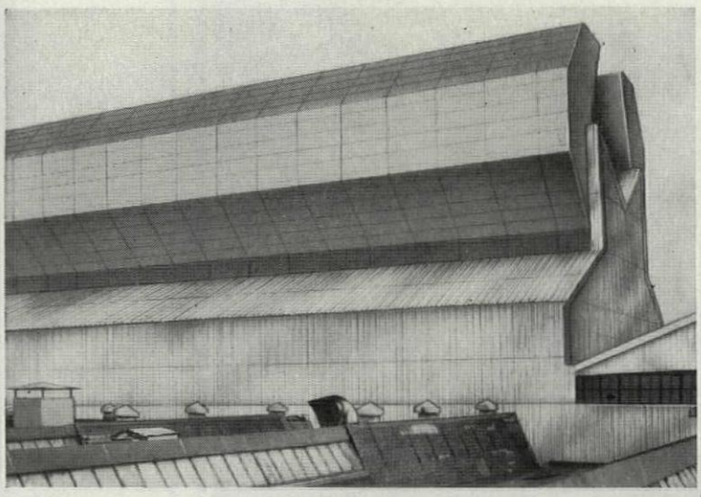


REYNOLDS

REYNOLDS *Lifetime* ALUMINUM GUTTERS and DOWNSPOUTS



Here's rustproof permanence at about half the cost of other rustproof materials. Slip-joint installation—no soldering. 5″ residential gutters available in Ogee style, with 3″ downspouts to match; and in Half-Round style, with 3″ round or corrugated downspouts. Both styles in either smooth or stipple-embossed finish. Specify one 3″ round or square downspout for each 700 sq. ft. roof area, or one corrugated downspout for each 600 sq. ft. *Also 6″ Half-Round Stipple-Embossed Gutters* now available for industrial and other large-area drainage (4″ downspouts to drain 2000 sq. ft. roof area per pipe).



REYNOLDS *Lifetime* ALUMINUM ROOFING and SIDING

Standard .019″ and .024″ thicknesses in 1½″ and nominal 2½″ Corrugated and 5-V Crimp, sheet lengths 6′, 7′, 8′, 9′, 10′, 11′ and 12′. Weatherboard Siding .024″ thick, 8′, 10′, and 12′ lengths. All in your choice of smooth or stipple-embossed finish. *Also REYNOLDS Lifetime ALUMINUM INDUSTRIAL CORRUGATED*, .032″ thick, with corrugations ⅞″ deep by 2⅔″ crown to crown, for extra rigidity. Simple application over any type purlin. Reynolds can supply *Nelson "Rivweld" Studs*, the superior top-down installation. (Photo shows this Industrial Corrugated on the Anchor Hocking Glass Corporation plant, at Salem, N. J.)

REYNOLDS ALUMINUM REFLECTIVE INSULATION

Specified increasingly in its standard forms—embossed aluminum foil bonded to one side (Type C) or both sides (Type B) of tough kraft paper. Excellent underfloor insulation and vapor barrier over unheated crawl spaces (approximate conductance 0.10). A preferred sidewall insulation (Type B bowed between studs). Over ceiling joists or under rafters, two layers of Type B with intervening air space give conductance of approximately 0.14. *Board types also available* —foil on one or both sides of rigid cardboard, for exposed application as in garage pictured here.

For further details on all these products—and on Reynolds *Lifetime* Aluminum Nails, Flashing, Accessories, Architectural Shapes and Rey Kool 19″ Selvage Built-up Roofing, write to **Reynolds Metals Company,** Building Products Section, 2019 S. Ninth St., Louisville 1, Ky.

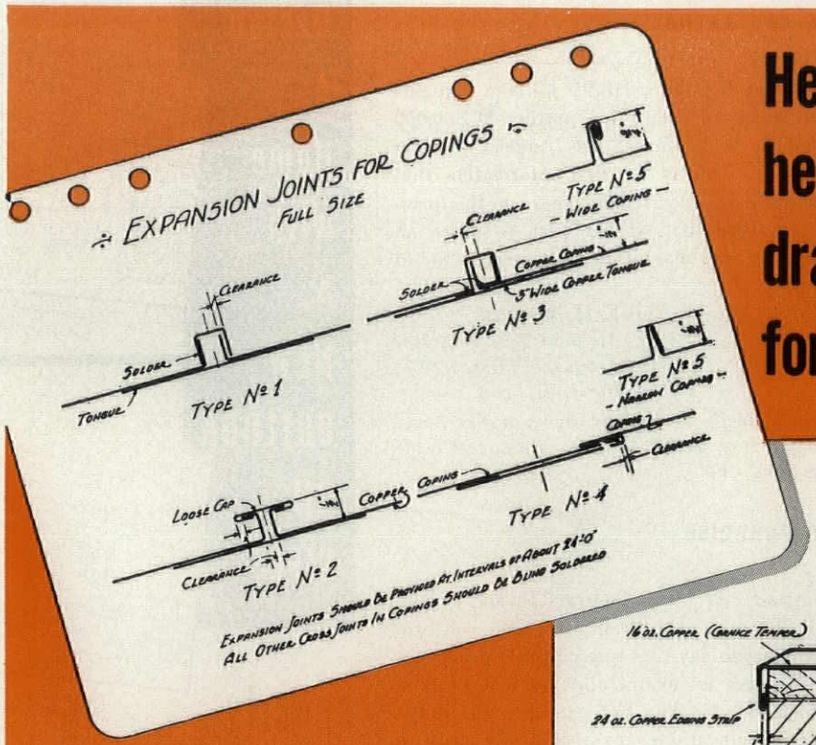
ALUMINUM

IF YOU SEE RUST YOU KNOW IT'S NOT ALUMINUM

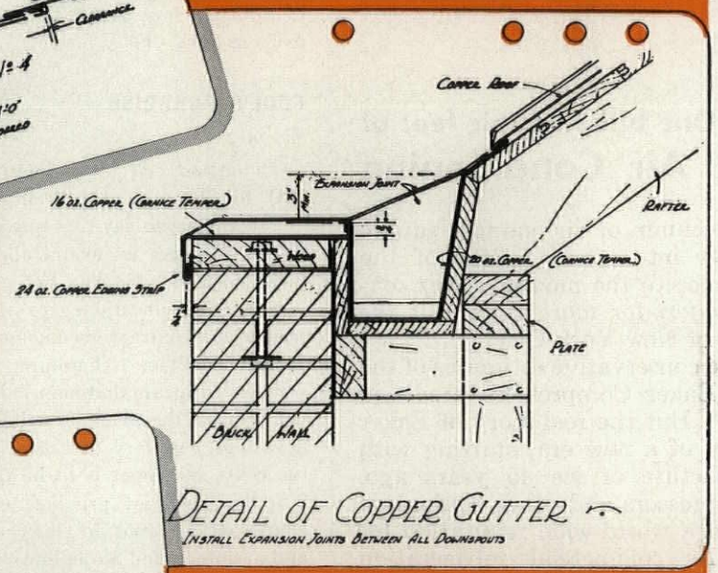
REYNOLDS METALS

REYNOLDS *Lifetime* ALUMINUM BUILDING PRODUCTS

Here are some helpful Copper Coping drawings for your notebook

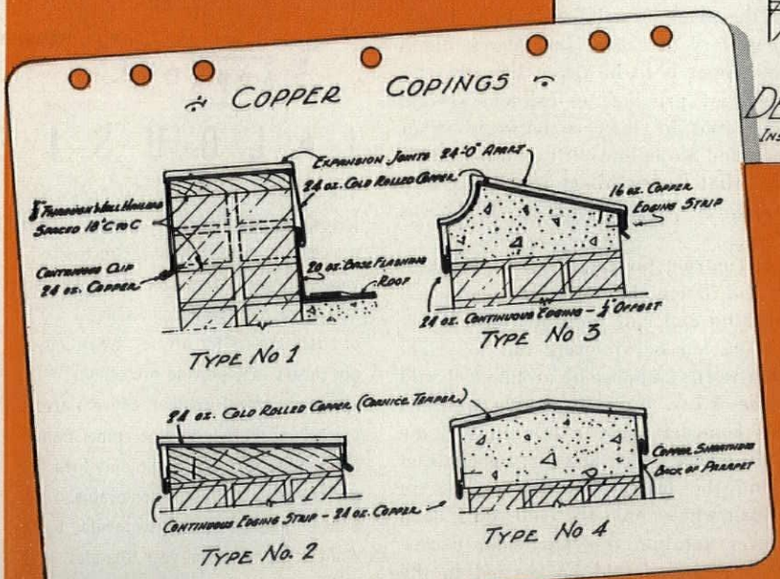


These drawings on 8½" x 11" sheets are yours for the asking



DETAIL OF COPPER GUTTER

INSTALL EXPANSION JOINTS BETWEEN ALL DOWNSPOUTS



You'll find it useful to have these thoroughly practical designs for copper copings and expansion joints.

If you would like information or special design data on ANACONDA Sheet Copper for other building applications, such as chimney flashings, gutters and various types of copper roofs, or on ANACONDA Through-Wall Flashings, just send a note outlining the problem you have in mind to The American Brass Company, Waterbury 20, Connecticut. In Canada: Anaconda American Brass Ltd., New Toronto, Ontario. 8001

Please send me copies of the copper coping and expansion joint designs illustrated above

YOUR NAME.....

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STREET ADDRESS.....

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You can build it better with ANACONDA® Copper

LETTERS

AETNA AND AETNA

Forum:

In the March FORUM (p. 9) we note that this company is given credit for putting $8,800,000 into land for a 3,375-acre Los Angeles housing development. This is the first information that this company has received in regard to this project. I am sure that, if we were to make an investment of this magnitude, our records would so indicate. . . .

E. H. WARNER
Assistant Vice President
Aetna Life Insurance Co.
Hartford, Conn.

• Reader Warner's records are right; it was Aetna Construction Inc., one of Los Angeles' largest home building firms.—ED.

FOOL'S PARADISE

Forum:

The article "Architect Contract Invalid" (Feb. '50) has been read with interest and concern.

For a court to say that any contract drawn up by an architect is invalid appears to take in a great deal of territory. For example, the drawings and specifications are specifically made a part of the contract documents and are prepared by the architect. Therefore, if the decision is correct it appears that an architect perhaps could not prepare the plans or write the specifications, a strange corollary of course but reasonable if the court statement is to be taken literally.

It has been my privilege to examine several contracts prepared by lawyers between owner and architect, and Satan himself would be unable to determine what the architect was to do, how much he was to be paid or what the owner was to expect.

The A.I.A. contract forms are all copyrighted documents; and if some lawyer were to copy any of them verbatim and call them his own handiwork, would he not be violating the copyright law? In other words, suppose an architect should insist that the A.I.A. form is exactly what he wants as his contract between himself and the owner, and the owner is satisfied that the contract is proper and the lawyer therefore made an exact copy, just what would the court do if such a contract ever got into this particular court?

It seems this case should be carried to the highest court in Michigan as many architects in that state might find themselves living in a fool's paradise.

M. P. LAUER, *Architect*
Akron, O.

THE FOUNTAINHEAD

Forum:

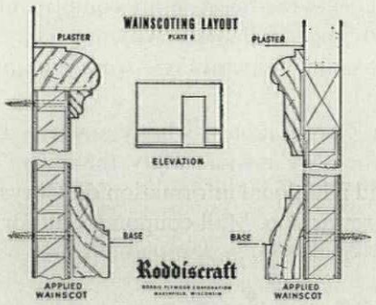
I noticed something in my travels last fall which might interest FORUM—a series of new apartment dwellings, built at Oakridge, Tenn. No one there could give me a lead on who designed them except a *taxi driver* who said he thought it was Skidmore, Owings & Merrill.

NADIA WILLIAMS
Washington, D. C.

• The taxi driver was right.—ED.

Roddiscraft Paneling Invites the Question . . .

WHO IS YOUR ARCHITECT?



Large detail drawings of this item and other wainscoting layouts are available on request. Write for wainscoting layout charts Nos. 10-15.

There's a lot of extra value built into the home designed and supervised by an architect — things you can't see. But there are extras you can see, too.

Plywood paneling is often the hallmark of the architect-designed home. Plywood by Roddiscraft, with its beautiful figure, carefully selected for uniformity and exact matching around the room, just naturally invites the question — "Who is your architect?"

When you specify Roddiscraft hardwood plywood, you are sure of a quality product, fashioned by craftsmen — carefully made. You know that its true-cut edges and satin smooth finish will insure an installation that reflects credit on you.

Roddiscraft has prepared architect-approved details showing various methods of panel installation. Your nearest Roddiscraft warehouse has these drawings which are yours for the asking. Just drop them a line.

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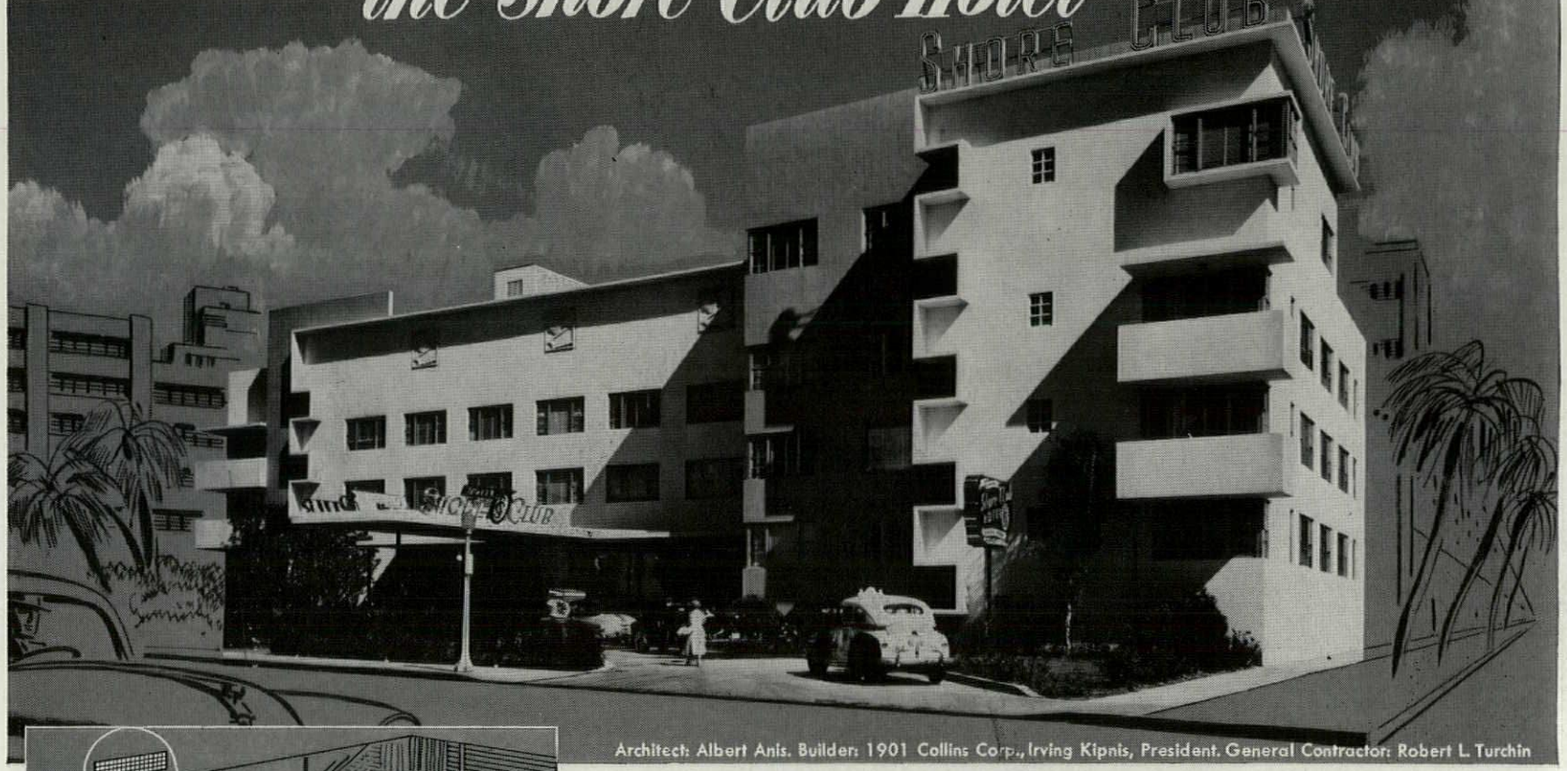
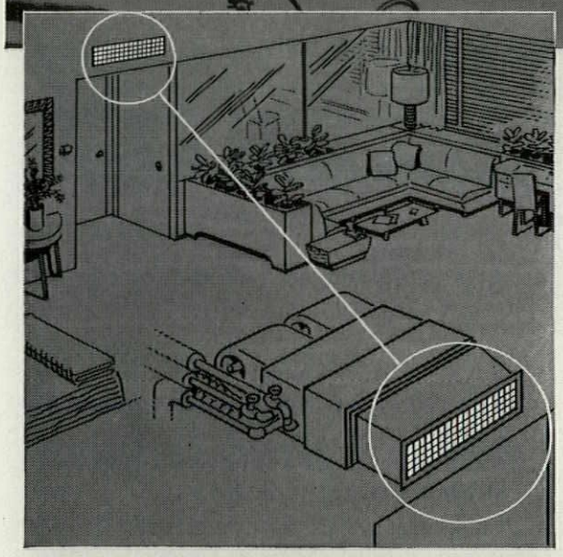
Marshfield, Wisconsin

TO BE TRULY MODERN A BUILDING MUST BE AIR CONDITIONED

Chrysler Airtemp air conditions the Shore Club Hotel



Architect: Albert Anis. Builder: 1901 Collins Corp., Irving Kipnis, President. General Contractor: Robert L. Turchin



Chrysler Airtemp Individual Room Units in the Shore Club Hotel are placed within the entrance ceiling with only the controls mounted on the wall.

INDIVIDUAL ROOM UNIT SYSTEM GIVES GUESTS CUSTOM CLIMATE

The new, ultra-modern Shore Club Hotel, at Miami Beach, offers a new degree of luxury and comfort for its guests. Each of the 150 rooms—as well as all public areas—have individually controlled units—for both heating and cooling. Fresh outside air is filtered and dehumidified for continuous circulation through this system. Chrysler Airtemp equipment was selected for this automatic control of indoor weather.

Here is another instance where Chrysler Airtemp has cooperated with architects, builders and contractors to give their clients the finest in air conditioning. Through regional offices and dealers in principal cities—Chrysler Airtemp offers trained engineers to aid you with any heating or cooling operation—from making the initial recommendation to the final installation.

When desired, Airtemp Construction Corporation—wholly owned subsidiary of Chrysler Corporation—will assume complete responsibility for all or any part of your air conditioning project. You'll find additional information on Chrysler Airtemp service and products interesting—and rewarding. Mail coupon today for full details.

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3 BASIC SYSTEMS TO MEET EVERY AIR CONDITIONING NEED—

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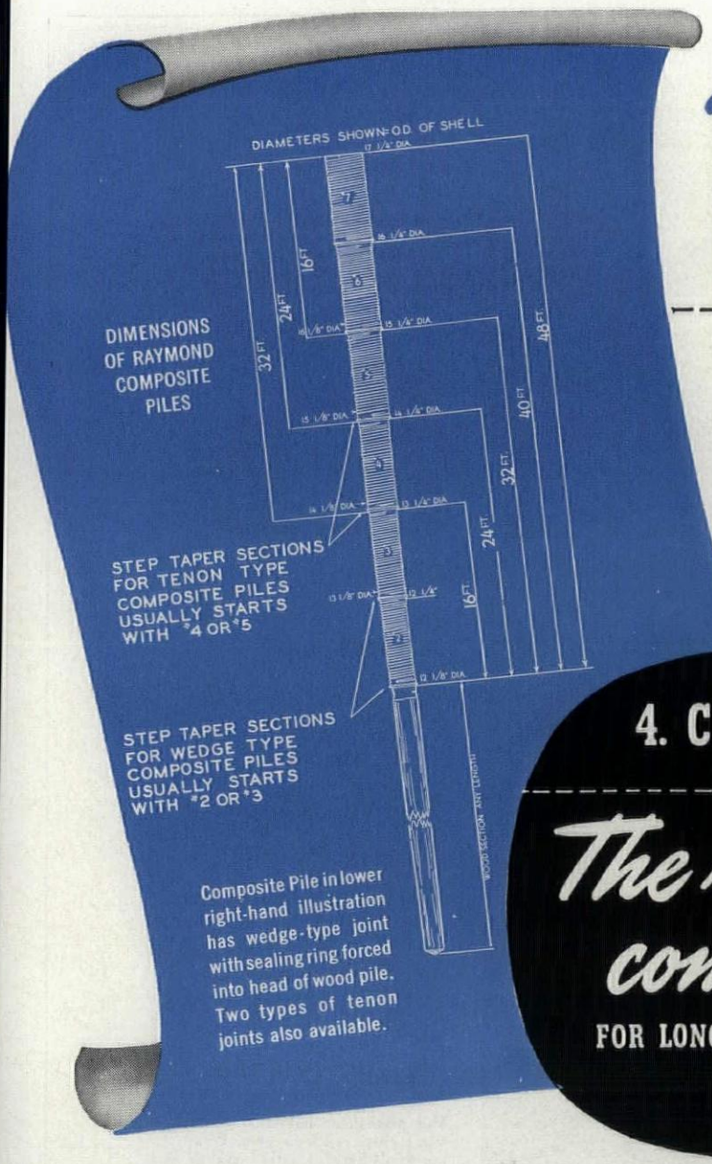
Raymond MAKES 5 TYPES OF CONCRETE PILES

1. STANDARD . . . 2. STEP-TAPER . . .
3. PIPE STEP-TAPER . . . 4. COMPOSITE
5. GOW CAISSONS

Raymond installs every type of pile: cast-in-place concrete, precast concrete, steel pipe, wood and H-beam. Raymond operations include underpinning, borings and soil investigations, waterfront construction and harbor and river improvements, also cement mortar lining of pipes by the Centriline Corporation, a Raymond Subsidiary.

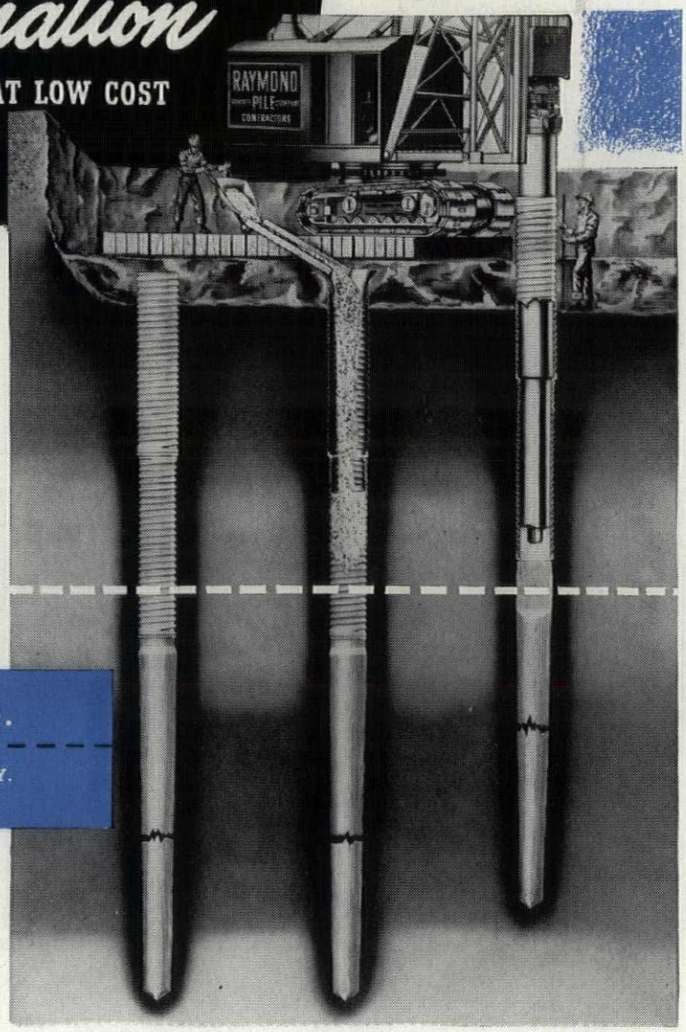


4. COMPOSITE PILES

The right combination

FOR LONG LENGTH AT LOW COST

Right, driven wood pile is being followed down by pile shell of concrete section. Center, complete pile driven to resistance, pile shell is being filled with concrete. Joint, wedge-type with sealing ring, is below ground-water level. Completed pile is shown at left.



Raymond Composite Piles are used for economy and long length (up to 140 feet). The concrete upper section extends from the permanent water table up to the underside of the footing, thus eliminating the expensive excavation, sheeting and pumping often required with wood piles.

Raymond Composite Piles have solved many deep foundation problems permanently and at minimum final cost. We shall be glad to advise you, without obligation, whether they are suitable for your project.

PERMANENT WATER LINE

RAYMOND PILES MAINTAIN DRIVING RESISTANCE

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BRANCH OFFICES: Boston, Syracuse, Philadelphia, Baltimore, Washington, Pittsburgh, Atlanta, Miami, Houston, Kansas City, St. Louis, Cleveland, Chicago, Detroit, Salt Lake City, Portland, San Francisco, Oakland, Los Angeles and principal cities in Latin America.

120 color combinations... custom-made into venetian blinds by quality manufacturers and sold by leading retailers.

5 reasons why maintenance costs drop

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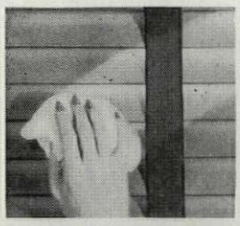
Flexalum®

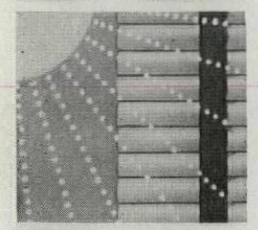
Guaranteed by Good Housekeeping

spring-tempered slats and vinyl plastic tape*



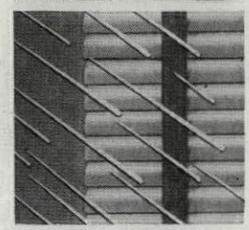
1 WIPES CLEAN

Dust doesn't linger on the non-porous surface of new Flexalum vinyl plastic tape ! A damp cloth whisks away dirt, grease, grime, sticky spots, stains. *Costly labor hours saved!*



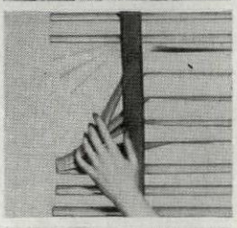
2 SUN FAST

The color is locked into Flexalum tape. Even the sun won't fade or discolor it. This sturdy plastic tape will look new for years. *No more constant re-taping!*



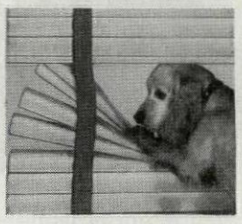
3 WON'T SHRINK

Flexalum vinyl plastic tape won't shrink or stretch. Flexalum slats won't rust. *Costly moisture damage is eliminated!*



4 SLATS SNAP BACK

Bend them, abuse them, bear down with a vacuum tool . . . these spring-tempered aluminum slats keep their shape. *Replacement costs are cut drastically.*



5 WON'T CHIP OR CRACK

The permanent baked-on finish won't chip, crack or peel. Flexing won't harm it, either. *Blinds of Flexalum stay new-looking... save maintenance dollars.*

Be sure the blinds you buy carry the Flexalum "visible-invisible" trade mark.

*Patented HUNTER DOUGLAS CORPORATION, RIVERSIDE, CALIF. AND 150 BROADWAY, NEW YORK 7, N. Y.

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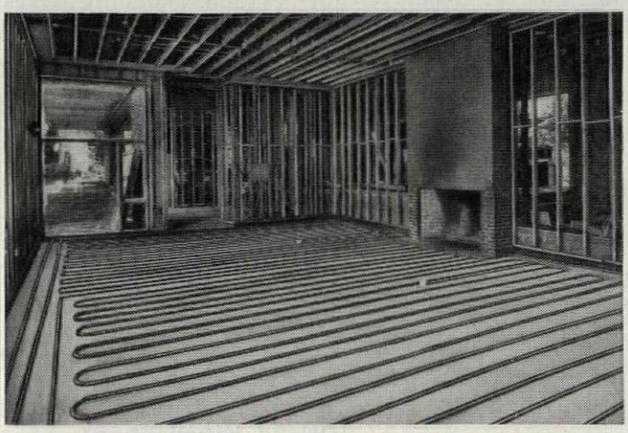

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you too will want Chase Copper Tube in your Radiant Heating Installations!

EASY TO BEND • LONG LIFE • LONG LENGTHS SOLDERED FITTINGS • LOW COST • LIGHT IN WEIGHT SMALL DIAMETERS

Residence in Ligonier, Penna., *is heated by coils using 6000 feet of 1" Chase Copper Tube. Outdoor piping and water supply lines use 1500 feet in sizes from ½" to 2". Architect: Marcel Breuer, New York City. Engineer: Benjamin L. Spivak, New York City. Plumbing and heating contractor: John Hall, Ligonier, Penna.*

FROM the finest of residences to economical basementless houses, there's a growing trend to radiant heating—*with Chase Copper Tube.*

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Its light weight and small diameters make it just as easily adaptable to ceiling installation as it is to concrete floor slab construction. Its high resistance to corrosion means long service life.

And it's available for immediate delivery!

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Gentlemen: *Please forward your book, "Suggestions for Designing Radiant Panel Heating with Copper Tube."*

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Name_____ Title_____

Street_____

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SEND FOR FREE BOOK! "Suggestions for Designing RADIANT PANEL HEATING with Copper Tube."

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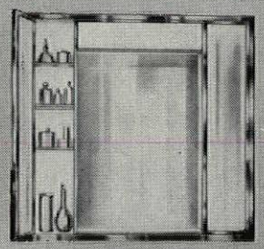
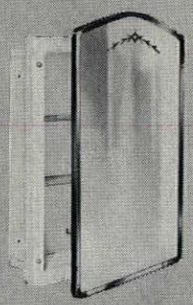


THE MIAMI IMPERIAL



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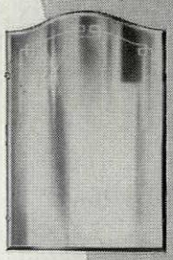
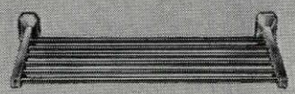
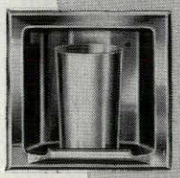
No. 5008 TUMBLER AND TOOTHBRUSH HOLDER



THE CAVALIER VENETIAN ARISTOCRAT



No. 5017 CHROMIUM TOWEL SHELF



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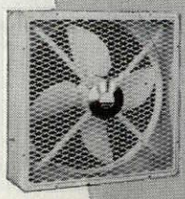
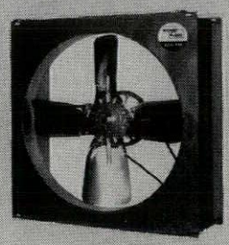
MAKE BATHROOMS "SING"!

Equip them with smartly modern Miami-Carey cabinets, mirrors and matching accessories. Miami-Carey makes four top-quality lines to meet your customers' specific design and budget requirements . . . all designed for easy installation . . . and featuring new beauty and construction advantages offered only by Miami-Carey.

Ask your M-C representative about these two Miami-Carey product lines, or write—

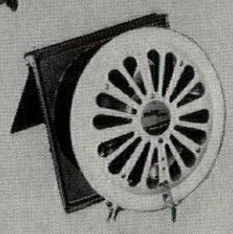


WINDOW VENTILATOR Model MC 24-WV

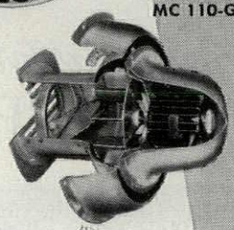


ATTIC FAN Model MC 36-4

KITCHEN VENTILATOR Ceiling Model MC 110-GC



KITCHEN VENTILATOR Wall Model MC 110-G



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Adds sales appeal and value to homes . . . keeps owners happy the year 'round. The Miami-Carey line is complete—includes models for attic, window and kitchen installation . . . each with certified air delivery ratings and a full complement of engineered accessories for economical installation and top performance.

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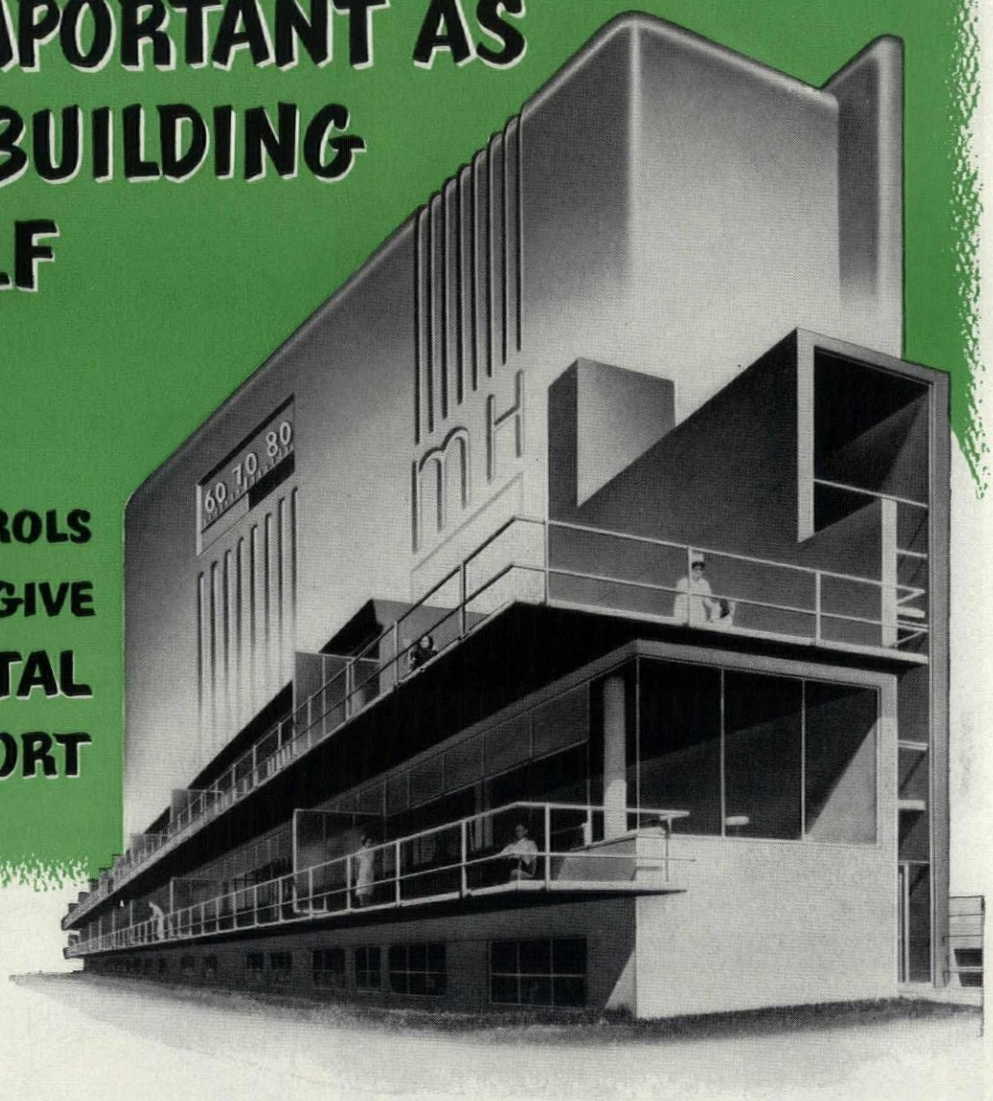
THE CONTROLS THAT GIVE HOSPITAL COMFORT



Lake County Tuberculosis Sanitarium,
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Architects: W. L. Pereira, Hollywood
Wm. A. Ganster, Waukegan, Ill.

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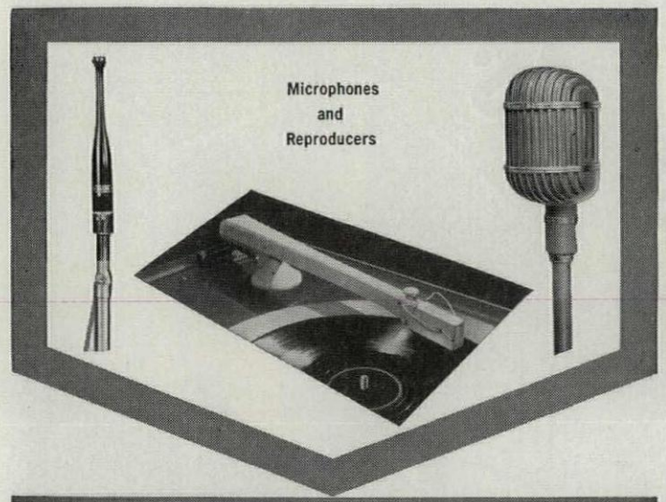
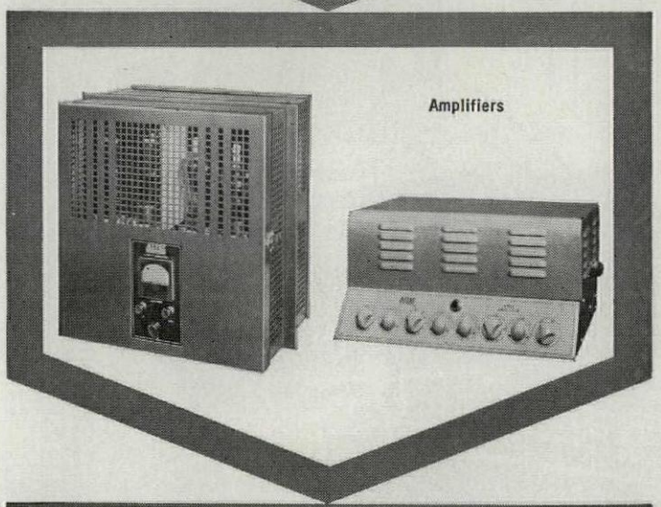
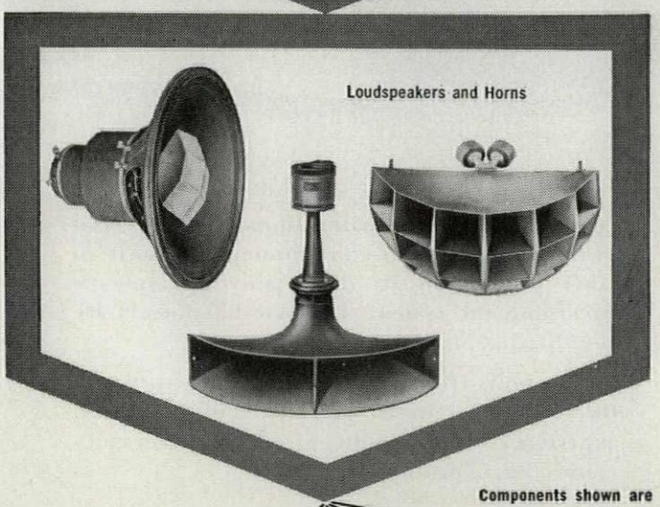
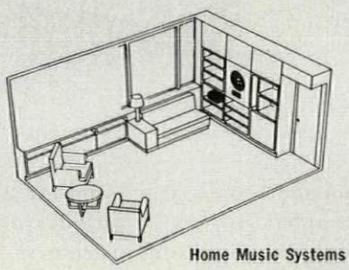






ALTEC...
the *SOUND*
Investment!

For those willing to pay just a little more for *perfection,* there are ALTEC sound systems to meet the most exacting requirements. Engineered for *any* installation . . . public address, stadiums, theatres, railway yards, factories, night clubs, or for the home. Now, with the inclusion of selected Western Electric products, ALTEC offers the *most complete* audio line. And because all components in ALTEC equipment are made for each other . . . designed to work together . . . you enjoy a new high in engineering excellence. To stand behind this integrated line ALTEC offers engineering service, installation and maintenance from coast to coast.



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DEALERS EVERYWHERE

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Hollywood 38, California
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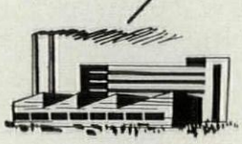
LANSING CORPORATION

Components shown are a few from the wide selection available.



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Today's Better Schools Are Built of WOOD

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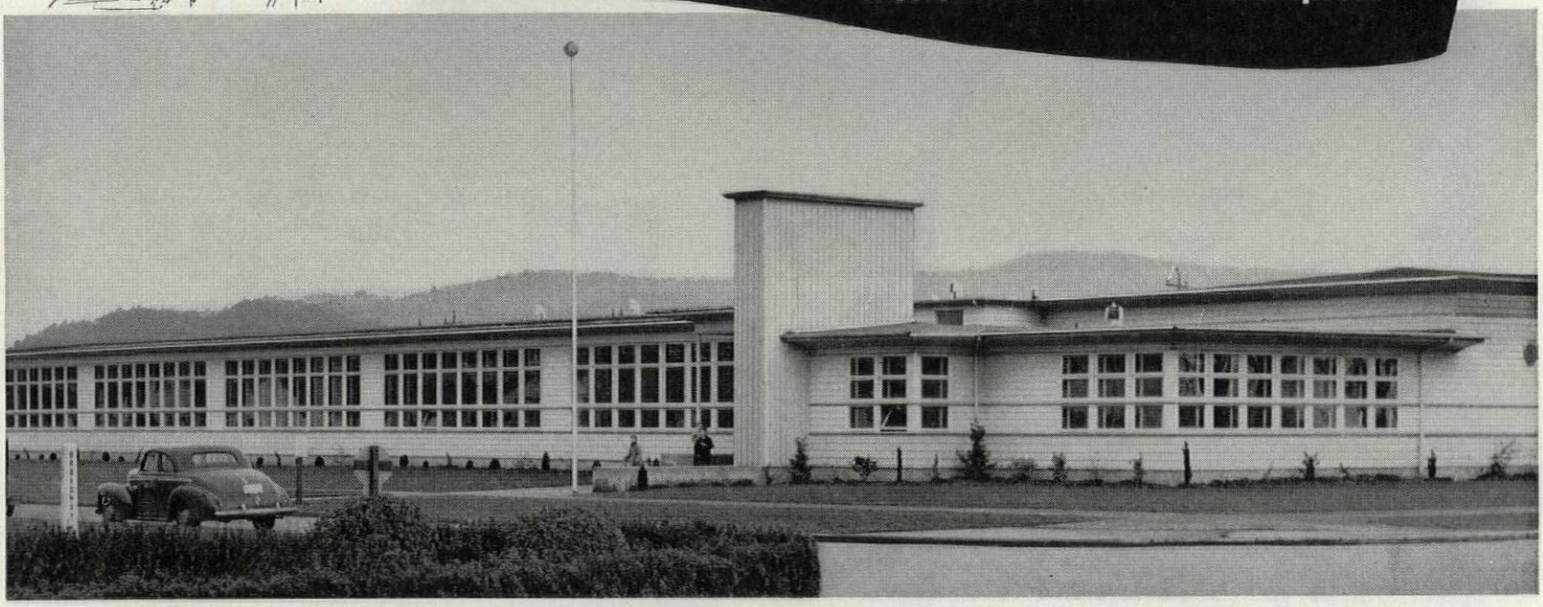
SPECIFY:

WEST COAST WOODS

Douglas Fir • West Coast Hemlock
Western Red Cedar • Sitka Spruce



NO OTHER BUILDING MATERIAL GIVES *ALL* THESE *PROVED* ADVANTAGES

ECONOMY. Over-all economy is designed into schoolhouse construction plans when wood is specified. As a building material wood is time-tested, easy to obtain, easy to work.

DURABILITY. Many wooden structures, as old as the nation, are still in use. Buildings have a long life expectancy when built of West Coast Woods. With today's rapidly changing educational requirements, the lumber in a school of wood will be in sound condition long after the building design itself may have become obsolete.

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FLEXIBILITY. Schools built of wood may be remodeled—or rooms added—at minimum cost without undue loss of time.

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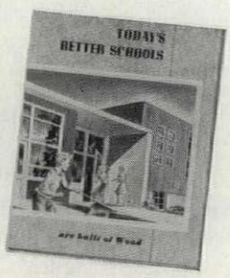
Beautifully illustrated in four colors, this new booklet points out many different applications of wood in schoolhouse construction. It tells how schools of wood meet today's educational needs and at the same time give more for the building dollar. The booklet will be ready for distribution about May 1. Reserve your copy now. Use coupon below.



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Quality Lumber Produced by Member Mills

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Please send me a copy of your free booklet "Today's Better Schools Are Built of Wood" when it is available.

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BEHIND THE BLUEPRINTS

LUCIAN M. DENT (r.) and **ALFRED L. AYDELOTT** (l.), designers of the Ruleville Hospital (p. 108), are partners in a Memphis architectural practice. Dent studied architecture at the University of Virginia, worked on the Williamsburgh Restoration and in a New York architect's office before hanging out his own shingle in Memphis in 1937. Aydelott graduated from the University of Illinois School of Architecture, saw service in the Marine Corps in World War II. He has been in private practice since 1939, was invited to Yale last year to lecture on hospital design.

HARRIS ARMSTRONG is a midwesterner, tried and true. Born in Detroit, he studied architecture at St. Louis' Washington University, remained in that city for five years as draftsman on the design staff of Scruggs, Vandervoort & Barney, a leading department store. A private in the fledgling air service in 1918, his three wartime years in the Corps of Engineers in World War II netted him a captaincy. He returned to St. Louis in 1945 to his own architectural office (p. 126).

CHARLES K. AGLE and **LAWRENCE M. COX,** both ex-public housers, are the mentors of Norfolk, Va.'s new city plan (p. 132). Agle studied architecture at Princeton, and starting in 1934 with PWA, spent ten years in federal housing, surviving eight administrators and three reorganizations. He did Navy contract renegotiation during the war, has been in charge of redevelopment planning for Harrison, Ballard & Allen since demobilization. Cox was born in Norfolk, graduated from George Washington University, has devoted seven years of his career to PWA and its successor public housing agencies. Since 1941 he has been executive director of Norfolk's Redevelopment and Housing Authority.

IGOR B. POLEVITZKY, architect of the uninhibited "Bird Cage" house (p. 138), was a Russian emigree at the age of 11. Schooled in the U. S., he received his architectural degree at the University of Pennsylvania in 1934, headed south immediately after graduation to practice in Miami Beach. In his first five years there he designed 150 buildings costing a cool $10 million, including some of the town's most lavish hotels and luxurious stores.

Architect **JOHN A. GROVE, JR.** (l.) and Builder **NOBLE S. CLAY** are currently adding 50 contemporary homes (p. 142), to Pittsburgh's tight housing supply. Clay was originally an Ohioan, born in Youngstown and educated (in electrical engineering) at Ohio State University. He worked for Westinghouse for 17 years before turning to housebuilding in 1933. In 12 years of merchant building, he accounted for 2,000 dwellings. Grove, a direct descendant of architect-novelist Thomas Hardy, studied architecture at Carnegie Tech, sold brushes, designed war housing, free lanced for several years, opened his own architectural office in 1946.

For the LIFELINE of your Building

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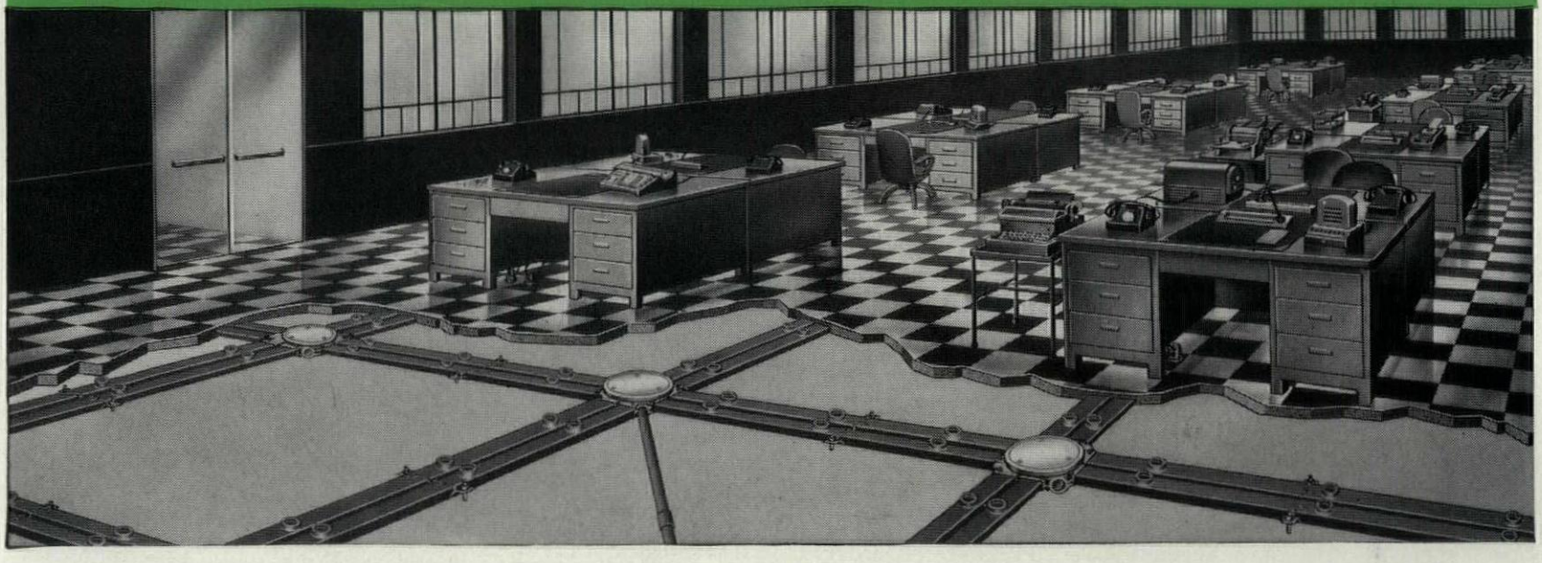


CHECK THESE ADVANTAGES of Nepcoduct, the system that provides a multiplicity of inexpensive electrical outlets at the floor surface . . . fits *any* type of floor construction:

✓Advantages for the OWNER

Provides tenants with complete electric service—economically—without routing concrete or cutting building structure.

Electric service outlets are already threaded.

Present and future tenants have all the electric service they will ever need. A real office space sales feature!

✓Advantages for the TENANT

Immediate availability of electric service at the floor regardless of office space or furniture arrangement.

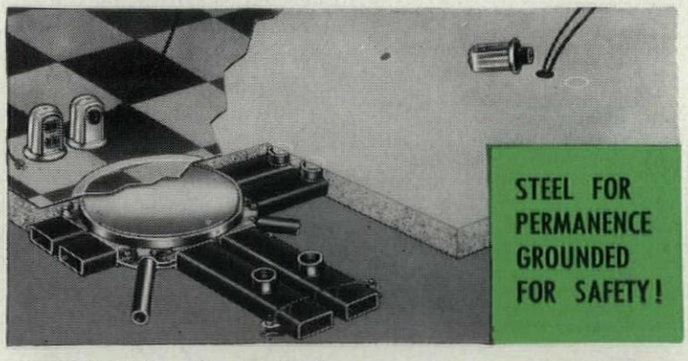
Smartly modern service fittings (brass or aluminum) for all types of electrical requirements. Installed wherever needed without interruption of office routine.

✓Advantages for the ARCHITECT and ENGINEER

A simplified single-, double-, or triple-duct system that fits any floor construction.

Outlets with a wide radius sweep for easy pulling of large telephone cables.

Reduces cost of electrical extensions and maintenance through easy accessibility of all electric services in one junction through a common handhole opening.

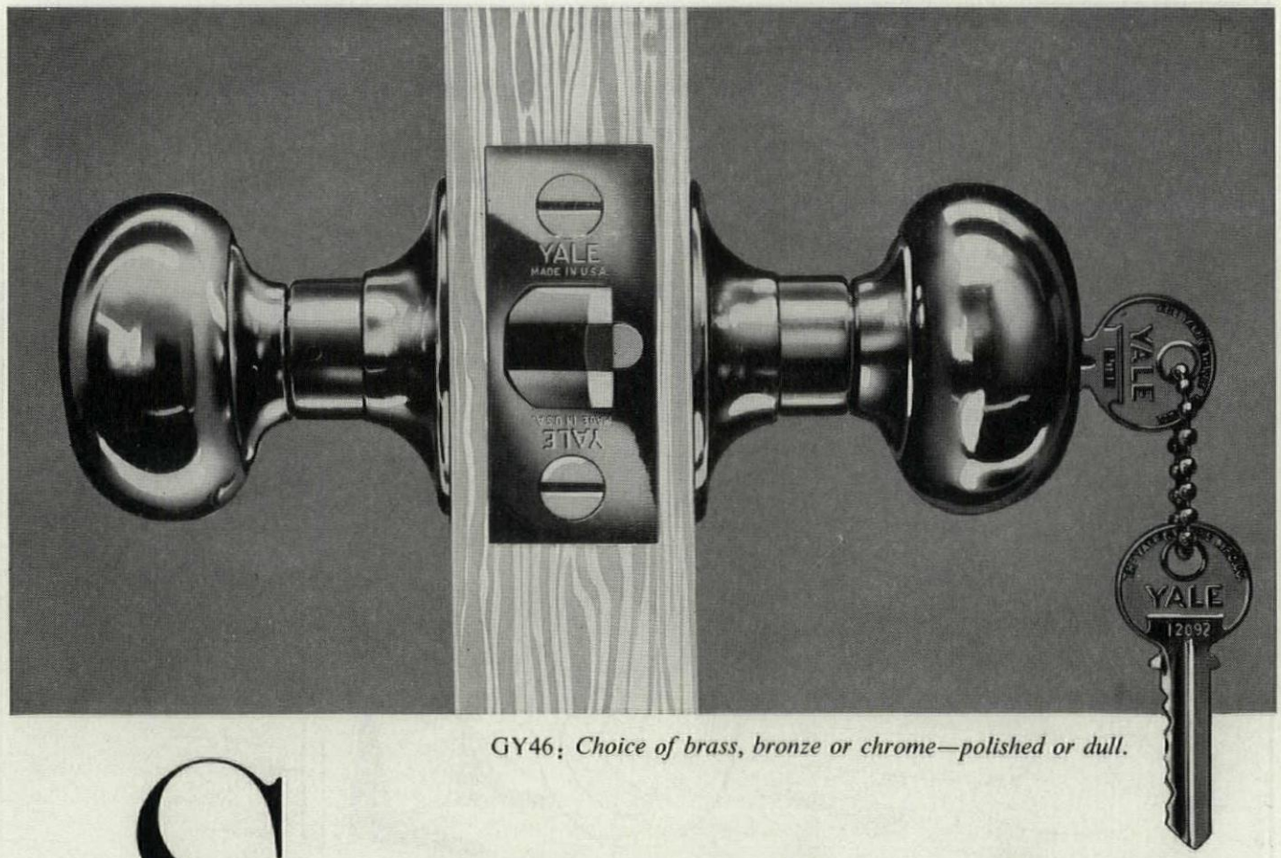


NEPCODUCT—the standard system of convenience outlets in the floor—an electrical system installed by *electrical* tradesmen.

Everything in Wiring points to

WRITE FOR THE NEW
Nepcoduct Catalog

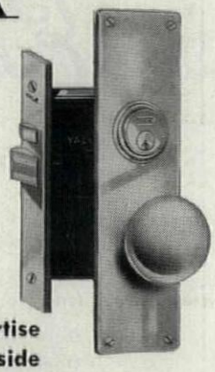
National Electric
PRODUCTS CORPORATION
1334 Chamber of Commerce Building, Pittsburgh 19, Pa.



GY46: *Choice of brass, bronze or chrome—polished or dull.*

Smartest Lock

IN ITS CLASS!



YALE's mortise lock for inside school doors.
Also equipped with auxiliary deadlocking latch.

For schoolrooms, specify the quick-assembling, good-looking YALE Heavy-Duty Tubular Lock

Add up all the time saved in installation . . . count in its traditional YALE security . . . and you'll find YALE's Heavy-Duty Tubular Locks getting the highest marks for classroom locks.

GY46 (shown here) is recommended for classroom doors. Key locks and unlocks outside knob; inside knob operates bolt at all times. Small auxiliary latch deadlocks the latchbolt so it cannot be pried back when door is closed.

YALE Heavy-Duty Tubular Lock is packaged in four units, for quick four-step assembly. No full-mortising, only two holes to bore. Assembles in 30 seconds. A big time-saver in school building! THE YALE & TOWNE MANUFACTURING COMPANY, Stamford, Connecticut, U. S. A.

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Sign of a Well-Built School

"When that landlady said there was no shower in these old fashioned bourding houses . . . . She forgot that - -

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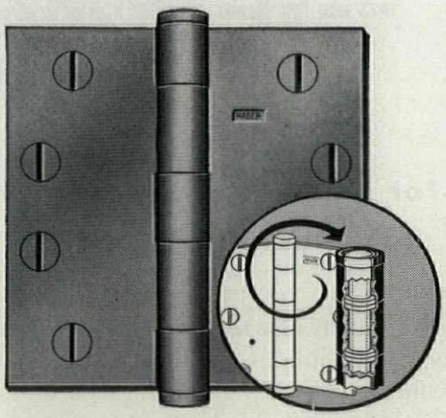
Everything Hinges on Hager!"

BRASS BEAUTY *and* STEEL STRENGTH!

Hager combines the glistening elegance of luxurious solid brass with the timeless strength of steel (at the critical point of knuckle joint wear) to reinforce permanent beauty with *long life performance!*

Door weight swings on case-hardened, cadmium plated steel bushings, extending the *full length* of each knuckle. These hardened steel bushings—*steel-against-steel*—actually support door weight . . . leave brass knuckles free from errosive joint wear and friction. Beveled leaves insure close-fitting joints. Trim, square outer edges are firmly milled sharp and clean. Steel Pin with Brass Tip.

Specify Hager Solid Brass Steel-Bushed Butts for average frequency residence doors calling for finest service and enduring beauty.



HAGER 1193 FBT
BRASS BUTTON TIP BUTT, STEEL BUSHED
Solid Brass Rust-Resisting Beauty
Hardened Steel-Bushed Knuckle Strength

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VL and NHC Series

LEADER VL-440 SPECIFICATIONS

Housing, channel and deep drawn end caps of 20 gauge steel, finished in white, high-gloss baked enamel. Extruded tubular side panels and moulded one-piece louver is of glowing white plastic that is warp-proof, colorfast, and destaticized. Louver swings down for easy servicing. Choice of 31° or 45° shielding. May be used as single units or in continuous runs—suspended or ceiling mounted. VL Series uses 2, 3 or 4 40-watt 48" T-12 lamps. Wired units include UL and ETL approved sockets, type FS easily replaceable starters and two high p.f. 2-lamp ballasts. Conventional 110-125 volts, 60 cycle A.C. Other voltages on request. NHC Series available for use with Slimline tubes and for 120, 200, 300 or 425 milliampere operation in lengths from 48" to 96".

You'll find this attractive fixture installed in the most tastefully decorated offices, stores and office buildings. The "Officer" not only adds to any decorative effect, but helps sell goods and services through appealing highlighting of floors, furniture and display sales material. The LEADER "Officer" is rich in construction, too. For example, it is provided with the famous LEADER one-piece louver of destaticized plastic . . . a louver with a multitude of small, rigid apertures—made possible by one-piece molding—to provide excellent shielding and soft, gracious light-diffusion.

Sold and installed only by the better electrical wholesalers and contractors

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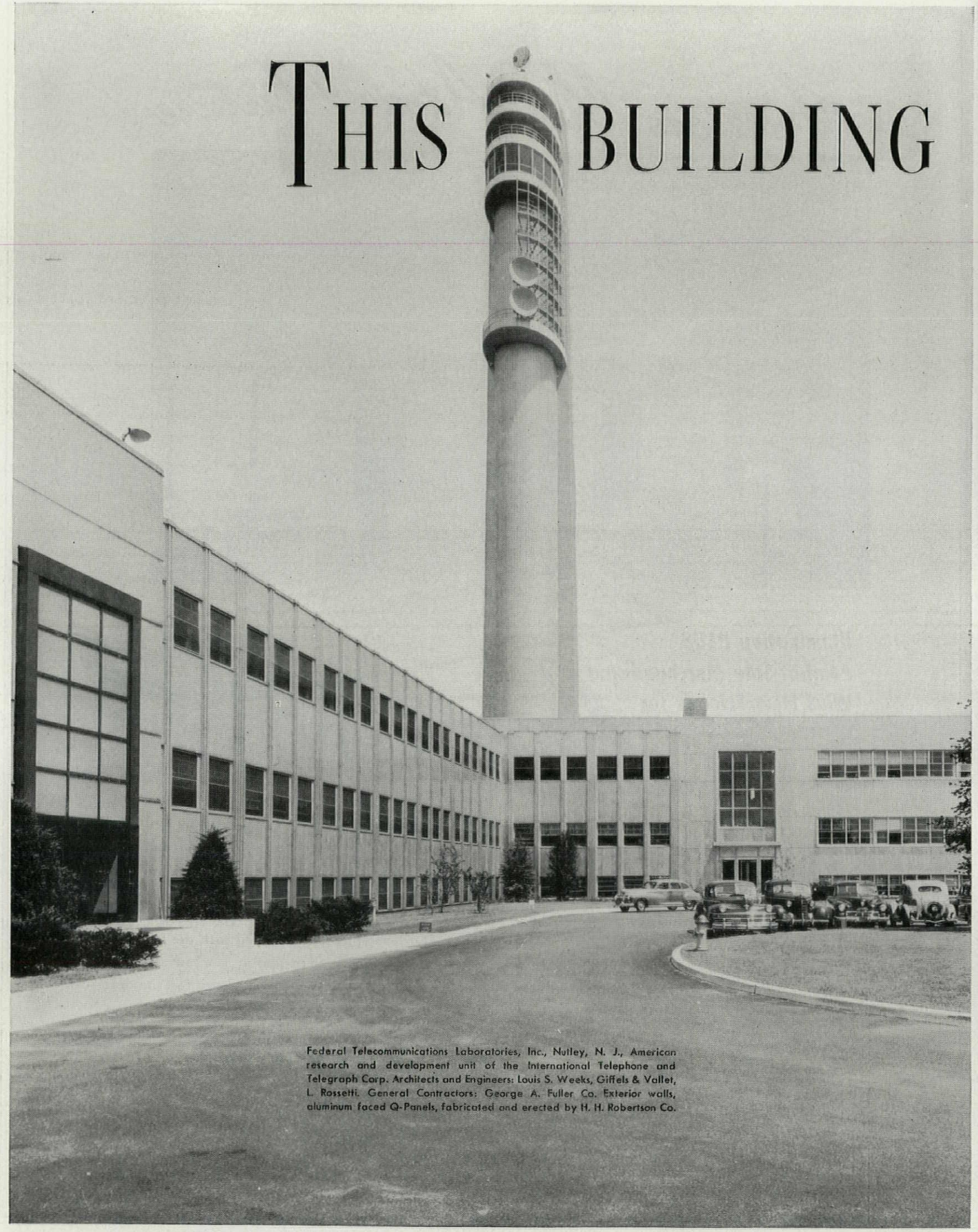
THIS BUILDING



Federal Telecommunications Laboratories, Inc., Nutley, N. J., American research and development unit of the International Telephone and Telegraph Corp. Architects and Engineers: Louis S. Weeks, Giffels & Vallet, L. Rossetti. General Contractors: George A. Fuller Co. Exterior walls, aluminum faced Q-Panels, fabricated and erected by H. H. Robertson Co.

POINTED THE WAY . . .

Since the first units of this communications laboratory were erected in 1945, performance has been watched closely. This was among the first of the parade of postwar, aluminum-clad buildings—industrial, commercial and residential. In each, aluminum was used because it contributed either to lower cost, speedier construction or more efficient operation.

Here aluminum-faced insulated wall panels have equaled or exceeded expectations; have required no maintenance whatsoever.

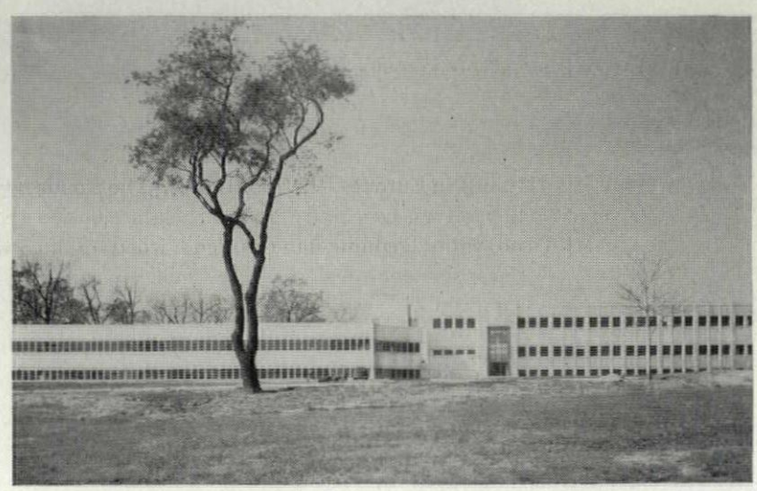
Alcoa engineers have contributed to the planning of every major aluminum-clad building erected in America. Our fund of aluminum knowledge, gained through sixty-two years of research and development, is available to all architects and builders.

For information on any application of aluminum, and for a forward look at aluminum's place in building's future, ask to see the book or film, "The Davenport Story". Call your near-by Alcoa Sales Office, or write ALUMINUM COMPANY OF AMERICA, 1887E Gulf Building, Pittsburgh 19, Pennsylvania.

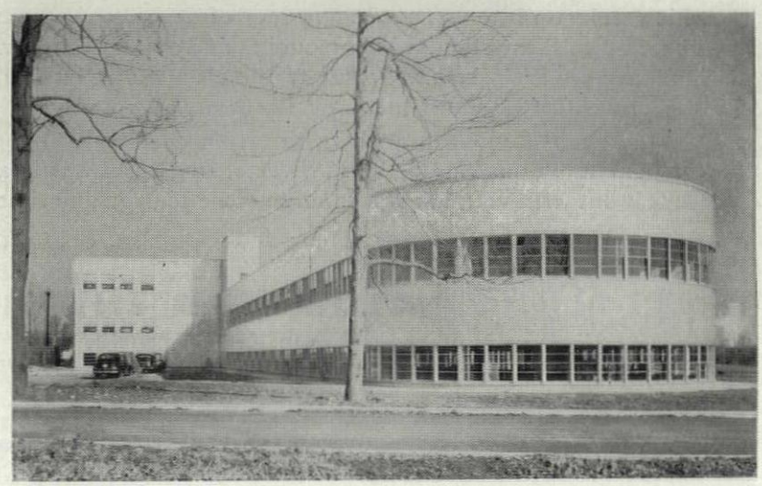
ALCOA

FIRST IN ALUMINUM

Addition of a wing required removal of panels at north end of one building. Microscopic examination of uncovered area revealed no evidence of air or moisture infiltration after three years.



Insulation factor of walls has equaled that of masonry of much greater thickness and cost. According to owners, greatest advantage is low maintenance. None required since erection.



REPORT FROM SPAIN AND PORTUGAL by G. E. Kidder Smith

The first in a FORUM *series of architectural impressions of European and North African countries, this is a report from Architect-Author-Photographer G. E. Kidder Smith, who is visiting these countries (with the aid of a President's Fellowship from Brown University) to study and photograph their native and contemporary architecture. The reporter is well qualified and his work is well known to* FORUM *readers. He is the author-photographer of* Brazil Builds (FORUM, *Apr. '43) and* Switzerland Builds (FORUM, *Mar. '50) and a forthcoming book on Swedish building. Until he left for Africa and Europe last fall, he was a design critic at Yale's School of Architecture.*

Kidder Smith's report on Spain and Portugal is supplemented (on page 130) by a detailed presentation of Spain's most outstanding contemporary building—the Madrid Hippodrome by Engineer Eduardo Torroja.

With one brilliant exception, which will be discussed later, the architectural visitor to the Iberian Peninsula is not apt to find much modern work of interest.

The "official position" on architecture of both Spain and Portugal is apparently directed at a fumbling neo-nationalism, although neither appears to have assured itself that it has any answer to this unanswerable architectural *pons asinorum*. In Spain, especially, this rigid formalism finds favor, and the modern architect is esthetically hamstrung. Moldings, for instance, from ancient Rome are even found on the new hangar at the Madrid airport, and the still incomplete Ministry of Air building was designed by an architect obviously scared by Philip II's 16th Century Escorial.

This architectural atavism is particularly inexplicable in countries which have a sun as intense as that which bakes Spain and Portugal in summer. Thus far, no even quasi-scientific measures have been taken to control the sun's rays. An hereditary reliance upon thick masonry walls and small windows is scarcely feasible in today's large schools, skyscrapers and public buildings. Brazil, Portugal's precocious daughter, gave the world its first large-scale use of *bris-soleil*, yet there is no copy of *Brazil Builds* in even the School of Architecture in Lisbon, and certainly no visible Brazilian influence on the architecture itself.

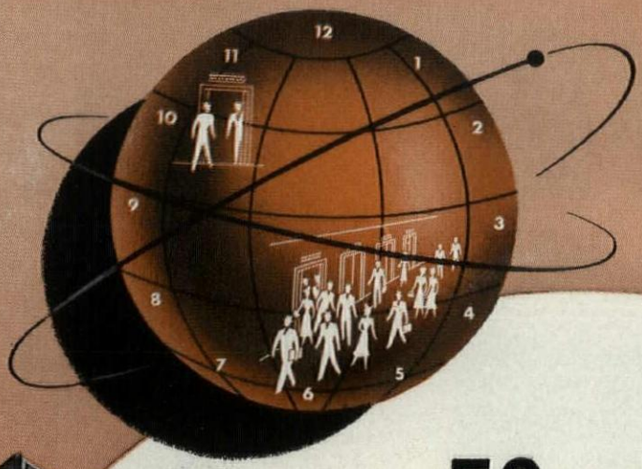
There is, however, the really brilliant and elegant exception mentioned above and this is the roof of the grandstand of the Madrid *hippodromo*, or race track—a veritable ballet

Eduardo Torroja's Hippodrome.

of egg-shell concrete butterflies. This hippodrome is unquestionably among the finest things in Europe—the roof that is. The stands themselves, especially on the back, are cozied up with "genuine-hand-carved" wood of an unfortunate order. In the roof, however, Eduardo Torroja, the engineer, has produced one of today's most elegant conceptions.

Torroja, whom Frank Lloyd Wright has commended to the attention of U. S. architects as having "expressed the principles of organic

(Continued on page 78)



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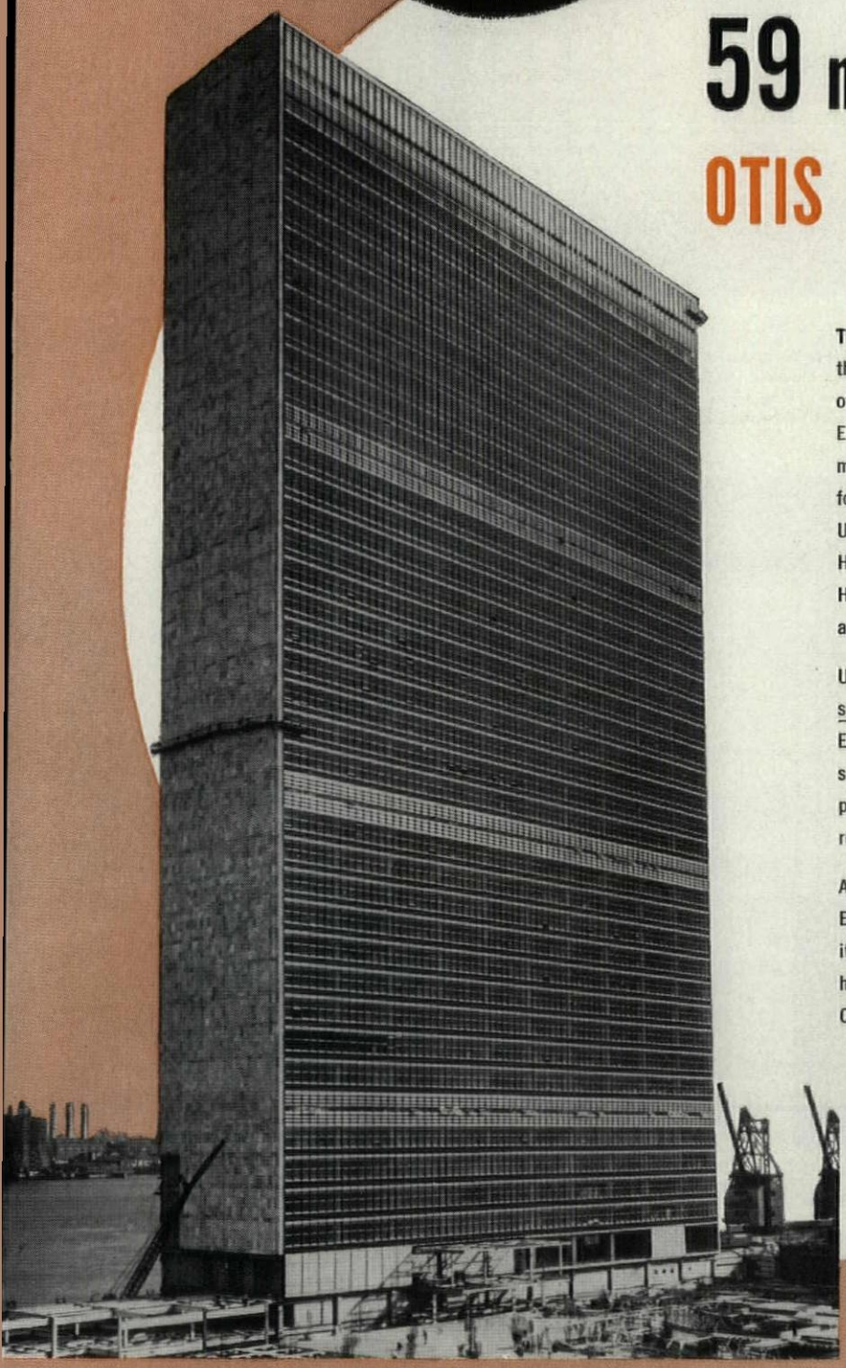

Secretariat Building **UNITED NATIONS** New York City

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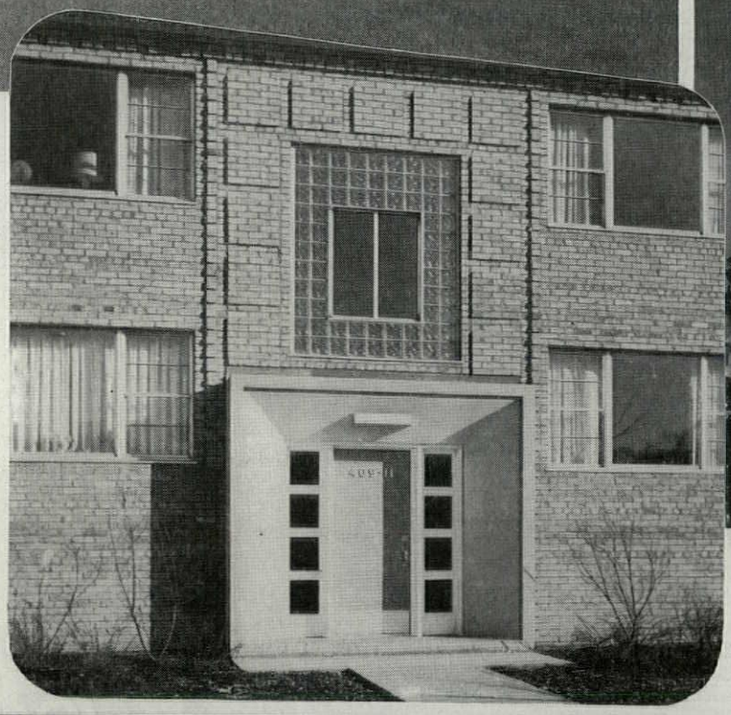
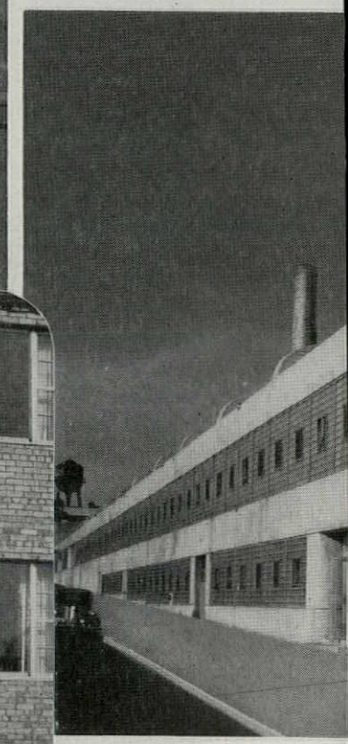
MAKE THE MOST

AT THE CARLE PLACE SCHOOL, Carle Place, New York, Architects Knappe & Johnson of New York City, used PC Soft-Lite* Prism B Glass Blocks on sun exposures to assure adequate and softly diffused daylight for classroom seeing tasks. To "share the light" between classrooms and corridors, interior panels of decorative PC Glass Blocks were used.





IN ANY TYPE of building, there is a place for PC Glass Blocks. They are adaptable to all styles of architecture. Here is an interesting use of decorative PC Glass Blocks in The Homestead Gardens apartments, LaGrange, Illinois. PC Glass Blocks admit plenty of daylight, make buildings more cheerful, offer improved insulating value, are easy to clean, cut maintenance costs, assure privacy. Architects: Howard T. Fisher & Associates, Inc., Chicago.

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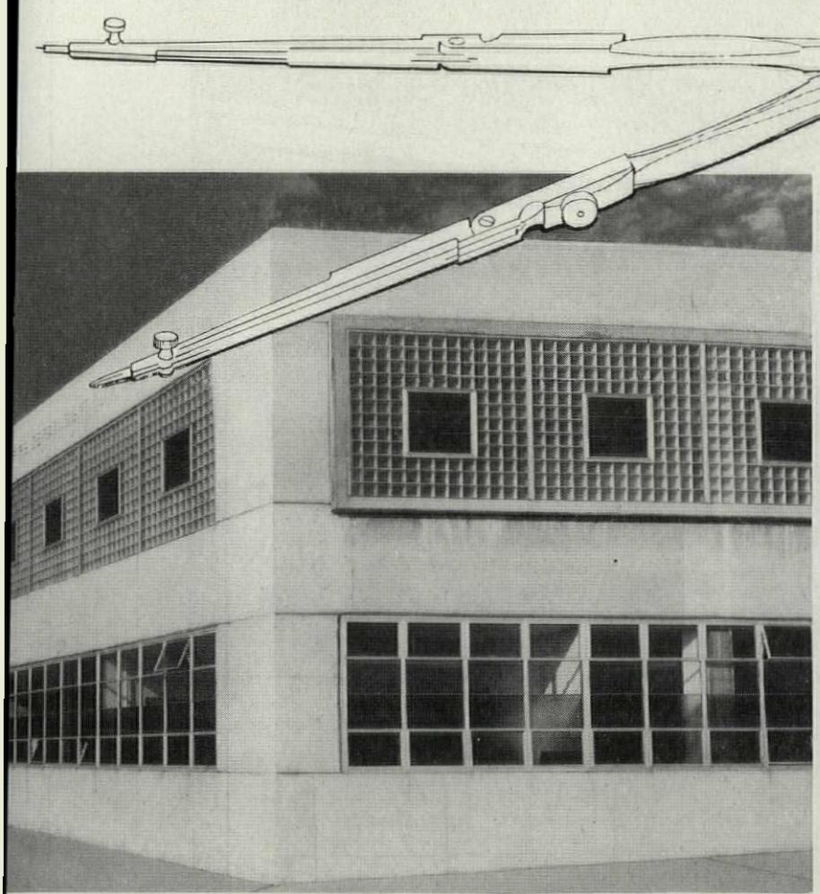

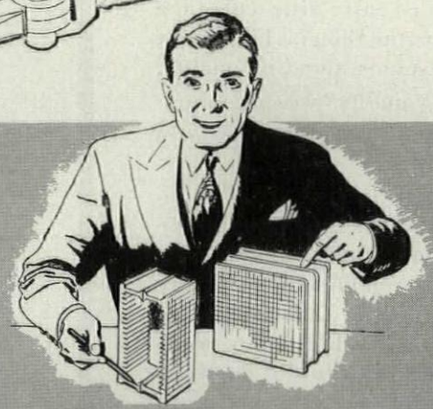

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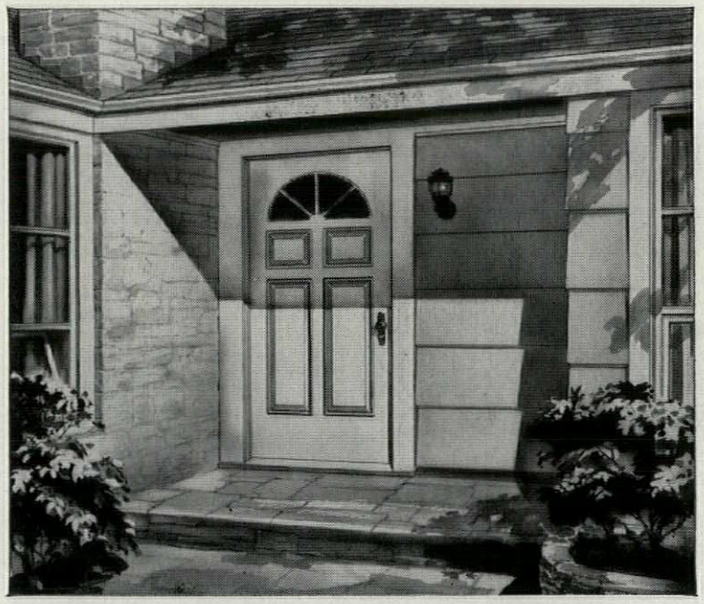

Design No. 2020, shown here, is one of the most popular Tru-Fit entrance doors used by modern home builders.

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REPORT ON:

J&L JUNIOR BEAMS

J&L STEEL

Left—Workman easily guides notched Junior Beam into place during construction of Horace Mann School.

Below—Completed school showing clean functional design and unique cantilever construction.

Remarks: **J&L STEEL JUNIOR BEAMS solve unique design problem *AT LOW COST***

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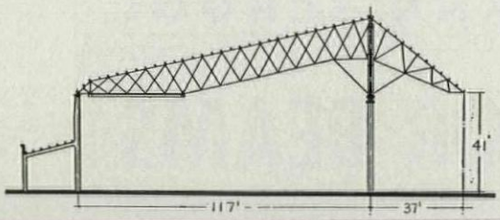
Eduardo Torroja's market building in Algeciras (left) and his Madrid airport hangar (below and right).



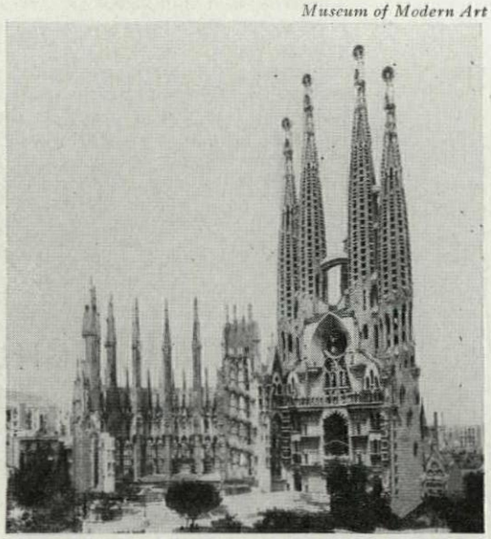
construction better than any engineer I know" (FORUM, July '49) has also done several other buildings of note. One is a market built about 15 years ago in Algeciras, opposite Gibraltar. This concrete bubble, illustrated at the right (and FORUM, Dec. '49, p. 105), is beautiful in conception and construction but is somewhat spoiled by "decorative details" around the entrances. Torroja's latest work is the still unfinished hangar at the Madrid airport (the one with the molding) where, as in the above two examples, the interest is primarily in the unusual roof structure.

The last building worthy of special mention, is Antonio Gaudi's fantastic Sacred Family Church in Barcelona. This was begun before *World War I* and, however assessed this extraordinary "tooth paste" creation might be in the definitive history of 20th Century Architecture, it is certainly worth a great effort to see. Gaudi, who died in 1926, was one of the most imaginative architects of all time, and whether we like his *Sagrada Familia* or not, it can certainly shake us from much of the school tie architecture we all now produce.

The other Spanish and Portuguese architecture is of a more prosaic mold. What other modern work there is will be found in nonpretentious buildings such as market halls, industrial buildings and a few clean little bridges. Both countries are busy with new housing projects, but both again cling to an

(Continued on page 84)

Museum of Modern Art



Antonio Gaudi's church (unfinished).

