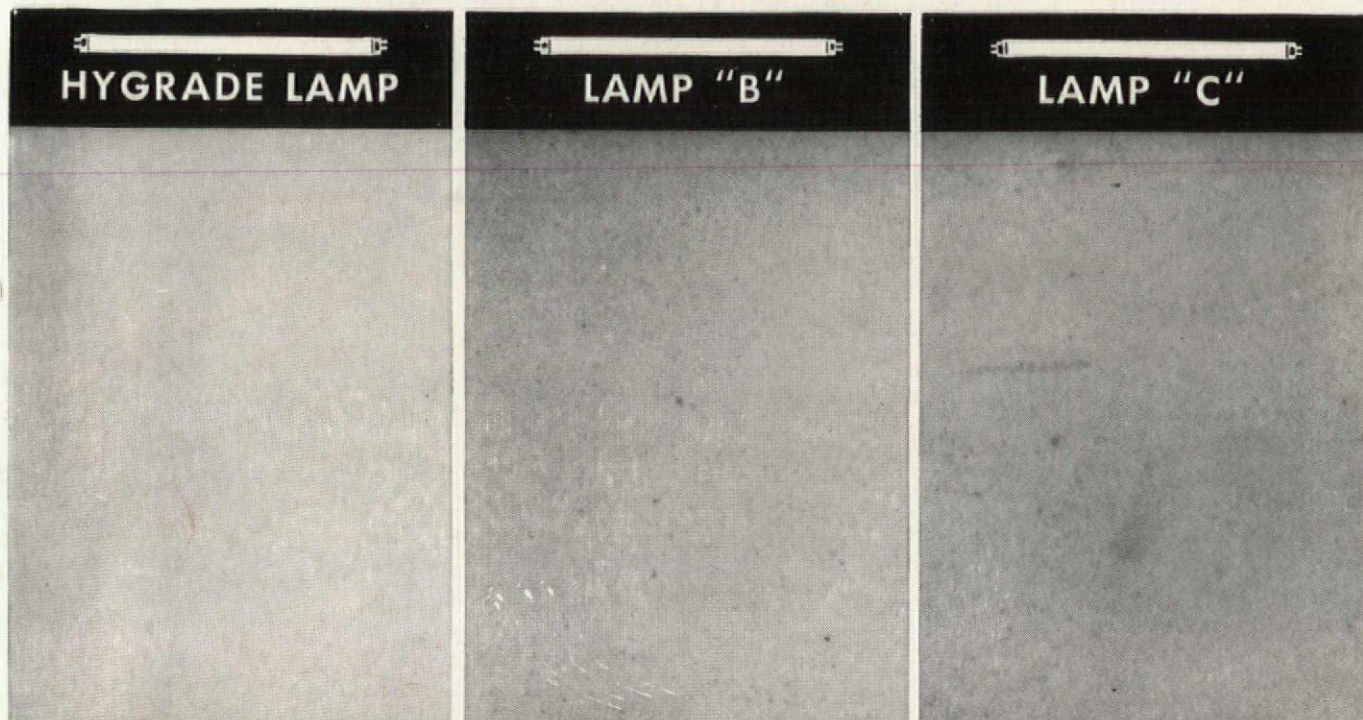


PENCIL  
POINTS

MAY  
1942

# New Light on Fluorescent!



Here are typical sections of three fluorescent lamps of the same size, bought from dealers' regular stocks, photographed in their own light and unretouched. One is a Hygrade Lamp; "B" and "C" are lamps of two other manufacturers. Note the smoother, more even coating of the Hygrade Lamp. This is one of the many Hygrade features that insure more light, as well as more attractive appearance.

**Y**OU may be surprised to learn that the coating texture of a fluorescent lamp is an extremely important factor—not only in appearance, but in lumen output.

And, thanks to unique, pioneering methods of applying fluorescent powders—Hygrade Lamps have a smoother coating than any other kind.

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*And they last longer*—actual service records prove it.

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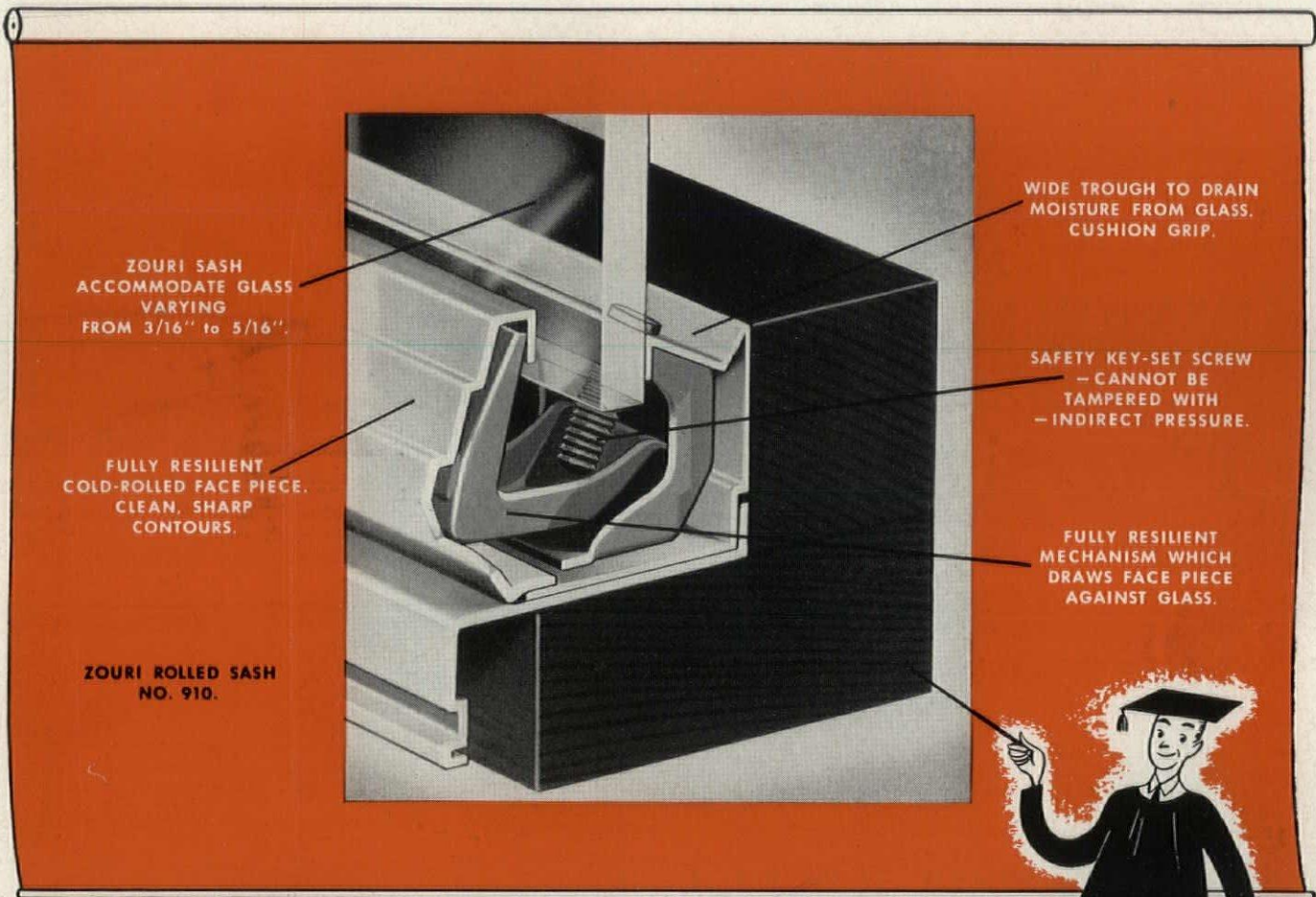
If you haven't yet received our free file-size kit—containing catalogs, prices and complete technical specifications on all Hygrade Fluorescent Lighting Equipment—write today to Dept. P-5.



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PENCIL POINTS, published monthly by Reinhold Publishing Corporation at East Stroudsburg, Pa. Publication office, East Stroudsburg, Pa. Editorial and Advertising Offices, 330 West 42nd Street, New York, N. Y. Yearly subscription \$3.00, single copies 50 cents. Entered as second class matter, July 8, 1941, at the Post Office, East Stroudsburg, Pa., under the Act of March 3, 1879. Volume XXIII, No. 5, Dated May, 1942.



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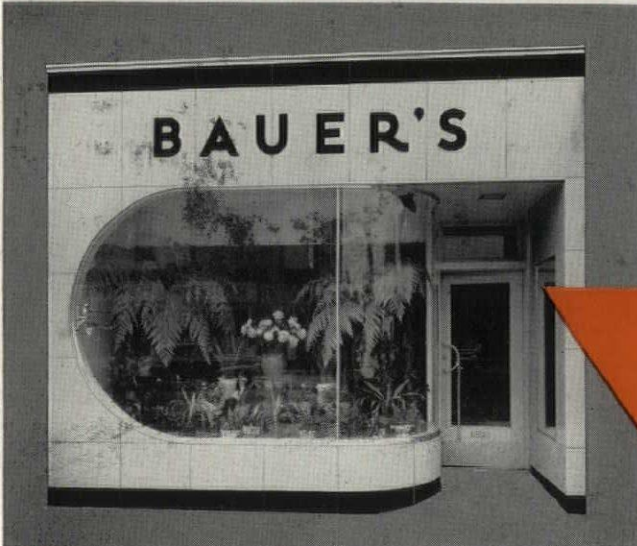
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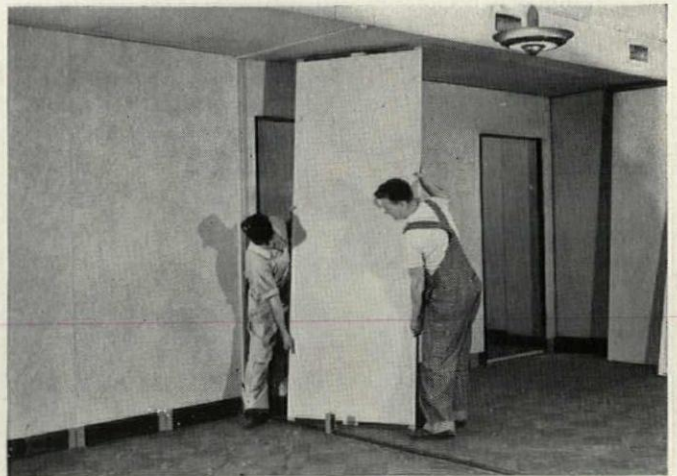
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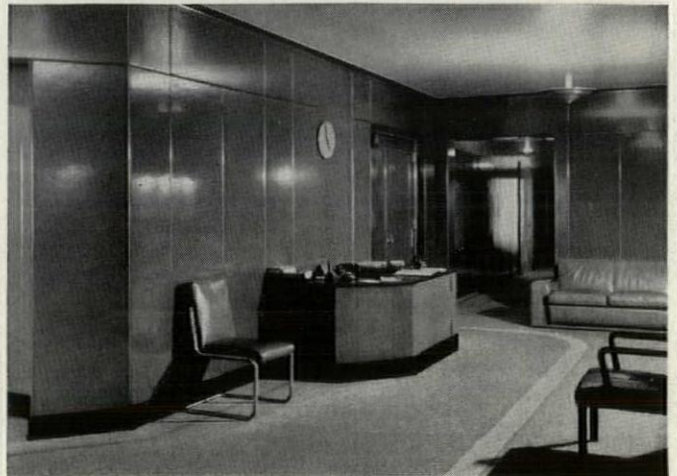
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MOVABLE ASBESTOS  
WALLS**



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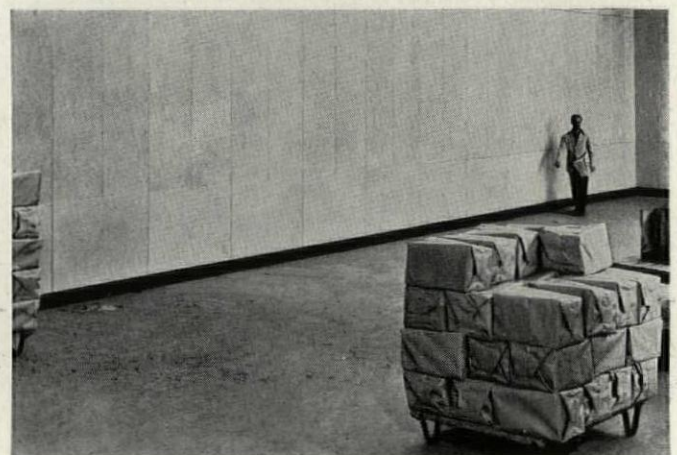
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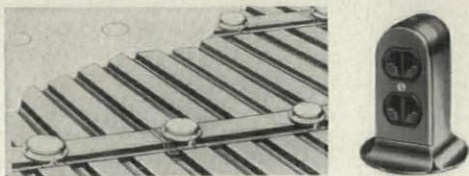
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# G-E Wiring Material News

## G-E Q-FLOOR WIRING



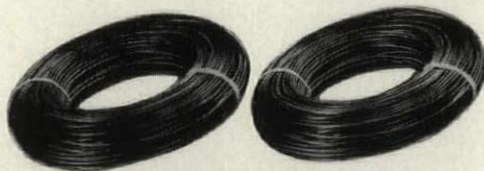
Unlimited electrical flexibility and adequacy are possible when G-E Q-Floor Wiring is used with H. H. Robertson Q-Floors. G-E Q-Floor Wiring makes the cells of the Robertson Steel Floor electrically available for power distribution, signal systems, for lighting and for telephone systems. It is possible to install eight outlets in one square foot of floor area.

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This folder illustrates and describes properly designed accessories for fluorescent lighting—starters, lamp holders, starter sockets, combination lampholders and starter sockets and a manual control switch. The folder will prove useful when specifying lighting equipment.

## FLAMENOL\* BUILDING WIRE

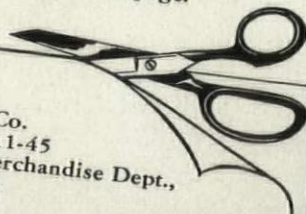


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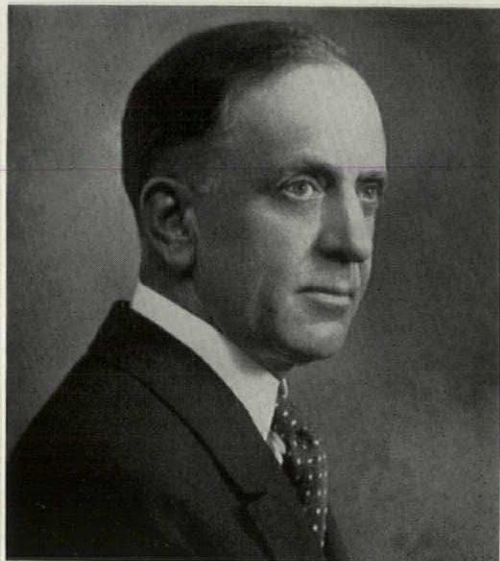
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# GENERAL ELECTRIC

# An Architect reports on



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The Office of John H. & Wilson C. Ely, of Newark, have long been known as one of America's leading architectural firms. They have to their credit many industrial, public and commercial structures, among which is the National Newark Building, New Jersey's largest office building. Based on his experience with the Petro Oil Burning System used on this job and on other work he has done, Wilson C. Ely has this to say about Petro equipment:

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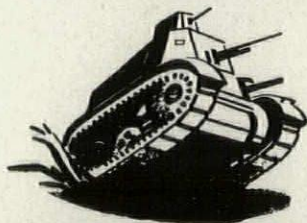
*but—until the war is won:*

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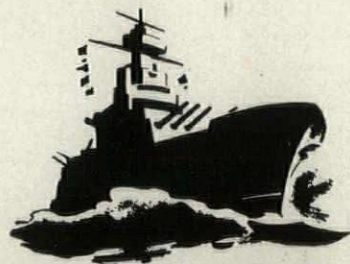
Parts necessary for repair or efficient maintenance are available. Our Nation's steam plants must be kept going and their operating efficiency must be kept high. That is a responsibility we share and to which our Engineering corps is dedicated. In this emergency, we do not limit that to Petro fired plants, either. Where we can help, we will.

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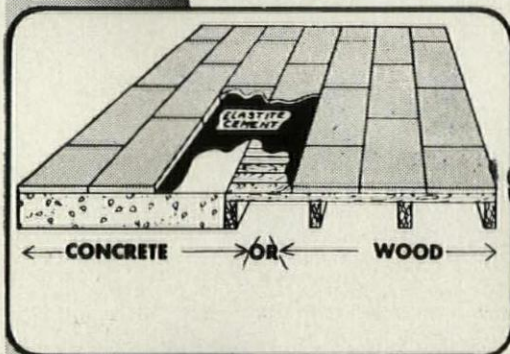
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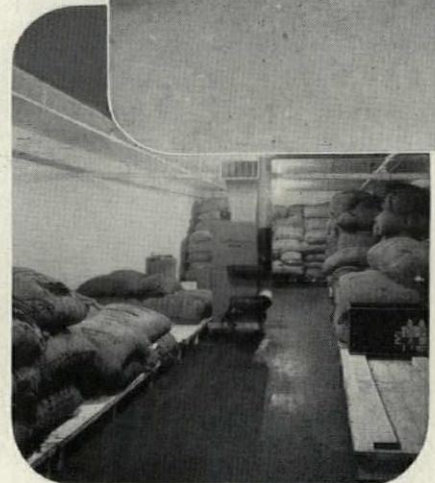
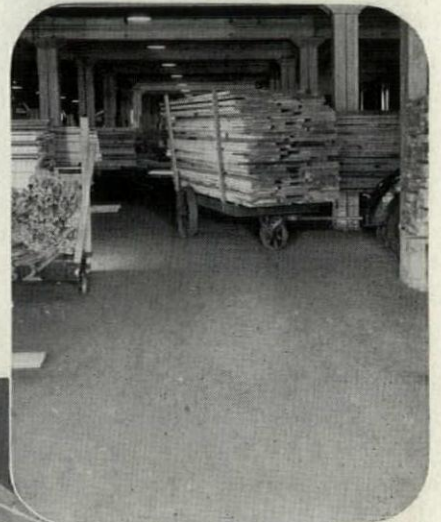
For floors that must withstand severe punishment, specify **CAREY ELASTITE** Industrial Flooring. See Catalog in Sweet's or write Dept. 54 for full information.



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(Lower right) Old Quaker Distillery, Lawrenceburg, Ind.

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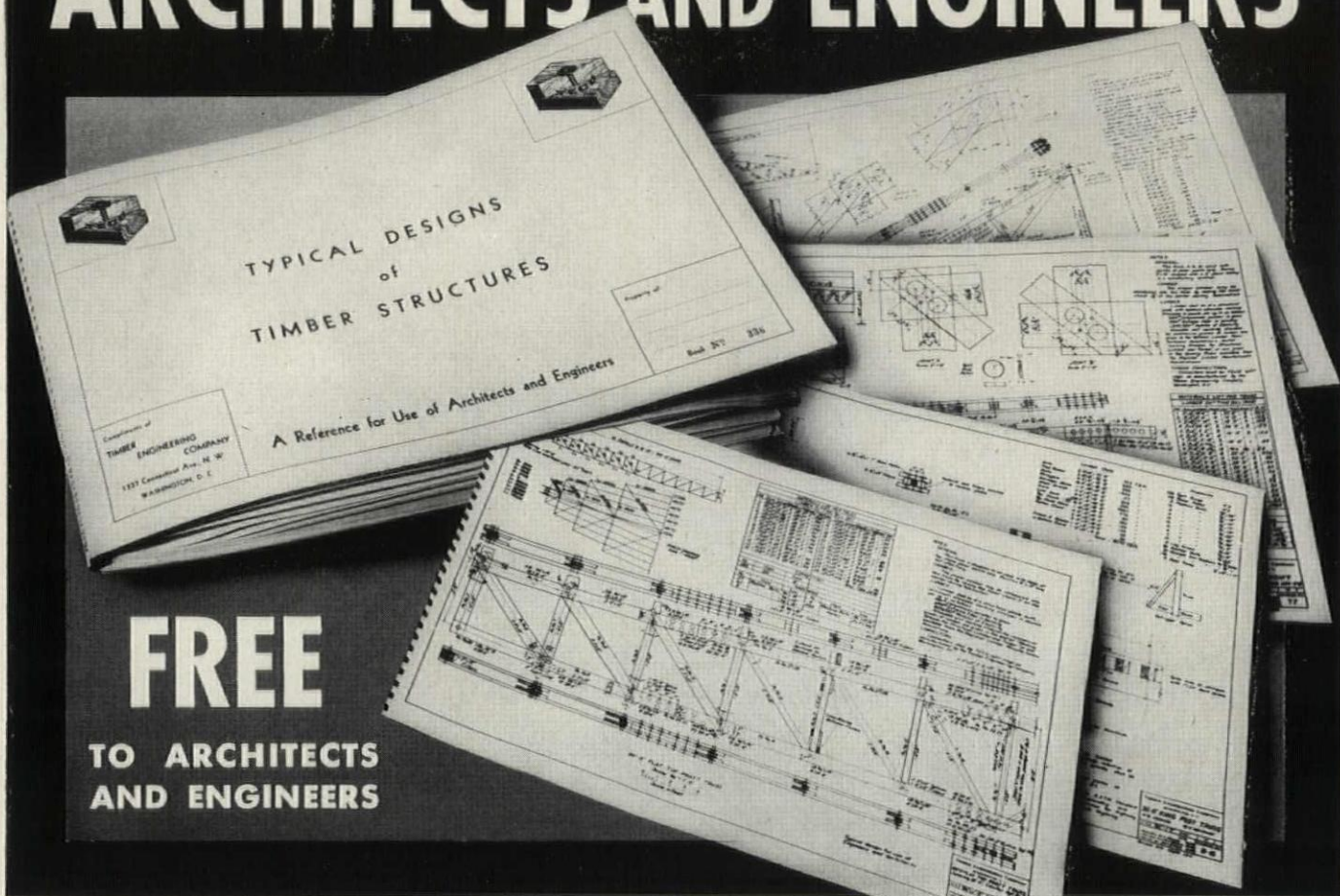
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# THRESHING FLOOR

WILLIAM H. REID, JR., *Architect, Billings, Montana, defends the position of the National Association of Real Estate Boards, in regard to War Housing, which was commented on editorially on page 123 of the March issue.*

erected on the basis that it shall be removed or disposed of in accordance with the wishes of the local community as soon after the conclusion of the War as possible."

In justice to N.A.R.E.B. and architects who appreciate the privilege, and underlying basic advantages, of learning to live with reputable and nationally recognized associations, there is considerable merit in the real estate proposal.

The portion of the proposal, "shall be removed or disposed of in accordance with the wishes of the local community," is the spirit of the proposal missed by PENCIL POINTS.

One can readily see many communities, in which the housing is being placed, suffering from their existence after the boom of war industry is finished. It is not necessary to argue the points pro and con relative to the need of housing. But imagine the effects of such housing on communities where, after the war, the industrial boom is deflated and the housing need disappears.

We are all appreciative of the underlying effort of housing in

General Douglas MacArthur made words say that criticism was often found wanting "when all the facts were known."

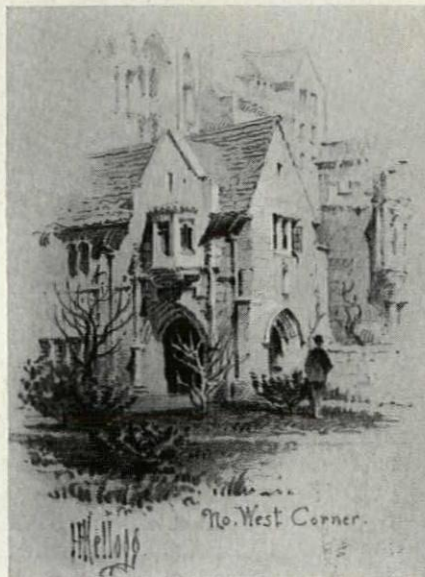
How frequently we let the jaw drop and the chin waggle, the moving finger write, or the typewriter trip-hammer out, statements that would profit immeasurably by recognizing the infallibility of the General's truism.

To quote from your editorial: "The astounding position of the National Association of Real Estate Boards, in regard to war housing, was reported in newspapers just prior to the announcement of the new housing set-up. This association made public a resolution that, 'Housing for war workers built with public funds be temporary in character with minimum facilities essential to a healthful life for war workers, and such housing be

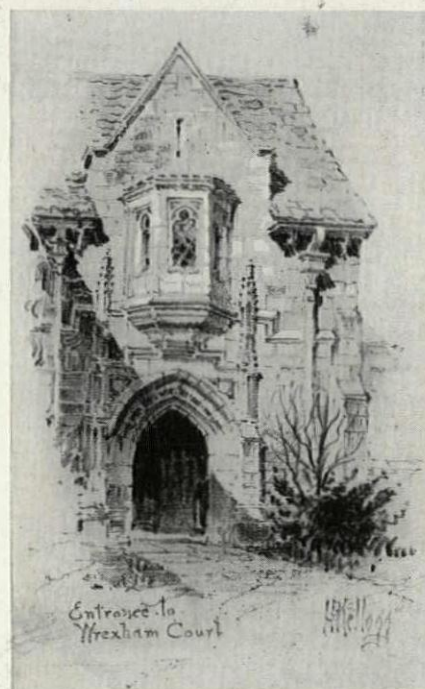
*Examples of travel sketching are the five drawings on this page, executed by Harold Field Kellogg, Boston architect, while at Oxford, England, a number of years ago. The drawings were made on tinted cardboard with a soft pencil, and touched up on the highlights with Chinese white and a touch of blue. In describing his trip, Mr. Kellogg said: "I was in Oxford at the time for Harvard College. Here, at their request, I was studying the quadrangle system later adopted. I had the pleasure of picking up, in the attic of an old bookshop, plans of all the college buildings and presenting them later to Harvard"*



Wrexham Tower



No. West Corner



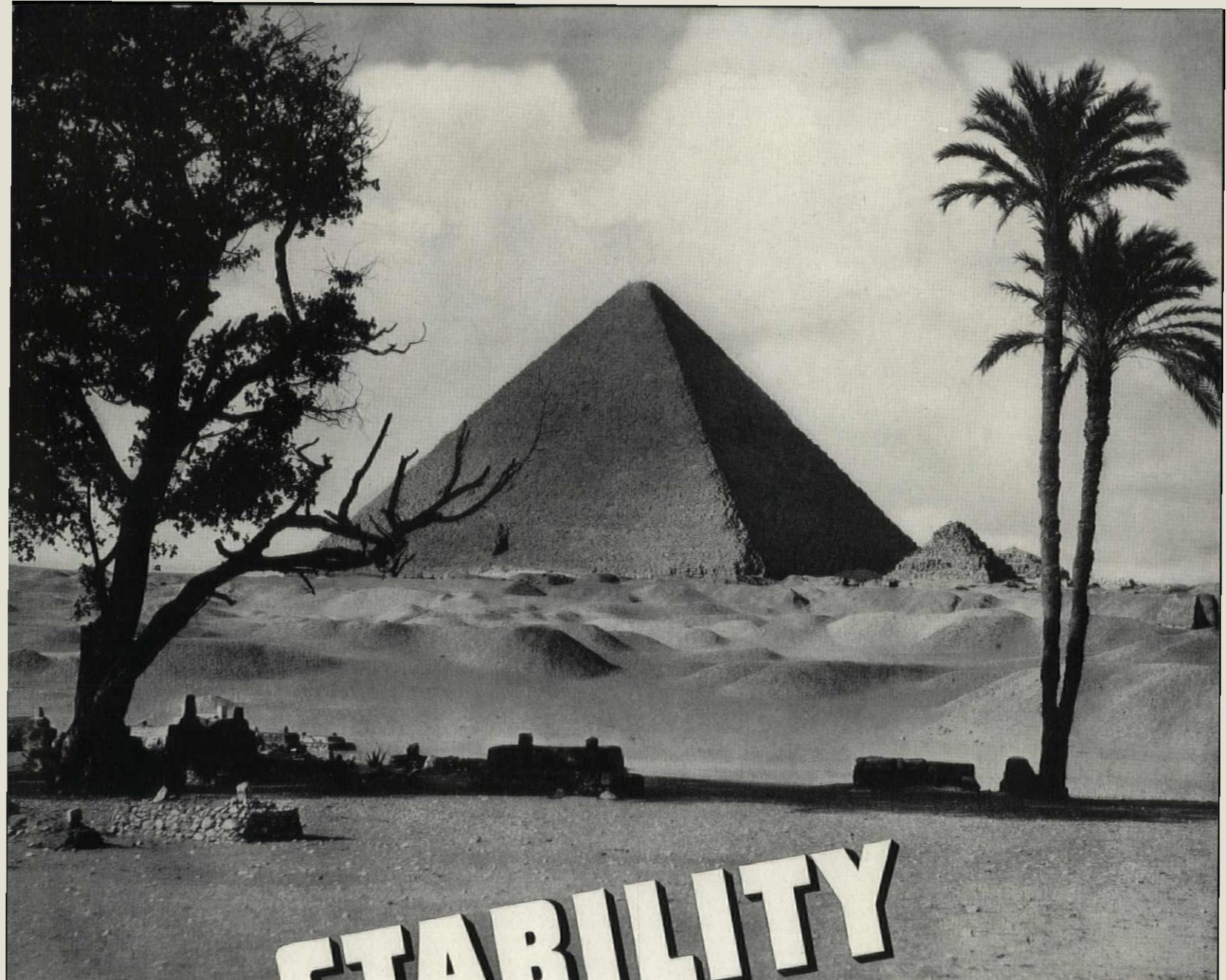
Entrance to Wrexham Court



An Entry to Brandon Court



Chauncey Tenkers Room



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raising the standard of living conditions. Architects are appreciative of the opportunity to derive commissions from government housing; but, what of its ultimate influence? What delay is placed upon individual initiative for home ownership and for private finance of housing? What, conclusively, is the final effort of the architectural profession? To work for the government or to work for private and local capital?

(Editor's Note — No, no, Cousin William, we did not miss, or quarrel with, the portion of the N.A.R.E.B. proposal reading "in accordance with the wishes of the local community." We believe very thoroughly in local self-determination. What we object to (as you should very well know) is the proposed

restriction of public housing for war workers to "temporary" types. This thought was certainly conveyed by the resolution as reported. If the N.A.R.E.B. recommendation were followed, no permanent housing could be built for war workers, to be used later as peacetime housing. We still contend that the decision between temporary and permanent types should be based on the conditions surrounding each project. Isolated munitions plants not likely to be useful after the War call for housing that can be taken down or moved elsewhere. Localities of permanent business and industrial activity, however, call for housing that can be used over a long period and which can, after the War, enable the elimination of many privately profitable slums.)

**IN THIS ISSUE**

The penetrating critical discussion of wartime housing that seems to be all too typical, written by *Albert Mayer* for this issue, is the result of a recent inspection tour made by this distinguished architect. As an authority on site planning and large-scale building, Mayer was encouraged by the Editors to speak out frankly. This he has done. It is quite likely that there are readers who will disagree with Mayer's findings—and we extend the same invitation to them. *Speak out if you have something to say!*

As Architect and Town Planner, Mayer designed Fort Greene Houses, Bellmawr Housing for Mutual Defense Homes Division, and New Rochelle public housing projects; and as Consulting Architect he was responsible for many of the best features of New Haven Housing Authority's projects. He also has served as Consultant to the USHA, FWA, and New York State Housing Division. He is a member of the Committee on Post-War Housing, of the National Association of Housing Officials; and a Director of the National Public Housing Conference. He edited the special housing issue of *Survey Graphic* and has contributed to the *New York Times*, *American City*, *Architectural Forum*, and a number of weekly periodicals.

*Alden B. Dow*, whose residential work is discussed in this issue by *Talbot F. Hamlin* and presented as the eighth in our series, "The Architect and House," is a native of

Midland, Michigan, where he conducts his architectural practice. He received his early education in Midland schools, then attended the University of Michigan, School of Engineering, before studying architecture at Columbia University, where he received his B.Arch. in 1931. This was followed by six months at Taliesin, Wisconsin, with *Frank Lloyd Wright*, and by travel in Japan in 1923, and in Europe in 1926 and 1928.

He is a registered architect in Michigan, Texas, and Illinois, and a member of the A.I.A. and Michigan Society of Architecture. His professional honors have included the *Diplôme de Grande Prix* for Residential Architecture, given at the Industrial Exposition in Paris, 1937. He also holds U. S. patents on Unit Cinder Blocks and Plastic Building Units. Last November, his firm was incorporated as Alden B. Dow, Inc., and a second office was opened in Houston, Texas.

The largest job now in the office is a new town on the Gulf Coast in the vicinity of a great industrial expansion. This townsite, known as Lake Jackson, is in the heart of a forest of oak and pecan trees and it is being thoughtfully developed to become a beautiful showplace.

In discussing his own work, Dow comments that his "thoughts are primarily analytical" and urges upon architects that they "create a theory that the public can understand: in other words, a *common language*." In a recent letter to the



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SEC. 17, Page 35

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Editors he said of his development:

"As long ago as I can remember, my favorite dreams have been about architecture. My father argued that architecture was *no profession!* To him, any line of work that relied upon personal feeling was undeveloped, unorganized and, therefore, not a profession. This did not mean that he was lacking in appreciation of individual ability or talent; he believed that, due to lack of organization, talent was not given its proper importance.

"Not until my first project in school did I begin to understand him. There I was compelled to use meaningless forms and peculiar combinations of them while the idea as a whole was disregarded. I was told that this curve was *more beautiful* than the other and this color combined with that one was *disagreeable*; but reasons were never given.

"It is a tragedy that architects, painters, sculptors and composers prefer to have us believe their creations are carelessly plucked from the clouds. They have even tried to sell an art based upon lack of reason or intelligence. All of this has greatly hampered their development because reason is the only basis for growth and the only constructive basis for salesmanship.

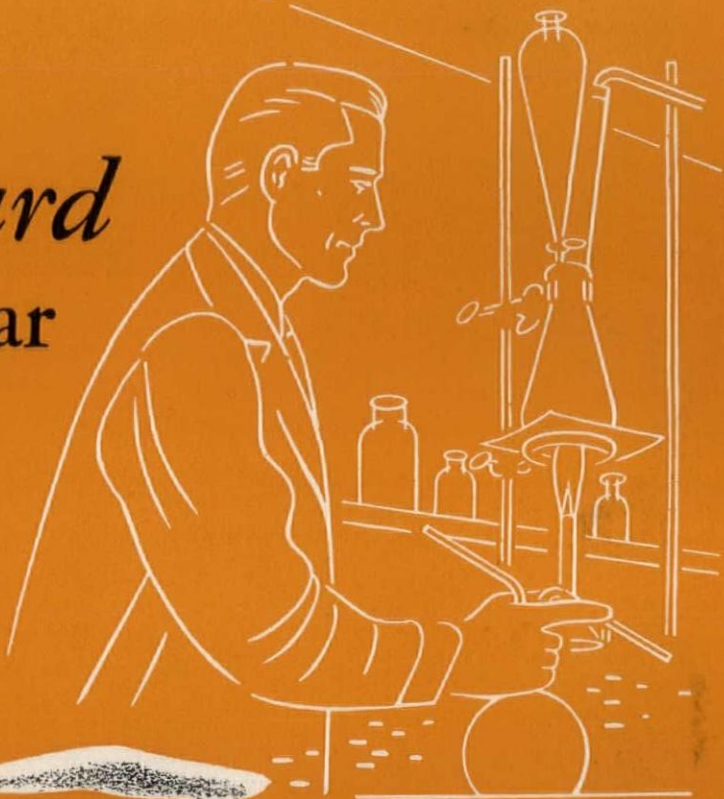
"Today, I do nothing I cannot reasonably explain, at least to myself, and I believe this is the chief reason why I have many clients who were once confirmed traditionalists living today in houses that have little traditional form.

"Some may say this is the attitude of a cold scientist and not of an artist. My reply is that in this age the artists' job is to put the finishing touches to science; in other words, use science as a tool. I do not mean that individual ability or talent is not necessary. Ability and a desire to do will always be fundamental requirements of the artist.

"Architecture, as every human effort, starts as a necessity, is refined as an art, and organized as a science. When the effort reaches the scientific stage it begins again as an art.

"I believe real greatness in architecture will not come until we enter the scientific stage. We must first realize, however, that creations or inventions are never accidents, but always products of reasoning. When we accept this fact, then the great job for our profession will be to *record* the reasoning processes at work and to *organize* them into a science of architecture."

There's an  
*Unseen Guard*  
 protecting war  
 production



**It's the refinements... the benefits of patient research... the quality... of the electrical wires and cables upon which uninterrupted operation depends.**

In electrical wires and cables, the "tremendous trifles", the never-heard-of-improvements, small as many of them are, are lengthening the period between "begin operation" and "breakdown". They are safeguarding *steady* production... they have been built to keep pace with 3-shift operation.

Anaconda research has developed scores of product improvements and many completely new products that are today meeting these critical demands. Their improved constructions deliver greater capacities with less power loss, their insulations can withstand high heat, corrosion, abrasion. The research that built these wires and cables continues at a fast pace. Now in addition to delving into experiments for improvements in industrial products, Anaconda is devoting much of its research to

wiring for residential and commercial building.

**When peace returns, adequate commercial and residential wiring will need your attention.**

The electrical future will place greater demands than ever before on those in a position to make wiring selections. Anaconda will cooperate with architects with information and with products measuring up to their specifications.

42222



This familiar trade-mark symbolizes the best efforts of modern research and production.

**ELECTRICAL WIRES AND CABLES OF COPPER ARE THE LIFE LINES OF OUR NATION**

**ANACONDA WIRE & CABLE COMPANY**

*Subsidiary of Anaconda Copper Mining Company*

GENERAL OFFICES: 25 Broadway, New York City • CHICAGO OFFICE: 20 North Wacker Drive • Sales Offices in Principal Cities



# Let's get the facts straight!

Don't let anyone tell you that Toncan Iron Sheets are merely Copper-Bearing Steel Sheets. *There's a world of difference.* And we can tell you the facts without limitations, because we make *both kinds* of sheets.

Toncan Iron is made from *open-hearth iron*—not open-hearth *steel*. It is highly refined iron, containing fewer impurities that invite corrosion. Toncan is an *alloyed iron* with copper and molybdenum added in *correct proportion*. Molybdenum gives it a uniform grain structure and increases the iron's appetite for copper. That's why Toncan Iron has *twice as much copper* as the finest copper-bearing steel or iron sheets.

Toncan Iron Sheets give you *greater rust-resistance* than any ferrous metal in their price range—*uniform* resistance all through the metal. They enable sheet metal work to

stand up longer—reduce irritating and costly repairs. They take all kinds of bends easily—cutting sheet spoilage—speeding construction.

Do your share in *Construction for Victory* by designing more durable structures for war production and home defense. Specify Toncan Iron Sheets for rust- and corrosion-resisting applications.



All the comparative sheet metal data you need is contained in the new booklet "A Few Facts about Toncan Iron for Architects and Engineers." Write for a copy. Also, see Sweet's 13/6. Refer to Sweet's for facts on pipe 27/3; Steel and Tubes 23/5; Berger 9/1 and 21/2; Truscon 15/18.

## REPUBLIC STEEL CORPORATION

General Offices: Cleveland, Ohio

Berger Manufacturing Division • Culvert Division  
Niles Steel Products Division • Steel and Tubes Division  
Union Drawn Steel Division • Truscon Steel Company

# REPUBLIC Toncan Iron SHEETS

Reg. U. S. Pat. Off.

An alloy of refined open-hearth iron, copper and molybdenum—that grows old slowly







A TYPICAL row of machine tools in a plant of the Wright Aeronautical Corporation, showing the **FA** Busduct used throughout the entire plant for carrying electric power.



## BUSDUCT helps save rubber

**M**ANY small and medium sized plants are being revamped for armament production. Revamping will require expansion of their electrical distribution systems for power and light.

While copper is scarce, rubber is scarcer — and the larger sizes of rubber-covered cable are increasingly hard to get.

Here's where **FA** Busduct fits into the picture. It not only helps conserve the rubber that is so essential to our mobile defense units — it is the modern method of electrical distribution — flexible, economical and convenient.

Production hours are saved by the quick connection characteristics of Plugin **FA** Busduct, which make it possible to move machines to any desired position — to plug in at once — and to start operation with a minimum loss of time.

Both Feeder and Plugin **FA** Busduct may be installed with minimum labor cost, and may be taken down and moved to new locations without appreciable loss of material. Extensions may be made readily to existing installations, which need not be disturbed.

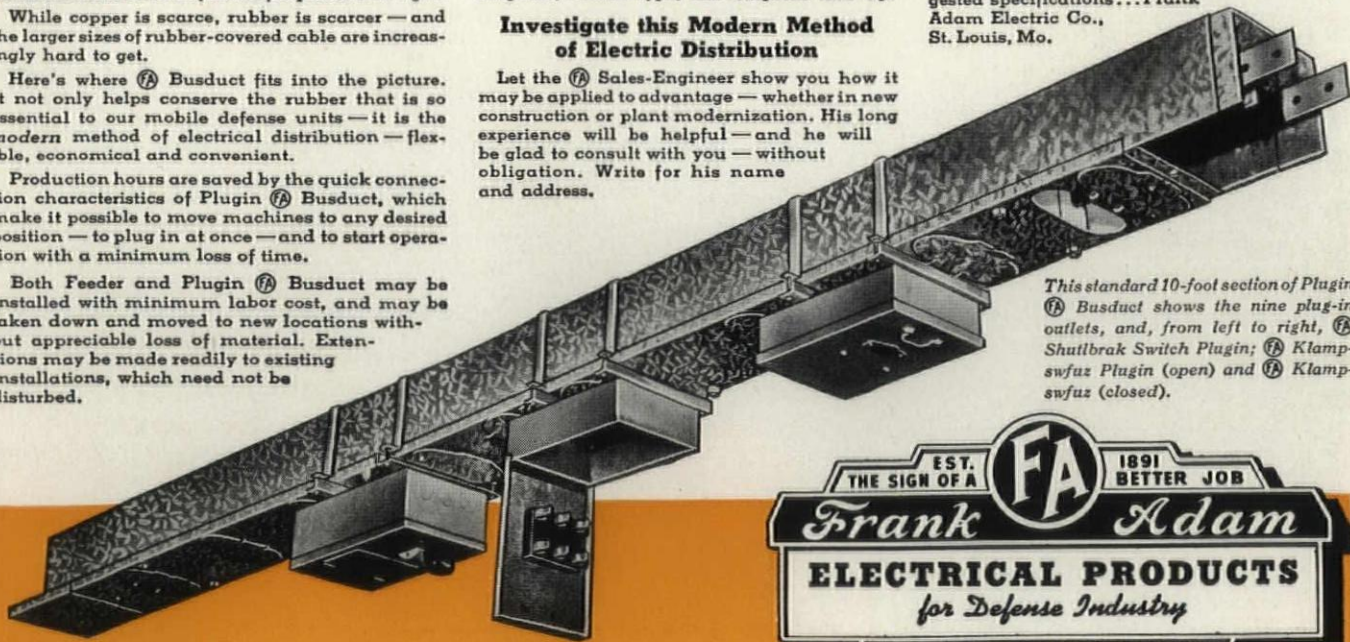
**FA** Busduct is designed for 2, 3 and 4-wire feeder systems; 250 volt DC, 575 volt AC, maximum. Plugin type capacities, 125 to 1,000 amperes; Feeder type, 250 amperes and up.

### Investigate this Modern Method of Electric Distribution

Let the **FA** Sales-Engineer show you how it may be applied to advantage — whether in new construction or plant modernization. His long experience will be helpful — and he will be glad to consult with you — without obligation. Write for his name and address.

### Let Us Send You Bulletin 65

which gives full details of **FA** Busduct installations, with photographs, diagrams and suggested specifications... Frank Adam Electric Co., St. Louis, Mo.



This standard 10-foot section of Plugin **FA** Busduct shows the nine plug-in outlets, and, from left to right, **FA** Shutlbrak Switch Plugin; **FA** Klampswfuz Plugin (open) and **FA** Klampswfuz (closed).

EST. 1891  
THE SIGN OF A **FA** BETTER JOB

**Frank Adam**

**ELECTRICAL PRODUCTS**  
for Defense Industry

FRANK ADAM ELECTRIC CO.  
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SONNEBORN'S

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Wood Finish for

FLOORS • TRIM • DOORS

WAINSCOT • SIDING



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Beauty and Improved  
Wearing Qualities*

LIGNOPHOL is no ordinary surface finish, but a beautifying and preservative treatment that penetrates into the wood, depositing toughening resins and life-imparting oils which resist moisture, molds, fungi and wood destroying organisms.

Unlike many finishes, Lignophol enhances rather than obscures the natural beauty of the wood. Because of its protective penetration, Lignophol stands up exceptionally well under the severest use in schools, institutions, offices and factories. In homes, it provides lastingly beautiful floors, trim and paneling far beyond the

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Lignophol assures substantial economies in time and labor because only a single application is required in order to obtain its full benefits.

Lignophol is available in light brown, medium brown and natural shades to harmonize with the widely used woods for floors, trim and paneling.

Write today for the new Architect's folder giving complete specifications, and factual data based on Lignophol's performance for more than 25 years.

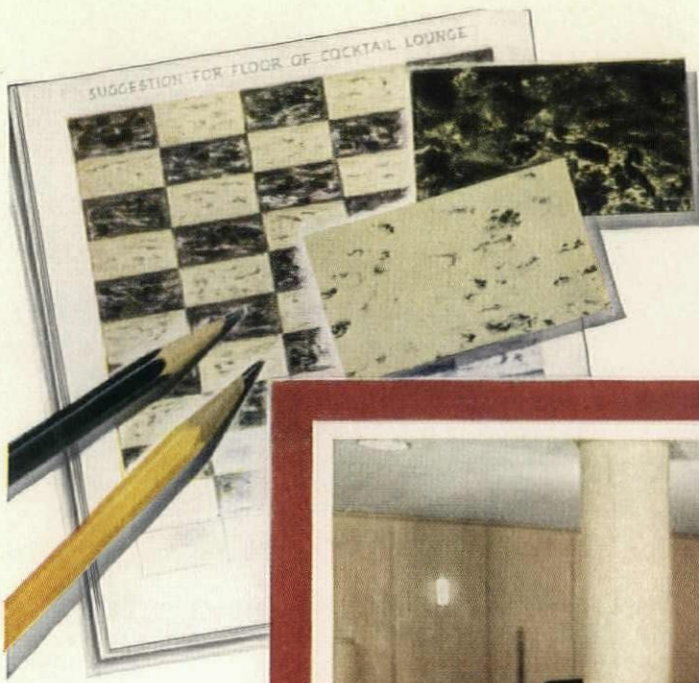
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NEW YORK, N. Y.

*Designed for  
Beauty under  
heavy traffic . . .*



*The lovely floor in this cocktail lounge was designed with two J-M Marbleized colors. The darker color is No. 112; the lighter is No. 127.*



**This colorful, distinctive floor combines the lasting qualities of Asbestos and Asphalt**

With the floor such an important part of any interior, it's not difficult to understand why so many architects specify J-M Asphalt Tile. For this versatile flooring comes in a wide range of colors and sizes that provide almost unlimited, attractive decorative effects.

And beneath the beauty of J-M Asphalt Tile are the lasting qualities of two of the

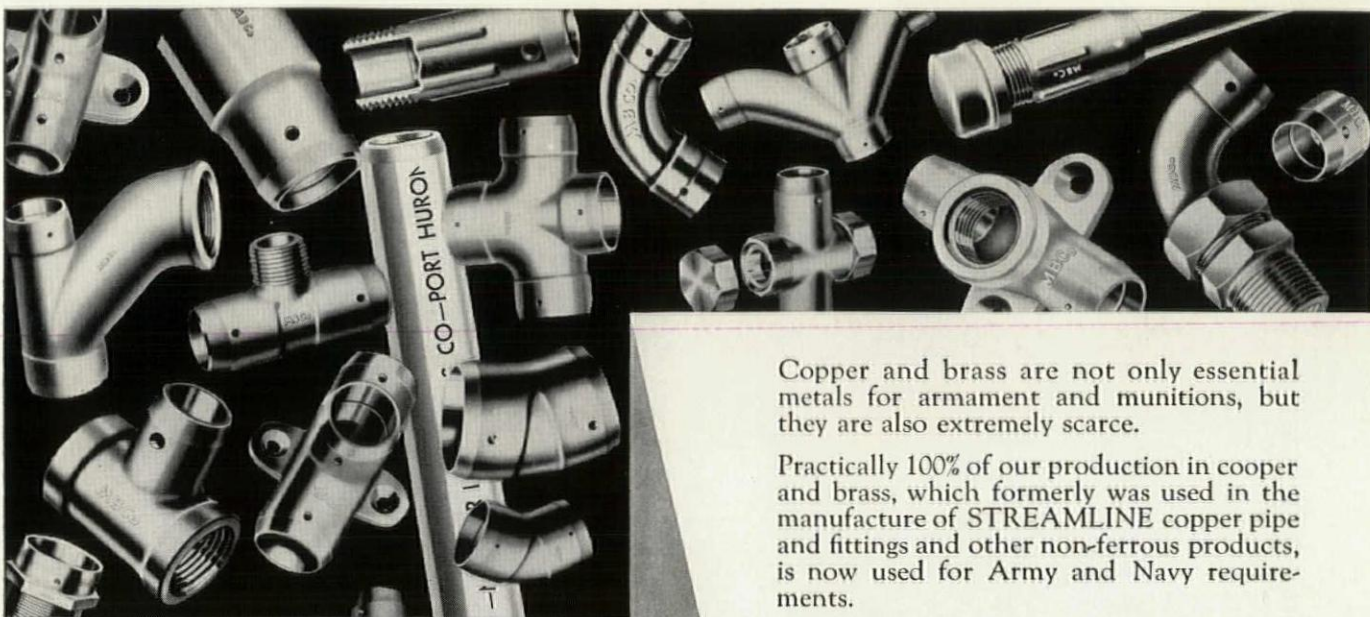
most durable materials known —asbestos and asphalt. J-M Asphalt Tile stands up under the heaviest foot traffic . . . is quickly and easily cleaned to a lustrous surface. Yet it is so low in cost that it fits any flooring budget.

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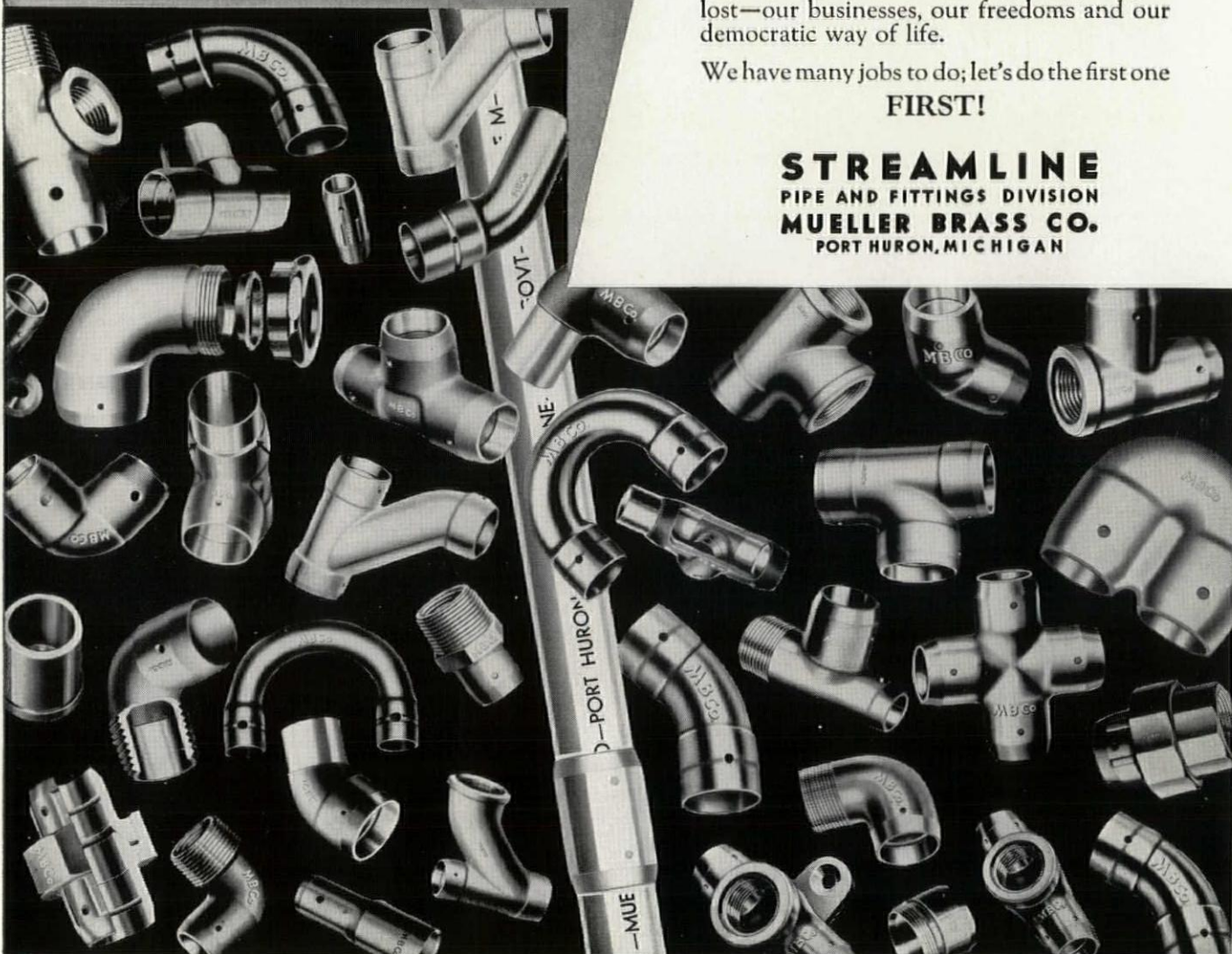
If you're looking for decorative floors for stores, restaurants, offices, home recreation rooms, etc., you'll find plenty of stimulating suggestions in our new full-color brochure, "Ideas for Decorative Floors." For free copy, write Johns-Manville, 22 East 40th Street, New York, N. Y.

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is Factory-  
Waxed!**

**Johns-Manville ASPHALT TILE FLOORING**



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We Americans, no matter in what walk of life, realize that armament work must come first. IT MUST TAKE PRECEDENCE OVER EVERYTHING ELSE IF FOR NO OTHER REASON THAN THIS—THAT WE MAY PRESERVE FOR THE FUTURE THOSE VERY BUSINESSES OF WHICH WE ARE NOW TEMPORARILY DEPRIVED. If we fail, everything is lost—our businesses, our freedoms and our democratic way of life.

We have many jobs to do; let's do the first one  
**FIRST!**

**STREAMLINE**  
PIPE AND FITTINGS DIVISION  
**MUELLER BRASS CO.**  
PORT HURON, MICHIGAN



## MAN with PENCIL

# Sinks Enemy Battleship!

From 20,000 feet they looked like pencil marks with plumes of smoke. The pilot banked the Flying Fortress and spoke staccato orders into his microphone. The Bombardier braced himself against his bomb sight. A sudden lurch, a sound of rending metal . . . .

Heroes fighting death in the skies and unsung heroes getting round-shouldered in drafting rooms creating the implements of Victory. Because Craftsmen must have accuracy, uniformity, smoothness and rich tone in their drawing pencils, many specify A. W. Faber's WINNER Techno-TONE.

WINNER Techno-TONE guarantees all 4 Freedoms—Freedom from Scratching, Smudging, Flaking and Grilly Hard Spots. Pencil Craftsmen gladly pay the extra few pennies for America's standard of drawing pencil excellence.

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A\*W\*FABER\*Inc. NEWARK, N. J.



17 scientifically graded tones — 6B to 9H. Polished rich green. Packed in metal box. For sample of your favorite degree, write Dept. PP-5, A. W. FABER, INC., NEWARK, NEW JERSEY.

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If the carpenters can make joints with  
nails and bolts . . . **THEY CAN BUILD**  
**WITH TECO CONNECTORS!**

Wood construction with the Teco Connector offers great opportunities for architects and engineers in today's work regardless of the size and scope of their operations.

Because of the Teco Connector, numerous types of structures, the construction of which hitherto called for other materials, are now being built of lumber.

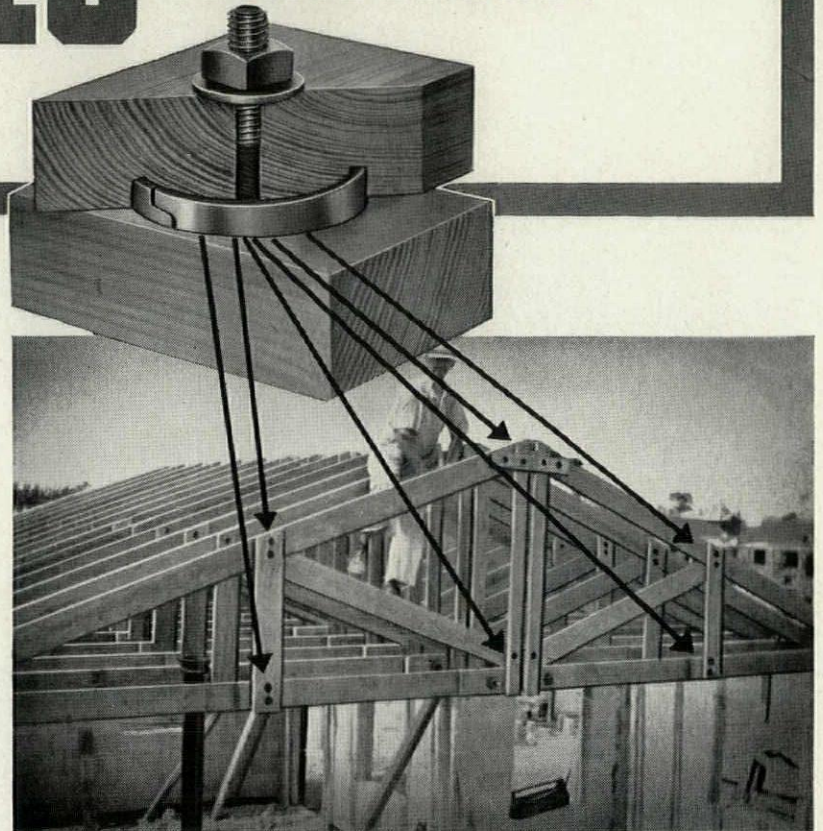
The Teco Connector makes it possible to utilize 80% to 100% of the strength of lumber or timbers at joints, instead of from 40% to 60% as formerly. The joints are more rigid. Buildings go up faster. There is a great saving in materials, both critical and non-critical. A vast, new field for *engineering with lumber* has been created for the architect, engineer and builder.

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Any competent engineer can design for wood construction with Teco Connectors, and the normally skilled carpenter is at home working with them.

Right now, every architect and engineer can immediately have working data on the Teco Connector System of Wood Construction. Write today for complete information.

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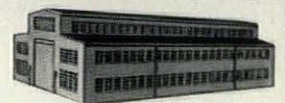
**TECO  
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Save!**

**SAVE STEEL . . .** One pound of Teco Connectors replaces 11½-12 pounds of steel.

**SAVE LUMBER . . .** 80% to 100% of the working strength of lumber is utilized instead of from 40% to 60%.

**SAVE MONEY . . .** There is a saving up to 33⅓% in cost as compared to steel, and up to 45% as compared to traditional wood truss construction.

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FIRST NATIONAL BANK BUILDING • ST. PAUL, MINN.



**HALVORSEN'S  
Lynwood Homes**  
Tile-*Tex* floors are installed directly to the concrete slab in contact with the ground throughout all rooms of these defense houses, illustrated above. Below, typical kitchen installations in these homes.

# *Tile-*Tex** MEETS EVERY DEFENSE HOUSING *Requirement*



**T**ILE-*TEX* solves the problem of how to provide attractive, low-priced floors for Defense Homes.

Tile-*Tex* contains no critical materials. It is available promptly in a wide range of attractive colors and is easily installed with minimum labor by experienced, approved contractors throughout the country.

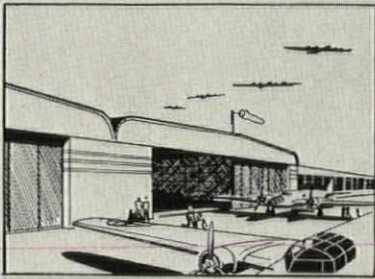
Tile-*Tex* is practical for all floor areas. It may be installed at or below grade level . . . even over concrete directly in contact with the ground. It is moisture and fire-resistant . . . comfortable to the foot . . . and remarkably simple to maintain.

Tile-*Tex* floors have already demonstrated their worth in low-cost housing areas by their selection and use in many large U.S.H.A. Housing Projects. Investigate Tile-*Tex* for use in today's defense housing—for specification data see Sweet's Catalog File, page 11/58, or write us.

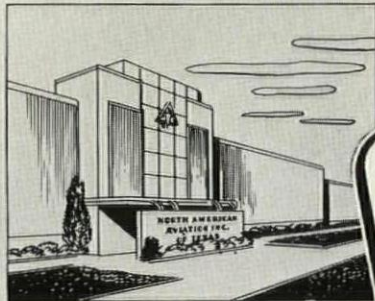
*Our constant objective is to furnish the architect with an honest, steadily improved product that will enable him to design architecturally correct floors which can be installed and maintained properly at minimum cost.*

**THE TILE-*TEX* COMPANY**  
101 PARK AVE., NEW YORK • CHICAGO HEIGHTS, ILL.

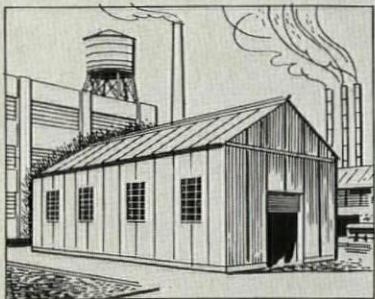
THIS IS THE THIRD OF A SERIES DEALING WITH THE PART OF TILE-*TEX* IN THE DEFENSE PROGRAM



MOVABLE AIRCRAFT HANGARS can be designed with U·S·S Steel Sheets so that they can be dismantled and moved to a new location quickly and without damage.



45 EXTRA DAYS OF PLANE PRODUCTION were made possible because steel panel construction enabled the contractor to complete this important aircraft plant ahead of schedule. Walls were erected at a rate of more than 2500 sq. ft. in an 8-hour shift.



U·S·S PANELBILT CONSTRUCTION offers countless variations in sizes and arrangements of industrial or war buildings. All can be quickly erected from factory-built panels and sections of steel. Also quickly demountable with complete salvage value. Available in the South from Tennessee Coal, Iron & Railroad Co.



**TAKE A TIP**  
*from the British!*

## THEY'VE FOUND SHEET STEEL CONSTRUCTION IDEAL FOR WAR-VITAL BUILDINGS

OUR friends in England have learned first-hand that steel construction behaves better than other types when subjected to bombing. It doesn't shatter into deadly fragments. It resists fire. Damage is confined to smaller areas. Repairs can be made quickly by replacing sections. The portability of steel structures has proved an important war asset, too. They can be dismantled and set up in new locations with little loss of time or material.

*Steel saves time* because it can be used in complete structural units, cut to the right length and width for easy handling. Sections can be designed to lock together automatically. Or where utmost simplicity is desired, standard corrugated steel sheets can be used for walls, partitions and roofing. Unskilled

labor can carry out erection with little supervision. Steel construction goes up fast in any weather, because there are no wet materials to set.

*More and more architects* are specifying steel construction to shrink the completion schedules of such important buildings as aircraft plants, hangars, powerhouses, barracks, portable buildings, munitions factories and plant extensions.

### *What Steels to Use . . .*

U·S·S Galvanized Sheets are ideal for sectional steel construction. For most applications, a base metal of plain steel or pure iron is satisfactory.

For immediate painting, specify U·S·S Paint-bond, a Bonderized galvanized sheet that holds paint tighter. In the South and West, the special sheet for quick painting is known as U·S·S Dul-Kote.

