

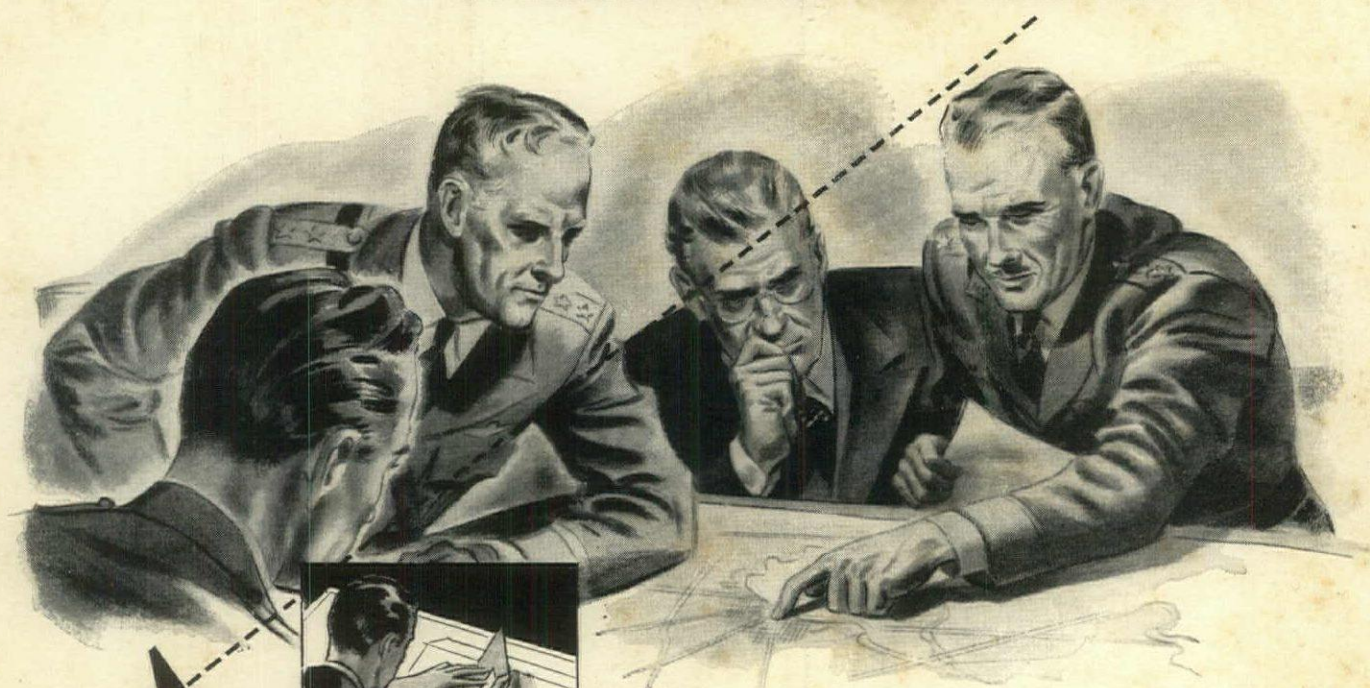
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THE ARCHITECTURAL FORUM



DECEMBER 1942

STRATEGISTS ARE ABLE TO THINK MORE CLEARLY...



Because He



Planned QUIET into this Room!

**ARCHITECTS RESPONSIBLE FOR CELOTEX
SOUND CONDITIONING IN COUNTLESS
BUILDINGS WHERE WAR DECISIONS ARE MADE**

IN metropolitan office buildings—in offices of war industry plants—in headquarters buildings at army and navy centers—war decisions are being made daily. And in those meetings, many a wise head is functioning more efficiently because a far-seeing architect planned QUIET into those offices.

Noise scrambles thoughts, puts nerves on edge, sabotages plans by hindering coherent planning. That's why so many architects lay emphasis on the prime importance of Celotex Sound Conditioning.

Acousti-Celotex is available. There is a firm near you with wide experience in sound conditioning not only offices, but schools, churches, theatres, restaurants—all types of buildings involving an acoustical problem. An opportunity to place this experience at your disposal will be heartily welcomed.

And remember: The responsible firm that installs Celotex Sound Conditioning gives the owner full assurance of (1) *Proved engineering practice*, (2) *Uniformly dependable sound conditioning materials*, and (3) *Guaranteed results*.

CELOTEX
SOUND CONDITIONING

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THE CELOTEX CORPORATION • CHICAGO



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Smith, Hinchman & Grylls carry out the ammunition-plant program in record time. One thousand buildings on 34 square miles of site, at a cost of more than \$400 million.

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Joseph C. Hazen, Jr.
George B. Hotchkiss, Jr.
S. Chapin Lawson
A. Banks Wanamaker

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FORUM OF EVENTS

INDUSTRIAL DESIGN AT CALTECH

It is about a year since California Institute of Technology took over the section of Industrial Design, until then a part of the Graduate School of Design. With the move came old quarters and a new director. On the surface the change might have seemed an unimportant reorganization: actually it marked a significant change in educational approach. Said the new director: "With the ever-increasing mechanization of production and construction, the need for technologically trained designers makes the technological institute a more adequately equipped place for industrial design training than an art school can ever be." Czech-born Chairman Antonin Heythum came to the U. S. only a few years back, as designer of the Czechoslovakian exhibits at the New York and San Francisco Fairs. First assignment his students got was the redesigning of their newly-acquired technological background into a workshop, drafting room and library. The standard drafting table they produced is shown directly below. A universal requirement for Caltech's students of industrial design is that they be able to make what they design as well as draw it. Shown here and on page 4 are a few of the results of their year's activity.



ANTONIN HEYTHUM

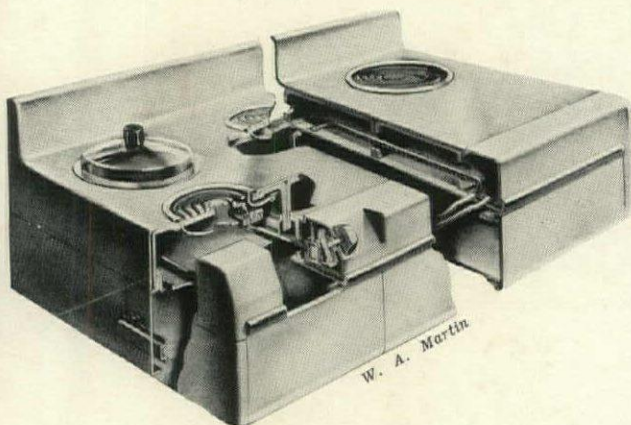
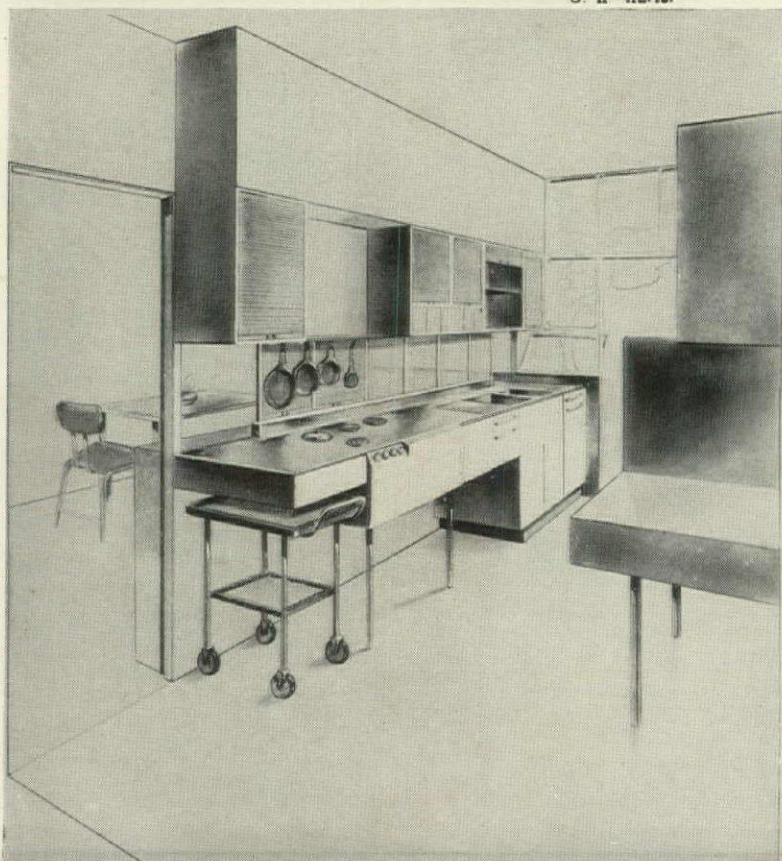
Manray



O. K. Harter



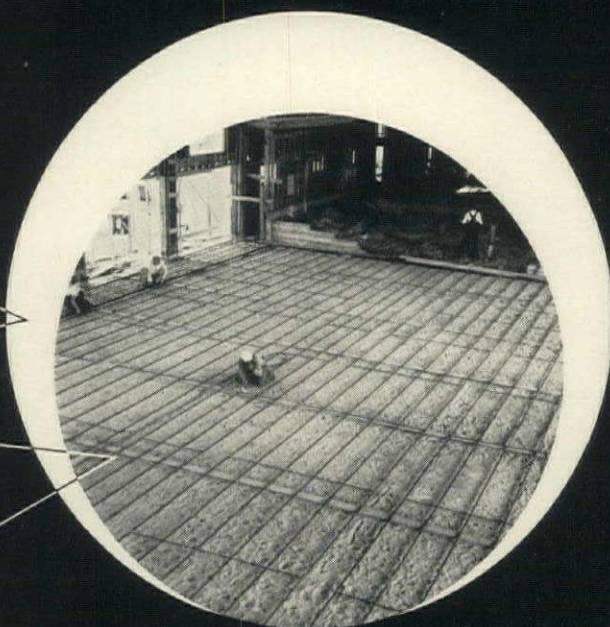
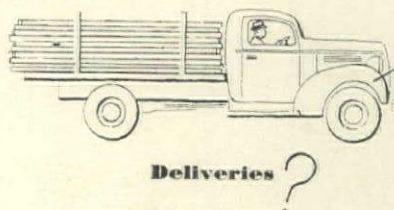
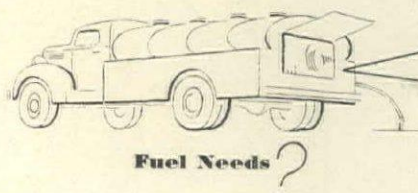
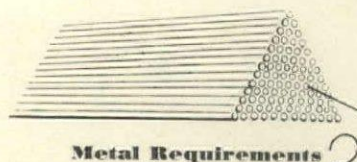
O. K. Harter



W. A. Martin

The design of a kitchen was the year's major problem. Students began with group research, analyzed the operations of cooking, serving, dishwashing, etc., and then divided the design problems into individual assignments. The two illustrations show drawings of the complete kitchen and the stove. All equipment was given equally detailed attention.

Have you looked for the answers



in
RADIANT HEATING?

Every building going up today has justified its existence by importance to the war effort . . . but this does not necessarily define its type. Housing projects, hotels, hospitals, chapels, and other apparently non-industrial structures are being erected or enlarged, indicating that Washington—in these particular cases—regards them as "essential."

WHAT ABOUT MATERIALS? In all construction today, conservation of materials is of first importance. Not how much the architect and engineer does, but how much he does *with how little* is the real measure of achievement.

WHAT ABOUT HEATING? Since heating equipment is generally one of the largest single items in metal requirements, many architects are looking to Radiant Heating as the best means of making worth-while material savings. A check recently made on a projected structure revealed that total metal weight, exclusive of boiler, for a hot water system was 1425 lbs., for a steam system 977 lbs., and for a Radiant Heating system 727 lbs.

WHAT ABOUT FUEL REQUIREMENTS? Heating efficiency has taken on magnified importance, in view of the fuel situation. One Connecticut user reported a January fuel bill of \$13.13, while two friends with comparable homes equipped with conventional systems spent \$20.80 and \$22.00 respectively. An industrial user stated his fuel bills were less than half the estimate of fuel costs for ordinary heating.

WHAT ABOUT DELIVERY? Where you, as a specifier, decide that Radiant Heating is the best system, and wrought iron the best material, to use . . . and where the Government, by its rating, indicates its approval, the chances are excellent that we can provide you with wrought iron. In these circumstances, we urge that you get in touch with (1) a Byers Field Service Engineer, (2) the nearest Byers District Office, or (3) the Byers General Office in Pittsburgh. By so doing, you will have a definite statement, rather than rumor or hearsay, to go on.

HAVE YOU A BULLETIN? If you do not have our technical bulletin, "Byers Wrought Iron for Radiant Heating Installations," please ask for it. You will find it complete and authoritative. In addition, our Engineering Service Department will be glad to work with you on any individual problem.

A. M. Byers Co. Established 1864. Offices in Pittsburgh, Boston, New York, Philadelphia, Washington, Chicago, St. Louis, Houston, Seattle, San Francisco.

BYERS WROUGHT IRON

FOR EXTRA SERVICE

IN CORROSIVE APPLICATIONS

CORROSION COSTS YOU MORE THAN WROUGHT IRON

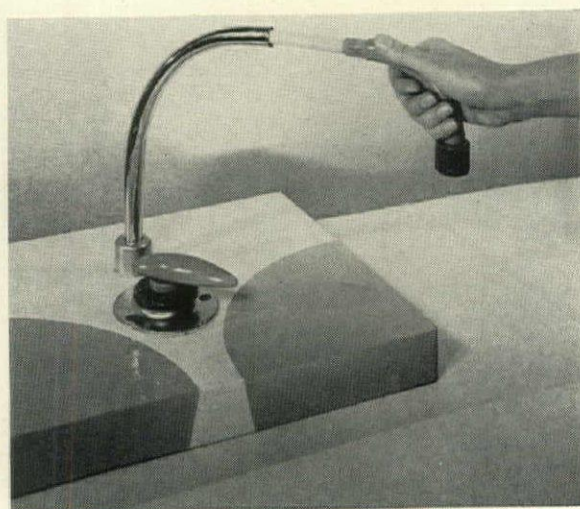
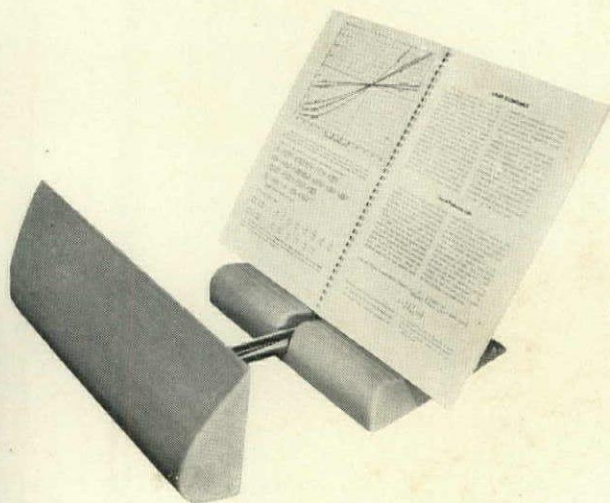
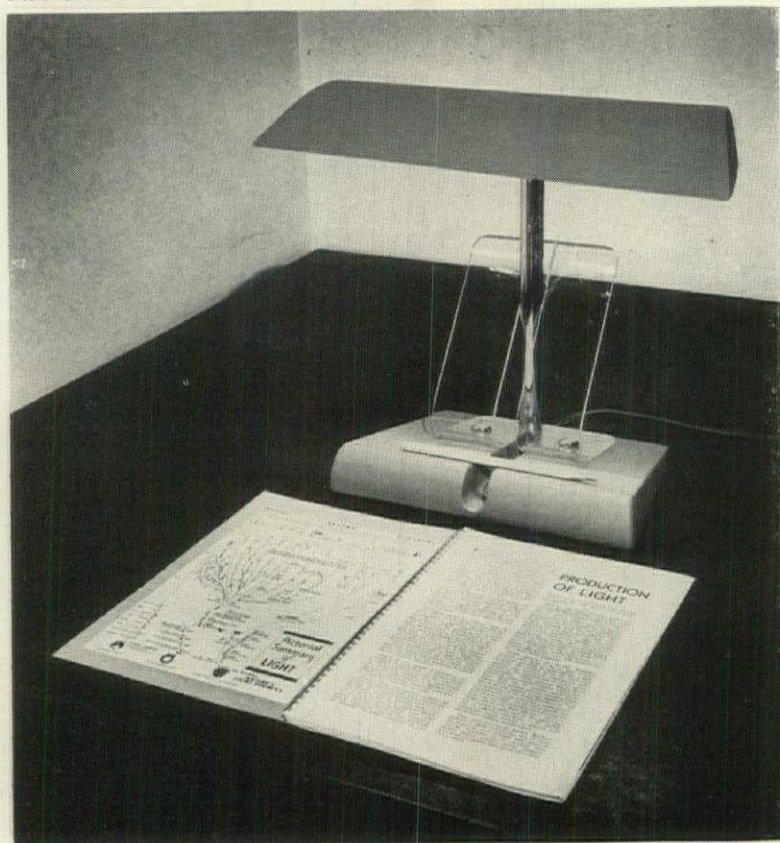
THE ARCHITECTURAL
FORUM

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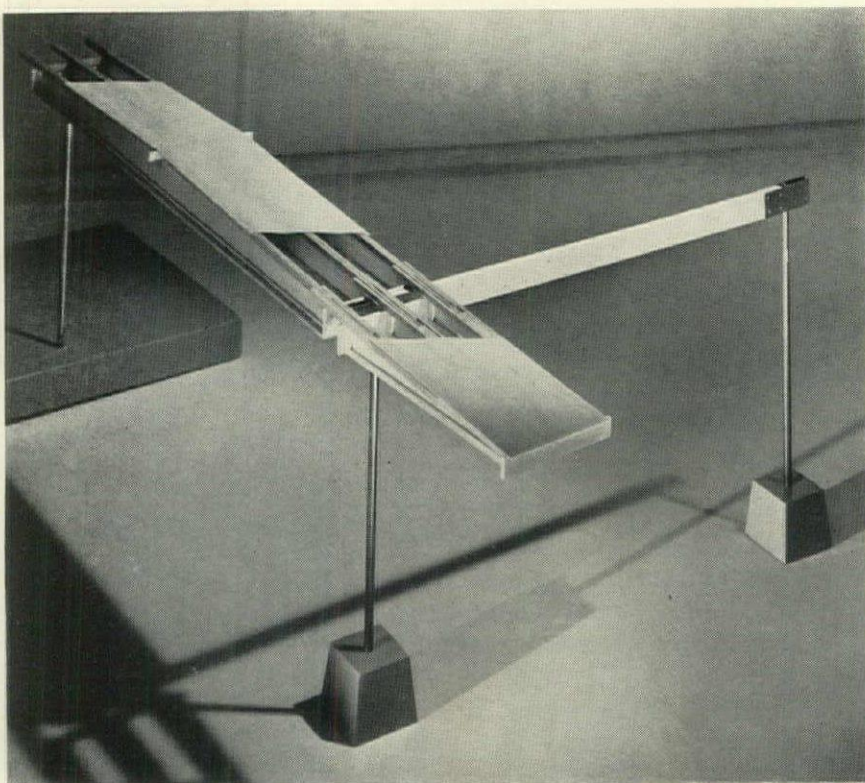
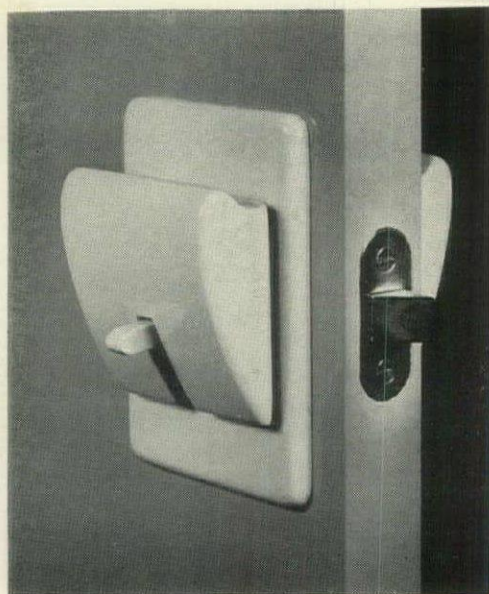
VOLUME 77
Number 6

FORUM OF EVENTS

INDUSTRIAL DESIGN AT CALTECH



The two photographs above show an ingenious lamp, which can be used in the conventional manner, or as an illuminated reading stand. The extension faucet was developed for the kitchen shown on the preceding page; it has a single mixing valve. Illustrations below show a door handle which works with a downward motion, and a structural model of a prefabricated house.



Photos. W. A. Martin

THE GRAIN **SPARKLES** IN "REALWOOD"



- The pictures show the Greyhound Bus Terminal at Cincinnati, Ohio designed by Wischmeyer, Arrasmith and Elswick. Formica was used for entrance doors, wainscot, column covering, counter paneling, counter tops, soda fountain and lunch counter panels and tops, and table tops in the cafeteria.



SPARKLING wood grains, livelier, clearer, more arresting than have ever been available before are provided by Formica "Realwood", the plastic sheet in which genuine veneers of fine wood are incorporated.

The plastic binder is perfectly clear and limpid — and remains that way without becoming cloudy, turning toward the yellow, or checking with age.

Every valuable characteristic of a plastic finish is preserved — the material is non-porous and spotproof; it is chemically inert and will not react with ordinary liquids; it is hard and durable and will stand much abuse.

That is why in rail, air and bus terminals it is now so widely used for doors, counter paneling, counter tops, wainscot. It is beautiful; it remains beautiful; it stands up indefinitely to severe service.

The Formica Insulation Company
4621 Spring Grove Avenue, Cincinnati, Ohio

F O R B U I L D I N G P U R P O S E S



A Good Looking Low Cost Floor...

with the enduring qualities of asbestos and asphalt!

Here are the quick facts about Johns-Manville Asphalt Tile Floors

They are attractive in appearance. A wide variety of colors, plain or marbled, gives you unlimited opportunities to achieve almost any design and pattern you want. Furthermore, they are comfortable to walk on—quiet and resilient.

Long life is assured, because they are made of Asbestos and Asphalt. J-M floors will withstand severe punishment. Easy to keep clean—simple to maintain. Widely used in office buildings, hospitals, administration buildings at army and navy bases, offices of war production plants, stores, etc.

Ideal for sub-grade locations because highly resistant to dampness.

They are quickly applied. Sold and applied by approved J-M flooring contractors (See Classified Telephone Directory). Go down quickly over concrete or other suitable surface. Pre-waxed and ready for use at once.

They are low in cost. J-M Asphalt Tile Floors cost less than any other type of quality resilient floor covering on the market. And in addition, no "critical" materials are involved.

For Full-Color Brochure of Facts and Design Suggestions, write Johns-Manville, 22 East 40th Street, New York.

•
This modern lounge floor in the New England Mutual Life Ins. Co. Building was designed from the three marbled colors shown above, top to bottom: No. 127, No. 125 and No. 102.

Johns-Manville ASPHALT TILE FLOORING



25 YEARS OF PROVIDING THE EAGLE WITH CLAWS!

..... AND TWENTY-FIVE YEARS OF ACCUMULATED
"KNOW HOW" IN THE MANUFACTURE OF MUNITIONS FOR UNCLE SAM
AND OF PROVIDING OUR GOOD CUSTOMERS WITH QUALITY
BRASS AND COPPER PRODUCTS.

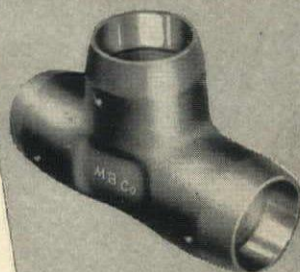
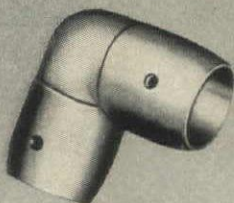
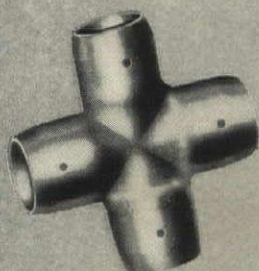
TWENTY-FIVE YEARS AGO THIS FACTORY WAS WORKING ENTIRELY FOR
UNCLE SAM—in fact, our country's need in the first World War was the
very reason for our birth and existence. TODAY WE ARE AGAIN WORKING
100% TO SUPPLY WAR MATERIALS FOR OUR ARMED FORCES—AND
DURING ALL THE YEARS BETWEEN THE FIRST AND SECOND WORLD WAR
IN WHICH WE WERE BUILDING A LARGE DOMESTIC BUSINESS, WE ALSO
CONTINUED TO SUPPLY ORDNANCE MATERIAL FOR UNCLE SAM'S NAVY.

STREAMLINE Copper Pipe and Fittings are now in the service of our country
for many purposes. They are installed in naval vessels of practically all
types including victory ships, sub chasers, submarines, mine sweepers, etc.
They are used for plumbing, heating, refrigeration, air conditioning, oil
lines and a multitude of other services afloat and ashore.

On this our TWENTY-FIFTH ANNIVERSARY, we dedicate ourselves to an all-
out effort for war . . . knowing that only through the winning of
it can we gain a lasting peace. When peace returns to the
world, we can regain those businesses of which we are now
temporarily deprived, and STREAMLINE Copper Pipe and Fittings
will once more protect the health of the nation as they are
now protecting the health and lives of our men in the service.

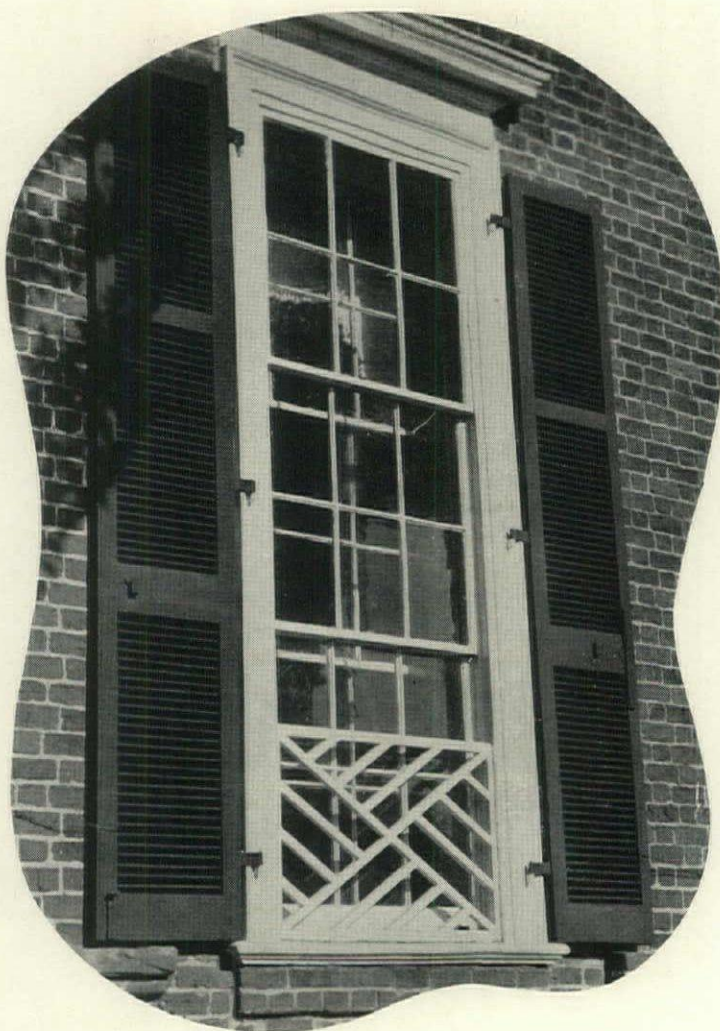
We Proudly Fly the Army-Navy "E"
for Excellence and Timely Production
of Ordnance Material.

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



THOMAS
JEFFERSON
WAS

Years Ahead



Every architect knows that Thomas Jefferson, back in the 18th Century, sponsored many architectural features that are still used widely today.

One of the features credited to him, which has become so important in fuel rationed homes today, is the origination of storm sash. We've pictured here one of the large windows in his home, Monticello, at Albemarle, Virginia, which is equipped with double windows.

It is interesting to note that one feature of these double windows is that they are a permanent

part of the window frame . . . a feature that is destined to be an important new convenience in the home of tomorrow.

Permanent installation of window conditioning is but one of many practical improvements with glass that will be possible in postwar homes. The many new and unusual types of glass, developed by Libbey-Owens-Ford, open entirely new fields of design for the architect. Libbey-Owens-Ford Glass Company, 1211-A Nicholas Building, Toledo, Ohio.



LIBBEY • OWENS • FORD

QUALITY *Flat Glass* PRODUCTS

PLASTIC GLAZING

with a big present
... and future

These materials, developed by the founder of the plastics industry, are doing important jobs for the services all over the world.

This advertisement has two purposes. First, to let you know where to turn if you are working on an Army, Navy or industrial job calling for plastic glazing. Second, to give you information about plastic glazing upon which your imagination can play in developing some of your ideas for the future.

Celanese Celluloid Corporation has perfected 3 types of non-shattering plastic glazing. VIMLITE is the pioneer developed during World War I. It offers great economy when clear vision is not desired.

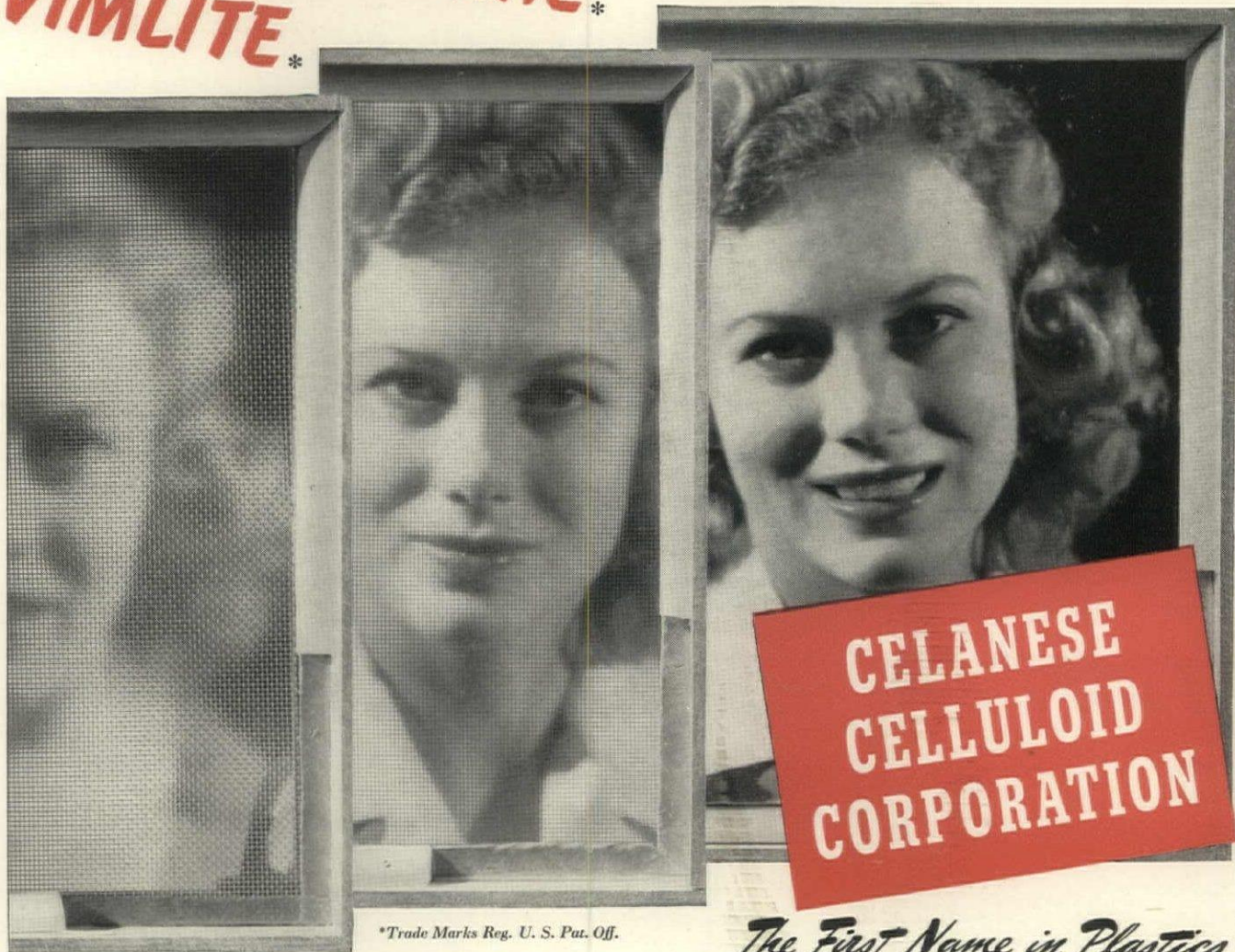
LUMAPANE, the most recent of the three, was de-

veloped in 1942 for the Armed Forces. Its standard wire base is 14-mesh. It resists breakage and eliminates the danger of flying splinters.

LUMARITH is the super-tough, crystal-clear glazing material used for cockpit enclosures of military aircraft. It has high impact strength, high ultra-violet ray transmission and excellent clarity.

Plastic Glazing is easily installed in both wood and steel sash. Write for descriptive booklet on these three types. . . . Celanese Celluloid Corporation, a division of Celanese Corporation of America, 180 Madison Avenue, New York City. Representatives: Dayton, Chicago, St. Louis, Detroit, San Francisco, Los Angeles, Washington, D. C., Leominster, Montreal, Toronto.

VIMLITE* LUMAPANE* LUMARITH*



*Trade Marks Reg. U. S. Pat. Off.

The First Name in Plastics

Building Reporter

METAL SUBSTITUTES FOR DOMESTIC USE

For additional information on any product described in this section write directly to the manufacturer.

Name: Wood Downspout and Elbow (left 1).

Features: Recently released by the Product Development Laboratory of General Timber Service, Inc., these items are not yet in production. The interior of the downspout is constructed of a double bracing of wood which provides for expansion when ice forms, returns to its original shape when it thaws.

Manufacturer: Weyerhaeuser Sales Co., First National Bank Bldg., St. Paul, Minn.

Name: Careyduct (left 2).

Features: All-asbestos insulated duct for air conditioning and household heating is factory-fabricated into rigid, fireproof, non-rusting units made in standard 3-ft. sections. Each section consists of an inner core of solid asbestos and an outer insulating jacket of multiple layers of asbestos. Slip-joint construction permits telescoping of the sections, simplifies handling and installation, assures overlapping joints, eliminates the possibility of leaks. As ducts are natural sound absorbers, they can be used in small sizes with high velocities, thereby saving material and labor. Will take any type of grille or damper and can be installed quickly and silently.

Manufacturer: The Philip Carey Co., Lockland, Cincinnati, Ohio.

Name: Formdux.

Features: Ductwork uses a fireproof composition material for straight runs, metal only for connections (saves 80% in critical metal). The sheets are shipped flat, require minimum shipping space. They have high tensile strength and are completely fireproof, thus may be used in forming plenum chambers. Other qualities: high insulation, low resistance to air flow, imperviousness to moisture, complete lack of expansion and contraction noises. Easily installed by sheet metal workers.

Manufacturer: Chrysler Corp., Airtemp Div., Dayton, Ohio.

Name: The Conservator Seat (left 3).

Features: Wood hinge eliminates all metal except screws for flanges and the metal posts with which it is fastened to the bowl. Hinge is glued into tight-fitting grooves in the seat and cover and screwed for extra support, can be cleaned in the same way as the seat for it has

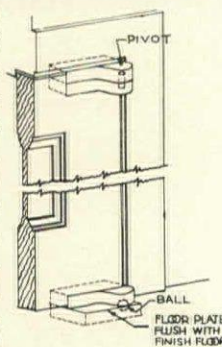
the regular Breckwoldt toilet-seat finish which also insures dependable operation of moving parts. Available in standard colors.

Manufacturer: Julius Breckwoldt & Son, Inc., Dolgeville, N. Y.

Name: Wood Hinges.



Features: Each set of hinges consists of four hard maple plates, one oil-treated dowel, one 7/8 in. china ball, and a dozen No. 10 flat-head screws for attachment. Hinges are furnished unfinished but with all screw holes drilled. They may be painted



or stained to match the door. Installation is quick and inexpensive: first the jamb is notched for hinges to fit snugly; door is cut to receive hinges; next the hinge with the ball is screwed to the floor, and the hinge with the pin is screwed to the head of the jamb after the door is in place. Manufacturing capacity is 100,000 sets a week. Also available is a wood bracketless shelf to support toilet articles. In the development stage are plans for other civilian necessities which can be made from non-critical materials by manufacturers not working for war production.

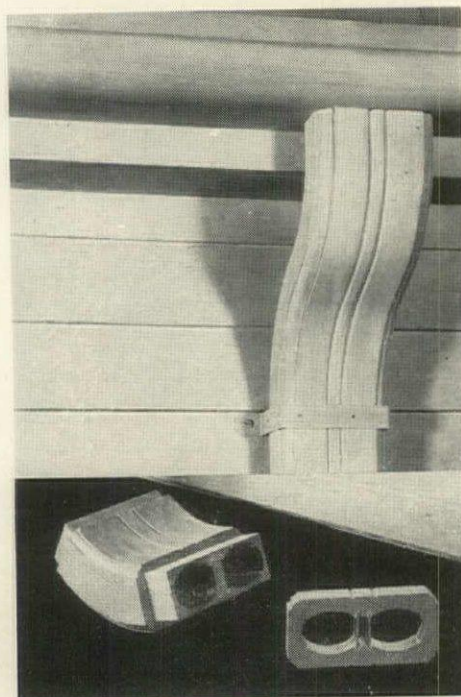
Manufacturer: Whitehouse Research Bureau, 101 Park Ave., New York, N. Y.

Name: Plastic Bonded Plywood Hinges.

Features: Hinges are made of several plies of veneer bonded with synthetic resin adhesives wrapped around a plastic core. Core has a hole drilled in it to take the usual steel pin. Plywood hinges are applied to the face of the door where they add rather than detract from its appearance. Face veneers of the hinges may be of the same wood as the veneer used for the door so that they blend. They may be either screwed or glued to the surface of the door. Manufacturer states that the hinges are strong and resist the strain set up by a 200-lb. load on the opposite edge of the door.

Manufacturer: Elmendorf Corp., 200 East Illinois St., Chicago, Ill.

(Continued on page 114)



1, Wood Downspout, Elbow for Wood Gutter



2, All-Asbestos Duct Saves Steel for War



3, Wood Hinge Matches Seat and Cover



AN "E" AWARD FOR BATHTUBS?

These men are raising an Army-Navy "E" for excellence banner. It goes to plants whose personnel has done an outstanding job of quality production—of *war* materials. This symbol of excellence was recently awarded Briggs, many of whose workers learned to build to highest quality standards in making Briggs Beautyware. Some day when the war job is done, they will be back continuing to do "an excellent job of quality production"—building formed metal plumbing fixtures for peacetime homes.

BRIGGS MFG. COMPANY
DETROIT, MICHIGAN



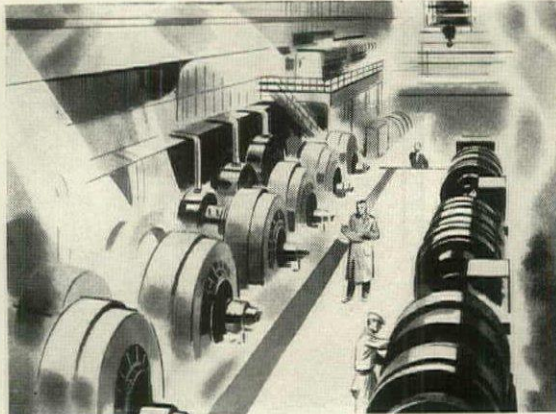
BRIGGS *Beautyware*
PLUMBING FIXTURES

PRECIPITRON* CLEANS THE AIR FOR AMERICAN WAR INDUSTRIES

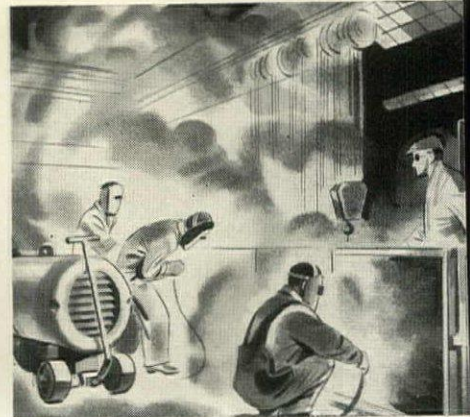
90% of All Particles as Small as 1/250,000 of an Inch Cleared Away by ELECTRIC AIR CLEANING



By removing tiny, air-borne abrasive and corrosive particles, Precipitron is protecting super-finished surfaces of airplane engine parts and other materiel.



To reduce the threat of maintenance shutdowns in steel mills and central stations, Precipitron cleans the ventilating air for large rotating electrical machinery.



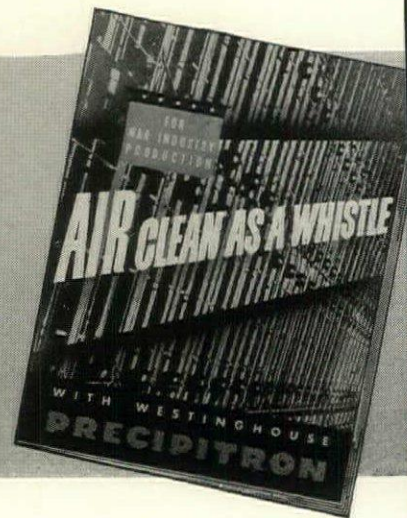
Where industrial operations create excess amounts of harmful smoke, fumes and oil vapor, electric air cleaning clears the air and reduces ventilating costs.



In pharmaceutical laboratories where miasma-free conditions are essential, Precipitron's "total air cleaning" removes one of the major dangers of atmospheric contamination.



Because it removes particles as small as 1/250,000 of an inch, electric air cleaning reduces the number of rejects in the manufacture of delicate optic systems.



SEND FOR THIS FOLDER

For a full story of electric air cleaning's war production applications, write for the new Precipitron folder, B-3083.

*Trade-mark registered in U. S. A.

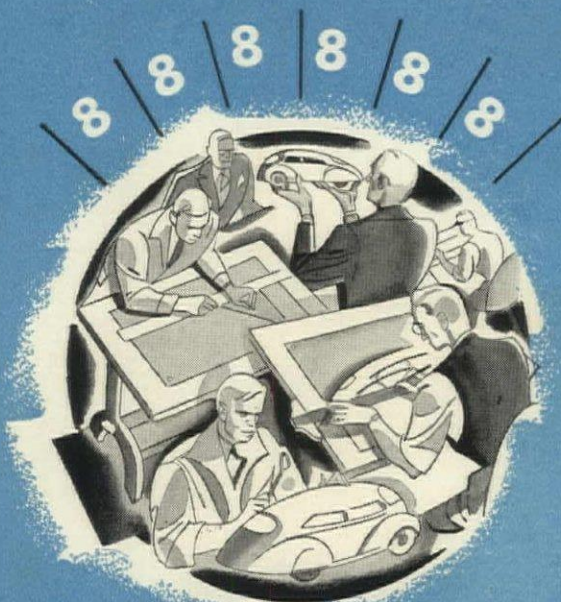
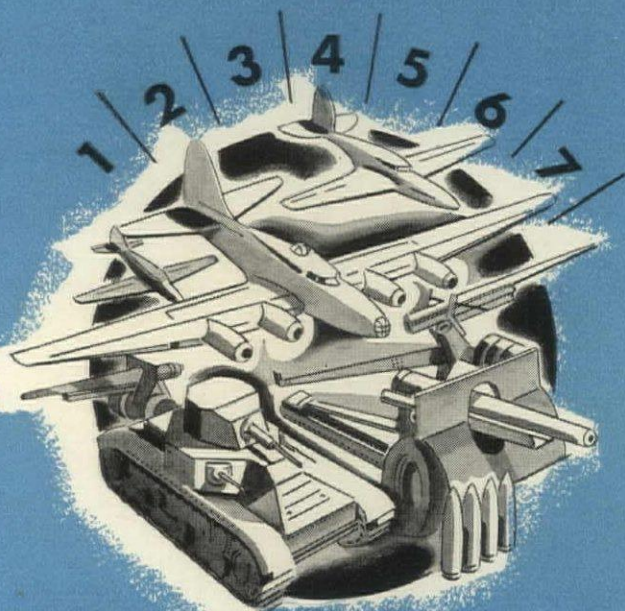
Westinghouse

EDGEWATER PARK • CLEVELAND, OHIO



Precipitron

INDUSTRY IS ON AN EIGHT-DAY WEEK



Seven days a week America is doing one of the greatest jobs of production the world has ever known. We are living with one part of that job here at Alcoa, where over seventy thousand men and women are producing Aluminum in quantities that were mere fantasy yesterday.

But there's an eighth day tucked in among the few open spaces in the seven-day week. Engineers are able to squeeze in some important Imagineering about post-war products—planning that will help convert war jobs into peace jobs.

For instance:

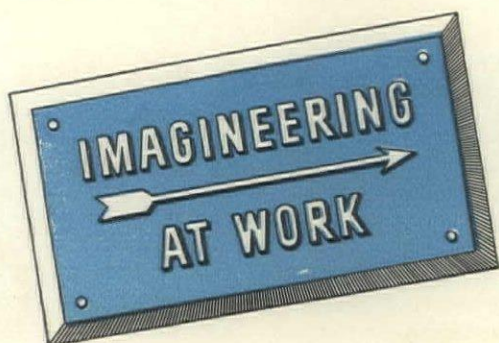
Imagine what 1,000 pounds less weight in the automobile of the future would mean in performance, gas economy and tire life. Then engineer it down

to the realization that 1,000 pounds *can* be taken off by using, say, 500 pounds of Aluminum per car.

Now translate possibilities such as these into your own business.

Aluminum costs less today. New methods, techniques, processes, and new forms of metal coming out of the war effort will all be available for the as-yet-untold possibilities in tomorrow's peacetime products and peacetime services.

Our eighth day is devoted to helping Imagineers throughout industry use the potentialities of Alcoa Aluminum in bettering the new ideas they are dreaming up. ALUMINUM COMPANY OF AMERICA, 2166 Gulf Building, Pittsburgh, Pennsylvania.



ALCOA ALUMINUM



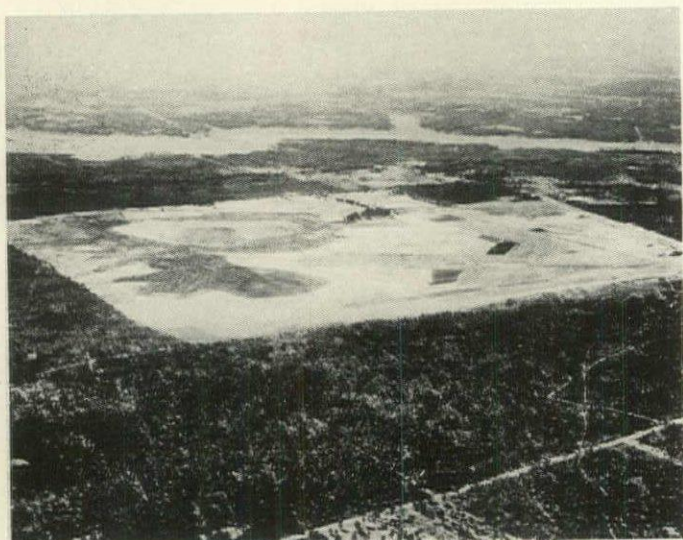
BOOKS



ROAD SCREENS, WORLD WAR I.



NETS, DECOY TREES, NATURAL GARNISHING.



AIRPORT: "FUTURE CONCEALMENT IS DIFFICULT."

MODERN CAMOUFLAGE, by Major Robert P. Breckenridge. Farrar & Rinehart. 280 pp., illustrated. $5\frac{1}{2} \times 8\frac{1}{2}$. \$3.50.

This book sums up just about everything that has been written for non-specialist consumption on the subject of camouflage. It has the advantage of being authoritative without being stuffy, and of completeness without becoming wordy. At one point the author describes interruptions in the distinctive ground pattern of a locality as being "as noticeable to an aerial observer as a spot of gravy on a white vest." Most of the points brought up in the text are disposed of with equal pungency and brevity.

The discussion begins with a review of camouflage during the last War, describing the various types of concealment employed by Allied troops at the front. An example of road screens used is shown at the left. It was a recognition of the value of camouflage which led all armies of the time to discard their traditional uniforms: "Gone were the bright, but too frequently fatal, military reds, blues and greens, to be replaced by neutral browns, grays and olive drabs. Even metal insignia of rank, if worn at all, became dull oxidized gun-metal." Camouflage, according to Major Breckenridge, came of age during World War I. The rapid development of photography and flying brought about great changes subsequently, but its basic principles were established. Having discussed the background of modern camouflage, its nature and purposes, the book passes on to a consideration of those factors which have been most instrumental in establishing its present character. Most important of these, of course, is bombing. Problems of the bombardier in identifying the target are discussed at length in a very valuable chapter which gives the would-be camoufleur an exceedingly clear idea of what he is up against. There is repeated insistence on aerial observation as an indispensable part of camouflage work. Only the flier can understand how color washes out at high altitudes, how shadows, shapes and textures affect identification. Without the benefit of such first-hand practical knowledge it is virtually impossible to conceal an objective with complete effectiveness.

A subject frequently ignored in books on camouflage is site selection and development. According to a British authority, "The best camouflage work upon an object is done before the object is sited or has even been designed." An industrial plant may be concealed with the greatest ingenuity and still be as vulnerable as ever due to the existence of nearby landmarks which cannot be obliterated. Too many sites are thoughtlessly cleared of trees to facilitate construction: a number of excellent air views (see illustration) show the results. The importance of trees and native shrubs is reflected in the chapter on plant materials, in which methods of handling are described, along with a list prepared for the Army by the American Association of Nurserymen. The actual practice of concealment is discussed at length and includes camouflage by painting, use of nets to break up shapes and shadows, creation of artificial shadows, maintenance of installations, etc. Decoys and blackouts each form the subject of a chapter. For the student there is a very useful section on the construction of models, with a list of sources for materials commonly used.