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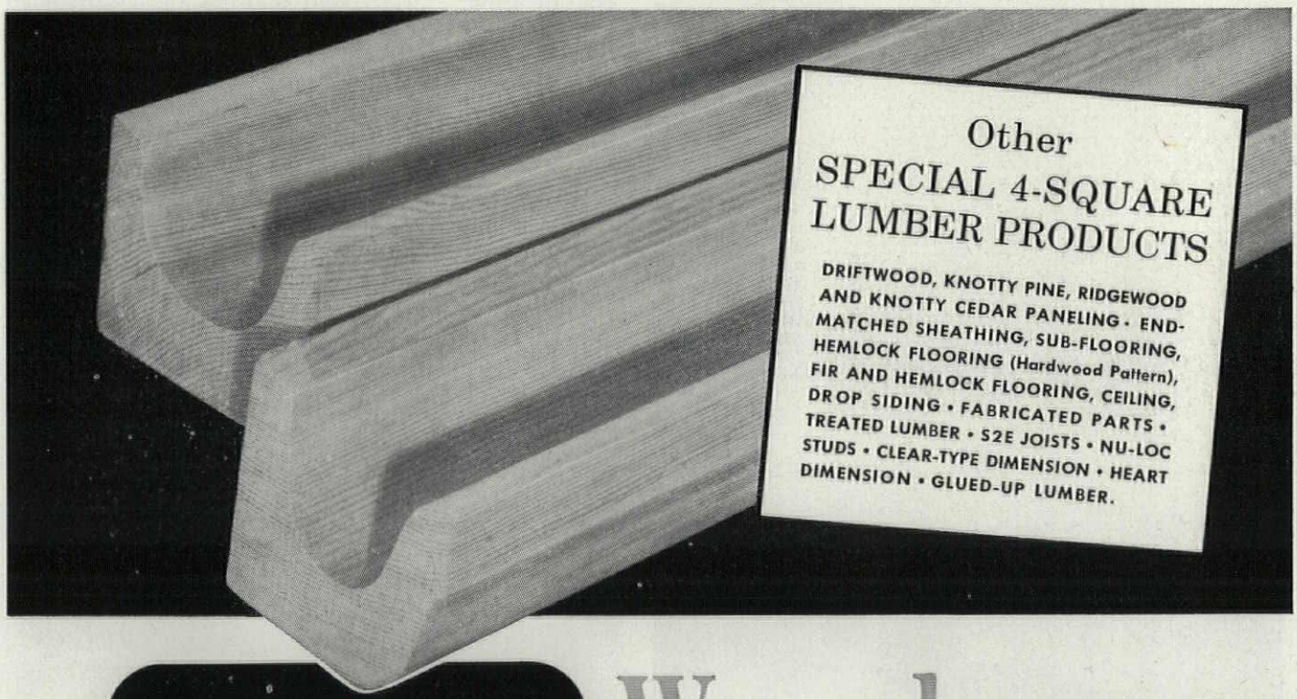

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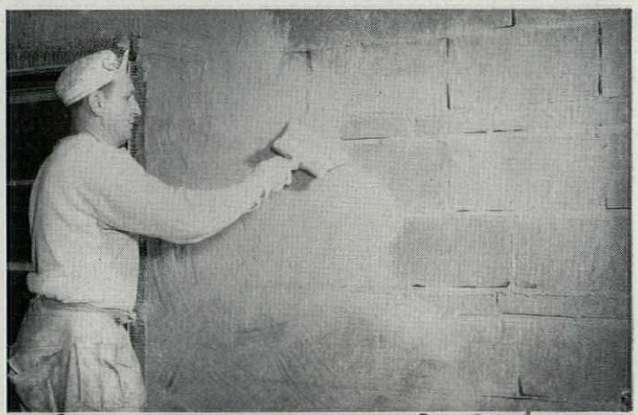

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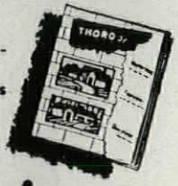

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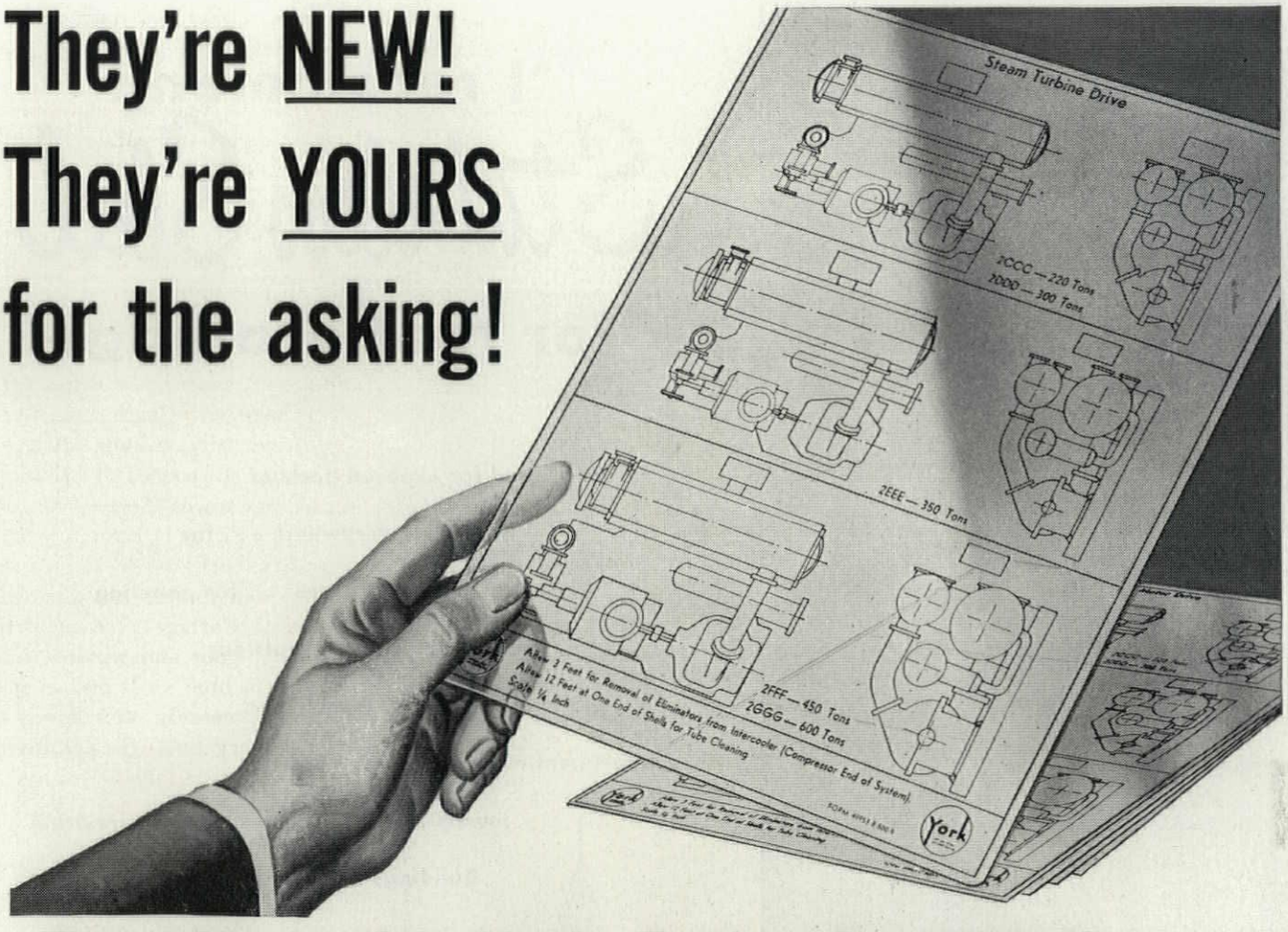

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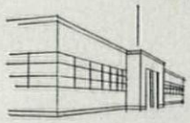

entrances . . . for paneling entire outside walls . . . for hotel, theatre and apartment marquees . . . on famous

towers like the Chrysler and Empire State Buildings . . . so, I know stainless steel is the natural material for exposed roof drainage systems, too."

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include Snaptite Eaves Trough; "K" Gutter; Plain Round, Corrugated Round and Corrugated Square Conductor Pipe; Ridge Roll; Flashing; Roll Valley; plus a complete line of all necessary fittings. All are made of 28-gauge Republic ENDURO Stainless Steel, type 301, No. 2 Satin Finish.

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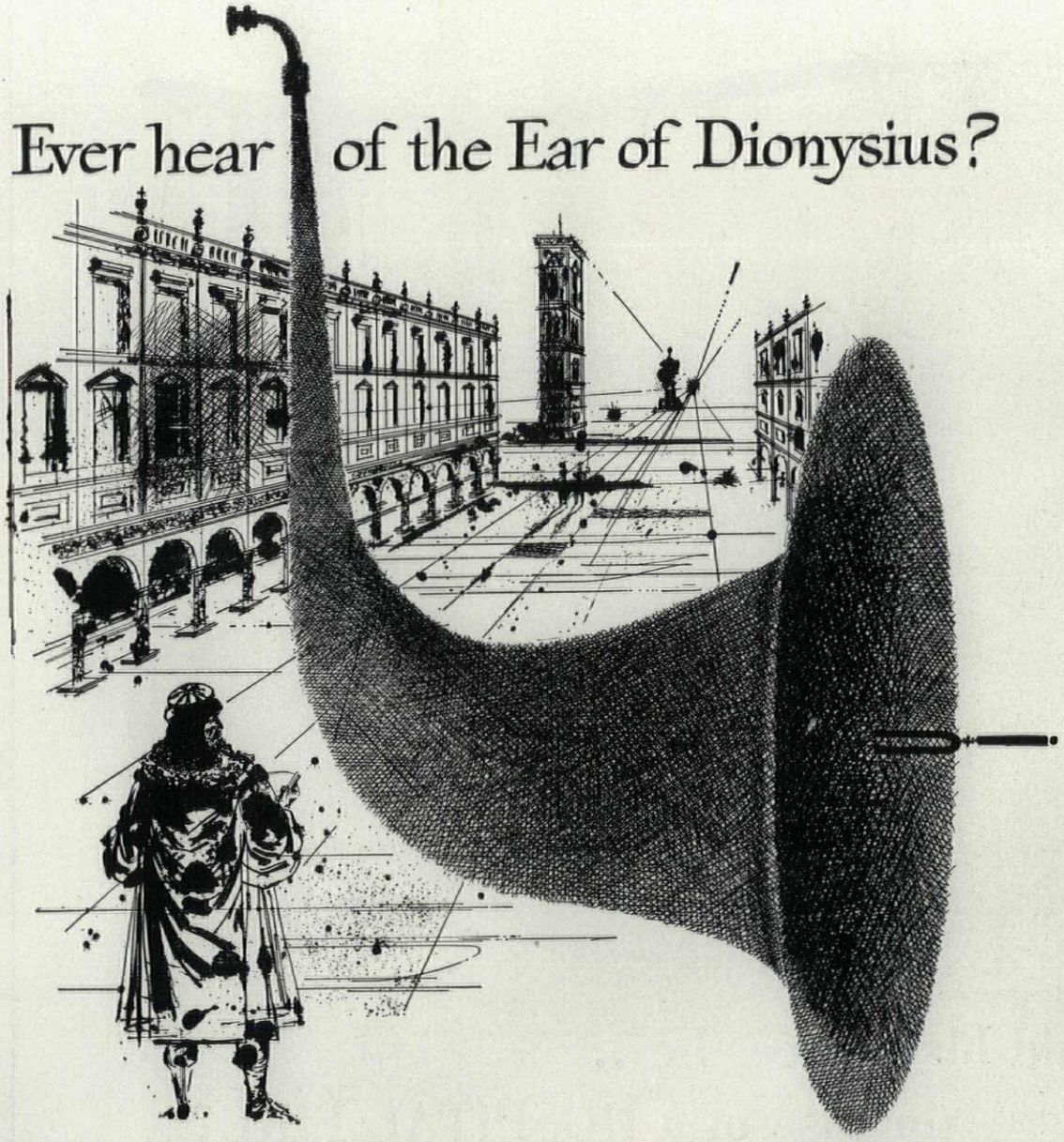
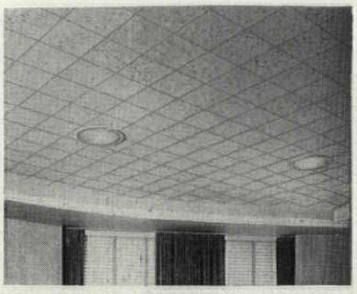


LEONARDO da Vinci designed it for the Duke of Milan, named it after the Tyrant of Syracuse. It was a listening tube that permitted the duke, sitting in his chambers, to pick up whispered conversations from a distant hall.

One example of "sound control"! But today we are concerned with sound control that results in greater quiet, better work, happier living; and architects depend upon the USG materials and methods described at right.

From U.S.G.: Materials and Methods to Solve Any Sound Control Problem

Sound Control Within Rooms



ACOUSTONE* Mineral Acoustical Tile—high sound absorption, fire resistance with beautiful fissured texture resembling Travertine marble.

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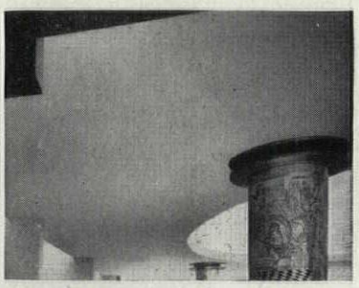
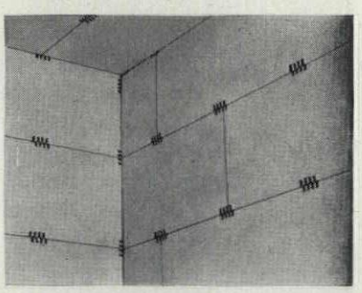


SABINITE* Acoustical Plaster—for continuous trowel surface permitting effective sound control with any architectural design. Incombustible, may be applied by any competent plasterer over most existing surfaces. Natural colors—or can be painted.

Sound Control, Room to Room



Resilient Clip System floats plastered wall free of basic construction, sharply cuts down transmission of sound from room to room (and also results in increased resistance to cracks due to normal frame movement). May be used with wood, steel or masonry.

For further information, see Sweet's Catalog—or call in your U.S.G. representative.

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in case of a HOSPITAL FIRE?

In case of fire, his chances might not be too good in many hospitals today.

Each day there are *three* fires of record in hospitals and institutions, and in those where fatalities occur an average of *five* lives are lost per fire! Isn't this proof positive that many trusted precautions are not adequate protection at all?

Unfortunately, too many people responsible for protection rely completely upon the elimination of ordinary fire hazards, important as this is. All too many more depend upon "fireproof" construction. Two facts show this to be false confidence: "Carelessness with matches and in smoking" continues to be the greatest cause of fires . . . and so-called "fireproof" buildings continue to become furnaces for flammable contents.

What most people ignore is that, regardless of the cause of fire, regardless of the building construction, it is the *proper control of fire from the first spark that constitutes full and adequate protection against fire.*

Needless loss of life and property can be prevented by checking fire at its source, whenever and wherever it starts, night or day, automatically, with a Grinnell Automatic Sprinkler System. Seventy years experience shows that practically 100% of fires starting in buildings protected by Grinnell Automatic Sprinkler Systems are extinguished before doing material damage. Fire experts will tell you that your best protection against fire in any building is automatic sprinklers.

SEE THAT GRINNELL SPRINKLER HEADS ARE ON GUARD

In hospitals, as well as in schools, hotels, theaters and factories, there is a moral obligation upon management for the utmost in protection of life and property. For your own sake be sure the hospitals, the hotels, the plants, and the schools for which you are responsible are protected with the famous Grinnell Automatic Sprinkler heads — your assurance of positive, automatic protection against fire. Grinnell Company, Inc., Providence, Rhode Island.

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FIRE PROTECTION SYSTEMS

NORMAN JOHNSON, *Architect*

ANDERSEN *Windowalls*®

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These wood windows invite sunshine and fresh breezes to every meal—and all year long they also function as walls. They are more than windows, more than walls . . . they are WINDOWALLS. The wood of these windows lends beauty and color to both the room and the view, and in sub-zero weather, wood's insulating qualities are an added advantage.

Write for specification data or see Sweet's Architectural and Builders' Catalogs. Sold by millwork dealers.

The new Andersen WINDOWALL *Tracing Detail File will be sent on request to architects and designers at no charge.*

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Residence of William H. Schumacher, Wyncote, Pa. • Architect, Herbert E. Hill

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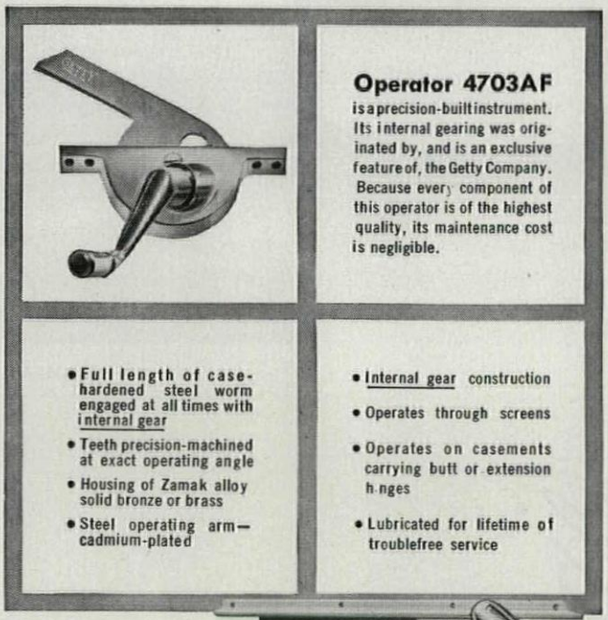

Getty-operated casements grow up without ever seeming to grow old. Through years and years of twists and turns, they continuously render troublefree, faithful service—starting as quickly, moving as gracefully, stopping as suddenly and as securely as the day they were installed. Their original cost is reduced to a negligible minimum over their lifetime span of service.

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Write for our descriptive brochure F. It contains complete information on our three operators (internal gear, external gear, horizontal drive) and our specialty hardware for every type of *wood* and *metal* casement.

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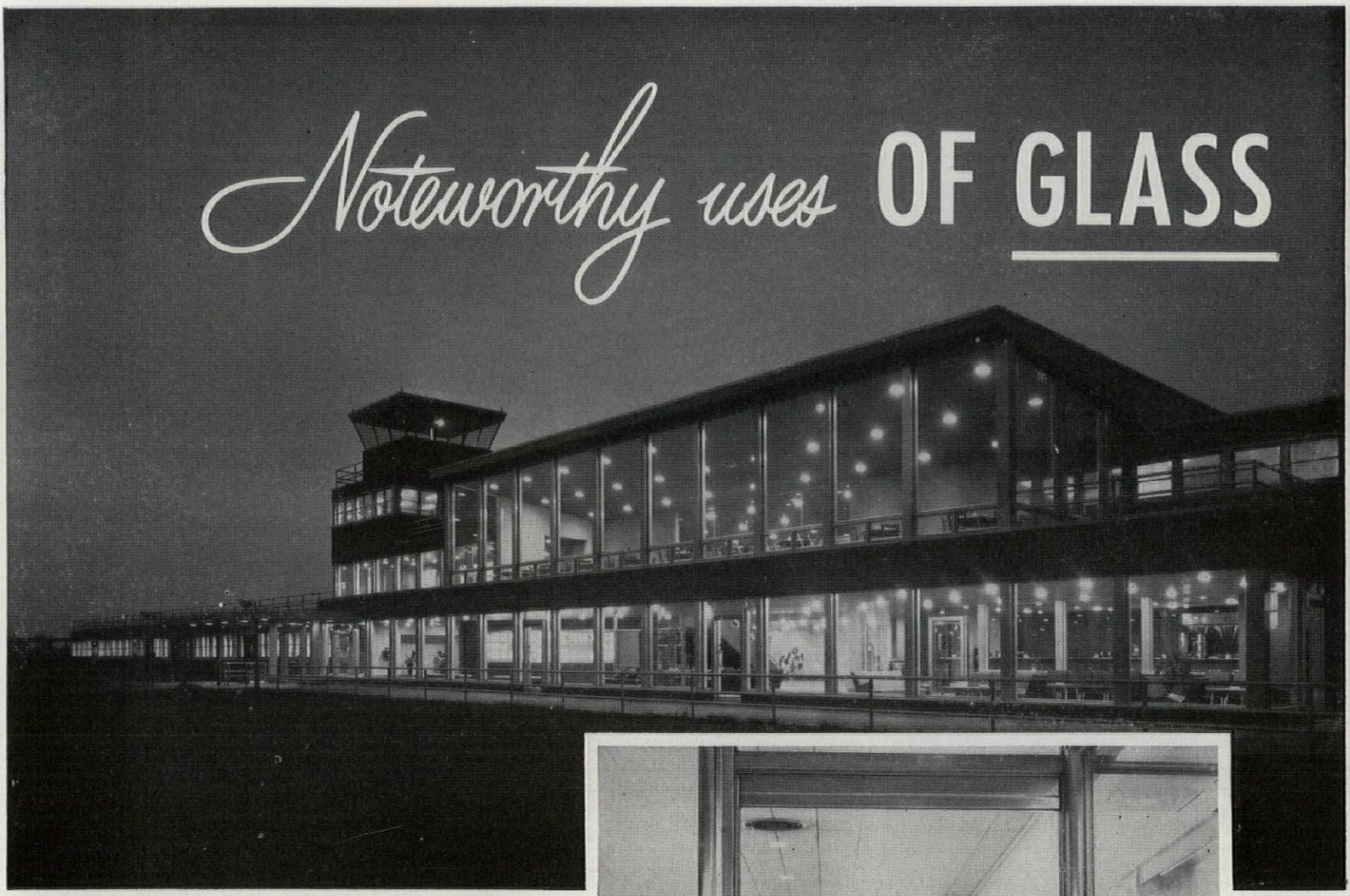
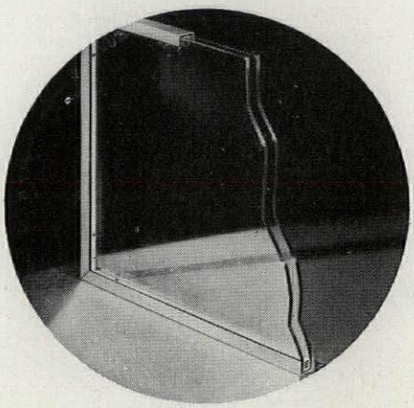
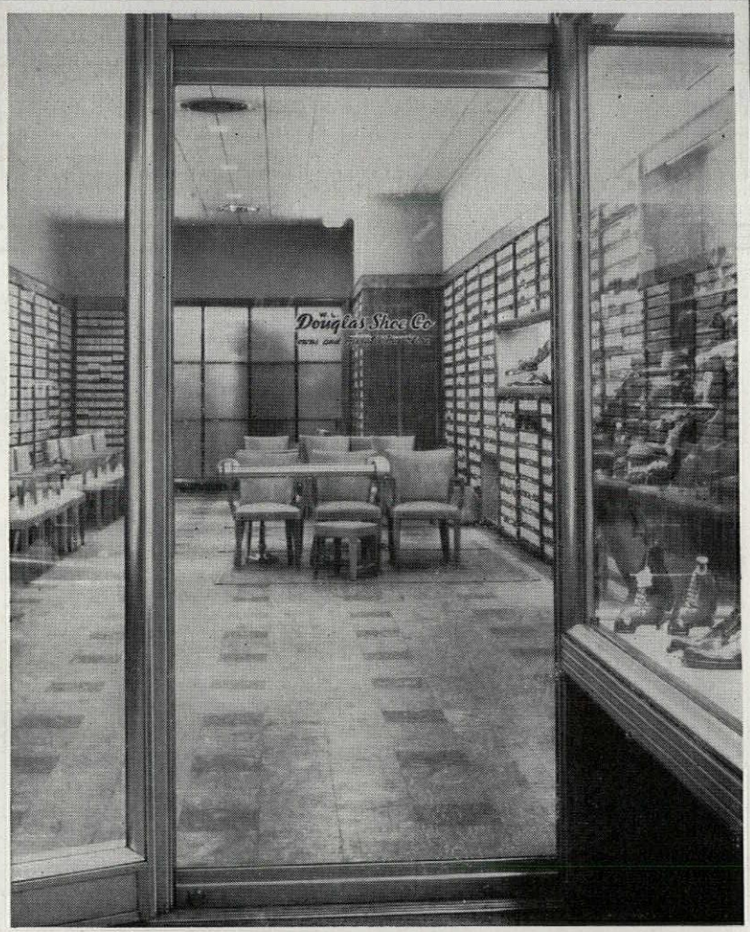
Noteworthy uses OF GLASS



1 **THIS VIEW** of the new terminal building at the South Bend, Indiana, airport, presents a spectacular scene—by day as well as at night. The whole effect is heightened by the use of more than 125 Twindow units which glaze almost the entire area of this side of the building. The built-in insulation of Twindow adds to the comfort and convenience of the patrons by eliminating cold downdrafts at windows. Besides, Twindow units afford a clear view of the airport activities. Architect: Roy A. Worden, South Bend, Ind.; Associate Architect: Vincent Fagan, South Bend, Ind.; Consulting Architect: Frank Montana, Detroit, Mich.

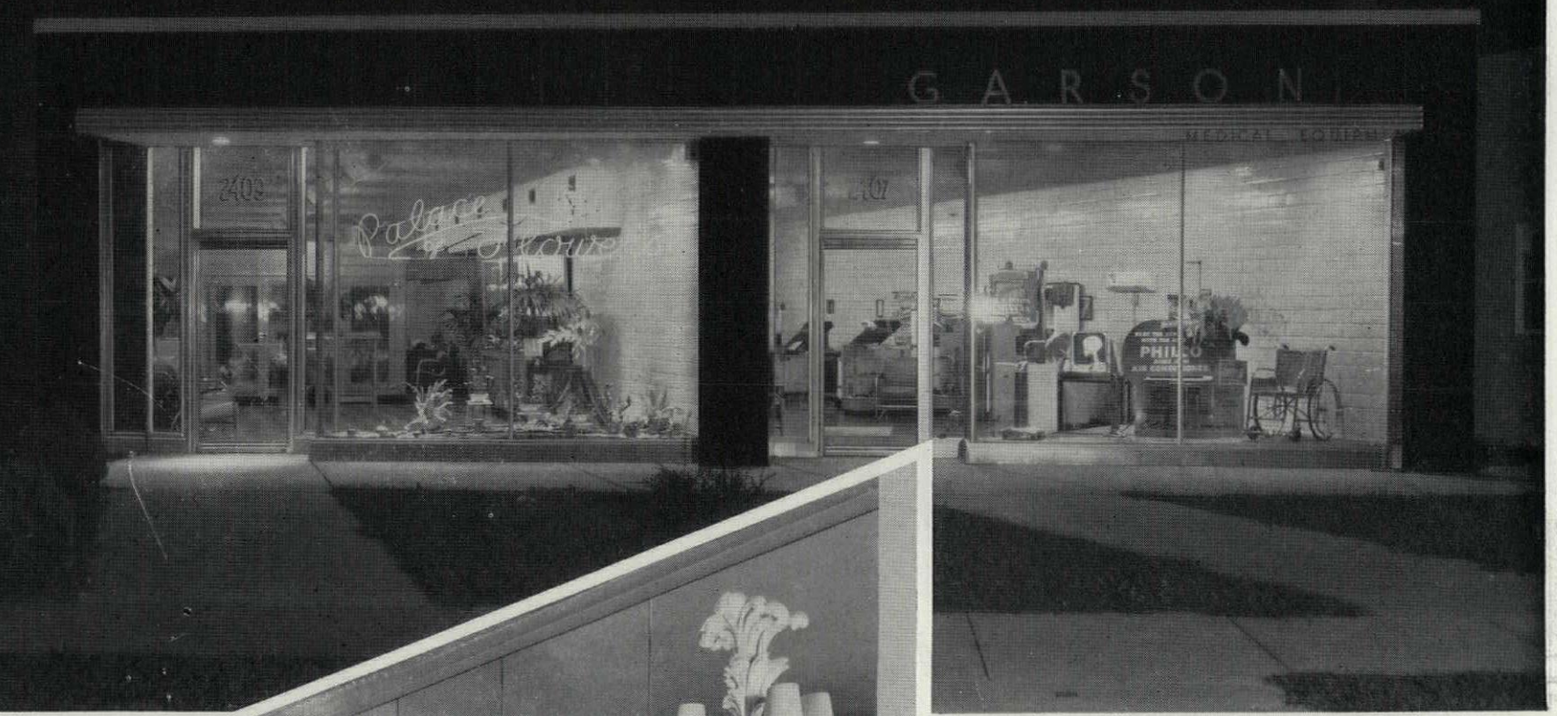


CUTAWAY shows the construction of a Twindow unit, with two panes of Pittsburgh Polished Plate Glass. The hermetically-sealed air space between the panes provides effective insulation which minimizes downdrafts, cuts heat losses through windows, reduces condensation. When three or more panes are used, insulation is even more efficient. Forty-five standard picture window sizes are available, adaptable either for wood or steel sash.



2 **PITTSBURGH DOORWAYS** cut corners for architects. They eliminate time-consuming calculations. There is no setting or fitting to worry about. From the twelve standard and four free-standing designs, you select the one for your job, simply by specifying the number and size needed. The frame reaches the job complete and ready for bolting into the building opening—in one "package." The massive Herculite Doors are then hung, and the work is done. Architect: Horace Coy, Toledo, Ohio.

IN CURRENT DESIGN



3 **GLASS HAS TRULY HELPED** to open new vistas in store front design. With large panels of Pittsburgh Plate Glass, architects have given merchants the greater benefits that come from "open vision." For this makes the entire interior a gigantic display, presenting the merchandise to the best possible advantage. In this group of two stores, Carrara Structural Glass, Herculite Doors, Pittsburgh Plate Glass and Pittco Store Front Metal were combined to create structures of immediate appeal and distinction. Architect: Myrle E. Smith, South Bend, Ind.

4 **HERE'S AN ELEGANT** and dramatic setting in the reception room of the New York beauty salon of Michael-of-the-Waldorf. Along with other striking features are the walls of multi-paneled, beveled Pittsburgh Mirrors which pick up and reflect all the beauty, brilliance and subtlety of the furnishings and illumination. Designers: Earnshaw, Inc., New York and Philadelphia.

DESIGN IT BETTER WITH— *Pittsburgh Glass*

Your Sweet's Catalog File contais a complete listing and descriptions of Pittsburgh Plate Glass Company products.

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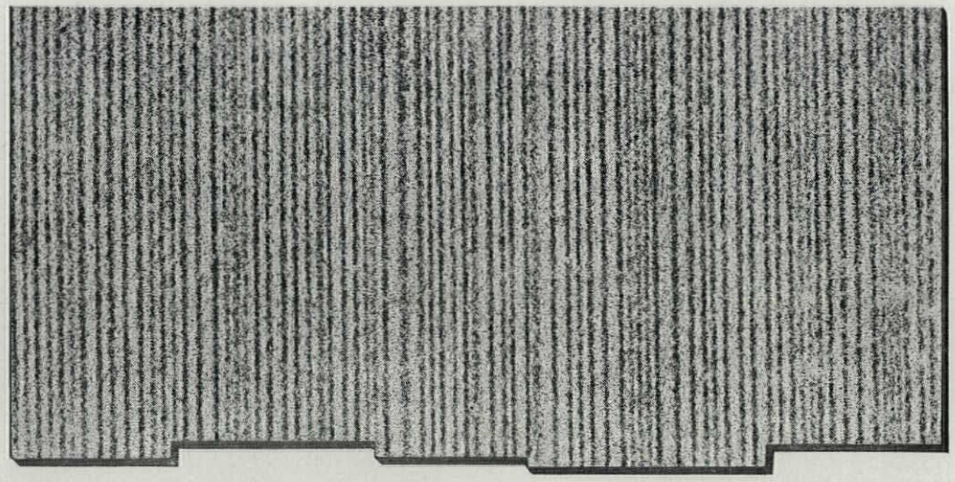
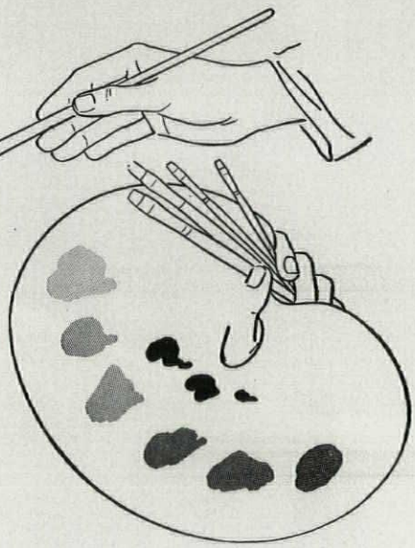


Colorful $IDING $TORY



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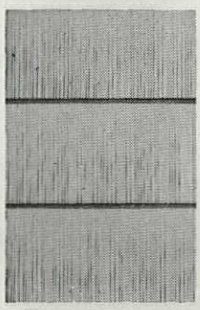
STRAIGHT-EDGE TAPERTEX	WAVELINE WOODGRAIN
	

These two patterns are among the most popular stand-bys in the Flintkote line. Available in White, Super-White and Silver Gray. Specifications for both: Pieces per Square, 57; Approximate weight per Square, 185 lbs.; Exposure, 10½" x 24"; Headlap, 1½".

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the extra years of service cost no more!

Gold plate or good design

Why don't more architects' own offices suggest the charm and good taste a client expects of his architect?

Why don't more builders' own offices suggest a smart familiarity with contemporary construction and design?

To be "different," must all roadside restaurants look like Coney Island?

Why should the house surround its patio, instead of the patio enclosing the house?

How will the new ideas for big city store design work in a small town?

Why shouldn't a school for small children have a truly homelike atmosphere?

Why not prefabricate the bathroom?

How good is radiant baseboard heat?

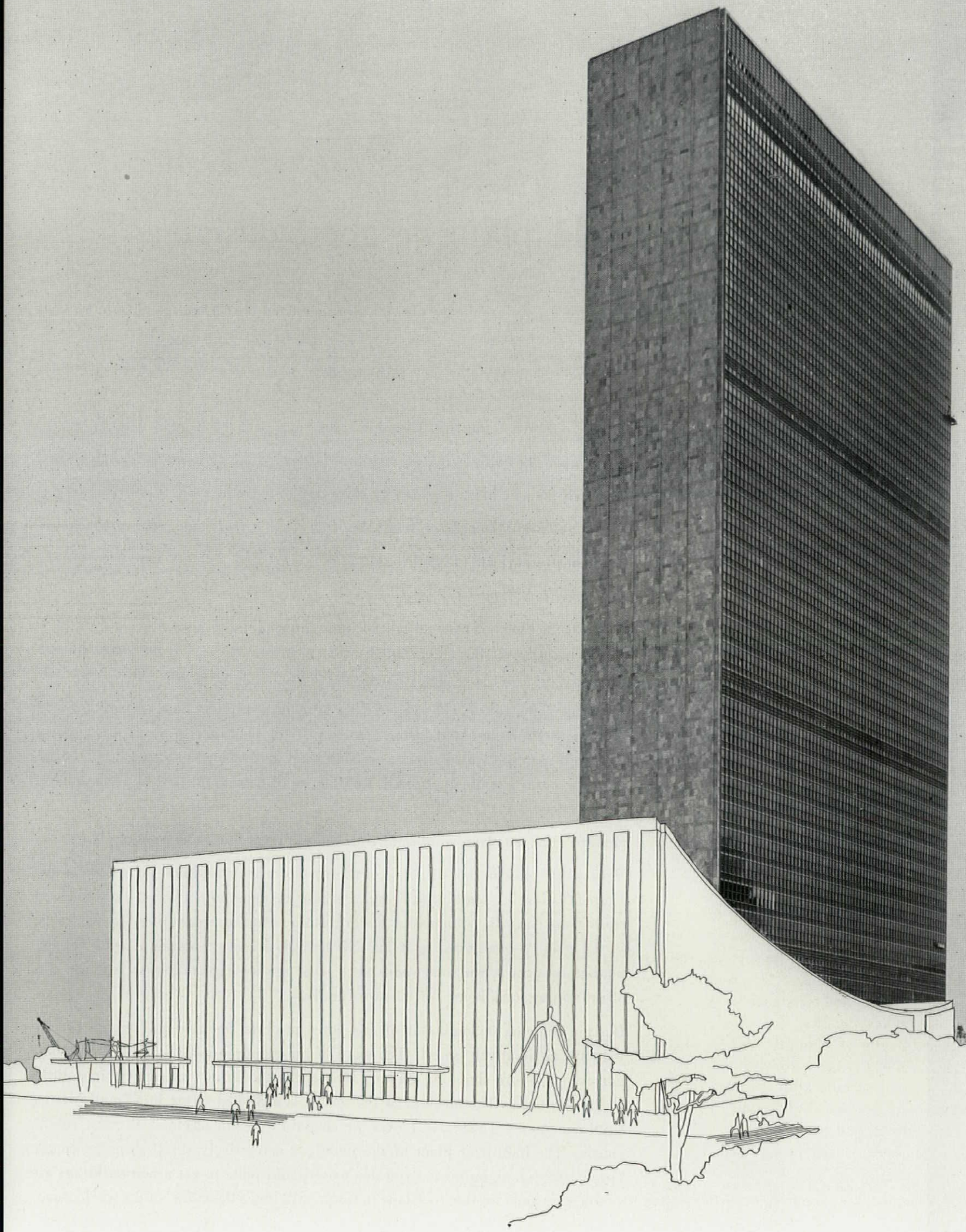
In brief, the time has come to talk of many things, and this issue of the FORUM—wandering all over the map from Florida to Minnesota and from Massachusetts to California—also has itself a wonderful time wandering over building types.

In January, the editors got so stirred up over the apartment house boom that they wrote a whole issue about better apartments. In February they got absorbed in stores; in March it was that most exciting postwar development for Class I building—the curtain wall. In April it was the small house and how to get architects and builders working together on better homes for the average man.

But this issue gets back to normal with 20 buildings in almost as many types.

Perhaps its most important story is the first preview published anywhere of the United Nations' Assembly Building. Perhaps the most important story is the case study from Norfolk, Va. on what Federal slum clearance might mean to every city in the country—and what its price will be unless cost of public housing for the poor is brought down somewhere near what the average taxpayer feels he can afford to pay for a home for his own family.

But the common denominator of the other projects reported this month is that they are all relatively small. The store of the month is not a big city behemoth, nor even a 6-acre shopping center. It is a general store (page 116) in a little California town. The hospital of the month is a 30-bed affair in a small Mississippi community (page 108) over which public health officials are most enthusiastic. The industrial plant of the month is a relatively small shipping center (page 102) whose moral is "you don't need gold plate to get a fine building; all you need is good design."—Come to think of it, that's the moral of the whole issue.



UN GENERAL ASSEMBLY

meets a complex plan problem with the "visual poetry" of an elegant concave shape

UNITED NATIONS HEADQUARTERS PLANNING OFFICE
WALLACE K. HARRISON, Director of Planning
MAX ABRAMOVITZ, Deputy Director

If a canvas tarpaulin is stretched from four corner posts it sags gracefully toward the middle. The same swinging line will characterize the unique roof of the new UN Assembly Building, now being built. And, just as the sides of the tarpaulin curve inward from the corners, so the roof curves inward pulling the sidewalls in with it. Only the end walls are straight.

The fascination of the Assembly Building lies in this sculptural shape. Is it derived from construction? No; for although every imaginative engineer has probed the idea of walling in a miniature Brooklyn Bridge, the problem remains unsolved.* Is it derived from the plan? Only indirectly, as will shortly be explained. The purpose of the shape is not indeed narrowly factual but visual. As may be seen in the drawing opposite, and in the photo of the model overleaf, the Assembly Building is the lowest of the major buildings in the UN group, and yet it is the climax. Eyes are drawn instantly to it by its central position, by the solidity of its unbroken stone walls—and above all by the powerful contrast with the surrounding rectilinear buildings of its sweeping curves. Being concave instead of convex gives the building the fresh impact of "the opposite"—as if an hour-glass dress were to appear in a hoop-skirt society.

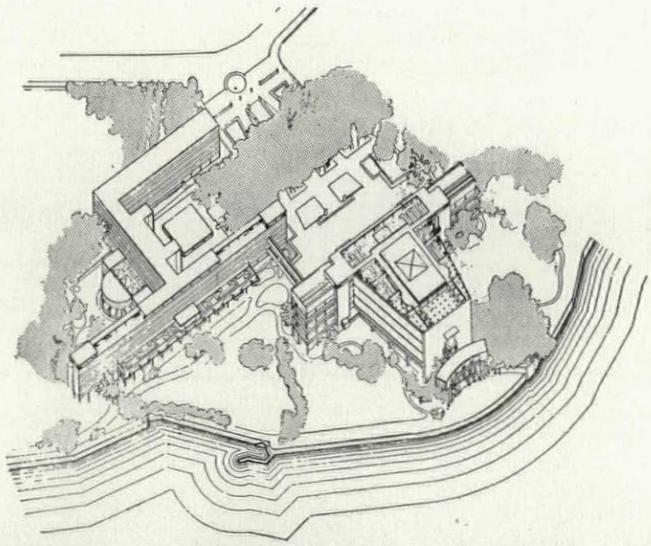
The Assembly Building is therefore a mid-century lesson in architectural poetry, and what thoughtful men will discuss is the allowable degree of poetic license. The Assembly's inner history goes back to Le Corbusier's famed design of 1927, never built, for the old League of Nations in Geneva (drawing, top right). There, too, the feature was to be the great auditorium—jutting toward the Lake. In the spirit of the "new simplicity" of the time, its straight side walls converged toward a straight stage wall whose exterior, facing the lake, served as backdrop for a curved element (again the climax)—the President's Office, surmounted by heroic sculpture.

The UN Assembly plan began with *two* similar auditoriums, facing each other, giving an hour-glass pattern to the plan (middle drawing). Then budgets were cut. The two auditoriums were replaced by one, and that one circular, with a grandstand for press and, beyond that, balconies for the public (bottom drawing). The reasons which had once made functional auditoriums wedge-shaped were no longer compelling. Acoustics, in particular, could now be handled under a diversity of shapes. And this was to be the first world Assembly girdled by press and television booths, making the round shape essential as well as symbolic.

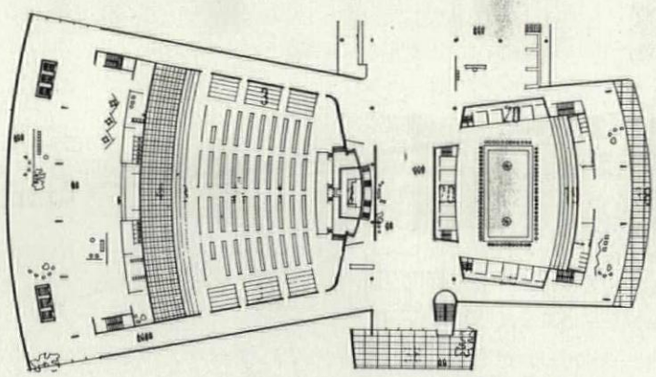
The Director of Planning now faced a tough problem: he did not want to alter the basic scheme, so carefully adjusted to the general UN group, especially after the departure of the distinguished foreign members of the Board of Design.

Up through the stretched-tarpaulin roof, the architects pushed a shallow dome to cap the central conical meeting room. The two

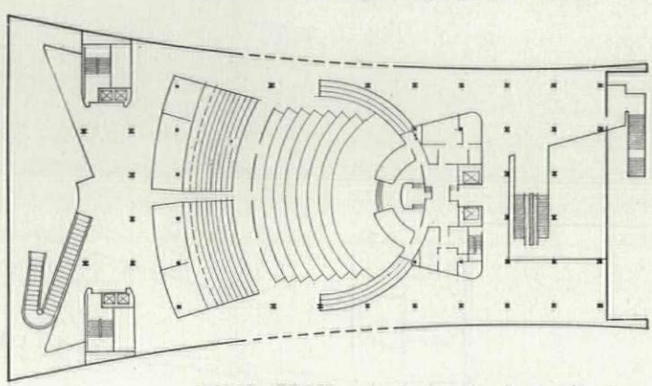
* Although cable suspension is wonderfully economical, the suction produced by wind over the concave roof induces flutter and fatigue of materials.



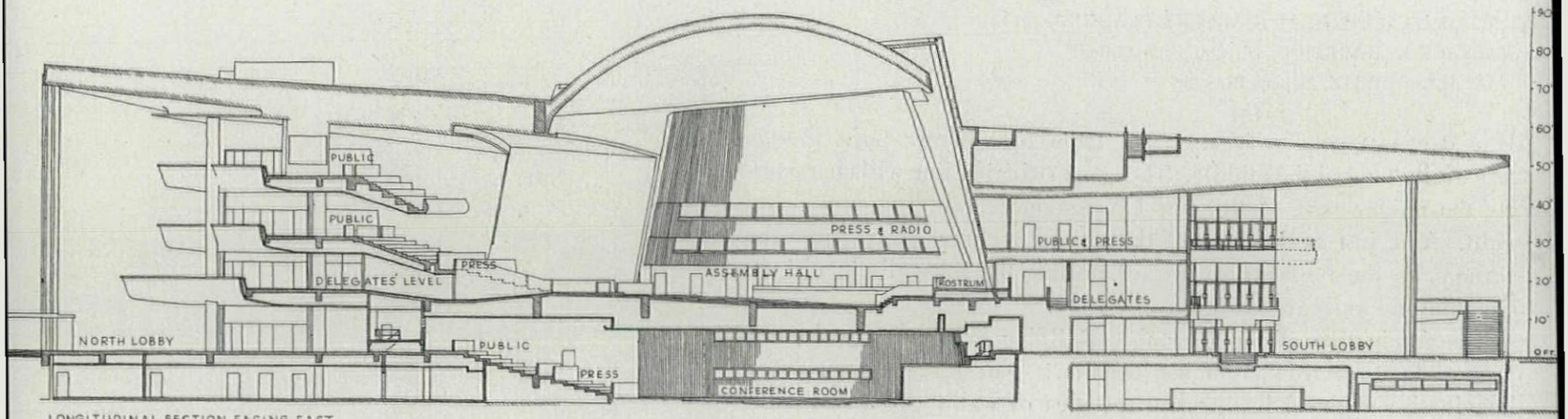
FIRST STEP in UN Assembly Building's evolution: Le Corbusier's 1927 League of Nations scheme (unbuilt) sets a straight functional auditorium out in front, supplies sculpture and an added curved "feature" as the visual climax.



SECOND STEP: The 1947 UN Assembly scheme has a larger and a smaller auditorium face to face. Their straight converging sidewalls give the building its "hour-glass" plan; the fact that the northern one is larger magnifies the northern end.

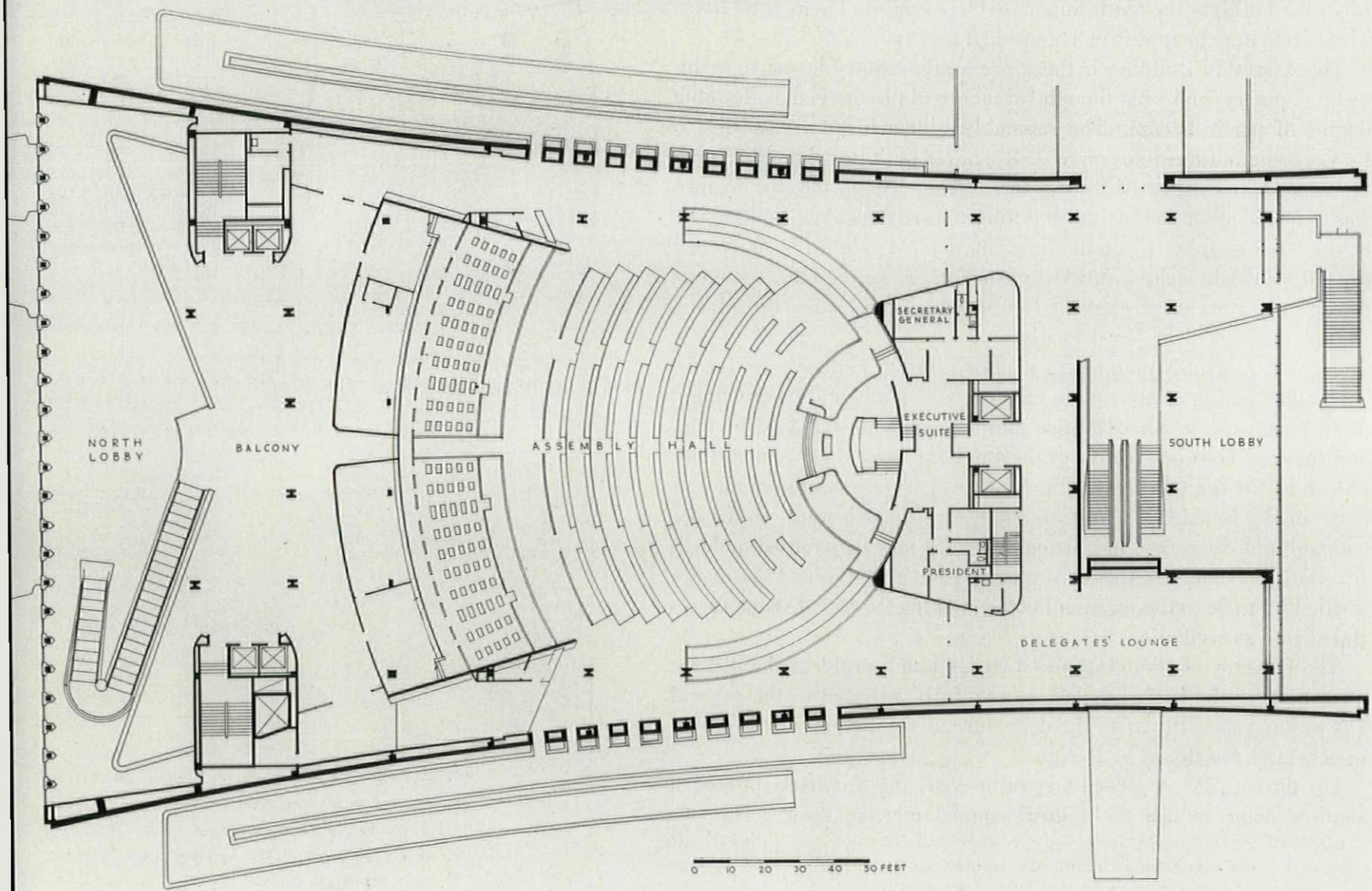


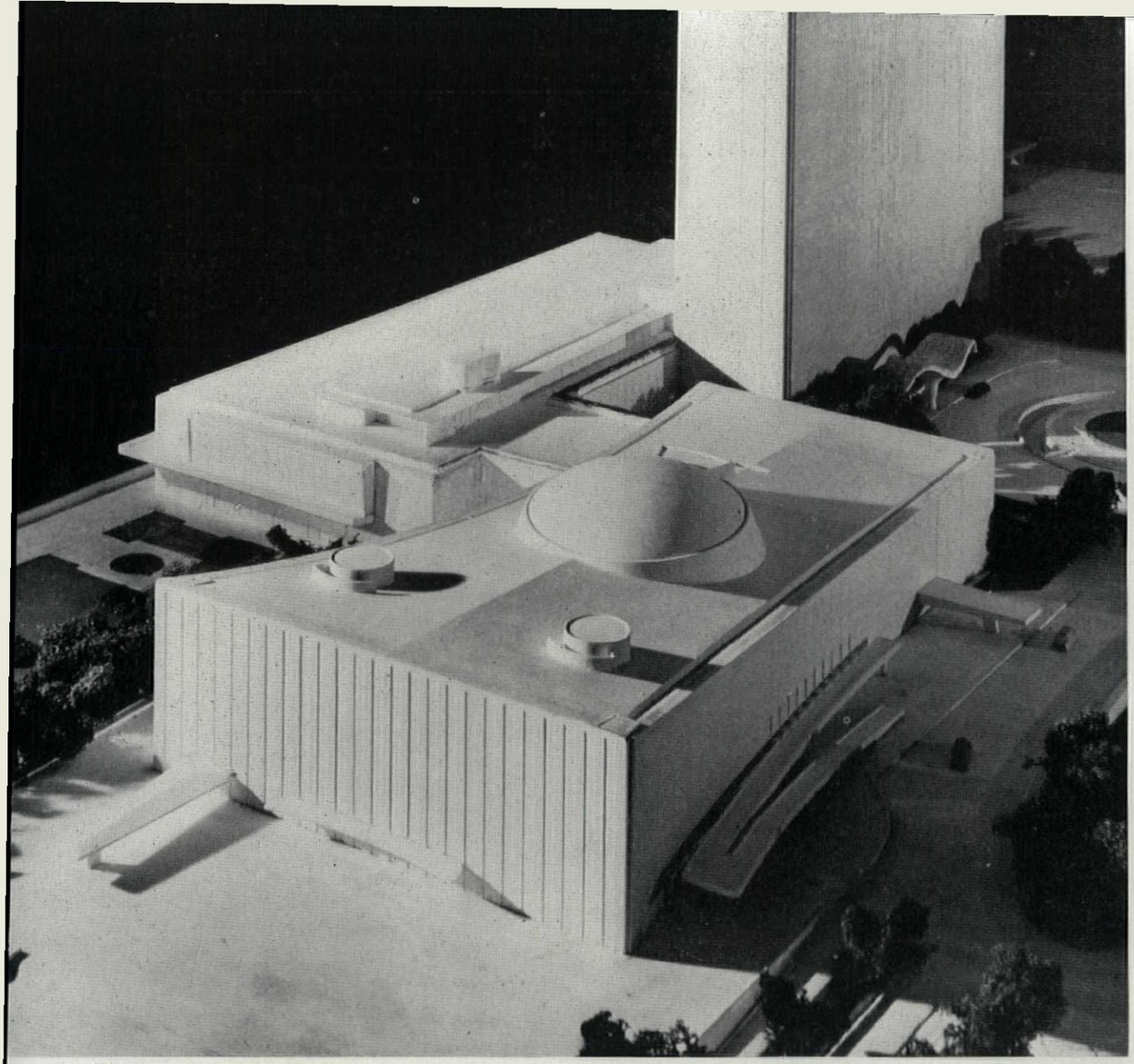
FINAL PLAN: A single circular auditorium, adapted to modern press and television, replaces the former two wedged-shaped rooms. By means of sweeping curves the building itself has been made the visual climax.



LONGITUDINAL SECTION FACING EAST

LONGITUDINAL SECTION AND PLAN show the public's lobby and its balconies to the north (left), and delegates' lobby to the south (right). The main floor of the Assembly Hall is one level above the ground, and is directly connected by a gallery with the Secretariat and the Conference Area. The tilt of the dome above the circular Assembly Hall makes the wall behind the speaker higher and more impressive.





Ben Schnall

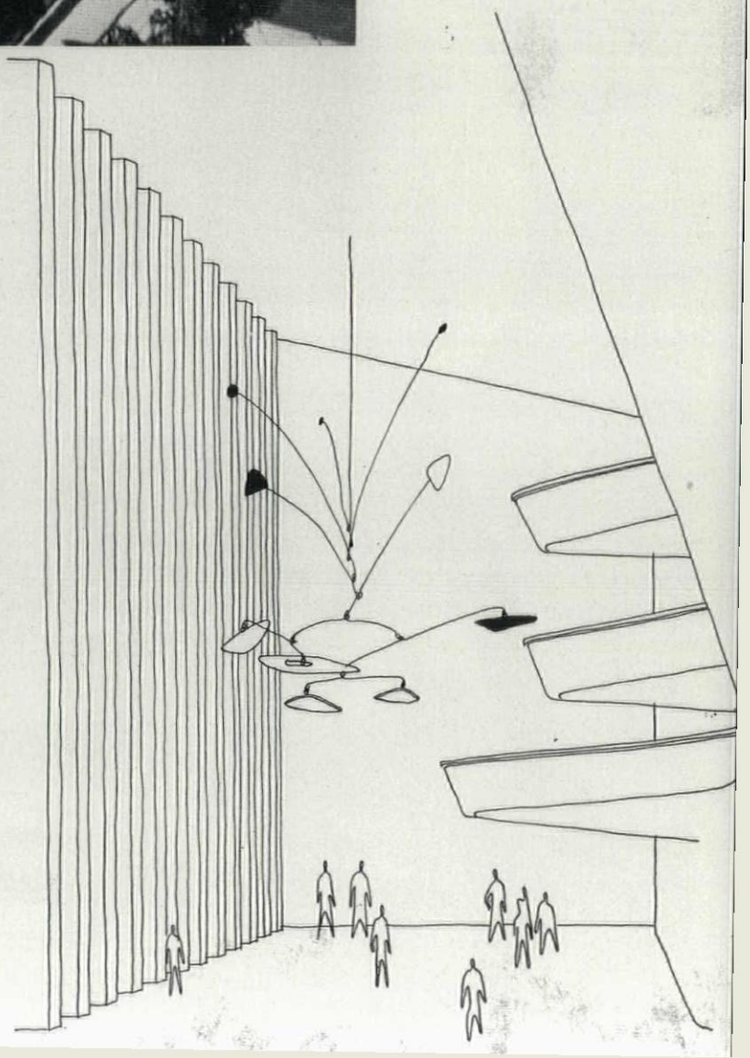
MODEL shows the Assembly Building in front of the tall Secretariat or office building, and connected with the Conference Area to the left.

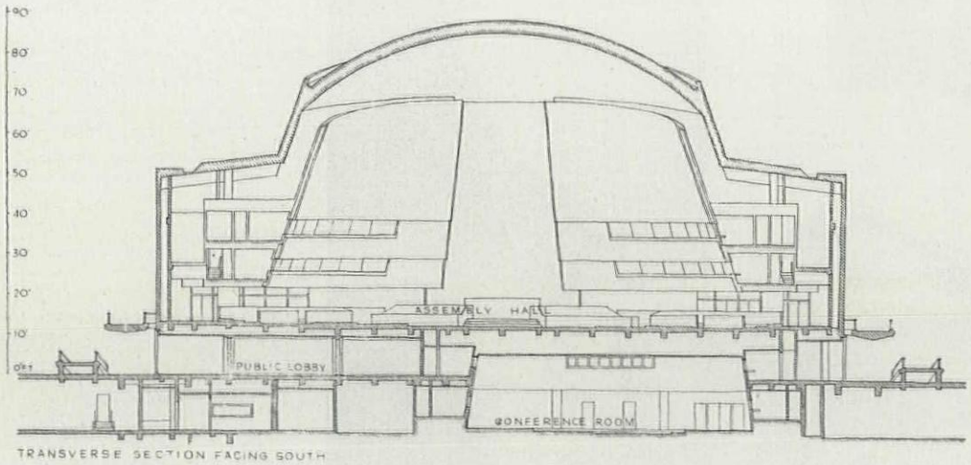
SKETCH shows interior effect of the alternate marble piers and translucent marble slits in the north wall of the north lobby, with a suggested Calder mobile.

raised ends of the building became monumental open-well lobbies: the southern one to be glass-faced, the larger northern one to be faced probably with marble ribbon piers alternating with vertical strips of translucent marble—a splendid conception for outward monumentality and inward pearly light. Within these lobby-wells the many floor levels will show as tier upon tier of open balconies.

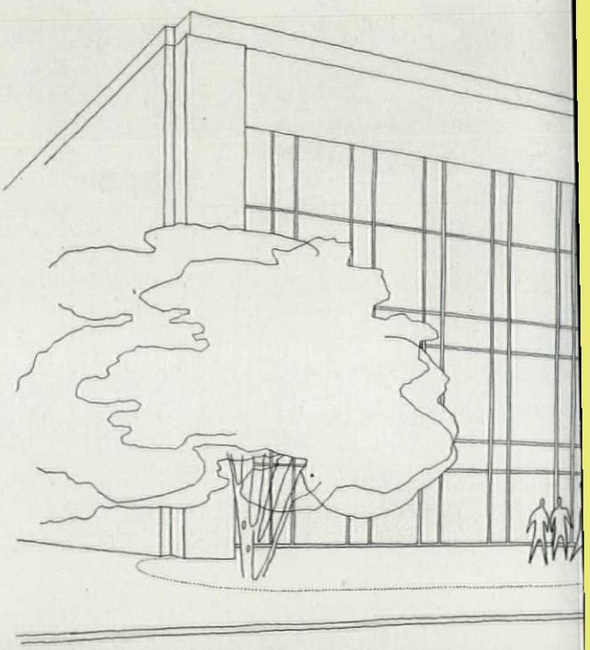
Finally, since the former straight-lined pinched-middle outline no longer meant anything, the architects pulled the whole building together with sweeping concave curves. As a simplified handling of complex change it was quite amazing. And, at mid-century, it marked an architectural shift—from emphasis on "function" and structural logic to emphasis on form and the logic of art.

CIRCULATION. Quite naturally the Assembly, the one part of the UN devoted to a public spectacle, involves a problem in sorting out delegates, public, and press. In general, the delegates' second floor area will be reached via the outside entry at the southwest (lower right in plan, opposite) and from the corridor connecting the Conference Area and Secretariat. The public enters at the north and goes up on stairs and elevators to its two balconies (see plan and vertical section) and can circulate *around* the assembly hall, except when doors are closed. The press shares the north moving stair (or elevators) with the public. To reach the conference area (to the east of the Secretariat), press and public use the first- and third-level galleries off the southern lobby; delegates use the second-level gallery in between.



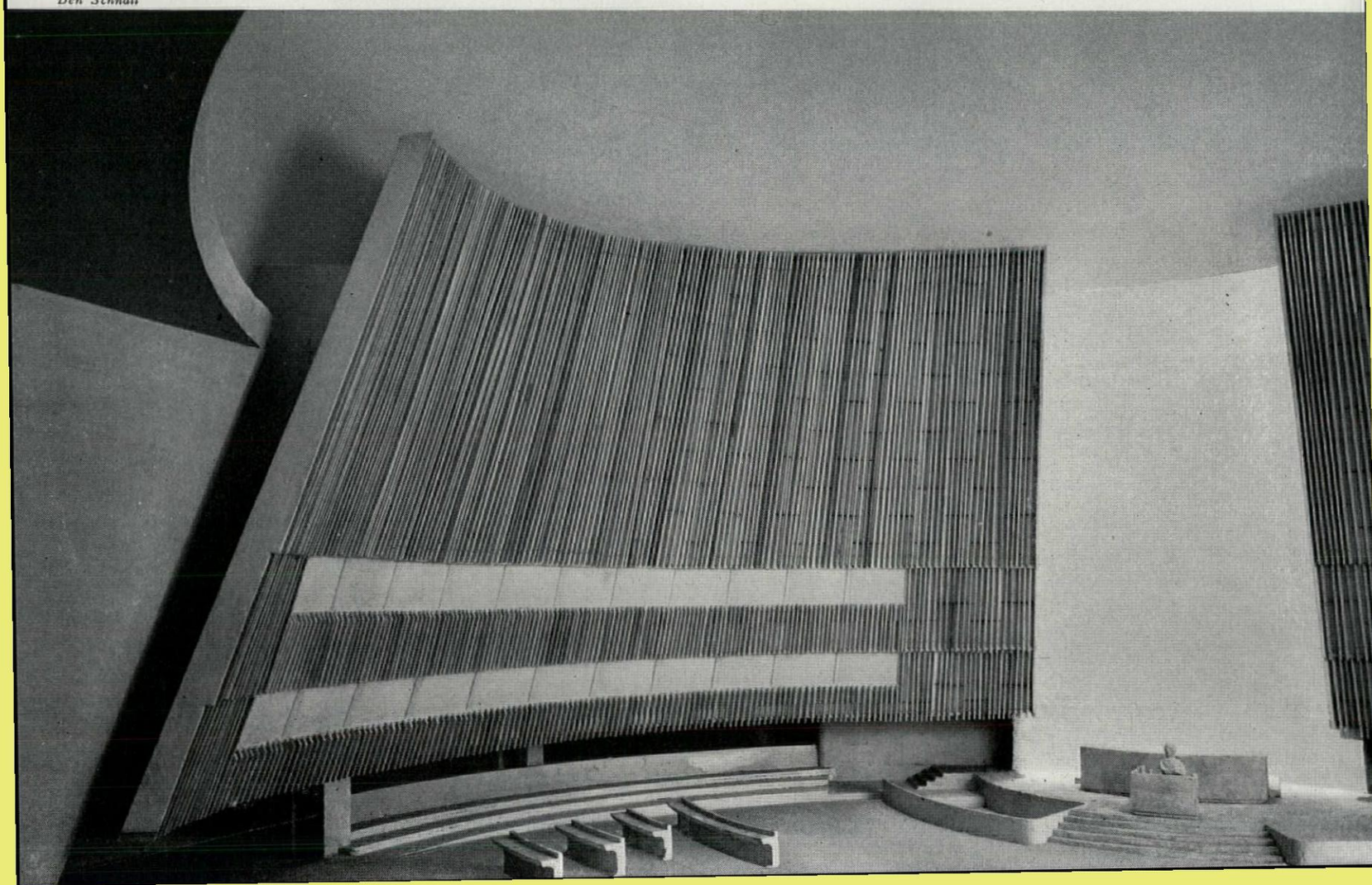


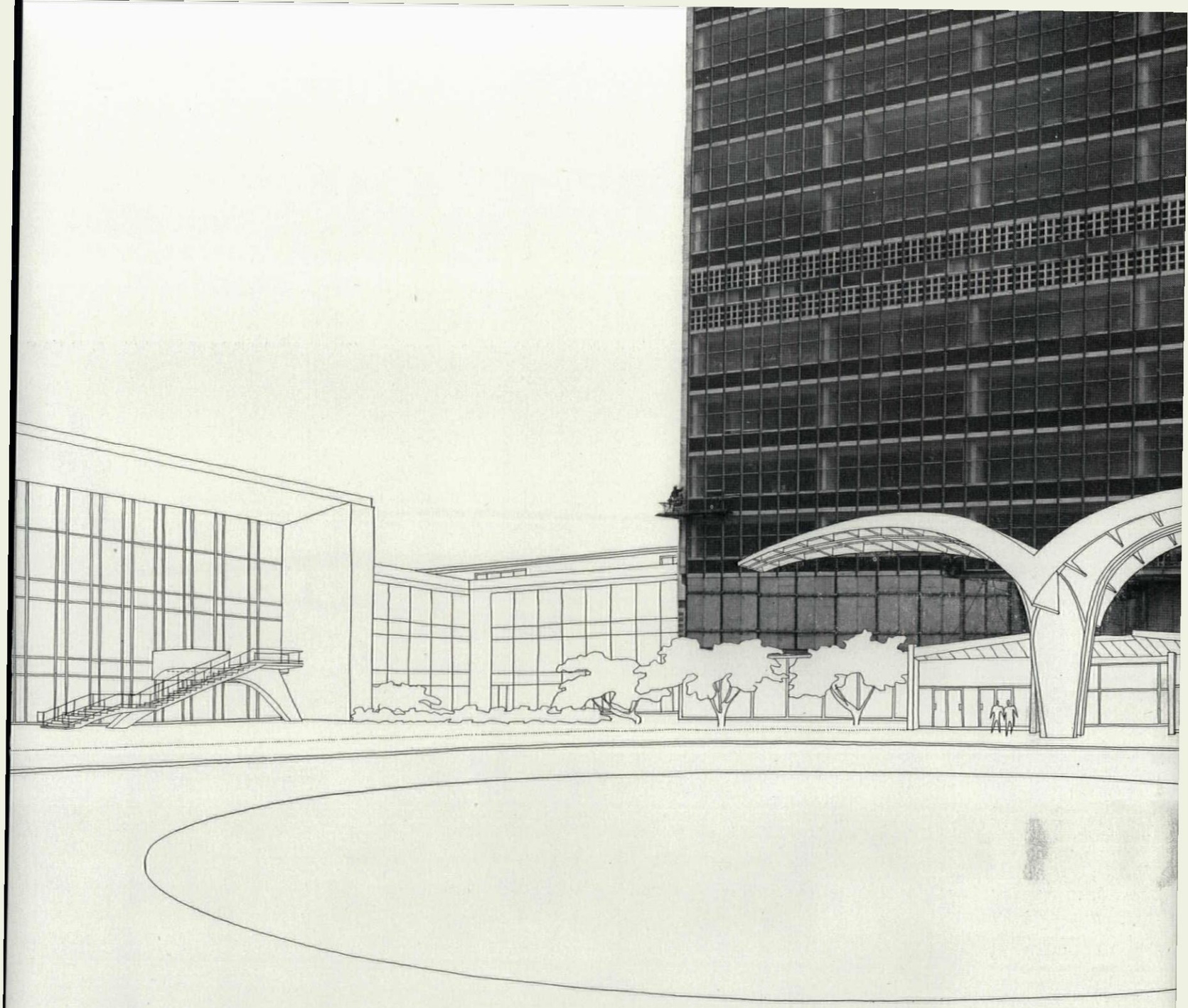
TRANSVERSE SECTION FACING SOUTH



Sketch shows the Assembly Building's south glass wall, to be held in an aluminum or bronze grid deeply recessed in a marble frame. And the photo of the model suggests the drama of the Assembly room, with its walls slanted inward. The irregularities in their shape, introduced for acoustical purposes, are concealed by a tremendous slat screen, interrupted for a light-slot behind the speaker (the contrast somewhat magnified in the picture).

Ben Schnall





THE ASSEMBLY HALL. The first assembly in the world to use all possible mechanical and electrical aids, it will be a maze of wiring surrounded by a dramatic shell. To every delegate's desk among the 85 delegations of 10 members each that are provided for, and to every seat for 900 spectators and 350 pressmen, there goes a fixed receiver of the simultaneous interpretation system. On the dashboard at his table the delegate will find controls also for his speaker's microphone and for electrical voting (registered up front on a huge 8 x 9 ft. panel, about 2 ft. thick, that is the designers' headache in arranging the simplified hall). The speaker's podium will be flanked by "orchestra pits" serving page boys, message centers, verbatim reporters. Surrounding the entire room will be two tiers of booths, 34 in all, as eyes and ears for the outer world; visual booths scattered in both tiers for still, motion picture, and TV cameras; press booths; and simultaneous interpretation booths localized up front in the lower tier. And for the hall itself: a sound reproduction system and disappearing screen for motion pictures.

All will be held together in a flood of soft indirect light, reflected from the shallow dome, emphasized in a dramatic slot reaching to the ceiling behind the speaker, and capable of sudden intensification for television.—Under UN's shaft of light will be the technical mobilization for the hopes of the world.

Photos: Gottscho-Schleisner

WAREHOUSE SHIPPING CENTER is tops in design and money-saving efficiency, but it cost Johnson & Johnson only $8.65 a sq. ft.

LOCATION: Metuchen, N. J.
FELLHEIMER & WAGNER, Architects & Engineers
JOHN W. RYAN CONSTRUCTION CO., Builders

Since the new Johnson & Johnson shipping center opened last fall, more than a thousand other manufacturers have sent one or more of their executives to study and learn from it. As they left, many a visitor has said: "If only the big boss could have seen it with me!"

What they want to show the boss is not the labor-saving layout and inventions that have enabled J & J's Plant Manager Leger to cut his materials-handling force from 96 to 42 with a similar saving in clerical and other personnel. Nor do they always feel the boss should understand how Leger can now fill all orders within four hours of receipt. What they want the boss to learn is how handsome and how pleasant a well-designed warehouse can be and how inexpensively it was built.

Most people assume that the handsome new plants Johnson & Johnson is scattering over central New Jersey are a costly luxury indulged by a rich and otherwise profitable concern. Sometimes they wonder whether they justify the added cost through better employee relations and better public relations. "They might," Board Chairman Robert Wood Johnson says succinctly. "But the point is they don't have to, *because they are low cost plants economically designed and built.*"

No gold plate

Says F. Nason Manley, Johnson's Director of Construction: "I think the moral of this building is this: you don't need gold plate to get a fine building. What you need is good proportion and good design.

"The total construction cost was $1,781,355 not counting fees and another $258,210 we spent fixing up the site (see cost breakdown on page 107). That is only $8.62 a sq. ft., or 37 cents a cu. ft.

"Over and above what we would have had to pay anyhow for a functional building of that size, we spent not more than $80,000 extra on its appearance. That $80,000 includes an allowance for the extra cubage to make the entrance hall two stories high plus $31,289 for paneled woodwork, $17,222 for marble, granite and terrazzo, $3,982 for the drapes, and $4,700 for blue glass in the color stripe."

General Johnson takes obvious pride in the way passersby believe his new shipping center cost far more than it actually did. "It doesn't cost any more to build a well-designed building than a poor one," he says, "but when we have a little extra money to spend we try to spend it where it will produce an effect. The first thing people see is the front and the entrance, so that is where we believe in putting our extra money."

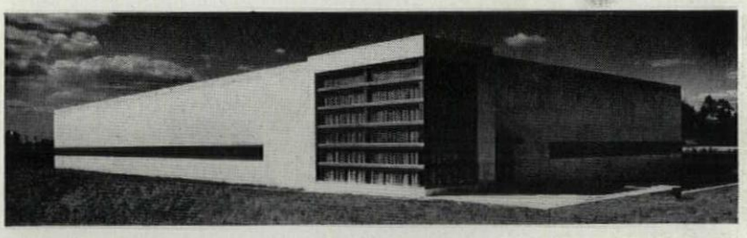
Actually the building is handsome and well-proportioned from every angle, including the rear view (top, left) toward the Pennsylvania Railroad tracks between Metuchen and New Brunswick. For this handsomness credit must go to its architects, in whose office its design was guided by Associate Roland Wank, for 13 years chief architect for the TVA, then chief designer for Albert Kahn.

Perhaps the best way to grasp the consistent high standard of its architecture is to see what a long advance it marks over the earlier J & J plants whose good contemporary design attracted nation-wide attention a decade ago.

A glance at the pictures below will show that among the elements of better design in the latest building are:

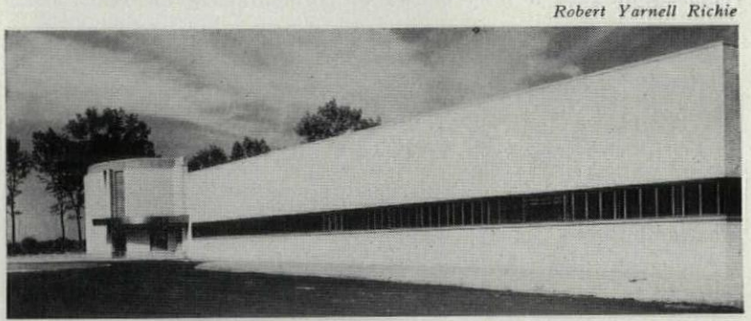
1. Simplicity: "We tried to make the shipping center just as simple as possible," says Architect Wank. There are no pylons or circular entrances added for interest or decoration. Even the dramatic two-story reception lobby was designed to fit one of the basic 33⅓ x 33⅓ ft. modules of the steel framing.

2. Uniform materials: The same matte-finished glazed tile and the same dark blue glass were used all around, instead of substituting more expensive materials on the front. The only break is the two-story window of the reception area, which is white double glazing framed in wood bolted to steel.



J & J's Ligature Laboratory.

Robert Yarnell Richie



J & J's Industrial Tape-Corp.

3. Better proportions: "We gave a great deal of study to the placing of the window strip," say the architects. General Johnson is more explicit: "We built a solid wall 20 ft. high to experiment with," he explains. "Then we stood off 1,000 ft. and watched some men raise and lower a dummy window strip of painted wooden boards until we found at what height it looked best."

In the earlier buildings the window strip was placed less than one-third the distance up the wall, and the masonry above tended to look top heavy. In the new shipping center the window strip is only a little below the center. To effect the change the architects suggested reducing the height of the parapet above to 4½ in. and grading in such a way that the floor is 4 ft. up from the ground all around in-

stead of just at the truck and freight car doors (where it has to be 4 ft. anyhow). Then the base of the building was covered almost to the ground with the same facing as the walls above, instead of leaving the concrete foundations exposed to form a narrow fourth stripe as on some of the earlier structures.

Lowering the parapet kept the roof line well below the window line of the second floor offices, thereby eliminating some of the broken lines of the earlier structures.

4. Color: In the earlier buildings the color stripe was obtained by using narrow bands of blue terra cotta above and below the windows, which were sometimes white and sometimes light blue-green. In the shipping center considerable experimenting was done to find a colored glass which would itself offer an effective contrast to the buff of the tiles above and below. The final choice was a blue which looks dark from the outside but from the inside is hardly noticeable. Its deep color also serves to hide different materials inside which might otherwise weaken the effect of the continuous stripe. Partly for design reasons and partly to avoid cracking, the color stripe of glass was carried right around the corners. It is interrupted only at the entrances.

General Johnson's effective interest in better plants dates back to 1932, when he walked into the offices of Architects Shreve, Lamb & Harmon, told Mr. Shreve he figured the architect of the Empire State Building must be accustomed to tackling new problems, and asked him to plan a manufacturing building.

"What kind of a manufacturing building?" said Mr. Shreve.

"Just a building," said Mr. Johnson," a building where I can manufacture anything Johnson & Johnson would want to make."

"How big a building?"

"Oh say, 200,000 ft., but I might want to expand it to 600,000."

"Where are you planning to build?"

"I'm not planning to build anywhere—I just want a plan for a building, somewhere on a big, flat piece of land, with a railroad siding, in the temperate zone. I may never build. Right now all I want is to plan it."

Collaborative design research

The proposal was so unusual that Mr. Shreve felt he needed AIA approval to work out an ethical architect's fee, but that was the beginning of a long period of collaborative research with a succession of architects which has ranged over subjects such as:

"Where does the added cost of wider column spacing cease to be profitable for machinery of the size used in the Johnson plants (around 35 ft.)"

"How to build a wall that will go up in one piece with an integral finish both inside and out."

"Whether to put the utilities in the basement, on the roof, in a separate building, on the main floor."

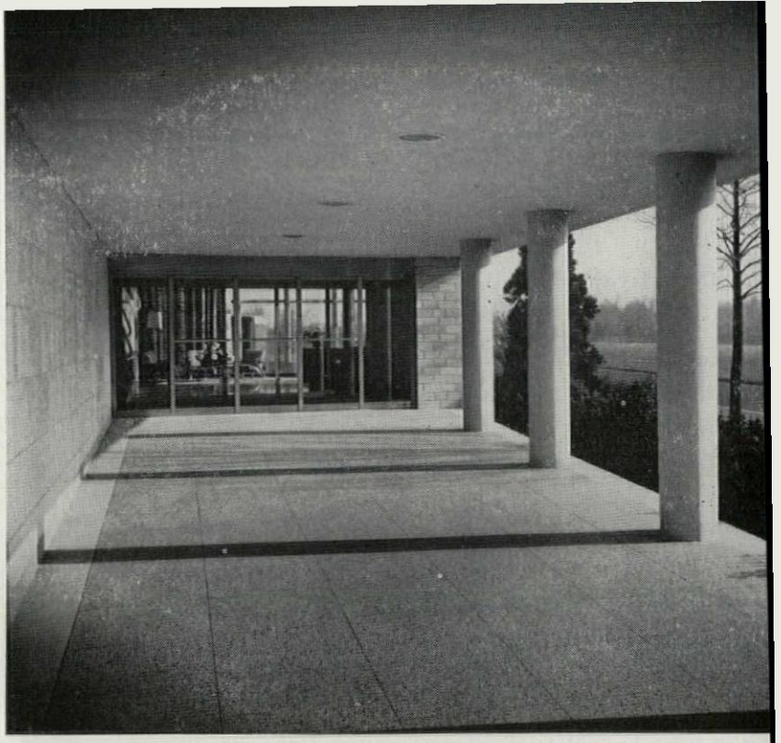
"Where to place the offices to create minimum interference with future changes in the manufacturing layout."

In the meantime, Johnson & Johnson has put up nine buildings and "we have learned something from every one of them."

Not the least of the lessons learned is how to get along with building labor. While the shipping center was under construction, coffee was served to all hands at 10 a.m. and 3 p.m., and a sound truck was sent out to play music and broadcast sporting events while the men worked. Partly as a result of these good labor relations the plant was finished a month ahead of schedule for 8 per cent less than the budgeted cost.

Among the interesting features of the plant are these:

37 acres of lawn—"People wonder how we can afford such lawns around our plants," says General Johnson. "That is an example of how you can get an effect without spending a lot of money. We paid $35,000 to buy our 57 acre site, and ever since the golf clubs



figured out how to hitch up a gang of lawn mowers behind a tractor a lawn has been the cheapest thing anyone could do with a lot of land."

Outside walls—Like almost all the new Johnson & Johnson plants the shipping center has a curtain wall of buff matte-finished hollow tile which costs less erected than any other material except concrete block. The cost is 35 cents per 5 x 12 in. unit compared with 32 cents for the same area in common brick at $32 a thousand. Erection time is equivalent to 650 bricks a day. Insulation value is approximately the same as 8 in. of brick. The tiles are so formed that water getting through the outer face is caught in an inside gutter, runs down the open space left behind the mortar, and drains out through weep holes at the bottom. This solves the problem of cracking due to moisture, but it has taken Johnson & Johnson many years to overcome the problem of cracking above and alongside the windows due to the unequal expansion of tile and steel. This is one purpose of continuing the windows right around the corners. Above the windows the curtain wall is supported on an 8 in. angle with expansion joints in the steel every 33 ft. and a bellows expansion joint in the tile on an average of every 90 ft.

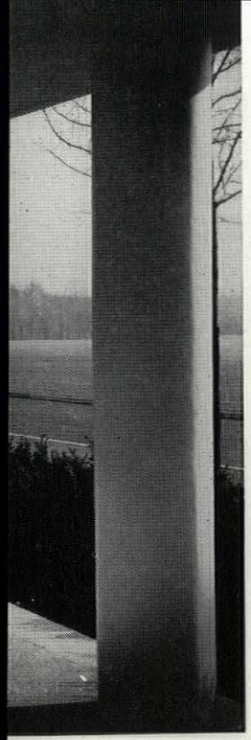
Entrance arcade—Architect and owner both wanted the big windows of the entrance hall near the center of the facade, but they also wanted the parking lot at the side, so that the parked cars would not clutter up the view from the highway. This problem was solved by the entrance arcade from the south parking lot to the reception room.

No separate employee entrance—In accordance with insistent Johnson & Johnson personnel policy the 120-odd men and women who work in the plant all come to work through the same sumptuous entrance hall that is used for the reception of visitors.

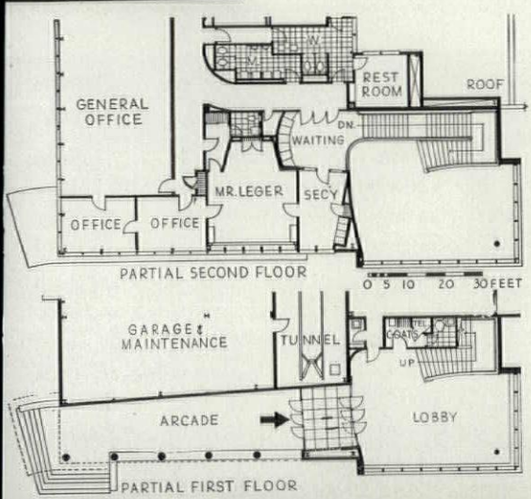
Executives offices—These, together with the locker rooms and cafeteria, are located on the second floor, to put them up out of the way of any future expansion of the storage and shipping facilities below.

Outside freight tracks—Leger is particularly proud of his inexpensive invention for overcoming the objections to outdoor freight car loading. "When you run a freight track indoors you make it hard to expand the plant toward that side later on, and anyhow ten months of the year the men would rather load a freight car outdoors than in. The problem is that two or three months of the year it is too cold for outdoor loading."

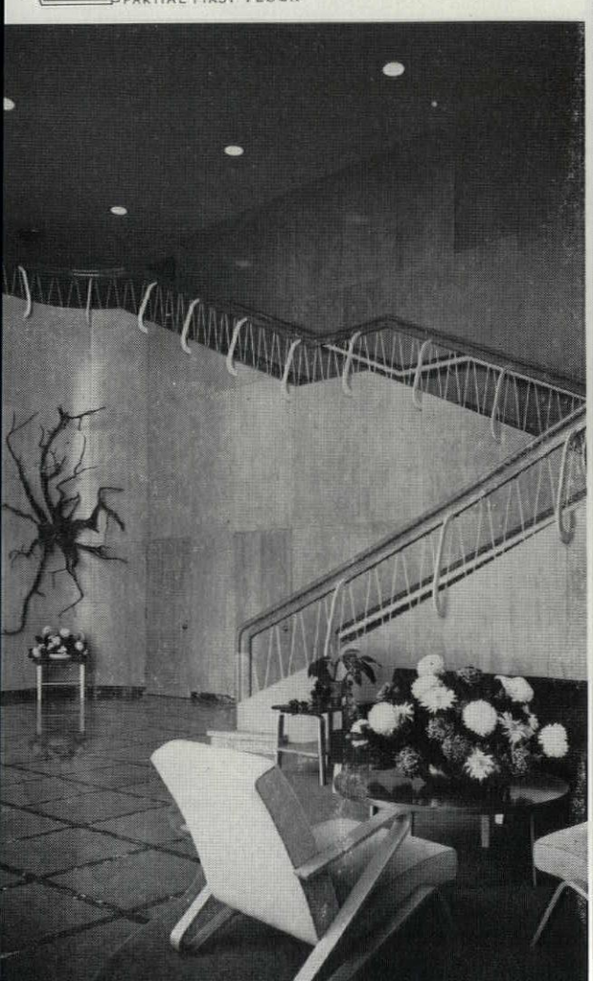
Leger's solution is a set of three awnings which roll up above and on either side of each freight car port but can quickly be pulled



Employees and visitors alike enter through the same arcade (left) and reception room. Doorway under stairs leads to the plant, stairway to executive offices, cafeteria, and locker rooms.



Photos: Gottscho-Schleisner



out to form a covered passage into the car. Then he has put a hot air blower right inside the entrance. "With that we actually keep the temperature in the freight cars warmer than it is in the plant."

Area—Little attempt was made to economize on floor space, since Johnson & Johnson believes it is cheaper to provide plenty of room than to operate in cramped quarters. Nonetheless, storage and shipping operations which required 250,000 sq. ft. when scattered in 42 places in 12 different buildings will be housed more spaciously in 180,000 sq. ft. in the new shipping center. Two-thirds of the vacated space is needed immediately for the expansion of other departments.

Monitors—The interior is daylighted through six monitors of unusual design. The window strips are only 2 ft. 8 in. high, but the monitors are 20 ft. wide to create an angle which will enable the daylight to spread over a wide area. General Johnson believes that windowless factories are all wrong; that even with the best artificial illumination it is important to mix at least a little natural light.

Roof expansion—Expansion in the long direction of the roof is provided by the bellows action of the monitors, with each 20 ft. monitor supported on cantilevers in the center of the 33⅓ ft. bay. And, around the edge of the monitor area are pivot (or toggle) expansion joints (see opposite page).

Cooling—Because of the open truck and freight car entrances air conditioning was out of the question, and in any event the small number of workers and the absence of any machinery requiring heavy electrical loads made the cooling problem comparatively simple. On the hottest days last summer, the inside temperature was held as much as 19° below the temperature outside by opening the windows at night, turning on all the exhaust fans and filling the structure with the cooler night air. In the daytime, the windows were kept closed. The well-insulated roof can be covered with a pool of water to keep off the sun on hot days.

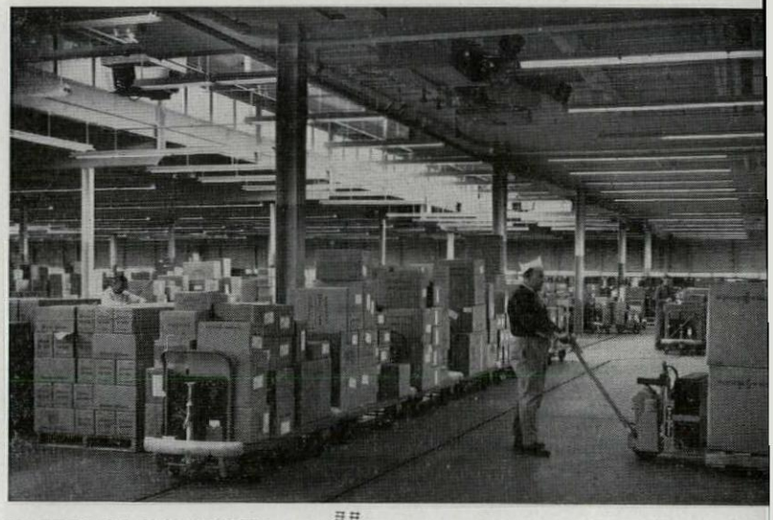
Interior partitions—The same matte-finished tile used for the exterior wall was used for all interior partitions. It is, of course, particularly satisfactory for places like the kitchen, cafeteria, locker rooms, and toilets. It was left exposed everywhere except in the reception area and Mr. Leger's office.