# U·S·S ROOFING AND SIDING SHEETS



CARNEGIE-ILLINOIS STEEL CORPORATION, *Pittsburgh and Chicago*

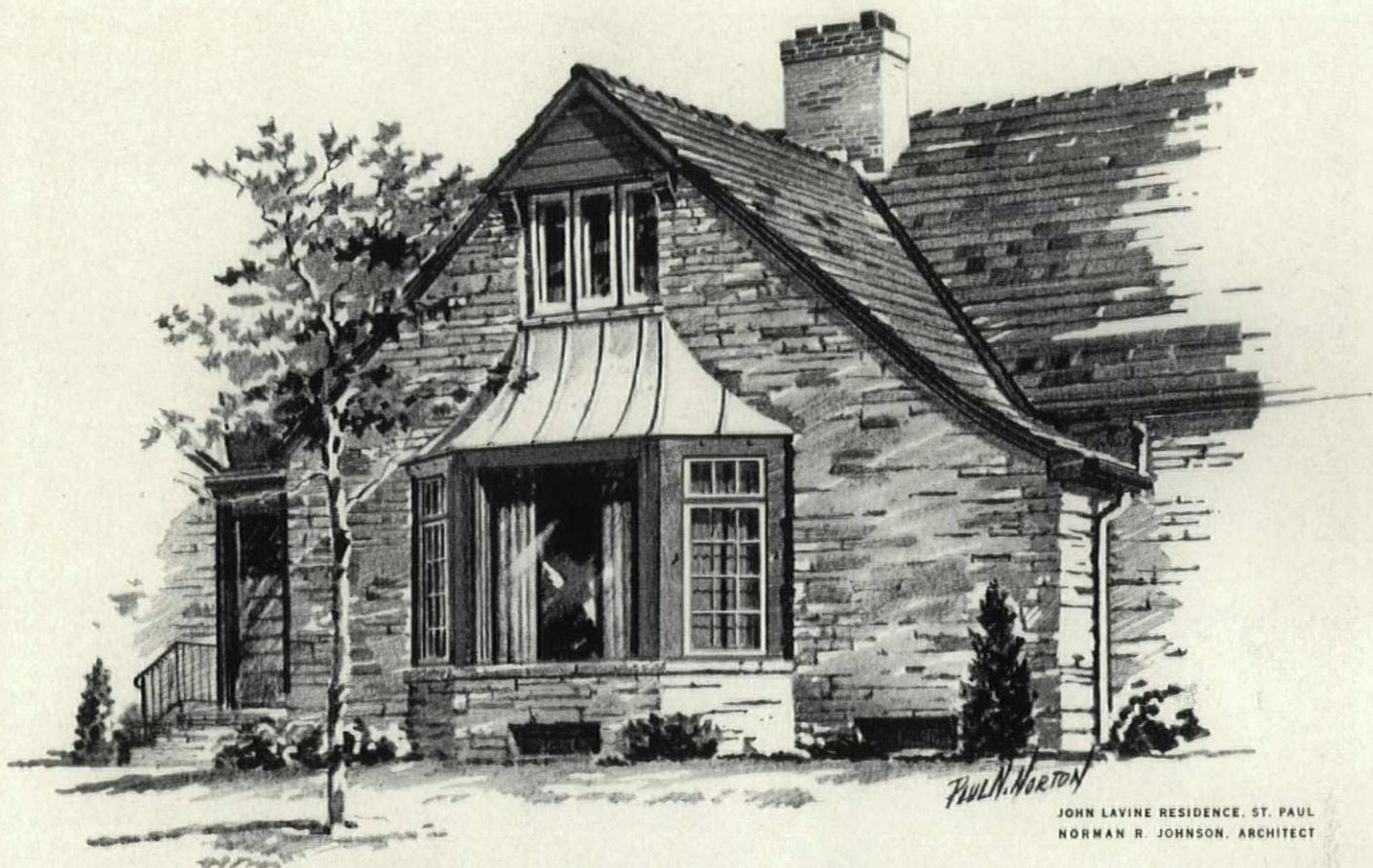
COLUMBIA STEEL COMPANY, *San Francisco*

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# UNITED STATES STEEL





JOHN LAVINE RESIDENCE, ST. PAUL  
NORMAN R. JOHNSON, ARCHITECT

# Window Quiz

## FOR ARCHITECTURAL DESIGNERS

**Q.** Are those "custom" windows in the Lavine job shown above?

**A.** No! Architect Johnson created this pleasing arrangement using only stock-size Pella Casement units.

**Q.** How many stock-size Pella Casement Units are there?

**A.** Enough to make over 300 different, distinctive bays, corner, picture, French and special kitchen windows. Ventilating units 1, 2 or 3 lights wide and up to 5 lights high are avail-

able to set singly or in combination with other fixed or ventilating units.

**Q.** How about screens?

**A.** Famous Pella Rolsscreens are built in each unit. They are the original inside screens that roll up and down like a window shade. 10 Year Guarantee! Over two million now in use.

**Q.** Well, then, how about storm glazing?

**A.** A removable, dual-glazing panel fits each sash. Highly efficient. Easy

to keep clean. It's so inconspicuous it can be left in place all year.

**Q.** How do Pella Casement Units come on the job?

**A.** 100% assembled! This includes hardware, weatherstripping, Rolsscreens and Dual Glazing (if specified). No waiting for hardware, sash weights etc. No cutting or fitting necessary because Pella Units are pre-fitted at the factory. Weather-tight installation completed in about 30 minutes.

# Pella CASEMENTS

## ROLSCREENS ★ VENETIAN BLINDS

**SAVE DRAFTING TIME!**  
New! 22 loose pages of scaled details on Pella Casement Units. Suitable for tracing right into your plans. All types of installations. Come in A. I. A. File Folder. Send for your FREE set! Supply limited!



Rolscreen Company, Dept. 152 Pella, Iowa  
**YES!** Please send me that handy FREE Set of file-size Details on Pella Casements.

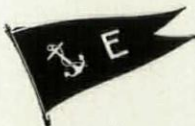
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Address .....

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



## We KNOW HOW THEY FELT!



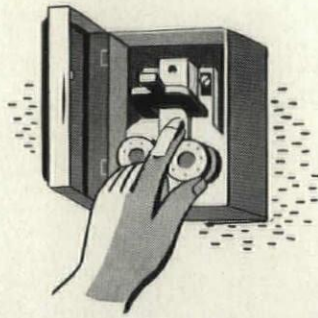
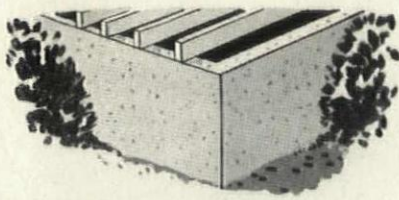
Those men who earned the first Navy E, back in 1906, must have been the proudest crew of tars in the fleet. We know, for we feel the same bursting pride today. The blue Navy burgee now flying from our flagstaff sends a special thrill through every man in our plant. We're proud to be Americans.

The Navy E is not lightly given, nor lightly received. It means more than Excellence. It stands for a good job well done, for teamwork better than the best . . . and its award to any civilian plant should double and redouble fighting spirit. From now until final Victory dawns, we pledge every effort to help *Keep America Rolling*.



**Exide**  
**Keepalite**  
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THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia  
*The World's Largest Manufacturers of Storage Batteries for Every Purpose*  
 Exide Batteries of Canada, Limited, Toronto



here...

and here...

and here...

*it's the extra factor of safety that counts*



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No wonder Balsam-Wool has achieved its amazing record of permanent efficiency. No wonder it has set the pace for other insulations to follow! For complete information about Double-Value Balsam-Wool—and about the extra safety and satisfaction which it assures—mail the coupon.

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MAKE DOUBLE-VALUE BALSAM-WOOL  
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- DOUBLE fastening to eliminate settling . . . fire and termite resistant

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

# New Construction Principle!

## TRUSCON Light Steel Frame Construction

Offers these Important Advantages:  
**Rapid Erection • Economy • Fire-Safety**  
**Structural Strength • Vermin and Rot Proof**  
*Prefabricated for Speed!*

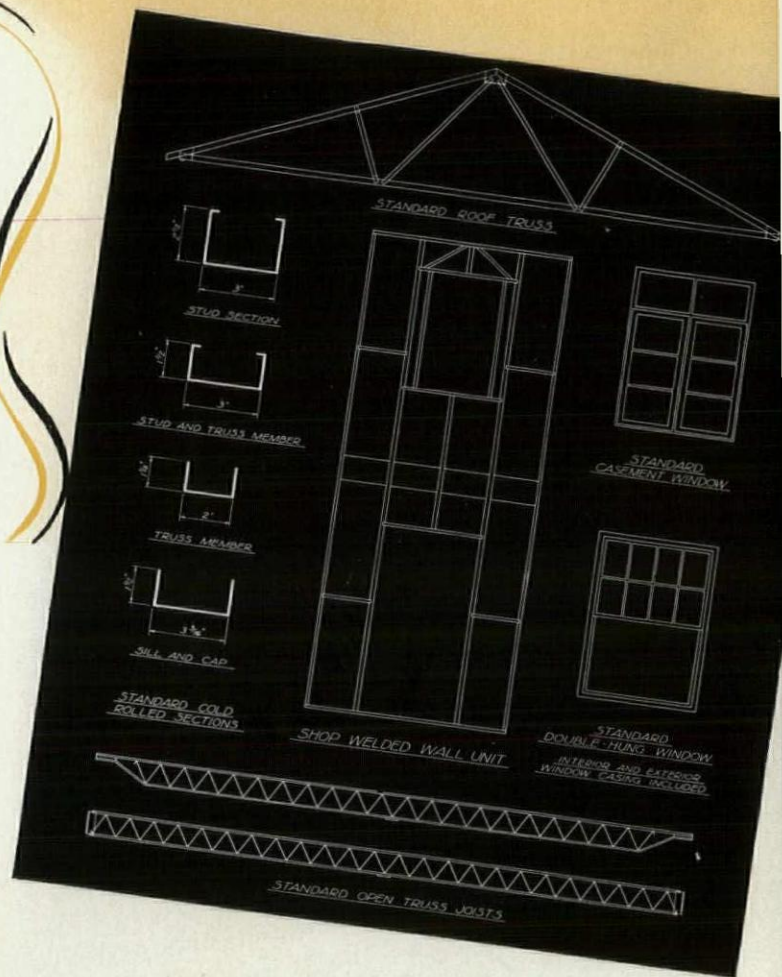
There is nothing new about the idea of light steel framing except the advanced method used by Truscon engineers for applying the principle to present day building needs. • The basic advantage of Truscon Light Steel Framing is the employment, in combination, of standard, time-tested Truscon steel building products.

**STANDARD COLD ROLLED SECTIONS**—These channel sections are utilized for the assembly of wall frames, roof trusses or individual studs and columns.

**SHOP WELDED FRAMES**—(For Walls and Bearing Partitions) Fabricated in sections, one or two stories high. Designed to carry floor and roof loads over window and door openings.

**SHOP WELDED ROOF TRUSSES**—Trusses are designed to carry roof loads on clear spans from 20' to 34' and are furnished for hip end and roof intersections.

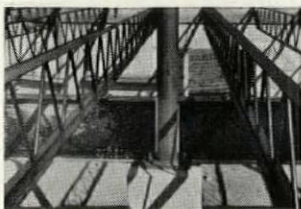
**STANDARD STEEL WINDOWS**—Standard double hung steel windows and casements furnished with or without exterior and interior steel trim. Trim may be attached to windows in shop or field.



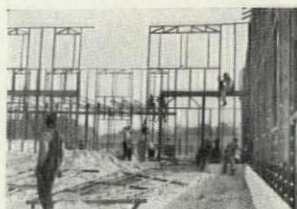
**STANDARD OPEN TRUSS JOISTS**—Joists are furnished either with or without wood nailers, depending on type of subfloor. They generally span the full width of building and are supported at the center by a bearing partition or standard plate girder type joists and steel pipe columns.

**STANDARD METAL LATH**—Diamond rib lath serves the double purpose of form for the concrete and reinforcing . . . Also used as a plaster base for walls and ceilings.

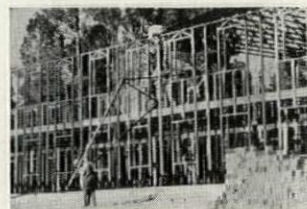
### An Example of Truscon Light Steel Framing



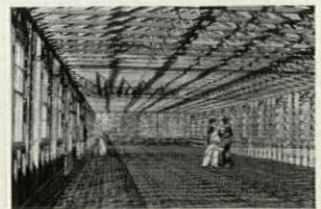
First Floor Construction



Erection of Second Floor Joists



Erection of Standard Roof Trusses



Second Floor Framing and Metal Lath



Attaching Wall Sheathing



Diamond Rib Lath as Base for Plaster



The Completed Building

**TRUSCON STEEL COMPANY**  
YOUNGSTOWN • OHIO  
SUBSIDIARY OF REPUBLIC STEEL CORPORATION

Write for catalog containing pictures and complete description of Truscon Light Steel Frame Construction.

## ARTICLES

EDITORIAL AND COMMENT	KENNETH REID	243
WHAT'S THE MATTER WITH OUR SITE PLANS?	ALBERT MAYER	245
THE BUSINESS OF WAR HAS NO FUTURE	DON GRAF	259
A STATEMENT ON CONSERVATION	LESSING J. ROSENWALD	260
WHAT TO USE—PART II	FRANK G. LOPEZ	261
WASHINGTON REPORT	A. D. TAYLOR	265
OUR CAMPAIGN PROGRESSES	WILLIS A. VOGEL	267
THE ARCHITECT AND HOUSE—8, ALDEN B. DOW	TALBOT F. HAMLIN	269
THE BASIS OF RADIANT HEATING	DEXTER J. PURINTON	287
PLANNING FOR VICTORY IS PLANNING THE FUTURE	KONRAD F. WITTMANN	301

## PLATES

FOUNTAIN FIGURE	WHEELER WILLIAMS	268
HAROLD PALMEDO RESIDENCE	SCOTT & TEEGEN	291

## THRESHING FLOOR

A LETTER FROM WILLIAM H. REID, JR., AND A CONTRIBUTION FROM HAROLD FIELD KELLOGG		8
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## SELECTED DETAILS

THE WORK OF SCOTT & TEEGEN, PAUL THIRY, ALFRED S. ALSCHULER AND R. N. FRIEDMAN, ALBERT KAHN, INC.		293
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## DATA SHEETS PREPARED BY DON GRAF

FACTORY BLACKOUT (1, 2, 3, AND 4)		297
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## HERE, THERE, THIS, AND THAT

NEWS FROM THE FIELD, COMPETITION ANNOUNCEMENTS, AND BOOK REVIEWS, ETC.		32
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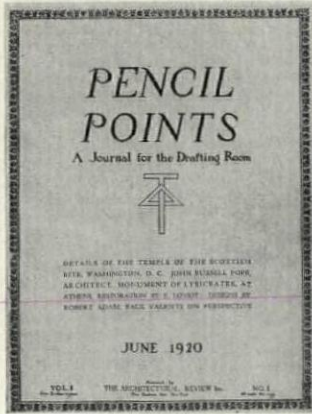
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PENCIL  
POINTS

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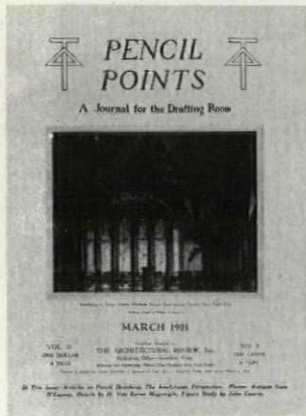
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# NEW BEGINNING



With this issue PENCIL POINTS reaches another milestone. For twenty-two years it has served the architectural profession, through good times and bad, and its Editors have taken honest pleasure in their duties and pride in their accomplishment.

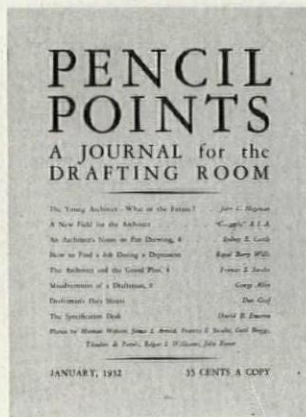
*But the era in which it began has now passed—is gone! There is no recalling it. A magazine suited to the needs of the prodigal Twenties or the crushed Thirties has no vital place in the forward-looking Forties. Such a magazine now has no more to contribute to the development of architecture than has the timid or myopic architect who clings too fondly to accumulated habits of outworn decades. Those in the profession who do not shrink from contemplation of the unpredictable, perhaps frightening, post-war problems of America must attain better understanding of the economic, political, and technical aspects of the architect's job if they are to practice authoritatively. It is essential that we have principles and aims, if a new, vital democracy is to be created.*



*To meet the challenge of the future we will inaugurate next month a new magazine. It will be known for the time being as THE NEW PENCIL POINTS. As fresh, exciting, and vigorous as we know how to make it, it will have as its keynote, "Look forward—not back." It will fight for good architecture by good architects. It will fight against bad architecture by anybody. It will fight for what its Editors believe to be enduring principles. It will fight against the meretricious, the insincere, and the incompetent. In other words: it will fight!*

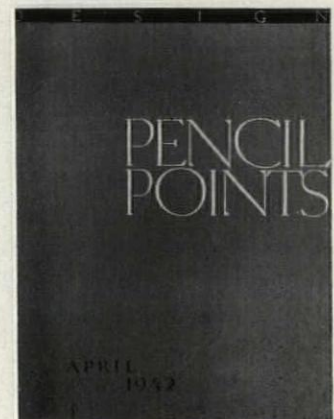
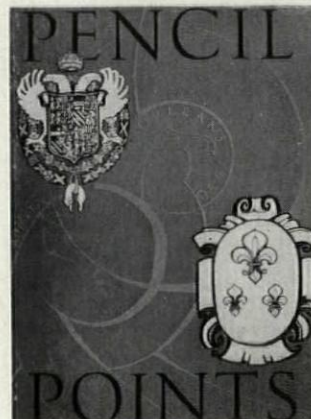
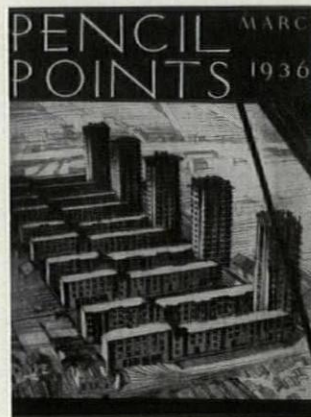
*The architectural profession must fight too. First of all to have its part in winning the war, but further for its right to share in planning for Tomorrow's needs. It must fight for maintenance of the standards of quality it knows to be worthy; for the preservation through war's turbulence of the living fire of beauty wherewith to light the future; for the technical preparation, the research, the plans now to insure better human environment in renewed cities, towns, and countryside.*

*To carry on these battles the profession must have leaders—leaders who are not victims of the disease of appeasement, leaders who are not hamstrung by diffidence, leaders of undeniable maleness who are bold and forthright and stoutly aggressive.*



*In THE NEW PENCIL POINTS we will be led by principles as bold, forthright, and stoutly aggressive. The articles of our Creed at this New Beginning are set down across-page. It will be part of our purpose to seek out, to stimulate, and to support leadership of the right type wherever it is to be found in the architectural profession. It will be our editorial service to uphold these principles—some carried over from the past, yet all pointing forward. They can give authority, even nobility, to the Architectural Man.*

KENNETH REID



# W E B E L I E V E

**We believe that a finer civilization lies ahead if plans are made as courageous as they are feasible, as strong as they are beautiful.**

The greatest expansion and rebuilding program ever known will be a major activity of the post-war world. This involves an urgent task which *challenges the imagination* of every planner and which will call upon the skill and strength and resources of all humanity for its performance.

**We believe Architecture to be an essential Service to human society and regard the true Architect as one dedicated to that Service.**

For *planning* the inevitable development and rehabilitation of urban and rural regions and communities, and for *designing* the housing, schools, hospitals, airports, laboratories, and all manner of buildings that will be needed for them, for enlisting and *coordinating* the collaborative contributions of engineers, interior designers, landscape architects, sculptors, painters, and decorators, *the Architectural Man is best fitted.*

**We believe that in whatever social and economic frame the Architect of Tomorrow will apply his distinctive talents, he will find both opportunity and appreciation.**

We are living in a time of world-wide revolution. No man can predict surely the outcome or picture clearly the eventual forms of human organization. But we can be sure that building and rebuilding will be a most pressing need.

**We believe it the Architect's responsibility to keep at least abreast of reality by regular conscientious study of technical advances and social and economic changes.**

Changes in the technology of building, evolution in planning requirements, and developing community pressures constitute *a challenge that must be met* by the Architectural Man. If he fails to be continually aware of and accurately informed about these things he is *not only shirking his professional duty but contributing to his own elimination.*

**We believe the time has come when the Architect must stop waiting amiably for others to bid him perform and become more than ever the vital initiating force.**

The Architectural Man should see, *before anyone else*, the planning needs of his community and by persistent aggressive action secure their recognition by authority and their eventual satisfaction. As *Architect-Leader-Citizen* he must lead the way to the intensive improvement of man's environment.

**We believe that FITNESS, STRENGTH, AND BEAUTY are eternally essential ingredients of Architecture.**

There have been many sad lapses through the years from the principles of "Commoditie, Firmines, and Delight," so aptly identified by Sir Henry Wotton, but *their truth is as indisputable today* as when they were first applied, consciously or unconsciously, by the Master Builders of antiquity.

For those who believe with us in the foregoing principles, THE NEW PENCIL POINTS will be edited. It will *explore* authoritatively the social and economic problems as they relate to the work of architects and will *provide* reliable, concise, and timely information on the changing techniques of planning and building. It will *crusade* for recognition of the Architectural Man's right to perform the functions for which his training and experience have fitted him.

# EDITORIAL COMMENT

ON BEHALF OF AN IDEA we made a special trip to Washington in the early part of April. A substantially large group of architects and engineers, constituting an *experienced and smoothly-running organization*, was on the point of general dissolution. Its principals, having completed their contract for a very big war establishment, were not in line for another award. Its men were faced with the necessity of going out as individuals to seek new jobs.

This sort of thing has been an ever-recurring problem in the building industry. A large project is started and an adequate organization is carefully built up to handle it. The job takes months, during which the men grow accustomed to working together. Each of them, through study and research, acquires special knowledge which dovetails with that of the others, so that the *whole group represents an efficient productive unit*. At the conclusion of the job the whole thing is broken up. Situations of this kind have been tolerated fatalistically by the building industry for many years. At this time, however, when speed and efficiency are paramount, it seemed a pity to waste the months of patient effort that were put into building up the organization in question. To disband the group would constitute a serious waste at a time when waste should not be tolerated.

Feeling that the principle applied equally to many similar organizations faced with the same problem, we thought it worth taking up with the authorities. The several hundred men involved had agreed among themselves to offer their services to any branch of Government that could use them as a unit or possibly as several smaller units.

We laid the proposal before a number of high officials and officers of the Army and Navy. A few of them saw the point—the rest were indifferent. “War,” they said, “is waste. There is no help for the situation. The men can be used as individuals, but not as a team.”

All of this points, it seems to us, to the vital necessity for more *comprehensive planning at the top* where the jobs are conceived and originated and from whence contracts are made. The single powerful authority for which we have been calling for a year and a half would be in a position to coordinate the construction needs of all the Government departments, allocating the resources of the industry with efficiency and justice, at the same time replenishing and preserving those resources in the interests of the Nation. We believe the fight for the creation of such an authority should be led

and actively prosecuted by the architectural profession which represents the group most habituated to looking ahead and planning for the future. If the disintegration that is proceeding now is allowed to proceed unchecked and uncontrolled, there will come a day when the consequences will be tragic for everybody.

\* \* \*

DEFINITE OPPOSITION TO ARCHITECTS as personnel has been encountered in our dealings with Government bureaus, and particularly with the War and Navy Departments among altogether too many officials and officers. “Give us engineers,” they say. “We can use all we can get, but architects, no!” Such a prejudiced attitude is fortunately not universal, but it is encountered with sufficient frequency to cause us some concern. It must be rooted either in *uncomprehension of the nature of the architect’s work* and special skill or in *unfortunate and unpleasant past experience*. For both of these things the profession has, of course, itself to blame. It has for years failed to make clear to the lay public the nature of its activities and it has tolerated inferior service rendered by its less competent members.

It is too late now to undo what has been done. We can, however, continue to fight for opportunities to serve in the Victory Program and every one of us can determine to *demonstrate by performance* of whatever duties are assigned that architects are versatile, adaptable, and efficient. England has found that architects can do many things extremely well. The same will be found true in this country.

\* \* \*

A MISLEADING HEADLINE in a recent issue of the New York Times characterized as “an outrageous grab” what it described as a “\$591,000 Idlewild architect’s fee.” The lead paragraph of the news story repeated this statement. Several inches down in the body of the article it transpired that the fee in question was paid to an *engineer* for *engineering* services on an airport development. One of the city councilmen was quoted as saying that the proposal to pay this sum was “smelly.” We object to the prominent display of the word “architect” by a presumably reputable and literate newspaper when the context makes clear that an *engineer, not an architect*, was involved in a questionable transaction. We further believe that the Times could do a public service by clearing up the popular misconception in relation to architects’ and engineers’ fees. The average reader of such stories always carries away the impression that the entire fee is a profit and becomes naturally indignant! *A really factual treatment*, worthy of a great newspaper, would disclose that the bulk of the “fee” represents the actual cost of performing the service, leaving usually a modest profit on the whole transaction.



# WHAT'S THE MATTER WITH OUR SITE PLANS

## IT'S NOT ENOUGH TO THINK YOU THINK

BY ALBERT MAYER

Recent inspection of a number of typical war housing projects around the country has left me discouraged with what has been produced. The architects designing these projects don't have adequate experience in this new and difficult field of community planning, *have generally missed the deep significance of what is involved* and the opportunity that has been offered them.

To adapt the President's phrase, this generation of architects has indeed a rendezvous with destiny. *But we haven't grasped the concept at all.* In fact, from the generally complacent attitude of the profession, from the absence of distinction and quality of the projects and from their elementary defects, you would say in contrast it was a good deal more like making a date with a broad.

This is a solemn and sacred job, creating the frame of living for a whole community, shaping the lives of people for a generation at least. A big skyscraper or a great hotel may cost five times as much as a community housing 500 families, but it is incomparably less important in human and social values, in benefit or harm to the city or the nation. *Up to the recent past, housing has all been created by speculative builders, from whom we got about what could be expected—a lot of houses.* But now we have the government as a client, we have the inspiration of a national emergency, we have the challenge of creating a new environment.

As a profession, we're muffing these big challenges. *The one challenge we're meeting is speed.* As for the rest—quality, domesticity, beauty, communal and civic life, skillful large-scale planning—we're missing them badly. Yet to do a good job should take no longer and need cost no more than a bad one.

By and large, there are two reasons for the failure. In the case of most architects, their education and previous practise has not equipped them for this

work. However big the previous jobs—whether skyscraper, museum, state capitol or small house—it has always been one building or two buildings, within an existing framework of streets, grades, sewers, roads. Now we are called on to create the very framework itself—the grading, the roads, the street layout, the traffic, the sewers, the water, and a whole civic ensemble. *This is as difficult an undertaking, mentally and technically, as there is.* But—and this is the second reason as I see it—the architect blithely takes on the most serious and important job of his life or of his generation, never questions *his* ability to handle it, doesn't pre-qualify himself by serious study either of other projects or of the desires and aims and backgrounds of the people he's serving, and doesn't feel the need of associating himself with someone who knows a good deal about it: though if he had the far simpler job of a school or hospital to design he would almost certainly employ an experienced consultant as his first step!

\* \* \*

The most prevalent and serious defect in the defense projects is the *bad site planning and site engineering.* It is generally bad, whether considered from the point of view of livability, æsthetics, economy, or durability. Architects of our generation haven't been equipped to do this job well either by experience or education, nor is there too much available in print that is of immediate value.\* It is for that reason that this short study is offered on site planning and site engineering. It is *not intended as a text* that will qualify the reader as an adequate technician; but rather as a provocative discussion that indicates the proper approach, states the basic problems and defects, illustrates the principles by specific successful and unsuccessful examples. The purpose of writing this

\* For suggested brief bibliography, see end of article, page 258.

will be served if it starts the profession to thinking now, if it provokes its readers into inspecting a dozen or a score of projects, into interviewing managers and families living in them, into checking the projects against the criteria and principles here suggested, and into making up their own criteria, their own minds as to what is good and bad, what works well and doesn't work well, and why. The design period allowed in these defense projects is so unprecedentedly short—three or four calendar weeks—that we must do all these things as a pre-

qualification or we never have the opportunity at all. Unless the architect has practically designed projects in his head *before* he is ever assigned a specific one, he will never catch up! He will simply turn out a lot of houses, based on the "hand-out plans" given him, and Heaven help the families living there, the locality, and posterity. What are the major, common defects in projects? What are the specific reasons for these defects? What are the principles of good site planning and of an inspiring group architecture?

## MAJOR DEFECTS IN SITE PLANNING AND SITE ENGINEERING

**AESTHETIC AND EMOTIONAL:** Buildings should be so grouped with respect to each other, with respect to their mutual color and texture, with respect to their terrain, that they create interest and expectation in people, that they exercise a dramatic impact on people living in them or seeing them. They should achieve this not because they're alien or bizarre—in fact they should be reasonably indigenous though not slavishly so—but because, being (for once) planned and conceived as a unity, there should be a beginning and an end, a focus and a soul.

Current site plans fall into pretty recognizable categories:

### 1

The USHA-fostered pattern puts buildings in *parallel lines* and at *right angles*. The pattern is so clear and invariable that the moment you enter one end of the place you know the whole project, you know exactly what every other part is going to be like. *There is no interest or thrill or naturalism or living quality.* There is no development and no dénouement and no climax. (Plate 1.)

### PLATE 1

600 units. All 2-story brick buildings on a gently sloping site in a north-eastern industrial city. No porches, no canopies.

*Just a rectilinear project with no emphasis, no relation in plan or feeling with the rest of the town, no tempting visual stopping place in the site. Combination of playground and community house might have supplied a thrilling climax, but the plan doesn't lead up to it particularly. When you actually get into it, there is no organized plan of buildings around it, but it seems rather as though there had originally been buildings over the whole area and they had simply been plucked out afterwards, leaving a gap which is then the playground.*

*Places marked A-A and B-B on plan are pleasant; scale of C-C is bad. Drying compounds too prominently visible from main street and from within project.*

*Parking: Adequate in number and location, but so concentrated in compound and on streets that it looks a good deal like the factories the project serves or the main street of the town.*

### 2

As a reaction against this you find the type of defense project that is *all curves and angles and blocked views!* These are visually and mentally confusing, and often so physically confusing that it is actually hard to create an address system or to find your way in them. (Plate 2.)

In what may be called the USHA idiom there is rarely any change of material, color or texture in even the largest project. In this Confused-Defense type this is often the case, and as often there is an excess or jumble of color and material.

### PLATE 2

600 units in 1- and 2-story brick buildings, near a southern city. Hummocky site with pronounced slope into basin marked Low Swampy. Site plan desperately confused to the point where it is difficult merely to find an address.

*Section B, marked in dotted lines, is very satisfactory. On one side of the street the houses are in a pretty straight line; on the other side it is curved. This contrast is excellent here and wherever else observed. Relation of Buildings 85 and 86 is effective.*

*Parking: Grossly inadequate, and too far from houses. As streets are not wide enough to take on-street parking, people park on lawns and in backyards. Site engineering: One side of road is wasted at D-D, also at Buildings 152, 153, 154; also waste of road leading to these buildings. Slopes of banks are excessive for sandy soil. Serious erosion due to this and due to unpaved gutters. When visited, the road had washed out at D-D and had to be roped off.*

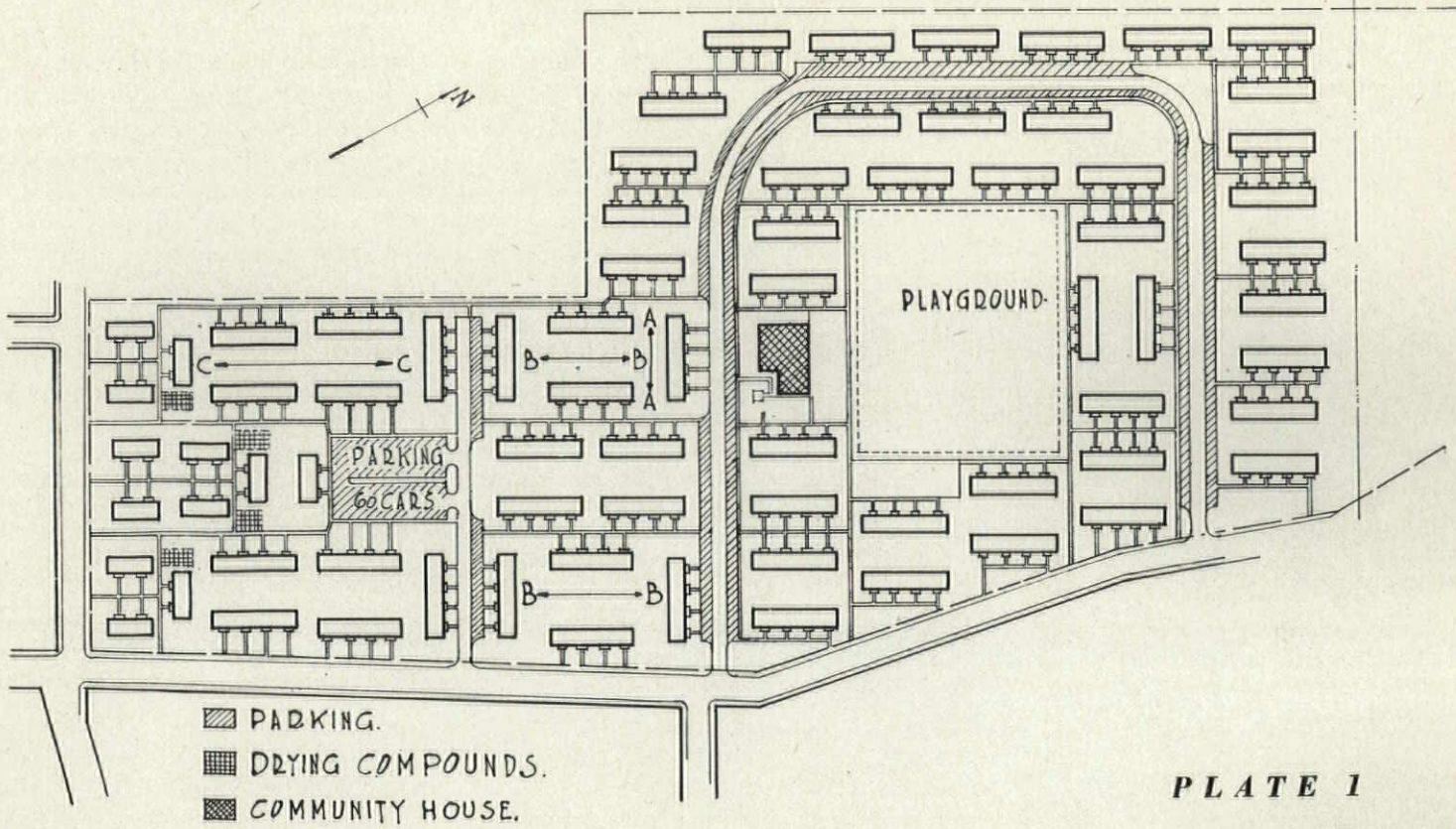


PLATE 1

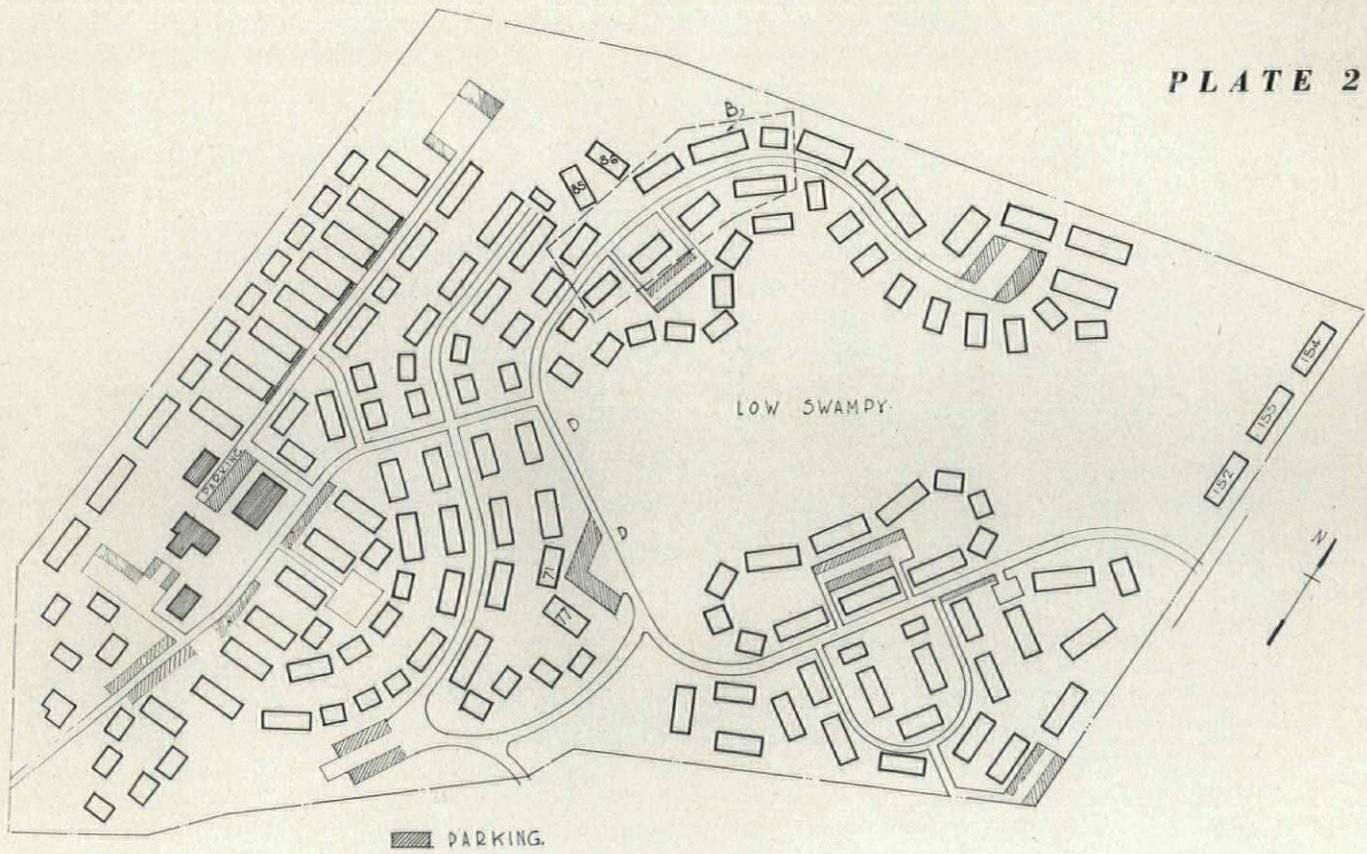


PLATE 2

3

There is a third recognizable type which may be called the PBA idiom. This is a certain organization of dwelling units into buildings of 2, 4, and 6 units which has been pretty much used *without variation, up hill and down dale, in large cities, out in the country.* (Plate 3.) A job right in the middle of nowhere—which yet is composed in large part of 6-unit 2-story buildings, well over a hundred feet long—is rather a shock to encounter in an open plain.

PLATE 3

100 units, 1- and 2-story buildings and combinations of 1 and 2; some buildings are 6 units long. Wood siding. Flat site, sloping down slightly to the west. In the country.

In itself an orderly site plan. Of very low density, there is a concentration of units into quite long buildings with unnecessarily large space between. In my judgment, an unsuitable plan for the country with rather shockingly long, scattered buildings; probably much better to have less concentration of units into buildings and more concentration of site plan; result would have been a compact unified effect suitable to establishing a feeling of community in the country.

Also, unnecessarily sparse plan has resulted in practical difficulties. West end of site, use of which could have been avoided, is so close to the water level that there has been difficulty with septic tanks and leaching fields. No sidewalks. Probably OK on this small project with its own loop road and practically no traffic on it.

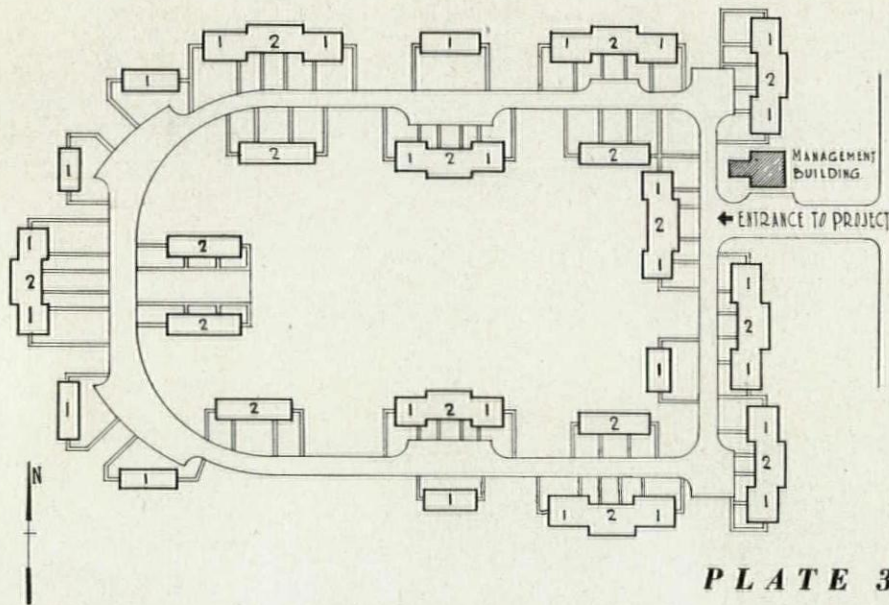


PLATE 3

Almost none of this planning produces a project which develops within itself. Worse still, it shows little or no differentiation around the country. Not only do I know the moment I walk into a USHA project in Syracuse exactly what the other end of the project is going to be like, but I know from the Syracuse project just about what I can expect in Bridgeport or in Louisville! The funny part is that a *great deal of this work has been done by local architects* so that you wouldn't expect such repetitious "formula planning." The confused type of site plan is not so uniform in detail as the other two, but its general character is just as uniform, just as lacking in individual feeling, just as lacking in integration or cumulative force.\*

\* The question naturally arises as to the degree of responsibility borne by the housing agencies for this situation. Some of the housing agencies such as USHA and PBA had some pretty fixed ideas. Two of the defense housing agencies, Division of Defense Housing, under Clark Foreman, and the Mutual Defense Homes Division, under Colonel Westbrook, gave the designing architects an extraordinarily free hand. But even in the case of USHA and PBA it was my personal experience and impression that an architect who knew what he wanted, had the guts to insist on it, and the knowledge and facts to prove his points, finally could carry out his own conception. In other words, I don't think our profession can pass the buck for the low quality of our performance.

**DOMESTICITY AND LIVABILITY:** The projects are, by and large, necessarily multiplications of a few single plans. But as it is generally mere multiplication, there is *no sense of a living community* integrated out of individual families. In a large-scale community certainly one needs a feeling of vista, of continuity, but one requires equally a sense of intimacy, of domesticity. In these projects one commonly feels one is *looking right through the project*; one feels an endlessness, as though thousands of families probably lived there, even though the size may be only 300-family. Rarely indeed does one stop and get a feeling of peace, a feeling of seeing an intimate court of two or three or four families. Walking along a project street one looks right through a sea of backyard wash into the next street. For instance, *Plate 4*, standing in Drive A looking down Drive C; and on *Plate 7* standing at A or B or C, one looks through the backyards from one end of the project to the other. Looking at a pleasant court of gar-

PLATE 4

300 units 1-story high, cinder block, in buildings of 2 and 4 dwelling units. Flat site.

North end of plan is without interest and the impression is of a sea of backyards and wash; south end, as at areas A and B with their short radius curves, is very jumbled. Views into the beautiful lagoon are not developed, the only point of visibility being at P.

Except at A and B, project is open-ended. This is particularly trying at J, K, and M where the view is out into some dumps. See text below.

No sub-centers of interest such as could have been developed at Playground. Buildings 81, 82, 105, 106 could have been changed from 2-unit to 4-unit buildings (as shown in dotted lines) which would have given some unity to this area in the project.

The angular relations of the N buildings are good, but unfortunately there is no organized view from them. Court D is good, intimate scale. Groups at E and F would have been equally good except that you look into unkempt, disorderly backyards. The view into G does not have this disadvantage, but as the ground slopes down suddenly at building 43, one sees little but the roof. A 2-story building would have been fine. 9' wide service roads, as in areas A and B, are inadequate. People drive over the lawns and park on them. Parking: Excessively distant in many cases—e.g. Buildings 34, 35, 36, 37, 38, 48, 49, 50 are over 300' from a parking space. People park on lawns and in yards. Paths: Required at G and H to get from garden to service yards. None were provided, but people have worn their own paths through.

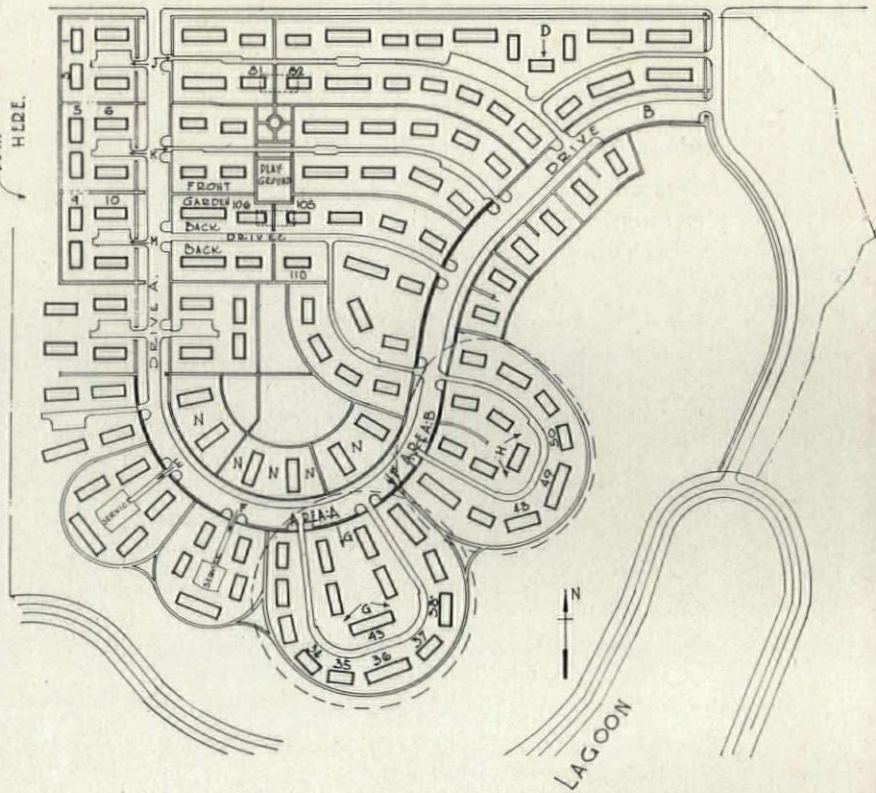
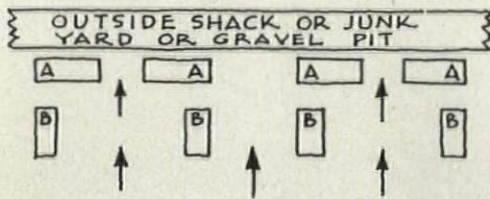


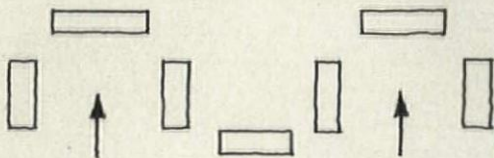
PLATE 4

Catch basins: The project is studded with pines. Their needles clutter up the horizontal tops of catch basins so water doesn't run off. Curb-side type of catch basin is required under such conditions.

dens, one must also see the sides and ends and backyards of innumerable other houses. Standing near the limits of a project, one might expect a sense of enclosure. But, no! One looks through to the shacks beyond, thus:



How easy to have planned it thus:



(and incidentally the end of A wouldn't have looked smack into the end of B).

In another sense, livability is ignored. Often the fronts of one line of houses are opposite the backs of the next line; often the washline backyards of houses face the main street. (Plate 5, "Main Through Street.") For centuries the street has had a social function; a civic function. Whatever we like to do in our own project, we have no right to desecrate the traveled streets of our town by forcing our fellow-citizens to walk or drive through our washing, our tool sheds, our unkempt areas! Nor have we a right to impose on people the necessity of keeping such working areas always spic and span. They simply won't do it, and they shouldn't be asked to. We, as architects, have the job of providing natural, pleasant ways of living. We're not planning toy communities for automatons, but living communities for people a good deal like ourselves, in towns or near towns which should take pride in the new communities, not be forced to hold their noses when driving or walking through them.

The housing of World War I succeeded much better than ours in creating an atmosphere of livability and domesticity. In a town like Bridgeport, where there is much housing of both vintages,

PLATE 5

300 units (all 2-stories) generally of 4 units each in a northeastern industrial city. Generally, the first story brick, 2nd story asbestos siding. Very hilly site.

General appearance is gratifying. While not lacking in unity within itself, its combination of brick and asbestos siding recalls the New England idiom of design and, without being slavishly antiquarian, it gives the impression of being indigenous.

Backyards on main through street are unpleasant; similarly on the other streets.

Community house well placed on high ground, a good unifying focus.

Planning is on contours, essentially good site planning, but site engineering is faulty in detail, so that rain and mud wash against the lower houses. There should have been stronger local countergrading at the houses.

Parking: Adequate for houses on Courts A and B, but inadequate in the remainder of project as at C, C, D, D where there is no off-street parking provision, and the streets are not wide enough to provide it without cluttering up traffic.

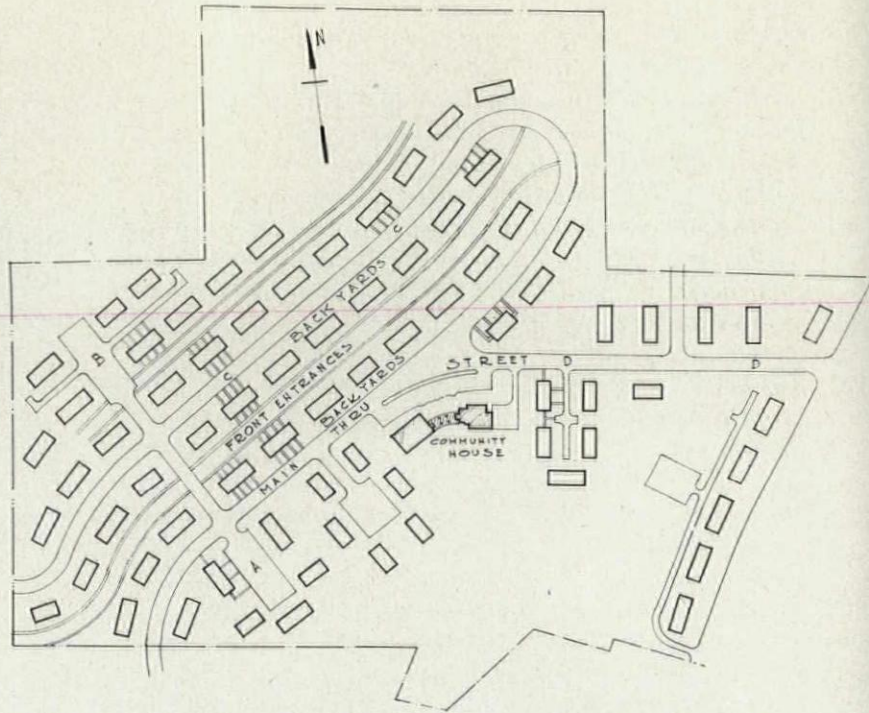


PLATE 5

the contrast is particularly humiliating to our generation of architects. True, those first World War units cost much more than ours, and the trees have grown a lot: but they are basically better jobs, even after allowances are made.

**FIRST COST ECONOMY AND MAINTENANCE ECONOMY:** Our planning has been generally two-dimensional, and has ignored topography. We have, for example, planned rectangular courts with long buildings at right angles to the grade (Plate 6) where rectangular courts on upper section of plan cross a 15' drop in contour. While this is a defensible parti on flat terrain, it has actually resulted in piling up banks over 15' high in some projects.

This involves greatly excessive amounts of cut and fill. Incidentally, it produces unpleasant living conditions with innumerable steps in the connecting paths (pity the poor mother with her baby carriage!), and minimizes the value of good views from windows over the lower houses, which can be the result of contour planning.

Furthermore, there is generally a failure to grade with the building itself. Many projects seem to have adopted a standard of two steps into the house, whereas a maximum of 4 or 5 steps is perfectly permissible. By using this leeway, imaginatively, we could eliminate much earth grading. This ignoring of topography, this building up of banks, is also going to be (and already is, in some

cases) the source of excessive maintenance cost. Serious erosion is visible in a number of projects; actual washing out of roads. It is particularly severe in sandy soils. At least we should take common engineering cognizance of soil characteristics! Another defect occurs, even in terrain with relatively mild grades. Roads are built crowned in the center, so that rain water washes down the sides or gutters, but as these gutters have in many cases not had paving specified, the storm water washes away the soil and we find erosion occurring at absurdly flat gradients!

Where there is a gradient we do get run-off, at least. Where the terrain is quite flat, proper engineering design for run-off presents a more difficult job of storm sewer design, but it is quite susceptible of solution. In many jobs this has simply been ignored, and we have the unhealthy condition of standing pools of water waiting to evaporate. (See note on page 258.)

The design of roads and of parking spaces involves questions of amenity which are closely linked to first cost and maintenance economy. Trick single-lane service roads 9' wide, insufficient parking space, or parking too far from the house, are conditions that people simply will not stand for and they take the law into their own hands. We may mark spaces on paper and call them lawns, but when the baker's truck or the milk truck or oil truck is standing in a 9' road, another car will drive past it over your paper lawn. If a man's

**PLATE 6**

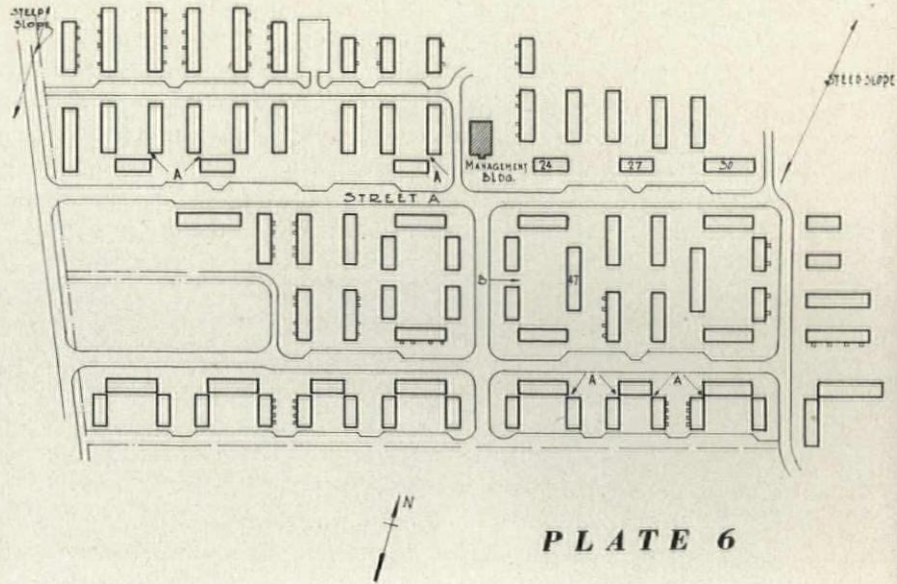
450 units, 2-story, 4- and 8-unit brick buildings near a large central industrial city. Roofs: gable and hip. North half of site, steep slope; south part, more gradual slope.

An orderly plan essentially of rectangular courts, moderately interesting but not evolving. Though almost entirely of brick, occasionally part of the elevation is white asbestos siding, as in the center of Building 47. This is pleasing as viewed from within its court or from the street at B.

The contour is quite steep north of Street A. The long buildings running at right angles to the contours cause banks of 12' and higher. Not only is this costly but also rather unpleasant, because these banks keep rising almost to the entrance doors of such buildings as 24, 27, 30, leaving a level space only about 5' wide in front of the house. Also, a great number of steps in all paths make it difficult to manipulate baby carriages. A fixed 2-step relation of building to grade accentuates the amount of grading required.

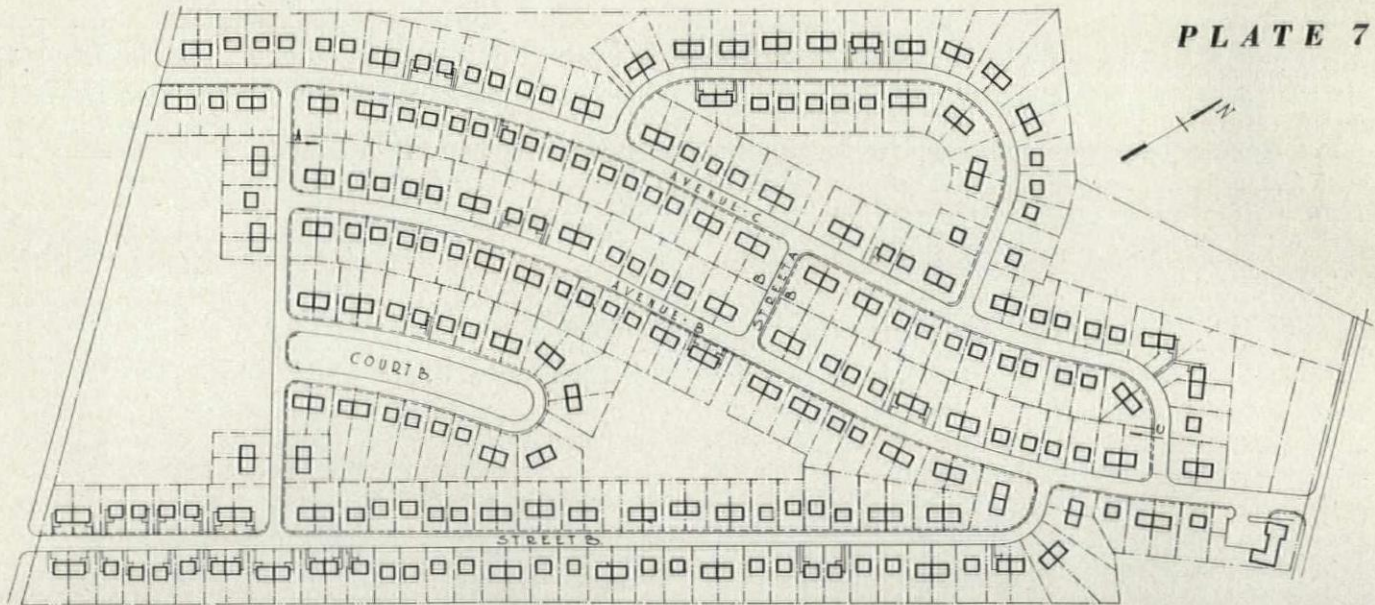
Close relationship of building corners, as at Points A, is ugly, especially with sloping roofs.

Sidewalks are 1'6" from curbs, too narrow a space



**PLATE 6**

to plant successfully, hence generally muddy. Either sidewalks should be at curbs, or far enough away—say 4' minimum—to permit a planting strip.



**PLATE 7**

**PLATE 7**

300 units, 1-story buildings, single and twin houses, wood siding. Site is very flat.

Failure adequately to consider hook-up with locality: Street B, designed as a local street purely and 24' wide, is at certain times of the day a main through highway, and completely jammed up because the main road is, generally at workers' quitting time, blocked by a train at grade crossing, thus detouring traffic into the little community.

No sidewalks: a dangerous condition, especially on this street.

Flat site with no relief—a few 2-story units needed.

Note weak vista ending looking northeast on Street B. Long-radius reverse curves of Avenue B and Avenue C much better than the straight line of Street B. Short cross streets at points A, B, C have wasted frontage; could have had houses on them, which would also have served to close these ends and give scale instead of an endless, dreary, treeless, backyard view. On this project, wash is hung between ends of buildings, not in backyards. Absence of backyard paths results in their non-usage. They are, accordingly, unkempt and disorderly.

No storm drainage; pools of water stand until they evaporate.

house is 250' away from his parking space as allotted on paper, he's just going to park somewhere near his house *no matter what the architect thinks that space should be used for*. It's easy to foresee maintenance difficulties and costs. Wasted road frontage (with the accompanying waste in sewer and water lines) is often a close question, or hard to pin down. But clear cases of this waste can be seen in *Plate 2* where one side of the road is wasted at D-D; this is also the case in front of Buildings 152, 153, 154—in addition to the considerable stretch of road leading to those three isolated buildings only, neither side being used for houses en route. In the case of *Plate 7*, there are no houses on street A, and there are two roads in Court B where one would do. In this enumeration of common defects there has been *no attempt to list all faults*, or in detail, but

rather to illustrate types of defects. In the accompanying site sketches showing typical projects, the captions list items in more detail.

In this discussion, the indictment has been couched in a pretty sweeping way. Actually there are some good, stirring, individual projects. *Quinnipiac Terrace* in New Haven, *New Kensington* Defense Project near Pittsburgh, *Clifton* in North Jersey, *Merrimac Park* in Norfolk, *Bellmawr Mutual Homes* Project near Camden, *Bantam Lake* in Connecticut, and to go back a bit further—*Chatham Village* in Pittsburgh, *Carl Mackley Houses* in Philadelphia, *Falkland* in Washington, are all fine pieces of work. *But I don't believe you could mention more than a score*. The generality still applies, and the fact that there are some good ones makes it even more incumbent on architects generally to reach a better standard of achievement.

## REASONS FOR THE GENERAL FAILURE

**GENERAL REASONS:** Lack of experience and technical knowledge of community planning; complacency of the architectural profession; concept of the community as a sum of houses merely, not as a *living organism which should satisfy both the daily needs of its inhabitants and their aspiration to belong proudly to a community with which they can identify themselves and to which they can contribute loyalty and service*. The first thing the architect must do is to acquire the frame of mind not of planning an extraneous job as an outsider, but first to say to himself, "I belong to that community: what would I need and want and expect?" A further criterion in this connection is the necessity, up to now pretty much ignored by architects, of considering the relationship of the new community to the larger community to which it is being added. To cite specific instances—the cavalier treatment of the main thoroughfare on *Plate 5*; the Liberty Avenue difficulty on *Plate 7*. (See the caption notes.)

**SPECIFIC REASONS:** The greatest single disadvantage is that the architect sits far above the plan, sees the whole bird's-eye pattern, and sees effects that no one else but an occasional aviator will ever see. The *viewpoint that counts is that of a man walking along the street, or sitting in his garden, or looking out of his window*. The short-radius curves, as in the courts on *Plate 4* marked A and B, look swell to the architect-aviator; but from the ground it looks merely like a jumble of houses shooting at you from all sorts of angles with a feeling of disorder, of chaos.

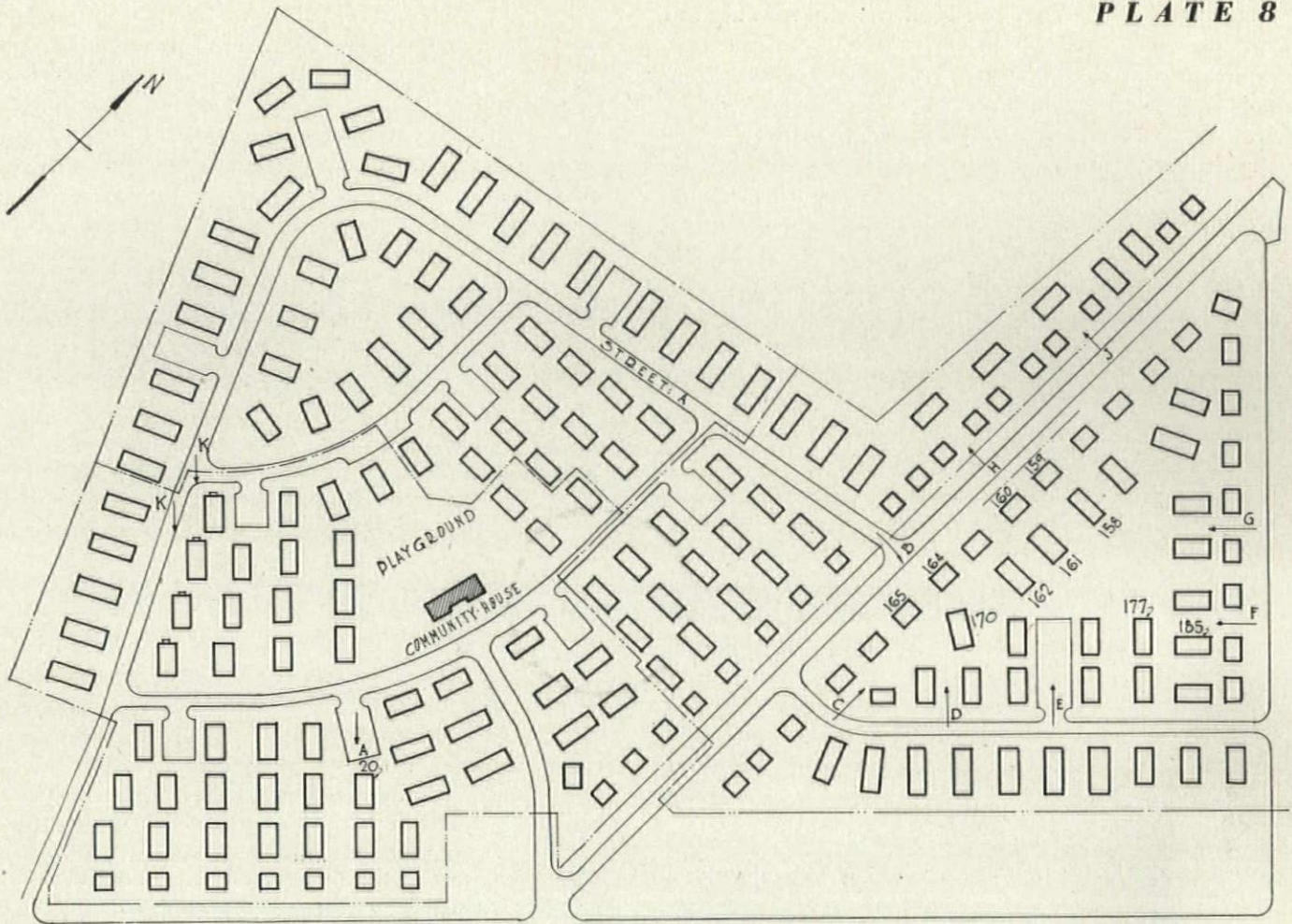
This bird's-eye planning has a second bad effect. It tends to *obliterate consciousness of contour*, or topography. We tend to make plans suitable for paper or for flat terrain.