It is impossible for any book to produce a camouflage expert, or even a competent technician. Successful camouflage demands the "know how" which comes from actual work combined with constant observation from various altitudes. Its basic principles and techniques, however, are fundamental preconditions for successful practice. The very real importance of this book lies in the clear, intelligent presentation of those facts which can be learned from a book. "Modern Camouflage" will undoubtedly become the standard American work in its field.



more heat
AND BETTER HEATING WITH
less fuel



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MODELS

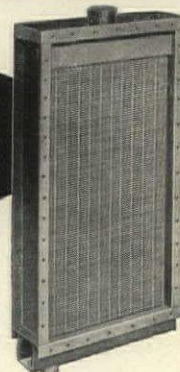
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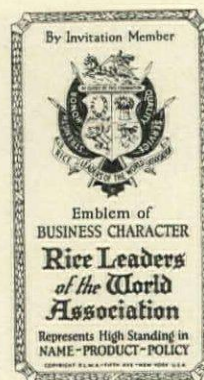
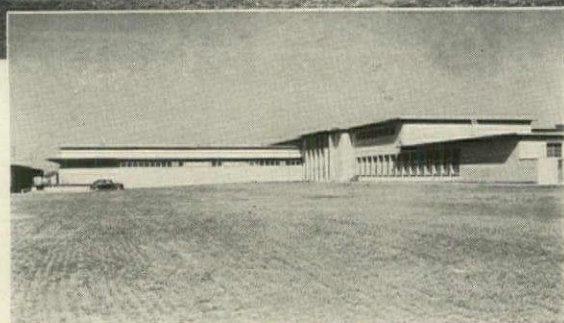
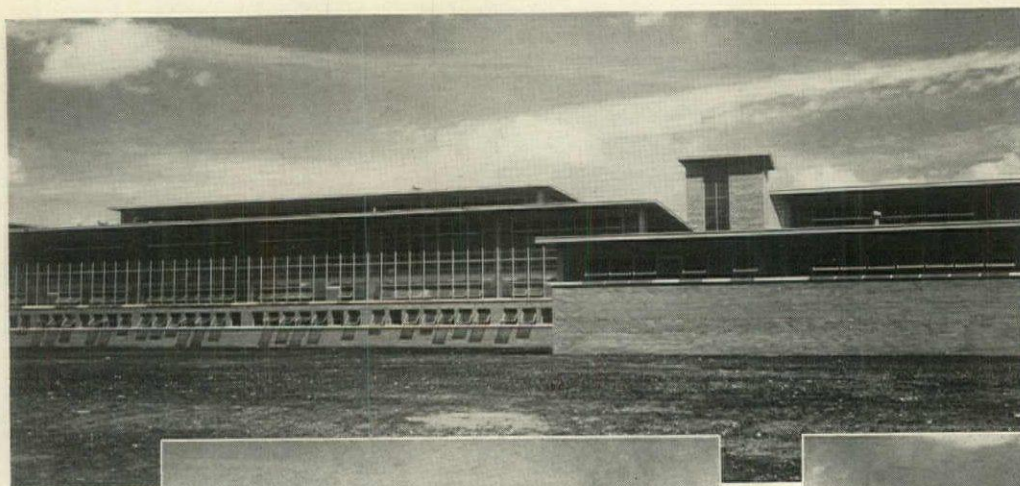


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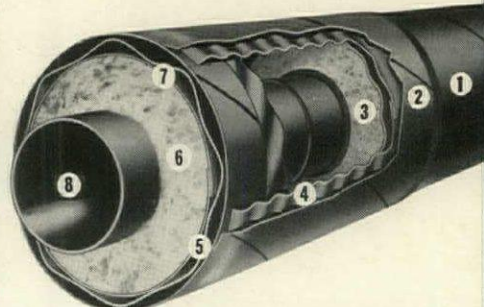
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Engineers on War Projects ONLY: Ask on your letterhead for Engineering Manual 420-A.

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—We'll be ready—

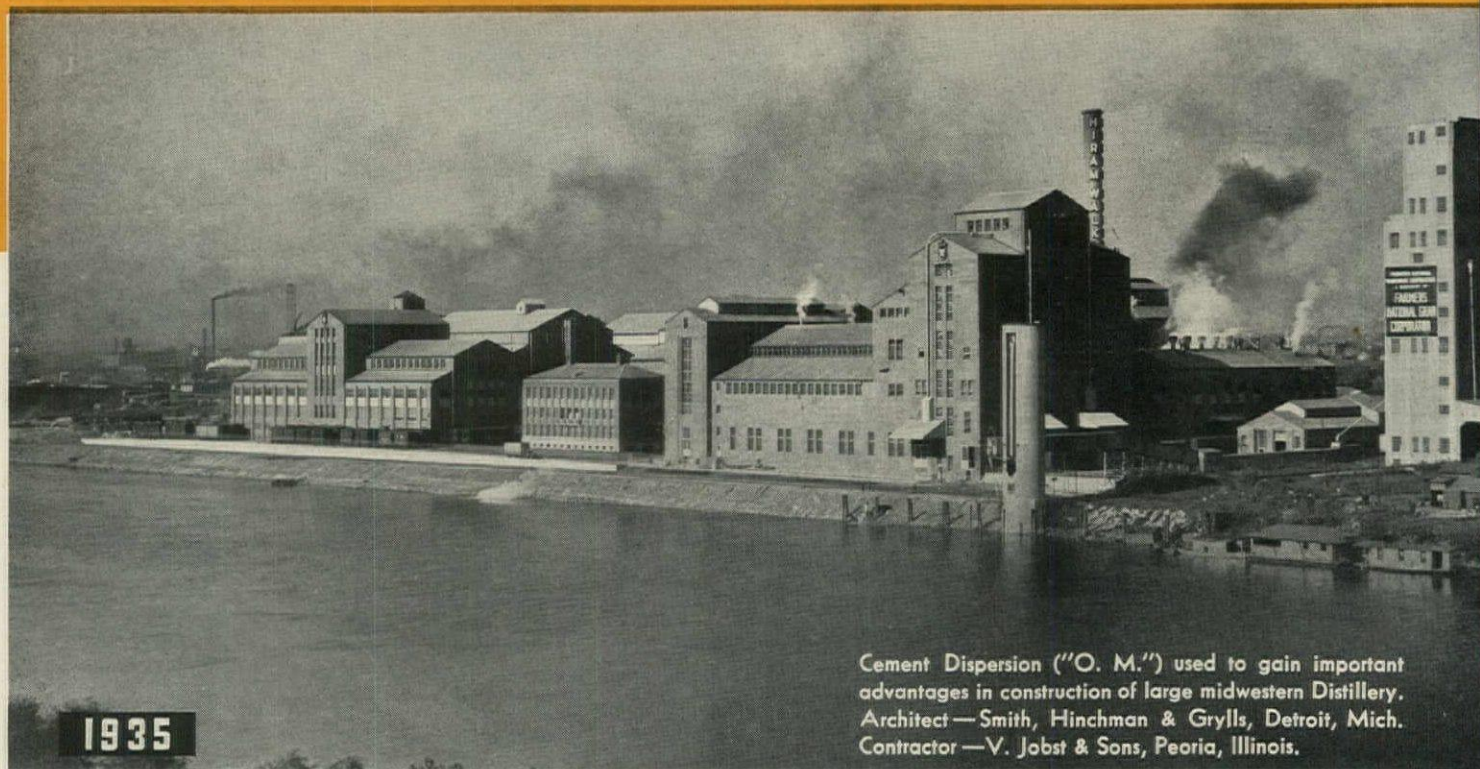
SIDE BY SIDE in the plants of Minneapolis-Honeywell and its subsidiary, The Brown Instrument Company of Philadelphia, control research for war and control research for peace go on twenty-four hours a day. Our present job is to provide the nation with the necessary equipment for combat, for military and defense housing and for essential war industry. Out of this experience are coming developments in automatic controls for American industry and American homes that

will provide an effortless, scientific comfort and efficiency, for post-war living and working. To all who own or sell heating and air conditioning equipment, or who use industrial instruments, we say: "M-H and Brown Engineers are building, every day, every hour, for the war and for the future." Minneapolis-Honeywell Regulator Co., 2740 Fourth Ave. S., Minneapolis, Minn. In Canada: Toronto, Ontario. In Europe: London, England and Stockholm, Sweden.

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Performance

IN PROJECTS LIKE THIS..



1935

Cement Dispersion ("O. M.") used to gain important advantages in construction of large midwestern Distillery. Architect—Smith, Hinchman & Grylls, Detroit, Mich. Contractor—V. Jobst & Sons, Peoria, Illinois.

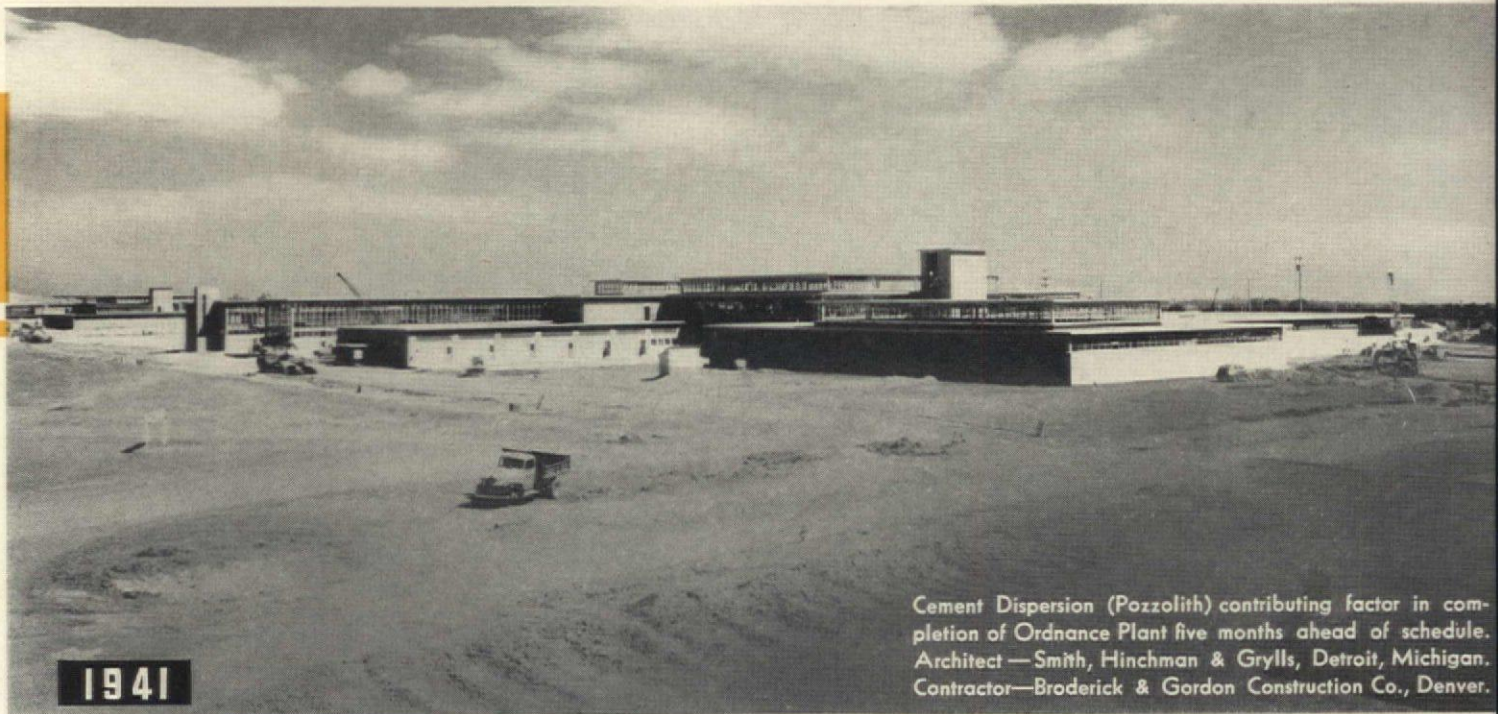
SMITH, HINCHMAN & GRYLLS...

For nearly 10 years Smith, Hinchman & Grylls have specified Cement Dispersion (Omicron Mortarproofing for masonry mortar; Pozzolith for concrete) consistently in such notable projects as:

Hiram Walker & Sons Co. Plant	Peoria, Ill.
University of Michigan, Graduate School	Ann Arbor, Mich.
Michigan Bell Telephone Co. Auxiliary Bldg.	Detroit, Mich.
Bundy Tube Co. Plant	Detroit, Mich.
U. S. Government Warehouse	Sault Ste. Marie, Mich.
Timken Axle Co. Plant	Melvindale, Mich.
Budd Induction Heating Manufacturing Plant	Detroit, Mich.

These Cement Dispersion products were used to reduce excess water in concrete and mortar to produce water-tight walls, increased strength and durability, improved workability and lower costs. These results were consistently obtained, project after project, year after year.

RESULTED IN THE USE OF
CEMENT DISPERSION
IN PROJECTS LIKE THIS...



Satisfactory experience of Smith, Hinchman & Grylls in their many earlier projects led to the use of these Cement Dispersion products — Pozzolith and Omicron Mortarproofing—in giant war plants in Missouri, Iowa, Colorado and Minnesota.

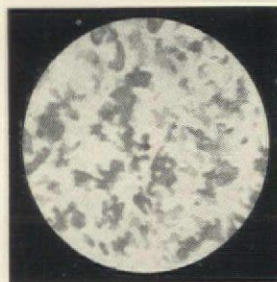
employing over
160,000 Cubic Yards of Pozzolith Concrete
and
15,500,000 Brick in "O. M." Mortar

Typical of these vital projects in which Pozzolith concrete was used, is the above plant which was completed months ahead of schedule.

For complete information on Cement Dispersion, write for illustrated booklets—"O.M." for masonry mortar; Pozzolith for Concrete, and Research Papers No. 36—"Economics of Cement Dispersion" (for mass concrete) and No. 39—"Cement Dispersion and Air Entrainment" (for runways and pavement).

THE MASTER BUILDERS COMPANY
CLEVELAND, OHIO TORONTO, ONTARIO

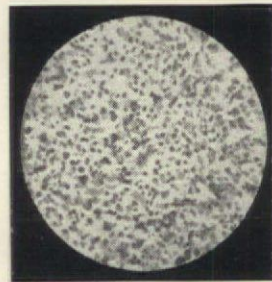
HOW CEMENT DISPERSION WORKS



Cement suspended in water
UNDISPERSED

WITHOUT POZZOLITH OR "O. M."

In a normal concrete mix, cement particles tend to bunch together, thereby (1) limiting hydration and (2) trapping water within the cement clumps. (See photomicrograph above).



Cement suspended in water
DISPERSED

**WITH POZZOLITH
OR "O. M."**

Cement Dispersion drives these particles apart and (1) exposes their entire surface area to hydration, at the same time (2) making the water entrapped in the clumps available for lubrication of the mix. (See photomicrograph above).

BUILDERS



Structural integrity for war service



Architectural concrete assembly and repair shop of a U. S. Naval Air Station.

To create rugged, fire-resistant buildings in minimum construction time . . . to assure immediate and long-term economy . . . to reduce the requirements for critical materials, transportation and equipment—use concrete for war construction.

Architectural concrete . . . walls cast integrally with frames, floors and roofs . . .

meets war requirements whether the building is primarily for immediate needs, or for economical use over a long period.

The assistance of our technical staff is available to architects and engineers on all types of war construction. See Sweet's 4/45.

PORTLAND CEMENT ASSOCIATION

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BUY MORE WAR SAVINGS BONDS

Architects didn't worry about telephone booths when they worked like this



From Architectural Collection—Bettmann Archive

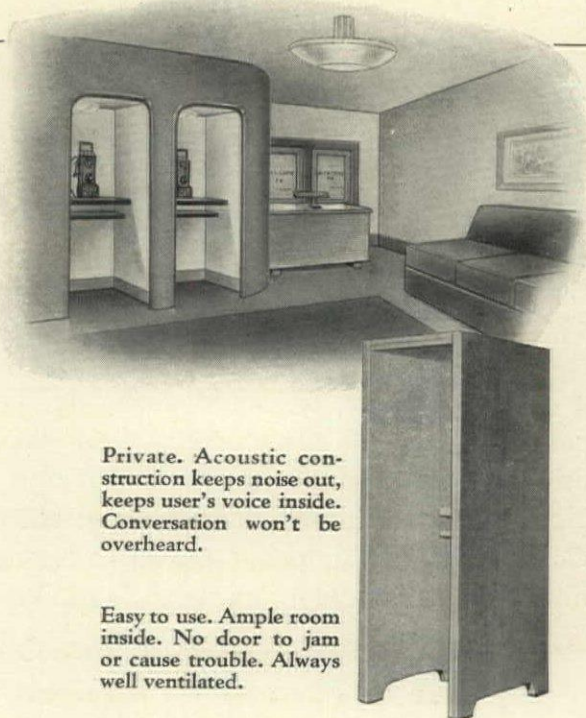
TODAY

a modern built-in booth
is an important part of your
plans for future building - -

When you're drawing up plans for future building or remodeling of public places, make sure you include modern built-in telephone booths. If you specify Burgess Acousti-Booths, they'll add a note of distinction to your design.

Acousti-Booths provide greater privacy and comfort for users because they're of patented Burgess acoustic construction. They're doorless because doors aren't needed. You won't have a design problem because they're ready to install. And their all-wood construction makes it easy to match any decorative scheme. Burgess Battery Company, Acoustic Division, 2821- BW. Roscoe Street, Chicago, Ill.

Operating under Burgess Patents



Private. Acoustic construction keeps noise out, keeps user's voice inside. Conversation won't be overheard.

Easy to use. Ample room inside. No door to jam or cause trouble. Always well ventilated.

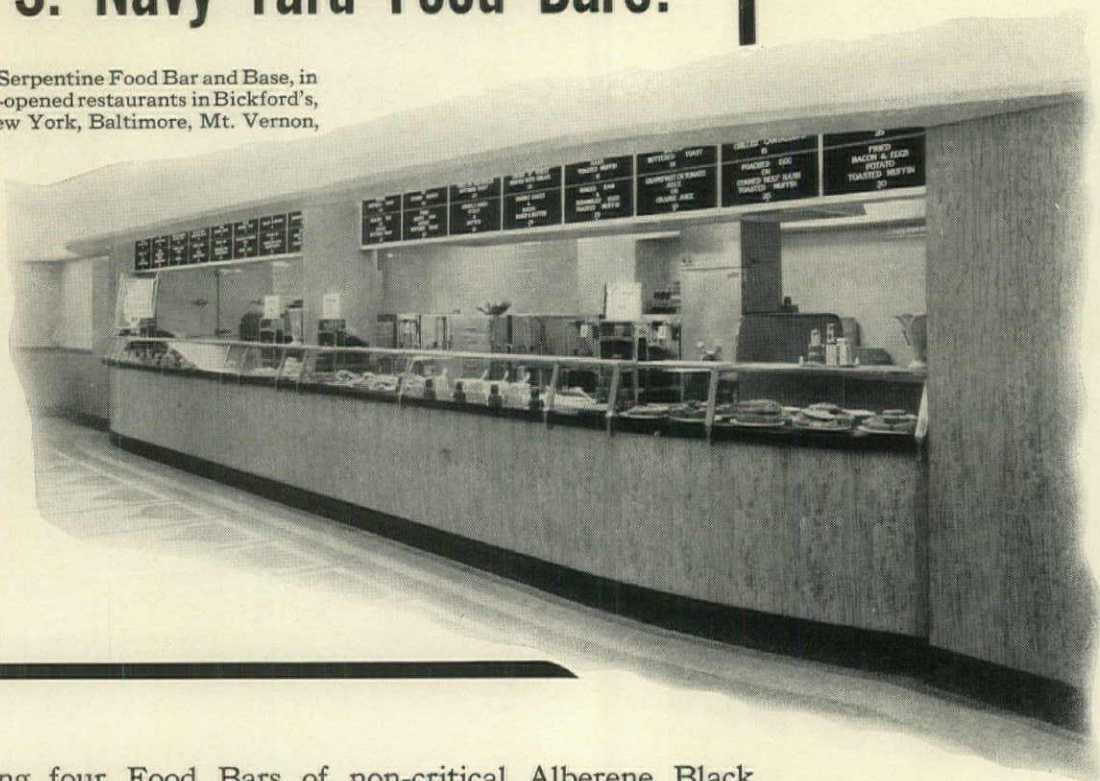
BURGESS TELEPHONE

Acousti-Booths



DURABLE, NON-CRITICAL BLACK STONE . . . for U. S. Navy Yard Food Bars!

Alberene Black Serpentine Food Bar and Base, in one of the newly-opened restaurants in Bickford's, Inc., chain in New York, Baltimore, Mt. Vernon, Boston, etc.



We are supplying four Food Bars of non-critical Alberene Black Serpentine to the U. S. Navy Yard, Philadelphia. Another has just been approved for a large New York hospital, as a substitute for metal.

Bickford's, Inc., standardized on Alberene Black Serpentine counter tops for their Food Bars in 1936. It is the only material they have found that "stands the gaff" of spilled fruit juices, handling and serving, etc. The stone polishes naturally, and experience shows that it will hold its polish indefinitely.

Shipments can be made promptly, because Black Serpentine, in common with the other stones from the Alberene Quarries, is not a critical material. The supply of stone and our Mill facilities are ample. Your inquiry will have immediate, executive attention. Alberene Stone Corporation of Virginia, 419 Fourth Avenue, New York, N. Y. Quarries and Mills at Schuyler, Virginia. Sales Offices in principal cities.

Alberene Black
S E R P E N T I N E
FROM THE ALBERENE QUARRIES

COMPARED WITH ANY OTHER FORM-TYING METHODS

YOU'LL FIND

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COSTS

LESS!

BECAUSE WE
ALL TYPES,
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IS HELPFUL
CTUAL PROOF

PREFABRICATED FORM-TYS are preferable to ties assembled on the job

TYSCRU
(prefabricated)

A.C. FORM-TY
(prefabricated)

SNAP-TY
(prefabricated)

COMPARISON DATA

SYSTEM	TIE	Safe Load	Tie Length	Weight per Unit			Cost per Unit			For 12" Concrete Wall and 5' Liquid Head		
				Tie Only	Working Parts	Total	Tie Only	Working Parts	Total	Tie per C.Y.	Working Parts per C.Y.	Total per C.Y.
Prefabricated	1/2" Tyscrus	6000#	10"	3.80	2.94	6.74	\$ 0.08	\$ 0.31	\$ 0.39	3.375	1.95	5.325
	A.C. Form-Ty	3000#	29 1/2"	3.80	1.73	5.53	\$ 0.05	\$ 0.18	\$ 0.23	2.57	1.68	4.25
	Snap-Ty	3000#	29 1/2"	3.80	1.44	5.24	\$ 0.05	\$ 0.14	\$ 0.19	2.57	1.22	3.79
Field-Assembled	Band Iron	1500#	36"	3.90	3.60	7.50	\$ 0.03	\$ 0.20	\$ 0.23	18.5	5.27	23.77
	1/2" Rod & Cones	5000#	36"	2.00	3.62	5.62	\$ 0.08	\$ 0.60	\$ 0.68	4.05	6.10	10.15
	1/2" Tilt Lock	5000#	10"	3.20	8.50	11.70	\$ 0.025	\$ 1.45	\$ 1.475	4.05	1.30	5.35

Includes built-in spreader unit. Includes spreader plates for form spreading.

Includes plates for spreading forms. Includes Tyscrus for Form Spreading (Optional).

Allowance for lost profit.

BAND TIE
(field-assembled)

ROD TIE
(field-assembled)

TILT LOCK
(field-assembled)

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Guide to better and less costly concrete form work

THIS BOOK

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"The Richmond Way" is your best profit-making way, best because you do a better, faster, less costly job by using fewer ties; erecting and stripping forms in less time; less ruined lumber. Again, best because our free technical and estimating service provides, for your men, working blueprints of your job sections scheduling the quantity, spacing and location of ties needed, thereby eliminating costly hours of work and worry. And again, best because you don't tie up your money in Tylags, Tycones, Flat Washers, Tywrenches, etc. "Richmond" loans you these working parts! Talk about a complete "package"! That's exactly what you get from "Richmond"—and only from "Richmond." A complete package containing many an extra dollar of profit for you. Prove all this? Yes, just ask us.

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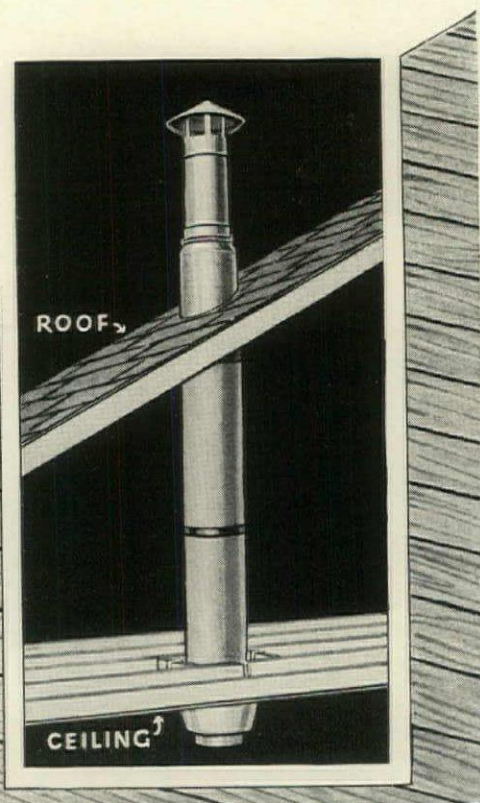
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HERE'S SOMETHING NEW!

—for Now or After the War



• At the left the roof jacket is being dropped over the chimney section and will be nailed to the roof. The right picture shows the chimney top commonly used in low-cost war housing. Chimney tops are also available shaped like a masonry chimney, plain or with an enamel brick-effect finish.



FOR some time now a leading manufacturer has been making a porcelain enameled metal chimney for numerous low-cost war-housing projects. If you can't use it now, remember it for your post-war work.

Architects and contractors have found that these chimneys have many advantages:

1 They are extra durable. Their flint-hard, acid-resisting porcelain enamel finish resists heat and cold, acids and corrosive atmospheres—is proved by years of service on store fronts, filling stations, kitchen ranges.

2 Tests have shown these especially designed chimneys will produce more draft than a conventional chimney of the same height. They require less space and weigh relatively little. Porcelain enameled chimneys can be used with coal, gas and oil heating equipment and are fully insulated.

3 They are quickly installed by regular workmen. Patented expansion and contraction devices prevent leakage and damage to the roof flashing.

4 The porcelain enamel on these chimneys is fused on ARMCO Ingot Iron at 1650° F., making the iron and its smooth coating virtually one. This special metal base was developed by ARMCO years ago

and has been more widely used for this exacting purpose than any other metal.

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We shall be glad to have the manufacturer send you more detailed information for your current or post-war file. The American Rolling Mill Company, 3161 Curtis Street, Middletown, Ohio.

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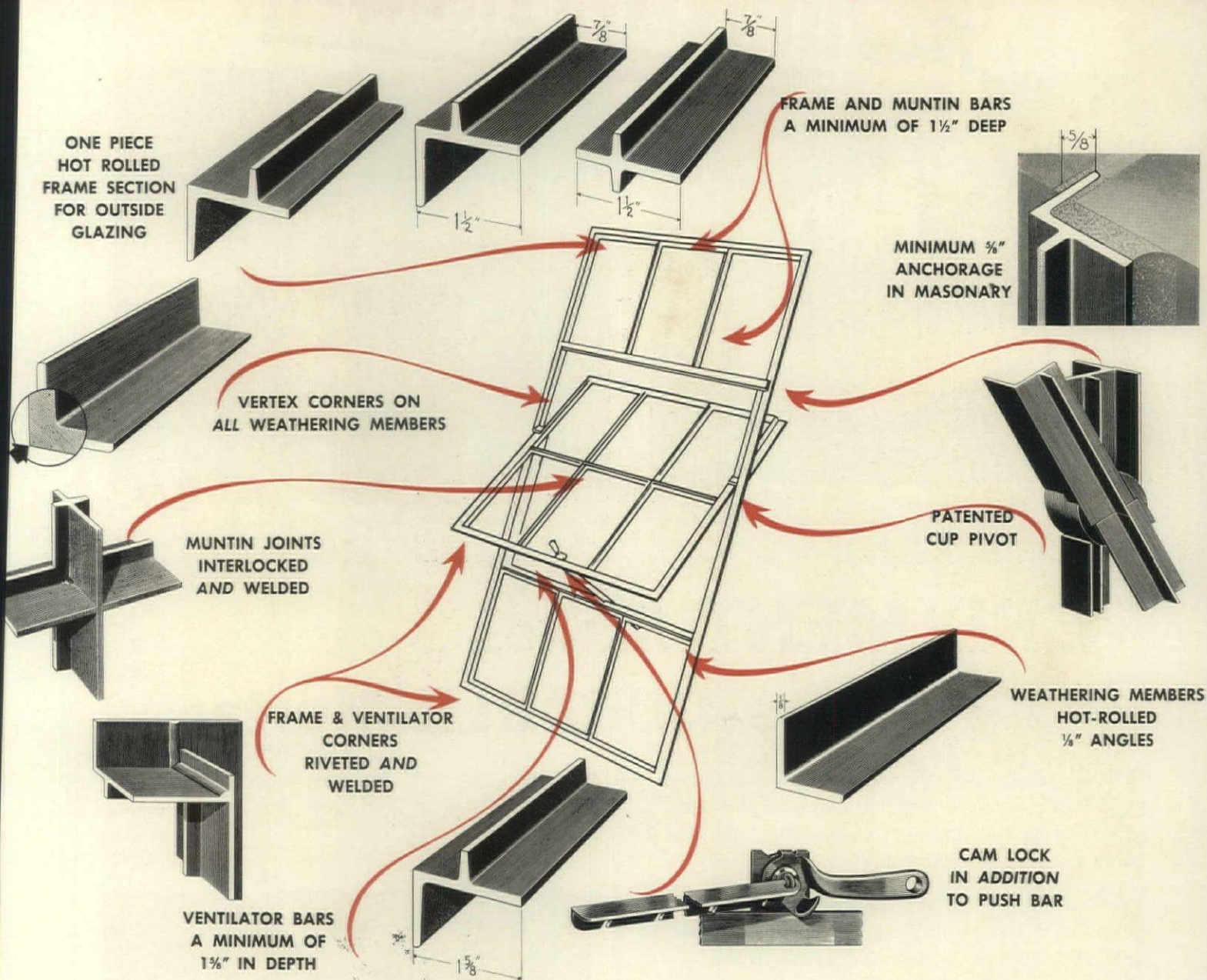


The Army-Navy "E" pennant flies from the staff at all ARMCO plants—a reminder to every ARMCO man and woman of honors won and responsibilities to be met.



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...used on Mesker Industrial Pivoted Sash is $\frac{1}{2}$ " thick...twice that used by others in Industrial Steel Sash. This exclusive feature, so dramatically illustrated by the Visual Test Kit (free upon request), is indicative of the quality built into ALL Mesker products.

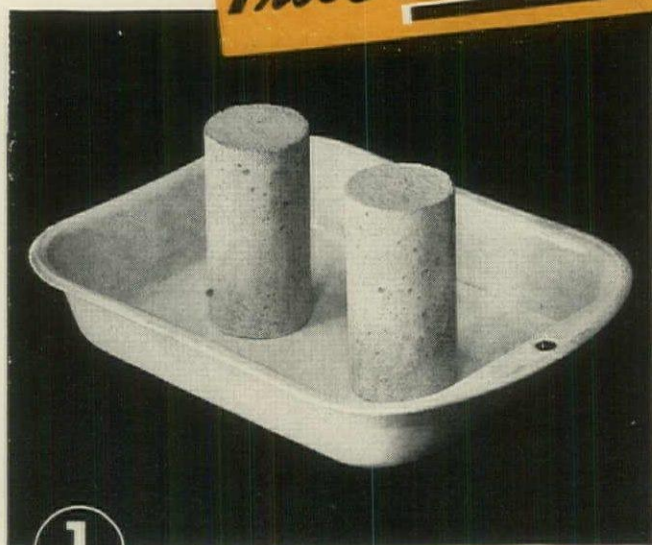
Mesker Brothers

STEEL SASH

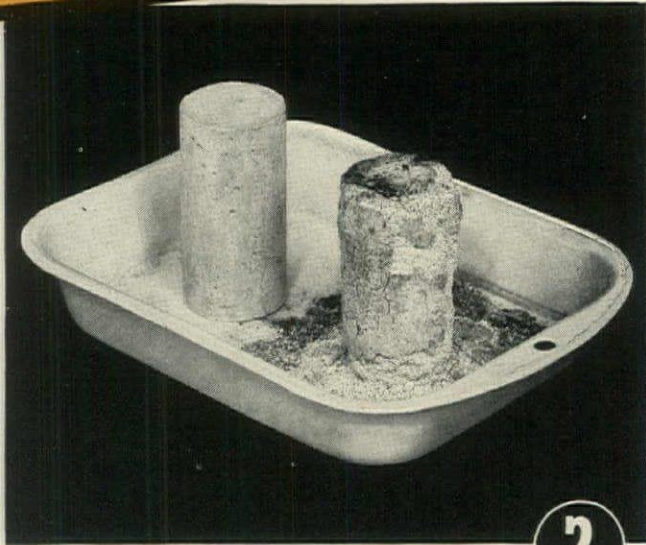
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INDUSTRIAL DOORS • METAL SCREENS • DETENTION WINDOWS

MAKE THIS TEST -
Prove **BRIXMENT** *is* **BEST!**



1 Above: A cylinder of Brixment mortar (left) and a cylinder of mortar made with 50-50 cement and lime mortar (right). Both specimens were made at the same time, and subjected to exactly the same treatment. After curing for 30 days, $\frac{1}{4}$ " of water



was put into the tray and the cylinders were alternately frozen and thawed 15 times. Note in photo 2 that Brixment mortar remains intact, whereas the other mortar has crumbled badly. This simple test can be made in any ice-manufacturing plant. **2**

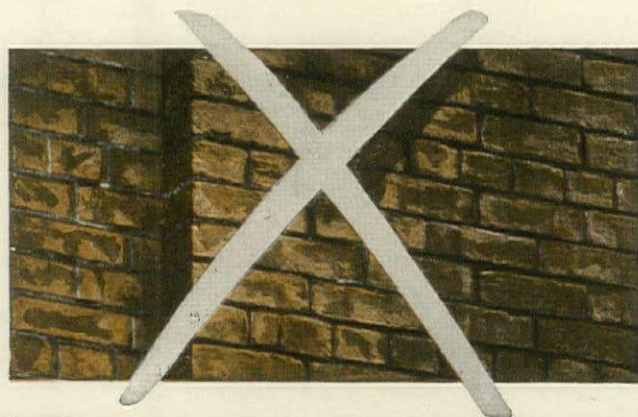
BRIXMENT *Makes* **More DURABLE Mortar!**

FOR permanent strength and beauty, mortar must be *durable*—must be able to withstand the alternate freezing and thawing to which it is subjected many times each winter.

Brixment mortar *is more durable*. This greater durability is due partly to the strength and soundness of Brixment mortar, and partly to the fact that Brixment is waterproofed during manufacture. This waterproofing helps prevent the mortar from becoming saturated—therefore protects it from the destructive action of freezing and thawing.

Walls built with Brixment mortar therefore *retain* their original strength and appearance. Even in

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Louisville Cement Company, Incorporated, Louisville, Kentucky. Cement Manufacturers for Over a Century.

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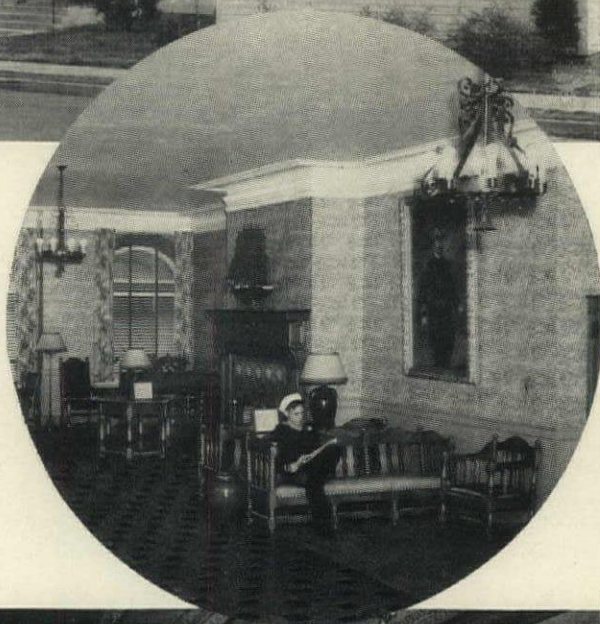
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TRAMP... TRAMP... TRAMP... unceasingly Tile-TEX takes the unrelenting pounding of service center traffic. Cigarette ends are dropped . . . food and beverages spilled . . . without regard to consequences. Here, if ever, floor wear is at its hardest. But with an occasional quick mopping . . . no time for fussing at the service center . . . Tile-TEX comes up smiling . . . colorful, undamaged, and ready for all the service the forces can pile on. To ease of maintenance add low first cost . . . speed and simplicity of installation and good availability . . . and you have the reason for the widespread preference for Tile-TEX floors. Write now for the name of a Tile-TEX contractor . . . qualified to render complete and responsible Tile-TEX service.

The TILE-TEX Company
101 PARK AVENUE, NEW YORK • CHICAGO HEIGHTS, ILLINOIS

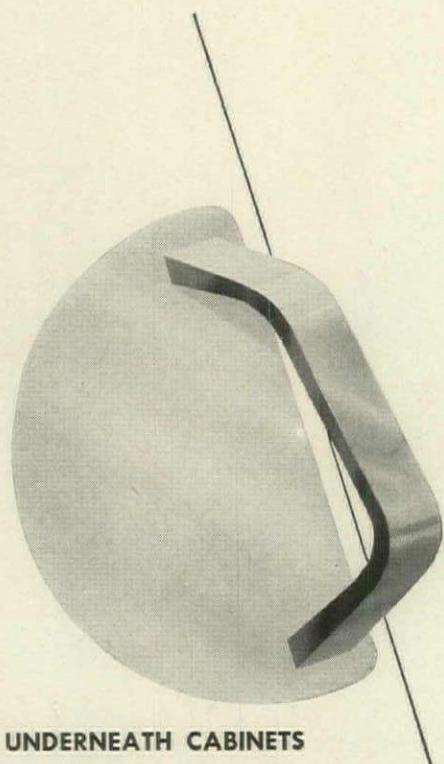


Our constant objective is to furnish the architect with an honest, steadily improved product that will enable him to design architecturally correct floors which can be installed and maintained properly at minimum cost.

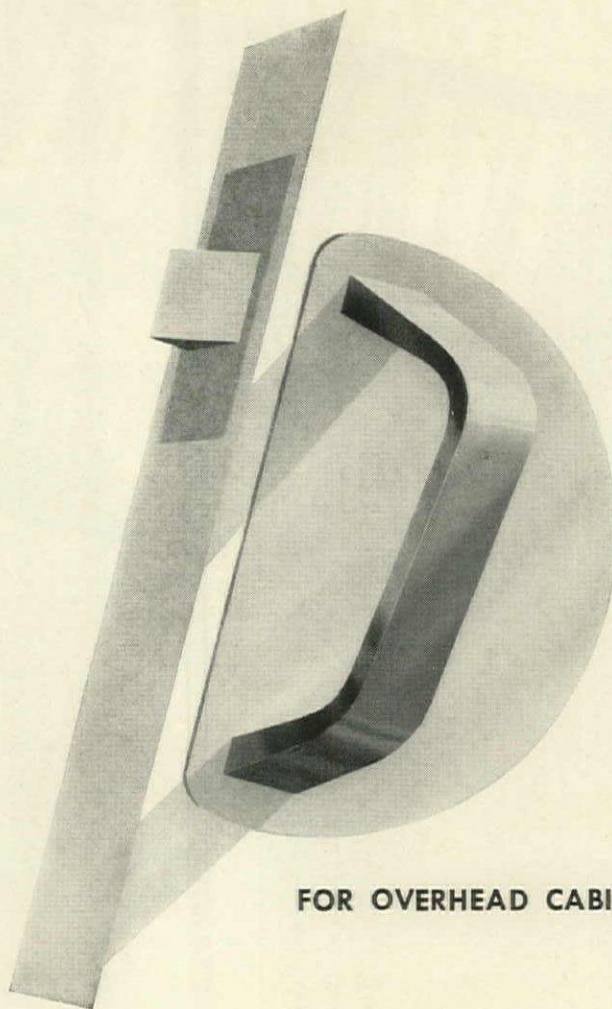
THIS IS THE SIXTH OF A SERIES DEALING WITH THE PART OF TILE-TEX IN THE DEFENSE PROGRAM

"... an ugly doorknob made by hand is a regrettable incident, but a million vulgar doorknobs in use are a calamity."

DOUGLAS COCKERELL, London, 1942, at a meeting of the Royal Society of Arts

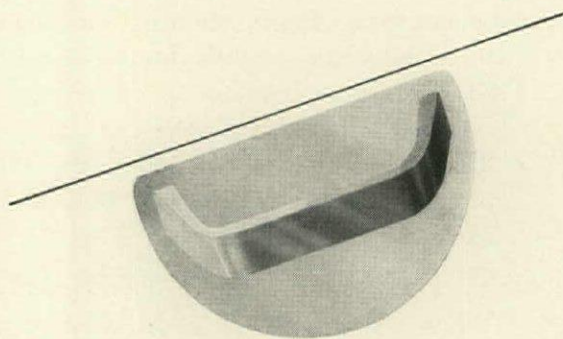


FOR UNDERNEATH CABINETS



FOR OVERHEAD CABINETS

Architect Ernst Payer suggests a design for handles to be used on kitchen cabinets. With a semi-circular back plate of colored plastic to keep the door free from dirty finger marks, this handle arrangement is both practical and decorative. For doors located below waist level the handles are used in reverse position with handle-grip sloping in opposite direction to facilitate easy opening of doors. These handles are splendidly adaptable to a "push-pull" type of latching device and are extremely simple to install and operate.

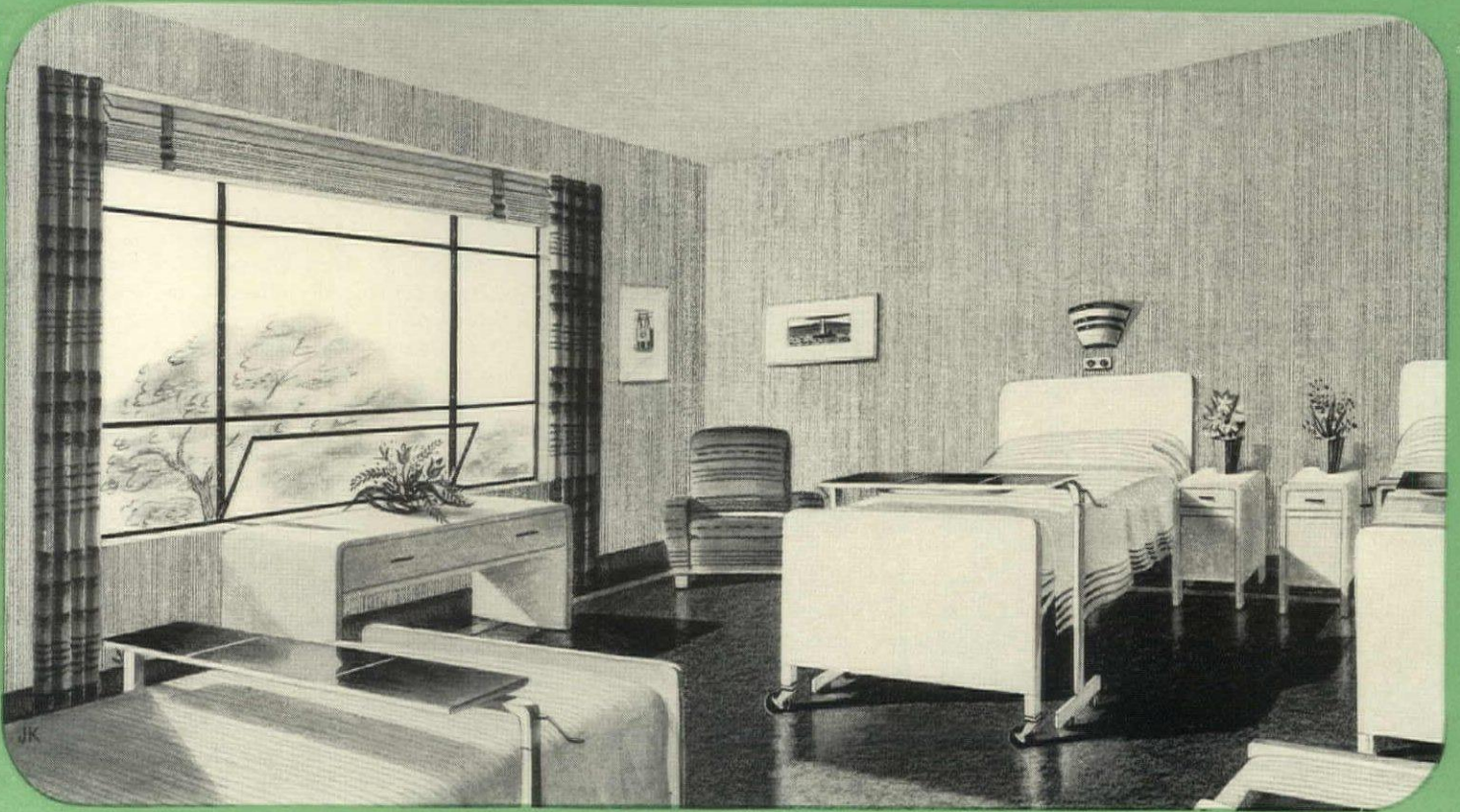


FOR DRAWER PULLS

READING presents the ninth of a series of hypothetical designs submitted by members of the profession as a stimulus to better design in hardware for building post-war America.

READING HARDWARE CORPORATION, READING, PENNSYLVANIA

Your 4-bed wards for postwar hospitals should **RADIATE "GOOD CHEER"**



Your postwar hospital wards should provide patients with an extra cheerful environment.

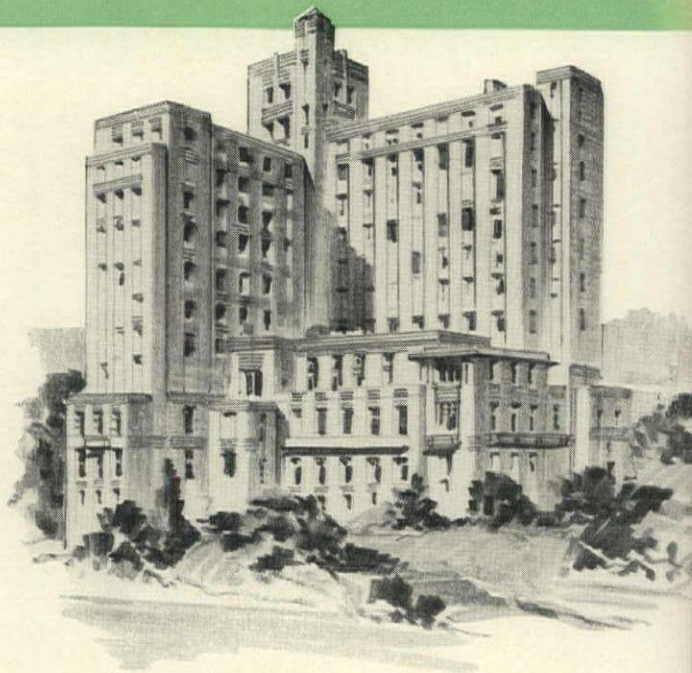
One means to this end is the use of windows—large windows—to provide extra sunlight, to brighten even the corners of a room.

Fenestra windows for postwar hospitals will provide *better daylighting*, and other important advantages, including: *easier opening*—steel ventilators never warp, swell or stick; *better ventilation*—open-in ventilators at sills protect against direct drafts, while open-out ventilators above them form canopies over openings; *superior weather-tightness*—precision-fitted by craftsmen, Fenestra windows stay tight, never warp or shrink; *safer washing*—both sides of glass washed from inside a room; *increased fire safety*—steel will not burn; *lower cost*—by America's oldest and largest peacetime manufacturer of solid-section steel windows.

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COLUMBIA UNIVERSITY MEDICAL SCHOOL
Bard Hall, New York City,
James Gamble Rogers, Architect.

Fenestra **HOSPITAL** Windows

TANGLED WEB

Forum:

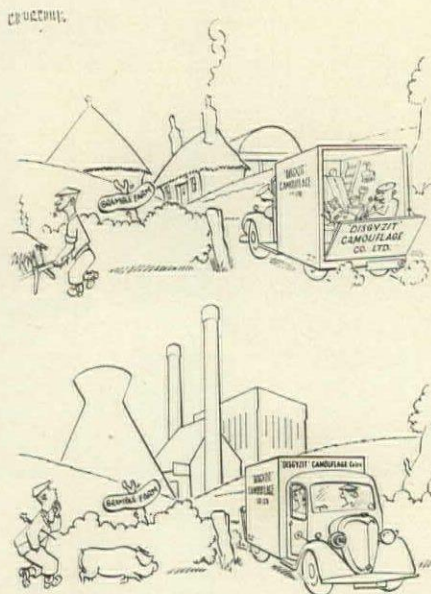
Camouflage is the glamor girl of civilian defense. War-blighted architects and sculptors, water-colorists and horticulturists look to her for a job plus romance.

More and more of them are setting up as Camoufleurs for, of course, there are training courses. You can pay fees for attending fly-by-night lectures or progress up to those given by nationally-known art schools and the Ivy colleges where you get a real diploma.

But the would-be practitioner must remember always Sir Walter Scott's warning.

"Oh, what a tangled web we weave
When first we practice to deceive!"

PUNCH ALMANAC FOR 1942



Punch Almanac for 1942

When the amateur camoufleur (and beware the self-styled "expert") first tries to practice deceit or protective concealment or obscurity, he finds that:

1. The Office of Civilian Defense does "not encourage camouflage," only the preparation of plans in case they may be needed.

2. The U. S. Engineer Board says, "No camouflage is better than poor camouflage."

3. The Chief of Engineers says, "No protective concealment not even tone-down of oil tanks is permitted without his official O.K."

4. The Army says no camouflage to be done near "military installations" without its permission.

5. The War Production Board is critical of "critical materials" and wants schemes for camouflage first submitted to the Resources Protection Board.

And so on and so on!

LAWRENCE CORWIN

Philadelphia, Pa.

GASTRONOMICS

Forum:

As a contributor to the September issue of THE ARCHITECTURAL FORUM I read with interest in the October issue the Gunnison letter concerning the 194x house.

His capabilities while indulging in a hamburger intrigue me.

Common sense fabrication will no doubt have common sense appearance, but I have never heard the problem so deftly processed as a gastronomic venture. Let us hope the essence of the hamburger is not harbinger of the result.

If the Architect did everything everybody thinks he should, he would no longer be Architect. There are plenty of people in the world who are not Architects. The competition within the fold is simpler.

THE ARCHITECTURAL FORUM is usually glad to publish good ideas, hamburger napkin or no. Why not let Housing-man Gunnison come forth with the ideal solution and let the boys get a crack at it.

PAUL THIRY

Seattle, Wash.

Why not?—Ed.

CONCRETE SHELTER

Forum:

Our attention has been drawn to a photograph of our Concrete Indoor Air Raid Shelter in the January issue of THE ARCHITECTURAL FORUM (p. 50).

... You state "it is not known to have received official blessing," we are writing to say that this Shelter was tested by the Ministry of Home Security and approved in their letter to us dated 21st May, 1941—Design No. R.E. 27/25/2.

PETER BAILLIE

The Kleine Co., Ltd.

London, W. 1., England

HOUSE OF 194X, Cont'd.

Forum:

... My complaint springs from two sources. The first is my inability to understand why anyone in this country should feel a necessity for the extremely radical trend of architectural design now in full bloom everywhere. Change there will and must be, of course, but change simply for the sake of change is entirely without merit, especially when it is accompanied by much that is purely ridiculous.

The second is the fact that architectural critics, deans of architectural schools, juries of competitions and the editors of architectural magazines all seem to be mortally afraid of not being fashionable, in that they aid, abet, promote and foster a trend that has nothing to recommend it—no charm, no grace—no beauty—no architecture. ... Generally, the architect has never enjoyed a high place in the layman's regard owing to the intangible nature of the product.

If the type of work illustrated in that

issue is allowed to have a wide circulation among practical, intelligent people the architect will become the subject of much ridicule and it will go far to destroy the prestige he may still retain. It will have the effect of slenderizing still further the gossamer thread by which he holds his public.

We are all glad that it is still permissible in this country for one to adopt any policy he believes right and also it is the privilege of architects to design their buildings in any manner they choose, but in all efforts of whatever nature a mature judgment will demand a quality of reasonableness as most desirable. It isn't reasonable to expect design to remain static and to retain all of the foibles, fetishes and gadgets of stylistic or period work, yet I cannot subscribe to methods of design so fantastic as to suggest mental unbalance. ...

... There may be an idea that the architect is the one to carry a torch to light the way for the blind and faltering public in matters of building design.

If this is so, then the torch bearers should be selected with great care. The 33 designs illustrated most certainly do not represent the best thought and they are in no sense typical of what the able American architect can do.

I feel we have had enough of the European influence from both the past and the present and that we should be able to develop a truly fine style in a sincere and noble manner.