Floor—"In a warehouse the only real tool you have is a good floor," says Leger. "The rest is just there to keep out the cold and rain. Consequently we paid a 15 cent premium for a 5½ in. reinforced concrete floor with a hard trowel finish that should last 40 years. It rests on solid ground and should carry an unlimited load."

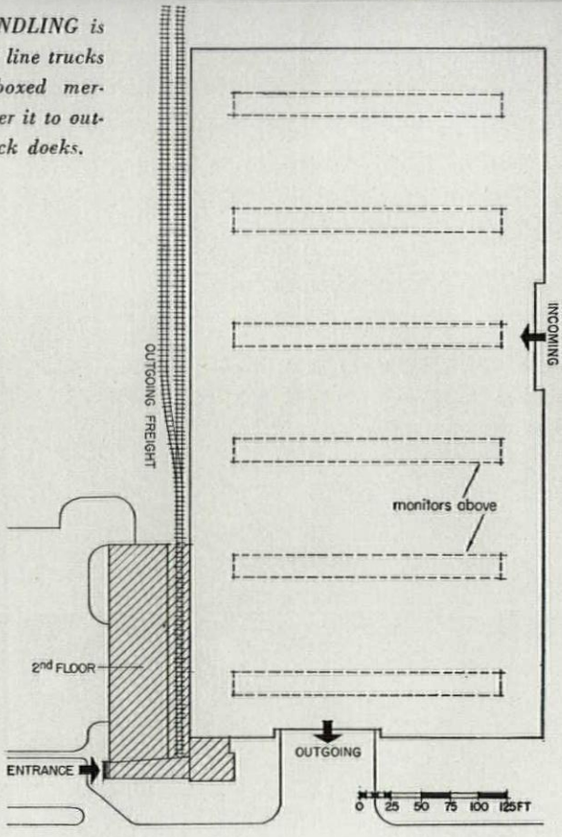
Materials handling—Leger has added a new invention of his own to the dragline trucks on which outgoing orders are assembled. This invention is a bumper which lifts up and disconnects the truck from the dragline at the slightest collision, thereby making it safe to let each truck (nicknamed Fido) run unattended as it follows the order fillers around past some 500 stacks. Unless stopped, the trucks take 12 minutes to make the circuit. Capacity was increased nearly fourfold by double tracking the system.

Incoming orders are transcribed on IBM cards which automatically arrange the items in numerical sequence corresponding to the numerical sequence of the stacks.

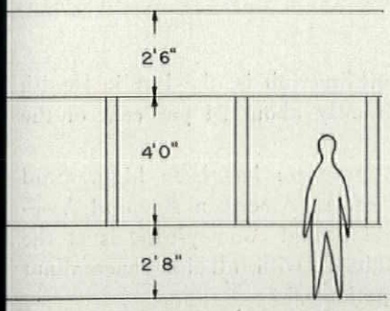
Leveling dock board—Another Leger-invented time-saver is a five-fingered pneumatic leveling dock board at each truck port. The dock has three motions—12 in. up and down, 18 in. in and out, plus the fact that each of its five fingers can adjust itself separately to any side-to-side tip of the truck. A visiting executive from one big brewery got so excited over this invention that he ordered 30 of them from Johnson & Johnson's licensee without even asking the price ($1,500), later increased his order to 60.



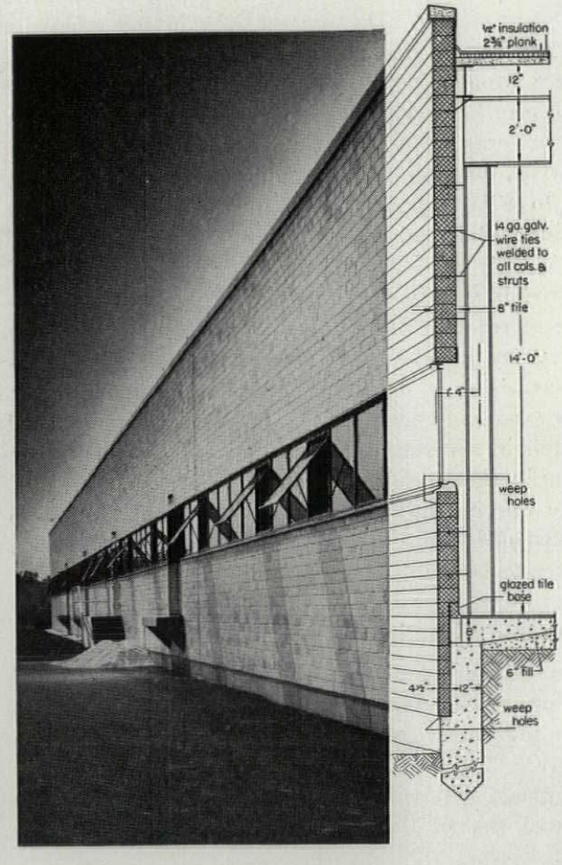
MATERIALS HANDLING is facilitated by drag line trucks which pick up boxed merchandise and deliver it to outgoing rail and truck docks.



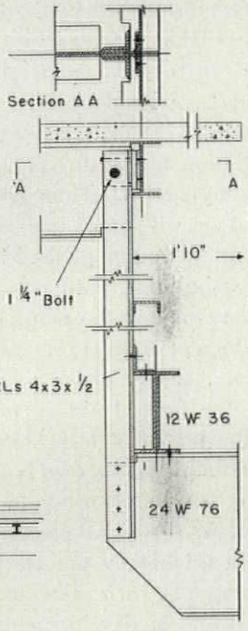
Photos: Gottscho-Schleisner



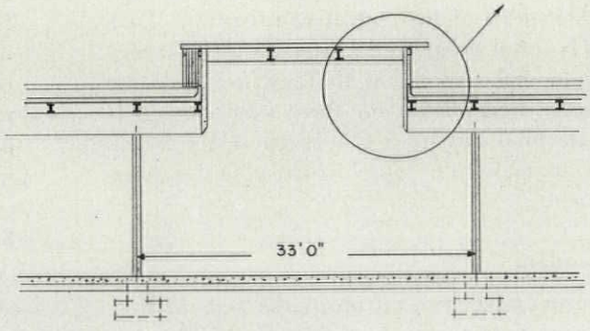
STRIP WINDOWS 4 ft. high are small enough to reduce air conditioning load, big enough to permit occupants of private office (left) and cafeteria (right) to look out.



TILE CURTAIN WALL 8 in. thick is independent of steel frame of building to which it is tied with galvanized anchors.



ROOF MONITORS are flexibily framed to form bellows-like roof expansion joints.



COST BREAKDOWN

Excavations	$ 18,007
Foundations and footings	82,588
Masonry (exterior)	123,695
Roof & insulation	224,800
Steel	309,727
Floor, fill & suspended floor	155,241
Electric lighting	181,841
Heating	173,155
Plumbing & drainage	120,959
Sprinklers	78,248
Air conditioning	57,606
Interior partitions	49,711
Railroad siding	26,407
Roads	75,163
Land development	156,640
Glass, glazing & sash	56,043
Hardware & doors	48,739
Painting	30,870
Lobby woodwork	31,289
Marble, granite & terrazzo	17,222
Gravel back splash	4,036
Asphalt & ceramic tile	6,084
Drapes, etc.	3,982
Acoustical & plaster ceilings	17,512
	$2,049,565

Per sq. ft. $9.85 (207,000 sq. ft.)
Per cu. ft. $ .43 (4,710,000 cu. ft.)

CONSTRUCTION OUTLINE: Exterior walls—reinforcing steel, Jos. T. Ryerson Co., hollow tile, National Fireproofing Corp., metal lath and plaster or Celotex Co. acoustic tile. ROOF—precast slabs, Porete Mfg. Co., built-up roofing, Barrett Co. INSULATION—Celotex Co. WINDOWS: Sash—steel, projected, J. S. Thorn. Glass—Pittsburgh Plate Glass Co. and Libbey-Owens-Ford Glass Co. CURTAIN track in reception room—Bradley Rotor Traverse Co. Inc. ELEVATOR—Otis Elevator Co. FINISH FLOORINGING—asphalt tile, Tile-Tex Co. SPECIAL DOORS—Overhead Door Co. HARDWARE—P. & F. Corbin Co. METAL TRIM—Atlantic Metal Products Co. PLUMBING VALVES—Sloan Valve Co. HEATING: steam system, York Corp. Boiler—Preferred Utilities Mfg. Co. Grilles—Tuttle & Bailey, Inc. Regulators—Powers Regulator Co. Cooling coils—Evaporative Freon Conditioning Co.

SMALL HOSPITAL cares for its rural patients

with a southern exposure and individually controlled radiant heat

LOCATION: Ruleville, Miss.
DENT & AYDELOTT, Architects
STARR CONSTRUCTION CO., Builder
JOHNSON & SCOTT, Heating Engineers

This small hospital planned to serve a rural community in Mississippi points some directions which other builders might follow to their profit. As a sample of the kind of building now taking place under the stimulus of the federal hospital aid program, it is impressive evidence that hospital dollars are no longer being spent for limestone facades or marble porticos. Straight-forward planning has here yielded two major dividends at moderate cost: 1) southern exposure for all patient rooms; and 2) a self-operating room temperature control for the radiant heating installation. The simple valve designed for this installation puts room temperature control at the fingertips of each patient at only slightly increased cost. It is an inexpensive way of meeting a great need in radiant heating installations—a control to make the heating responsive to temperature changes in each individual room. This kind of control is particularly important where the installation is a residential one; cooking in the kitchen, for example, or throwing open a window in the bedroom can mean a temperature change to which the radiant system geared to a single control cannot readily adjust. Architects who have made extensive use of this kind of heating say that a radiant installation to the satisfaction of the average client demands room-by-room control. Thus what these Mississippi hospital planners have done will be of interest to more than hospital builders.

What was accomplished in this small hospital shows that federal aid for building need not arbitrarily limit the planning technique as it has done in too many cases under the Federal Housing Administration's mortgage insurance program. Under the hospital aid program, the emphasis is on local initiative and local planning, while the federal aid is, of course, contingent on a state or local contribution of at least one-third of the cost of construction. Each state administers its own hospital program—a program which begins with a survey of need, to make sure that the new hospitals are located in the right places. Federal aid for these state surveys is made available by the Hospital Survey & Construction Act, which also requires each state to make a comprehensive plan for long-range hospital development.

Maximum planning freedom

Standards for the program have been set up by the Federal Hospital Council in conjunction with the U. S. Public Health Service. These standards are hospital service standards—that is, they do not prescribe or limit the planning and construction methods which may be employed to meet them. (Sample: "No room should have more than four beds. Each room shall have a lavatory. Nursing units composed of multi-bed rooms shall have a quiet room. No patients' bed rooms shall be located on any floor below grade.")

From the beginning of the program, emphasis has been on the use of qualified private architects. The local sponsor chooses his own architect, and the architect has maximum freedom to meet the objectives of modern hospital care. Following the aim of decentralized administration, regional offices of the U. S. Public Health Service are empowered to approve plans, and work cooperatively with state and community agencies to this end.

The Hospital Survey & Construction Act (as amended last year) means some $2 billion worth of hospital building. Congress has authorized federal spending of from $75 to $150 million annually over a six-year period. Federal funds going into each local hospital may range from one-third to two-thirds where applicants can make a showing of need. So far, some 1,145 projects have been approved. Of these, 158 projects have been completed and 574 are currently under construction. Big as this building job is, the Public Health Service estimates that it will meet only about 24 per cent of the nation's need for hospital rooms.

Quality of planning under the program has been high. Said George Bugbee, executive director of the American Hospital Association: "Without question, hospital design country-wide is at the highest level of quality ever attained, with all its concomitant results in more effective care for patients."

This small 30-bed Mississippi hospital is of a size now very generally being built. Although hospitals of 100 beds or less are considered uneconomical to operate, more of them are being built than any other size. One reason is that the most urgent part of hospital need is in small town and rural areas where the population is not dense enough to support a larger hospital.

Ideally such small hospitals should be combined with facilities for a clinic or health center. The biggest lack in the otherwise excellent plan shown here is that no such facilities were provided, although they were strongly recommended by the architect. Some out-patient service may be conducted in the room allotted to minor surgery. Ten doctors practice in North Sunflower County, the 35,000 population area which this hospital was planned to serve; per capita income amounts to $750 annually. For the most part, indigent patients not requiring hospitalization will continue to be handled by these doctors in their own offices.

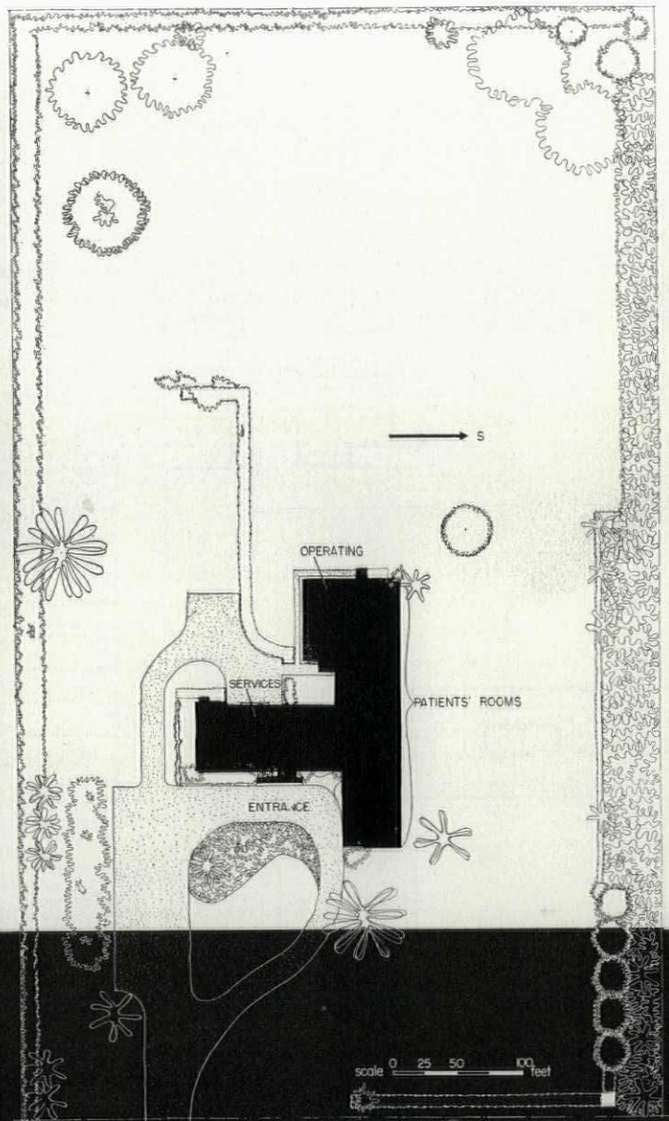
Another local requirement which increased the cost of this hospital was for the segregation of Negro and White patients. Sixty per cent of the county population is Negro. The segregation requirement meant provision of duplicate nurseries and certain other facilities. But the expense of segregation—frequently accomplished in southern hospitals by separate wings for patients' rooms—is here held to a minimum by the long finger plan which stretches patients' rooms in a single line on the south side of the building. Negro patients will be assigned rooms at one end of this patients' block, with available space to be fluidly used according to demand.

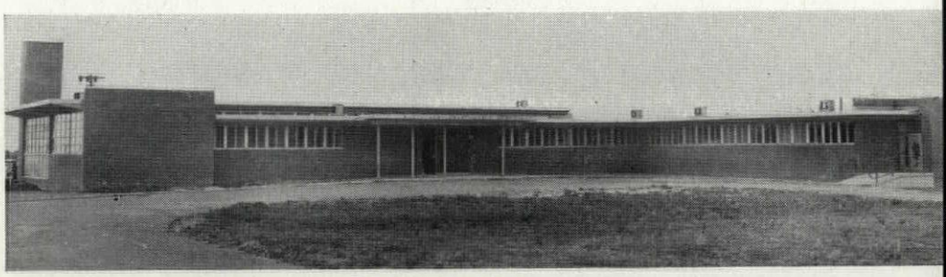
Southern exposure for all patients

Dent & Aydelott's simple plan faces all patient rooms south and stows all services into two compact wings on the north. This makes it possible to open all patient rooms with floor-to-ceiling glazing to the southern exposure—a plan seldom seen in hospitals of this size and cost. It also makes it possible to place all approaches on the opposite or northern side of the building, thus isolating patients from traffic noises.

The extremely compact surgical and obstetrical facilities are swung around a central sterilizing workroom in the northeast wing, with direct access from the ambulance entrance. Few hospitals of this size have ever had anything like these complete facilities, which, as designed, are adequate to take care of an additional 30 beds. This ample surgery raised the initial cost of the building, but hospital experts consider it a prudent investment since adding a second surgery would be much more expensive. The architects have planned for expansion of patient rooms at right angles to the present structure, with east-west exposures.

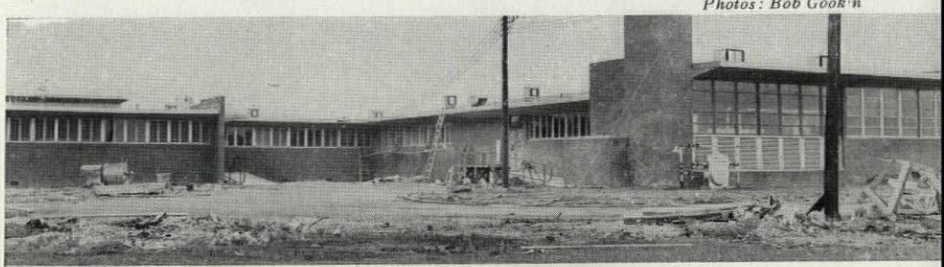
All these special features raised per bed cost of this project to $14,169 as compared with the average $12,538 per bed cost for hospitals of comparable size as compiled by the Public Health Service. Construction cost (building shell and fixed equipment only) amounted to $25 per sq. ft. comparing with an average cost of $16.76 per sq. ft. (The cu. ft. cost was $2.08, versus $1.43.)





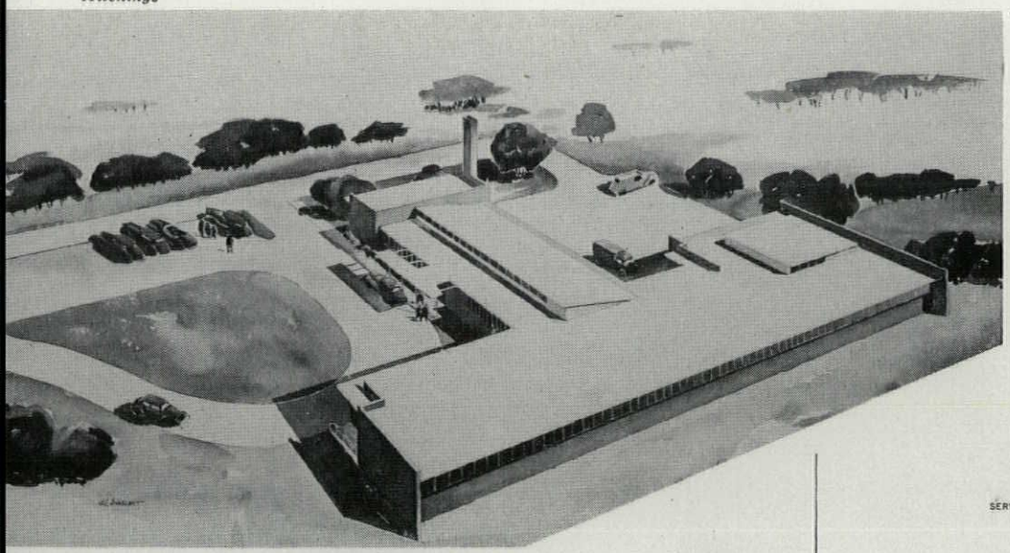
West view with entry at center

Photos: Bob Gook'n

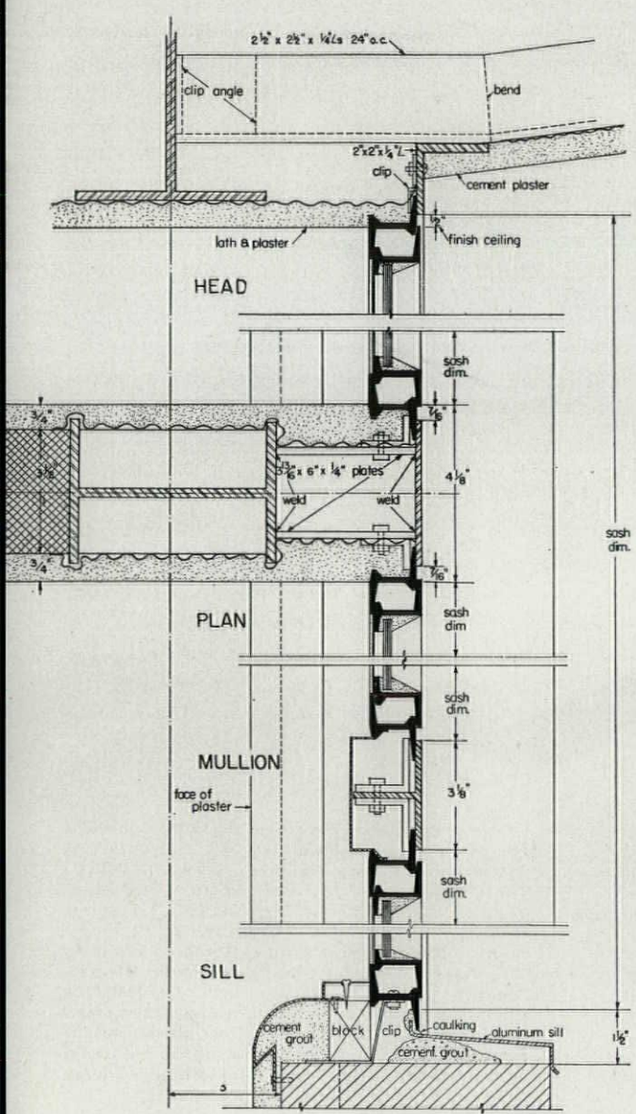


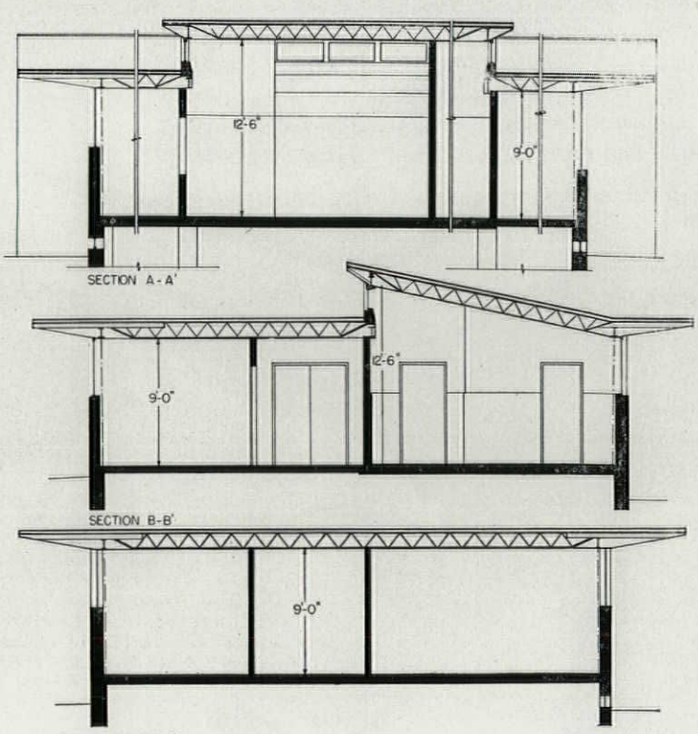
North view with service wing at right

Hitchings



Bird's-eye view with patients' bedroom wing in south foreground.





Considering such luxuries as floor-to-ceiling windows in all rooms (also equipped with ceiling-hung draperies) and acoustically treated corridors, these cost figures are not high. That they were held so low can be laid to the architects' skill for compact planning, which, despite the exceptionally ample service facilities, held gross floor area to only 470 sq. ft. per bed. This compares with an average of 629 sq. ft. per bed reported for this class hospital. (Somewhat less kitchen and dining space was provided than is customary, due to the southern custom of going home to lunch.)

Another way costs were held down was by the use of low cost materials, skillfully handled by the architects in an unpretentious and graceful building exterior. Unglazed walls, for example, are non-load bearing and are made of the cheapest kind of common brick, baked in a kiln only a few miles from the building site.

Cost considerations obviously restricted provision for what is conceded to be the newest development in hospital care: more ambulatory patients. Hospital administrators, for example, now recommend toilet rooms between each pair of patients' rooms to cut down on nursing service. This was not done in the Ruleville hospital and is still not generally done in current building under the federal program—the realization that "things are cheaper than people" evidently not breaking over all hospital planners with equal force.

The plan comprises the following units:

▸ Administrative: Main lobby with two waiting rooms and four public toilets; business office with space for director of nurses and record room; staff lounge with toilet.

▸ Diagnostic: Laboratory and adjoining radiographic suite, complete with toilet, darkroom, dressing space and office space for technician in charge.

▸ Nursing: One unit with a varying count of from 18 to 30 beds, including one isolation suite, with two each of utility, bath, toilet, janitor and bedpan facilities.

▸ Nursery: One nursery of six bassinets (white infants) and four bassinets (Negro infants). Formulas are prepared in the kitchen.

▸ Housekeeping: Laundry, linen repairs, linen issue and storage.

▸ Surgical and obstetrical: Both departments grouped around the central sterilizing workroom but with complete separation from each other. One room each for major surgery, minor surgery (at ambulance entrance), delivery, labor, nurses' and doctors' lockers. Each department equipped with scrub-up facilities, clean-up rooms, janitor's closet and supply office. Delivery equipped with substerilizer.

▸ Storage: Central storeroom in service wing.

▸ Dietary: Main kitchen, day storeroom, formula and diet facilities, dishwashing room, and refrigeration. Dining space for staff.

▸ Mechanical: Boiler and pump room including hot water storage, maintenance shop, toilet and emergency lighting equipment. Fuel is natural gas.

▸ Employees' facilities: Locker room with toilet and shower for both male and female employees.

ROOM-CONTROLLED RADIANT HEATING

The radiant heating system is a ceiling panel installation over all of the building except the kitchen which has floor heating coils. Ceiling coils are a grid of ⅜ in. copper tubing, securely attached to the underside of expanded metal lath and covered with plaster. Tube spacing was varied according to the anticipated heat demand of the area controlled. The hot water supply to the coils is a one-pipe system, which simplified the installation. Water is heated by convertors with steam from the main boilers. Steam supply to the convertors is regulated by an indoor-outdoor type of modulating control, adjusted to supply water of sufficient temperature to heat the rooms to 80° F. at 10° above zero outside temperature.

This system is further adjusted for individual room requirements by attaching a control valve in each room directly to the hot water riser supplying the ceiling coils. Such valves have, of course, been made for the control of steam radiators for many years. But, so far as the heating engineers Johnson & Scott could discover, no self-operating valve for a radiant installation was on the market. Normally, radiant heating systems are controlled by thermostats which react to temperature changes by turning an electric switch which, in turn, shuts off the heat supply. Thermostatic control usually involves wiring relays which make the cost of room-by-room temperature control for a radiant system fairly high.

A direct-acting valve like that used for the steam radiator is an obvious answer to the cost problem of individual room control for a radiant system. But steam radiator valves, made to react to the high temperature of the steam supplied to radiators, will not react to the low-temperature hot water employed by a radiant system. In this case, the engineers enlisted the cooperation of an interested manufacturer, who designed and produced a direct acting valve employing a more sensitive thermal element. This valve, exposed to the room's ambient temperature, simply shuts off hot water supply to the ceiling coils when a certain temperature point (set by the patient) is reached. Cost of the individual control system is estimated as adding not more than $5.50 per room to total cost. It enables the radiant system to take full advantage of the solar heating possibilities of the floor-to-ceiling windows. Since this job, the heating engineers have specified the valve on a number of other radiant installations.

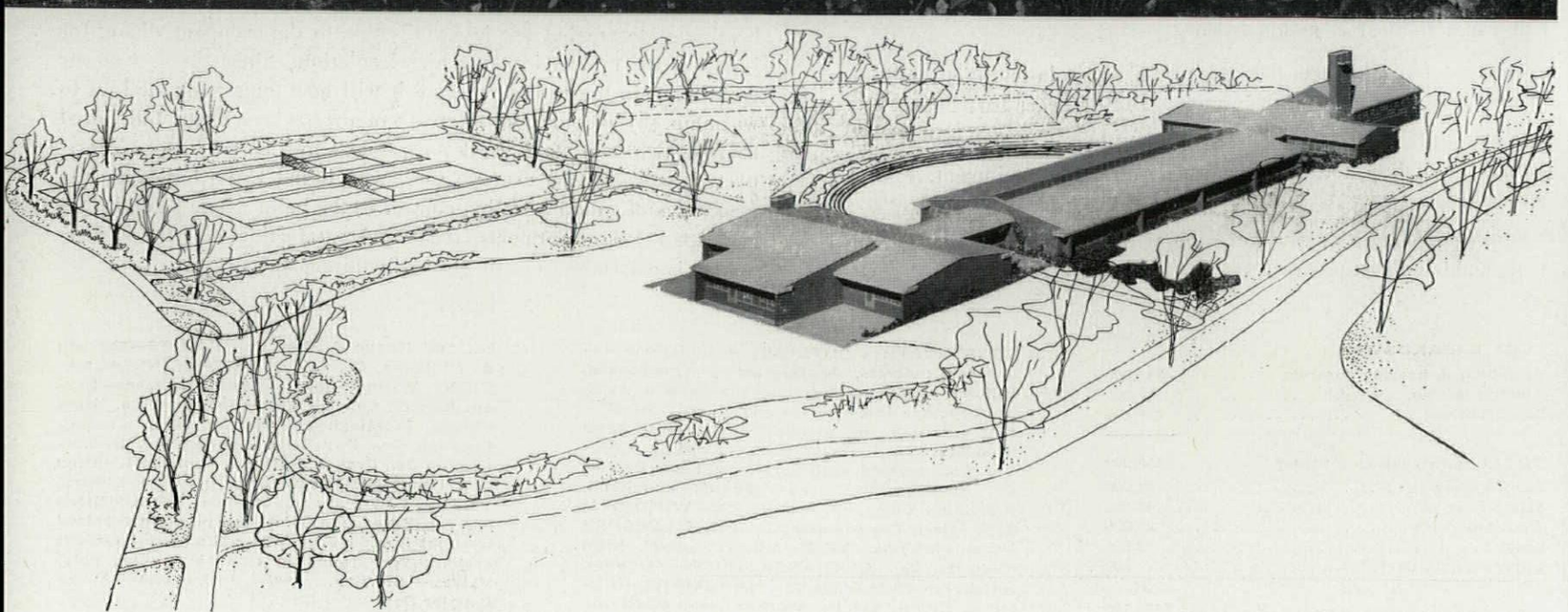
Such a low cost device for individual room control may go a long way to make radiant heating a more efficient and popular system for the small house. One of the major user complaints about radiant heating in homes has been cold spots in individual rooms. Cold spots, of course, may exist with equal frequency in other kinds of heating systems—but are less noticeable to the occupant where, for instance, the system involves air circulation. Since there is no air circulation in the radiant system, it will take longer for the heat to warm up, say, a cold room where a window has been open. Individual room control can make quick adjustments to such cold spots. Moreover, it can give the average user, who is apt to be baffled by the mechanics of radiant heating control to the point where he calls in a contractor for adjustments, the important feeling that the heating system is extremely sensitive to his requirements.

COST BREAKDOWN

Plumbing & heating contract	$91,000
Electric wiring	20,000
Construction	239,000
TOTAL construction contract	$350,000
Contingency fund	11,000
Equipment	40,000
Architects' fee	24,000
Land	3,000
Survey and title fees	800
TOTAL	$428,800

CONSTRUCTION OUTLINE: Foundations—reinforced concrete. Waterproofing — membrane. Exterior walls—steel frame, tile curtain walls, brick facing. Interior—tile and plaster. ROOF—concrete slab on Steeltex, Pittsburgh Steel Products Co., Fiberglas, Owens-Corning Fiberglas Co., covered with 20-yr. built-up, Barrett Co. Copings and gravel guards—aluminum, Aluminum Company of America. WINDOWS: Sash—steel, Truscon Steel Co. FINISH FLOORS—tile. METAL TRIM—Milcor, Inland Steel Products Co. ENTRANCE DOOR—Herculite, Pittsburgh Plate Glass Co. HARDWARE—Russell & Erwin, Stanley Works, Oscar C. Rixson Co. and Knape & Vogt Co. PAINTS—Sherwin & Williams Co. ELECTRICAL INSTALLATION: Wiring—rigid conduit. Switches—Bryant Electric Co. Fixtures—Holophane Co. Kurt Versen, Westinghouse Electric Corp., Century Lighting Co., Day-Brite Lighting Co., Barber-Colman Co., Crouse & Hinds, Appleton Lighting Co., General Electric Corp., Sylvania Electric Product Co., Pass & Seymour. PLUMBING FIXTURES—Crane Co. Water pipes—galvanized wrought iron. HEATING—ceiling panel radiant system; year round in operating suites only. Valves — Sterling, Inc. Incinerator — Morse Bougler Destructor Corp.

SUBURBAN PUBLIC SCHOOL uses color



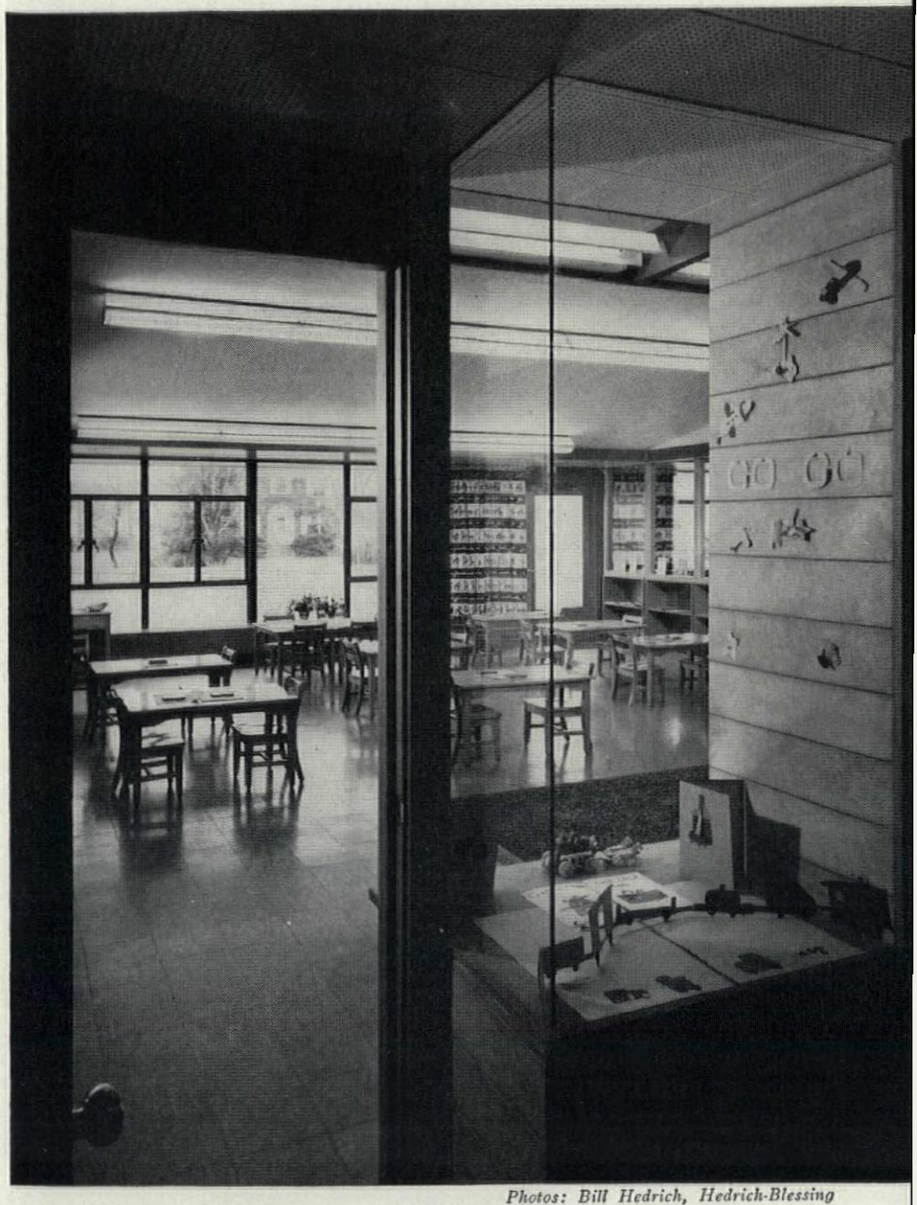
exture, domestic-scale planning to make its small students feel at home

LOCATION: Riverside, Ill.
PERKINS & WILL: Architect
CHELL & ANDERSON, General Contractors

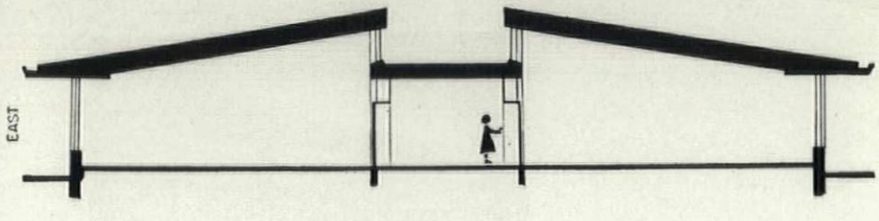
In these schoolrooms, on rainy days, they build a fire in the fireplace, and the class gathers round for story-telling. There are Persian rugs on the floor and draperies at the floor-to-ceiling windows. Red brick and pine interior walls are combined with abundant color. Trapezoidal tables can be pushed into a circle for King Arthur's Court—or lined up for the jury box of a mock trial. As promised by the plans already published by FORUM (School Issue, Oct. '50) this small school in a prosperous Chicago suburb goes farther than any yet seen in capturing the warmth and intimacy that mean emotional comfort. Thanks to the seasoned hand of Architects Perkins & Will, it does this with no loss to the operating comfort which schoolmen have been taught to expect of modern architecture.

Actually, both kinds of comfort, as they always are in the best contemporary architecture, have been handled throughout the plan as a constantly interacting unity. This begins with the relation of the building to its site. Enthusiastic community support made it possible to realize what is still only a dream to most school boards: location of the school in an existing public park and development of the whole as a year-round night-and-day center for the entire community. Thus Perkins & Will opened every classroom door directly on the 5½-acre site and edged one side of the building with a simple amphitheater of stone and stained wood. This is used for fair weather school assemblies, Campfire Girl meetings, community band concerts.

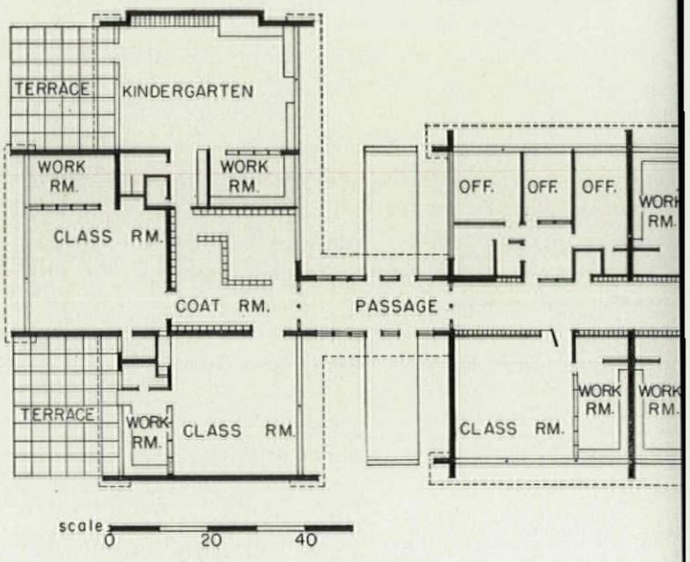
The architects logically handled the building plan as three-self-contained areas — the little children's school, the intermediate grades, and the auditorium-gymnasium wing, connected by a glass-walled passage. This not only permits such customary efficiencies as opening the auditorium wing at night without opening the rest of the building, but even more important it breaks down this small school into even smaller functional units—to which small children can find the easiest and most direct relationship. The kindergarteners can enter, spend a working day and leave—without crossing paths with a formidable sixth-grader. Glass-enclosed workrooms adjoin each intermediate classroom, providing not only space for special projects (which a learn-by-doing



Photos: Bill Hedrich, Hedrich-Blessing

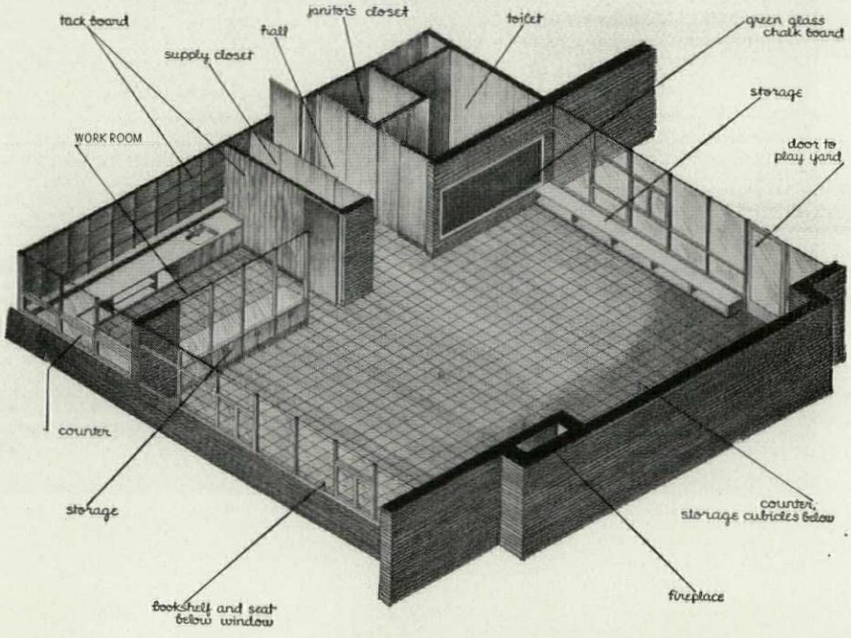


BILATERAL LIGHTING is obtained by dropping the corridor roof and building clerestory windows above it (reversing more usual practice of raising corridor roof to form a monitor). For details, see FORUM, *Oct. '50.*

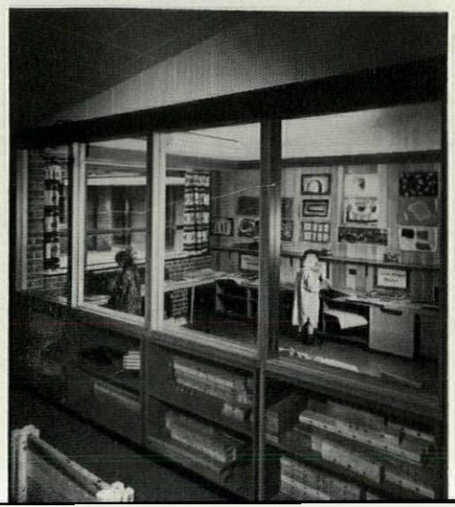


school like this possesses in quantity) but also privacy for teacher-student conferences. On the outside, the appearance of this building is made to conform to the public's idea of how a school should look by the provision of a familiar pitched roof and tall chimney on which a traditional school bell hangs.

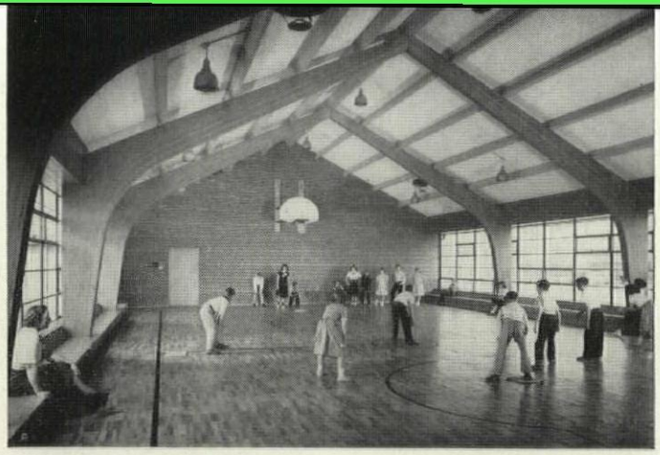
The community of Riverside, Ill. raised the money for this public school by a two-to-one vote. Not counting the value of its public park site, it cost $430,500 or $14.16 per sq. ft. Now using the building for everything from evening glee club to Chamber of Commerce meetings, the community thinks it got its money's worth.

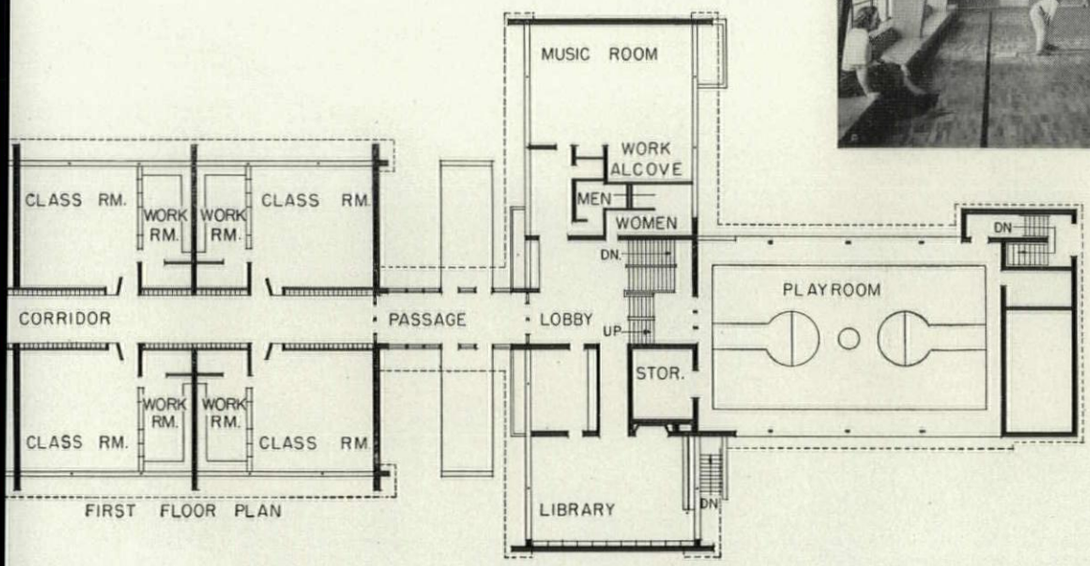


SEPARATE ENTRANCE to both primary rooms and intermediate grades is through glass walled corridors separating the three main building wings. These unostentatious entries help to set the home-like, noninstitutional character of building. And, the provision of several entries helps to reduce the apparent size of this already small school to the scale of the child.



PRIMARY ROOMS show home-like atmosphere provided by color and by wood and brick interior finishes, also have lots of work-space and child-high storage.

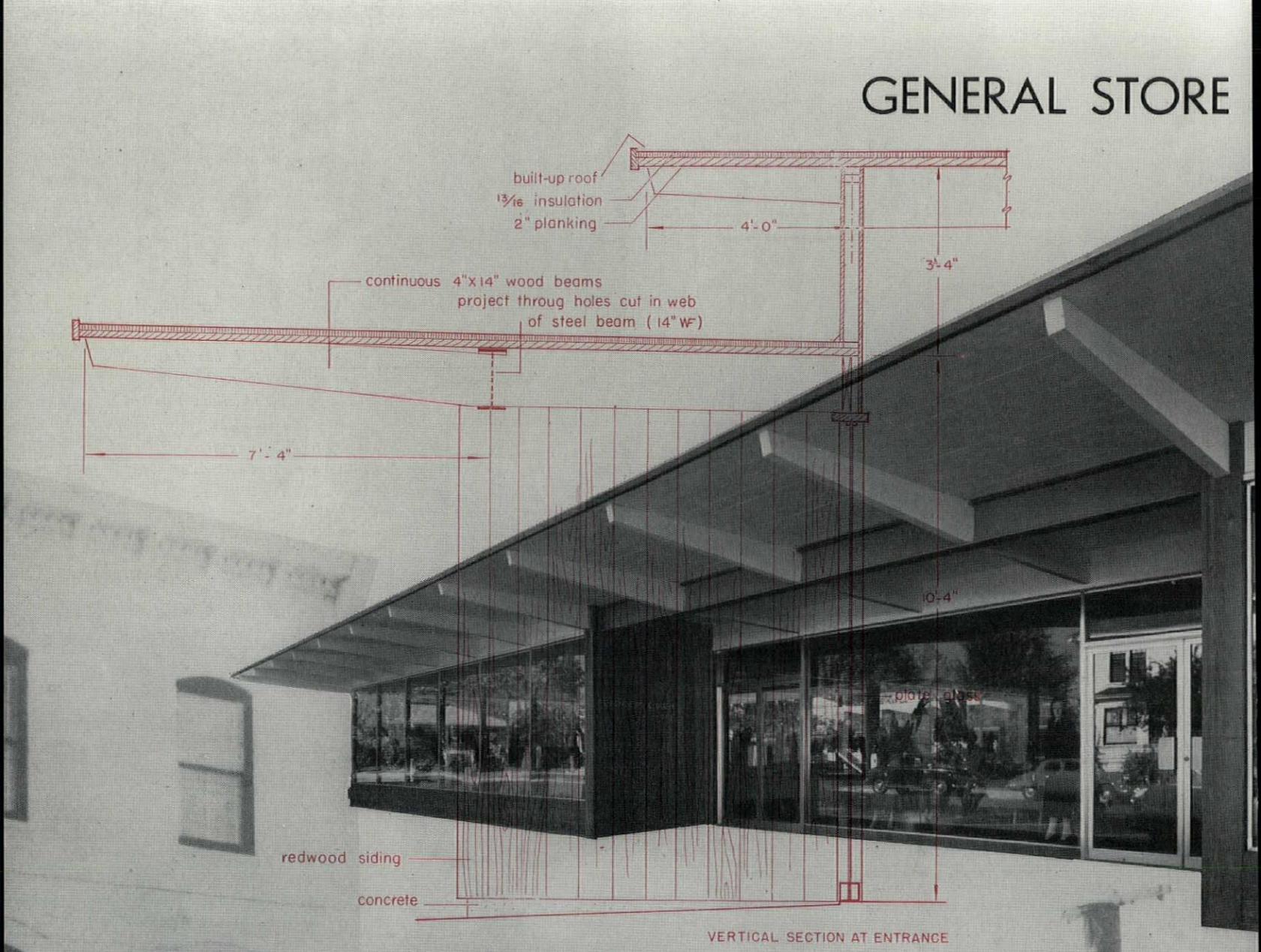




FIRST FLOOR PLAN

PLAYROOM-GYM has shatter-proof glass windows. On floor below gym is auditorium heavily used by adults at night. Note that these facilities are located for easy night access without opening the rest of the building.

GENERAL STORE



VERTICAL SECTION AT ENTRANCE

...r a small town teaches some big-city lessons in design

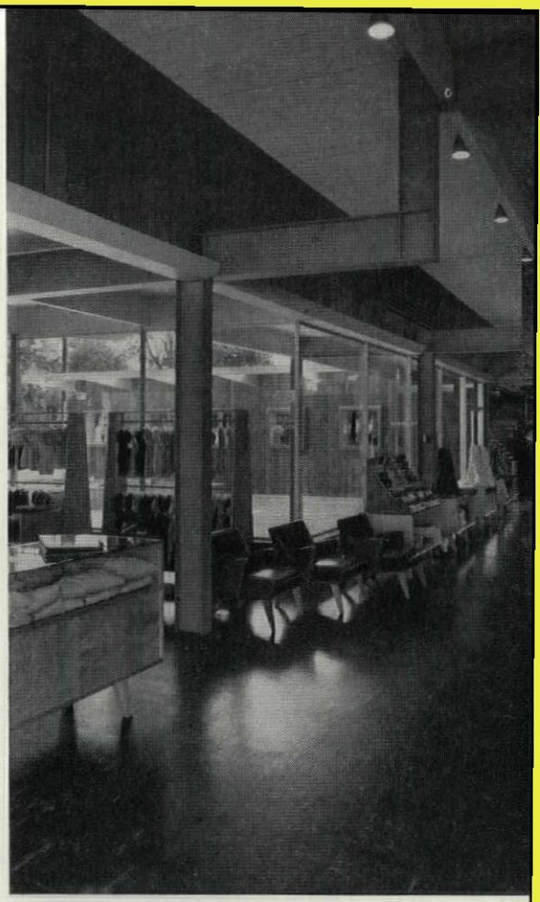
LOCATION: Healdsburg, Calif.
KELLEY & PELETZ, Architects and Builders

It's "only a general store" in a town of only 3,000 under the hot wine-growing sun of Sonoma Valley north of San Francisco. But as a building achievement it is both very rare and significant, demonstrating much that could be used to effect a happy transformation in that huge nation-wide composite called Main Street.

Between them, Architect John Kelley, his partners, and Gary Rosenberg, the third generation manager of Healdsburg's oldest retailers, have shown how to take a Main Street store out of the rut, give it plenty of space and air, and surround it with parking. They have shown how to keep the adjacent sidewalks shaded and cool, how to keep the interior as much as 20° cooler too, using only nature's air conditioning, and how to capitalize on nature's lighting. They have shown how to hold a sales curve level while local competitors were feeling a 5 to 25 per cent drop. They have done the whole job, fixtures included, for only $12.55 per sq. ft. And, as a premium, Kelley has achieved a thoroughbred architectural quality that knocks the spots off all but a tiny minority of big-city stores.

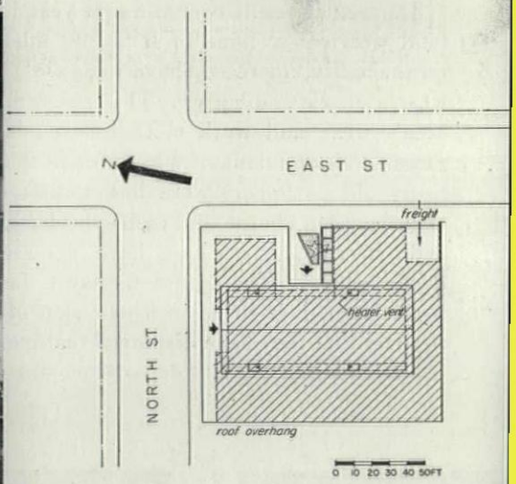
Owner Rosenberg's first idea was just to remodel the typical old-fashioned quarters (shown in photograph opposite) which the family store had occupied continuously since 1865. But when Architect Kelley told him it would be cheaper to build a brand new store, he had to decide on the basis of merchandising advantage whether to stay put or to move the store to the site of the old family mansion two blocks from the main shopping center.

Advantages of the new building were those any small town merchant might seek: better parking, more space, larger display, better cheaper light, a better shape for interior arrangement, operation all



Other than cove lighting at the ceiling kickup, reflected from the higher ceiling section, lights are either 150 or 300-watt spot floods in direct swivel units next to the wood beams. Daylight is so plentiful that electric lighting is supplementary only.

Photos: Roger Sturtevant



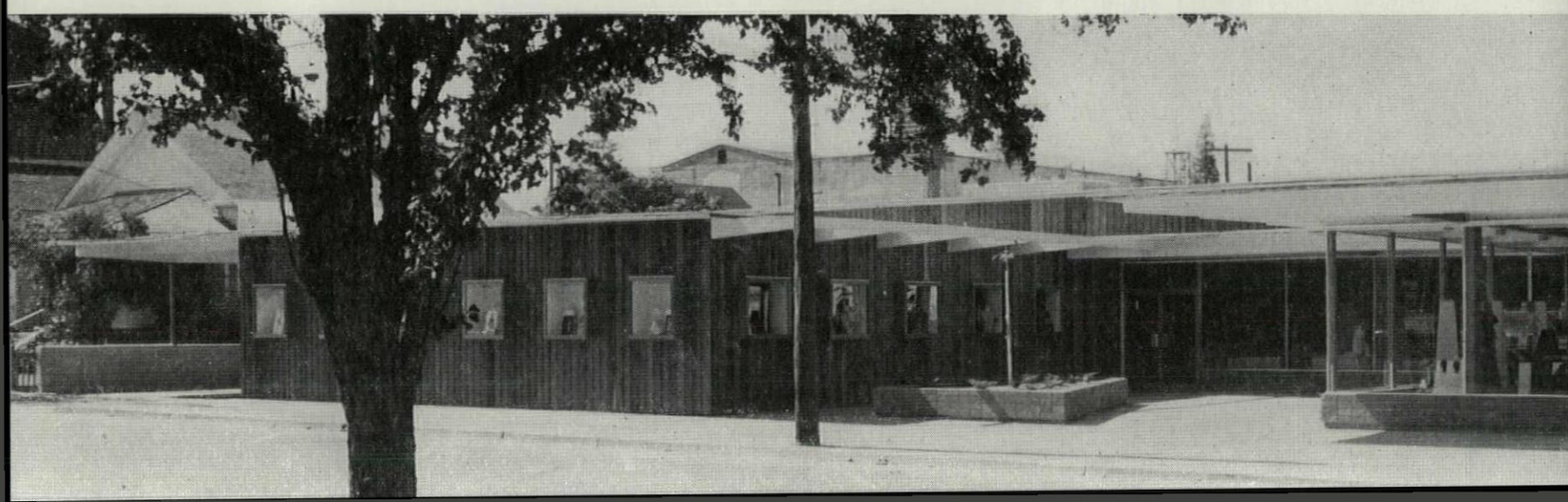
on one floor, uninterrupted business during construction, escape from a declining neighborhood in the direction of good residential expansion. Against them, the merchant's typical fears: the loss of a well-established location, the loss of floating pedestrians on the main shopping street as random customers, and the danger that a spic-and-span new store might run into the small-towner's strange phobia against being uncluttered.

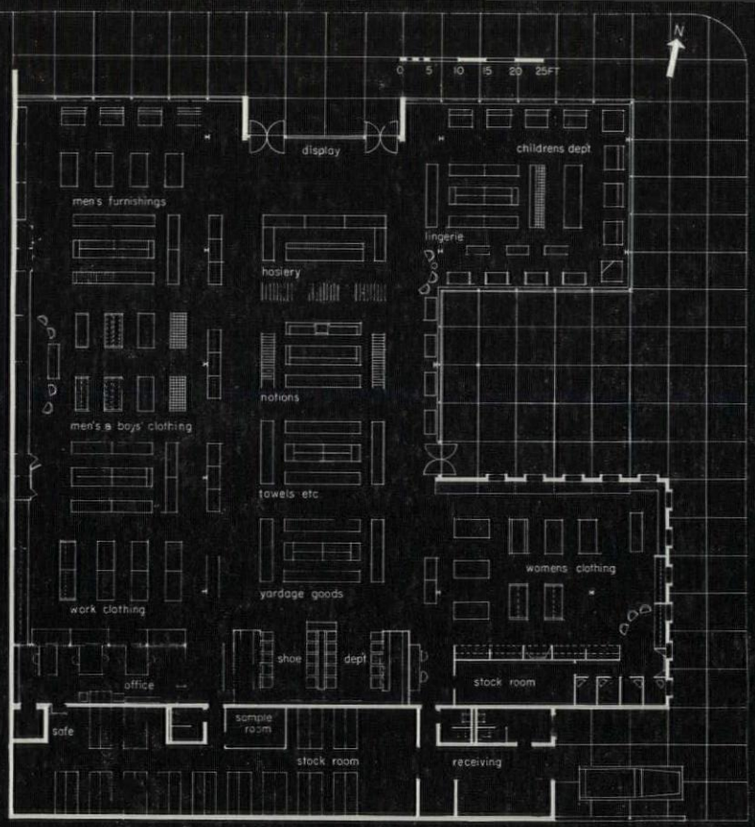
The actual result over the first year has been maintenance of the total previous volume of $150,000 during an adverse season. Departmentally, increases have been 23 per cent in ladies' ready to wear, lingerie and hosiery; 11 per cent in children's wearing apparel. Men's wear and work clothes have shown slight decreases while piece goods and domestics have fallen sharply. Rosenberg thinks that many old customers were lost at first but are coming back. The ratio between charge and cash sales has risen from 1:2 to about 3:5, and active charge accounts have increased 10 per cent in the better neighborhood. The future therefore looks very encouraging, and apart from their pride in a new step of pioneering the Rosenbergs can feel that they have displayed real merchandising wisdom.

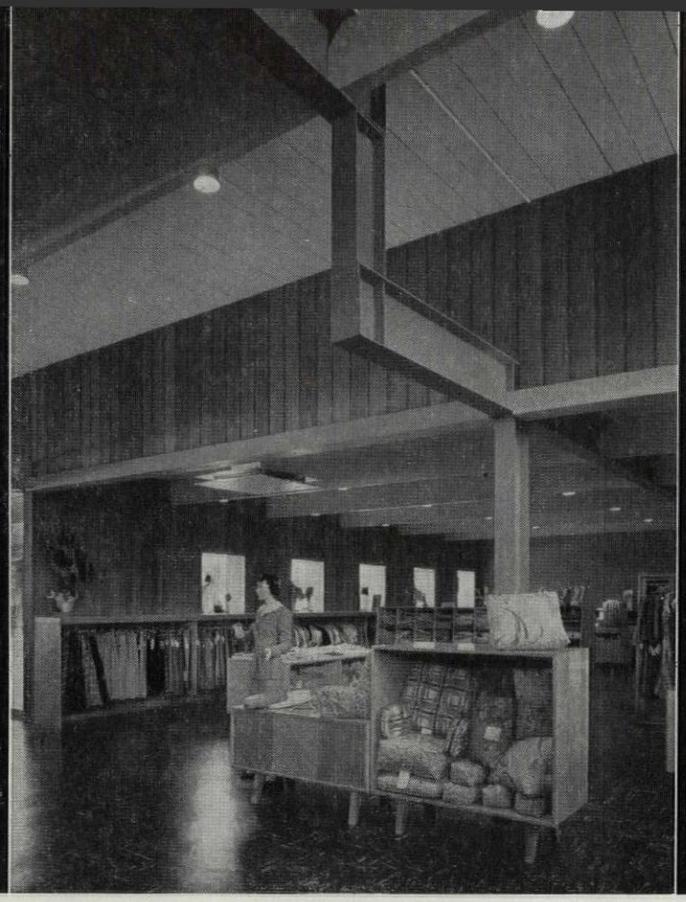
Like any new big city department store, this small town emporium has continuous glass reaching virtually from floor to ceiling along the main shopping street. A wide roof overhang creates a shaded sidewalk arcade and makes the entire interior visible as its own display, supplemented by economical and simple window dressing. On the patio side there is the contrast of a redwood wall punctuated by shadow boxes. All the cases and racks seen through windows as "display" are of an open type and serve the customer inside. These fixtures were designed by the architect.

The roof has a raised middle section. The steel beams which support the two dropped side sections extend beyond the supporting posts 6½ ft. toward the center where the kickup occurs. This cantilevering has reduced the center span at the same time that it has reduced the bending moment in the side spans, resulting in a saving of approximately $1,000 in steel and also a labor saving since all steel sections are uniform in size and easily joined. The skeleton framing relieves outer walls of most of their usual weight bearing duties and makes possible the slim window detailing.

The higher central part of the roof extends sideward out beyond the ceiling kickup in such a way as to produce a hidden "continuous duct" each side (see above). Here are concealed four gas-fired



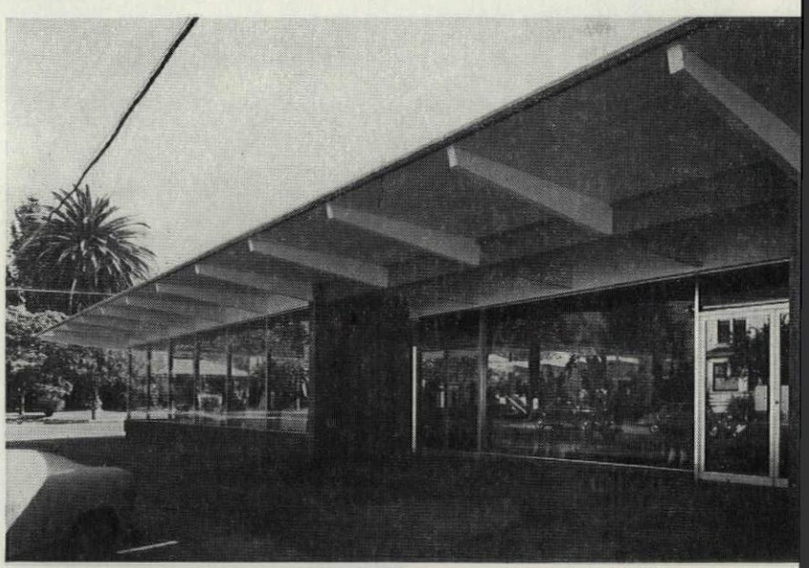




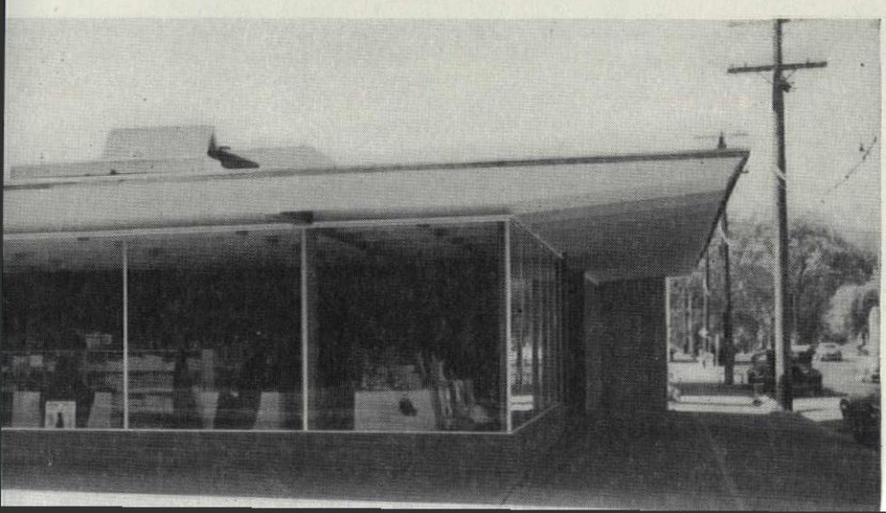
unit heaters supplying warm air to all parts of the store through a diffuser below each heater, leaving the floor clear. In summer the fans can recirculate the air or blow in fresh air. Cooling would be expensive in this climate and liable to mildew materials. The combination of large overhangs, however, with a well-insulated roof and a marble chip surface reflecting the sunlight, has kept temperatures always below 85° inside despite outside temperatures of 106°.

The young firm of Kelley & Peletz combines the services of architectural design, engineering, and construction under direct supervision of architects and engineer, and the partners feel that design and construction alike benefit from the close correlation. Cost-saving experience gained in execution goes direct to the benefit of the designer and the designer's innovations are carried out as intended.

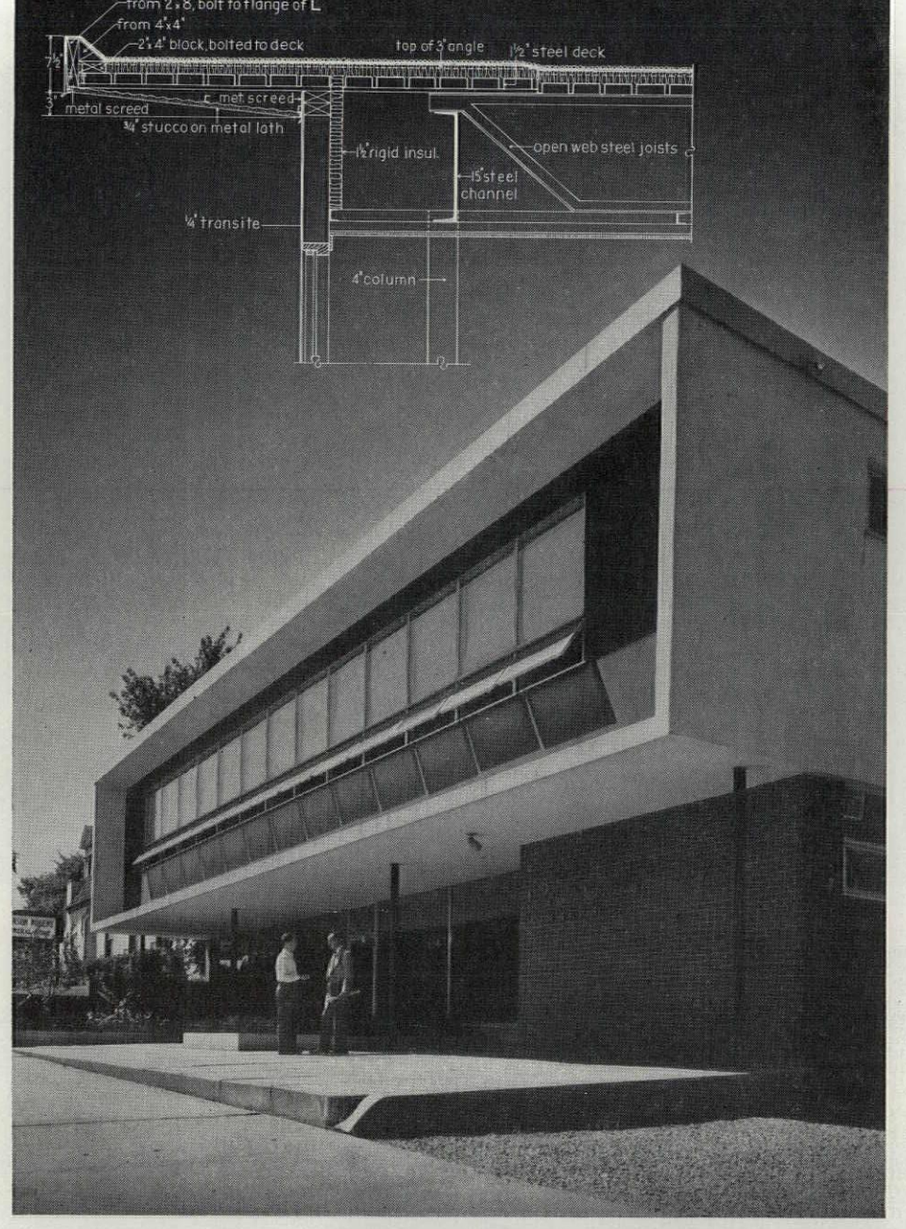
"The usual tendency towards extras," says Kelley, "is eliminated. With the preliminary design it was possible to give the Rosenbergs an accurate estimate, within 1½ per cent of the final cost. They could have stopped or changed their plans at this point incurring only a relatively low preliminary fee instead of the larger cost of full working drawings . . . If the owner wishes, under this scheme, he may let the job out to bids, paying us as separate architects and engineers."

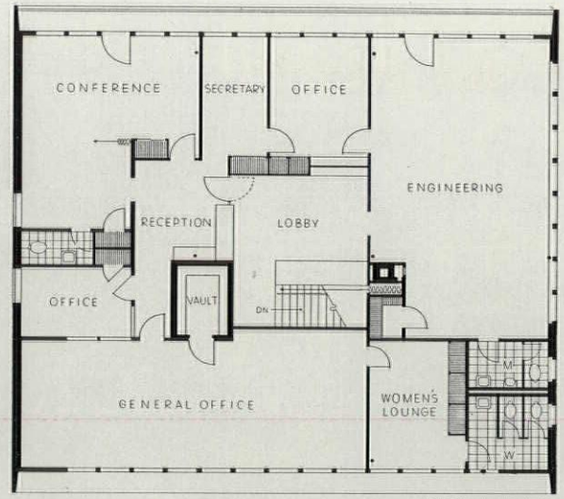


Cantilevered roof permits slim window detailing, and shades the sidewalk

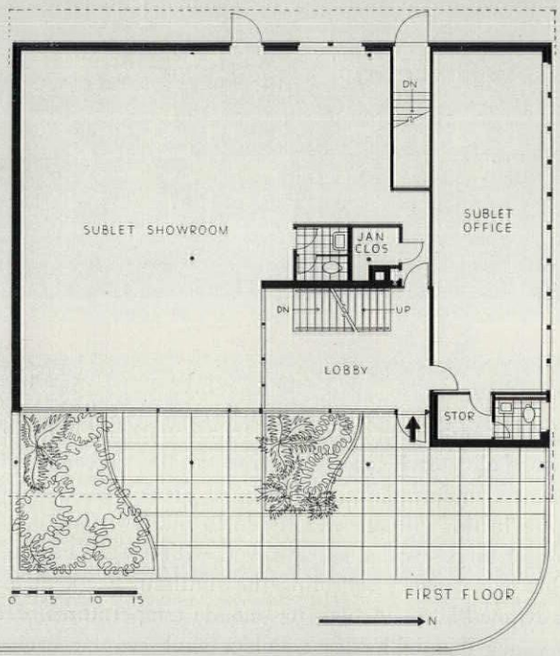


CONSTRUCTION OUTLINE: Waterproofing—A. C. Horn Co. Exterior walls—concrete block, Basalt Rock Co., and redwood siding inside and outside. Interior—concrete block, studs and gypsum board, U. S. Gypsum Co. ROOFING—Fiberglas, Owens-Corning Corp., asphalt and felt, Johns-Manville Corp. and marble chips. INSULATION—Owens-Corning Fiberglas Corp. and Johns-Manville Corp. WINDOWS: Sash—Kawneer Co. Glass—plate. FINISH FLOORS—Kentile, David E. Kennedy, Inc. FURNISHINGS—Federal Store Fixture Co. METAL TRIM—Kawneer Co. DOORS—Nicolai Door Sales Co. and Metalco, Inc. HARDWARE—Schlage Lock Co. PAINTS—Pratt & Lambert, Inc., California Stucco Co. and Garrett M. Goldberg Paint Co. ELECTRICAL INSTALLATION: Switches—General Electric Co. Fixtures—Swivelier Co. Signal system—Edwards & Co. PLUMBING FIXTURES—American Radiator-Standard Sanitary Corp. HEATING—warm air units, International Sales Co. Regulator—Minneapolis-Honeywell Regulator Co.

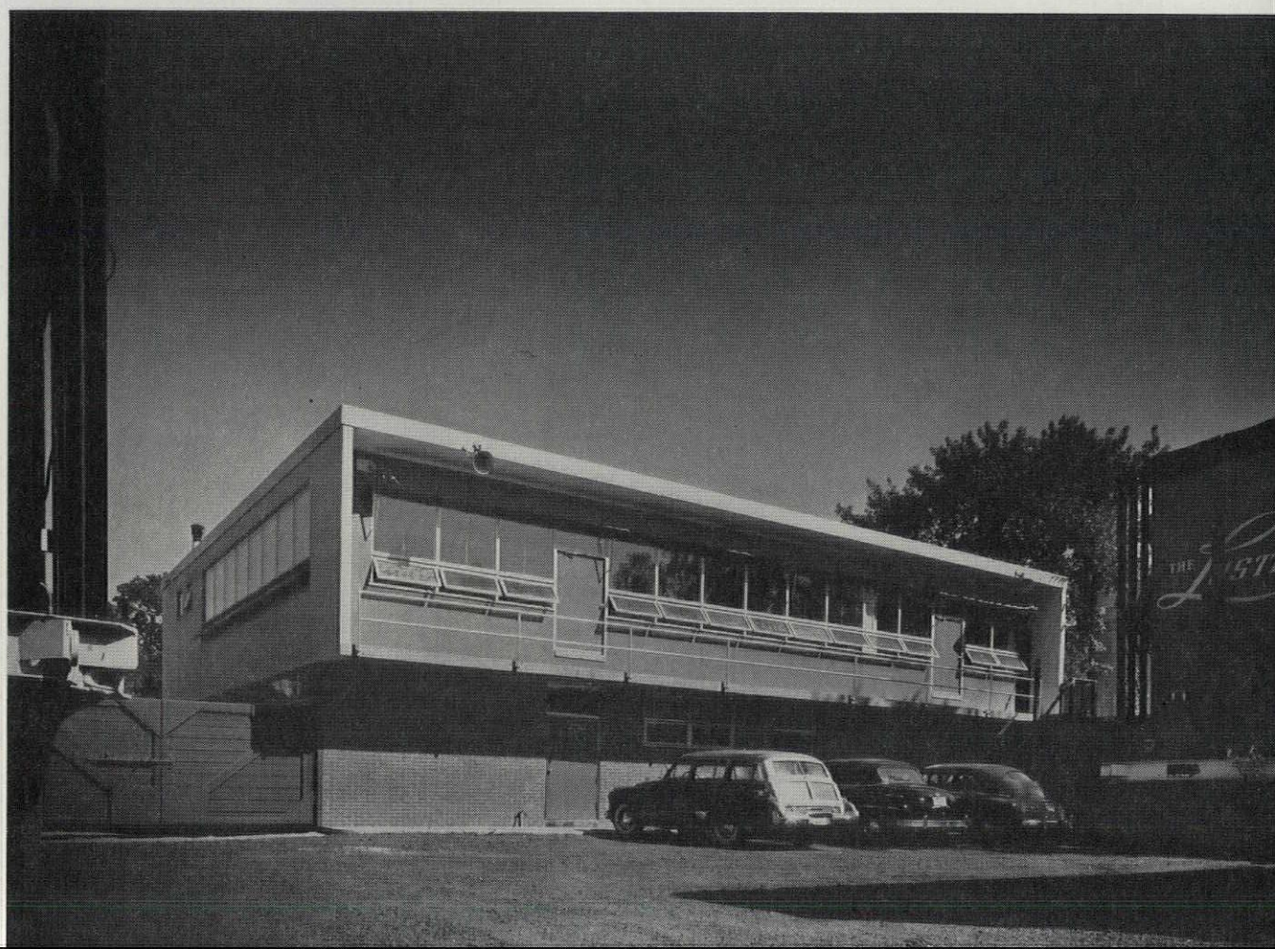




SECOND FLOOR



FIRST FLOOR



CONTRACTOR'S OFFICE is a handsome showcase for the skill of its owner

Why don't more builders' offices advertise their progressivism and demonstrate their skills? Here is a contractor who, after 42 years in an old, badly lighted, poorly planned office decided it was high time he brought his own plant into line with the kind of building his customers were asking him to erect for them.

His new building is more than an advertisement. It gives him compact, space-saving work space all on one level with plenty of light and air. And the income from the ground floor stores below will cut his own rent to no more than the old quarters used to cost.

Three essentials, lacking in their old quarters, were required of the new office: 1) compact work space all on one level, 2) plenty of light and air and 3) a structure "that would not be ten years old upon opening." Since the company was not looking for 'off-the-street' business, and since higher placement meant better light and air, both architects and owner-builders agreed that second-story offices would be best. This arrangement also left the commercially desirable first floor for subletting as store space.

Planning began from the top down. Three sides of the second floor—east, west and north—were opened up by continuous strip windows. Those of the east and west were set back 2 ft. 6 in. and 3 ft. respectively in concrete frames which serve double duty: the upper projections break sky-glare; the lower projection at the front gives protection to the main entrance and at the rear provides a balcony and exit to the parking lot. Set flush with the side wall, the north windows bring ideal light to the engineering office.

The brick and glass walls of the ground floor store space make a pleasing contrast with the concrete rectangle of the second story—and show Madsen's skill in another type of masonry. The glass enclosed entrance lobby is high-lighted by a cantilevered stairway of cream-colored terrazzo which directs attention to the Madsen offices upstairs. A metal folding door, set along the stair wall in the second floor reception room, allows the Madsen office to be completely locked off. So efficiently does this plan meet Madsen's needs that its functions fit smoothly into an area 10 per cent smaller than that of the cramped former quarters.

COST BREAKDOWN

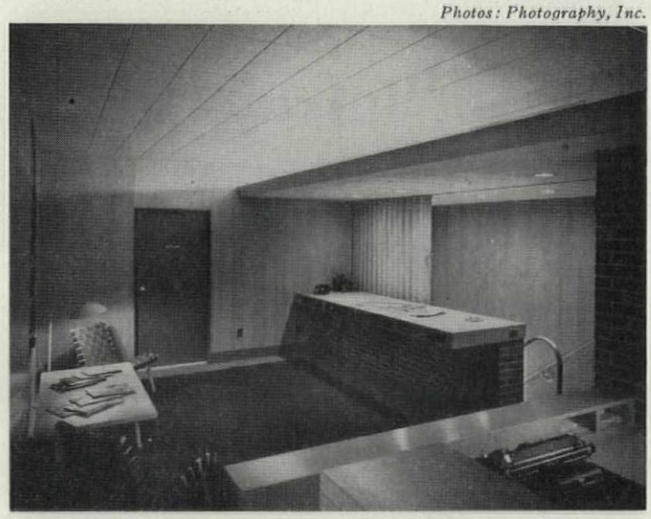
Land	$15,000
Foundation and site work	9,500
Framing	30,500
Masonry	19,500
Roofing and ventilation	3,500
Millwork, etc.	10,500
Floor surfacing & acoustical tile	7,600
Electrical work	9,600
Plumbing & heating	14,300
Fees	5,314
Total	$125,314

CONSTRUCTION OUTLINE: Exterior walls—face brick, clay tile back-up, plaster. Interior partitions—Martin Parry Co. and New Castle Products Co. ROOF—steel joists, Bethlehem Steel Co., steel deck, Wheeling Corrugating Co., Acousti-Celotex, Celotex Corp., built-up, Barrett Co. SHEET METAL WORK—Republic Steel Corp. INSULATION—Celotex Corp. and Wood Conversion Co. FINISH FLOORING—TileTex Co. and The Goodyear Tire & Rubber Co. DOORS—Kawneer Co. and New Castle Products Co. HARDWARE—Schlage Lock Co. PAINTS—Pratt & Lambert. ELECTRICAL INSTALLATION: Switches—Square D Co. Fans—Ilg Electric Ventilating Co. PLUMBING FIXTURES—Crane Co. HEATING: Burner—Ray Oil Burner Co. Radiators—Vulcan Mfg. Co. Regulators—Minneapolis-Honeywell Regulator Co. Valves and water heater—Crane Co. Pump—Bell & Gossett Co.

LOCATION: Minneapolis, Minn.
LONG & THORSHOV, Architects
MADSEN CONSTRUCTION CO., Owners and Builders

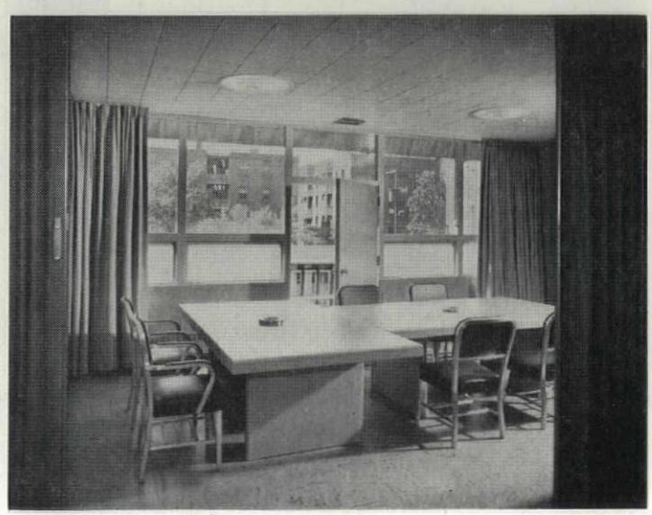
Entry and ground floor lobby

Photos: Photography, Inc.

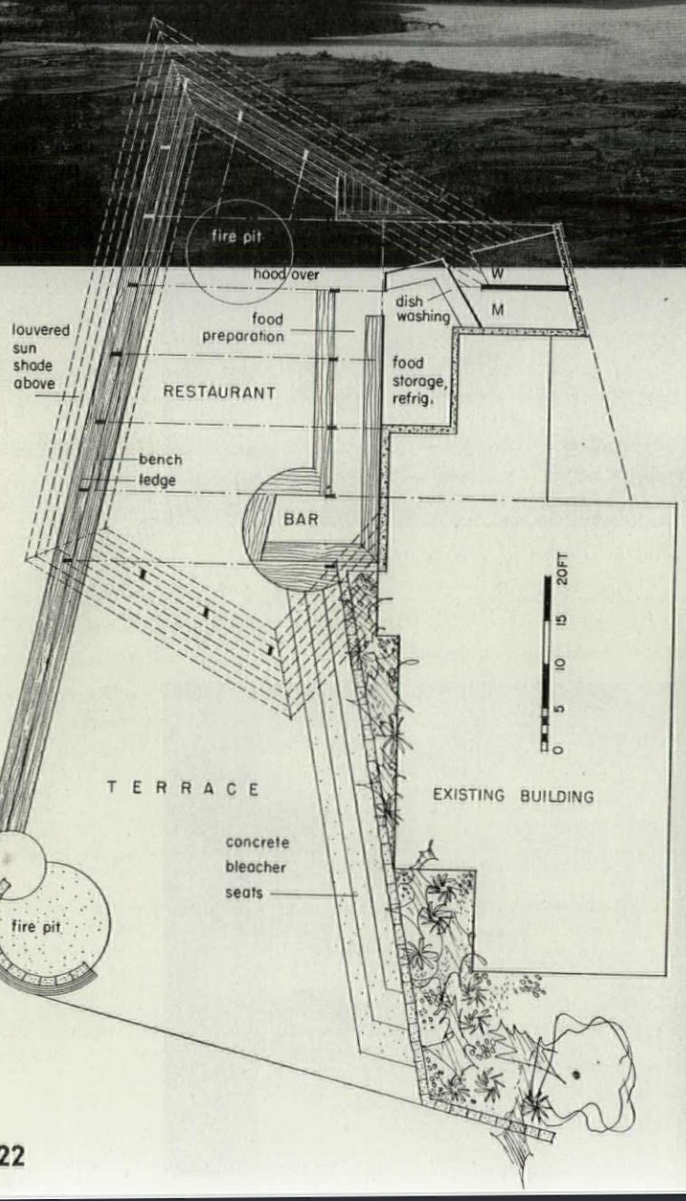


Second floor reception room with folding wall

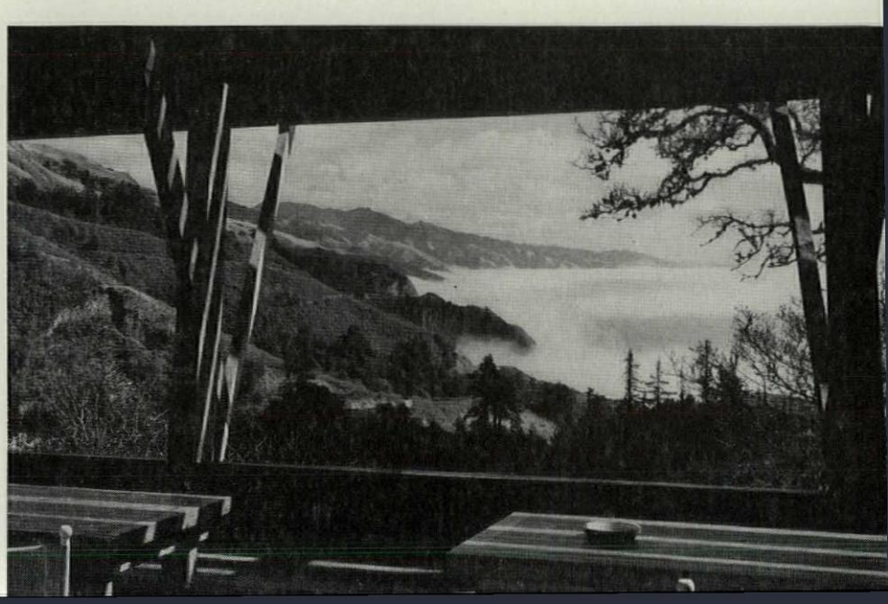
Conference room with door to rear balcony



Morley Baer



Terrace (above) is a concrete slab extension of the dining room, bounded on the left by a trussed sun shade, on the right by concrete bleacher seats, a retaining wall and the log cabin lodge. Below, the Pacific view is framed in a wooden lattice comprised of roof, trusses, built-in bench and gnarled trees.