One of the first steps to be taken, which will counteract this bird's-eye business, is to *make a topographic model and models of buildings*, however crude. And then to place our models at eye level so that we constantly get a man's-eye or a worm's-eye view. If we do this from all sorts of positions, we shall also tend to avoid the defect of:

2. One-Station Planning—There is a *plan tendency to create good views from a few selected places*, e.g. at the head of a street or *cul de sac* looking down it, or in front of a court standing on the center line. But people spend only an instant of time in such positions. Their impression is gained from the ninety-nine other positions they reach in walking or driving through, or from their own window, and from the sitting areas and playgrounds. The window views and the ninety-nine views are at all sorts of angles, and we've got to get a maximum of those views that are interesting and pleasant. See *Plate 8* at points C, D, E, G for some of these unconsidered 99 views. Looking out of a second-story window over one-story houses at another two-story building in the distance (as at Clifton in New Jersey) is an illustration of an *extremely pleasant sensation achieved from one of the ninety-nine views*.

3. Natural and Unnatural Planning—I'm convinced that to plan successfully and permanently we've got to plan naturally. People just don't stand for trick solutions such as *single-lane streets*, or *backs*





## PLATE 8

350 units. 1-story wood siding demountable, in single and twin houses in the south. Site slopes gently. This plan seems to go on and on: Almost everywhere, except at points H and J, you look through the project and not at anything; when you are near the boundaries, you simply look through to what is beyond. Point A looks at the narrow end of Building 20 and beyond it on both sides. If this building had been turned at right angles, the eye would be happier. Organization of Buildings 164, 165, 170 is bad, whether viewed from Street A, from Point C or Point D. The eye takes in too many irregularities. E, F, and G yield the same sort of unsatisfactory view. At F you look right past the end of Building 177 where the eye demands a complete end to the vista. If it had been shifted so as to center on this opening, this condition would have been improved, and the south end of 177 wouldn't have looked smack into 185. Staggered views at K are good, particularly because they are marked by the end entrances. Parking: Woefully inadequate off-street facilities, and roads not wide enough for on-street parking. No parking at Community House. Erosion. Though grades are flat, the road and sidewalk are eroded. Road is crowned to center, but gutters are not paved. Paths: Communicating paths in project are 3' wide, too narrow for bikes, even for two people to walk.

to front, or excessively distant parking spaces, or excessive walks to dispose of garbage. Either they violate them right away, thus making a hash of the conceived plan, or eventually the plan itself will be changed where it is possible to do so. If an architect has some brilliant, original idea he will come nearest to having it carried out by making most living conditions natural, rather than by forcing people at all points.

**COST LIMITATIONS—SPEED—SITE SELECTION:** While, of course, the very rigorous cost limitation does somewhat stand in the way of the finest accomplishment—certainly militates against the best standards and degree of permanence—I feel that this is *not a major cause* of the generally depressing character of the work, or of the major portion of the specific defects encountered. Within the cost limitations we can still do much better work than we have been doing. Indeed, *well-designed projects need be no more expensive than poor ones and are probably, generally cheaper.* The most harmful effect of cost limitation has been psychological. It has sometimes produced

the attitude of "What the Hell, we can't do a good job at these costs anyway!" Actually, these cost limitations are a *challenge to produce a new low-cost idiom*, to abandon the hope of producing simply a watered-down version of Middle Class design and Middle Class ornament, or "individuality." We are forced into *skillful and imaginative use of site* and topography, of materials, of building height, of *design in the larger terms* of the whole street or *cul de sac*. Above all, we have the great advantage of the scale and mass of the group house and the double house; while the Middle Class developer is tied to the inadequate chopped-up scale of his single small house. We are practically forced into unity of design, *but not into monotony*.

The requirement of speed simply puts a premium on the pre-thinking, the pre-experience, the pre-qualification of the architect. The architect has the choice of batting out the job, using the government hand-out unit plans, putting them together into stereotyped site plans and thus pushing the job out; or of analyzing such hand-outs and thinking out site plans and community requirements long before he has a job. *Then the minimal design period becomes simply the end fragment of a long and adequate process, instead of being the whole inadequate process.*

In this connection, it would be fine if the authorities notified the architect of his selection ahead of time—as they often have done—so as to give him more time in fact, if not in theory. And still further, where feasible, the architect might be called upon for his opinion on contemplated sites—for of course a good site is half the battle!

### SOME DESIGN PRINCIPLES AND IMPRESSIONS

These "principles of design," offered with some diffidence, are simply the results of my own thinking and of my observation of what does and doesn't work out well in practise.

**UNITY OF PROJECT AND DRAMATIC INTEREST:** The whole community must be the basis of design. We must get the sense of the build-up of individual homes into a community. We must avoid the endless, pointless, sterile rows of houses that don't reach a focus anywhere; but we must equally avoid the developer's overindividuality of interest which chops up his development into quarreling atoms, which is tawdry and meaningless, and which by violently avoiding monotony actually achieves a restless super-monotony.

We can achieve the unity and the drama which a community requires, in two ways. The community as a whole requires *some focus impressive in itself*, and heightened by a site plan which inevitably leads into it. This focus may be a community

### SUGGESTED REMEDIES

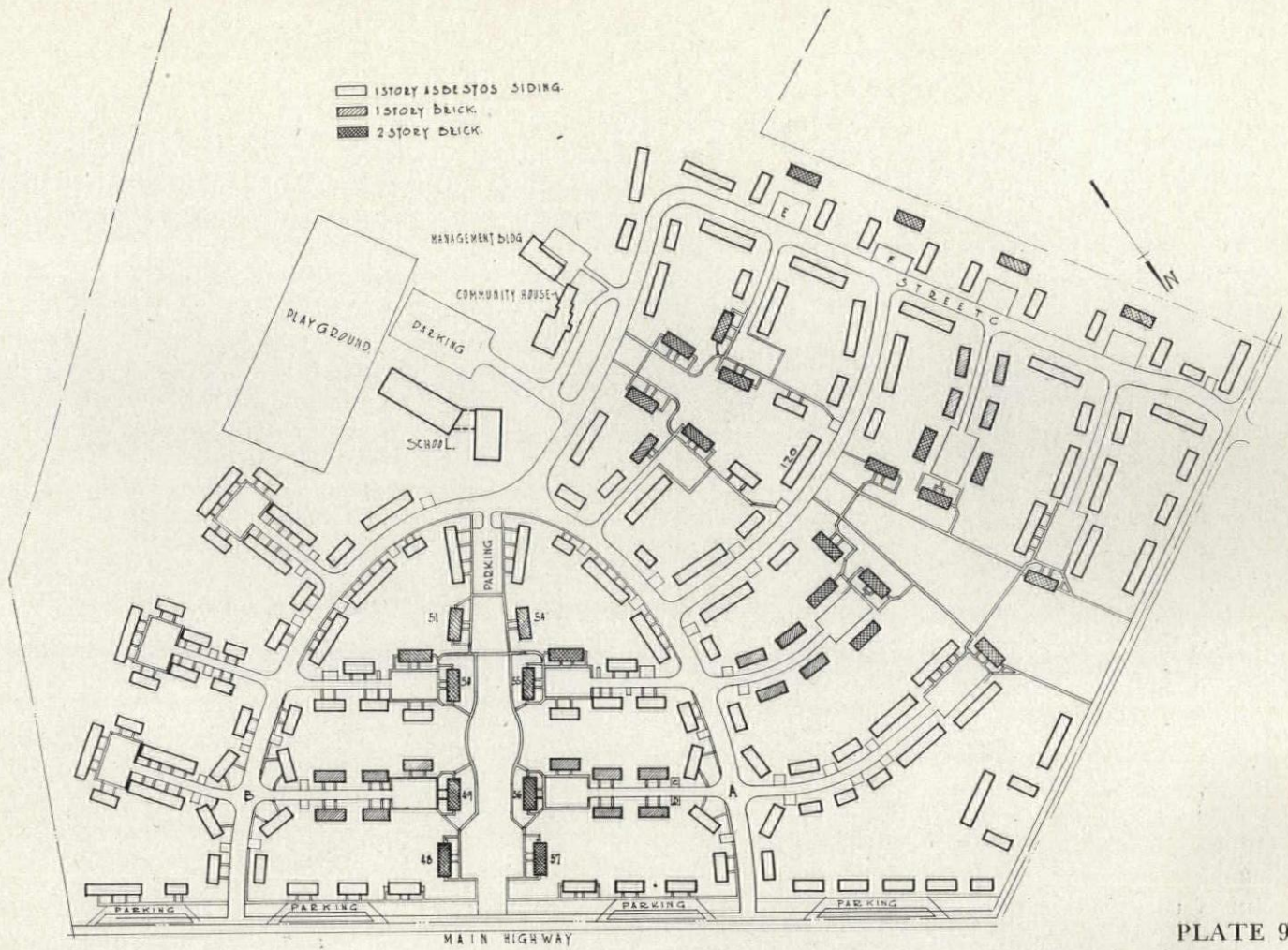
The statement and discussion of defects has in itself stated or implied the remedies. There is just one general suggestion that may be added. The architectural profession is lucky—or it may be unlucky if we don't deliver a finer account of ourselves—in that *projects are being handed out generally to local men*, for design. If the rather natural practise were followed, that characterizes the award of industrial defense work, of picking only the few best qualified and recognized organizations, the profession would be out of luck.

There are Albert Kahns in housing and community planning, some widely known and recognized, some not so generally known. It seems to me that *most architects*, who have luckily (and possibly prematurely) been projected into this vastly significant and complex work, *would do themselves and the profession a service by associating themselves with such men* in one way or another, so that they could achieve the benefit of mature experience. This doesn't mean a sacrifice of their own ideas, but it does mean the assurance of technical adequacy and the benefit of trained criticism and experience brought to bear on their own ideas *during* the design period rather than after the project is built, when the defects are apparent but it is too late to do anything about it.

From my observation, and from actual discussion with them, it is quite apparent that the *speed of the program prevents the Washington authorities or the local authorities from contributing really effective criticism*. The Consultant or Associate plan has been used in a number of instances and, as far as I have been able to check, has worked well.

house, or a playground, or a fine grove of old trees, or a group of two-story houses in a one-story community. For failure to capitalize such a focus, see the playground and community house on *Plate 1*, important in itself, but masked from most parts of project. See the handling of this idea of a community focus, *Plate 9*, which has turned out well. The planning leads up to the school and the Community House, each of which can be seen from the two highways.

But we require also *sub-centers of interest* and a domestic scale. For example, in a project of long continuous vistas, we can get the contrast of occasional intimate courts, or we can plan a terminus of a two-story brick building to an avenue of one-story asbestos siding houses. See proposed change



**PLATE 9**

at playground on *Plate 4*, where small Buildings 81 and 82, 105 and 106, which don't terminate the vista, could have been changed into longer centered buildings (shown dotted) to have created such a sub-center of interest.

I think we must avoid the completely open-ended community plan, which you *always look through*. We certainly don't want an entirely self-enclosed community, but we do want a *sense of definition*. I would say that we should consciously place our open ends where there is a decent view—a park, a church spire, a hill—for with indiscriminate open ends we not only have a moth-eaten appearance, but we are subject to the outside ugliness that already exists or may later descend on us. See sketch of suggested change at edge of project on page 249. See also the lame vista ends on *Plate 7* looking north on Street B; at the confusion of Buildings 164, 165 and 170 on *Plate 8* looking east on Street A.

**PLATE 9**

(Defense Housing Project designed by the author.) 500 units, 1- and 2-story, 2- and 4-dwelling units. 2-story units are brick with flat roofs and overhangs. 1-story units are brick, asbestos siding or wood, some with hipped and some with gabled roofs.

Note views through the project to the foci of the school and the community house. Example of secondary foci: the diamond shaped disposition of buildings at A and B marking cul-de-sac entrances; the 2-story brick buildings generally at heads of cul-de-sacs. Note one-story Building No. 120 which was placed where it is to break up the possibly over-monumental axis terminating at the community house. This is not so successful.

Note axis from main highway to school. Buildings 48 and 57, 51 and 54 have front gardens on this axis; but Buildings 49, 56, 50, 55 have their backyards on it—not so good. It is hoped the planting will adequately handle this situation.

Note brick cul-de-sacs whose purpose is to clarify the plan concept.

Note courts off Street C, domestic in scale and feeling, contrasting with the long views in other parts of the project.

Wherever possible, backyard areas are more or less enclosed by buildings.

Parking: Provision for 1 car per house in off-street parking. This is handled in three typical ways: small indented spaces as at C, D; larger concentrations (6-10 cars) as at E, F; and 10-12 cars at heads of cul-de-sacs. Probably this last is over-concentration.

2. **CLARIFICATION OF PLAN—MATERIALS AND COLOR:** As we are not planning for birds or aviators, we must do everything possible to make the elements of our plan, its skeleton, clear to the ordinary observer visiting the project or living there. One way to achieve this is to avoid spacing lines of buildings equidistant from each other—for example, the street fronts might be 70' apart and the yards 110' apart. Another way is to *emphasize your plan by color and materials*. If, for example, we can use some brick we can achieve some gaiety and contrast by individual brick buildings at significant points, and reserve the bulk of our brick buildings for use in zones—e.g. one whole *cul-de-sac* in brick so as to distinguish it from adjacent *cul-de-sacs* rather than to let the whole job pile up, or become bizarre by too indiscriminate a mixture. Color can be used similarly. We would not want to use just one color in an entire zone, but we can use a family of colors which will give some contrast but still yield a larger unity. The *overfrequent use of violent color contrasts from house to house is not successful* in the two or three projects where I saw it.

Variation in building heights is another element in clarification, in emphasis, and in variety—as for example to emphasize a ridge or an end view. But if used indiscriminately, or if two-story and one-story are so placed as to give a sawtooth outline, the effect is restless.

Of course, the use of material, color, and height, in some such ways as here suggested, must be kept *within the bounds of cost limitations*. We mustn't overdo it, and we needn't. I have found that in projects of as little as 250 units, these purposes can be achieved without requiring more type plans than can be economically standardized.

3. **INTERESTING AND UNINTERESTING BUILDING RELATIONS:** The long, straight street as Street B, *Plate 7*, is *dreary* where there is no striking end vista. By contrast Aberdeen Avenue (Avenue B) and Swan Street (Avenue C) on long reverse curves are much more interesting and create a feeling of suspense.

The short-radius curve, as on *Plate 4*, (F, G, and H), is definitely a wash-out, a mix-up.

The use of the slightly angular relationship of buildings, as at Points N on *Plate 4*, is *definitely stimulating* as compared with the parallel.

The emphasis and opening up of the four units in a diamond shape, marking the street intersections as at points A, B on *Plate 9*, works out well. Buildings placed at right angles to each other, and almost touching—say less than 10' apart—are *definitely unfortunate looking*, particularly when there are sloping roofs. This is architecturally weak and disappointing; the composition *seems to sag where it should be strongest*. (*Plate 6*)

4. **PARKING SPACES AND THE FEELING OF DOMESTICITY:** Large concentrations of parking, as on *Plate 1*, are definitely destructive of a feeling of domesticity. The impression is of Main Street, of industrial plant, of sports arena, not of a community of homes.

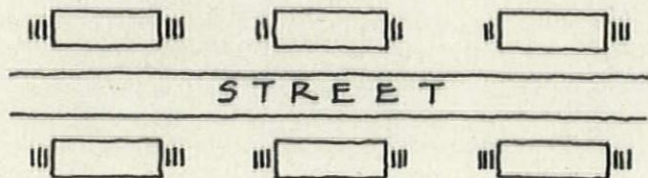
And aside of appearance and amenity, *the whole question of parking hasn't in general been systematically studied*. Often, there is not enough parking provided, and the distances are excessive. (See notes on *Plates 2, 4, and 8* for example.) From observation I would say that parking should, if possible, be provided on the basis of 1 car per family plus 50 percent for visitors; that parking close to the house is a necessity especially in northern climates; that concentration of more than 6 cars is unpleasant; and that the unit and site plans should be such that eventually every dwelling should be able to have its garage either attached or close by. *The one place that requires concentrated parking is the community house*. The projects I've seen do not provide adequate parking facilities at this point.

5. **DEFINITION OF SPACE—ORIENTATION:** The general visual merging of backyard and front garden and drying yard and street is, to me, most unpleasant. *It is a sloppy way to live*. I believe that functionally and spiritually they require to be separated as far as reasonably possible. I believe that end houses should have been placed blocking the backyard view, as would have been easily possible on *Plate 7* at points A, B, C; that the facing of fronts and backs, the facing of backyards on a main street as the main street on *Plate 5*, the placing of drying compounds as in *Plate 1* where they are visible from so many points in the project, that *these awkwardnesses should have been avoided or minimized*. They can't all be 100 percent eliminated, but we should plan on the principle of minimizing their frequency and prominence mainly by the placement of houses; and in some cases where it can't be avoided, by walls or hedges.

I am aware that the ideas of planning expressed in this paragraph contravene the theory of uniform optimum orientation. *But I don't take this theory of uniform optimum orientation too seriously*, for a number of reasons. First, the two-room-deep group house without re-entrant angles will always get sunlight (or shade) in some rooms at any time of year. Second, in the case of one- and two-story buildings with front and back yards, we can always go outdoors for sun if we want it. Third, personal preference enters in too strongly. For example, some people like afternoon sun in the living room, others don't. While on the other hand we can all agree on some definitely advantageous characteristics of orientation, these seem to me of less weight in pleasant living than the factors discussed in the preceding paragraph. We should

certainly not fail to weigh the orientational and prevailing wind factors, especially in the extreme southern and northern latitudes of our country, but it is only one factor among a number.

6. *RELATION OF INSIDE TO OUTSIDE*: In general, we haven't yet planned imaginatively to produce a feeling of relationship and transition from inside of house to outside yard, street, and garden. *The most extreme case was one where there were all end entrances so that one had the feeling of passing by a series of closed boxes, thus:*



This end entrance *parti* was well handled by the sawtooth pattern on *Plate 8 (K)* but my recommendation would be against exclusive use of end entrances.

Decent-sized canopies or porches, where they can be afforded, are good tie-ups between interior and exterior, *not only visually but functionally and pleasurably*. I would rather spend the money on a roof canopy and a platform even for only one or two chairs, than on a stone or other entrance door motif such as some of the projects have. These are useful, too, in protecting our non-weather-stripped doors. Both for appearance and use they've got to be sizable—at least long enough and deep enough to shed water away from the entrance.

Absence of back paths—usually a question of economy—often results in these areas being *unused due to dislike of wading in mud!* This gives a paper-filled, neglected, woe-begone feeling to these back yards. Paving, or at least gravel under the wash-lines, is important as promoting convenience and use of the exterior spaces.

One terrific and yet *unsolved problem is a convenient way of handling garbage*, and one that doesn't hurt the appearance of the project either always or at least on garbage collection days. The different systems of collecting garbage, the frequency of collection, the question of separation or not of garbage and trash and bottles—all these differ in different localities. The only point that can be made here, without going into too great detail, is that it's a mean problem and that we must consider it *not an incidental but a major one* in planning and detailing.

7. *ONCE MORE—FOCUS, DRAMA, NATURAL FEATURES*: A successful example is the Community House on *Plate 5*; the location is central, on the highest spot, the project naturally converges to it, and the design itself is good.

In the project shown on *Plate 6*, there are some marvelous views from the upper end of the project out over the river far below, but it is visible only from the immediately adjacent houses—the project as a whole is not made aware of it, either by naturally opening out toward it or by placing some open spaces and playgrounds to get the full benefit of the view.

In the project on *Plate 4* is a lagoon just beyond the houses, to which the view opens occasionally, as at point P, but again it is *not handled or heightened as a recurrent element*. This project is studied with tall, straight pines which are stunning from a distance, but curiously enough one is not sufficiently conscious of them when in the project. The reason is that the low, one-story houses keep the eye down, well below the tree crowns. If some or all two-story buildings had been used, the eye would have carried up; the tree crowns and the houses would have become associated in a thrilling effect.

In the insistence of my feeling for the focus, the drama—the sublimation or epitome of the project if you like—I would not be understood as seeking the monumental. *That kind of pretentiousness must certainly be avoided in these communities as being contrary to their spirit*. The excessively long formal axis in the Red Hook project in New York, for example, is just simply *out of place!* On the other hand, the management or community buildings in a number of the projects are so inconspicuously designed, so like the ordinary houses, that one gets no sense of lift. The element doesn't produce any heightening or focusing effect at all.

\* \* \*

*Perhaps this strong statement of defects, remedies, recommendations, principles, sounds too dogmatic and pontifical*. Having thought a good deal about these problems and observed and studied my own work and a large number of other projects, these are the conclusions I've come to. No one else need come to all the same conclusions, probably shouldn't. *But every architect entrusted with the design of a community should face every one of the problems here raised*. He should search his own mind and search out projects and people, should formulate his own answers, should, above all, feel that he is being given a wonderful and sacred opportunity to justify himself, his profession, his generation. We're being given a grand chance. *If we don't do a grand job, or at least a worthy job, we're likely not to get another!* We're likely to be frowned out by the government bureaus and the architectural specialists who, *at the lowest*, can at least always be counted on to *do a competent job*.

Certainly that would be *the easiest way for the government* to get the job done. On the other hand, the government and the country will gain in the long run if the work is spread through the

profession, for the vast post-war work will gain from the broader, firmer base thus created. But if we do work now that fails to justify the confidence placed in us, there is just not going to be any long run, as far as we're concerned.

There is even a more important client than the Federal government whom we've got to convince. In the last analysis, the government represents people. *If people are alienated by the work we're doing now, this is going to be reflected in the post-war housing program.* If they find that we haven't been able to make good on the rosy picture we've given them of the advantages of large-scale housing and community planning, the people and Congress are going to tend to say NO to further efforts.

The ultimate client and the ultimate critic is posterity. Architecture cannot lie. It's there for all to see and there it stays. Our generation of planners is being given a great, though by no means a perfect or unimpeded, opportunity. *Either we'll*

*be looked upon as a generation not big enough to measure up to the demands made upon us or we will be considered among the most significant builders in history.* Of course, some of the conditions for great performance are beyond our control and must be molded and determined in other spheres. *But no element in the whole complex has so important or significant a role as ours,* not only because we have the immensely important function of designing an assigned project—on some of the aspects of which this essay tries to throw some light—but because, from our intimate connection with design and execution, we should help throw light on and help determine some of the basic conditions determining the design and nature of the communities. While these more basic considerations are beyond the chosen purview of this discussion, I urge my fellow architects to dig into them, to find out about them, to seek and play a part in determining them. In other words, the Ideal is the Architect-Leader-Citizen.

(Author's note, see page 250—In this condemnation of some of these site engineering and utility performances, the field supervision by the housing agencies must take a good deal of the blame in many cases. Often grades are substantially changed from those on the plans without consulting the architect or getting his analysis; knowledge of good practise in grading, backfilling, and paving is lacking, certain preventive landscaping such as early planting of banks and use of ground cover is not employed. Ground cover should be an essential part of the specifications for these projects, for erosion takes place even with reasonably good engineering design if there is nothing to hold the earth together.)

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*Rebuilding Urban America*—by HENRY WRIGHT. Columbia University Press. A comprehensive job of analysis and synthesis by one of the finest community thinkers and creative topographic planners this country has produced.

*Town Planning*—by THOMAS SHARP. A Penguin booklet. A provocative, short, non-technical discussion of the nature of a community, of town and country development and planning, of the architectural defects of present work and the architectural principles that should guide it and have guided it in the successful work of the past. Written about English conditions, it applies equally well here.

*Site Planning in Practice at Welwyn Garden City*—by DE SOISSONS & KENYON (the architects of Welwyn)—Ernest Benn-London. A unique and superlatively useful study by site plans and diagrams and photographs which are intimately related to each other.

*The Design of Residential Areas*—by THOMAS ADAMS. Vol. 6 of Harvard Planning Studies, Harvard University Press 1934. "Basic Considerations, Principles & Methods." A practical handbook giving data, design and detail of streets, roads, sewers, etc. Though not too applicable in detail to present work, it seems the best study available; yet does not ignore the general principles involved. (One may, however, well differ with their principles.)  
\* \* \*

Also, two useful short studies of community planning by actual practicing architects, which are, however, more applicable when the architect has more responsibility in studying basic conditions than he is permitted in defense projects:

*A Technique for Planning Complete Communities*—by ALBERT MAYER. Architectural Forum—January and February 1937.

*An Outline of Community Housing Procedure*—by CLARENCE S. STEIN. Architectural Forum—March, April, May 1932.

# THE BUSINESS OF WAR HAS NO FUTURE

BY DON GRAF

This war is being fought so that we may have Peace—the kind of Peace that will bring security, happiness, and freedom to the human race. Men are dying. The fruits of labor are being created with untold speed only for purposes of immediate eradication. Billions of dollars, millions of human lives, tears and toil and tragedy are loosed in the most terrifying orgy of destruction ever seen in the world's history!

Why?

So that one day the factories may hum with the production of goods for Peace. So that one day a man can drive into the country with a mind free of fear to enjoy the outdoors with his family. So that one day he can have a home, and friends, and a savings account.

Does this end justify some of our thinking, now? Cannot a small part of our brains and skill be devoted to reconciling the solution of the problems of war with the consequent *creation* of the *new* problems of peace?

There are those who say, "We must win the war first!"

But the problems of war and peace are *inseparable*. In a true sense, the very war itself is POST-WAR PLANNING! Most of the tremendous dislocations in domestic economy that will present serious unemployment, industrial, trade and fiscal problems, can be clearly anticipated *now*. We can prepare proper measures to meet them *now*. We can smooth the transition to Peace so that in the winning of the fight itself we will not lose the very thing we are fighting for!

What part is the Building Industry willing to play? The British have called their own building industry "The most backward segment of the British economy." After the war are we of the American Building Industry to face the same indictment?

Right now it would so appear!

Out of the more than 100 private and government agencies in the United States who are planning now for the post-war period, there are none to represent the whole of American Building Industry! The second largest industry of the Western Hemisphere is not taking steps to preserve its own health and soundness with the coming of Peace! It is not using that margin of technical skill and planning brains which are superfluous to the war effort in order that the industry may help, instead of hinder, the nation's Peace recovery.

When the war is over, and the tumult of our happiness over the coming of Peace has died down, what shall we of the construction business have to face? Will the vast, pent-up demand and purchasing power to buy the buildings of Peace-time be met with efficiency?

Will architects have working drawings and specifications ready for needed construction? Will their offices be open and ready to put men to work on further documents so that the greatest *potential* building market in history can become a reality? Will they have to learn all over again what building products to use and how to use them?

Will material manufacturers have an *immediate* new peace-time market when Uncle Sam no longer needs the output of their expanded factories? Will manufacturers be able to *relieve* an industry unemployment problem—or will they *add* to it?

Can we honestly and patriotically afford to disregard the Peace-time future?

It is not only a selfish motive that requires architects, builders, building labor, and material manufacturers to look ahead. It is a high and patriotic duty to the rest of the nation.

The Building Industry can best serve America by serving itself—we must PLAN NOW!!!

' PEACE WORTH FIGHTING FOR IS WORTH PLANNING FOR

# WAR PRODUCTION BOARD

WASHINGTON, D. C.

April 17, 1942

To the ARCHITECTS AND ENGINEERS

OF THE UNITED STATES

The construction of the necessary structures that are required in the execution of the War Effort in the United States presents a serious problem. Available materials are limited and the demands on our national stock pile are great and growing greater. Our only help lies in conservation—by using those quantities of scarce materials that are absolutely necessary to attain the desired ends.

This immediately brings to the fore the basic rule of conservation, which is to eliminate the use of critical materials or to substitute materials that are less critical for the more critical ordinarily used; or through the use of materials that are entirely non-critical. To do this, changes in design and type or method of construction are usually necessary—the abandoning of the usual or “latest” forms is often essential in order that the goal may be attained. The answer is often found in “reverting to type,” or those forms previously used and until recently superseded by more advanced methods.

The Romans did a commendable job of building without steel for structural members, windows, partitions, or roof sheathing, and some of their structures still survive. Their form of mass masonry is slow of execution, but wood construction is not so limited and the materials for it, including the necessary fastenings, are available. As for permanence, some specimens of this form of construction in European buildings have survived several centuries of use. However, permanence and the ultimate in structural values are not the main objective today; speed in production is the important point.

Adaptability to use is an important factor and occupancy limitation must be considered in the selection of structural materials, also fire and other safety affecting hazards bearing upon the problem. Cost cannot be permitted to control. Utilitarian structures of the masonry wall bearing and joist or mill construction types, with wood door and window units in arched openings, are indicated. Reinforced concrete or steel members or entire frames may be essential for certain uses, but their necessity must be unquestionably demonstrated before they are included in a given project.

In short, our problem is very serious and the necessity for obtaining the correct answer most urgent. Materials but recently commonly thought of as usual, customary, or necessary are not now available, but structures must be built.

Both the materials and methods of construction used by those who founded and developed our country are available. So also is a very great amount of technical skill and American ingenuity. It is in the combined application of these that we who are charged with the responsibility of preserving the nation will find the answers. Let every designer of structures, or user of materials, keep the idea of conservation foremost in mind when creating those structures that must be built; and into which he must put the utmost of his skill. Critical lists indicating the elimination and limited use of materials as issued by the Government must be followed, but conservation should not stop there. The man “on the board” and at the specification desk can contribute greatly, and his will be a major part in effecting conservation, in relieving construction difficulties, and materially assisting in the advancement of the War Effort.

LESSING J. ROSENWALD, Chief  
Bureau of Industrial Conservation  
War Production Board



# WHAT CAN WE USE? PART II

Now the war really catches up with us. WPB's Conservation Order L-41, long rumored and labeled in advance a "Stop Building" order, became effective April 9. As with many similar orders, some time may elapse before its import is fully realized all over the country. Terms of the order include drastic penalties for violations, which are made crimes punishable by fine or imprisonment in addition to prohibition of further deliveries, processing or use of material under priority control, and refusal of further priorities assistance. The order has been widely disseminated and variously interpreted. The latter is natural; yet, as Federal pronouncements go, the order is remark-

ably clear. Its main provisions follow.

New construction permitted *without specific authority includes* (1) Residential work costing less than \$500; (2) agricultural work costing less than \$1000 (not including dwellings); (3) commercial, industrial, road, utility, etc. construction costing less than \$5000; (4) necessary maintenance and repair work which involves no change in design. Also, projects for the Army, Navy, etc.; those controlled by "M68" orders (production and distribution of petroleum); and rebuilding of residential construction damaged by a catastrophe of natural or enemy origin, are permitted. Beyond these limits, specific authority to begin construction is necessary. The order does not stop construction that has already begun. But  
(Continued on page 264)

TYPE OF EQUIPMENT	RECOMMENDATIONS FROM:	
	VICTORY HOUSING AGENCIES	VETERAN'S ADMINISTRATION
CHUTES Laundry	Use wood instead of metal; or omit if possible and add later.	.....
Mail	Omit.	.....
Rubbish	Use wood instead of metal; omit if possible and add later.	.....
CLOSET	Omit metal fixtures where possible; use wood shelves, cabinets, etc. Omit curtain tracks.	.....
DECORATIVE DETAILS	Omit.	Use non-ferrous materials.
ELECTRICAL Fittings	Clamps, lock nuts, etc., may be zinc or cadmium plated; supports, sleeves, etc., may be ferrous metal (no metallic coating); copper, etc., for current-carrying parts only. Copper (and alloys) for current-carrying parts only.	.....
Fixtures		Steel, painted or enameled; or non-metallic; plastic shells for sockets.
—Exterior	Non-metallic, or ferrous with non-ferrous coating; no metal standards or posts permitted.	.....
—Interior	Non-metallic, or light-gage ferrous, with non-metallic shades and reflectors.	.....
Low Tension (communication, etc.) Outlets	Omit intercommunicating phones; door bells and releases okay for multi-family dwellings. For each dwelling unit, not more than the following per each space or area: Basement ..... 5, if no utility room in dwelling. 3, if utility room in addition to basement. Bath ..... 2 Dining ..... 3 Entrance ..... 1 (exterior) Foyer ..... 2 (private foyer) Garage ..... 2 (one-car) 3 (two-car) 2 per car stall for multi-family buildings Hall ..... 2 (private hall) Kitchen ..... 4 Living Room ..... 4 Utility Room ..... 3 Other habitable Rm. 4 Other areas, special-purpose outlets, etc., as determined for individual case. The following each count as 1 outlet if installed in 1 box: single snap switch; switch plus convenience outlet; duplex convenience outlet; fixture; fixture plus convenience outlet; special-purpose outlet.	.....

**RECOMMENDATIONS FROM:**

TYPE OF EQUIPMENT	VICTORY HOUSING AGENCIES	VETERAN'S ADMINISTRATION
<p><b>ELECTRICAL</b> Outlet Boxes</p> <p>Wiring —Conduit, etc.</p> <p>—Interior</p> <p>—Wiring Devices</p>	<p>Non-metallic; except ferrous (enameled) boxes permitted with metal raceways, etc., ferrous (zinc coated) optional for embedding in exterior masonry or where subject to severe injury.</p> <p>Flexible metal, zinc coated, permitted only for motor connections; metallic tubing, enameled, only for embedding in masonry or housing no. 4 or larger exposed conductors; zinc coated only for exterior masonry or for No. 4 or larger conductors outdoors. Rigid conduit optional only as for metallic tubing, where subject to severe injury.</p> <p>Types such as knob-and-tube preferable to concealed wiring wherever possible. Permissible conductors are covered neutral, insulated single, non-metallic sheathed cable and service cable. Armored cable permitted only for embedding in plaster, in chases, for motor connections, or for fishing through existing concealed spaces.</p> <p>Non-metallic plates, outer shells, covers for lamp holders.</p>	<p>Black enamel; steel junction boxes, painted.</p> <p>Enamel, iron or thin-wall in fireproof buildings.</p> <p>Molded plastic or stone panel boards. Non-metallic sheathed cable or knob-and-tube wiring permissible for non-fireproof buildings.</p> <p>Non-metallic plates.</p>
<p><b>FENCES</b></p>	<p>Eliminate or use wood.</p>	<p>.....</p>
<p><b>FIREPLACES</b> and Fireplace Heating Units</p>	<p>Omit metal accessories (see "Construction Table" published April 1942). Other heater types which use less metal than convector type fireplaces are advisable.</p>	<p>.....</p>
<p><b>FUEL STORAGE</b></p>	<p>Oil storage tanks of non-metallic coated ferrous metal okay in regions where oil heat is permissible. Size limited to 275 gals. for 3 families or less; 100 gal. per dwelling unit over 3 families.</p>	<p>Reinforced concrete oil tanks.</p>
<p><b>FURNITURE, BUILT-IN</b></p>	<p>Omit metal wherever possible. Eliminate metal cabinets, substitute wood. Eliminate plywood where possible. Design doors, etc. for light pivots, bullet catches to reduce metal hardware. Omit cork or cork-linoleum counters. In general, omit all units possible for addition later.</p>	<p>Wood or glass shelving.</p>
<p><b>HEATING</b> Breechings Controls Distribution —Accessories</p> <p>—Ductwork</p> <p>—Piping, fittings</p> <p>Firing Units</p> <p>Heaters, furnaces</p> <p>Heating Systems</p> <p>Vents, flues</p>	<p>Ferrous metal, no metallic coating; multi-family dwellings may have necessary cleanout doors. Minimum required okay.</p> <p><i>Warm air:</i> Fans, blowers, motors, filters, humidifiers okay but omit non-ferrous metals, reduce ferrous to minimum. <i>Steam, hot water:</i> similar provisions; valves 1½" or less brass okay; over 1½", ferrous valves except seats, discs, stems; radiator traps brass; radiators, etc., ferrous, no metallic coating, omit metal enclosures.</p> <p>Ferrous ducts (untreated or phosphate-treated) okay but non-metallic dustwork preferred. Galvanized fittings for composition ductwork okay. Return duct can be sheet metal only within 6'-0" of furnace. Sheet metal not heavier than 26 gage. Registers and grilles ferrous, no metallic coating.</p> <p>Ferrous metal, no metallic coating okay.</p> <p>As required for approved fuels; hopper type stokers for multi-family dwellings only.</p> <p>Warm air types and boilers may be ferrous metal, no metallic coating. Brass safety devices (minimum practicable) etc., permitted for boilers. Metal jackets not allowed. See latest "Critical List" for approved methods of sizing, etc.</p> <p>Warm air systems (space heater, floor or pipeless furnace, gravity or forced system with or without mechanical fuel supply) required for all except multi-family (2 or more units) and additions to existing plants to heat added space. Maximum capacity cannot exceed 80,000 Btu per dwelling unit or 66 times dwelling area in square feet. This makes insulation mandatory in most regions; weather-stripping and double glazing are highly desirable if not essential. Heat loss calculations based on maintaining 70°F. at prevailing local outdoor design temperatures.</p> <p>In demountable houses materials same as "Breechings" are permitted.</p>	<p>.....</p> <p>.....</p> <p>Use free-standing radiators wherever possible; enclosures, asbestos-cement.</p> <p>Galvanized iron or steel; asbestos-cement grilles.</p> <p>Cast or wrought iron where possible; fiber sleeves.</p> <p>.....</p> <p>.....</p> <p>Air conditioning equipment okay as available, but substitute iron for scarce metals where possible; insulation of mineral wool or equal; air cell, glass fiber, asbestos cement, etc.</p> <p>.....</p>
<p><b>KITCHEN</b></p>	<p>Ranges and refrigerators of types available are okay.</p>	<p>Galvanized iron or steel instead of alloys; Emergency Federal Specifications; vent ducts black iron or steel.</p>

**RECOMMENDATIONS FROM:**

TYPE OF EQUIPMENT	VICTORY HOUSING AGENCIES	VETERAN'S ADMINISTRATION
<p><b>LAND DEVELOPMENT</b></p> <p>Drainage</p> <p>Electric</p> <p>Gas</p> <p>Roads</p> <p>Sewage</p> <p>Water</p> <p>Miscellaneous</p>	<p>Eligible items include only those which are integral parts of the housing project and are included in the construction contract.</p> <p>Reinforcing steel permitted for culverts, inlets; iron, non-metallic coated, for inlet gratings, frames, angles.</p> <p>Poles, etc., wood; iron, no metallic coating, where essential for fittings, etc.; copper and alloys only for carrying current. Raceways: non-metallic underground except galvanized iron in fill under roads and where exposed. Line extensions not more than 250'-0".</p> <p>Master meters permitted, but use individual meters unless masters show appreciable savings.</p> <p>Iron pipe, fittings. Valves, etc., as for water. Tanks for liquid petroleum products may be iron, no metallic coating.</p> <p>Eliminate reinforced concrete, even for curbs, gutters, walks.</p> <p>Metal septic tanks not allowed. Treatment and pump installations okay except metals restricted as for water.</p> <p>Wells, pumps, piping, fittings, hydrants, storage tanks, etc., okay as required, <i>but</i>: Use ferrous metal, non-metallic coated, wherever possible; concrete pipe is preferred, asbestos-cement approved; galvanized iron permitted for 2" or smaller pipe. Valves may be brass if 1½" or smaller; iron with brass stems, seats, discs for larger sizes. Hydrants: brass for working parts only. Tank supports: wood preferred, iron permitted. Meters: master only. Pressure tanks: 42 gallons per dwelling unit maximum unless well yields less than 3 gallons per minute.</p> <p>Reinforced concrete manhole covers preferred. Use iron, non-metallic coated, where required for frames, step bars, anchors, dowels, tie rods, bolts, washers, nuts</p>	<p>.....</p> <p>Vitreous piping except concrete, asbestos-cement or cement-lined pipe where pressure exists.</p> <p>Fiber, soapstone or vitrified clay conduit.</p> <p>Black steel piping, malleable fittings.</p> <p>.....</p> <p>.....</p> <p>Concrete, wood stave, asbestos cement or cement-lined pipe according to size. "Leadite" rather than lead and jute packing. Wood tanks, wood tank towers, steel or cast iron riser pipe to tank.</p> <p>For heat distributing systems, use wrought iron where possible. Concrete or brick manholes, concrete manhole covers except in roads.</p>
<p><b>PLUMBING, GAS</b></p> <p>Domestic Hot Water</p> <p>Fixtures</p> <p>Pipe, fittings</p> <p>—Air</p> <p>—Chases, furring</p> <p>Covering, bands</p> <p>—Covering, jackets</p> <p>—Covering, non-conducting</p> <p>—Drains, area</p> <p>—Drains, floor</p> <p>—Drains, refrigerator</p> <p>—Gas</p> <p>—Hangers, brackets</p> <p>—Sleeves</p> <p>—Soil, waste</p> <p>—Traps, hospital</p>	<p>Follow simplified standards as revised by National Housing Agency and Master Plumbers Association; variations in total amounts of metal may range 10% from norm set up therein.</p> <p>Iron tanks; galvanized only where water requires. Copper allowed only for carrying current in electric types. Maximum tank 20 gallons per dwelling unit, except 30 gallons for electric type or for coal burners without controls. Coils or heaters okay as available; ditto for controls, but hold brass to minimum.</p> <p>Not more than the following per dwelling unit: 1 single or double laundry tray, 1 single kitchen sink (or 1 combination sink and tray); choice of 1 tub or 1 shower stall; 2 water closets; 1 lavatory. Vitreous fixtures preferred; cast or stamped iron permitted without metallic coating except galvanized or bonderized metal okay in shower stall. Iron not permitted for laundry trays; permitted under sink only if essential for support. Fittings must be iron or cast zinc base; brass allowed only when former unavailable. Exposed metal is preferably painted or lacquered. Drawn tubing, etc., on heavier than 20 gage.</p> <p>.....</p> <p>.....</p> <p>Omit metal.</p> <p>.....</p> <p>.....</p> <p>Black iron and fittings. Valves as below.</p> <p>Iron, no metallic coating.</p> <p>.....</p> <p>Cast iron, standard weight.</p> <p>.....</p>	<p>.....</p> <p>Tanks: galvanized iron or steel, glass-lined.</p> <p>Emergency Federal Specifications; vitreous or porcelain sinks, with soapstone in X-ray rooms, laboratories, etc.; vitreous lavatories; plastic or glass shower heads; vitreous drinking fountains.</p> <p>Steel.</p> <p>Wood furring, gypsum lath and plaster; except in operating rooms.</p> <p>Steel.</p> <p>8 oz. canvas (or 3 oz. plus 5 oz.)</p> <p>Rock wool.</p> <p>Cast iron.</p> <p>Cast iron.</p> <p>Cast iron, galvanized.</p> <p>.....</p> <p>Wrought iron or steel.</p> <p>Fiber or equivalent.</p> <p>For laboratories, acid-resisting cast iron or clay; use standard weight cast iron or clay generally.</p> <p>Cast iron, brass screens.</p>

TYPE OF EQUIPMENT	RECOMMENDATIONS FROM:	
	VICTORY HOUSING AGENCIES	VETERAN'S ADMINISTRATION
PLUMBING, GAS —Traps, soil and drain —Valves  —Vents  —Water Supply, hot and cold  Water Softeners	Ferrous metal and brass tubing. Iron: brass if 1½" or smaller; otherwise brass stems, seats, discs.  Galvanized steel, wrought iron, malleable fittings (priorities for metallic coated pipe or fittings only where essential under codes). Galvanized steel or wrought iron, or cement-lined ferrous pipe; lead where required but not more than 100 feet from house.  Iron tanks, non-galvanized.	Cast iron or malleable iron. Water, under 2½", use iron for small sizes if available; brass okay over 2½"; iron, bronze mounts. Black steel, cast iron, or asbestos-cement.  Wrought iron, galvanized; copper or lead if water analysis requires; paint where exposed in finished rooms; exposed connections to equipment, black wrought iron. ..... .....
REFUSE DISPOSAL Incinerators	For multi-family dwellings only. Iron allowed but no zinc coating except chimney screen.	..... .....
TOILETS, WASH-ROOMS	.....	Toilet partitions: slate or marble; carry to floor.
VENTILATION	Artificial not permitted except as forced warm air systems may provide.	Black iron; but for unit ventilators use galvanized ducts; copper in fan motor and bearings only.
VENTILATORS, ROOF	Omit	Iron, baked-on coal-pitch enamel.

(Continued from page 261)

where it appears that material going into non-essential construction already begun can be put to more effective use in the war effort, the War Production Board can requisition such material.

Costs, used as the determining basis, include labor, materials, equipment, fees, insurance and finance costs. The amount spent on the project within twelve months of the date of beginning construction, and subsequent to April 7, 1942, is included.

Deliveries of materials: No person is permitted to accept orders for, or make sales or deliveries of, materials if to his knowledge use of the material will violate the order.

Authority to begin construction may consist of issuance of certain specified types of "Preference Rating Orders" or "Certificates" if the project requires priority assistance; or, if it does not, an order authorizing construction. Applications for the former are made through appropriate government agencies; for the latter, through local FHA field offices. Possession of any other than approved Preference Rating Orders is not sufficient authority.

Within the broad restrictive policy set forth in Order L-41, we can expect further curtailments. Some have already appeared; day by day manufacture of more types of equipment is suspended, or the material is ordered held in stock—"frozen" in showrooms, warehouses, factories.

At the same time, modifications of both the "Critical List" previously issued and the "Stop Building" order continue to arrive. WPB's Bureau of Industrial Conservation supplemented, on April 17, previous reports on available materials with an up-to-date list, which includes requirements that even reinforced concrete be omitted except for very special conditions; prohibition of use of structural steel in residences; recommendations that metals for interior fittings and equipment be replaced by

substitutes (vitreous china, some plastics, iron), or trimmed in size, weight and thickness.

Again, WPB's order P-110, effective April 10, permits remodeling of housing to provide additional living quarters, but only if: (1) Projects are in "Defense Housing Critical Areas"; (2) maximum monthly rent is \$50 per dwelling unit or maximum sale price is \$6000 per single family; (3) materials are limited in average cost to \$100 per room and in total cost per structure to \$800; (4) materials are restricted to those in the "Critical List."

Construction materials permitted are embodied in the table which appeared last month; equipment restrictions are listed this month. In using this table, designers have to bear in mind that heating and plumbing requirements presuppose a change from accepted design principles. In addition to limiting ductwork and similar materials, heating units are restricted in size and heat loss must not exceed the heater's net output capacity, which leads to a necessity for some degree of insulation in most parts of the country. Heater sizes are based on accepted practice less certain specified percentages which are pre-deducted for pick-up losses, etc. Plumbing restrictions are embraced in the "Emergency Plumbing Standards for Defense Housing" as well as the Critical List. The former was issued in February, 1942 by the Office for Emergency Management, Washington, D. C. Briefly, it reduces soil and waste line sizes, requires bath and kitchen plumbing to be unified and limits piping in order to maintain prescribed weights of metals. Some variations are permitted. The designer should obtain copies of both the "Critical List" and the "Emergency Plumbing Standards."

# WASHINGTON REPORT

COMPILED BY A. D. TAYLOR OF CLEVELAND

## GENERAL OBSERVATIONS

The outstanding Government activity, of greatest interest at the present time to the Technical Planning Professions, is concerned with the extensive program of housing for war workers. This program continues to expand with the increased requirements for personnel employed in the ordnance plants, industrial manufacturing concerns, and elsewhere in the defense areas.

Housing is divided into three major groups, as follows: Permanent Units, Temporary Prefabricated Units, and Temporary Demountable Units (constructed on the site).

The organization in the National Housing Agency, as related to housing for war workers, has not become fully crystallized. The final organization chart may be determined very shortly.

The number of unemployed members of the Technical Planning Professions has been decreasing until, in the engineering field in particular, there is a shortage of qualified men available for work in the private offices and, in fact, on Government Projects. With the increasing tendency to bring the technical services of Architects, Engineers, and Landscape Architects into the uniformed personnel of the military establishments (both Army and Navy) the roster of Architects remaining in private practice is being rapidly reduced.

The restrictions on information which may be published are becoming more severe, with the result that information which might otherwise be published through these columns, and the columns of other magazines, is held back.

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## HOUSING FOR WAR WORKERS

The former Construction Division of FWA, concerned with the extensive program of housing for war workers (prefabricated, and demountable units) has been elim-

inated as a separate agency, and is now absorbed in the new Federal Public Housing Authority. Most of the projects initiated under this Construction Division have now been allocated to the Regional Offices of the Federal Public Housing Authority, and most of the contracts relating to technical planning services on these projects are administered through the Regional Offices.

The housing projects heretofore being developed through the Public Buildings Administration have also been transferred to the Federal Public Housing Authority.

Through congressional action, approximately fifty million dollars is available to be expended for housing war workers and community facilities, for which authorization is included in the recent amendment to the Lanham Bill. *This program of housing is in the District of Columbia and will require much technical planning personnel which is apparently not available within the District.*

A tremendous program of housing is now being developed in the metropolitan Detroit area, to the extent that a special field office has been established in Barlum Towers Building, Cadillac Square, Detroit, under the Federal Public Housing Authority, with Colonel F. Chas. Starr as the Director. Many of these projects are of a permanent nature, and many are of temporary construction. *The need for qualified technical planning personnel in this area, experienced in the field of housing, is acute.*

In connection with the major housing projects for war workers, where such projects are within the township boundaries or in the midst of smaller communities, there is a great need for advanced and thorough Regional Planning studies for which, up to the present time, the Federal Public Housing Authority has not apparently been provided with funds.

Some of the more important housing projects of the Temporary and of the Demountable types are included in the following list:

Baltimore, Md.	1000 units
Portland, Ore.	600 "
Richmond, Calif.	1000 "
Wichita, Kans.	2700 "
Indianapolis, Ind.	750 "
Mobile, Ala.	2200 "
Wayne, Mich.	1000 "
Ypsilanti, Mich.	5000 "
Ypsilanti, Mich.	9000 "
Windham, Ohio	2000 "
Bremerton, Wash.	1750 "
Beaver County, Pa.	400 "
Portland, Ore.	2500 "
Seattle, Wash.	1600 "
Vancouver, Wash.	4000 "

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## DISTRIBUTION OF FEES

It seems most timely, in view of the "Architect" and of the continued "Architect-Engineer" form of contracts which are being negotiated, that there be a clearer understanding of the evident intent of the Government agency which established these total fees on the assumption that those individuals or offices providing services in each of the highly specialized technical fields should be equitably remunerated.

The individual employed under the designation of "Architect" or "Architect-Engineer," serving primarily as the *Administrator* or *Coordinator* in the preparation of plans and specifications for any of the major projects, receives a fee which is supposed to cover: (a) Specific architectural design of buildings; (b) Civil engineer work in preparing topographic maps and boundary surveys; (c) Water supply; (d) Sewerage; (e) Highways; (f) Structural Engineering; (g) Mechanical Engineering; (h) Electrical Engineering; (i) Site Planning or Landscape Architecture. To the extent that any one specific office, in its normal organization, provides any of these highly specialized technical services, that office is entitled to a certain equitable proportion of the total lump sum fixed-fee. To the extent that it is necessary to call into conference the consulting services of those who are conducting offices in the other highly specialized fields of technical

knowledge, those offices should receive an equitable pro-rata portion of the total fixed-fee.

As a typical example of an equitable distribution of such fees, the tabulation shown on this page has been used on some major projects.

★  
EMPLOYMENT SOURCES AND HOW TO GET JOBS

With the marked decrease in private construction, the opportunities for employment of members of the technical planning professions are largely through Government agencies, directly and indirectly. There continues to be an increasing number of members of the technical planning professions seeking employment through the Government agencies, and also seeking opportunities to procure commissions in the Army or Navy in some phases of planning work.

New groups of men from the different technical planning professions are being organized for the purpose of providing a more complete service on those defense projects of major importance. Unfortunately, some of these groups become *overanxious* to procure employment as "Architects" or as "Architect-Engineers," and waste

much time of Government officials in duplication of useless correspondence, all of which may be directed to different officials, only to find its way to the same source from which a reply is dictated. Such futile correspondence accomplishes no particular purpose, and represents a considerable waste of time.

★  
TRANSFERS OF TECHNICAL PERSONNEL

The technical personnel heretofore employed in Washington in the different agencies concerned with housing for war workers has been transferred to the Regional Offices throughout the United States. The existing technical personnel has been supplemented with new personnel selected from the Civil Service roster. There seems to be a dearth of men and women, qualified in this highly specialized technical work, available for service in the Regional Offices and in the private offices engaged in housing for war workers. *It seems to be extremely difficult to find qualified site planners and site engineers to fill these positions in the Regional Offices.*

Many technical men from the planning fields have been trans-

ferred from the non-defense agencies in Washington to positions in the defense agencies.

★  
SALARY LIMITATIONS

A statement has been issued by the office of the Chief of Engineers concerning the salaries of key personnel. The general content of this statement is as follows:

For the same type of work, with the same responsibility, no salary is to be paid in excess of 110% of the salary in effect prior to the execution of any respective contract.

For a different type of work, or for work involving a greater degree of responsibility, no salary is to be paid in excess of the current salary, in effect prior to execution of the contract, for such a position or for a similar position.

The salary of key personnel is not to exceed the rate of \$9,000 annually.

No salary of an executive officer of the contracting firm, and no member of a contracting firm or of the sole owner thereof, regardless of his title, etc., shall be included in the "cost of the work."

These restrictions are to be enforced on all future and existing fixed fee contracts except as to salaries which have been heretofore approved in existing contracts, in accordance with the contract provisions. No departure is to be made from these requirements without prior and definite authority from the Chief of the Corps of Engineers.

April 16, 1942

This tabulation is a suggestion for an equitable distribution of the total fixed fee among the offices through which specialized types of technical services are procured on any major project included in the following lists. There are conditions under which it may be advisable to have an adjustment, as between two offices in which each participates in providing some part of any one specialized technical service for which that office may be exceptionally well qualified. This analysis is based upon considerable observation of procedures followed on actual projects.

Troop Housing	Ordnance Plants	Storage Depots	Prefabricated Housing Projects	Permanent Low Cost Housing	Kinds of Specialized Technical Services
8††	8	25	3	20	Design Surveys
9	6	2	10	10	
12	10	3	15	12	Water Supply Sewerage
12	8	3	15	12	
12	8	4	10†	10†	Highways Railroads
5	5	4	0	0	
3	14	30	0	2	Structural
7	17	10	2	6	Mechanical Electrical Landscape Architecture, Site Planning
10	9	5	5	8	
12	5	4	30	10	
10	10	10	10	10	Coordinator
100%	100%	100%	100%	100%	

† Indicates Roads and Parking Areas.

†† These figures indicate the portion of the total fee that might be allocated to different kinds of technical services on different types of projects.

††† Primarily the function of Site Engineers and Landscape Architects.

PREPARED BY A. D. TAYLOR

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(Editor's Note:—A visit from our good friend and contributor, Warren Cheney, now 2nd Lieutenant Cheney, was a welcome interlude in a busy editorial day. Lt. Cheney pointed out that the Army was seeking photographic interpreters in the Army Air Corps Intelligence. These interpreters analyze photos taken over enemy terrain in an effort to correct the misinformation, due to camouflage, which is brought back by the cameras of the aerial observers. Candidates should be over 30, college graduates, and have majored in engineering, architecture, or industrial design. Applications should be made to the Officer in Charge of Photographic Interpretation, Army Air Corps Intelligence, Munitions Building, Washington. The Navy has a similar service. Requirements are the same except that candidates must be under 28. Apply to Officer in Charge, School of Photographic Interpretation, Naval Air Station, Anacostia, D. C. Lt. Cheney believes there is also a demand for men in Naval Reserve photography. In the West, application should be made to Lt. Comm. Bolton, 20th Century-Fox Studios, Hollywood. In the East, apply to Photographic Section, Bureau of Aeronautics, Navy Dept., Washington.)

# OUR CAMPAIGN PROGRESSES

BY WILLIS A. VOGEL

At this writing I have been in Washington for five weeks, during which time I have made many contacts with officials of the various departments and have established cooperation with many of them, in our campaign to get more architects into the Victory Program. Without going into detail, I can report that foundations have been laid upon which we can build substantially from now on.

The Washington office is now located at 1727 "K" Street, N. W. The Technical Personnel Adviser is actively functioning full-time gathering information about the requirements of both civil and military agencies and helping them to find proper men for given needs.

I wish to make it clear that this PENCIL POINTS program supplements and is quite separate from the activities of The American Institute of Architects. We are located approximately six blocks from the A.I.A. Octagon headquarters, so that conferences are frequently held with *Edmund Purves*, of the A.I.A. Our policy is one of cooperation in carrying on two distinctly different types of helpful effort.

Mr. Edmund Purves ably represents the profession and works to protect its interests in connection with proposed and pending legislation and the policies of administrative agencies. He supplies the various agencies with the names and records of architects seeking to get work to be performed in their own offices. He does not attempt to function as an employment agency.

My own work has three objectives. 1. To endeavor to persuade key officials that architectural men have basic training and habits of thought that would make them quickly adaptable for various kinds of planning, coordinating, and administrative jobs, or for such functions as procurement, inspection, etc. 2. To seek from these officials information about all the possible types of jobs that could be filled by architectural men. 3. To get from them all available informa-

tion relating to present or proposed Government activities that might offer opportunities for architectural men. This information will be passed on to readers and to the men on our active list.

I am proceeding on the principle that the architect naturally has to make a living for himself and his family and that in doing so he naturally prefers work which will make maximum use of his talents. In addition, he wants to feel that he is contributing to the war effort.

So far as strictly architectural work is available, it is being done today principally through large architect-engineer firms, Government bureaus, and large corporations which have taken on prime contracts. These are the first and most obvious sources for employment and many architects and draftsmen have joined such organizations.

Now, while it is only to seek the jobs carrying the best possible money return, it is becoming obvious that the rank and file of the profession will in many cases have to readjust their ideas of recompense and that they will have to adopt a mobile and flexible frame of mind and go where the work is to be found. If it turns out to be temporary, they will have to change again when required. This problem must be worked out by each man and his decision made according to circumstances.

When I send out information about opportunities to various architects, or when the Government agencies send out application forms on the basis of my representations, acceptance or refusal is quite optional for each man. All that I ask is that if you take a job you will please inform our Washington office in order to facilitate efficient operation.

Architects in general are either seeking employment as individuals or are endeavoring to maintain their offices and contacts in their communities, waiting for the post-war planning program to get under way.

Up to now, the large architect's office has tended to become an

Architect-Engineer set-up. Such offices have become larger and larger. In the meanwhile, the more numerous smaller offices have been depleted and are getting smaller and smaller. Some have passed out and folded up. In fairness to the large organizations it must be admitted that they have rendered a distinct emergency service to the Government and to many needy men. Some, however, according to Washington talk, took on too great a volume of work, which retarded real speed and efficiency.

Now the trend in reorganization of Federal housing activities and military construction operations is to operate more and more under regional control. This should result in giving better distribution for the awards of technical contracts. Accordingly, well-organized local groups of allied technical planners, known just now as "Architect-Engineers" or "Architect-Engineer-Managers," will receive consideration if they have compiled and recorded their set-up with the proper Government authorities. Some of these Government agencies are in a state of being reorganized and decentralized, but all documents filed with them remain intact and will be transmitted to the final regional authorities. It should be noted that stress is being laid on the use of organizations which include all the technical planning professions and not on the award of contracts to groups consisting only of architects. While the architect is primarily a planner, an executive, and an inventive designer, he must now assume a cooperative role with the various branches of engineering with representatives of which he forms a complete organization to handle an entire project.

I wish to emphasize that cooperation of all members of the building industry—architects, engineers, contractors, producers, material distributors, investment interests—is strongly indicated as the road to survival. The architect can do his part well if he asserts leadership and takes the broad outlook in helping to bring this about.

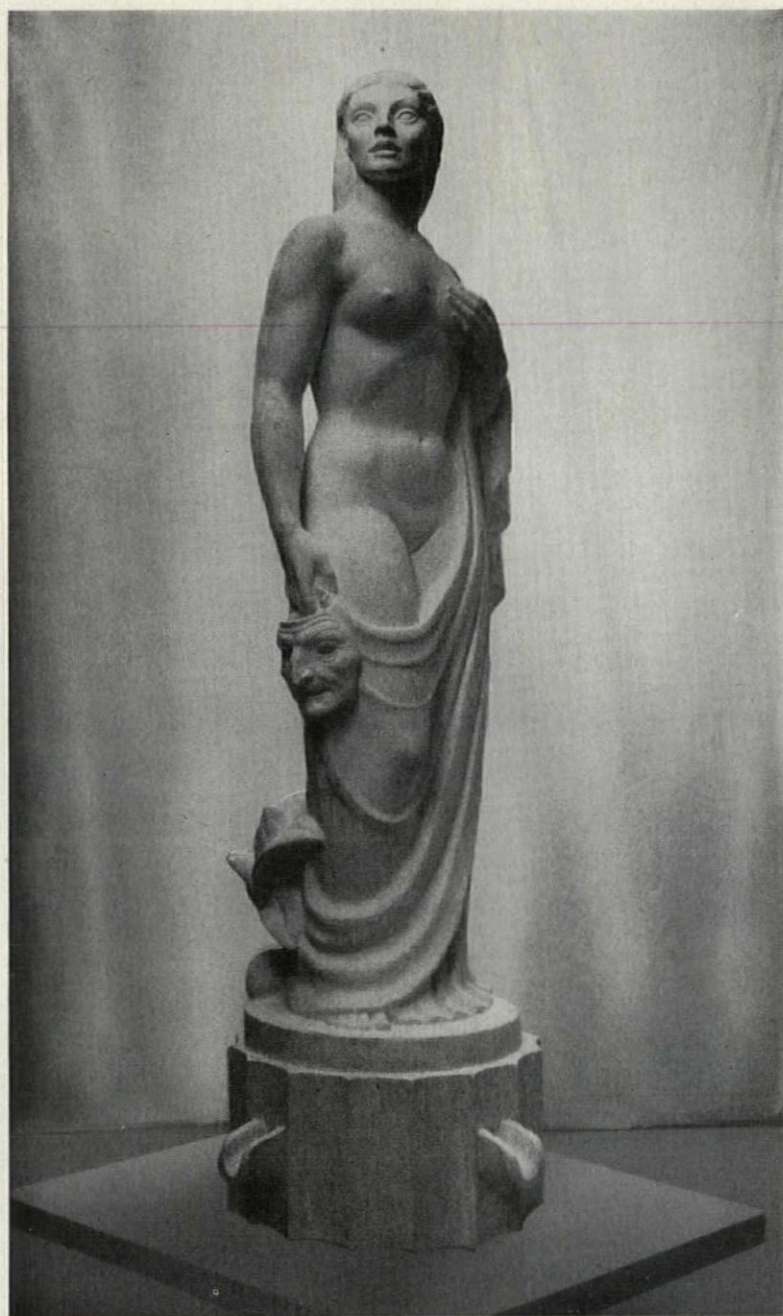


Photo by Gray

Photo by Newell Caudell

"Youth Re-found" is this fountain figure of Indiana limestone by Wheeler Williams, Chicago Sculptor, representing one who has been rejuvenated at the Fountain of Youth. It adorns the cloistered patio of the Norton Gallery and School of Art in Pioneer Park, West Palm Beach, Florida, of which Mary E. Aleshire is Director. It is a recent acquisition and was formally accepted in February when two new galleries for current exhibitions were dedicated. These were all gifts of Mr. and Mrs. Ralph H. Norton, who presented the building, designed by Wyeth & King, New York Architects, to the Palm Beach Art League in 1940. At night the fountain figure is effectively illumined by under-water lights



# F O U N T A I N F I G U R E

BY WHEELER WILLIAMS



# THE ARCHITECT AND HOUSE

8 — ALDEN B. DOW OF MICHIGAN

BY

TALBOT F. HAMLIN

Whoever approaches the office of Alden Dow at Midland, Michigan, need be in no doubt as to the kind of architecture to be expected from it. Its rhythmically-lined slanting roofs, its dynamic—perhaps even exaggerated—varieties in plane, and the sharp staccato of its chimney mass, the richness of color, give evidence of the mind of an artist to whom the important things in architecture are *rhythm*, the play of *plane against plane*, and of *color against color*, and the *relation of building to landscape*, and indicate a temperament that seems to enjoy the process of invention for its own sake. Alden Dow, a graduate of the Columbia Architectural School who worked for an extended period with Frank Lloyd Wright, has not been content to accept the accepted, merely to ring new changes on current tunes. Like many members of the Chicago School (Purcell and Elmslie or Walter Griffin, for example), he has sought to create out of building materials a poetry of plane and line, of outside and in, of color and form—a poetry at times verging on the fantastic, as in his own office, but at other times, building itself out of the simplest planes of wall and glass.