Pure design has nothing to do with periods, styles, time, nations or individuals. I have always thought that design means the enclosing of spaces by lines to produce the most pleasing effect to the greatest number, and that beauty is that which creates a pleasant reaction to the senses through the eyes.

I can see nothing in the 194x issue that seems to be even remotely related to good design or beauty. Architecture implies more than simply bringing together certain building materials in a more or less permanent form. Beauty must also be present. I know what a dangerous word beauty is and what an avalanche of talk it can bring down upon the user of it.

Do the 33 designs reflect our national taste in architecture at this point in our history? Are we that kind of a nation? I cannot believe it.

The thing that has happened to architecture in the last few years is not pleasant to see. It is a real tragedy. ...

... I hope to see another change that will produce architecture that we will not be ashamed of in the years to come. ...

Washington, D. C. JOSEPH A. PARKS

Modern architecture is not hard to understand. That is why it is in "full bloom." FORUM Editors suspect that contemporary design, like the horse, is here to stay.—Ed.

RISING TIDE

THROUGH '42 INTO '43

Again and again, on more and more housing projects, the advantages of full wall construction with giant Strong-Bilt panels by Upson is winning cost-conscious builders in a steadily-advancing tide

For these reasons: Upson Strong-Bilt Panels offer the means of doing *three important jobs at the same time*—(1) applying durable interior wall linings (2) providing efficient insulation (3) completely finishing wall and ceiling surfaces. All in one operation—with the same material.

Thick, strong, rigid, durable and *crackproof*, these vastly improved panels permit a wider application of the new mass production speed systems, whether based on pre-fabrication or site fabrication.

They *reduce construction time*, thus bringing about *substantial savings in cost* while assuring *crackproof* construction with a surface of surpassing beauty and charm.

If you are planning war housing, remodeling for the war program, or designing for the postwar market, let us show you how to use Strong-Bilt Panels for greater efficiency, speed and economy. The Upson Company, Lockport, New York.

► **FULL WALL CONSTRUCTION:** Special giant panels 8' wide, long enough to cover entire wall of average room without seams or joints. Also available in regular 4' widths.

► **DRY-BUILT METHOD:** No water. No moisture. No "drying-out" period. Apply any month of year, in any climate.

► **APPLICATION TIME:** 40 to 50 man-hours for average family unit. Panels driven against pronged Floating Fasteners nailed to studs. No taping—no cutting—no filling of joints. No nails to countersink. No filled holes to mar surface.

► **INSULATION VALUE:** Up to 3½ times that of plaster. High resistance to sound.

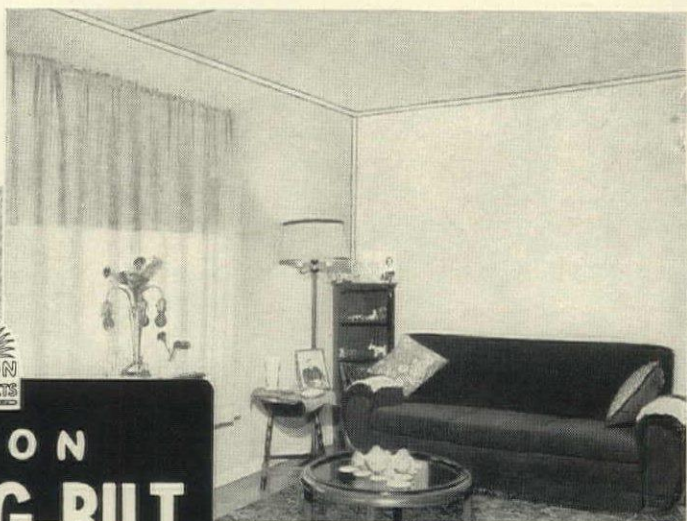
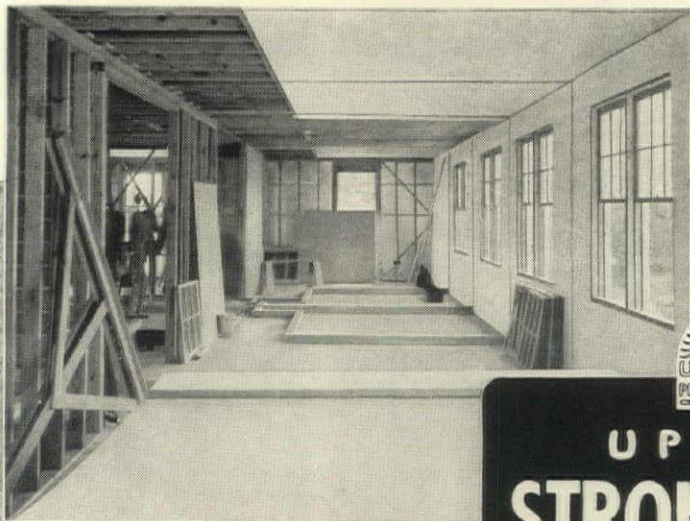
► **STRONG AND RIGID:** Stands impact test six times boards with a mineral core.

► **FINISHING:** Beautifully pebbled surface, pre-finished and pre-sized at factory. Painting begins immediately after application of trim. Single coat usually is sufficient—never more than two.

► **FHA ACCEPTED:** Liberal terms streamlined for the duration.

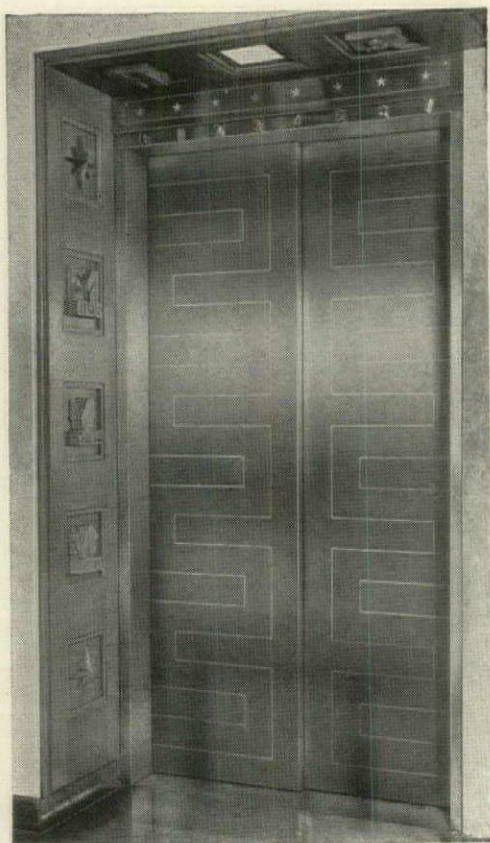
► **PRE-FABRICATION:** For projects of 100 units or more, sizes are pre-cut and numbered at the factory—ready for lifting into place at the site or pre-fabricating plant. Skilled supervisors can be supplied.

Upson Quality Products Are Easily Identified By The Famous Blue-Center

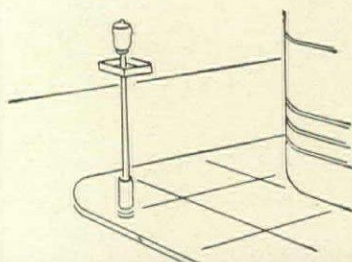


UPSON
STRONG-BILT
PANELS

THE BEAUTY SURFACE FOR WALLS AND CEILINGS



Your GREATEST OPPORTUNITY *is just around the corner*

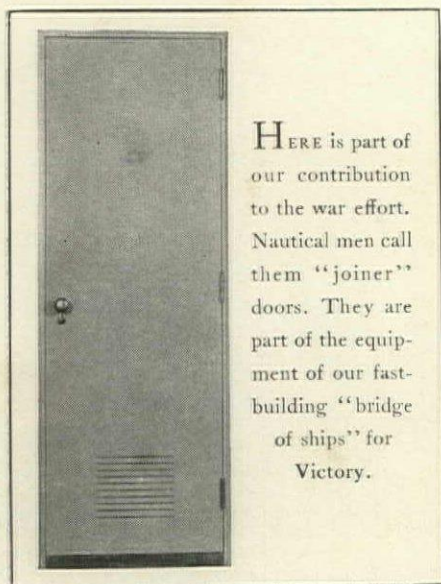


The firing of the last shot in this war will signify the beginning of a vast new era. A period in which the new will represent such a change over the old that most of our accepted methods of manufacture, distribution and consumption will have to be completely altered.

This new era will offer Building Professionals the greatest opportunity ever given any group ...at any time in Humanity's forward march.

Whether this metamorphosis actually begins in 1943... '44... or '4X, it has already begun in the minds and on the drafting boards of those who accept Vision and Imagination as prerequisite to Progress.

We at Dahlstrom, who have worked happily with you for many years, believe firmly in this opportunity. That is one reason why we offer design and technical assistance to all.



HERE is part of our contribution to the war effort. Nautical men call them "joiner" doors. They are part of the equipment of our fast-building "bridge of ships" for Victory.

(Top illustration). A Dahlstrom Elevator Entrance installation in the Baroness Erlanger Hospital, Chattanooga, Tenn. Schmidt, Garden & Erickson, Architects, Chicago.

DAHLSTROM

METALLIC DOOR COMPANY, JAMESTOWN, N. Y.

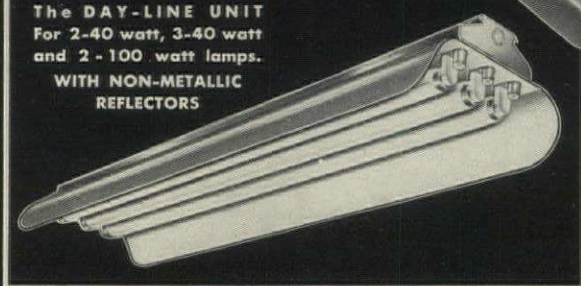
BRANCHES IN NEW YORK, CHICAGO, PHILADELPHIA AND SAN FRANCISCO

Representatives in Principal Cities

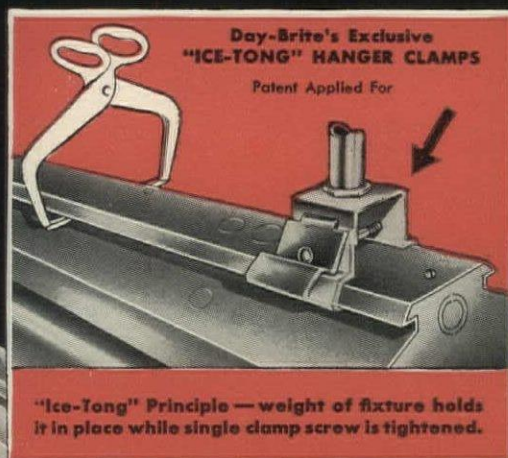
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engineered to fully utilize the
higher efficiency of fluorescent
lighting.

THREE ADVANTAGES are combined in the Industrial Fluorescent Fixtures comprising the Day-Brite Victory Series: (1) High reflection values and long life are assured by Day-Brite's "Super-White" baked enamel finish on non-metallic reflectors . . . (2) Speed in installation and ease of servicing are achieved through simplified mechanical design . . . (3) Maximum rigidity of the entire installation is assured by truss-like construction.

Call your Day-Brite Engineering Representative.

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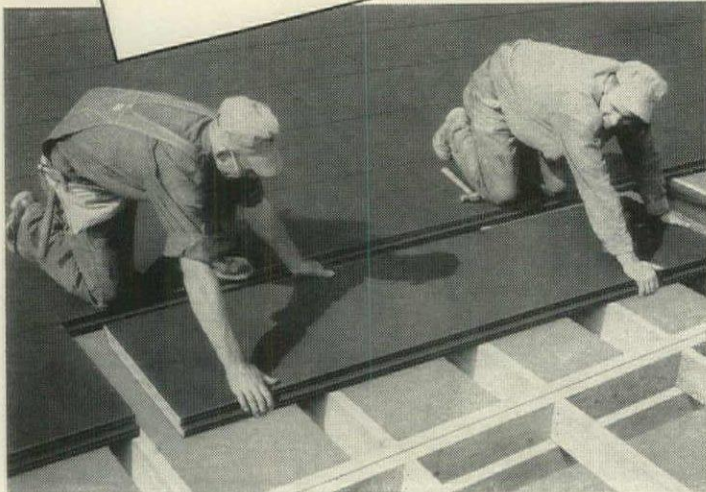
Design Patent No. D-133,458
Other Patents Pending



The COMPLETE LINE OF FLUORESCENT LIGHTING FIXTURES Nationally distributed through all leading electrical supply houses

ANSWER TO AN EMERGENCY

Gold Bond Exterior Board—a combined sheathing and siding material that seals the outside in one operation.



Gold Bond Gypsum Roof Plank saves time and critical materials. Nails directly to wood joists. Provides perfect base for built-up roofing. Ivory underside serves as ceiling. No decoration required.



Gold Bond 1" Solid Partition Panels—husky panels 4' wide. Build office and plant partitions with lightning speed. Portable. Demountable. Salvageable.

3 new products speed Wartime Jobs!

THERE'S no question about it, Gypsum Roof Plank, Gold Bond Exterior Board, and 1" Solid Partition Panels go on in such a hurry and are so easy to apply, they seem like an architect's plan for the materials of the future.

If it hadn't been for the urgency of the war program, it might have been a long time before such time and money-saving products could have been developed. As it is, their use in thousands of emergency structures

has already saved government and industry huge sums of money—without any sacrifice of quality.

No critical materials are used in their manufacture. They are therefore not limited to industrial and military building. Plenty of places around the office and factory where they can do a better job quicker and for less money.

These are just three more examples of how National Gypsum is out in front with new ideas. All

three of these products are immediately available. Write for descriptive folders and specifications.



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**More than 150 different products for
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21 Plants from Canada to the Gulf . . . Sales offices in principal cities

THE MONTH IN BUILDING .. NEWS

The home building front sags again (this page) . . . WPB re-reverses the field (this page) . . . "Specialized price control" (this page) . . . Kanzler presents CMP (page 34) . . . First plans for Postblitz London (page 35) . . . Babcock's city of tomorrow (page 35) . . . No guinea pigs for Virginia (page 104).

BUNGLING BUILDING MONTH

By mid-November the African front was going fine. But at mid-November the Washington building front was still a mess. By mid-November all America thrilled to the naval victory in the Solomons. But at mid-November San Diego's building chaos was a national scandal. By mid-November the Russians were driving the Germans out of Stalingrad. But at mid-November lack of utilities had brought Norfolk housing to a standstill. By mid-November free men all over the world were catching the phrase, "the end of the beginning." But at mid-November conditions in Detroit continued to feature indignant editorials. By mid-November many another war production center was being penalized for lack of shelter to house the needed workers.

Early in October WPB ordered construction agencies to show cause why certain of their projects should not be stopped immediately. On October 27 came a stranger, almost fatal rap with WPB's stop-order for all private home building (which meant 200,000 units). In the form of instructions from Will Kahler (Construction Bureau chief) to field offices the order specified no new P-55 orders (priorities for war housing) would be issued, regardless of rating. Like a cough in the Grand Canyon, the repercussions from all sides were terrific. Most vocal was the National Association of Home Builders, demanding rescission of the order. Result of this and other pressure (some of it Congressional) brought speedy action. Barely one week later came announcement of an allotment of 15,000 additional ingot tons of steel and companion materials to build the 20,000 units of war housing already authorized (steel, of course, was the chief limiting factor), and field offices resumed processing applications.

What this meant was that projects could proceed with careful trimming of sails, according to the newly issued War Housing Standards which became effective on October 28. But most Washington folk are feeling sore about what they term the "unnecessary" order. The "oops, sorry" technique of WPB is beginning to irk those who find shocks of this sort increasingly hard to take.

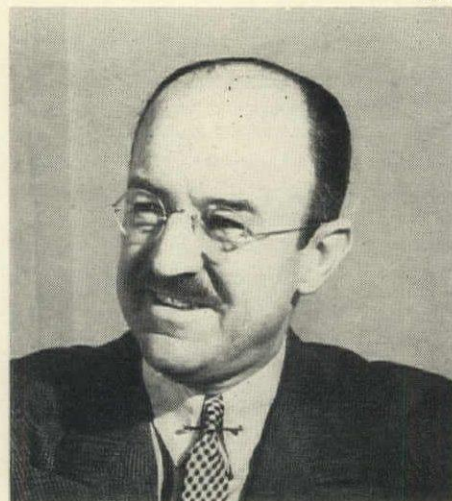
Price ceiling ruling for "specialized price control" brought another migraine-of-the-month to contractors and builders. Known

as Maximum Price Regulation 251, it is designed to maintain a price level as of March 1942 (with a few exceptions), to provide a means of determining a maximum price at that level, to police those prices in order to prevent inflationary building costs.

Who is affected—"all contractors, builders, installers and erectors supplying construction and maintenance services or making sales in which they furnish building or industrial equipment or materials, together with the labor or services required for actual construction, installation or service." Every contract for construction above \$500 must be reported to OPA within 10 days of the contract award. This includes contracts for every possible job—from roof repair to construction of a power dam. Only contractors or subcontractors engaged in work for the War or Navy Departments are excepted and violators are liable to criminal penalties, civil enforcement actions, etc., as provided in the Emergency Price Control Act.

(Continued on page 34)

OWI



ERNEST CARLTON KANZLER

Born in Saginaw, Michigan in 1892, he was Harvard LLB, 1915, married one of the Clay sisters (Edsel Ford married another), was vice-president of Lincoln Motor Co., president of Universal Credit Corp. (handling Ford dealer loans). Nelson made him Chief of WPB's Automobile Branch, then Deputy Chairman in charge of program progress. Now low man on WPB's totem pole (Nelson and Eberstadt top two), he will be "program vice-chairman," head the program, facilities and distribution bureaus, be responsible for essential traffic direction, CMP (See story next page) establishment.

Reactions were varied. The Associated General Contractors thought the extra paper work involved was unnecessary since contractors are now regulated in effect on everything except margins of profit, which are pretty effectively kept in line by competition. Others, official-housing-Washington especially, lauded the order, declaring it the only possible answer to increasing black market practices.

THE IMPORTANCE OF BEING ERNEST KANZLER

To assembled press, members of New York's Association of Business Paper Editors, Ernest Kanzler, WPB prophet for the day, brought the gospel of CMP (Controlled Materials Plan). Speaking off-the-record, he outlined the new plan vaguely, indicated how it would affect everyone who produces, buys, sells, utilizes critical materials. In the potted palm grandeur of New York's Hotel Pennsylvania, the details sounded academic. In the strong light of afterthought, it became clear that CMP would dominate planning and production in the coming year.

Materials gremlins: Air-minded Americans, all aviators, know about gremlins. They are the boogies that get in the way of perfect performance, that bepebble landing runways, that tickle the navigator at crucial moments.

Similar gremlins invaded the materials situation early in the war, held the field uninterrupted ever since. Major gremlins in PRP's method of allotment:

- ▶ Allotments were not adjusted so that production could proceed at an even rate.
- ▶ Allotment was approached from the consumption rather than the supply end.
- ▶ Arrival time of materials was uncoordinated.

What CMP will do: Attacking the persistent gremlin of disorganization at its root, WPB announced on November 2 the formulation of the Controlled Materials Plan, sent to publications, field offices, the first draft. Complicated in form and working details, the plan is scheduled for July 1 operation, but will become mandatory during the 2nd quarter of 1943.

Besides adding another set of initials to the already thick Washington alphabet soup, the plan is intended to make certain that production schedules jibe with material supply in order to meet production requirements. The method:

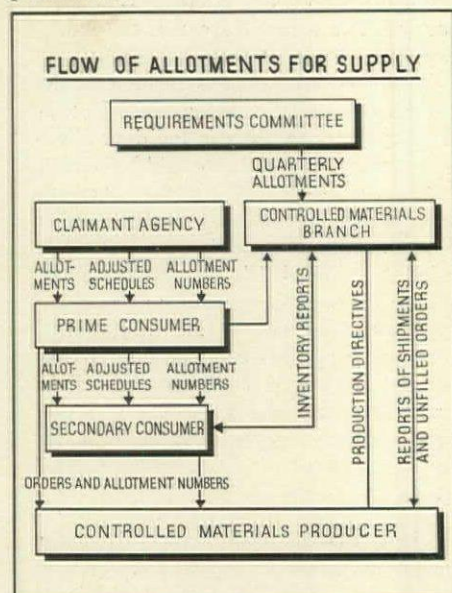
▶ Allotment of critical materials will be made through 7 "claimant agencies:" Army, Navy, Maritime Commission, Aircraft Scheduling Unit, Lend-Lease, Board of Economic Warfare, Office of Civilian Supply, to prime contractors producing essential goods. They in turn, will divide allotments with their subcontractors and suppliers.

▶ First "controlled materials" will be the most critical, most basic: carbon and alloy steel, copper, aluminum.

▶ Prime contractors will prepare breakdowns for all materials required in ap-

proved end-products on which they are working. Called a "Bill of Materials," the breakdown will specify what is needed and when. First bills of materials will be assembled before January 1 of three basic materials. Preliminary estimates of supply and requirements will be ready by January 15.

Transition from PRP (under which each firm of any size, prime- or subcontractor, submitted its own requirements to WPB for approval, received an individual authorization for materials—a "horizontal" procedure) to CMP (a "vertical" plan) will be gradual, "without disruption of production."



What CMP means to Building: Since war housing has not been classified as a claimant agency, since it does not fit comfortably into those designated, it is dumped into the Office of Civilian Supply along with everything similarly ill-defined. Trouble here is that this action will perpetuate the basic fallacy of the present setup: regarding war housing as a civilian undertaking. If housing is limited to the amount that is necessary to take care of the needs of in-migrant war-workers, it will have to move up to a better spot than caboose on the war freight train.

Plant construction as well as all other construction of facilities for war production—Army and Naval bases, air training centers and so on—will be handled under the new program as military production. The Army, Navy or Maritime Commission as the case may be, will submit estimates for the requirements of construction of this sort along with but *separate* from allotment requests for straight production. In other words, the claimant agencies will submit three kinds of lists—one for production, one for facilities, one for maintenance and repair.

FPHA DISCOVERS COLUMBUS

Stoutly establishing a judicial blockade of public housing, a recent decision of the Ohio Supreme Court denied tax-exemption to the Columbus Housing Authority. Thus, Ohio courts have reversed

the field and voted down housing policies universally accepted throughout the nation.

Acting decisively, FPHA Commissioner Herbert Emmerich announced that they would take over more than \$60 million dollars worth of Federal-aided, low-rent housing by April 1, 1943 unless the Ohio situation is relieved.

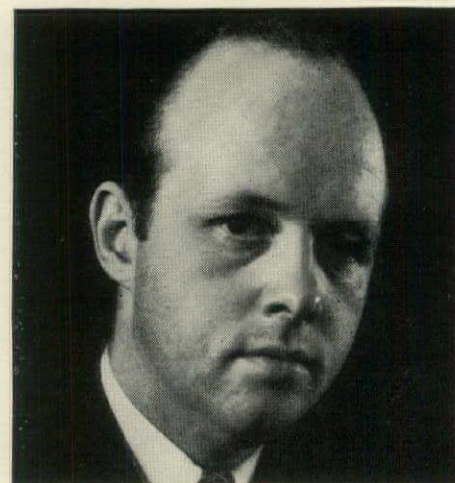
Commissioner Emmerich stated that this Federal action would be necessary to avoid a doubling of rents and wholesale evictions of tenants, many of whom are doing essential war work. He added that denial of tax exemptions would kill the active market for metropolitan housing authority bonds and halt construction of incompleting projects.

Pending developments, housing authorities in Akron, Cincinnati, Cleveland, Columbus, Dayton, Toledo and other war production centers are depositing deeds of their projects in escrow, in lieu of foreclosure of the Government-held mortgages.

PREFAB ASSOCIATION

Typically American proof that the fledgling prefabricated house industry is here to stay comes with the formation of The Prefabricated Home Manufacturers Ass'n.; which held its first convention at Louisville, Ky. last November. The objectives as outlined by President Frank M. Roberts of Houston, Texas, are:

1. Dissemination of information to the public about prefabricated homes.
2. Establishment of industry standards.
3. Study of distribution problems.



PREFABER'S PREXY ROBERTS

W. L. Greene

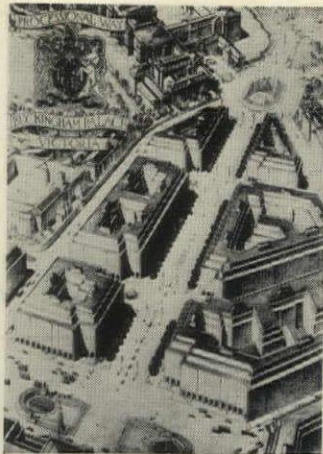
4. Improved manufacturing methods.
5. Cost and accounting studies.
6. The exchange of ideas.

Already looking to postwar housing, the Association is planning a series of bulletins for manufacturers describing items which the Association members want developed. Subjects planned include ten-minute-drying exterior finishes, all plastic windows, plastic window stools and "plug-in" vertical heating equipment.

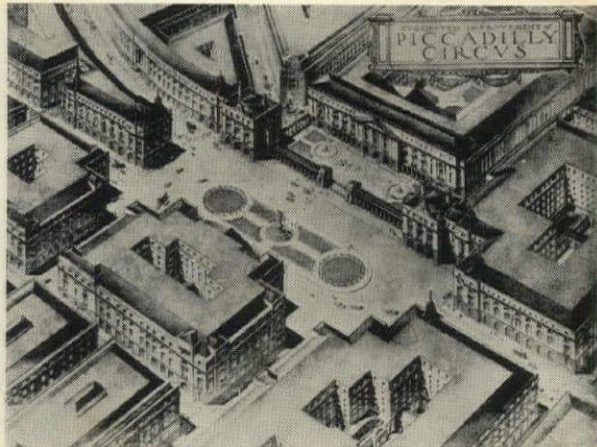
Foster Gunnison of New Albany, Ind., is vice-president and Henry Palmer of Langhorne, Pa., is secretary and treasurer. Membership is by invitation only.



SIR EDWARD LUTYENS



New Processional Way to Buckingham Palace



... Piccadilly Circus with its new promenade for refreshment.



... St. Paul's Cathedral, seen from the west.

POSTBLITZ LONDON

Early last month Londoners crowded into the first gallery at Burlington House to view the volunteer work done during the war's first three years by Royal Academy architects. What they found was puzzling to the general public, shocking to the city's progressives. The Committee responsible for the plans was headed by city-planner Sir Charles Bressey and Sir Edward Lutyens, architect, oldest members of the Royal Academy. As Greco-minded Bressey and Lutyens saw postwar London, its inter-city railroad system would be moved to the outskirts of the city, form a ring around it. All terminal stations would be pushed back half a mile or so along the railways. London would see a new high-speed elevated traffic way, a low-level ordinary roadway for slow traffic, an underground railway. A royal road for processions would stretch from Buckingham Palace to Victoria Station. The grounds around St. Paul's Cathedral, leveled by the blitz, would be cleared, remain unbuilt.

About fifty years would be required for completion of the grandiose scheme, lacking not in detail but rather in a realistic modern approach to the problems of city planning. Cost was estimated at about \$100,000,000, a figure considered nominal by other Royal Academicians.

The potent *Manchester Guardian* asked

Professor C. H. Reilly to comment on the show. The Professor, in surprisingly guarded style, said, "No subject should more deeply appeal to the imagination of the English architect than making London a nobler city, and if this exhibition at first sight does not seem to rise in every respect to the opportunity it is probably due not so much to the pre-steel eighteenth-century manner in which the buildings shown are conceived as to a very proper desire of their designers to preserve the particular characteristics of London and to the restraining influence in this direction of the great architect who is chairman of the group as well as president of the Academy."

To many Americans as well as Britons this desire seemed anything but "very proper" and merely a pompous example of the academicians' chronic inability to shake off the dead hand of the past.

GULICK REPORT

Bressey and Lutyens' well-rendered but strangely conceived sketches led many observers to recall the impressive WPB report by U. S. Dr. Luther Gulick, Director, Office of Organizational Planning and E. W. Thompson published late last spring but marked at the time "restricted." The report stresses the necessity of wholesale physical rebuilding; housing for the demobilized millions, enthusiasm for the tremendous task of creating new cities, a new Britain.

Gulick reported that a number of groups and individuals in the British Isles are at work. Proceeding systematically and impressively to summarize what has been done, what is being planned and what shape the planning will take, Gulick's report concluded with reassurances that in England "a large number of original and vigorous minds are attacking postwar planning on many fronts."

Concurrently, British architectural magazines devote more and more space to the problems of getting the work under way. Having passed the phase of discussion of the need, they are now in the practical sphere of action. The magazine *ARCHITECTS' JOURNAL*, together with the R.I.B.A., is planning to institute parliamentary action to insure the immediate demobilization of architects, builders, engineers from the armed services after the war so that construction, reconstruction and widescale planning can proceed without delay.

URBAN OBJECTIVES

Before a grim-visaged convention of the Mortgage Bankers Ass'n., Frederick M. Babcock, Vice President, Allied Building Credits, Inc., one-time FHA Deputy Administrator, spoke the plainest words yet spoken on urban redevelopments. Stating that he had studied all major proposals various groups now offer,

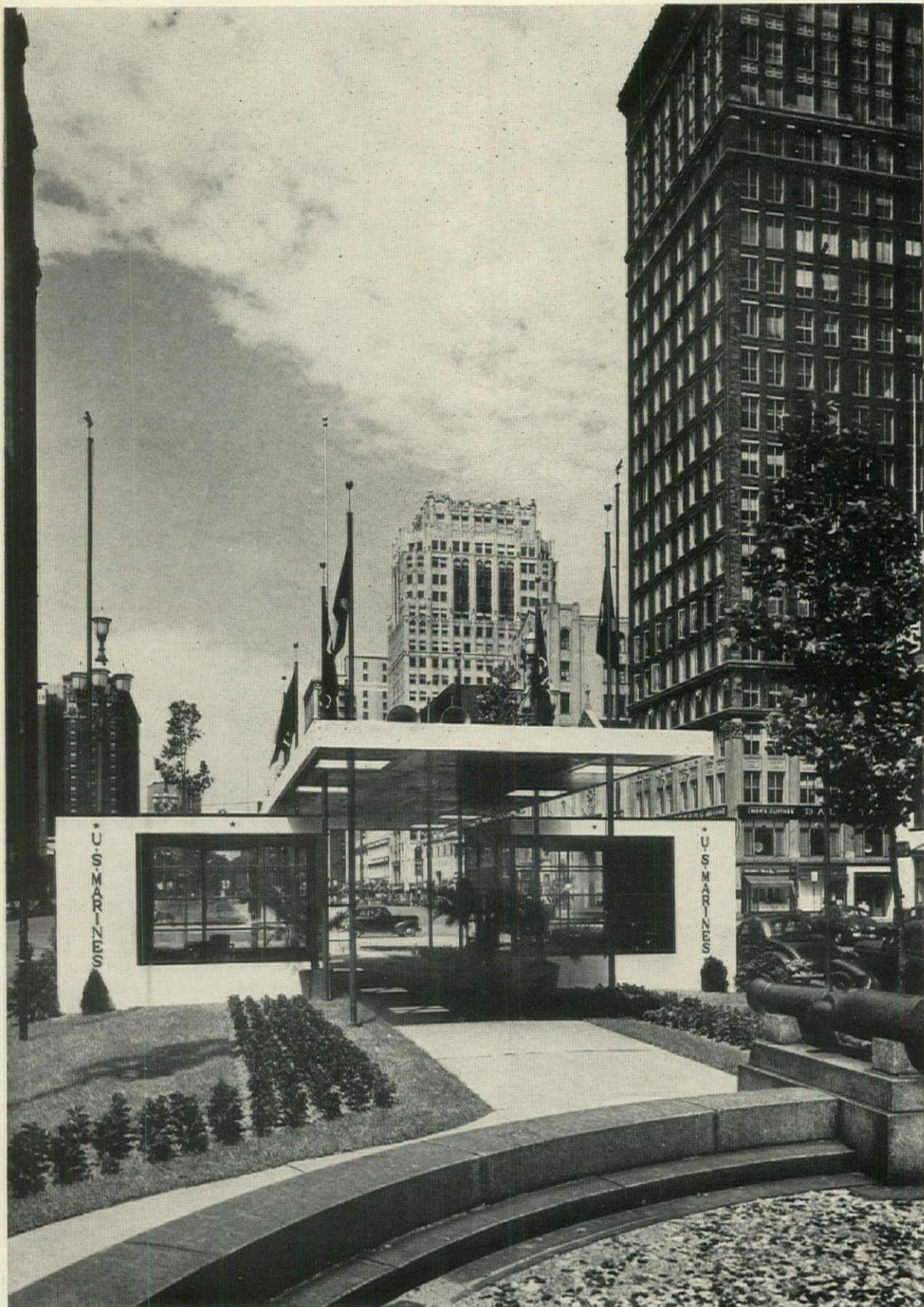
(Continued on page 94)

RECRUITING STATION

FOR THE UNITED STATES MARINES, DETROIT, MICH.

CORNELIUS L. T. GABLER, ARCHITECT

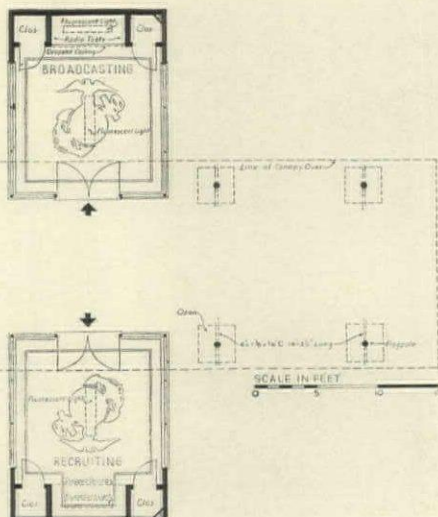
Photos, Elmer L. Astleford





It is in delightful little structures such as this that modern architecture gets its best chance to speak its piece to the general public—to show what all of the theorizing about the exciting possibilities of new materials and new engineering really means. The design problems are so simple and clear-cut, costs are in any event so low, and the ordinary concepts of permanent “investment” in the structure so foreign to the whole approach that the architect is free to really express himself in a new way.

In this instance, the two functional units, tiny offices for recruiting and broadcasting, are treated as separate glazed boxes, connected by an approach-shelter supported on eight flagpoles. Square openings in the roof allow for raising and lowering the flags, while cross beams on the centerline of the openings connect the roof structure with each of the poles. The station was built in a single day from standard materials. Both labor and materials were donated. Windows are double-glazed.





SERVICE MEN'S CENTERS

CENTER AT NEW YORK CITY

Photos Opposite,
Ezra Stoller

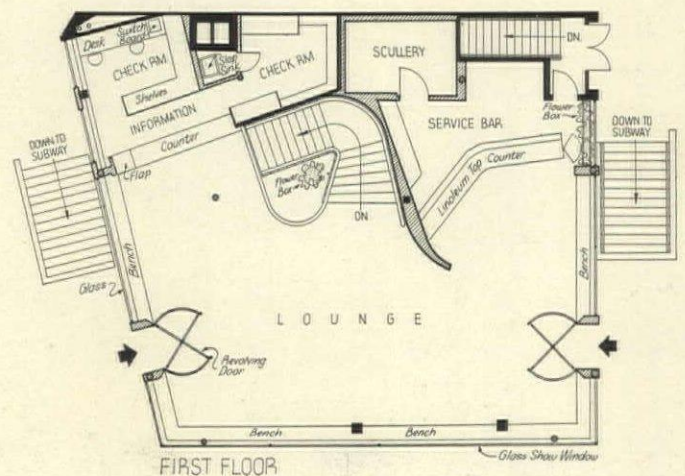
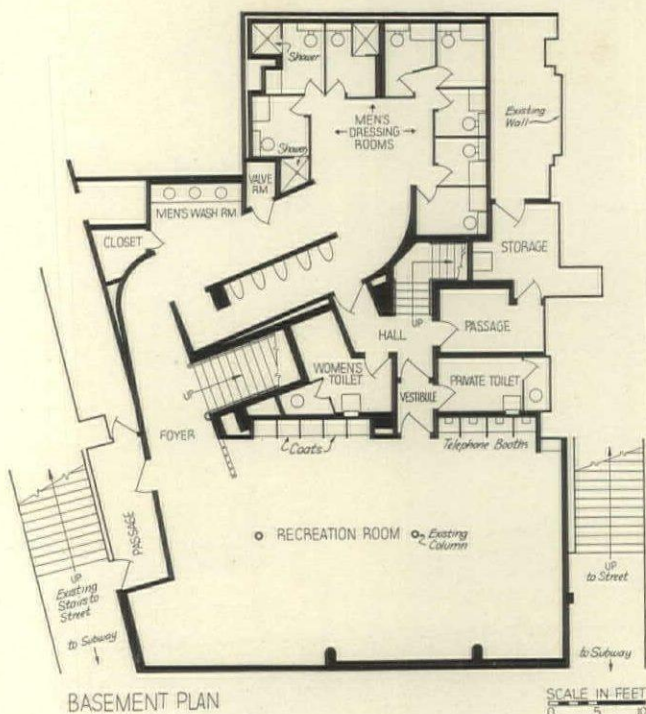


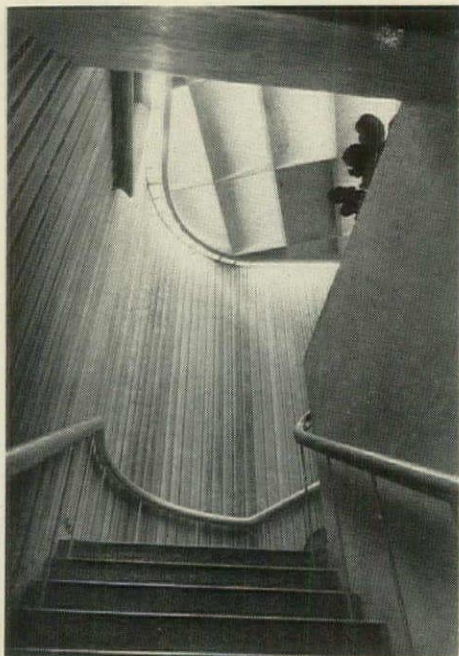
Gottschow-Schlesinger

HARRISON, FOUILHOUX & ABRAMOVITZ
ARCHITECTS

MORRIS KETCHUM, JR., ASSOCIATE

As a service to the armed services, a contribution to war morale and, incidentally, an excellent means of publicizing its product, the Pepsi-Cola Co. has recently opened in New York City and Washington, D.C. two canteens for Army and Navy men on leave. The New York center, at the apex of Times Square, handles an average of 28,000 men a week. It consists of a first floor lounge, information desk, check room and stand-up bar, a basement recreation room and dressing room where guests may shower, shave and change uniforms. Maintained by Pepsi-Cola, and operated by the N. Y. Defense Recreation Committee, the center offers free towels, razor blades, shaving cream, writing paper and Pepsi-Cola—coffee, milk, frankfurters and hamburgers at five cents each. The centers are planned for conversion into civilian information depots after the war.



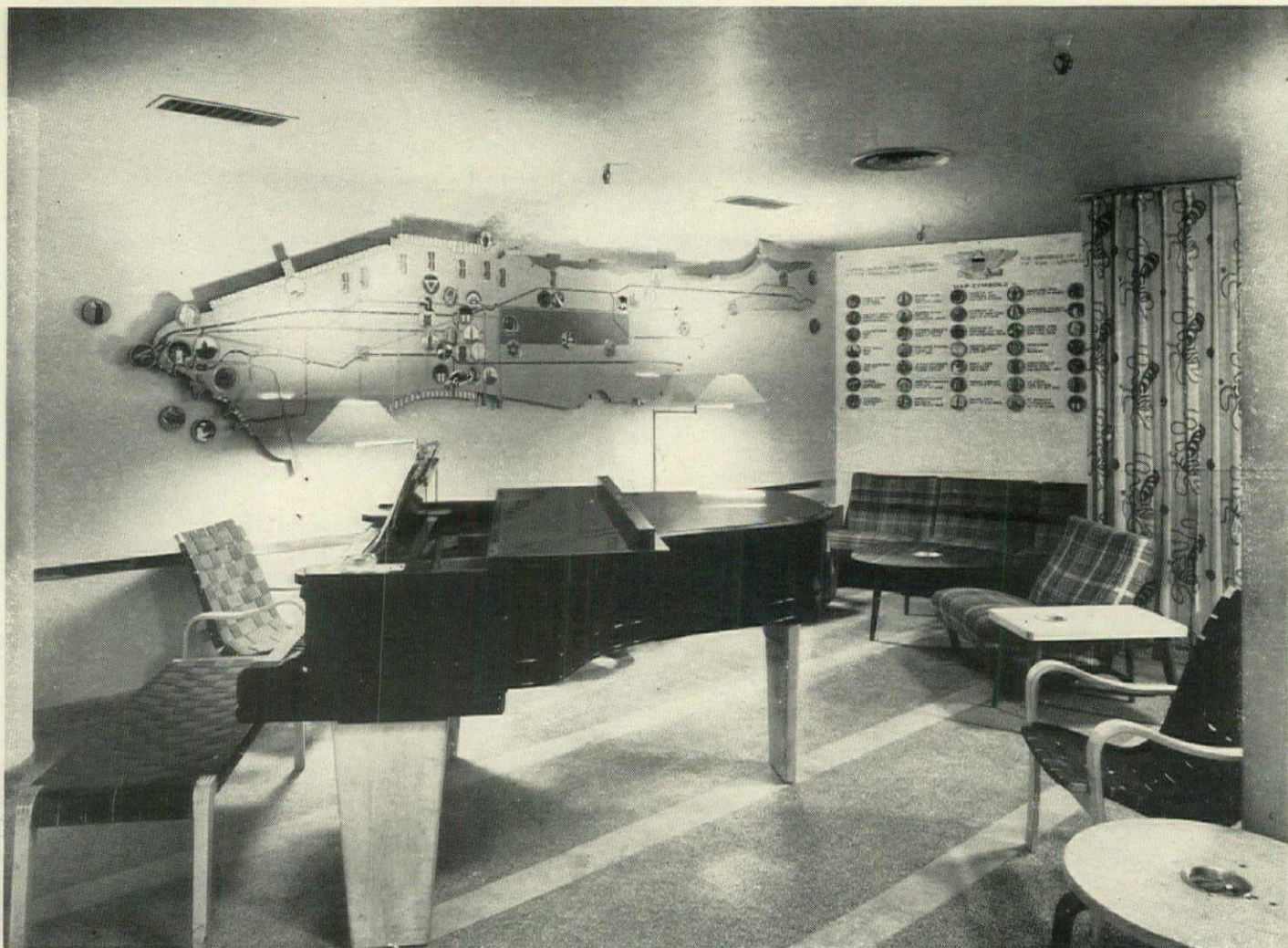


Photos, Gottscho-Schleisner

Distinguished by a fine lighting installation, and an adroit use of non-critical materials, the design of the public portion of the center is simple and open. The recreation room (above and below) is used for table games, reading and writing, radio and piano playing. A cut-out map of Manhattan Island, designed by Domenico Mortellito, shows points of special interest to service men. Fabrics throughout are by Dan Cooper.

FINISHES AND EQUIPMENT

FLOORS—terrazzo or cement. WALL COVERINGS—pine boarding, Wall-Tex, Columbus Coated Fabrics Corp. FURNITURE—Artek-Pascoe, Inc. HARDWARE—bronze and chromium. ELECTRICAL INSTALLATION: Wiring system—rigid conduit and BX. Switches—toggle. Fixtures—Nelson-Tombacher -Co., Inc. TOILET FIXTURES—Crane Co. HEATING—steam system. CONVECTORS—American Radiator Co. AIR CONDITIONING—filtering, cooling, York Air Conditioning Sales Co. VALVES—Jenkins Bros, Inc. and Johnson Service Co. WATER HEATER—Excelso Products Div., American Radiator Co.





Hessler Studio

HARRISON, FOUILHOUX & ABRAMOVITZ
ARCHITECTS

MORRIS KETCHUM, JR.
ASSOCIATE

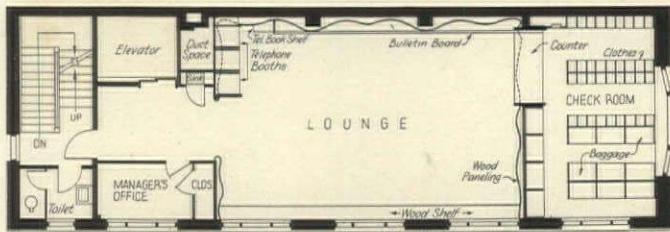
The Washington center, located within the amusement and shopping area, occupies a four-story building once used for furniture display. The first floor serves as a cafeteria, the second and third floors as lounges, and the fourth floor for dressing and wash rooms. An existing elevator and stairway at one end of the building connect the several floors. The second lounge (above) corresponds in function with the main floor of the New York center, with check room facilities for suitcases and overcoats, and chairs and sofas for relaxation. A map of the city of Washington, also by Domenico Mortellito, is displayed on one of the pine-boarded walls. The center is operated by Washington's War Hospitality Committee, with Pepsi-Cola paying the bills.



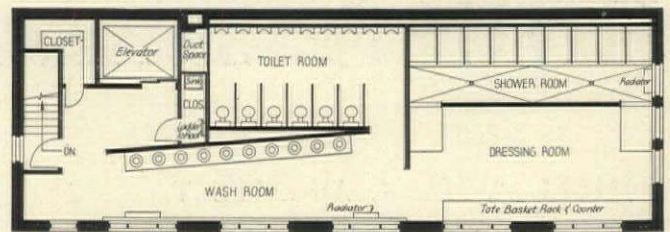
Photos, Hessler Studio

The third floor lounge (above) is used for reading, writing, quiet games, and listening to music. A continuous writing table, the entire length of the window wall, affords ample space for this popular activity. As in the New York center, furniture is by Artek-Pascoe. Picture at right shows ground-floor cafeteria, views on facing page fourth-floor dressing and wash rooms. Dressing room employs "tote baskets" instead of space-consuming lockers, wash room has basins set in a continuous, linoleum-covered counter.

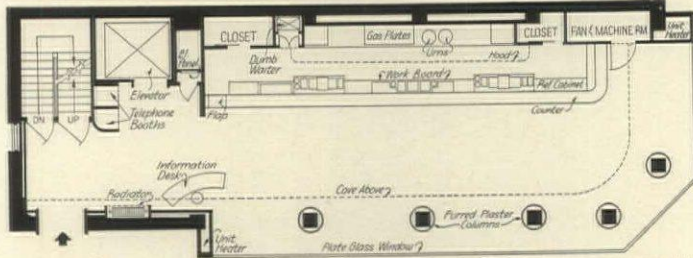




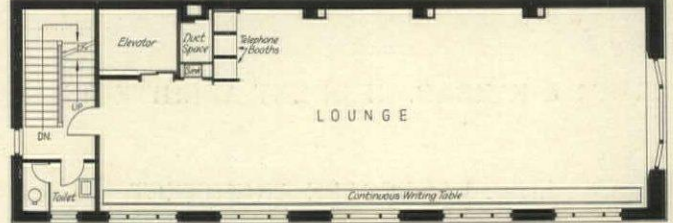
SECOND FLOOR



FOURTH FLOOR



FIRST FLOOR



THIRD FLOOR

SCALE IN FEET
0 5 10



DRESSING ROOM

WASH ROOM



FINISHES AND EQUIPMENT

FLOOR COVERINGS—linoleum, Congoleum-Nairn, Inc. **WALL COVERINGS**—wood paneling and Wall-Tex, Columbus Coated Fabrics Corp. **BAR**—Liquid Carbonic Corp. **FURNITURE**—Artek-Pascoe, Inc. **DRAPERIES**—Dan Cooper, Inc. **HARDWARE**—John R. Schoemer. **ELECTRICAL INSTALLATION**: Wiring—BX. Switches—toggle. Fixtures—Kurt Versen Co. **PLUMBING**: Soil pipes—cast and galvanized iron. Water pipes—brass. Toilet fixtures—Crane Co. **HEATING**—steam system, Carrier Corp. dry filters. Regulators—Minneapolis-Honeywell Regulator Co. **WATER HEATER**—Bell & Gossett.