OPEN-AIR RESTAURANT

exploits the beauty of a hilltop site overlooking the Pacific

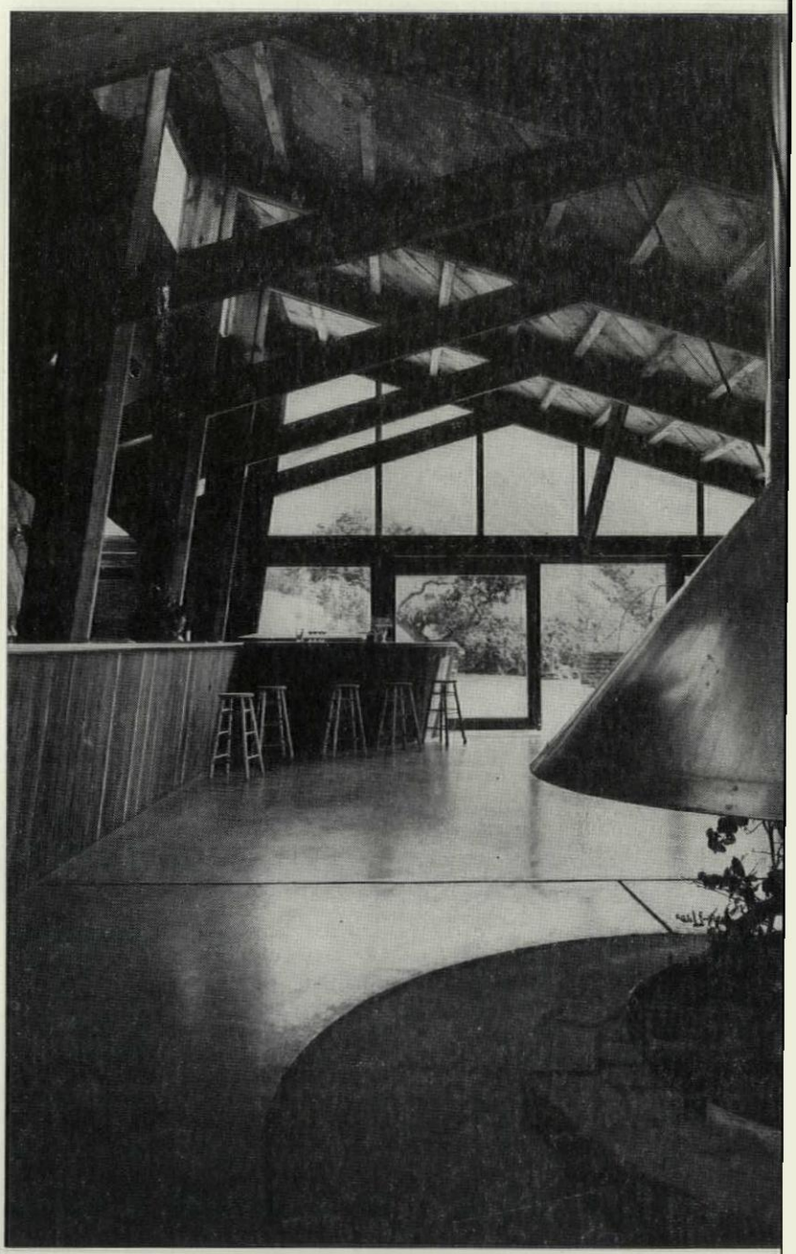
LOCATION: Big Sur, Calif.
ROWAN MAIDEN, Designer
TROTTER BROS., Builders

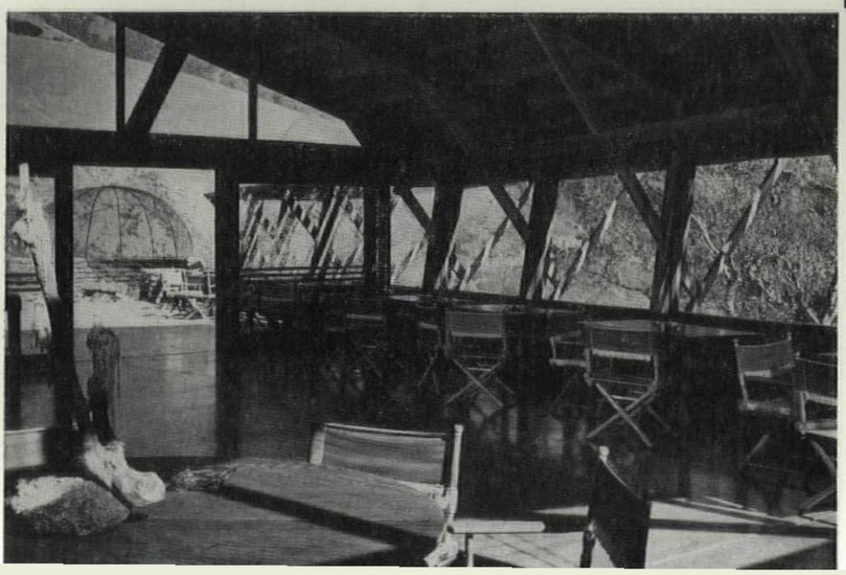
This little Nepenthe Restaurant in the Big Sur county 30 miles south of Monterey occupies one of the most beautiful sites in the U. S. Perched atop a hill overlooking the Pacific, it is designed to exploit an inspiring countryside, where Henry Miller is literary arbiter, where Robinson Jeffers writes searing poetry and where the local god is strongly suspected of being Eros. (The original log cabin on the site was in fact acquired from that goddess of love for the average American male, Rita Hayworth.)

This restaurant is of more than local interest, however, for it raises up into real architecture the kind of fantasy that already exists all up and down the American highways—a fantasy that is deeply rooted in the hearts of truck drivers and shoe salesmen, Woolworth girls and movie queens, but that ordinarily results in buildings of the Mother Goose variety.

A disciple of Frank Lloyd Wright, the designer has used a Wrightian pattern of trusses of rough sawn lumber to create a very pleasant room opening on a very pleasant terrace. The open truss work is continued out along the terrace where the lattice work provides welcome shade for a fair portion of the tables. The terrace is paved with concrete; the approach, with discs cut from huge redwood logs—some of them 4 ft. in diameter. The blocks of the barbecue wall and the retaining wall for the adjoining log cabin are made of a cement of decomposed granite.

As to costs, Owner Bill Fassett says, "the antipathy between old-line country builders raised the cost to $22,000." However, his new restaurant is such a business success that he plans to add a series of cabins for "out-of-town" visitors, who have been attracted by the spread of the restaurant's fame "all the way to New York and Lake Louise."





Angular lines of dining room structure are complimented by circular shape of the bar and the fireplace with its metal hood (above). Right, a view from the dining room toward the terrace barbecue pit.

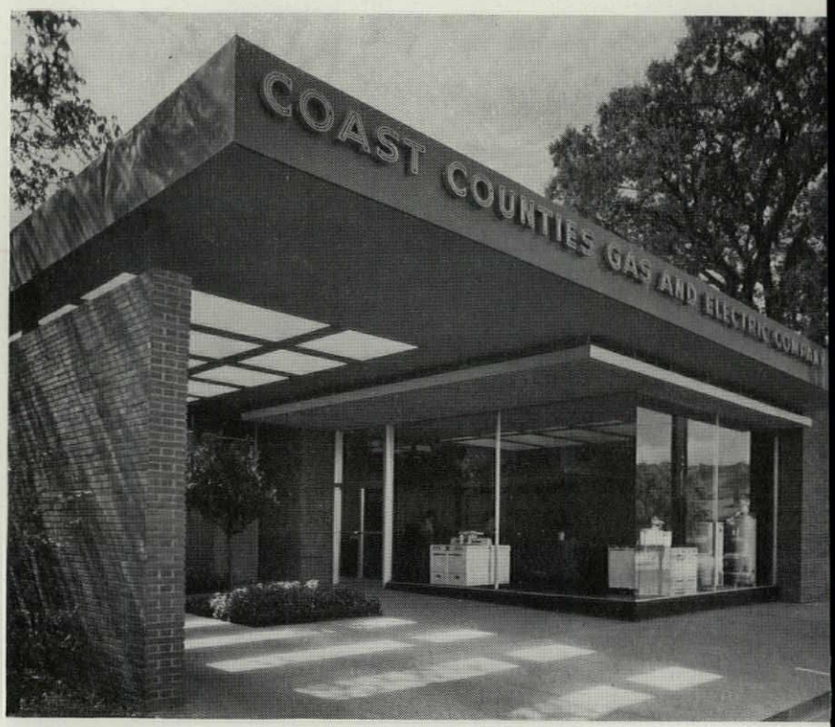
CONSTRUCTION OUTLINE: Walls—glass and redwood. ROOFING—built-up, Pabco, Paraffine Co.'s SHEET METAL WORK—Armco Steel Corp. WINDOWS: Glass—Pittsburgh Plate Glass Co. FLOOR FINISH—A. C. Horn Co. HARDWARE—Schlage Lock Co. ELECTRICAL INSTALLATION: Wiring—Romex, General Cable Corp. Switches—Westinghouse Electric Corp. Fixtures—Kurt Versen, Inc., Grills—Hotpoint, Inc. PLUMBING FIXTURES — American Radiator-Standard Sanitary Corp.

OFFICE SHOWROOM for gas and electric company doubles as a community meeting place to boost appliance sales and public relations

LOCATION: Walnut Creek, Calif.
ANSHEN & ALLEN, Architects
VESEY CONSTRUCTION CO., Builders

Conceivably, the community room provided by the Coast Counties Gas & Electric Co. could be used for a meeting of dissatisfied utilities users to beef about rates and service. The fact that it exists at all, however, is likely to ground a lot of traditional anti-utilities sentiment. Here, by incorporating a smart design idea, company officials have mixed salesmanship of appliances using gas or electricity with public relations and civic usefulness: community groups are invited to make use of the large lounge for their meetings.

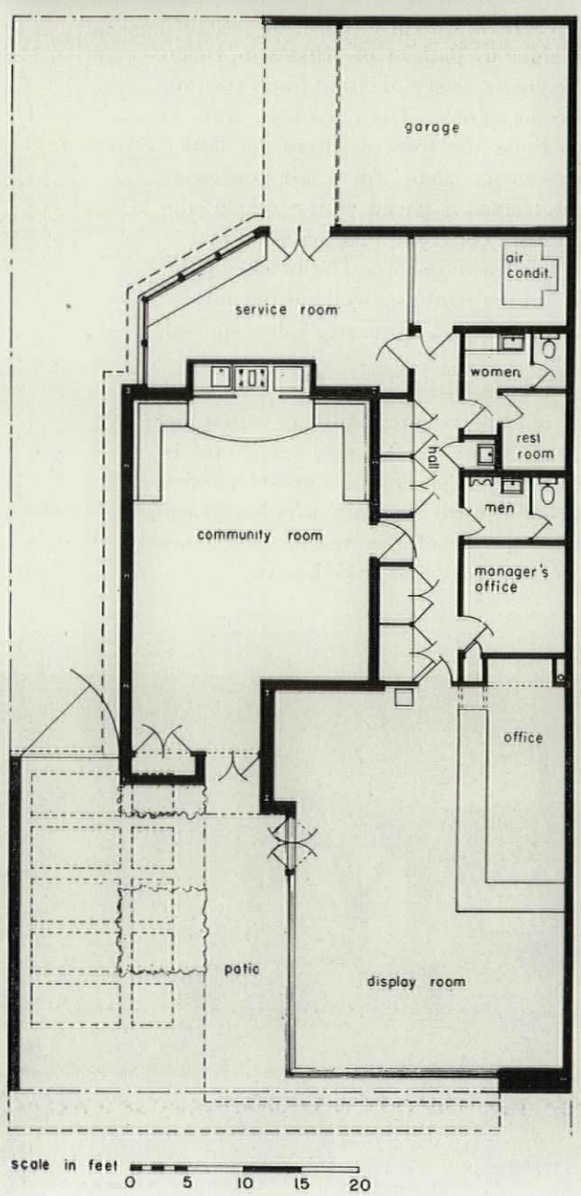
Architecturally, the building is pleasantly suburban and open. Furnishings, however, are more consistent with the smoky discussion of local affairs than good taste. Even so, the company has managed to de-emphasize the commercial core of its office by making it something more than a place where customers pay their bills. The terrazzo paved entrance court, brick walls (inside and out), and wood paneling all serve to informalize a type of structure which is usually rigidly functional. Total cost was $80,000, with brickwork ($7,500) the largest single item.



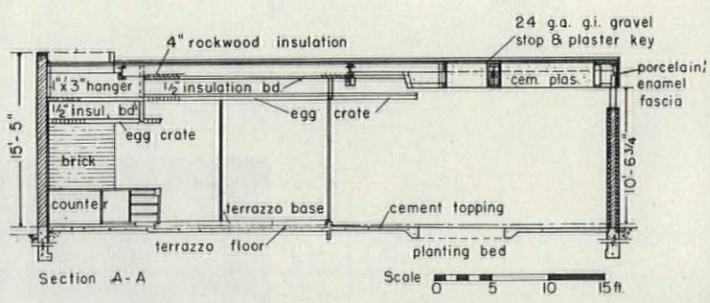
COST BREAKDOWN

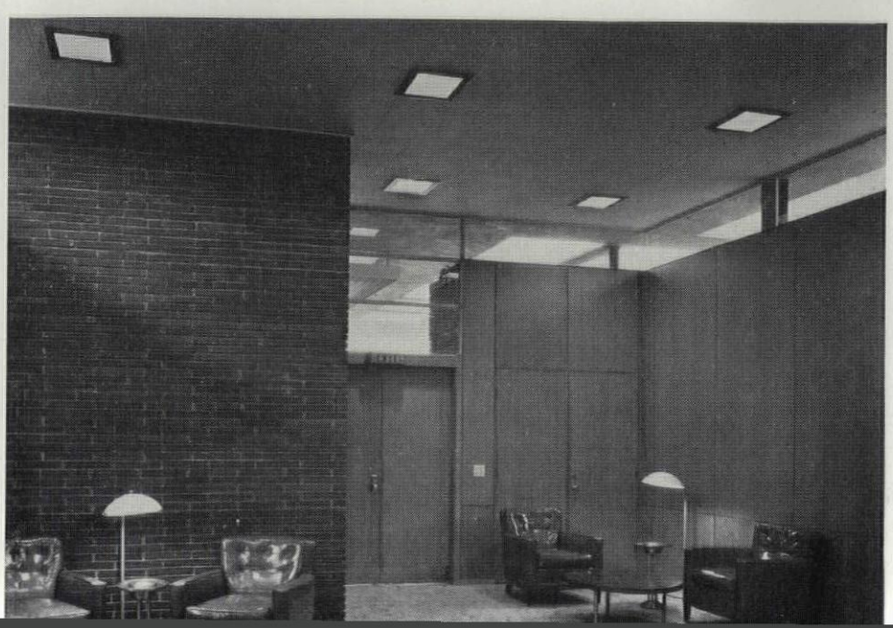
Surety bond	$590
Excavation and grading	1,900
Rockfill & paving	800
Concrete in place	5,600
Brickwork	7,500
Structural steel	3,500
Rough carpentry	5,110
Finish hardware	575
Millwork	9,000
Acoustical tile	800
Steel sash	650
Roofing	725
Heating & sheetmetal	3,814
Plastering	3,800
Ceramic tile	300
Terrazzo	1,900
Glass & metal trim	3,000
Painting	1,800
Asphalt tile	450
Plumbing	3,500
Electrical	3,700
Aluminum ceiling	2,780
Light fixtures	3,720
Air conditioning	2,800
Neon sign and porcelain enamel fascia	2,000
Change orders	637
Furniture	3,250
Architect's fee	5,761
Total	$79,962

CONSTRUCTION OUTLINE: Exterior walls—concrete block with cement plaster or brick exterior finish. Interior finish—¼ in. oak plywood, U. S. Plywood Corp. or plaster. Floors—reinforced concrete slab. ROOFING—5-ply tar and gravel. SOUND INSULATION—Johns-Manville Corp. Windows: Sash—aluminum, Kawneer Co.; rolled steel—Michel & Pfeffer. FINISH FLOORS—tile, Gladding, McBean & Co. and Armstrong Cork Co. DOORS (exterior)—aluminum, Kawneer Co. HARDWARE—Kawneer Co. and Lockwood Hardware Mfg. Co. PAINTS—W. P. Fuller Co. ELECTRICAL INSTALLATION: Switches—General Electric Co. Exterior lettering—Electrical Products Co. Egg-crate ceiling—Pacific Full-O-Lite Corp. PLUMBING FIXTURES—American Radiator-Standard Sanitary Corp. Water pipes—A. M. Byers Co. KITCHEN EQUIPMENT—Servel, Inc. HEATING AND AIR CONDITIONING—all-year gas air conditioner, Servel, Inc. Anemostat—Anemostat Corp. Registers—Hart & Cooley Mfg. Co. Grilles—Tuttle & Bailey, Inc. and Hart & Cooley Mfg. Co.



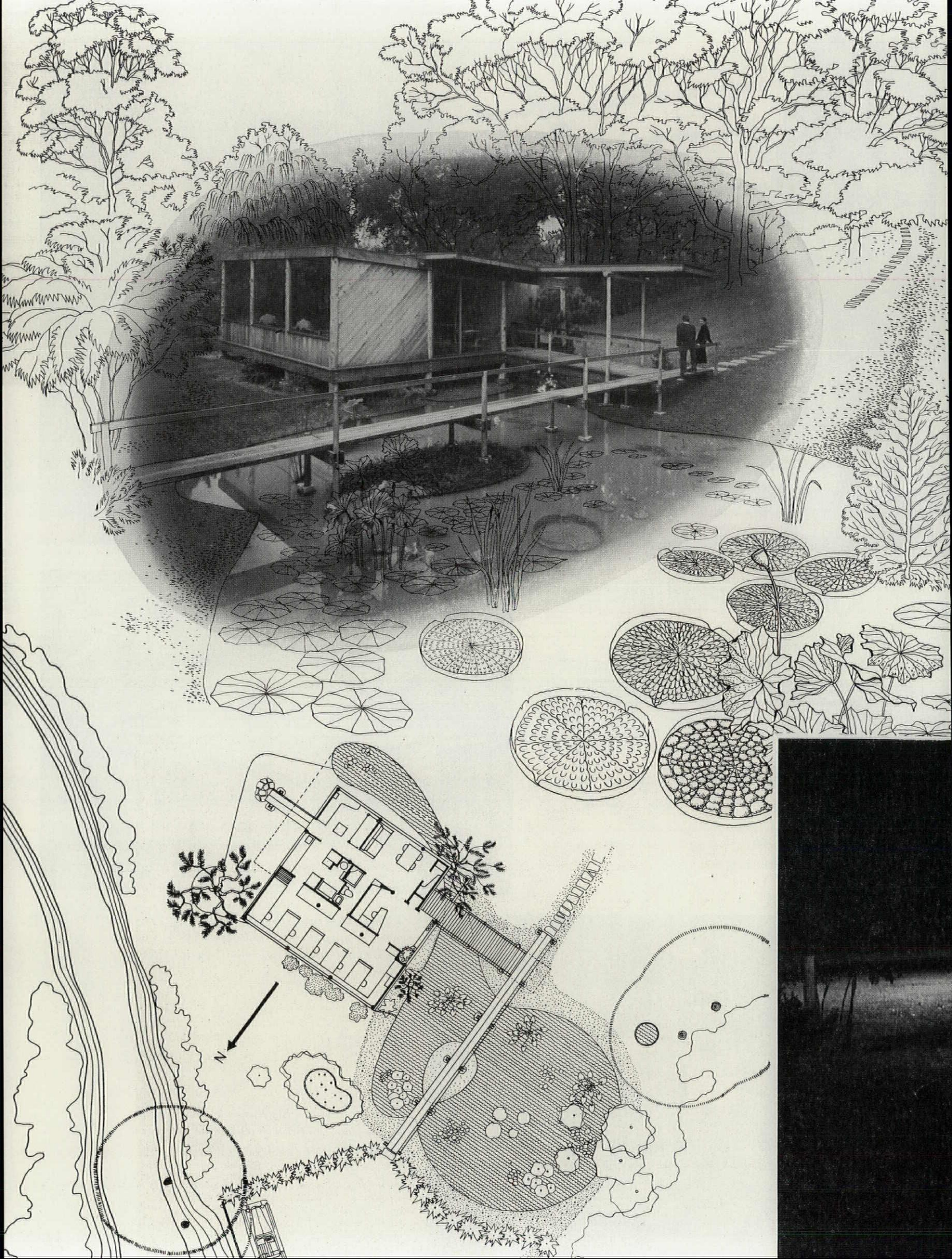
Roger Sturtevant





A glass-roofed patio (upper photo) and an egg-crate ceiling (just above) make sure that the entrance to the office and community room is lighted day and night.

The community room (left) serves as a lounge and meeting place. A brick wall relieves the monotony of paneled surfaces, but club car chairs fight with their design surroundings, as well as with lamps and tables.



ARCHITECT'S OFFICE AND GUESTHOUSE

LOCATION: Kirkwood, Mo.
HARRIS ARMSTRONG, Owner and Architect

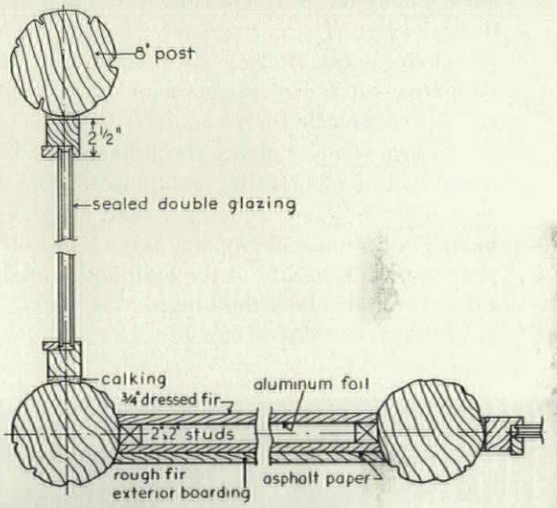
Photos: Hedrich Blessing

Japanese is the word that comes easily to mind when Harris Armstrong's new office-guest house is first seen. But behind the nicely proportioned romantic little building by the edge of a delicately edged pond is a lot of good St. Louis horse sense.

How many architects or other business professionals can examine these pictures of the Armstrong office and say they have a pleasanter place to work? How few can dredge up rent or amortization figures to compare with the $18,500 cost of this building — the $18,500 includes not only pleasant views but also mechanical air conditioning! And, in final painful comparison, how many can get to their offices by walking down a short flagstone path in the morning, as the Armstrongs can?

Since 1938, until the completion of their new pagoda, they've operated from a 15 x 17 ft. "drafting wing" added to their home, which is on this same piece of property in suburban Kirkwood, 13 miles southwest of the Union Station in St. Louis.

Their endorsement of suburban office life is this new building, which is also designed for use as a guest house (there is a convertible bed in the library) as well as an architectural office.

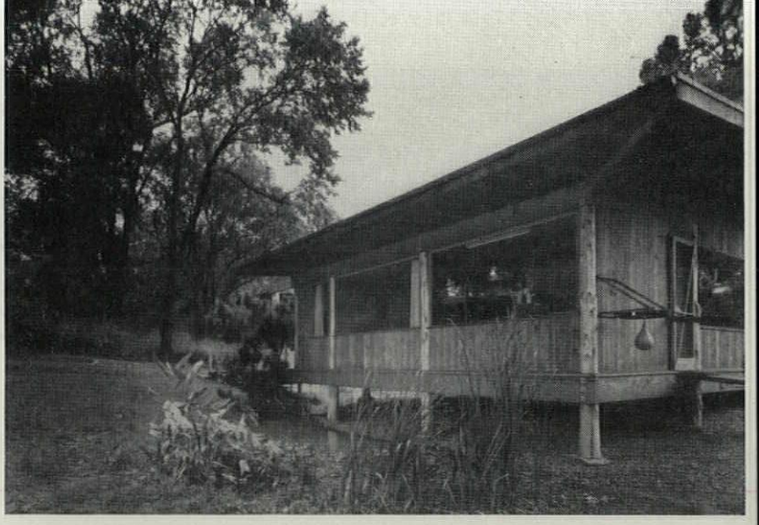


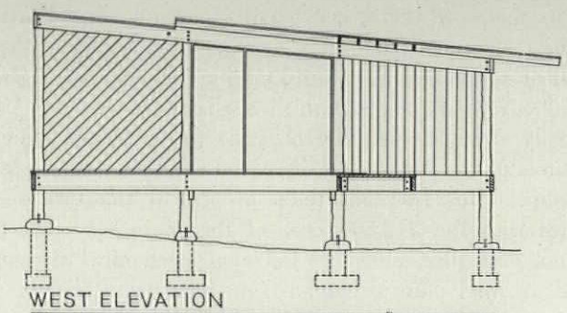
The structural frame is composed of 16 peeled cedar posts set regularly on concrete footings with 2 x 2 in. studs framing the walls. Rough fir exterior boarding is backed by asphalt paper, sheathing, and aluminum foil. The interior finish is ¾ in. dressed fir or ½ in. plaster board covered with green or gold shantung. Floors are random width specially run pecan planks, over ample insulation.

Orientation of the big window in the drafting room is north. The building was laid out by sun position on June 21, and no direct sun enters the drafting room between 9 and 5 at any time of the year. Fluorescent fixtures are over each board, sunk in the ceiling, which is canvassed and painted white. The lamps are controlled by an electric eye which turns them on whenever the room foot-candle reading falls below 50. On a cloudy day with intermittent sun, this may occur 12 or 15 times, but the adjustment is close enough to make the switching barely perceptible. Other lighting fixtures include a Isamu Noguchi light sculpture (see photo).

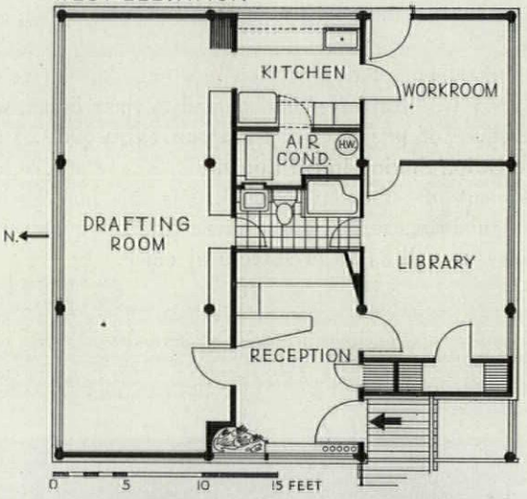
A kitchen was included for several reasons: first, because the house is zoned as a residence (and planned that way too, basically); second, because guests might want to set their own rising times and cook their own breakfasts; finally, because draftsmen cannot go across the street to buy lunch—there is no street, and they either bring or make their lunches. The partners have found, incidentally, that the pleasant environment attracts able employees. The lake is not strictly decorative—it is necessary to dam severe floods from a nearby creek and as a receptacle for waste water from the air conditioning system.

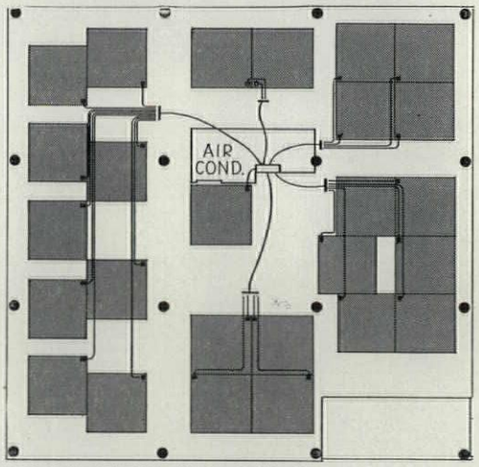
The firm comes out way ahead financially on comparison with the rental cost of regular air-conditioned office space in St. Louis, which runs about $3.50 per sq. ft. per year. On this basis, their 900 sq. ft., including heating, cooling, and water, is $1,800 cheaper in Kirkwood per year, with the life of the building figured at 20 years—a happy comparison all along the line.





WEST ELEVATION



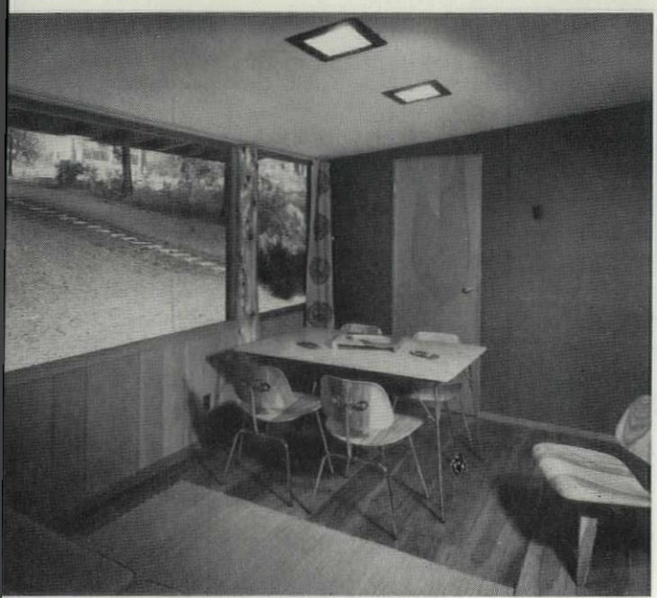


CEILING HEATING PANEL LAYOUT

Heating is by radiant electric panels in ceiling, as shown in layout above. Additional panels are necessary to heat legs under drafting tables and desk, since ceiling radiation is blocked. Three-ton cooling unit deposits waste water in garden pool. Costs over full year of heating and cooling, including water, were $362.82.

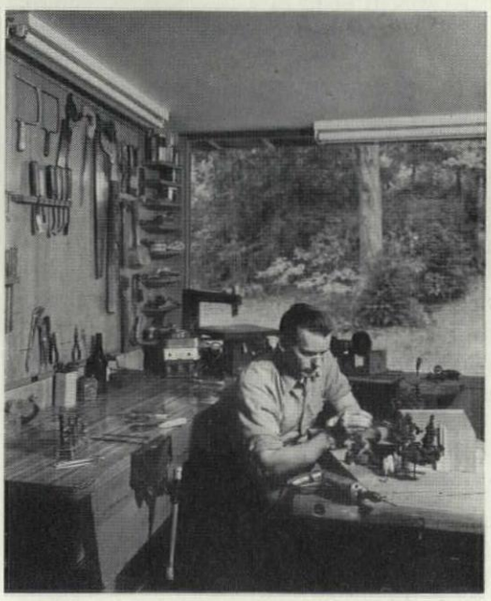
View down pleasant drafting room

Dining and conference



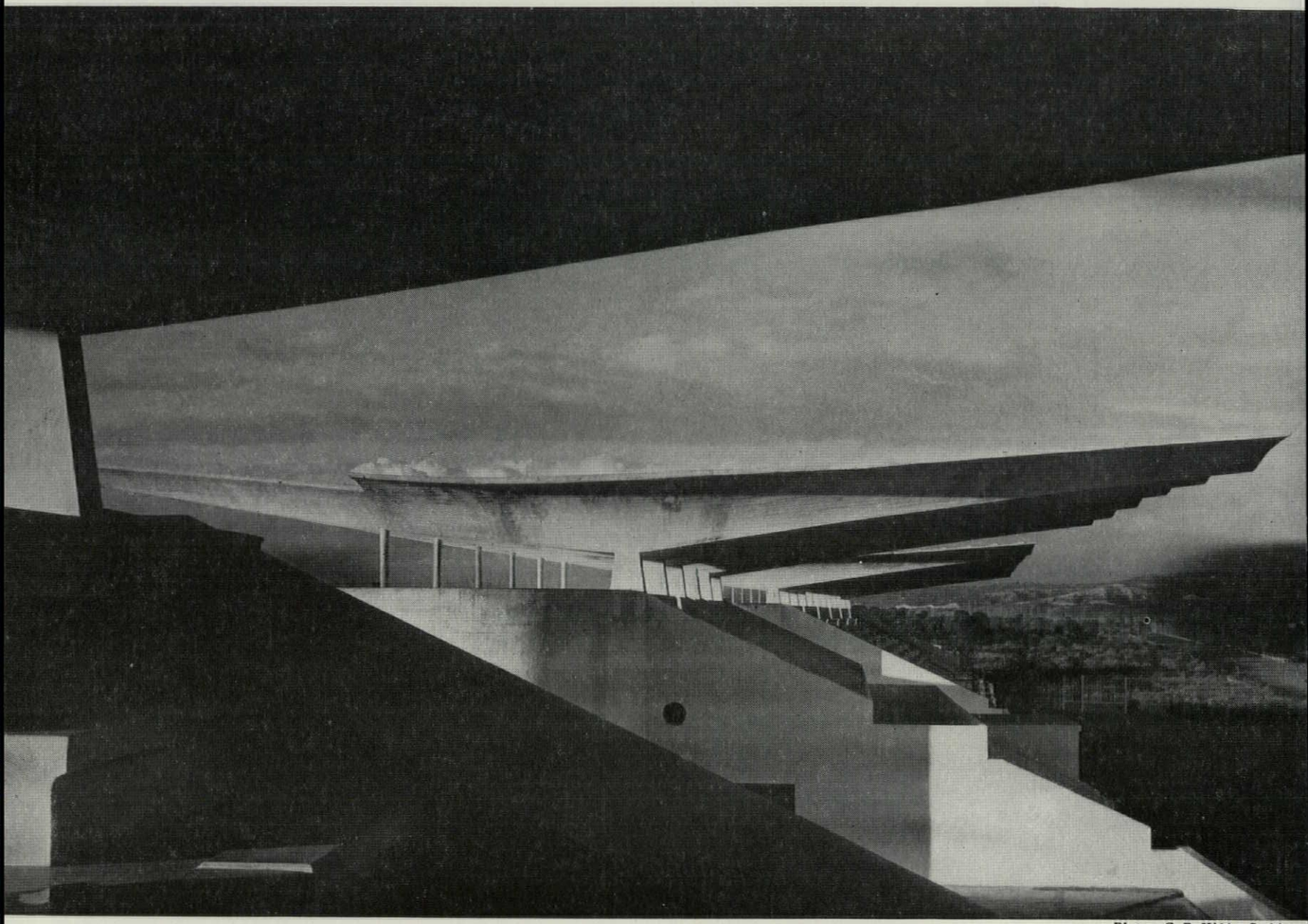
CONSTRUCTION OUTLINE: Exterior walls, fir, building paper, sheathing, studs and insulation; inside—Sheetrock, U. S. Gypsum Co. Ceiling—prefab electric panels, Uskon, U. S. Rubber Co. and ¼ in. Presdwood, U. S. Plywood Corp. ROOFING — built-up, Philip Carey Co. INSULATION—Celotex Corp. and Eagle-Picher Co. WINDOWS: Glass—Thermopane, Libbey-Owens-Ford Glass Co. Bathrooms—tile, Mosaic Tile Co. HARDWARE—Sargent & Co. ELECTRICAL FIXTURES: Wiring—Bx. Switches—General Electric Co. Fixtures — Isamu Noguchi, Kurt Versen, Daybrite Lighting, Inc. KITCHEN EQUIPMENT: Range—General Electric Co. Disposall—General Electric Co. Fan—Westinghouse Electric Corp. BATHROOM EQUIPMENT—Crane Co. HEATING—ceiling radiant heating system, Uskon, U. S. Rubber Co. AIR CONDITIONING—York Corp. Regulators—Minneapolis-Honeywell Regulator Co. and Westinghouse Electric Corp. and Mercoid Corp.

Model-making room in use



SOARING CONCRETE CANOPIES shelter the Madrid Hippodrome

EDUARDO TORROJA, Engineer

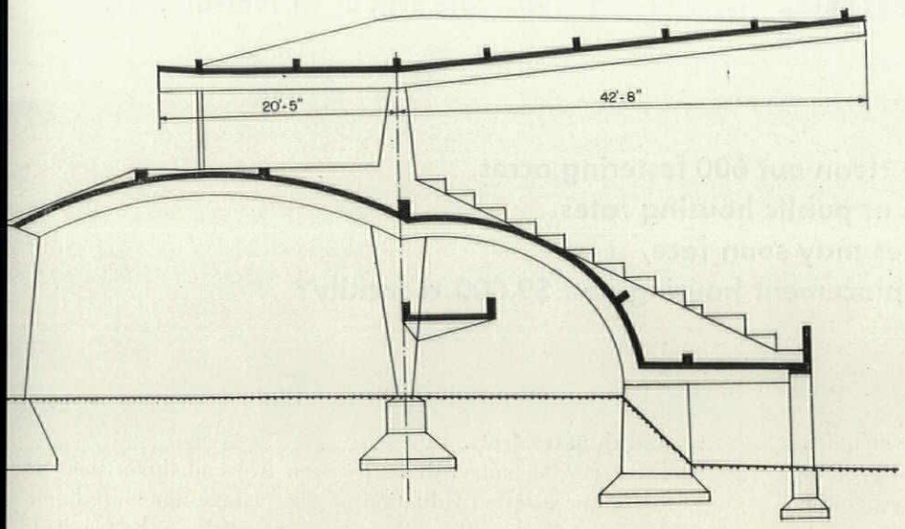


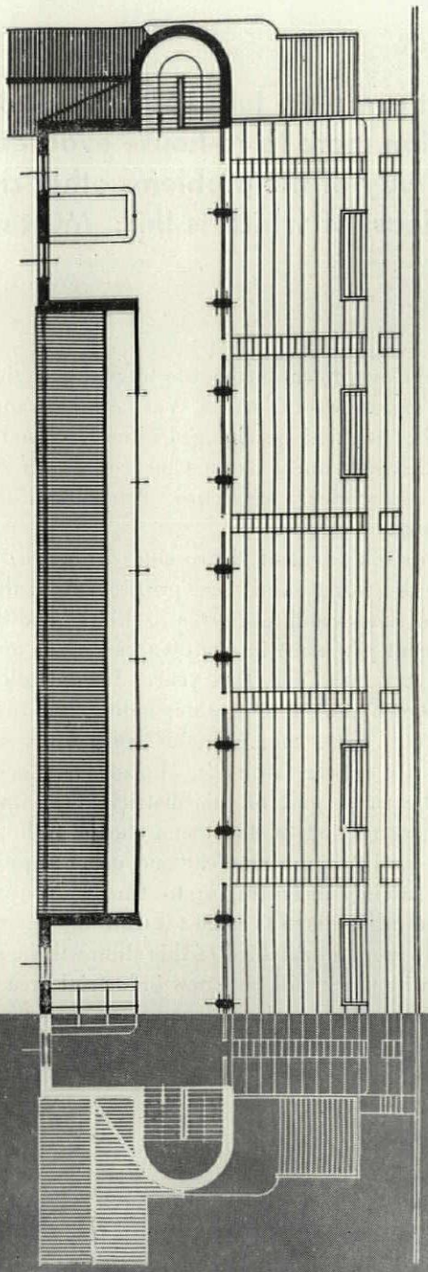
Photos: G. E. Kidder Smith

It is difficult to look at the reinforced concrete canopies of the Madrid Hippodrome and still remember that they are static structures. The shells, their repeated barrel forms rippling the length of each shelter and their great cantilevers reaching out 42 ft. to shade remarkably large areas without support, are more like birds which have lighted on the top of the grandstand in that instant before they fold their wings.

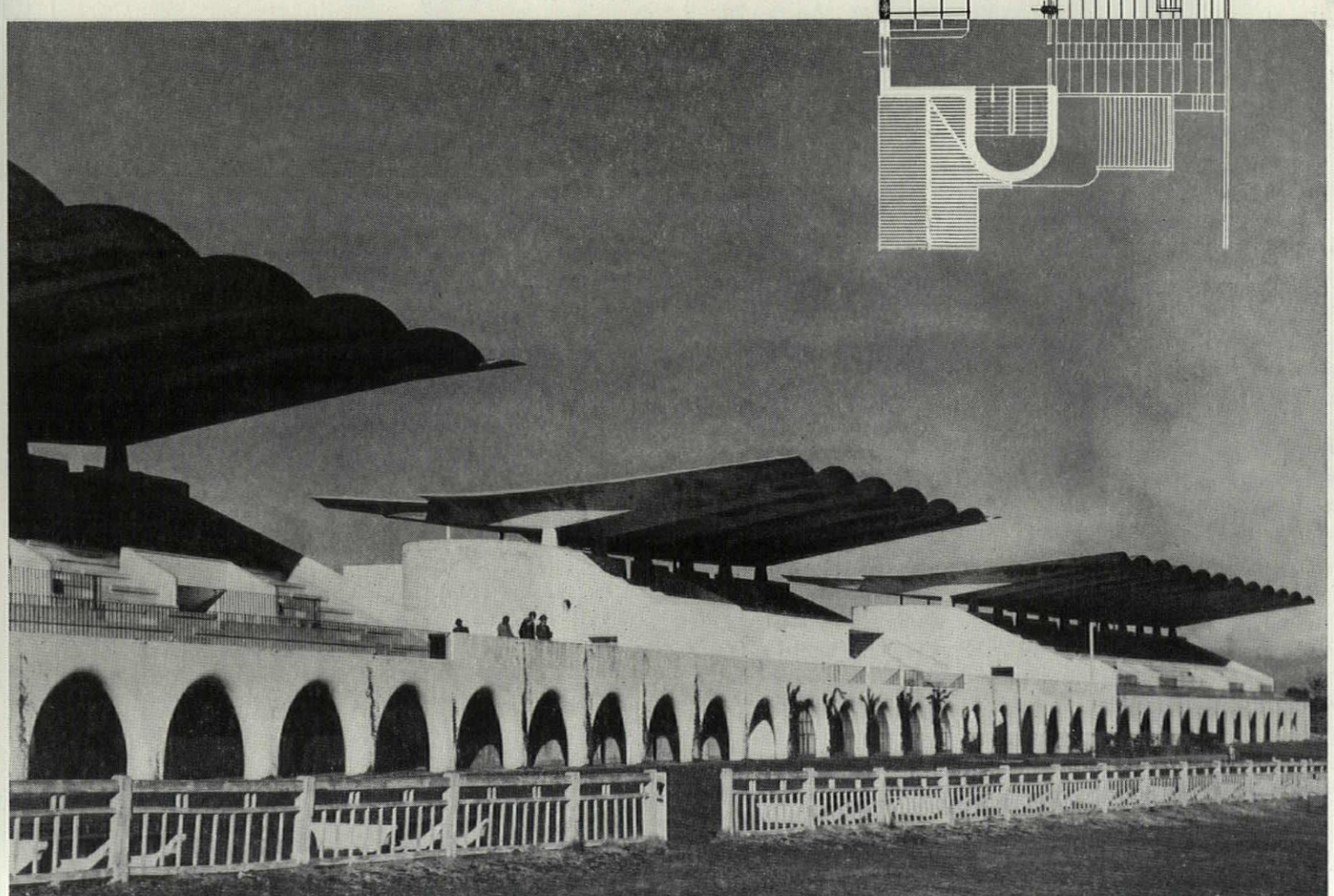
The strength of these beautiful cantilevers is an inspired application of the principles of shell concrete design. Each long scallop of concrete can be thought of as an independent projecting beam. The stresses are tension at the crown and compression at the lower edge, connected by shear in the barrel of the shell.

Designer Eduardo Torroja is the man who has been called the greatest living engineer by no less an architect than Frank Lloyd Wright. His Madrid Hippodrome is good evidence. For a further discussion of Engineer Torroja's work, see "Report from Spain and Portugal," by G. E. Kidder Smith, page 72.





Diagrammatic section through grandstand indicates striking conception of structure. Note from shape of cantilevered shelter above (see also bottom photo opposite page) that undersurfaces of repeated shells are not cylindrical. The flat arcs of the outer unsupported edges deepen in the sweep-in toward the supports, where the greatest bending moments are, and form hyperboloids. Test models erected before the canopy was put under construction were loaded successfully to prove out a factor of safety of nine.



FEDERAL SLUM CLEARANCE gets its first full scale tryout in Norfolk, Va.

Cost of a complete job—$10 million to clean out 600 festering acres, $80 million more to re-house evacuees at public housing rates. A case study of the problems other cities may soon face, not the least of which is this: Must replacement housing cost $9,000 a family?

The Federal Government is about to wave the magic wand of its spending program over Norfolk, Va. As the wand waves, the center of the city will be changed almost beyond recognition and the U.S. will witness its first large-scale demonstration of just how the slum clearance section of the 1949 Public Housing Act will work.

Today Norfolk's central Negro slum is known far and wide as perhaps the worst (and most profitable) in the country—600 acres of shacks and tenements so dilapidated that the average assessment per home in one 80-acre tract is only $400 and its average tax only $10.80 a year. Inside toilets are practically unknown and running water indoors the rare exception. Into these 600 acres some 35,000 Negroes are crowded and packed, with a whole family in almost every room in many blocks. The worst part of this district backs up against the main business section of town and the best shopping street. Four main radial highways dead-end on the opposite side of the slum, leaving their traffic to find its way through its crowded and narrow streets as best it can.

Five years from now a third of this slum will be gone without a trace. In its place will be a new industrial area running two miles along the city's main railroad tracks, a new parking belt adjoining the city's shopping center, a new six-lane belt highway swinging around the district, four new 100-ft. traffic arteries, and six new public housing projects to house 3,000 families displaced by the improvement. (All but two of these housing projects will be on raw land on the outskirts of the city.)

Biggest program ever

Perhaps a comparison with New York's Stuyvesant Town will dramatize the magnitude of the Norfolk undertaking. Stuyvesant Town is the biggest housing project erected anywhere since the war, but its 75 acres of slum-cleared land is little more than a third of the 207 acres now scheduled for redevelopment in Norfolk. New York has 40 times the population of Norfolk, but all New York's postwar slum clearance acreage adds up to less than twice Norfolk's present undertaking.

The whole Norfolk clearance will cost the city treasury only $1.9 million, and even this $1.9 million can be worked off, not in cash but in new schools, utilities, and street-widenings for which the city would have to put up the money anyhow.

The Federal Government cost of the slum clearance part of the Redevelopment Program will be only about $3.8 million for buying up the blighted acres, tearing down their buildings, and reselling the salvaged land for what it will bring. But the total Federal cost will be closer to $30 million, since the other half of the program is the erection of some 3,000 public housing units costing between $8,000 and $9,000 apiece for the displaced slum residents.

These $9,000 units will be between two and three times as costly as the assessed valuation of the average non-slum home in Norfolk. They will be about twice as costly as the two-bedroom units in two Negro "garden apartments" on which FHA has just issued 608 commitments for 90 per cent loans of $4,200—332 units just over the city line and 150 on the edge of the city. The $9,000 public housing will have heat and hot water and rent for $21 to $23. The $4,600 FHA housing will be unheated, cold water flats and rent for $40.

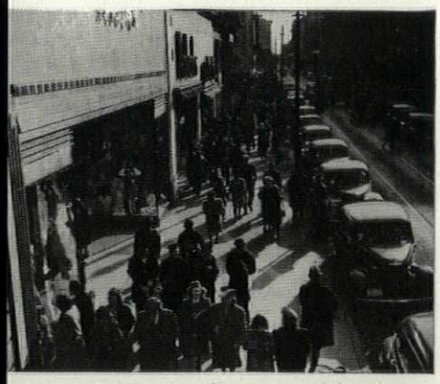
The cost of this public housing is so high that only about one-third of the total slum clearance job can be tackled within the next five years. There is no plan to touch the other 400 equally bad slum acres until another public housing program comes along in Washington. On this basis, salvaging the entire slum would cost the Federal Government between $75,000,000 and $90,000,000, of which less than $10,000,000 would go for slum clearance and the other $80,000,000 for erecting high cost housing for bottom income families.

No public housing alternative?

The conservative business men who are sponsoring and directing Norfolk's redevelopment program wish they could find some self-supporting private enterprise alternative for such a costly public housing program, but the problem is complicated by two special circumstances: 1) the zooming increase in Norfolk's population; 2) the pattern of Norfolk's racial segregation.

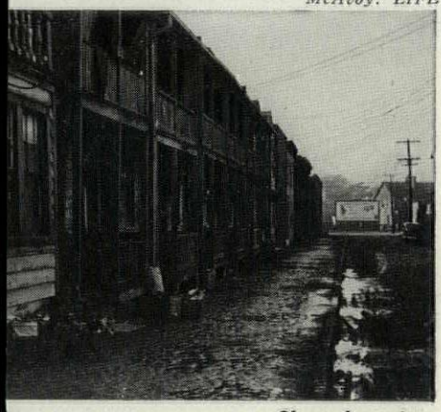
Since 1940 the white population of Norfolk has increased roughly from 95,000 to 130,000; the Negro population roughly from 45,000 to 65,000—practically all of it strictly segregated in a narrow pie slice running from the City Hall to the city line. Almost enough new housing units for Whites have been erected to keep pace with the increase in White population, but almost the only new units erected for Negros since 1940 are two public housing projects for a total of 1,200 families and 208 two-bedroom 546 sq. ft. units in an FHA project now nearing completion. Some of the Negro population pressure has been relieved by breaking through the barriers of Brambleton, the only small (1,100-home) White neighborhood in the Negro wedge. But most of the pressure has had to be met by doubling up again and again. Half the families in the slum areas are now doubled up in one- and two-room apartments, or taking boarders.

The average 1949 income of all the families who will be displaced by the slum clearance program was only $1,490, and in one 80-block area only 6 per cent had incomes sufficient to meet, on a 20-per-cent-of-income basis, the $40 to $45 rent schedules of the three FHA units for Negroes.

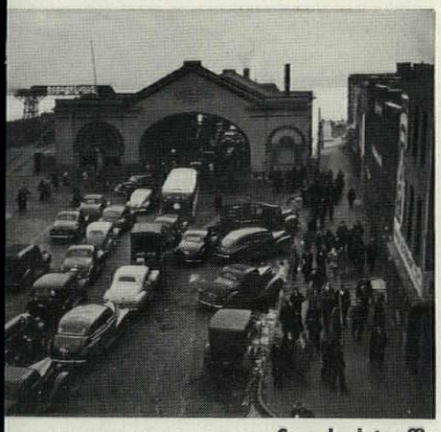


Congested business

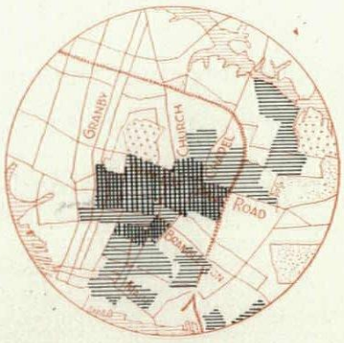
McAvoy: LIFE

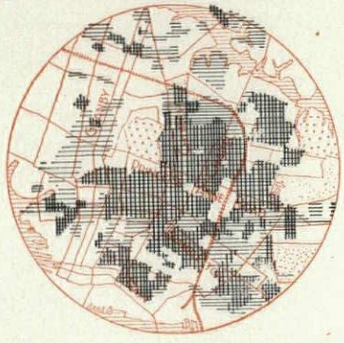


Slum housing



Snarled traffic





Circled maps show three of the many indices which planners used in selecting the slum area to be razed: low assessed values (top), dwellings needing repairs (center), frequency of fire calls (bottom). In each case, hatched areas indicate worst conditions.

Even if the Redevelopment Authority should succeed in interesting FHA and private capital in erecting 3,000 new units for the estimated 10 per cent of Norfolk's Negroes who could afford their rents, the Negro overcrowding is now so great that the effect of supplying these units for the top income Negro families might never be felt at all by the bottom income Negro families for whom new homes must be found before their present rookeries can be torn down.

There are three big personal reasons why Norfolk has the jump on every other city in slum clearance under Title I.

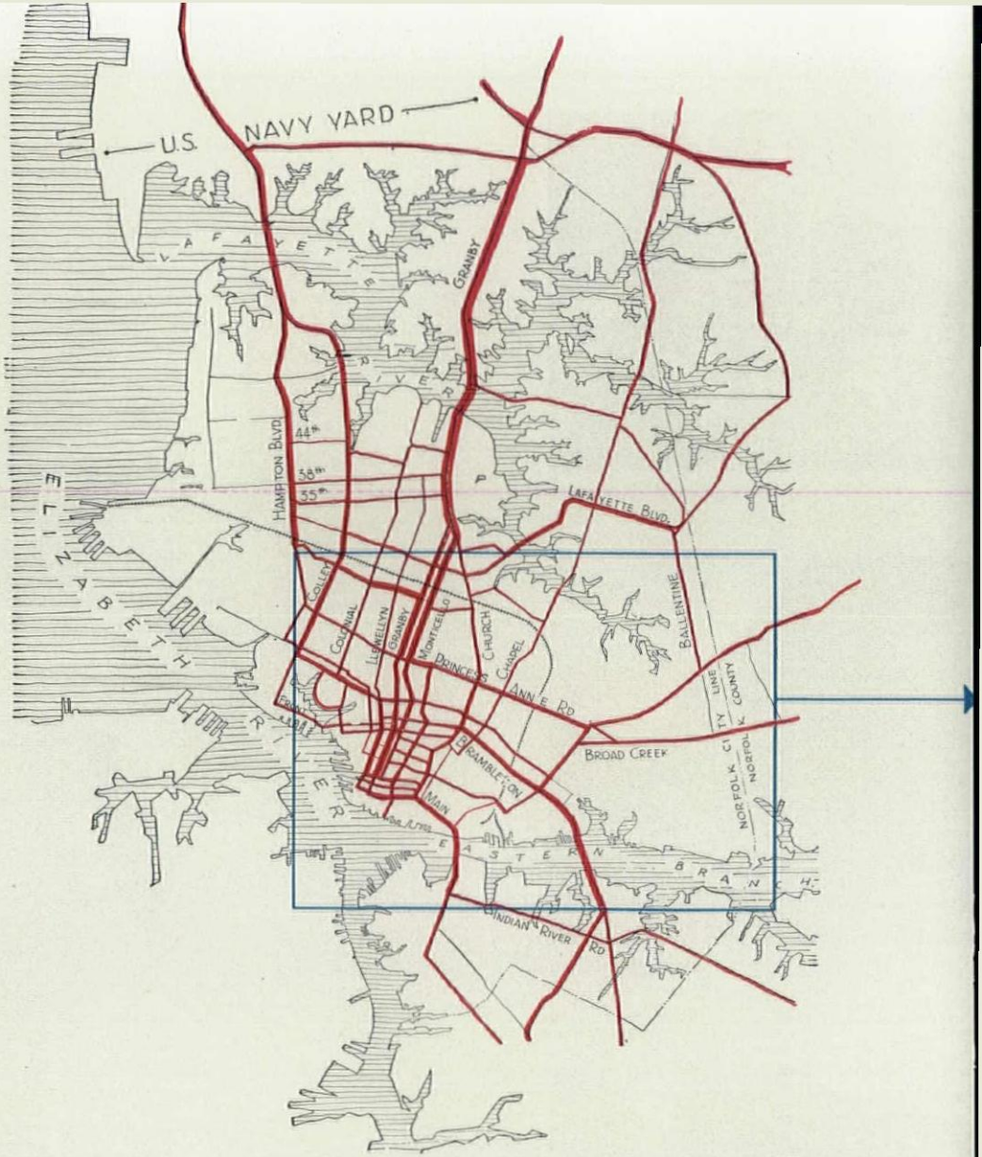
The first big reason is Charles L. Kaufman, Chairman of the local Redevelopment & Housing Authority, who says flatly: "The future of Norfolk for the rest of its history will be fixed by the extent to which this program is followed during the next few years."

The second big reason is bright young Lawrence M. Cox, executive director of the Redevelopment Authority and 1949 president of the National Association of Housing Officials.

The third big personal reason is the group of leading business men who succeeded in taking over the city government four years ago on a business administration platform and set about lifting Norfolk by its boot straps. To that end they combed the country for a new City Manager, selected C. A. Harrell, wooed him away from Schenectady, N. Y., with a $20,000 salary. They called Edward O. Jewell from his success in New Orleans to head a new Norfolk Port Authority. They gave Planning Engineer Donald B. Locke an adequate staff for the first time in the city's history. They set up a Bridge & Tunnel Authority which will open a highway connection to Portsmouth early in 1952.

Kaufman and Cox had no trouble selling these businessmen in the City Council the potential importance of the slum clearance program tucked away in the public housing bill pending in Congress. Six months before the bill was passed, they gave Kaufman's Redevelopment Authority $25,000 to find out just what Norfolk's slum clearance problem was and just what could be done about it if the slum clearance plan got through Congress. With $20,000 of that money Kaufman then employed the New York Housing & Planning Consultant firm of Harrison, Ballard & Allen. *(Continued on page 137)*

Norfolk's slum-choked downtown area will be cleared of blight and rebuilt to a new land-use and highway pattern



Map above shows traffic-count pattern of Norfolk's present street system, emphasizes heavy use of the city's downtown streets for through traffic. Thickest lines indicate flow of 20,000 or more cars daily, thinnest lines 2,500 and less. New traffic pattern (see map opposite) will widen and straighten key downtown streets, create by-pass highway around downtown area for north-south through traffic.

Norfolk's redevelopment plan covers about a third of its downtown area, as the maps opposite show. The program has been divided up into six sections—three of which (marked 1, 2, 3, on the map) will be redeveloped within the next five years. The other three, scheduled for later redevelopment, are shown in green.

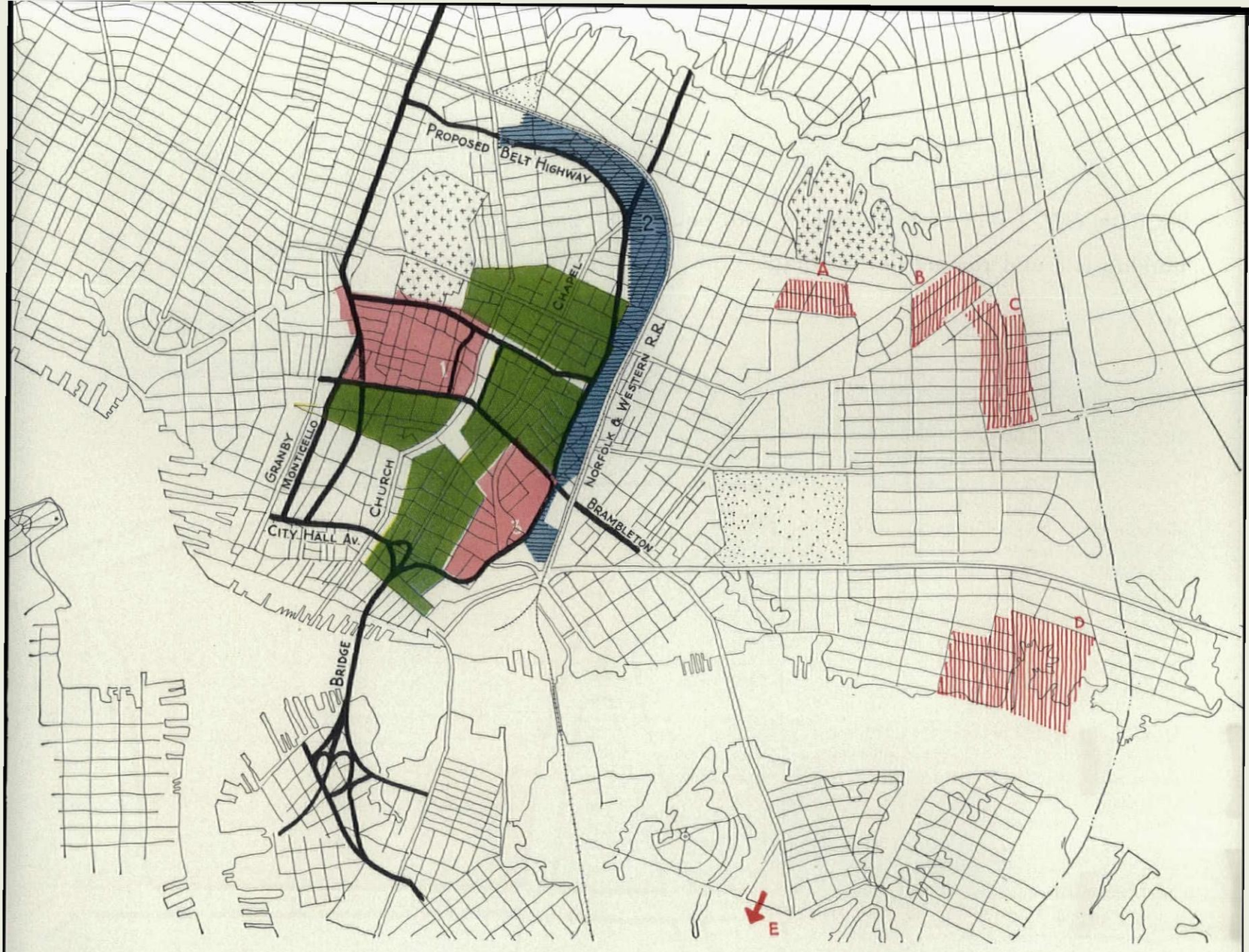
The lettered areas on the right-hand side of the map show the location of the five public housing projects which will be built on raw land to take care of families displaced from the slums. All but one of these will be Negro projects, since the majority of slum families are Colored. (The exception: Project D.) Work on the first of these projects will start this Summer so that the first families can be moved out of the first section to be redeveloped by next spring. About half the displaced families will be relocated in these vacant land projects. The rest will go to private housing projects or to public projects which will be built later on the redeveloped land. A closely-timed relocation pattern is being worked out to make sure that each slum family has a place to go as the projects gain momentum, but already Norfolk officials find it is easier to work out on paper than in practice. The 800 single persons with no family attachments who live in the area constitute a persistent problem in the relocation pattern. They are not eligible for public housing and most of their incomes are too low for private housing. The difficulty is typical of the kind that the local housing authority is going to run into in its re-shuffling of over 12,000 individuals in and out of the redevelopment area.

Freedom for planning

In writing the Title I legislation, Congress wisely refrained from putting any restrictions on how the redeveloped area was to be used, except to specify that its new use should fit in with the overall city plan. Norfolk's redevelopment plans are a good example of how this freedom of planning works. Less than 75 of the 200 redeveloped acres will be used for housing. Most of this will be located in Sections 1 and 3. The projects will probably be walk-up public housing units with a density of 20 families per acre, compared with the present density of 50. Section 1 will also contain land tabbed for commercial use since it backs up against the city's main shopping street, Granby Avenue. Section 2, flanking one side of the Norfolk & Western Railway tracks for almost two miles, is slated exclusively for industrial use. A new belt highway will flank the other side of this industrial area. The highway is designed primarily to relieve congestion in the downtown area by providing a bypass for trucks and other cars which will pass over the new Elizabeth River bridge and tunnel (scheduled for completion early in '52) from neighboring Portsmouth on their way to the busy Norfolk Navy Operating Base and Air Station at the far end of town. The present traffic pattern is bottlenecked through the central shopping district because the Portsmouth ferry—main link with the mainland—docks near the foot of Granby Street. In addition to its by-pass functions, the new belt highway will also be potentially valuable to the proposed industrial area.

Land for industry?

The reason for turning over so much former slum area to industrial use (80 acres) is because Norfolk is highly conscious of the fact that the big Navy base makes it virtually a one-industry town. Although the Navy is "steady" and, in fact, expanding its Norfolk activities at the present time, local officials know that too many of the town's economic eggs are in one basket. A few million dollars clipped off a naval appropriation by Congress in an economy-minded moment could mean a local depression for Norfolk. Since the end of the war, it has given serious attention to attracting new business as a hedge against such Congressional contingencies. The industrial area proposed under the redevel-



Sections shown in color on above map are areas involved in redevelopment plan. Heavy black lines indicate new street pattern with belt highway siphoning cross-town traffic from Elizabeth River Bridge, now a-building.

Section 1. To be redeveloped for both housing and commercial use.

Section 2. Scheduled for industrial use under redevelopment program.

Section 3. To be used exclusively for large housing projects.

Five housing projects on vacant land for relocated slum families.

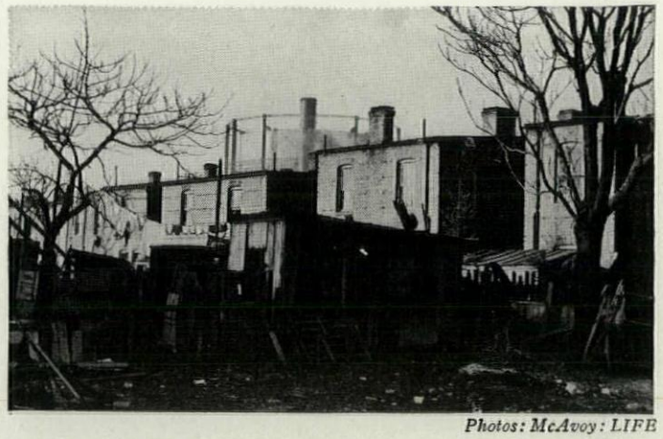
Slum area to be redeveloped when present program is completed.

opment program fits in with this move since the city has a definite shortage of good industrial land. (Its manufacturing land average—3.1 per cent—is well below the national average of 4.1 for cities its size). Ultimate success in turning present slum land over to industrial uses depends largely on local initiative in attracting new industries. Even the town's biggest boosters admit that this isn't easy. Norfolk has to face the fact that it is not now a prime industrial area largely because the area has a chronic lack of cheap power. HHFA officials in Washington who have been reviewing Norfolk's Title I application have been critical of the local housing authority's blithe assumption that land in the proposed industrial area will be snapped up by new industries once it is made available. Washington's attitude is that Norfolk will have to prove a demand for local industrial land before Title I money can be spent on it. ("After all," one HHFA official points out, "we're going to have more money invested in the land than anyone else, we might as well make sure that it is used for profitable purpose.") These differing opinions over the industrial area are relatively minor ones in terms of the whole Norfolk redevelopment plan but they are indicative of the kind of check that HHFA officials want—for better or for worse—on local plans.

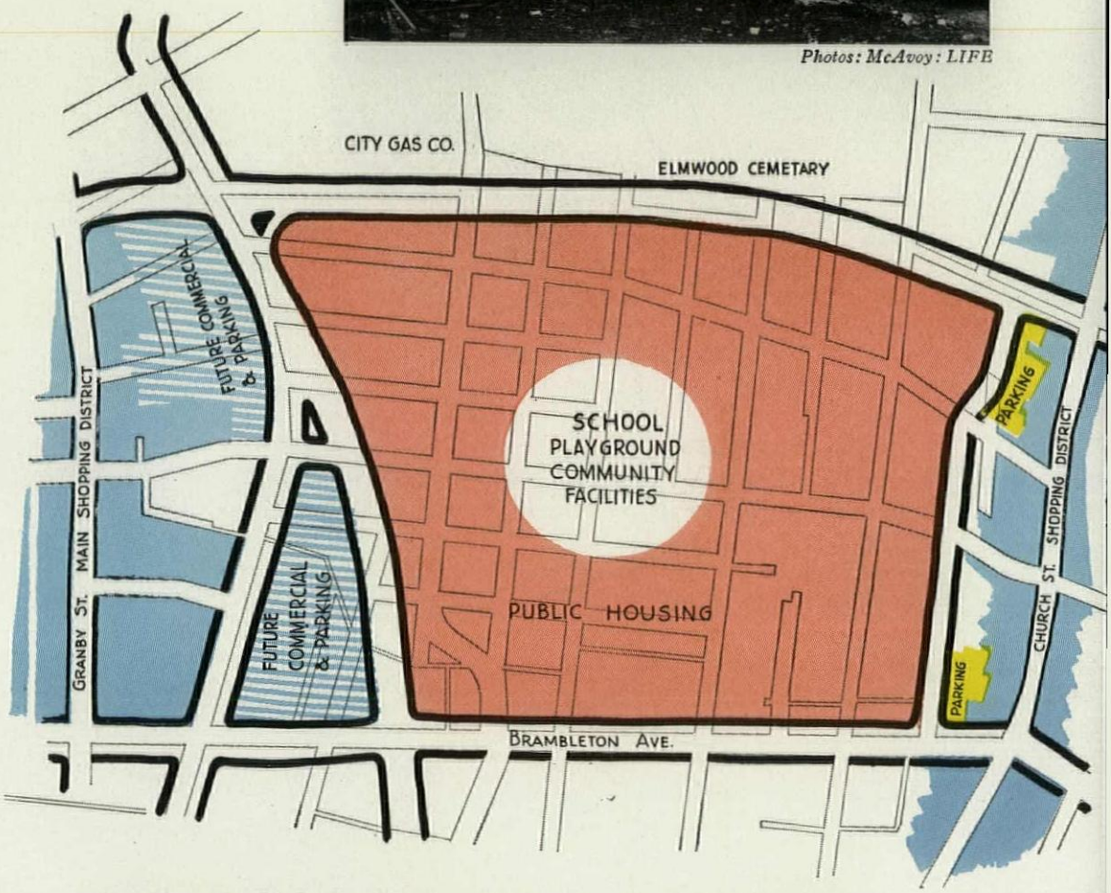
Auto-age highway

In addition to the belt parkway adjoining the industrial area, the redevelopment plan provides for the widening and the straightening of existing major arterial roads. As in many another city's downtown area, Norfolk's streets are the direct descendants of 18th Century cowpaths with an overlay of a 19th Century gridiron street pattern. The new plan, shown in the map above, will give the town an automobile-age traffic pattern for the first time.

SECTION NO. 1 will be redeveloped with housing, parking lots and commercial buildings



Photos: McAvoy: LIFE



The adjoining map provides a closer look at one section of Norfolk's redevelopment project—Section No. 1, which has the dubious distinction of having the worst slum blocks in the U. S. Its 80 acres are pitted with ramshackle frame houses. Despite the large number of vacant lots in the area, land density is 50 families to the acre. The tract is an almost total economic loss to the city. Taxes collected in the area are under $40,000 a year—less than half of what it costs to operate the overcrowded public school which serves the area. Total assessed valuation of land and improvements in the area is $1,361,000. The redevelopment agency plans to buy the area for $2,024,000—about $1 per sq. ft.—and sell it for $500,000, or 25 cents per sq. ft.

In working out a redevelopment plan for the area, Harrison, Ballard & Allen took into consideration the fact that it was bounded on one side by the city's main shopping street, Granby St., and on the opposite side by Church St., the largest Negro shopping street. Because of the congested traffic conditions on these arteries, they recommended that the slum-cleared land directly behind the stores be used for parking lots. The lots will probably be leased by the city.

Widened arterial highways will lie between the Granby and Church St. shopping areas from the 1,000-unit public housing project which will be built in the center of the redeveloped area, Brambleton Ave., the main crosstown street, will be widened to form the northern boundary of the project. Inside the housing area itself, the street pattern will be reshuffled to conform to the lower density housing. The existing school will be torn down and a new one put up. (It will be one of a half dozen schools the local Board of Education is building to tie in with the overall redevelopment program). Park areas, playgrounds, a health clinic and a community center will also be integrated with the housing project.

The three-acre triangle (lower left on map) formed by the meeting of Brambleton, Monticello and Bank Sts. will be one of the prime pieces of real estate to be salvaged by eliminating slums. The Redevelopment and Housing Authority has already received several tentative proposals for the land from private investors. Among them: Suggestions for a drive-in hotel. Whatever its eventual commercial use, the triangular plot will be a dramatic example of restoring a good piece of land from slum use to its rightful place in the land-use picture.

The rickety building pictured is in Section No. 1. It houses 32 families, has four toilets and sinks. It is a typical example of the inflated value of most of Norfolk's blighted housing. The house is assessed for $3,630, has an annual rental income of about $4,500. Taxes on the house are a mere $98, maintenance is negligible. Under the preliminary appraisal system set up by Consultants Harrison, Ballard & Allen, the house will be purchased by the redevelopment authority for about $5,800.

(Continued from page 133)

The consultants turned in their 106-page report last August, written by Architect Charles Agle. It was an eye-opener even for old residents who had long known conditions in the central slum were worse than bad. Map after map showed the same concentration of the worst conditions in the city—blocks where close to 100 per cent of the homes needed major repair, blocks where almost all the houses dated back to the last century, blocks which had reported 13 or more fires within a 2-year period, blocks which had had 17 arrests within two months, blocks heavy with tuberculosis.

From one 40-block area analyzed in particular detail, the total tax revenue was less than $40,000, whereas the estimated cost of city services for these 40 blocks is well over $250,000 —including $90,000 for the neighborhood public school.

The report also focused attention on how the slum was blocking expansion of the business district and choking vehicular traffic a mile and a half from the center of town.

One of the most interesting facts revealed was how very profitable a slum could be to its owners. Even under rent control, an average housing unit assessed at $400 was renting for $142 a year per room, out of which very little had to be paid for maintenances over and above the $10.80 tax bill.

Despite these profits, the Redevelopment Authority hope to buy in most of the slum dwellings for around 60 per cent above their assessed valuation and to acquire the balance through condemnation proceedings at about the same figure. This would be about $1 a sq. ft. for land and improvement combined. They expect to write it down to around 25 cents a sq. ft. and then transfer nearly half the acreage to another account on their own books for the erection of 1,500 public housing units, 20 to the acre. Another sizable slice would be sold to the city for street-widening and for the site of a new school and playground, and the land needed for the proposed parking belt along the shopping district might also end up under city ownership. (A battle is brewing with the private garage and parking lot owners over the threat of municipal competition. Probable result: the land will be leased to private parking lot operators.)

The only redevelopment land which is now scheduled for sale to private interests is a narrow strip behind the shopping center which will be offered for retail expansion, and a strip nearly two miles long and only 300 to 600 ft. wide between the Norfolk & Western tracks and the new Belt Highway which will be set aside for industrial development and offered to light industry at about 30 cents a sq. ft. to further Norfolk's ambition to become less of a one-industry town (the one industry is, of course, the Navy which has its biggest Atlantic base and its largest air station here).

Acquisition cost is expected to total roughly $5 million, of which about $1.2 million will be recovered, making a net cost of $3.8 million. The city is expected to spend about $1,900,000 for improvements as its required one-third contribution.

The slum clearance program cannot be started until the first 1,500 public housing units on vacant land can open in the summer of 1951. The first families moved to these 1,500 new homes will be those whose present quarters are needed for the new highway and street-widening program. Next to move will be the families in the 80 acre slum nearest to the business district (Area No. 1 on the map). As slum No. 1 is torn down, anothed public housing unit for 1,000 families will be erected there, into which the balance of the families from Areas No. 1 and No. 3 will move. The last dwellings demolished will be on the land reserved for industrial purposes along the tracks.

This whole program will take at least four years. After that, it will be time to consider what to do about the other two-thirds of the central slum.

MINIMUM HOUSING CODE will help Norfolk prevent future slums

In addition to its Title I slum elimination program, Norfolk is taking active steps to prevent future slums. Its main weapon will be a new minimum housing code to raise livability standards in the city's older houses. The code is being written up now by a committee of local lawyers and building officials, headed by Attorney Walter Hoffman.

The problem facing the committee is nothing less than salvaging the one-third of Norfolk's houses which are in the betwixt-and-between state of slipping from relatively good housing to the slum category. Most of these units are located in the big monotonous ring of middle-class housing which separates the downtown area from the shiny new subdivisions on the outskirts of the city. The area is touched with blight now; in ten years this blight will be in full bloom.

Housing codes, such as Norfolk is planning, are a new concept in U. S. city administration; less than a dozen cities have such codes now. (Best known is Baltimore with its well-publicized "Baltimore Plan" for rehabilitating blighted areas.) Housing codes provide a three-dimensional coverage of the *livability standards* of a dwelling, rather than the limited coverage which existing fire, building and health codes give. Typical of the standards provided in housing codes are these suggestions which Norfolk's code-writers are considering for their code:

- At least one window per room.
- A flush toilet connected with a sewer but not necessarily inside the dwelling.
- Running water inside the building.
- Adequate means of garbage disposal.
- A safe form of heating, with a flue to the outside of the building.

None of these standards can be called extravagant by any means. However, they represent a distinct improvement over present conditions in Norfolk's semi-blighted areas. In general, the Norfolk code writers are setting their standards on the low side for the most realistic of reasons. As one of them points out: "If we set them high, the code would be so difficult to enforce that it would be ineffective."

And, in Norfolk, city officials realize that adequate enforcement is, in fact, the key to their new housing code. They have been studying Baltimore's highly successful code, which is administered by the Health Department and enforced through a special municipal housing court. The court expedites housing code violations, hands out stiff penalties for non-complying landlords. Under the code, the health department can declare a building "unfit for human habitation" and order the eviction of tenants within ten days if the violations are not cleared up. Although 142 such orders were issued last year, health officials have treaded easily because of the problem of relocating tenants who live in the condemned buildings.

Norfolk may have a similar enforcement system but no final decision has been made yet by the housing code committee. Meanwhile, local officials are fully aware that their new housing code is no cure-all for the problem of wiping out slums, but rather a necessary complement to its Title I redevelopment program.

BIRD-CAGE HOUSE

built inside a screened patio, is tailored to a tropical climate and an extrovert owner, makes more sense than most passersby realize

LOCATION: Miami Fla.
IGOR B. POLEVITZKY, Architect
RILEY & ROSS, Structural Engineers
ZENITH BUILDERS, INC., General Contractors

The year's most talked-about house in Florida stands hard by the Venetian Causeway from Miami to the Beach, where thousands of passing motorists can look right through its screen-covered wooden frame.

"Imagine living in a bird cage like that," the talk begins; and certainly only an extrovert like owner Michael Heller would have chosen such a location. He is less interested in what passersby can see in than in what he can see out. He likes the crowd, and from the upper level of his bird cage he also enjoys looking out proudly over the Causeway traffic to the waters of Biscayne Bay and the Miami skyline beyond.

The motorist is wrong who dismisses Architect Igor Polevitzky's uninhibited design as a freak. Other architects question the location,

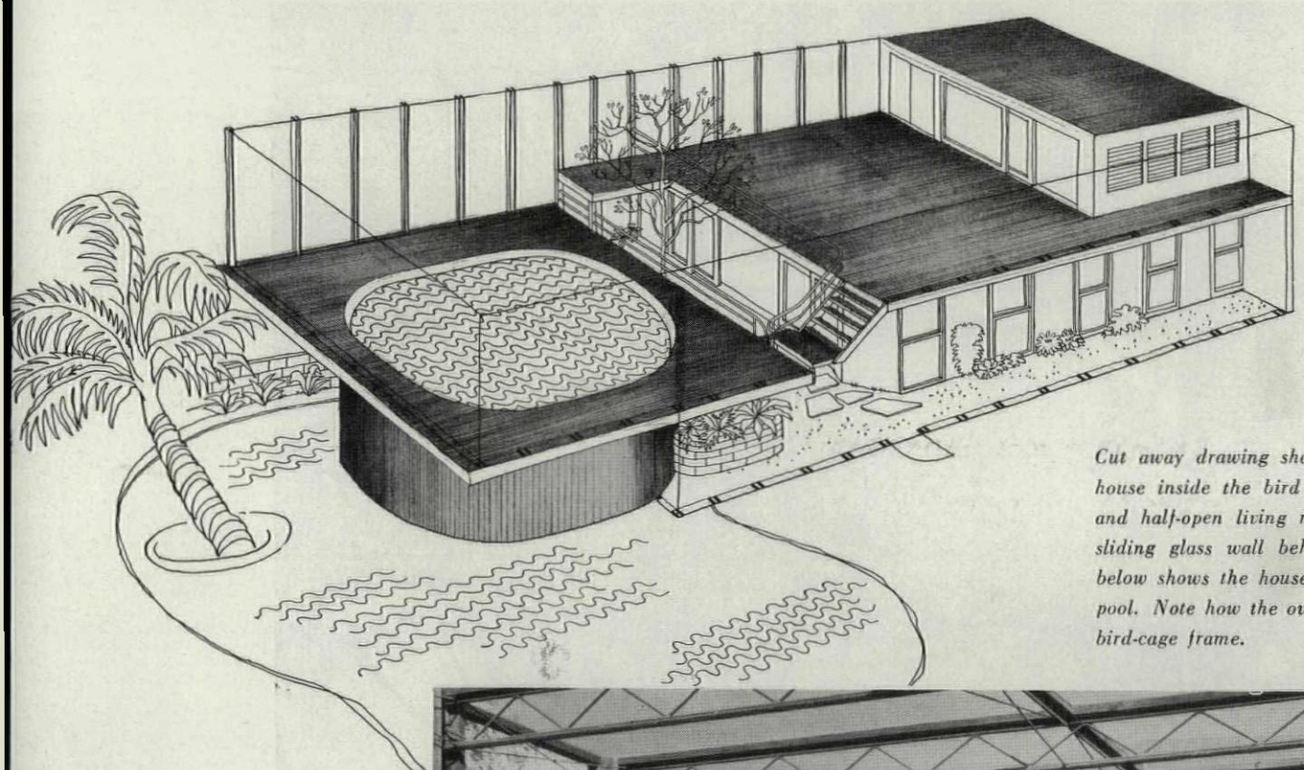
Ezra Stoller: Pictor

but recognize the house as a rigidly handsome, direct and practical answer to the problem of year-round living in Florida, where the summer insects make outdoor living impossible without screens, where the summer sun makes shade imperative, and where cooling comfort depends on how well the unfailing southeast breeze can be swept through the rooms.

Miami is the only tropical city in the U. S., and before the war the best answer American architects could offer to its climate was to imitate the Spaniards. Since the war several new answers have been appearing, including the wide overhang, the big screened patio, the completely open east or south side, and second-story living to catch the breeze. The bird-cage house combines all four. Instead of concealing the patio inside the house, it conceals the house inside a two-story screened patio, with the whole south and west sides nothing but screen over a wooden frame. The overhang is achieved by setting the house proper far back towards the almost windowless northeast corner.

The approach is so direct that the box-like exterior can claim no distinction beyond simplicity and good proportion, but the interior is full of surprises and well-considered contrasts in form and texture. Not least among the surprises is this: when the sliding doors are pulled shut the bedrooms at the east end of the bird cage have more privacy than the sleeping quarters of most conventional houses.

The bird cage was planned partly around the nocturnal life of the owner who cannot sleep on hot nights and likes to prowl around,



Cut away drawing shows how small the four room house inside the bird cage is—a bedroom, kitchen, and half-open living room below, a lanai with one sliding glass wall behind the porch above. Photo below shows the house across the roofless swimming pool. Note how the overhang is concealed inside the bird-cage frame.

Rada Photograph

←

Bird-cage-like terrace at west end of house is completely enclosed in plastic screen and supported by a circular swimming pool projecting up out of a shallow reflecting pool.

sometimes cooking himself a meal on the stove (which is therefore built into the living room bar instead of set apart in the kitchen), sometimes cooling himself for an hour in the indoor pool, which is such a distinctive feature of the roofless west end of the bird cage. Built up from rather than into the ground, this pool is above eye level and relatively private. It drains into a shallow decorative pool.

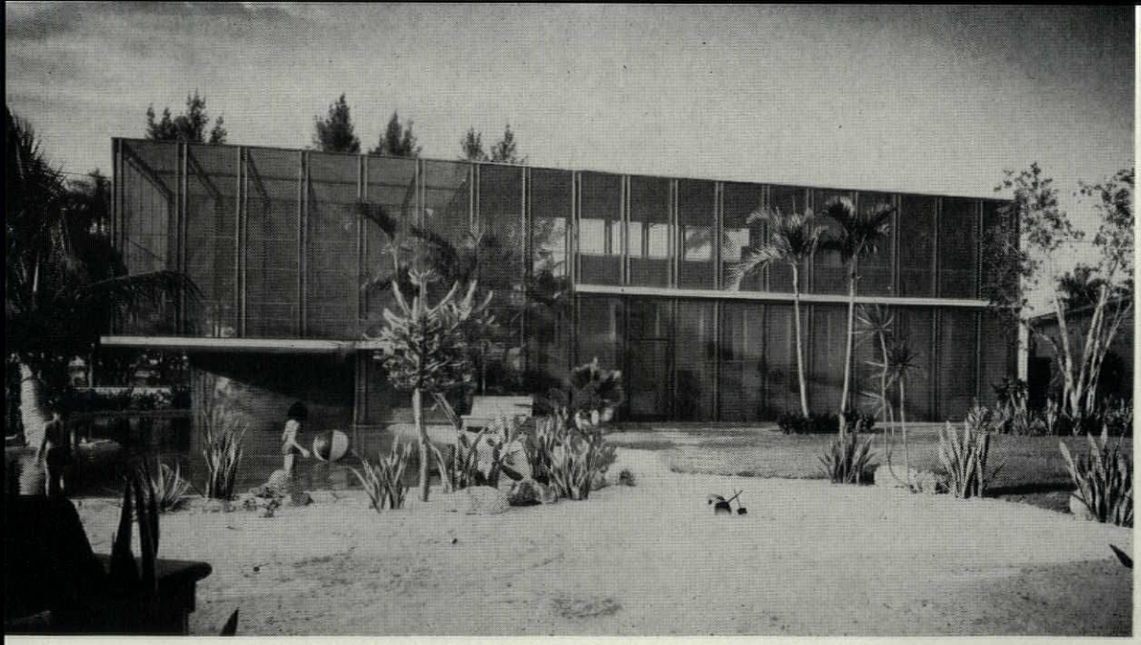
Construction throughout the house is almost ostentatiously simple.