The influence of Wright is of course all-pervading, especially in the earlier work, and Dow's own system of square cement block construction is a development of the system of textured block construction which Wright used so brilliantly in his Los Angeles and Hollywood work. It is perhaps to Wright also that Dow owes his vivid feeling for interlaced rhythms and his sense that each line in a building necessarily affects every other line. *Most interesting is the way in which this designer attempts to integrate exterior and interior of his buildings by using some of the exterior materials within and employing in the chief rooms of the house the same rhythms of brick or block that he has used for its exterior.*

One of the largest and most recent of the concrete block houses is the Arbury residence at Midland, a long, low building of varied plan, entered from a broad motor court which acts as a separation between the house and its surroundings. It is a house almost impossible to photograph as a whole, one in which each part is developed according to the requirements of view and the desire to get interesting and exciting plan relationships within.



ALL PHOTOGRAPHS BY  
ELMER L. ASTLEFORD



*The strong slope in the Waiting Room is recalled by the diagonal straps on the entrance door (page 269)*

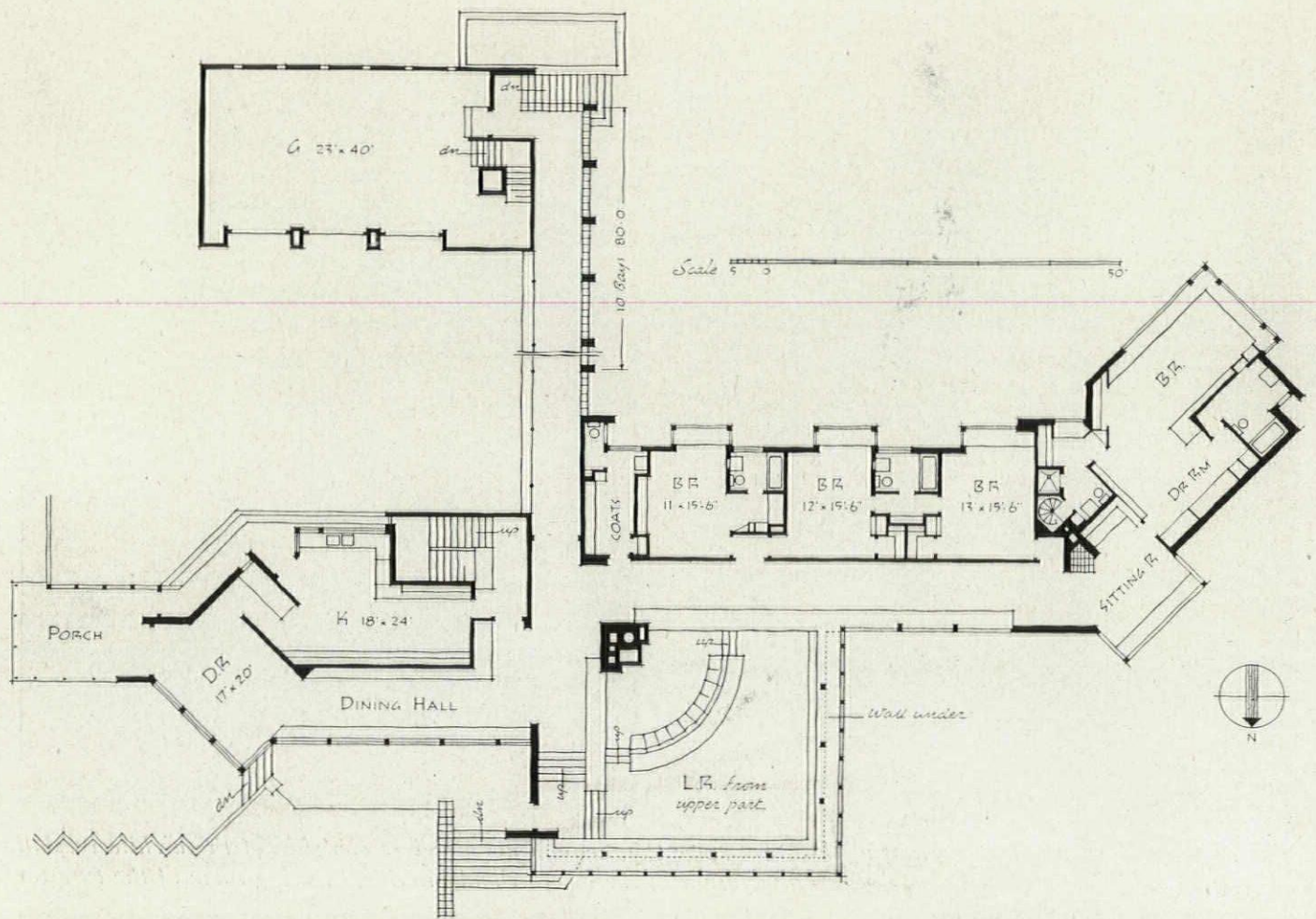


*The rhythmically-lined slanting roof of the Dow Office (photograph above) gives evidence of the architect's skill in relating building with landscape. The integration of the exterior and interior, by using some of the exterior materials within, is reflected in the Consultation Room of the Office (lower photograph at right)—in the furniture, in the dramatic contrast of wood and cement block, in the lines of the cement block itself*

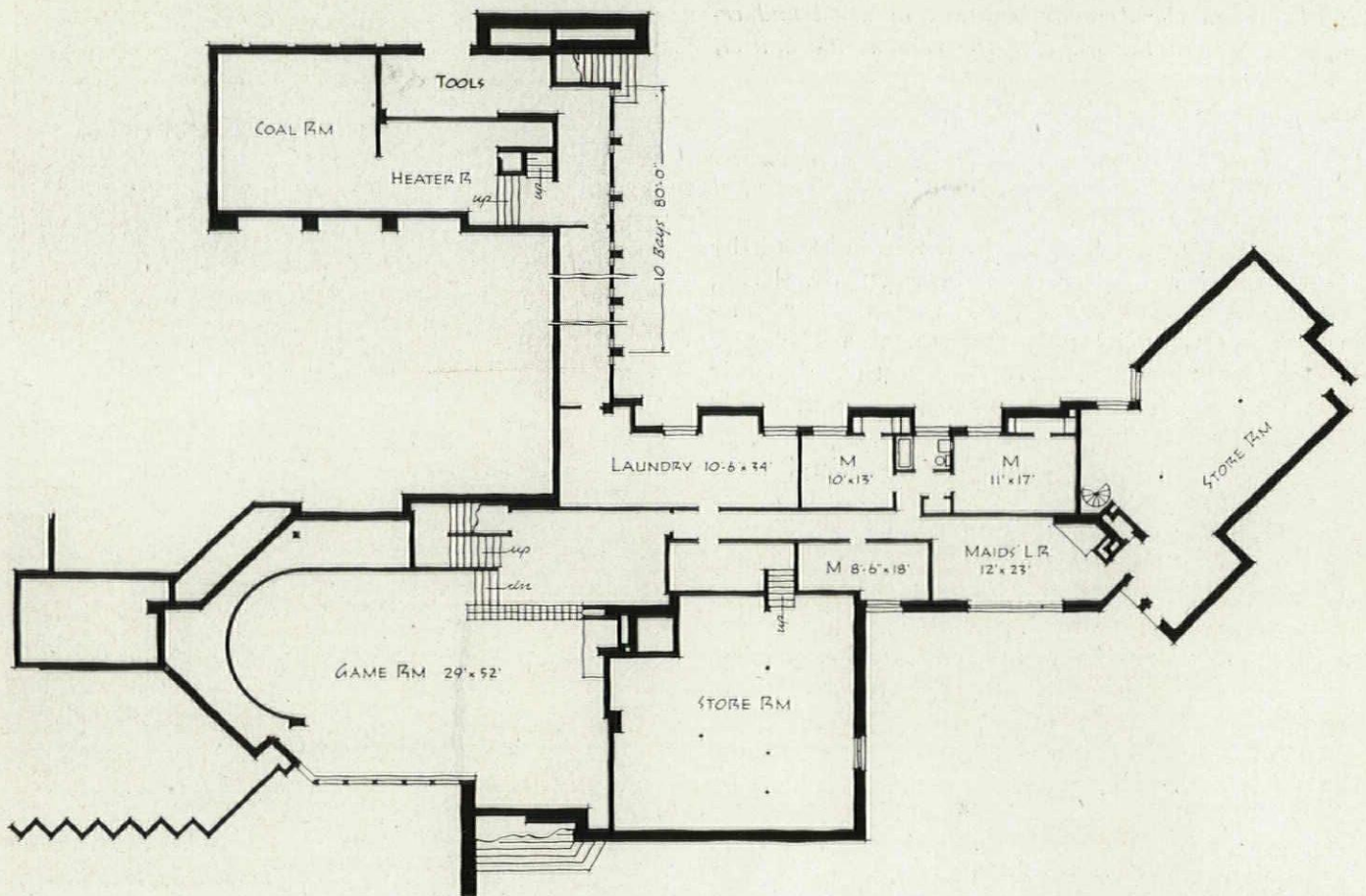


The particular touch here which we might call the Dow touch is the relation between the living room, the ample corridor, and the dining room—which is set, surprisingly enough, at a 45-degree angle. As though to emphasize this dynamic change, Dow has walled the dining room partly with mirror and used a mirrored ceiling. The effect in the dining room is mysterious and quite extraordinary; it is typical of that desire to create a kind of musical counterpoint—a sudden change of tempo and melody. It is as if the architect were not content with the mere furnishing of enclosed space, but aimed somehow to make one *aware of the beyond*—even of the unreal—as though the enclosed space were merely the symbol of geometric space as an abstract entity. It is illusionistic, of course, but it seems almost transcendental at the same time.

The Hansen house, at Midland, is chiefly interesting because of its simple interweaving of rectangular planes and because of the strong balance of



ARBURY RESIDENCE

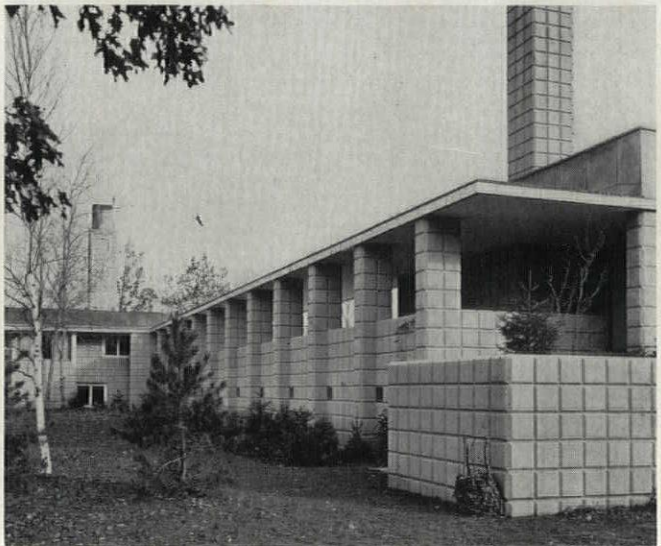
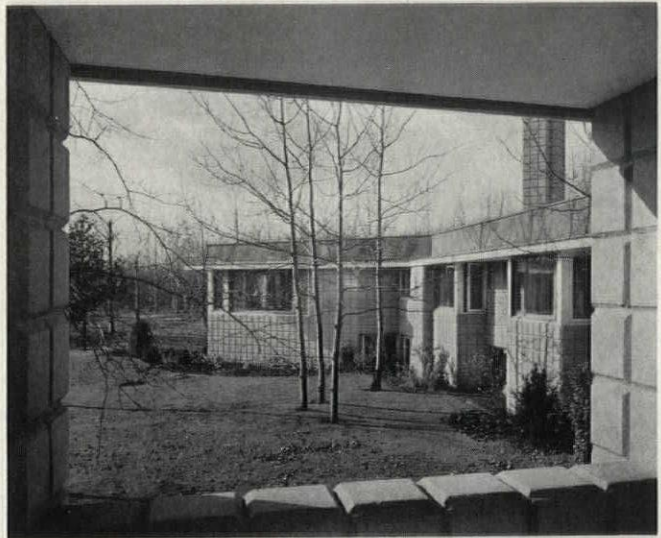


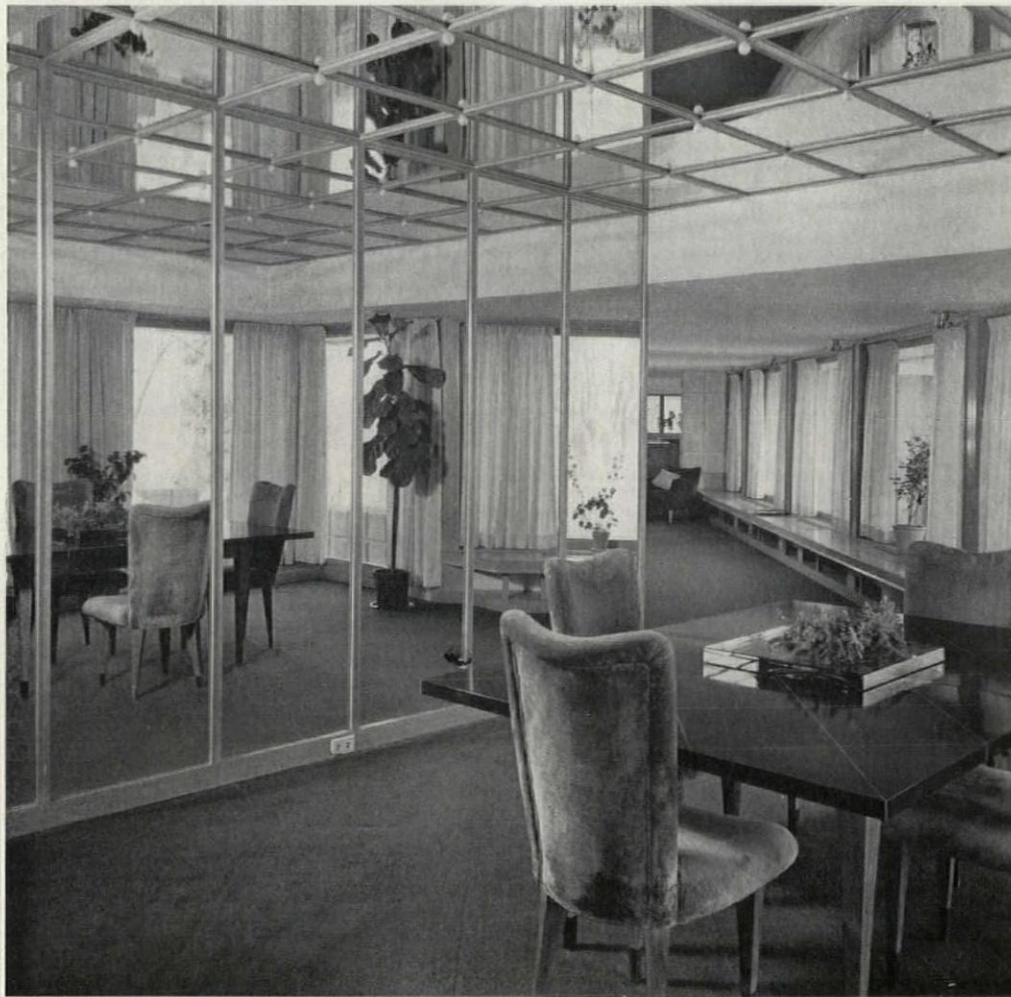


*The Arbury residence is a concrete block house—a long, low building of varied effects. (See plans across-page.) It is entered through a broad motor court (photograph above) which serves to separate the house and its surroundings. Each part of the house was developed according to the requirements of view, and a desire for interesting and exciting plan relationships within. (See the two photographs at right)*

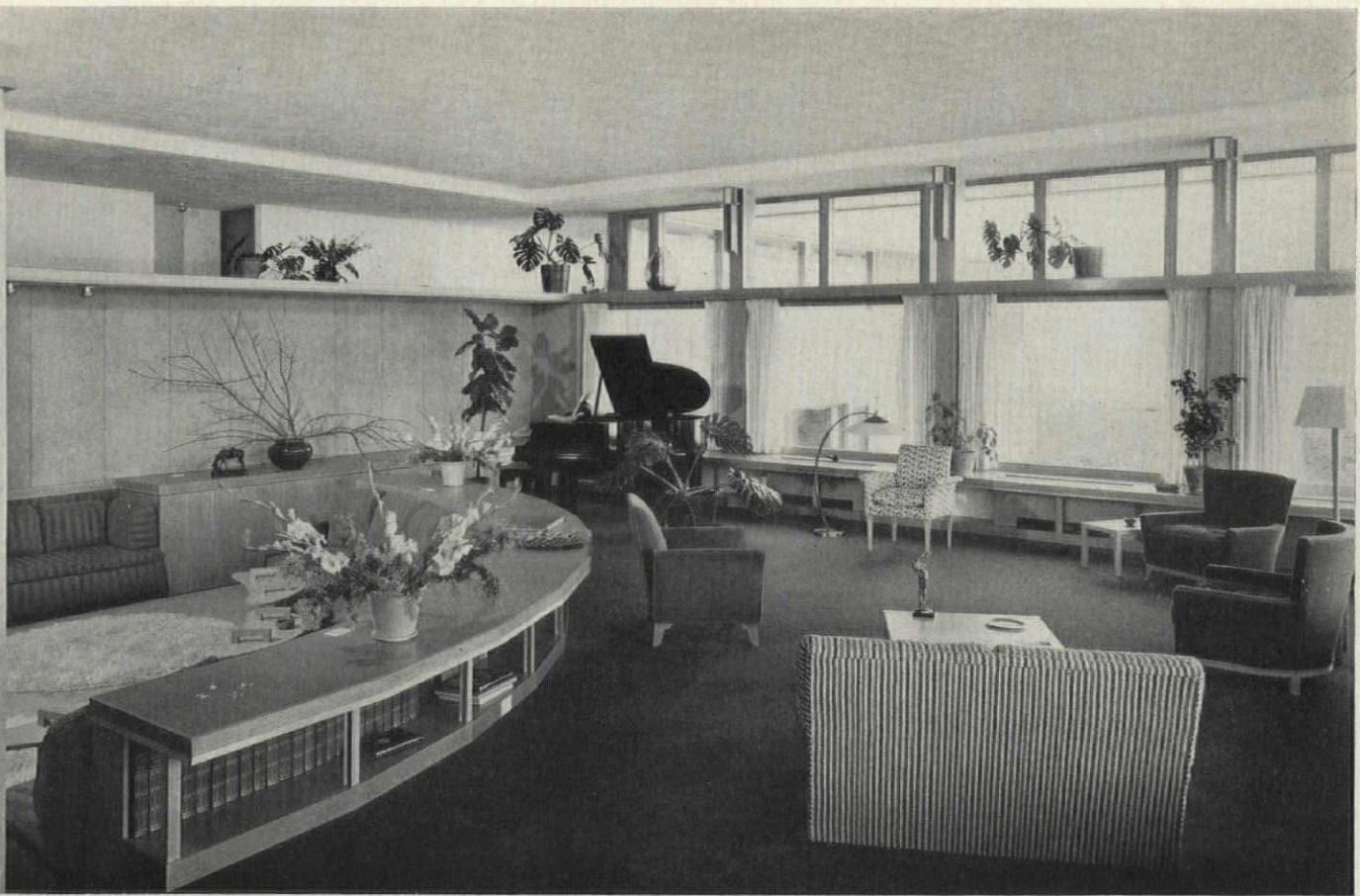
the high living-room windows against the massive chimney block. Typical is the use of the small square panes at the corner of the window group. Yet this brings up, it seems to me, one of the dangers of this accent on rhythmical pattern. These bright squares surrounded by such broad bands of dark are hardly restful to the eye. That quiet repose which I believe should be part of the house idea has perhaps been sacrificed for vivid but imposed pattern, and the same thing holds true of parts of the exterior, which grow over-interesting in their insistent rhythms. The diagonal splays on the blocks may be for some tastes too deep and too wide. As details, particularly when used on the interior, they seem almost coarse; their rhythmical insistence at times becomes, for me at least, an over-strong drumbeat, disturbing rather than assisting the true rhythmic pattern.

Three others of these cement-block houses at Midland deserve comment for their superb dynamic composition. In the Ball house, the Heath house, and the Pardee house there seems to be an ever-growing expression of a *personal point of view* and less dependence on the system itself and the Wright

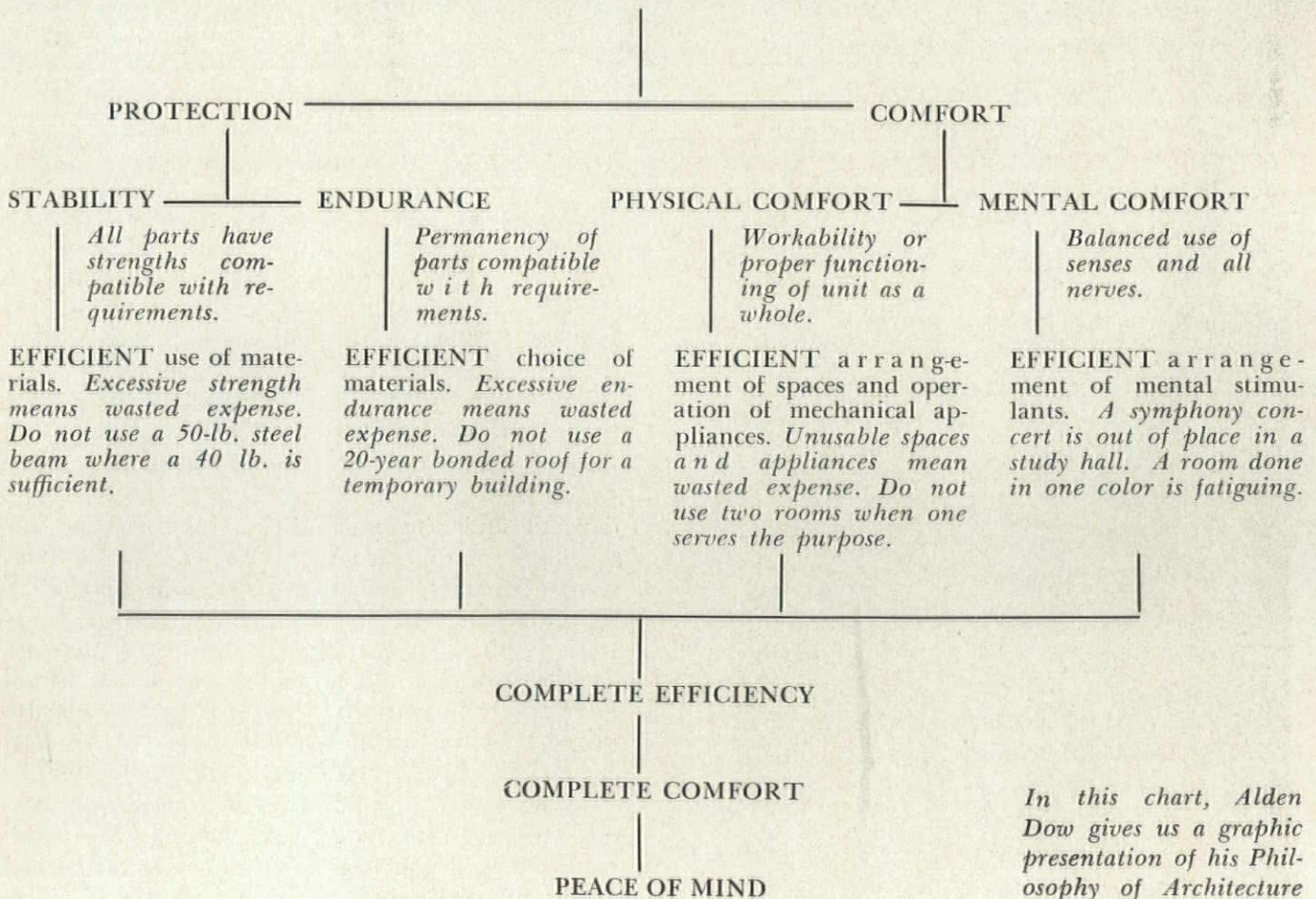




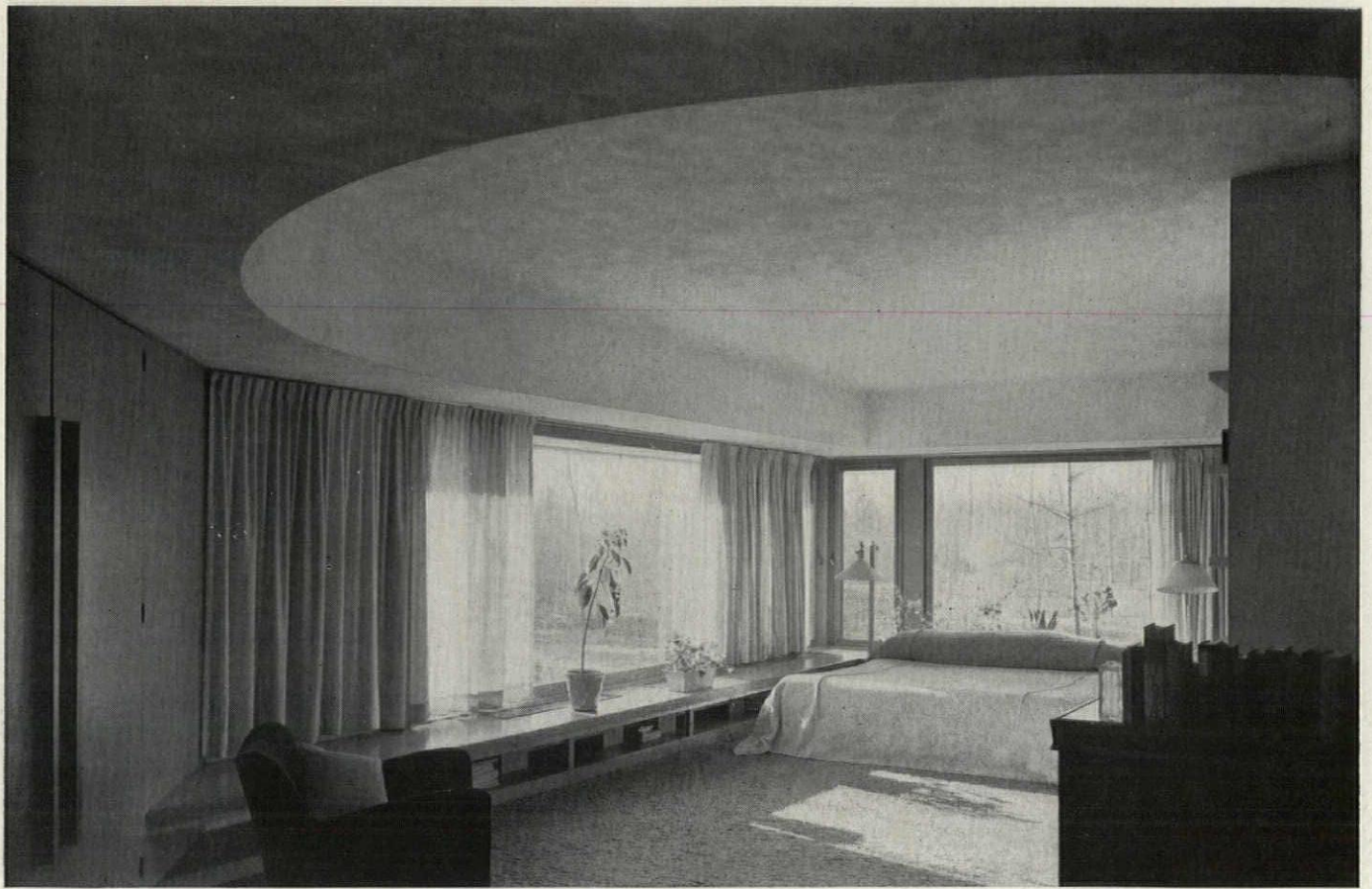
The Arbury living room (photograph above and across-page), with its accented horizontals and its broad windows looking out over a brook, has great scale and quietness. This is partly achieved by the break in the height through a projecting shelf at what one might call the transom level. The relation between the living room, the ample corridor, and the dining room—which is set at a 45-degree angle—is almost characteristic of the Dow plans. He has walled the Dining Room with mirror and used a mirrored ceiling (photograph at left). The mirror frames give the strong modular rhythm of which the architect is so fond. Color schemes in the Living Room, Dining Room, Dining Hall, Bedroom Hall and Sitting Room include purple, magenta, chartreuse, and blue



## ARCHITECTURE



*In this chart, Alden Dow gives us a graphic presentation of his Philosophy of Architecture*



*In the Master Bedroom of the Arbury residence the architect achieves a sense of repose, openness, and quiet as well; not only through the superb handling of the windows but also through the beautifully-balanced curved break in the ceiling which serves to unite the varying angles. Below is the stair hall leading from the Living Room to the Dining Hall (see plan on page 272)*



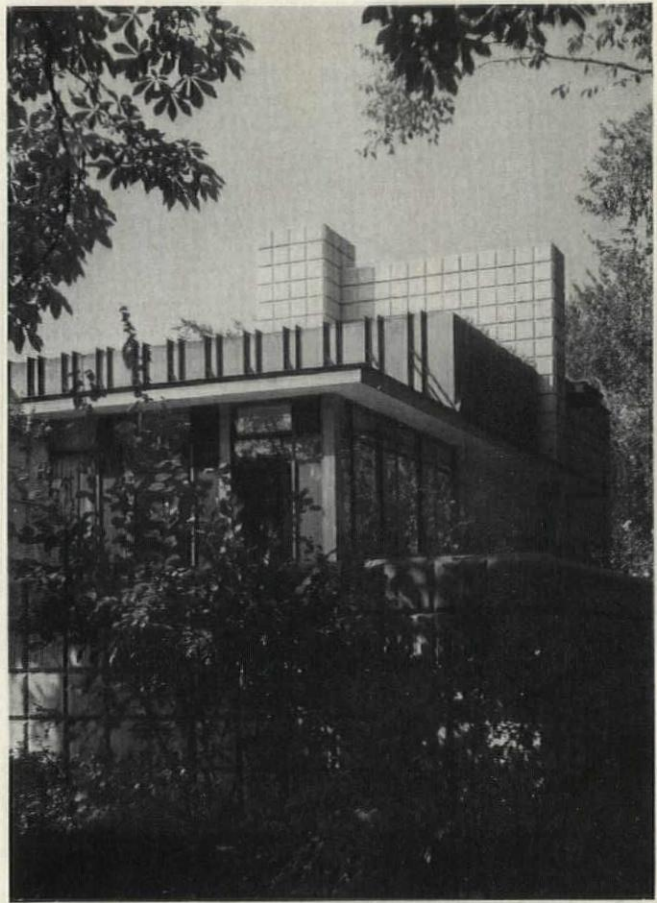
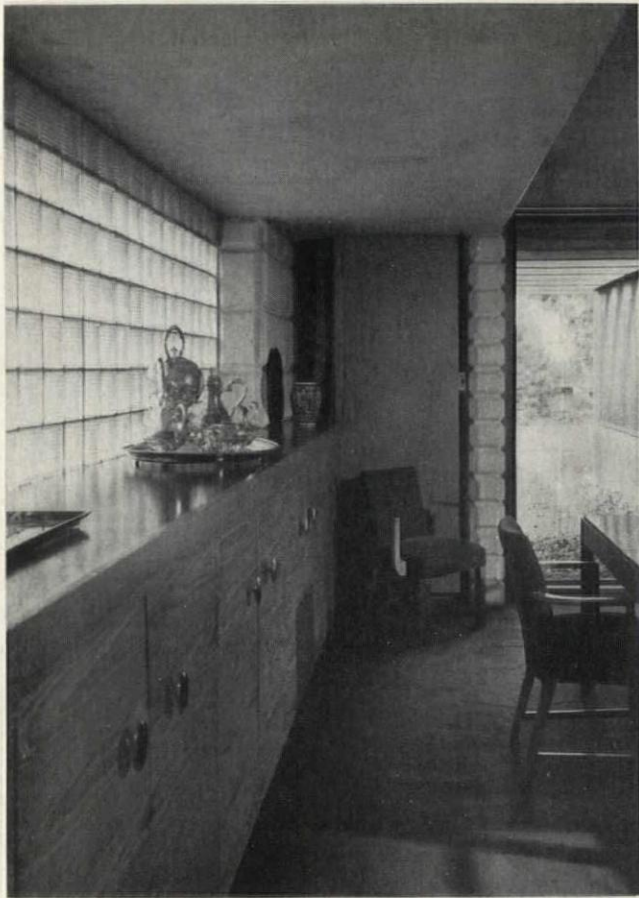
The Ball house gives one a new sense of the dynamic interrelation of rectangular forms—a kind of geometric poetry somewhat similar to that for which Dudok in Holland is so famous. The projecting open beams, perhaps intended for vines, over the corner window form a note that is perhaps forced. It seems arbitrary, necessary though it is for the composition.

In the Heath house we have a simpler composition, at least on the entrance front, and fewer elements which seem to be arbitrarily introduced. The house preserves the sharp rhythmical patterning which the block system suggests; but it uses this, it seems to me, with a new feeling of quiet composition which is welcoming and open, dynamic and vivid, but not restless.

Of these cement-block houses the Pardee house seems to bring into the clearest focus both the dangers and the possibilities inherent in this rhythmic architecture. It is perhaps in the handling of the interior space that this house is most significant, both in the arrangement of the living room—with its two angles for music and for the fireplace—and in the arrangement of the second floor, where the carrying through of partitions and mirrors allows the most fascinating and unusual suggestion of unlimited space superbly divided.

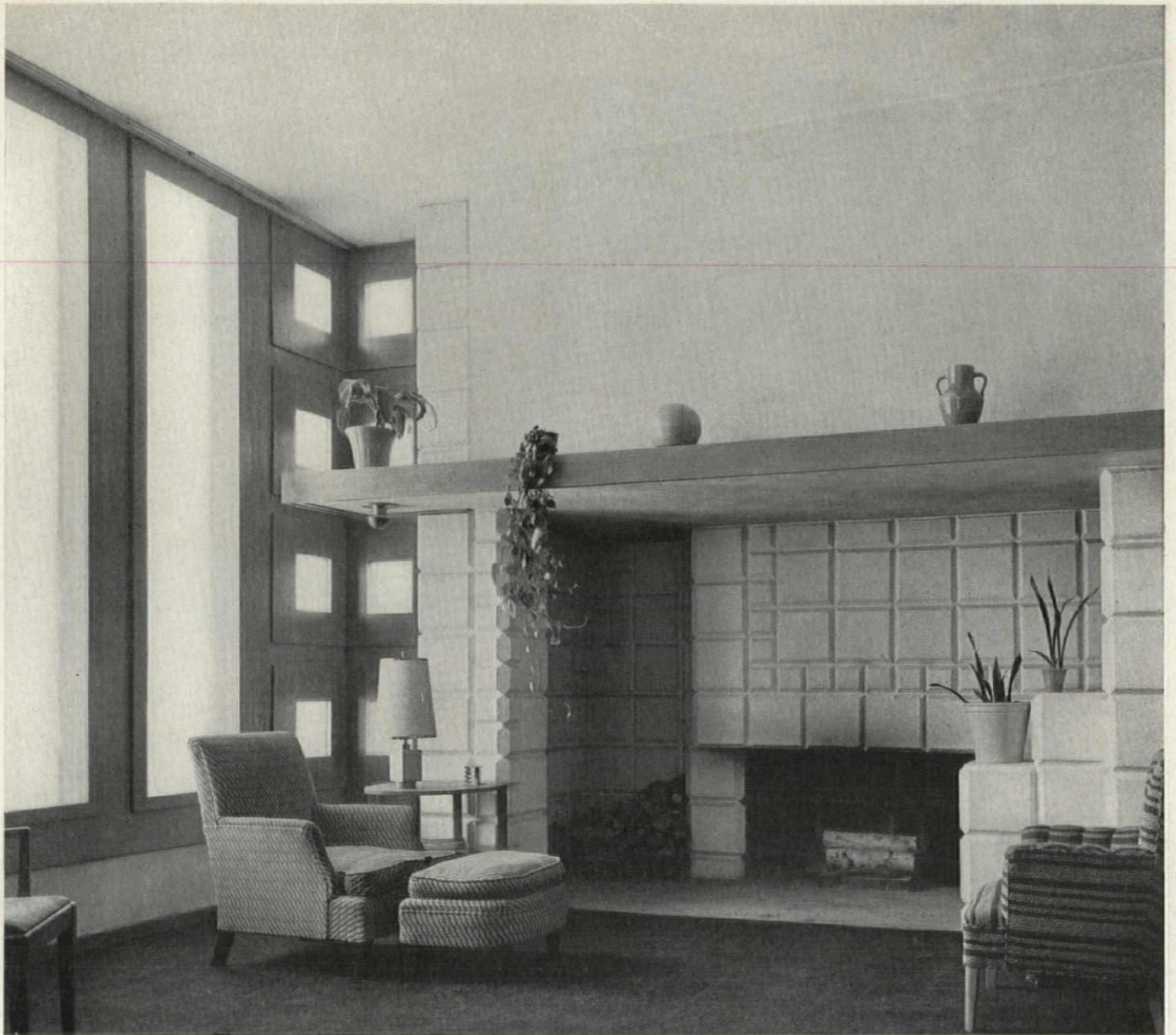
The Mary Dow house at Saginaw, Michigan, indicates another advance—the enrichment of the architect's palette by the use of other, more varied materials, especially sheet metal and glass block. This



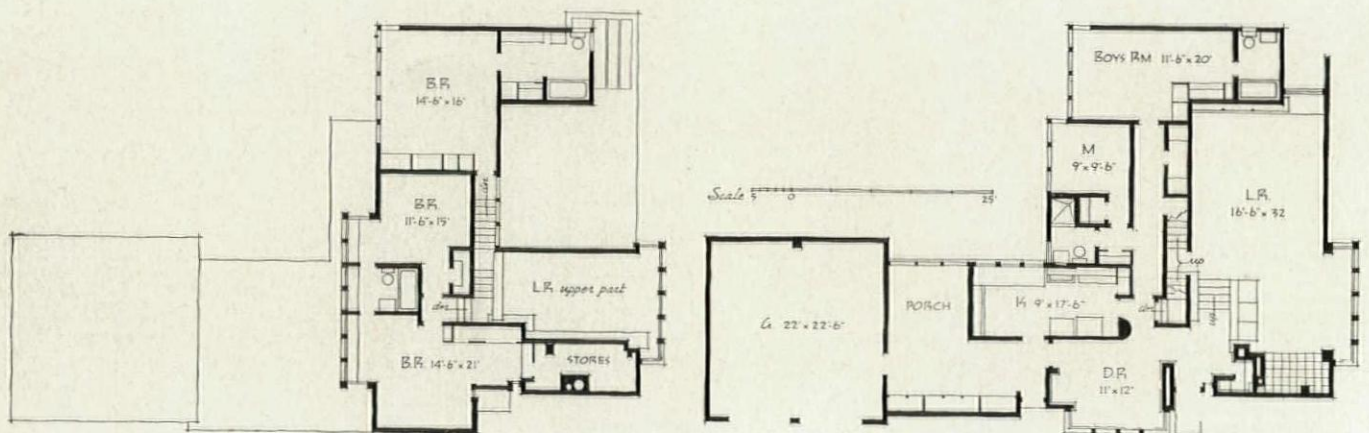


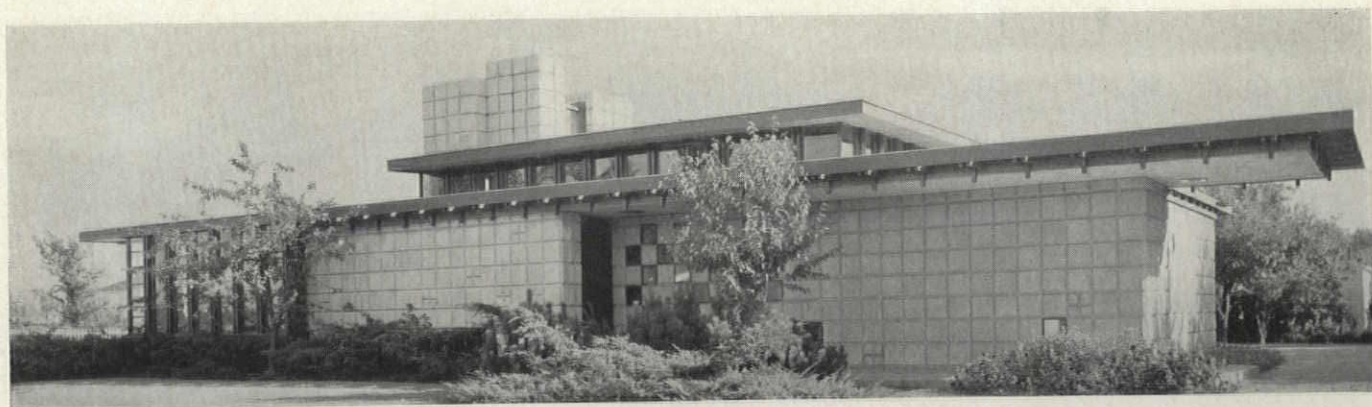
*A series of new effects were created in the Mary Dow house (photographs above) by the use of sheet metal and glass block. The residence is a town house, located on a narrow lot. The A. W. Hanson house (photograph below) is interesting because of its interweaving of rectangular planes, and because of the strong balance of the high living-room windows against the massiveness of the cinder block chimney*



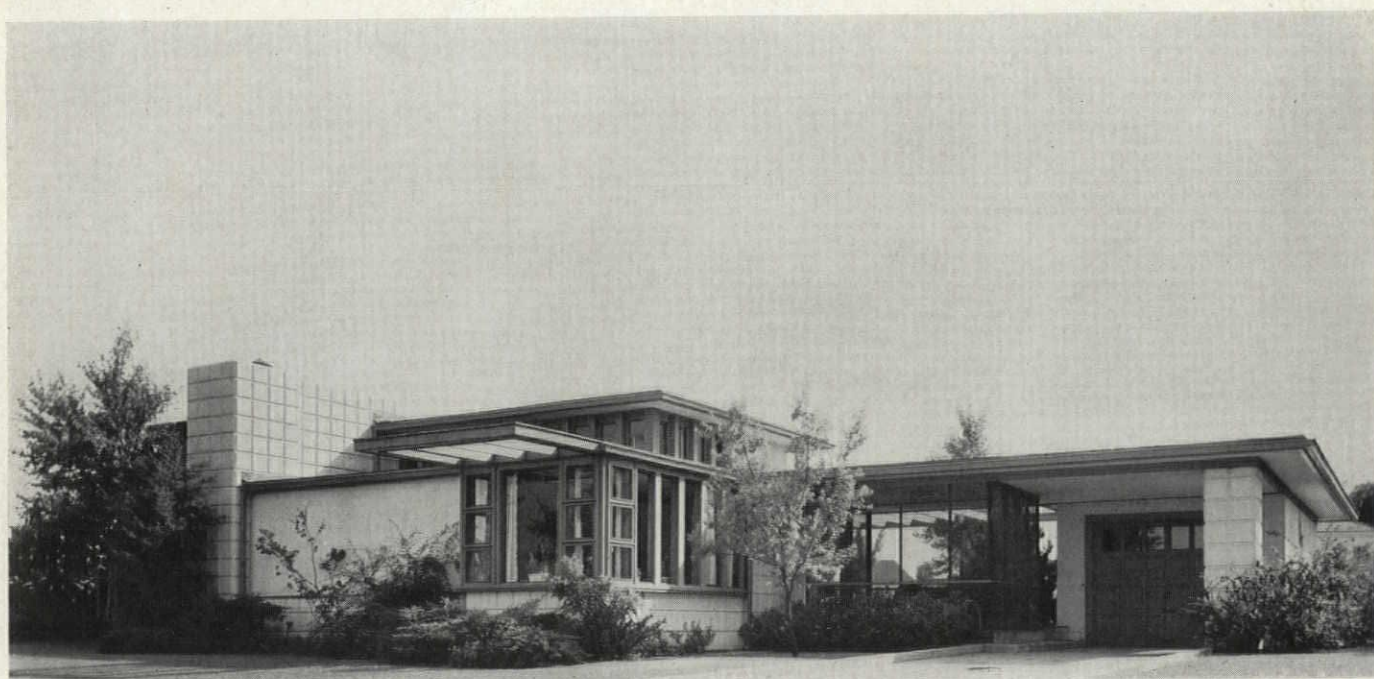
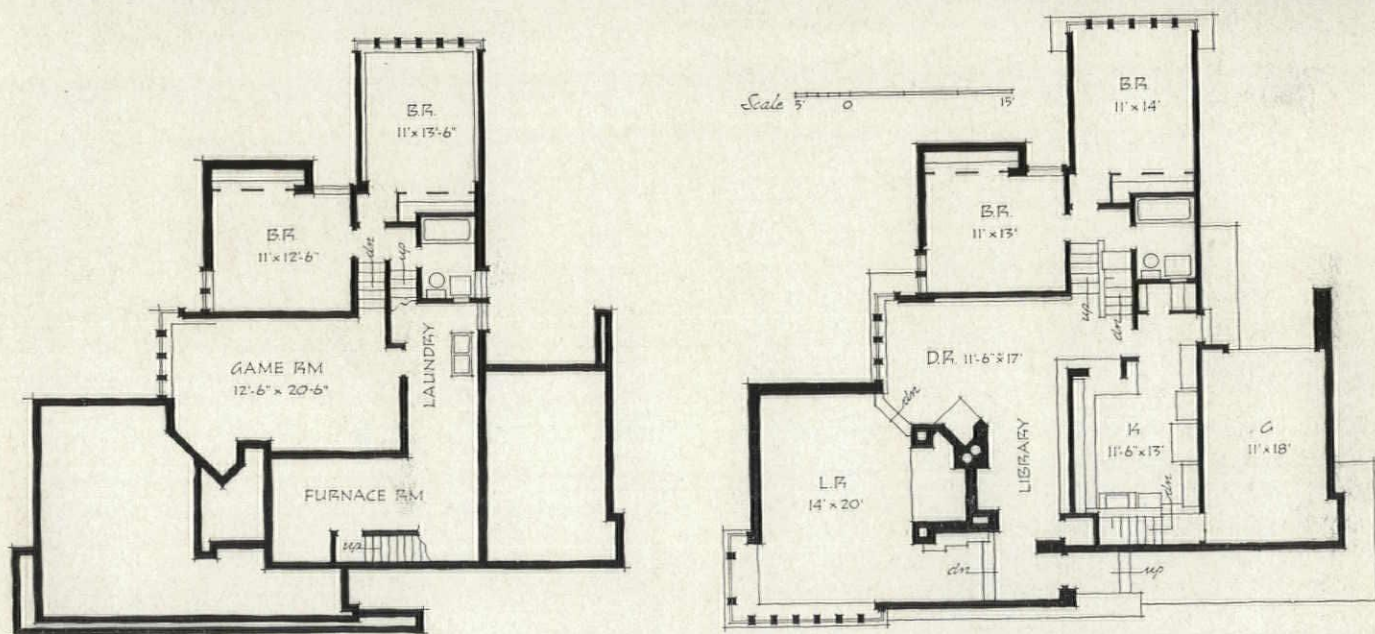


Noteworthy in the Hanson residence (plans below) is the fact that, just as the rhythms of the blocks on the chimney are broken into halves and quarters with a carefully modulated pattern (see lower photograph on page 277), so on the inside the same variation of scale is carried out in the mantel and inglenook. Typical also is the use of small square panes, surrounded by broad bands of dark frame, at the corner of the window group

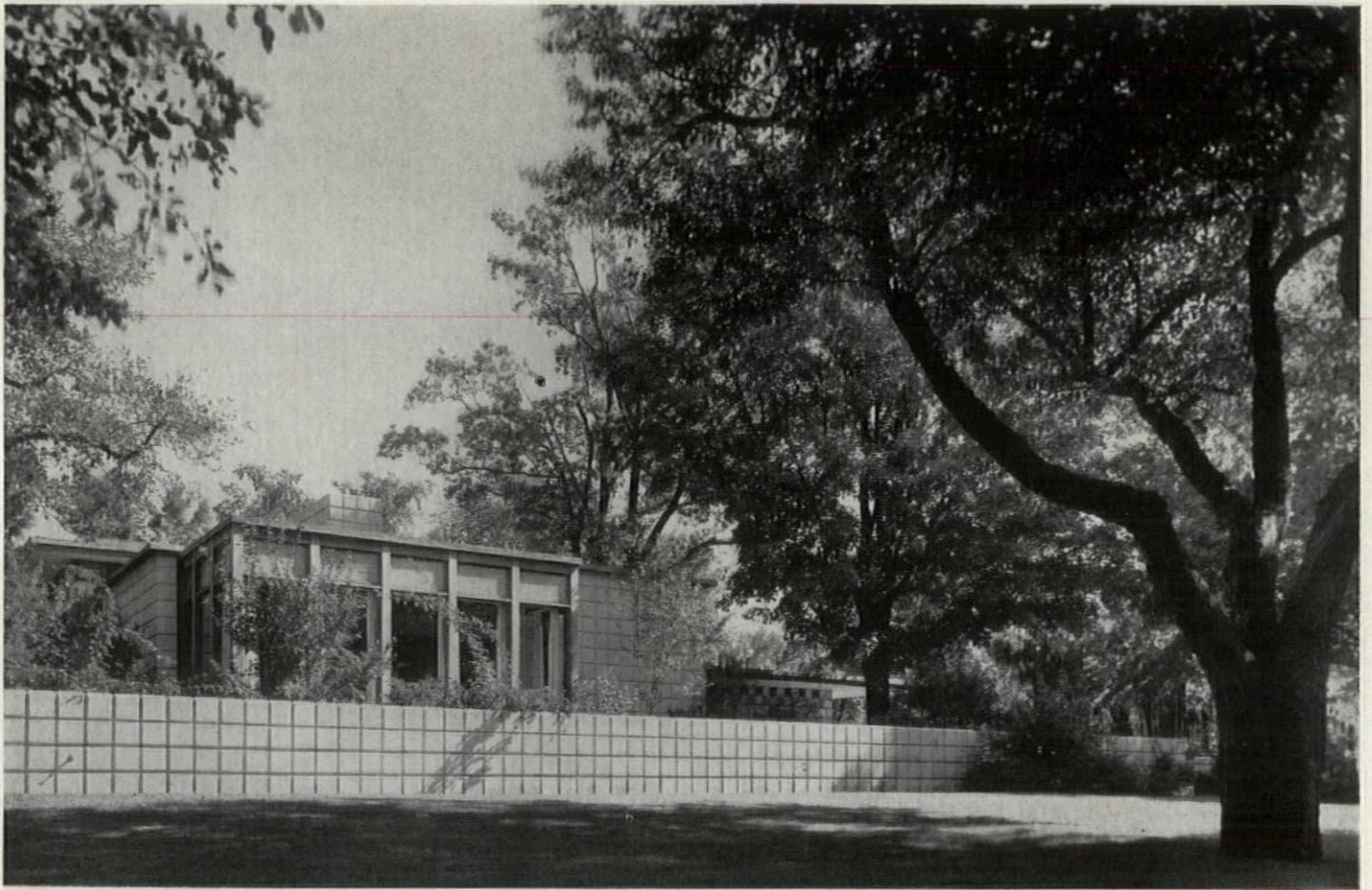




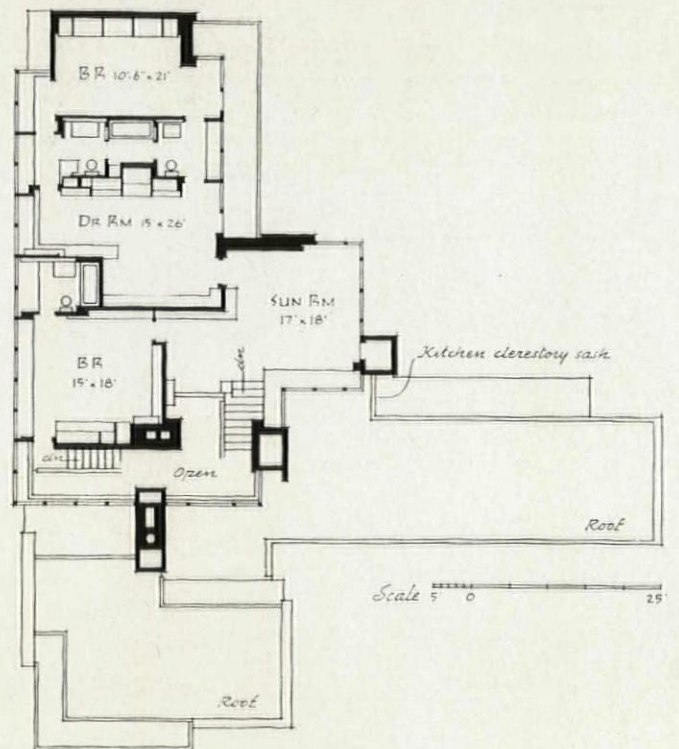
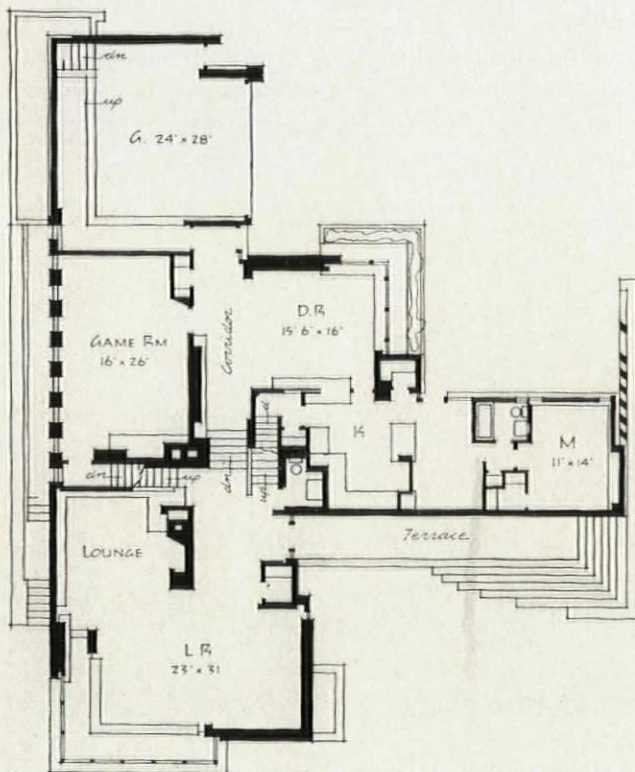
The long, simple horizontal carried along the line of the living room windows at one end, the recessed porch, the alternating pattern of the windows and blocks within this porch, and the simple cantilevered entrance shelter, make a composition that has repose and naturalness. Interesting, too, in the S. B. Heath residence (photo above, plans below) is the emphasis on rhythmical spacing given by the treatment of the cantilever framing



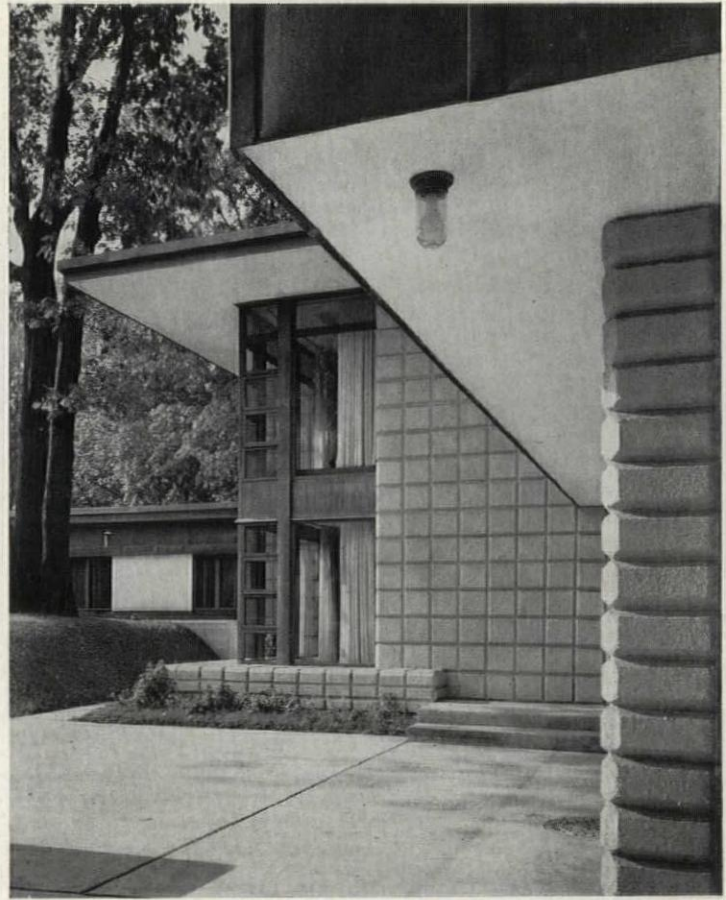
Stucco against wood, glass, and the concrete block chimney makes an interesting pattern in the Ball house



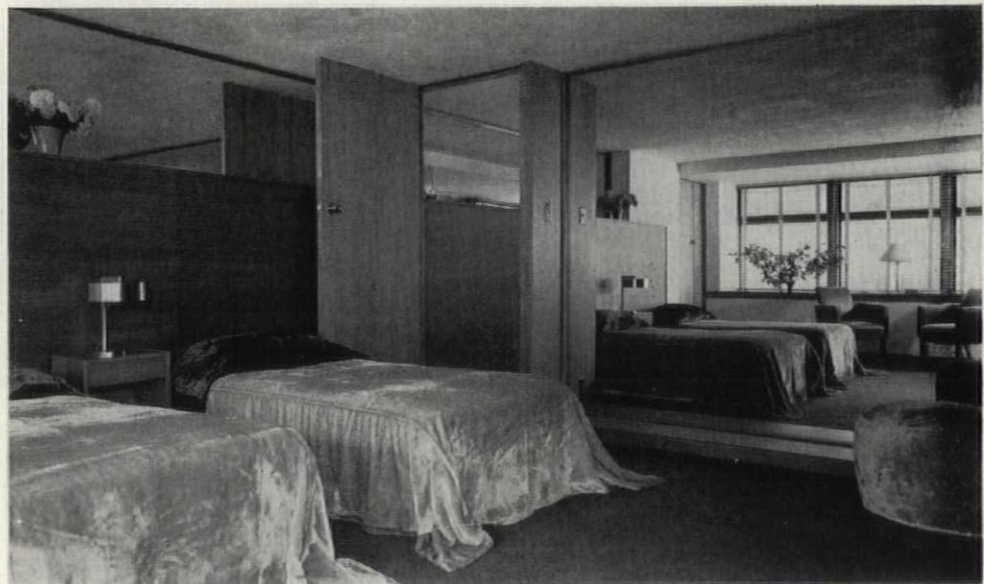
The handling of the interior space in the Pardee house is significant, both in the arrangement of the living room and in the arrangement of the second floor, where the carrying through of partitions and mirrors suggests unlimited space superbly divided

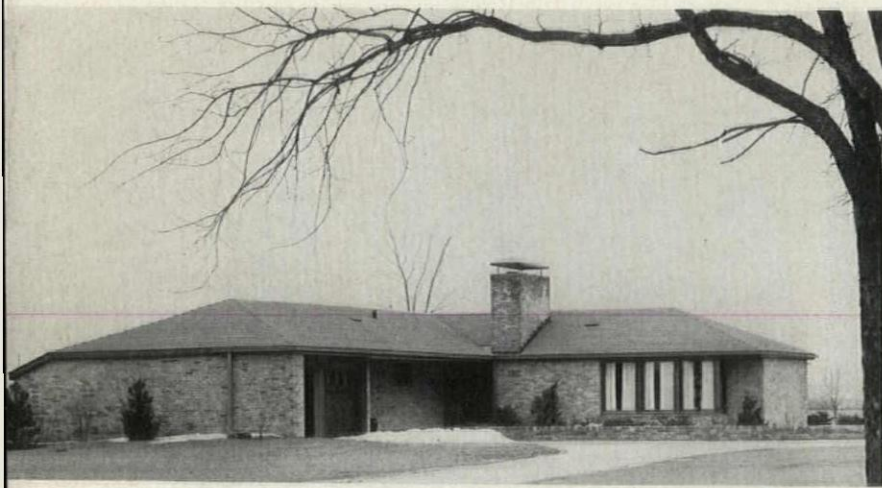


The plan of the Pardee house is difficult to appreciate because of the owner's special requirements



*The contrast of wood and glass with the squares of the cement wall is nowhere more strongly and effectively expressed, particularly where the two stories of the windows with their broad overhanging eaves look out over the court, than in the Pardee residence, shown here and across-page. The temptation toward a mannered handling of this emphasized geometry is obvious in the entrance stairs and the long passage to the door (see plans across-page). Dow attempts, by the use of interwoven planes and mirrors, to suggest the all-embracing quality of space. This is true of the Guest Bedroom (photograph below) where mirrors and planes are used to indicate a new kind of pattern geometry which seems to progress (or at least to suggest the progression) from the particular to the general*



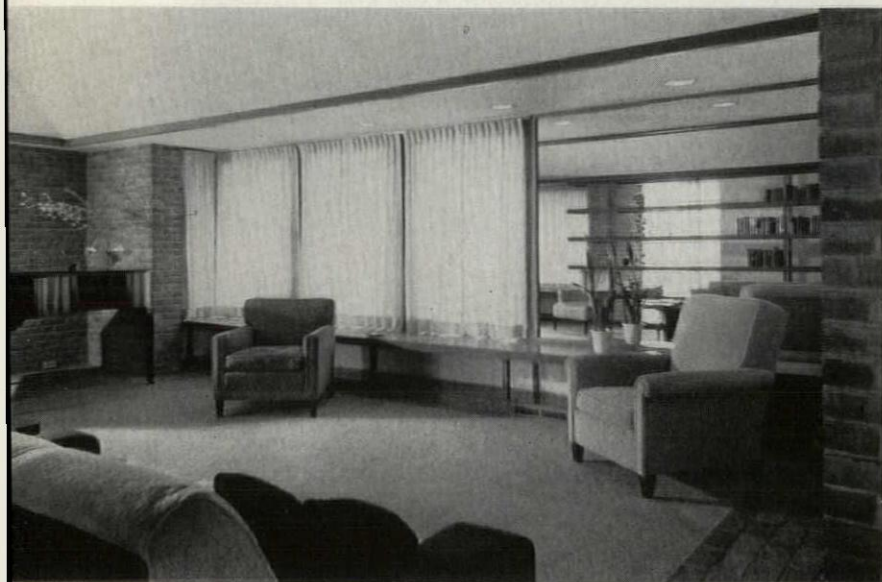


has led to a whole series of new effects, both exterior and interior, of planes of simple wood against diffused light and sharp rhythms, reaching a climax in the zigzags over the living room windows.