HOUSE IN LADUE, MISSOURI

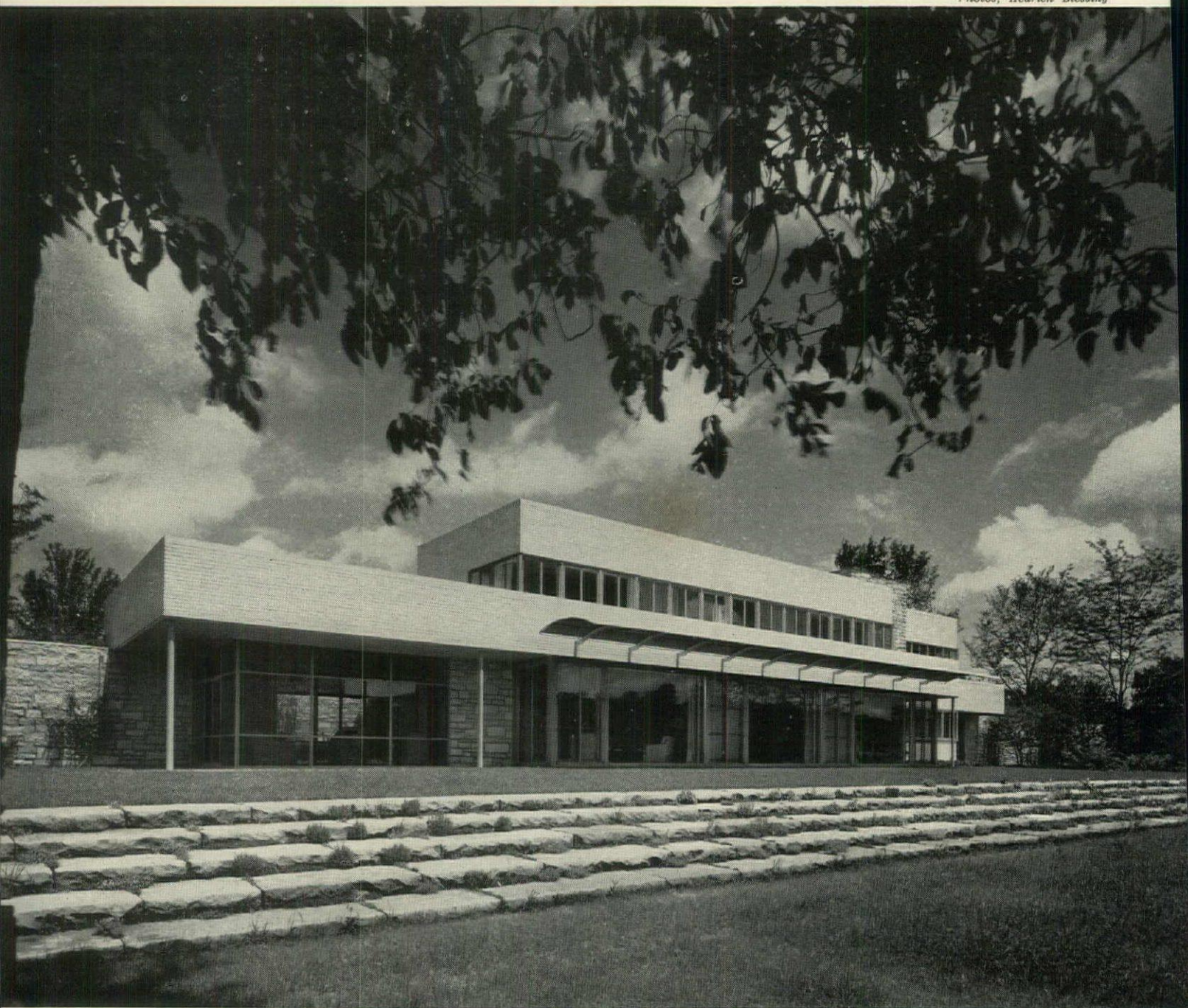
SAMUEL A. MARX, ARCHITECT

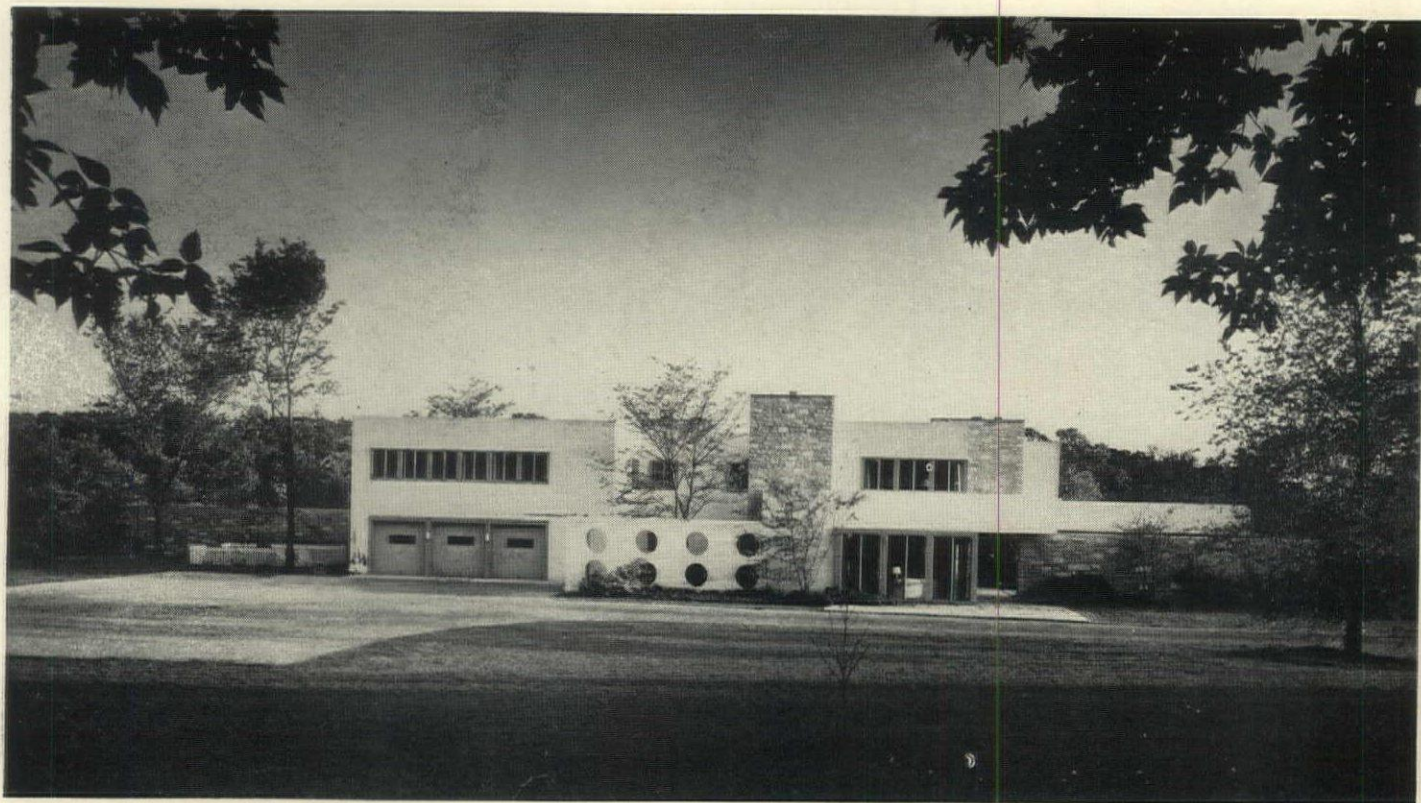
NOEL L. FLINT, C. W. SCHONNE, ASSOCIATES

STUDY & FARRAR, RESIDENT ARCHITECTS

FRANZ LIPP, LANDSCAPE ARCHITECT

Photos, Hedrich Blessing





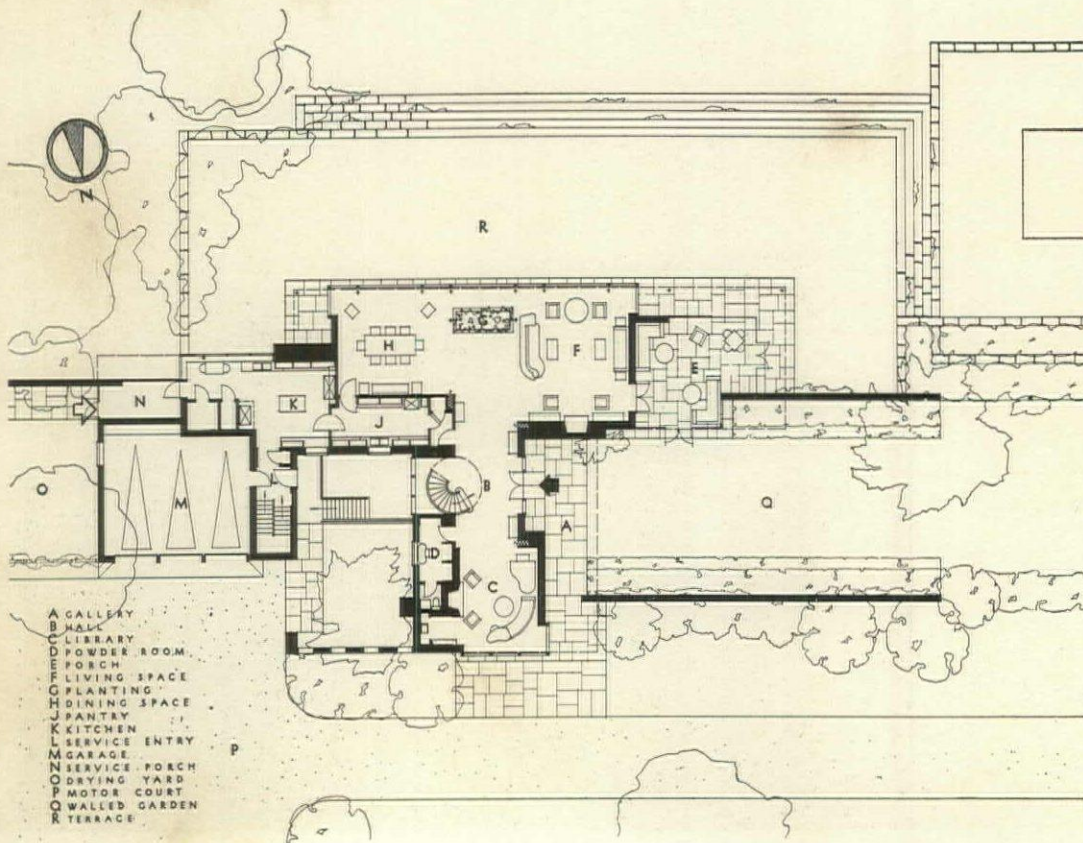
Located in rolling, wooded country in suburban St. Louis County, this large house commands extensive views to the south, east and west. Living and dining areas, a screened porch and all of the master bedrooms are on the south side, shown on the facing page. Principal first floor rooms have continuous, floor-to-ceiling glazing partly fixed in large panels and partly in casement doors, shielded by a canvas awning stretched on a curved, metal frame. The approach side of the house, shown above, faces a motor court to the north. Entrance is by way of a sheltered terrace flanking the right-hand side of the projecting wing, which contains the library and central stair hall. The main entrance, below, opens directly into the stair hall.

ENTRANCE





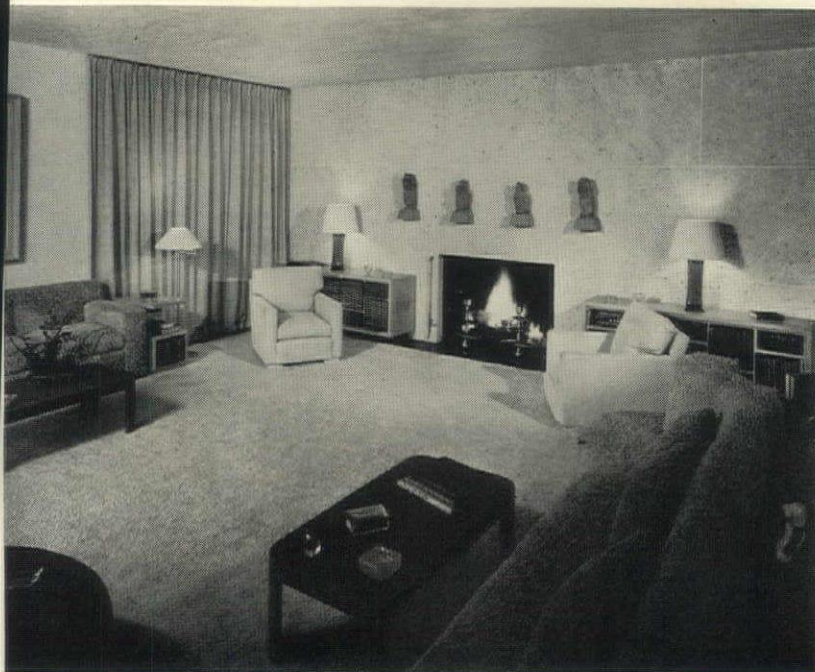
Views above and at the right show the entrance stair hall. The smaller picture was taken from the end of the dining area (see plan, below), and shows the inside of the entrance doors and the folding partitions at each end of the hall which divide it from the library and living room areas. The dramatic view of the stairway is seen from the right of the main entrance.



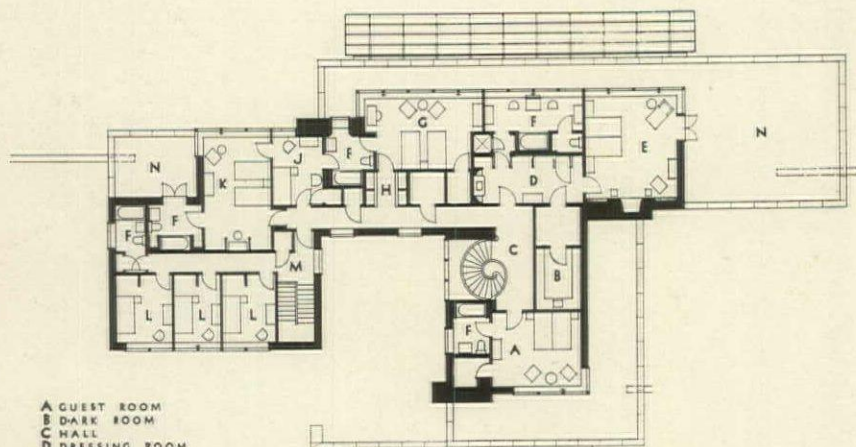


Living and dining areas are combined into a single large space separated by a plant pocket recessed in the floor opposite the entrance hall. Picture above shows the extent of this space, looking from a point in front of the fireplace towards the south wall and the dining area. Pictures below show two views, taken in opposite directions, of the living room portion, which has been kept small to permit group conversations. Fireplace wall is Cordova shell stone, other walls are sand-float plaster painted off-white. Floors throughout are gunmetal rubber tile.

Curtains and other hand-woven fabrics by Dorothy Liebes



HOUSE IN LADUE, MISSOURI



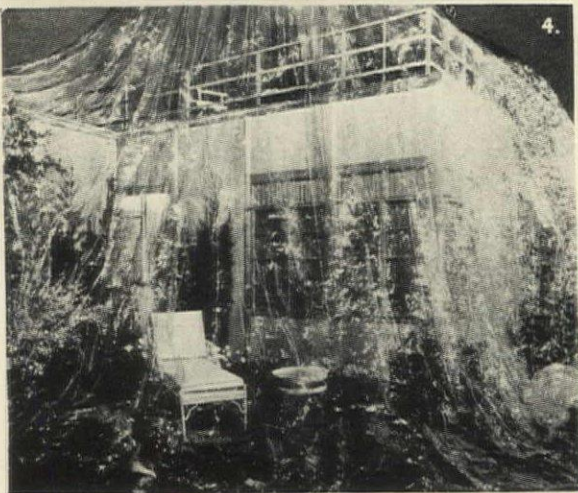
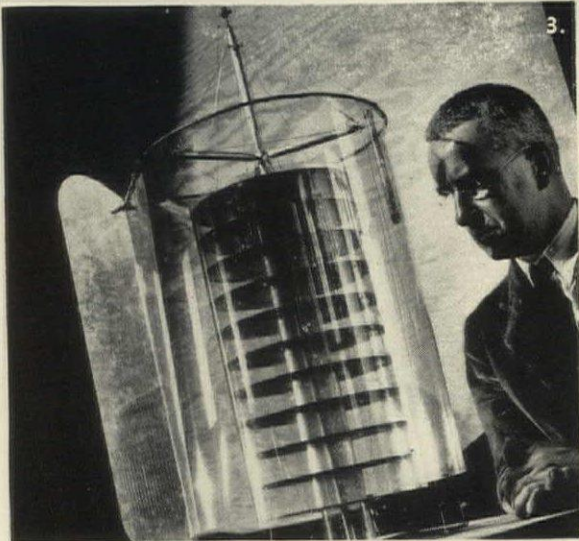
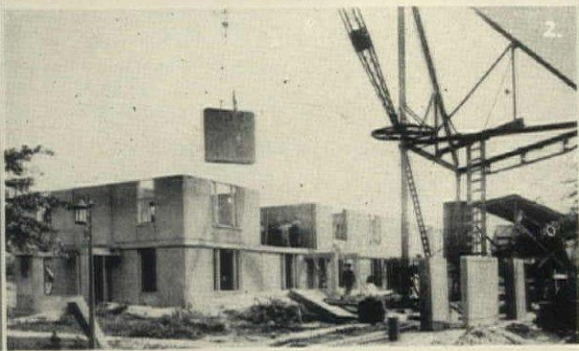
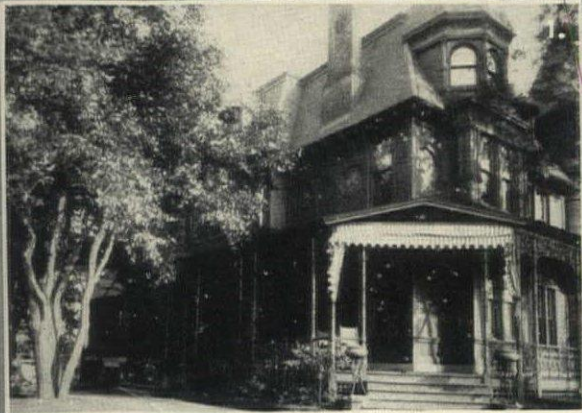
- A GUEST ROOM
- B DARK ROOM
- C HALL
- D DRESSING ROOM
- E DOWN ROOM
- F BATH ROOMS
- G CHILD'S ROOM
- H LINEN CASES
- J NURSE'S ROOM
- K BABY'S ROOM
- L SERVANTS ROOMS
- M SERVICE STAIR
- N SUN DECKS



Principal second floor rooms, with the exception of the guest room in the library wing, are located on the south side of the house, with continuous windows towards the view. Children's bedrooms are divided by a nurse's room, later to be used as a study. The master bedroom, shown below, is entered through a large dressing room which also acts as a vestibule to the double bath, and a fully-equipped darkroom. All master bedrooms have access to sun decks.



PREFABRICATION



The Forum inaugurates with this issue a new department devoted exclusively to prefabrication—its theories, experiments, trials and achievements. As background for this material, and because of its own merit as a review of prefabrication developments to date, we are launching this new editorial feature with a comprehensive series on the prefabrication movement in America, *The Prefabricated House*. Based on an original research study by The John B. Pierce Foundation, and prepared for publication by the editors of *The Forum*, the series is divided into six chapters and will appear in installments. It is expected that it will subsequently be published in book form by The Pierce Foundation.

THE PREFABRICATED HOUSE

1. A MOVEMENT EMERGES

2. IDEAS

the stimulus to change

3. CONCRETE

forerunner to the movement

4. STEEL

prominent in early experiments

5. WOOD

material of realization

6. "REENGINEERING"

the measure of progress

1. Steel frame house by Niels Poulson, Brooklyn, 1890. 2. Pre-cast concrete panel construction used in Forest Hills Gardens, N. Y. by Grosvenor Atterbury, 1918. 3. Buckminster Fuller, designer, with model of a proposed 10-story apartment house hung from a steel mast, 1932. 4. Cellophane-wrapped "Motohome," exhibited in Wanamaker's store, New York, 1935. 5. Prefabricated war housing, 1941.

1. A MOVEMENT EMERGES

1. The Wood Frame House

In one sense, prefabrication in America may be said to have begun 100 years ago, when the wooden frame house was developed. Evolved as machine-cut nails replaced hand-forged nails or wooden pegs in construction, and as the production of wood in standard sizes followed the introduction of the power saw, this house introduced into home construction the first elements of prescheduled procedure upon which modern mass production is based.

In place of the old post and girder support for wood houses or the solid load bearing masonry wall support for houses erected brick by brick, a unit-formula for the structural support of the house began to gain acceptance. Under this formula, closely spaced columns or posts that came to be known as studs were erected, using standard wood pieces placed at regular intervals to form a frame that supported the structure. Over this frame was placed an interior and exterior wall-finish to provide shelter and enclosure.

So popular did this house become that even brick and masonry structures began to be built in imitation of it, with a brick or stone veneer used as the exterior wall finish on a wooden stud frame. With the introduction of mechanical equipment for the home—including plumbing, heating and electric service—the space between the wall surfaces in the frame of this structure was particularly adaptable to the installation of the piping, ducts and wiring for such equipment. And, with the use of special insulating materials for temperature control which has come to the fore more recently, the same space has been used for its application, varying the former practice of depending upon wall thickness for this control.

Scheduled production in the wood frame house was limited largely, however, to the use of machined and scheduled procedure in the preparation of materials such as the machined nail or a standard 2 x 4 in. for studs. Erection of the house from those materials has remained largely a handicraft procedure executed on the site.

The idea of carrying this further through prefinishing or prefabricating the house itself is not new. Since before the beginning of this century the application of this practice to the wooden frame house has been tried. Wood studs, rafters and beams were delivered to a site precut and notched for erection in what became widely known as the "mail order house." For vacation cottages sections of a wall or roof were preassembled before delivery to the site, and this practice too came to be adapted for wood frame homes in limited operations. During the first World War, large numbers of these partially preassembled houses were erected to house war workers.

Nevertheless, the wood frame house was, in the main, a structure that was evolved to utilize, through handicraft erection on the site, the products of prescheduled machine production. It left our construction practice in the position of taking only partial advantage of the benefits of mass production that had produced low-cost products for a large part of our national requirements. Before prefabrication was to become a major factor in the nation's economy, structure itself was destined to be modified, adapted and even fundamentally changed.

PREFABRICATION is all things to all men, and a source of confusion to many. To Foster Gunnison, pioneer prefabricator of New Albany, Indiana, it is the way to turn a scattered, handicraft industry into centralized Big Business, by mass production of panel houses for a national market. To Roland Wank, chief architect of the TVA, it is a way to build houses in two or three boxlike parts small enough to truck on the highway. To Outerbridge and Wilson, of the Homasote Co., it means making walls and other structural parts in local lumber yards and mills, and a whopping new market for Homasote. To John Taylor of American Houses prefabrication spells a nation-wide service permitting architects and builders complete flexibility through use of standardized, mass-produced parts. To Buckminster Fuller, famed inventor of a bathroom stamped from sheet metal, it offers an overnight route to a technological millenium when every house will come equipped with a color television set, an automatic laundry that returns ironed shirts in three minutes, and a wonderful contraption that emits a soapy mist in which you can bathe from head to foot while standing in a dishpan on the living room rug.

Still others see prefabrication as the one sure way to a packaged, trade-marked house of known quality and set price. It is said to offer the possibility of revolutionary changes in land development and house financing, through separation of house and site. It is viewed as the only hope of sustained building activity after the war, or—conversely—an annoying, but not very serious threat to the *status quo*. It is obscured by a fog of claims and counter-claims, and yet manages to rise above this fog as one of the few widely-recognized objectives of a rudderless industry. Its basis is not so much a logical theory as a cult. And as a cult it has won ardent and persuasive adherents, united by a belief in a better house, for less money, through more efficient methods of house production.

It is to this widespread and persistent belief that prefabrication owes its present importance—and that it is important even its opponents no longer deny. Because of the persistence of this belief, the importance of prefabrication is no longer measured in columns of publicity, but in the added dimension of thousands of houses up and lived in. Because of its persistence, many a potential homeowner is now convinced that a vastly improved house is just around the corner. And because of it, thousands of talented designers and inventors have devoted themselves to solving the problem of prefabrication, and if none has solved it entirely, each has contributed in some way to a general solution. Thomas Alva Edison may have abandoned his early experiments in concrete construction as a failure, but continuous experimentation along the same line has gone on ever since. Literally hundreds of types of prefabrication have been tried out, many over and over again. In recent years, and particularly in the last decade, such experimentation has reached the stature of a general *movement*, a movement that is beginning to register accomplishments. Already its influence on con-

ventional design and construction is pronounced, and the two are even beginning to blend, under war conditions, in what is called "site prefabrication." Its postwar effects on planning, structure, standards and even land are bound to be even greater. It has become a matter of vital concern, not only to its practitioners, but to Building as a whole.

If prefabrication owes its importance to a widespread prefabrication movement, it can best be approached in this way: not in terms of any particular theory, however perfect, but in terms of what has actually been accomplished. The pressure which has kept the prefabrication movement going is the problem that has vexed Building for more than a decade—the problem of producing houses within the reach of the mass market. At one time or another, almost every conceivable approach to this problem has been tried out. Volumes of experimental data exist to be examined and evaluated. Somewhere in this experience are the keys to better and cheaper methods of house production. They can best be discovered by a thorough study of the various solutions already attempted, the influence of the environment in which the prefabrication movement has developed, and the really significant contributions to construction technique it has already made. This is a large order, if only because the subject is so complex. But it is an order which must be filled before further exploration of the house of the future can have any real meaning, and before Building's major postwar problems can be solved.

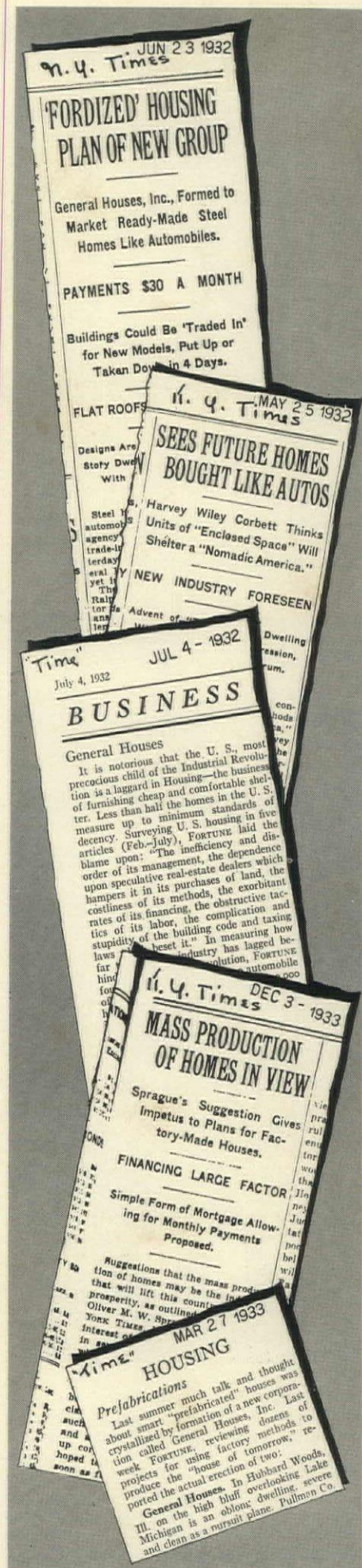
DEPRESSION—THE INITIAL IMPETUS

Although it would be difficult, if not impossible, to determine the exact date of the beginning of prefabrication¹, there can be no question about the beginning of the prefabrication movement. As it developed in the U. S. the prefabrication movement was the child of depression. It sprang to life after the collapse of the stock market in 1929 and after the deflation a year earlier of the boom in traditional building which had just swept the country. A market-hungry nation suddenly became aware that in the field of low cost housing, it had neglected one of its greatest potential markets. FORTUNE, in one of its first issues, dubbed prefabrication "the greatest commercial opportunity of the age." Even the crudest statistical estimates indicated that traditionally built houses costing \$5,000 or more could serve only a small segment of the population. As later figures were to show, with 87 per cent of the people in the country making an income of less than \$2,500 a year, the nation had before it a major market if only it could provide a house for people in this bracket.

Under our traditional methods, we had provided houses for these people largely through the deterioration of our more expensive structures. Prognosticators began to discuss the possibility of using the idle factories of our mass production industries in producing new houses for this untapped market.

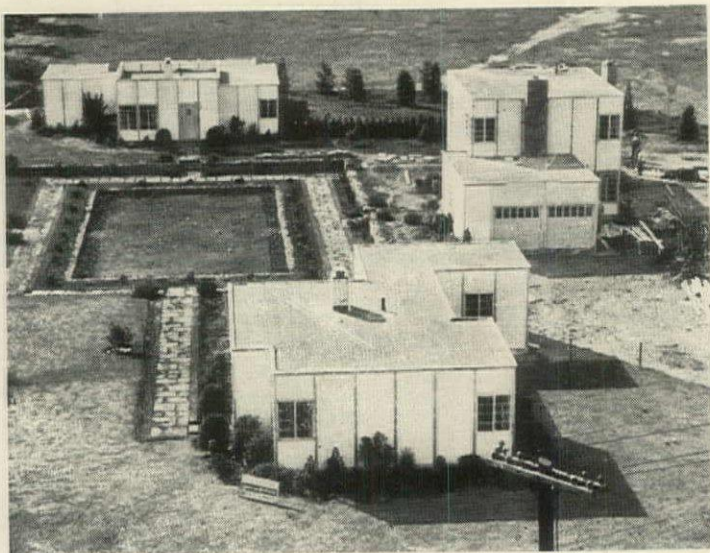
Everywhere large companies were reported about to enter the field. As it actually developed, the wish was little more than father to the thought. Before mass-scale production could be applied to housing, a technique that was suited to that production had to be developed, and new merchandising methods devised. Aside from the projections of the theorists, there was little practice upon which to proceed.

It was true that in what had become known as the "mail order house," the structural members of a house had been pre-cut and delivered to the site for erection. There had been progress in the partial preassembly of



Typical examples of the widespread publicity and enthusiasm which greeted the idea of prefabrication in the market-hungry thirties.

THE PREFABRICATED HOUSE



Above are three of the original Motohomes built by Houses Inc. in White Plains, N. Y., in 1935, and one of the Harnischfeger Corp's early, steel-panel houses. The house below is one of a group of 20 built by American Houses for Hazleton, Pa., coal miners in 1932, probably the first prefabricated, steel panel houses built anywhere in the U. S.



Robert W. McLaughlin, tall, dapper and handsome at 42, has as much right as any to be called the "originator" of prefabrication in its present form. Graduated from Princeton's School of Architecture in 1926, he designed elegant houses and private museums until the depression—and his association with Houser-architect Arthur C. Holden—convinced him of the need for a cheaper house for the mass market. Since then his American Houses (see above) has experimented widely and produced a quantity of houses commercially, particularly in the present war emergency.

wall sections or other structural parts for vacation cottages and small out-structures such as garages and chicken coops. To a limited degree this practice had been applied to partial preassembly of cottages used the year round, and, during the first World War, efforts had been made to use this method in temporary housing for war workers. These approaches had been based, however, more on an attempt to utilize the business setup of individual organizations to obtain a hold upon the established market of handicraft building, than upon an adaptation of construction practice to mass production. The true basis for prefabrication, even in the fields of the precut and sectional house, was yet to be laid.

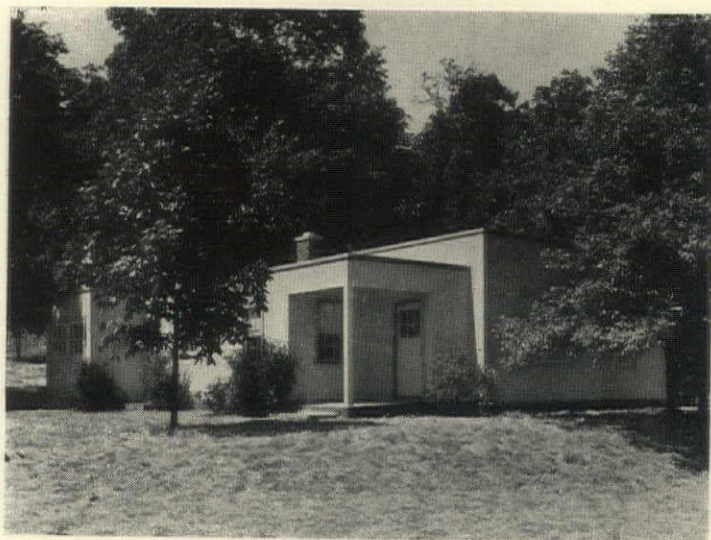
The first phases of the prefabrication movement were, therefore, to be devoted more to crystallization of attention for the subject than to the actual exploitation of the market. Nevertheless, the attention that was created did much to take prefabrication out of the state of a nebulous idea and bring it closer to realization. Widespread publicity on the interest of old and established corporations took the subject out of the Sunday Supplement class and placed it on the Business Page.

Through the reported interest of large corporations, prefabrication became respectable. Not only were companies in the building industry reported to be interested in prefabrication, but there were reports concerning the interest of automobile manufacturers, railroad car manufacturers and others. In many cases the reports may have been exaggerated both in the extent and the immediacy of the corporations' interest. Some were definitely erroneous. But the effect, measured in terms of public attention, was none the less great.

Throughout the decade which followed, the story of prefabrication was one of varied and often apparently undirected development, in which no magic wand set idle wheels turning in a sudden and miraculous production of low cost houses. The large companies assumed mainly a passive position as suppliers for individual ventures that were attempted in a search for a solution to the problems involved.

Early Experiments

Where their special interest dictated a primary interest, specific types of development were carried out under the auspices of some of them. Individual companies, such as American Rolling Mills, U. S. Steel and Republic Steel, played a part through special housing subsidiaries in the efforts to utilize steel in developing a house suitable for prefabrication. Other companies with equipment adapted to a certain approach to the



wall sections or other structural parts for vacation cottages and small out-factories, applied their knowledge and their processes in an effort to produce mass scale housing, based on that knowledge and those processes.

Later, as shifting influences led to the use of other materials, such as the new insulating boards, companies interested in these products, including the Celotex Corp., and the Homasote Co., entered the field. Similarly, the plywood companies took an interest in the use of their product, through their organization, The Douglas Fir Plywood Association. New companies arose to develop new processes and old companies sought a utilization of their resources in an often apparently unrelated effort.

In addition to the companies already mentioned, there were, of course, a host of others, many of which have remained in existence to the present time.² Not only did hundreds of such concerns try their hand at at least one experiment in the prefabrication field, but literally thousands of individual architects, inventors, building contractors and real estate men developed on paper, and in many instances in model form, an almost equal number of construction systems. Virtually every material that then existed—and many which existed only in the imagination of their inventors—was suggested at one time or another as the solution of the problem. Scores of experimental houses were actually built, and many ambitiously offered for sale, despite the fact that in most instances production facilities for filling potential orders were non-existent.

Later in this study, an attempt will be made to deal individually with most of the systems of construction proposed by these various individuals and companies which reached at least the stage of experimental construction, and to evaluate their significance to the prefabrication movement as a whole. For our present purpose, it is sufficient to say that none achieved a clear-cut position of permanent leadership nor any substantial volume of production. Rather, the situation developed as one of the utmost complexity, in an atmosphere of claims and counter claims which had as its net effect the undermining of public and professional confidence in even those firms that were in a position to deliver actual houses. Moreover, many of the most promising of the earlier systems were predicated on the assumption of large-scale, mass-production methods, and employed materials and fabricating methods which proved inordinately expensive in terms of the small-scale operations which were all that actually developed. Many such systems therefore disappeared from the market, or were gradually altered until they bore little semblance to the original idea. New systems, based on a more realistic appraisal of the necessary steps

Pictures above show a steel panel house built by the Insulated Steel Construction Co., an Armco subsidiary, at Purdue University in 1936, and part of a group of 6 waterproof plywood houses erected in 1936 by Foster Gunnison's Gunnison Magic Homes, Inc., in Louisville, Ky.

²One of the oldest, American Houses, is still functioning under the same name, and still a leader in the prefabrication movement. Organized in 1932 by Architect Robert W. McLaughlin, it produced the first prefabricated steel houses actually sold: 20 units for coal miners in Hazleton, Pa. (ARCH. FORUM, Apr. '33), later merged for a time with Houses, Inc. of "Moto-Home" fame. Out of the later organization also came the Gunnison Housing Corp., a pioneer in the use of stressed-skin, waterproof plywood panels that is still very much alive. Other "old timers" of the 1932-33 period that are still in operation, include General Houses Inc. and, of course, the various manufacturers of early sectional houses such as the Aladdin Co., Gorden-Van Tine Co., E. F. Hodgson Co., Houston Ready-Cut House Co., M. B. Kolb Co., Inc., Pope & Cottle Co. (now the Prebuilt Co.), Pacific System Homes, Inc., Southern Mill & Mfg. Co., and others.

The "House of the Modern Age," (below) designed by architect William Van Alen, was built for exhibition in 1936 on a vacant site at Park Ave. and 39th Street, New York, N. Y.

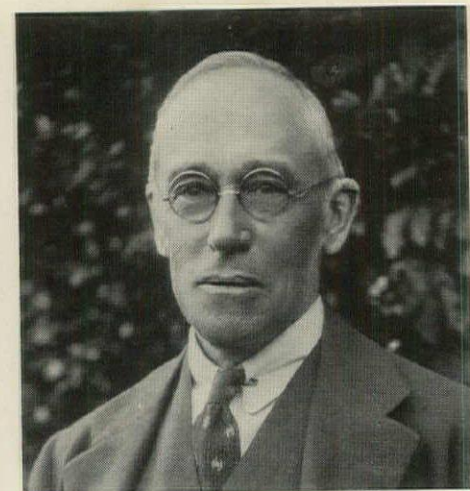
Wide World





Wide World

Foster Gunnison, whose dream is to organize the General Motors of the homebuilding field, has been active in the prefabrication movement since it began. He represented Owen D. Young in famed Houses Inc., later formed his own company to produce the first houses to use waterproof plywood, stressed-skin panels.



Albert Farwell Bemis (upper picture) was a Boston bag manufacturer who sponsored research in prefabrication as early as 1921, in an effort to achieve better housing through "industrial and engineering efforts rather than by government intervention." After Mr. Bemis' death in 1936, this work was carried forward by the Bemis Foundation, under the direction of John Ely Burchard (lower picture), Professor of architectural engineering at M.I.T. and former director of research for Bemis Industries.

through which prefabrication would have to develop before achieving real mass-production status, appeared only gradually, since such an approach was foreign to thinking on which most of the early enthusiasm for the prefabrication ideal was based.

NON-COMMERCIAL RESEARCH AND EXPERIMENTATION

Throughout this interplay of divergent forces, there were certain non-commercial agencies exercising a continuous influence. In individual cases they made important, specific and concrete contributions but the influence they exercised extended far beyond that of any individual contribution, no matter how important.

Among these non-commercial agencies were two principal groups. One was a group of privately endowed organizations who devoted their efforts specifically to research in the housing field. The other was a group of government agencies which, in one way or another, because of their specific functions, touched continuously on the movement.

Considered in alphabetical order, the first group included the Albert Farwell Bemis Foundation at Boston, Mass., the John B. Pierce Foundation of New York, and the Purdue Research Foundation at Purdue University, Indiana. The second group in the same order included the Bureau of Standards of the U. S. Dept. of Commerce; the Farm Security Administration, formerly the Resettlement Administration; the Forest Products Laboratory of the U. S. Dept. of Agriculture; and the Tennessee Valley Authority.

Bemis Foundation

The Albert Farwell Bemis Foundation (ARCH. FORUM, Aug. 1938) was the outgrowth of the work of Bemis Industries, Inc. It was established at the Massachusetts Institute of Technology, after the death of Albert Farwell Bemis, president of the Bemis Bag Co. During his life Mr. Bemis had stimulated research and experimentation in housing since 1921 through Bemis Industries, Inc., a non-profit organization.

For almost ten years before prefabrication crystallized as a movement in public attention, Bemis Industries, Inc., conducted a program of study in structural materials and methods, continuing that work on into the period in which prefabrication was receiving wider publicity. Since 1938 when the Foundation was established, the work has been under the direction of the Massachusetts Institute of Technology, with John E. Burchard, associated with Mr. Bemis in the earlier organization, as director.

In the meantime, during the ten year period before the prefabrication movement crystallized, Bemis Industries, Inc., maintained its own laboratory and experimented with 22 different types of construction, using varied materials for both structure and wall surfacing or enclosure. Its first development was a series of houses built at Wellesley, Mass., in 1923 and 1924 (ARCH. RECORD, Jan. 1934), in which it did pioneer experimental work with the use of prefabricated wood panels, combined in construction with concrete.

In the subsequent years before prefabrication began to attract the attention of the nation, Bemis Industries experimented with the use of steel, the use of special composition gypsum blocks and precast gypsum slabs for walls, as well as with composition board and steel panels for houses. Laboratory test models using these different materials were built. Then, operating through the Housing Co., an affiliate, one or more field models were erected and sold on the commercial market.

Throughout its work the Bemis Industries, Inc. carried forward the

promotion and development of the modular system of design to simplify construction through the use of standard repetitive members. It became professionally known for its interest in this subject and devoted a large part of its attention to promulgation of the modular method, while continuing its search for what it described as a housing material that could fulfill a triple function—providing structure, insulation and wall surfaces in a single material.

As a review of the housing field, there was prepared by Messrs. Bemis and Burchard, between the year 1932 to 1936, a three-volume study³ of the history of housing, the economics of shelter and rational design which has become a standard reference work on prefabrication.

Pierce Foundation

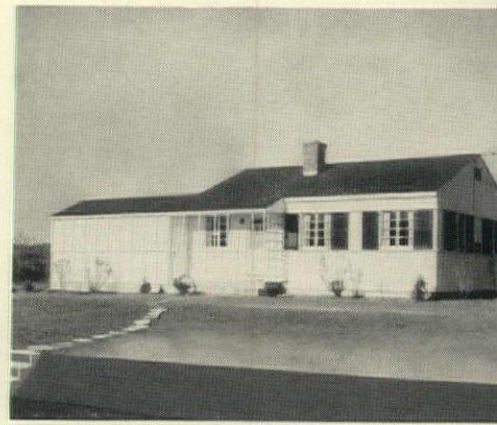
The second of these research organizations, when they are considered in their alphabetical order, is the John B. Pierce Foundation of New York City. The Pierce Foundation began its work at about the time the prefabrication movement was beginning to crystallize. It was endowed under the terms of the will of John B. Pierce, Vice President of the American Radiator Co., and chartered in 1924 to carry on educational, technical and scientific work in the general fields of heating, ventilating, and sanitation.

For a practical execution of its endowment, it proceeded broadly to promote the creation of housing that would advance the specific functions with which it was concerned by providing an environment that was sanitary, and making possible a more scientific and advanced control of temperature and similar conditions.

In accord with this policy, a Housing Research Division, under the direction of Robert L. Davison, was set up in New York in 1931. Two years later, a Laboratory of Hygiene, devoted to research in physiological problems, was established at New Haven, Conn., under the direction of Dr. C. E. A. Winslow, Head of the Yale Department of Public Health.

During the years that prefabrication was passing through its phase of radical experimentation, the Foundation proceeded with a program designed to develop a house which, through the economical use of both building materials and structure, would serve to provide an improved

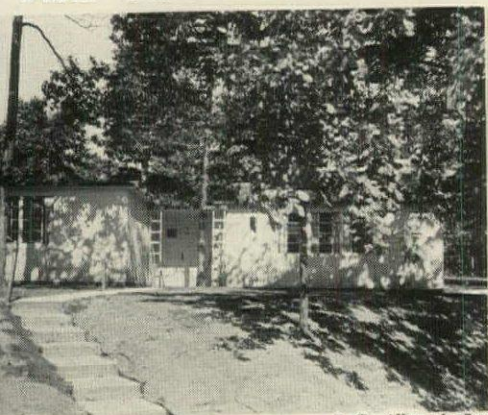
³The Evolving House; 3 vol.; The Technology Press, Mass. Institute of Technology, Cambridge. Skidmore, Owings & Merrill, Architects.



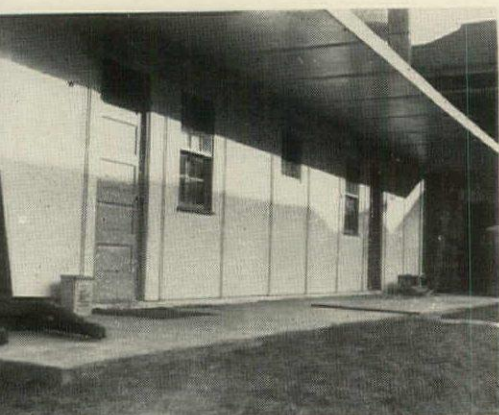
Robert Leavitt Davison, director of research for the John B. Pierce Foundation, has been interested in housing since 1915, when he studied the question for the U. S. Bureau of Labor Statistics. Between 1919 and 1928, he worked for various manufacturers of ready-cut and sectional houses. His experiments for the Pierce Foundation have resulted in the development of the plywood panel house at the top of the page and the highly successful unit for Glenn L. Martin employees shown below.



THE PREFABRICATED HOUSE

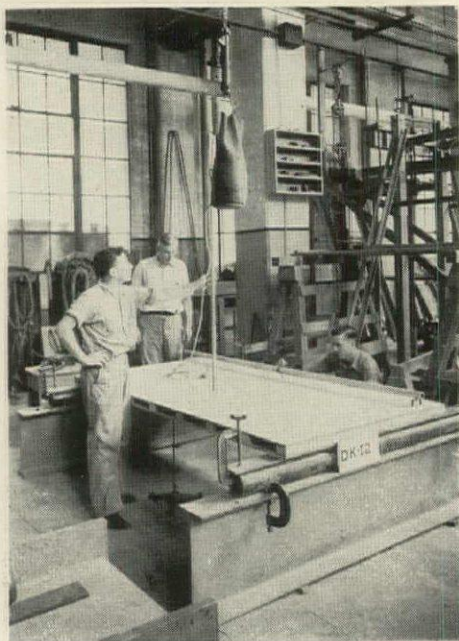


J. C. Allen & Son



Upper picture shows one of the five houses built at Purdue University in 1936 for research purposes, a steel panel house by General Houses, Inc., lower picture Purdue's suggestion for slum clearance, a low cost, two family unit built from plywood sections by relief labor for the remarkably low cost of \$620 per family (1936).

Test apparatus in the U. S. Bureau of Standards for testing resistance to impact of prefabricated panels. Research work by Government agencies and private, non-profit organizations has done much to further the development of prefabrication and to gain wider acceptance for its claims.



Forest Products Laboratory House (see facing page).

environment in the home at the lowest possible cost. To this end, research was carried forward both in the requirements of such a structure and in the means of fabricating and erecting it.

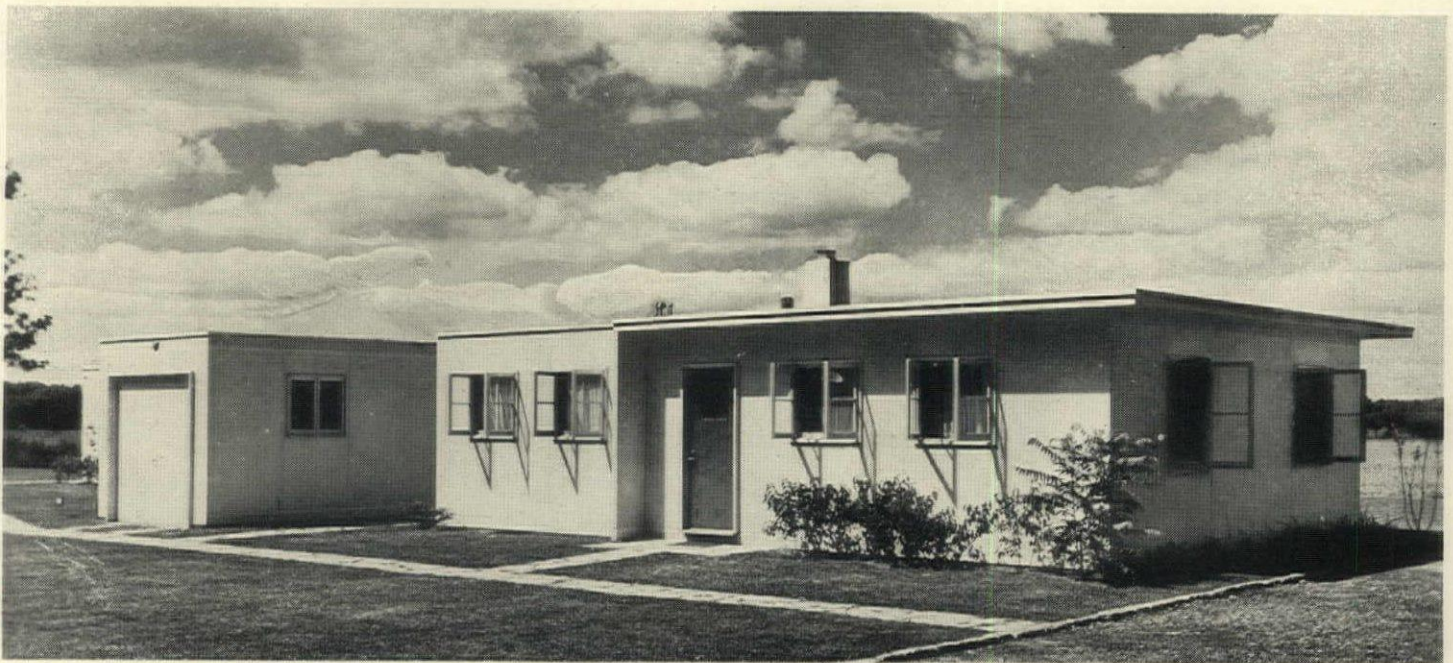
Under its Housing Research Division, it erected in 1932 a first experimental house on top of the Starrett-Lehigh Building in New York City. In connection with this house and in subsequent developments, it conducted extensive experiments with varied types of material for both structural use and enclosure or wall surfacing, seeking in the interest of economy to develop a single, homogenous material that would serve both purposes.

It has conducted experiments with a calcium hydro-silicate composition called Microporite for structure and enclosure, a cementitious fiber material for enclosure, and more recently with such materials as cellular glass, stabilized earth for use in floors, and other unorthodox materials, as well as experiments with concrete, plywood, and composition board.

The Starrett-Lehigh experimental house was used to test a variety of different wall surfacings as the covering for a steel frame structure. Another house was built especially to test the calcium hydro-silicate composition—used with steel reinforcing (Arch. Record, Aug. 1935) and since 1939 two experimental houses of plywood and a third of composition board have been built. As a field experimental laboratory, Pierce Heights at Highbridge, N. J., a specially designed community of 20 experimental units, provides a continuous study not only of the house but in the needs of family life, as well as the practical financial aspects of investment, maintenance, etc.

Recently two of the experimental houses built in the course of its broad and varied program have been released to the market, and utilized with conspicuous success in war housing developments such as that of the Glenn L. Martin Aircraft Co., near Baltimore, Md. (ARCH. FORUM, Nov. 1941). In the course of the work it has done, special experiments have been conducted in sanitation equipment, the development of low cost heating methods, and similar subjects.

The most efficient method of providing a conventional floor plan within a low cost house has been studied. From this study, combined with the work of other agencies, has come the development of the single story, 24 x 28 ft. house which was to become, to a large degree, standard in prefabrication. Currently in the field of the floor plan, a complete and overall study of family living habits, as the basis for a more intelligent planning, has been undertaken.



Purdue Research Foundation

The third of the endowed agencies to have a continuous influence, Purdue Research Foundation at Purdue University in Indiana, undertook its housing work about 1935, with the establishment of its Housing Research Project. As one of its first operations in this project, five houses of types that were then being offered for the commercial market were erected and tested (ARCH. FORUM, Feb. '36, Dec. '36, Mar. '37). Included in these houses were two of steel, two of conventional wood construction, and one of reinforced concrete, all designed to be erected at a cost of less than \$5,000. The houses were studied both from the viewpoint of cost factors and of the values of the different types of structure involved. Extensive reports were published and in the succeeding years the Housing Research Project has continued the preparation of reports and special studies particularly concerned with the low cost housing field.

Government Influence

The influence of government agencies has, in the main, been based on two types of approach to prefabrication and the low cost housing field. One was the testing of methods that either were or could be used in the low cost field; the other was the stimulation of the use of varied methods in prefabrication for the development of lower cost homes.

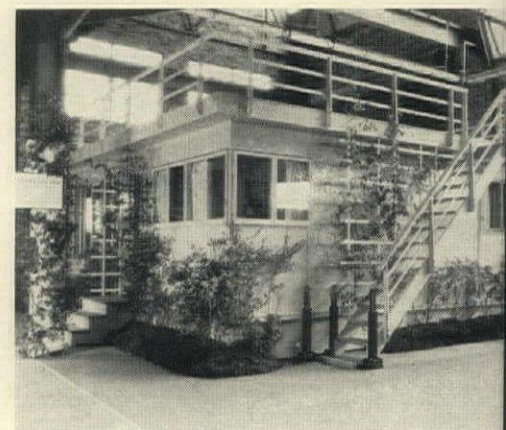
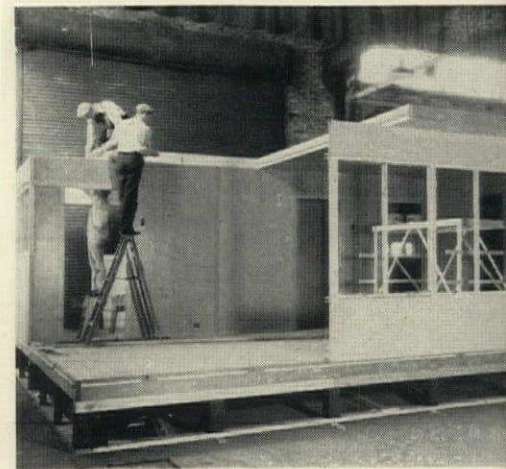
The Bureau of Standards in the Department of Commerce, concerned with the testing of all types of materials and the establishment of universal standards throughout industry, has undertaken specific tests upon structural methods, materials or equipment actually offered on the market. Since 1936 it has also conducted tests upon requests of prefabricators in accordance with a standard procedure. Results of these tests are included in the Building Materials and Structures, or B. M. S. Reports.⁴

Forest Products Laboratory

Concerning itself directly with the field of timber utilization, the Forest Products Laboratory of the Forest Service of the U. S. Dept. of Agriculture, has conducted similar tests on prefabricated houses and structural methods designed to use wood. In addition, research in the development and testing of original structural methods for prefabrication have been carried out. This work has played a large part in providing a

Upper pictures (one on facing page) show two of the early, stressed-skin plywood panel houses developed by the U. S. Forest Products Laboratory in 1935 and 1937, pictures below an indoor, laboratory model of the same general construction. The influence of these houses on prefabrication in wood can scarcely be exaggerated. Most prefabrication development of the latter thirties was based upon this work, and the bulk of the prefabricated houses standing today are variations of the construction worked out in these experiments.

⁴Available through Superintendent of Documents, Washington, D. C., 10¢.



THE PREFABRICATED HOUSE



Photos, Lee: FSA



FSA community for sharecroppers, 1938

groundwork for the extensive use of plywood as it has developed in the prefabrication movement.