The bird cage itself is made of plain 2 x 8's pressure treated with chromated zinc chloride and left unfinished; the steel trusses which support the built-up insulated roof are left exposed; the walls are a single thickness of waterproof concrete blocks—a construction which looks inexpensive but requires such care that it is apt to cost more than a wall stuccoed outside and furred and plastered inside. (Its advantage is not economy, but rather the elimination of any cavity for dampness and the satisfaction of exposed craftsmanship.)

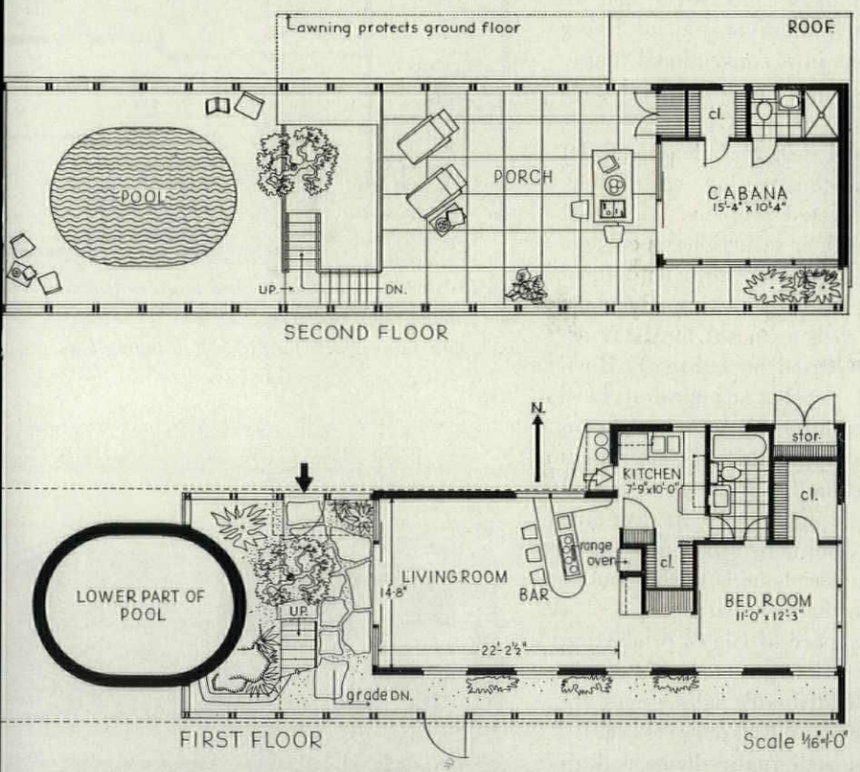
In open areas the masonry is painted a soft blue; in the bedrooms it is, for the most part, covered with gray striated plywood, now highly fashionable in Florida. Sliding doors of clear glass close the west end of the ground floor living room. Sliding doors of opaque glass convert the second-story lanai into a guest room and give privacy to the master bedroom below. Opaque glass panels, which drop vertically outside the wall, completely open all windows in the screened south wall of the first floor, and a strip of wood jalousies on the east side lets the breeze blow through.

Photos: Ezra Stoller-Pictor

The swimming pool and tree bring outdoors right into the bird cage.



Passersby on Venetian Causeway look right through the house from the south (left). Grass and flagstone entry (below) is visible through glass west wall of the living room (bottom).



CONSTRUCTION OUTLINE: Exterior walls—Lumite screen, Chicopee Mfg. Co. and concrete block. Ceilings—Cemensto board, Celotex Corp. finished with roofing felt and slate. **WINDOWS:** Sash—aluminum, Universal Corp. Glass—Libbey-Owens-Ford Glass Co. **FINISH FLOORS**—tile. **WALL COVERINGS:** Living room—concrete block. Bedrooms—striated plywood. Bathrooms—tile. **ELECTRICAL INSTALLATION:** Wiring—conduit. Switches—toggle. **KITCHEN EQUIPMENT:** Range—Thermador Electrical Mfg. Co.

HILL BUILDER uses one-story houses for the crest, tri-level houses for the slope. A subdivision with wide design variation

LOCATION: Shaler Township, Pa.
CLAY REALTY CO., Builder
JOHN A. GROVE, JR., Architect

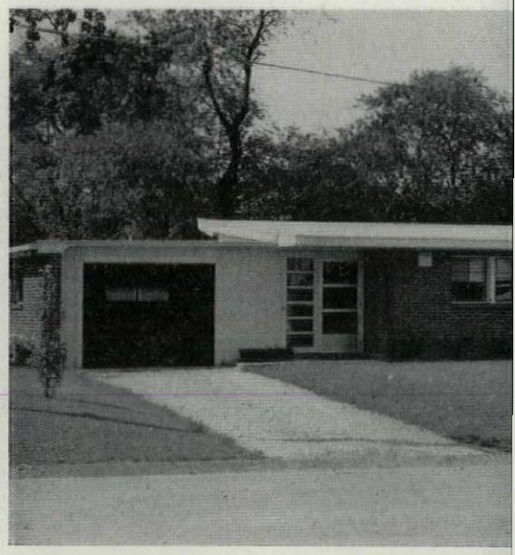
In Pittsburgh, the city of hills, the merchant builder has learned a lot about adapting houses to hilly sites which can be of help to hill builders in other parts of the U. S. Because his lots are varied in shape and topography, he cannot mass produce standardized houses. Instead, his houses are varied in design and his operation is small in scale. In these respects Cliffwood in suburban Shaler Township is a typical Pittsburgh subdivision; but Builder Clay goes far beyond the typical in the design of his houses. Each has a fairly contemporary flavor and each is admirably adapted to the peculiarities of its site. While the houses individually are no architectural masterpieces, they represent an encouraging effort in the right direction and together create an attractive development.

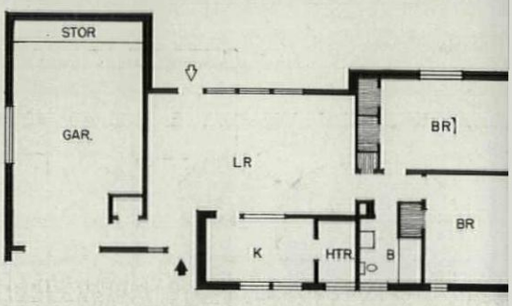
The basic reason behind Cliffwood's varied house designs is the wide variety in its building sites. Those on the hilltop are level and are logically developed with basementless one-story houses, while the steeply sloping hillside lots are developed with multi-level houses. Garages are usually built into the houses at the front and close to the street to simplify the driveway layout, to reduce construction costs and to facilitate the maneuvering of automobiles to and from the street. This close relationship between topography and house design is one of the tenets of contemporary design and cuts Clay's grading costs by about 10 per cent.

Always the employer of an architect, Builder Clay abandoned rock-ribbed traditional house design in 1947 when he felt the public was ripe for the change. Sales experience has justified the shift. His speculatively built houses have sold steadily and have attracted customers for several contract jobs within the subdivision. He notes that about eight out of ten visitors to his project comment favorably on his efforts at modern design, that one out of ten can ultimately be convinced of its advantages but that the remaining one would not own such a house at any price. Says Clay, "People have been reading about this kind of house in the consumer magazines, but it takes a little time for them to get used to them when they actually see them. Most of them soon realize that we are offering them a different way of living than they could get in a conventional house. Once they realize this, the selling job gets much easier."

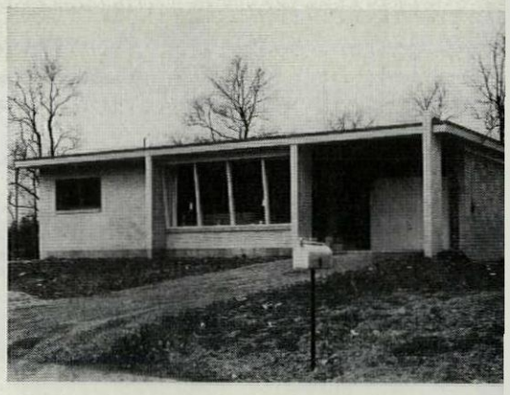
While low-pitched shed roofs and dead flat roofs cut Clay's construction costs, they presented an unexpected problem. The local VA appraisers base their valuations on cubage, and knocked $500 off one of Clay's flat-topped houses. (There is a compensating advantage for the buyer of such a house: local tax assessments are also based on cubage.) However, the builder claims that no appraisals have been cut solely because of the houses' contemporary design. Apparently, the appraisers appreciate the fact that big windows are a real asset in this development with its five-mile view and that the simple detailing and use of varied finishing materials adds to the houses' value as well as to their appearance.

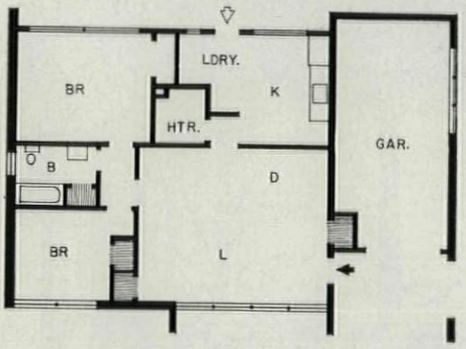
Despite the slow pace of Clay's production and the lack of standardization in his design and construction, Cliffwood's sales prices are low. They average about $10 per gross sq. ft., including land and such quality items as flush doors, steel casement windows with marble sills, steel kitchen cabinets, plastic counter tops, automatic clothes washer, radiant heated ceilings and numerous unusual interior design features (photos right).





Shed-roofed, two bedroom house provides laundry and storage space in garage, contains 1,296 sq. ft., including garage, sells for $13,500, including land.





Flat-roofed, two bedroom house features combination kitchen-laundry and sloping picture window in living room. Set back garage creates sheltered "front porch." Sales price: $13,500 for 1,380 sq. ft.

CONSTRUCTION OUTLINE: Exterior walls—brick veneer, studs, insulation board; inside—lath and plaster. Ceiling — fir. ROOFING — 4-ply built-up. INSULATION: Outside walls and roof—rockwool. WINDOWS: Sash—steel casement, Detroit Steel Products Co. Glass—Libbey-Owens-Ford Glass Co. FINISH FLOORING: Rubber tile—American Tile & Rubber Co. WALL COVERINGS: Plywood—U. S. Plywood Corp. PAINTS—The Watson-Standard Co. HARDWARE—Lockwood Hardware Mfg. Co. ELECTRICAL SWITCHES — Bryant Electric Co. KITCHEN EQUIPMENT: Range, refrigerator, dishwasher and cabinets—General Electric Co. Fan—Shepler Mfg. Co. LAUNDRY EQUIPMENT: Washing machine—General Electric Co. BATHROOM EQUIPMENT—American Radiator-Standard Sanitary Co. HEATING—forced warm air system, L. J. Mueller Furnace Co. Regulator—Minneapolis-Honeywell Regulator Co. Water heater—General Electric Appliances Co.

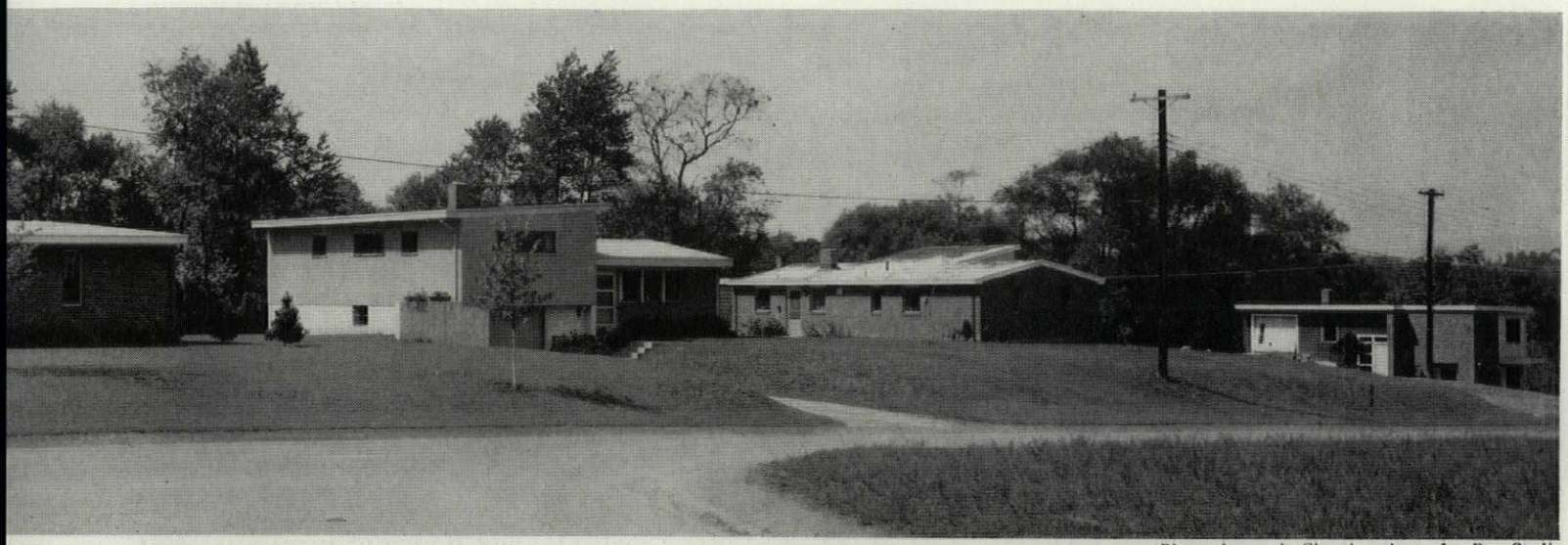
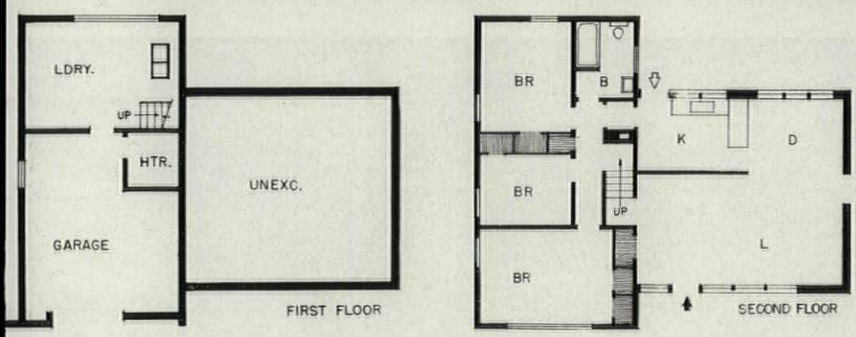
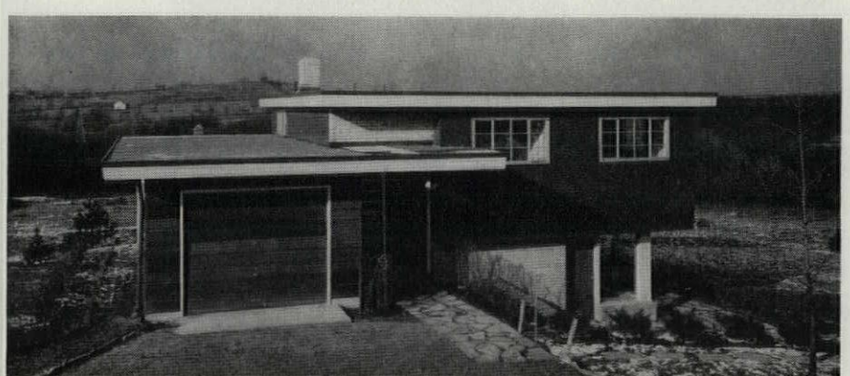


Photo above: A. Church; others: Jay-Bee Studio



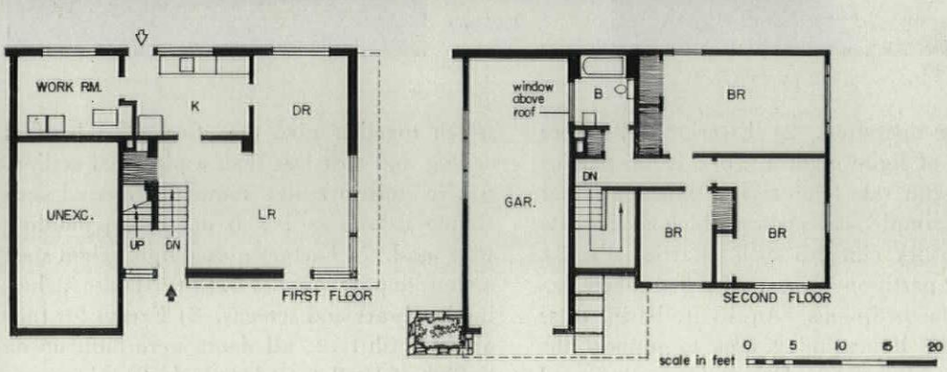
Tri-level house has bedrooms over depressed garage and laundry room. Sales price $17,500 for 1,685 sq. ft.

***Splayed window** opens a living room to the five-mile view*

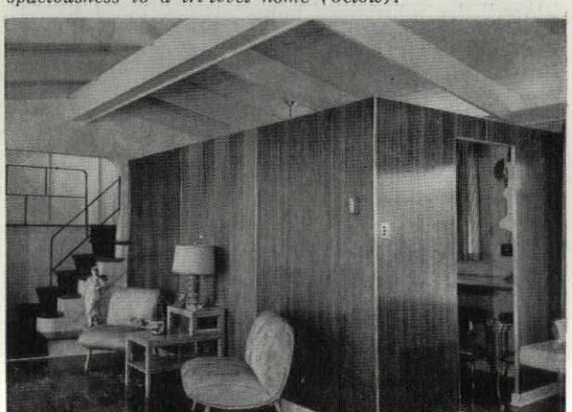


Open shelves between kitchen and dining area serve as convenient pass-through (above).

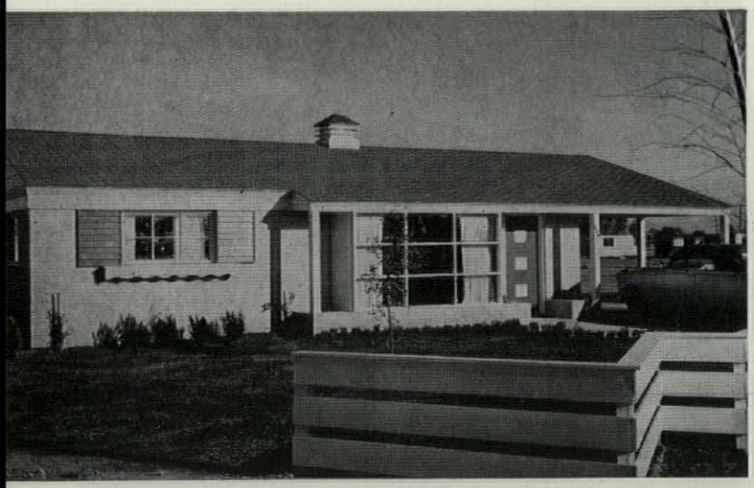
Beamed ceiling and dwarf kitchen partitions add feeling of spaciousness to a tri-level home (below).

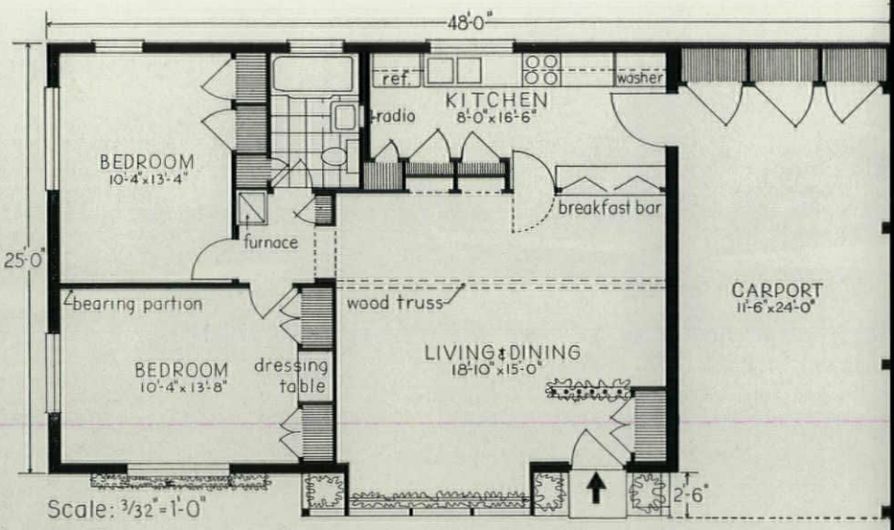


Tri-level house has garage at front to simplify grading of hillside lot. Sales price: $18,500, for 1,750 sq. ft. Its design and construction has earned the approval of the Southwest Research Institute's Revere Quality House Division.



E. Deuel

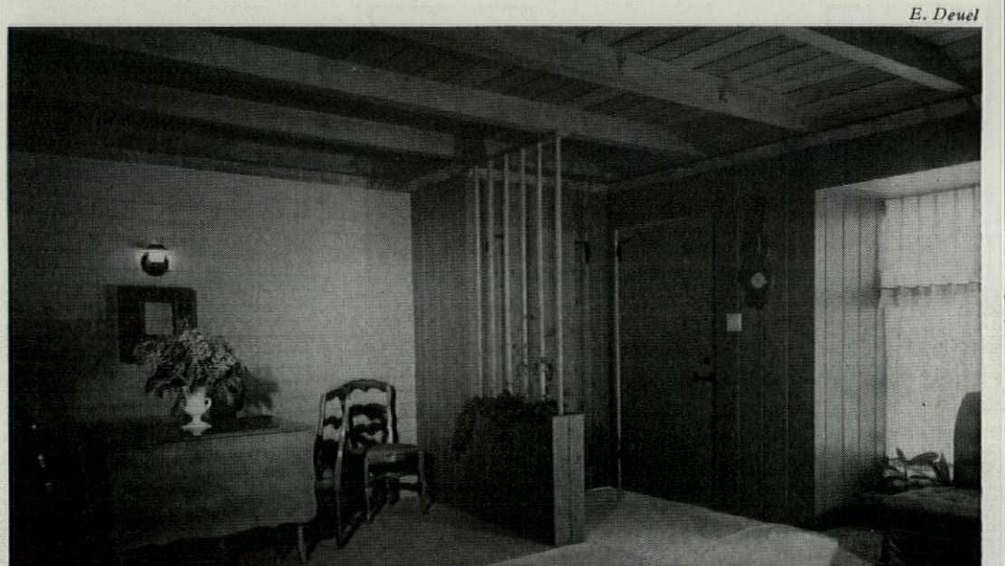




ARCHITECT-BUILDER TEAM produces a well-planned house at minimum cost

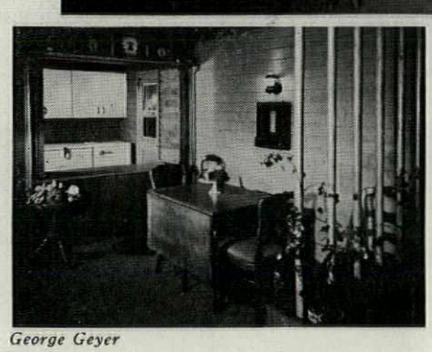
LOCATION: Phoenix, Ariz.
CHARLES and ARTHUR SCHREIBER,
Architects and Builders

E. Deuel



The ABC Schreibers comprise an integrated house design and building team. A is for Architect Arthur, who heads up the Architectural work; B is for Barney, who handles the Business, including sales and finance; C is for Charles, another architect (and A's twin), who supervises Construction. Their latest accomplishment in Phoenix, Ariz., is the $7,250 "Pacemaker Home" pictured on this page. It is proudly labeled by its creators as their "contribution to low cost housing of the finer kind with specific accent on design, livability, utility, warmth and charm, with a maximum utilization of floor area . . . and features galore."

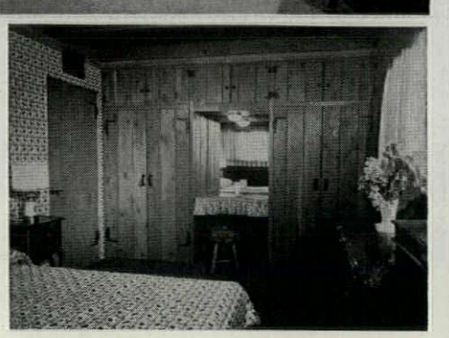
This boastful description of the 900 sq. ft. house is not far wrong. The house is certainly low in cost: its construction came to only $5,700 or $6.30 per gross sq. ft. Its appearance is far above average inside and out, despite the detracting addition of such gimcracks as a scalloped window box, fake shutters and a rooftop "dovecote." And the design accent is indeed on 1) "livability," as witness the convenient breakfast bar pass-through between kitchen and dining area and the built-in dressing table in the master bedroom; 2) "utility," as witness the abundant storage space in every room; 3) "warmth and charm," as witness the generous use of natural wood on the walls and the beamed ceiling construction; and 4) "maximum utilization of floor space," as witness the carefully studied floor plan which puts every square foot to use. As for "features galore," the Schreibers' house also includes a garbage disposing sink, big windows, a tiled bathroom and low-voltage wiring with touch controls (at $129 including fixtures).



George Geyer

Entrance

Dining-kitchen



Bedroom

To pack all these features in a low cost house, the Schreibers had to use many cost-cutting construction techniques: 1) The concrete floor cost only 25 cents a sq. ft. because the builder did the formwork and bought ready-mixed concrete, subcontracted only the finishing operation. 2) Exterior walls were laid up of lightweight 4 x 8 x 16 in. pumice blocks with raked joints and paint on either side—a simple wall section which is adequate for hot, dry climates such as Arizona's. 3) Bearing partitions were eliminated except between the bedrooms. An 18 ft. 10 in. truss spans the living-dining area to support the ceiling and roof. 4) Except for wallpapered panels of plasterboard, the interior is finished with paint directly on the pumice block and with 1 x 8 in. cedar boarding. Selected No. 2 grade material was used at $120 per thousand, as compared with $180 for No. 1. 5) The ceiling is made of 1 x 8 in. V-jointed plank cedar supported by 4 x 6 in. clear cedar joists which together give the effect of a beamed ceiling and cost less than a plastered ceiling. 6) No millwork was required—instead such simple details as 1 x 6 in. ceiling molding were used. 7) Factory glazed lightweight steel sash were purchased at $112 per house including hardware and screens. 8) Except for four of the flush type, all doors were built up on the job of 1 x 8 in. cedar plank. 9) Aluminum tile was applied to gypsum lath at a labor and material cost of only $92 per bathroom. 10) The high-boy type heating unit conserves space and costs only $227 complete with ducts.

The entire trial development of 22 houses was sold out in two weeks, and 284 more units will be started promptly.

$50 MILLION APARTMENT AND SHOPPING CENTER

capitalizes on Philadelphia's master plan and highway extension program to bring relief to the congested downtown district

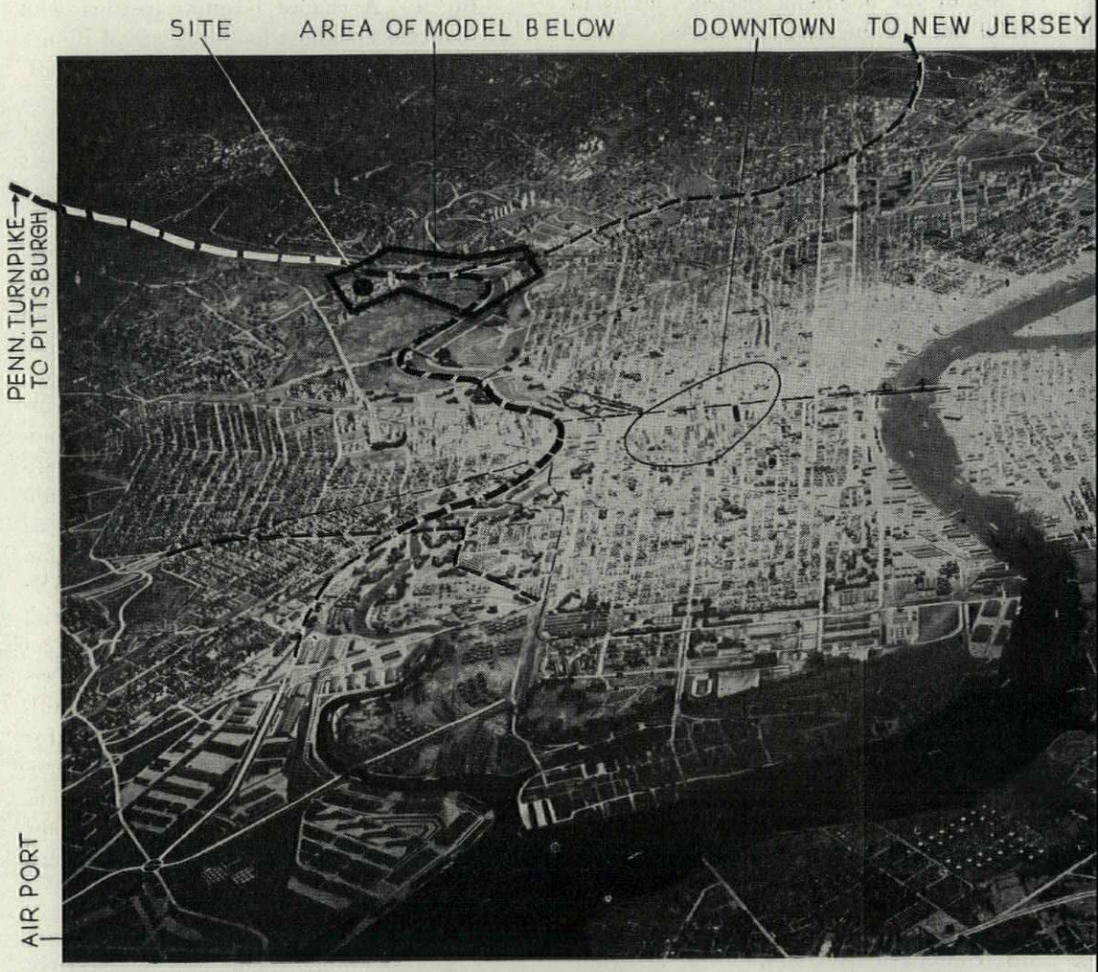
LOCATION: Philadelphia, Pa.
SWEET & SCHWARZ, Architects
TURNER CONSTRUCTION CO., Builders

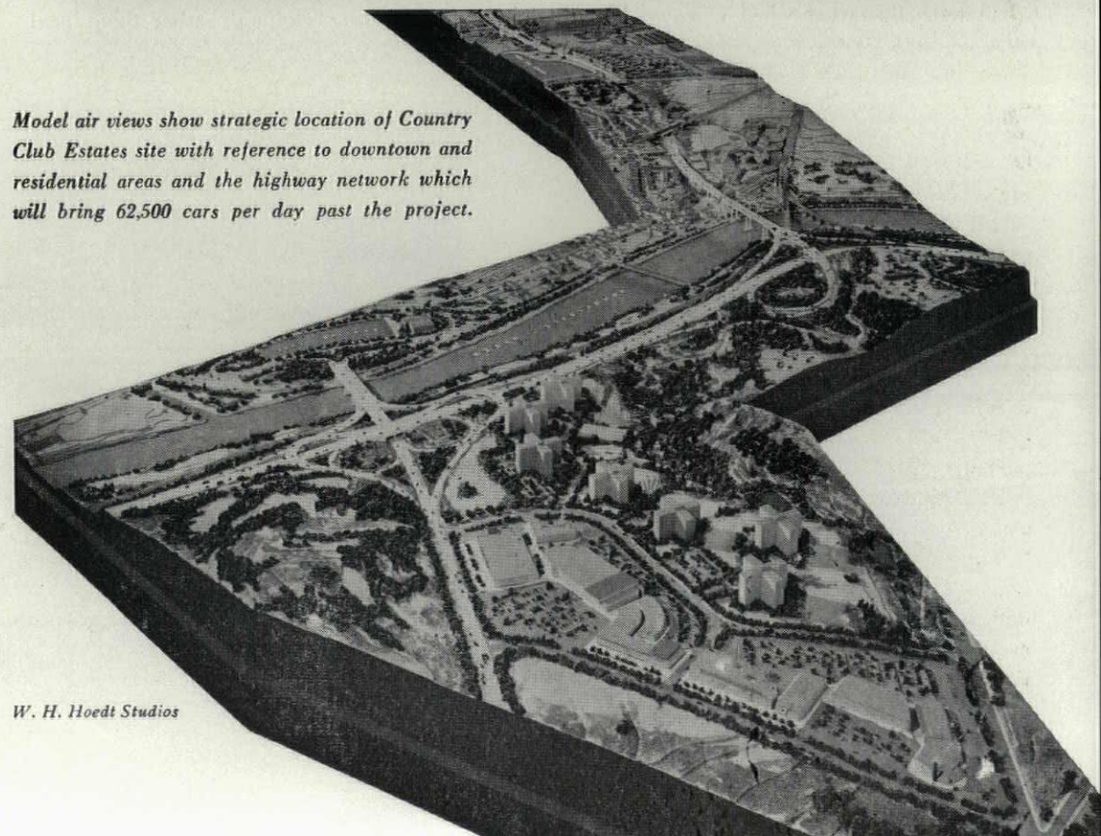
Fifty million dollars of private capital plus a defunct golf course, strategically located between well established residential areas and at the hub of a growing network of super highways, will soon create a breathing space for overcrowded downtown Philadelphia. The 90-acre tract just across the Schuylkill, 15 minutes from Independence Hall, is to be the site of a 2,000-family middle-income apartment development and a super-size shopping center with parking for 4,000 cars. Philadelphia's new Country Club Estates, like Pittsburgh's Golden Triangle development (FORUM, Nov. '49), is a step on the part of private enterprise to break the stranglehold of an obsolescent, over-built downtown area. Unlike the Golden Triangle, this project uses decentralization rather than redevelopment as a tool.

The Country Club Estates warrant attention, not only for size but for knowing integration of private planning and public need. Its two owner-partners are well versed in handling large real estate deals: Herman Watkins is president of Peoples Bond & Mortgage Co., local representatives for New York Life Insurance Co.; Mayer Blum is builder, owner and manager of several of Philadelphia's largest apartments. Moreover, their individual experience has been rounded out by close coordination with the Philadelphia Planning Commission on the long-range possibilities of such a scheme. The Urban Land Institute was consulted to insure that the mistakes made in earlier ventures across the country will not be repeated here.

The site itself is ideal—high, rolling and a traffic-planner's dream. Its 90 acres are spread out along the junction of three main routes that meet north of the city: Roosevelt Boulevard, route to the northeast and New York City; Pennsylvania Turnpike, main highway to the west; and City Line Ave. which taps all radial roads through the prosperous Main Line suburbs.

The obvious advantages of such a location for both residential and commercial use are fully exploited in the project's plan. Seven park-surrounded towers are set along the river side, while a large shopping center overlooks the highway. Edmund Bacon, Executive Director of the Planning Commission, is enthusiastic about the project; it will ease downtown congestion and serve as a new gateway for the good gray city.





Model air views show strategic location of Country Club Estates site with reference to downtown and residential areas and the highway network which will bring 62,500 cars per day past the project.

W. H. Hoedt Studios

The $50 million cost of the Country Club project will be expended in a spiral curve mounting through alternate rounds of commercial and residential construction. First and already under way, is the $11 million group of three apartment houses (268 units in each) and an adjoining 400-car garage. Rents will be moderate, considering the location and the service provided: from $60 a month for one-room efficiency units to $500 for outsize 15-room suites. These apartments will not only expand Philadelphia's scant supply of middle-income housing but will provide an ultimate 2,000 well-pleased and comfortably-fixed families as a buying nucleus for the center that will get under way as soon as this first apartment group is finished (probably about May '51). The rest of the apartments and the full store complement will be added until the full layout (see plot plan, opposite) is completed. Watkins & Blum regard the scheme as a five-year plan.

Financing

Financing of the Center, arranged by Watkins through Peoples Bond & Mortgage Co., will not be handled as a single package but as a series of building units. New York Life Insurance Co. has first chance at all loans and has taken a permanent mortgage of $7 million (25 years at 4 per cent) on the first apartment group. It will also advance 4 per cent construction money directly to Turner Construction Co. in 15 installments—thereby saving a ½ per cent brokerage fee. Partners Watkins & Blum, through full ownership of Country Club Estates, Inc. will retain an equity of "several millions."

The beginning of this meticulously worked-out scheme was, however, far from calculated. It started when Herman Watkins heard that the Philadelphia Country Club, of which he was a member, was tired of the expense of keeping up its second golf course and was willing to let it go for $800,000—net cash, no commission. Watkins, who had already earned several millions through a shrewd sense of Philadelphia real estate, snapped up the option without waiting to think of a definite use for it. A chance business meeting with Mayer Blum about financing one of Blum's apartment projects, led to the present partnership. Watkins took a half interest in one of Blum's modest, but fully-worked out apartment deals; Blum got a half interest in Watkins' gigantic, but scarcely budded Country Club Estates.

From here on, careful appraisal took the place of earlier good luck, Watkins' sense of the property's value was expanded and pinned down by study of Planning Commission charts: traffic flow, population distribution (there are 400,000 potential customers for the shopping center within adjacent city districts alone); parking facilities and regional land usage. It was comforting to discover that nowhere in the area was there a site of similar size and location which might later turn into a rival. So pleased is the Planning Commission with the project that it has wholeheartedly cooperated in asking that the property be rezoned in two sections: 34 acres for multi-story residential buildings and 56 acres for commercial. As if in proof that expert planning can pay dividends, the property has more than doubled in value—being now closer to $2 million than last September's price tag of $800,000.

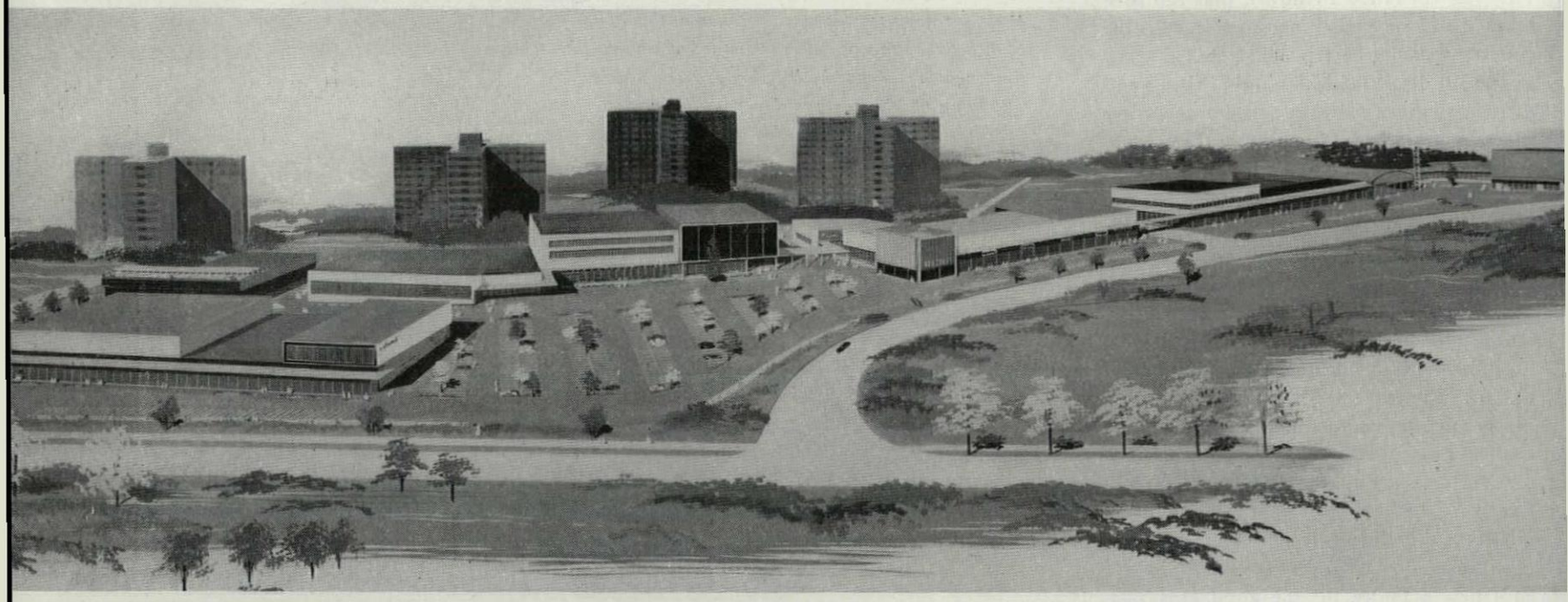
Shopping center

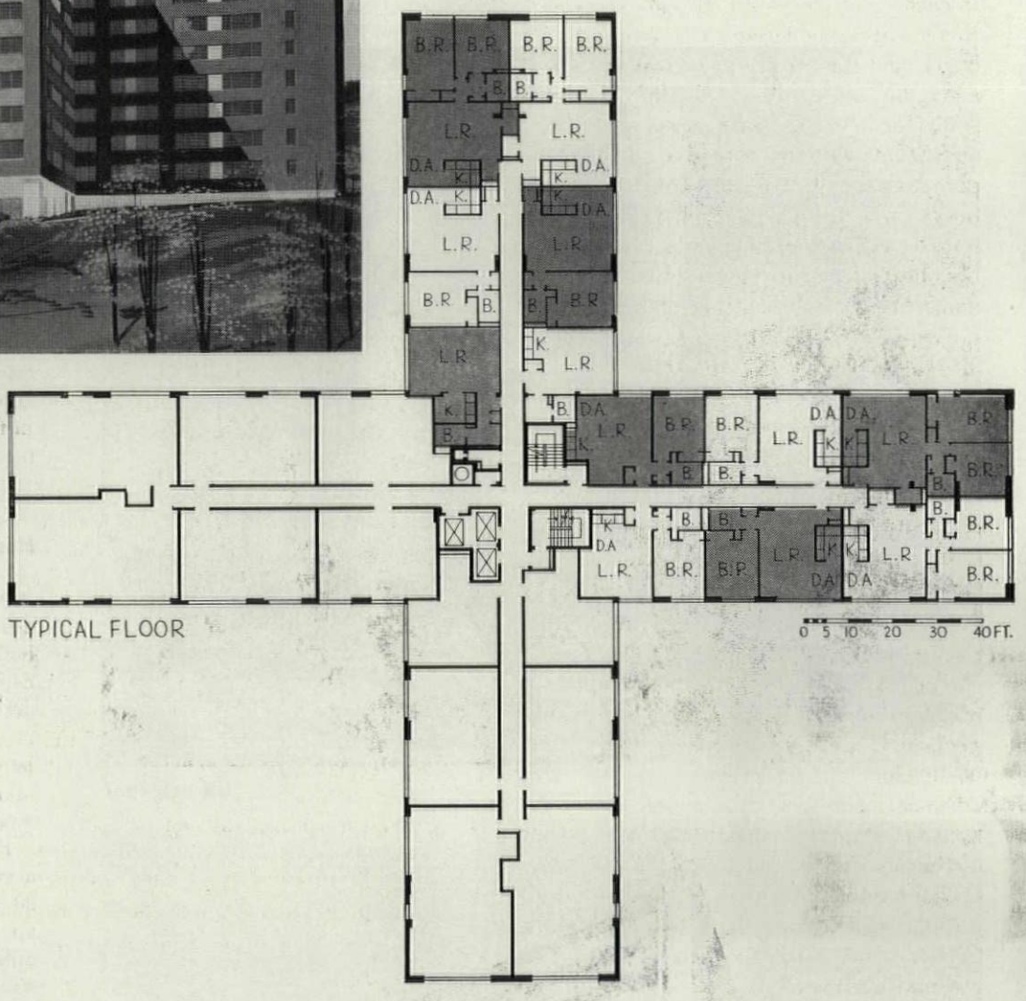
The shopping center was deliberately planned along regional rather than local lines—to draw from a buying radius of 25 miles. About 500,000 sq. ft. is alloted for selling space and an equal area for parking 4,000 cars—no car being more than 350 ft. from the nearest store. Merchandise of a wide variety and price range as well as services—from banks to doctors' offices—will be included.

As suggested by Urban Land Institute Director Seward Mott and a visiting committee of 26 top Institute members, the center will be laid out in two main groups. The more important of these, commanding the choice corner site, will be organized around a top-rate department store aimed at the "carriage" trade. 69,000 sq. ft. have been assigned as the probable size of this store, which will cost about $2½ million. Flanking it on both sides will be a number of the best specialty shops. The second group, of less expensive small shops and services, surrounds a 40,000 sq. ft. popular-priced variety store. At the far end of the site, where varying schedules will not interfere with the main workings of the center, space has been left for a movie theater and recreation building. In the middle of the project as a whole—equally accessible for stores and apartments—will be a free-standing, first-class restaurant. This restaurant, with a terrace commanding a view of the river and distant city (it is to be angled between two of the apartment towers) is expected to be a big drawing card.

Apartments

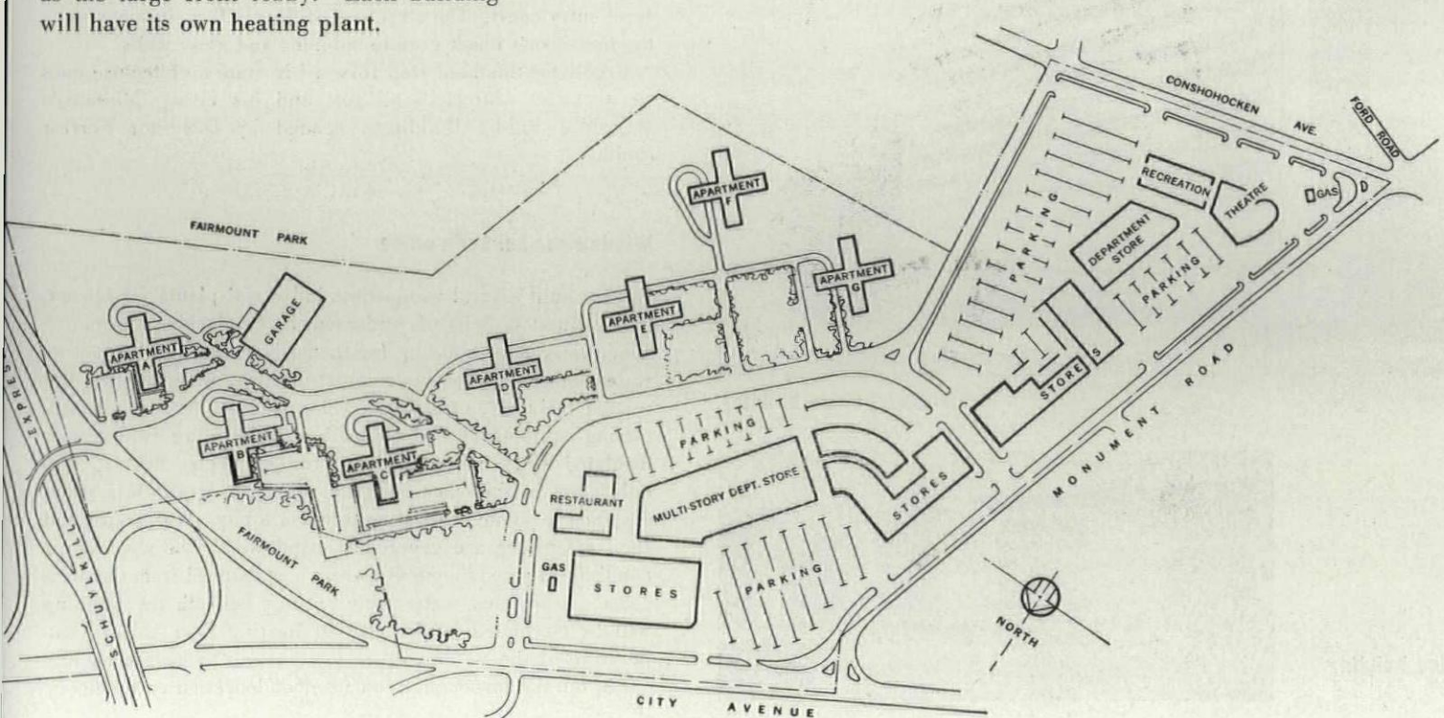
The seven 11-story apartment buildings use a straightforward cross plan with all services located in a central core. The first three, now under construction, use the same layout and have identical opposite wings (see plan). Trickiest feature of the floor plan is its arrangement of back-to-back





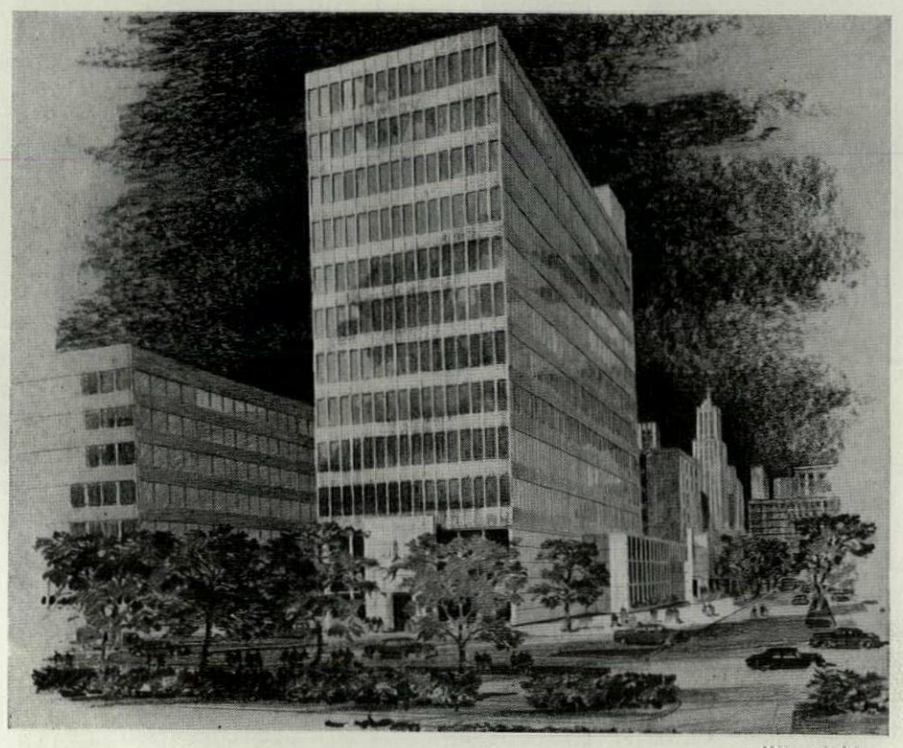
kitchens. This will not only reduce the number of plumbing stacks but permit great flexibility in apartment layouts. To make one large unit out of two small ones it will only be necessary to remove the fixtures of one kitchen and stop its outlets. The kitchen-living-dining area of one will then become a large living room; the second living-dining area will shift to a full-sized dining room. The kitchen remains the same.

Each apartment tower is surrounded by five acres of park and has outdoor space for about 150 tenant cars (in addition to the 400-car garage building). The sloping ground allows a drive-through entrance to each building under one of the wings. This ground level will house storage rooms. laundry and other tenant services as well as the large front lobby. Each building will have its own heating plant.

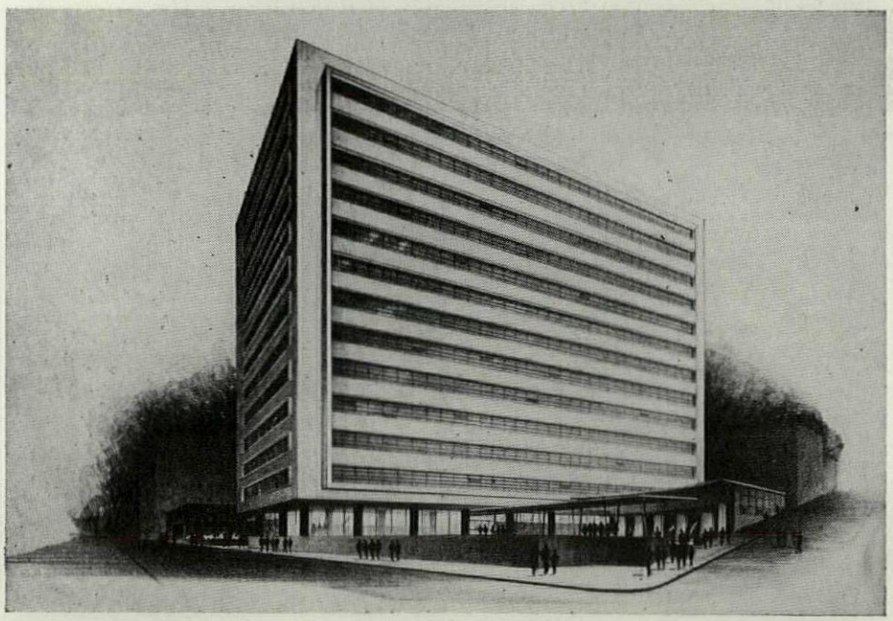


BUILDING REPORTER

—a quick look *at a half dozen new buildings featuring high windows, strip windows and no windows*

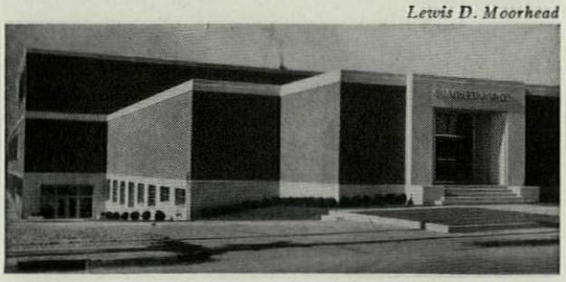


UN neighbor



Missouri office building

Lewis D. Moorhead



Windowless office building

Unofficial UN building

Leading off the private redevelopment of the shabby blocks surrounding New York City's new world capitol, the Carnegie Endowment for International Peace last month released a drawing (left) of the $3.8 million 12-story glass and aluminum building it plans to erect opposite the UN plaza. Fittingly similar in design to the glass and marble UN Secretariat (FORUM, June '49), the Carnegie Building was designed by UN's director of planning, Wallace K. Harrison, and his partner, Max Abramovitz. It will contain an auditorium, library, conference rooms, and dining accommodations for Carnegie's staff (which will be moved from Washington, D. C.) and for other national and international organizations in the field of world relations which have been invited to share the building's 100,000 sq. ft. of office space.

Modern state building

Any state building which avoids the architectural rut of neoclassicism is worth a second look. The $3.5 million office building which Missouri has proposed for its Jefferson City capitol group deserves a long second look. Not only is its design contemporary (see cut) but its construction is as modern as today. Its flat slab reinforced concrete frame will be enclosed with long, unbroken strip windows and thin curtain wall spandrels comprised of insulated aluminum panels less than 4 in. thick.

Partly to avoid the unsightly appearance of an entrance on a steep sidewalk grade (the 200 x 200 ft. lot slopes 15 and 20 ft. on the two street fronts), to obtain maximum light, air and vision, and to feature the project's importance, the building was set back from the corner, angled to the steeper street and developed in the form of a shaft 71 ft. wide and 200 ft. long. This shaft is set atop a basement which covers the entire lot and projects up at the street corner to form a level entry court. The structure of the shaft is dramatized by the first floor's black granite columns and glass walls.

Credit for this bold step forward in state architecture goes to Architect Marcel Boulicault and his client, Missouri's Board of Public Buildings, headed by Governor Forrest Smith.

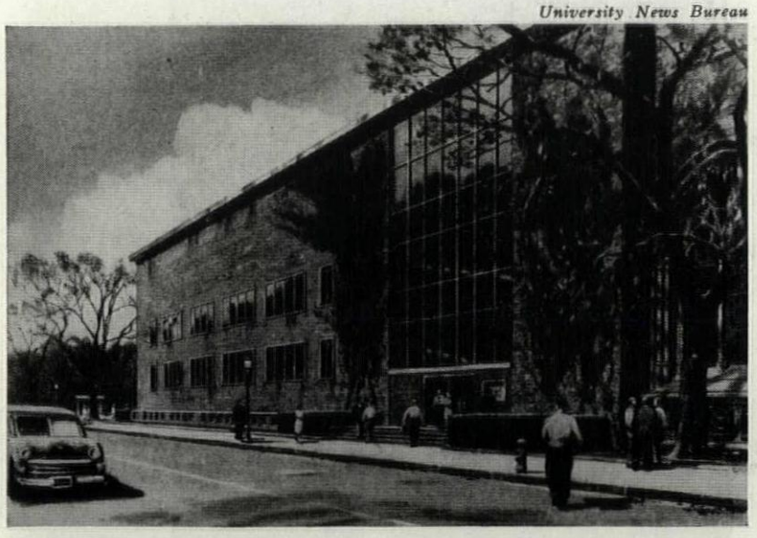
Windowless builder's office

Having built several windowless industrial plants for clients, C. M. Guest & Sons of Anderson, S. C., decided to build a windowless office building for themselves. Actually, windows were omitted to promote quiet (along with acoustically treated ceilings), cleanliness (along with filtered air conditioning equipment) and controlled temperature (along with insulated walls and ceilings and radiant heated floors). The only glass in the office is at the entry—a large glass panel designed to invite the visitor into the lobby. Warehouse and shop extensions are generously windowed. The shop is air conditioned secondhandedly with air exhausted from the office space. In summer water from springs beneath the building will be circulated in the radiant heating floor coils. Temperature of the water will be low enough to have a cooling effect, but not low enough to cause condensation on the floors.

Big windows at Yale

Ever since World War I, Yale has been busily adorning its quadrangles with the world's most beautiful anachronisms. Many a Yale man blinked, therefore, when he saw the trace of contemporary influence revealed by this photo-rendering of the proposed $2 million workshop addition to the University's neo-Gothic art gallery. Architect is Yaleman Philip L. Goodwin.

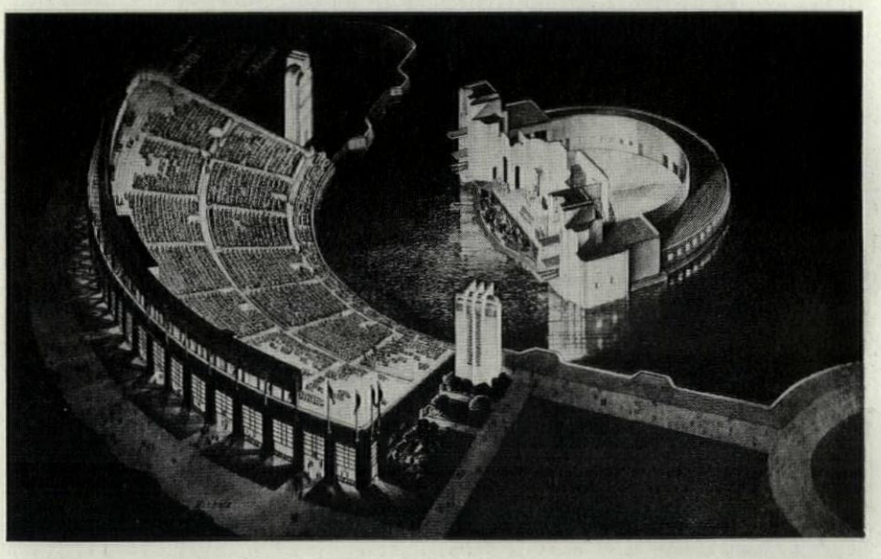
University News Bureau



Yale art gallery

Marine stadium

Something new in theater design will soon be seen by the hordes which visit Long Island's Jones Beach to escape the summer heat—a 9,000 seat stadium facing an island stage. Shows will be staged on the island or in the watery aisle between it and the stadium. However, an underwater tunnel is being built for the convenience of non-swimming members of the cast. The project was designed by former state Architect William E. Haugaard (deceased) and is being built under the supervision of Architects Skidmore, Owings & Merrill.



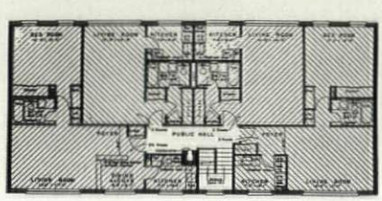
Jones Beach stadium

Air-conditioned garden apartments

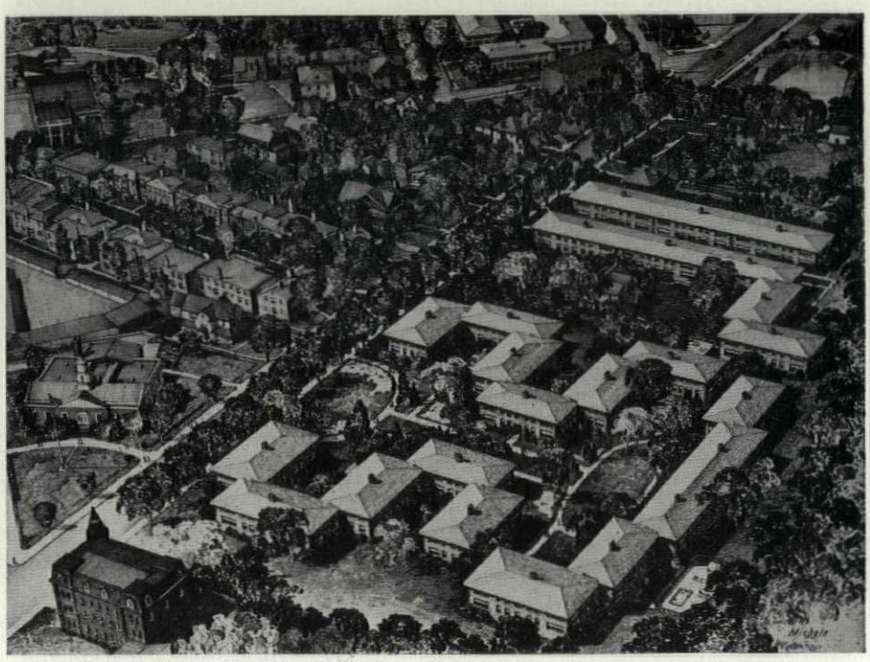
A significant sign of changing times is the list of unusual appointments to be included in Long Island's newest apartment project—the 284-family, $3.5 million Childs' Garden Apartments in Floral Park. To appeal to a diminishing and increasingly discriminating market, the builders, Robert Metrick Co., are offering real air conditioning, wall-to-wall carpeting, sliding closet doors, Venetian blinds and, in the bathrooms, combination vanity-lavatories. Despite these cost-boosting amenities, rents are claimed to be only a little above the ceilings set for nearby prewar apartments. They range from $58.50 for a two-room studio apartment to $116 for a 4½-room suite.

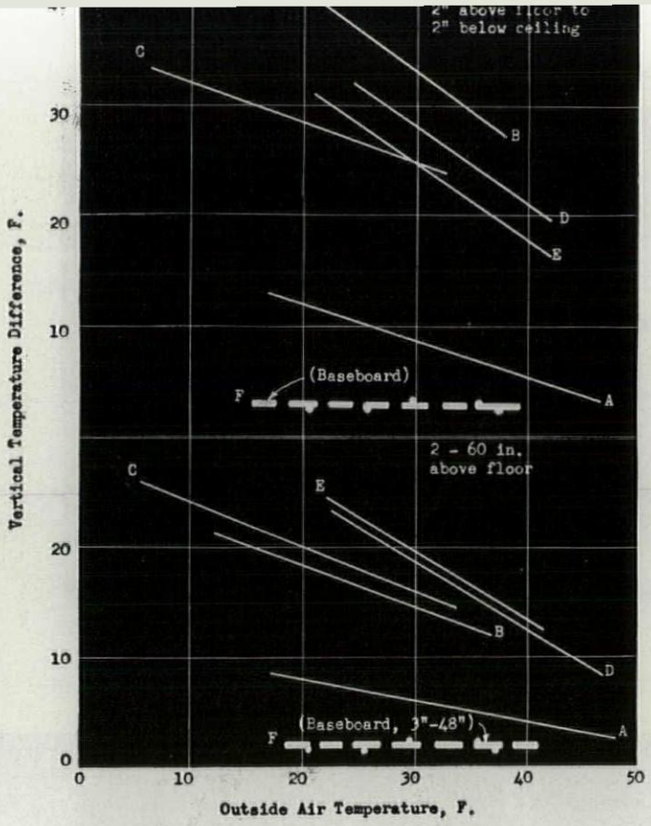
The public is apparently satisfied that the price is right. The first two sections (168 units) were sold out immediately from plans last month—a rare occurrence in today's apartment market. Perhaps the customers were attracted by these additional come-ons offered by the rental agents at a slight increase in monthly rent; maid service, built-in television, and group health insurance for tenants.

Air conditioning will be accomplished by half-horsepower units individually controlled by tenants—one unit for each 2-room apartment, two units for 3 and 3½ rooms, and three units for 4 and 4½ rooms. Cost of the system approximates $250 per unit installed. The provision of air conditioning makes cross ventilation unnecessary and thus permits the placement of the two-story, 8-unit buildings end to end.



Air-conditioned apartments





Average temperature differences observed in five radiant baseboard heated dwellings, superimposed on chart by Bureau of Standards which gives differences for other systems. A—gravity hot water with radiators; B—electric heater with gravity circulation through plenum chamber; C—electric heater with forced circulation (780 cfm) through plenum chamber; D—oil furnace with forced circulation through plenum chamber; E—gas space heater with a disk fan; F—forced hot water using baseboard radiators.

RADIANT BASEBOARD HEATING

—a test run proves its good qualities

Baseboard heating has become big. Twenty-eight manufacturers are now producing various types of baseboard heating equipment, to go into both new and old buildings —mostly houses—by the thousands of feet. A new test study indicates why, *and substantiates hitherto speculative data as to the operating efficiency of one type of baseboard installation, the* radiant *baseboard.*

In the winter of 1949 test engineers G. S. MacLeod and C. E. Eves installed radiant baseboards in five houses near Chicago. The heating elements were hollow steel radiating sections, shaped to resemble wood baseboard, 9 in. high, with forced hot water circulation within, with no provision for convective air currents. The number of rooms heated in each house ranged from 5 to 14. (See opposite for plans and detailed information.) For five days the installations were carefully observed and tested, then evaluated on the interdependent factors of air temperature distribution, room air velocity, mean radiant temperature and relative humidity, as well as from comments of the houses' occupants.

SUMMARY OF TEST DATA

Case No.	1	2	3	4	5
Test date, 1949	2/8-2/11	2/15-2/17	2/22-2/25	3/1-3/4	3/8-3/11
Average vertical temperature difference, F:					
3 in. above floor to 48 in. above floor	1.9	1.4	2.2	2.3[a]	1.5
3 in. above floor to 3 in. below ceiling	2.9	2.4	3.0	3.3[a]	2.4
Average of the maximum horizontal air temperature differences:					
3 in. above floor	6.1	3.7	4.0	6.4	4.5
48 in. above floor	4.9	3.1	5.4	6.2	3.9
3 in. below ceiling	4.2	3.4	—	—	—
Average air velocity, all rooms, fpm					
3 in. above floor	21.8	21.0	17.7	23.2	23.0
48 in. above floor	9.5	12.7	12.7	12.0	13.4
Maximum air velocity, fpm					
3 in. above floor	70	44	45	110[b]	60
48 in. above floor	25	21	27	22	26
Average relative humidity (living room), percent	37	43	47	37	46
Average outdoor temperature in shade, F	20.5	25.5	35.2	29.6	37.0
Average indoor temperature (at thermostat), F	73.0	73.0	70.0	71.0	71.0
Indoor-outdoor temperature difference, F	52.5	47.5	34.8	50.4	34.0
Average heat loss during test period, Btu/hr	27,800	20,800	40,300	57,400	48,300

Test averages of vertical temperature differences*, F:	A	B	A	B	A	B	A	B	A	B
Living room, N.E. area	4.3	6.2	1.4	2.0	2.7	3.8	1.8	2.5	1.7	3.4
Living room, S.E. area	2.6	3.4	1.8	1.9	2.7	3.8	1.8	2.4	2.0	3.4
Living room, S.W. area	1.1	3.0	0.9	1.2	3.9	4.8	2.3	3.3	2.0	2.7
Living room, N.W. area	4.1	4.7	1.3	1.0	2.6	3.4	1.9	3.0	1.7	2.5
Living room, average of 4 areas	3.2	4.3	1.3	1.7	3.0	3.9	1.9	2.8	1.9	3.0
Dining Room	—	—	—	—	2.6	3.5	4.3	6.3[d]	1.9	3.0
Kitchen	2.0	3.2	1.0	2.1	3.2	3.7[e]	4.4	9.1[c]	2.3	4.5[e]
Bathroom	0.8	1.7	1.0	2.1	1.7	2.9	5.1	11.3[c]	2.0	2.9
Northeast bedroom	1.6	2.7	1.5	1.8	0.8	1.2	2.1	3.4	1.2	2.0
Northwest bedroom	1.9	2.6	0.8	1.5	—	—	—	—	1.8	2.4
Southeast bedroom	—	—	—	—	3.9	4.9	—	—	0.7	1.3
Southwest bedroom	—	—	—	—	2.5	3.6	—	—	1.4	1.9
No. of vertical temperature inversions observed[f]	15	4	9	5	2	1	2	5	5	4
Percent of total difference observations	15	4	13	7	2	1	2	5	4	3
Average amount of inversion, F	1.4	1.1	0.6	0.7	0.2	0.3	3.3	0.8	0.6	0.7

**A: 3 in. above floor to 48 in. above floor. B: 3 in. above floor to 3 in. below ceiling.*
[a]includes baseboard-heated rooms only. [b]near open fireplace. [c]heated with standing radiation. [d]opens into room heated by standing radiation. [e]baseboard radiators behind cabinets. [f]temperature inversion: when air temp. at floor is greater than at higher levels.

Results indicated:

1. Size, shape, or construction materials of the houses had little effect on the overall performance of the base boards.

2. Air temperature differentials from floor to ceiling and from room to room were less than in houses heated by more conventional systems.

3. Baseboard radiation systems were free from inherent drafts.

4. Indoor relative humidity was observed to be satisfactory without the use of humidification devices.

5. Highly satisfactory results were obtained from the use of simple control systems.

With permission of the American Society of Heating and Ventilating Engineers, FORUM *reprints below MacLeod and Eves' discussion of the results of their tests, originally presented at the 56th annual meeting of the ASHVE early in 1950.*

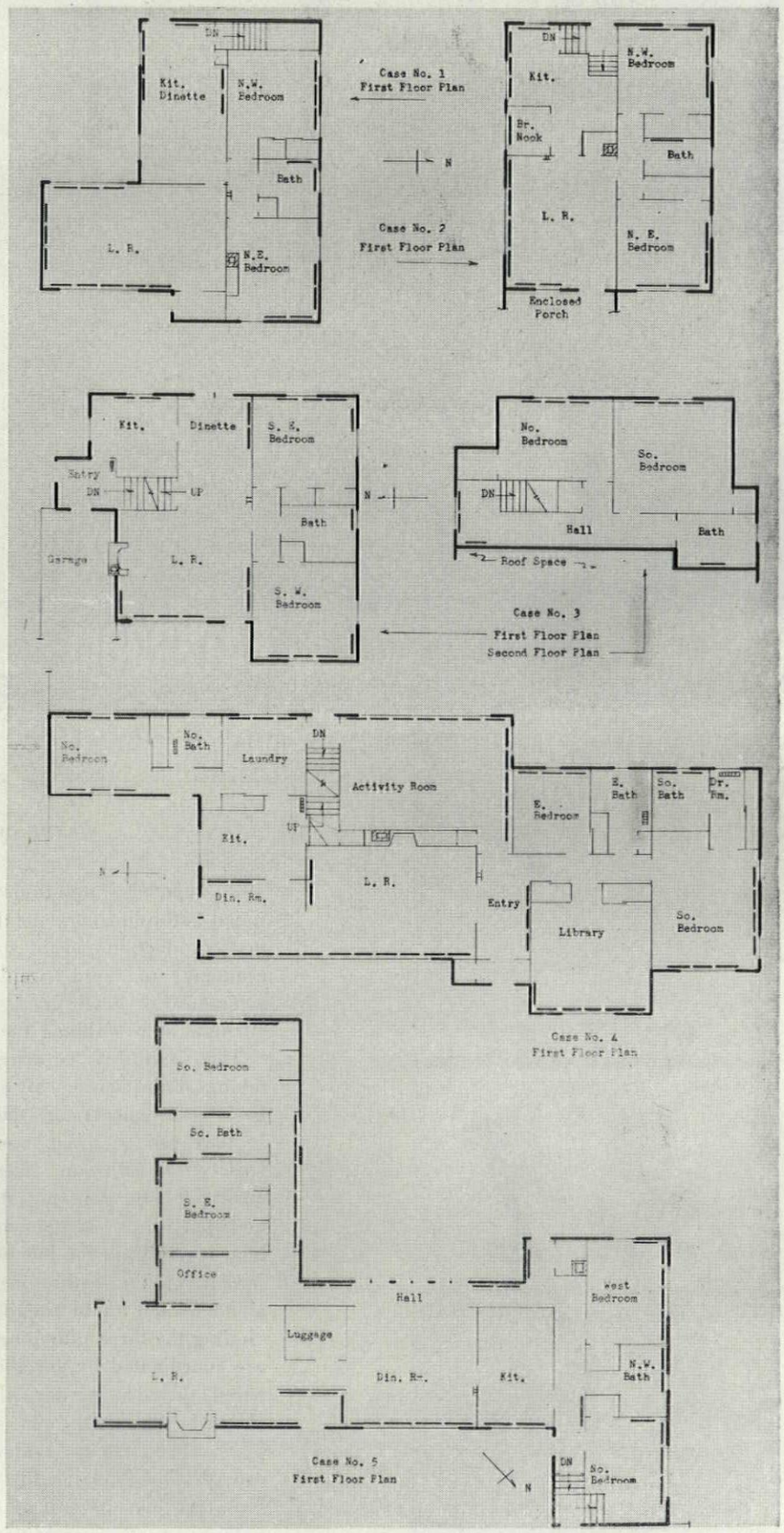
Winter comfort conditions. A thorough discussion of what constitutes comfort in a heated structure is outside the scope of this discussion. However, at least the measurable, physical factors that influence the sensation of comfort must be considered in an evaluation of heating system components.

HOUSE DETAILS

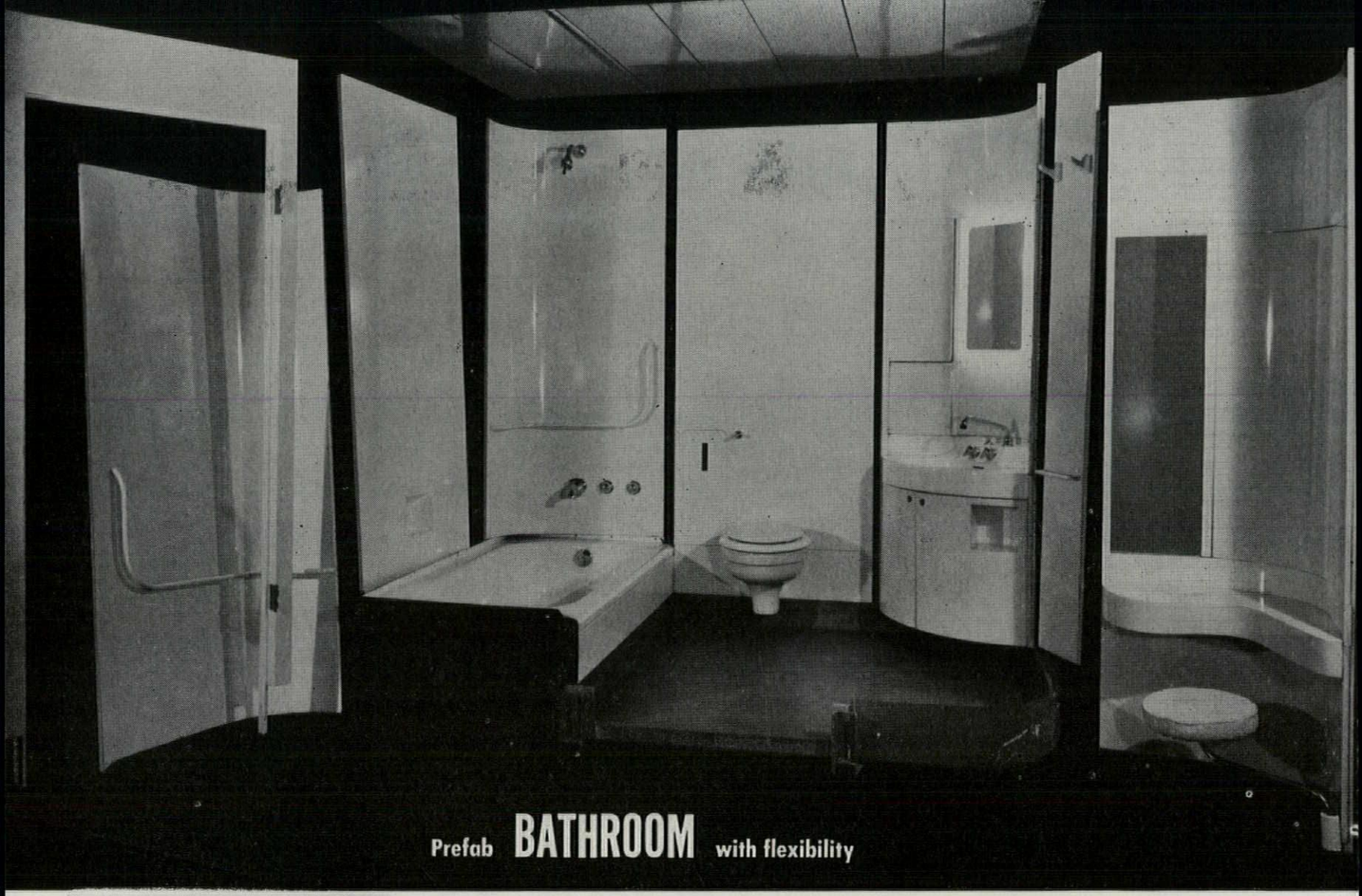
1. Case No.	1	2	3	4	5
2. No. heated rooms	5	6	10	14	13
3. Stories	1	1	1½	1½	1
4. Floor area, sq. ft.	954	937	1,531	2,413	2,133
5. Heated vol., cu. ft.	7,518	7,678	11,836	18,669	17,770
6. Glass & door area, sq. ft.....	212	158	352	613	504
7. Total heat loss (80 F. diff.)	42,300	35,000	92,700	91,100	113,600
8. % total heat loss:					
a. Walls	20.8	37.8	19.7	13.7	22.0
b. Ceiling	18.0	17.1	27.3	19.2	5.8
c. Floor	16.2	1.1	4.3	1.8	11.5
d. Infiltration ..	19.5	17.0	14.5	20.2	20.9
e. Glass & doors	25.5	27.0	34.2	45.1	39.8
9. Ceiling height, in.	97	102	96	96	100
10. Insulation	Full	Partial	Partial	Full	Partial
11. Fuel used	Oil	Gas	Coal	Oil	Oil
12. Basement	Half	Full	Full	Full	Half

Published papers pertaining to winter comfort indicate that among the more important of these influencing factors are temperature of the air, air velocity, mean radiant temperature and relative humidity.

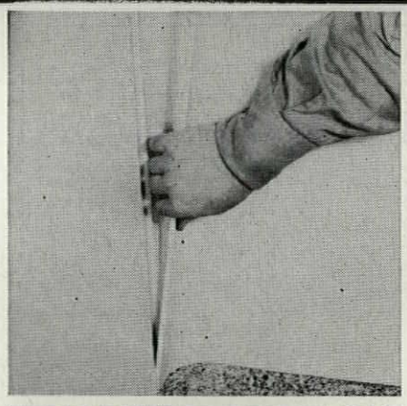
In the broad sense, winter comfort conditions actually imply a state of equilibrium between the heat losses of the human body and the heat gains. Consequently, maintaining winter comfort resolves itself into the control of the net effect of as many of the influencing factors as possible, and over as much of the occupied area of the structure as possible. *(Continued on page 180)*

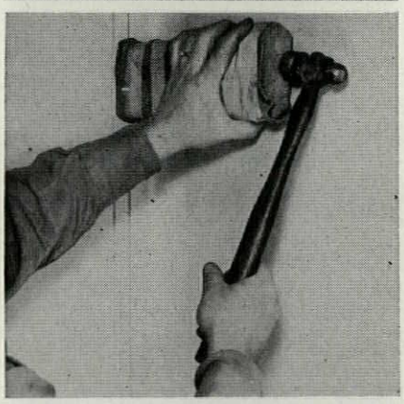


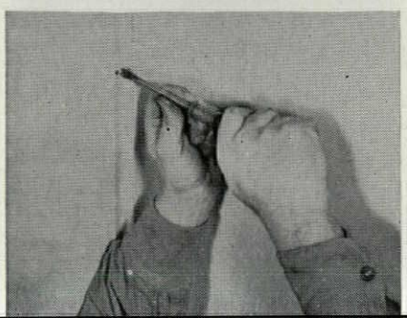
Symbols:
—Baseboard Radiator Section
Thin tube, standing radiator
Thermostat Location

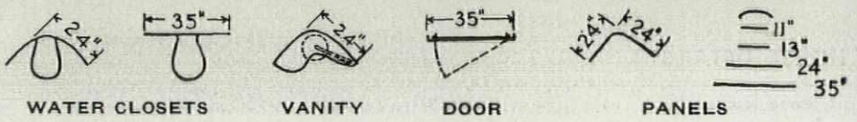


Prefab BATHROOM with flexibility









WATER CLOSETS VANITY DOOR PANELS

"Fixturepanels," prefab parts of a new sectional bathroom, combine the economies of mass production and the speed (plus more economy) of rapid, simple erection with a measure of flexibility lacking in earlier attempts at prefabbing the bathroom.

This flexibility is achieved by painstaking dimensioning of each of the six basic components of the finished job, so they can be fitted together in a wide variety of bathroom sizes and arrangements. Its use does not stop with houses and apartments—components can be assembled in multiple for big public lavatories.

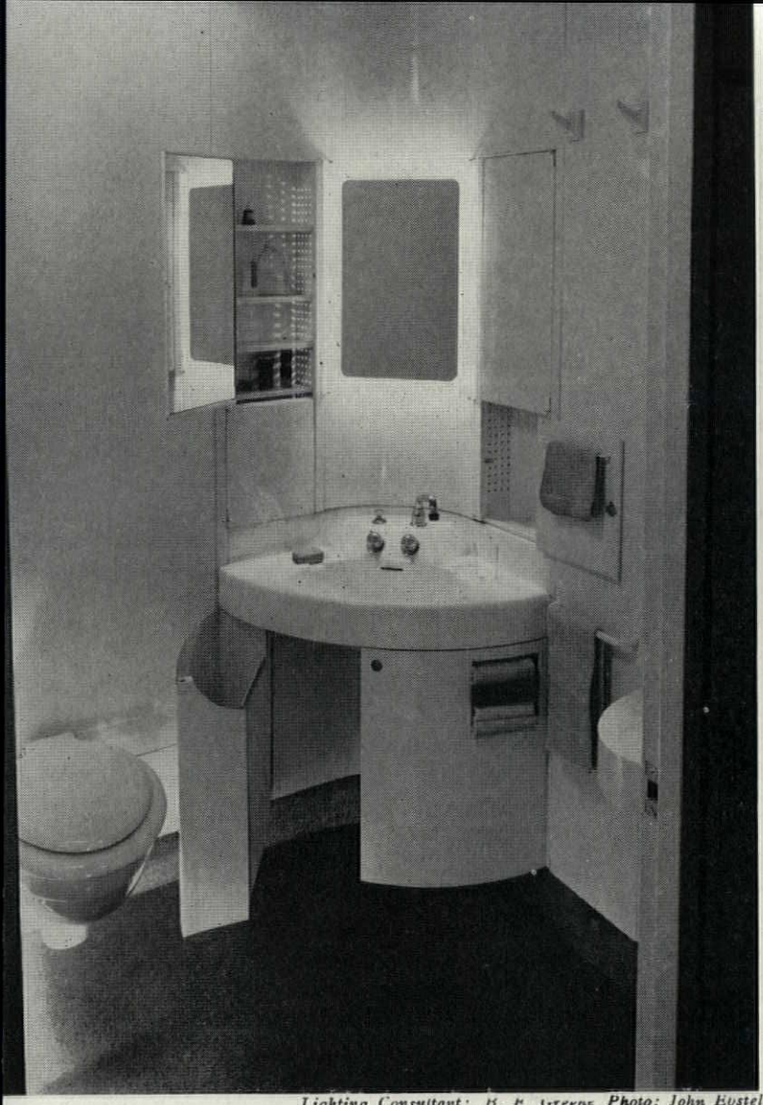
Cost of the bathroom shown here is about $450 without rough plumbing. Excluding the three plumbing fixtures, which are coordinated by specifications but procured through regular plumbing supply channels, the bathroom sells for about $300. Discounts are available on quantity orders. This is claimed to be about 10 per cent less than the cost of finishing a tiled bathroof in the conventional manner. A stripped down economy model for public housing will sell for $181.50 in quantity. This arrangement includes an enameled steel ceiling and omits the dressing table and all but one cabinet.

Panels are 14 and 16 gauge steel, separated from adjoining rooms by any type of rough partition construction.

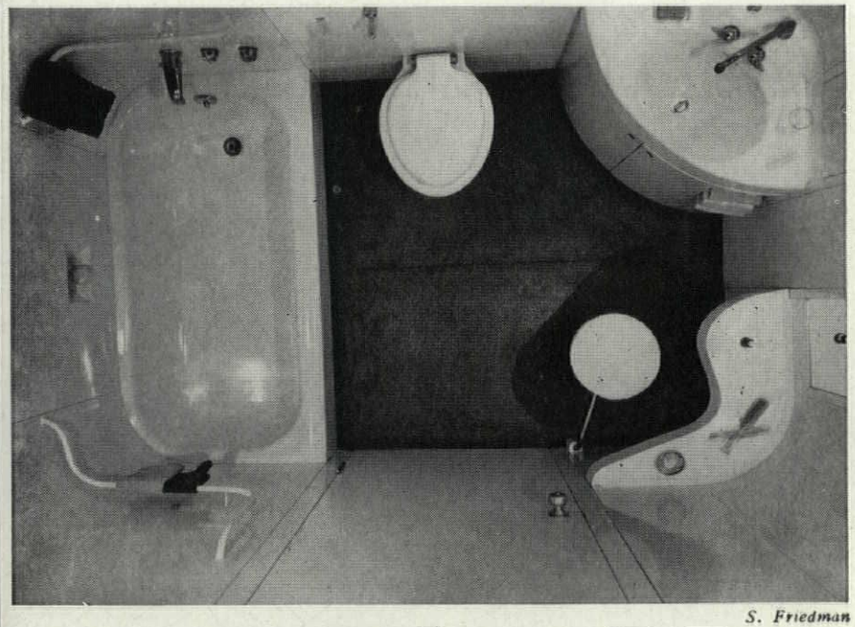
Panel finishes are baked-on or vitreous enamel and may be obtained in color; the steel fixtures are finished in vitreous enamel. Special panels can be made to meet specified window conditions, or one wall panel can be replaced by a section of conventional outer wall construction.