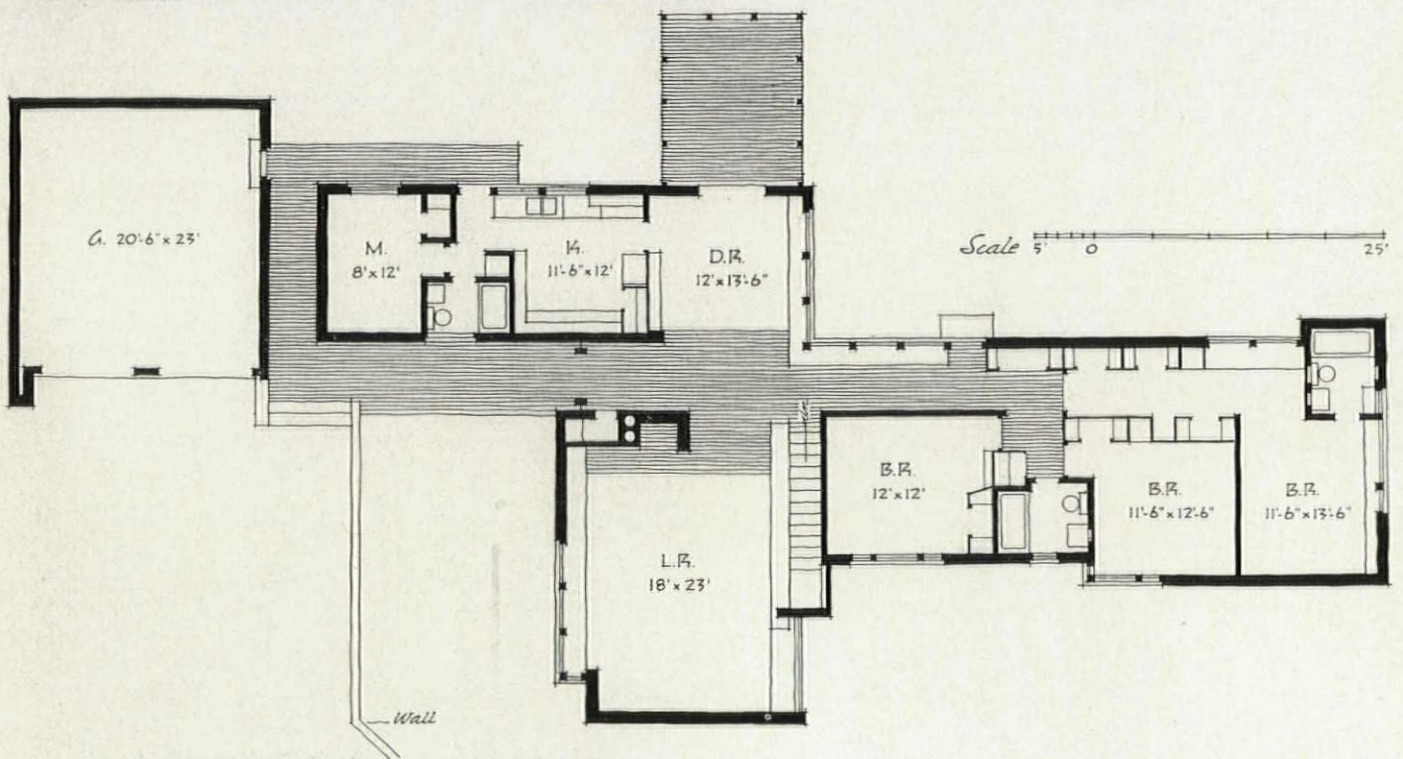
As he has shown in his industrial work for the Dow Chemical plants, Alden Dow is not limited to the use of cement block in producing his effects. We have selected four houses which most interestingly illustrate his handling of other materials. The first is the Grant residence at Midland, in brick. Here there is a masterly handling of planes, in the strong contrast between large, simple openings and the areas of wall, which is quieter than that in the cement-block houses but equally interesting. One wonders if the simplicity of the brick wall surface has not been in one way a *gain in true livability*, and whether the poetry of this less staccato treatment is not more human, perhaps more profound, than the more obvious patterns of the other houses. Possibly the rhythms of the block are a limitation as well as an opportunity.

The same quality of quiet, forthright, and yet subtle statement shows in the little Barclay residence, and this simplicity has created a new kind of personal grace in the whole.

It is of course this kind of simple statement which must *necessarily control* the design of all small houses, and it is interesting to note how beautifully Dow has achieved this result in the little square MacMartin residence at Midland. I feel that in this house, small as it is, Dow has achieved a complete integration—graceful, direct, and hu-

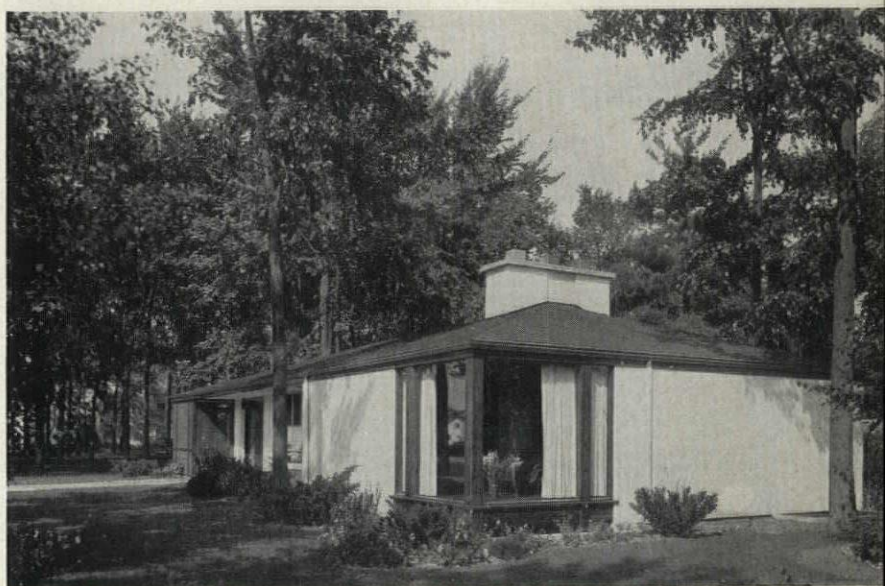


GRANT HOUSE

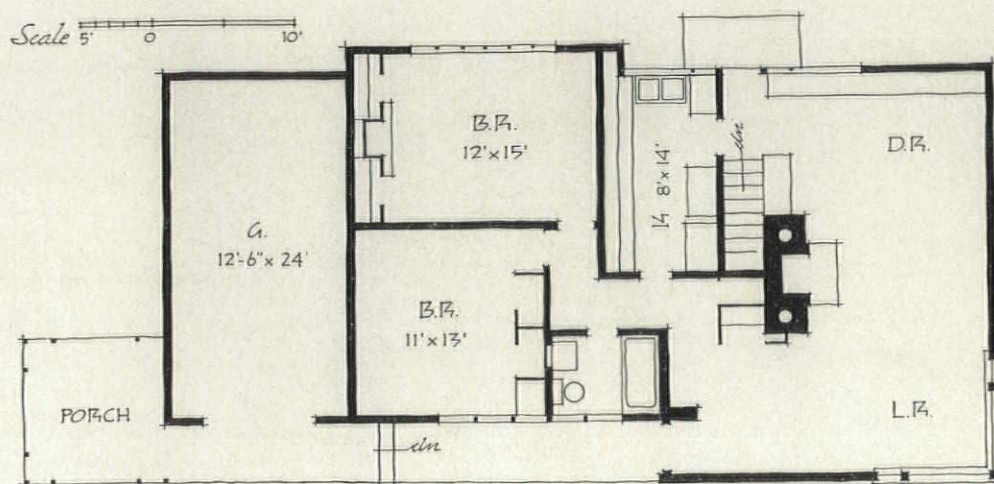


man—that strikes almost a new note in his work. The B. Gordon Saunders residence at Bloomfield Hills, Michigan, is in some ways the climax. Here ideas variously developed in earlier and more tentative examples reach a mature expression. Thus the relation of the house to its surroundings and to the water foreshadowed in the Dow office is evident here, *without* the perhaps artificial eccentricities of the earlier expressions. There is the same freedom in the handling of the planes, the same dynamic contrast of horizontal and vertical and of sloping roofs at various angles; yet there is also a new repose and a quiet quality of livability.

In all this work there clearly speaks a personality which is individual, which is thinking imaginatively—not in terms of style but in terms essentially creative—and which is seeking *aims quite different* from the aims of the usual modern designer. Mr. Dow claims that he is searching for some kind of scientific foundation and that the basis for architecture as an art must be architecture as a science. Yet his work is never a matter of equations or fixed relationships; it is rather the production of a mind seeking to create out of building materials objects that somehow plumb the more unusual depths of human experience. It is difficult to avoid some kind of esoteric language in discussing it or in evaluating the architect's constant attempt, by the use of interwoven planes and mirrors, to suggest the all-embracing quality of space. And the same holds true of his use of unexpected planes and of strong, almost staccato rhythms in the cement-block houses. Such a high aim brings with it its own dangers,



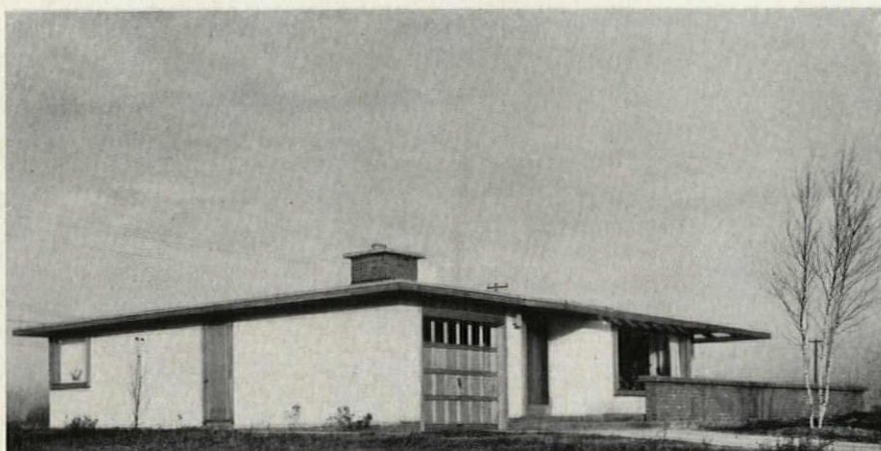
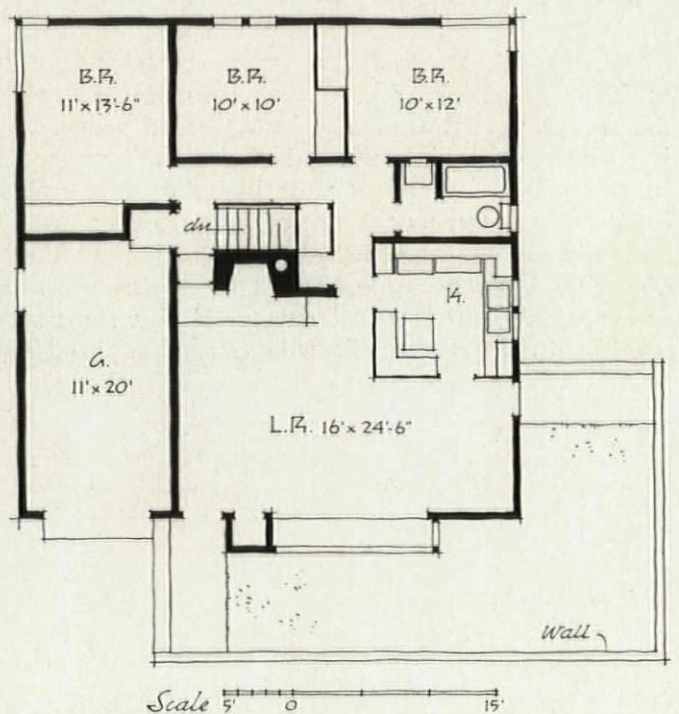
*An interesting example of Dow's handling of material other than cement block is the Grant residence shown across-page. In the Living Room the exterior brick tends to contrast pleasantly with the plaster, the windows, and the mirror wall introduced to give the feeling of interpenetration of space. In the Barclay residence shown on this page the corner window of timber and glass, the simple, direct handling of the little windows on the front, and the entrance door all create a feeling that here the architect has been seeking the simplest solution*



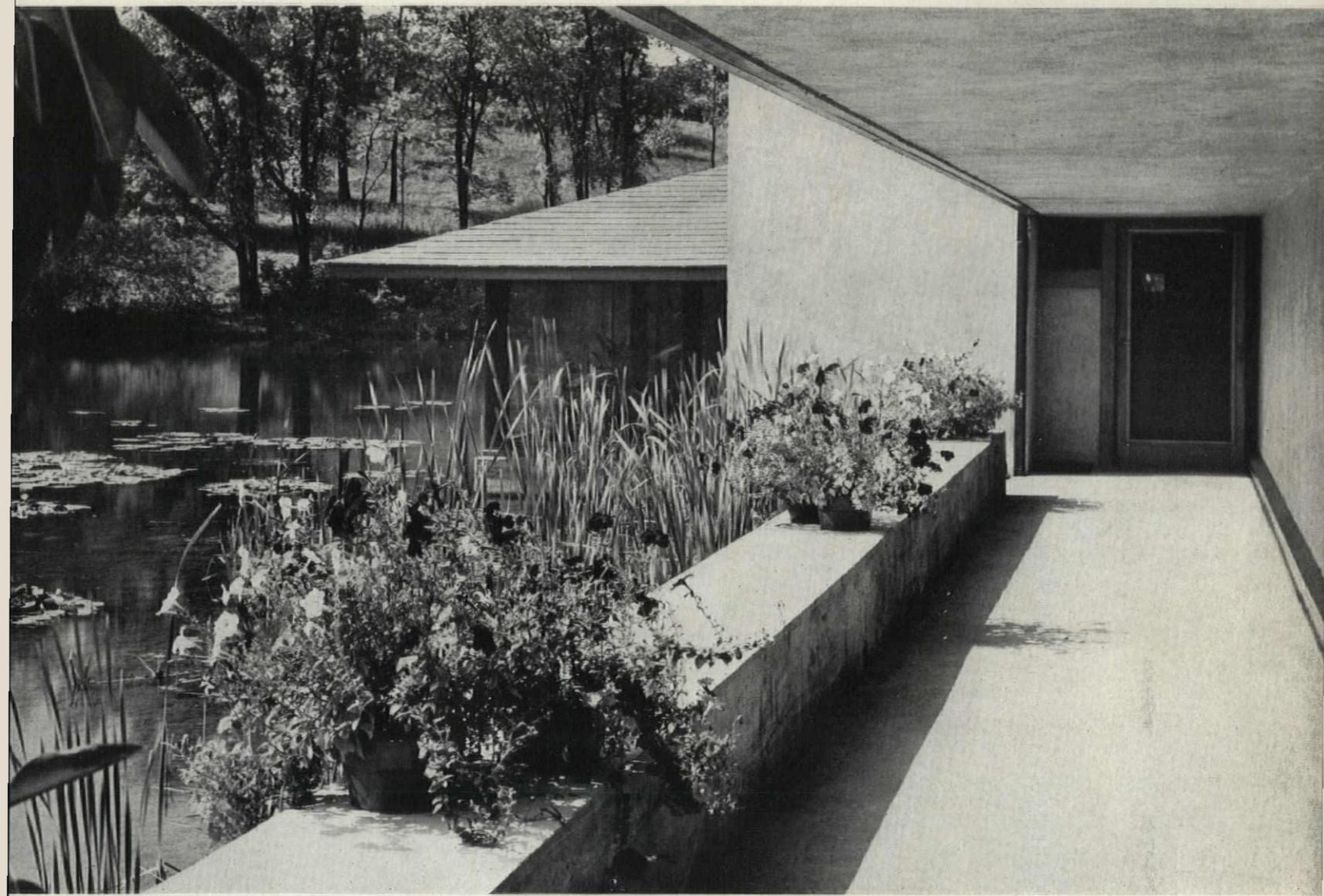


and these Mr. Dow has not always avoided. In the effort to express new and significant geometric relationships complications sometimes result, and, in the effort to see all the possible relationships of a space, overelaborate intersections and piercings which defeat their own end will sometimes occur—as, for example, in the clerestory lighting of the living room of the Saunders house and perhaps in the artificial placing of the bench shelf well within the line of the Pardee living room. Possibly also the insistence upon simple rhythms has produced an occasional overstressing of lighting fixtures, particularly the brass indirect fixtures of low intensity of which this architect seems so inordinately fond. Unlighted, they seem to make unfortunate interruptions of plain soffit or plain ceiling surfaces. They certainly tell their rhythmical story, but perhaps at the sacrifice of the basic harmony and quietness of the room. Yet despite these occasional stridencies, Mr. Dow's

*The MacMartin house is one of the smallest designed by Dow. Its central chimney, its quiet areas of wall, its one large plate glass window on the front (photograph above), and the interesting handling of the shelter over the door tie in with the more open projection over the windows and terrace (see photo of elevation below)*



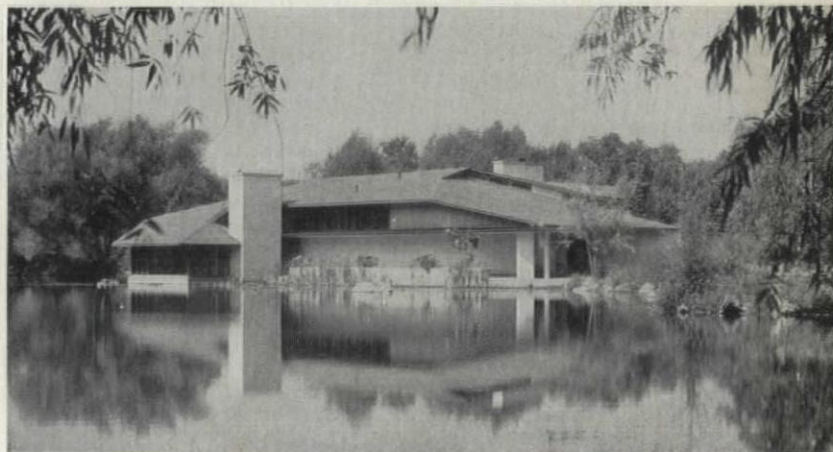




*Dramatic without being strident, interesting without being restless, is the S. Gordon Saunders residence shown on this page. The long terrace to the entrance door (above) is superb in conception and restraint, and though one may say that the beauty of the photograph comes largely from the surroundings, it was nevertheless the imagination of the architect that appreciated the value of this natural beauty and emphasized it by the quiet*

*restraint of the entrance terrace. The house is located on the edge of a mill pond and the living room is well below the water level. (See photo below.) The effect of sunlight on the water, reflected on the ceiling inside (see top photograph on page 286) is most interesting*

achievement is of great importance to American architecture. The high aim behind even its occasional complications is so obvious as to make one perhaps overlenient toward them. The development has been consistent; from the derivative and the complicated to the simple and the direct, with at the same time no loss of this basic creative urge. Here is a man not content with building mere comfortable and efficient shelters but a man who conceives that architecture, in order to realize its potential contribution to human living, must also create buildings which enlarge the imagination and enrich the emotional life of those who dwell in them. For architecture like any art, to be great, even to be living, must transcend the obvious plane of its materials—that is, it must confer upon them a meaning or an emotional connotation more inspiring, more exciting, more profound than their tangible appearance.





*The downward slope of the roof over the Living Room windows in the Saunders residence acts beautifully to emphasize the relation of the house to the water. The long horizontals of the window, combined with the diagonal planes of shelf and cabinet and with the mysterious light coming from above through clerestory windows, tend to relate the whole to the hills at the back and the quiet horizontality of the water in front of the house*



# THE BASIS OF RADIANT HEATING

BY DEXTER J. PURINTON

Contrary to general notions, so-called heating systems do not warm man but merely control his rate of cooling. Man, being warm-blooded, must be cooled continuously to be comfortable, and if some cooling does not occur he will die. This is true regardless of the season of the year, the climate, the amount of clothing, or any other such factor. If man were heated by the heating system of a building he would become feverish and a subject for medical care.

## HEAT TRANSFER

The scientific theory of general heat transfer is not simple or generally understood. But its application can be understood, and is, in most cases, comparatively simple. Radiant heating is one of the most involved absolute sciences. However, its application to engineering need have no more complications than those of ordinary convective heating and vastly fewer than those of air conditioning.

The terms *convection* and *radiation* may not be clear to every one. It seems desirable to define these terms, if not in strict scientific language, at least in a simple manner. The dictionary states that convection is "the diffusion of heat through a gas by motion of its parts, as when the parts are unequally heated." It also states that radiation is "the transference of energy in straight lines through regions not occupied by ordinary matter which is not affected by the transmission; especially, light and radiant heat." In brief, convective heat is that which directly heats the air, and radiant heat is that which passes through the air, without changing its temperature, until

it strikes some solid matter which it then raises in temperature.

## TRUE CONCEPT OF "HEATING"

If by *heating* we mean the methods used to make man comfortable in enclosed spaces, it would appear wise to consider carefully man's characteristics in relation to heat before we consider the methods to be employed. Simply expressed, man is a heat generator whose comfort depends upon his ability to get rid of heat at a surprisingly uniform rate. If the amount of heat lost is too great, then the man feels cold. Conversely, if the loss is too small, then the man feels hot. It follows that man to be thermally comfortable must be in such an environment that his heat loss will be within his natural rate and, if life is to continue, be at least within his physical ability to compensate by perspiration or shivering.

The hourly heat loss rate varies from about 400 Btu while at rest to 750 Btu while taking exercise such as walking or dancing. It should be noted that practically all of the increased heat loss over 400 Btu is attained by perspiration which, due to evaporation, dissipates the additional heat. Even at the 400 Btu rate, part of the heat is lost by perspiration and respiration, and in round numbers it can be fairly stated that, exclusive of expired air and skin evaporation, the heat loss for comfort is almost constant at 300 Btu per hour, which must be lost by radiation and convection. Some may now mention conduction losses, but these are so small and generally

temporary in duration that they can almost always be neglected.

From the foregoing it follows that man's environment should be such that he will lose heat by radiation and convection at a fairly uniform rate of 300 Btu per hour and that the air conditions permit his natural adjustments by perspiration to be adequate. Fortunately, adjustment by perspiration is effective over a very large range of air temperatures if the humidity is not too high. If the humidity approaches 100%, then comfort can not be obtained. During the heating season we are not confronted with the problems of high humidity. Therefore, comfort heating should provide an environment in which man will lose about 300 Btu per hour by radiation and convection.

## SOME CHARACTERISTICS OF RADIANT HEAT

Clinical experience with radiant heating is interesting not only in fever therapy but also in the treatment of syphilitics and the mentally deranged. Johns Hopkins Hospital and the Mayo Clinic have established the fact that the "dread spirochete" will not increase in the blood stream of a person living in space which is radiantly heated. The hospital for mental diseases at Woburn, Massachusetts, has found that the violent patient becomes quiet when transferred to radiantly heated spaces.

The problem of heating any space in the winter time is, therefore, one of producing conditions under which all occupants will lose heat by radiation and convection at a uniform rate of about

300 Btu per hour. This statement is true regardless of the system employed — conventional radiators, forced hot air, or low temperature radiant surfaces.

*While this article deals with radiant heating, it is interesting to note that radiant cooling is now being carefully studied and that considerable experimenting is in progress. The future should bring forth a sound method of using radiant cooling.*

Let us critically examine the methods of heating by the use of conventional radiators. For purposes of simplicity we will consider cast-iron, exposed, steam radiators. With this system the radiators usually vary in temperature from about 200°F to 225°F. They are generally located under windows or other maximum exposure. We know from our everyday experience that this arrangement, if properly sized and spaced, will give generally satisfactory heating.

#### THERMAL CALCULATIONS

Heating engineers and architects know how to calculate the sizes required and they have good judgment as to spacing. The calculations are simple arithmetical computations derived from both scientific data and experience. The desirable spacing is generally understood and results from experience and precept. Radiation sizing and spacing is simple, but few—a very few, even of the heating engineers—completely understand the scientific phenomena involved. Substantially none of them could make the necessary calculations for a complete scientific analysis. This fact is important because it applies with equal force to conventional radiator systems, forced hot air systems, or so-called radiant systems. Let us leave to the physicists and scientists the development of the simple calculations which, with experience, will give us usable data and methods. Let us not get lost in the analyses of thermal molecular motion and other aspects of thermodynamics.

The apparently simple heating system, using exposed cast-iron, steam radiators, is very complicated in its behavior, if viewed scientifically. It is, furthermore, a method combining both radiation and convection. About 75% of the heating effect is by convection, that is, direct air heating; about 25% is by radiation.

From a thermal viewpoint all systems combine both radiant and

convective effects, and heating systems vary only in the relative amounts of heat they dissipate by either radiation or convection.

#### NO 100% SYSTEMS

Actually, there is no system which is either purely radiant or convective. Even the so-called convective systems employ either warm, exposed surfaces or, by secondary effect, warm some such surface and, therefore, radiate. Every system gives many secondary effects. Radiant heat does warm the dust particles in the air; convectively heated air warms the surfaces over which it passes and these surfaces radiate heat. If we should attempt to follow heat energy in an enclosed space we would find many conversions from radiant to convective and back again until we were completely lost in secondary, tertiary, and other interrelated effects. This, again, is a task for the scientist and need not concern us. Our efforts should be to obtain those conditions that will make the occupants comfortable.

The forced hot air system is nearest to a true convective type. But it also produces some secondary radiant effects. These forced hot air systems distribute air at inlet temperatures as high as 120°F — which have been obtained by passing the air over heaters having temperatures varying from 165° to 220°F. The design calculations for such systems are simple, but the location of inlet and return openings is still an art rather than a definite science. Only engineers with considerable experience can properly locate and arrange the necessary openings. These systems are only satisfactory where the enclosure is heavily insulated or where comparatively large temperature differences are not important. Greater temperature differences are tolerable in many factories where unit heaters are used.

#### AIR TEMPERATURE ONLY ONE FACTOR

In the case of both the conventional radiator and the forced hot air systems the prime design requirement is considered to be the temperature of the air. But if the systems are satisfactory in operation the secondary effects have provided adequate temperature of enclosing surfaces. Many heating systems which, in design, did not consider radiation effects, are acci-

dentally satisfactory. These fortunate accidents occur because the surfaces of the space are warmed to some extent by the comparatively hot air and, therefore, control radiant losses.

Let us ask why the generally accepted criterion of 70° to 73°F. is not entirely satisfactory. It is common experience that homes which are comfortable have temperatures actually much above 73°F. It may have been noticed that, particularly in very cold weather, the most comfortable conditions were obtained when the inside thermometer was 80° or above. Generally, this is true because the surfaces of windows, walls, floors, etc., were at much lower temperatures, and the body was losing heat to these cold surfaces, making it necessary to compensate partially by raising the air temperature.

Let us return for the moment to man with his required heat loss by radiation and convection of 300 Btu's per hour. In the average convectively heated space this 300 Btu loss is divided between 190 Btu's radiantly and 110 Btu's convectively, although the actual division varies materially in special cases.

#### MAN'S HEAT LOSS

Generally speaking, man's basic heat loss per hour is about 100 Btu's by perspiration and exhalation, 100 Btu's by convection, and 200 Btu's by radiation. Radiation is the least appreciated of these factors although we are all familiar with radiant effects from a fireplace which gives the well-known hot face and cold back. At least many, if not all of us, have been in a rowboat on the water in the sun and have experienced the sudden cooling effect when the radiant energy of the sun was interrupted by a passing cloud.

Radiant energy in the form of heat is continually endeavoring to obtain a balance; that is, every warm surface is radiating heat to all cooler surfaces so that eventually all things will be at one uniform temperature and man will cease to exist. But this promises to be many years hence, so we have time to consider one other factor of man as a radiator.

You may remember that "mad dogs and Englishmen go out in the midday sun." But while data on "mad dogs" is not available, we do know that the Briton has a surprisingly low skin surface temperature of about 73°F. as compared with his American cousin whose

equivalent skin surface temperature varies from 83° to 85°F. Therefore, the Englishman loses no heat to an enclosing surface at 73°F. while the American, at his higher temperature, would lose considerable to this surface. This is one reason why the English prefer lower room temperatures. If an American was in an enclosed space, all of whose surfaces were between 83° and 85°F., he could not lose any heat radiantly and therefore the air temperature would have to be sufficiently low (50° to 55°F.) so that he could lose all of the 300 Btu's convectively.

### THREE CRITERIA FOR THERMAL COMFORT

*It is well to remember that man, to be comfortable, must be in space which has proper air temperature, humidity, and whose enclosing surfaces are at proper temperatures. These three are the major criteria of man's thermal comfort and, fortunately, can vary individually if the relation of the three, collectively, is satisfactory.*

In radiant heating systems the prime design requirement is considered to be the temperature of the enclosing surfaces, while the air temperature is of secondary importance. Simply expressed, radiant systems control the temperature of these surfaces, such as walls, ceilings, or floors (or a combination of them) by buried steam or water coils, air ducts, or electric wiring. The essence of successful radiant heating is the use of comparatively large surfaces at low temperatures.

### DESIGN OF RADIANT HEATING SYSTEMS

The design calculations for a radiant system are for the purpose of determining the same factors as for a conventional radiator system—i.e., the amount of surface required and its location. The essential difference is that conventional steam radiators have an average surface temperature of about 200°F. while radiant surfaces are at about 100°F. This temperature difference is basically important. If the radiant surfaces are located in the walls near the floor, it will be found that they act in a manner very similar to conventional radiators at the same temperature. If, however, the radiant surfaces are placed in the ceiling or floor, other

factors enter into the problem and the analogy to conventional radiators does not hold good because these locations are not favorable to convective heating. In convective heating air motion is required, and the rate of heat transfer varies as the square of the velocity of the air over the radiator. It is obvious that the thermal air motion at the floor or ceiling is much less than at a vertical wall or partition.

In the case of low, side wall radiant surfaces it will be found that, for design purposes, they can be treated as radiators at equivalent temperatures. But to design floor or wall panels, other factors must be understood and considered, although it is generally true that the area of radiant surfaces must be at least twice that of conventional radiator systems.

### ARCHITECT'S RESPONSIBILITIES

The actual design of floor and ceiling surfaces will probably be left to the heating engineer, but the architect will want to satisfy himself as to the arrangement and distribution of such surfaces. These surfaces should be so located that all occupied spaces are covered by the radiation from them, bearing in mind that in practice such surfaces radiate effectively only within a solid figure whose base is the radiant surface and whose sides are at an angle of 45° to the base. It is also necessary to locate surfaces so that spaces at particularly severe exposures, such as large windows, will be well within the areas covered by a radiant surface.

Other factors to be considered in radiant heating are, in most cases, analogous to conventional radiator heating. Surfaces should be located so that future changes will not necessitate their relocation and, further, so that they will not be completely shielded by file cabinets or large pieces of furniture. It is important to note in this connection that linoleum or rugs on the floor have practically no effect upon the heat emitted as the floor covering quickly rises to the design temperatures and becomes an effective radiant surface. The essence of satisfactory radiant heating is low temperature and large areas, properly distributed. When locating surfaces, remember that radiant heat follows the laws of optics so that areas under tables and back of furniture will still receive some heat even if entirely shielded from the radiant surfaces. This effect in

shielded areas is exactly parallel to that of light where a single lighting fixture at the ceiling will illuminate the entire space at different intensities. Radiant heat, like light, is reflected from all surfaces, and there is a general diffusion throughout the space with major or minor shadows.

### RADIANT HEATING HAS LONG HISTORY

While some may claim patents for radiant heating, a careful check shows that even the claims cover particular application only. Radiant heating was extensively used by the Romans in their public bath houses where the floors were warmed by underground flues. This ancient application reached a high point in the famous baths of Caracalla. The pleasure barges recently found in the lake west of Frascati were also radiantly heated by the use of carefully designed floor and wall flues. The prior art is ancient and voluminous.

The patent situation in Europe is artificial, since all European patents are held by a Dutch cartel operating under the name of Stralingwamte. This cartel was formed because of threatened litigation between patentees on radiant heating, and resulted in an agreement to mutually share the benefits and to avoid litigation as to patent validity.

### AMERICAN SITUATION

The present patent situation in the United States is fairly simple. While there are several minor patents covering particular applications, there are only, *as far as could be ascertained*, two companies who have indicated their belief in their patents, and neither one claims coverage for the fundamental principles.

### HELLMUND PATENT

The Westinghouse Electric and Manufacturing Company has many patents covering radiant heating by induction methods and at temperatures in excess of 1000°F. A search of their records only revealed one patent relating to radiant heating for human comfort. This patent, No. 2,134,513, issued on October 25, 1938 to Rudolph E. Hellmund, was assigned at issuance to Westinghouse. It is entitled "Automatic Temperature Control System" and

has description and claims covering the measuring and control of both the air and radiant surface temperatures. Its claims are very extensive, covering both heating and cooling and many combinations of both radiant and convective effects. It should be noted that radiant systems, using other means of control, have been installed prior to this patent, and that no patent litigation has resulted.

#### CRITTALL PATENTS

The other company is Crittall Ltd. of London, England, who have assigned the American rights to Wolff & Munier, Inc. as sole licensees. The licensees claim eight United States patents, as follows:

- No. 1,570,448 — Issued January 19, 1926
- No. 1,625,987 — Issued April 26, 1927
- No. 1,718,533 — Issued June 25, 1929
- No. 1,740,336 — Issued December 17, 1929
- No. 1,771,268 — Issued July 22, 1930
- No. 1,771,269 — Issued July 22, 1930
- No. 1,800,150 — Issued April 7, 1931
- No. 2,052,359 — Issued August 25, 1936

These patents were originally issued to Richard Godfrey Crittall and Joseph Leslie Musgrave, either singly or jointly. An examination of these eight patents discloses that they all cover particular applications such as a method of making coils, a method of attaching coils to forms, etc., and that none of them claim any general coverage of the basic principles. While Wolff & Munier, Inc. have had considerable experience in the actual design and installation of radiant systems under these patents, it should be noted that other radiant systems have been installed in this country, and that the Crittall licensee has not yet claimed infringements of their patents.

#### RADIANT SURFACE LOCATION IMPORTANT

Radiant heating, like all other methods, offers many choices of location and detail. Each type of construction, such as wood frame or fireproof, also offers many variables in actual practice. The major decision to be made is that of heating surface location such as ceiling

areas, floor areas, wall areas, or a combination of these. The next decision concerns what method of heating the surfaces will be used, such as steam, hot water, hot air, or electricity. With these choices made it remains only to determine the amount and distribution of surface areas and to select the actual construction details.

Each general surface, such as floor, wall or ceiling, offers certain advantages and disadvantages, and in making the choice of the general surface to be used the following facts should be borne in mind.

#### CONVECTIVE HEAT FROM WALLS

Wall surfaces, as stated before, act like radiators at equivalent temperatures and, due to their location, give out a large amount of heat convectively. They also have the well-known radiator characteristic of making the walls dirty and stained. Floor surfaces must be limited to maximum temperatures of 85° F. because our present clinical information tells us that any higher temperatures will undoubtedly give the occupant a case of old-fashioned chilblains.

#### MORE FLOOR SURFACE REQUIRED

This limit of floor temperature means that for equivalent heating effects more floor surface must be used than for wall or ceiling areas where the maximum surface temperature is about 130° F. This 130° F. limit has been found empirically to be sufficiently low to avoid plaster cracks. But if ceiling surface is used this maximum temperature should be permitted only where the height above the floor is 10'-0" or greater. If lower ceilings are encountered, then lower surface temperatures should be used to avoid too great a downward radiation upon the heads (bald or otherwise) of the occupants, using a maximum of 90° F. or less at 7'-0" ceiling height.

These three general surfaces also differ in their relative useful radiant output. The wall surface emits about 45% radiantly, the floor surface about 50% radiantly, and the ceiling surface about 75% radiantly; the balance in each case being in convective output. From this it follows that for the same heat effect the ceiling surface produces the lowest air temperature and the least difference in temperature throughout the space.

#### RADIANT SURFACES MUST BE AT LOW TEMPERATURES

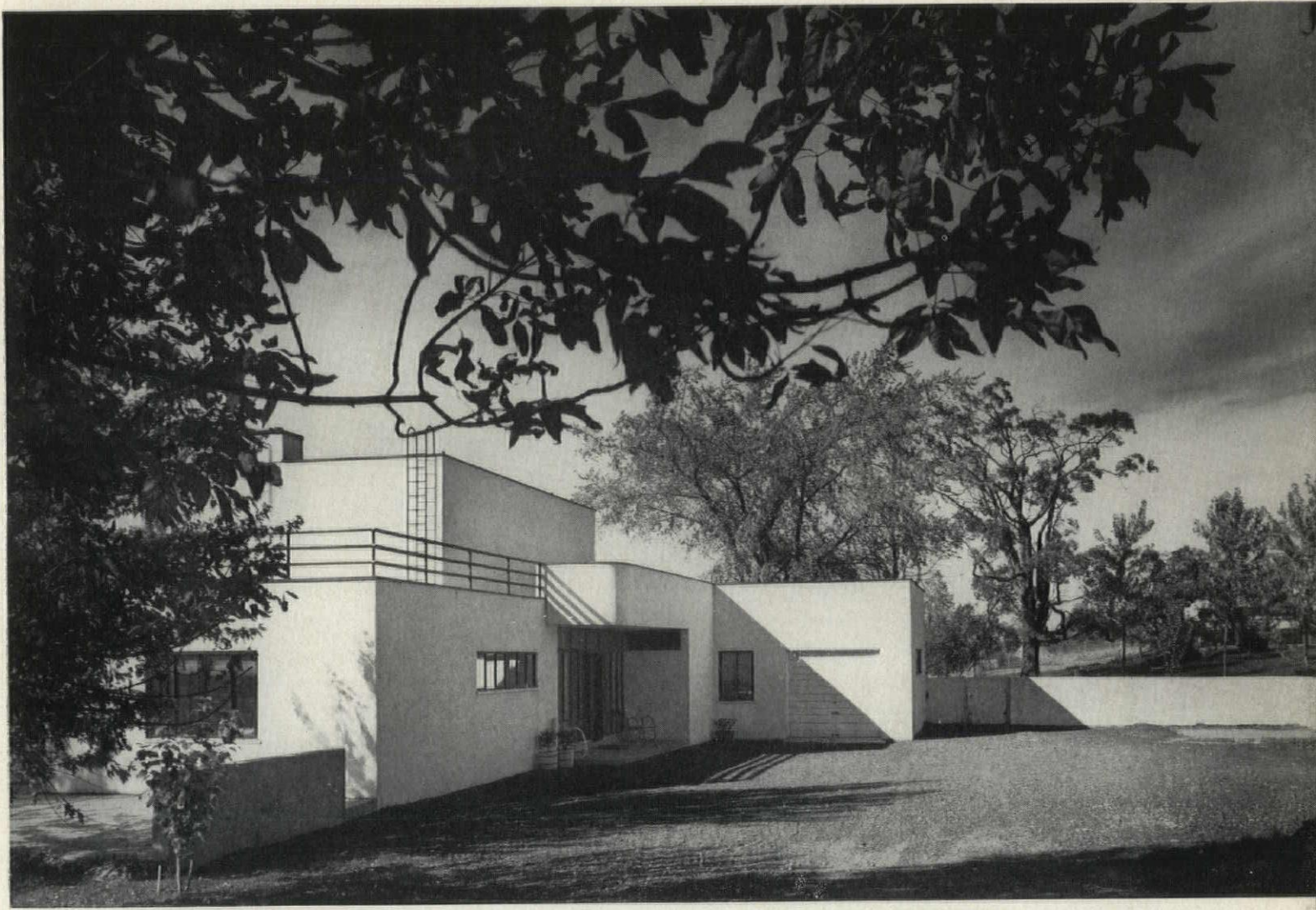
The selection of the method of heating the surface is practically the same as for conventional systems except (and it is a major exception) that the surfaces must be at low temperatures, say about 120° F. maximum. Furthermore, because of the intimate contact with the construction, expansion due to change in temperature must be carefully considered. Except in special cases where very low temperature steam is available, or where large expansion of the pipes can be permitted, steam is not a satisfactory heating medium. Electricity is not generally considered as a means of heat because of its high cost. Hot air is difficult to use because of the complicated duct system required and also because of the fire hazard of such extensive flues. Hot water is generally used and, except for some very special cases, is preferable both from a performance and economic viewpoint.

#### SIMPLE RULE FOR CALCULATIONS

The published methods of determining the amount of surface required are cumbersome and are based upon certain functions of the fourth powers of the absolute temperatures. Read on and you will not find any double-decked equations with factors raised to decimal exponents, but a comparatively simple rule-of-thumb which gives quick approximate results. *Divide the Btu loss of the space by the Btu transmission for a surface at the temperature selected. This equals the surface area required.* This procedure will generally give answers slightly larger than necessary.

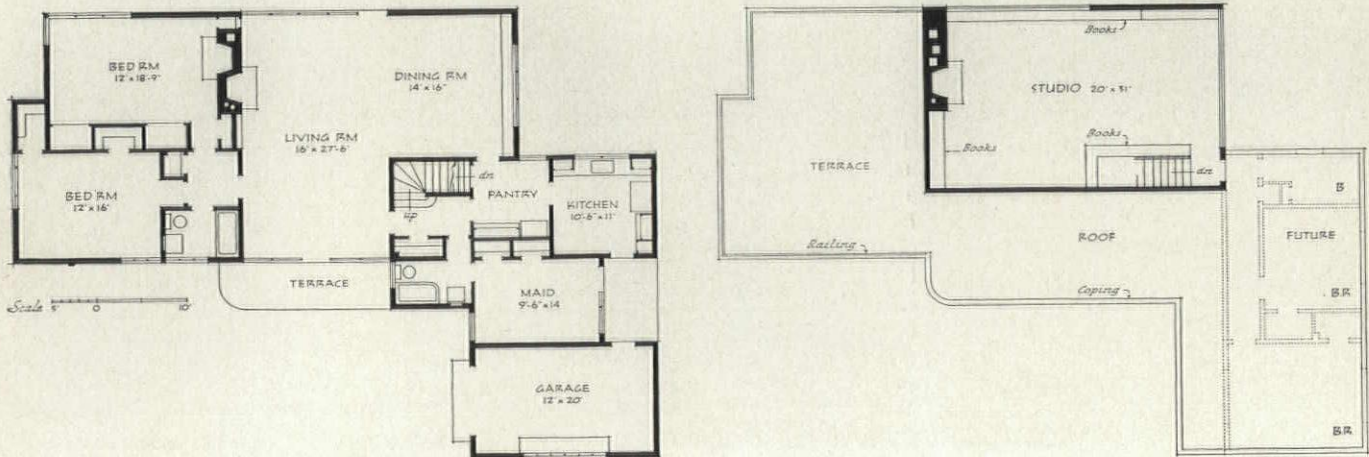
#### ENCLOSING SURFACES OFTEN NEGLECTED

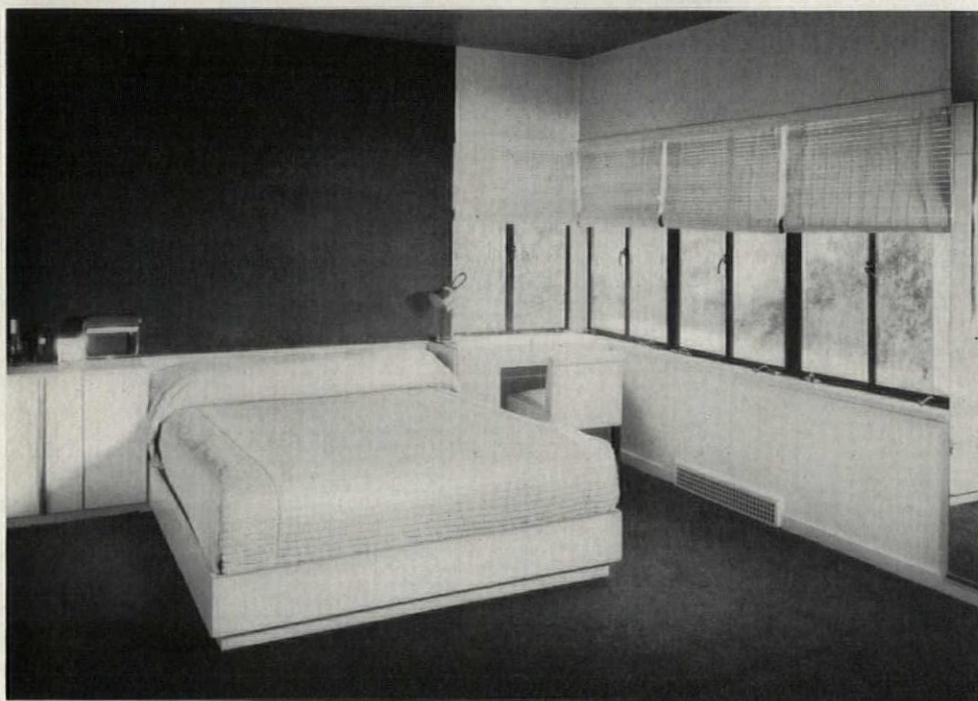
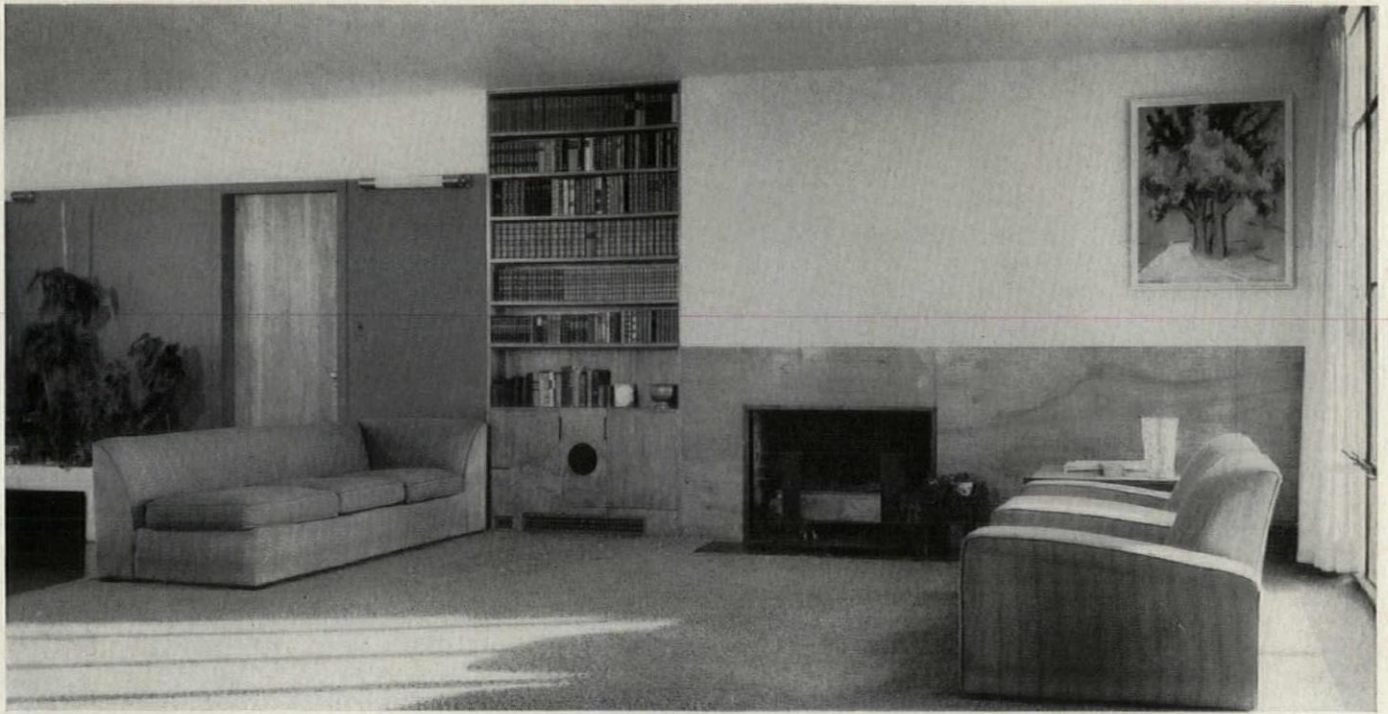
The wholly satisfactory heating system must properly control at least the following three factors: Air temperature, humidity, and the temperature of enclosing surfaces. The first two are generally recognized but, in this country, the third has been neglected. Europe, and particularly Scandinavia, has done much with radiant heating, producing more healthful, cleaner, and more economical systems.



# A SMALL SUBURBAN HOUSE

DESIGNED BY SCOTT & TEEGEN, ARCHITECTS, NEW YORK

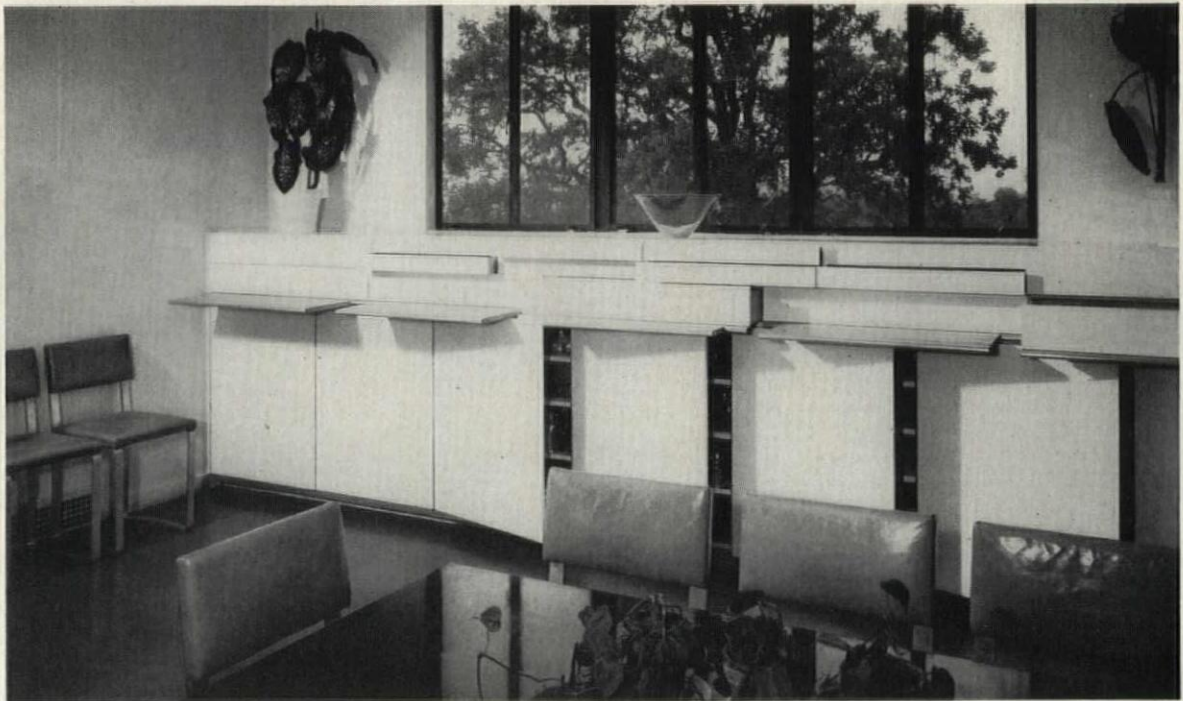




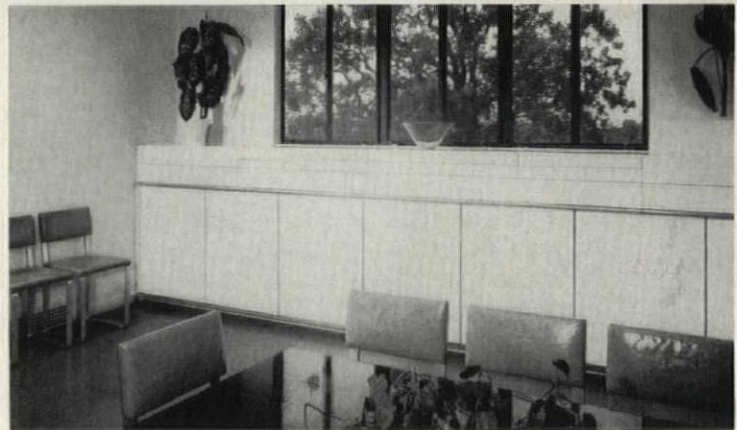
*The small country home for Mr. and Mrs. Harold Palmado, in New Milford, Connecticut, designed by Scott & Teegen, is a typical example of simple design adapted to the surrounding countryside. (See plans and photo, page 291.) The extensive use of metal sash provides abundant light in all the rooms. The Living Room (top photograph) has a wood veneered fireplace. (See also detail in the January, 1942 issue, page 40.) The center photograph shows a corner of the Living Room adjacent to the Dining Room (see detail across-page). At left is a corner of the Master Bedroom. (All photos by Richard Garrison)*



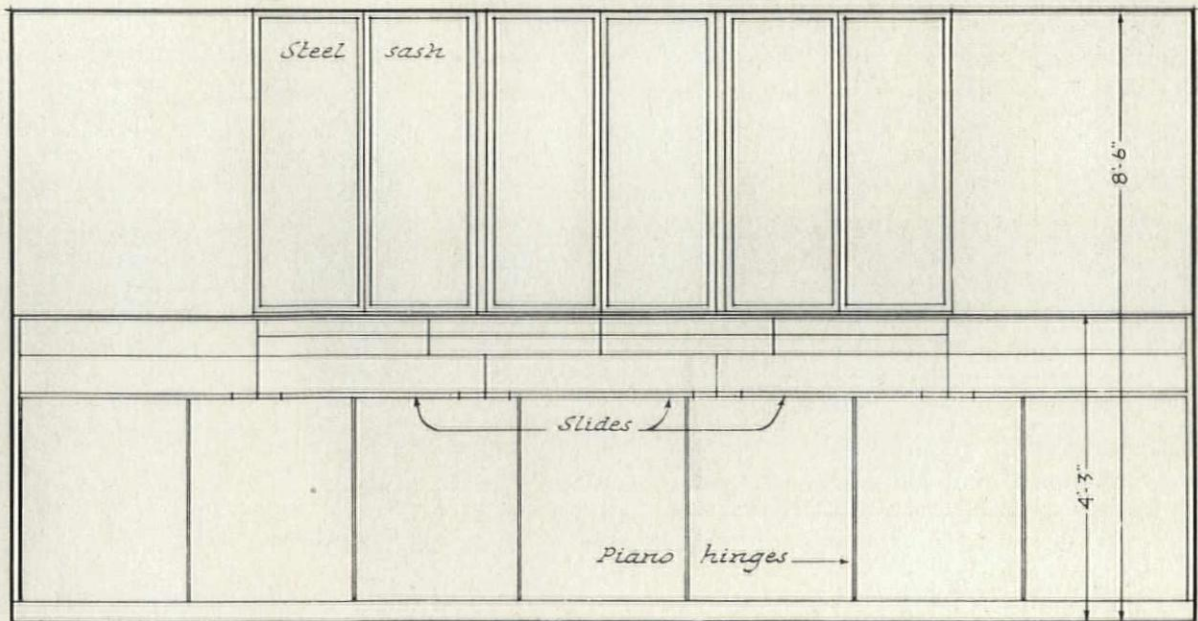
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*Photos by* RICHARD GARRISON



SCOTT & TEEGEN  
*Architects*

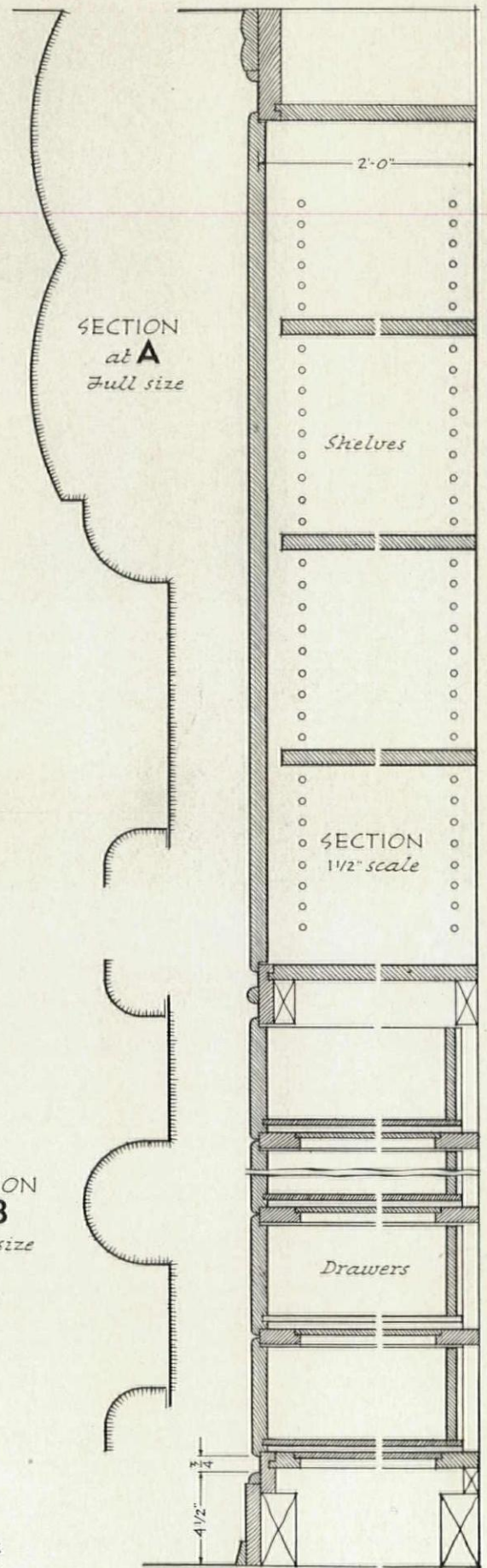
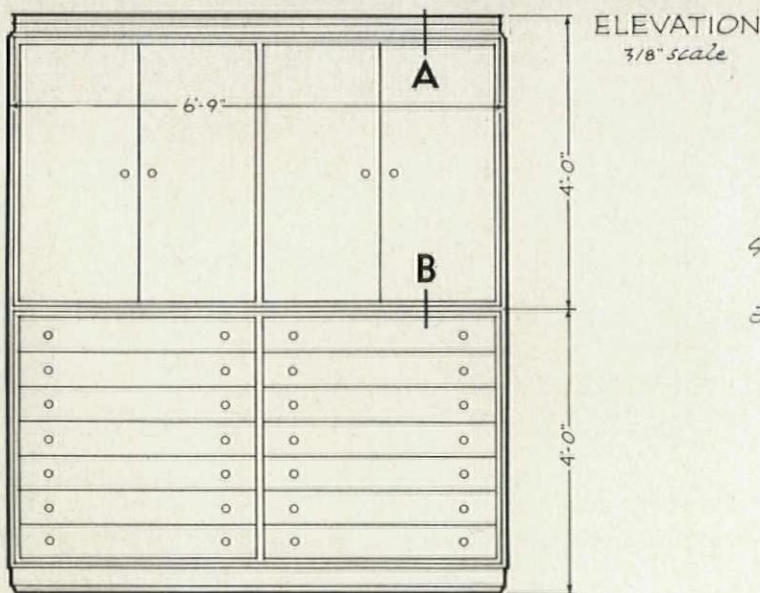


ELEVATION  
*3/8" scale*

# B U I L T - I N F U R N I T U R E

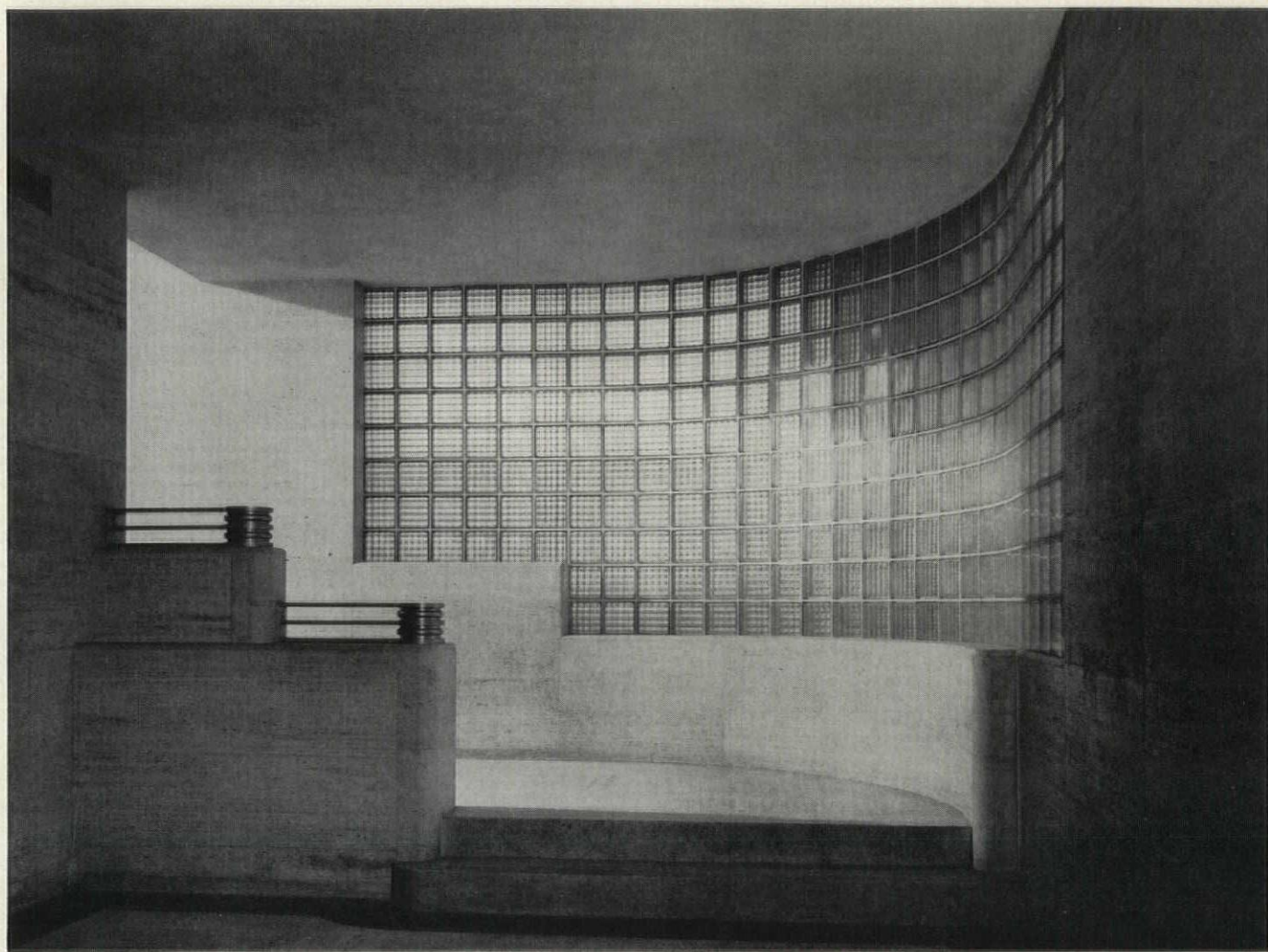


RICHARD GARRISON

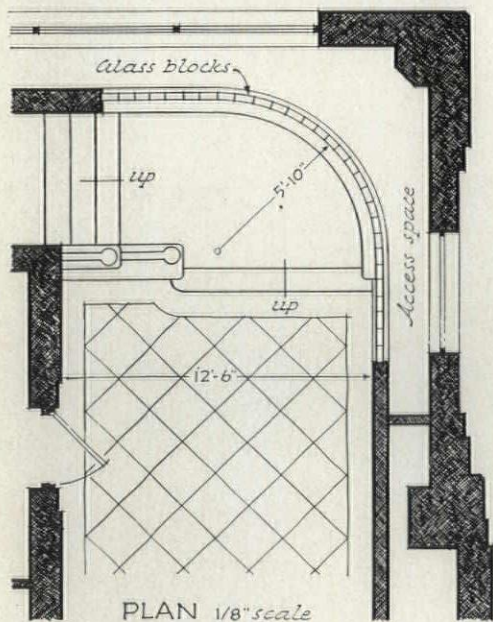


PAUL THIRY . . . . . *Architect*

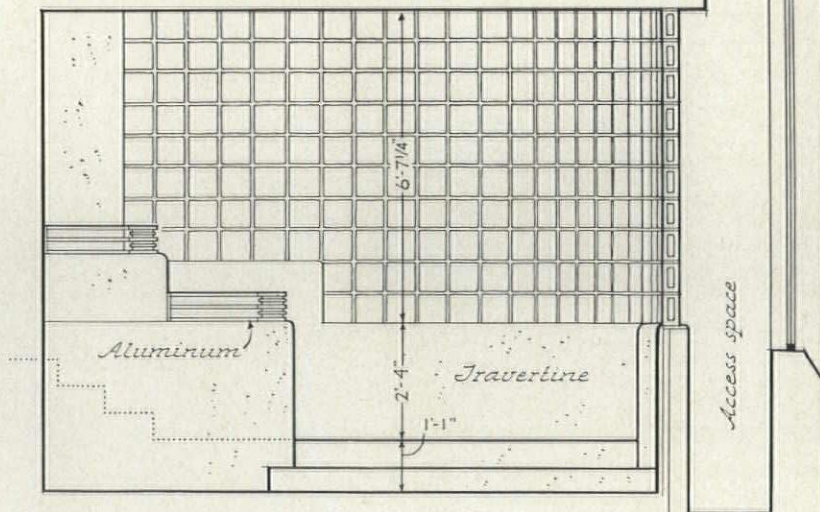
# S T A I R W A Y



HEDRICH-BLESSING STUDIO



ELEVATION 1/4" scale

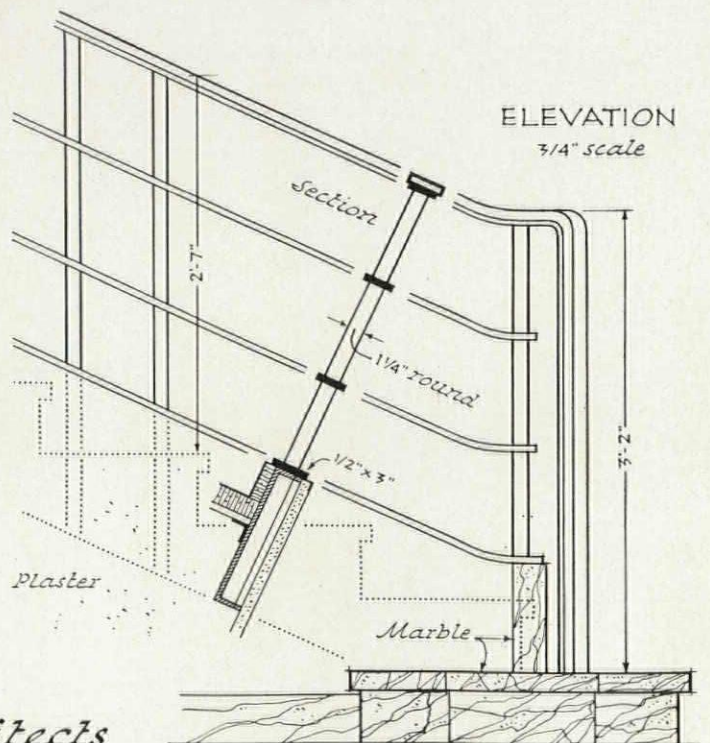
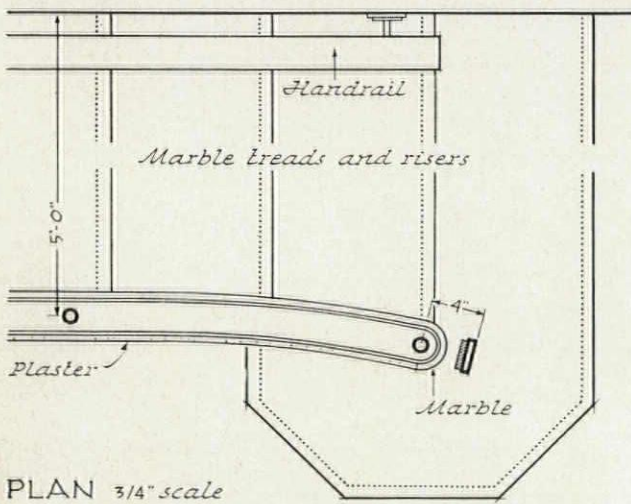
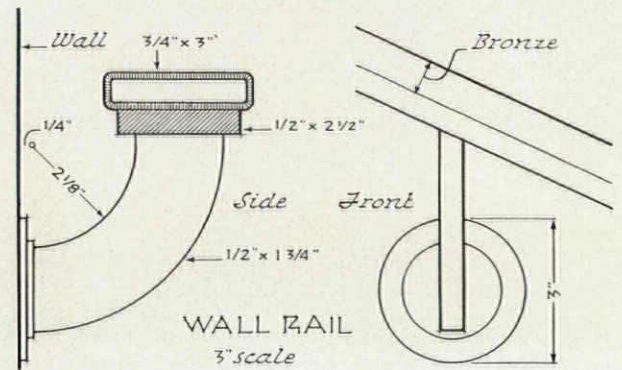
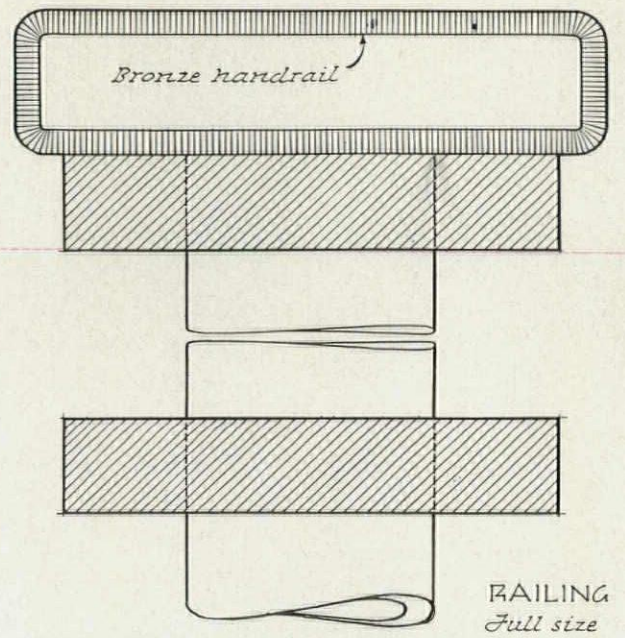


ALFRED S. ALSCHULER & R. N. FRIEDMAN . . . Architects

# S T A I R W A Y



CHICAGO ARCHITECTURAL PHOTOGRAPHING CO.