Beginning about 1921, the Laboratory undertook the general study of woods and of glues to be used in plywood manufacture. It first devoted its attention to the use of plywood in furniture. Later, extensive studies were undertaken into its use for housing with extensive testing of original methods that included the erection of actual experimental houses using the material. Its first "stress skin" plywood house, erected in 1935 (described in detail in a later section of this study) had an enormous effect on the further development of prefabrication in wood, and remains the most widely known of the experimental houses of this period.

Farm Security, TVA

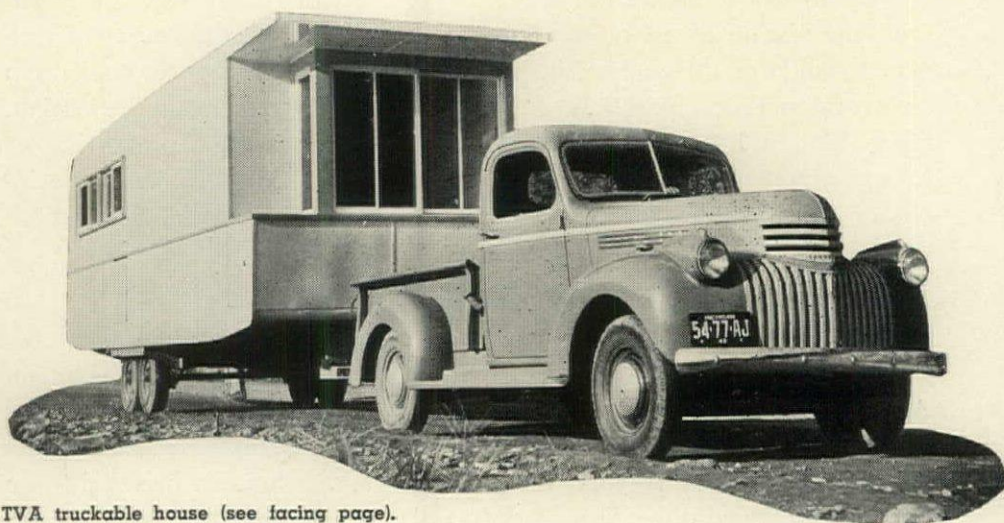
The unique contribution of the other two government agencies, the Farm Security Administration and the Tennessee Valley Authority, has been the stimulation of the actual use of prefabrication in direct efforts to provide and erect low cost homes. The Farm Security Administration, during the period prefabrication was growing to maturity, sponsored the development of whole communities of low cost homes, using varied types of construction in what might be called an actual field laboratory of prefabricated housing.

It has placed an emphasis on both low cost and mass scale production, attempting to develop complete plans for communities based on mass scale operations. Under its jurisdiction have been executed developments ranging from mobile structures for migratory workers to groups of prefabricated farm buildings and the actual erection and construction of rural communities or market centers.

In the case of the Tennessee Valley Authority, the agency has built entire communities for its own workers and stimulated the subsequent development of new communities in the Tennessee Valley. Its field experiments have varied from the erection of complete conventional structures—with individual refinements to be added later by the occupant of the house in order to provide a low initial cost—to a special type of house, factory-erected and trucked to a site in units.

OTHER INFLUENCES

Other agencies have affected the housing field generally and indirectly stimulated structural development in low cost housing and prefabrication. The creation of the Federal Housing Administration during the period when prefabrication was growing to maturity, provided insured private financing on home mortgages and removed previous ob-



TVA truckable house (see facing page).

stacles to the financing of low cost homes for persons of limited means. Further, this organization, in its operation, set up minimum standards as a guide in the construction of small homes. The need for FHA approval, as a basis for mortgage risk rating, led to the study and approval of prefabricated construction methods on a national scale. This study furnished a valuable reference point for the evaluation and comparison of the various systems then being offered for sale commercially.

From various sources intermittent and continuous educational campaigns toward the development of better housing, particularly for persons of limited incomes, have contributed still further to the development of prefabrication. From the economic point of view, a definite interest in low cost and better housing was created by such organizations as Better Homes in America, the National Association of Housing Officials, The National Public Housing Conference, The National Housing Committee, and The National Small Homes Demonstration Committee, sponsored by The National Lumber Manufacturers Assn. From the standpoint of design, the ever-increasing acceptance of modern architecture has done much to advance the cause of prefabrication, even though the prefabrication movement itself has tended, during the same period, towards more and more conservative models. Similarly, the development of low cost housing units by operative builders, while it has stiffened the competition which prefabrication must meet, has also helped to determine the form which prefabricated construction has taken in recent years: The one-story, two bedroom unit of so-called "Cape Cod" design which has become the standard of recent conventional construction has also become the typical model of most prefabricators.

War Housing

Most recently prefabrication has been profoundly affected by, and has profoundly affected, the question of war housing. The Federal housing agencies, through their purchase in less than two years of almost 75,000 prefabricated dwelling units for war workers, have brought the prefabrication movement out of the stage of an experiment and into the stage of actual mass-production. The Government has become the prefabricator's best—and virtually his only—customer. It has also become an arbiter of standards which many fear are so low as to have the long-term effect of retarding the industry's development. And, since wartime conditions are such as to permit quantity production, and the application



The TVA's experiments in prefabricated house construction (above and below, including large picture on facing page) stem primarily from the need to provide temporary housing for construction workers in remote localities. Basic requirements include minimum interference with heavy construction work and maximum salvage value later on when the need for at least a portion of such housing disappears. For this reason, the Authority has experimented primarily with "truckable" units which can be assembled at a remote point and moved to the site in large sections requiring relatively little work on the job, later taken apart and used in some other location under similar conditions.

Before attempting this type of construction for full-sized houses, pilot experiments with inexpensive tourist cabins were carried out at Pickwick Dam, where it was felt desirable to have accommodations in movable form in order to provide flexibility to meet the shifting demand for such facilities. These were low, flat-roofed structures built in sections 7½ by 22 ft. for highway transport on low-platform trailers. The units were moved over rough roads, in some cases as far as 80 miles, and the experiment pronounced a complete success.

Later, on the basis of this experience, full-sized houses (picture above), built according to the truckable-section plan were used in connection with wartime housing of industrial employees of the TVA in the Wilson Dam area. These houses were designed to meet the

(Continued on next page)



THE PREFABRICATED HOUSE

special problem of postwar demountability under conditions where it was necessary that the houses be located on scattered lots in already built-up residential areas. Pitched roofs were used to correspond with the established architectural character of the surroundings. To reduce the height of the units, roof panels were hinged at the eaves to fold down during transportation. Houses were of one, two and three bedrooms, and complied with war housing standards; exteriors were of insulating board, foundations covered by asbestos-board skirts. This operation was also pronounced a complete success, and the scheme later employed by a private contractor on war housing work elsewhere.

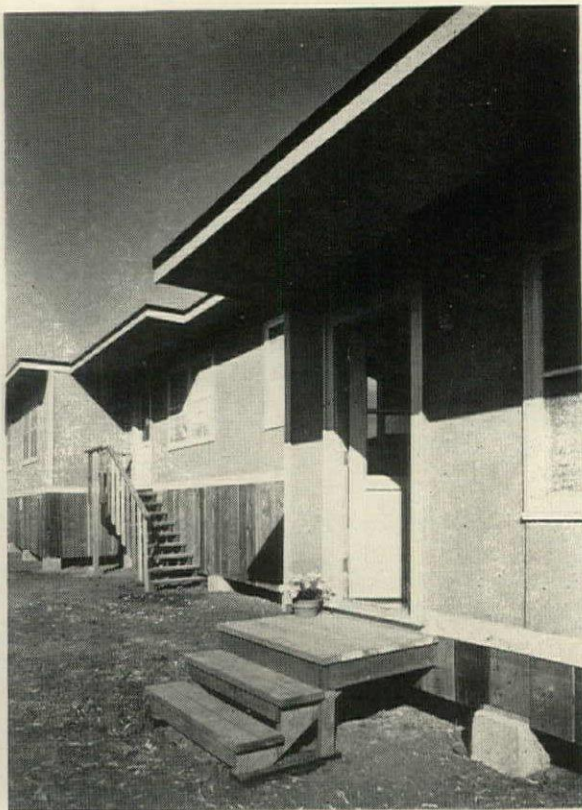
The latest development of the basic idea involves the manufacture of trailer-like sections of one or two rooms each, using much lighter construction employing the stressed-skin principle and an architectural treatment borrowed from the trailer industry. This approach has proved highly advantageous in terms of conservation of space formerly used up in heavy walls and floors, reduction of overall weight, and a thorough going design-integration of the various elements such as doors, windows, cabinets, etc. These are worked out to meet specific needs with a considerable saving in weight and material, as well as further saving of space. The new units (see bottom of previous page) are each composed of two sections, open on adjoining sides, and provide a living room-sleeping room, a bedroom, kitchen, bath and plentiful storage. They have been transported on dollies as far as 600 miles.

Homasote's Vallejo, Calif., war housing, designed by modernist William W. Wurster, was one of the first, huge war housing projects to utilize prefabrication methods. It aroused a storm of controversy over the appearance and durability of the houses, but also tended to focus public attention on the value of prefabrication in the war housing program.

of many of the techniques of factory fabrication, in site operations as well as in the factory, it has also served to confuse still further the question of where conventional construction leaves off and prefabrication begins. What the ultimate significance of these various influences will be is hard to predict. One thing, at least, is clear: the prefabrication movement is being provided with a vast reservoir of actual experience which it sadly lacked in the prewar period. Its many hotly-debated theories are being tested in the crucible of practice. It is acquiring a considerable plant and a trained personnel. It cannot fail to come out of the war infinitely stronger than it went in.

The forces which the prefabrication movement has brought into play have been many and varied. They have extended its influence to every corner of the nation and have affected the course of conventional construction at least as much as they have been affected by it. They have developed to a point where they can no longer be ignored, and where they are bound to influence every aspect of the postwar building picture, from land tenure and finance to construction technique and design. In order to estimate what these effects may be, and what the future holds for prefabrication itself, it is necessary to review the entire history of prefabrication in greater detail, and then to estimate, as far as possible, the relative importance of its various discernible trends. Before doing so, however, it is well to examine what, in the first place, brought the prefabrication movement into being. In the next chapter, an attempt is made to analyze this question in terms of the various proposals for radical changes in house design and construction which in most instances preceded the experimental phase of prefabrication's development, and its crystallization into a widespread movement.

(The second chapter of *The Prefabricated House: "Ideas—The Stimulus to Change,"* will appear in the Forum's January issue. To any reader who is interested in studying particular aspects of the subject still more deeply, *The Forum* will supply without charge a complete bibliography of 85 Forum articles on prefabrication that have been published since 1932.)





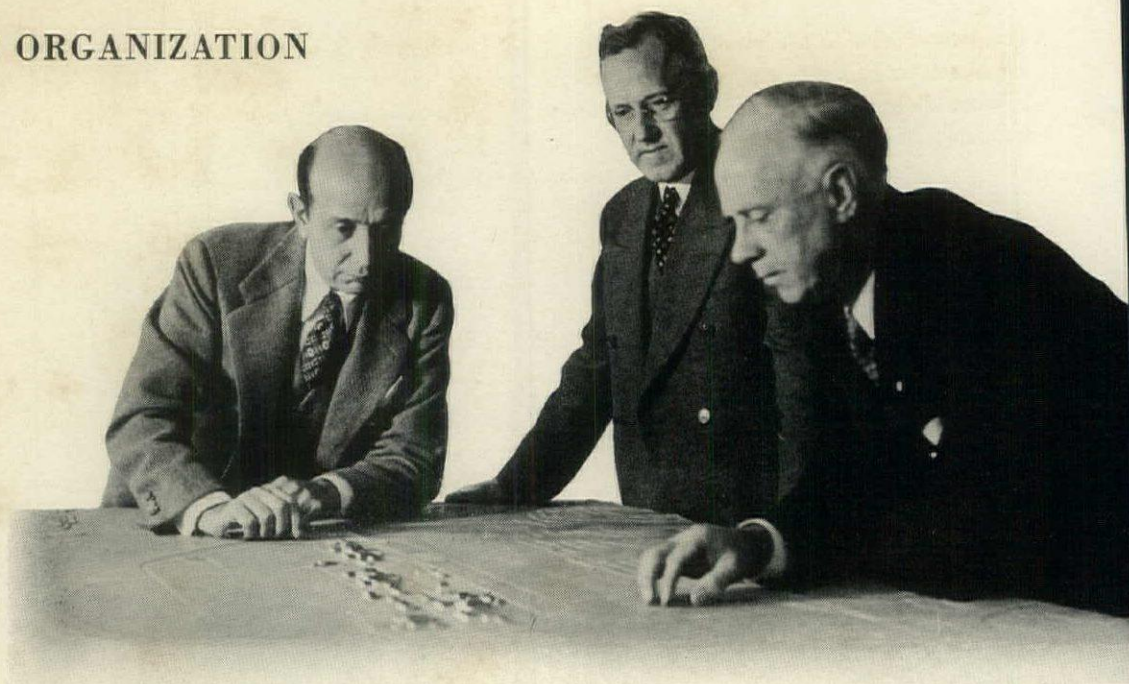
SMALL ARMS AMMUNITION PLANTS

Robert Cameron

SMITH, HINCHMAN & GRYLLS, INC., ARCHITECTS & ENGINEERS

The role of the ordnance plant in war production, particularly the type which makes ammunition for small arms, is a little like that of the famous nail, for lack of which the shoe, horse, rider, battle and kingdom were lost. Compared with the Flying Fortress, a heavy tank or a 45,000-ton battleship, a box of cartridges is not, perhaps, a glamorous object. But without such boxes by the millions most of the weapons in our land and air forces would be silent. And the vital importance of this production is fully indicated by the plants themselves. These huge manufacturing establishments, now scattered from one end of the country to the other, cover not acres but square miles. They have their own roads, their own railroads, fire stations, hospitals, sewage disposal plants, power stations and water systems. Their working population is that of a small city. Built and equipped for sums ranging from thirty to a hundred millions each, they form one of the mightiest aggregations of destructive power ever created.

In taking on the assignment of designing these plants, the firm of Smith, Hinchman & Grylls faced the problem of turning out not six or a dozen, but literally hundreds of complex buildings in the barest minimum of time, a problem immensely complicated by the necessity of shifting, as material shortages developed, from steel to concrete, and finally to wood. The organization which turned out this job on schedule, and in some instances months ahead of schedule, needed no conversion from peace to war: it merely expanded. Since its workings are more like those of a factory than a conventional architectural or engineering office, the organization and its procedures are described in detail on the following pages.



Elmer L. Astleford

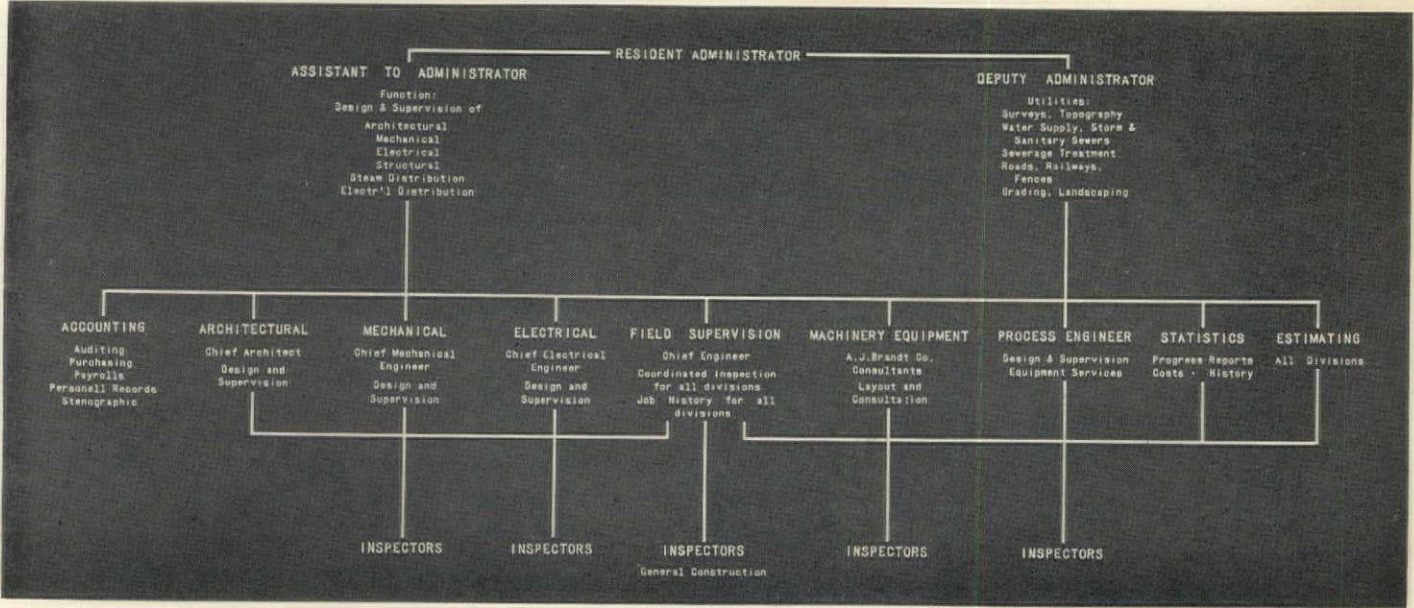
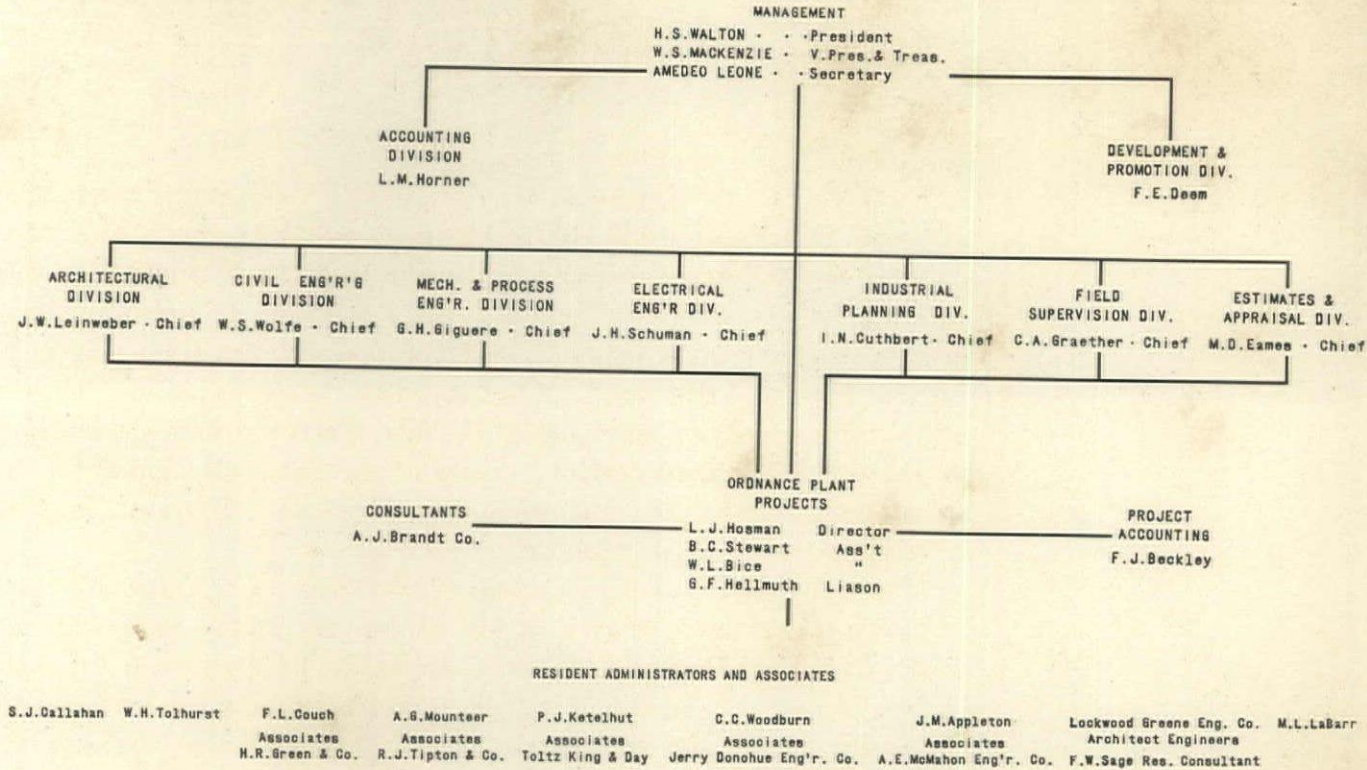
The firm of Smith, Hinchman & Grylls, which, incidentally, has neither a Smith, Hinchman nor Grylls among its principals, is one of the oldest and largest architect-engineer firms in the U. S. Its beginnings go way back to the 90's, when Mortimer L. Smith & Son were designing buildings in the middle west, frequently in collaboration with two young engineers named Field and Hinchman. When the elder Smith retired in 1903, the two firms merged to become one of the first offering a complete architectural and engineering service. Officers of the firm, who appear in the photograph above, are Amadeo Leone, Secretary, Hiram L. Walton, President, and W. S. MacKenzie, Vice President.

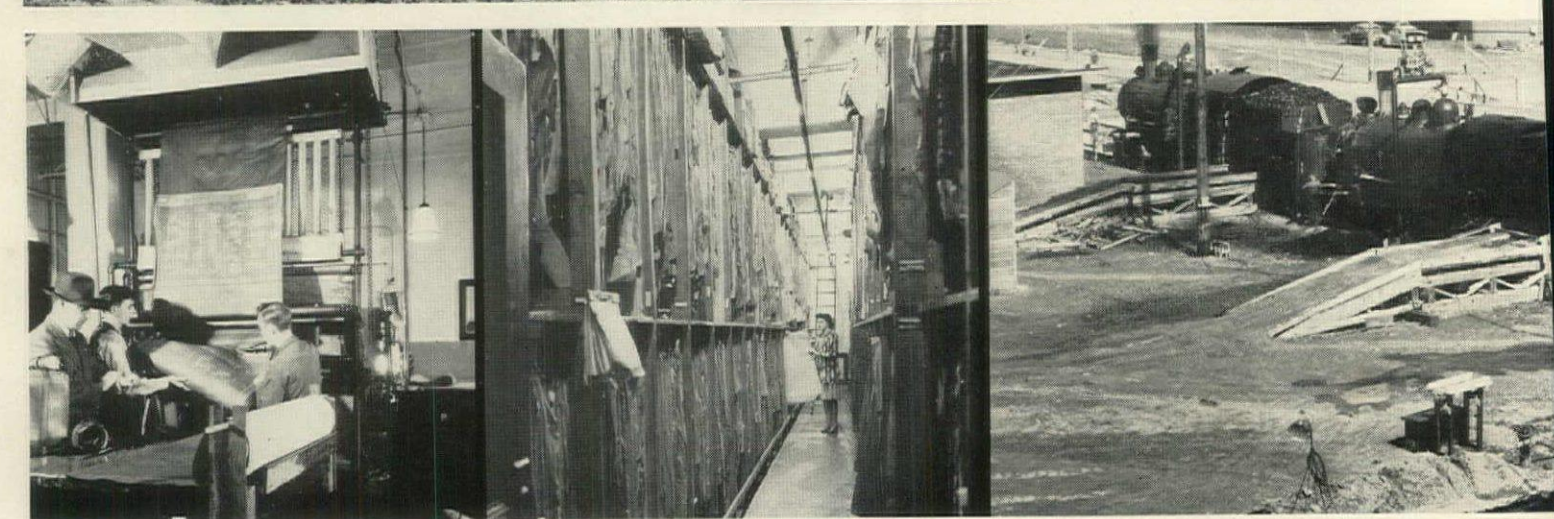
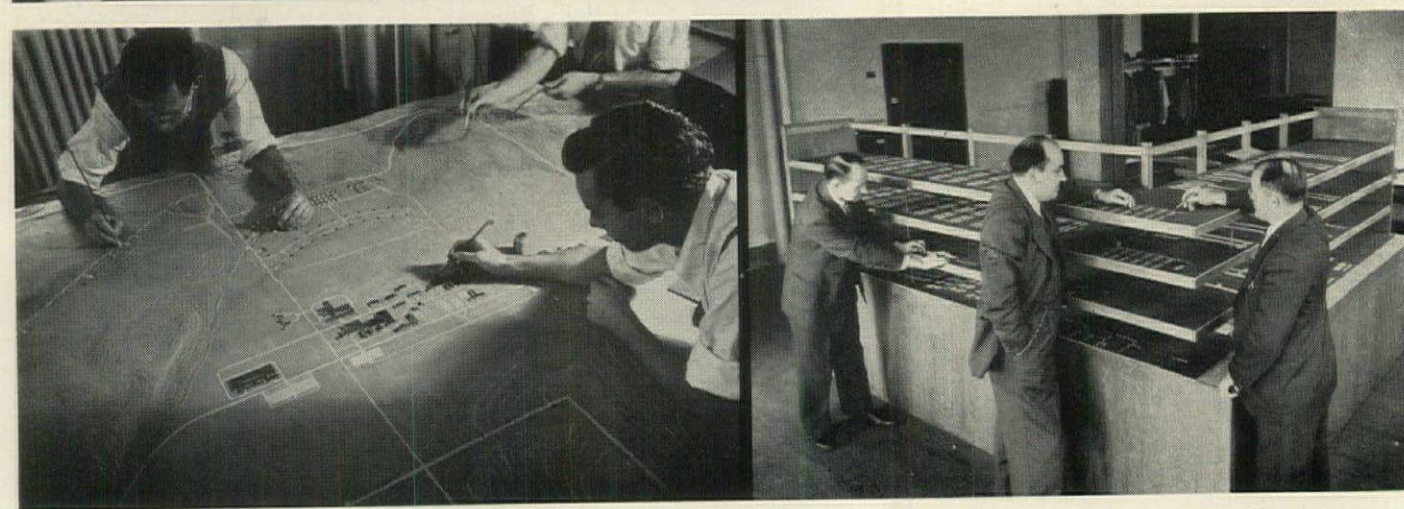
Perhaps the most remarkable single characteristic of the firm is its continuing vitality in a field where few of the great offices have outlasted their founders. During the boom years of the 20's it turned out some of the biggest office buildings in the country, before and since it has done work for schools and universities, and its industrial work includes distilleries, foundries, automotive, food and chemical plants. During World War I it handled plant engineering for Curtiss, built shipyards and ordnance factories. Less publicized was its design work on gun mounts and other ordnance for the War Department. Today this impressive volume of past accomplishment continues with the program just completed, which includes perhaps 1,000 buildings and represents an investment well on the way to half a billion dollars. The secret of the organization's success, of its steady activity through booms and depressions, war and peace, lies partly in the type of work it does, but chiefly in the organization itself. Its core is a tightly integrated group of highly competent professionals whose fields run from architectural design to chemical engineering, from machine layout to site planning. With this permanent core, and with an extremely carefully worked out office procedure, such an office can expand to any required size (1200 worked on the munitions plant program) without loss of efficiency. It can also handle virtually any type of building operation. Here we have a prototype of a professional organization built to the scale of vast war and postwar responsibilities.

The two charts below show the set-up of the permanent organization and the parallel organizations which had to be created for each of the ordnance plants. Because of the tremendous speed with which these plants were turned out, each job had a field crew, consisting of draftsmen, designers, engineers, etc., which in many cases was larger than the home organization. The key men in the field are part of the office's permanent staff.

The managing group in the home office supervises all activities: accounting, all phases of planning, architectural and engineering design, estimating, construction and field supervision. Each of these operations has a chief, who may be an architect, a civil, structural or mechanical engineer, an accountant, appraisal expert, machine installation specialist or a building superintendent. The strength of such a set-up, obviously, does not lie in the intricacy of the organizational pattern, but in the men who must fit into this pattern. One

of the most interesting facts about the office's key personnel is the tremendously varied background of experience. While all of the men fit into the standard categories of architects, engineers, administrators, etc., they include former plant managers, traffic specialists, refrigeration experts, lawyers, chemists and so on. With this reservoir of specialists, the firm rarely has to go beyond its own doors to find the experience it may need. To cite one example, in the planning of the ordnance plants railroad layouts were needed for each job. One of the civil engineers had been trained in this highly specialized work and it was consequently possible to handle the track layout without delay. Coupled with this experience within the office is a complete willingness to call in consultants whenever their use is indicated. The field organization parallels that of the home office. The division of work between Detroit and the field offices is described more fully in the pages which follow.







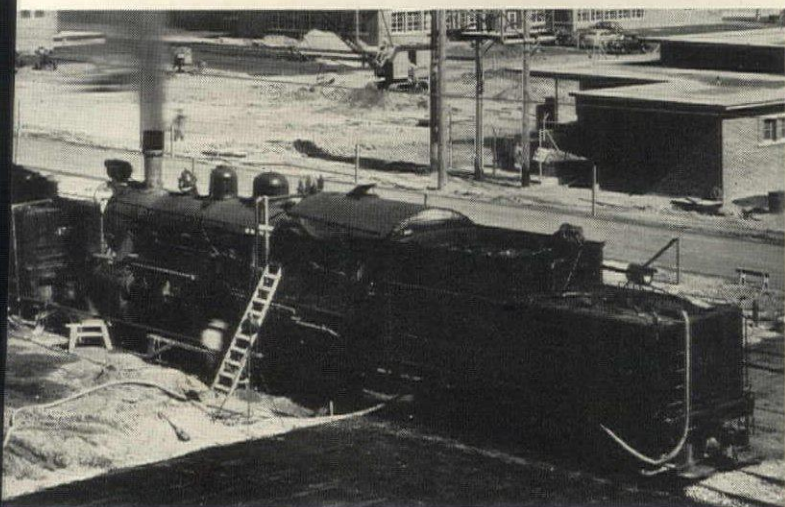
The planning of the ammunition plants begins with flow plans and machine layouts, work which is done in collaboration by the architects, the operating company, Army engineers and the Ordnance Department. A carefully prepared template for each machine is cut out of cardboard (left) and these are then assembled into plans of departments (center). The machine templates are in color, so that each type may be identified instantly, and colored strips are used to indicate the movement of materials from one bank of machines to another. Ultimately these department layouts are assembled to form the entire production unit housed in the manufacturing building (right). Until this point the building exists only as a grid of regularly spaced columns with no limiting walls around them.



From this preliminary work the rough building shapes are very quickly established, and work begins on the site plan. In some instances models are used to help in placing the buildings on rough terrain. As the machine layout becomes more definitely established the template plans begin to take on the outlines of actual buildings, and where the process requires several stories (center) the plans are set up accordingly. Only at this point does the work leave the field office and move to the main drafting room, where working drawings are begun and orders are placed for hard-to-get items.



Excavation begins almost simultaneously with the beginning of working drawings, and the home office starts the preparation of schedules and progress charts (center). Since hundreds of separate buildings are involved, and since the home office must be prepared to answer inquiries from Washington or the field at a moment's notice, these schedules must show the exact state of every drawing on the boards at any time, as well as the progress of work in the field. As a rule, the contractor starts driving piles (right) or setting foundations about a week after drawing has started in the main drafting room.



The photograph at the left suggests the split-second routine which went on during the entire construction period. Frequently the liaison man leaving for the job had just time to pull the prints off the office's blueprint machine before catching his plane. The worst problem throughout such a job is to keep the drawings ahead of the builders. The center photograph shows the thousands of drawings and prints which were required. Typical of the many ingenious expedients used to keep construction moving is the use of three locomotives as temporary steam plants until the permanent installation could be completed.

PRODUCTION PROCEDURE

1. On receiving instructions to proceed with the architectural engineering services, the office sends its technicians to the plant of the operating company, and to Government arsenals where manufacturing procedure is studied. From surveys, made in collaboration with the operating company's engineers and Army representatives, the following basic data are established: manufacturing equipment, both types and number; utility requirements; estimates of personnel; character and quantities of incoming raw and manufactured materials; quantity and packing of finished product.

2. Flow plans are made and machines are grouped into departments. Locations of departmental offices, tool cribs and storage are established. Bay sizes and vertical clearances are determined.

3. As soon as the approximate size for a building unit is arrived at, information goes to the home office for plot plan studies.

4. When the sketch plan is ready, showing the general arrangement within the building, column spacing, floor loadings, etc., a print is sent to the Detroit office.

5. During these preliminary activities, the War Department has determined the plant's locality. Information now available gives the features and facilities required, and the several possible sites in the locality are compared and a selection is made.

At the home office, while the plant layout crew has been working at the operating company:

6. General information has been collected on site and soil conditions, availability of construction materials, costs, etc. This is used by the War Department in making the final site selection.

7. Rough plot plan studies, showing approximate sizes and numbers of buildings, are submitted to the War Department and the operating company for approval.

8. Orders for strategic materials and equipment, *before plans have been further developed*, are placed.

9. With the receipt of more specific information on the buildings (see 4) details of general grading and foundations are prepared. To expedite construction, consideration is given the possibility of releasing less complicated buildings first.

10. Final layouts, approved by the Ordnance Department, the Chief of Engineers, and the operating company, are received at the home office and working drawings and specifications are begun.

At the field office:

11. A field representative is established on the job at the same time that plant layout men go to the operating company's office. His staff increases as field operations develop.

12. He supplies the home office with site data.

13. The field office acts as adviser to the War Department Engineer, supervises construction, prepares estimates and reports, and supervises the installation of machinery.

14. Original working drawings are sent on to the field office, which has a large drafting staff. Modifications in the drawings, as well as the full size details, can thus be made on the job. Prints of revised drawings are then sent to the home office.

15. The field office carries the job to completion after the plant layout crew has finished and original working drawings have been received.

It will be seen from the foregoing that planning procedure is not a consecutive series of operations, but a number of simultaneous ones which are carried on in Detroit, in the field and at the operating company's offices. The success of so complex and rapid a procedure depends on both individual performance and organizational teamwork. In addition, perfect coordination is required of the architect-engineers, Army representatives, consultants and the operating company. A special problem, one peculiar to this industry, had to be met in the course of the work. The production of ammunition is an industry which has been dormant in this country for many years. Cartridges were made in relatively small lots for sporting and military use. This phase of the industry had to be brought up to date practically overnight. Again, the closest collaboration was needed to apply advanced manufacturing methods to this field without delaying the planning and construction of the plants themselves.

The office of Smith, Hinchman & Grylls has asked that credit be given the Army Engineers, the Ordnance Department, the Remington Arms Company, Inc., the United States Rubber Company and the Federal Cartridge Corporation for their cooperation, and to the following for their assistance in carrying out the program:

CONSULTANTS: *The A. J. Brandt Company, Industrial Engineers, technical authorities on manufacturing operations, equipment and process developments.*

ENGINEERS: *Black & Veatch and C. A. Haskins, R. J. Tipton, Burton Lowther and D. J. McQuaid, Howard R. Green, Toltz, King & Day, Inc., Jerry Donohue Engineering Company, A. E. McMahon.*

CONTRACTORS: *Broderick and Gordon, J. S. McLaughlin & Sons, Central Engineering Construction Co., Preister Construction Co., Walbridge-Aldinger, Foley Bros., Massman Sons, The Hutter Construction Co., Rudolph Weitz, Fox Valley Construction Co.*



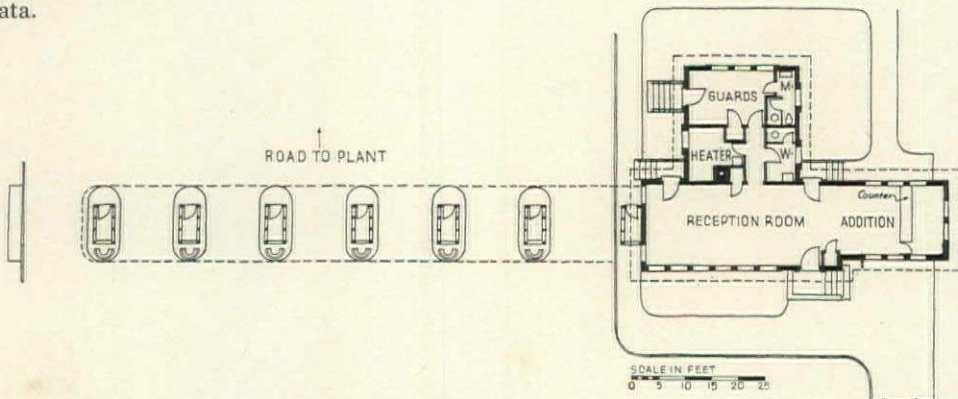
Robert Cameron

CONTROL

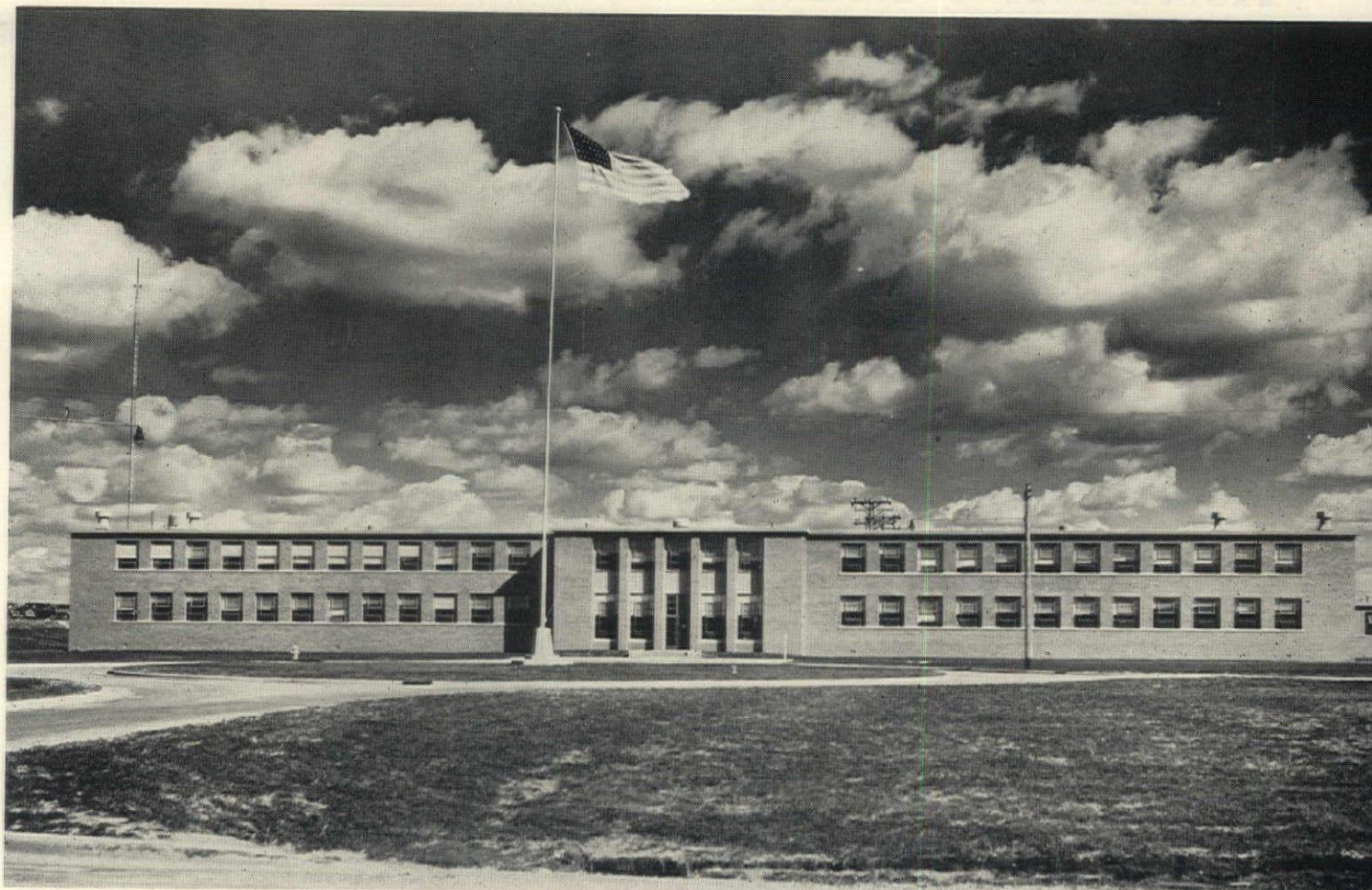
Control of traffic involves the checking through of trucks and the thousands of workers who arrive on foot and in cars. Since the peak load at any of a plant's several entrances may be very heavy, these control setups have taken on a form similar to the toll houses on some bridges and highways. Each of the glass booths has room for one guard, and the lanes between are covered with a roof which stretches to the small building on the right. In most instances there is a special lane for trucks with a high roof providing the needed headroom. As a rule, the design of these control gates takes on the character of the plants they serve. The permanent plants have entrances similar to the example above; the others are served by economical frame buildings. A traffic survey was made by Smith, Hinchman & Grylls after completion of the first plant to provide further design data.



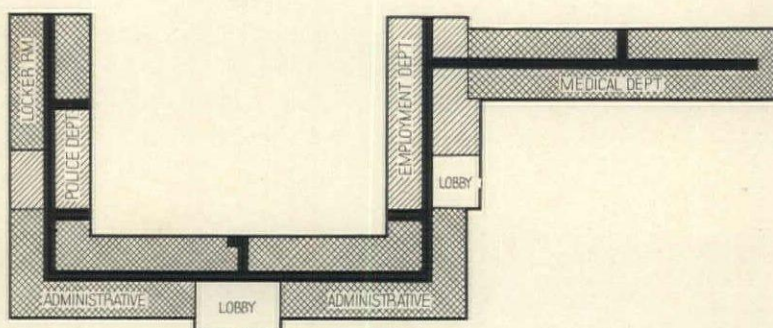
Conrad Hug



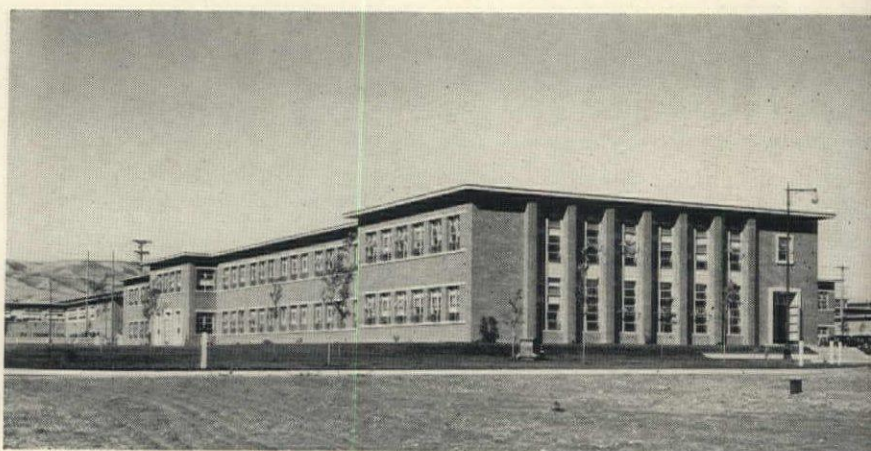
Robert Cameron

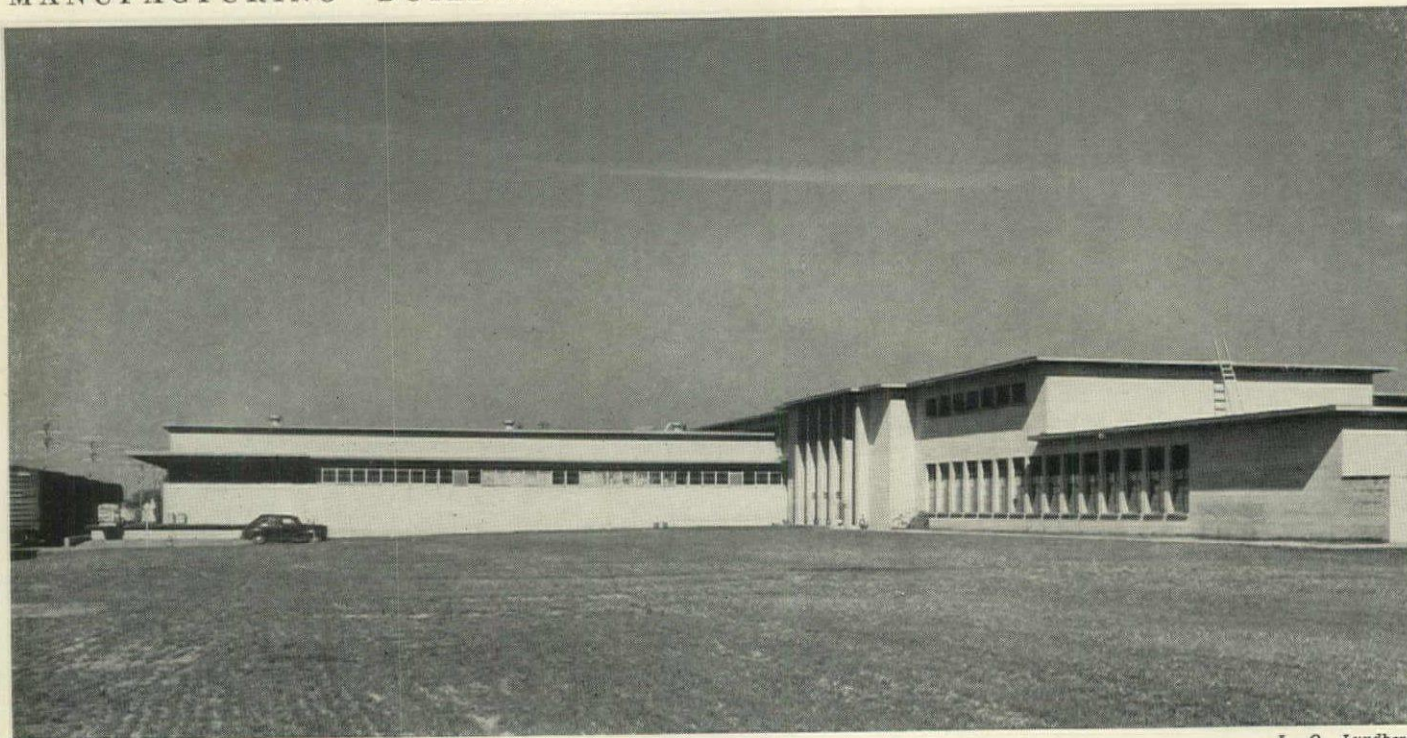


Robert Cameron



Despite the fact that all of the small arms ammunition plants turn out the same products using the same processes, endless variations are to be observed in the hundreds of buildings which go to make up these giant manufacturing establishments. The two administration buildings offer an interesting illustration. Both house the plant executives, clerical staffs, a complete small hospital and other services. Yet the plans differ completely, as shown by the building shapes and by the different locations of the main entrances. In some cases such variations stem from the topography and site plans; more frequently they are the result of the special requirements of the individual operating companies. The administration building is commonly one of the first buildings erected, housing the field offices until the plant is completed.

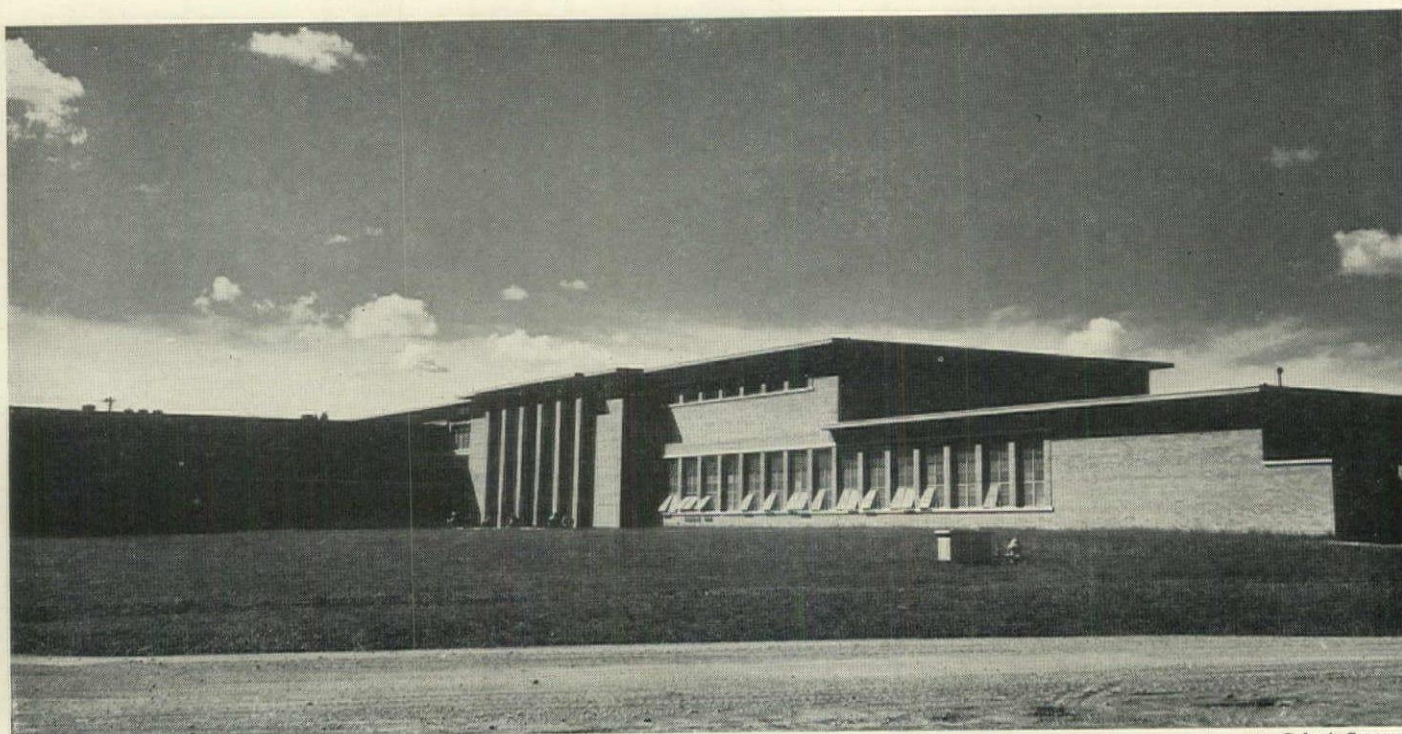




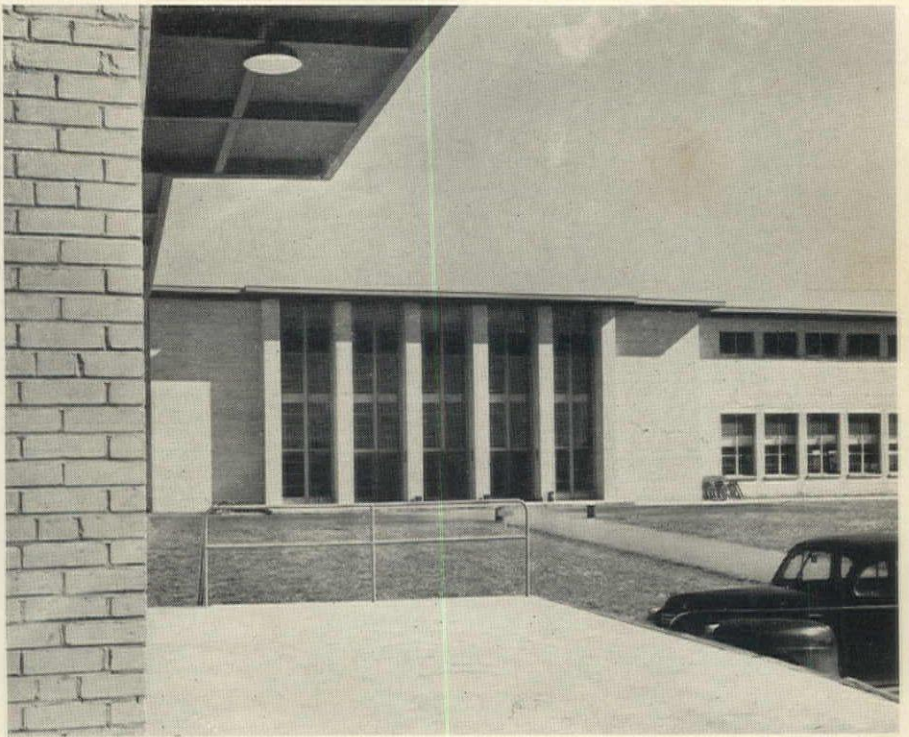
L. O. Lundberg

The theme of variation within a larger standard pattern is again illustrated by the photographs of these two manufacturing buildings, where small changes in exterior materials and design produced substantial savings in building cost. It should be noted that design variations were never introduced by the architects for the sake of variety: considerations of speed and economy made imperative exactly the reverse. Whenever it was possible to repeat a detail of one plant in another, or even entire buildings, it was done.