The floor is precast terrazzo which bends up under the panels at the perimeter for easy cleaning. The ceiling is made of perforated metal panels permitting air exhaust (see sectional drawing). Air intake is through a slot near the bottom of the door (see photo). Conventional ceilings and floors also can be used, however. Heating of interior bathrooms is by a steam riser located in the corner of the room behind the apex of the panels. In exterior bathrooms cut-outs for heating units or windows can be provided.

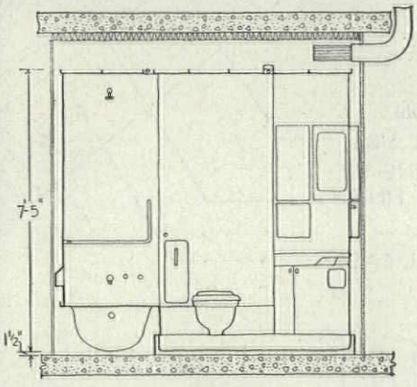
Panels are screwed together on job, then filler strip is inserted in joint and tamped home.

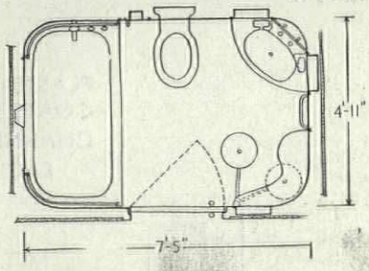


Lighting Consultant: B. F. Greene Photo: John Evstel

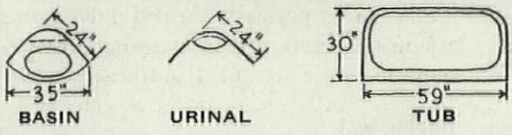


S. Friedman

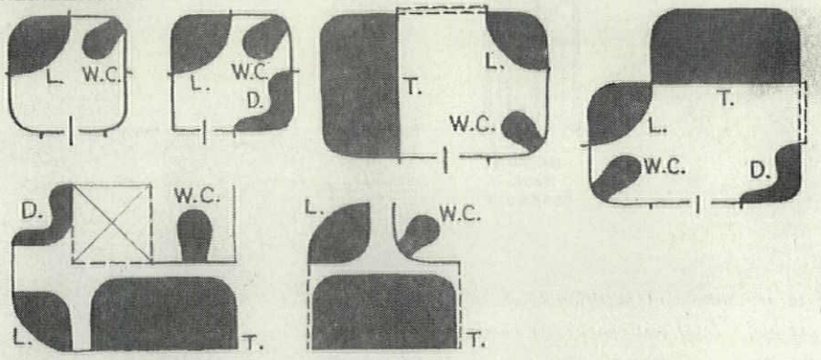




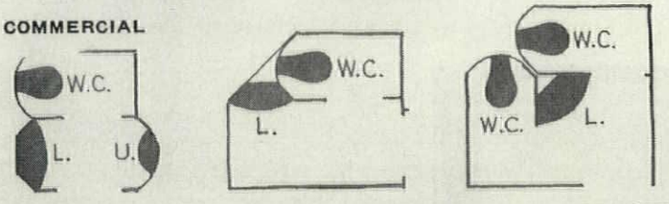
View into finished model bathroom. Below, some of the numerous plan arrangements possible with these panel units.



RESIDENTIAL



COMMERCIAL

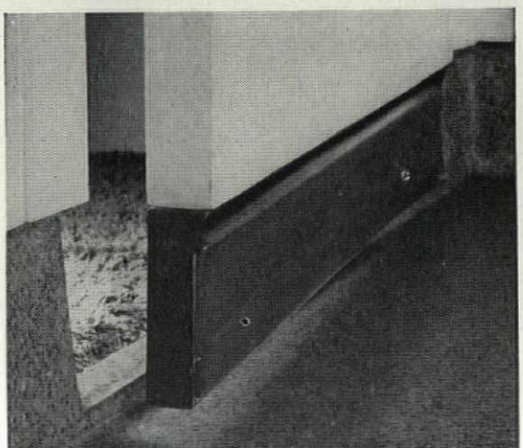


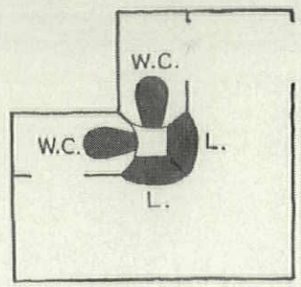
Rough plumbing is installed on the site in the usual manner before the panels are set in place, then connected with the fixtures. There is ample concealed pipe space behind the panels with easy accessibility.

Panels are screwed together, then filler strips are tamped into the joints (see photos), so it is relatively easy to detach almost any panel, although the wall is continuously water repellent to the full height of the room. Since the construction is entirely dry, assembly is fast.

Designer of the patented bathroom is Guy Rothenstein; Fiat Metal Manufacturing Co. of New York is producing the units.

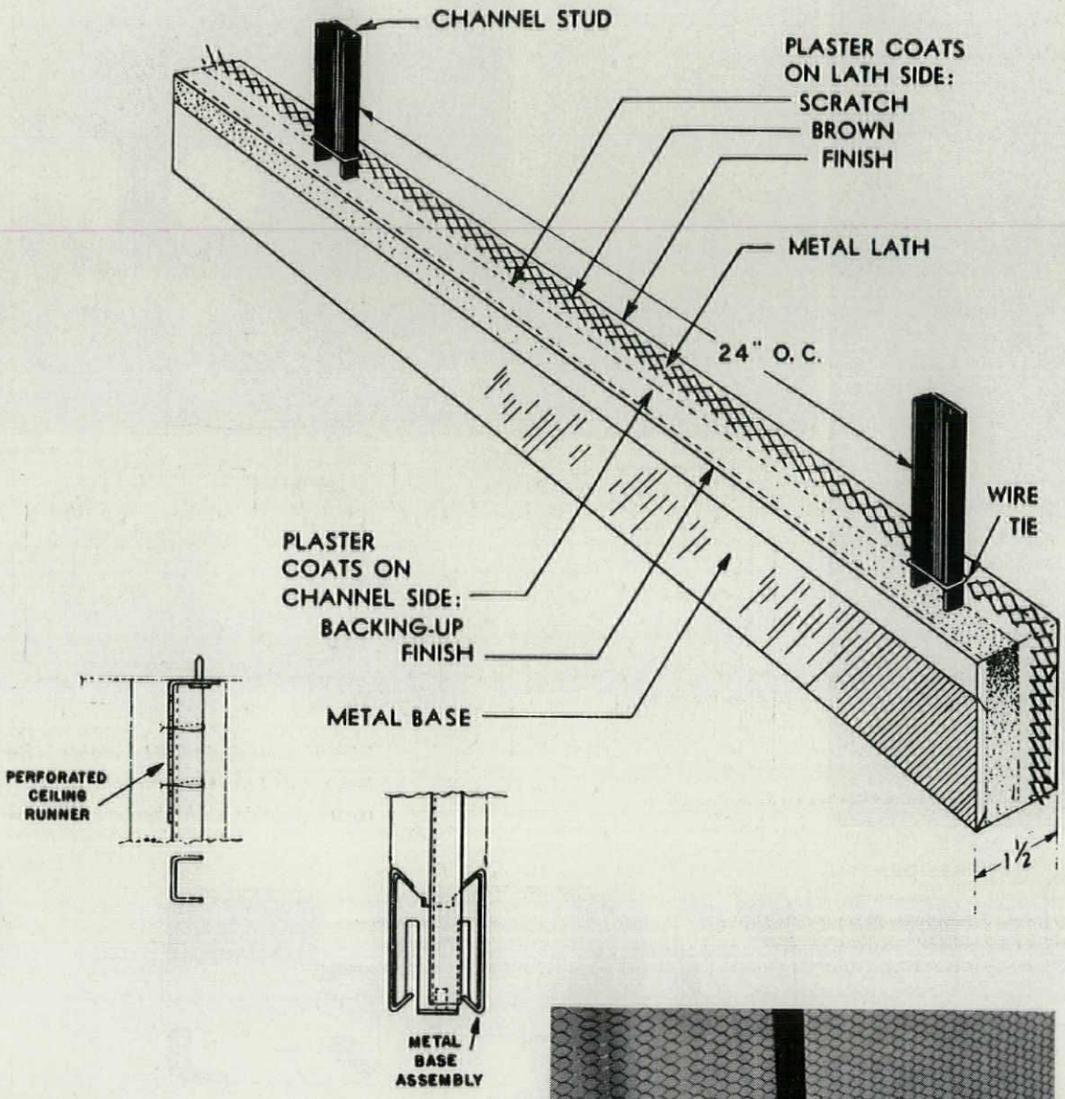
Rothenstein, who once worked with Le Corbusier, based the design on the theoretical dimensions of the human body determined by the "Modulor" system. The height of the bathroom is 7 ft. 5 in. Each panel is composed of one or several basic dimensions: 11 in., 13 in., 24 in., 35 in., and 59 in. Various combinations of these dimensions result in equal totals, thereby permitting all kinds of layout arrangements within square or rectangular rooms.



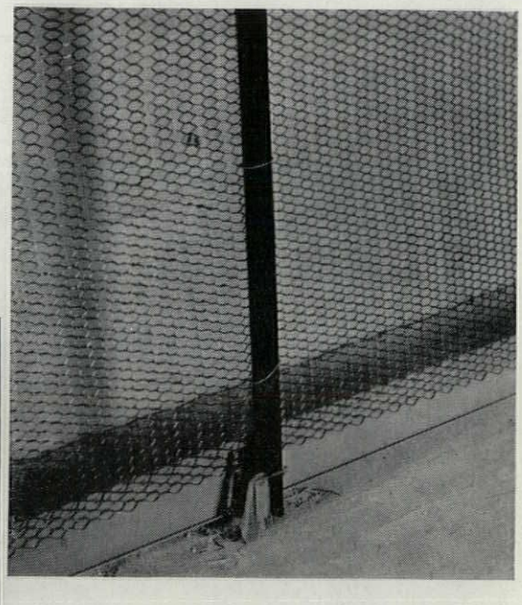


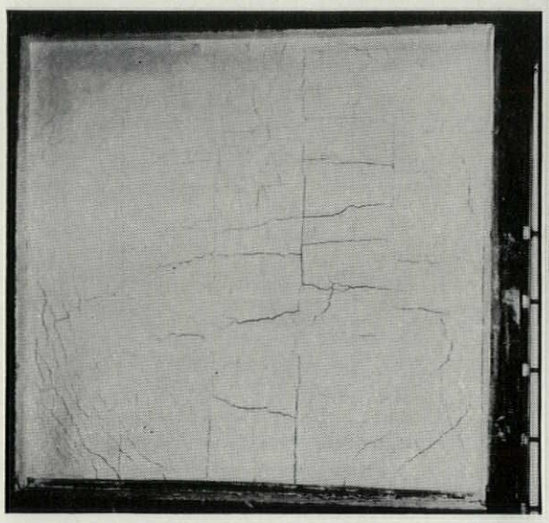
Precast terrazzo floor is angled up at wall. Air intake into room is through slot near bottom of door.

NEW ULTRA THIN PLASTER PARTITION has hour fire rating



Metal base clips secure bottom of partition (right). Below, photo of exposed side of test panel after completion of one hour test.





This 1½ in. solid plaster-on-lath partition wall, developed by the Metal Lath Manufacturers Assn., earned a fire-rating of a full hour when tested recently in conformance with regular ASTM specifications.

Probably the thinnest and lightest fire-resistive nonbearing wall partition developed to date, it weighs only about 5 lbs. per sq. ft. A regular 2 in. plaster wall weighs about 18 lbs. per sq. ft.

Lightweight plaster

The plaster is perlite or vermiculite gypsum plaster applied over a 2½ lb. diamond-mesh expanded metal lath.

Studs are ¾ in. cold rolled steel channels formed from 16 gauge steel, spaced 24 in. on centers, with webs parallel to the plane of the panel so their wide dimension is parallel with the wall surfaces.

Flat expanded metal lath, painted black, is attached to the web side of the channels, fastened with galvanized tie wires spaced 6 in. on centers. Five coats of plaster make up the wall: scratch coat, brown coat, back-up coat, and two finish coats. The test panels were allowed to dry and age for five weeks in a normally heated laboratory, where they were placed to permit free circulation of air around all surfaces.

Double test

The partition passed both fire-endurance and hose-stream tests, in duplicate copies.

One panel was exposed directly to flame for one hour continuously in the fire test. At the end of this period, when the temperature was raised progressively to 1,750 degrees F., the plaster, including the top white finish coat, showed no signs of spalling. Cracks appeared, becoming very evident near the close of the test, but no plaster, even the finish coat, fell from either face of the partition. No smoke or fire penetrated the partition through to its unexposed face.

In the hose-stream test, a duplicate panel was exposed to fire for 30 minutes, during which time the furnace temperature reached 1,600 degrees F. Then the white-hot panel was subjected to a fire-hose stream under 30 lb. pressure for a period of one minute. There was no penetration of water through to the unexposed face.

After eight minutes of the fire test, the panel started to bow outward—away from the fire. But total deflection after 60 minutes was still only 4.13 in., and the wall did not break or shed plaster.

just 4 words...

DOORS:- RO-WAY OVERHEAD TYPE

and the job is RIGHT!

RIGHT IN MATERIALS

Rowe's own buyer selects only high quality lumber at the mills. Panels are three-ply exterior grade Douglas Fir plywood. Hardware, Track Rollers and Springs are made in our own plant, and Parkerized *after* fabrication.

RIGHT IN CONSTRUCTION

Multiple mortises assure accuracy, uniformity and good fit. All mortise and tenon joints are glued—then *steel* doweled. Track rollers have "double-thick tread." Springs are power-metered to the weight of each door.

RIGHT IN INSTALLATION

Ro-Way Doors are erected with utmost care by Ro-Way's nation-wide network of selected distributors.

RIGHT IN APPEARANCE

Ro-Way Doors are drum-sanded to give a silky, lustre finish. All joints are finished by hand. Parkerized and painted hardware prevents rust streaks. Ro-Way Doors keep their good looks.

RIGHT IN SERVICE

Ro-Way Doors roll up-in-and overhead—out of the way. They won't freeze shut. They won't blow off or bang shut. They are not affected by moisture-swelling or frost-raised floors. Even drifting snow won't keep them from lifting easily.

RIGHT IN PRICE

Ro-Way Doors are built completely in Rowe's own plant. This "single-profit" plan enables us to pass along to Ro-Way users many extra values at no extra cost.

There's a RolWay for every Doorway!

Rō-Way
OVERHEAD TYPE DOORS

SEE OUR CATALOG IN SWEET'S

See your classified telephone directory for name and address of the Ro-Way Distributor equipped to give you expert installation service.

Ro-Way Overhead Type Doors are available for all Industrial, Commercial and Residential Installations

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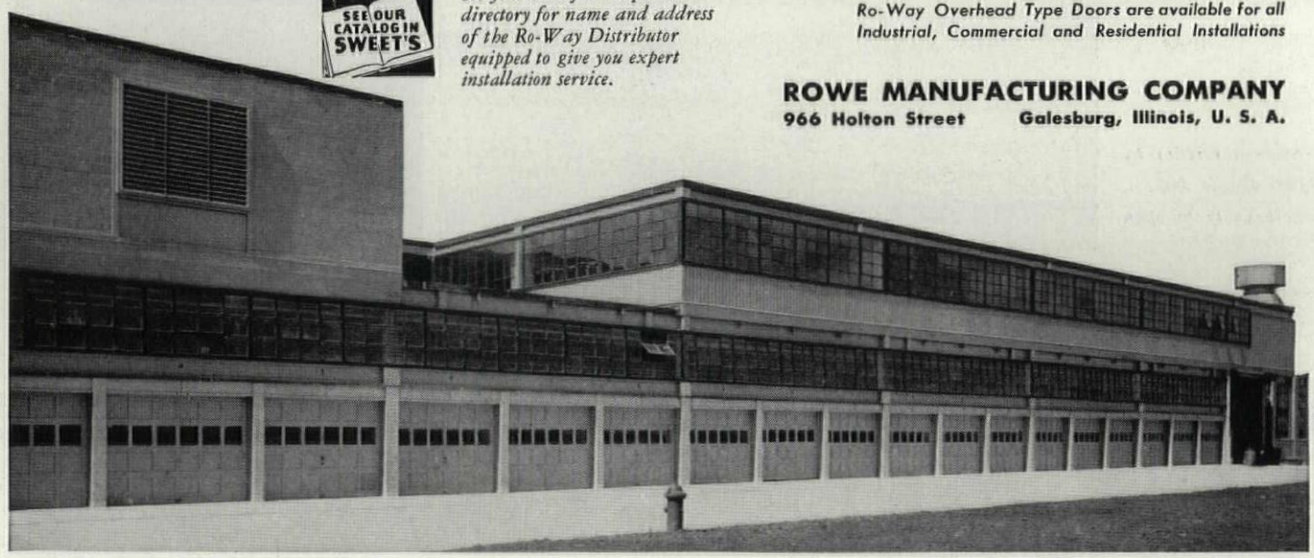
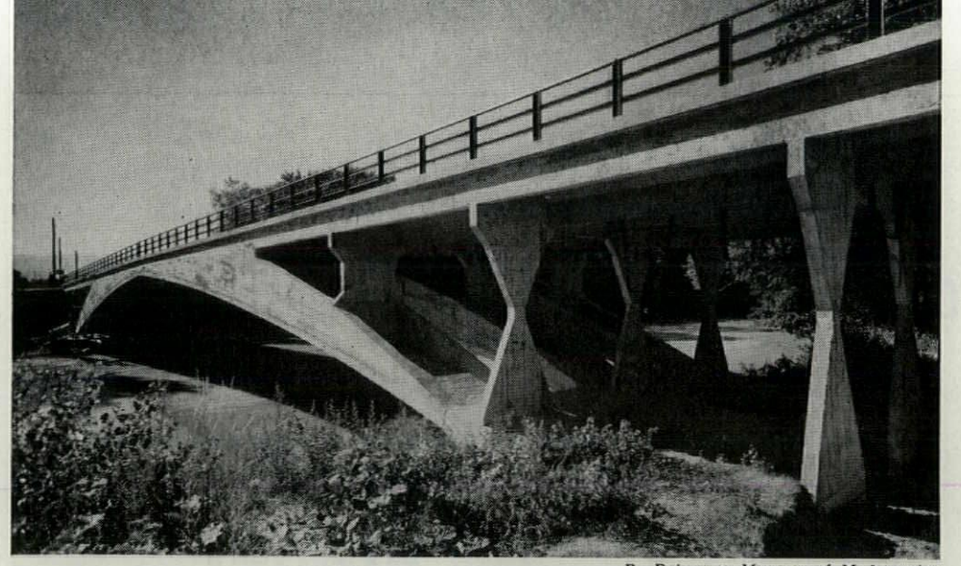
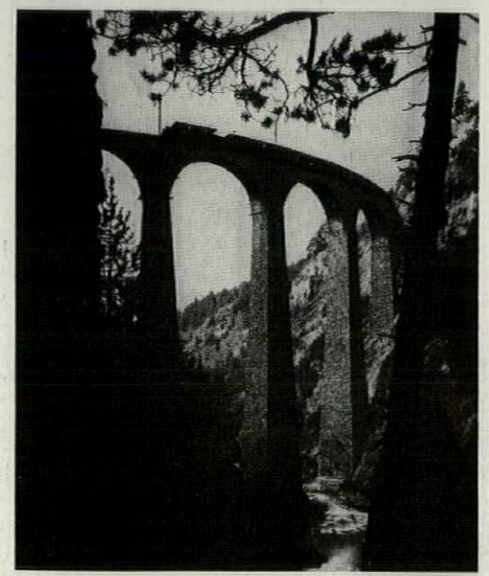




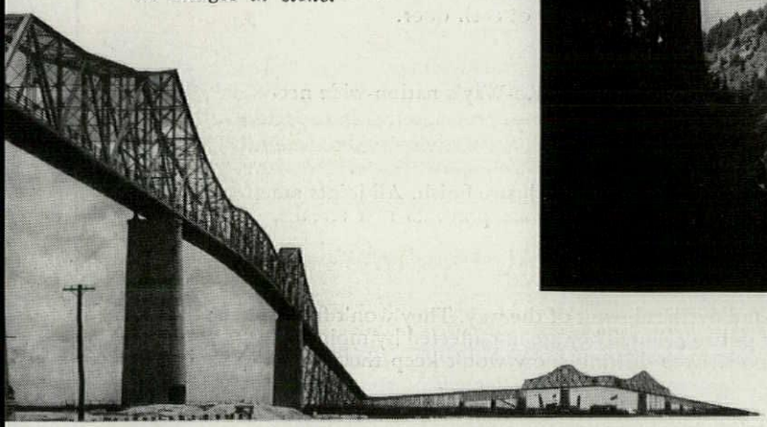
P. Boissonas Museum of Modern Art

The reinforced concrete bridge by Robert Maillart near Geneva, Switzerland (built in 1937) evolves dramatic new shapes to support its roadbed and triple 194 ft. spans.



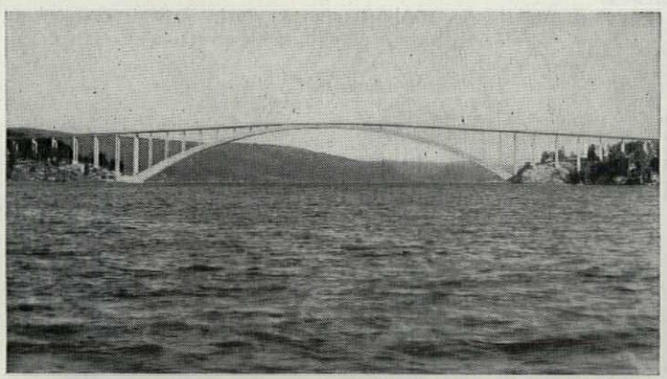
B. Meerkämper

Landwasser Viaduct, Switzerland, 1904 (left) is one of the world's most dramatic bridges in stone.

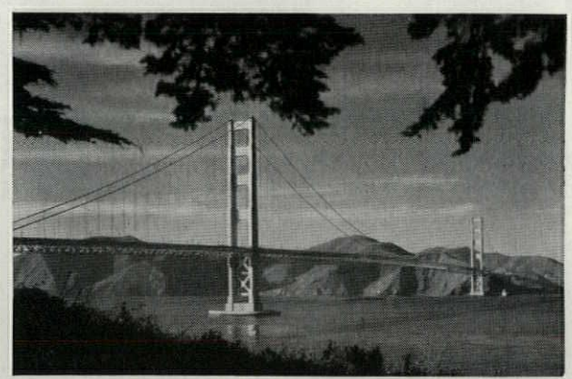


Steel cantilevered trusses over Cooper River, South Carolina (above) were adapted by Waddell & Hardesty, for a cross-country skyway, 1920.

Sando Bridge, Sweden (right) by S. Haggbom (1937-42) is 866 ft. across—the longest concrete span in the world.

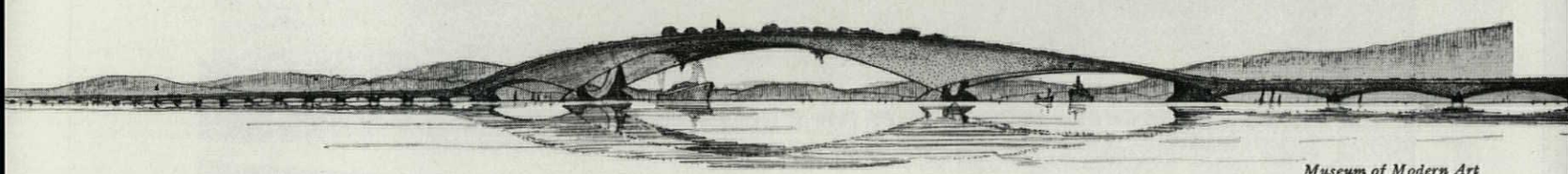


Atelje Jensen



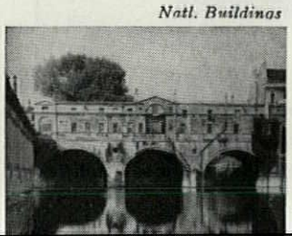
Redwood Empire Association

The world's longest suspension bridge is San Francisco's Golden Gate Bridge (below). Its 4,200 ft. span, designed by Joseph Strauss, was built 1933-37.



Museum of Modern Art

Natl. Buildings



Palladian bridges (see 18th Century English example at left) were integrated with elegant arcades and shops. The bridge of tomorrow (above), proposed by Frank Lloyd Wright for San Francisco Bay, readapts this idea of dual service. Its reinforced concrete span (1,000 ft. long and 175 ft. high) would not only be the world's largest in this material, but its separated roadways would be joined and braced at the middle by a park and hanging gardens.

REVIEWS

THE ARCHITECTURE OF BRIDGES by Elizabeth B. Mock. The Museum of Modern Art, 11 W. 53rd St., New York, N. Y. 127 pp. 8½ x 11. $5.

The steel girders which support today's skyscrapers are still rolled out of "the bridge shop"—a reminder that bridges in the past have served as the proving ground for many techniques that are now part of our down-to-earth construction methods. Any material or method that has stood the ultimate test of bridge use—is in.

The single aim of spanning space, usually the sole function of a bridge, allows its form to be evolved with a daring directness. The resultant structural drama clearly justifies the claim of Elizabeth Mock in her introduction to this choice bridge portrait gallery—"a beautiful bridge has a life quite beyond its practical functions." No one—least of all a building professional—can help being delighted with the virtuosity of these wonderfully various spans.

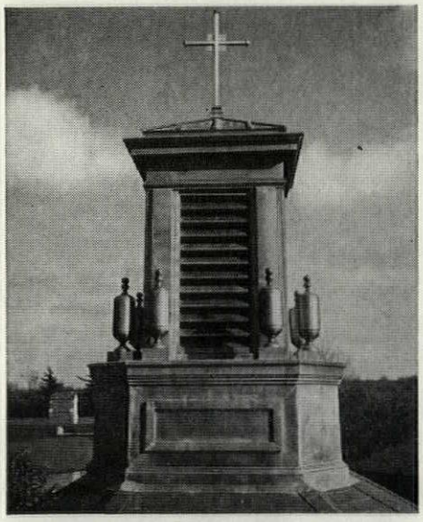
Architecture of Bridges lets its pictures do most of the talking. Except for the brief Introduction and a simplified analysis of the action of beams, arches and cables, the text is restricted to out-size captions which give the history of each bridge and a sharp-eyed commentary on its design. The book's shortcomings are few: it is too bad that the off-set printing does not do more justice to the handsome photographs. Also, in the case of more complicated bridge forms, it would greatly clarify the text if simplified dia-

(Continued on page 160)

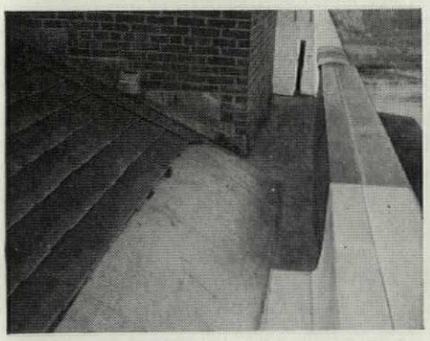
ROOFED TO PUT A CEILING on cost. New building for St. Francis' Sanatorium for Cardiac Children, Roslyn, N. Y. Monel Roofing, flashings, copings, ornamental work fabricated and installed by John Schneider Roofing Contractors, Inc., Brooklyn, N. Y. Architect: Henry V. Murphy, Brooklyn, N.Y.; Contractor: Veit and Co., Inc., Brooklyn, N.Y.

You should

TELL Economy-minded Clients about MONEL!



VERSATILITY PLUS. Close-up of ventilating tower. All sheet metal work, including louvers, flashings, copings, cross and decorations, was economically fabricated of soft-temper Monel Roofing Sheet.



MONEL FLASHINGS and gutters like these are readily fabricated and installed. No special techniques or tools required.

If *costs* interest your clients, so will the *facts* about MONEL® Roofing Sheet.

FACT ONE: Long-lasting Monel roofs are within the range of even a moderate building budget.

Here's why that is true. Monel's superior corrosion resistance, high strength, toughness and low rate of heat expansion makes it safe to use *lighter* gauge sheet. Architects reduce sheet thickness for batten seam roofs as much as two full gauges. Even greater reductions have been made for louvers, ventilators and gutters.

FACT TWO: Fabrication and installation costs for Monel roofs need be no higher than for other quality roofing materials.

The reason is that roofers cut, form and solder Monel Roofing Sheet with standard tools and equipment . . . in about the usual length of time. It's easy to fabricate and ductile enough to take intricate shapes and sharp corners without cracking.

FACT THREE: Most important of all, Monel provides the lowest cost roof over the years. Roof maintenance and repair costs are minimized or eliminated.

Service records prove this. Monel installations dating back 40 years are *still* in good condition.

You can specify soft-temper Monel Roofing Sheet for every type of roofing application. Its properties make Monel a natural choice for flashings, coping, penthouse siding, cornices, leaders and downspouts, as well as complete roofs.

To help you get these points across to your clients quickly and convincingly, we've prepared a booklet that tells the whole story. Its title: ONE METAL ROOF . . . *for the life of your building.* The text is short, non-technical. There are sketches and diagrams . . . and plenty of pictures. Included, too, is an actual sample of Monel Roofing Sheet.

Write today for your personal copy, and see how helpful this booklet really is. Then tell us how many copies you want for distribution to your clients. We'll send as many as you need—without cost or obligation.

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Here's how to start

This St. Louis sales riot is not an unusual event. Rather, it is the typical success pattern of builders all over the country. From Maryland, Colorado, New York and other sections come similar enthusiastic reports of builders who install General Electric Kitchens. Why not let General Electric help sell *your* houses faster, too?

General Electric offers you all this:

- Tested merchandising programs that have helped so many other builders enjoy phenomenal sales results.
- The brand of electrical appliances that people prefer to all others.
- Assistance in designing and improving kitchen layouts for your houses.
- One source of supply for matched equipment . . . a full line of cabinets and appliances.
- And most important: G-E equipment is world-famous for its dependability! Remember, you can put your confidence in G-E!

a sales riot!

"Rather than spend money to sell our houses, we installed complete General Electric Kitchens so that people would *buy*. Result: We sold 109 houses the very first day!"

Mr. N. R. SCHUERMANN of Schuermann Building & Realty Co., St. Louis, Missouri

Today, more than ever, people want houses that *include* all-electric living.

They want *low-priced* homes that have kitchens in which dishes are washed and double-rinsed automatically—where there's a Disposall® for food waste.

They want plenty of hot water at all times . . . and they want an electric range that takes the trouble and guesswork out of cooking, and a family-size refrigerator.

What Schuermann did

The Schuermann Building and Realty Company offered the people of St. Louis, Mo., that kind of a house for the full price of $8995 . . . with less than $1000 down!

You can see from the photograph at the left what happened. Hundreds of people were waiting to enter the General Electric equipped house at 10:00 a.m. More than 7000 people came out to see the Schuermann home on opening day. 109 people bought houses the very first day!

A suggestion for *you*

We would like to work hand-in-hand with you to achieve similar results for *you* in your area. We can help you *pre-sell* your houses just as we have for so many other builders throughout the United States.

Get complete facts about the G-E "Kitchen Package" through your local General Electric distributor, or write to the Home Bureau, General Electric Company, Bridgeport 2, Connecticut.

As little as $4.80 more a month!

You can include General Electric Kitchens in your houses for as little as $4.80 a month extra when the G-E "Kitchen Package" is included in the long-term realty mortgage.

Furthermore, the slight increase in monthly payments may be offset by the economical operation, low maintenance and long life of General Electric appliances!

The new Schuermann home and its General Electric Kitchen made a deep impression on future home buyers of St. Louis. It includes: Dishwasher, Disposall®, Refrigerator, Electric Range, and Steel Cabinets. Think how this type of worksaving electric kitchen would stimulate sales of *your* houses!

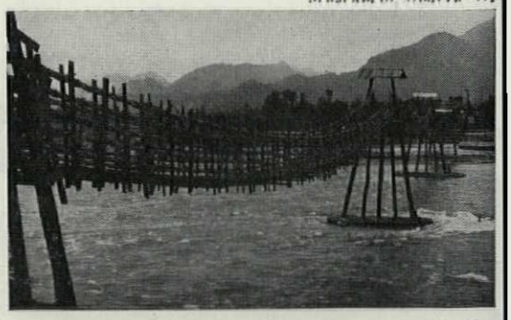
You can put your confidence in—

GENERAL ELECTRIC

grams showed the major structural stresses (e.g. the Maillart bridge at Schwanbach). Since either of these suggestions, however, would have added to the cost of the book, it was perhaps wiser to keep its price within the range of the large audience which will undoubtedly enjoy it.

In addition to an exciting account of past bridges (examples are arranged chronically under material usage—stone, wood, metal arch, suspension cable and the recent miracle bridge material, reinforced concrete), *Architecture of Bridges* sees the bridge just at the beginning of a new era: the exploration of shape itself. Robert Maillart, Swiss engineer, is the Columbus of this new world—"the idea of structural continuity, where all elements act together, literally fused into a single working shape." As Mrs. Mock sees it, the new bridge designer will "abandon line for surface, skeleton for shell, right angles for curves, and two dimensions for three . . . These prophesy a future in which welded steel and plastic-bonded plywood, like reinforced concrete, will be molded into thin shells stiffened by bending." In this new search for shapes to create and express structure, bridge building seems again to assume its pioneer role. It has become, moreover, a field wherein engineering and architecture are approaching each other after a century of unhappy divorce.—S. K.

CNS Photos
Museum of Modern Art



Chinese suspension bridge uses native materials—rope and bamboo strips

FARM STRUCTURES. By H. J. Barre and L. L. Sammet. John Wiley & Sons, Inc., 440 Fourth Ave., New York, N. Y. 650 pp. 6 x 9. Illus. $7.

More and more the field of farm buildings is showing itself ripe for a harvest. It's a poor year indeed when farmers spend as little as $440 million for overhauling and adding to storage and cattle barns, silos, and grain bins—even their own houses. The last ten years, moreover, have been prosperous ones and now that material and labor costs have subsided a little, there is an increasing urge to repair and replace present structures. The number of books recently published on the subject reflects this wide interest. Up till now the sociologist's point of view has had most attention (FORUM, Feb. '50, p. 146) but in this book a full-blown consideration of the farmer's construction needs has been developed by Purdue University's Engineering Department. This volume is the first of a set of six financed by the Ferguson Foundation. Later ones will consider field power and machinery, processing and conservation.

To farmers, the most reluctant of all professions to accept change, modern construction methods were made necessary by the introduction of the machine. Flexible and easily expandable structures were needed, and here the new-fangled materials and methods proved their worth. Barre and Sammet note "an overall shift from heavy masonry and timber frame construction to lighter masonry units and light structural frames" as well as the introduction of "open web and I-section steel joists, laminated members, and prefabricated units."

Buildings must now be designed, not only for age-old animal needs (although modern physiology has a word or two for the farmer about better care of these) but for incorporating machine work-savers—automatic watering equipment, mechanical unloading of silos, elevators for gravity grain feeders. Dairy and pountry houses mean big business in any man's language—$3.4

(Continued on page 164)

From the

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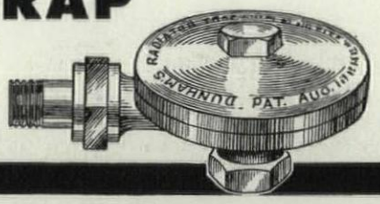

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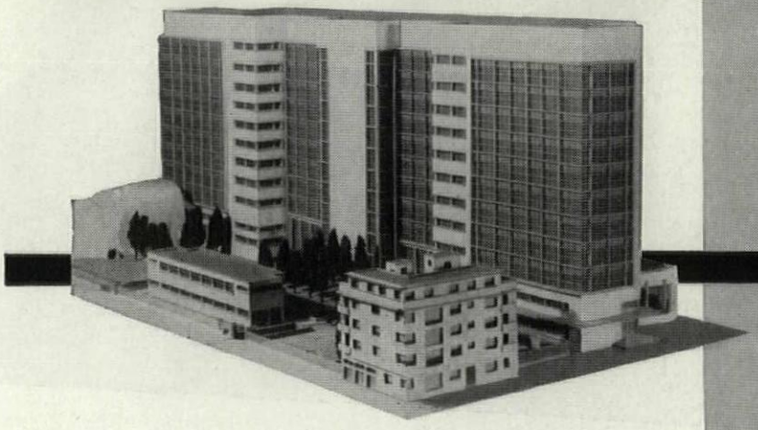

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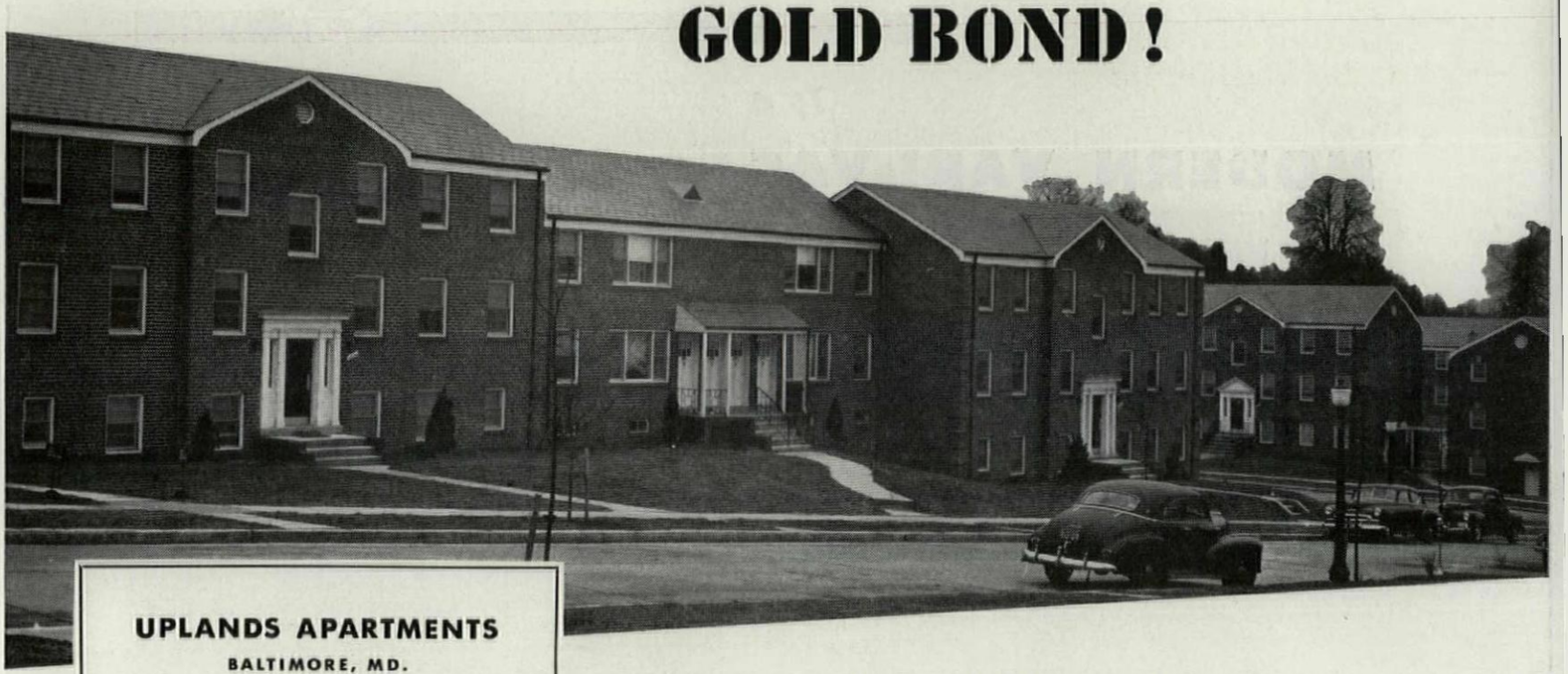

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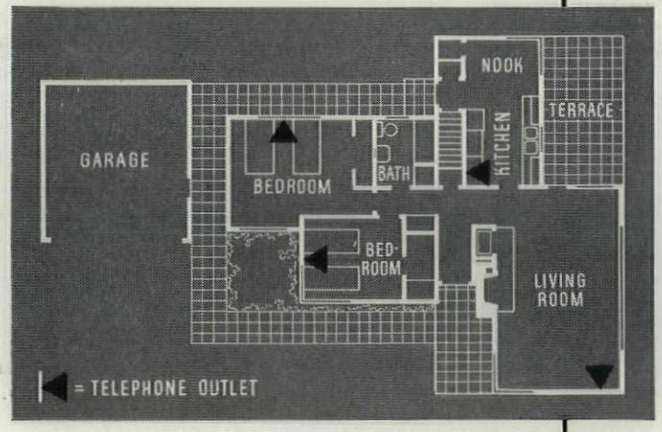
Lloyd Ulrich, *Architect*

THE BEST LAID PLANS INCLUDE TELEPHONE RACEWAYS



Concealed telephone wiring is one detail today's home buyers inquire about—and appreciate.

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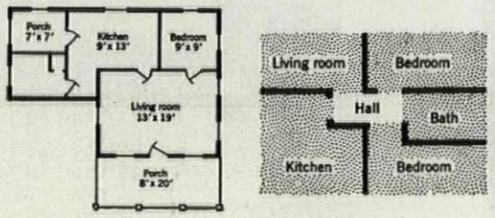
BELL TELEPHONE SYSTEM

billion a year for milk alone; $2½ billion for chickens and turkeys (excluding, for some reason, broilers). The slogan—spend money to make money—applies in the country as well as the city. Efficient construction cuts down disease among farm stock; lets workers get more done.

One of the standard gags about farm buildings is how much better the cows fare than the farmers. And the 1940 census proved this more fact than fiction. In the 7,642,281 farm houses across the U. S. only 10.1 per cent had central heating; only 17.8 per cent had piped cold water; only 28.4 per cent kitchen sinks; less than 12 per cent minimum bathroom facilities. The authors' contention that there's a great change a-coming is based not only on the last decade's accumulation of profits, but the fact that the now almost compulsory use of electrical farm equipment brings this commodity within the economic reach of home use. These changes, plus the fact that more than one-third of the houses needed major repairs ten years ago, all point in one direction. Small, well-planned and well-equipped farmhouses will prove cheaper for farmers to heat, maintain and work in (let's leave comfort out of this) than the multi-generation heirlooms their small families now rattle around in.

One mark on the debit side of the farm building ledger is, of course, the trend toward fewer and larger farms (there were 600,000 less farms in 1945 than in 1920—while average farm size jumped 50 acres). Whether this trend has approached the saturation point—as many regional planners and sociologists hope—and a reaction will set in, is now unforeseeable. But even today's larger groups of farm workers are making felt the need for small adequate houses instead of the hit-and-miss arrangements that now predominate.

Farm Structures makes several pertinent comments on the faults of existing farmhouse design—remarkable for its lack of privacy and awkward room arrangement (see contrast between a typical plan at left below and a suggested mini-



mum at right). It takes for granted that the bulk of new design will be done by engineers, so its comments on style and decoration are a little distrustful and condescending (as well as a little confused)—but on the whole its remarks show recommendable directness and restraint.

The most valuable contribution, however, is its assembly between two covers of the masses of technical problems that face any farm designer—ventilation and heating of storage and cattle barns; computation of stresses, pressures and staying qualities of the many materials used for farm structures; storage needs of all types of produce; careful estimates on building investment and up-keep. With decentralization showing its head around a surprising variety of corners, this may be a good book for even the citified building man to bone up on.—S. K.

PLANNING RURAL COMMUNITY SCHOOL BUILDINGS. Sponsored by the National Council of Chief State School Officers. Bureau of Publication, Teachers College, Columbia University, New York, N. Y. 162 pp. 8½ x 11. Illus. $3.75.

PLANNING SCHOOL LIBRARY QUARTERS— A Functional Approach. American Library Association, Chicago, Ill. 53 pp. 8½ x 11. Illus. $1.50.

These two monographs—presented primarily by and for educational boards—take up particular aspects of school design. Their first-hand assembling of special needs recommends them as supplementary handbooks, but their specialized sources prove to be liabilities as well as benefits.

(Continued on page 168)

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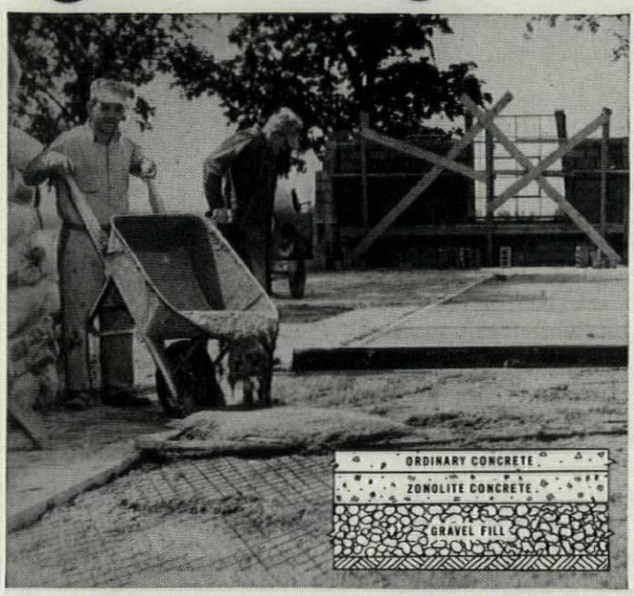
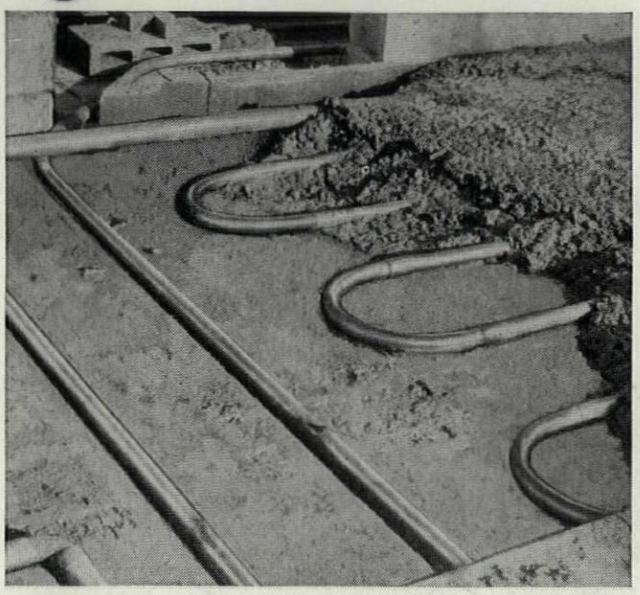
THAT

✔ **Prevent Condensation!**

✔ **Block Heat Loss!**

✔ **Minimize Heat Lag!**





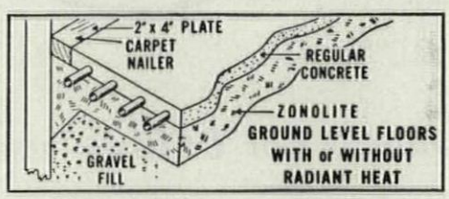
*Important Advantages Result When ZONOLITE VERMICULITE AGGREGATE Replaces Sand and Gravel in Concrete

It has recently been demonstrated by actual measurement of soil temperature at various depths that there is a very considerable loss of heat through floors of ordinary concrete on grade. This explains the common complaint that such floors are cold and tend to become unpleasantly damp through condensation of moisture from the air.

These objections do not apply, however, to on-the-ground concrete floors in which Zonolite vermiculite aggregate replaces the usual sand and gravel. These self-insulating floors prevent condensation—block loss of heat into the earth and, by minimizing heat lag, permit more accurate and immediate response to thermostatic control.

These natural qualities make Zonolite concrete an ideal base for radiant heat pipes. In an experimental installation, soil temperatures differed by 17.5°F. beneath a non-insulated concrete slab and a slab of Zonolite concrete. The soil temperature of 82.5°F. beneath the non-insulated slab indicated extreme heat-loss, while the soil temperature of 65°F. beneath the Zonolite concrete clearly showed its ability to keep heat in.

Construction details and other data on the various applications of Zonolite concrete are available without cost to architects and builders. Mail the coupon today.



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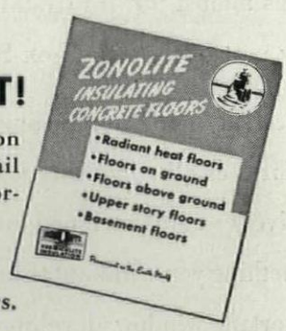

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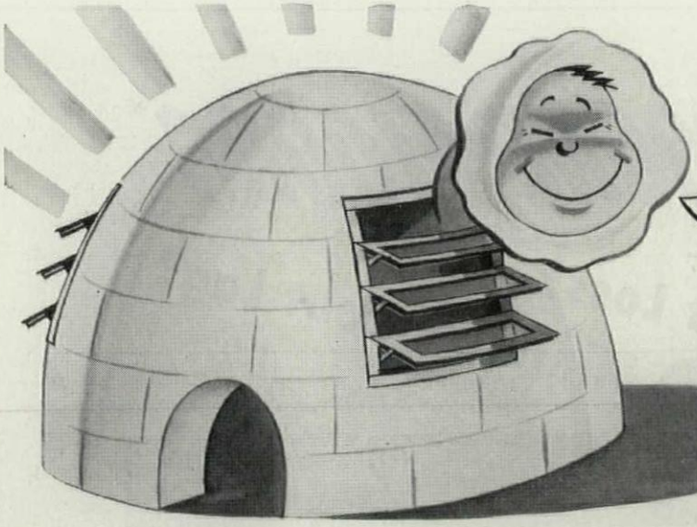

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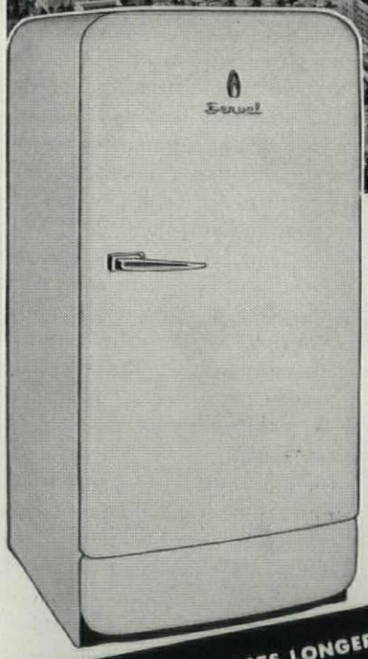

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Corpus Christi, Tex. "Our 750 Gas Refrigerators are 4 years old and cost less than 50¢ a year per unit to maintain."

Mobile, Ala. "After nine years, our 398 Servels cost only 1¢ a month per unit for upkeep."

Los Angeles, Calif. "In 12 years our Servels have cost us nothing in repairs."

Planning Rural Community Schools sets out "to show through concrete plans the kinds of educational and community activities to be considered, and how they may be joined." Much-needed thought is given to that nostalgic souvenir, the one-room school, although the authors realize that the trend is towards larger, better-equipped ones. "The consolidation of schools of small communities is one of the chief reasons for the great demand for new school buildings in the U. S." As well as a variety of elementary and high school plans (bad as well as good, unfortunately) detailed study is given to special school-rooms—workshops, home economics rooms, agricultural centers, community rooms.

Special rural school needs are mentioned that the city-bred architect (or educator) might easily overlook. Among them: the desirability of co-ordinating farm service bureaus with each other and with school-community services (many farmers get tired tramping from one to another in search of information, with the result that both farming methods and community spirits decline); coordinating home-making facilities with seasonal canning needs; providing "teacherages" (adequate living quarters near or attached to the school)—which have in many cases solved the problem of keeping teachers from moving to large towns; adequate school bus maintenance—for the 100,000 buses which take 5,000,000 rural children to school each day.

The attitude shown throughout the book is encouraging since it does not represent *avant-garde* thinking but a least common denominator of hundreds of school groups throughout the country. Its premises of functionalism, flexibility, simplicity, comfort and safety are reassuring—although some of its design conclusions are hesitant and half-hearted.

Planning School Library Quarters restricts itself to one school department whose duties have become more varied and comprehensive in the last ten years. No longer is the school library merely a shelf-room for book storage. It has grown to a center for all general study aids—movies, models, collections, maps, music. The librarian, as one equally accessible to teachers and students, is expected to initiate, encourage and coordinate the use of these teaching aids. The design of such an important room, or series of rooms, must obviously reflect the change in its requirements. The introductory chapter of this booklet is excellent, as are its listings of specific needs, but, alas, its ventures into practical design range from inept to silly. Although it is intended "to help administrators, librarians and architects," the fact that no architect was included on its board of editors is evident without consulting the title page. A sentence near the end puts the spirit of the book into words—"It is for the librarian to know the ends to be achieved in the library and for the lighting engineer, the color engineer, the acoustical engineer and the representative of a reliable library-furniture manufacturer to achieve these ends." Nineteenth-century architects slighted the claims of librarians with most unsatisfactory results. Now librarians seem to be following this bad example with a vengeance!

On the positive side, this book takes up the question of desirable library placement—a central location cut off from noisy departments (gym and music, for instance). If it is for community use as well, a separate outside door and location near the street is advisable. The frequent double service of library and study hall is considered. Pro: such use makes books easily available during study time and encourages wider familiarity with books. Con: resultant overcrowding may make library use impossible for students who really need it. It concludes that the library may be profitably used for study if no more than 40 students will be assigned to it at once (libraries should be homelike rather than too large). If more than 40 must use the room, it is better to provide a separate study hall.

(Continued on page 174)

Photographs taken at Sky Line Inn, Manchester, Vt.

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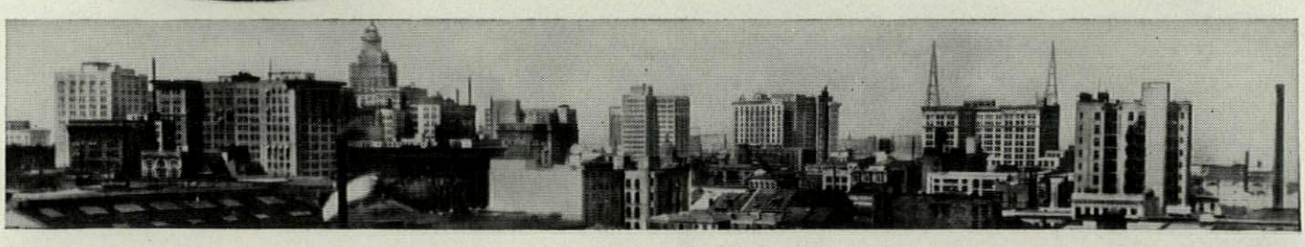

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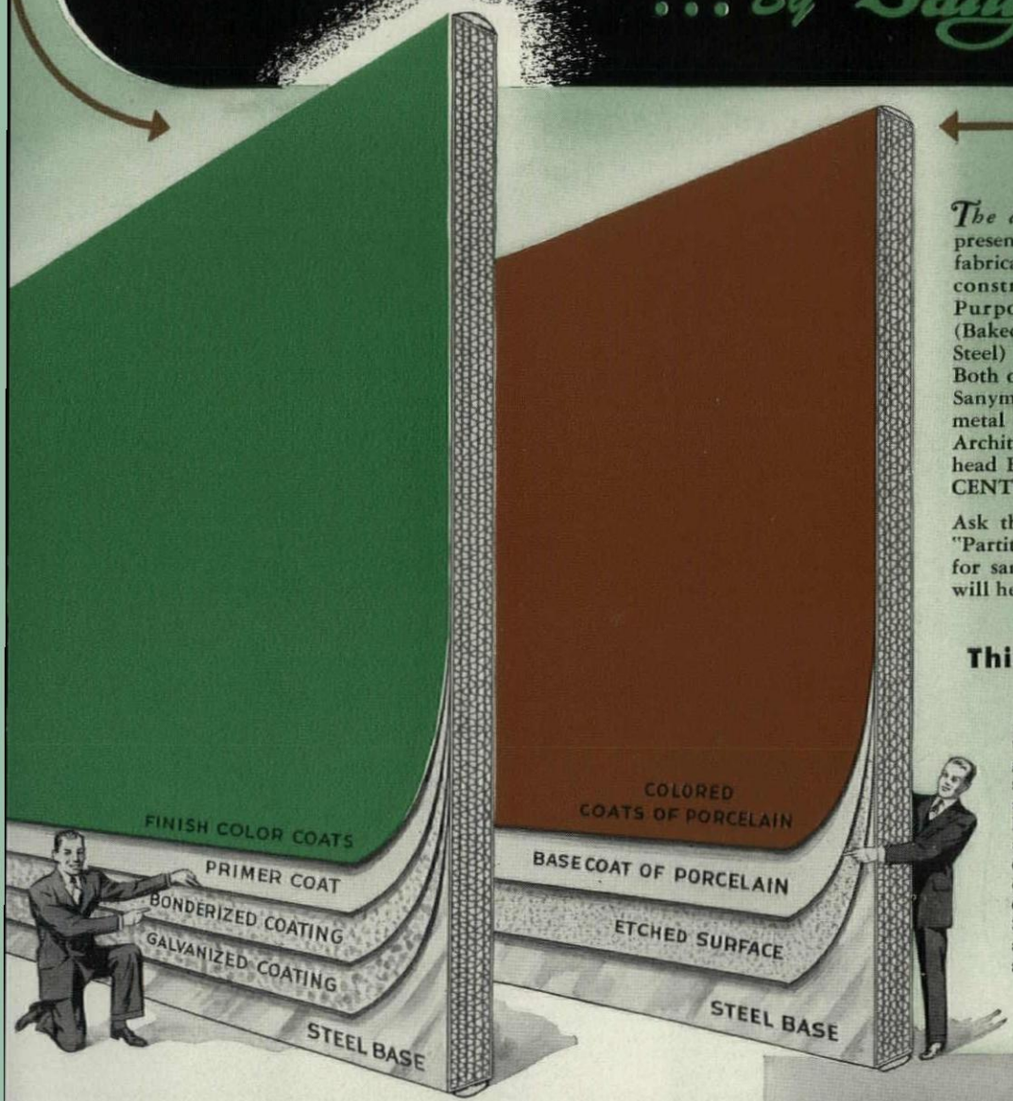
Two full purpose materials for Toilet Compartments ... By Sanymetal



The development of highly corrosion-resistant steels presented Sanymetal engineers with the basic metal for fabricating Two Full Purpose Materials especially for the construction of toilet compartments. These Two Full Purpose Materials are known as Sanymetal "Tenac" (Baked-On Paint Enamel over Galvanized, Bonderized* Steel) and Sanymetal "Porcena" (Porcelain on Steel). Both of these Two Full Purpose Materials are utilized by Sanymetal in manufacturing these three types of Sanymetal Toilet Compartments (see Catalog $\frac{22b}{5}$ in Sweet's Architectural File for 1950): ACADEMY TYPE (Overhead Braced); NORMANDIE TYPE (Floor Supported); CENTURY TYPE (Ceiling Hung) illustrated.

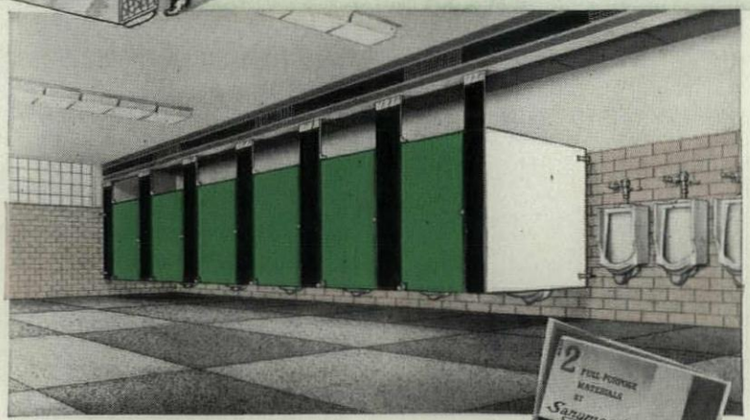
Ask the Sanymetal representative in your vicinity (see "Partitions" in your phone book for local representative) for samples of these Two Full Purpose Materials. They will help you to simplify toilet compartment specification.

This is Sanymetal "PORCENA"
(Porcelain on Steel)

Sanymetal "Porcena" (Porcelain on Steel) is impervious to moisture, odors, cleaning and uric acids, oils and grease. It is rust proof. The flint-hard, glass-smooth surface is resistant to scratching, scouring, scrubbing and scribbling or defacement. It is an ageless and fadeless material that greatly reduces the cost of cleaning and maintenance. It has no equal for strength and durability. This Full Purpose Material presents a correct combination of the desirable qualities of the hardness of glass and the natural structural strength of steel. Sanymetal "Porcena" (Porcelain on Steel) is incomparable with any other finish or metal base material. It is available in 21 different colors.

This is Sanymetal "TENAC"
(Baked-On Paint Enamel over Galvanized, Bonderized* Steel)

This Full Purpose Material is notable for the positive adhesion of the baked-on paint enamel to the metal and its resistance to corrosion. The basic metal or sheet of steel is first given the protection of a galvanized coating. Then it is treated with Bonderite* which provides a protective coating that grips the paint enamel finish. Then this galvanized, Bonderized* steel is given a primer coat of paint enamel which helps to assure smooth finish and adds more protection. The final finishing coat of baked-on paint enamel gives a perfectly smooth, lustrous, protective finish. Available in 21 different colors. This material offers colorful attractiveness, combined with low maintenance cost and long-lasting newness.



Sanymetal CENTURY Type Ceiling Hung Toilet Compartments offer the utmost in sanitation and provide modern, distinctive toilet room environments for schools, institutions, terminals and all other public buildings.

TOILET COMPARTMENTS, SHOWER STALLS AND DRESSING ROOMS BY

Sanymetal*

*Trade Mark Reg. U. S. Pat. Off.

*Treated with "Bonderite", a product of Parker Rust Proof Co.

This booklet on "2 Full Purpose Materials for Toilet Compartments by Sanymetal" illustrates and describes completely these materials and their exclusive advantages. Attach coupon to your letterhead.

THE SANYMETAL PRODUCTS COMPANY, INC.
1687 URBANA ROAD · CLEVELAND 12, OHIO

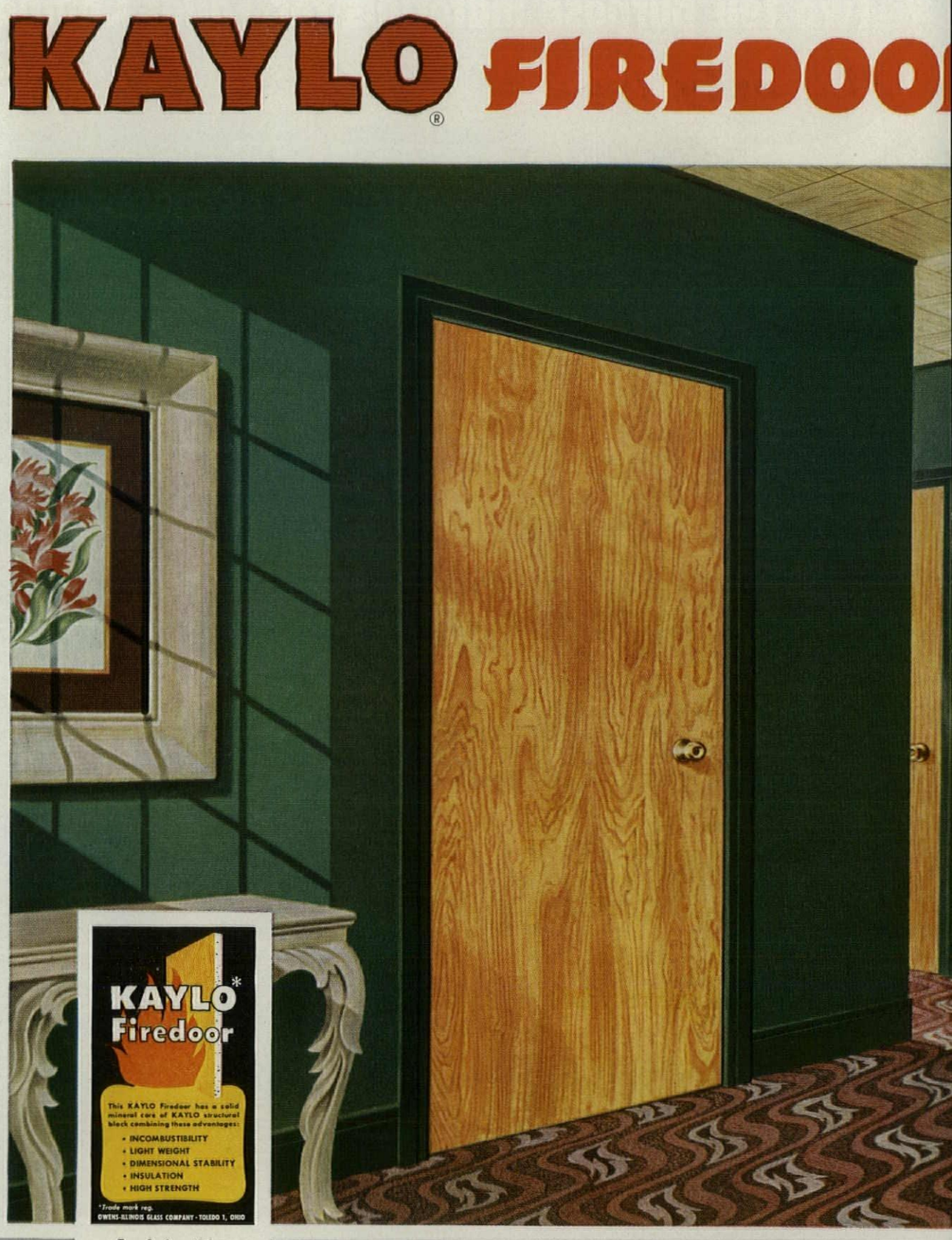
Please send copy of booklet entitled "2 Full Purpose Materials for Toilet Compartments by Sanymetal".

Name ..... *Position* .....

Company .....

Address .....

New KAYLO® FIREDOOR



...Look for this emblem which identifies metal- or wood-faced fire doors made with a Kaylo core.

The Beauty of Natural Wood —plus rated fire protection

. . the only type of wood-faced door with an Underwriters' 1-hour fire rating

ich beauty, great stability and rated fire rotection are all combined in the amazing ew Kaylo Firedoor.

Carrying a one-hour fire rating from Underriters' Laboratories, Inc., the Kaylo Firedoor so provides this remarkable combination of dvantages—

ndsome Appearance—The wood veneer-faced aylo Firedoor equals the richness of the most riking conventional wood doors, providing ted fire protection without sacrifice in beauty.

eat Dimensional Stability—A Kaylo Firedoor es not warp, swell or shrink—even when bjected to extremes of heat or cold, dampss or dryness.

gh Insulation Value — Installed in an exrior opening with weather stripping, the Kaylo Firedoor insulates more effectively than a conventional door, *plus* a storm door.

Light Weight plus Strength—A standard 3′4″ x 7′ Kaylo Firedoor weighs only 90 lbs., but can support an 8,000-lb. distributed load with only ½-inch deflection while loaded. After unloading, the door returns to its original position. Test doors have withstood 2,000,000 cycles of normal openings and closings, without breakdown.

Kaylo Firedoors offer many advantages for both public and residential buildings—including hospitals, schools, hotels, apartment houses, office buildings, factories and homes.

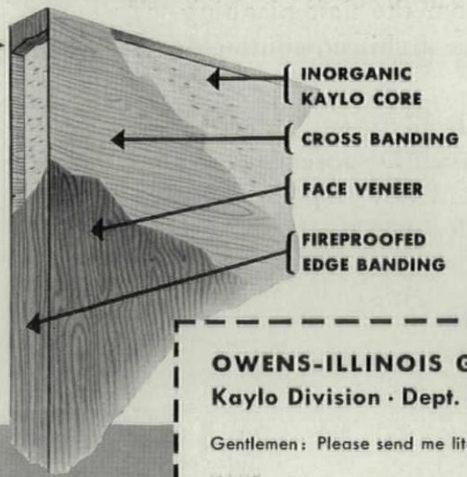
Get the facts now about the revolutionary new Kaylo Firedoor.

Each Kaylo Firedoor bears this label, showing that Underwriters' Laboratories, Inc., has given it a one-hour fire rating for Class B and C openings.

The Inside View OF A KAYLO FIREDOOR

he Kaylo Firedoor is built around closely tted core sections of inorganic Kaylo maerial—a chemical composition which is inombustible; rot-proof and termite-proof, and sistant to damage by water.

Waterproof phenolic glue is used to bond eneer cross banding to the Kaylo core and ce veneer to cross banding. Edge bandings are rips of solid hardwood, which has been treated ith Protexol Class A fireproofing agent.



Send coupon for complete information on the Kaylo Firedoor

OWENS-ILLINOIS GLASS COMPANY
Kaylo Division · Toledo 1, Ohio

Gentlemen: Please send me literature on the Kaylo Firedoor.

NAME .....

FIRM .....

ADDRESS .....

CITY ..... STATE .....

WENS-ILLINOIS GLASS COMPANY
Kaylo Division · Toledo 1, Ohio

ales Offices ATLANTA · BOSTON · BUFFALO · CINCINNATI
CHICAGO · DALLAS · MINNEAPOLIS · NEW YORK · PHILADELPHIA · PITTSBURGH · ST. LOUIS · TOLEDO · WASHINGTON

About the requirements of library furniture, the book provides a salutary check-list: the necessity for chairs of handleable size and strong joints; for tables of proper height and knee clearage and with durable finishes; for adjustable shelves (not built-in) preferably of wood with uprights of *hard* wood.

Perhaps the best way for architects to refute the book's unfortunate attitude is to assimilate its valuable suggestions and show how much better libraries they can produce than the uninspired ones pictured throughout its pages.—S. K.

FIRE IN BUILDINGS. By Eric L. Bird and Stanley J. Docking. D. Van Nostrand Co., Inc. 250 Fourth Ave., New York. Illus. 295 pp. 5½ x 8½. $4.50.

"A building may be inconvenient, ugly, noisy or unhealthy without being more than a nuisance to its occupants; if it is a firetrap it is a public menace." Some city planners might hesitate at granting the first half of the author's statement, but it is certain that they will heartily endorse the second. Bird and Docking, two British architects, served as fire-fighters throughout the war and saw countless examples of just what happens when fire gets loose in even the soundest construction. After the war they profited from wartime experience by applying it to this summary and analysis of civil fires. Their study does not limit itself to English examples but includes the experience, laws and tests of the U. S., South America and continental Europe.

Their accounts have the drama which makes fire stories so perennially fascinating, but on the whole the authors keep closely to their task—"to awaken architectural fire-consciousness by the statement of general fire protection principles." Adequate fire protection in a building, they point out, is "at least as important as adequate heating or lighting; the difference is only that the inadequacy is discovered more rarely and, on these occasions, more disastrously . . . The architect cannot ensure the maintenance of a building he has designed, but by careful attention to details, he may make maintenance relatively easy and its neglect relatively noticeable . . . This is not to say that fire protection should be the architect's main preoccupation . . . but a subconscious interest in fire protection will enable the architect to do rightly something which otherwise might be . . . done wrongly."

For assessing fire hazards in any building the authors have adopted Finch's breakdown of materials into *tinder*, *kindling* and *bulk fuel*. *Tinder* is ignitable by a match and will continue burning on its own; *kindling* will burn if associated with sufficient tinder; *bulk fuel*, (construction beams, etc.) is rarely combustible of itself and is comparatively safe except when associated with large amounts of timber or kindling. One of the greatest hazards to present day safety is the growth of complacency about new building materials and methods. "There is no such condition," Bird and Docking flatly remind the reader, "as fireproof: any material will disintegrate or flow if the fire . . . be sufficiently hot or continue long enough." Carelessness, moreover, can render the most careful precautions useless. Automatic detectors and fire alarms are often left to gather dust until, on the day of judgment, they will not operate. Sprinklers have been known to fail, and in any case if the fire reaches too high a temperature their maximum flow will be absorbed and rendered useless. (The record of sprinklers is impressive, however. In one survey of 1,104 institutional fires, 2,163 lives were lost in the 663 buildings without sprinklers; none were lost in the 441 buildings with sprinklers.)

Experience gained by the authors under the extreme conditions of English war fires supplements test data on the performance of building materials under fire. One or two surprises are added to the regular tests which the book records in full measure. In a number of cases, for example, it was found that the cast iron supports of a building stood up better than the steel beams they supported. (The use of water in most civil fires, however, would have caused the iron to rupture in cooling even though it withstood the

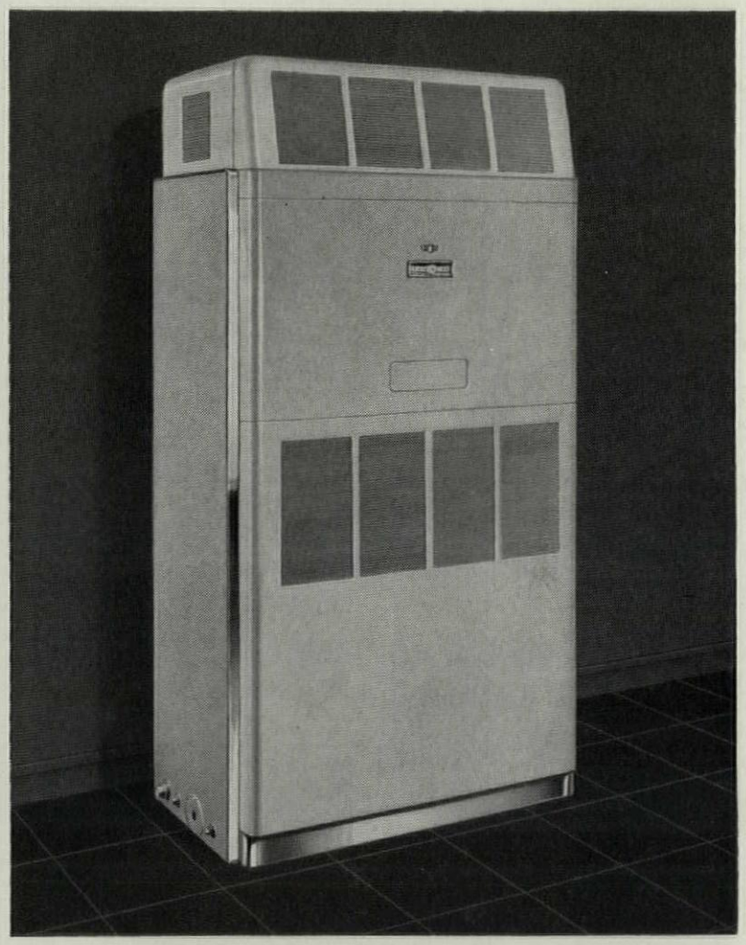
(Continued on page 176)

Demand proved dependability—

and get it by specifying

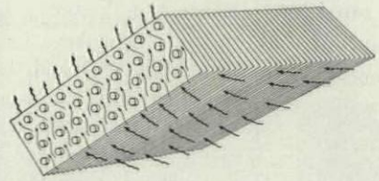
FRIGIDAIRE AIR CONDITIONERS!

(powered by famous Frigidaire Compressors)

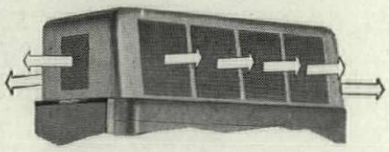


The Frigidaire Compressors that power Frigidaire Self-Contained Air Conditioners have passed test after painstaking test—from the first careful inspection of materials to the final underwater and "run-in" tests. They have the *proved dependability* that's made Frigidaire Compressors first choice of refrigeration users. They're a *big* reason for specifying Frigidaire Air Conditioners, because they mean years of low-cost, trouble-free service.

Styling by Raymond Loewy gives Frigidaire Self-Contained Air Conditioners their smartly modern appearance. Their two-tone gray finish harmonizes with any surroundings.



Multipath Cooling swirls air through a maze of cold, reduces room temperature and humidity extra-fast, extra-evenly. High efficiency cooling unit assures smooth, economical operation.



Controlled Airflow is provided by Frigidaire's 4-Way Hood, which can be set to deliver air in any or all four directions. This means greater ease in locating units and simplified installation of ducts, where needed.

Thick Insulation—expertly applied—helps keep Frigidaire Air Conditioners whisper-quiet and prevents moisture from forming on the cabinets.

Simple Control Panel is concealed for beauty and protection—contains merely an "On-Off" switch and a positive temperature regulator which gives you, at the touch of a finger, the kind of "weather" you desire.

Ask your Frigidaire Dealer about *all* the advantages of Frigidaire Self-Contained Air Conditioners. He'll give you full details about Frigidaire Room Conditioners and Central Systems, too. Look for his name in Classified Phone Book, under "Air Conditioning" or "Refrigeration Equipment."

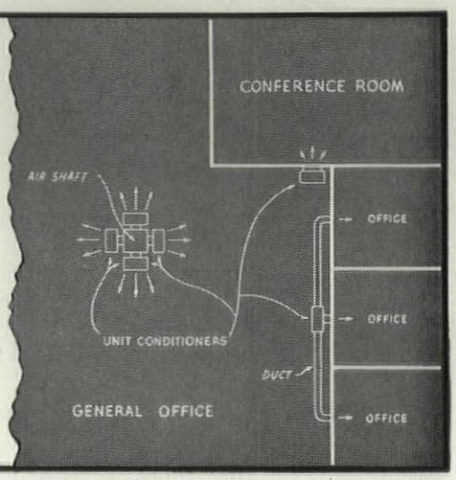
FRIGIDAIRE
AIR CONDITIONING

Over 400 Frigidaire commercial refrigeration and air conditioning products—most complete line in the industry.

FOR INDIVIDUAL ROOMS in homes, offices, hotels and hospitals, Frigidaire Window Conditioners supply the same *kind* of air conditioning as big, theater-size systems. They're easily installed, powered by the famous Meter-Miser. Frigidaire also offers large capacity central systems.

HERE'S A FAST, LOW-COST WAY TO AIR CONDITION EXISTING BUILDINGS!

For air conditioning existing buildings—and new buildings, too — a Frigidaire Single or Multiple-Unit Installation is fast and simple. Since it employs the compact, self-contained unit shown above, installation costs are low—for little duct work is needed and no major building alterations are required. Operating costs are equally low, because individual Frigidaire units can be turned off or on as needed—can be serviced without affecting other space.



REVIEWS

heat.) Practical experience was gained, too, of the folly of attempting to control fire by 'compartmenting' large buildings unless all parts are equally resistant. A "½ hour" fire door can spoil the effect of a whole "2 hour" brick wall.

City planners are buttonholed here as well as architects, especially since modern cities are built in defiance of the basic fire rule for spacing —a minimum distance of 20 ft., or their own height, between buildings—whichever is greater. The importance of this requirement is seen in the fact that the radiant heat of a fire can ignite woodwork over 100 ft. away. The authors view with apprehension the increasing use of glass, and maintain that for a safe barrier "glass ought not exceed 25 per cent of the wall." Will our architectural glass age eventually meet its match in this functional challenge?—S. K.

CITIZENS HOUSING AND PLANNING COUNCIL DIRECTORY—1950, Ira S. Robbins and Marian Sameth, Editors, Citizens Housing and Planning Council of New York, Inc., 20 West 40th Street, New York, N. Y. 8½ x 11. 41 pp. $2.

Vital statistics and a brief history of New York City's large-scale rental housing—the world's biggest system—including upwards of 74,000 dwelling units in private developments and 75,700 in public ones. Charts break these figures down into the various facilities provided by federal and state funds and those made possible by city aid. Large private housing projects illustrate the assistance of limited dividend concessions, FHA-608 loans and cooperative policies. Each development is documented on its total number of rooms and dwelling units; number of occupants; average rent per room; sq. ft. of living space; proportion of land coverage.

STANDARDIZED ACCOUNTING FOR ARCHITECTS. American Institute of Architects, Washington, D. C. 8¾ x 11¼. Unpaged. $5.

A system of architectural bookkeeping "sufficiently simple to be useable in the small office, yet capable of expansion to serve that office as it grows larger." Two years of research and consultation with architectural firms of all sizes and in all parts of the country have produced this method which blessedly keeps technical terms to a minimum. A full set of forms has been worked out, and samples of each accompany the guidebook. They include: Cash Journal, Ledger Accounts, Job Costs, Balance Sheets, Time Records, Change Orders, Payroll, Requests and Certificates for Payment—even Application Blanks. Refills can be purchased from the Institute.

DESIGN THIS DAY. By William Dorwin Teague. Harcourt, Brace & Co., 383 Madison Ave., New York, N. Y. 285 pp. Illus. 7½ x 10½. $6.

A reprint of this well-known designer's credo, first published 11 years ago. The years between have taken away some of its glow, but the pictures and text still transmit a valid enthusiasm.

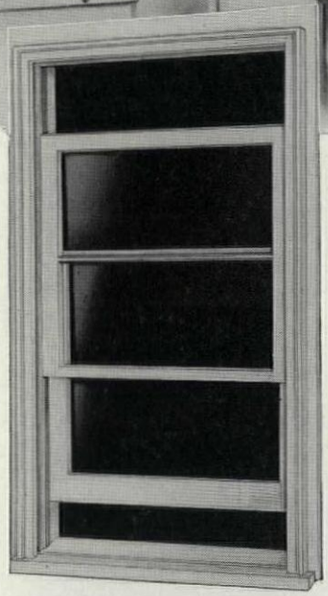

Natural finished Nu-Style Cabinets furnished by Marion Lumber & Supply Co., Marion, Indiana.


Superiors furnished by Frey Bros. Lumber Co., Michigan City, Indiana.


Superiors furnished by Pioneer Lumber & Supply Co. Michigan City, Indiana.


Nu-Style Cabinets. Superiors distributed by Adams-Rogers Company, Indianapolis.


Jubilee House in Bel Meade. Bilt-Well woodwork supplied by Ed Steves and Sons, San Antonio, Texas.



NU-STYLE
SECTIONAL WOOD KITCHEN CABINETS

SUPERIOR
WEATHERSTRIPPED UNIT WINDOWS

Superior Wood Weatherstripped Windows and Nu-Style Wood Cabinets are considered implements of better living by today's prospective Home Owners.

Superior Windows and Nu-Style Cabinets are produced from Ponderosa Pine, thoroughly kiln-dried and scientifically impregnated with a water-repellent preservative in strict accordance with NWMA standards.

Superior Windows and Nu-Style Cabinets are "Bilt-Well Products" nationally known for excellent craftsmanship and 84 years of "know how" in woodworking.

CARR, ADAMS & COLLIER CO. *Dubuque, Iowa*

BILT WELL WOOD WORK

THE BILT-WELL LINE of outstanding wood products

- Superior Unit Wood Windows
- Bilt-Well Interior Doors
- Bilt-Well Exterior Doors
- Nu-Style Kitchen Cabinets
- Bilt-Well Entrances
- Bilt-Well Shutters
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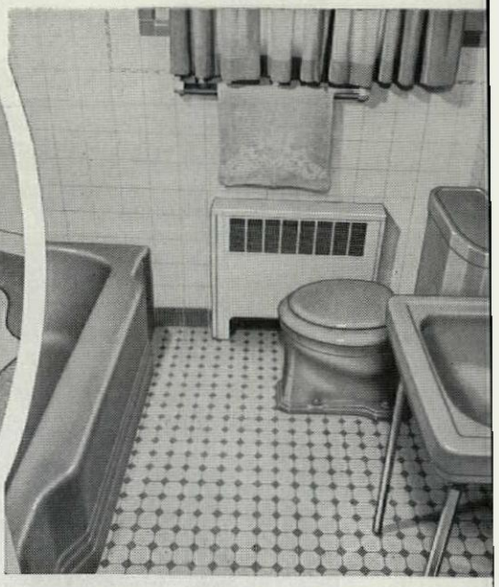
- Clos-tite Casements
- Bilt-Well Combination Doors
- Bilt-Well Louvres and Gable Sash
- Carr-dor Overhead Garage Doors
- Bilt-Well Corner Cabinets
- Bilt-Well Storm Sash
- Bilt-Well Screens
- Gli-dor Cabinets
- Bilt-Well Medicine Cabinets
- Bilt-Well Ironing Board Cabinets
- Bilt-Well Mantels
- Bilt-Well Telephone Cabinets
- Bilt-Well Stair Parts
- Bilt-Well Unit Linen Cabinets
- Bilt-Well Breakfast Nooks

"The most talked about

Rigid cast iron gives durability and quietness to this handsome single compartment, double drainboard Royal Hostess Sink with its heavy coating of acid-resisting enamel.

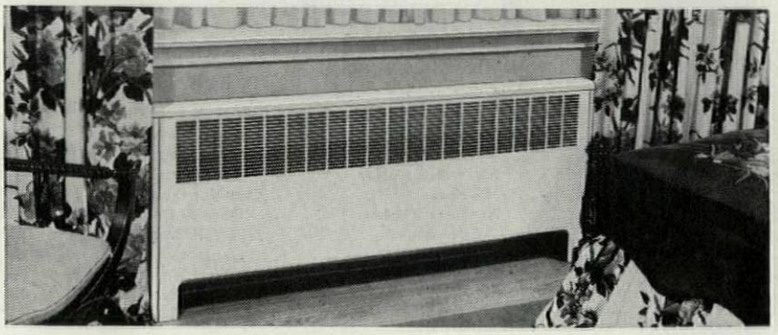


So bright, so easy to clean. These Clair de Lune Blue American-Standard fixtures are a housewife's dream. They retain their luster permanently, and they're so easy to keep sparkling clean. Constant, abundant heat is supplied by the neat, trim Arco Multifin Convector.

These genuine vitreous china American-Standard fixtures in Corallin can be counted on for lasting beauty, and for extra years of reliable service.

A space-saving unit, giving a lot of heat . . . that's what these homes get with Empire Gas Boilers. The Empire's smart appearance, quality construction and automatic operation make it a favorite in any home.

See how the handsome American Enclosure, with an Arco Multifin Convector inside, complements the colorful decorations of the room. Arco Multifin Convectors come in a variety of widths and heights.



homes in Philadelphia,"

says the builder, Stenton Hills, Inc.,

"and AMERICAN-Standard products help make them so."

STENTON HILLS, a planned community of 500 new semi-detached homes in the Mt. Airy section of Philadelphia, is the talk of the town. These beautiful houses, designed to sell for $16,590, have those extra features that make a house a home—including American-Standard Heating Equipment and Plumbing Fixtures.