ALBERT KAHN, INC. *Architects*

# PENCIL POINTS DATA SHEETS

*Prepared by* DON GRAF, B.S., M.Arch.

# PENCIL POINTS DATA SHEETS

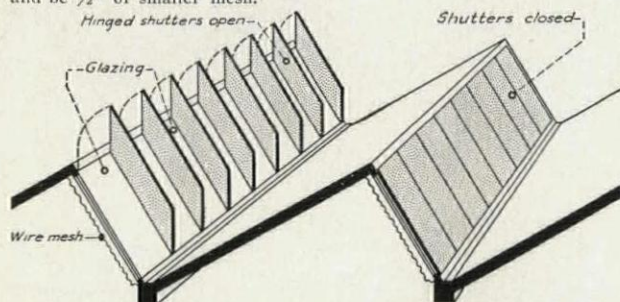
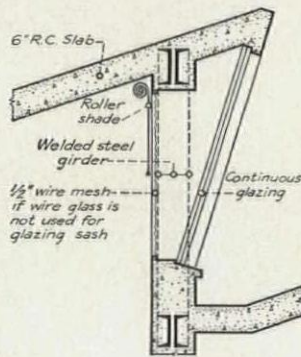
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CONSTRUCTION

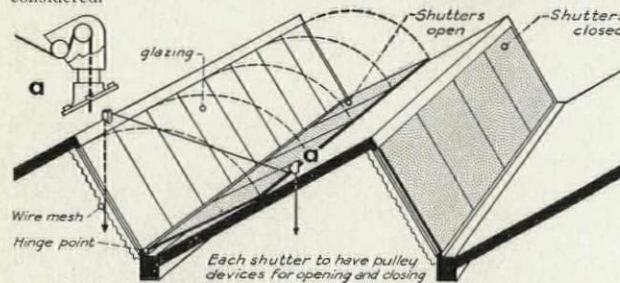
PENCIL POINTS DATA SHEETS PREPARED BY DON GRAF

**NEW SAWTOOTH ROOF.** Construction should be of an improved type as shown. The tilted glass face affords safety from falling glass or shell fragments, controls reflection from glass and simplifies blackout and camouflage.

**EXISTING BUILDINGS.** These must have provision for skylight obscuration and protection against falling broken glass, by substitution of weatherproof opaque materials for the glass with the necessary continuous use of artificial light or blackout methods as shown on the following Data Sheets. In these cases weather-resistant materials and measures to reduce damage from falling glass must be provided, and constructed so as to exclude wind and rain. Wire mesh used to arrest falling glass must be placed close to the sash and be  $\frac{1}{2}$ " or smaller mesh.



**HINGED SHUTTERS** for sawtooth roof. Shutters to be operated in groups by means of pulleys. Wind load on the open shutters must be considered.



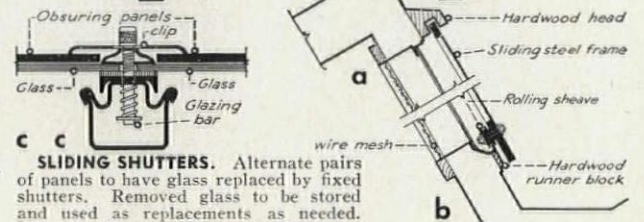
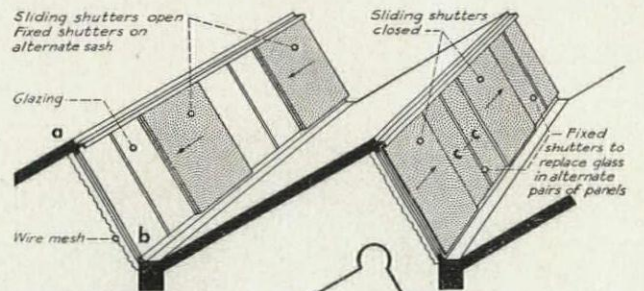
**HINGED SHUTTERS** for sawtooth roof, individually operated by pulleys. Shutters must be opaque and rigid.

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21  
MAY  
1942

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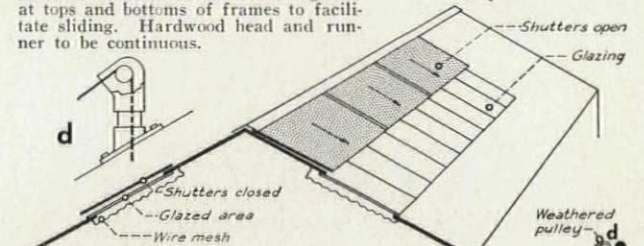
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CONSTRUCTION

PENCIL POINTS DATA SHEETS PREPARED BY DON GRAF

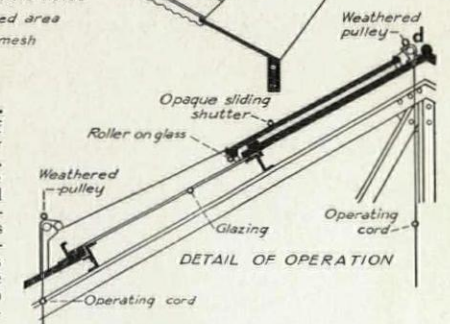


SET  
21  
MAY  
1942

**SLIDING SHUTTERS.** Alternate pairs of panels to have glass replaced by fixed shutters. Removed glass to be stored and used as replacements as needed. Movable shutters to be wired together at tops and bottoms of frames to facilitate sliding. Hardwood head and runner to be continuous.



**SLIDING SHUTTERS** on weatherproof rollers, operated by cords and pulleys. Shutters must be weatherproof and all hardware rust-resisting. Alternate areas of glazing may be removed and treated as above. Provide wire mesh below glass to catch falling splinters.



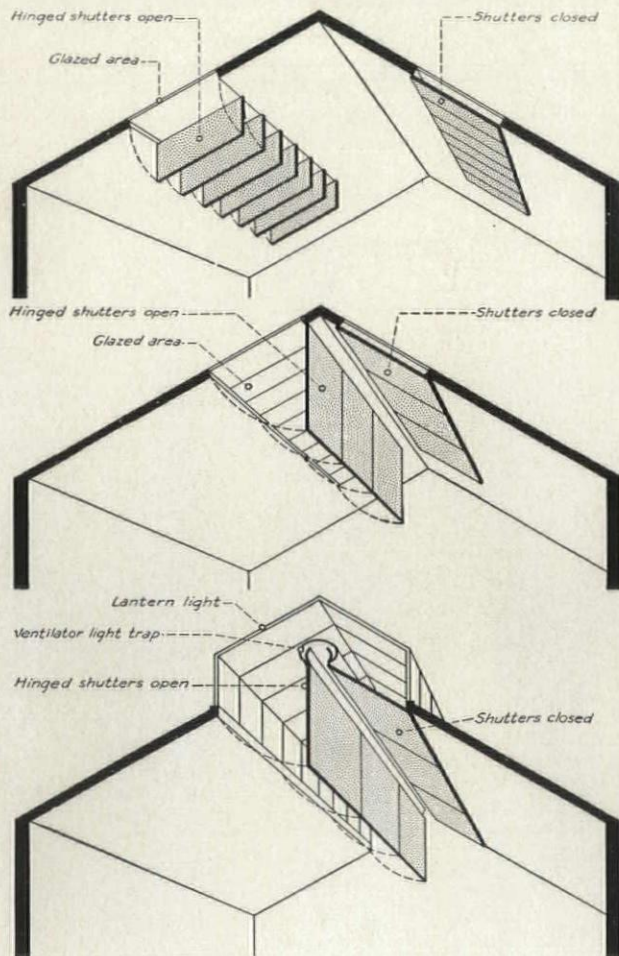
# PENCIL POINTS DATA SHEETS

## FACTORY BLACKOUT

Index No.  
**F 19 q**  
CONSTRUCTION

PENCIL POINTS DATA SHEETS PREPARED BY DON GRAF

**HINGED INTERIOR SHUTTERS** as shown below are operated by pulleys singly or in groups. Shutters should be of weather-resistant materials in case the glass is broken. Interior shutters afford protection from falling glass splinters but do not stop exterior reflection from the glass surface. Alternate glass areas may have the glass removed and permanent blackout panels installed.

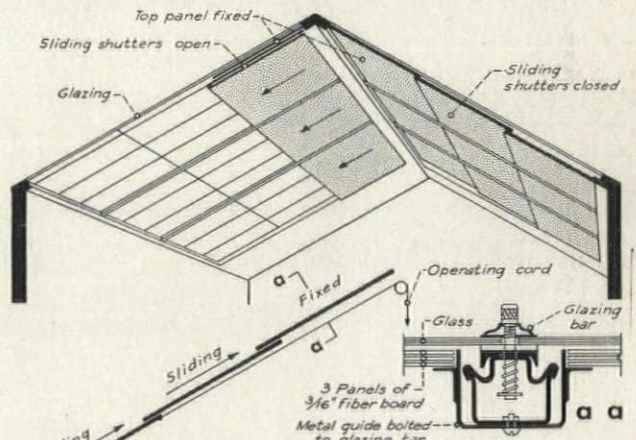


SET  
21  
MAY  
1942

## FACTORY BLACKOUT

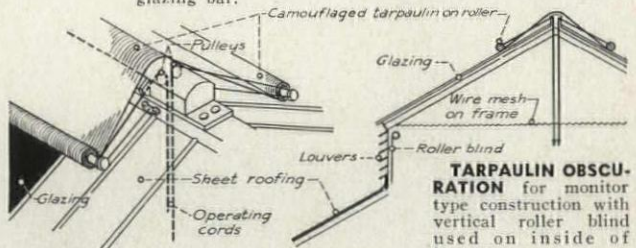
Index No.  
**F 19 r**  
CONSTRUCTION

PENCIL POINTS DATA SHEETS PREPARED BY DON GRAF



SET  
21  
MAY  
1942

**SLIDING SHUTTERS**, operated by cords and pulleys, and sliding on metal frames attached to existing glazing bar. Panels must be of lightweight material unless metal support is continuous and strong enuf to take load from glazing bar.



**TARPAULIN OBSCURATION** for monitor type construction with vertical roller blind used on inside of louvers.

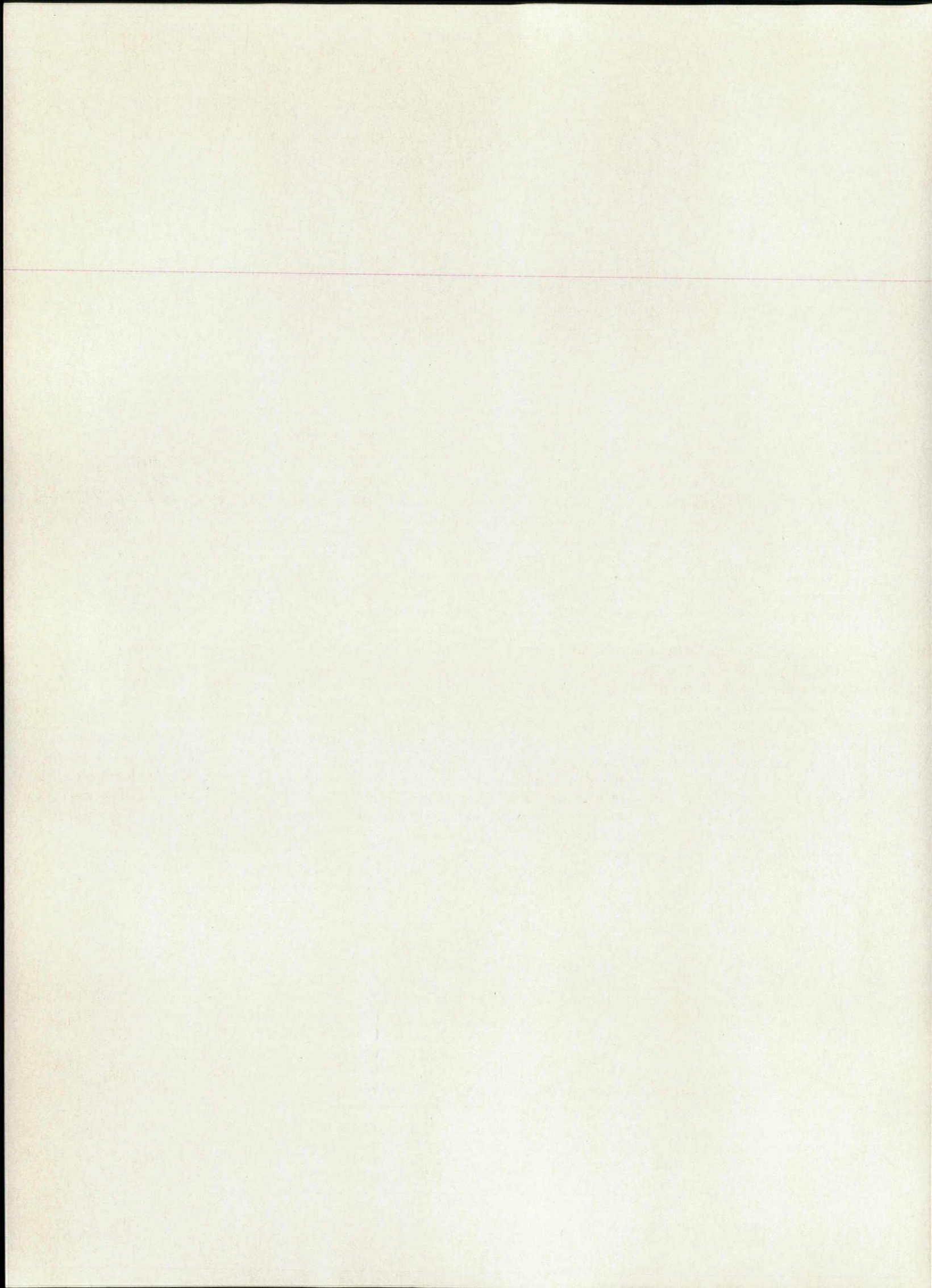
**GENERAL.** Blackout can be achieved in new projects by windowless, air-conditioned plants, but this construction will seldom be mandatory. Where fixed shutters are used, provision must be made for thorough ventilation and prevention of condensation.

Shutters must be opaque, weatherproof, strong enuf to give protection from flying glass and preferably fireproof. They must be of heavy construction where protection is needed against penetration by incendiaries and splinters from anti-aircraft fire.

It may also be necessary to design shutters so that they may be later made gas-proof, or insect-proof for food factories.

At key positions glass may be replaced with glass substitutes of plastic reinforced with wire mesh to be more easily maintained.

To complete the blackout, exterior light-reflective surfaces of glass, tin, slate, concrete, aluminum paint, etc., must be painted or treated to produce a dark roughmatt surface. Surrounding buildings, water towers must be treated. Exterior lights to have special fixtures or blackout lamps ranging from 0.0003 to 0.0006 foot candles at ground.





# PLANNING FOR VICTORY IS PLANNING THE FUTURE

BY KONRAD F. WITTMANN

The history of aerial warfare began in 1914 when, on the 30th of August, five bombs fell on Paris. That date was more than the beginning of the era of military aviation, however, because it also opened a new chapter in city planning. In World War II we observe that *towns and villages are the heroes*. The capitals of the world and also little-known provincial towns, some defended but most of them unprepared and unfit to give resistance, have endured this war in its severest form of attack and conquest. London and Coventry, Bremen and Essen, Manila and Port Darwin, all have found themselves subjected to a test for which they were never designed or built. The assaults were *not aimed at fortifications*, even when they existed, but at the railroad stations, the power houses, the gas storage, the factories.

Many towns far out of the theatre of possible conflict have felt safe, but the experience of the last weeks has demonstrated with dreadful clarity that there is almost no place in the world that may not suddenly become a stepping stone for invasion—or a target for aerial bombardment. The new technique of war is to advance hundreds of miles at a time, in great jumps from airport to airport. This is not a fight for capitals but for centers of production, for factories, for mines, for oil fields, for railroad systems. But towns are closely crowded around many of these and the civilian population suffers.

This war has been called a war of machines but it is not so much a war of machines as a *race with machines*—to capture sources of supply. The fighting armies are soon silenced if their supplies are wiped out. The soldier is soon overpowered if the home front morale is dissipated. The new strategy is to break up resistance from within. Therefore towns and villages, airfields, freight yards, storage tanks, warehouses, reservoirs, power plants, industrial areas, great pipe lines, even radio stations are in the front line of assault. The term *industrial*

*fortress* has been coined—not a fortress with walls, but strength through organization—characterizing the factory designed to avoid bombardment or at least reduce its effect, organized for safety of workmen and production machinery. Protection from possible attack will soon be an integral part of major design. Average requirements for proper functioning are inadequate if they do not insure functioning under attack or after bombardment. The medieval town was built for defense against frontal assault. Its system of ramparts and ditches determined for later centuries the layout of streets, squares, gates, and watch towers. The modern town was thought to have no such limitations. But *aerial warfare imposes the necessity* of adjusting our designs to this new situation.

We do not want to overestimate the facts nor do we propose to invest vast sums in preparation against an invisible danger. The requirements for production, however, run curiously parallel to other well-established ideas which have guided city planners in their thinking. *Decentralization and detachment of industries* from residential areas are among the principal suggestions. This war has revealed their importance. Planning for protection can at the same time be planning for health, since decentralization may well lead back to country living! This will be a dominant factor in rehabilitation. We may also profit by war-imposed restrictions on building materials to evolve a better understanding of simple architecture.

Planning is a long job. The economic and social adjustments of the post-war period will be tremendous in their scope and effect. Many trends which showed themselves after the first World War will come anew into discussion. We are beginning to realize that *limitless resources do not insure limitless power*, particularly under the strain of high-pitched production. We have seen how important it is to correlate our efforts, how long it takes to organize effective activities. This is true

in the field of economics as it is in city planning; because problems of land use, of settlement, of the workers, and of industrial efficiency can no longer be considered isolated. It is interesting to review the means by which several European nations attempted to recover from World War I. FRANCE—stagnant and discordant—is a tragic example of miscalculation of things to come. She put her all into one gigantic undertaking, the Maginot Line, the modern equivalent of medieval walls. After this stupendous work was finished she believed that there was *no need to adjust her planning* to the changed world situation or to move her industries away from a few highly-concentrated production areas, around Paris and in the border regions. Her lovely towns attempted to continue their life as it was before 1914.

GERMANY—badly shaken by defeat—made every effort to step up her internal economy. Through years of privation she had learned to replace resources she lacked by ingenious design or meticulous planning, and to stretch the utility of materials. She perfected the concept of a *planned economy to use her industrial potentialities* to the limit. Soil conservation and improvement, metallurgical refinements and salvage—all were correlated and planned. Removal of vital industries from border provinces to safer sites in the interior was one of the main objectives, and this also produced widespread decentralization. Satellite towns of moderate size sprang up. *Regional planning was an architectural contribution.* The super-highways, for instance, were planned as early as 1921.

RUSSIA—the vast impenetrable enigma—has accomplished even greater feats of planning and utilization of resources. During years of complete isolation, she has undertaken the tremendous job of transforming an agricultural country into an industrialized country strong enough, as we now know, to maintain an efficient fighting army. A real *industrial fortress* has been built by Russia in the Ural Region, as far from the Polish border as New York is from the Rocky Mountains. Between 1930 and 1940 two hundred new plants of enormous size were constructed. New towns were built, *very modern towns*, because Russia employed the best advisers that money could command. In some years, as much as 56 percent of her national income was devoted to industrialization and large-scale planning. *Suppose Russia had followed the example of France* and continued her production in those plants near the Eu-

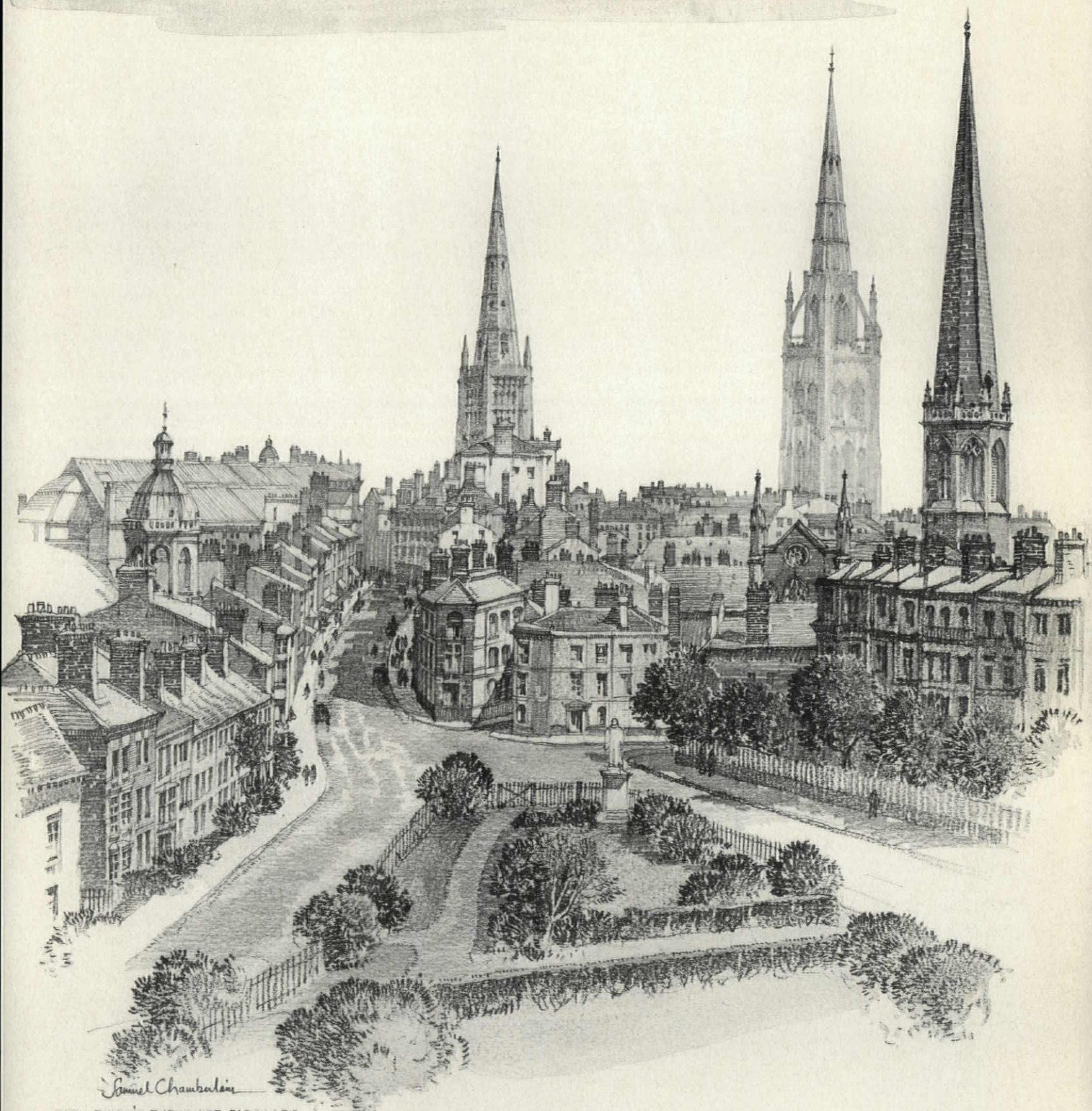
ropean border that produced 90 percent of her goods before 1930. She might have been lost after the first weeks of invasion.

*These accomplishments, which we can measure in their effect on the fighting front, are the accomplishments of centralized planning.*

In the smaller countries, enormous housing efforts were launched to help solve the difficulties of the period after World War I. From 1919 to 1934 the NETHERLANDS, with 1,380,000 dwelling units, built 658,000 new ones and increased the "national fortune" in dwellings by almost 50 percent. This program was carried out with subsidies and enabled the country to avoid unemployment, which threatened as long as trade barriers prevented profitable export. *But these were more than houses built as unemployment relief.* This little country made at the same time a remarkable contribution to the program of modern living and added new glory to her architecture. The credit for much of this goes to city planning.

It is safe to predict that after this war all European countries, indeed all countries of the world, will again have to rely on the regenerative power of their internal economies. To the United States will fall the responsibility of leadership in many fields. We can hope that the program will be *not only technical but specifically architectural*, in the higher sense. To build up international trade and re-establish a sound basis for exchange will take some years. During these years, the *need for housing will be most pressing* and the building industry will have on its hands *armies of workers* released from warfare, from war industries, from prisoner camps, and from forced unemployment. *Good architects and good planners will be in demand as never before.*

In the housing field, alone, the need will surpass all previous programs. We are far behind in the replacement of obsolete dwellings. A vast ten-year program has been proposed to rehouse more than one-third of the population. This is an enormous undertaking, *requiring the broad point of view for planning.* The materials and facilities to do the job we will have. Industrial power, technical power, inventions, skills, and accomplishments will be greater than ever before. There will be planning agencies, public housing authorities, programs, and Government subsidies. But will we have a *clear vision of the architectural values* we want to produce?



WITH DIXON'S TYPHONITE ELDORADO

#### TECHNIQUE USED

Six *Typhonite Eldorado* pencils were used, ranging from a 4H for the distant Cathedral spire to a 3B for the foreground building. The problem of making the three spires assume their proper relationship was solved by using three distinctly different degrees of pencil, and by combining flat strokes with sharply defined detail.

#### THIS WAS COVENTRY . . .

*Generations to come will never forget what the Germans did to this picturesque little town November 14th. On that moonlit night, wave after wave of bombers—500 strong—dropped over a million pounds of incendiary bombs, leaving Coventry a roaring inferno. Here Samuel Chamberlain's *Typhonite Eldorado* portrays Coventry as it will be long remembered. Another in a series brought to you by*

*Pencil Sales Department, Dept. 167-J5*

JOSEPH DIXON CRUCIBLE COMPANY, JERSEY CITY, NEW JERSEY

# HERE, THERE, THIS & THAT

## DESIGN ACADEMY HONORS ARCHITECTS

Twelve architects were recently elected associate members of the National Academy of Design, New York. They represent the largest number of associates added to this class of membership since the Academy, one of the oldest organizations of artists in America, was

founded 116 years ago. The new associate members are:

*Archibald Manning Brown*, New York, architect member of the Art Commission of the City of New York, who recently completed designs for the proposed Harlem River Houses as well as the Chelsea Houses.

*John Walter Cross*, New York, designer of the Federal Building in New York, and the new Tiffany Building in New York.

*Thomas Harlan Ellett*, New York, designer of the Terrace Club at the New York World's Fair, and the Military Chapel for the American Battle Monument at Thiaucourt, France.

*Eric Gugler*, New York, a mural painter and sculptor as well as an architect, who is now working on the rehabilitation of the Sub-treasury Building in New York. Mr. Gugler also designed the Busi-

ness Administration Building at the New York World's Fair.

*Edward Shepard Hewitt*, New York, emeritus member of the Architectural League of New York.

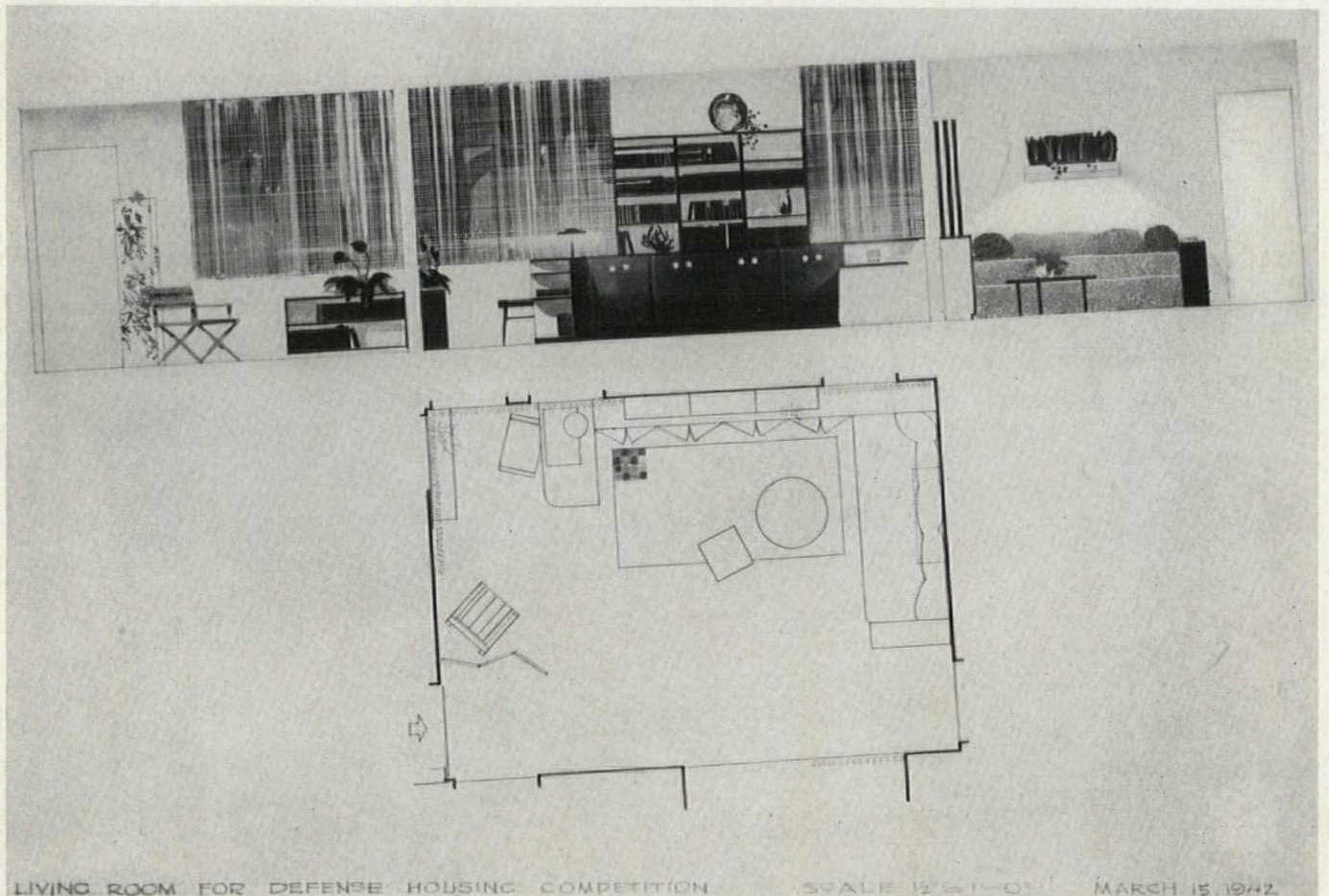
*William F. Lamb*, New York, designer of the Empire State Building, the Hollander Building, and the Lilly Dache Building, New York.

*Harrie T. Lindeberg*, New York, noted for his work on low-cost housing, and the design of the United States Legation in Helsinki, the embassy in Moscow, and the Shanghai consulate.

*John Gaw Meem*, Sante Fe, N. M., whose work includes the Colorado Springs Art Center, and buildings for the University of New Mexico.

*William Graves Perry*, Boston, who reconstructed Colonial Williamsburg in Virginia.

(Continued on page 48)



Decorating and furnishing a four-room, low-cost defense housing unit on a budget of \$466.21 won for John E. Maier, Brooklyn, N. Y., the first prize of \$250 and a Defense Housing Medal in the recently-concluded National Competition for the design of interiors in defense housing units. The competition was co-sponsored by "Interior Design and Decoration" magazine, The American Institute of Decorators, and the Public Buildings Administration. Reproduced here is Mr. Maier's suggested treatment of a living room unit, equipped with modern furnishings. (See list of prize winners in April, 1942 issue, page 68.) Gladys Miller, interior designer and consultant on defense housing, commended the competitors for the interest shown in the problem of decorating low-cost dwellings, and saw promise in the competition of many contributions to this new field. The entries, embracing complete furnishing and decorating schemes for four rooms—living room, dining alcove, and two bedrooms—appeared adaptable to the low-cost homes. Lowest cost of a complete furnishings scheme entered in the competition was \$246.51; highest, \$1200. Approximately 500 drawings were submitted in the competition

## DEMOUNTABLE HOUSE DEMOUNTED

# *11 times in 11 years*

TULSA, OKLA.—In developing their demountable house, the Southern Mill and Manufacturing Company, of Tulsa, like many others, determined on U S G Sheetrock for interior surfaces. Their decision is based on actual job experience—that is, on severe tests in field performance.

Requirements for prefabrication include far more than structural quality alone. The panels of which the typical demountable house is made must be handled quickly in the fabricating plants and re-handled several times before and during erection. Sheetrock can take such treatment!

No matter what the prefabricator's location, a U S G dealer is ready to supply him with Sheetrock on short notice. U S G mills, close to all important defense areas, can supply local distributors instantly.

In the eleven years Southern Mill and Manufacturing Company have been prefabricating houses, various buyers have disassembled and rebuilt Southern Mill houses as many as eleven times each! Today's houses incorporate the basic construction features developed over the long span of experience, but floor plans are necessarily revised to meet Government requirements.

# U S G

# News Facts

PREFABRICATED HOMES EDITION  
May, 1942 Vol. 2 No. 3

Published by

UNITED STATES GYPSUM COMPANY  
300 WEST ADAMS STREET, CHICAGO, ILLINOIS

## HOW MUCH CRITICAL MATERIAL DOES INSULATION SAVE?

NEW YORK, N. Y.—Tests and calculations on a typical small one-family house (Village Home No. 4, in 5000 Degree-Day Zone, National Homes Foundation) indicate that home insulation can save substantial amounts of critical metals and fuel. Considering insulation's effect on the heating system alone, the following savings per house result:

One-pipe steam system—  
734 lb. of cast iron and steel  
\$139.00 of initial cost  
\$ 42.84 in annual fuel bill

Translate these figures into the 600,000-house emergency program, and, assuming that substantially the same construction is employed that was used in 12,144 FHA-surveyed houses built in 1940, potential savings on heating plants only become:

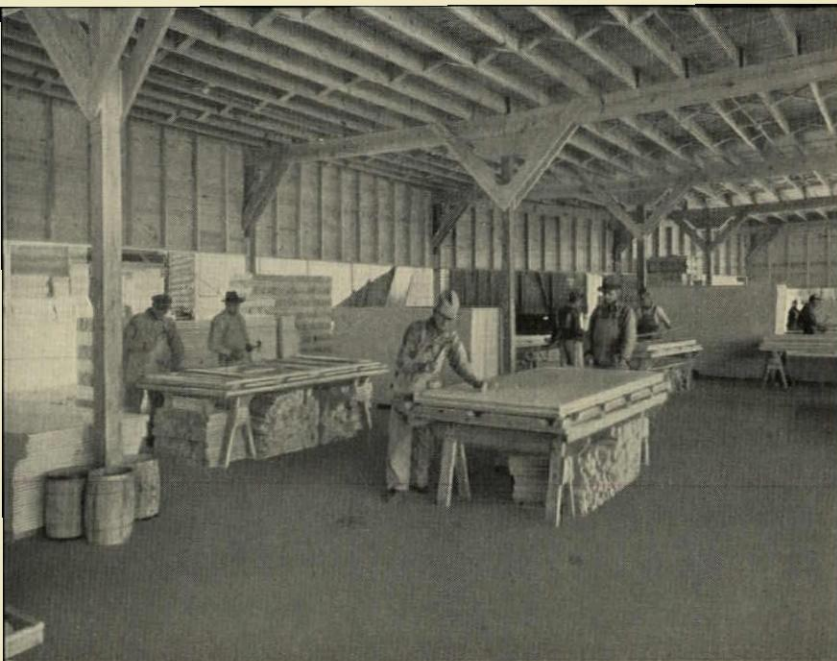
Iron and steel . . . 160,252,800 lbs.  
Coal . . . . . 1,867,000 tons

Small wonder the War Production Board has set up heating requirements for housing which make insulation mandatory for most parts of the country!

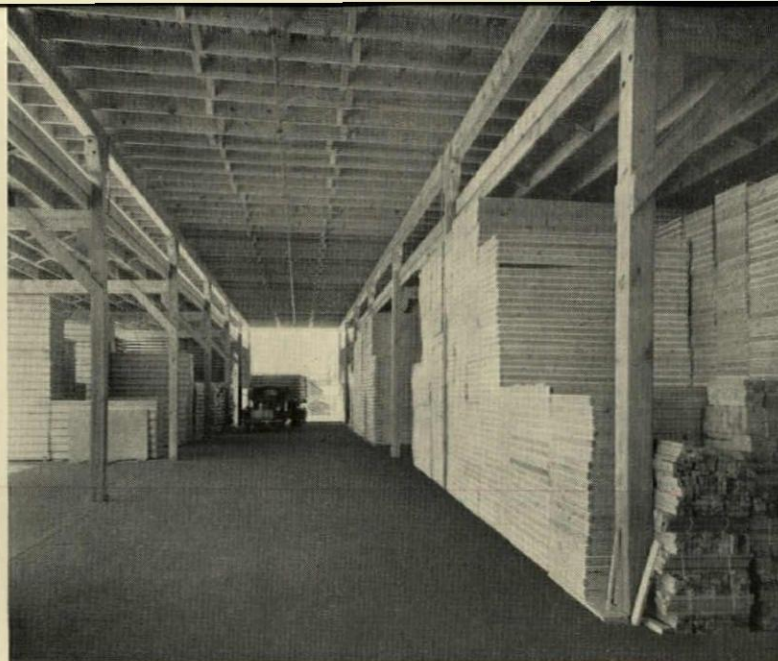
Analysis of Government Ruling  
on Pages 4 & 5



*In the plant of the Southern Mill and Manufacturing Company, Tulsa, Oklahoma, are stored thousands of square feet of U S G Sheetrock. Here they travel from stock piles to power saws where they are precut to panel size.*



*A section of the plant where plain wall panels and window panels are fabricated. In storage and transit, plain panels are stacked face-to-face; window panels separated by short pieces of sheathing to protect factory-applied trim.*



*Wall panels stored in open warehouse until delivery. No crating or wrapping is needed for plain wall or ceiling panels for storing or loading. No protection is required on the job.*

# 3200 Demountable Houses

The Southern Mill and Manufacturing Co., like the Allied Housing Associates, the Field Lumber and Improvement Co., American Houses Inc., and many others, relies on Sheetrock, the fireproof wallboard with the recessed edge, for interior surfaces because it is readily available at all important defense locations; it stands up under normal handling; and it makes the minimum emergency house a better and more fire-safe house. Examination of typical manufacturing and erection methods reveals exactly how these advantages arise.

## TYPICAL REQUIREMENTS

The 3200 demountable houses for which the Southern Mill and Manufacturing Co. has contracted typify the prefabricator's success in meeting today's stringent limitations on use of metals and other critical materials. First of all, their typical house plan has been revised to eliminate all unessential space. No dining rooms are included. However, the houses have large storage rooms and closets.

Insulation necessary for floors, walls and ceilings to permit satisfactory operation of the small heating systems required by the War Production Board's recent "Critical List for Defense Housing," is easily applied. Depending on the method of manufacture and the system of construction, the needed thickness can be installed during fabrication or on the job. Both methods have advantages. Red Top Insulating Wool, with the moisture-repelling, bacteria-resisting Fiberglas mat, is available in 1", 2" and 3" thicknesses for this purpose.

Another way in which use of Sheetrock interiors can save metals: Nails can be spaced farther apart, thus cut-

ting nail requirements to a minimum. For ceilings, nails need be only 5" to 7" apart. For walls, spacings ranging from 6" to 8" are satisfactory. In all cases, nails should not be closer than  $\frac{3}{8}$ " to the edges of Sheetrock.

## PANEL CONSTRUCTION

The Southern Mill and Manufacturing Co. house consists of a comparatively small variety of standard sized prefabricated panels, assembled on the job with patented splines. Floor, wall, partition, ceiling and roof units are put together on jigs or templets in the factory, much as parts of airplanes are constructed by today's mass production methods.

The panel framing is surrounded on four edges by a milled piece of lumber which is grooved to take the spline. In the case of wall panels, sheathing is applied to the outer face and Sheetrock to the inner face. If the panel is to contain a window, the frame, sash and trim are built in at the plant. Doors are treated similarly. Flooring panels, partitions, ceilings and roofs follow the same routine.

## FOUNDATIONS and SUBFRAMING

Foundations may be wood posts or piers of concrete, concrete block, or any suitable material. Location of the piers is determined in accordance with the company's plans. Sills and joists are then assembled, ready for the floor panels.

## ERECTING THE PANELS

The floor may come in pre-insulated panels, or insulation may be inserted between the joists on the job. Exterior wall panels are keyed to a special joint provided in the sill, and are aligned with vertical splines which hold them firmly in place. When the outer wall is completed, partition units with Sheetrock on both faces are erected and similarly tied together. Ceiling panels, which like floor units may be job-insulated or may come insulated from the plant, follow immediately.

Factory-made gable ends are mounted on the end walls, rafters are set in place, and roof panels are secured. This completes the structure, which is now ready for interior and exterior finish.



*With sills and joists in place, floor panels are secured.*



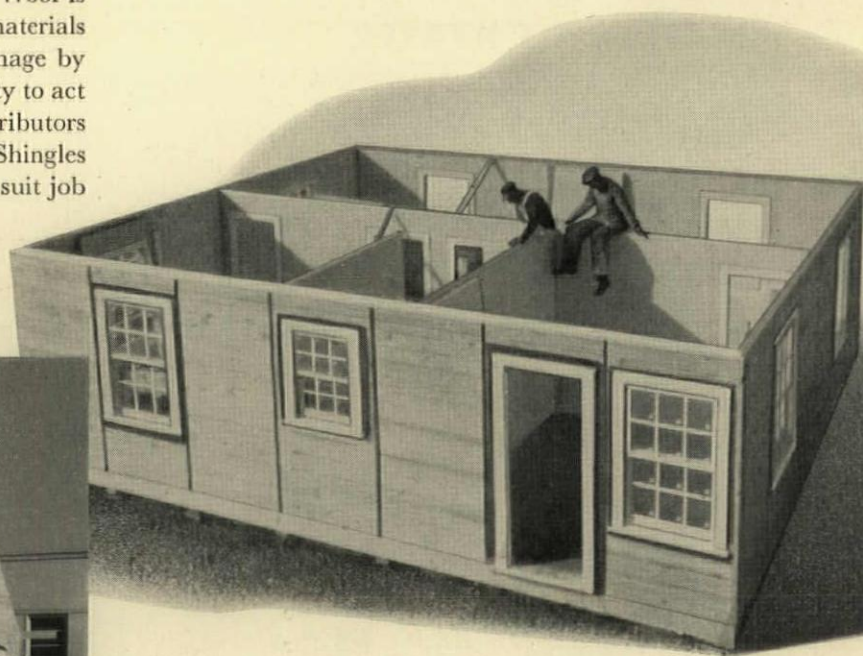
*Exterior wall panels locked in place at sill, plate and vertical joints; note perfect alignment of Sheetrock surfaces.*

## FINISHING THE HOUSE

Interior finish is applied directly to the Sheetrock surfaces. Vertical joints between wall panels, as well as all ceiling joints and intersections of walls and ceilings are covered with Perf-A-Tape bedded in Perf-A-Tape Cement. This treatment provides uniform, flush walls and ceilings without visible joints. The interior is then painted with Texolite.

Exterior walls are covered with asbestos-cement siding, which not only eliminates any need for further finishing but also affords a long-lived, maintenance-free exterior finish. Roofs are surfaced with asphalt shingles to provide color and maximum protection from the weather. Both products add a great degree of fire safety to the basic construction and are easily applied. When fireproof Red Top Insulating Wool is thus combined with fireproof of USG surfacing materials for both exterior and interior, the resistance to damage by fire is substantially increased, due to Red Top's ability to act as a fire-stop in addition to providing insulation. Distributors everywhere carry USG Asbestos-Cement Siding and Shingles and USG Asphalt Shingles in a variety of styles to suit job requirements.

*Partition panels follow rapidly. No special protection is given the Sheetrock surfaces from mill to finished walls. Joints are finished with Perf-A-Tape.*



*Gable ends, rafters and roof panels, all precut, are quickly erected on the job.*



# RED TOP WOOL Enlists To Save Vital Metals and Fuel



Every Btu that escapes from a defense house is helping Hitler. Wasted Btu's are wasted metal and wasted fuel! The recent War Production Board order limiting defense house heat losses to a maximum of 66 Btu for each square foot of floor area is designed to conserve the nation's coal and steel.

Architects are already aware of the savings in first cost and maintenance made possible through the use of Red Top Insulating Wool. It is extremely important to analyze the heat loss calculations to determine the desirability of increasing maintenance savings and first costs by reducing the heat loss further than required by the government regulations.

Not only are such additional savings in metal and fuel contributory to the war effort but—the use of additional insulation promotes worker-occupant comfort and morale through increased summer comfort, lessened fire hazard, less frequent attention to the heating system, as well as other advantages.

A typical design calculation may be outlined as follows:

## TYPICAL CALCULATION

Wall, ceiling and floor coefficients should be determined, using the thicknesses of Red Top Insulating Wool which, from experience, seem advisable. The total heat loss for the dwelling is then determined in the customary manner.

This total, divided by the floor area, should result in a heat loss per square foot of floor area which is less than 66 Btu.

## SELECTION OF HEATER

With the calculated Btu per square foot loss, enter the chart at the top of the next page. The intersection of the vertical line for *Btu per sq. ft.* with a horizontal line representing the *livable area in square feet* will determine the maximum required hourly output capacity of the heating plant which must be provided.

## FWA AREA REQUIREMENTS

Note that the Federal Works Agency has ruled on maximum acceptable areas and suggested maximum areas in square feet (exclusive of closet space, baths and utility rooms) for demountable houses. For convenience the limits thus established for demountable houses of one, two, three and four bedrooms are shown on the chart in a dark tone. These limits apply to the demountable houses, but do not affect other types of defense dwellings.

## THE FINAL HEATING DESIGN

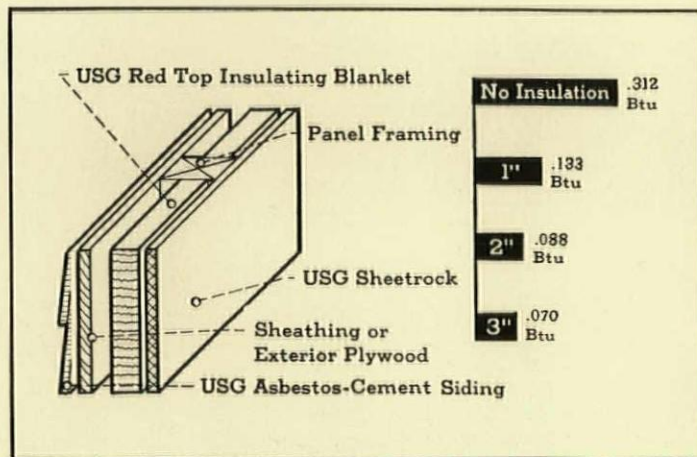
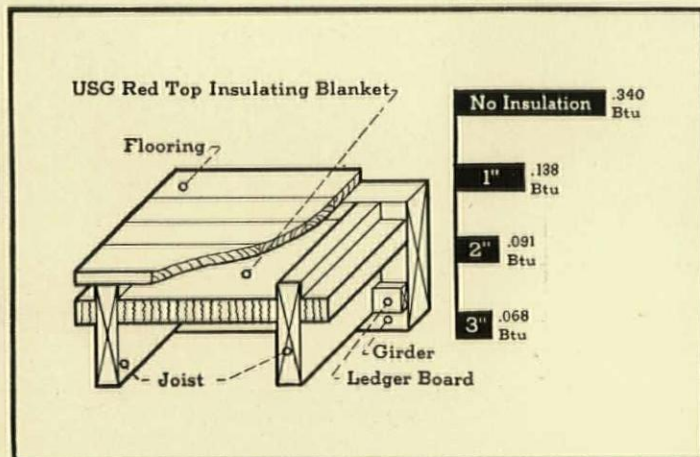
In selecting a standard heater whose capacity is *smaller* than that determined by the original assumed coefficients for walls, floors and ceilings, the saving in metal and fuel will be increased provided that sufficient insulation is used in the building.

## TYPICAL EXAMPLE

Assuming a three-bedroom demountable house of 600 ft. in floor area, we find that a heater of slightly less than 40,000 Btu would meet the government requirement of a maximum of 66 Btu per square foot of floor area. We also see from the chart that this same 600 sq. ft. house could be heated with a 35,000 Btu heater, providing the total heat loss was reduced to 58 Btu for each square foot of floor area. This saving in heater size and fuel could be accomplished by properly insulating the walls to reduce the heat loss to this total figure. Still greater savings can be obtained with additional insulation.

Send to the editor of News-Facts, United States Gypsum Company, 300 West Adams Street, Chicago, for a simplified wall chart showing a shortcut method for quickly determining desirable wall coefficients to meet the WPB regulations.

*Typical demountable sections and their heat loss coefficients*

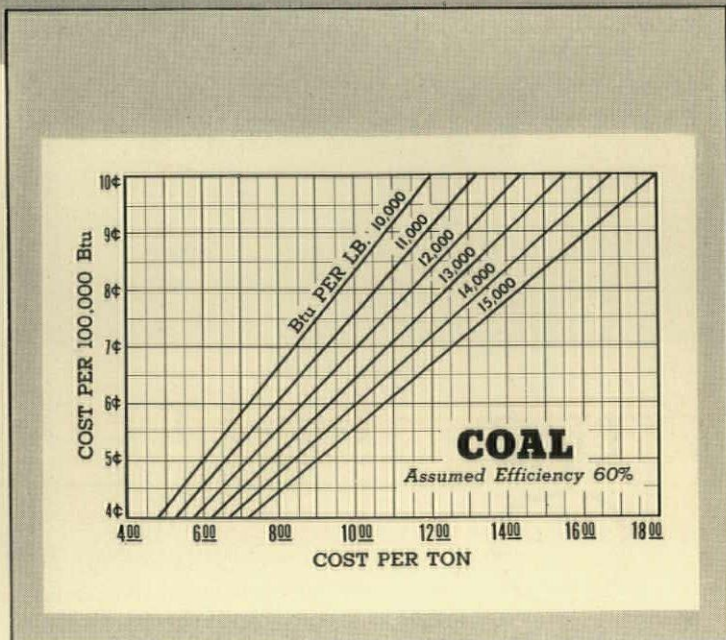
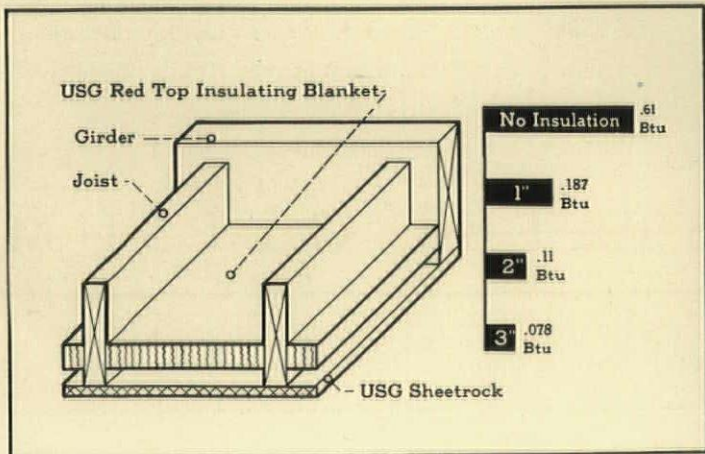
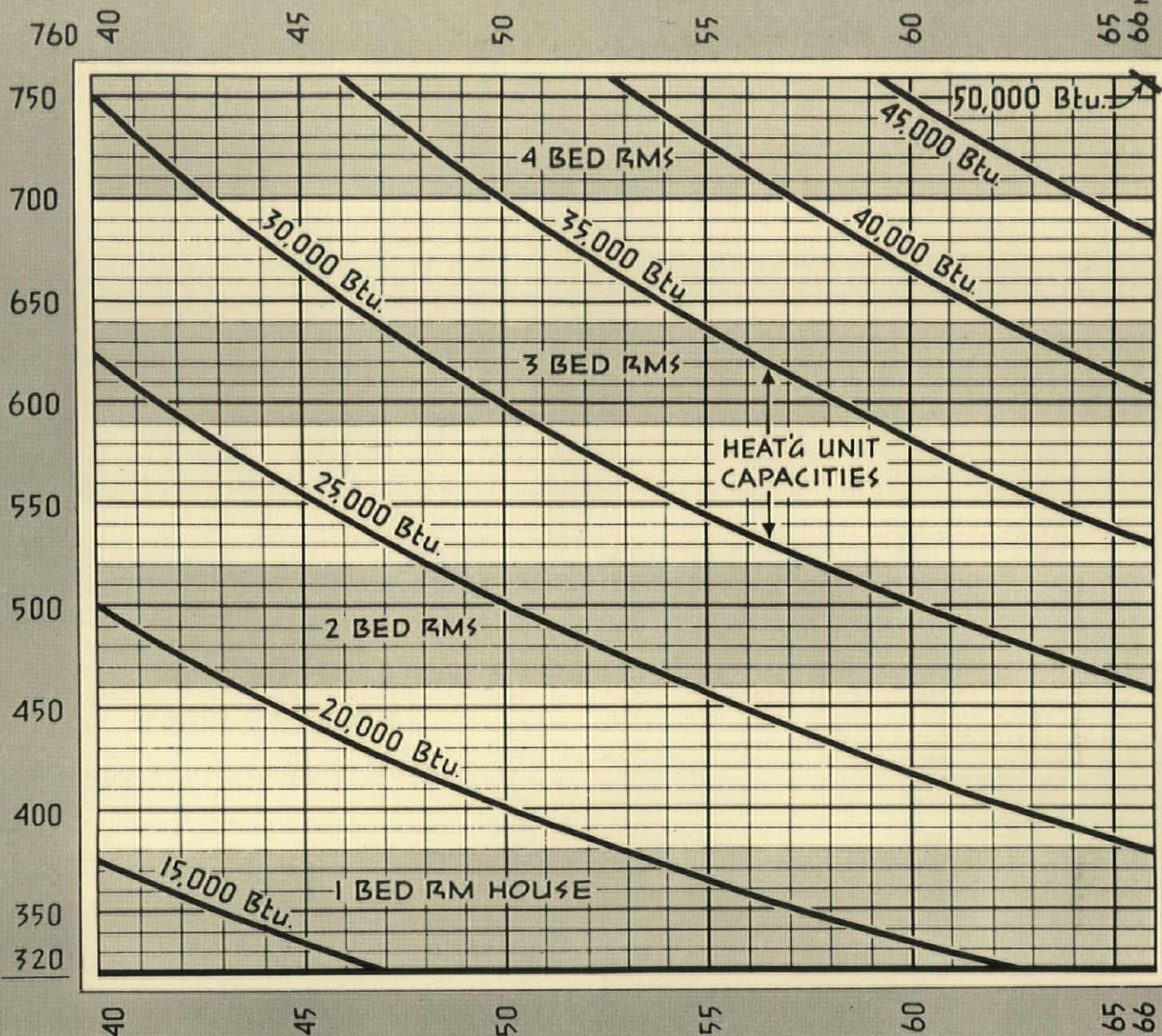




# Btu PER SQUARE FOOT

65 66 MAX.

LIVABLE AREA IN SQUARE FEET



Actual saving in coal can be quickly determined from this chart

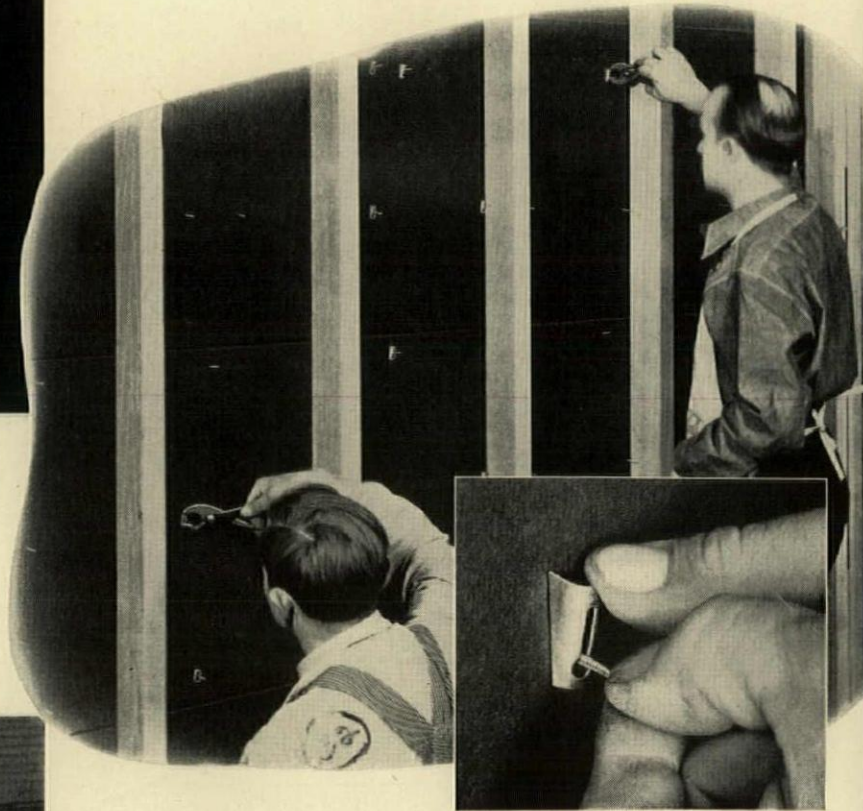
## U S G PRODUCTS

### ALSO MEET NEEDS OF PERMANENT HOUSING, PREFABRICATED OR CONVENTIONAL

No matter what the type of construction, Sheetrock (with or without Perf-A-Tape Joints), Gyplap Sheathing, Weatherwood Insulation Sheathing, Red Top Insulating Wool, Asbestos-Cement Siding, and Asphalt Shingles are readily available to contribute durability, beauty and fire safety to emergency housing.

*On the right is shown the new USG Naillex fastener for simple attachment of USG Asbestos-Cement Siding over gypsum or insulation sheathing for fire-safe exterior finish.*

*Below is an illustration of a defense house with the mineral surfaced Asphalt Shingle roof in place and the USG Asbestos-Cement Siding being installed. These fire-safe materials are vitally important in protecting workers' homes from wartime hazards.*



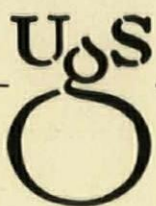
## FIRE SAFETY

### Essential for Emergency Housing

Beyond the usual hazards arising from the necessity for using wood frame construction for almost all housing projects, and the close proximity required between adjacent dwellings, there are other factors. One is that time is too short to permit delaying occupancy of war housing until all the necessary fire apparatus is on hand.

But most important, these projects are for war workers, and many of the sites are exposed to enemy action: incendiary bombing, and bombardment from naval guns such as two areas—the West Coast and the Caribbean—experienced within the past few weeks.

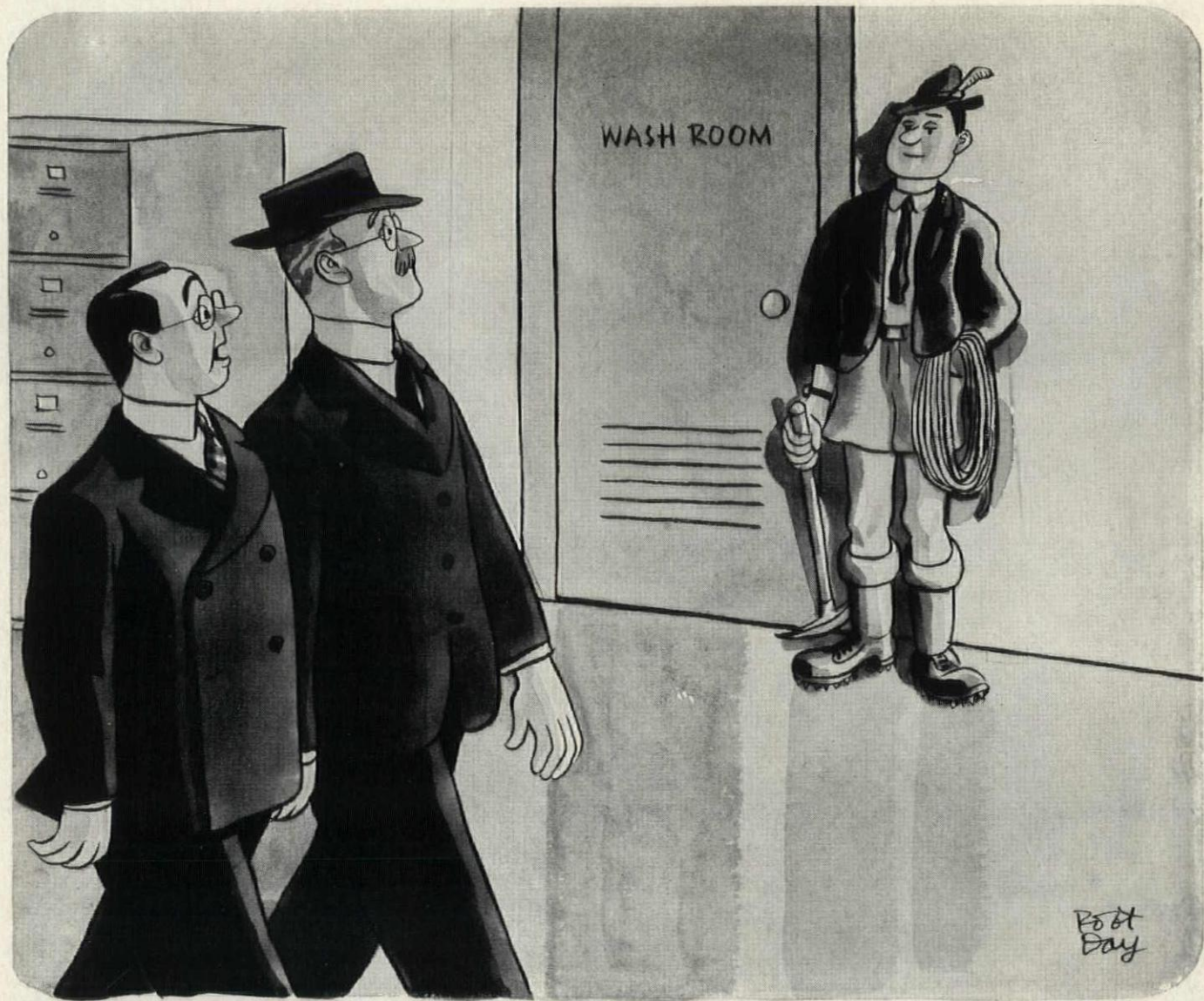
Fire safety thus assumes tremendous new importance. USG products—Sheetrock for interiors, Red Top Wool for insulation, USG Asbestos-Cement Siding for exterior walls, USG Asphalt Shingles for roofs, Gyplap Sheathing—can lick this problem. They reduce the fire hazard of today's typical emergency construction.