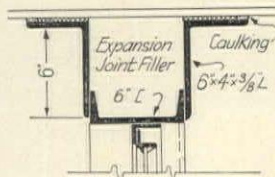
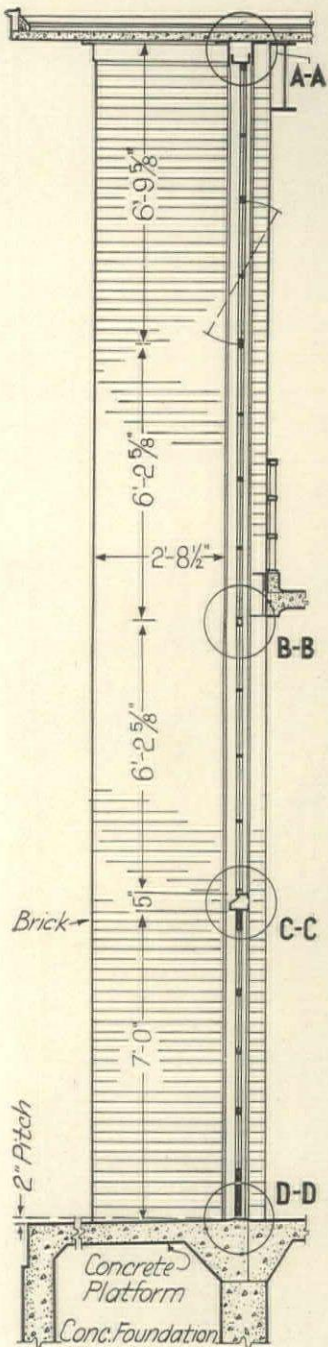
The manufacturing building, covering an enormous area, is the largest single unit in any cartridge plant. Due to the fact that some of the processes carried on within it are extremely hazardous, the building is invariably broken up into a complex system of wings which tend to reduce its apparent size. Such is the case with the illustrations here, which show only the entrances through which the workers are checked in. The long row of windows to the right of the entrance opens into the cafeteria. Space above is taken up with locker rooms and showers.



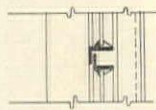
Robert Cameron



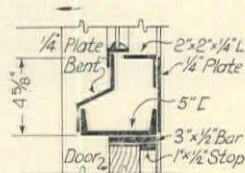
L. O. Lundberg



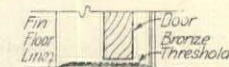
SECTION AA: HEAD



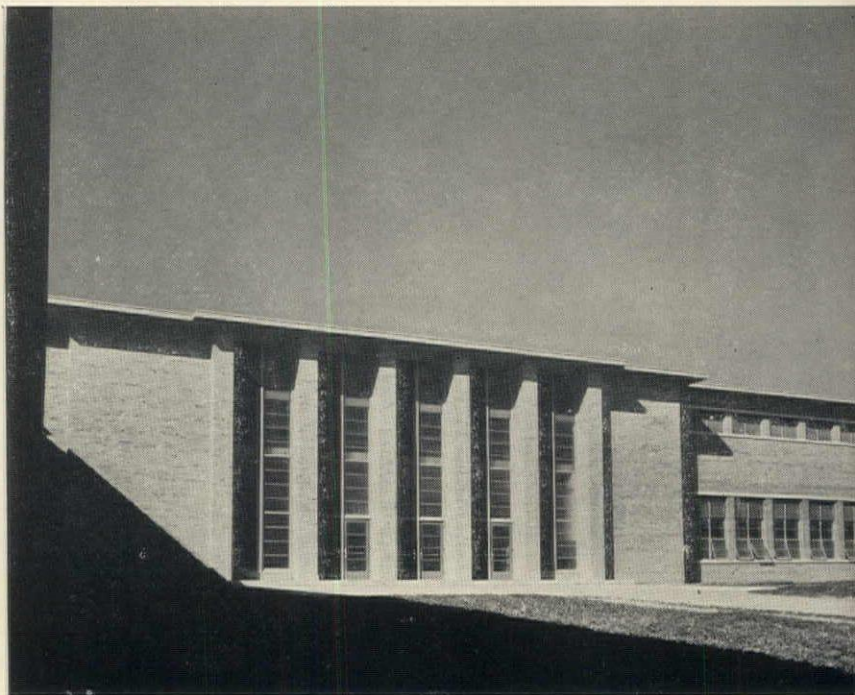
SECTION B-B



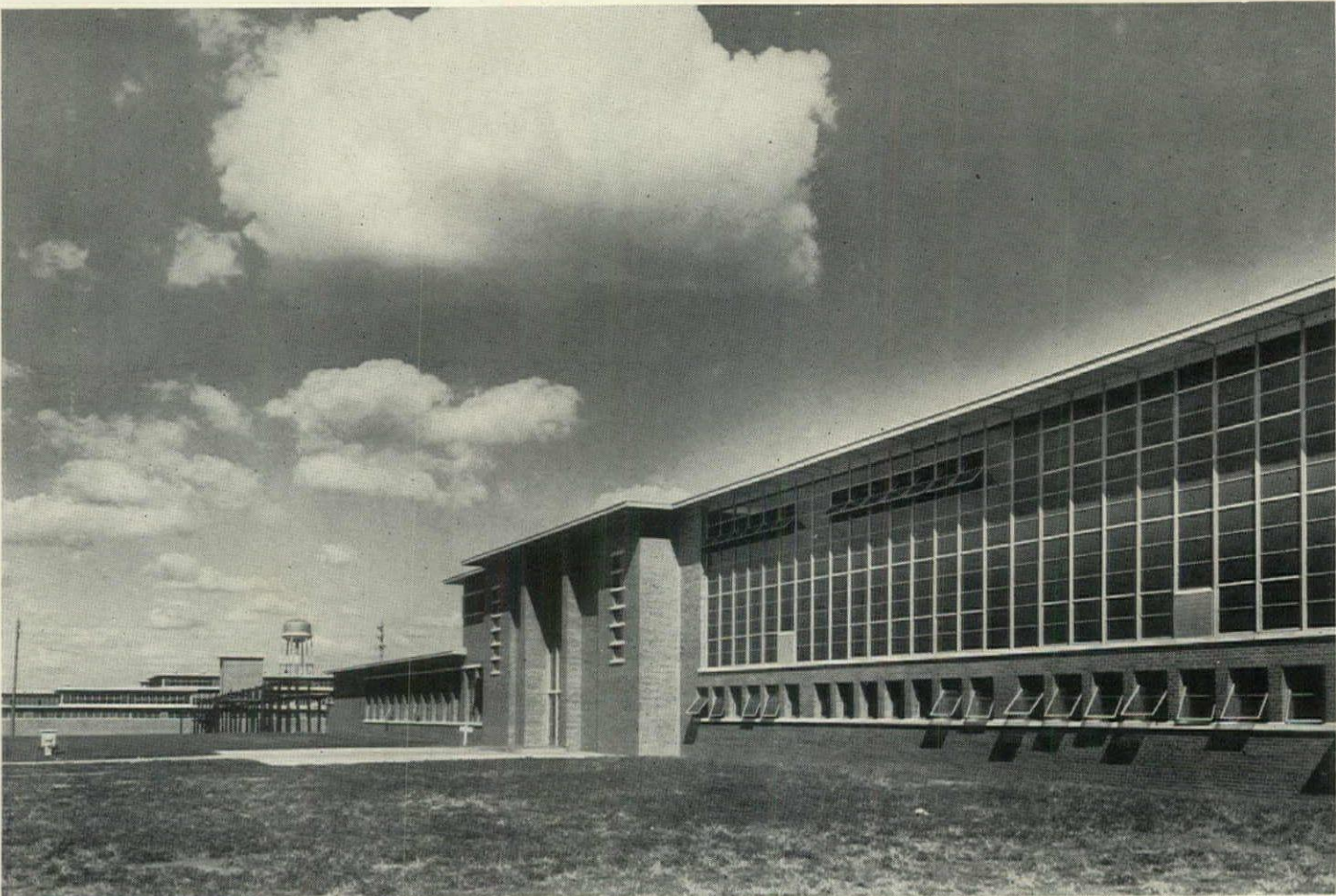
SECTION C-C: TRANSOM BAR



SECTION D-D: SILL

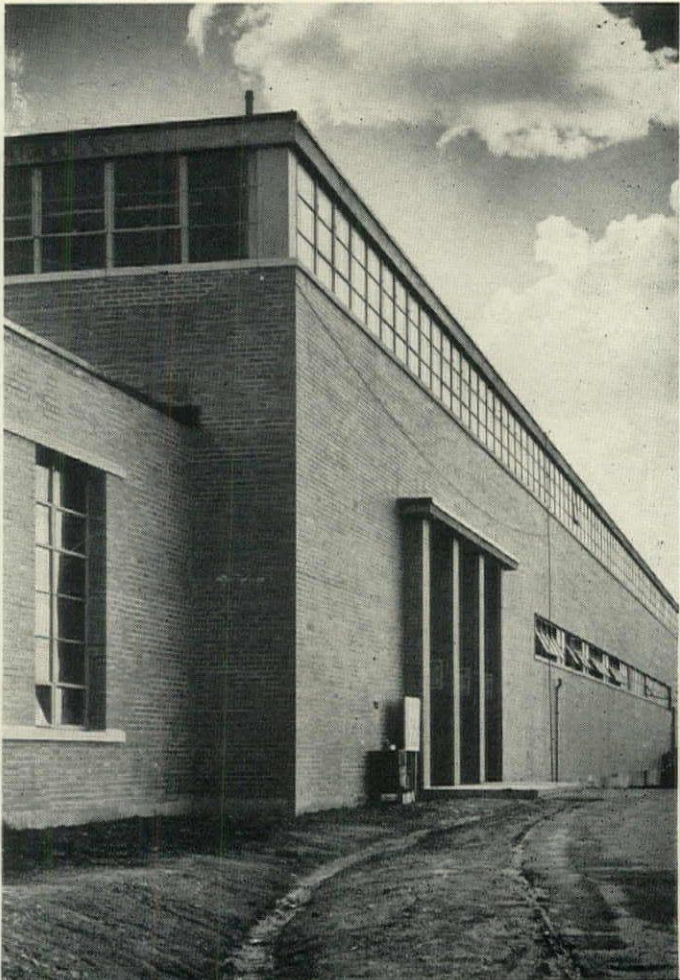
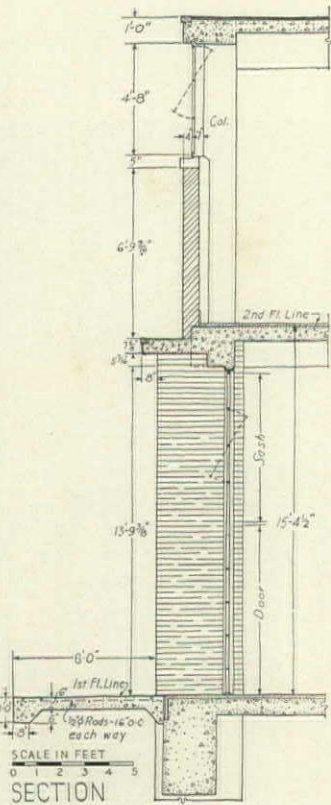


Robert Cameron



ROBERT CAMPBELL

Above, an entrance to a manufacturing building, with a similar structure in the distance. In more recent plants the characteristic overhang has been eliminated to reduce costs and save materials. For the same reason, reenforced concrete was substituted for the steel framework. The facing page, with the power plant in the foreground and a manufacturing building beyond, offers an excellent illustration of a basic planning principle: wide separation of buildings to localize the effects of possible accidents.

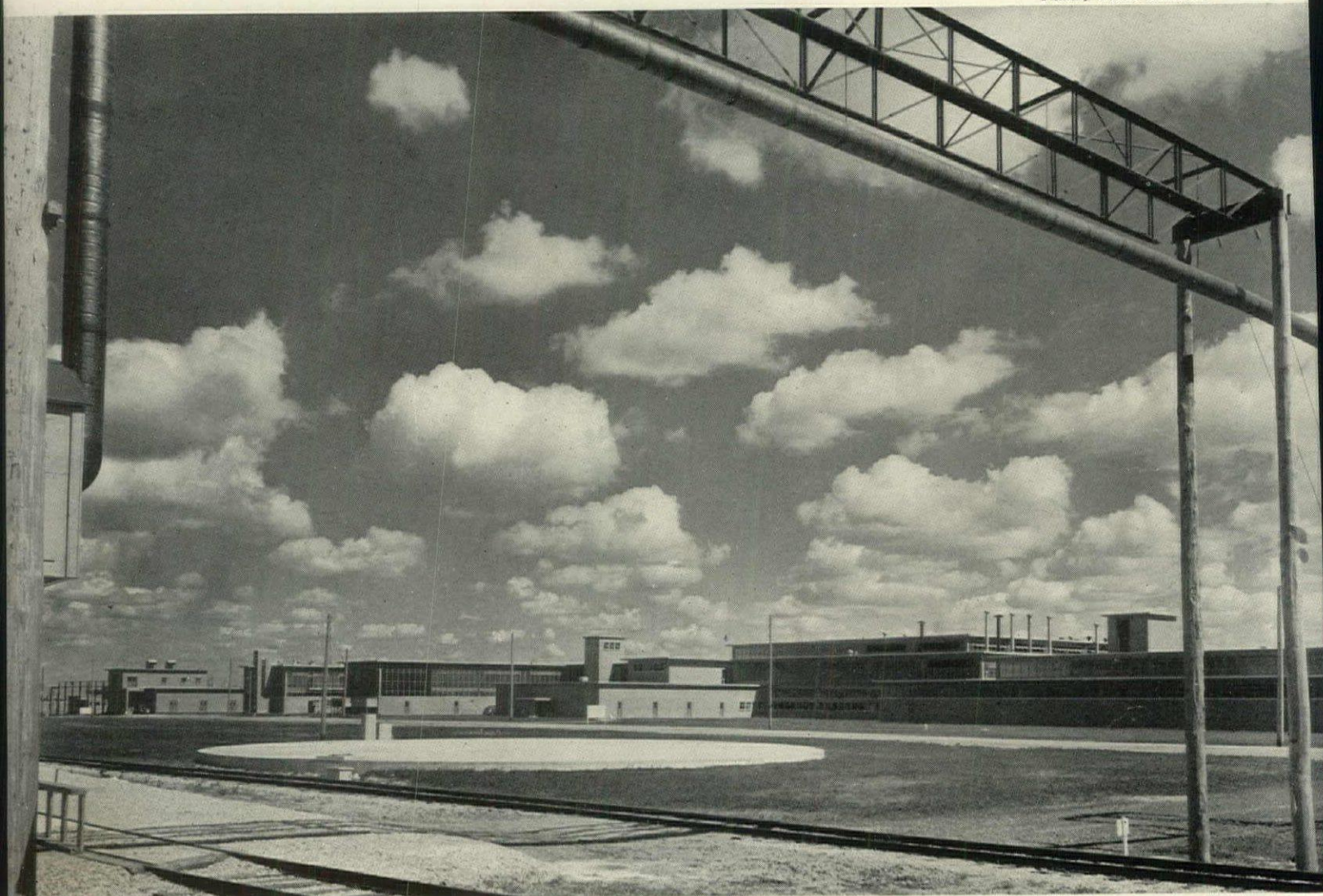


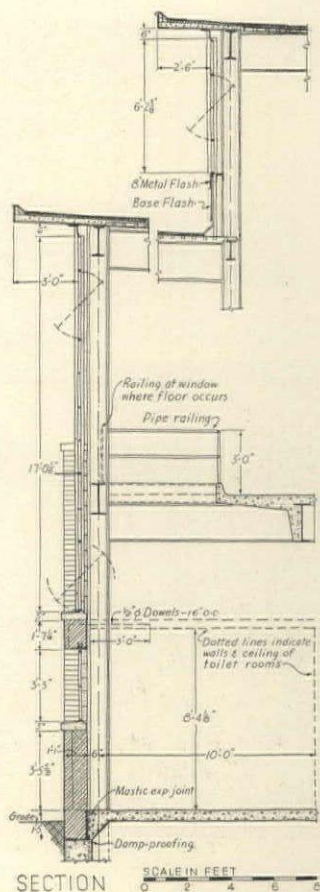
Conrad Hsu



Some inkling of the size of a small arms ammunition plant is given by the photograph below. It shows a portion of a single manufacturing building. Each plant contains several such buildings, while these, in turn, form only a part of the entire establishment. While comparative data has not been released, such plants as these must be among the largest in the entire war building program. Characteristic indication of the amount of ground covered is the standard gauge railroad in the foreground, part of a network which serves the plant. Also characteristic of many installations is the above-ground steam line, here raised to clear the tracks. All temporary plants have exposed steam lines, since the possibilities of salvage are greater in the event of dismantling after the war. For reasons of construction speed and economy many of the permanent factories have similar installations.

Photos, Robert Cameron





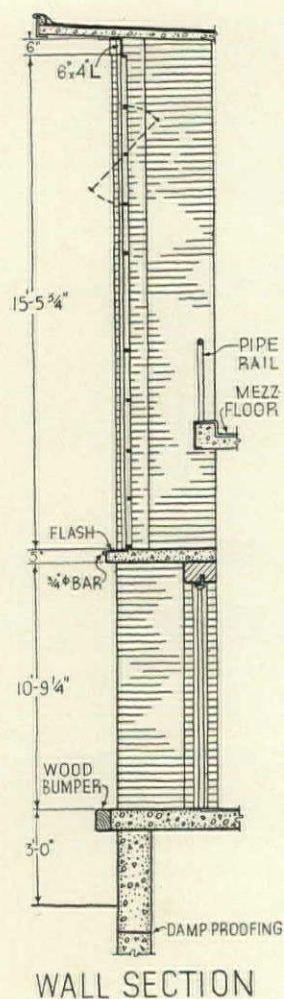
Pictures on previous pages have already indicated something of the general character of the design. The naturally horizontal shapes are strongly emphasized by the use of pronounced overhangs, and by the high masonry walls at ground level. The latter, which offer protection against splinters in the event of bombs, are now standard practice in most new war plants. Here the walls are pierced only where necessary. In the general view the typical escape doors can be seen in the walls of wings where hazardous operations are carried on. In the detail view below there are also small windows in these walls, opening into the offices which adjoin the manufacturing space. Monitors in these buildings do not follow the conventional patterns, but are arranged as continuous lights. Their form and placing were dictated by the interior layout, which provides a great number of mezzanines used for manufacture and storage.

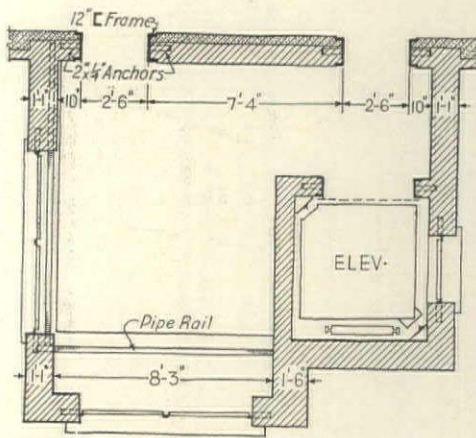
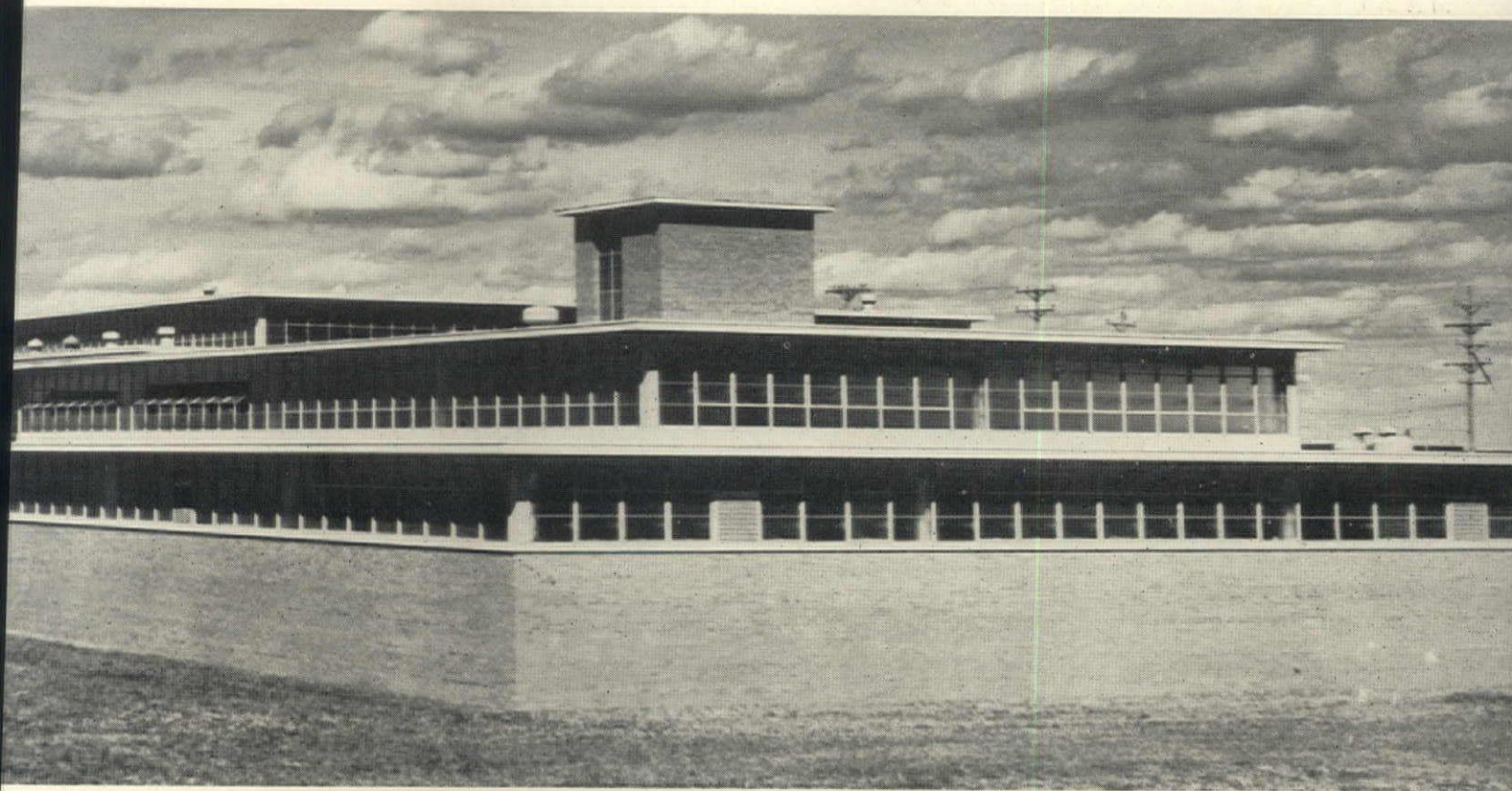




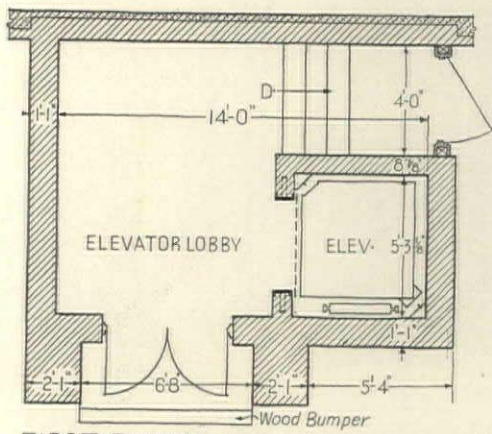
Photos, Robert Cameron

Many of the features of manufacturing buildings previously enumerated are shown here at closer range. The splinter walls, windows and overhangs form a structure that is very good-looking as well as efficient. Monitors appear at various levels, as required by the manufacturing process. The regularly spaced escape doors give almost instant egress to the workers in the wings. The photograph of the elevator tower on the facing page is of special interest as it illustrates many of the peculiar design requirements of this type of factory. In this tower there are a truck loading platform, an elevator shaft, a stair and lobbies at two levels. It will be noted that there is a window in the elevator shaft, a practice almost unheard of in these days of closed elevator cabs. The window was installed not for light but as a relief valve: should there be an explosion in the elevator the window will blow out, relieving the pressure on the structure. The large window at the front is also a blowout section. Such installations have been common for some time in factories where inflammable or explosive mixtures are handled; in plants such as these, proper design of these elements is of prime importance.



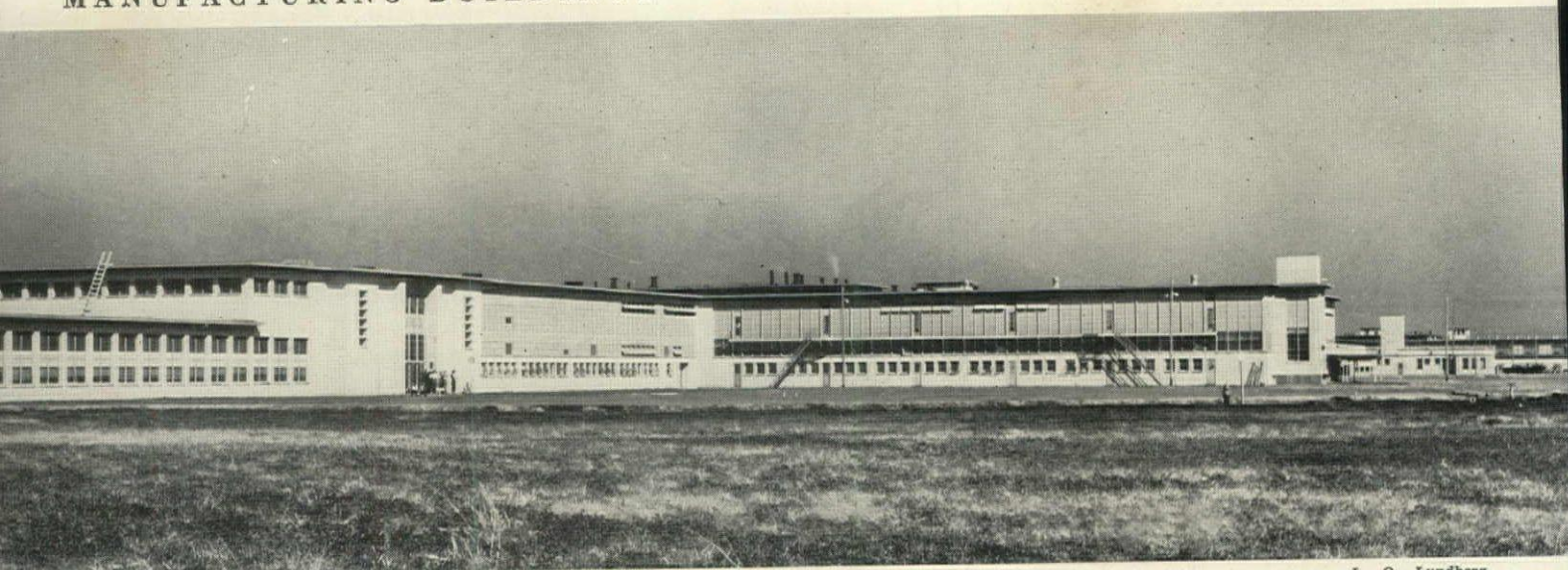


MEZZANINE



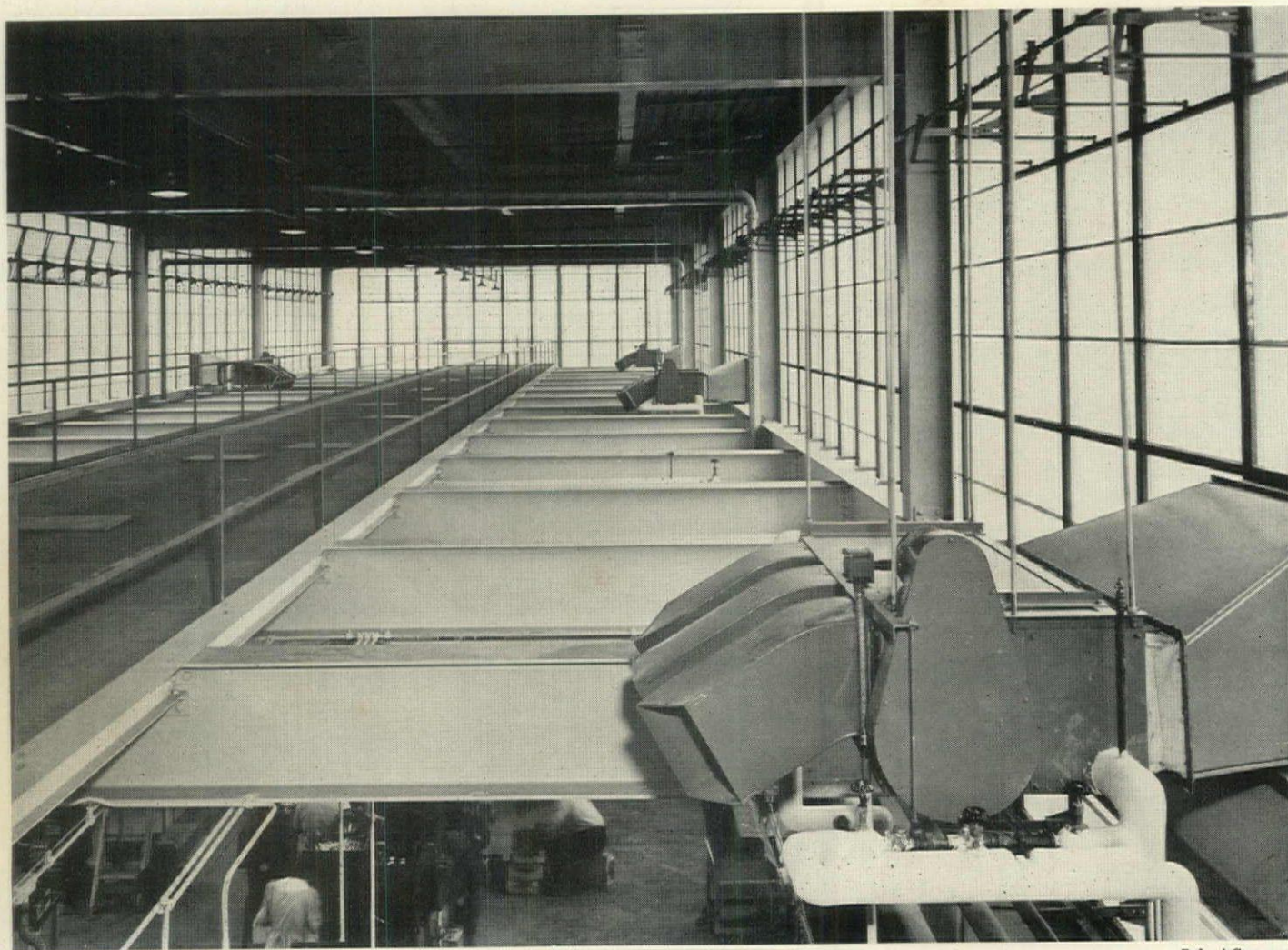
FIRST FLOOR





L. O. Lundberg

The first permanent cartridge plants of World War II were steel-framed buildings. As the program developed, and temporary plants were added to supplement the output of the permanent arsenals, Smith, Hinchman & Grylls developed a number of techniques for cutting costs. A growing shortage of metals accelerated the shift to concrete and finally to wood. These photographs show interiors of the structures first erected. Directly below is a view of one of the many mezzanines in the plants, housed in a narrow wing which opens off the main manufacturing space. Products arrive at the mezzanine level, travel along by conveyor (not shown) and are dropped into hoppers which feed machines on the level below. Note the unit heaters and fresh-air intake ducts.



Robert Cameron



Photos, Robert Cameron

The large manufacturing space shown above has an abundance of natural light, supplemented by fluorescent lighting troughs over the machines and work tables. The wire grille in the right foreground encloses tool cribs and other storage space. The photograph below is of interest as it shows a typical monitor from the inside.

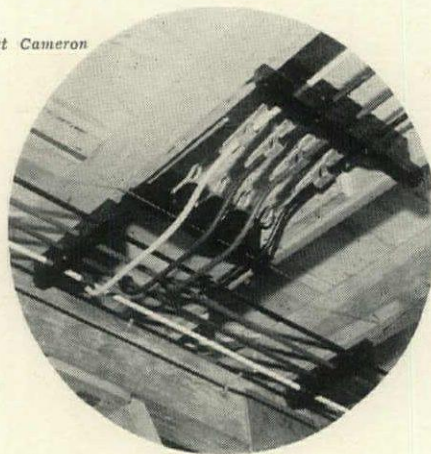




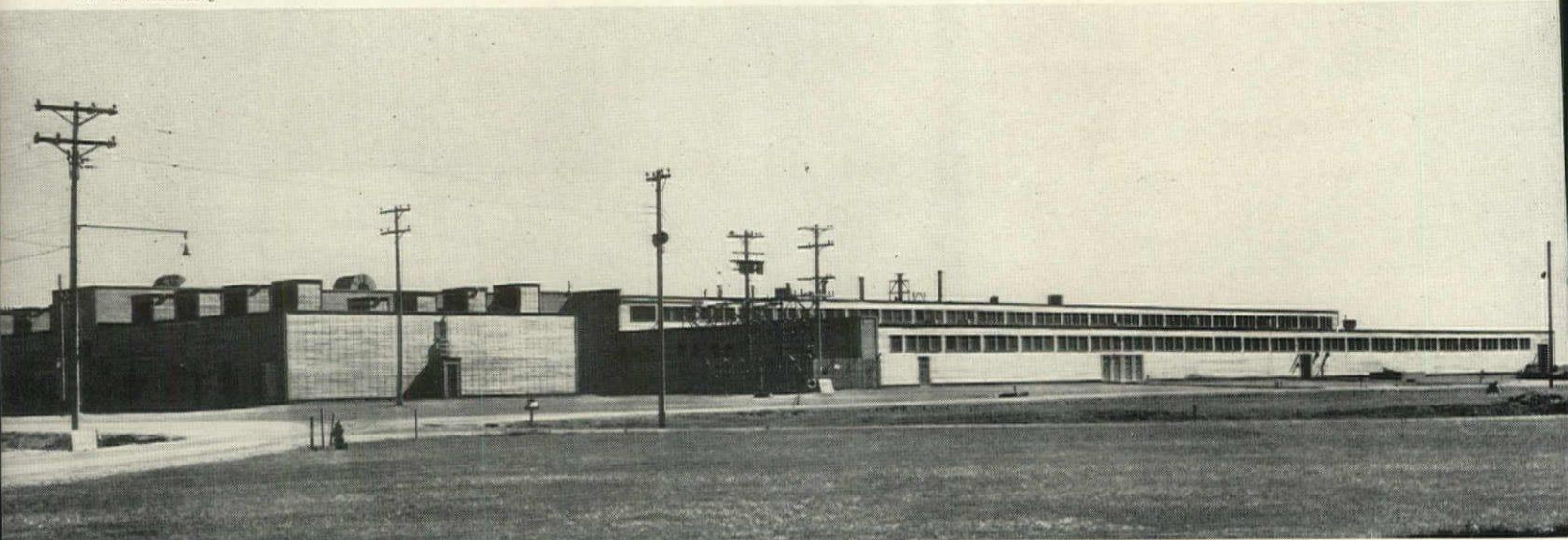
L. O. Lundberg

Those plants, or portions of plants, which have been constructed of wood offer an instructive contrast to the buildings previously shown, as they enclose the same processes and meet the same space requirements. The hazardous operations wing above differs from similar units in steel or concrete only in the use of exterior escape slides from the second floor. Metal conduit has been eliminated; the cables are drawn tight by a screw and clamp device shown in the insert at the right. The general view below is interesting for the wood ventilators on the roof of one of the wings: these are of the so-called "explosion type," designed to blow out easily if there is a sudden increase of air pressure inside.

Robert Cameron



L. O. Lundberg





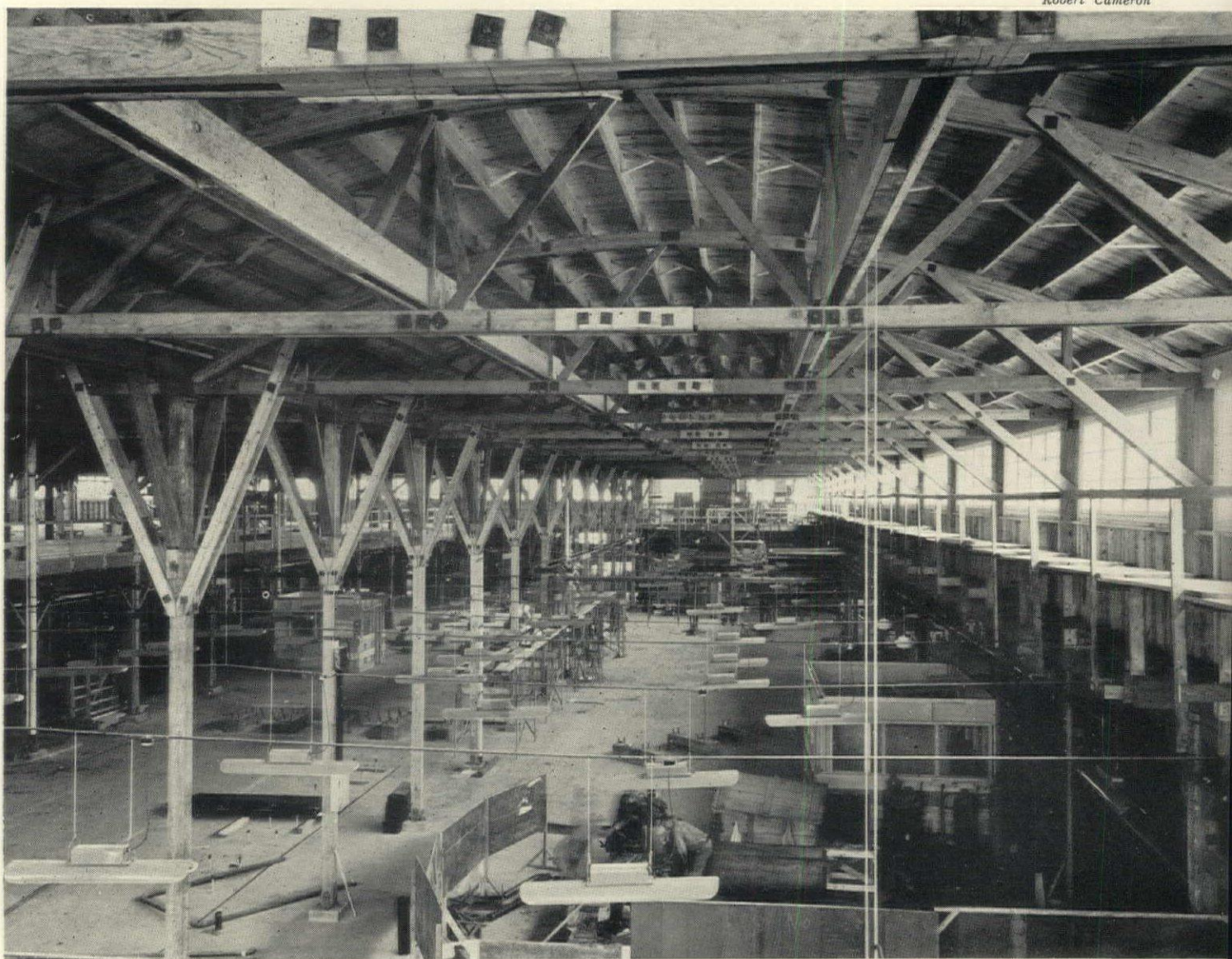
L. O. Lundberg

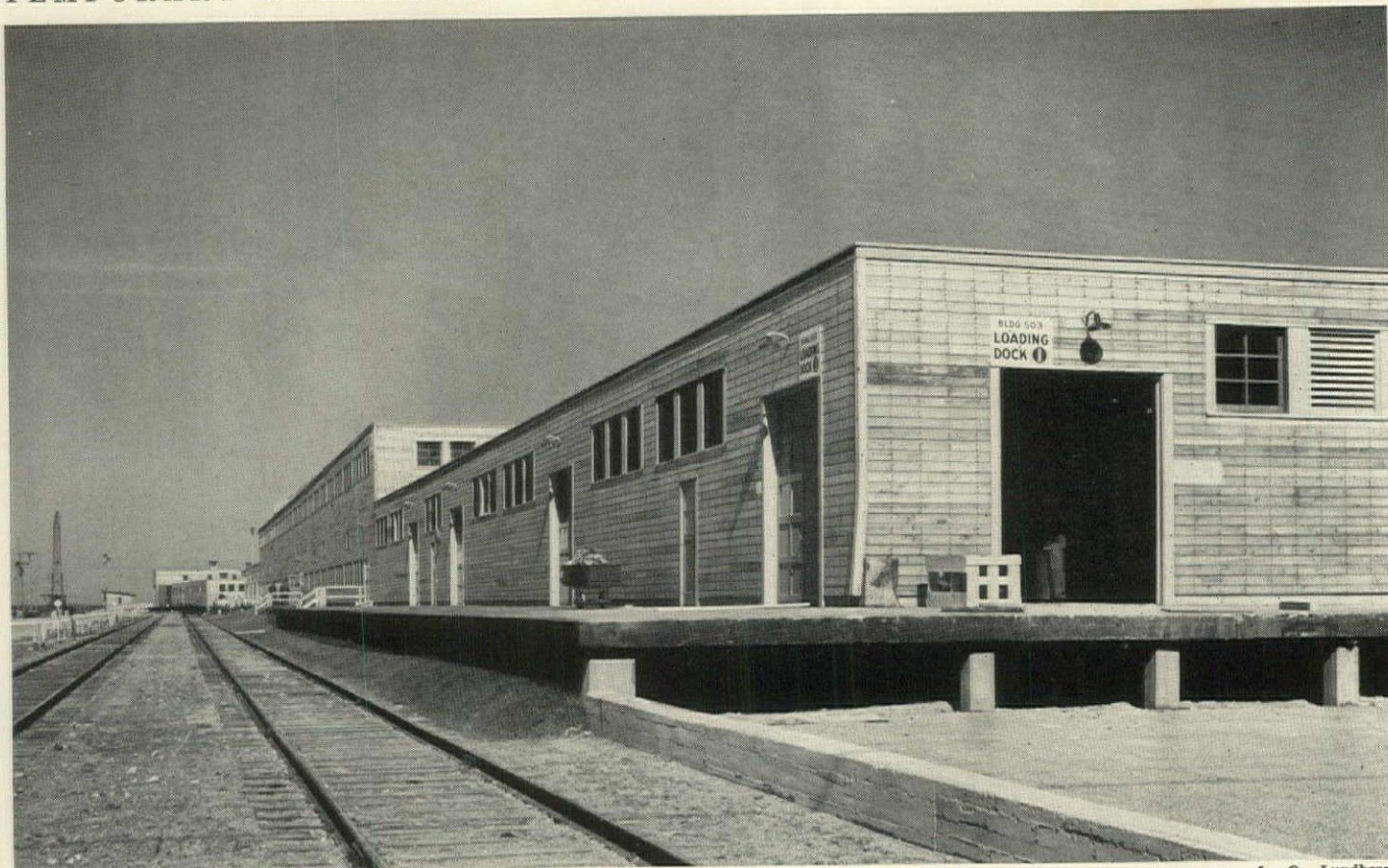


Robert Cameron

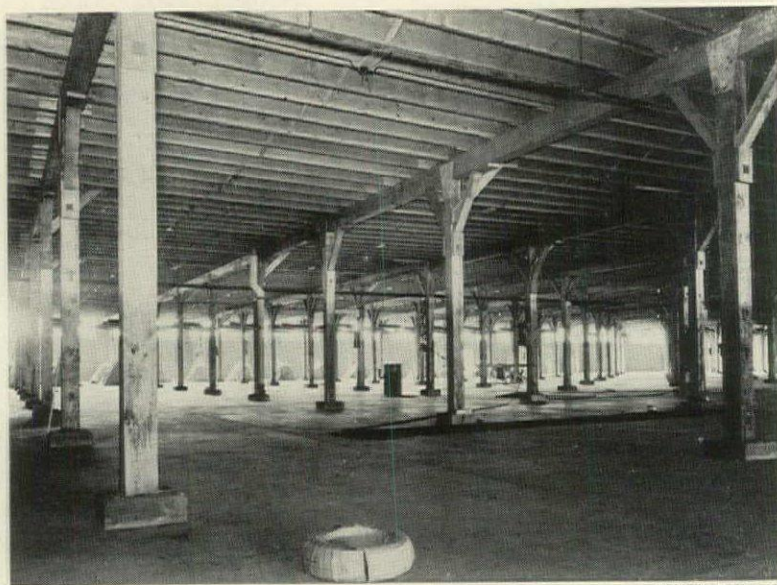
More protective devices are shown at the left. The doors can blow out, striking against padded wood bumpers to minimize damage. The showers are for protection of the workmen. Some of the wood construction is remarkably light, notably the trusses which span some of the large manufacturing areas. Curved members are laminated.

Robert Cameron

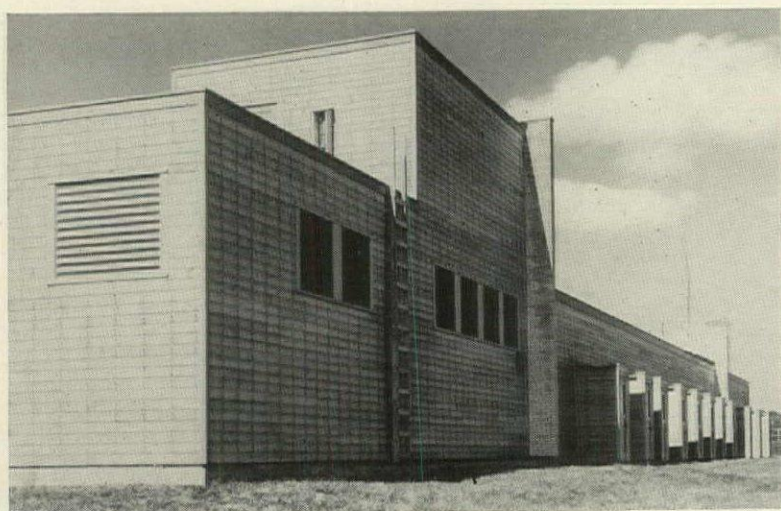




L. O. Lundberg

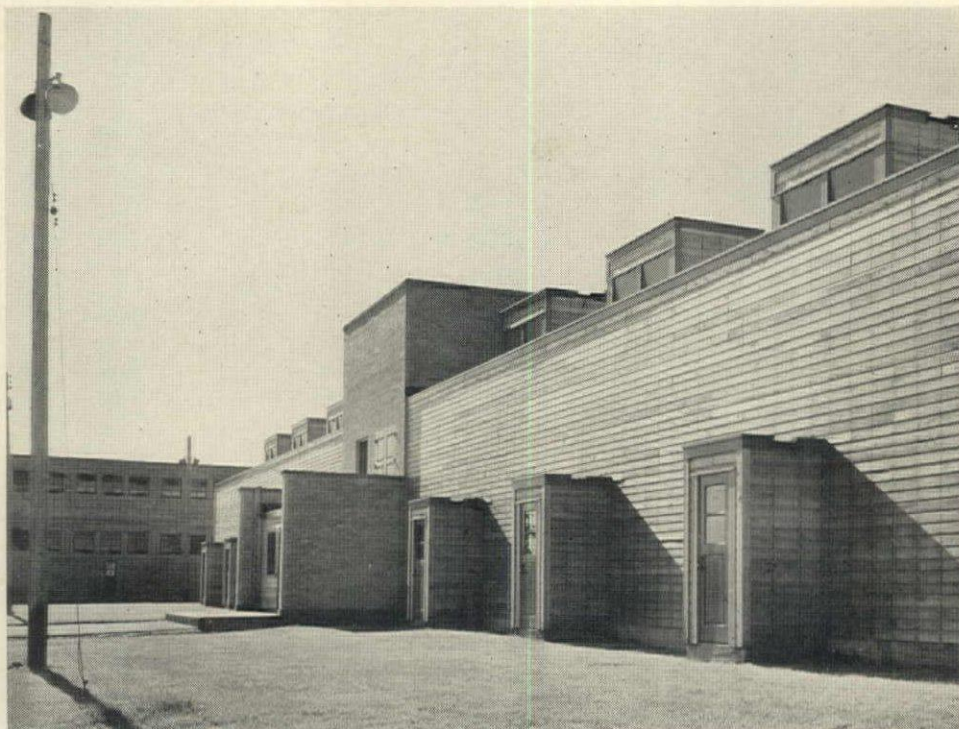
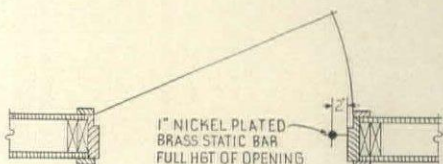


Robert Cameron



L. O. Lundberg

A serious hazard in any large wooden plant is the danger of fire, a risk greatly increased by the nature of the operations carried on here. One device for localizing possible fires is shown in the adjoining illustration, a small section of one of the manufacturing buildings. Here masonry walls, extended a few feet beyond the face of the building, act as fire stops. Construction of the temporary wood plants is very simple: lapped siding on wood frame with stock wood sash. No consideration has been given to appearance, and even exterior paint has been omitted. There is no reason, however, why such structures should be finished more carefully, as they will be quite adequate to meet any demands made upon them for a period of many years.