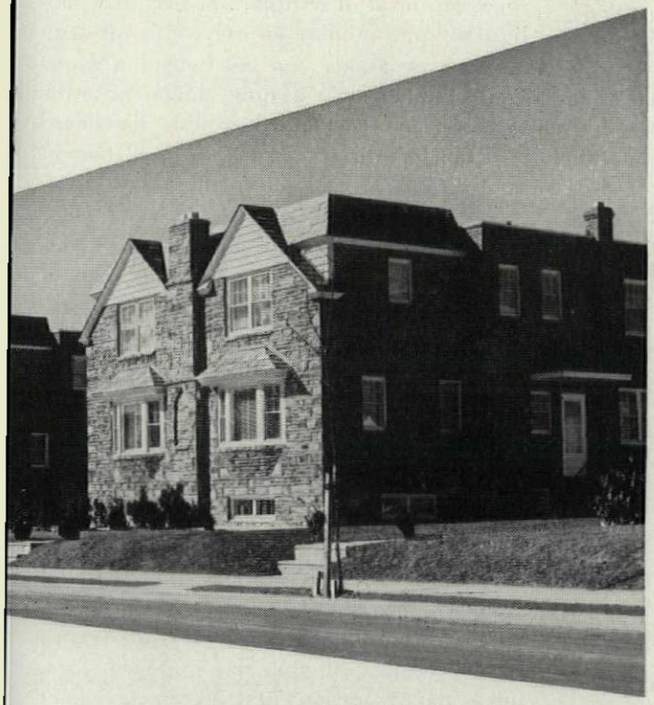
In design, each house has such attractions as a handsome stone front, a large center hall, a picture bay window, ten large closets, a basement powder room and a finished recreation room.

American-Standard products make a triple contribution to comfort and convenience in the Stenton Hills homes. The two bathrooms and powder room feature beautiful *colored* American-Standard Plumbing Fixtures. In the kitchen there's a handsome, durable Royal Hostess Sink. And the Empire Gas Boiler in the basement provides comfortable, even heat in every room through Arco Multifin Convectors.

Stenton Hills, Inc. says that American-Standard products were among the most popular features with prospective buyers and contributed greatly to the success of the Stenton Hills project.

American-Standard products add to the attractiveness—and the sales value—of any building. Their sound construction quality, backed by strong, consistent advertising, creates a wide public acceptance that lowers house selling costs. Whatever you are building, the right heating equipment and plumbing fixtures for the job can be found in the *complete* American-Standard line.

Get details about the complete American-Standard line from your Heating and Plumbing Contractor. **American Radiator & Standard Sanitary Corporation**, P. O. Box 1226, Pittsburgh 30, Pennsylvania.



LOOK FOR THIS MARK OF MERIT

MORE AND MORE BUILDERS who use American-Standard Heating Equipment and Plumbing Fixtures are finding them strong selling points. The public knows that only the best products were used, and has confidence in the top quality of the whole dwelling.

AMERICAN-Standard

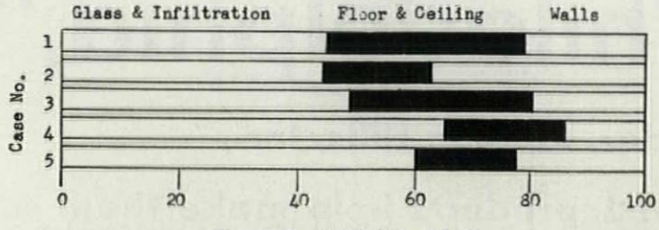
First in heating . . . first in plumbing

Serving home and industry

AMERICAN-STANDARD · AMERICAN BLOWER · CHURCH SEATS · DETROIT LUBRICATOR · KEWANEE BOILERS · ROSS HEATER · TONAWANDA IRON

RADIANT BASEBOARD HEATING

(Continued from page 151)



Distribution of heat loss through 1) glass and infiltration, 2) floor and ceiling and 3) walls in the five case study houses pictured on page 151.

All occupants of the houses studied agreed that they knew of no other type of heating system that maintained such uniform, comfortable conditions in a dwelling. These human reactions, though they do not lend themselves to scientific measurement and evaluation, are an indication of the achievement of the result hoped for, i.e., the control of the net effect mentioned previously. Perhaps the ensuing discussion of the individual influencing factors will explain the occupant's reactions.

Air temperature distribution. Dr. E. U. Condon, director of the National Bureau of Standards makes the following comment in a Bureau publication, "Uniformity of temperature throughout houses is a tacitly accepted American ideal of heating, . . ." As that publication deals almost entirely with air temperature variations in a test bungalow somewhat similar from a heating standpoint to the first two houses studied in this baseboard radiation project, the data contained therein were used as a basis for comparing the baseboard performance.

The chart on page 151 shows that the average air temperature differences from floor to ceiling in the baseboard-heated homes were appreciably less than those in the Bureau of Standards test house when using other types of heating systems.

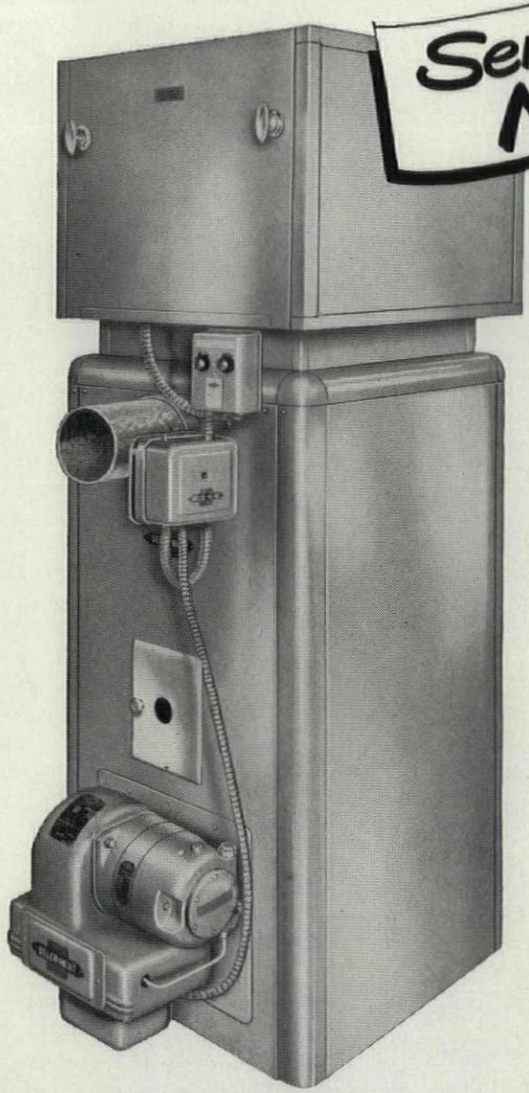
In a few instances during the baseboard radiation tests, the air temperature near the ceiling was observed to be lower than that near the floor. In the summary of test data (page 151) these cases are referred to as temperature inversions. This phenomenon would probably not occur in structures heated with the more conventional systems. However, as floor-to-ceiling differentials approach zero, and as the convection effect decreases, radiant heat from the sun coming through large glass areas would tend to raise the temperature of the floor and rugs, and indirectly the air temperature near the floor, without a corresponding increase in temperature of the air near the ceiling.

These temperature inversions were not included in the averages of air temperature differences as it was believed that doing so would influence the averages unfairly.

The 3° floor-to-ceiling difference observed in this project agrees substantially with the results of baseboard radiation tests at the University of Illinois.

It was also observed that in House No. 4 in the three rooms heated with free-standing, thin-tube radiators, the vertical air temperature differences were in the 9°-to-11° range.

(Continued on page 184)



Sensationally NEW!

DELCO-HEAT CONDITIONAIR

For Reverse-Flow Perimeter Heating

Revolutionary new way to make low cost installations in homes without basements!

The new Delco-Heat OPC-75HR Conditionair offers builders of small homes a way to provide *better heat at lower cost*—with warm air radiant "perimeter" heating!

Complicated, costly ductwork is replaced by light gauge ducts installed in concrete floor slabs. One or two "loops" encompass the perimeter of the home—fed by radial ducts from the plenum beneath the Conditionair. Grilles are provided beneath windows and other locations of high heat loss. The result is a heating system that gives *steady radiant heat* around the entire perimeter of the house, plus *forced warm air* heat that eliminates "cold spots" in the house, and responds quickly to thermostatic controls.

The OPC-75HR provides for cold-air return through either side of the blower-filter unit on top of the Conditionair. The large capacity centrifugal fan forces air down over a heat transfer unit that has been brilliantly engineered to deliver maximum heat from the combustion gases. The entire unit is beautifully finished, and so compactly designed it can be installed in even a small closet!

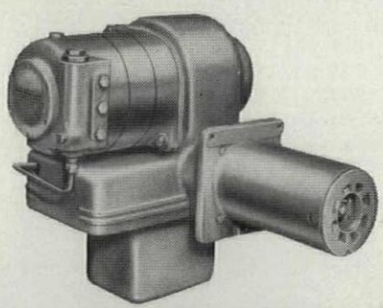
Delco Heat Conditionair, Model OPC-75HR

Capacity Per Hr. Output Plenum	Firing Rate G. P. H.	Heating Surface Sq. Ft.	Heaviest Grade of Fuel Oil
75,000	¾	22.34	No. 2

Blower				Filter
R. P. M.	C. F. M. Max.	Motor H. P.	Motor Watts**	Size, inches
400-700	800	¼	385	20-25-1

*Use plenum rating when unit and ducts are installed within space heated. Allow for additional heat loss if ducts installed in unexcavated area.

**Maximum watts allowable on motor.

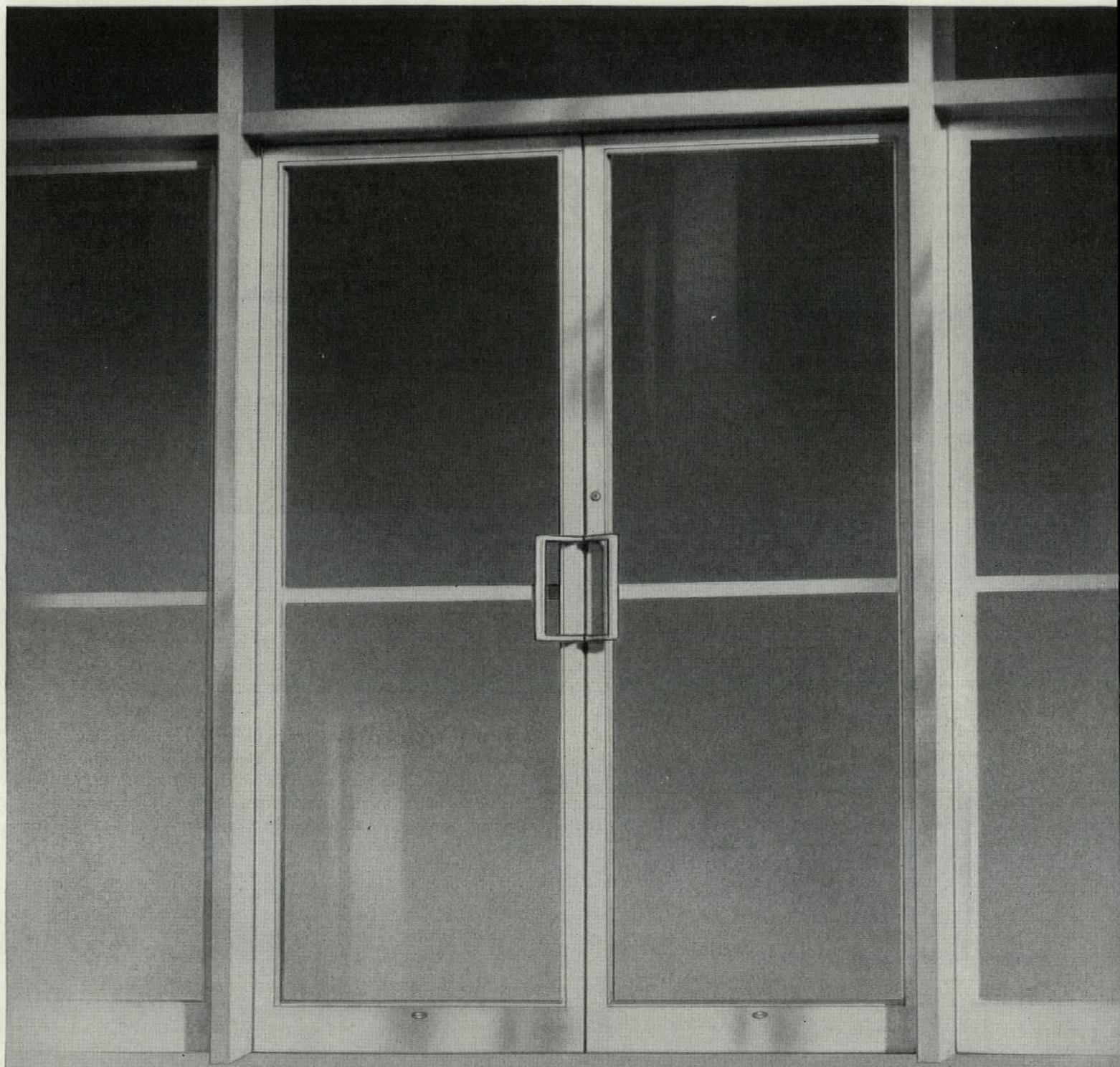


Heart of the OPC-75HR Conditionair is this tested Delco-Heat pressure atomizing oil burner. It's economical and efficient. And it operates so quietly a coin may be balanced on edge on the burner housing while the motor is running!

Your new homes will sell better if they're equipped with Delco-Heat!

Delco-Heat manufactures a complete line of automatic home heating products—for all types of fuels, all systems of heating and all sizes of homes. And our engineering and sales departments will be glad to serve you in any way possible. Write to Delco Appliance Division, Dept. AF-5, General Motors Corporation, Rochester 1, New York.

GENERAL MOTORS DELCO-HEAT



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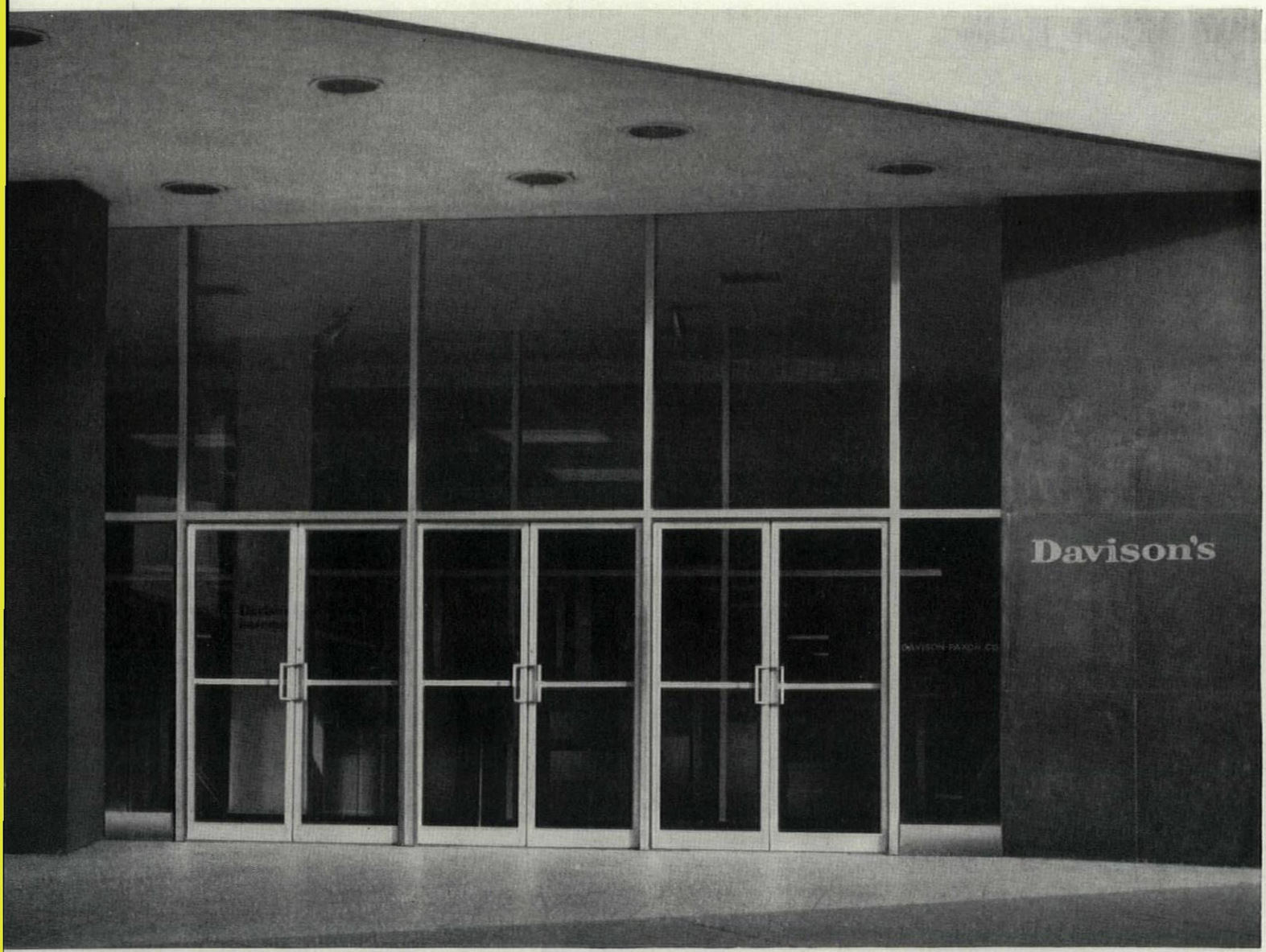

Davison-Paxon Company, Atlanta, Ga.
Shutze & Armistead, Architects, Atlanta, Ga.

For stores, shops, restaurants, theatres, office buildings, factories, schools, hospitals, etc.

You can maintain the highest architectural standards —and reduce building costs—by the skillful use of Kawneer Stock Doors and Entrances.

No other doors and entrances in the industry surpass Kawneer Units in fulfilling today's building requirements. Clean-lined and modern in styling, they were formerly available only as specially-made units at custom-built prices. Now they can be selected from the widest variety of stock styles available.

Installation costs are reduced to a minimum because they are shipped as completely assembled package units, ready for quick erection by trained Kawneer mechanics. Thus factory delays and job-site labor are minimized.

Expert engineering and manufacturing insure trouble-free maintenance and smooth, easy operation. All seams are inside-welded for maximum rigidity and uniform finish.

Kawneer metal-and-glass construction greatly lessens the possibility of breakage and the danger of people colliding with doors. Precision-fitting protects interiors against dust, soot and rain. It also helps prevent the escape of warmed air in winter and cooled air in summer.

Kawneer Stock Doors and Entrances not only cut building costs for your client, they also reduce your own operating expenses by eliminating drafting and detailing. When your next entrance problem comes up, consult your Portfolio of Kawneer Details, Sweet's Catalog, or write 225 North Front St., Niles, Mich., or 2585 8th St., Berkeley, Cal.

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The variation in temperature from room to room at various levels was small considering the fact that the water flow rate to individual radiators had not been finally adjusted in any case by means of balancing valves. Most horizontal differences observed were between 2° and 4° when no unusual conditions prevailed. These near-zero differentials occurred under diverse conditions of floor construction and glass area.

The satisfactory heating of rooms with concrete slab floors agrees with the observations at the University of Illinois project which indicated that the radiant baseboard is particularly adapted to maintaining comfortable floor slab temperatures in a basementless structure.

Room air velocity. In the 1949 edition of the Heating, Ventilating, Air Conditioning Guide (p. 783), the following statement is made . . . "velocities less than 15 fpm generally cause a feeling of air stagnation, whereas velocities higher than 65 fpm . . . may result in a sensation of draft." It will be noted from the summary of test data (see table, page 150) that the averages of velocities at the room centers were between 17 and 24 fpm at the 3 in. level, and between 9 and 14 fpm at the 48 in. level. However, no user complained of any stagnant air conditions. Velocity observations at points directly above the baseboard radiators and at other points in the rooms showed only slight departures from the values at the room centers.

Mean radiant temperature. The mean radiant temperature (MRT) of an environment has been defined . . . as the temperature of a uniform enclosure with which one's body would exchange the same amount of energy by radiation as in the actual environment. It has been demonstrated that a small globe thermometer, 48 in. above the floor and at the center of a room gives closely the mean radiant temperature influencing radiant heat transfer from the standing human body. The majority of globe temperatures observed in the baseboard-heated rooms were within 1° of the temperature of the surrounding air.

The MRT of structures heated by conventional systems generally decreases with a decrease in outside temperature. Thus, air temperatures in a room must be increased on cold days and decreased on mild days to achieve the same sensation of warmth. However, in spite of a wide variety of outside temperatures, nearly constant mean radiant temperature and air velocity conditions were encountered in the houses studied. As a result, control of the air temperature alone by means of an ordinary room thermostat satisfactorily governed the comfort conditions during the heating season. This was significant in that it indicated that no complex temperature control apparatus was required for this type of heating system.

Relative humidity. Averages of the living room relative humidity observations for the five houses ranged from 37 to 47 per cent. Nearly all of the individual observations, when plotted against outdoor air temperatures, were above the average of 2,050 observations reported by the Bureau of Standards in a survey of conditions in 215 residences in the Northern U. S.

Effect of solar heat gain. Bright sunlight shining through an unshaded glass area would

(Continued on page 190)

a demand for "quality-approved"

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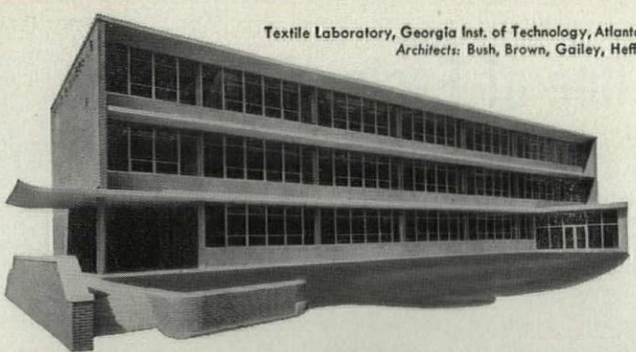
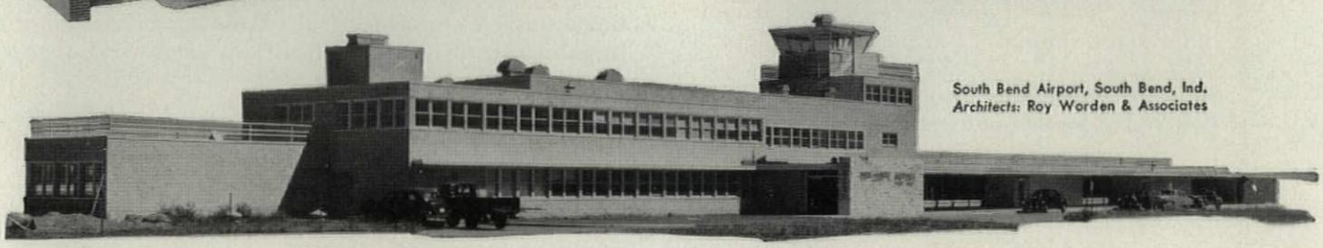


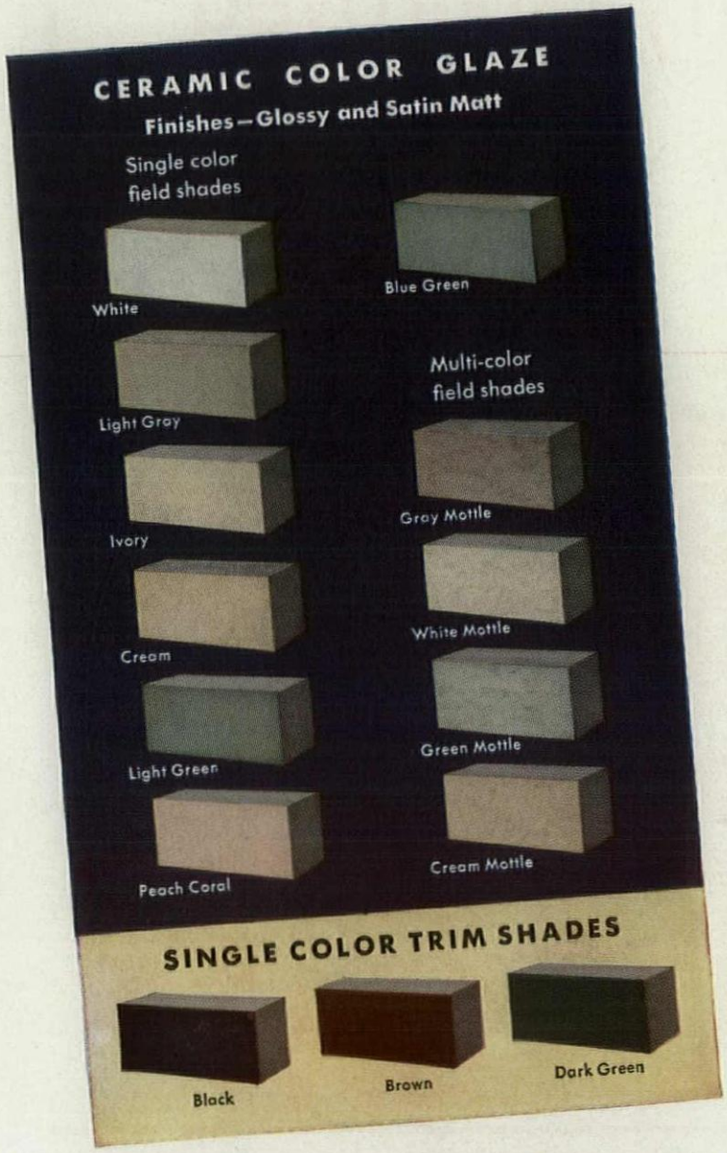
Textile Laboratory, Georgia Inst. of Technology, Atlanta, Ga.
Architects: Bush, Brown, Gailey, Heffernan

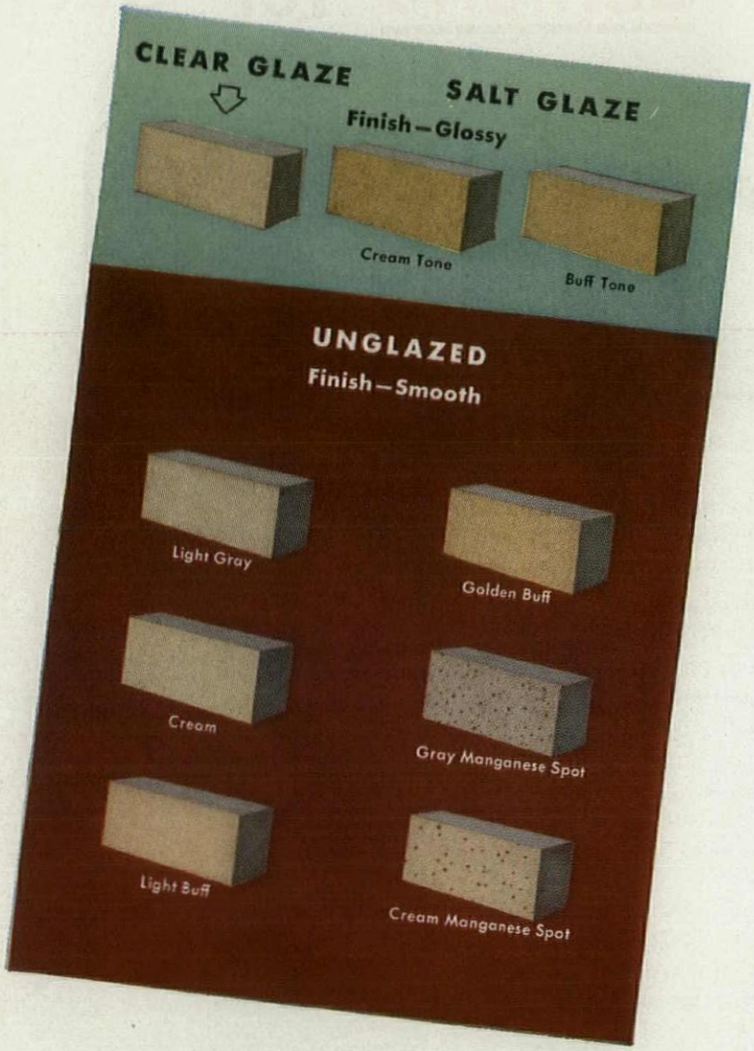
St. Clare's Hospital, Schenectady, N.Y.
Architects: York & Sawyer



South Bend Airport, South Bend, Ind.
Architects: Roy Worden & Associates

members : **A. B. C. Steel Equipment Co., Inc., Tampa, Fla. ★ The Adams & Westlake Company, Elkhart, Ind. The William Bayley Company, Springfield, Ohio ★ Cupples Products Corporation, St. Louis, Missouri General Bronze Corporation *(and its subsidiary The Aluminum Window Corporation)*, Garden City, New York Sterling Windows, Inc. New York City, N. Y. ★ Windalume Corporation, West New York, New Jersey**





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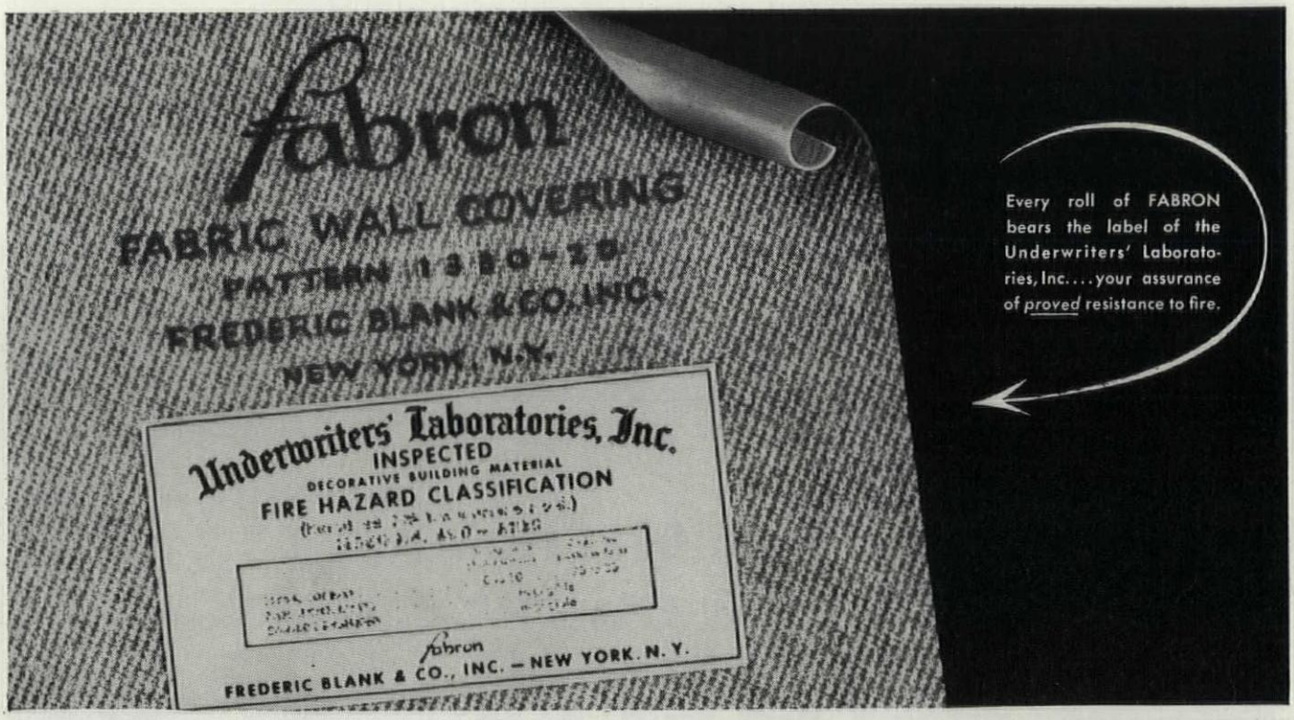

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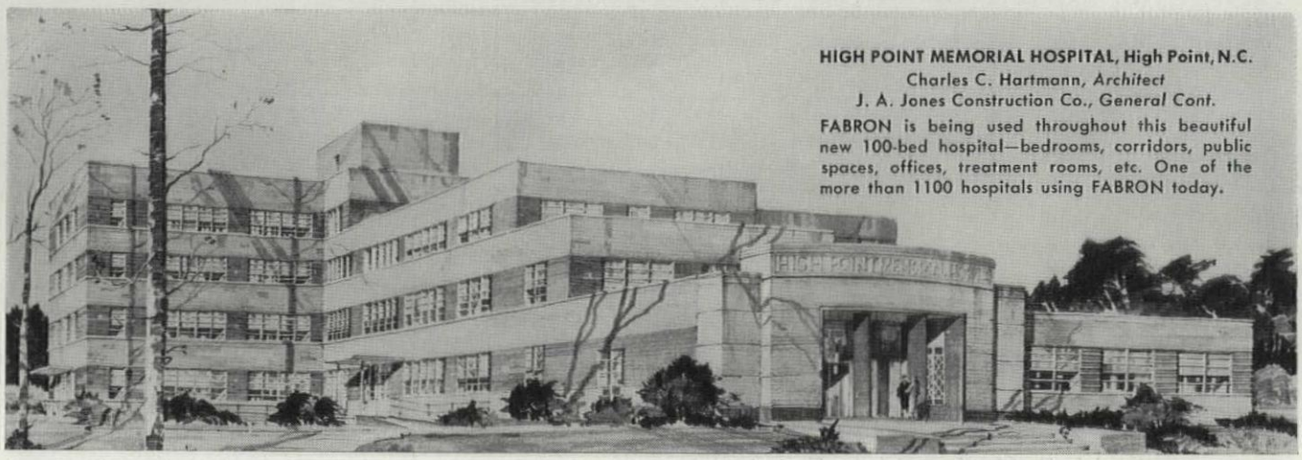

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Charles C. Hartmann, *Architect*
J. A. Jones Construction Co., *General Cont.*
FABRON is being used throughout this beautiful new 100-bed hospital—bedrooms, corridors, public spaces, offices, treatment rooms, etc. One of the more than 1100 hospitals using FABRON today.

naturally tend to raise the temperature of most objects in its path. The effect of solar radiation was noticed mainly on the globe thermometers, and to a lesser extent on the air temperature. When an individual is comfortable in a shaded portion of a structure, then moves into a position where direct sunlight reaches his body, he will probably have an uncomfortable sensation of warmth. Obviously then, sunlight may be expected to have an effect on comfort conditions in localized areas, regardless of the heating system. However, no general effect of solar heat on the temperature distribution within a house was observed during this series of tests.

Self-balancing effect. House No. 3 presented a number of interesting conditions that would indicate the satisfactory operation of baseboard systems under the most adverse circumstances. This house, though occupied, was still in the process of construction. A tarpaulin covered the west entrance to the garage. The north wall of the living room consisted of plaster on plaster board, and was exposed to the cold garage. There was free circulation of air from the garage to the uninsulated space above the living room, the southwest bedroom, and part of the bathroom. Thus, under the conditions prevailing at the time of the test, the living room and the southwest bedroom had an inadequate amount of radiation.

In spite of this lack of balance, both the vertical and horizontal temperature differences compared favorably with the other houses where the conditions were more nearly in balance. This would lead to the conclusion that when there is free communication between rooms within a structure, and the total amount of baseboard radiation is sufficient to offset the total heat loss of the house, satisfactory temperature distribution can be achieved, even when the amount of radiation in some rooms is unequal to the heat loss of the corresponding rooms.

The highly satisfactory comfort conditions reported by the occupants of baseboard-radiation heated residences were generally substantiated by the physical measurements of the thermal environment.

The conclusions offered are neither final nor complete, but do indicate that baseboard radiation presents some interesting phenomena which justify further inquiry.

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5. Temperature Distribution in a Test Bungalow With Various Heating Devices, by Richard S. Dill and Paul R. Achenbach. (National Bureau of Standards, Report No. BMS 108.)

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Insulite* Bildrite Sheathing has Twice the Bracing Strength of wood sheathing

(HORIZONTALLY APPLIED)

Refer to Sweet's File, Architectural Section 10a/8

Let this MILLION pound testing machine tell the story. The event took place in a nationally known experimental research laboratory.

The purpose was to compare the relative bracing strength of Bildrite Sheathing and ordinary wood sheathing in full size walls of standard framing.

These facts are important because lack of proper rigidity in a wall can cause plenty of grief and trouble . . . doors that sag, windows that stick . . . plaster cracks, warped floors. So a good wall must assure adequate bracing strength.

The sections tested were equal in size, 9′x 14′, large enough to constitute one wall of a full-sized room. Procedure consisted of applying pressure laterally until distortion would cause plaster cracks, sagging doors, etc. When the machine was set into action, it reproduced in effect the pressure of storms up to and beyond hurricane force.

THE TEST TOLD THE STORY!

HERE ARE THE RESULTS:

At 1,021 pounds, the panel sheathed with wood had sagged far enough to cause plaster cracks, jammed windows, sagging doors, etc.

But at the same figure, the panel sheathed with INSULITE resisted well within the safety margin! Not until 2,179 pounds of pressure was applied did the INSULITE panel sag as far as the wood panel at half that pressure. Bildrite sheathing provides TWICE the bracing strength of wood sheathing horizontally applied!

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5-50

NORFOLK *(Continued from page 137)*

Title I redevelopment plans are made by cities but checked by HHFA which foots two-thirds of the bill

When Congress passed the Title I redevelopment program last June as part of the housing act of 1949, it chose the sprawling Housing & Home Finance Agency to run it.

During the next five years, HHFA's Title I division (official name: Division of Slum Clearance & Redevelopment) will dispense $1.5 billion in loans and grants to hundreds of U. S. cities. By next June, HHFA estimates 250 cities will be involved in some form of Title I redevelopment projects. To handle the applications from these cities, HHFAdministrator Raymond Foley chose personable Nathaniel Keith as head of his Title I operation. Ex-newspaperman (*Wall Street Journal, PM*) Keith has set up his small staff—less than a hundred including the officeboys—to review and approve Title I applications under a system that is notable for its lack of red tape. Instead of marching the applications through the agency in the time-honored chain-of-command style Keith has set up a special control unit in his office which alerts his branch heads on the day each application arrives. The departments get a copy of the application within 48 hours, so that they can start to work on their particular phase immediately.

The Redevelopment Division has three major checks on each application as it is processed. The first is to make sure that the city which is applying for funds has an intelligent program for using the blighted land that it wants redeveloped. Each city's redevelopment scheme is checked by a staff of city planners, headed by Architect Carl Feiss, former dean of the University of Denver's architectural school and a long-time planning expert.

HHFA's policy in examining city redevelopment plans is to make certain that the city is not overvaluing or undervaluing the use to which redeveloped land is being put.

Second major check that HHFA has is in approving the local plan for relocating tenants from the area to be redeveloped. Before an application is approved, the city has to make provisions for each family either through private or public housing.

The third major check the HHFA has is the appraisal of the land which cities are buying for redevelopment. The reason for this is simple: the government is taking two-thirds of whatever net loss there may be in buying blighted property. One way to check this loss is to keep appraisals on this property as low as possible. HHFA's Title I appraisal operation is headed by James E. McCormick, who handled the appraisal of $1.4 billion in government property for the War Assets Administration. Since most of the appraisals will be made on slum land, McCormick is advising local redevelopment authorities to tell their appraiser not to be fooled by slum-inflated rents in establishing a fair market value for the properties. By keeping appraisals down to the true value of the buildings, McCormick feels that he can save the government hundreds of thousands of dollars that would otherwise be lost in overpricing blighted property.

Thorniest problem faced by Nat Keith and his staff in dealing with local governments is that most cities have

(Continued on page 194)

A single sheet of PLEXIGLAS forms this seven-foot-diameter dome

Dome Skylight at Princeton University

This 7-foot-diameter dome, formed from a single .375"-thick sheet of clear PLEXIGLAS, is installed as a skylight on the new Architectural Laboratory. It permits the day-long study of shadows, textures, and colors on models designed and built by architectural students. Simple clamps on the circular coaming, over the flange of the acrylic bubble, hold it securely in place. Fabrication by Steiner Plastics Manufacturing Company, Long Island City, N. Y.

Architects *expect* the unusual of PLEXIGLAS. But the really unusual feature of this acrylic plastic is its usefulness in *everyday* applications. PLEXIGLAS is just as practical in shatter-resistant skylights and windows, walls and partitions, as it is in optically-clear domes for observatories and weather stations, or in luminous ceilings, building facades and store fronts.

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You can form PLEXIGLAS easily to virtually any shape—erect it with fewer, lighter supports. Its resistance to age, weather and breakage cuts maintenance costs to a minimum. And because it's available in the world's largest cast plastic sheets, PLEXIGLAS meets architectural requirements impossible with many other materials. Write for full information.

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not got an adequate planning agency. The Title I law specifies that a city must have an up-to-date master plan before it becomes eligible for Title I funds. Lack of such a plan is going to be the stumbling block for many a U. S. city when it applies to HHFA for a redevelopment loan and grant. Of the thousand cities with populations of 10,000 or more, 617 have some kind of planning commission but only 164 actually have the trained professional planning staff needed to develop and carry out a city plan. The problem is not one for overnight solutions. City planning is a relatively new profession in this country: there are probably no more than 300 qualified planners available. In order to get their Title I programs under way, many cities will probably have to follow the example of Norfolk in hiring outside consultants. Norfolk's redevelopment and planning commission, which is directing the city's Title I program, has no planning staff, probably will not be able to get one for several years. By hiring the firm of Harrison, Ballard & Allen planning consultants, Authority Direct Lawrence Cox estimates that the chanc for getting his Title I program underwa were advanced at least two years.

Photo: Craftmen, In

Kauffman

Cox

Harrell

Darden

Norfolk's giant-size redevelopment project is under the direction of the Norfolk Redevelopment & Housing Authority, headed by Tax Lawyer Charles L. Kauffman. In Norfolk, they say that the whole program was Charlie Kauffman's baby from the start. Lawyer Kauffman is inclined to pass off the credit among such people as the Authority's hustling Executive Director Lawrence Cox, City Manager C. M. Harrell and Mayor Pretlow Darden. Close collaboration between the Authority and City Hall has, in fact, been a key feature in pushing the program out of the paper stage. Says Kauffman: "This thing has been too big for any of us to adopt a prima-donna attitude."

Design

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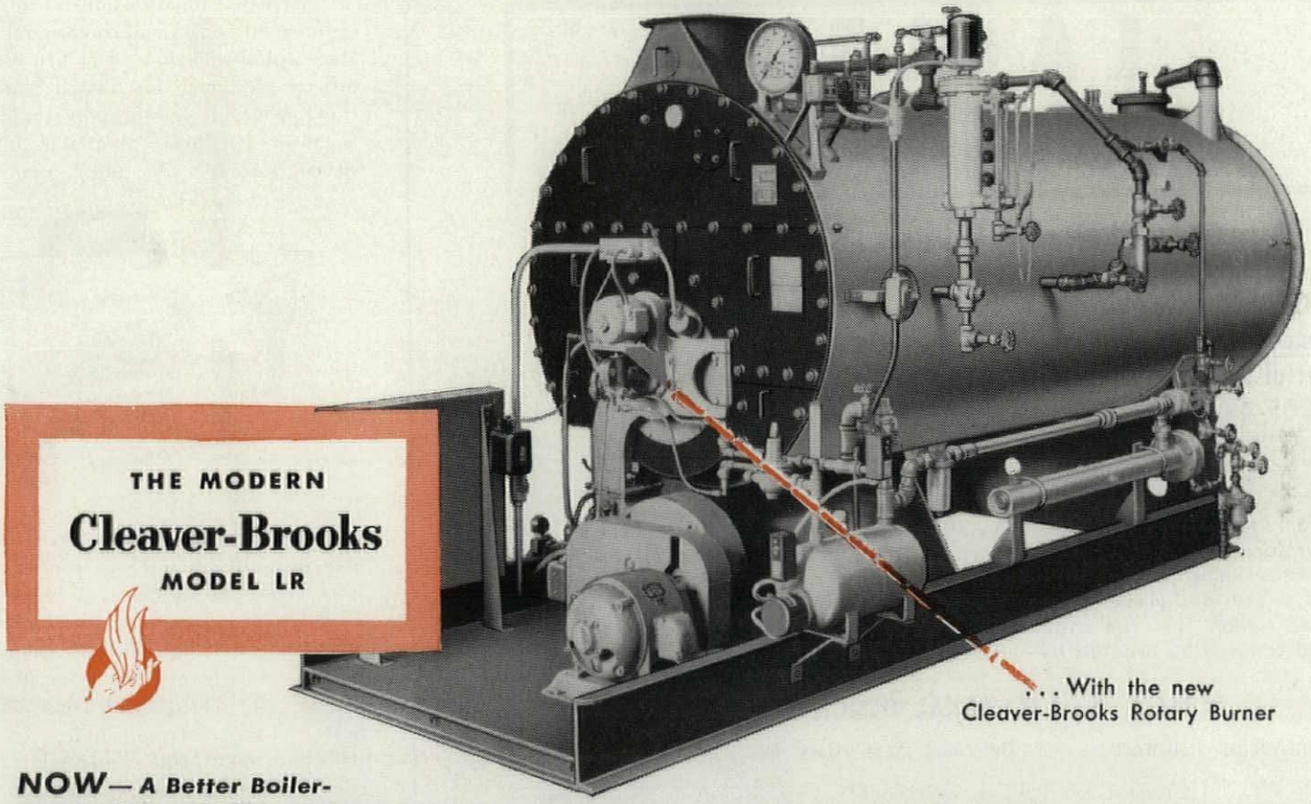

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The Cleaver-Brooks Model LR is a "trail-blazer" in modern self-contained boiler design and construction. It makes more effective use of today's low-cost fuels, (heavy oils and gas), and you are assured of better boiler performance.

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— single low-speed, low-power consumption blower furnishes both primary and secondary air for combustion—less weight and space requirements — reduction in sound levels.

— totally enclosed, drip and dust-proof panel for all major electrical controls.

— electronic combustion safety devices, dual low water cutoffs — are standard equipment.

— simplified design of combination gas-oil burner permits change-over from oil to gas or vice versa in less than a minute.

— improved design of boiler furnace and liberal heating surfaces provide greatest economy with all fuels.

— boilers of all-welded construction — meet standards of A.S.M.E. boiler code and leading underwriters — burner approved by recognized national agencies.

The Cleaver-Brooks Model LR self-contained boilers are of a highly developed four-pass fire tube design — tested and proved by factory and field experience on several thousand boilers of this type.

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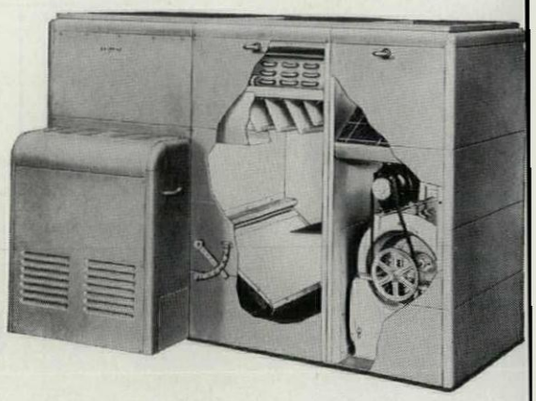
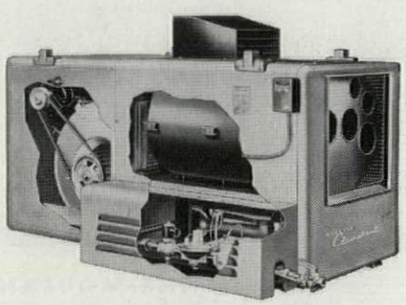
WINTER AND SUMMER AIR CONDITIONERS form single unit.

Mueller's new low boy gas fired furnace, the 108, can be purchased as an independent winter heating unit or as part of a modular set-up for year-round air control. Three basic parts make up the latter arrangement: 1) the heat exchanger compartment; 2) a blower-filter; and 3) an electrically operated type 901 cooling section placed between the heat exchanger and return air compartments. The design of the 901 allows for initial installation of the cooling cabinet section without the coil proper. When complete air conditioning is desired, the freon type coil is added and a condensing unit placed next to it or in a convenient remote location. There is no loss in operating efficiency nor installation economy since the cooling coil, delivering air at the same rate as the heating section, utilizes the same duct-work. Year round fuel and operating costs for a one-story five room test home in Illinois (heating-cooling system cost $2,000 complete with



ducts) are estimated at $175. Heat loss for this particular house is about 55,000 Btu per hr.

Other new Climatrol units of interest to builders of small houses and commercial buildings are Models 155 and 151. The first is a horizontal furnace designed for installation in attic or crawl space. It is especially adaptable in basementless dwellings. Available in 60,000 and 90,000 Btu capacities, the 155 may be installed



in perimeter, conventional forced air systems or used in multiples for zone control in large one-story houses. The 151 is a blower unit heater available in four sizes for store, office, school and other commercial applications. Both are approved by the American Gas Association. Features include all welded steel construction, tubular heat exchanger, large single port air shutter. Both have multiblade centrifugal blowers at the rear mounted on rubber to eliminate noise and vibration. They are equipped with heavy bottom support channels for setting, and have hanging brackets for suspended installation.

Manufacturer: L. J. Mueller Furnace Co., 2005 W. Oklahoma Ave., Milwaukee 15, Wis.

THERMOSTAT for all kinds of domestic heating systems works on time pattern.

Lag and overshoot, common to most automatic heat controls, are minimized with a new type of thermostat which is not immediately dependent upon temperature variations. Operating instead on a time pattern, the control mechanism maintains a constant on-off rate of about five or six cycles per hour in the normal range of heating weather. Outside weather changes are followed, however, by means of a very sensitive element which signals proportionately increased burning time *within the five-six pattern* during a cold

(Continued on page 198)

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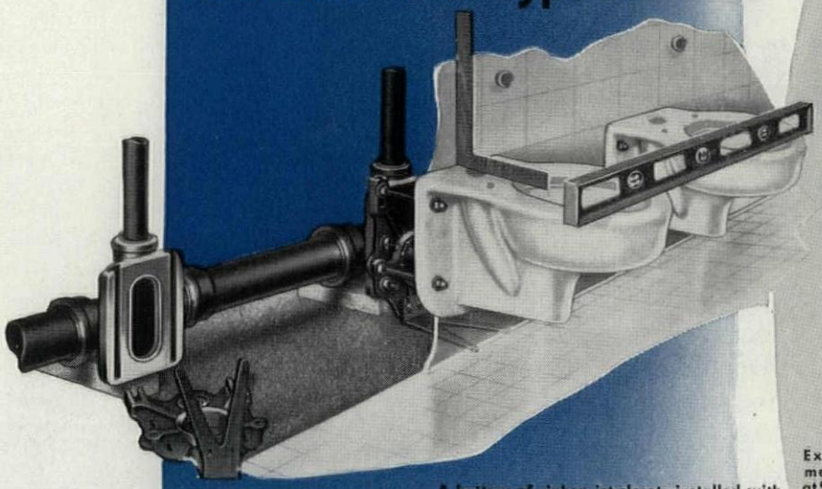
The Simple, Fast, Safe Way To Install Wall Type Fixtures



A battery of siphon jet closets installed with Zurn Wall Closet Fittings, which provide all necessary drainage facilities up to the drainage line. Zurn Wall Closet Fittings are designed for any type or make of fixture and are adjustable to most any wall space.

Zurn Carrier for wall type lavatory. There's a complete line of Zurn Engineered Wall Fixture Carriers for all types and makes of lavatories, urinals, drainboard sinks, sterilizers and other wall type plumbing fixtures.

One of several types of Zurn Engineered Carriers for wall type urinals. With Zurn Carriers, fixtures may be adjusted to any required height from the floor.

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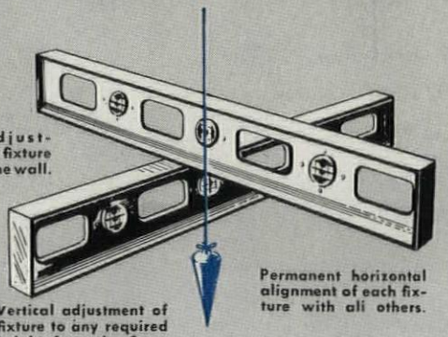
Perfect Alignment

IN ALL THREE DIRECTIONS

Obtained with Exclusive Adjustment Features of Zurn Carriers... For the Support of All Types and Makes of Wall Fixtures



Exact adjustment of fixture at 90° to the wall.

Vertical adjustment of fixture to any required height from the floor.

Permanent horizontal alignment of each fixture with all others.

Wall type fixtures achieve a higher standard of sanitation, and save maintenance money. With clear, unobstructed floor areas, cleaning is quicker, easier, more economical. Their use does not leave a building that is otherwise well planned and equipped vulnerable to premature obsolescence. Wall type fixtures installed with Zurn Engineered Carriers impart no damaging strain to the finished wall.

Zurn Wall Closet Fittings and Carriers are engineered to support wall type fixtures —off the floor, free of the wall—safely, securely, and in permanent alignment. All necessary adjustments are simple; assembly and installation are fast—free of mistakes, delays and grief on the job.

Zurn Wall Closet Fittings and Carriers are widely used in commercial, industrial and institutional buildings from coast to coast — for installation of all types and makes of wall closet bowls and wall type fixtures. Consult a Zurn representative about wall fixture plumbing.

Wall type fixture plumbing marks a new era in sanitation. An irrepressible trend cannot for long be denied! When, where and how to install wall type fixtures is thoroughly presented in the new Zurn "Carrier Catalog and Handbook"—virtually a manual for specifying, buying and installing wall type fixture plumbing. Order a copy now! You'll be needing it! No charge to architects and engineers interested in wall type fixture plumbing.

J. A. ZURN MFG. CO. PLUMBING DIVISION **ERIE, PA., U.S.A.**

SALES OFFICES IN ALL PRINCIPAL CITIES

ZURN

Pre-eminent Manufacturer of Sanitary Products for the Protection of Human Health and Modern Structures

Handbook and Carrier Catalog No. 50

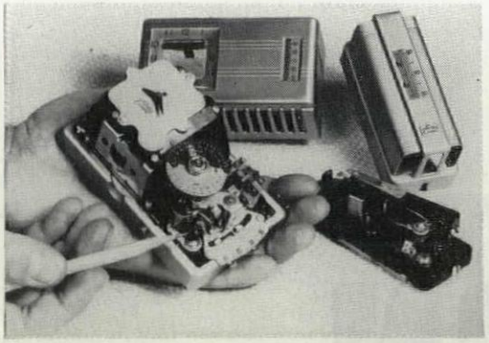
J. A. ZURN MFG. CO. • Plumbing Division, Erie, Pa., U.S.A.

Please honor my request for the new Zurn Carrier Catalog and Handbook No. 50 for the installation of wall type fixtures.

Name _____

Address _____

Please attach Coupon to your Business Letterhead. Form No. 50-13



To increase its sensitivity, the time modulation Chronotherm has a heater plug mounted directly on the bi-metal element. The standard thermostat (in background) also operates on a time pattern.

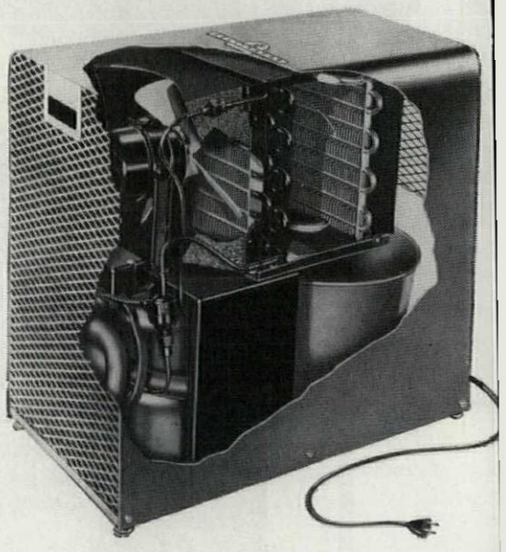
spell; conversely, off time periods are lengthened during mild weather.

From 350,000 installations of the new thermostats made last year in all parts of the country, the manufacturer has found that—without added fuel consumption—more comfort and heating efficiency are achieved by shorter and more frequent burner operations than are achieved with the conventional type of thermostat which waits for a thermometer signal before switching the burner on or off. The Comfort Thermostat is said to "feel" a drop in temperature long before it noticeable to room occupants, and when roo temperature drops a fraction of a degree, wi adjust the cycle. Room temperatures vary on slightly from the selected level. Prices on th manually-set Acratherm and automatic Chron therm are, as for previous models, $11.90 an $34.90.

Manufacturer: Minneapolis Honeywell Reg lator Co., 2753 Fourth Ave., S. Minneapolis Minn.

DEHUMIDIFIER for residential and small stor use guards against effects of dampness.

In the small store where excess air moistur raises corrosive havoc on merchandise and fix tures, or in a home plagued with an ever dam basement laundry or playroom, Kelvinator's con pact plug-in air drier can be a protective as wel as comfort-assuring device. This new applianc is said to remove as much as 3 gal. of moistur from the air every 24 hr. in a large basemen recreation room. Made of steel and finished i durable gray enamel, the air drier is about 1 ft wide, less than 2 ft. tall and long. Major part of the unit are a refrigerated coil, finned con



denser, sealed refrigerating unit, fan and motor, and removable 10 qt. water container. Where facilities permit, a hose connected to a drain may be substituted for the drip pan. In operation, the drier is connected to any 115 v. a. c. outlet and the fan draws humid air across the coil. Cooled by refrigeration, the coil causes warm moist air to condense and the water left behind flows to the container. Retail price, including the manufacturer's five-year warranty on the refrigerating mechanism, is $149.95.

Manufacturer: Kelvinator Div., Nash-Kelvinator Corp., Detroit 32, Mich.

(Continued on page 200)

STOP RUST!

YOU can STOP RUST . . . PREVENT RUST...on *any* rustable metal surface with RUST-OLEUM. Every day, rust eats away on your metal tanks, buildings, fences, stairs . . . everything metal inside and outside your plant. Yet, rust *can* be stopped and protection given economically with RUST-OLEUM.

For more than a quarter of a century RUST-OLEUM has been *proved* under severe conditions of weather, fumes, salt air, salt spray, and other rust producing conditions. Railroads, shipyards, builders, refiners . . . nationally known users* in almost every field of industry . . . have found RUST-OLEUM the economical way to stop rust and prevent further rust. Architects, builders, engineers, maintenance men now specify RUST-OLEUM for primer, "shop coat", and finish coats.

RUST-OLEUM adds extra life to metal buildings, equipment and other metal surfaces and can be applied over already rusted surfaces without extensive surface preparation. Yet, RUST-OLEUM costs no more than most quality materials.

RUST-OLEUM not only protects — it beautifies as well! RUST-OLEUM is available in a large selection of colors including aluminum and white. It spreads evenly . . . and dries free of brushmarks in 4 to 12 hours, depending on conditions, to a tough, pliable film that protects against rust.

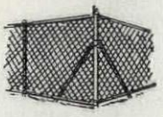
Be sure you get *only* genuine RUST-OLEUM for positive protection against rust! Specify RUST-OLEUM to your contractor or architect on any new construction, remodeling or maintenance work.

RUST-OLEUM is stocked and sold by leading industrial distributors in all principal cities of the United States and Canada. See Sweets for complete catalog and nearest source of supply, or write us direct for complete information.

*Names on request

RUST-OLEUM CORPORATION

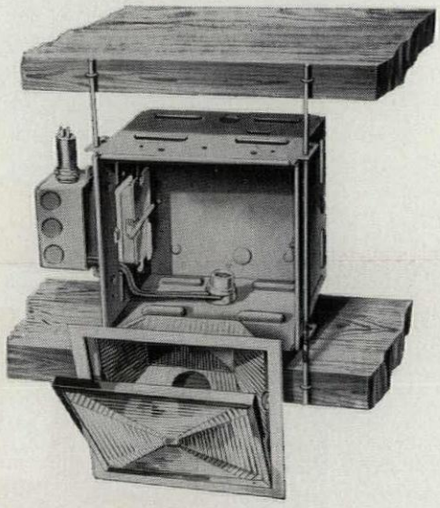
2504 OAKTON STREET — EVANSTON, ILLINOIS



RECESSED LIGHT FIXTURES are pre-framed to cut installation costs.

Packaged assembly of the manufacturer's recessed incandescent fixtures is said to save more than $2 on each lighting unit installed. Two main features mark this line. First, the usual Underwriter's requirement of 4 ft. of asbestos covered wire running to a junction box 1 ft. from the fixture above the ceiling has been supplanted by rubber covered wire running directly to the fixture from an insulated junction box on the fixture's side. Even under most difficult conditions the insulation material in the box keeps heat below the 60° limit for rubber covered wire.

Secondly—packed complete with junction box, bar hangers and all items necessary for the electrician—the units need no plaster frame. Saving in time alone is estimated at an hour for each fixture. Furthermore the junction box, reached in most recessed installations only by removing the fixture box, is easily accessible. Contractor's prices on Kirlin recessed incandescent fixtures



of various sizes range from about $7 to $42. The new fixtures carry the Underwriters' label.

Manufacturer: The Kirlin Co., 3435 E. Jefferson Ave., Detroit, Mich.

SPRAY GUN, designed for accuracy, can be handled comfortably for long periods.

Making it easier to spray paint accurately, this new gun is an effective device for the production line painting techniques now being adopted in the building industry. The GAT-2's nozzle, adjusted by turning a screw at the back of the gun (where it cannot interfere with spray or sprayer's fingers) may be used to direct patterns varying from a 2 in. disc to a swath 1 ft. wide. The photograph at right illustrates a target being painted with a GAT-2 gun. Working on low pressure, the gun reduces air consumption and, consequently, fumes and paint waste. An operator wearing bulky gloves can manipulate the GAT-2's four finger trigger comfortably for long periods without fatigue. He can project a stream of atomized material 6 ft. beyond his paintbrush reach. As in other similar units, separate lines carry compressed air and the paint to the gun. The spray gun, which sells for $33, is said to be flexible enough for use on all kinds of surface painting operations where accurate control and adjustment are desirable.

Manufacturer: Eclipse Air Brush Co., 390 Park Ave., Newark 7, N. J.

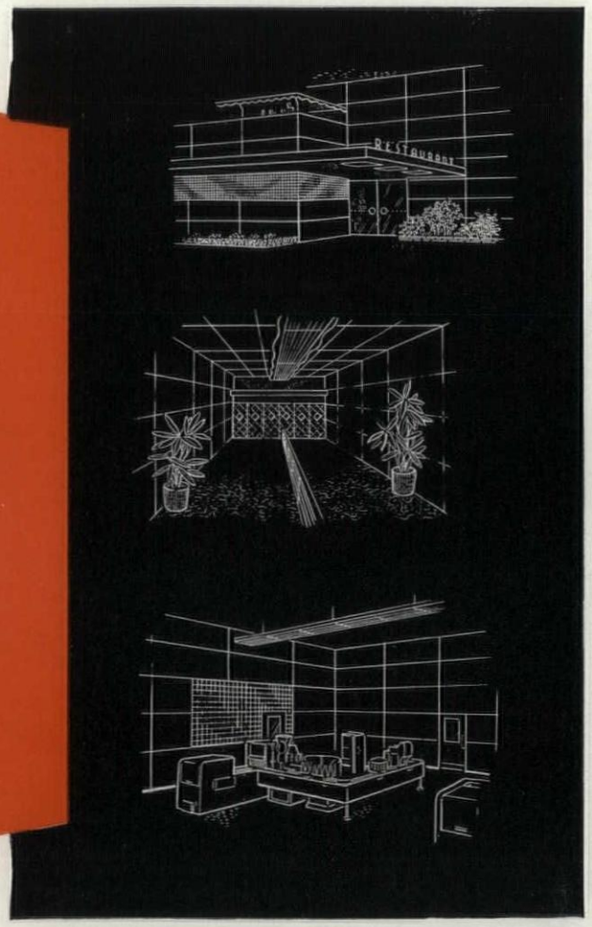
HORIZONTAL WATER HEATERS may be fitted directly to taps, eliminating long water runs.

Although the recovery rate of Hiput water heaters is about the same as other automatic electric units—4½ gal. per hr. on a 100° rise per 1,000 watts—these octagon-shaped models are fabricated for installation direct to hot water taps and

(Continued on page 202)

mirawal

Genuine Porcelain-on-Steel Facing for Interior and Exterior Applications



Visualize... A FINISH GUARANTEED TO BE THE SAME—20 YEARS FROM TODAY!

WHAT IS MIRAWAL?

Mirawal is a surface finishing material with a genuine porcelain-on-steel facing, designed for both interior and exterior use. The desirable qualities of glass are combined with the structural strength of steel to produce facings that are easy and economical to keep clean . . . facings that are durable, highly scratch resistant, with a colorful, fireproof, lifetime finish.

The vitreous porcelain surface of Mirawal is fused to specially prepared steel at temperatures up to 1600° F. The porcelain-on-steel sheet is then laminated to ⅛″ Masonite Hardboard backing—producing a sturdy material with an inseparable facing.

Exterior Mirawal is manufactured to the same careful specifications as the interior facing material. It is then reinforced and waterproofed with rigid sheets of 28-gauge galvannealed steel inseparably laminated to the back of the Masonite core.

CHARACTERISTICS OF MIRAWAL:

Mirawal will not fade, depreciate, peel or discolor. The surface is impervious to moisture, odors, ordinary household acids, oils, grease and solvents. There are no cleaning problems whatsoever connected with Mirawal. Stains or chemicals that might splash onto the surface are easily removed with a damp cloth, with no defacing stains remaining on the surface.

Wherever permanent, eye-catching beauty is desired, with low-cost maintenance, Mirawal offers many advantages at a reasonable cost. If you would like a sample of Interior and/or Exterior Mirawal with folder giving complete specifications, write us. We will be glad to send them to you.

U. S. Patent No. 2428307

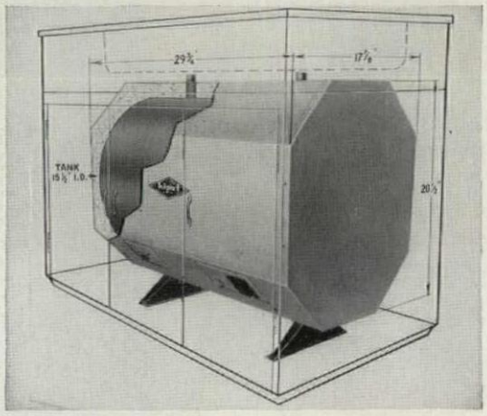
Mirawal
GENUINE
PORCELAIN
ON·STEEL·FACING

Mirawal is ideal for Interior application in Hospital Corridors . . . Operating Rooms . . . Toilet Rooms . . . Emergency Rooms . . . and for the Exteriors as well as Interiors of Super Markets . . . Restaurants . . . Theaters . . . Dairies . . . Meat Markets . . . Bakeries . . . Food Processing Plants . . . Candy Shops . . . Schools . . . Railway and Bus Stations.

BALTIMORE PORCELAIN STEEL CORPORATION
P. O. BOX 928-C BALTIMORE 3, MD.

PRODUCT NEWS

so eliminate the heat loss of long connecting pipes. Recovery provided the consumer, therefore, is actually faster than that of remotely located heaters. Operative and installation costs are reduced. Other features are: immersion type heating element; heavy gauge steel tank galvanized inside and out; 2½ in. of mineral wool insulation;

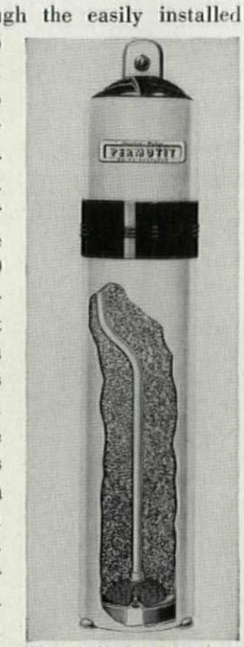


convenient outside thermostat. A 20 gal. Hiput lists at $79.95; 30 gal. at $99.95. Other Hiput heaters come in 5, 6, 10 and 12 gal. capacities. Discounts are allowed contractors on quantity orders.

Manufacturer: Ronan & Kunzl, Inc., Hiput Div., 502 S. Kalamazoo Ave., Marshall, Mich.

WATER SOFTENER with up-flow action is moderately priced.

Permutit's new water conditioning unit consists of a plastic lined tank filled with high capacity organic zeolite. Although the easily installed appliance stands only 46 in. high and is but 9 in. in diameter, it is said to have a softening capacity equal to or surpassing many larger models. Rate of softened water flow at 25 lbs. pressure is 10 gal. per min.; 20 gal. at 100 lb. Electrically operated, the unit is serviced by turning a switch every two weeks at which time a 10 lb. bag of salt is added. The manufacturer estimates that softened water can save a family more than $100 a year in soap consumption, water heater fuel and repairs necessitated by hard scale formed inside plumbing. The unit is priced at $195 f.o.b. Birmingham, Conn.



Manufacturer: The Permutit Co., 330 W. 42nd St., New York 18, N. Y.

(Continued on page 206)

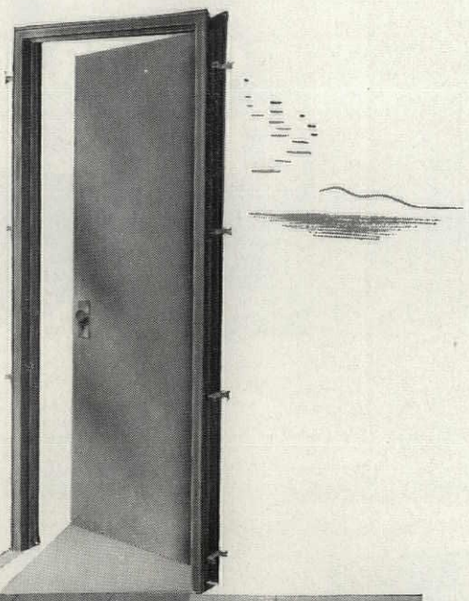
EVER LOOK AT A DOORWAY

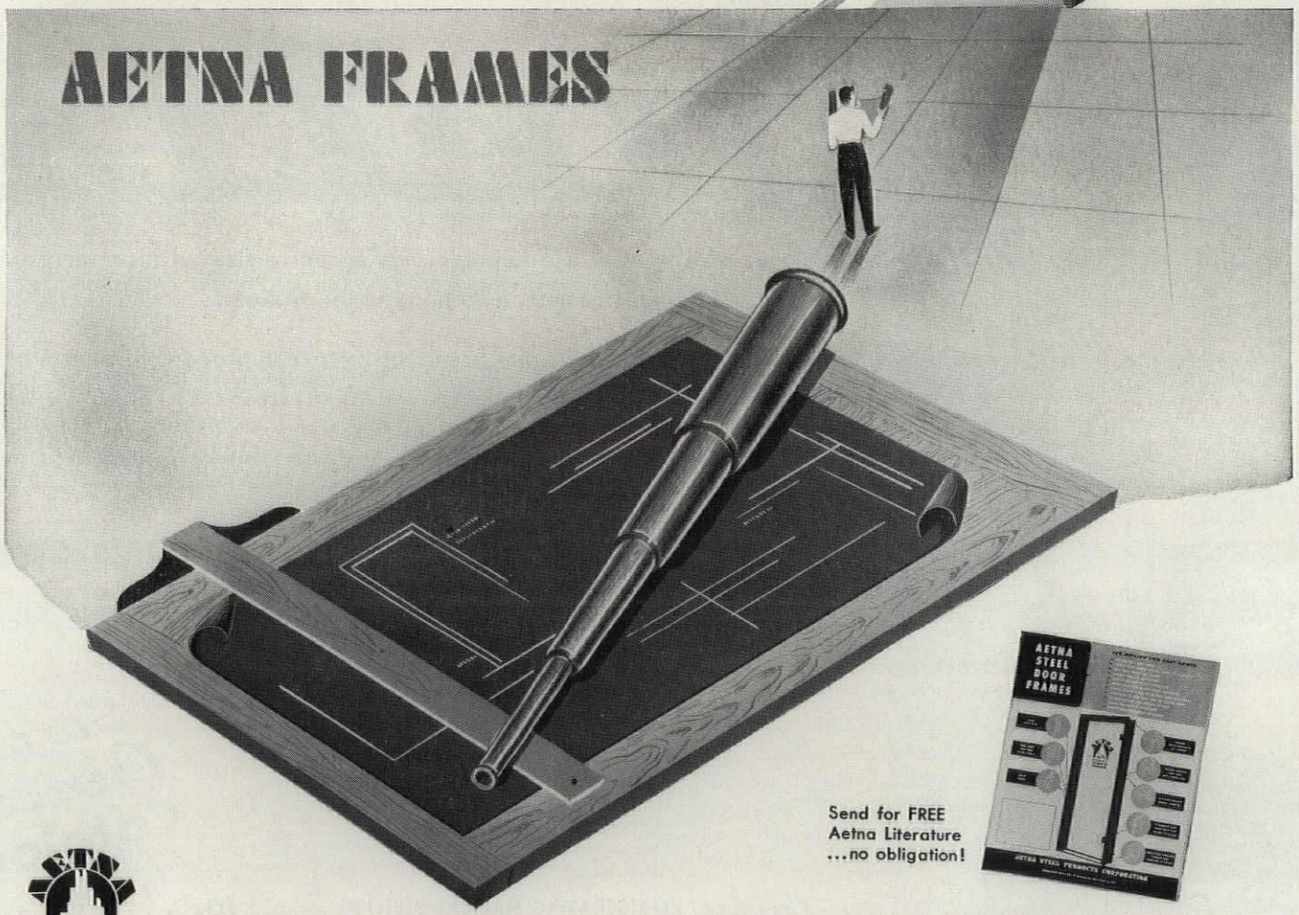
...*from a "Long-Range View?"*

To the man passing through, a doorway is an entrance or an exit! But from the architect's far-sighted point of view... a doorway should be a perfect example of up-to-date design, precision fit—and most of all—extreme durability.

Aetna Hollow Metal Doors and Steel Frames enable you to put every one of these desirable advantages into your building plans. MORE than 50 years of Aetna experience combine to produce "modern portals" which are the last word in quality steel construction and permanent low-cost service.

Designed to fit every type of structure, Aetna product specifications can be altered to meet your special requirements. Whatever your doorway problem, specify...





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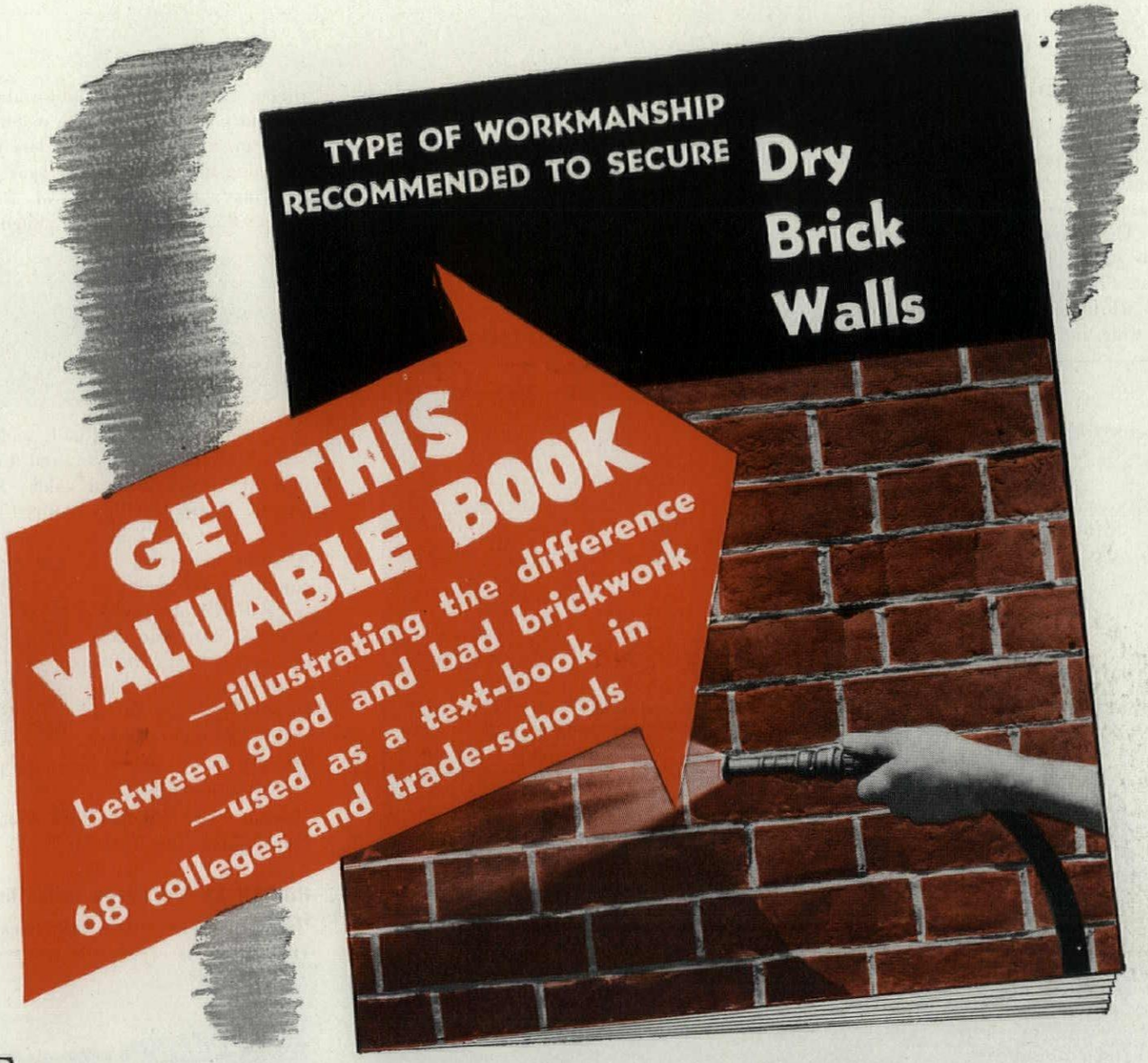
STEEL PRODUCTS CORPORATION

AETNA STEEL PRODUCTS CORPORATION

730 FIFTH AVENUE, NEW YORK 19, NEW YORK

MANUFACTURERS OF STANDARDIZED STEEL DOORS AND FRAMES FOR HOUSING UNITS.

FABRICATORS OF QUALITY HOLLOW METAL PRODUCTS FOR SCHOOLS, HOSPITALS, OFFICE BUILDINGS, ETC.



FOR many years intensive research on the cause and prevention of leaky brick walls has been conducted by various organizations and individuals, and much vital information has been gathered.

Most authorities agree that *workmanship* is the most important thing involved, but until now, no one has attempted to explain and *illustrate* the difference between good and bad workmanship.

"*Type of Workmanship Recommended to Secure Dry Brick Walls*" does just that. In it, a recognized authority on brickwork has compiled 16 pages of proven information—explanations and recommendations—96 color illustrations. It is a major contribution to *good building*. It is *not* an advertisement for our product, Brixment. It is published as a *service* to the building trades. It will be sent free to any architect, contractor, bricklayer or dealer who is interested in water-tight masonry.

Use the coupon to secure your copy. No obligation of any sort.

Louisville Cement Co., *Incorporated*
300 Guthrie Street, Louisville 2, Kentucky
Gentlemen: Without obligation, please send me a copy of "Type of Workmanship Recommended to Secure Dry Brick Walls."

Name_____

Firm_____

Street_____

City_____ State_____

PLASTIC TILE is popularly priced.

This fabric backed plastic floor tile is being marketed at 30 cents per sq. ft., not installed. Made of nonporous vinyl, the Flor-Ever tiles are said to be greaseproof as well as acid, alkali and fire resistant. They have a "self-sheen" and so do not require waxing for appearance, or as a protective coat. The tiles are made in 9 in. squares in 15 marbleized patterns. Solid color borders 9 in. wide and 1 in. stripping are also available. Installation is made with ordinary linoleum cement.

Manufacturer: Delaware Floor Products, Inc., 295 Fifth Ave., New York 16, N. Y.

PLASTIC CARPETING with embossed surface is practical, attractive floor covering.

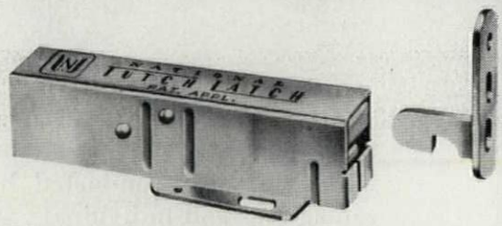
A vinyl flooring material with a textured surface and fabric backing, Vinatred is highly practical for store, hotel, hospital applications—wherever there is constant foot traffic. Laid over a sponge rubber cushion it is as comfortable as it is durable and good looking. The material is available in 36 in. rolls and sells for less than good wool carpeting and many other types of plastic floor coverings: $3.90 per sq. yd. for the medium gauge; $5.27 for the heavy gauge. Besides eight

stock colors—both brilliant, and dark tones—and three patterns, Vinatred may be custom ordered in any desired color. Maintenance is simple. It can be either mopped as tile or vacuumed as a rug. Like other plastic floorings it is flame resistant; according to the manufacturer it will not buckle, crack or chip and does not need waxing. Unlike most other carpeting, Vinatred is mothproof, highly resistant to severe abrasive wear, and can be scrubbed without fear of discoloration.

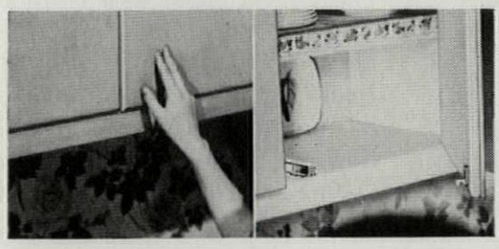
Manufacturer: Southbridge Plastics, Inc., 470 Fourth Ave., New York 16, N. Y.

HIDDEN LATCH opens under finger pressure.

Having positive catch and release action, the Tutch-Latch is a versatile and convenient piece



of hardware for small cabinet doors. Invisible from outside the door, the latch is released by a light touch of the finger, wrist or elbow, and the door pops open. No knob or pulls are required. Tutch-Latch is installed with the strike part on the door and the catch mechanism fastened inside the shelf or, if there is sufficient

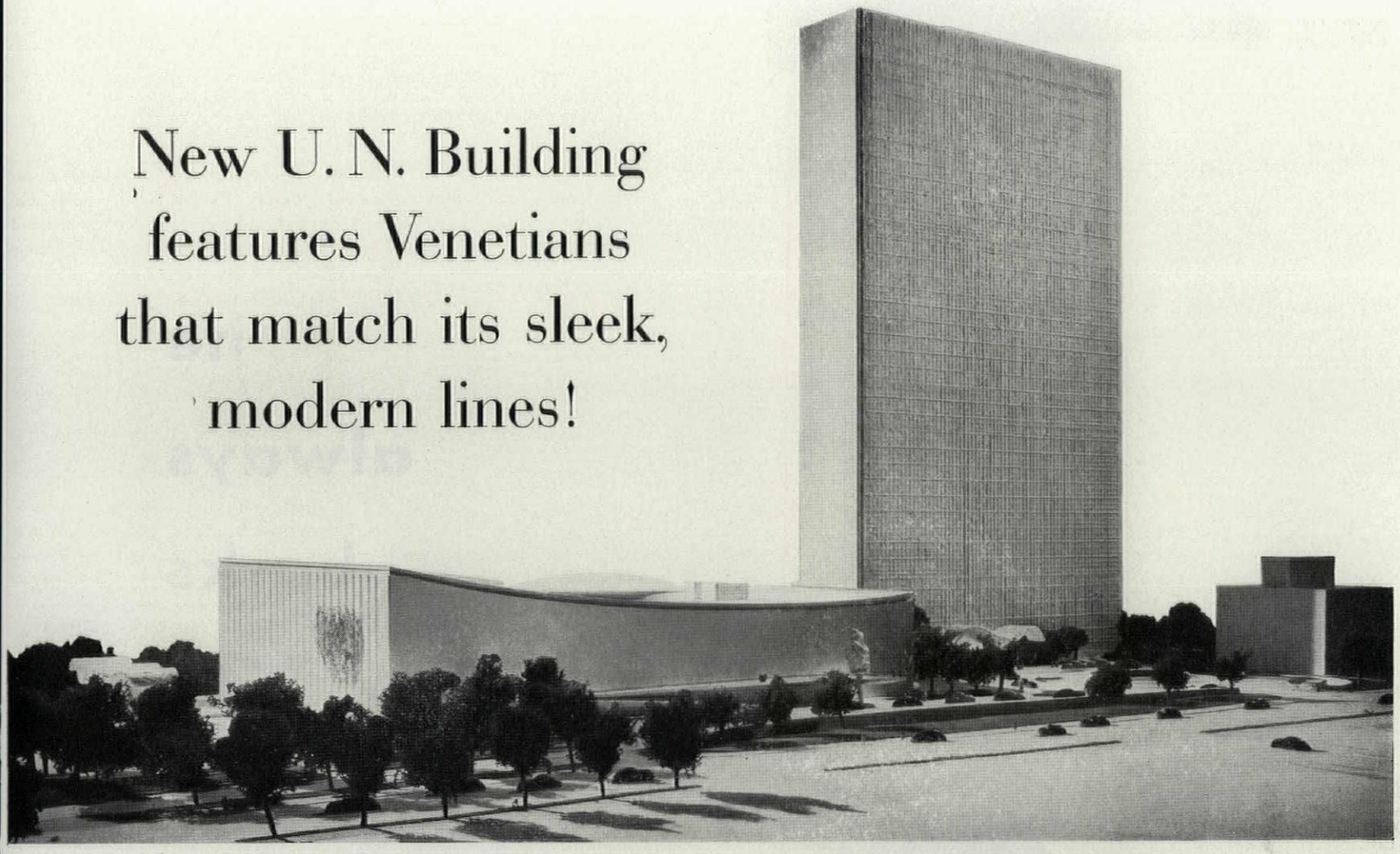


overhang on door panel, beneath the shelf. Retail price is 60 cents.

Manufacturer: Phillips Tutch-Latch Co., 40 Exchange Pl., New York 5, N. Y.

(Continued on page 210)

New U. N. Building features Venetians that match its sleek, modern lines!

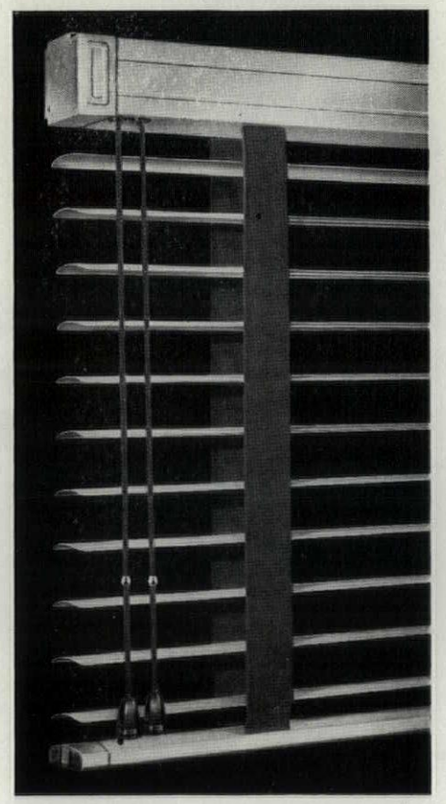


Harrison and Abramovitz, Chief Architects

In designing the new U. N. Building, LEVOLOR-equipped venetians were chosen to be used throughout for long, fault-free service.