# UNITED STATES GYPSUM

*This famous trademark identifies products of United States Gypsum Company  
—where for 40 years research has developed better, safer building materials.*

ACOUSTIC MATERIALS • INTERIOR PLASTER AND STUCCO • MASON'S AND FINISHING LIME • PAINT • PLASTER BASES • ROOFS, FLOORS AND PARTITIONS  
SHEATHING • SHEETROCK • SHINGLES • SIDING • THERMAL INSULATION • TRUSSTEEL STUDS • USG PLASTERING SYSTEMS • WEATHERWOOD



*"We need him to get around to the fixtures and things"*

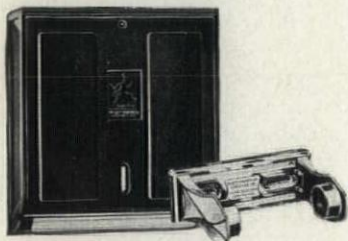
The case above is a little on the extreme side, of course. But it's a fact that many washrooms, particularly the larger ones, aren't arranged for the convenience and comfort of the user, or for economical maintenance.

That's where the Scott Washroom Advisory Service can be of definite help.

Whatever your washroom-planning problems—fixture arrangement, traffic flow, sanitary needs—this free service provides technical data for planning. Trained staff members are always available for consultation. You'll find this assistance invaluable in designing washrooms that combine maximum efficiency and economy in use.

For details, and for a set of Don Graf Data Sheets on washroom planning, write Scott Paper Company, Chester, Pa.

See our listing in  
Sweet's Catalog

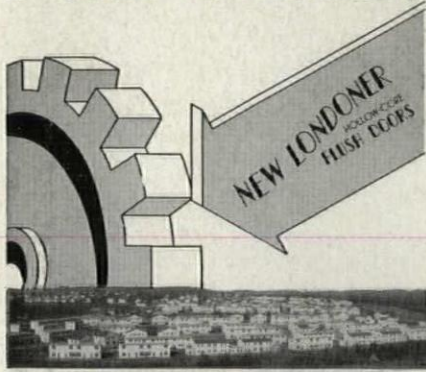


Trade Marks "Soft-Tuff," "ScotTissue," "Washroom Advisory Service" Reg. U. S. Pat. Off.

## SCOTT WASHROOM ADVISORY SERVICE

offered by the makers of the famous  
new "Soft-Tuff" ScotTissue Towel and ScotTissue Service Roll

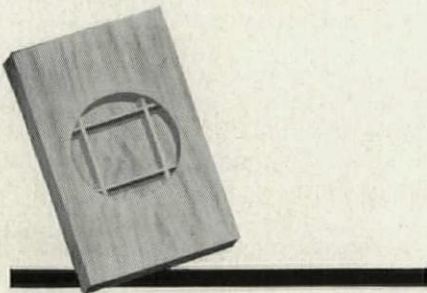
# Price-Geared



Middletown Housing Project. Geo. Howe, Architect

## FOR *Defense* BUILDING!

The fact you are designing or building small homes, or home-units in defense areas, should be sufficient reason for using New Londoner Hollow-Core Flush Doors. New Londoners have exceptionally brilliant service records everywhere — records that reveal low cost-per-years-of-service. This is the type of door you will want to recommend so be sure to get the story of New Londoner Hollow-Core Flush Doors. You'll find it interesting as well as enlightening. Send for this information today.



**AMERICAN PLYWOOD**  
*Corporation*  
**NEW LONDON, WISCONSIN**

## PUBLICATIONS ON MATERIALS AND EQUIPMENT

*of Interest to Architects, Draftsmen, and Specification Writers*

*The publications mentioned here are 8½ x 11 unless otherwise noted, and will be sent free upon request to PENCIL POINTS readers by the firms issuing them. When writing, please mention PENCIL POINTS.*

**SASH OPERATORS** — Various types of screw thread sash operators for opening and closing sash in offices, hospitals, churches, banks, etc., are illustrated in a 28-page catalog from Lord & Burnham Co., 420 Lexington Ave., New York. The methods for operating inaccessible sash, transom sash, vertical and horizontal groups of sash, are also described. Schematic drawings, dimensioning data, and specifications are included.

**CAMOUFLAGE PAINT**—The development of Infray, a new infra-red-reflecting, heat-reflecting paint, is presented in an 18-page booklet, "Target for Tomorrow," issued by The Arco Co., Cleveland, Ohio. The paint may be used on buildings, storage tanks, roofs, windows, etc. Color chips show the seven colors in which the paint is available.

**PLYWOOD STAIN** — Breinig Brothers, Inc., Third & Grand Sts., Hoboken, N. J., have issued a 4-page folder on Firzite, a pre-finishing treatment for fir plywood. Firzite is said to provide an even texture on plywood which enables paint materials to "take" evenly on the surface.

*Also published by the same firm: 4-page reprint describing the various wood finishes and paint specialties made by the firm, and their use on various types of construction.*

**PIPE CATALOG** — The wire-bound, 60-page, 1942 general catalog issued recently by A. M. Byers Co., Pittsburgh, Pa., describes the complete line of wrought iron, tubular, and hot rolled products made by the firm. Many of the uses for the products are discussed in individual publications, available on request. Tables provide technical information on the various types of pipes available.

**DECORATION MANUAL** — The new 36-page manual, "Color Keys to Decoration," from United States Gypsum Co., 300 W. Adams St.,

Chicago, simplifies the problem of selecting colors for room decoration. It is printed in color, contains 111 rooms and settings, lists the rules for making walls, ceilings, and trim harmonize with draperies and furniture. Dozens of cases are studied, and the solutions given should be of interest to architects, decorators, and others confronted with decoration problems.

**REDWOOD CONSTRUCTION**—A new 8-page bulletin, "Stepping Up Production with Redwood," has been issued by California Redwood Association, 405 Montgomery St., San Francisco, Calif. Prepared specially for those doing work for the government or for industrial expansion, the bulletin shows the application of redwood in the construction of camps, cantonments, factories, housing projects, etc.

**ROOF VENTILATOR**—An appropriately indexed file folder (A.I.A. File No. 12-K) from The Swartwout Co., 18511 Euclid Ave., Cleveland, Ohio, contains Bulletin 214 (24 pages illustrating and describing the firm's line of roof ventilators for industrial and commercial buildings), and Bulletin No. 215, a 16-page comprehensive manual including a guide for estimating building ventilation and roof ventilator requirements. Instructions for installing Swartwout ventilators on various standard and special types of roofs are included.

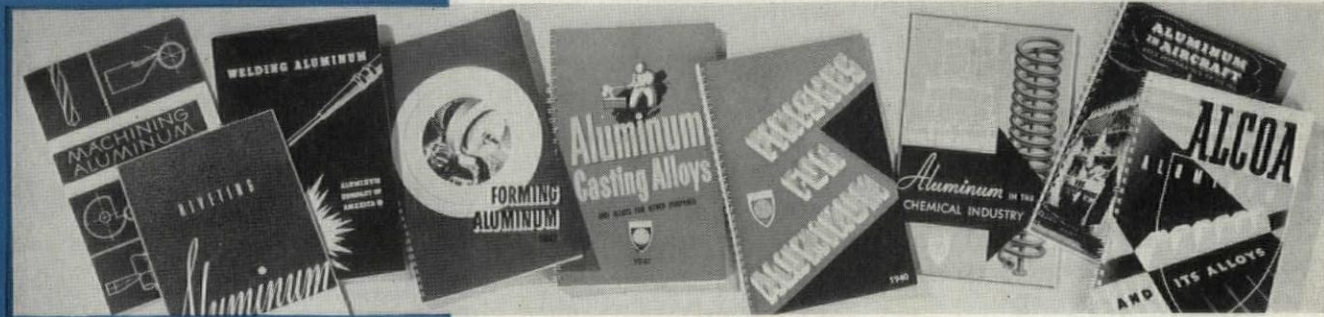
**INDUSTRIAL LIGHTING DATA**—General Electric Co., Nela Park, Cleveland, Ohio, has issued a new publication to keep the architectural profession better informed about modern light sources and lighting techniques. The loose-leaf book discusses the many lighting fixtures available for all types of industrial construction, has a section on supplementary lighting recommendations, and a section devoted to case studies of twelve typical, good lighting installations. Pages may be easily removed for filing in an A.I.A. file.

*(Continued on page 42)*

# NINE VOLUMES OF IMAGINEERING

**THESE NINE BOOKS** are designed to help all men, everywhere, do the Imagineering that improves methods of production and speeds delivery to our fighting men of all war materiel made of aluminum.

**HERE AT ALCOA**, Imagineering has enabled us to double production and to be well on the way to tripling it, in an amazingly short time. And still the expansion goes on. Swinging immense new plants into top volume at top speed;



building again, and manning that new capacity efficiently . . . This is Imagineering at work for the war.

**WE'RE BREAKING RECORDS** by sheer determination backed by know-how.

**YOU'RE DOING THE SAME.** Perhaps your men, many of them new to the ways of working with aluminum, can help you get even more speed through the know-how these books contain.

**IN THE DAYS** when we made only a dribble of Alcoa Aluminum Alloys, compared to the great flood we are now pouring into the war effort, our engineers could counsel with you personally on fabricating procedures. Today many of these men have been brought back to our plants to join the drive for production. From these books you can get much of the know-how our men used to bring you personally.

**OUT OF THESE PAGES**, too, will come the exciting Imagineering of the future. Many of the products you will create to meet the new competition, *as well as* millions of jobs for our boys as they come home, will stem from that Imagineering.

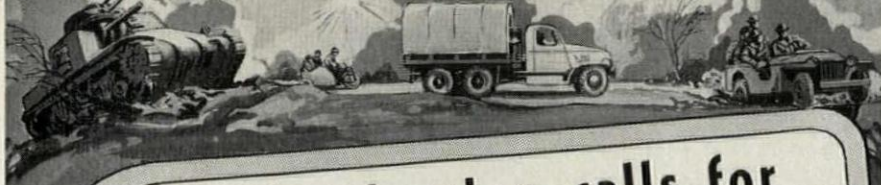
Aluminum Company of America, 2198 Gulf Building, Pittsburgh, Pennsylvania.

## ALCOA ALUMINUM



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**SO MUCH  
SO SOON**  
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You can speed up traffic, step up efficiency, and save labor-time for war production plants by specifying Kinnear Motor Operated Rolling Doors. They can be opened and closed at the touch of a button—from any number of convenient points. They also save valuable floor and wall space because they open upward, coiling compactly above the lintel. Their rugged interlocking-slat construction assures long service with low maintenance and protects against fire, intrusion, sabotage, wind, weather and accidental damage. Built any size for any doorway. Write for details or recommendations, or see Sweet's. The Kinnear Manufacturing Company, 1900-20 Fields Avenue, Columbus, Ohio.



**KINNEAR**  
ROLLING DOORS

**PUBLICATIONS ON MATERIALS AND EQUIPMENT**

*(Continued from page 40)*

**CONSTRUCTION GLUES**—I. F. Laucks, Inc., 911 Western Ave., Seattle, Wash., has begun publication of "Construction Glues", an informative periodical designed to bring to the building industry news on improved construction methods with glue. Contents of the first issue included detailed information on construction glue techniques—specifically as they pertain to laminated arches; the use of construction glue in erecting prefabricated housing units; other innovations in the field of wood and glue construction.

**WALLHIDE PAINTS** — Color chips of the fourteen paints approved for the restoration of Colonial Williamsburg interiors are contained in 12-page, 5 x 10 folder from Pittsburgh Plate Glass Co., 632 Duquesne Way, Pittsburgh, Pa. Color reproductions of several interiors are also included.

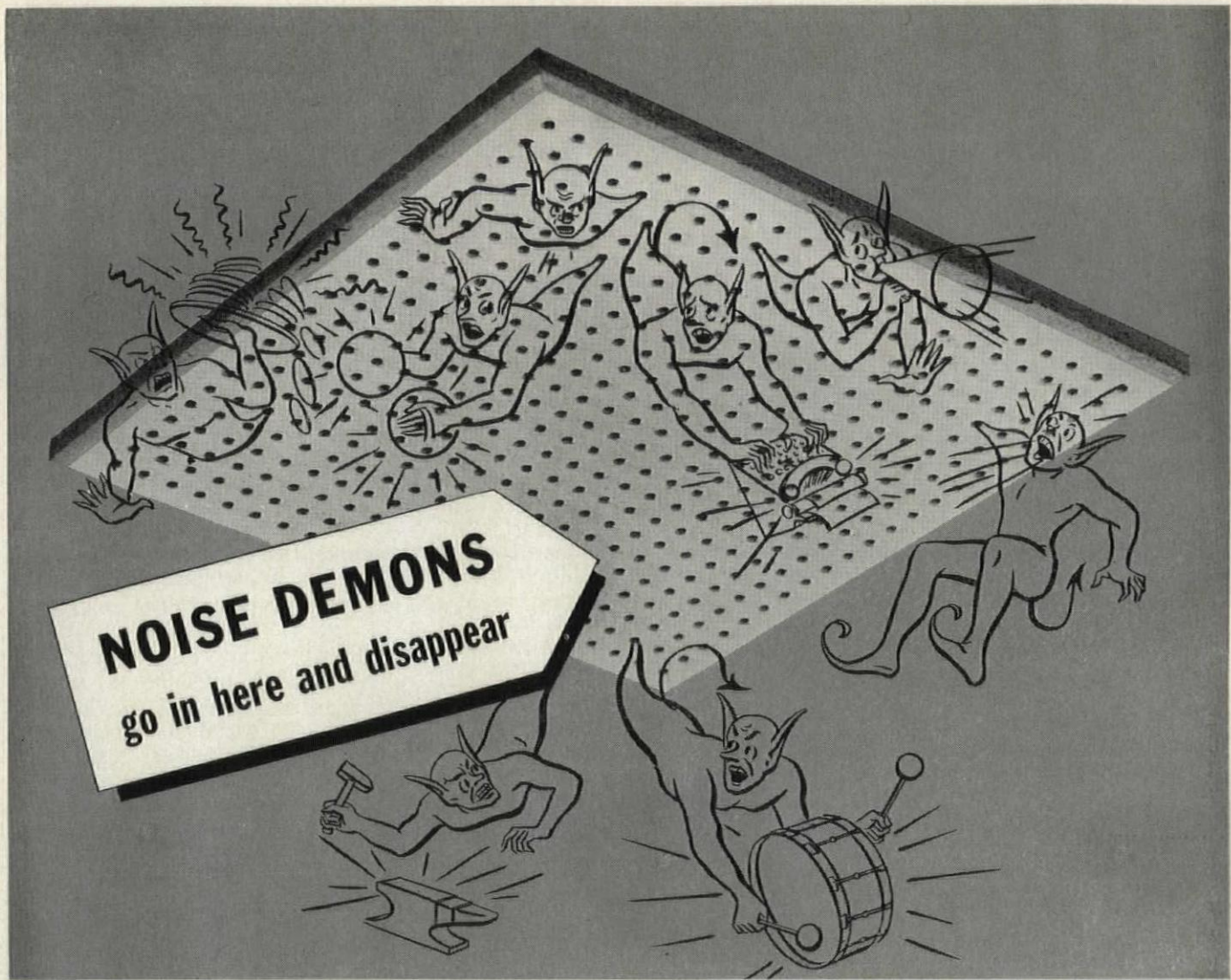
**DOUGLAS FIR DOORS**—Standard designs and specifications adopted by the Fir Door Institute, Tacoma Bldg., Tacoma, Wash., are contained in Catalog No. 2000, a 56-page catalog. Included are illustrations and descriptions of stock Douglas Fir house doors, cupboard doors; Tru-Fit Douglas Fir entrance doors; panel and sash design Craw-Fir-Dor for garages.

*Also published by the Institute: 16-page catalog (A.I.A. File No. 19-E-12) on Tru-Fit Douglas Fir stock doors; 8-page catalog on Craw-Fir-Dor overhead-type garage door; 8-page catalog on the Sav-A-Space sliding door for home, office, hotel, and apartment use.*

**CORK INSULATION** — A discussion of design standards for meat packing plant insulation is contained in an 8-page catalog from Armstrong Cork Co., Lancaster, Pa. Typical uses of corkboard in the meat packing industry are also presented.

**FLOORING** — Low cost floors for defense houses are described in a 24-page, 10 1/4 x 13 1/2 catalog from E. L. Bruce Co., Memphis, Tenn. Illustrated are typical installations of the firm's Streamline flooring, a factory-finished hardwood flooring available in various woods, sizes, finishes, grades, and lengths.

*(Continued on page 44)*



## ...trapped in a ceiling of ARMSTRONG'S CUSHIONTONE

**T**HE easy, economical way to defeat the noise demons is to trap them in a ceiling of Armstrong's Cushiontone. This highly efficient but low-cost acoustical material has nearly five hundred sound-absorbing holes to the square foot, giving it a noise reduction coefficient as high as 70%. Hospitals, schools, offices, restaurants, and stores—every kind of building where groups of people work or play—need this freedom from the demons of noise. The cost of a Cushiontone ceiling is soon repaid in the permanent benefits of greater efficiency, reduced clerical errors, and better health.

### ACOUSTICAL CORRECTION

Theaters and churches, too, need the benefits of Cushiontone ceilings. High sound-absorption values at

all standard frequencies, offered by Cushiontone, mean clearer hearing, more comfort for audiences, and better attendance in any auditorium.

Cushiontone is easily cleaned. It can even be repainted, when necessary, without affecting its acoustical efficiency. The attractive ivory coloring provides smart decoration, plus the excellent light-reflection factor of 73%.

Cushiontone is a good insulator against extremes of heat and cold—keeps rooms at comfortable, more even temperatures summer and winter—and helps to keep fuel costs at a minimum.

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Two thicknesses, two unit sizes, and the attractive ivory coloring make Cushiontone adaptable to almost any application. It's quickly erected in old buildings or new.

## ARMSTRONG'S CUSHIONTONE

MADE BY THE MAKERS OF ARMSTRONG'S CORKOUSTIC

**PUBLICATIONS ON MATERIALS AND EQUIPMENT**

(Continued from page 42)

**AIRPORT LIGHTING**—Typical layout plans with C.A.A. recommendations are given for airports with runways of from 1500 to 4500 feet in the new 42-page Bulletin B-3046 from Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. Photos and brief descriptions of all necessary floodlights, etc., are included with references to literature covering each item. Full-size black and white photostats of typical lighting wiring diagrams are included for the four airport classes.

**PRESSURE-TREATED LUMBER**—The Wood Preserving Division, Koppers Co., Koppers Bldg., Pittsburgh, Pa., has issued a 20-page booklet, 6 x 9, which describes the simple rules for estimating the value of pressure treatment in particular installations. The booklet describes the processes involved in pressure-treating wood.

Other booklets from the same firm: 16-page catalog describing the construction steps involved in the Tarmac surfacing of roads; 36-page catalog outlining specifications for coal tar pitch roofing, water-proofing, damp-proofing, flashings, roof insulation, and including flashing and roofing details.

A number of two-page and four-page catalog sheets are also issued by the firm. All the sheets give information on the application of

Kopper's products to various installations, as well as specifications and photos of typical installations. Sheets are available on steep roofs built with coal tar pitch, damp-proofing, pressure-treated wood for low cost housing, membrane water-proofing, waterproofing and gas-proofing for sewage disposal plants, tar-base paints, water-cooled roofs.

**PAINTING SPECIFICATIONS**—Available to architects only is the sixth edition of the Specification Manual issued by Pratt & Lambert, Inc., 75 Tonawanda St., Buffalo, N. Y. Detailed specifications are given for painting, varnishing, and enameling all types of interiors, and exteriors. The 7 1/2 x 10 1/2 book (A.I.A. File No. 25-C) has 48 pages.

**KITCHEN CABINETS**—Its new line of kitchen cabinets, built especially for installation in Victory housing projects, is described in an 8-page folder (A.I.A. File No. 35-C-12) available from Kitchen Maid Corp., Andrews, Ind.

**REVOLVING DOORS**—Suggested designs and specifications for all types of revolving doors is contained in a filing folder (A.I.A. File No. 17-A-1) available from the Revolving Door Division, International Steel Co., Evansville, Ind. Though the firm has discontinued the manufacture of revolving doors of almost every type unless it has a high priority rating, it is continuing to distribute literature for the duration to aid architects in planning peacetime programs.

**TRUSCON PRODUCTS**—The 1942 edition of "Truscon Steel Building Products" is a spiral bound, 80-page catalog, containing specifications, installation details, structural design drawings on steel window products, steel doors, and such building needs as reinforcing bars, plaster bases, steel joists, etc.

Also published by the same firm: 16-page catalog on Ferroglass, a type of industrial construction which incorporates insulation, sound absorption, light reflection, and fire and shatter resistance as its features. Typical construction details are shown.

The use of light steel framing for rapid erection of all types of buildings is discussed in a new 20-page manual. In addition to illustrating typical installation procedures, the manual has a series of plates on floor, roof, window, and general framing details.

**ASPHALT SHINGLE ROOFING**—A four-page folder describing its Timbergrain asphalt shingle roofing may be had from The Ruberoid Co., 500 Fifth Ave., New York. Shown in actual color are four examples of Timbergrain shingles.

**CABINET SHOWERS**—Full color illustrations of its Weisway cabinet showers for defense home units are shown in a new 8-page catalog from Henry Weis Mfg. Co. Inc., Elkhart, Ind. Blueprint-type installation diagrams, and specifications, are included.

(Continued on page 46)

Bulletin of The Producers' Council—No. 41  
1941 Issue IV

**THE RICHMOND FIREPROOF DOOR COMPANY**  
NORTHWEST FOURTH STREET  
RICHMOND, INDIANA  
Affiliated with THE PEELE COMPANY, Brooklyn, New York

**SERVICE SHEET No. R5**

A complete data source for a new Richmond Fireproof Door, The Fyrgard Door. It provides Architects and Engineers instantly, on one sheet, Fyrgard Door space requirements, construction details, specifications and Underwriter requirements. Service Sheet No. R5 saves the time usually required to find the same data in several catalogs.

**RICHMOND PRODUCTS**  
Steel Frames, Tin Clad and Corrugated  
Freight Elevator Doors, Industrial  
Doors and Wardrobes, and Four-

**RICHMOND FIREPROOF DOOR CO., RICHMOND, IND.**  
 Latest Richmond Catalog  
 Don Graf Data Sheets  
 Service Sheet No. R5

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Write now for this helpful folder.

**SERVICE SHEET R-5 IS A COMPLETE DATA SOURCE FOR A NEW IMPROVED DESIGN OF FIREPROOF DOOR, THE FYRGARD DOOR.**

**THIS SHEET Gives space requirements, large scale construction details, specifications and Underwriter requirements.**

**Have you received your set of RICHMOND Don Graf Sheets or our latest catalog?**

**THE RICHMOND FIREPROOF DOOR COMPANY**  
NORTHWEST FOURTH STREET RICHMOND, INDIANA





**"Now look what design has done  
for a delicatessen!"**



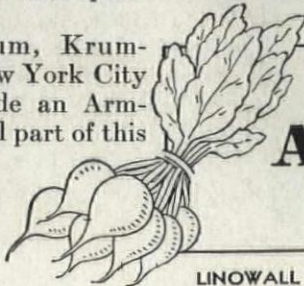
**G**OOD DESIGN has done plenty! It has lifted this New York City delicatessen out of the realm of dingy corner stores. It has given this shop life and sparkle, the kind that helps to pull in extra trade. And it has done this by making the floor a part of the sales picture. The success of the plan is due in no small part to this significant fact:

*Armstrong's Linoleum was specified for the floor!*

Designers Gruenbaum, Krummeck and Auer, of New York City and Los Angeles, made an Armstrong Floor an integral part of this delicatessen's entire interior scheme. They used this highly versatile floor to set off the unique salad bowl

display and to conform to the smart, circular shape of the sales room. As a result, the proprietors of the Old Denmark Delicatessen have a floor that is not only salesworthy and attractive, but one that will retain its good looks for a long time to come, too. For Armstrong's Linoleum, if properly maintained, provides your client with a floor that will give years of service.

Next time you plan a commercial interior—consider the extra advantages of Armstrong's Linoleum. You'll find it adaptable to almost any floor problem you may have and, at the same time, easy and inexpensive to install. See *Sweet's* for full details, or write Armstrong Cork Company, Floor Division, 1213 State St., Lancaster, Pennsylvania.



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THE EBERHARD FABER PENCIL WITH MICROTOMIC LEAD  
18 DEGREES—& 6 DEGREES WITH CHISEL POINT LEADS

## PUBLICATIONS ON MATERIALS AND EQUIPMENT

(Continued from page 44)

**TIMBER STRUCTURES**—"Typical Designs of Timber Structures", recently published by the Timber Engineering Co., 1337 Connecticut Ave., Washington, D. C., is an 11 x 17 catalog containing 48 detailed drawings showing actual timber engineering problems. The typical plans cover 14 different types of timber design such as trussed rafters for housing projects; trusses for hangars, factories, and markets; grandstands, distillery racks, bridges, towers. Each group is introduced by a photo of an actual structure in which that type of de-

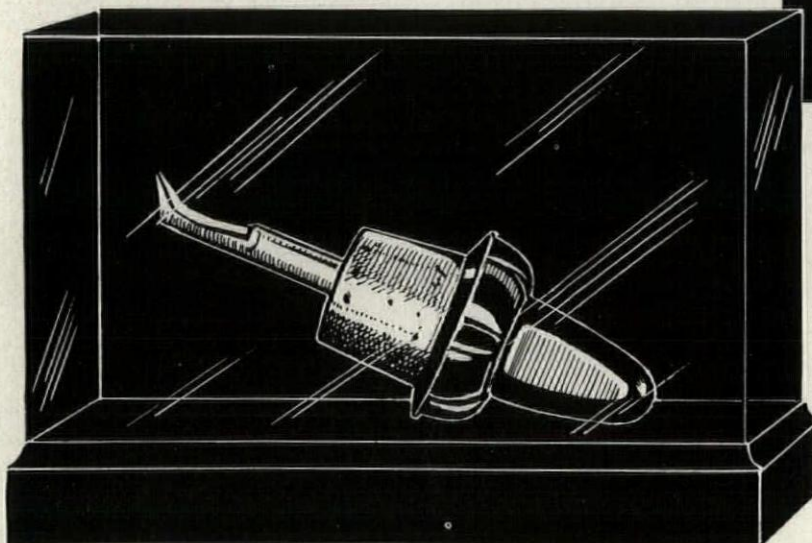
sign was used, and an explanation of its use. Handy tables for use in timber design are also included. Loose-leaf binding permits any of the pages to be removed for convenient use on the drafting table. Copies will be sent free to any registered architect or engineer.

**PAINT MANUAL**—Jones-Dabney Co., Louisville, Ky., has issued a comprehensive manual describing the specifications which have been issued by the Government in regard to lacquers, varnishes, enamels, and synthetic resins used in the production of military equipment and supplies. Entitled "War Specification Products," the manual cites and identifies the specifications, lists the various issuing bureaus, and explains the various applications.

**BUILDERS' SUPPLIES**—A 24-page catalog, and 8-page price list, from Tamms Silica Co., 228 N. LaSalle St., Chicago, illustrates and describes the firm's line of paints and other builders' supplies.

**LAMINATED CONSTRUCTION**—The use of laminated wood, weight-bearing members to replace steel in many types of construction is described in a 4-page folder (A.I.A. File No. 19-M) issued by Casein Company of America, 350 Madison Ave., New York. Specifications for gluing of laminated members and details of typical assemblies are included.

*Also published by the same firm: Two-page sheet, Technical Bulletin A-C-1, which discusses the water-proof gluing of laminated beams and arches.*



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Material shortages *may* make it difficult for us to continue to supply the famous Higgins Drawing Ink Stoppers with dipper fillers. As a precaution we advise you to salvage and keep the ones you have and are now getting. Order a good supply of Higgins American Drawing Inks in  $\frac{3}{4}$  oz. bottles containing stoppers equipped with these pen fillers today.

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Dependable insulation and excellent plaster base in one economical material.



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(Continued from page 32)

*William Platt*, New York, designer of the Central Mall and the Pylons of Light at the New York World's Fair.

*James Kellum Smith*, New York, president of the American Academy in Rome, and consulting architect for Johns Hopkins and Northwestern universities.

*Clarence C. Zantzing*, Philadelphia, former director of the Pennsylvania Academy of Fine Arts.

#### MORE ARCHITECTS WANTED

Architects are being sought to fill Federal positions in the war program, according to a recent announcement from the United States Civil Service Commission, Washington, D. C. Optional fields of architecture in which persons may qualify are design, specifications, and estimating. Salaries range from \$2,000 for junior architect to \$3,200 a year for associate architect. Sufficient eligibles at these grades to meet anticipated govern-

ment needs were not obtained from the architect examination announced a year ago. No written test is required. Applicants' qualifications will be determined from their experience and training.

Experience as draftsman, involving routine drafting or developing of plans not requiring basic original investigations or developments, will not be considered as qualifying. There are no age limits.

Applications will be accepted at the Commission's Washington office until the needs of the service have been met. Forms for applying may be had from first and second-class post offices or direct from the Commission.

#### A. I. A. CONVENTION

A tentative program has been announced for the seventy-fourth annual meeting of the American Institute of Architects and its affiliated state organizations, to be held at the Hotel Statler, Detroit, Michigan, June 23-25.

Keynote of the three-day meeting will be the discussion of four topics of professional interest—Existing Situation of the Profession, Youth Movement and Unification, Post War Planning and Post War Program, and Discussion of the Education Program.

A provocative discussion of the subjects to be discussed at the convention will be included in the June issue of PENCIL POINTS.

#### USO BUILDINGS

United Service Organizations buildings which would utilize local construction materials, and serve as community centers after the war, have been designed by fourteen architectural students of Cooper Union, New York. Basic specifications for the project were submitted by *Ely Jacques Kahn* and *Robert Allan Jacobs*, architects for the first USO building.

One student, *Lowell Cady*, designed a building to harmonize with the landscape of the Ozark mountains. Cady designated that the exterior be constructed of local brown stone and white oak, with a roof of cypress shingles. Vertical sycamore paneling and glass block were selected for the interior.

Another plan, by *Harold Soled*, specified concrete for a building which he proposed for one of the public parks in Brooklyn, N. Y. *Phyllis Hoffzimer* designed a USO center for the Westchester suburbs of New York City, and chose concrete in combination with glass blocks.

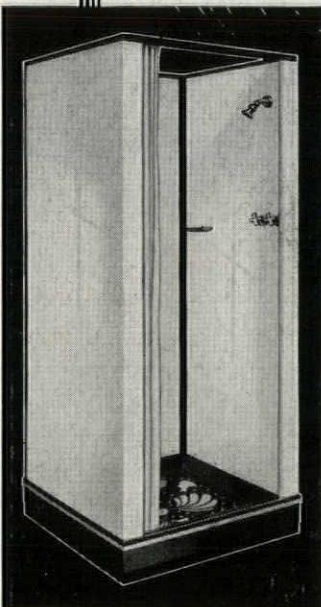
# WEISWAY

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*in Most Models and Sizes  
available for*

### IMMEDIATE SHIPMENT

**When a Priority of A-10 or Better  
Accompanies the Order\***



● Preference ratings can be obtained readily for the use of Weisway Cabinet Showers for civilian defense housing and remodeling, as well as for industrial and military purposes. These leakproof, self-contained baths are authorized under the critical materials list and may be shipped on priorities under the recent WPB limitation order on plumbing equipment.

We are in a position to make immediate shipment on most models and sizes. Delay will be prevented when orders are accompanied by priority certificates or endorsements (A-10 or better).

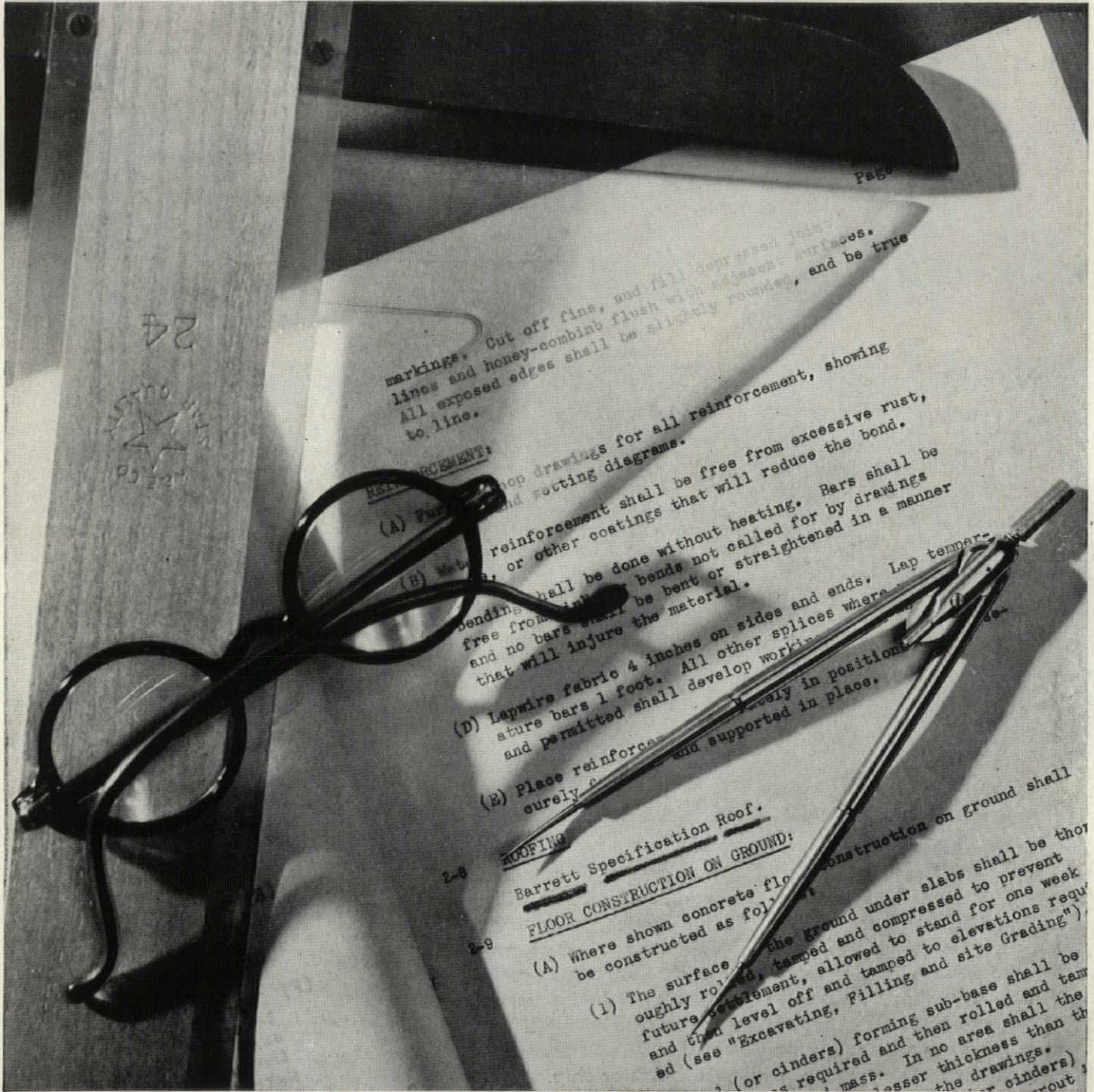
Specify Weisways and co-operate with our Nation's war conservation program because these quality cabinets not only serve dependably but *save\** in many ways. Detailed information and specifications with new full color booklet, "Weisways for Defense Living Quarters," will be sent without obligation.

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\*Weisways are widely used for civilian defense housing.. remodeling.. in defense plants.. barracks and dormitories.. hospitals.. army posts.. naval bases.. officers' quarters.. because

these self-contained baths SAVE space..save metal..save water and hence fuel..save bathing time..and provide the cleansing, refreshing shower baths that builds health and morale.

# One of the Most Difficult parts of a Building Specification can be written in just 3 WORDS



● It takes just three words—Barrett Specification\* Roof—to solve one of the most important problems of wartime plant construction.

Barrett Specification Roof written in building specifications means that the roof you have specified will be constructed of Barrett Specification pitch and felt, applied by a Barrett Approved Roofer, inspected by Barrett experts, and bonded against repairs and maintenance expense for up to 20 years.

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## TO SPEED HOUSING

John B. Blandford, Jr., National Housing Agency administrator, has announced plans for decentralization of Federal housing operations to speed construction for war workers. The decentralization will be accomplished by setting up ten regional offices, and possibly ten sub-regions." The regional offices will be established in ten of the thirteen cities where the WPB has offices, but the cities have not as yet been designated. The move was made to shift more responsi-

bility for planning the billion-dollar war housing program to the communities it will benefit.

### WHERE ARE THEY?

Unsolicited material returned recently to several contributors by the editors of PENCIL POINTS has been returned by the post-office since it had no record of their whereabouts. In an effort to locate these contributors, PENCIL POINTS is printing their names and last-known addresses, and requests its readers to notify the magazine

should they know the present address of the following men:

LeRoy Grumbine, 1216 1/2 Trenton St., Los Angeles, Calif.; Ernest Jonson, 126 W. 12th St., New York, and H. Van Pelt, 513 Crescent St., Grand Rapids, Mich.

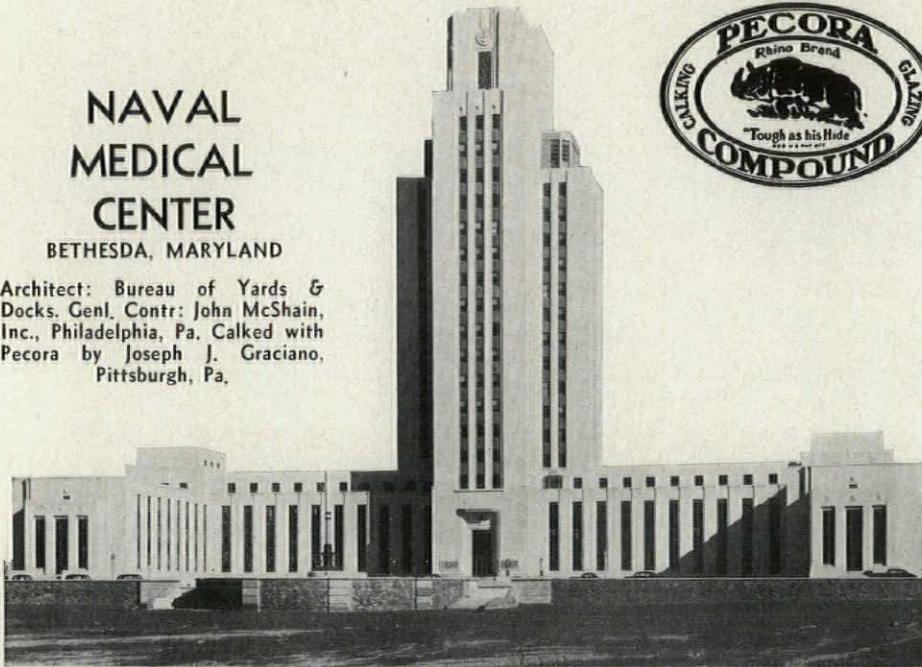
The editors also have on hand an article, "Modern Architecture—A Revaluation," which the author (unknown) may have upon request.

The contributions will be held until August 1, after which they will be disposed of.

## NAVAL MEDICAL CENTER

BETHESDA, MARYLAND

Architect: Bureau of Yards & Docks. Genl. Contr: John McShain, Inc., Philadelphia, Pa. Calked with Pecora by Joseph J. Graciano, Pittsburgh, Pa.



**P**ECORA Calking Compound is now on duty in this large hospital building as well as the Nurses' Home. It will be depended upon to render 24 hour service every day of the year for many years to come. No moisture, no dust, no drafts, will be permitted to penetrate joints that have been sealed with Pecora. It will provide weather protection, aid temperature regulation and effect fuel saving. Regardless of heat, cold or moisture, Pecora will retain its permanent elasticity, for when properly applied, Pecora will not dry out, crack or chip.



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# PECORA CALKING COMPOUND

ALSO MORTAR STAINS • SASH PUTTIES • ROOF COATING • PECOMASTICS

## EXHIBITION OF WARTIME HOUSING

An exhibition of wartime housing, arranged in collaboration with the National Committee on the Housing Emergency, opened at the Museum of Modern Art, New York, April 22, and will continue through July 19. It shows by means of graphic and dramatic installations why adequate housing designed by the country's best architects is necessary to help America win the war. New methods for producing such housing with maximum speed and economy according to contemporary design are also presented.

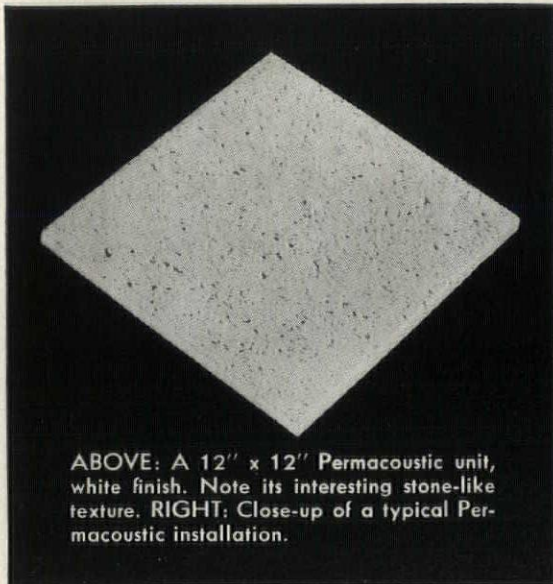
The exhibition tells its story in a series of scenes presented by movie shorts, blown-up photographs, and architectural models. In addition, each scene is accompanied by voices which dramatize the idea of the exhibition scene by scene.

The second half of the exhibition shows how, by intelligent community planning, wartime housing facilities can be converted to peacetime use instead of leaving slums and the empty industrial ghost towns of the last war.

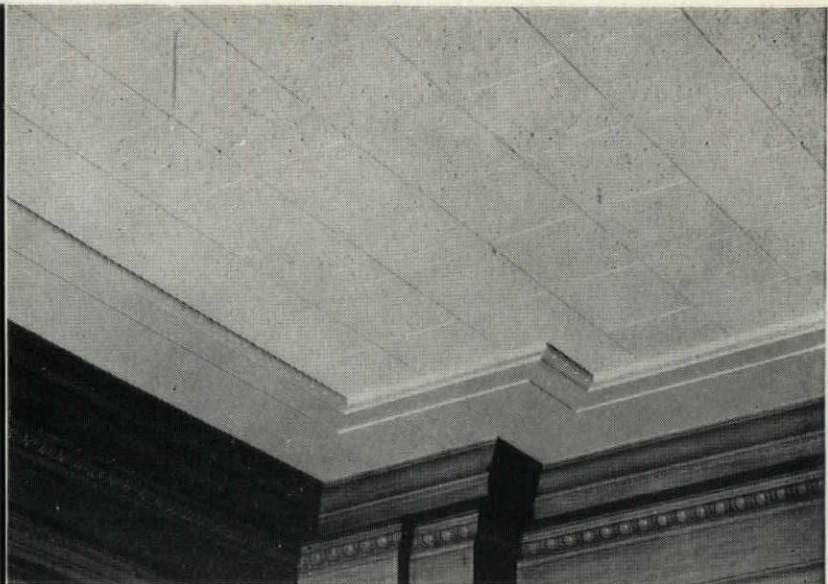
## AMERICANA EXHIBITION

Two hundred years of American life are represented by nearly 100 eighteenth and nineteenth century lighting appliances at a current exhibition in the Cooper Union Museum for the Arts of Decoration, New York.

The appliances are arranged in chronological sequence, demonstrating the transformation in design that came with changing needs and the commercial development of illuminating oils. Also on exhibit are a number of architectural sketches by the late Whitney Warren, internationally known architect.



ABOVE: A 12" x 12" Permacoustic unit, white finish. Note its interesting stone-like texture. RIGHT: Close-up of a typical Permacoustic installation.



# Johns-Manville PERMACOUSTIC

... an economical, ceramic acoustical product that combines an attractive natural texture with high sound-absorbing efficiency

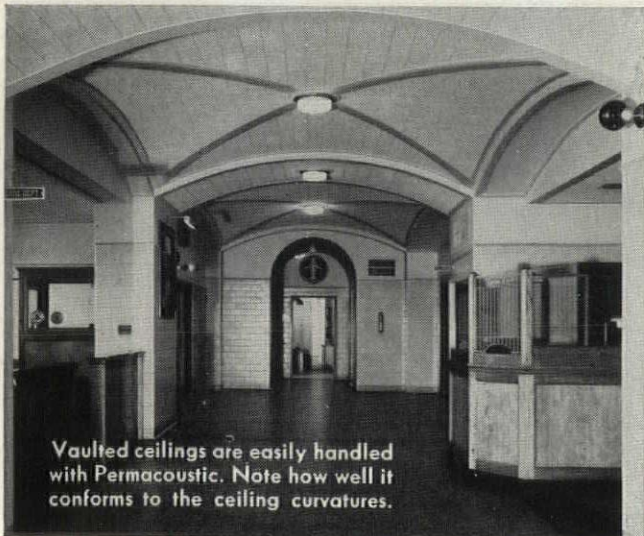
**Description:** Permacoustic is formed by baking rock wool and clay under extremely high temperatures. It has a distinctive stone-like texture that harmonizes with practically any decorative treatment. Used on walls or ceilings, it forms an interior finish of exceptional beauty and dignity.

**Advantages:** Attractive in appearance, Permacoustic also provides excellent sound-absorption characteristics. It is mineral in composition, therefore cannot rot and is unaffected by moisture. Permacoustic is fireproof. Little maintenance is required. Cleaning is readily accomplished by conventional methods. Painting will not reduce its noise-quieting efficiency.

**Recommended Uses:** Permacoustic is an all-purpose, low-cost acoustical material. It is particularly adapted for use in offices, restaurants, schools, auditoriums, etc. Its realistic stone-like texture also makes it ideal for such structures as churches and public buildings.

**Application:** Permacoustic is easily handled and applied. In most installations, the units are cemented in place directly over the existing ceiling with J-M Acoustical Cement. In suspended ceiling construction, however, each unit is kerfed to accommodate the metal suspension system.

**Sizes and Colors:** Permacoustic is furnished in units of 6" x 12", 12" x 12", and 12" x 24"; in thicknesses of 3/4" and 1". Standard colors are white and buff. Units may be obtained with either square or beveled edges.



Vaulted ceilings are easily handled with Permacoustic. Note how well it conforms to the ceiling curvatures.

## SOUND-ABSORPTION COEFFICIENTS

Tests by the official laboratory of the Acoustical Materials Assn.

Material	Thick-ness	128 Cycles	256 Cycles	512 Cycles	1024 Cycles	2048 Cycles	4000 Cycles	Noise Red. Coefficient
Perma-coustic	3/4"	.19	.34	.74	.76	.75	.74	.65
	1"	.23	.44	.71	.68	.70	.73	.65

Light-Reflection Coefficients: Natural White, 73%; Painted, 85%

FOR COMPLETE DETAILS and specification data on J-M Permacoustic and other materials in the complete J-M line of acoustical materials, see Sweet's Catalog, or write for Catalog AC-26A. Johns-Manville, 22 East 40th Street, New York, N. Y.

**COLUMBIA HONORS ARNAUD**  
Dean Leopold Arnaud, of the Columbia University School of Architecture, New York, has been named Ware Professor of Architecture at Columbia. He is the second recipient of the Ware Chair since its establishment in 1929.

Five New York City architects were also named to the Committee of Visitors in the School. The committee acts in an advisory capacity to the faculty, and as a liaison group between the practicing profession and the School. Chairman

of the Committee is Charles Butler. Other members on the committee include Arthur Loomis Harmon, Geoffrey Platt, T. Merrill Prentice, and Edward D. Stone.

#### PRINCETON GETS MEDAL

The 1941 gold medal of the American group of the Société des Architectes Diplômés par le Gouvernement has been awarded to Princeton University for "having the best record of accomplishment in the teaching of architecture on the gen-

eral principles of the École des Beaux Arts in Paris."

A gold medal and a prize of \$50 was awarded to Glen Paulsen, of the University of Illinois, as the student who obtained the greatest number of values in the national competitions of the Beaux Arts. J. C. Tighe, of the University of Pennsylvania, received the Silver Student's Medal.

#### SUMMER COURSES AT CRANBROOK

Courses will be offered in Drawing and Painting, Modeling and Sculpture, Design (Architectural and Industrial), and Crafts (Weaving, Metalcraft, Pottery and Ceramics) at the 1942 summer session at the Cranbrook Academy of Art, Bloomfield Hills, Mich. The ten week term will run from June 22 to August 28.

The Academy will have been granted the right to award academic degrees beginning with the summer semester. Candidates will be accepted for the degree of Master of Architecture, Master of Industrial Design, Master of Fine Arts (Painting, Sculpture, Crafts), and Bachelor of Fine Arts (Painting, Sculpture, Crafts, Design).

Requests for application forms should be addressed to Richard P. Raseman, Executive Secretary.

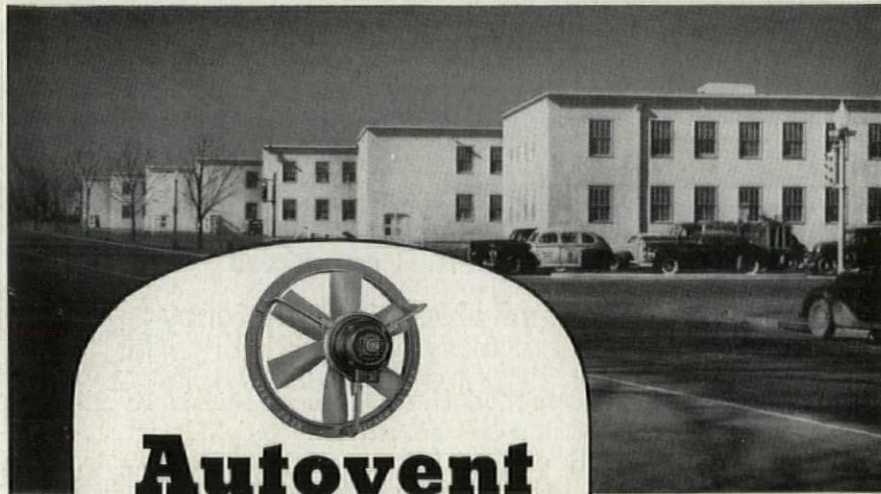
#### GRADUATE COURSE IN INDUSTRIAL DESIGN

The California Institute of Technology, Pasadena, California, as part of its regular program of instruction, is offering a two-year graduate course in Industrial Design. It combines the study of functional design with that of the latest engineering practice, utilizing the possibilities of such new materials and methods as best contribute to the solution of current problems. Upon successful completion of the course, students are awarded a professional degree in industrial design.

A limited number of assistantships are available for the year 1942-1943. Further details may be had from the Institute's registrar.

#### MANUFACTURERS' DATA WANTED

JOHN G. MILLER, 4230 Courville St., Detroit, Mich., would like to receive information on prefabricated buildings of all types.



## Autovent

### FANS AND BLOWERS INSTALLED IN TEMPORARY GOVERNMENT OFFICE BUILDINGS

Two hundred, twenty-five Autovent Propeller Fans and five Autovent Blowers have been installed in Temporary Government Office Buildings recently completed in Washington, D.C. These buildings are among the newest Government Projects ventilated by Autovent Fans and Blowers.

The Autovent Fan and Blower Division of The Herman Nelson Corporation manufactures a complete line of fans and blowers for efficient, economical ventilation and air conditioning of industrial, commercial and public buildings. At present, these quality products are available only for projects with preference ratings.

If you have a ventilating problem, the Herman Nelson Sales Representative in your locality will be pleased to assist in its solution and will furnish you with complete information about Autovent Fans and Blowers.

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are available in 263 models, sizes and arrangements of Horizontal Shaft Propeller-Fan, Vertical Shaft Propeller-Fan, Blower Fan and De Luxe Types.

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Vertical Shaft Propeller-Fan Type hijet Heater



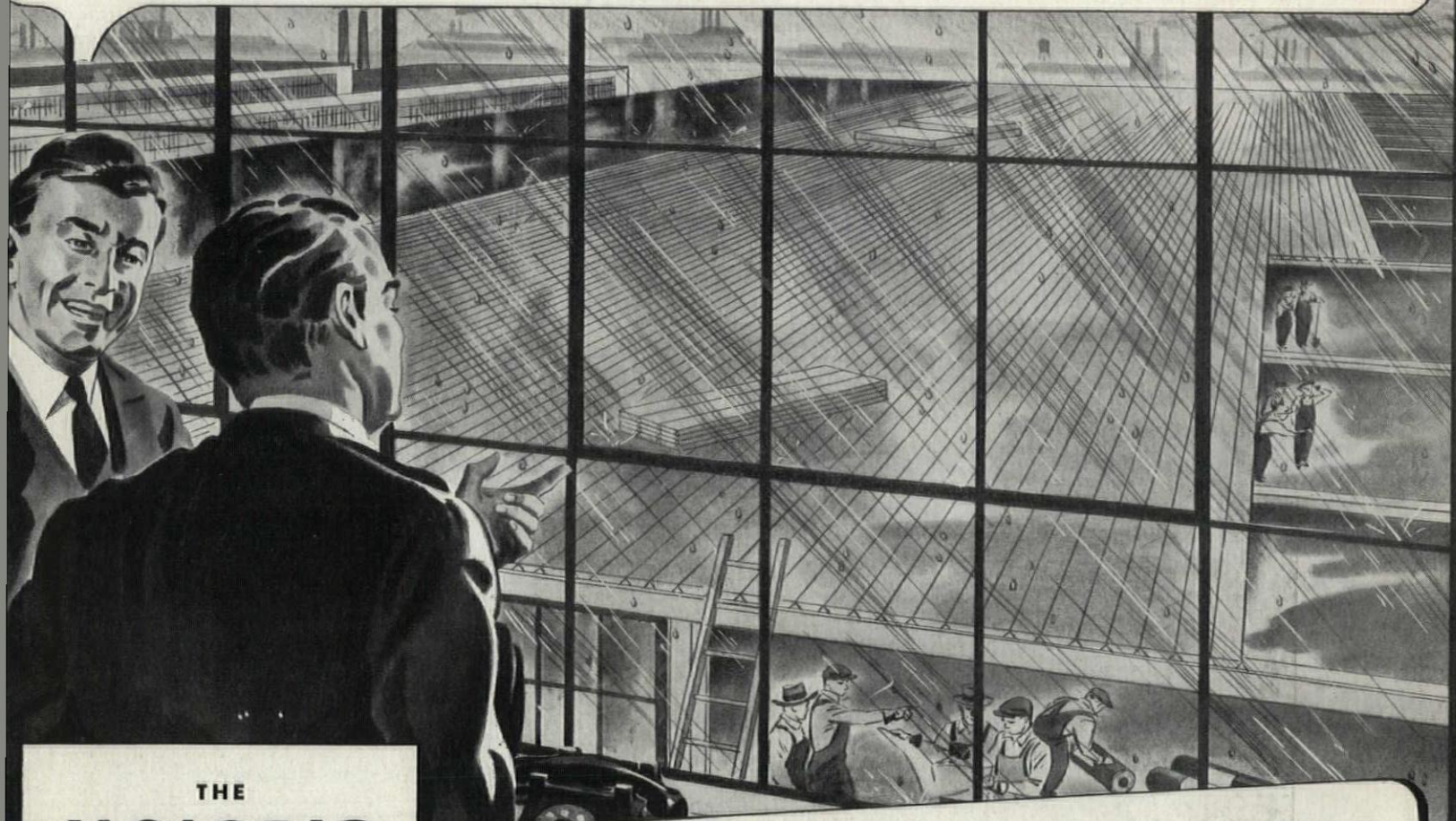
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THIS TIME-SAVER, WEIGHT-SAVER, FREIGHT-  
SAVER, FIRE-SAVER, MONEY-SAVER ROOF**

THE  
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COMPLETE ROOF UNIT



On the strong steel base is placed its middle stratum composed of pressure resisting insulating sheets which prevent heat loss. Its outer surface is long-lived waterproofing designed for permanent protection against leakage. These component parts are bonded together and waterproofed by moppings of roofing asphalt, and further secured by Holorib Expanding Nails. Thus united, they form a complete roof, and give sure and economical protection against (1) Leakage of water; (2) Leakage of heat; (3) Leakage of dollars for maintenance.

If it wasn't for Holorib, rains might delay completion of your roof for days. For Holorib sheds water—there's nothing to dry out.

Big Holorib sheets are laid *very fast*. They help complete war plants quicker and get into production sooner.

You save *weight* with Holorib—complete with insulation and waterproofing, *it weighs less than one-half the weight of any other fire-resistive roof*.

You save *freight*—Holorib requires less than half the freight car space of bulky materials.

You save *fires* and insurance—Holorib won't burn; protects against incendiary bombs.

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## COMPETITIONS

### COLUMBIA SCHOLARSHIPS

Several graduate scholarships and one university fellowship are available in the School of Architecture, Columbia University, New York, for the 1942-1943 academic year. Four first-year tuition scholarships are also available. Applications will be received until May 15.

Further information may be had from *Leopold Arnaud*, Dean of the School of Architecture.

### BRUNNER AWARD

Candidates for the *Arnold W. Brunner Scholarship* for 1942, awarded by the New York Chapter of the American Institute of Architects, may secure application blanks from the secretary of the chapter, 115 E. 40th St., New York.

All applications and outlines of study must be received by the secretary on or before May 15.

The Scholarship is awarded for the pursuit of advanced study in some special field of architectural investigation selected by the candi-

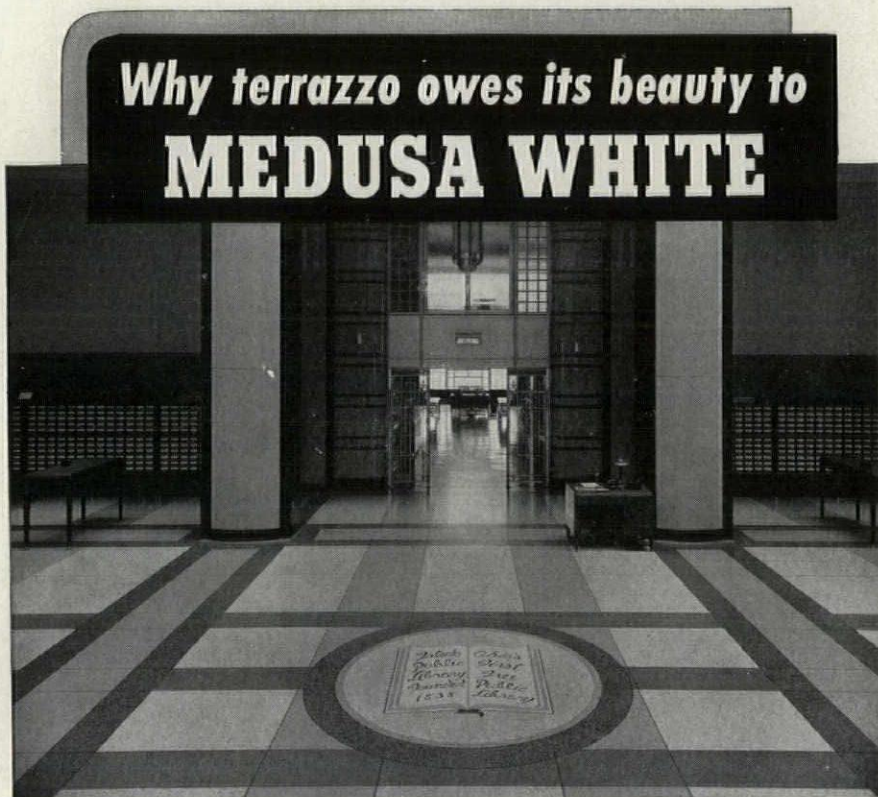
date. The amount of the grant for the current year will be approximately \$1200. Candidates are required to submit their qualifications on blanks available for the purpose, together with briefs or outlines of the investigations or studies they propose.

### PRINCETON PRIZE

The School of Architecture, Princeton University, Princeton, N. J., has announced the Princeton Prize in Architecture for 1942-43, to be awarded to a student of unusual promise to advance his professional training. The winner will be exempt from tuition fees, will receive a stipend of \$500, and will be entitled to all the privileges of a Fellow of the University.

The Prize will be awarded on the basis of the candidate's record and experience, particularly his achievements in architectural design. Selection will ordinarily be made from graduates of architectural schools, or from draftsmen who have been employed in architects' offices for not less than three years.

Candidates shall be unmarried male citizens, not less than twenty-one nor more than thirty years of age on September 1. Formal applications must be filed not later than May 31. Application blanks and regulations may be had from the Secretary, School of Architecture.



**WHEN** you see a colorful terrazzo floor with magnificent designs worked out in beautiful, rich colors or pastel tints, remember that its beauty is only possible because, years ago, the Medusa Portland Cement Company laboratories originated the first pure white cement. Since that time, thirty-five years ago, Medusa White Portland Cement has been used as a colored or white matrix to better set off the colored marble chips in terrazzo. It has the longest terrazzo service record of any white cement—it has been time-tested and proved outstanding in color and in quality. Medusa White also has the longest successful service record in stucco and cast stone. The coupon brings you a copy of "The Beauty of Terrazzo."

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Gentlemen: Please send me a copy of the book, "The Beauty of Terrazzo."

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Also made by Medusa Products Co. of Canada, Ltd., Paris, Ontario

## OBITUARIES

### HALL PENNINGTON

*Hall Pleasants Pennington*, formerly a member of the firm of Pennington, Lewis & Mills, New York architects, died on April 2, aged fifty-three. Mr. Pennington was graduated from Princeton University, and later studied architecture at the Beaux Arts in Paris. He specialized in the design of apartment buildings.

## PERSONALS

*ARCHIBALD MANNING BROWN, Architect*, has moved his office from 140 E. 39th St., to 148 E. 55th St., New York.

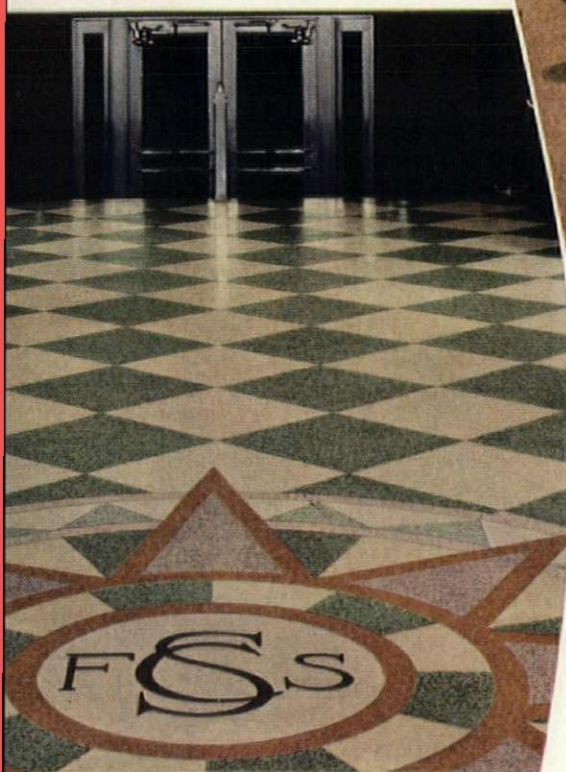
*CHESTER OAKLEY, Architect*, has moved his office from 117 W. Tupper St. to 280 Summit St., Buffalo, New York.