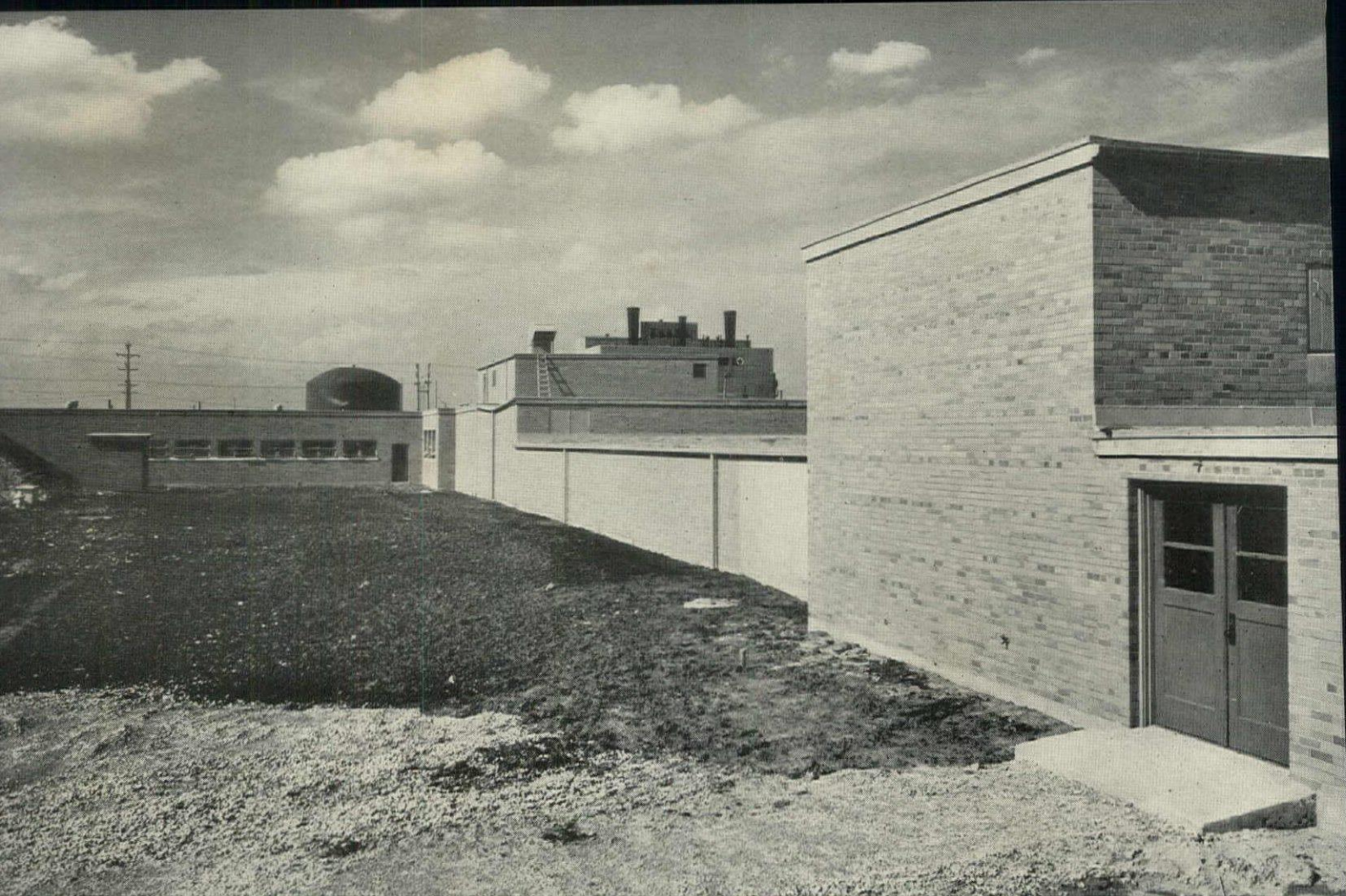


L. O. Lundberg

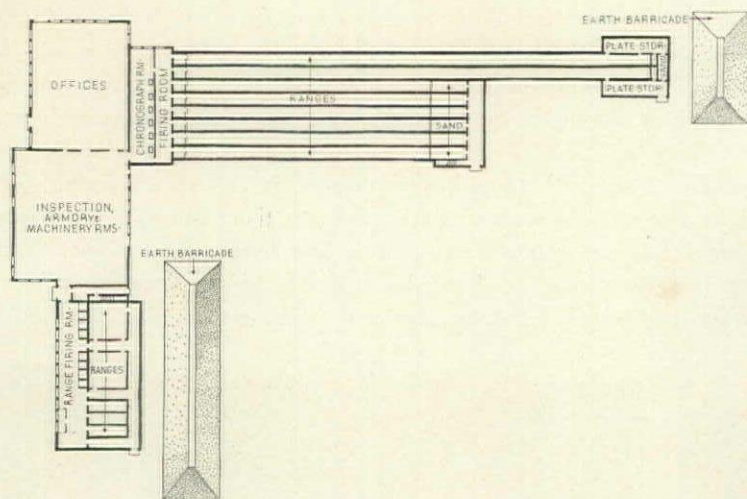
Typical of the many special problems encountered are the unusual buildings and wings in which explosives of one sort or another are handled. Dust particles floating in the room or outside are particularly dangerous, and where powder is handled the rooms must be fitted with air washers so that the dust is neither returned to the room nor discharged to the outside. Any accumulation of such dust, obviously, is a fire hazard. The primary use of air conditioning is to maintain a degree of humidification sufficient to prevent the formation of static charges and to reduce the possibility of electric sparks. Since humidity is maintained anywhere from 40 to 60 degrees, extraordinary measures must be taken to insulate doors, walls and windows to prevent condensation of moisture on interior surfaces. The vestibules shown in these three photographs were among the devices used to prevent condensation on doors. Other measures to reduce the dangers of static charges have been developed: the floors are of non-sparking composition and have imbedded in them a grounded wire grid which instantly drains off accumulated static charges; there are grounded bars next to each door; these bars are touched before the door handle is grasped. Both permanent and temporary buildings are shown here: the required elements, such as blowout ventilators and escape vestibules, are the same in all cases.

L. O. Lundberg



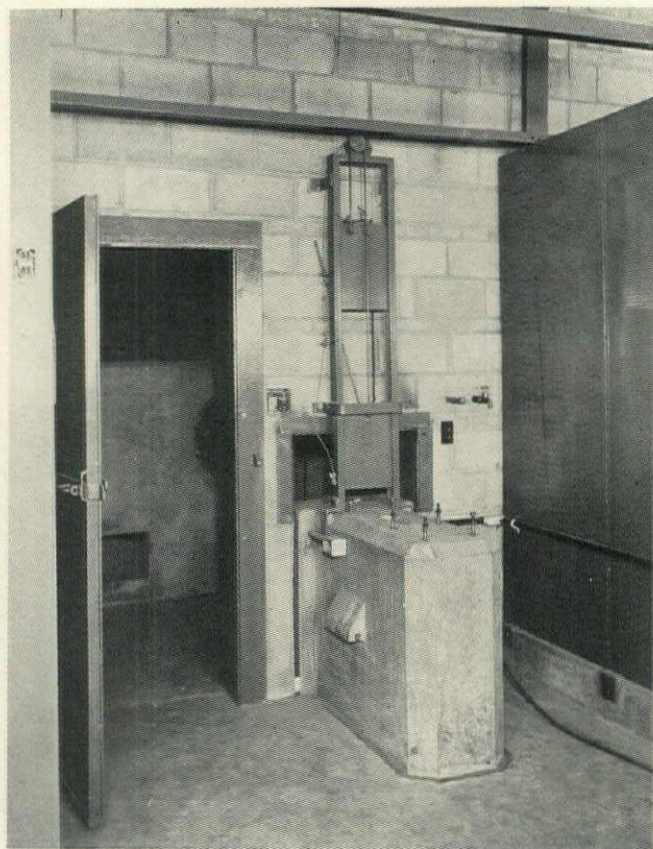


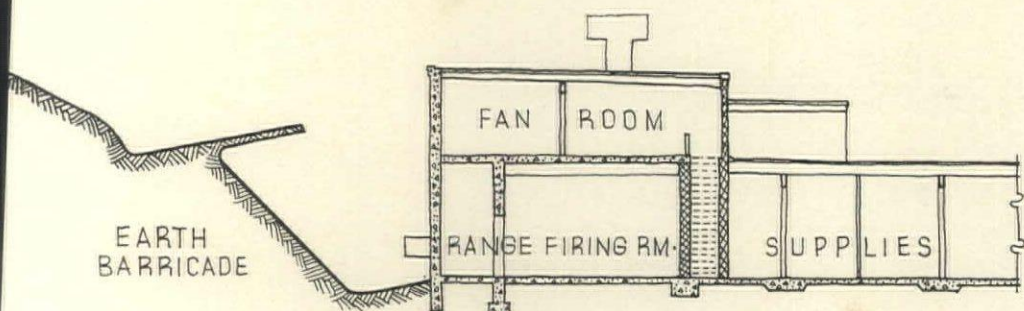
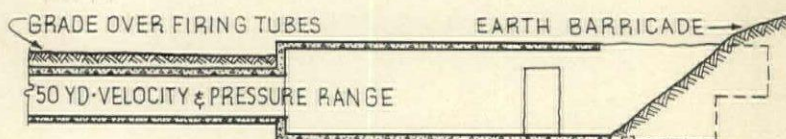
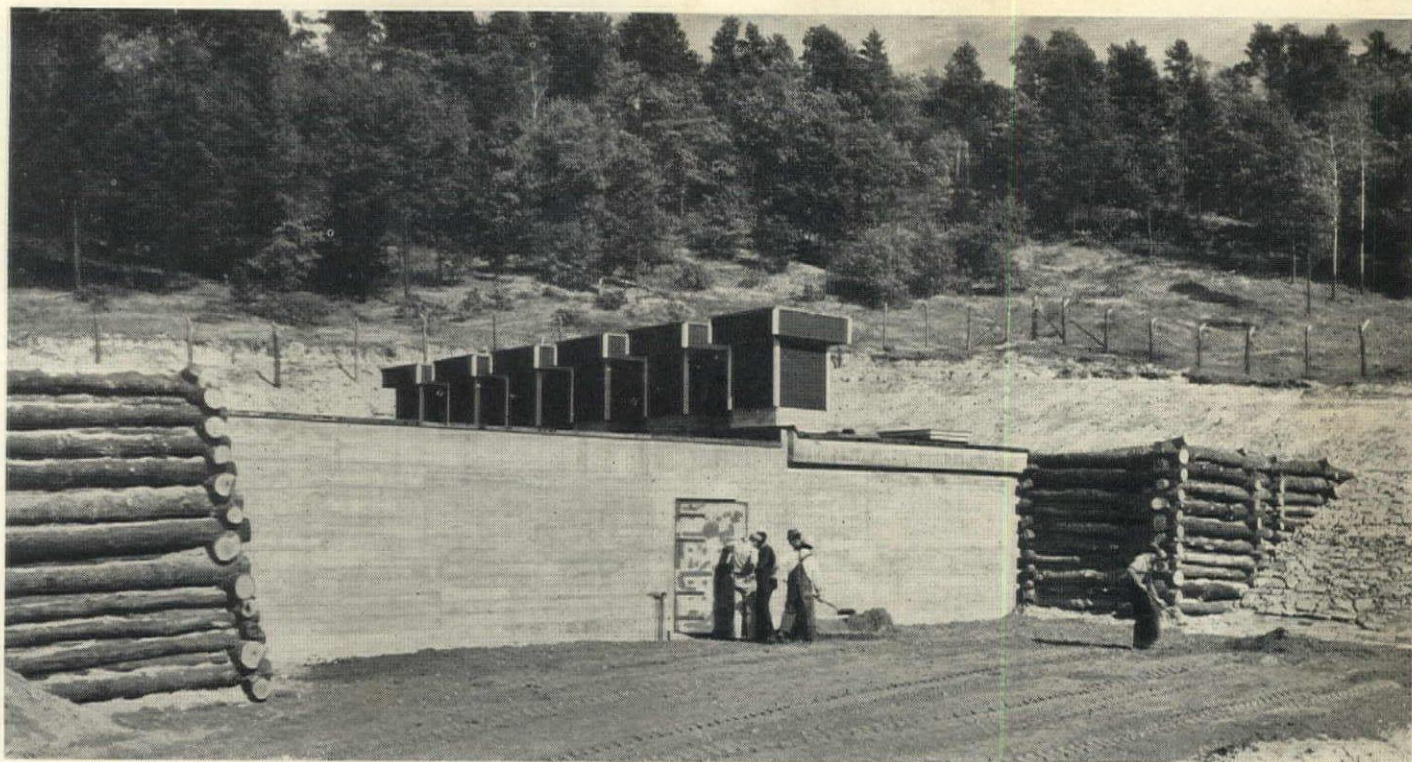
Photos, Robert Cameron



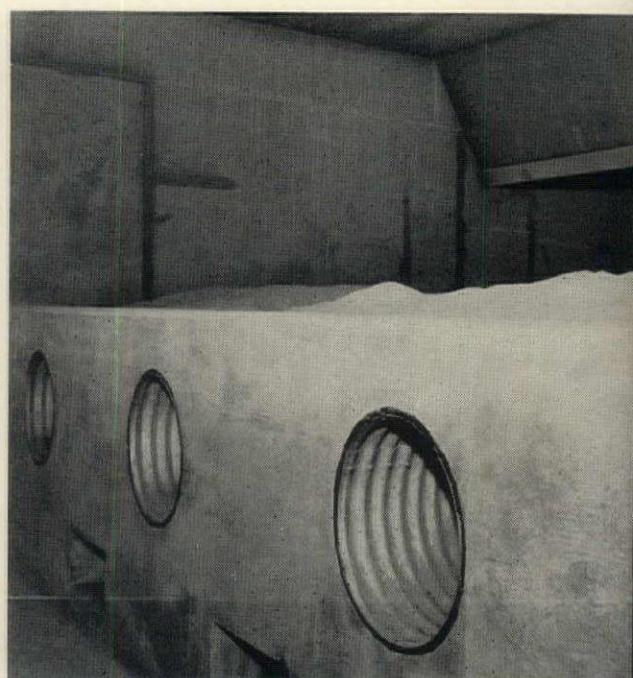
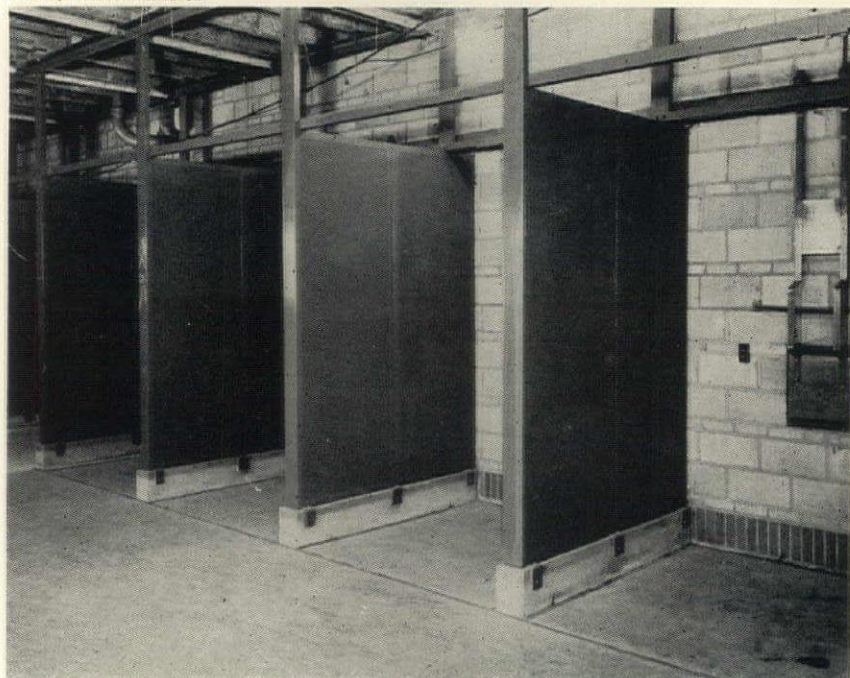
BALLISTICS BUILDINGS

The ballistics buildings on these two pages are not part of the direct production cycle, but are used for testing only. In construction they range from brick and steel to concrete and logs and wood frame. They house ranges of various lengths where the characteristics and fire power of the different types of cartridges may be studied. Typical set-ups are shown at the right: the guns are mounted on concrete blocks set between acoustical baffles. An elaborate system of protective devices, such as the vertically sliding steel plates, safeguards the men at work in the firing rooms. The bullets are fired into corrugated steel pipes backed up with sand. Fans and ventilators at the far end of each firing range take dust out of the air and prevent its return to damage gun mechanisms.



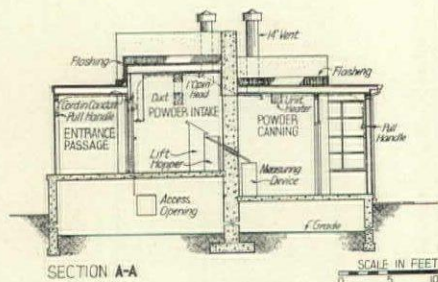
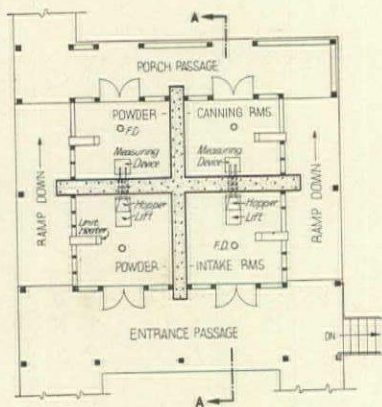


Photos, Robert Cameron



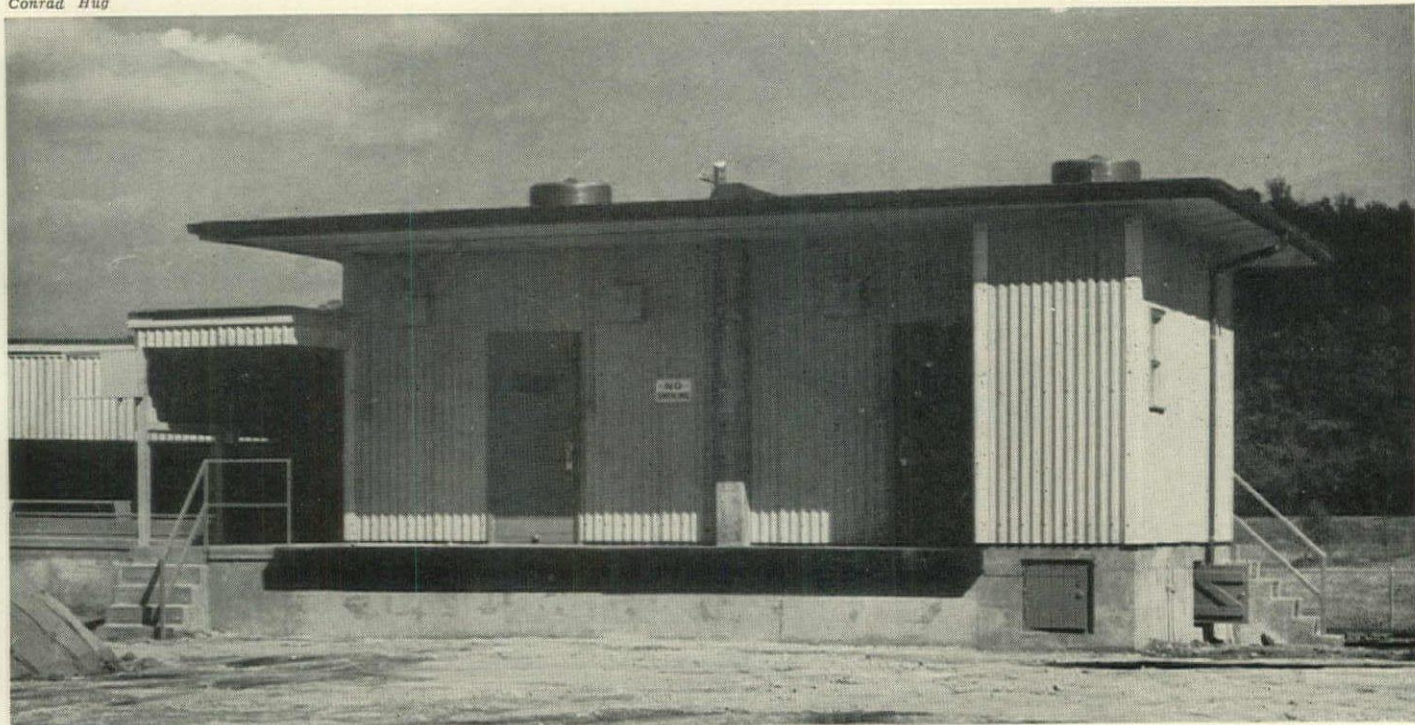


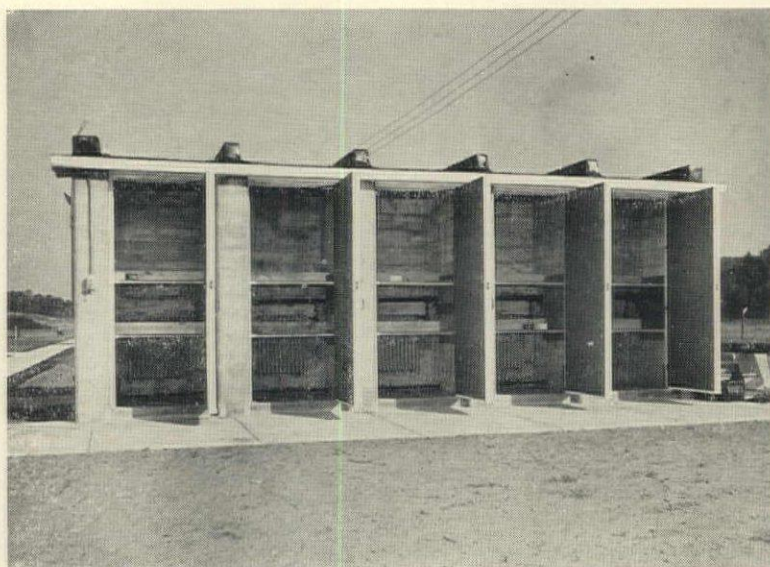
TEMPORARY TYPE CANNING BUILDING



Conrad Hug

PERMANENT TYPE MAGAZINE

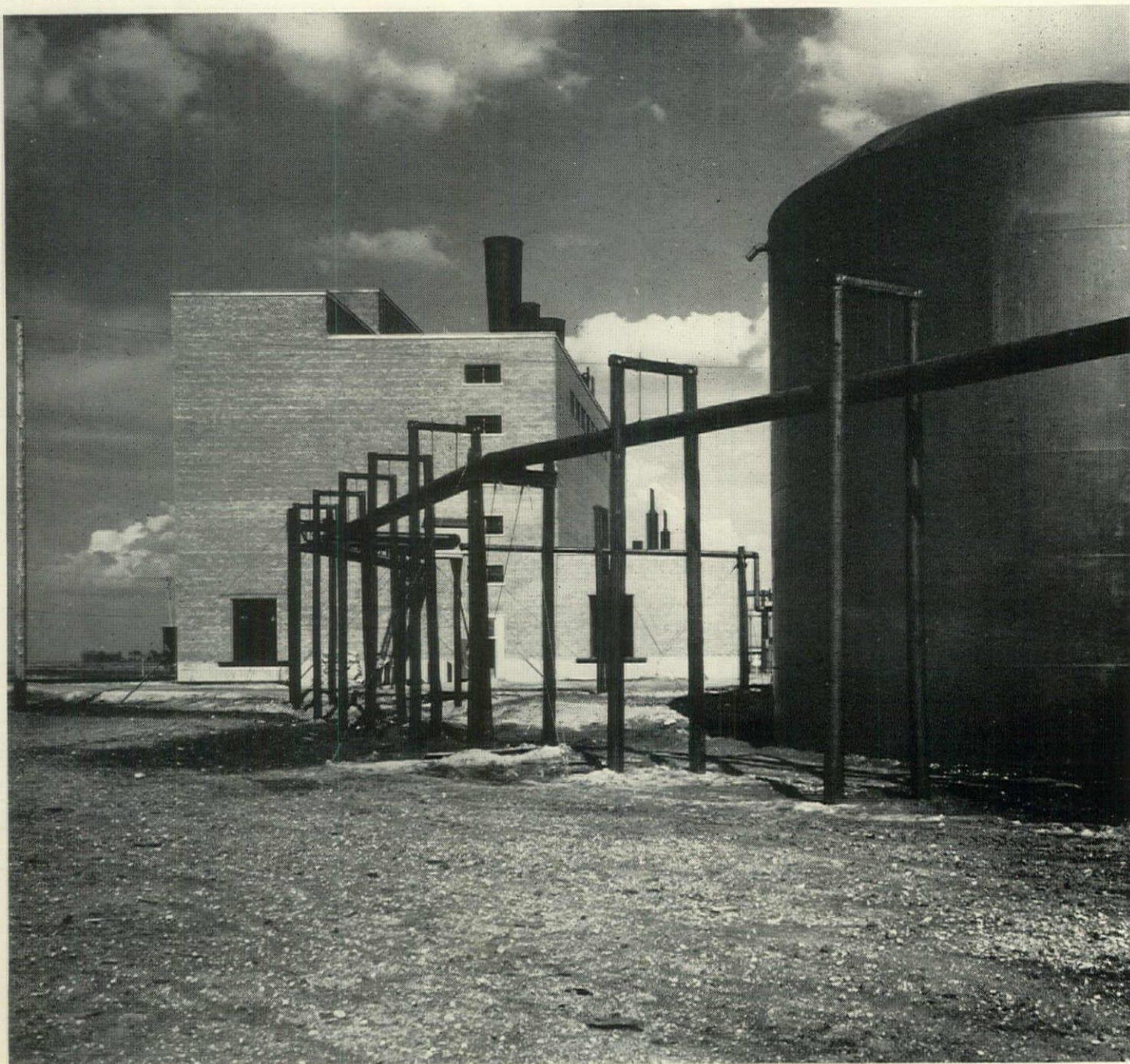




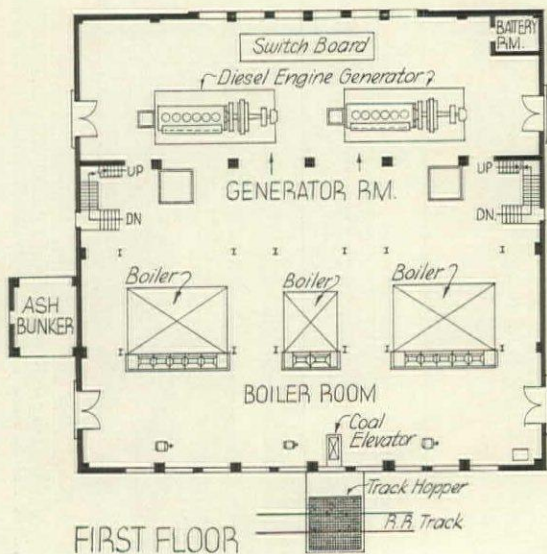
Among the most remarkable structures developed at the ammunition plants are those used in connection with the storage and packaging of explosive materials. The basic planning principles followed—isolation of buildings and their subdivision into small compartments—are traditional in the industry, and no other considerations of any kind are allowed to take precedence over them. In the temporary structure at the left, for example, two crossed concrete walls divide the space into four compartments. Powder arrives at the upper two and is canned in the lower ones. The magazine at the right is also broken up by concrete walls. One of the small magazines is shown at the bottom of the facing page. The principle of isolation is perhaps best illustrated below, where the wood storage chambers are widely separated, protected by earth barricades, and connected only by a wooden walk.

Robert Cameron

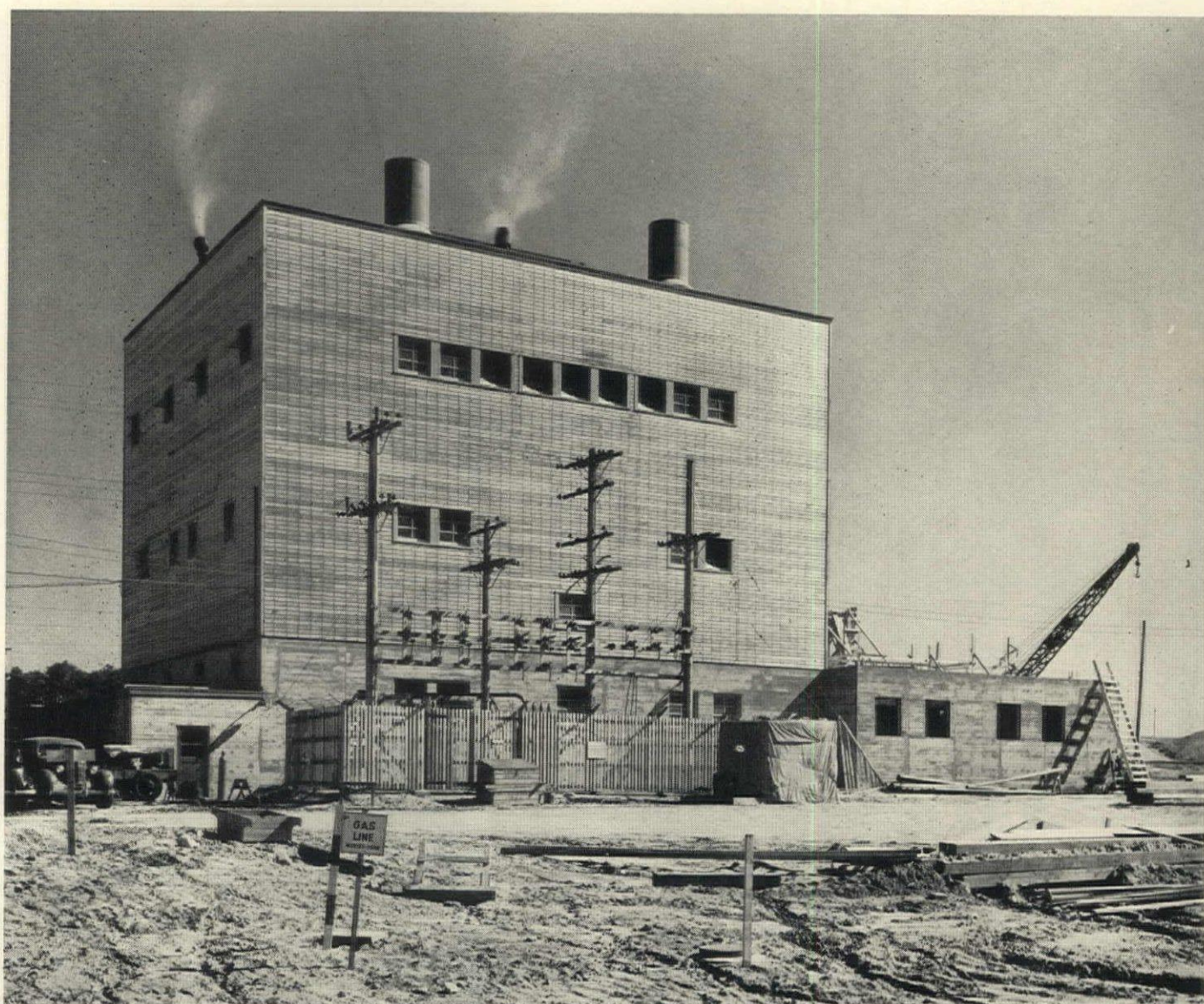
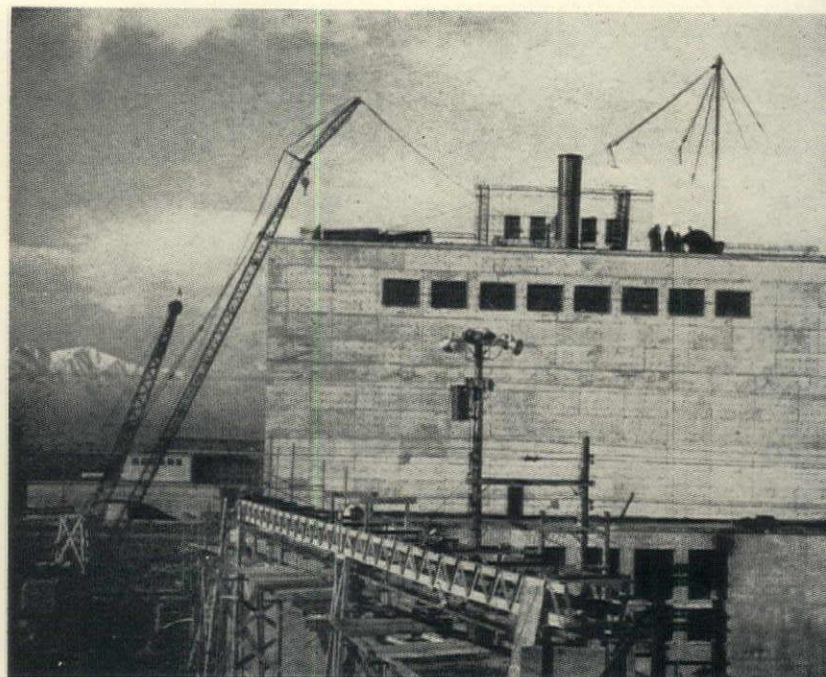
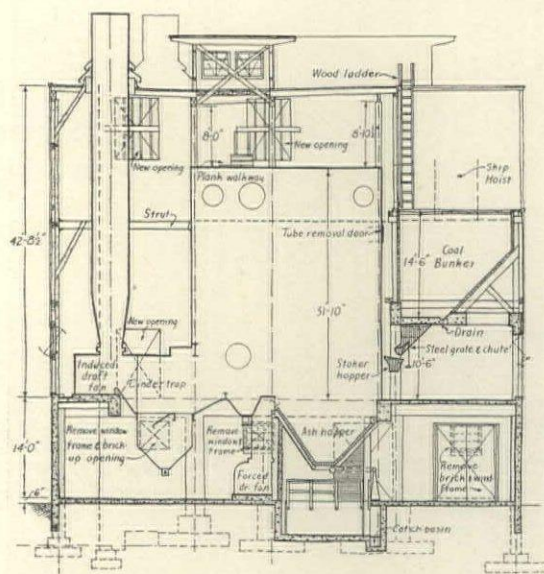




Robert Cameron



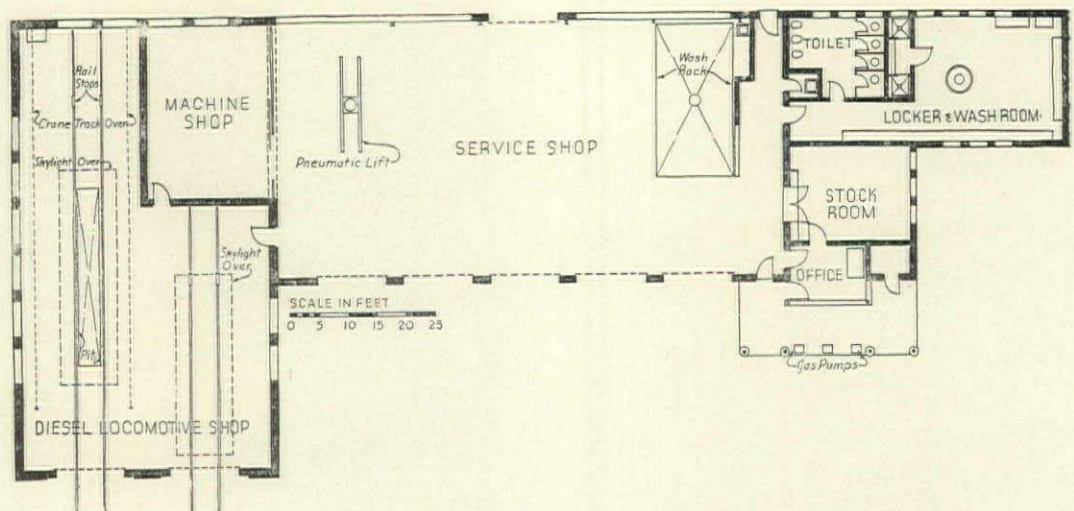
To satisfy the needs of the plants for electric power and steam, separate generating stations have been built. Technically they represent the most advanced practice in the field. Perhaps their most interesting feature, from the viewpoint of war building, is the substitution of forced draft for natural draft, making possible the elimination of the telltale stacks whose long shadows are so useful to hostile bombers in locating the target. Here the stacks project a very short distance above the roof, presenting little difficulty if it were decided to camouflage them. The overhead steam lines, already seen in preceding illustrations, are shown above at closer range. The construction of these stations follows that of the plants themselves. One of the permanent buildings is of brick and steel, the other of concrete, the latter material having been selected because of a local shortage of bricklayers. In the photograph at the right a wood building is shown, demonstrating the remarkably wide range of uses to which this material is now being put. The saving in steel effected by wood construction for the temporary plants must run into the thousands of tons.



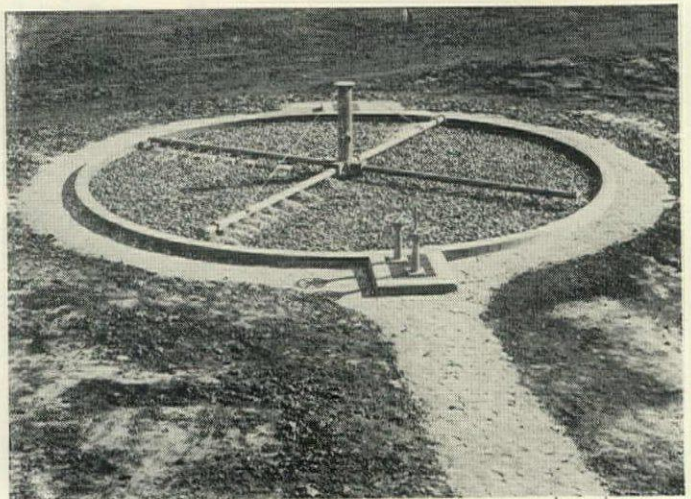
L. O. Lundberg



Photos, Conrad Hug

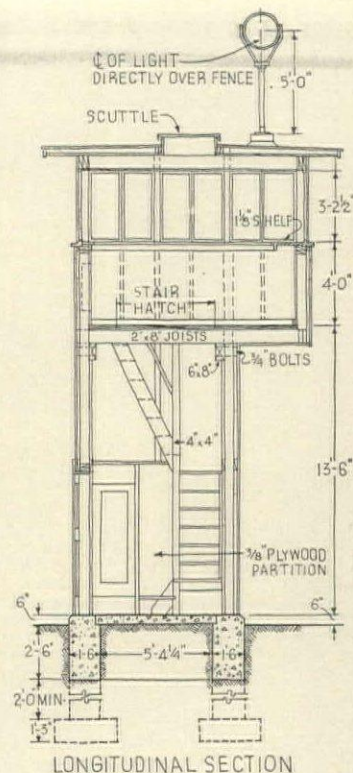
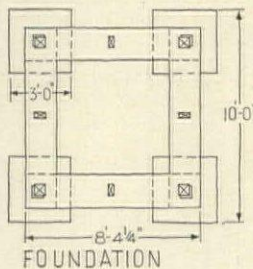
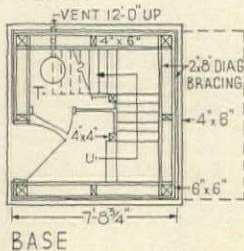
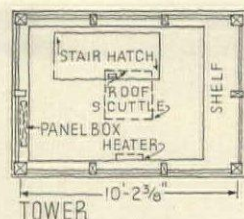


Aside from their intrinsic design interest, these buildings suggest again the magnitude of the operations carried on in these ammunition plants. The photograph above shows a garage for the plant's Diesel locomotives, a very handsome building which also contains a shop for servicing both locomotives and trucks. The two fire houses again demonstrate the manner in which various types of construction were used to meet similar requirements. Sewage disposal units are a part of every plant. The watch tower is one of a series of well-designed standard units, most of which were prefabricated and shipped to the site for assembly. Fitted with glass on all sides, and equipped with searchlights, these little structures serve their purpose with admirable simplicity and economy.

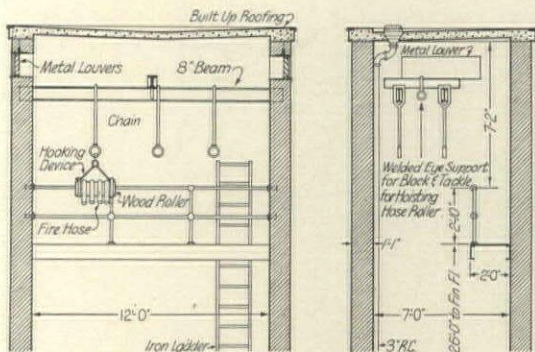




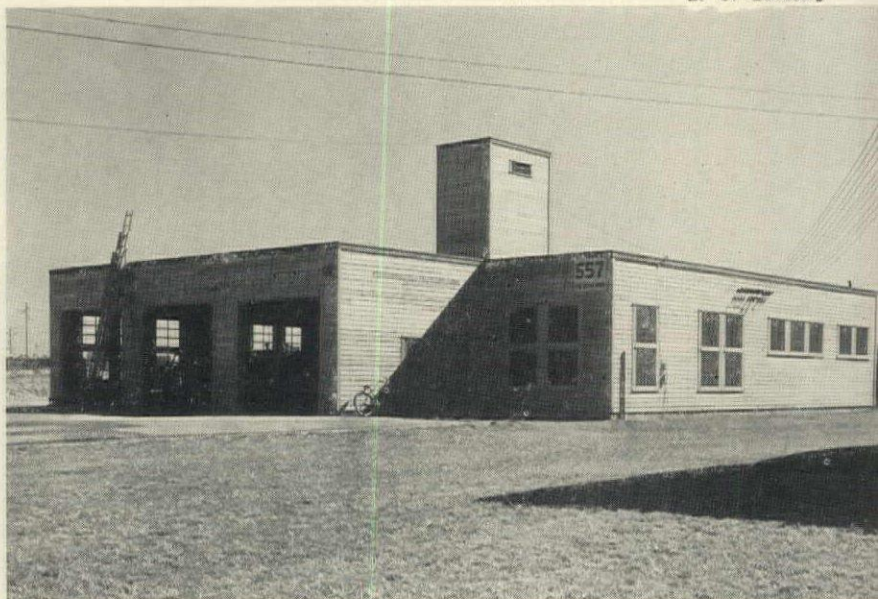
Conrad Hug



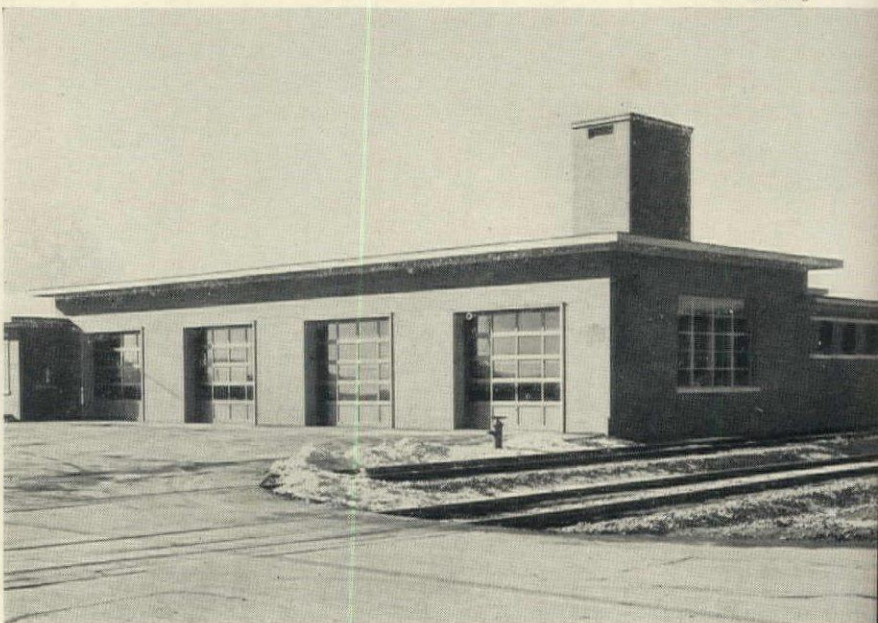
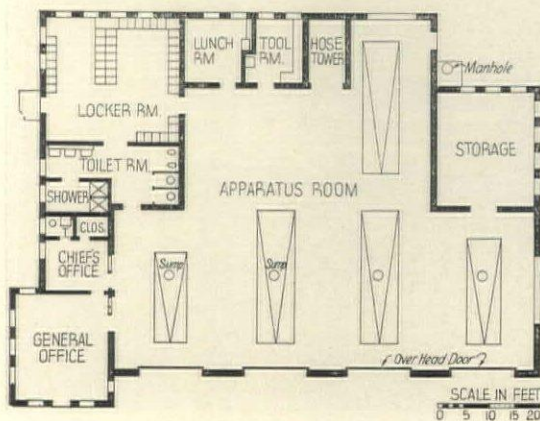
L. O. Lundberg

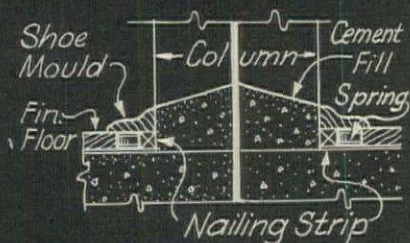


SECTION THRU HOSE DRYING TOWER

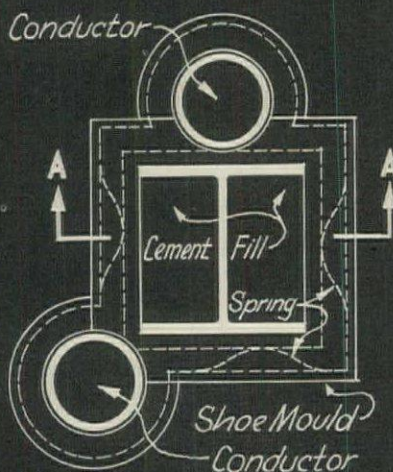


Conrad Hug

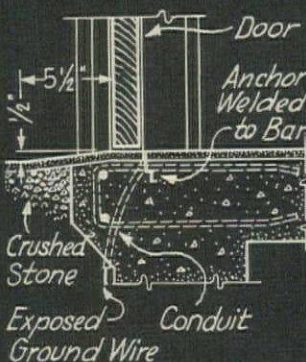
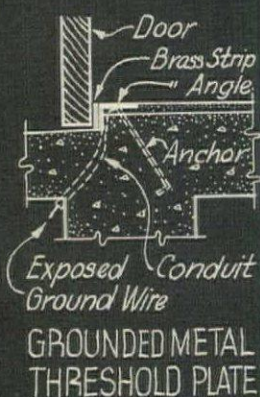




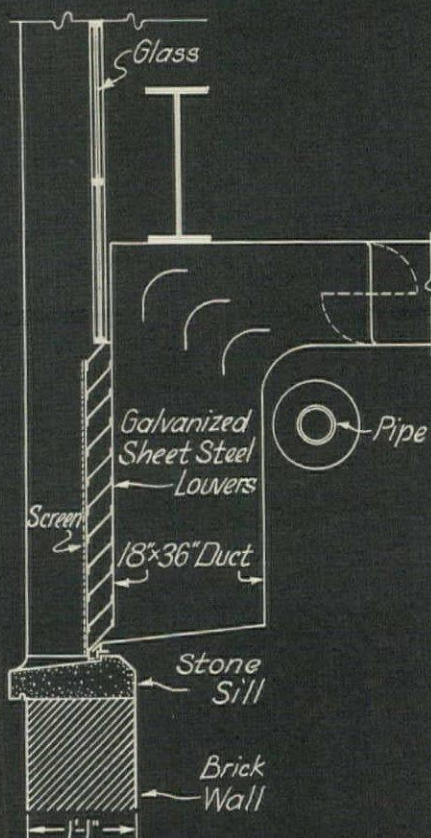
SECTION A-A showing expansion Springs



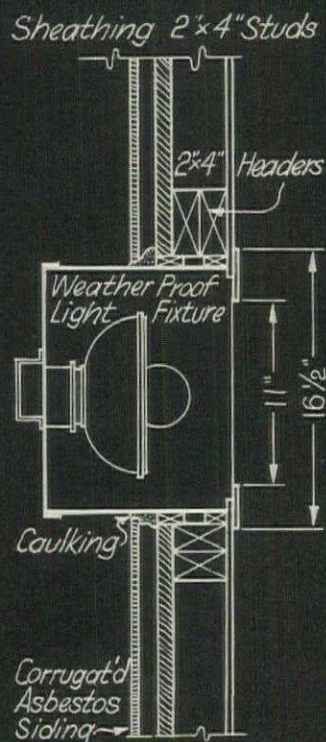
PLAN OF TYPICAL COLUMN



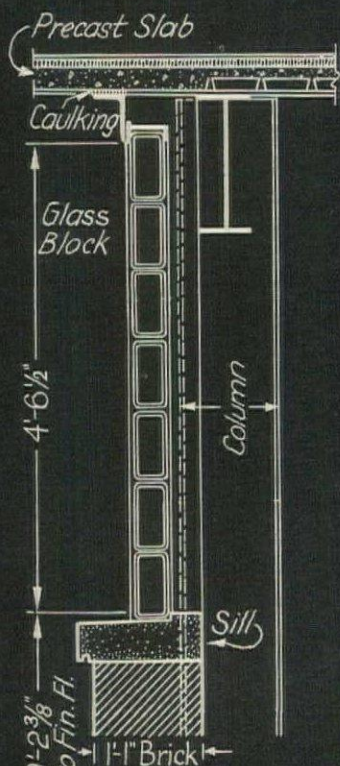
GROUNDED THRESHOLD



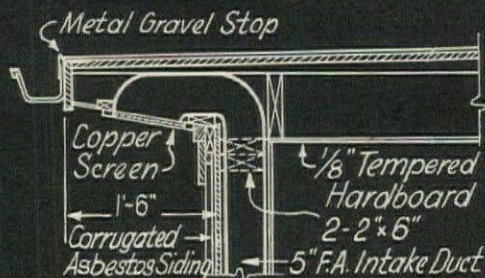
AIR INTAKE FOR UNIT HEATER



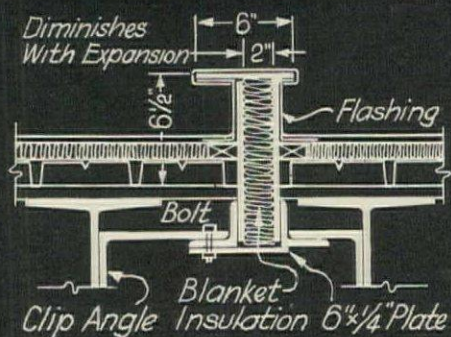
SECTION THROUGH WALL LIGHT FIXTURES



SECTION THROUGH GLASS BLOCK WINDOW



DETAIL OF FRESH AIR INTAKE DUCT



DETAIL OF ROOF EXPANSION JOINT



In Time of War TIME COUNTS and when Time Counts you can count on **Ro-Way** Overhead Type Doors

"QUICK"
in Action"

"QUIET"
in Operation"

"TOUGH"
in Service"

"TRIM"
in Appearance"



**Today Ro-Way Overhead Type Doors
are Serving America in**

Naval Depots	Navy Proving Grounds
Air Bases	Munition Factories
Armories	Torpedo Stations
U.S.O. Buildings	Coast Guard Bases
Ordnance Plants	Cantonment Camps
Navy Yards	Submarine Bases
Bomber Plants	Marine Bases
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"Time" in Installing

Each Ro-Way Door is a complete unit ready to place in the opening. Each requires a minimum of headroom. Complete pictorial instructions are sent with every door.

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Individually *Power-metered Springs* insure perfect balance and quick, easy operation. Exclusive Ro-Way *Friction-Reducing Track* gives smooth gliding action. "*Crow's Foot*" *Outer Bearing Support* keeps chain sheave wheel in perfect alignment.

"Time" in Adjusting

"*Zip-Lock*" *Adjustment*, an exclusive feature on Ro-Way Torsion Spring Powered Doors permits instant adjustment of spring tension without removing any glass or panel.

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MONTH IN BUILDING

(Continued from page 35)

he listed the social objectives as:

"To be rid of noise, dirt and odors.

To make life safe and healthful.

To correct problems arising from cosmopolitan neighbors.

To prevent overcrowding of families.

To reduce crime and delinquency.

To correct the inharmonious mixing of residential and non-residential uses.

To discontinue the overcrowding of land with buildings.

To let in light and air.

To destroy unsanitary and unsafe buildings.

To correct general urban unsightliness.

To relieve traffic congestion.

To provide adequate educational, recreational and cultural facilities.

To secure decent housing."

Babcock then called the roll of the business objectives:

"To maintain the base for municipal tax revenues.

To keep the cost of municipal services in line.

To keep the costs of public utility and transportation services in line.

To recover or protect the investments of the owners of urban real estate.

To recover or protect the investments of the holders of mortgages.

To protect the business and investments of intown retailers.

To make the conduct of industry, commerce and business more efficient and less costly."

Thus having stated the objectives, Babcock proceeded to examine them minutely.

Examination of Declared Objectives

"Are they valid? Do they constitute ample reason for the actual rebuilding of our cities? And do they really relate to urban rebuilding?

"One serious weakness they exhibit is that they do not represent compelling goals. They are not vigorous and vital in their appeal. As a group they seem to disclose a state of homesickness; they have allurements principally for those who would like to return to the forms of the 19th Century.

"The nomenclature of urban rebuilding is honeycombed with words which start with the prefix 're': rebuild, restore, reconstruct, rehabilitate, replace, recover, remodel, renovate, recentralize, etc.