There were many other good reasons for this choice. The new LEVOLOR enclosed, dust-proof, all-metal head and bottom-bar completely complement the streamlined beauty of the building. Precision-engineering—plus LEVOLOR's famous self-adjusting tilter—assures noiseless, easy, mechanically-perfect performance, eliminating costly service calls. When tilt cords are uneven, the user pulls the short one down. Click, they come back even.

If you value beauty, quality and economy in venetian installation, specify LEVOLOR—America's finest, most complete line for building fine venetians.

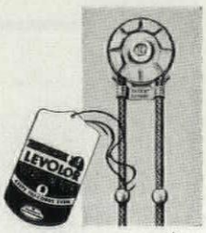


LEVOLOR all-metal head and bottom-bar come in 20 *permanent* plastic colors . . . chip-proof, stain-proof, handsomer, easier to clean. Head encloses all working parts. No projections to mar slats or keep them from being fully raised. Bottom-bar is one clean, smooth sweep of metal.

Specify **LEVOLOR** Trade Mark

Finer Products for Finer Venetians

Guaranteed by Good Housekeeping



he
always
barks
at
strangers

FLOWERS and candy notwithstanding—any self-respecting watchdog bristles when a stranger comes to call. And given the same responsibility, people are just as suspicious of anything strange or new. It's a normal reflex for anybody who's standing guard over an important trust.

That's one reason why every new idea in building (or any other business) has a hard time getting past the watchdogs, no matter how beguiling it looks.

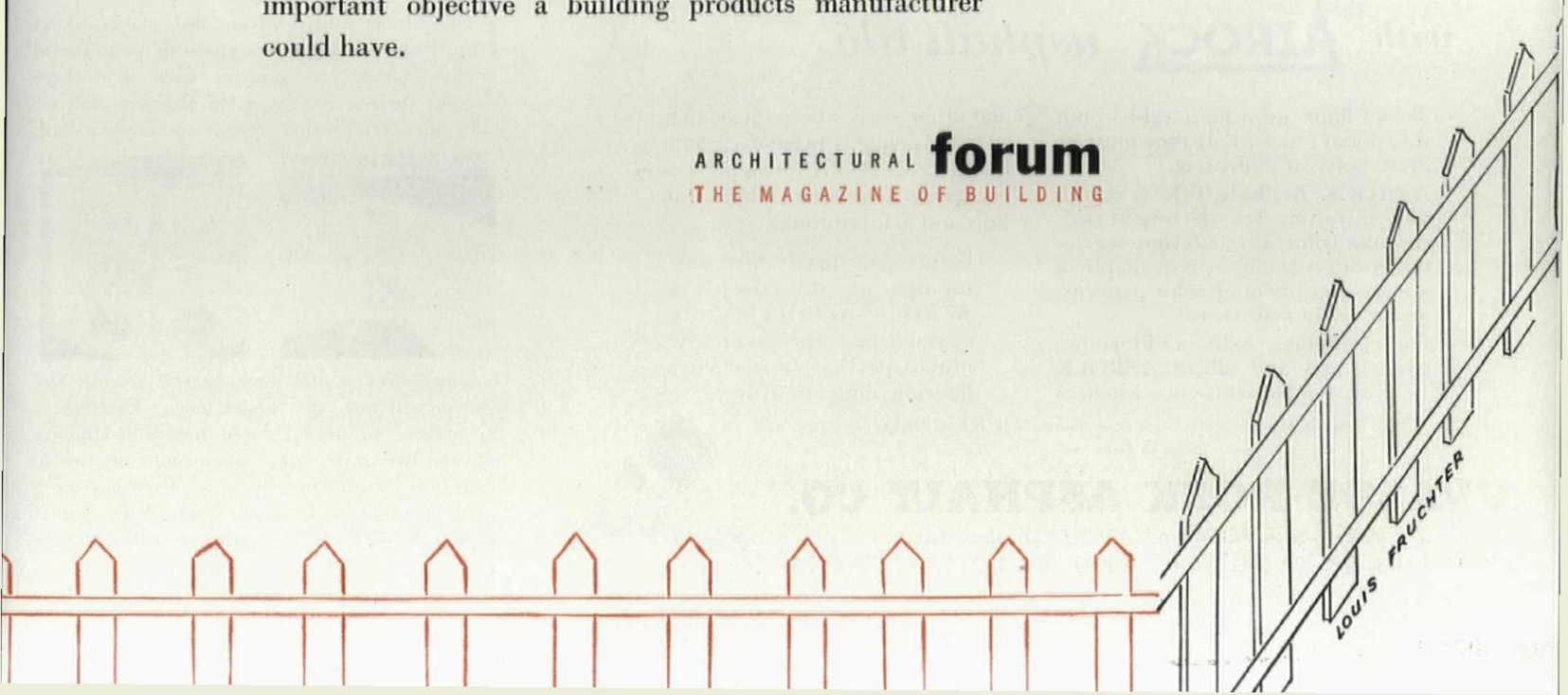
You FORUM readers are pretty tough customers yourselves. You've seen too many unknown products belie their bright prospects. Before you stick your neck out to use a new product, you insist on seeing the tests. And even then you like to feel that all the others who share your decisions have had a chance to learn something about the product.

Advertising gives them that chance, even if they haven't the time to conduct their own investigations. For just as FORUM's editorial pages introduce new building ideas to every branch of the industry, so the ads in the FORUM spread the facts about new products to architects, builders, owners, lenders, suppliers—to all the different watchdogs who have a voice in buying decisions.

Helping you to win support for your product decisions is one of the important ways in which advertising serves you—FORUM advertising in particular, for FORUM is the building magazine which crosses all professional lines to cover all the people you want informed.

It works both ways, of course. For together you FORUM readers buy more building products than any other group in America—and keeping all of you informed is the most important objective a building products manufacturer could have.

ARCHITECTURAL **forum**
THE MAGAZINE OF BUILDING



ELECTRIC RANGE has tuckaway storage space.

Westinghouse has turned out a full size gas range of unique design. A knee-hole desk appearance is suggested by a U-shaped chrome tubing leg on the righthand side and placement of both oven and storage drawer on the left. Thus, without sacrificing utility, the range is suitable for the small kitchen. Carrying a list price of $159.95, the Rancho is 38 in. wide and has two 8 in. and two 6 in. surface units with Tel-A-Glance controls. It also features automatic oven heat control and a convenience outlet for kitchen appliances.

The homemaker may store a wastebasket or kitchen stool beneath the Rancho.

Manufacturer: Westinghouse Electric Corp., 306 Fourth Ave., Pittsburgh 30, Pa.

HOME REFRIGERATOR defrosts automatically.

A fully automatic rapid defrost system has been incorporated in Westinghouse's new 9.6 cu. ft. home refrigerator-freezer combination. Ordinarily, accumulated frost acts as insulation and makes it difficult to maintain proper temperatures. This Frost Free system is said to remove all frost from refrigerator and freezer walls before it can build up, and dispose of it by quick evaporation. The defrosting cycle is automatically set in motion every 60th time the door is opened (average daily usage). Equipped with a germicidal lamp and shelves which may be arranged to suit the family's particular needs, the ADA-96 lists at $399.95.

Manufacturer: Westinghouse Electric Corp., 306 Fourth Ave., Pittsburgh 30, Pa.

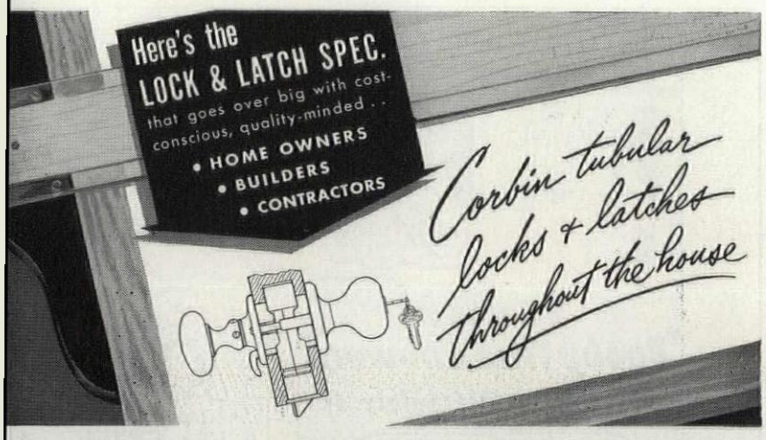
UTILITY CABINETS added to kitchen line.

Two of the four cabinets recently introduced by Mullins are open shelf base units, one with three quarter round shelves (pictured below) and the other with half round shelves. These handy units fit against the side of a standard 36 in. high base cabinet. The half round also may be used at the end of a breakfast bar. The quarter round model is 18 in. wide along the wall and 24 in. deep. A chromed tube extends through the shelves as added support and decoration. Retail price is approximately $50.

The cabinet with revolving shelves costs about $76. It utilizes the corner space in an L-shaped kitchen storage arrangement. Each of its three circular shelves is 22½ in. in diameter, and rotates on a center shaft which operates on ball-

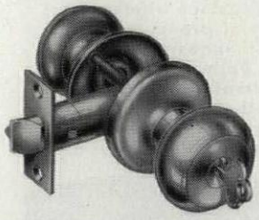
bearings. No matter how heavily loaded, the shelves will turn at a finger touch. Each has a ¾ in. flange to prevent stored items from slipping off, and the semicircular rear panel conforms to shelf curvature to prevent goods from becoming stuck in the back. Diagonal front of this cabinet is 10½ in. wide. The fourth base cabinet has a

(Continued on page 214)

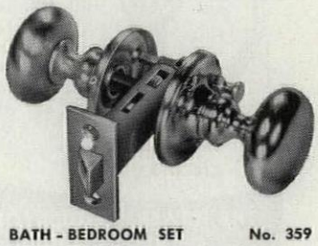


NOW

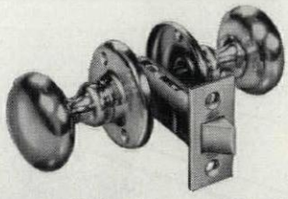
A COMPLETE LINE of Budget-Priced CORBIN QUALITY TUBULAR Locks and Latches . . . REVERSIBLE — for right and left-hand doors — opening IN or OUT . . .



FOR EXTERIOR DOORS No. 320 Series
Operates by knob from either side and by key from outside when locked by inside lever.



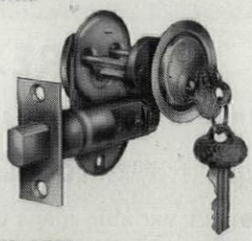
BATH - BEDROOM SET No. 359
Privacy locking button, inside—with emergency entrance feature, outside.



INSIDE LATCH SET No. 345
Operates by knobs from either inside or outside.

STANDARD NIGHT LATCH FOR DOORS OPENING *IN* No. 646
Functions by key from outside and thumb knob from inside. Inside slide lever holds bolt retracted.

STANDARD NIGHT LATCH FOR DOORS OPENING *OUT* No. 646¾
Operates same as No. 646 except that it features Auxiliary Latch protection.



DEAD LOCK No. 650
Operates by key from outside and turn knob inside.

- Distinctive finishes on enduring brass or bronze.
- Cast brass cylinder — 5-pin tumbler protection. May be MASTER-KEYED if desired.
- Choice of attractive metal or glass knobs to match inside trim.

P. & F. Corbin

DIVISION

THE AMERICAN HARDWARE CORPORATION

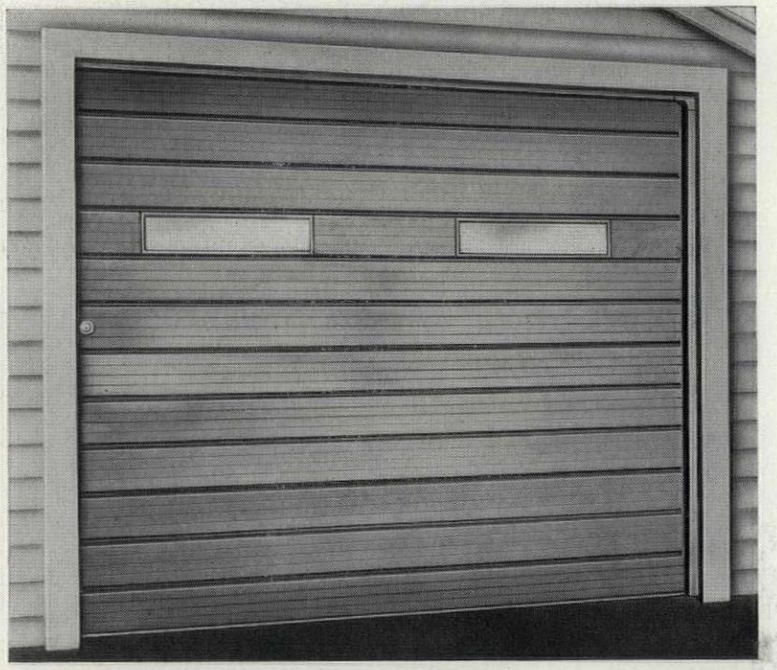
New Britain, Connecticut

GOOD BUILDINGS DESERVE GOOD HARDWARE

CORBIN

ARCHITECTS & BUILDERS FIRE "RICHARD" . . . HIRE "ROLY" TO "OPEN THE DOOR"

Roly Does More For Less!



Because the sensational new MORRISON Roly-Door —the first and only four-sectional, all-steel overhead residential garage door—has every wanted feature . . . It opens the door to *everybody's* satisfaction!

The architect specifies the MORRISON Roly-Door because it conforms to all styles of architecture — because its beautiful simplicity is a welcome addition to new as well as old homes.

The builder chooses the MORRISON Roly-Door because it costs less to install . . . because it's individually packaged.

And the home owner is more than satisfied because the MORRISON Roly-Door costs less to own— and is built for a lifetime.

But that's not all . . . because no other overhead garage door has ALL THESE FEATURES:

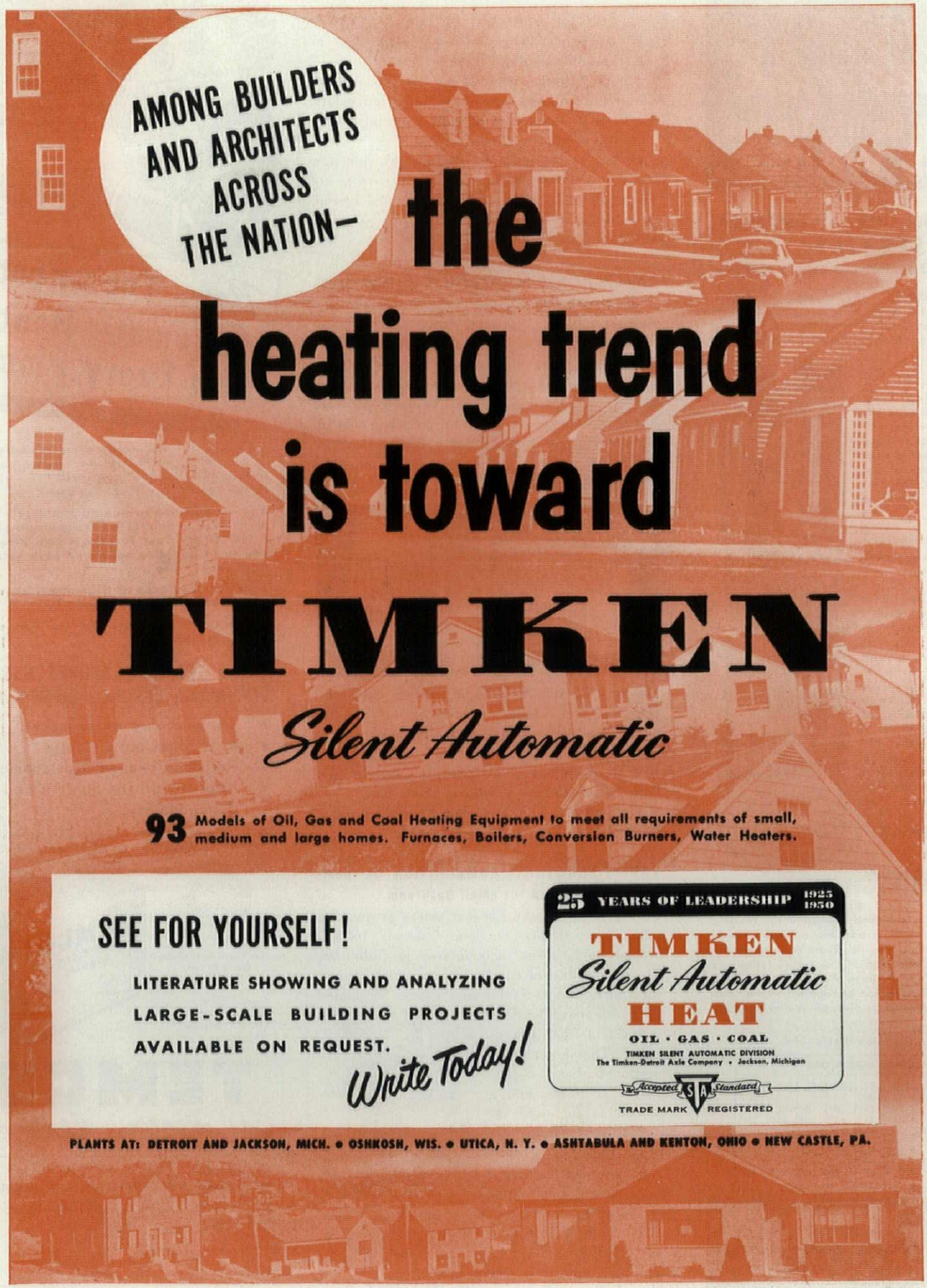
- ★ Built to Last
- ★ Weatherproof
- ★ Completely Painted
- ★ "Touch-'n-Go" Operation
- ★ Quiet and Safe
- ★ Lock Keyable to Home
- ★ Minimum Field Assembly
- ★ Individually Packed
- ★ Conforms to all Architecture and Building Codes
- ★ Four-Sectional
- ★ Costs Less to Own
- ★ Costs Less to Ship
- ★ Costs Less to Store
- ★ Costs Less to Install
- ★ Low Headroom Bracket Welded at Factory
- ★ Trouble-Free (Patented Pend.) Hinging

Write for Bulletin D50-1-A

MORRISON STEEL PRODUCTS, INC.

ROLY-DOOR DIVISION

645 AMHERST STREET • BUFFALO 7, N. Y.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the heating trend is toward
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Silent Automatic
93 Models of Oil, Gas and Coal Heating Equipment to meet all requirements of small, medium and large homes. Furnaces, Boilers, Conversion Burners, Water Heaters.
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LITERATURE SHOWING AND ANALYZING LARGE-SCALE BUILDING PROJECTS AVAILABLE ON REQUEST.
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PLANTS AT: DETROIT AND JACKSON, MICH. • OSHKOSH, WIS. • UTICA, N. Y. • ASHTABULA AND KENTON, OHIO • NEW CASTLE, PA.

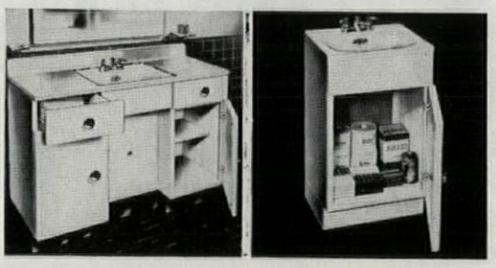
PRODUCT NEWS

pull down door which reveals a large flour or vegetable storage bin.

Counter work surfaces for all Youngstown sinks and cabinets are available in ten colors. Cusheen, a wear resistant vinyl material has replaced linoleum in current models. Also, all door and drawer fronts in the Youngstown line now are made entirely from dies. Sharp corners are eliminated and a more pleasing contour achieved. *Manufacturer:* Mullins Mfg. Corp., Warren, Ohio.

LAVATORIES with convenient storage space are smartly styled.

Storage cabinets, generous sized lavatory, and convenient dressing table are combined in the LaVanity. This compact bathroom unit provides two storage compartments with a drawer above on each side of the lavatory. Beneath the wash basin, finished in acid resistant porcelain enamel, is a roomy compartment for bathroom supplies and soiled clothes. The LaVanity is 45 in. wide, 20 in. deep and 32 in. high. It has a suggested



list price of $137.50 including faucet and drain. Designed for smaller bathrooms, the LaVette has a large lavatory and a totally enclosed storage cabinet. This model measures 18½ in. wide, 16¼ in. deep and 32 in. high. It retails at $37. Both lavatories have plastic laminate tops. *Manufacturer:* U. S. Porcelain Enamel Co., 4634 E. 52nd Drive, Los Angeles 22, Calif.

VANITY-LAVATORY COMBINATION is compactly designed for small bathroom.

Listing for $119, the Lavanet serves as dressing table, lavatory and medicine cabinet. Its top drawer holds a four section tray for toiletries. The second drawer is a built-in medicine cabinet with horizontal racks for easy access. A hidden latch safeguards curious youngsters from its contents. The lower compartment has storage space for towels and a receptacle for used facial tissues. Other features include a towel bar, concealed plumbing, comfortable knee room and chromed faucets. The vanity top is covered with plastic in either a blue linen or mother of pearl pattern. Overall dimensions are 31½ in. high x 23½ in. wide x 36⅛ in. long. *Manufacturer:* Beauty Queen Div., Toledo Desk & Fixture Co., Maumee, Ohio.

(Technical Literature, page 220)

they teach LOGOPEDICS...*

* the science of speech correction

The new Institute of Logopedics center in Wichita is comprised of 40 multiple - apartment housing units plus a $300,000 training and administrative building. A total of 1750 squares of Ruberoid Dubl-Coverage Tite-Ons were used on the roofs.

but first they studied TITE-ONS**

*** * *the amazingly wind-resistant Ruberoid interlocking shingle***

On the rolling plains of Kansas where the wind blows free and the ominous black tail of a twister occasionally makes an appearance, it pays to invest in a roof that will hang on for dear life. The Institute of Logopedics wisely selected Ruberoid Dubl-Coverage Tite-On Shingles to protect its fine new $2,000,000 speech correction center covering 40 acres on the outskirts of Wichita.

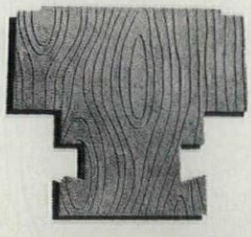
Tite-Ons were specified for the Institute by Builder's, Inc. . . . but Tite-Ons really *sold themselves!* Mr. L. R. Mollohan, manager of the Rock Island Lumber Co. first sold Dubl-Coverage Tite-Ons to Builder's, Inc. for several Four-Plexs in Southeast Wichita. In June, 1947, these roofs were put to a severe test when Wichita had a very heavy windstorm that ripped up other roofs but failed to disturb Tite-Ons. Besides providing the utmost in storm protection, self-locking Tite-On Shingles are fire-resistant, attractive and provide a minimum of two thicknesses over the entire roof.

WIND CAN'T PICK THESE "LOCKS"

DUBL - COVERAGE TITE-ONS are not just stronger and double thick—their patented design results in an amazing *double ply* roof — two roofs interwoven in one — with triple coverage in many parts. And for extra re-enforcement each interlocked shingle is nailed down solidly in four places. DUBL-COVERAGE TITE-ONS are truly wind proof!

INTERWOVEN APPLICATION

The man is holding a group of DUBL-COVERAGE TITE-ONS arranged just as they are applied on the roof (underside view). Note that the shingles do not come apart even when hanging vertically without nails! When interlocked and nailed down on the roof, they stay where they belong!



PATENTED DESIGNS

TITE-ON Shingles are Ruberoid-originated and patented. They have an 18 year background of *proven performance.*

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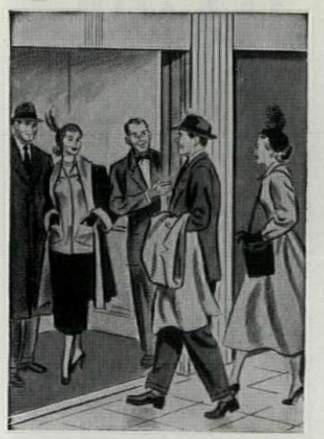

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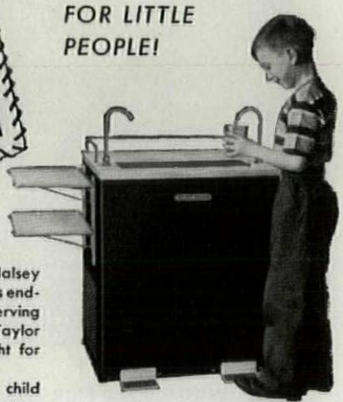
THE LITTLE COOLER FOR LITTLE PEOPLE!



In school cafeterias, or other places where children gather, this latest Halsey Taylor development eliminates endless confusion and speeds serving time. It's the new Halsey Taylor LO-LEVEL, just the right height for children.

Architects, design with the child in mind . . . get our latest literature on the LO-LEVEL, featuring the usual Halsey Taylor hygienic safeguards!

Foot-pedal control permits child to fill glass with water while holding tray. Greater convenience, time saving.

The Halsey W. Taylor Co.
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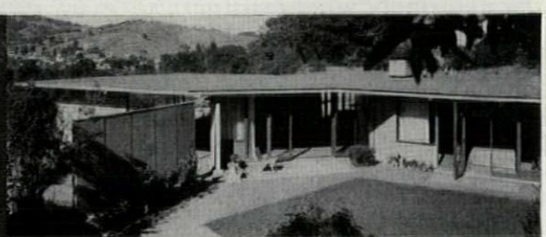
A-3

THE RIGHT COLOR



Architect and owner:
Joseph Allen Stein, San Francisco

Architect: Irwin Jones, New York

The 32 colors of Cabot's House Paints (Gloss Collopakes) have been carefully selected to meet the needs of modern domestic and industrial design. Many of our current colors were first manufactured on special order for architects and therefore have been chosen by the profession itself. Others have been matched to famous buildings or to characteristic regional colors . . . Williamsburg Blue, Moravian Gray.

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CABOT'S *Collopakes*

Write Today for your Cabot Collopakes Color Card. Ask about our special color matching service for architects.

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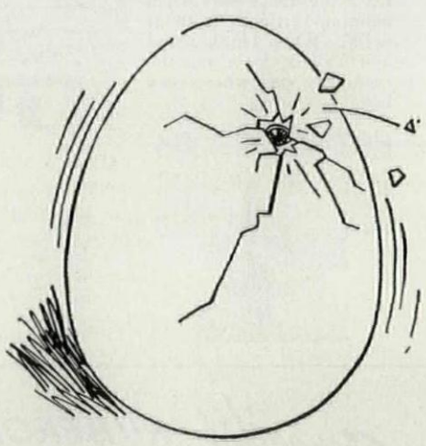


WATCH FOR BIG KWIKSET ANNOUNCEMENT!

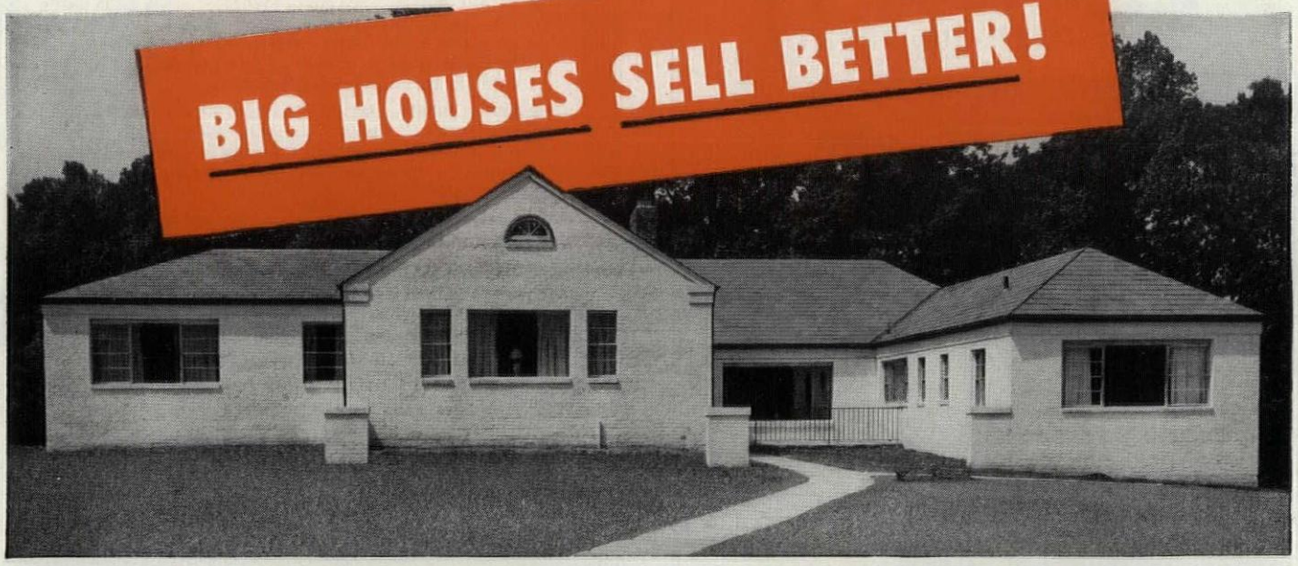
Look to Kwikset to be first and foremost with top quality residential locks.

kwikset LOCKSETS

Kwikset Locks, Inc.
Anaheim, California

Builder LeVelle tells how

BIG HOUSES SELL BETTER!

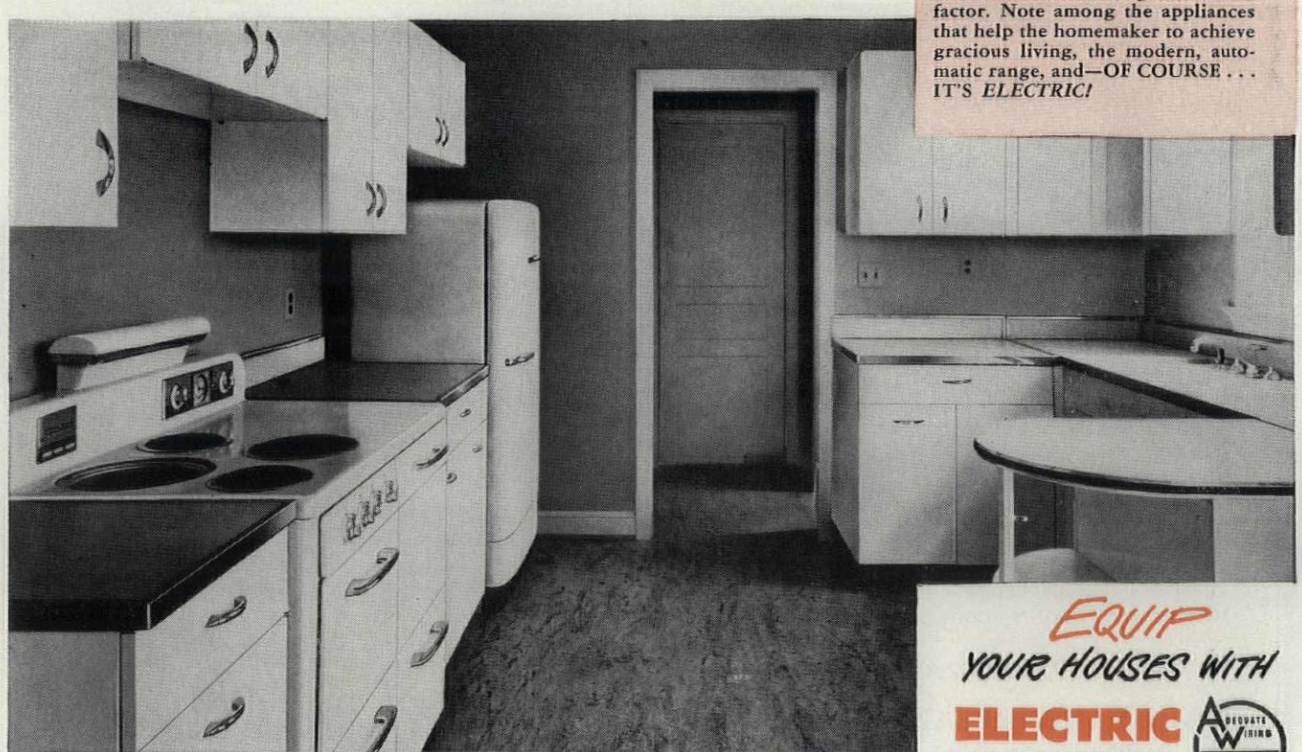


Each of these Capitol City Homes designed by architect Joseph J. Schlosser, has two or three bathrooms, three to five bedrooms, and a completely electric kitchen with a modern Electric Range. They're built on lots of ½ acre or more, and sell at from $32,000 to $45,000. According to Mr. LeVelle, electric living is a "must" in a large home. And according to leading builders everywhere, it's a "must" now in *any* size home.

"Electric equipment is what sells them, and the kitchens, of course, have Electric Ranges!"

Mr. Harry LeVelle builds houses in North Chevy Chase, Maryland, for people in the upper income brackets. "They rave about the electric equipment," he says, "including the modern Electric Ranges. 90% of my home sales are to women who love the all-electric kitchen. They want to work in such a kitchen, although you might think that the homemakers in such families would not be doing their own work."

Mr. LeVelle is convinced that the electric kitchen is his greatest sales factor. Note among the appliances that help the homemaker to achieve gracious living, the modern, automatic range, and—OF COURSE . . . IT'S *ELECTRIC!*



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ADEQUATE WIRING SERVES AND SAVES

ELECTRIC RANGE SECTION, National Electrical Manufacturers Association, 155 East 44th Street, New York 17, N. Y.

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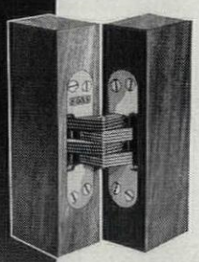

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"the hinge that hides itself"

THE ULTRA-MODERN HOME OF THE NORTH AMERICAN LIFE AND CASUALTY COMPANY
—Minneapolis 4, Minnesota
THE ARCHITECTS: LANG & RAUGLAND
—Minneapolis 3, Minnesota

Lang & Raugland, Minneapolis Architects, by using SOSS INVISIBLE HINGES, succeeded in creating modernistic interior effects in this building that could never have been realized with old style, butt type hinges!

These remarkable SOSS HINGES have NO UGLY, BULKY, PROTRUDING hinge butts to mar the graceful lines of modern design. They're the only hinge that absolutely assures the architect of the soft, smooth, streamlined, harmonious interiors that are so very necessary to really modern architecture. There's a weight-rated SOSS HINGE, operating on hardened steel links and roller bearings, for every type of installation.

Write for FREE CATALOGUE that gives complete details, blue print templates, and the many uses of this modern hinge to . . .

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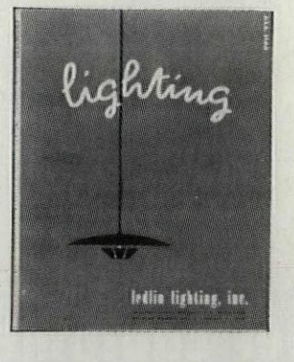

LIGHTING FIXTURES. Lighting. Catalogue No. 1. Ledlin Lighting, Inc., 49 Elizabeth St., New York, N. Y. 17 pp. 8½ x 11 in.

Legible installation details and valuable data on illumination characteristics of various lamp types are handled tastefully in this publication. Simple silhouettes, representing each fixture series, on the insert pages serve as a quick reference guide. Photographs of neat contemporary table lamps and wall fixtures—all moderately priced—are included as well as a price list on all Ledlin equipment.

LIGHTING. Planned Lighting for Modern Banks and Offices. Pittsburgh Reflector Co., 401 Oliver Bldg., Pittsburgh 22, Pa. 10 pp. 8½ x 11 in.

This informative brochure covers recent advances in the use of standard lighting equipment to achieve good architectural and illuminating results in offices and banks. Dealing primarily with the influences of properly maintained foot-candle levels on increased working accuracy and improved visual comfort, the booklet also notes the installation and upkeep economies that result from intelligently planned lighting systems. Photographs, ranging from executive and general offices to bank lobbies and interiors, illustrate some custom designed lighting effects which can be achieved with regular fluorescent or incandescent equipment or a combination of both. Particularly interesting is the way ceiling patterns are handled to blend with interior design.

LIGHTING. Better Classroom Daylighting. Detroit Steel Products Co., 3111 Griffin St., Detroit 11, Mich. 20 pp. 8½ x 11 in.

How to provide for better daylight in new school construction is the theme of this booklet. Presenting a clear outline of minimum daylighting requirements the publication tells how to bring in more natural light and improve its quality, and gives engineering data to substantiate the method recommended. It discusses window sizes; control of brightness through blinds, shades or special glass; proper interior decoration, seating arrangements and classroom equipment. Extensive research conducted by the manufacturer, much of it in collaboration with educational institutions, is reflected in this little book. It is not high pressure sales literature for metal windows, but a concise study of daylighting for schools.

WIRING. Remote Control Wiring System. General Electric, Construction Materials Dept., Bridgeport 2, Conn. 15 pp. 8½ x 11 in.

Until a few years ago the flexibility of the average wiring method was limited by the expense of special cables and switches throughout the system. In low voltage (24 v.) switching systems, however, it is now economically feasible to have a number of controls inside and outside the building for any outlet. (*See Products & Practice Dec. '48.*) Those interested in remote control lighting and remote appliance control will find a clear description of the General Electric system in this brochure. A special yard light unit included in the G.E. system makes it especially adaptable for farm and industry as well as home applications. The book contains complete details of the principles of the method together with illustrations of materials and installation methods and a number of circuit diagrams. *(Continued on page 226)*

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We've just invested in foresight—price $1,250,000.

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. . . because we believe modern research can give you still better brick and tile—easier to use, in more places, at less cost.

. . . because we know that even a slight improvement in our products will have tremendous potential benefits—for the millions of people who are served by structural clay products and for the building industry which makes such wide use of them.

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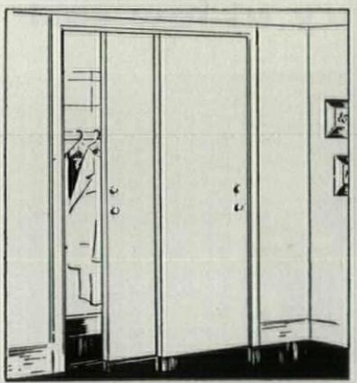
- PROVIDES GREATER SPACE
- CUTS BUILDING COSTS



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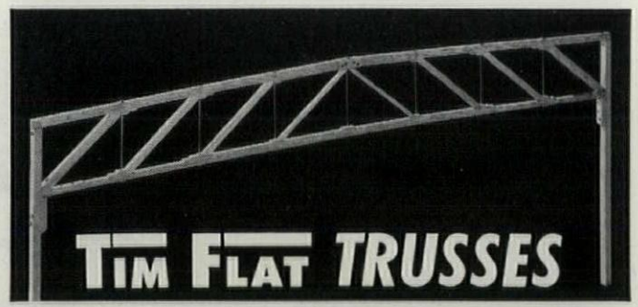

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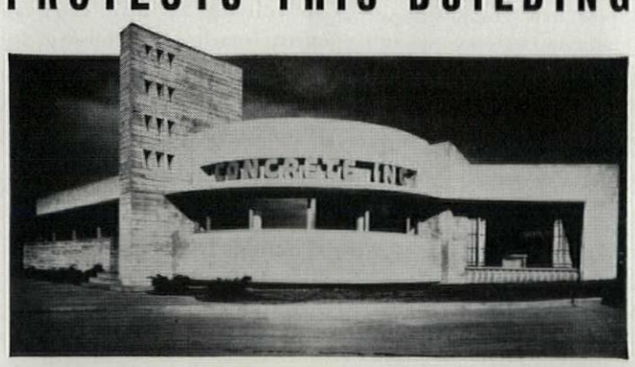
Anaheim, California

CRYSTAL SILICONE WATER REPELLENT
PROTECTS THIS BUILDING



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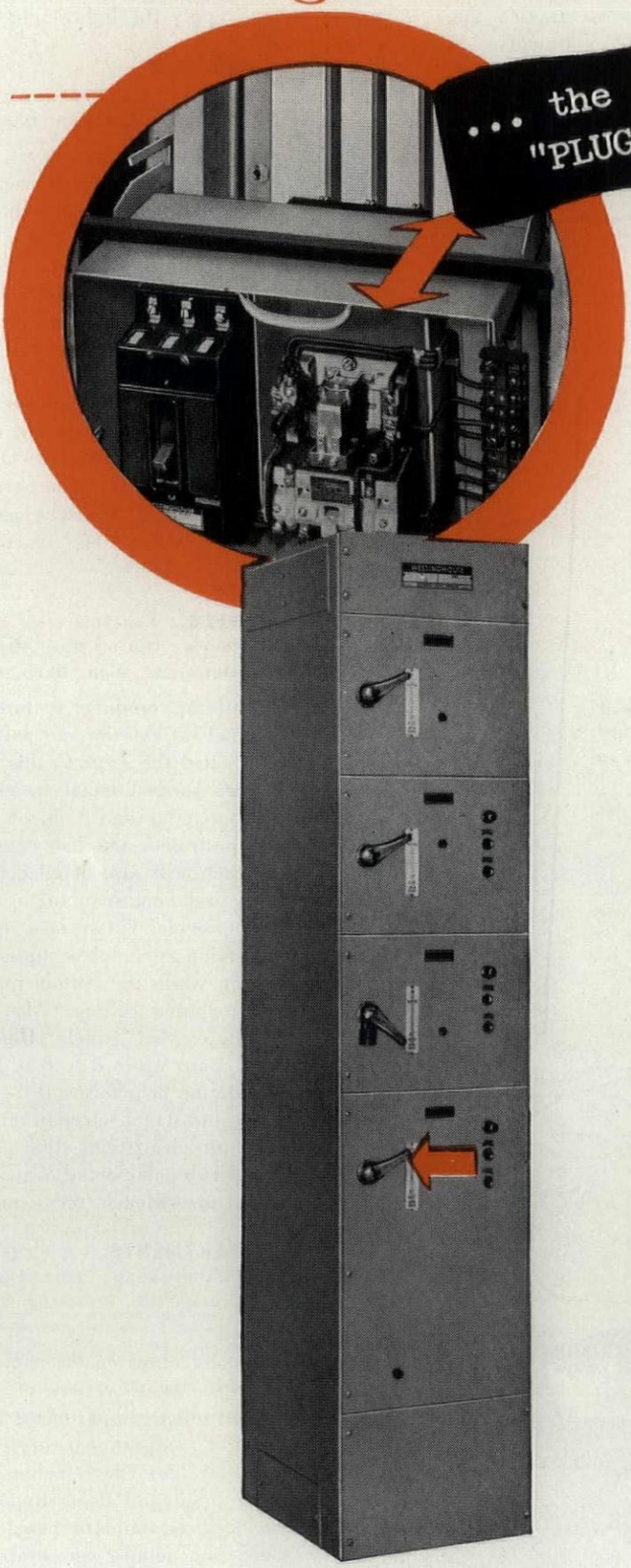

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This important advantage results largely from these two remarkable features:

"Tilt position" disconnect: Starter units may be withdrawn to a self-supporting "tilt position" which completely disconnects them from the power bus. It is physically impossible to reach the bus when the starter is in this position.

Safety interlocking handles prevent opening of the starter doors unless the circuit breaker is in the "Off" position. Starter doors may be "locked safe" with from one to three padlocks to prevent entrance by unauthorized personnel.

Consider all the advantages of this new control center!

New Magna-Grip "plug-in" connectors contribute to greater safety . . . and new operating convenience; standardized, modular dimensions for unmatched flexibility; a large vertical wiring trough for easier wiring and maintenance. These are random examples. The complete story is in Booklet B-4213. For your copy, write to Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pa. J-21544

Westinghouse

CONTROL CENTERS

METAL BUILDING PRODUCTS. Majestic Building Necessities. Catalogue No. 50. The Majestic Co., Huntington, Ind. 22 pp. 8½ x 11 in.

Items added to the company's building products line are featured in this publication. These include a package receiver, window well and utility furnace. The latter is said to provide a satisfactory and efficient heating plant for a small home at very low cost. Because of the growing interest in "outdoor living rooms" Majestic has supplemented its outdoor fireplace equipment with some different sizes and new accessories. These, too, are pictured and described in the catalogue.

STORE FRONTS. Plexiglas for Modern Store Fronts. Rohm & Haas Co., Washington Sq., Philadelphia 5, Pa. 24 pp. 11 x 8½ in.

This design manual illustrates many applications of acrylic plastic on store exteriors. The specific material used in each case is specified and dimensions given. Methods of lighting employed are also described. The latter part of the book, especially valuable to store architects, contains 29 structural installation details which clearly explain how to apply the lightweight Plexiglas in most situations.

LIGHTING. Powerstat Light Dimming Equipment. The Superior Electric Co., Bristol, Conn. 12 pp. 8½ x 11 in.

After discussing the creation of atmosphere with lighting, and suggesting uses of light dimmers in stores, restaurants, churches and schools, the bulletin then describes Powerstat equipment. Dimmers ranging from the 1,000 watt hand operated single unit through the heavy duty motor driven ganged unit are pictured and output ratings (increased in this year's models) are given for each. Ways in which Powerstat dimming differs from other systems are explained, with particular advantages itemized. One feature noted is this control's easy incorporation into existing lighting systems. A chart gives standard electrical ratings, approximate dimensions and other data on the dimmers.

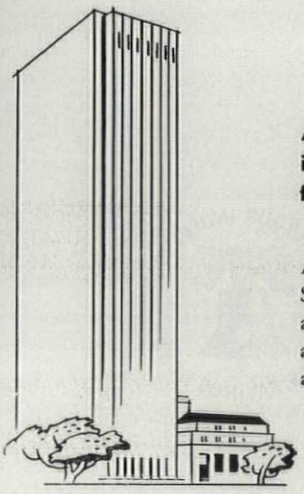
BUILDING PANELS. Fenestra Steel and Aluminum Building Panels. Detroit Steel Products Co., 3111 Griffin St., Detroit 11, Mich. 38 pp. 8½ x 11 in.

One of the building products featured in this booklet is a panel for exterior and partition wall construction. Called the *Type C*, this panel is a sandwich of two formed metal members separated by a felt barrier and 3 in. of insulation material. A *Type D* deck and floor panel of cellular steel construction is also detailed in applications for floors and long span roofs. A similar panel, the *AD*, provides flat surfaces on top and bottom, thus serving as complete support for roof or floor covering while the bottom may be utilized as a flat exposed ceiling. Also described are acoustically treated panels, Holorib steel deck (for roof spans up to 8 ft. 6 in.), acoustic roofs and reinforcing floor forms. Fire resistance ratings, loading and panel selection tables, specifications, data on electrifying the panels and several pages of two color detail drawings round out the material presented in this catalogue.

METAL COMPARTMENTS. Sanymetal Toilet Compartments. Catalogue 87. Sanymetal Products Co., Inc. 1705 Urbana Rd., Cleveland 12, Ohio. 20 pp. 8½ x 11 in.

A chart of 21 color chips on the pamphlet's flyleaf illustrates the wide variety of shades in which Sanymetal toilet compartments are available. Five types of compartments are pictured in color. The models described include overhead braced, ceiling hung and floor supported compartments as well as standard panel and flush types. Construction details, specifications, hardware and descriptions of the materials and finishes used in Sanymetal compartments are presented. Hospital cubicles, shower cabinets and stalls, are pictured and described briefly.

First in building *"Hotels on Wheels"*



Again Pullman-Standard is pioneering . . . this time in the fabrication of stainless steel and aluminum for the curtain-wall buildings of tomorrow.

America's most famous streamliners, built by Pullman-Standard, are traveling demonstrations of experience and facilities which now can be directly applied in a new and logical field—the use of die-formed metal panels and spandrels in curtain-wall building construction.

Pullman-Standard has already entered into discussions of designs and specifications with a number of architects, builders, owners, and metal producers—aimed at the development of the best and most economical methods of fabrication, assembly, and erection. One large-scale project, involving metal panels for a building exterior, has already been undertaken.

These developments at Pullman-Standard are backed by eighty-three years of service to the American economy. Architects, builders, and owners are invited to use the services of Pullman-Standard's engineers in their initial planning.

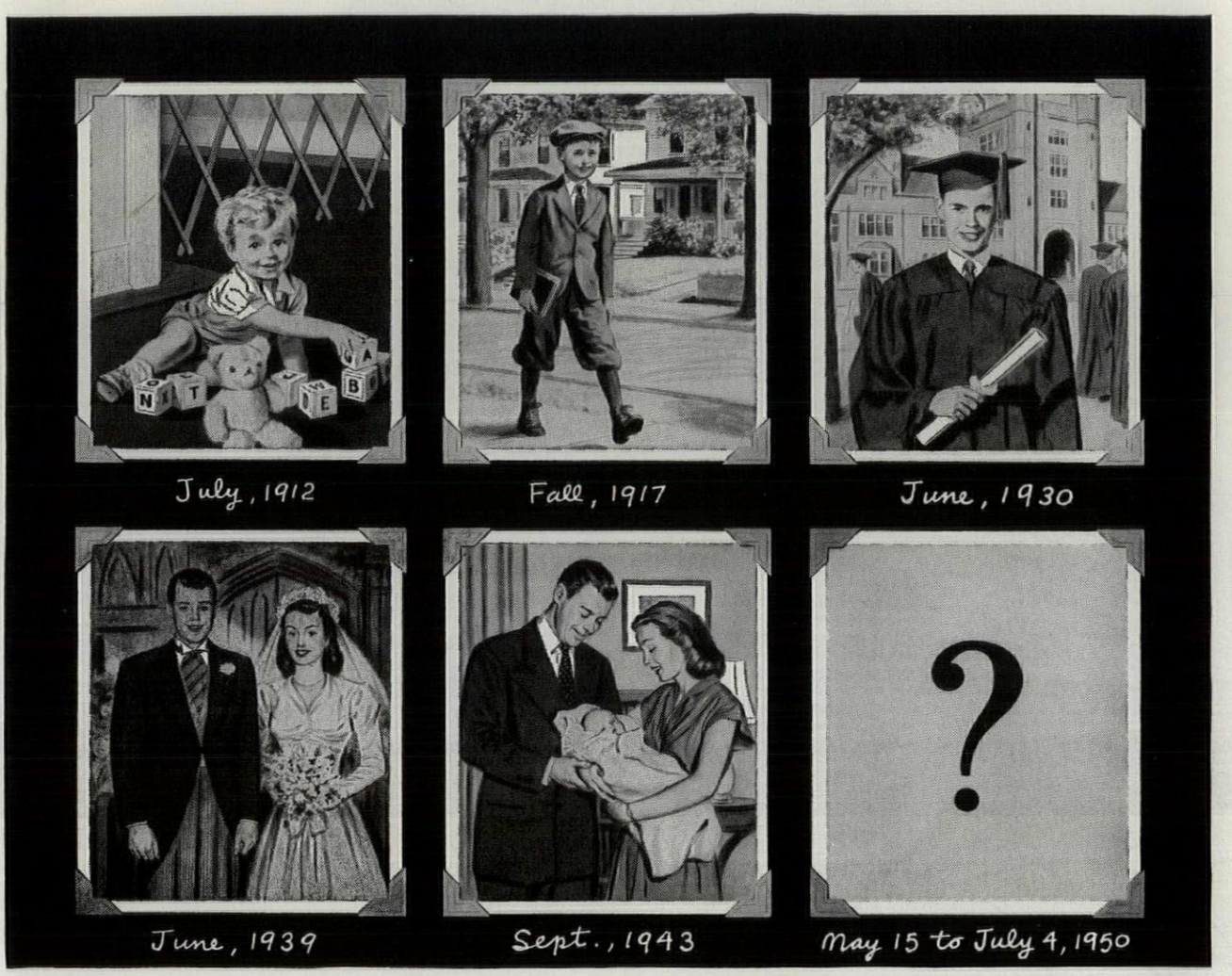
Mellon-U. S. Steel Building, Pittsburgh.
Harrison & Abramovitz, Architects;
Turner Construction Co., General Contractor.

Stainless steel spandrels and trim by Pullman-Standard.

Pullman-Standard

CAR MANUFACTURING COMPANY

79 E. ADAMS ST., CHICAGO 3 • 52 VANDERBILT AVE., NEW YORK 17



The next few weeks may be the most important in your life

Between May 15th and July 4th, you can make a move that may change your life, regardless of your age. During these seven weeks of the U.S. Treasury's Independence Drive, you can lay the groundwork for making your fondest dreams come true.

The next decade will be one of the greatest America has ever seen. The opportunity of a lifetime will come to millions—it can come to you.

The opportunity to start your own business. To buy a share in the business you're now in. Even to take a job that pays less at the start—but has a tremendous future.

Don't let your opportunity pass because you were financially unable to grab it!

If you are *not* now buying U.S. Savings Bonds automatically, this is the time to begin. If you *are*, sign up for *extra* bonds. Sign up and buy up all you can. That golden opportunity in the 50's may be the "one in a lifetime" for you—be ready for it!

BUY U.S. SAVINGS BONDS • SAVE FOR YOUR INDEPENDENCE •

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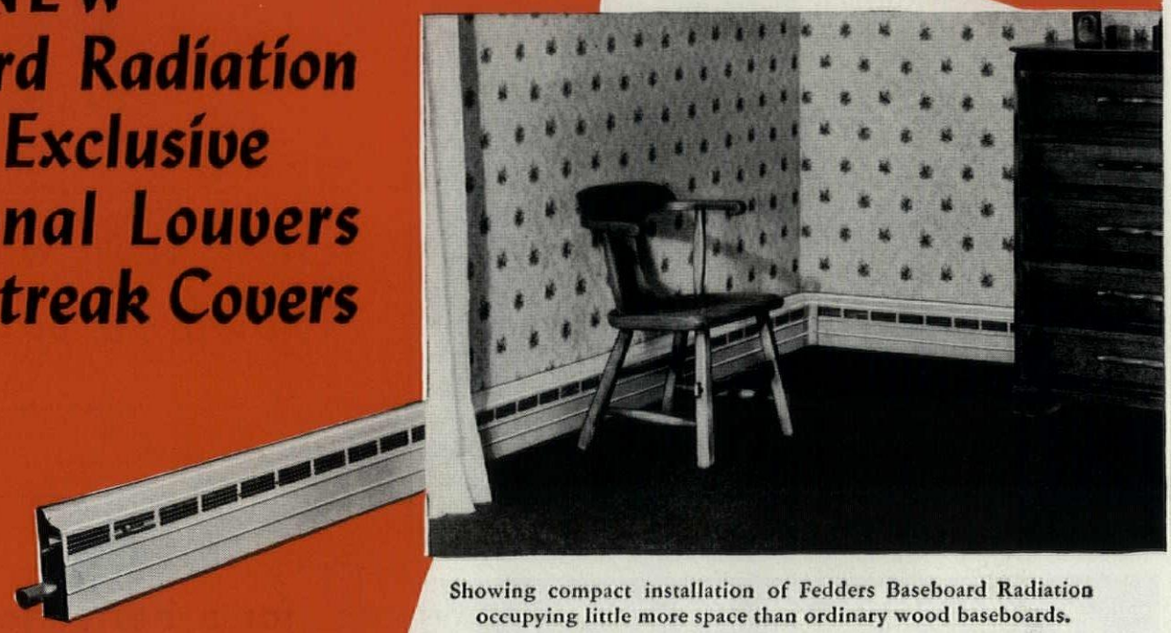
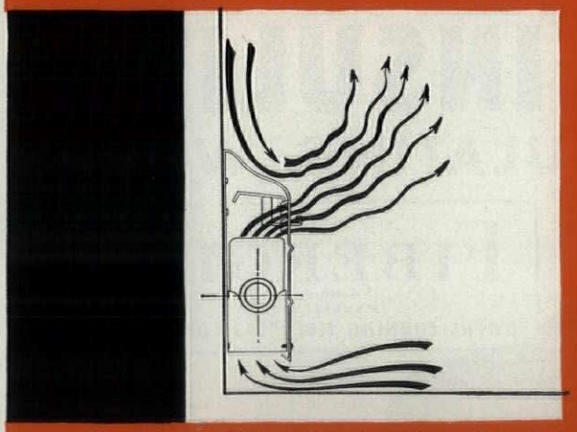
fedders

A Great Name Since 1896

ANNOUNCES NEW Baseboard Radiation with Exclusive Directional Louvers & Anti-Streak Covers



Showing compact installation of Fedders Baseboard Radiation occupying little more space than ordinary wood baseboards.



Cross-section shows how air is directed out away from walls by means of exclusive directional louvers and curved, anti-streak covers.

● Fedders offers two new and exclusive features (Patents Pending) that architects, interior decorators, contractors and home owners have been waiting for. Drawing shows how warm air is directed out into the room by Fedders built-in angular louvers in front face of cover. Cool air flows down from the wall and is directed out into the warm air stream by specially designed curved top of cover. These features greatly reduce streaking of walls and contribute to uniformity of temperature from floor to ceiling.

Write for Bulletin

FEDDERS-QUIGAN CORPORATION

BUFFALO 7, NEW YORK

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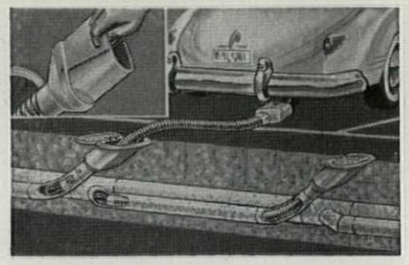
TO PREVENT THE POSSIBILITY OF POISONOUS CARBON MONOXIDE IN THE BUILDINGS YOU DESIGN

Specify "NATIONAL"

THE APPROVED GARAGE VENTILATION EQUIPMENT

Standardized engineering simplicity that lends perfectly to new garage buildings—efficiency, appearance, economy of installation and shop working conditions. The method of exhaust gas removal used by "National" is recommended by health departments, insurance companies, architects, building contractors and building codes in most cities and states. 4 different types of systems to choose from. Complete packaged units—ready to install. Nothing else to buy—low in cost.

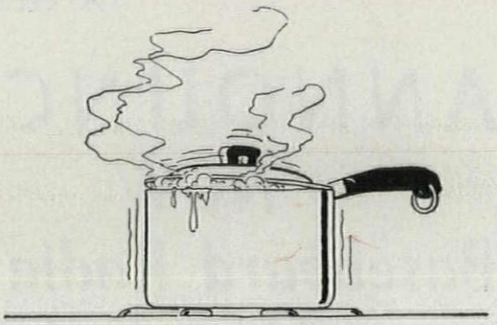
Illustration shows sectional view of "National's" underfloor disappearing tube installation. Note that tube disappears without entering main trunk line—for balanced flow of air through main duct and perfect exhaust gas removal. *Write for complete literature and costs.*



THERE ARE MORE "NATIONAL" SYSTEMS IN OPERATION IN THE UNITED STATES AND CANADA THAN ALL OTHER TYPES OF SIMILAR SYSTEMS COMBINED. LITERATURE AND FULL INFORMATION ON REQUEST.

THE NATIONAL SYSTEM OF GARAGE VENTILATION
World's Largest Manufacturers of Exclusive Garage Ventilation Equipment
DEPT. 9-C, 318-330 N. CHURCH STREET, DECATUR, ILLINOIS

SUMTHUN'S COOKIN'!



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COMING SOON!

Look to Kwikset to be first and foremost with top quality residential locks.

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Kwikset Locks, Inc.
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Yours **FREE** *for the Asking!*

A GUIDE TO QUICK HEATING

Choose The Right HEETAIRE for Every Purpose!

Look at this Table of Contents!

- ★ The Principles of HEETAIRES Types and Sizes
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How to Select the Right HEETAIRE for Every Purpose

Here's the first and only complete GUIDE to the selection of electrical wall-insert and wall-attachable space heaters! It gives all the information about QUICK HEATING you've always wanted—types, sizes, heating principles, thermostatic heat controls, recommended wattages — plus an exclusive chart based on the four factors that determine the selection of the correct HEETAIRES.

It's yours for the asking — just drop us a card.

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A permanent highly efficient glass fiber flexible insulation—competitively priced! Cannot burn, rot or decay. Quick, easy, economical application. With Insulite Insulating Wool, specify Bildrite Sheathing and Lok-Joint Lath for quality wall construction and greater satisfaction.

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MINNEAPOLIS 2, MINNESOTA

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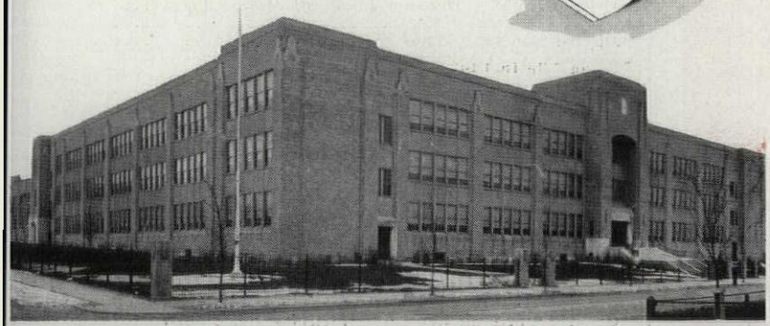
Bontex

... the soundest investment in window shades

For schools, hospitals, hotels, offices, homes . . every type of installation!

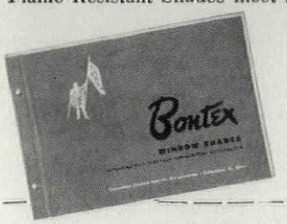
Bontex has a 20-year record of distinguished service in America's finest buildings. New types of Bontex Shade Cloth — and colorful new decorative patterns — are included in the 1950 Bontex line. All are the same famous Bontex quality. Colors are clear and clean for better control of light. High thread count fabric, pyroxylin impregnated, tough and serviceable, scrubbable with a brush 20 times or more!

Cleans like new!



A Bontex installation, Bayside High School, Long Island, N. Y.

Bontex Shade Cloth can take the punishment of bright sun, open window exposure to rain, snow and wind. Impervious to water, grit or grime. Won't pinhole, fray, crack or fade. New Bontex Darkening Shades are popular for ranch type homes, apartments, hotels. New Flame Resistant Shades meet rigid fire prevention specifications.



Send for FREE Sample Book

Shows the complete Bontex 1950 line. Translucent, semi-opaque and opaque types. Plain and duplex colors, corded designs, colorful printed patterns, Darkening and Flame Resistant Shades. Mail the coupon for free Sample Book.

Columbus Coated Fabrics Corporation, Dept. AF-50, Columbus 16, O.

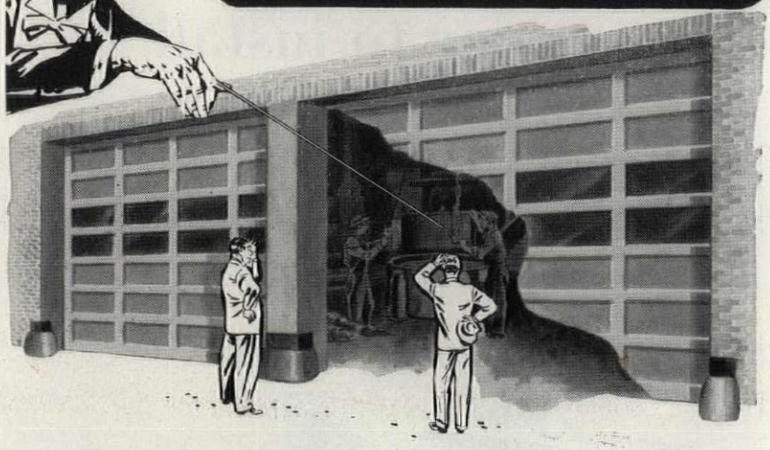
Send your 1950 Bontex Shade Cloth Sample Book

Name_____

Street_____

City_____ State_____

WOULDN'T YOU BE SURPRISED IF YOU GOT ONLY "HALF-A-DOOR"?



It CAN happen if you forget to check into AFTER-SERVICE

Getting an industrial door from an organization without a real service set-up is just like getting half-a-door. The package isn't complete without the service.

And, service is what counts when door troubles crop up—as when a truck caves in a couple of panels or nudges the track a little too hard.

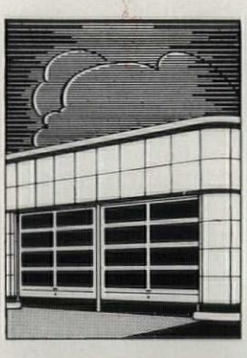
These things happen all the time to industrial doors and, all too often, somebody has the bright idea of calling the architect—TO FIND OUT WHAT TO DO ABOUT SERVICE!

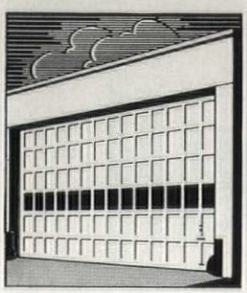
This is a nuisance to the architect and, to prevent it from happening with Crawford Doors, we have done three things:

1. Built a product about as service-free as can be made.

2. Set up a nation-wide organization to service ANY make of door, day or night, week-ends or holidays.

3. Provided a legible sticker for the lock bar of every door telling the user to *Call the Local Authorized Crawford Dealer for Service.*





So, when you specify Crawford industrial doors and operators your client gets the full package—a good product; the finest door service in the country; instructions on how to connect with it—fast (without bothering YOU).

Incidentally, do you know that Crawford industrial doors come in sizes up to 30′ x 16′? And that heavy-duty hardware is available on sizes 8′ x 8′ and up?

Why don't you call the local Crawford Door Sales Company listed in your Yellow Pages and get them to send you the dope on these recent developments — or, write us direct.

Visit Booth 39 NAHB Show at the Hotel Stevens

Crawford Door Co.

MAIN PLANT: 2-401 St. Jean Ave., Detroit 14, Michigan

FABRICATING PLANTS in Portland, Tacoma, Los Angeles, San Francisco, Dallas, Kansas City, Chattanooga, Milwaukee, Hudson, Mass., Cadillac, Ottawa, Canada.

DISTRIBUTING WAREHOUSES in 67 major cities.

SALES AND SERVICE companies everywhere.

SPECIFICATION AN

The advertising pages of FORUM *are the recognized marke place for those engaged in building. A house or any building could be built completely of products advertised in* THE FORUM. *While it is not possible to certify building products it is possible to open these pages only to those manufacturers whose reputation merits confidence. This* THE FORUM *does*

UYING INDEX

mirror-smooth walls!

so sanitary...

so practical...

so beautiful

In eight years, these pale blue *Vitrolite* walls have required no care except twice-a-year washing with soap solution. They still sparkle like new in the dispensary at Cleveland Graphite Bronze Company. Architect: John H. Graham, Cleveland, Ohio.

● Wherever sparkling cleanliness and low upkeep are important, *Vitrolite** walls meet the requirements perfectly—with beauty as a bonus.

Vitrolite is GLASS paneling. It doesn't lose its jewel-like luster. Will not fade, craze, warp or swell. Never needs painting or refinishing.

Because *Vitrolite* is as smooth as a mirror it's easy to clean. Being glass it has an impervious surface. Quick sponging with water or ordinary cleaning compound makes *Vitrolite* walls sparkle like new. Even crayon and ink scribblings whisk right off.

Lifelong beauty plus long-term economy! These qualities make *Vitrolite* ideal for walls and partitions in washrooms, lobbies dispensaries, kitchens, cafeterias . . . in all buildings where public approval is an asset. For complete data, see your L·O·F Glass Distributor. Or write for our architects' file book on *Vitrolite*.

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12 Correlated Colors Suggest Distinctive Decorative Ideas

- Sky Blue
- Cadet Blue
- Light Gray
- Dark Gray
- Jade
- Cactus Green
- Alamo Tan
- Peach
- Mahogany
- Red
- Black
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VITROLITE

MADE BY
LIBBEY·OWENS·FORD GLASS COMPANY
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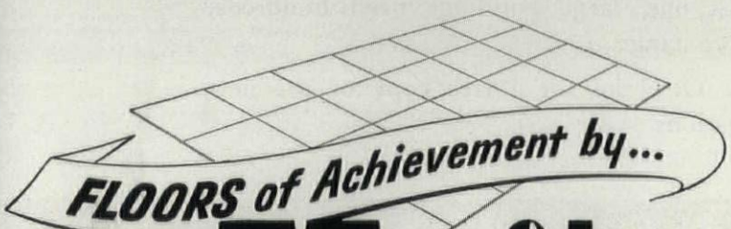
IN THOS. MOULDING **Moultile**
THE CREATIVE DESIGNER FINDS

the Keynote of Colorful Floor Beauty

Architect John J. Flad created this appropriately striking MOULTILE floor design for the sanctuary of St. Mary's Home, Dubuque, Ia. . . . providing *more* than warmth to the eye, for this Moultile floor is installed over radiant heat.

The modern trend in ecclesiastical architecture gains expression even in the floor design. In MOULTILE Asphalt Tile, your creative imagination finds both stimulating challenge . . . and the completely satisfying answer! At your finger-tips is a "keyboard of color" . . . 33 bell-clear hues in tones that ring out joyously or whisper softly. The crisp, clear veining adds a subtle accent of beauty. Because MOULTILE is laid tile-by-tile, possible design variations are limitless. Only the cost is limited, for with MOULTILE special designs involve no costly special fabrication.

For *enduring* floor beauty . . . plus buoyant comfort, low first cost and rock-bottom maintenance economy . . . it's MOULTILE, the flooring with an impressive record of proving-by-doing in stores, offices, schools, hospitals, churches and homes. For detailed information consult Sweet's, or write for full-color catalog to: THOS. MOULDING FLOOR MFG. CO., 165 W. Wacker Drive, Dept. AF-5, Chicago 1, Ill.



FLOORS of Achievement by...

Thos. Moulding

There are *two sides* to the Superiority of PAINE REZO DOORS

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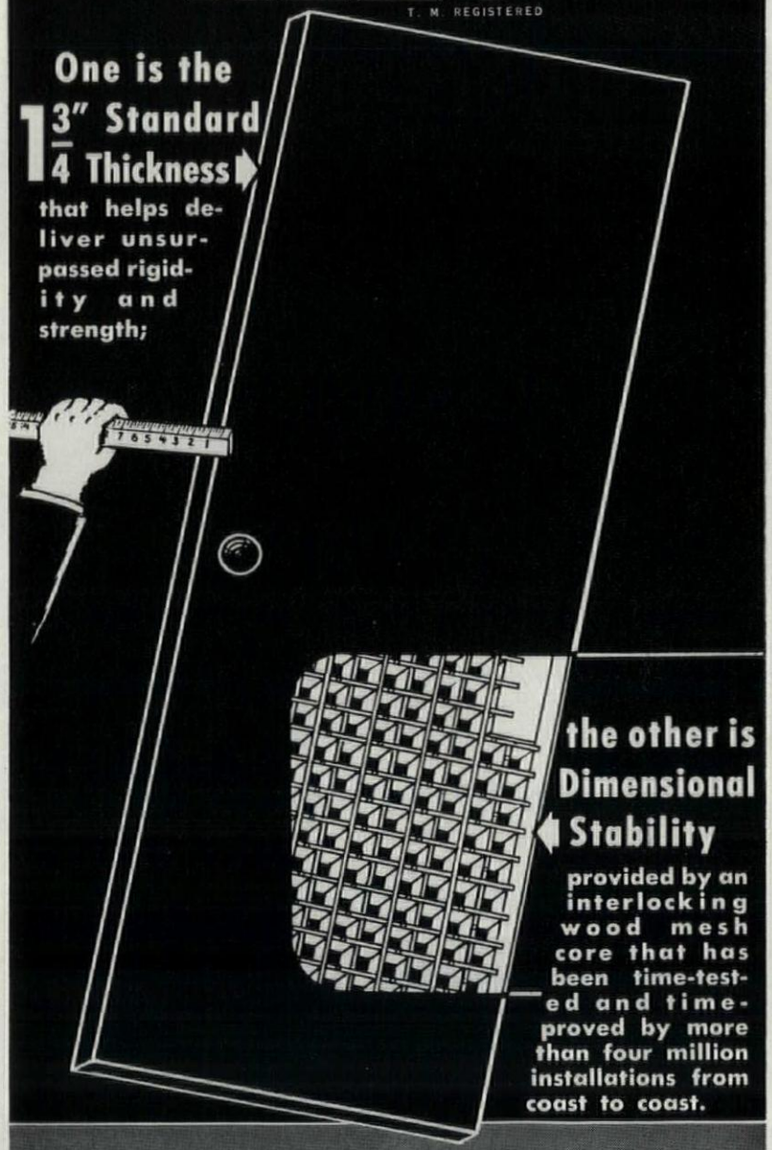


One is the 1 3/4" Standard Thickness that helps deliver unsurpassed rigidity and strength;

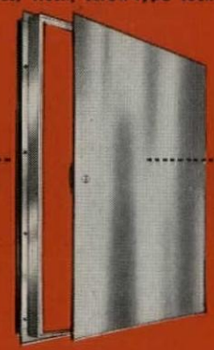
the other is Dimensional Stability provided by an interlocking wood mesh core that has been time-tested and time-proved by more than four million installations from coast to coast.

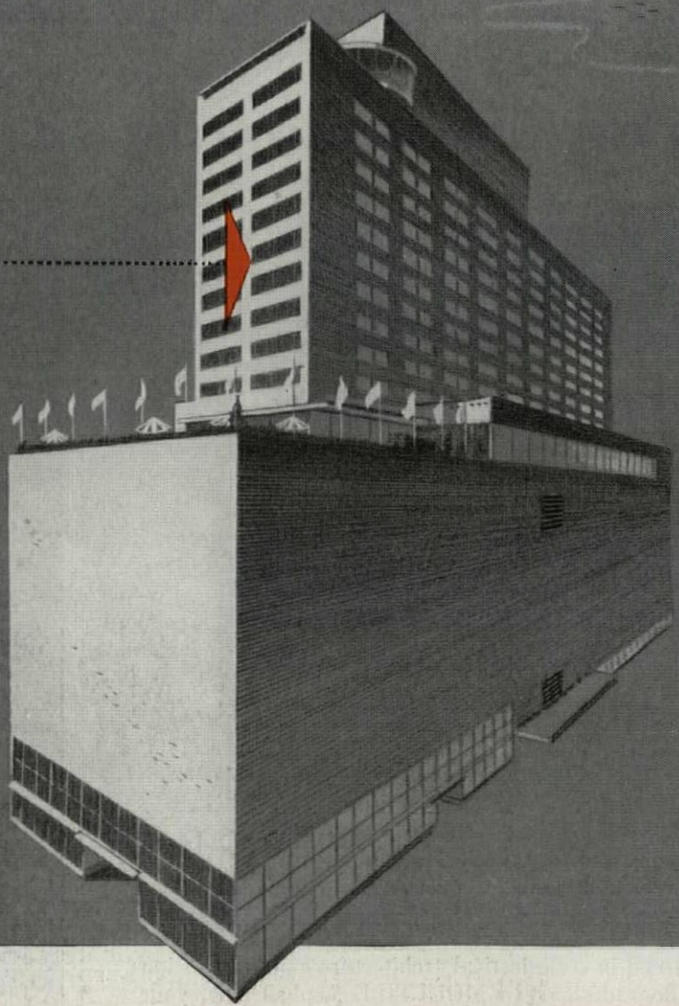
And both sides give you and your clients
An Unconditional Guarantee of Satisfactory Service
a product warranty backed by the world's largest exclusive producer of cell-type flush doors.

Is it any wonder that Paine Rezo is the door most specified, most demanded and most insisted upon by architects and contractors everywhere. See SWEET'S FILE, or write directly for a data bulletin.

Manufactured by the
PAINE LUMBER CO., LTD. *Oshkosh Wisconsin*
ESTABLISHED 1853

Milcor Steel Access Doors: 11 different sizes — from 8⅛" x 8⅜" to 24⅜" x 36⅜"; ready to install; no special framing; painted with rust-inhibiting prime coat; concealed hinges; flush, screw-type lock.

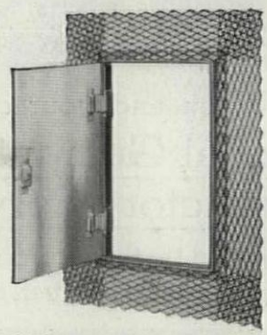




Indispensable-

and invisible 'til you need them...

MILCOR Steel Access Doors



With or without expanded metal flanges; for plastered or non-plastered walls.

Designed to give plastered walls added appeal

Here's real functional beauty for fireproof interiors! Milcor Steel Access Doors are flush to the wall. Paint or paper right over them and your wall is smooth and beautiful — but you have instant access to key points of wiring, piping, duct work, or controls.

Quick, cost-saving installation. These steel doors last a lifetime. Every home needs at least one, large buildings need hundreds. Available in a complete size range.

Full details in Sweet's. Or write for a free copy of the new Milcor Manual. No obligations.

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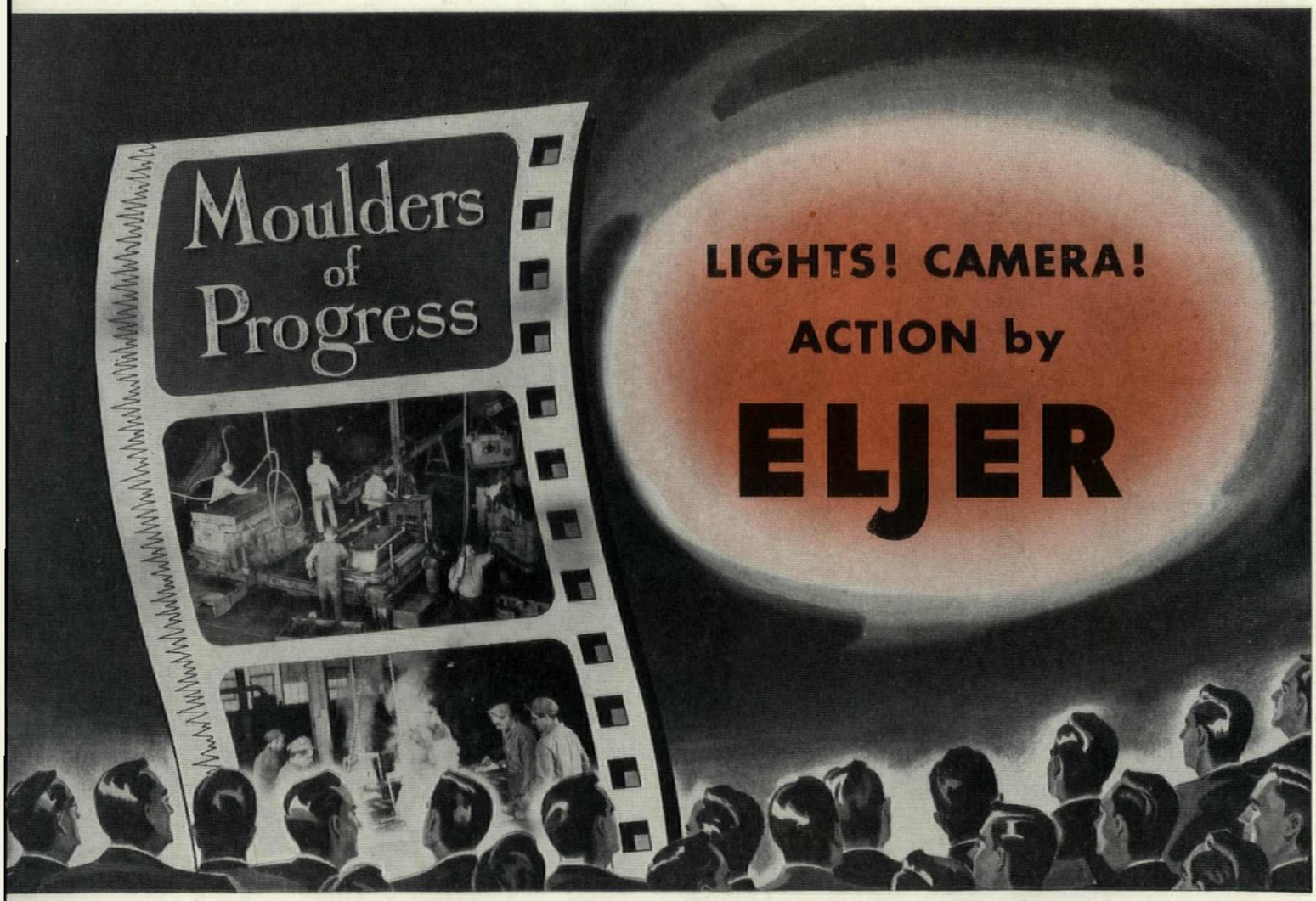


THE NEWEST MOTION PICTURE OF ITS KIND!

"Moulders of Progress", the new 30-minute Eljer motion picture in full color and sound, shows the spectacular methods by which plumbing fixtures and brass fittings are manufactured in Eljer factories. Never before has this "inside story" been told in such a fascinating manner.

Already at more than a thousand showings . . . in the building industry and to the public . . . people everywhere have marveled at the production achievements that make sanitation in the home possible. And public interest in this beautiful film is tremendous.

You can borrow a 16 mm print of "Moulders of Progress" without charge for showing to your trade association, club, school or any group meeting. Simply see your Eljer Distributor or write direct to Eljer Co., Ford City, Pennsylvania.

It pays you, it pays us– because we specialize in Plumbing Fixtures and Brass

ELJER

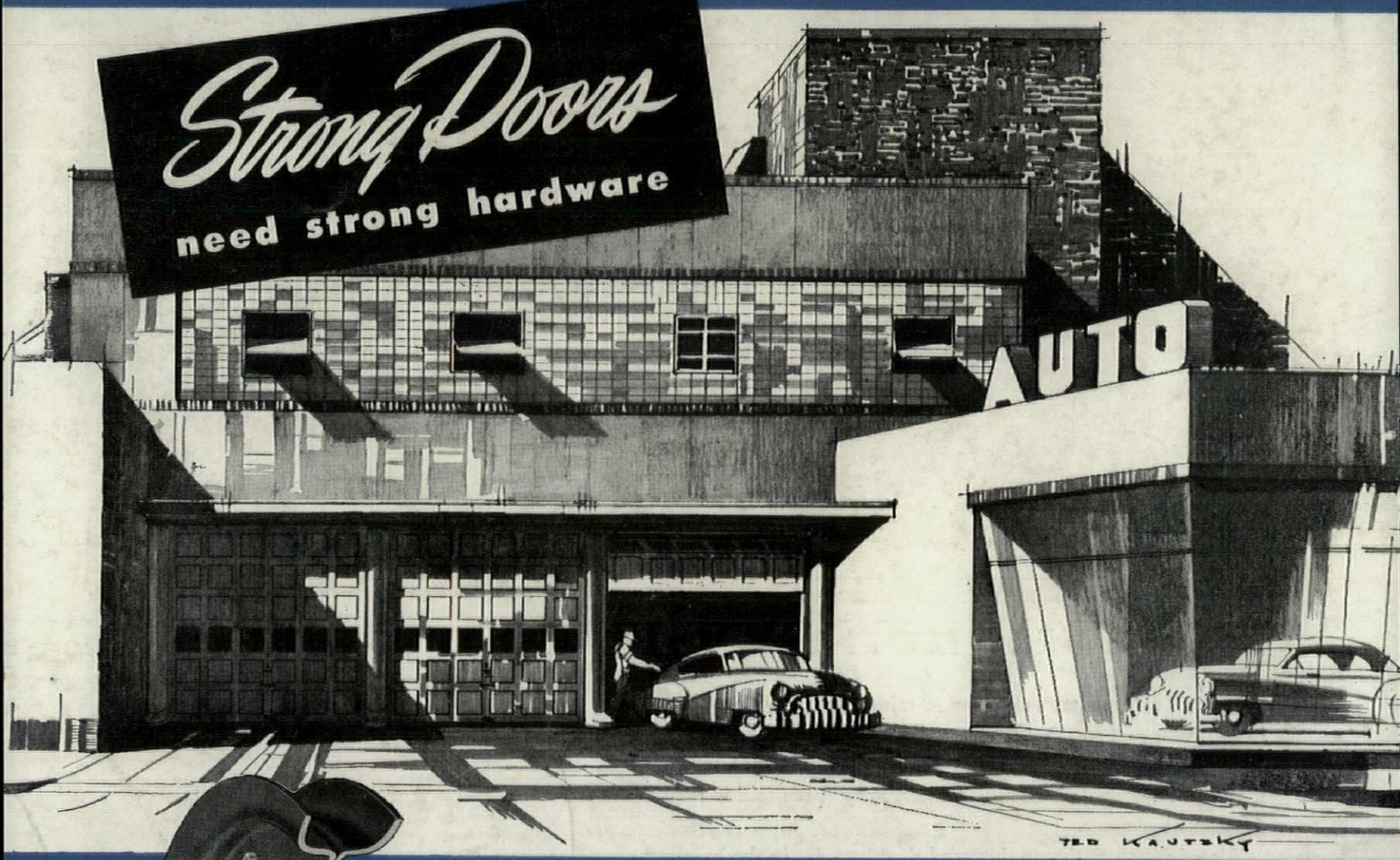
THE

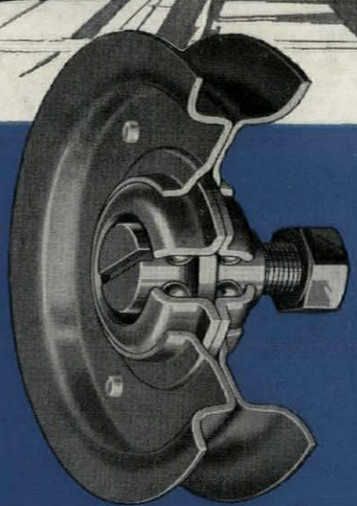
"OVERHEAD DOOR"

TRADE MARK

WITH THE

MIRACLE WEDGE





● *Stud and clevis pulleys 5¼" in diameter lengthen the life of chain or cable. Precision-stamped of heavy-gauge, zinc-coated steel. Pulleys are made with two rows of ball bearings operating on case-hardened cones and ball races. 20 hardened ⅜" steel balls in each pulley.*

● Long experience has taught us the necessity of good hardware. Every "OVERHEAD DOOR" built for commercial or industrial installation is equipped with hardware to match its other quality features . . . heavy-duty 2" or 3" tracks, multiple hinges across each section, door sections steel-reinforced as required. When specifying doors for factories, warehouses, public garages, farm building, terminals and similar buildings, remember—QUALITY cuts COSTS!

Any "OVERHEAD DOOR" may be manually or electrically operated.

TRACKS AND HARDWARE *of Salt Spray Steel*

Nation-Wide Sales—Installation—Service

OVERHEAD DOOR CORPORATION • Hartford City, Indiana

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