# Something more than just a floor

## ...WHEN IT'S TERRAZZO



Terrazzo floor, made with Atlas White cement, in City Hall and Auditorium, Montgomery, Alabama. Architect, Frank W. Lockwood; General Contractor, Algernon Blair, both of Montgomery. Sub-contractor, S. Fornara Tile & Terrazzo Company, Atlanta.



Atlas White portland cement used in Terrazzo floors of Sebastian County Court House, Fort Smith, Ark. Architects, Bassham & Wheeler and E. Chester Nelson, Fort Smith; Contractor, Manhattan Construction Company, Muskogee; Terrazzo contractor, Taylor Marble & Tile Co., Oklahoma City. Owners' representative, County Judge R. P. Strozier



• Wm. H. Block Department Store, Indianapolis. Architects, Vonnegut, Bohn & Mueller, Indianapolis; Contractor, American Mosaic & Tile Co., Inc., Louisville.

YOU expect *Fine Terrazzo* to resist years of wear and save money on upkeep.

But *Fine Terrazzo*, made with Atlas White cement, offers more than floors that are hard to wear out. It allows you unlimited opportunities for new and more decorative floor designs. It permits selection of any color or color combination you want in your patterns. *Fine Terrazzo* gives you wide latitude in adding beauty and life to interiors.

Specify *Fine Terrazzo* made with Atlas White cement for new and remodeled structures — hospitals, schools, hotels, churches, clubs, or commercial buildings.

With Atlas White cement you can depend on exact color control and clean-cut patterns. You can be sure that the original sparkle and freshness will still be alive years later.

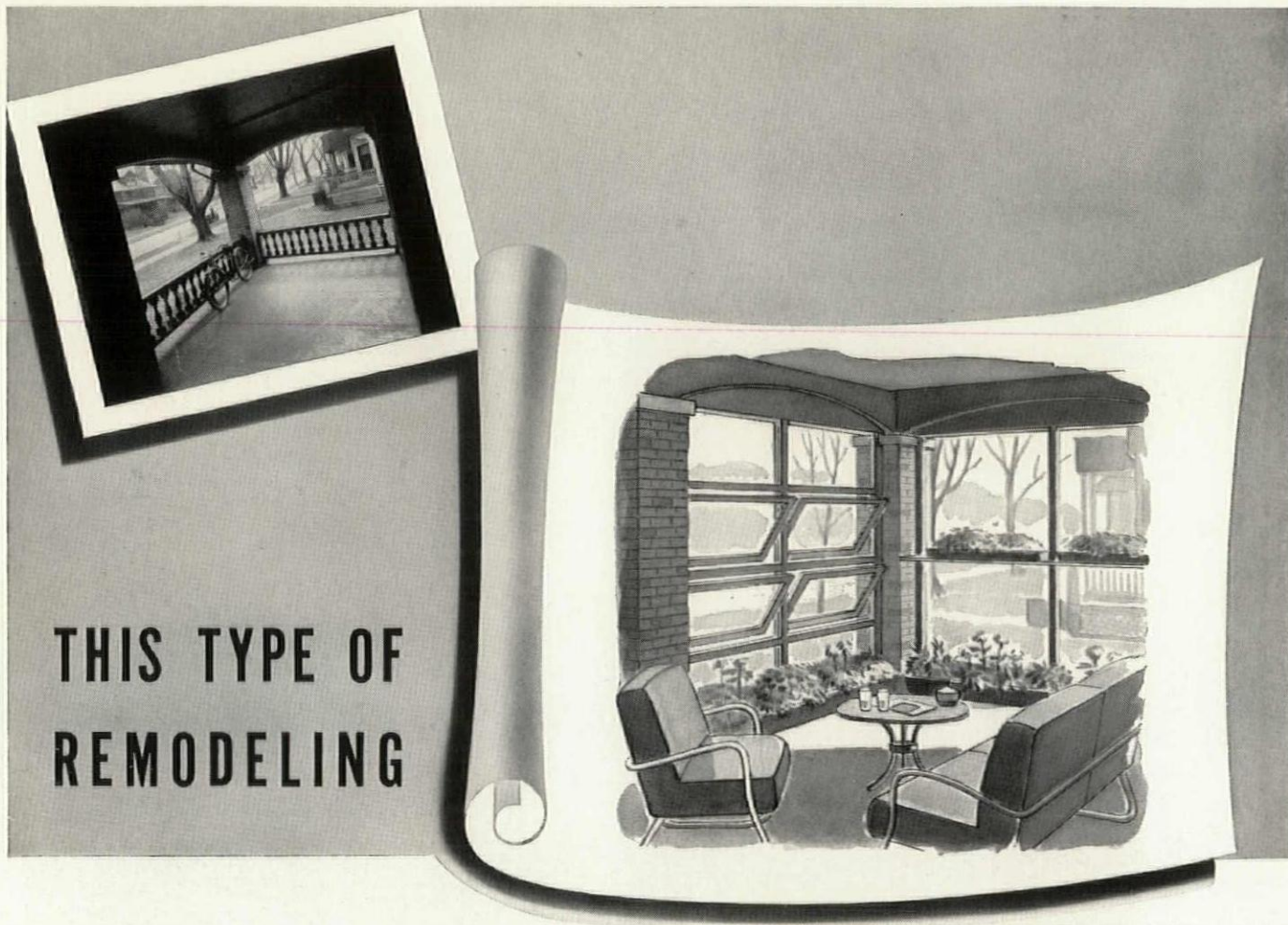
For more details see Sweet's Building File, Section 4, or write for free booklet showing 24 true-color specimens of *Fine Terrazzo*. Universal Atlas Cement Co. (United States Steel Corporation Subsidiary), Chrysler Bldg., New York City.

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...using **GLASS** and **LUMBER**  
is practical under today's conditions



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GLASS FEATURES  
BOOK**

Here the architect has taken the porch of Anyone's Home and converted it into a modern, pleasant livable room. It's a simple idea which can be enjoyed by thousands of homes. It is significant of the modern architectural use of glass.

This glass feature is typical of scores of ideas that Libbey-Owens-Ford has recently incorporated into an unusual new book entitled, "Practical Glass Ideas for Today's Homes." This book is designed for homeowners to increase their appreciation for the new livability they can add to their homes through Glass Features.

We think, from an idea standpoint, that Architects and Builders will find much of interest in this book. A complimentary copy will be forwarded upon request. Just write Libbey-Owens-Ford Glass Company, 1247 Nicholas Building, Toledo, Ohio.



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# WHAT PART HAS *Pipe* IN NATIONAL DEFENSE?

**Y**OU'LL probably be surprised. For example: A bed for one of Uncle Sam's soldiers takes 12 feet of pipe. A water line for just one cantonment is many miles long. A single demolition bomb starts from more than a thousand pounds of steel tube. The boilers of our newest battleships contain tons and tons of the finest seamless boiler tubes. An army bomber may require a thousand pounds or more of mechanical tubing. Uncounted numbers of shells, tank parts, cannon mounts, machine gun rests, demolition bombs, all take an enormous quantity of pipe and tubes.

We wish you could see the ceaseless activity going on

within NATIONAL Tube Company mills, the speeding up of production facilities, the improvements through tireless research. Then you would share our confidence that whatever the call for tubular products, whether for industry or war requirements, NATIONAL Tube will be ready to do its full part in meeting it.

We are glad that in this emergency we have been able to render our country quick, vital and quantity aid. We're all in the same boat, pulling to the same end—mill, factory, distributor, and consumer.

It's a journey none of us wanted to take, but having embarked on it, we Americans shall see it through.

## NATIONAL TUBE COMPANY

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# UNITED STATES STEEL



TRENCH MORTARS stand firmly on supports whose strength is provided by SHELBY Tubes.



TANKS of all kinds call for vast quantities of Seamless Tubing for many parts.



BATTLESHIPS are a maze of pipe and tubes. From stem to stern pipes provide strength and safety.



MODERN BOMBERS rely for strength on SHELBY Aircraft Tubing in many parts.



AMERICA'S STANDARD WROUGHT PIPE

## AT LARGE IN THE LIBRARY

**SHELTER FOR LIVING**, by Ernest Pickering. (370 pages, 7½" x 10", numerous photographs, sketches, tables, index. John Wiley & Sons, Inc., New York, \$3.75)

Mr. Pickering has compiled a wealth of information on home building for the student and the practicing architect. As a faculty member in the Architectural

School at the University of Cincinnati he has had an opportunity to refine his material through many lectures. The dedication "To a Happy Family Life" tells the attitude and purpose of the book.

His solution of the shelter problem is developed from the standpoint of cultural influences. There is a thorough discussion of the means of ascertaining the require-

ments of a particular family, and the ways of adjusting these requirements to the budget. Low-rent, multiple housing units are presented to show the savings and advantages gained from group endeavour. Orientation, flexibility, and zoning within the house are fully canvassed. The special requirements of the rural home are also set forth.

A third of the book is devoted to an analysis of each room and the specific requirements of its equipment and furnishings, as well as its interdependence on the other units of the plan. Typical arrangements of various equipment are given in scaled and dimensioned drawings. Study of the minimum circulatory requirements is stressed. Furnishings and the decoration of the interior are studied from the aesthetic and functional points of view.

The elements of exterior design, material, texture, proportion, and the style influences of the past, are handled with certain knowledge. The principles of sound construction are illustrated and briefly discussed. There are chapters which deal with the fundamental requirements for mechanical equipment. A final chapter gives units and tables for the evaluating of the building.

Mr. Pickering has approached the problem of shelter with the point of view of providing for the needs of present-day home owners. He respects the influences of past good design and encourages the inventiveness of today to serve living in the most efficient manner.

JOHN C. SEWARD



Well known to Ohioans, after more than 25 years of service, E. F. Babbitt, Mechanical Engineer for Columbus' oldest and largest firm of architects (Richards, McCarty & Bulford) regularly specifies ILG Direct-Connected Blowers.

### HE STANDARDIZES ON ILG BLOWERS



Designers of several Isaly Dairy Co. plants (headquarters, inset above), the architect included ILG Blowers in kitchen to remove cooking fumes, also in basement to exhaust from toilets. Installation shown has operated for over 5 years, either 18 or 24 hours a day, with "minimum of attention". For real service to clients, get ILG's complete story on propeller fans, blowers, and unit heaters, before writing your next "specs".

ILG ELECTRIC VENTILATING CO., 2887 N. CRAWFORD AVE., CHICAGO, ILL.  
OFFICES IN 41 PRINCIPAL CITIES CONSULT YOUR PHONE DIRECTORY



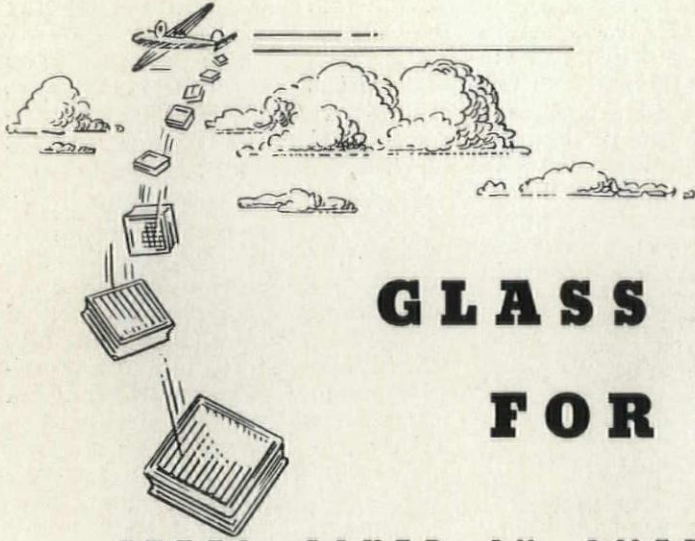
*Vitalized Ventilation*

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AIR CHANGE . . . NOT JUST AIR MOVEMENT!

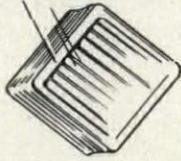
**TECHNIQUES OF SCULPTURE, A SIMPLE CREATIVE APPROACH**, by Ruth Green Harris and Girolamo Piccoli (\$2.25 a copy, 85 pages, 5½" x 8½", illustrated—Harper & Brothers, New York)

There is no doubt that Piccoli's book will be of help to the beginner in sculpture for, while admitting that there are other and possibly better ways, he doesn't confuse the uninitiated with a multitude of methods. In fact, one of his main aims is to strip the teaching of sculpture of much of its flubdub and false mystery. Remove this awe from the novice and you will soon have a well-advanced student who takes pleasure in his work. Sculpture, in fact, has been explained in even simpler terms than Piccoli's—as being merely a matter of taking off where there is too  
(Continued on page 60)



## GLASS BOMBS FOR VICTORY

STEEL SAVED IN AMERICA IS STEEL SAVED FOR  
EQUIPMENT ON THE FIGHTING FRONTS . . .



**T**

HE great need for huge plants to house essential machinery and equipment to carry on our war effort, and the scarcity of materials from which they can be constructed, constitute an increasingly serious problem. Architects and engineers, always conscious of available materials for a given requirement, now must function on an even higher plane of selectivity, utilizing alternates more extensively.

Almost the entire supply of some very basic materials must be melted and molded into implements of war. The extent to which less critical materials are utilized will have a definite bearing upon the time required to bring the war to a successful conclusion.

Time, the essence of vast production under any circumstance, is infinitely important to the nation today . . . for lives will be saved or lost in almost direct ratio to the time required to equip our men with ammunition, armament and planes.

In the construction emergency created by war, Owens-Illinois is happy to be in a position to serve with its Insulux Glass Block.

Insulux' uses are many and varied . . . for large areas in new buildings, which supplant substantial quantities of critical materials . . . for maintenance, so essential to continued service under severe production pressure . . . for repairs and rehabilitation within the scope of government regulations.

Glass ingredients, fortunately are native and still available. Glass in the form of Insulux blocks, minimizes the use of critical materials to a high degree—while bringing to building, possibilities for speedy erection along with insulation and light control.

Send us your inquiries. We promise the very best that's in us for the solution of construction problems which confront you under these war conditions.

INSULUX PRODUCTS DIVISION  
**OWENS-ILLINOIS GLASS COMPANY**  
TOLEDO

(Continued from page 58)  
 much and putting on where there is not enough.

In his paragraph on design, I felt he laid too much stress on the tri-dimensional appeal in sculpture. He does, in fact, refute his argument by the very photographs he used—the "Descent from the Cross," by Michelangelo, and a little Tanagrafigurine—both of which seem quite complete and satisfactory from one view. To prove his point he would have done better

to have used almost anything else Michelangelo did, for it was he who brought that phase of sculpture to its highest point. Having, however, used the "Descent from the Cross," which is probably one of the most sophisticated designs we have in sculpture, I felt he could well have devoted more space to an analysis of its many merits as a work of art. The entire chapter on design, in fact, could have been larger and more comprehensive in scope.

EDMOND AMATEIS

ARCHITECTURAL HERITAGE OF THE MERRIMACK, by John Mead Howells, with an introduction by William G. Perry (248 pages, 9 1/4" x 12 1/4", 302 plates. Architectural Book Publishing Co., Inc., New York.)

The great architecture of any period has been the result of a straightforward expression of the life, loves, and aspirations of its peoples as executed by a group of skilled artisans under inspired leadership. It is only natural that the Merrimack Valley, which was so much a part of the growth and expansion that pulsed through New England from the Colonial times into the dazzling whaling era, should have an important story to tell.

Architect Howells has presented his material in a manner to recapture every vestige of the charm of the period. Beginning with the Colonial-Federal houses of Newburyport, he takes the reader on a picture trip through West Newburyport and up into the foothills of the White Mountains. From the finest mansion to the humblest cottage one renews again an acquaintance with the fine craftsmanship and naturalness in handling native materials which makes for great architecture.

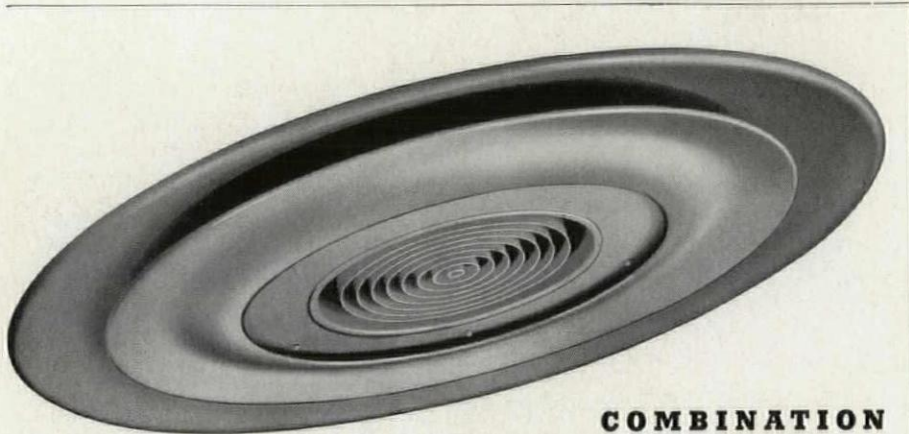
May I also commend the fine quality of the photographic illustrations.  
 J. R.

THE EARLY IRONWORK OF CHARLESTON, by Alston Deas (\$6.00, Bostick & Thornley, Inc., Columbia, S. C. 105 pages, 8 3/4" x 12". Illustrated by Richard J. Bryan.)

Presented here in three parts, namely: historical background, an insight into the men who fashioned the ironwork, and a series of scale drawings, is the essential history of the early ironwork in Charleston. This book picks up many of the loose ends that have existed in the story of ironwork which made such an important contribution to the life and culture of such an important southern city. The style of presentation is readable.

It will find an appreciative audience among historians for the avenues of information it opens up. It will be of interest to collectors of Americana and those interested in that phase of our American heritage which had its origin in the ironworker's shop. By reason of the short historical period covered, the book would have a limited use as a reference volume for the architect in spite of its careful scale drawings and marginal sketches.  
 J. R.

(Continued on page 62)



COMBINATION  
 SUPPLY and EXHAUST

**Venturi-flo**  
 AIR DIFFUSERS

★ **CANNOT SHORT-CIRCUIT**

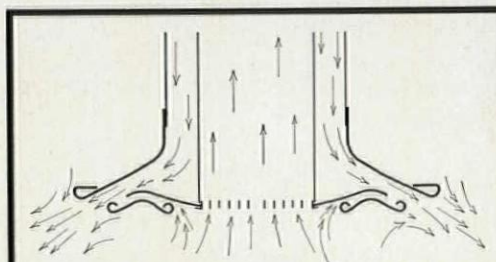
The incoming and outgoing air streams are so nearly at right angles that supply air cannot be sucked into the exhaust.

★ **LOW PRESSURE DROP**

Exhaustive experiments with full-scale models determined the contours which provide minimum resistance to air flow.

★ **GUARANTEED AIR DISTRIBUTION**

From comprehensive data, exactly the proper unit for any given conditions can be selected, and results guaranteed.



**CROSS-SECTION OF THE UNIT**

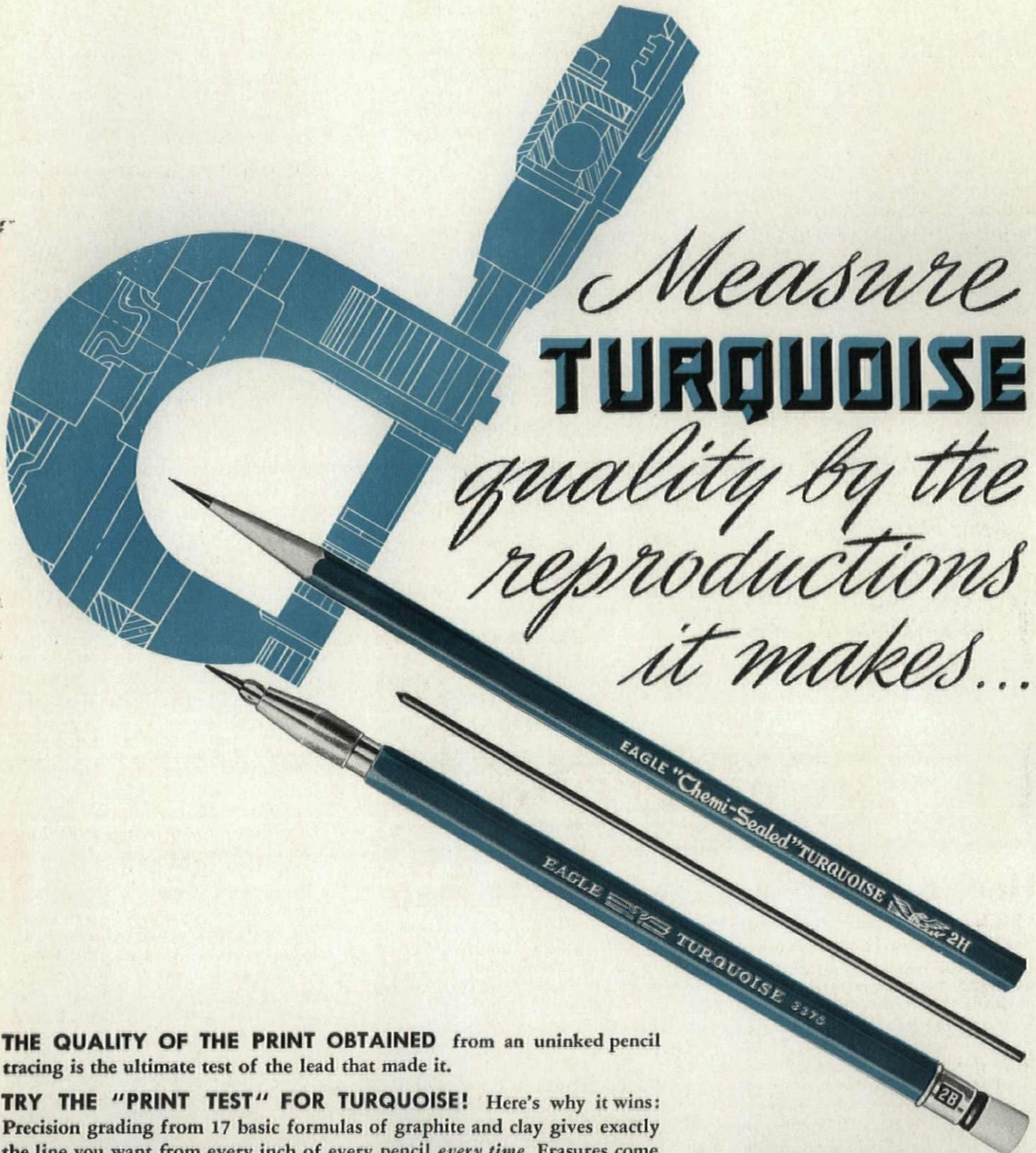
This drawing shows the construction of the VENTURI-FLO Combination Supply and Exhaust Air Diffuser, and the arrows indicate the paths of air travel. Note particularly how the fresh air is delivered nearly at right angles to the exhaust flow, thus assuring that there will be no "short-circuiting." Uniform, thoroughly-diffused air flow in all directions, together with efficient exhaust pick-up, is provided by this Combination Diffuser.

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**BARBER-COLMAN COMPANY**  
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 EAGLE PENCIL COMPANY OF CANADA, LTD., TORONTO

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(Continued from page 60)

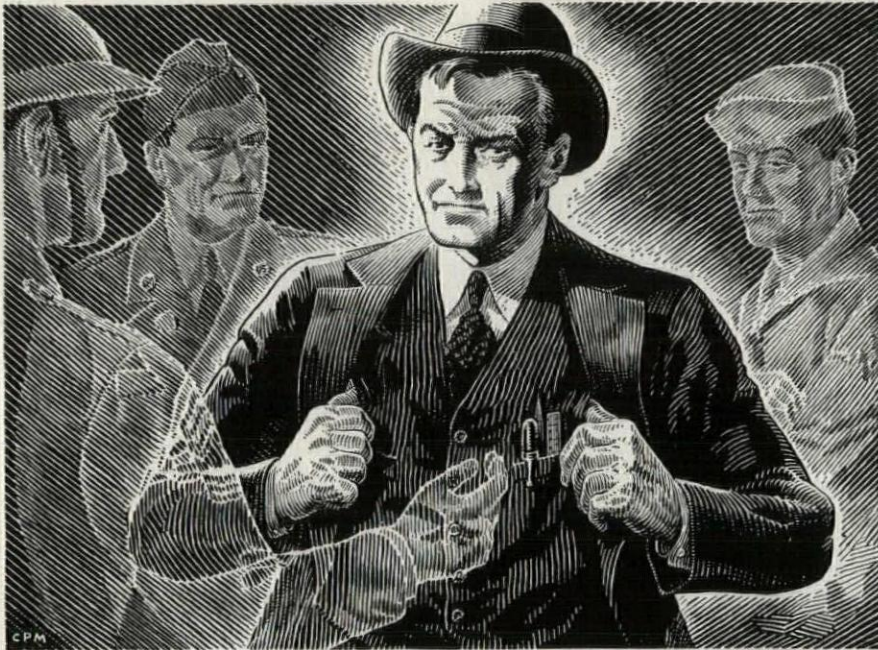
ART TODAY, by Faulkner, Zeigfeld & Hill (\$3.50, Henry Holt & Co., New York. 350 pages including 214 photographs, 6" x 9".)

According to the authors, their book is a "direct outgrowth of the experiments in general education undertaken at the General College of the University of Minnesota to make various fields of human endeavor meaningful and vital in contemporary society." This is, indeed, an ambitious task and one

which this reviewer thinks has been admirably performed.

ART TODAY introduces us to the art of form and color as we come into contact with it in everyday life. The book is profusely illustrated with photographs appropriate to the text. The problems in each living area are discussed specifically, whether they be the furnishing of a one room apartment on a budget, the small park in the center of a large city, or a rural chapel in the country section of a European nation. In discussing organization as it is applied to design,

the reader is shown how this principle is applied to the painting of Goya, a building by Frank Lloyd Wright, or to the design of the lowly salt-shaker. In chapters on photography, architecture, silver working, typography, and numerous other arts and crafts, the reader is shown how the fundamental principles apply in all cases, and what specific limitations each has. This volume should have an important place on every modern-thinking architect's bookshelf. J. R.



## Here's what you can do to help

"Little things" they may seem to you, but little adjustments in a heating system based on your practical knowledge and experience as an Architect will help you contribute to America's war effort by showing your clients how to use less fuel and make their heating systems "do" for the duration.

New equipment is not available for other than essential industries, but much can be accomplished in fuel saving—and with relatively little demand on scarce materials.

And we can help you, because we still have available parts for essential—government approved—repairs. We can also help with suggestions out of 39 years devoted solely to making steam an efficient and economical servant. Our "Wartime Heating Economies" Bulletin will be appreciated by those whom you serve. It will gladly be sent on request, just say how many copies you wish in a letter to C. A. Dunham Company, 450 East Ohio Street, Chicago.

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"Dunham Heating Service" is available through the telephone in more than 60 cities, or by correspondence to C. A. Dunham Co., 450 E. Ohio St., Chicago.



THE COMMONS ROOM AT THE UNIVERSITY OF PITTSBURGH. (Portfolio of ten signed prints by Andrey Avinoff. Each print is approximately 15" x 19", \$15. University of Pittsburgh Press, Pittsburgh, Pa. Five hundred sets printed.)

The Commons Room in the Cathedral of Learning at the University of Pittsburgh is the center of life at the university. Here under its vaulted stone ceiling thousands of students meet daily to talk, to drink tea, and to listen to the organ music. The Room suggests that harmony that exists between education and living.

Andrey Avinoff, Director of the Carnegie Museum, has caught, in these pencil drawings, the mood and purpose of the room. A.E.G.

YOUR OWN HOUSE, by Ethel Fay Robinson and Thomas P. Robinson. (179 pages, 6 1/4" x 9 1/4", 200 pencil illustrations. The Viking Press, New York)

This book was written for anyone who, according to the publishers, "wants to spend time thinking about a home of his own before he builds." To guide our prospective home owner to ultimate success in properly choosing the kind of home with which he will be most satisfied, the authors discuss site, plan, roofs, materials, and many other aspects of the house, chapter by chapter. There are excellent illustrations by Mr. Robinson. For the layman who likes Colonial architecture and antique shops, this book will serve as a good guide. To the architect it will be a rehash of principles known to him, but it will serve as a good browser book for the lay client mentioned above. Both text and illustrations are so presented that the philosophy of the reader is molded into lines more consistent with that of the architect in his attack on problems of house design. J. R.



## We'll Land... and "Have the Situation in Hand"

Are you "up to your ears" in work, harassed by the need for speed on every war-connected building today? Let the builders' hardware man save you precious hours in selecting needed hardware. He can take this important but detailed job off your mind entirely.

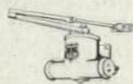
## Door Control Experts to Help You

When it comes to door control, the LCN man backs up the builders' hardware man. This team can get the situation in hand without delay. There's the streamlined LCN organization behind them... with expert knowledge of door closer requirements, and a door closer to meet every need. And you can rest assured that any LCN closer can be relied upon to operate without attention for years to come.



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To be Sure—Specify  
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# When the job must go up FAST.....



"Quilt" insulated house, Wilton, Conn.  
Architect: Evans Moore & Woodbridge

## You'll appreciate the easy installation of Cabot's "Quilt"

Easy installation is just one of the qualities which makes Cabot's "Quilt" the ideal insulation for war housing. It is low in cost. There is no shortage. Its convenient blanket form permits air circulation, thus preventing harmful moisture condensation in the walls.

"Quilt" is rot-proof, vermin-proof, stays permanently in place, and does not settle.

### Cabot's Shingle Stains

Easy to apply — do not peel or blister even when applied before the house has dried out.

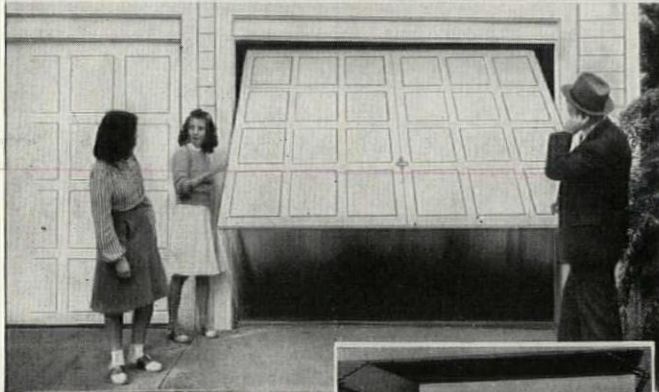
**FREE BOOKLET.** *Build Warm Houses.* Write today for your copy of this informative, file-size booklet, which gives much data on insulation. Address Samuel Cabot, Inc., 1293 Oliver Building, Boston, Mass.

# Cabot's "Quilt"

Heat Insulating

Sound Deadening

## Something New An **AUTOMATIC** Garage Door



Turn the handle and *up it goes* - no tugging, no lifting.

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**Econ-O-matic**  
Economical - Automatic

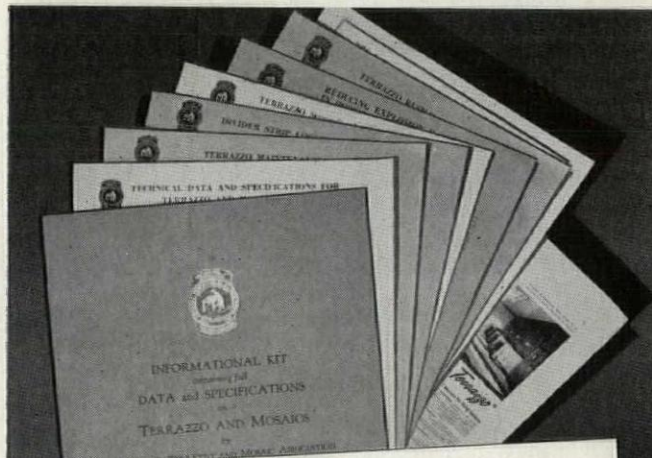
A Stanley "Swing-Up" Hardware Set with new attractions. For old and new doors from 8' x 6'6" to 8' x 7' weighing not over 150 lbs. The low price will please you. Ask your dealer. The Stanley Works, New Britain, Connecticut.

**STANLEY**

TRADE MARK

**HARDWARE FOR CAREFREE DOORS**

*If you plan to keep bicycles, garden tools, hose, etc. in your garage be sure to make it large enough - about 12' x 24' (single garage).*



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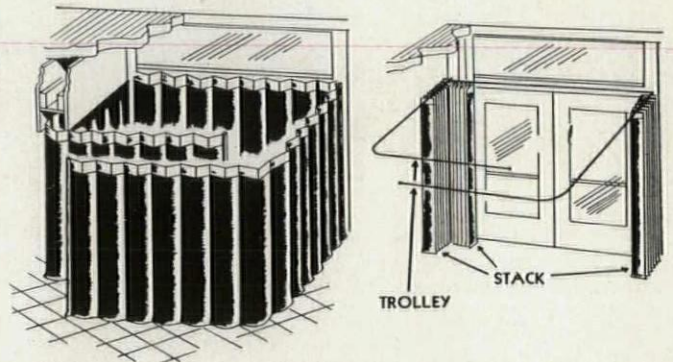
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## NEW PRODUCTS

### BLACKOUT PARTITIONS

A practical solution to the blackout entrance problem has been developed by New Castle Products, New Castle, Indiana. Its new Folding Fabric Blackout



Partition works on an accordion-like principle, deriving its operation from a specially-designed, hinge lock, self-spacing hinge plate at the top. It folds on itself and has a roller assembly traveling easily on an overhead track. A vertical pipe connected to the lead trolley and extending to approximately six inches from the floor, concealed in a loosely-fitted front hem, gives rigidity to the front of the partition and serves as a standard. The flameproof fabric is attached with grommets at the top and to one side of the hinged plates. The height of the fabric is two inches greater than the room height and drags the floor to assure adequate coverage.

Valances are provided to insure a perfect light lock. When not in use, the partition can be folded to the wall. Units are furnished for entrances in factories, warehouses, stores, hotels, office buildings, restaurants, etc.

### BLANKET INSULATION

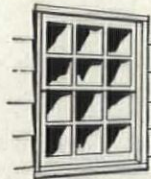
A new insulating blanket, especially developed for war time construction, has been announced by Wood Conversion Co., St. Paul, Minn., makers of Balsam-Wool insulation. Called Defense Blanket, the new product is a completely sealed insulation covered by a waterproof paper on both sides. It is flanged on the edges for quick, permanent application. Defense Blanket is available in rolls, or may be cut in varying lengths to fit job requirements. It is light in weight, low in cost, and can be easily handled.

### FOUNDATION GRATE

As its contribution to war time housing requirements, The Majestic Co., Huntington, Ind., has announced a new, screened, bar-type foundation grate designed to meet both the cost and dimensional needs of war time house construction. The new unit consists of two adjacent rows of alternately-spaced vertical bars. The two rows overlap each other slightly, providing what is substantially a single, closely-spaced staggered row. A heavy galvanized screen is threaded between these two rows of bars to prevent the admission of insects, dirt, and other foreign objects. The grate is formed of cast semi-steel and is made in three sizes: 8 x 8, 8 x 12, and 8 x 16 inches.

*(Continued on page 66)*

-protection in the public interest



to give greater utility  
to **wood  
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— to enhance and improve the lasting qualities of the wood of which they are made, research scientists have developed minimum standards of *toxic preservation*—a treatment to increase resistance against deterioration under severe service conditions imposed by modern construction.

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BOSTON  
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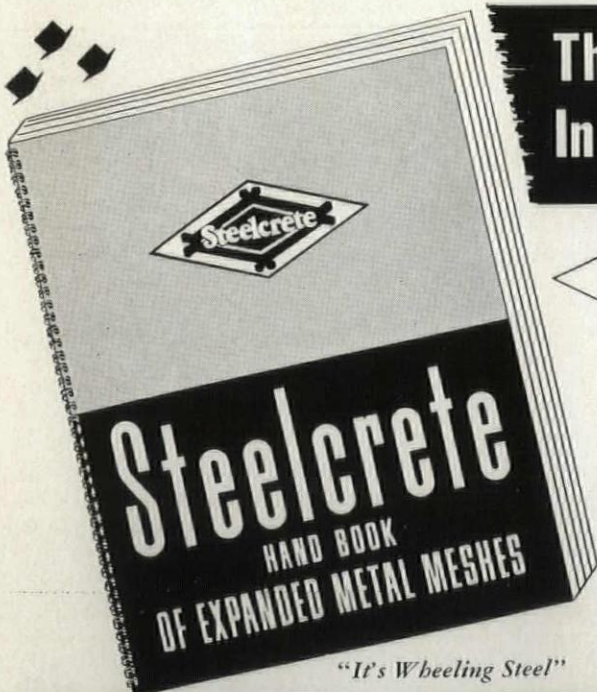
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**SAMSON  
SPOT**



**SASH CORD**

**This Free Handbook Should Be In Every Industrial Planner's Office**



"It's Wheeling Steel"



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"Economy" is another word for *Steelcrete*—the Expanded Metal Mesh that saves so much time and steel in countless multiplicities of present-day construction. *Steelcrete Safe-T-Mesh* is cut and drawn from a solid steel plate and then processed to remove the fins and sharp edges caused by shearing. It is low in cost and is easy to cut and frame to pattern with no *spreading* or *raveling* of *diamonds*. *Steelcrete Mesh* provides the maximum in strength, visibility, ventilation and sanitation.

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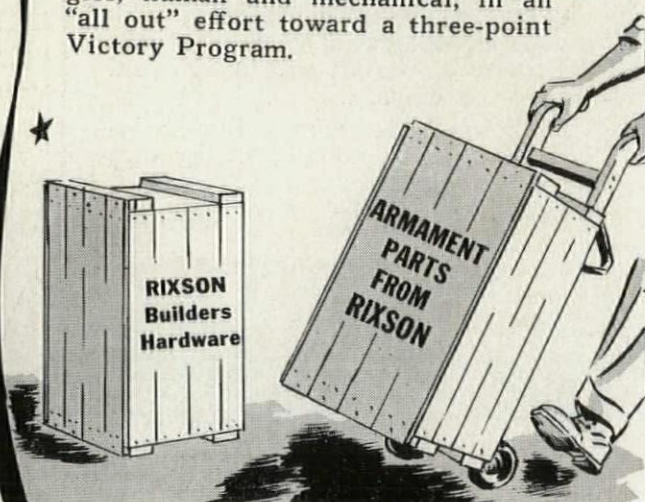
The *Steelcrete Handbook of Expanded Metal Meshes* illustrates and describes the many types available. Also included are full specifications, with convenient drafting room standards. We invite your request for a copy; or your inquiry for special requirements. *Steelcrete* is available through 14 conveniently located warehouses.

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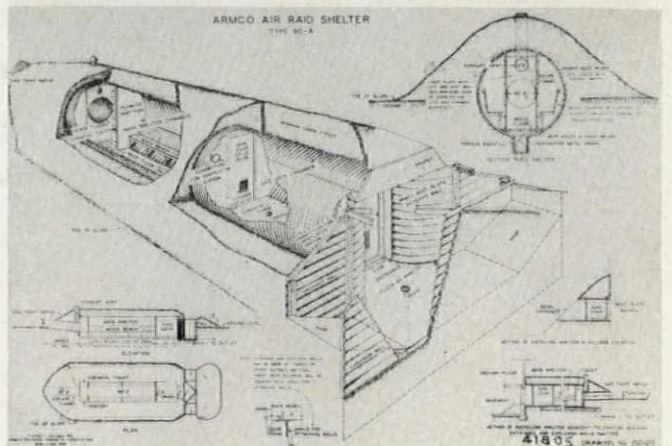
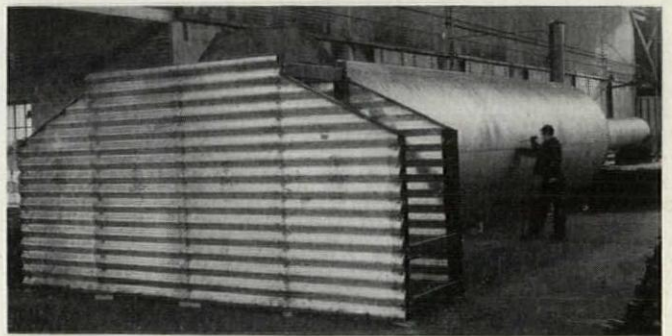
**BLACKOUT SHADE**

A product which was originally developed as a photographic darkroom accessory now finds itself in wartime demand as a blackout shade. The Light Tight Shade, made by Higgin Products, Inc., Newport, Kentucky, is now being manufactured for use wherever blackout protection is needed.

Each shade is custom built for a specified opening. The shade is made of a special pebble-grain cloth built up to two layers of fabric, thoroughly united, and coated on both sides. The cloth is said to be crackproof and pliable under all climatic conditions. Light, strong metal braces, spaced at proper intervals, prevent wind pressure from forcing the cloth out of the metal side guides. The bottom bar of the shade has a metal tongue which slips into and interlocks with the sill member. A bronze spring catch holds the shade securely when it is in the down position.

**AIR RAID SHELTER**

Engineers of the Armco Drainage Products Association, Middletown, Ohio, have designed this air raid



shelter that offers protection from the effects of gas and demolition bombs. This type of structure, as revealed by War Department tests, is highly resistant to splinters, blasts, shrapnel, debris from falling buildings, and earth shock.

The shelter, intended for 50 persons, is 50 feet long, 7½ feet high, but may be extended or shortened. The design is flexible, and the standard metal sections come in multiple lengths of 2½ feet, each foot of structural length providing seating space for one person. Provision for such equipment as flooring, walks, toilet facilities, ventilating, air conditioning, lighting equipment, and other interior furnishings were considered in the design, but not provided.

A gas lock may be made an integral part of the shelter. The main section is made gas- and water-tight

*(Continued on page 68)*

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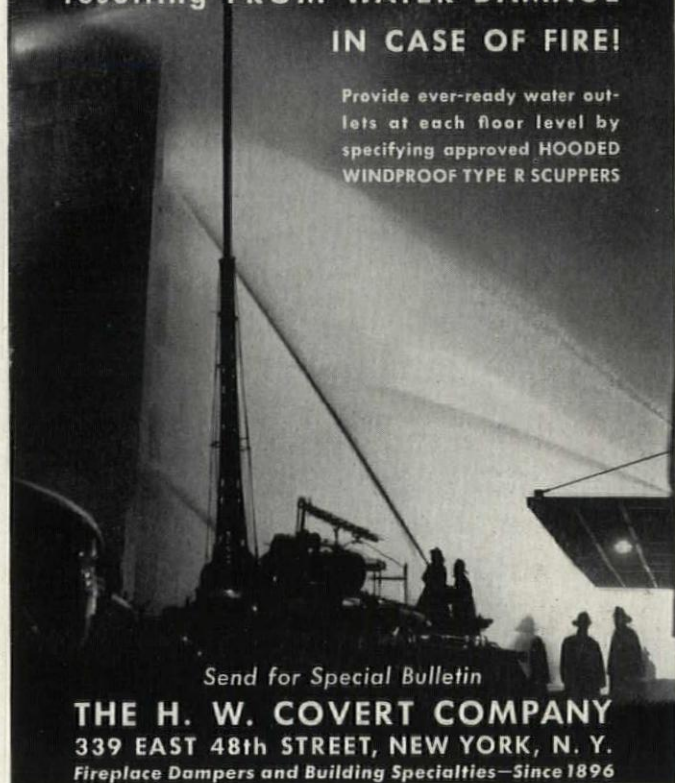
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For ALL double-hung window

construction...

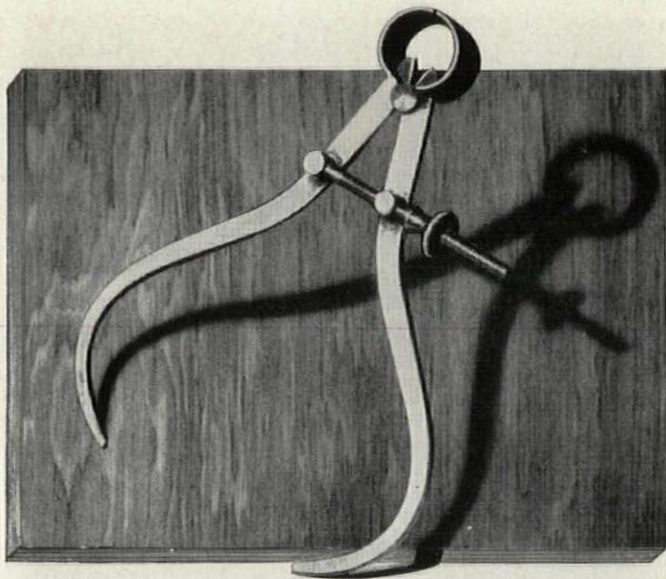
*Specify  
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Balances*



• "Double-hung wood windows" is the 1942 specification. For this construction, Pullman Balances offer *quickest, lowest cost* assembly. Complete range of sizes, in top and side models, accommodate windows 1 3/8", 1 3/4", 2 1/4", or any other thickness, in weights up to 210 pounds. Pullman Balances, made since 1886, are the up-to-the-minute choice for all construction—industrial, residential or military.

WRITE for descriptive literature, specifications and window detail drawings. Pullman Manufacturing Corp., Dept. E-5, 1170 University Ave., Rochester, N. Y.

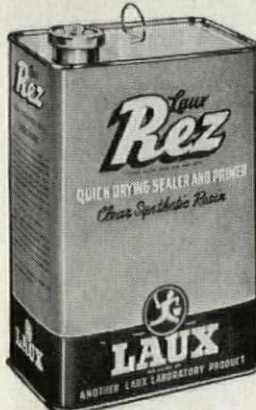
*Specify* **PULLMAN**  
*Sash Balances*



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# Laux REZ

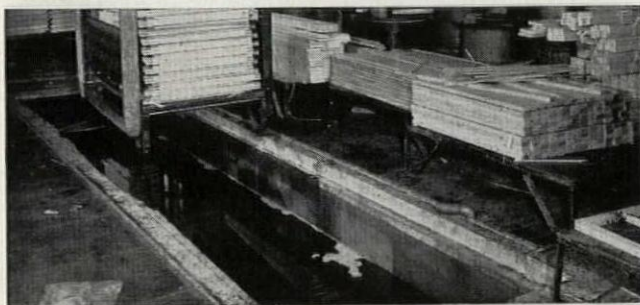
## CONTROLS DIMENSION



**S**WELLING and BINDING caused by moisture penetration in doors, sash, cabinets, etc., can be controlled by sealing and priming first with Laux REZ, clear synthetic resin sealer.

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**TANKS FOR DEFENSE**—Waste helps the Axis. Dry rot, mould, decay in siding, millwork, flooring, sash, doors are being stopped by tanks filled with Laucks Industrial Wood Preservatives . . . tanks built by contractors, dealers, millwork plants. Write today for descriptive brochure on these industrial water-repellents and toxics.

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Chicago, 6 N. Michigan Ave., Div. C  
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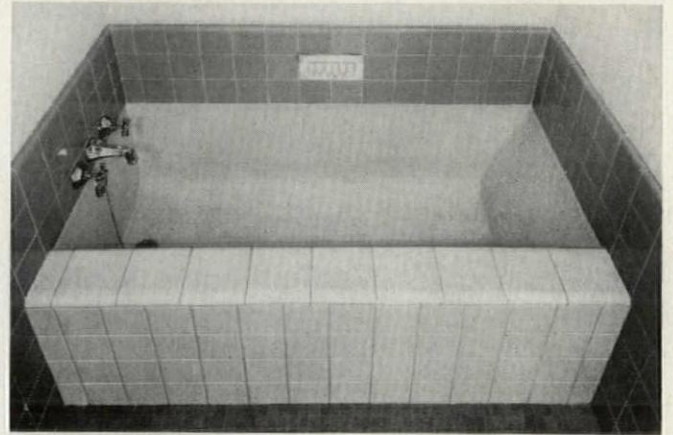
(Continued from page 66)

by sealing the joints with a special mastic. An escape tunnel is protected by a gas-tight hatch, while a gas-tight steel door guards the entrance.

The engineers suggest that at least three feet of earth be used to cover the shelter since earth shock tends to lift the shelter rather than crush it when it is installed with its mid-diameter slightly above the ground level. Four unskilled workmen can erect the shelter with simple tools, without any special equipment.

### CERAMIC TILE BATHTUB

The Tile Manufacturers' Association, Inc., 50 E. 42nd St., New York, has developed this all-ceramic



tile bathtub to save metal needed for the war program. The all-tile tub is built at the job by a tile contractor. The interior of the tub is composed of small pieces of unglazed ceramic mosaic tile which is available in large quantities. A tub so built is said to be slip-proof. Many color combinations are possible with the tile, points out the Institute.

### AWNING PAINT

A new kind of paint, made especially for canvas awnings, has been developed by the Aridye Corp., Fair Lawn, N. J. The paint is said not to stiffen the fabric, or crack, and is sun-resistant, water-repellent. Practical feature, points out the manufacturer, is that this new product, named Setfast Awning Paint, preserves the awnings from rot and mildew.

The paint can be either brushed or sprayed on, and dries quickly. With Setfast, the awnings need not be taken down to be painted. Seven colors are offered, plus black and white—green, blue, red, burgundy, yellow, tan, brown. Available in quart and gallon sizes. (One quart will cover an area of 60 square feet.)

### SURFACING MATERIAL

A product which combines the functions of insulation, sheathing, and siding, has been introduced by The Celotex Corp., 919 N. Michigan Ave., Chicago, Ill. Named Granule Surfaced Siding, the product has a rigid cane fibre insulating board core which provides bracing strength exceeding the horizontal wood sheathing, points out the firm, while the weather-sealed mineral granule surface provides an attractive exterior facing.

The new siding is 7/8-inch thick, two feet wide, and eight feet long. Its cane fibre core is protected against



termites and dry rot by the Ferox process. The core is coated on all sides and edges with an asphalt compound. On the outside surface is an additional coating of high-grade asphalt into which mineral granules have been firmly imbedded. The long edges of the boards have tongue and groove joints. Granule Surfaced siding requires no painting, and is applied directly over wood studs spaced 16 or 24 inches on centers.

Four surface colors are available: brown, buff, red green. The manufacturer points out that the new product is an effective substitute for some types of materials now on the critical list or not readily available. In addition to its use on wartime construction, the siding may be used for prefabricated buildings, tourist cottages, summer homes, garages, roadside buildings, etc.

#### SHATTER-RESISTANT COATING FOR GLASS

A transparent material for application on glass to prevent its shattering is being manufactured by Wilber & Williams Co., Park Square Building, Boston, Mass. The material comes in liquid form and can be applied by spraying or brushing. The coating passes sunlight with little absorption. It dries quickly, and forms a strong film which has a tensile strength of 3,000-5,000 pounds per square inch. Elongation is over 50%, permitting considerable movement of the glass without rupture of the film.

Actual melting point is over 200°C. While not intended for long service on the exterior, where exposed to weather, this shatter-resistant coating should be useful in any period of active bombing; and, on the interior, should give protection for an indefinite period. It can be washed whenever necessary.

#### BATHROOM CABINETS

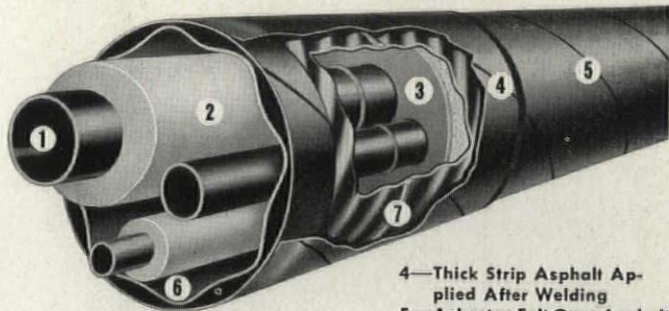
The F. H. Lawson Co., Cincinnati, Ohio, has introduced a line of "Quiet" fluorescent-lighted bathroom cabinets. The lighting fixtures are an integral part of the cabinet. Due to a self-starting switch and an improved resistor, all hum and flicker have been eliminated. The switch controlling both lights is located in the base of the left bracket, and a convenience outlet is located in the base of the right bracket. Further details may be had from the firm which will continue to make these units as long as materials are available.

#### PROTECTIVE COATING FOR WINDOWS

To prevent injury caused by flying pieces of glass broken by vibration, a transparent protective coating for windows has been developed by Maas & Waldstein, 438 Riverside Ave., Newark, N. J. Window glass or plate glass treated with this new coating, called Glasshield, is, in effect, turned into safety glass. A coated pane may break as a result of vibration but it does not shatter, according to the manufacturer. It is also claimed that the coating does not interfere with vision or light transmission through the glass.

Two coats of Glasshield on the inside surface of a window pane are effective, the manufacturer states, but for maximum protection the outside surface should be similarly treated. The coating is applied with a brush. It can be removed with a razor blade when no longer needed.

# PRE-FABRICATED



1—Steam Pipe  
2—Sectional Pipe Covering  
3—Pipe Support

4—Thick Strip Asphalt Applied After Welding  
5—Asbestos Felt Over Asphalt Coated Hel-Cor  
6—Air Space  
7—Butt Welded Construction

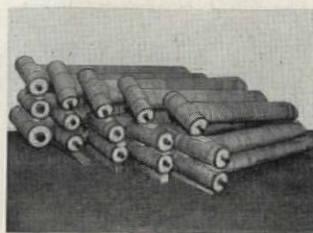
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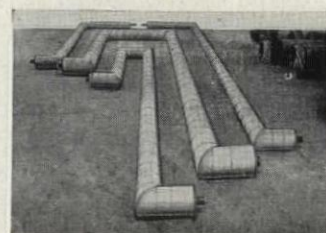
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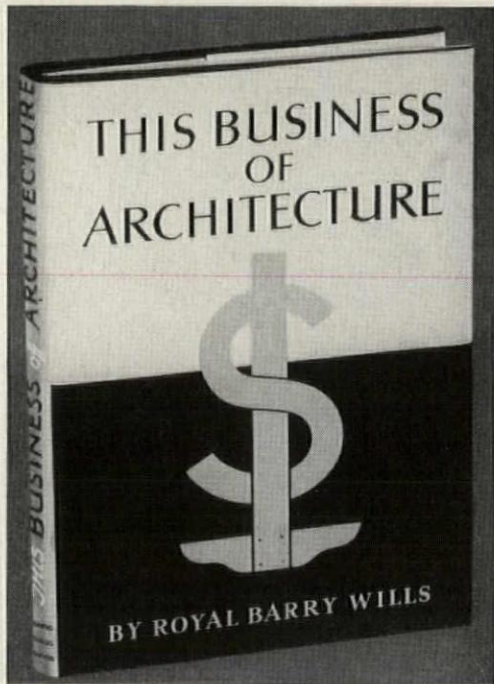


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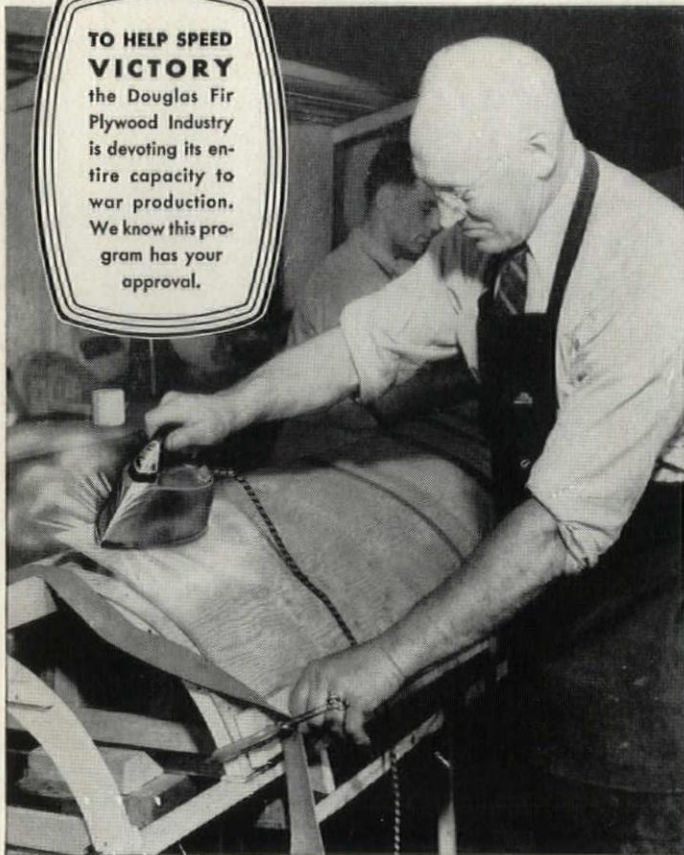
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Adam, Frank, Electric Company	15
Aluminum Company of America	41
American Institute of Architects	70
American Plywood Corporation	40
American Seating Company	5
Anaconda Wire & Cable Company	13
Armstrong Cork Company	43, 45, 47
Barber Asphalt Corporation	3rd Cover
Barber-Colman Company	60
Barrett Division, The, Allied Chemical & Dye Corporation	49
Cabot, Samuel, Inc.	63
Carey, Philip, Company	6
Carnegie-Illinois Steel Corporation	22
Consolidated Expanded Metal Companies	65
Covert, H. W., Company	67
Detroit Steel Products Company	53
Dixon, Joseph, Crucible Company, Pencil Sales Department	31
Douglas Fir Plywood Association	71
Dunham, C. A., Company	62
Eagle Pencil Company	61
Eberhard Faber Pencil Company	46
Electric Storage Battery Company	24
Faber, A. W., Inc.	19
General Electric Company	3, 71
Higgins Ink Company, Inc.	46
Hillyard Sales Company	12
Hygrade Sylvania Corporation	2nd Cover
Ilg Electric Ventilating Company	58

Johns-Manville Corporation	2, 17, 51
Kewanee Boiler Corporation	Back Cover
Kinnear Manufacturing Company, The	42
Koh-I-Noor Pencil Company	73
Laucks, I. F., Inc.	68
LCN Door Closers	63
Libbey-Owens-Ford Glass Company	56
Medusa Portland Cement Company	54
Milcor Steel Company	74
Montgomery Elevator Company	10
National Door Manufacturers' Association	65
National Terrazzo & Mosaic Association	64
National Tube Company	57
Nelson, Herman, Corporation, The	52
Owens-Illinois Glass Company	59
Pecora Paint Company, Inc.	50
Petroleum Heat & Power Company	4
Pullman Manufacturing Corporation	67
Raymond Concrete Pile Company	9
Reinhold Publishing Corporation	67, 70, 72
Republic Steel Corporation	14
Richmond Fireproof Door Company	44
Ric-Wil Company	69
Rixson, Oscar C., Co.	66
Rolscreen Company	23
Samson Cordage Works	65
Scott Paper Company	39
Sonneborn, L., Sons, Inc.	16
Standard Pressed Steel Company	73
Stanley Works	64
Streamline Pipe and Fittings, Division, Mueller Brass Company	18
Tile-Tex Company, The	21
Timber Engineering Company	7
Truscon Steel Company	26
Universal Atlas Cement Company	55
United States Gypsum Company	33, 34, 35, 36, 37, 38
U. S. Steel Corporation	49, 55, 57
Weis, Henry, Manufacturing Company, Inc.	48
Weldon Roberts Rubber Company	67
Weyerhaeuser Sales Company	20
Wilson Engineering Corporation	72
Wood Conversion Company	25
Youngstown Sheet & Tube Company	11
Zouri Store Fronts	1

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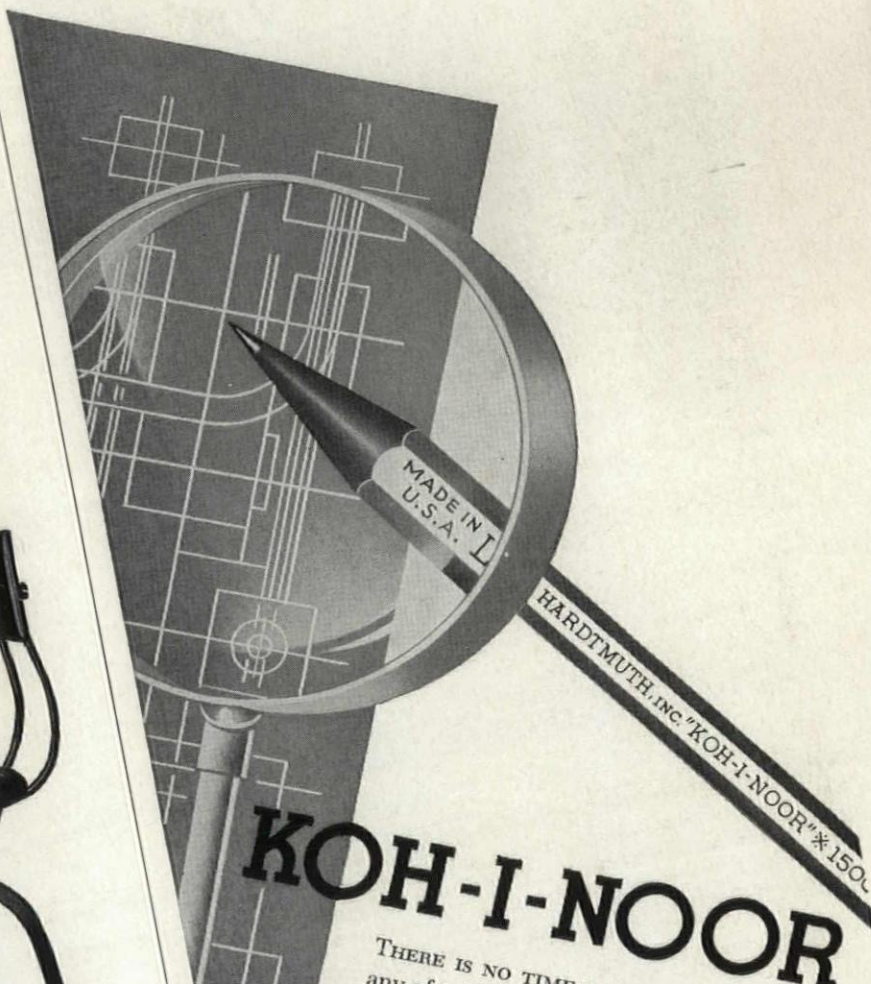
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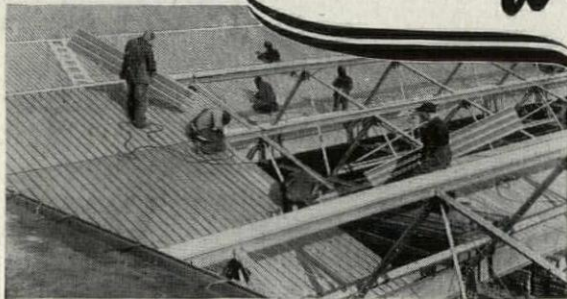
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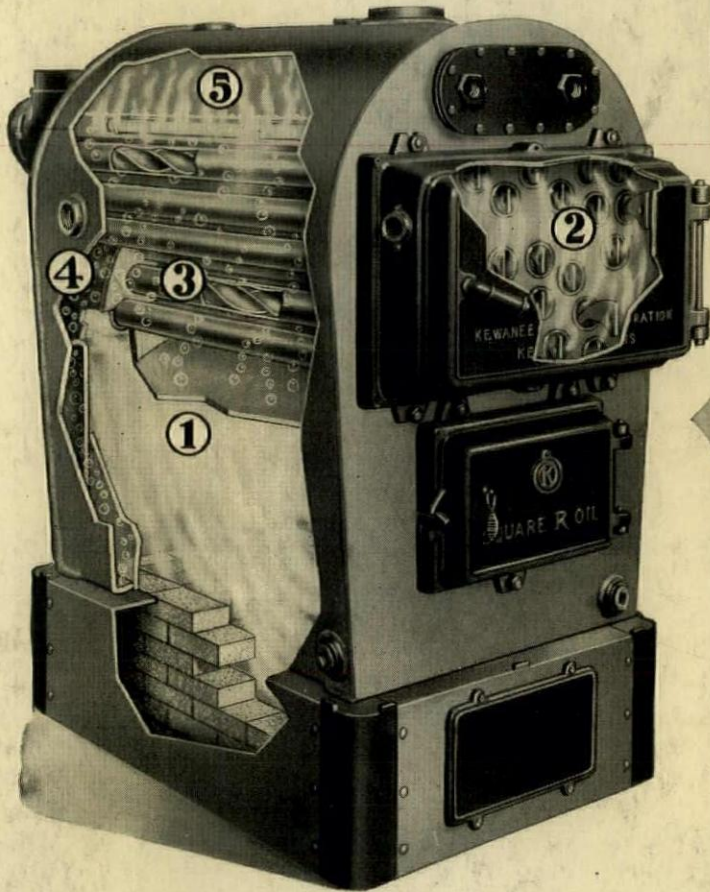
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