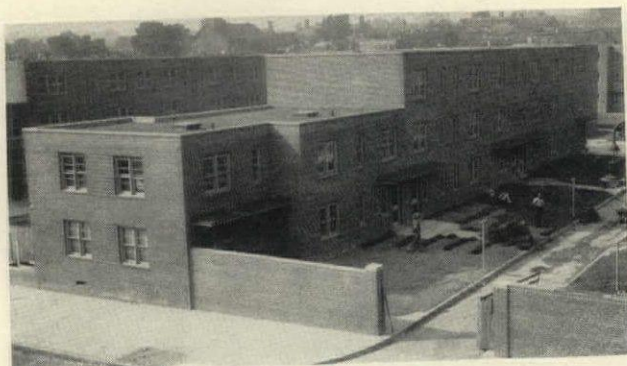
"One might immediately surmise that the real objectives of the programs to rebuild our cities are the restoration or patching up of the very city structure which has produced the listed evil conditions. If we desire to correct the bad features which we discover in cities, will we not invite a measure of defeat if we try to do so by rebuilding the cities?

"Here is the paradox: cities have long

(Continued on page 96)

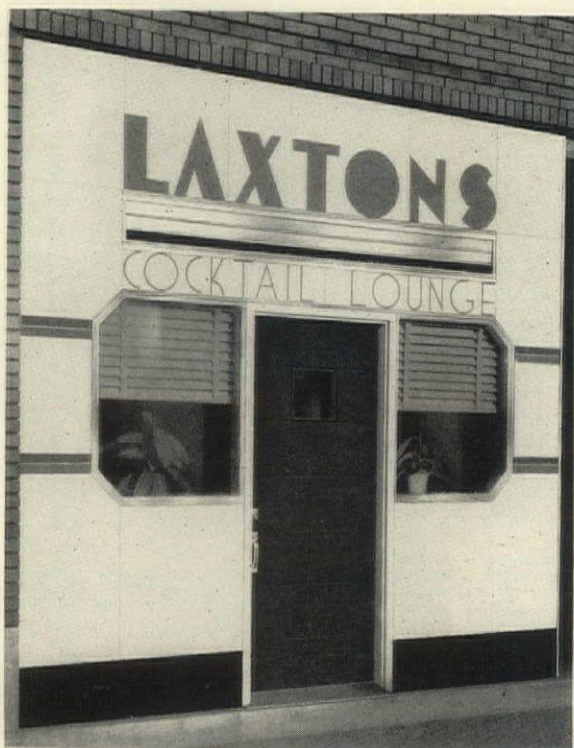
You can count on

"Pittsburgh" Glass!



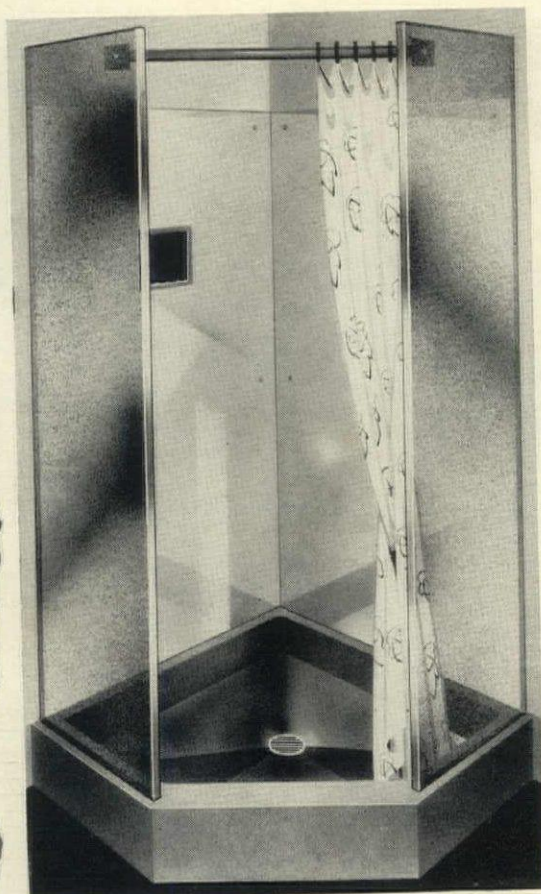
PENNVERN WINDOW GLASS

This quality window glass is being widely used today for glazing homes, both multiple and single unit dwellings. It is also a favorite for war-factory glazing. Pennvern is famous for its looks, its flatness, and the good vision it affords.



PITTCO STORE FRONT PRODUCTS

First in their field for years, these products can be depended upon by the architect to execute his ideas faithfully and effectively. They provide him with wide possibilities for striking design. Research and development work will make Pittco Products even more useful after the war.



CARRARA STRUCTURAL GLASS

In designing Victory homes, new, prefabricated shower enclosures of Tempered Carrara Glass save time, space, money and metal. Shipped to the job in one package, ready for immediate assembly. Several styles available for various plumbing layouts. Eight colors.

THE "Pittsburgh" Products mentioned here represent but a few of those which are ready to serve the architect in both war-time and peacetime work. Complete information on any Pittsburgh Product will be sent you upon request. And we urge you to call upon us if there is any problem concerned with glass which we can help you solve. Pittsburgh Plate Glass Company, 2132-2 Grant Building, Pittsburgh, Pa.

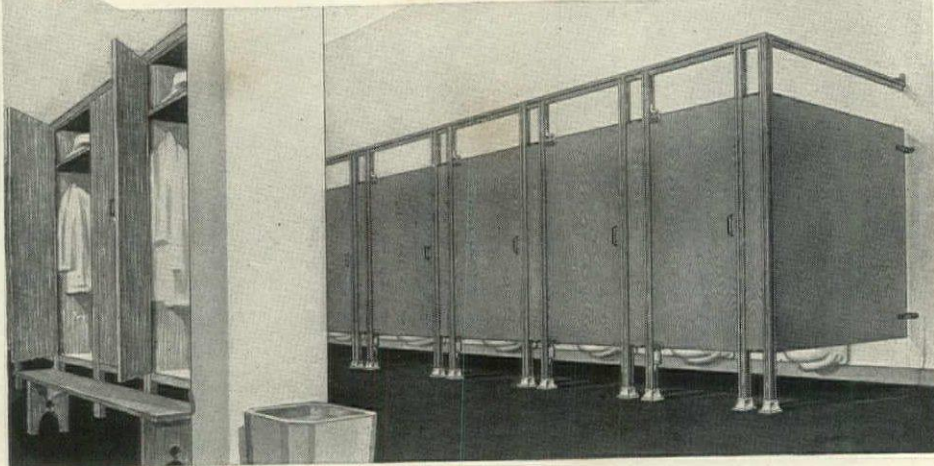
"PITTSBURGH"

stands for Quality Glass and Paint

PITTSBURGH PLATE GLASS COMPANY

Sanymetal* ALL-WOOD TOILET COMPARTMENTS

WITH COMPLETE DOOR HARDWARE
AND PARTITION FITTINGS . . . NOW
AVAILABLE . . . READY TO INSTALL



PUT YOUR OWN RATING ON THESE FIVE ADVANTAGES

Adequate and modern toilet and washroom facilities reduce lost time from cases of minor illnesses, because such facilities promote orderliness and cleanliness, and therefore indirectly aid in the maintenance of healthful conditions. Sanymetal Specialists have developed an all-wood toilet compartment of standard flush type, as illustrated, that embodies these advantages which you may rate according to the requirements of the job you are working on.

- 1. SAVE TIME:** You need not waste precious time working out a design for toilet compartments because Sanymetal Toilet Compartments are suitable for installations in all types of buildings, and they are made of the most practical materials now available.
- 2. REDUCE COST:** You avoid experimenting with materials, and trial and error erection.
- 3. PROVIDE ADEQUATE SANITATION:** Engineered features provide conveniences, and a degree of sanitation that are usually unknown, unappreciated, and overlooked by those who do not have years of specialized experience and skill to draw upon in building toilet compartments. For one thing this means the elimination of dust-collecting and germ-collecting ledges and pockets.
- 4. READY TO INSTALL:** No time lost collecting materials. Sanymetal All-Wood Toilet Compartments come to the job complete with door hardware and partition fittings ready for immediate installation.
- 5. ONE ORDER COVERS ALL MATERIAL:** On one order you include all the wood partitions and doors, posts and headrails, and all the hardware and fittings that are necessary to complete an installation.

Sanymetal All-Wood Toilet Compartments embody the results of 27 years of research and experience in making over 53,000 toilet compartment installations. Bulletin No. 900 gives complete specifications on Sanymetal All-Wood Toilet Compartments. Use coupon to request your copy. But for quick action look under "Partitions" in your phone book for name of Sanymetal Representative in your locality. Lockers of plywood or tempered presboard have been developed by Sanymetal Engineers. Your requirements can be met promptly. Write for Bulletin No. 920.

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Wartime All-Wood Toilet Compartments.

Name
Position
Firm
Address
City State

MONTH IN BUILDING

(Continued from page 94)

since come to exhibit a number of degrading characteristics and monstrous inefficiencies. These characteristics and inefficiencies are then listed and presented to us as the objective purposes for the rebuilding of cities.

"Decentralization vs. Recentralization. We are told that the vicious public enemy who creates most of our urban problems is decentralization. But we may use each and every argument for urban redevelopment to support the idea that decentralization is beneficial.

"In other words, the suburban trend does not appear to be the real enemy.

"Of course we all know that the bad features of urban life tend to reproduce themselves in the suburbs. While suburbs have given us our best in American home life, they are themselves unable to stop growing and to halt their own deterioration. Thus we are still far from being able to outline a rational set of objectives. All that we have been able to do so far is to show that the declared social objectives of urban redevelopment are not valid purposes which justify the rebuilding.

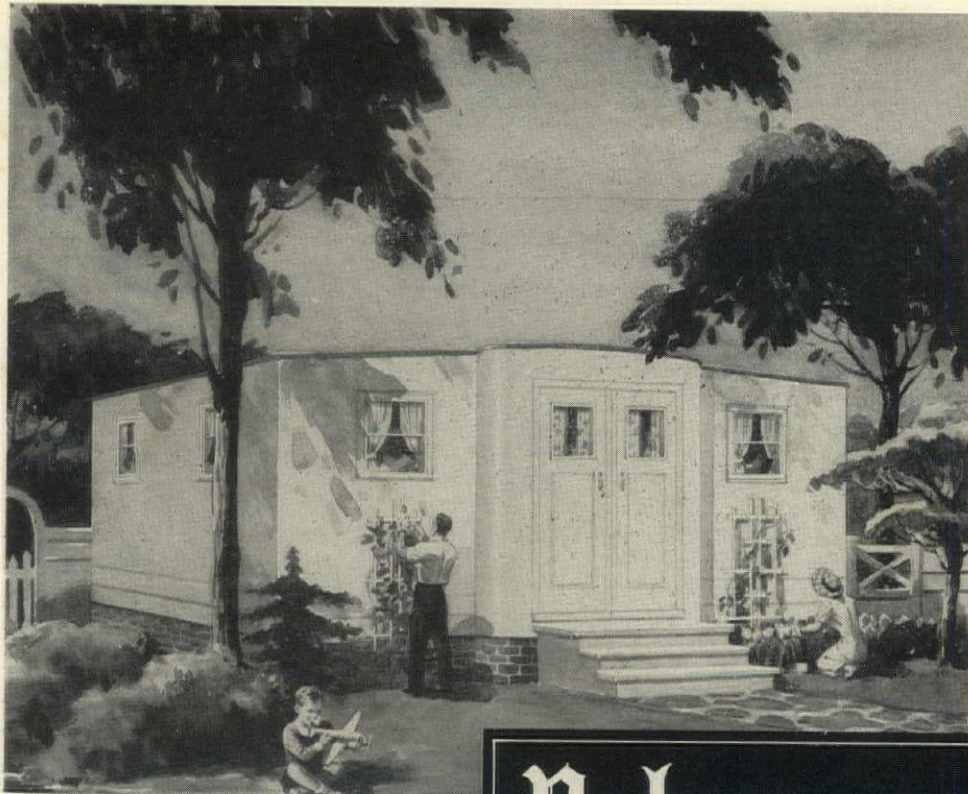


Bernard Hoffman

URBANALYST BABCOCK

"We have been following a blind alley which leaves us with the conclusion that the only valid objectives are the business ones—maintenance of municipal tax revenues, protection of investments in old real estate, and reduction of the costs of doing business at intown locations. But such objectives might indicate that people should be directed to live in rebuilt cities primarily to assist an influential segment of our population which happens to have a vested interest in the status quo. We can question whether the costs involved in rebuilding are justified on such a basis. It might be less costly in the long run simply to pay these people off without rebuilding in the same places.

"Acceptable Objectives. We must do something about cities. That we know. But virtually all the objectives presented to
(Continued on page 98)



*Ready for Occupancy
Within 3 Hours
After Arrival
at the Building Site*

**Ideally
Adapted to**

the Needs of Emergency Industrial Housing

*Factory-Built and
Factory Assembled*

*Completely Equipped
with Plumbing, Heating,
and Electric Wiring*

*Also Bathroom and
Kitchen Equipment,
With Hot and Cold
Running Water*

**Palace Portable
Two-Family Dwelling Unit**

THE Palace Portable 2-Family Dwelling Unit is the answer to the problem frequently encountered by industrial plants when temporarily increased employment creates an urgent need for additional housing facilities.

When such an emergency arises, it can now be quickly met. In a few days' time the necessary dwelling units, all completely built and equipped, can be transported by motor truck from our factory to the area where they are needed. Within 3 hours from the time a Palace 2-family dwelling unit reaches its destination, it is ready for occupancy, with connections made to public utilities, such as sewer, water and electricity.

And when the emergency is over, the dwellings can be quickly moved to another plant, thus eliminating the bugaboo of ghost towns and also avoiding the depression of real estate values which usually takes place when there is a surplus of unoccupied homes in any locality.

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Palace

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750 new merchant ships in 1942...

1,500 new merchant ships in 1943...

That is America's promise to the Victory Program—and America is going to beat that promise.

It calls for huge new shipbuilding facilities... thousands of plants to turn out ship parts and equipment—steel plates, ship fittings, propelling machinery.

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Steam is universal for heating at sea because it requires less space and weight than any other heating medium. Steam, harnessed and brought under control with Webster Equipment, is fast, sure, safe and economical.

In this war emergency, Ordnance production has first call on our facilities. But, we are still producing Webster Steam Heating Equipment for use wherever it will help the war effort.

Essential repairs for Webster Systems are available on A-10 priority, under W.P.B. Emergency Repair Order P-84. Orders should be limited to actual needs.

Warren Webster & Company, Camden, N. J. Representatives in 65 principal Cities

Webster
Steam Heating

MONTH IN BUILDING

(Continued from page 96)

us so far are essentially negative in character. We have been offered a substantial list of things to correct, to prevent, to discontinue, to destroy, to relieve, to recover, and to do over, supposedly in a somewhat better manner.

"I suggest that these objectives are not adequate.

"I further suggest that the detailed provisions of the programs and the research studies which support the programs will be quite different if the objectives are made *positive*. For example, I know of several current studies which are determining what to do with specific slum areas in several large cities. They are supposed to be case illustrations. But the very task assigned is the rebuilding of the selected districts—a negative problem—not the examination of the urban problem itself, the solution of which must precede any study of a unit area.

"I should like to describe my vision of the city of the future. Of course I can only sketch in a few of its characteristics. It will have four kinds of areas:

Downtown Central District: The downtown district will contain all the traditional downtown functions: department stores, theaters, hotels, office buildings, civic and municipal structures, and a border of light manufacturing and various business service industries. It will be characterized by islands of relatively intense land use and by numerous open areas. The street pattern will not be much different from today's grid scheme except for the fact that new lines of access from every direction will cut across and obliterate much of the existing street plan at the edges. Surrounding the central area will be open space used for airports, noontime recreation, and storage of cars. Terminals will be new and adequate and linked by trafficways. In our new downtown we may not be too hard on skyscrapers provided they are well spaced. It is a downtown without benefit of close encroachment of residences. It is the sum total of "downtown" functions and nothing else.

Industrial Areas: Spotted here and there at convenient places there will be industrial areas. The locations will be selected because of shipping advantages, railroads, and terrain factors. Their sizes will depend on many things. Each will differ from others in offering unique advantages to particular lines of business. There will be bands of green forest and open meadows, publicly controlled, surrounding the areas. Each area will offer unlimited parking facilities. And there will be such amusement businesses, restaurants, and other convenient service businesses as will provide for the daytime.

(Continued on page 100)

JOHN V RANGE

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☆ ENGINEERING
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Ever since this country entered its defense program we have been working 100% with Government authorities and their architects on priority projects. We are familiar with matters of priorities and we know from daily contacts what can be and what cannot be specified. We enjoy cordial relations with the many building trades whose well-timed cooperation enables us to meet the closest time schedules.

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Beginning with your basic architectural plan we can make complete layouts of all food service departments; we design and manufacture the required equipment and supervise its installation, complete and ready for service.

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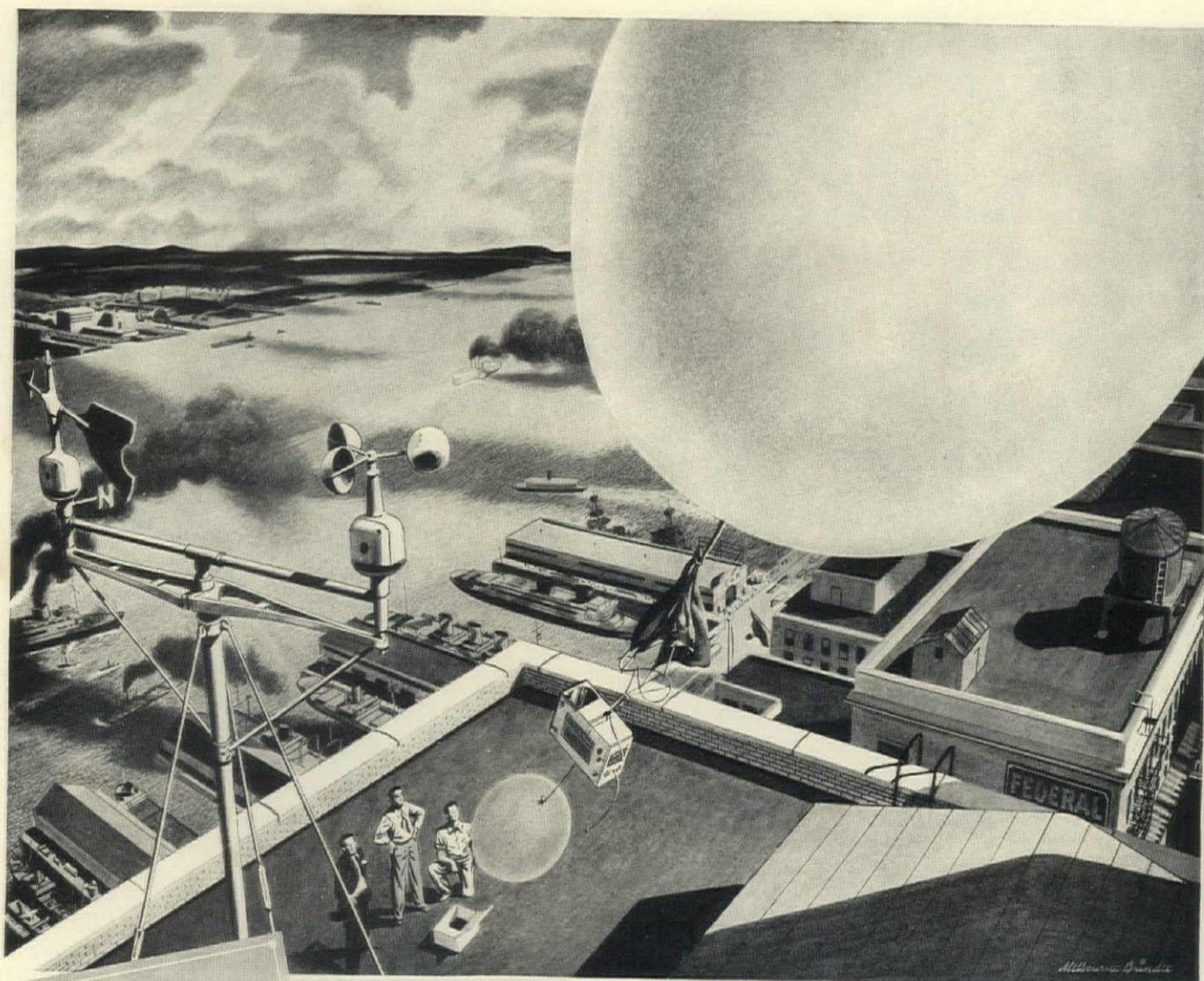
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FORECAST:—**

**2,000 DAYS WITH RAIN OR SNOW,
AND 4,000 DAYS OF SUN**

TODAY, the weather man's sounding balloon, carrying instruments ten miles or more into the upper air, makes possible forecasts of tomorrow's weather with an accuracy undreamed of in the past . . . But what of the long-range prospects?

On the basis of weather averages for the past 50 years, the roof on a building in New York City today can expect nearly six years of daily rain or snow, and eleven years of sunshine during the next 20 years. In St. Petersburg, Florida, the sun will shine on all but 100 days of the next 7,305, while in some sections of this country, a plant roof covering an acre in area can expect 454,000 tons of water to fall upon it.

America is a country of weather extremes, yet one roof has been found to give dependable, trouble-free service under all weather conditions. It is the Barrett Specification* Roof.

These famous roofs offer a degree of

certainly in performance that is almost unparalleled in the building field. They are built up of alternate layers of pitch and felt with a fire-safe gravel or slag wearing surface, applied according to Barrett specifications by Barrett Approved Roofers. They take Fire Underwriters' Class "A" rating, and they are bonded against repair and maintenance expense for periods up to 20 years.



This is no time to gamble with unproved materials or untried methods. Why experiment? Specify Barrett . . . and protect yourself and your clients against costly roof failures.

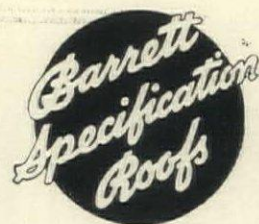
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Alabama

ONE OF AMERICA'S GREAT BASIC BUSINESSES

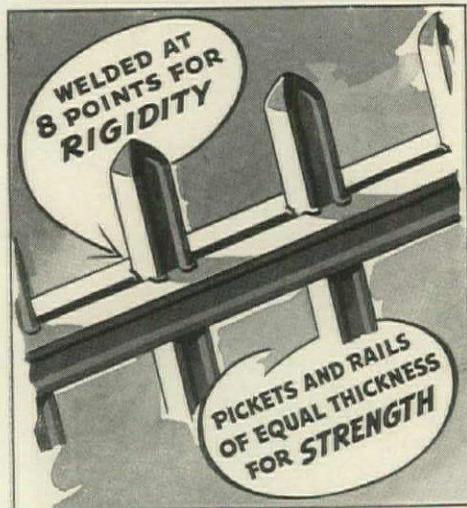


BARRETT SPECIFICATION* ROOFS
BUILT-UP ROOFS
ASPHALT SHINGLES
ASPHALT AND ASBESTOS SIDINGS
ROLL ROOFINGS
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WATERPROOFING
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*REG. U. S. PAT. OFF.

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This Type Welded Joint Eliminates Center Supports, Ugly Cross-Bracing

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1. Inseparably Welded Joints between Rails and Pickets.
2. Carrying Rails must be the same thickness as the Pickets.

A fence so built does not need ugly cross braces for gates. Nor does it need center supports for its panels. Each panel so constructed will support a distributed load of one ton without showing permanent set. Anchor-Weld Iron Picket Fences meet these specifications. Mail the Coupon below for Catalog and Sample Anchor-Weld (a nice paper weight). No obligation, of course.

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Please send me () Anchor-Weld Iron Fence Manual. () Anchor-Weld Sample Weld. () Name of nearest Anchor Fence Engineer.

Name

Address

City State

MONTH IN BUILDING

(Continued from page 98)

especially noontime, needs of the people who work in the plants.

Sub-Business Centers: At selected points close to some of the intersections of major arterial highways, there would be sub-business centers containing many types of retail establishments—typically those which serve more frequent needs than downtown retailers but less frequently visited than neighborhood shops. There would be amusement centers, theaters, lumber yards, hardware and paint stores, and the offices of real estate men and builders. There would be a great amount of parking space. There is a great temptation to suggest that everything in the area should be geared to the automobile. We may be wiser if we make provision for new systems of transportation, including the airplane. It will be possible to have certain cultural, recreational and social enterprises located in the district, together with important units of the local governmental machinery, including high schools.

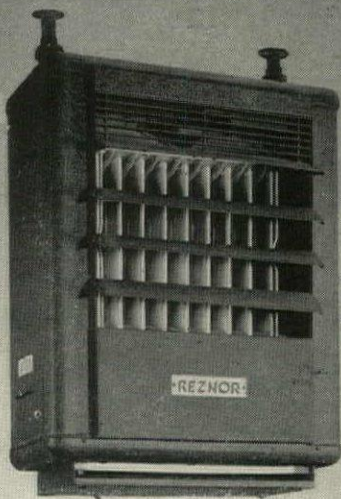
Residential Communities. There would be a large number of independent residential communities. Each would contain homes, apartments, elementary schools, fire protection, stores serving the daily needs of residents, clubs, and churches. The optimum sizes of these "villages" would be controlled by the separating greenbelts. I don't know what the optimum size is except that it will be different under different conditions. Perhaps they should range all the way from 3,000 to 25,000 population. There will have to be provision for the accommodation of persons in all income levels in order to establish a workable tax base. There would be great care both to prevent too-close settlement and to make certain that there is an efficient compactness of the development. Within each town there should be both apartment and individual dwellings. The planning must not assume that all Americans or even many Americans want to be poultry-raising nature lovers. Most of the residents would be within walking distance of the forest preserves, meadows, flowing streams, and parks—all publicly-owned or controlled.

City growth would not be internal growth of each of the four kinds of units beyond the initial growth which brings them to maturity—except the Downtown District. City growth will be primarily by the creating of additional units. Each additional unit would be spaced and placed with its protecting belt on a set of new highways designed simultaneously and expressly to serve as the access to the new district. Of course all the traditional virtues of the suburban trend can be incorporated. All the vices of the traditional urban structure will be guarded against. I'd

(Continued on page 102)

FACTORIES FIND EXTRA VALUE IN

SUSPENDED GAS HEATERS



AND now in the industrial field, Reznor Unit Heaters have proved themselves outstanding. Yes, their ability to deliver lots of warm air over wide areas is one of the reasons. But, delivering heat from a suspended position, above the working zone, also helps to make Reznor Heaters valuable to production management.

Reznor Unit Heaters may be easily and quickly installed—with lower installation costs. This type heating equipment also uses 89% less vital materials than cast radiation systems. You'll find it worth-while to investigate. Write for catalog U 42.

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A LOT OF WARM
AIR"



GAS HEATERS EXCLUSIVELY SINCE 1888

MODERNIZING IDEAS

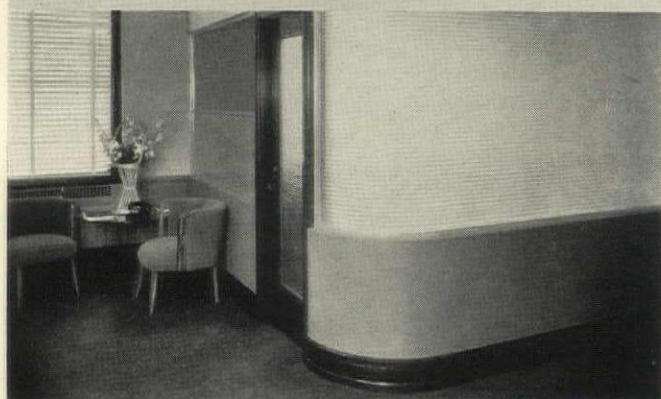
★ *that sparkle with decorative interest*



A Smart Dress Shop provides privacy and softly diffused light in its fitting room by the use of Satinol Flutex Glass. Mills, Rhines, Bellman and Nordhoff, Inc., Architects.



A Beauty Shop in Saks Fifth Avenue, Chicago, provides soft flattering light over the dressing tables, through Satinol Flutex panels, lighted from behind. Architect, James F. Eppenstein.



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BLUE RIDGE Decorative GLASS

FOR SOFT, DIFFUSED LIGHT • SMART DECORATION • COMPLETE PRIVACY

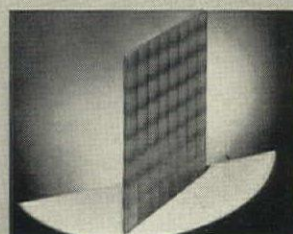
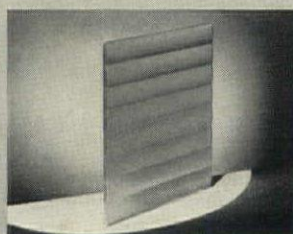
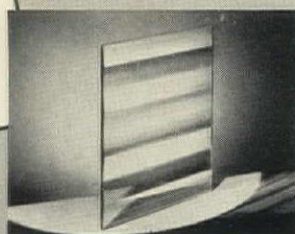


REMEMBER THE
"3EX's"

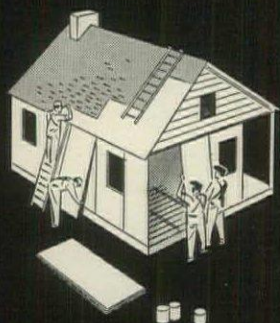
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Speed is the essence of the production of pre-fabricated sections for defense housing. The prime coat of paint that goes on in the shop may have to be force-dried in less than an hour at 100°. It must be suitable for application by spray, brush or roller. Yet, with a single coat, it must seal and protect plywood and various composition boards against days of exposure to adverse weather. ARCO PRE-FAB SHOPCOAT is that paint—another war-time development of Arco Research.

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Paints for Industry

MONTH IN BUILDING

(Continued from page 100)

put a time *limit* on the lives buildings are permitted to live. Each of the districts or unit areas in the district would be made automatically self-regenerating by specifying in advance some date on which owners would be required to discontinue the prevailing uses of land. There would then be a general redetermination of a proper use for the recovered land. We could, if we wished, preserve the historic town pump, old churches, and architectural gems. We might choose to rebuild with urban structures or to assign the area to some open use such as a greenbelt or airdrome.

"The obstacles in the way of the achievement of these goals seem insuperable. There would have to be an integration of many units of government throughout a wide metropolitan region. The uses of the police power under eminent domain would have to be on an immense scale. There would have to be a master plan implemented with adequate machinery to carry out the plan. The costs involved in accomplishing the proposed ends may seem prohibitive. My dream city may not be feasible.

"But I believe that we can find methods by which to do the job. That the problem is not too visionary is evidenced by the fact that it is already started. The establishment of satellite industrial areas is progressing.

"Many of our suburban towns are definitely in the new pattern already. However I am not discussing the methods and machinery. The only reason I have tried to sketch a picture of the new city is because I wish to dramatize the importance of having tangible objectives which are positive rather than negative in character. And what of the objectives? They should relate solely to the things we want our cities to give us. We will no longer be trying "to restore" this and "to rehabilitate" that. We will be building. Our objectives will be positive.

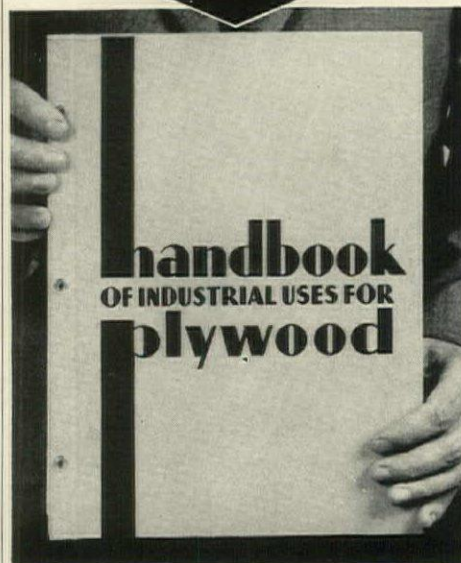
"Of course, we would remove present buildings in some districts and rebuild with new buildings. But we would only rebuild in places where the old city happened to be in the way of the new city. In other words we wouldn't be rebuilding; we would merely be preparing the land for building. We will be seeking to create an economic and social environment in which the ordinary man has a richer life.

"Consequently I say to you: the objective is not to rebuild American cities. It is to go on building in ever-widening patterns. We must not, therefore, confine our imaginations to the development of palliative measures but rather to the creation of a creditable end result. No lesser objective can command us."

(Continued on page 104)

MANUFACTURERS!

May we send you
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*It's the beginning of a
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• This loose-leaf style handbook shows the ways many industries are now using Douglas Fir Plywood in their products. As new uses are discovered or developed, we will send you additional chapters or inserts, for this handbook is designed to be kept permanently in your file.

Naturally the bulk of the plywood uses shown are war uses and will continue to be. But they indicate how versatile Douglas Fir Plywood may be able to serve you in the post-war period. Write today for your free "Handbook of Industrial Uses for Plywood". Douglas Fir Plywood Association, Tacoma, Washington.

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★ ★ ★ ★

Engine fires in American combat aircraft are quickly extinguished. Warned by flame detectors, the pilot pulls a handle, releases a cloud of carbon dioxide "snow and gas" which blankets the engine, smothers flame.



★ ★ ★ ★

No longer a flaming wreck...

Fighting oil and electrical fires with carbon dioxide has long been standard practice in refineries, factories and other places. Of particular interest to architects is the evolution of equipment in recent years, from simple hand extinguishers to built-in, completely automatic installations.

Already the latter are widely utilized by both industry and the fighting forces... American combat aircraft, for example, carry the system described above.

Bringing this method of fire fighting to its present stage of perfection has not been accomplished over night. For

CO₂ is tricky stuff to handle...so diffusive that at regular storage pressure of 850 lbs. it is as difficult to seal as steam at 2500 lbs. Yet in emergency, control valves must function instantly and freely. There must be no sticking or seizing due to rust or distortion.

For these reasons, carbon dioxide valves are made of the famous INCO Nickel Alloy, Monel. Combining strength and toughness with freedom from rust and corrosion. Monel admirably fills this vital wartime role.

Other important uses of carbon dioxide are rapid inflation of rubber boats, life rafts, flotation equipment,

etc. Stored under pressure in liquid form, carbon dioxide when released expands almost instantly to 450 times its former volume.

The useful properties of CO₂, and the constantly improving equipment for handling it, make this gas a highly useful element. After the war, its use for control of fire and other applications will undoubtedly assume widespread proportions throughout American industry.

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MONTH IN BUILDING

(Continued from page 102)

NO GUINEA PIG

Out into the open for the first time in the postwar planning arena came the inevitable clash between Federal and State officials as both groups met in mid-November at Richmond, Virginia. Flanked by a formidable staff representing Washington agencies, Morton Wallerstein, regional director of the National Resources Planning Board and Chairman of the state planning committee, outlined a broad program, indicated that Virginia is being considered as a "guinea pig" state

for the nation. Next day meeting with the same group, Governor Colgate W. Darden, Jr. sliced up the guinea pig proposal as though it were a luscious platter of Smithfield ham.

The Governor pointed out that it would be a mistake for Virginia to build up big mass industries after the war. "We just can't undertake to absorb the 100,000 or 150,000 who have come in here. We can't possibly take care of them." He urged that any postwar plans be kept "flexible and simple," that the planners steer clear of "imponderables." As an ideal state he envisioned a system of comparatively small, decentralized indus-

tries with the workers having land to which they could turn for sustenance in times of depression.

Governor Darden emphasized that this view was personal, that he could not tell who would be Governor when the war ended. As the Federal planners trooped back to the Capitol they too wondered who would be, wondered whether to take their pig to a less rugged and more hospitable pen.

"MUSICAL CHAIRS"

Like a gigantic game of "Going To Jerusalem," Washington officials move from chair to chair. Which old-timer will move to which new chair each time the music halts, nobody knows. Major moves of the month:

► Sullivan Jones, Chief of the Housing Branch, Bureau of Construction, WPB, to work in Maury Maverick's Bureau of Governmental Requirements.

► A. C. Shire, Director of the Technical Division, Development Branch, FPMA, to become assistant to the Chief Engineer, BEW.

Crystal ball dept.: Gilbert Rodier might be logical choice for Shire's chair.

PAMPHLETS OF THE MONTH

Office of War Information, Office of Price Administration Combined Manual.

A manual of digests, service interpretations dealing with important interpretive rulings under the General Maximum Price Regulations and Maximum Price Regulation 165 (services).

OPA and OWI, finding prevailing misinterpretation of the highly complex MPR, last month issued for use by contractors, manufacturers, etc. a *Timestyle* digest of what the exceptions to the price control ruling are, who is affected by them.

The Future of Transportation: "Building America." National Resources Planning Board.

From active, resourceful NRPB came last month a pamphlet summarizing the Board's report on "Transportation and National Policy," the work of Owen D. Young and Ralph J. Watkins.

Most portentous paragraphs were on postwar public works in relation to transportation.

"Looking beyond the present war, it seems clear that transportation policy must be based upon the assumption that general economic policy will be directed toward the maintenance of production and national income at levels assuring substantially full employment.

"Transportation is closely related to public investment, and it seems clear that whatever set of policies may be determined upon the public investment ingredient will be greatly expanded over any previous levels, and may conceivably be relied upon as the major element of general economic policy."



"ONE OF THE MOST USEFUL PIECES OF WORK THAT I HAVE RECEIVED IN 20 YEARS" ..

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A Reference for Use of Architects



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"These designs are a great time saver to the architect."

"Many thanks. Best thing I've seen. Much appreciated."

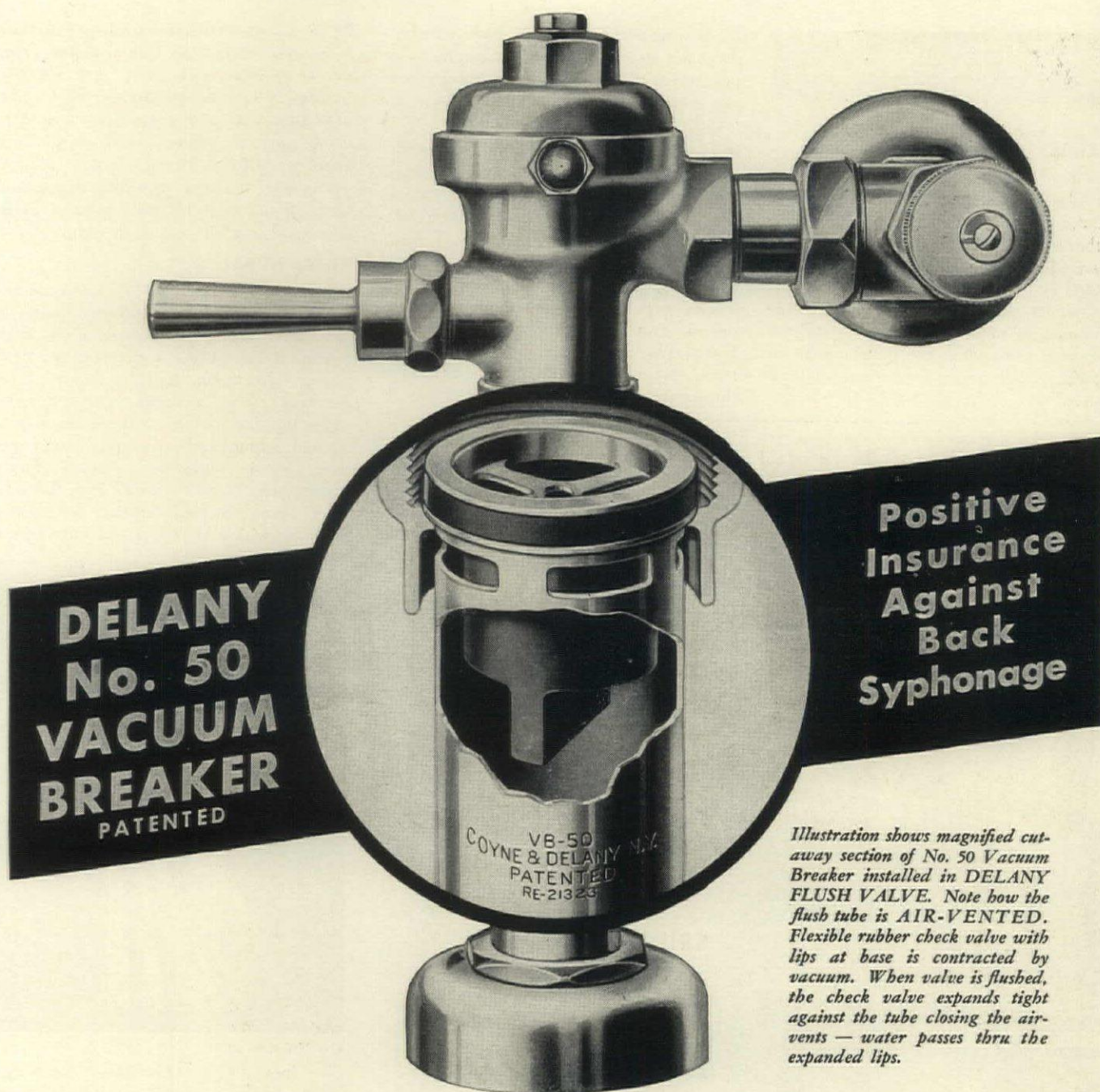
"A very commendable job in bringing data to the architect, of high practical value."

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FORUM OF EVENTS

(Continued from page 4)

AWARDS

To GERARD SWOPE, president of the General Electric Company, the 1942 Hoover Medal, for his "constructive public service in the field of social, civic and humanitarian effort." The Hoover Medal was instituted in 1930 to "honor engineers whose pre-eminent services have advanced the well-being of mankind and whose talents have been devoted to the development of a richer and more enduring civilization. . ."

In line with Government and industry's currently wise move to reward workers for progressive ideas, new techniques, wholesale participation in bond purchases, last month these awards were made:

►To GEORGE F. WOLFE, (Chief Plant Engineer), C. PERRY STREITHOF, (Structural Division Engineer), R. M. RUSH, (Manager), and H. A. PIETSCH, (Industrial Machinery Division) the James F. Lincoln Arc Welding Foundation gave monetary prizes for their papers on arc welding. These papers were among 408 that received awards, were submitted to the Foundation by engineers, designers, architects, maintenance men and executives throughout the country.

►To ALBERT KAHN ASSOCIATED ARCHITECTS & ENGINEERS INC., the United States Treasury Department's Bull's-eye flag, awarded for employe bond purchases. This is the first architects and engineers office to receive such an award, which is given to concerns with a record of more than 90 per cent of the employes subscribing more than 10 per cent of their salaries in the war bond payroll deduction plan.

EDUCATIONAL

New faculty member at The Cooper Union is ERICA HANKA GORECKA, originator of the paper sculptured figures used in department-store window displays, in newspaper advertising, and in theatre lobby displays. Miss Gorecka will teach her class the fashioning of three-dimensional human, animal and bird forms from paper. The paper sculptress' human figures range from 12 inches to 12 feet, the large ones being formed around a plywood skeleton which Miss Gorecka cuts herself.

Hans Jorgensen

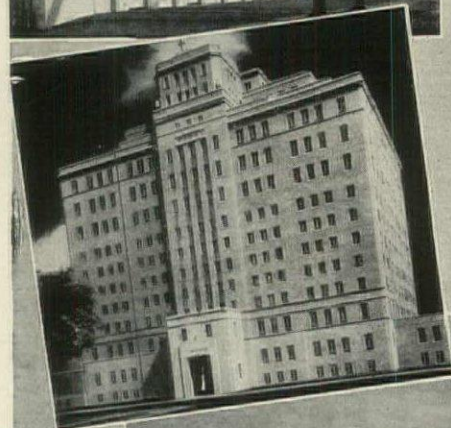
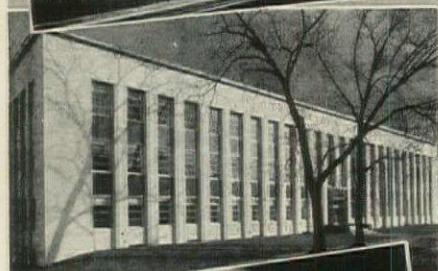


GORECKA GIRL

The incentive for her novel work came when she saw samples of Polish peasant art, tiny figures of eggshell and newsprint, and she then tried her hand at making the pigs, Humpty-Dumpties and other simple figures with which she will start off her Cooper Union students.

Another new course at The Cooper Union is in city planning, which will be offered to both engineering and architecture students who will work with engineering, architecture and social science faculties so that they may integrate the contributions of all three fields to city planning. The students will plan a transportation center for Syosset, Long Island, will try to solve the problem created by an influx of war workers into a town in which rail, bus and car lines are widely separated. Organizer and coordinator of the program is Dr. Edwin S. Burdell, Cooper Union's Director, who is a member of the American Institute of Planners and the American Society of Planning Officials.

(Continued on page 110)



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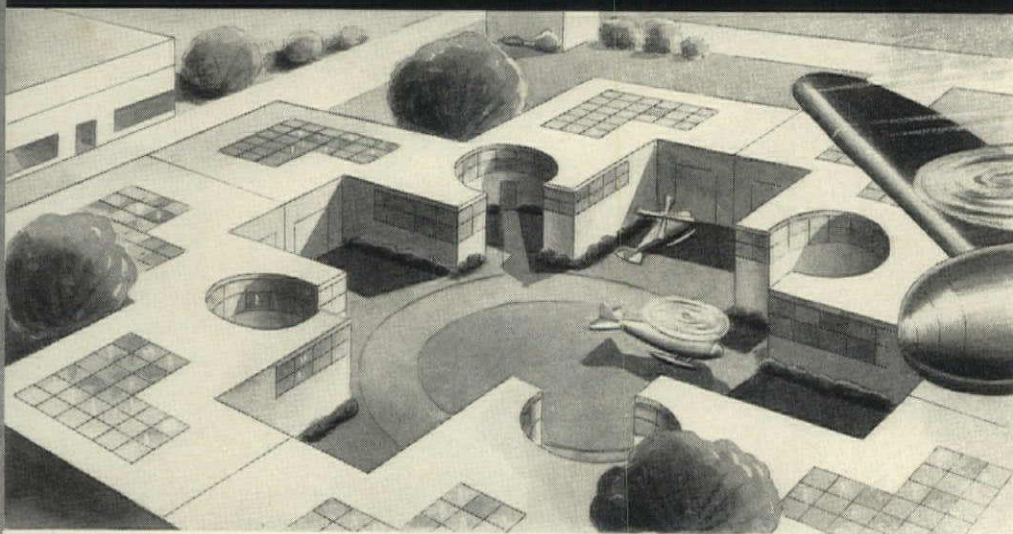
TODAY



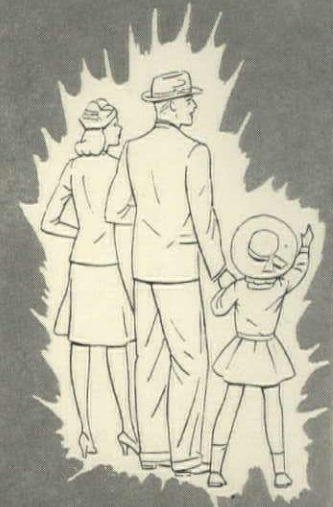
Today, from the Pacific to the Atlantic, Barrett & Hilp are building. Years of experience constructing dams for power, bridges for transportation, plants for industry are now all out in the war effort. Twenty-six concrete ships. Five thousand homes for ship builders of the vital Norfolk Navy Yard. Five thousand prefabricated demountable houses in less than six months. A peak production of 62 houses daily. Each constructed according to the Precision Built System of the Homasote Company. Each ready to live in.



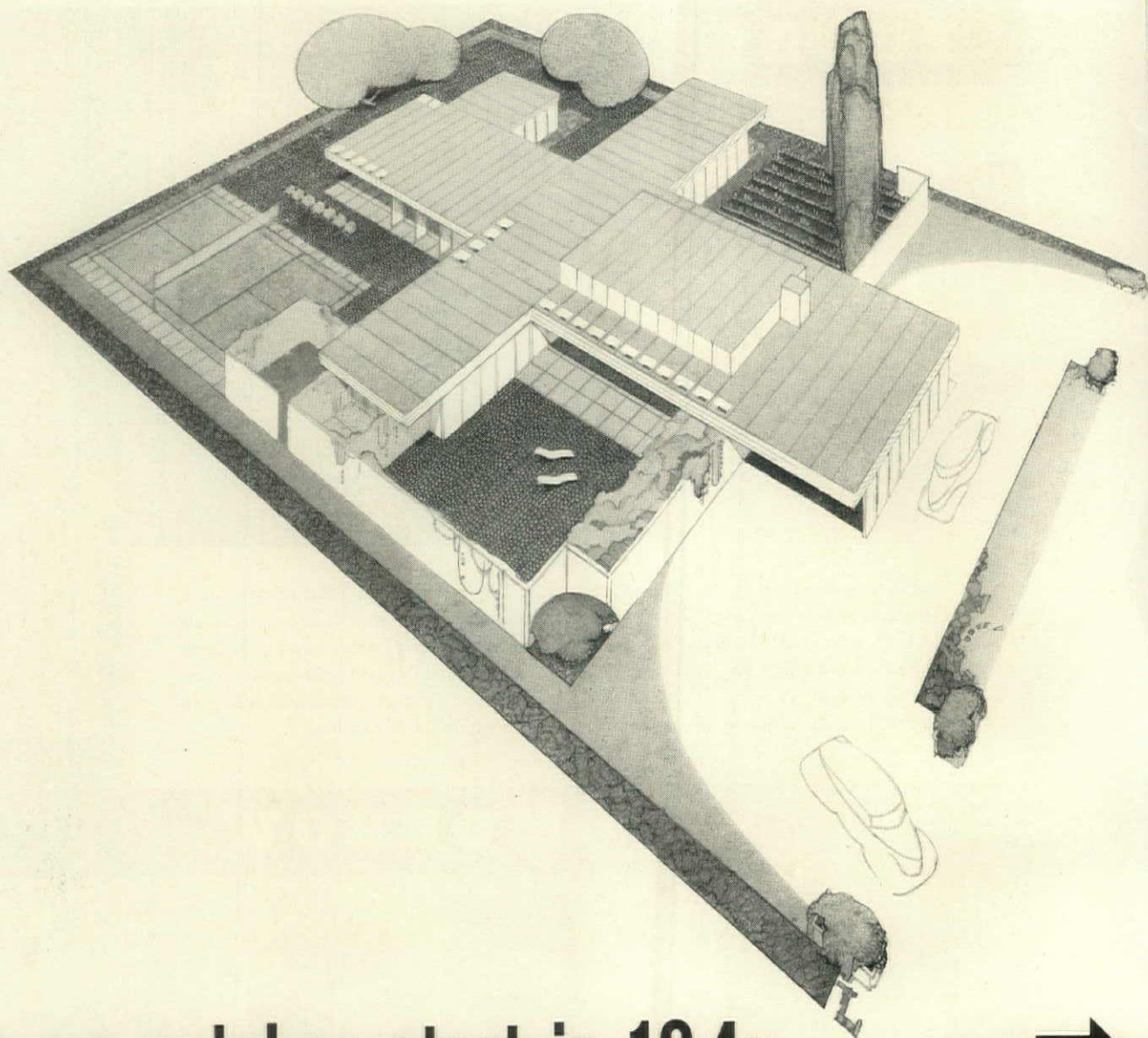
TOMORROW



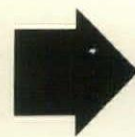
Tomorrow this full productive capacity, Barrett & Hilp men, methods and equipment will be turned to the service of a world at peace. To the service of American industry rebuilding. To the service of American people entering an era of new homes, new transportation, a new and higher standard of living. Ingenuity has done it before. Advance planning can do it again. The Barrett & Hilp organization is conditioned to fulfill its obligations to a nation at war—and to work with your engineers on blueprints of the future.



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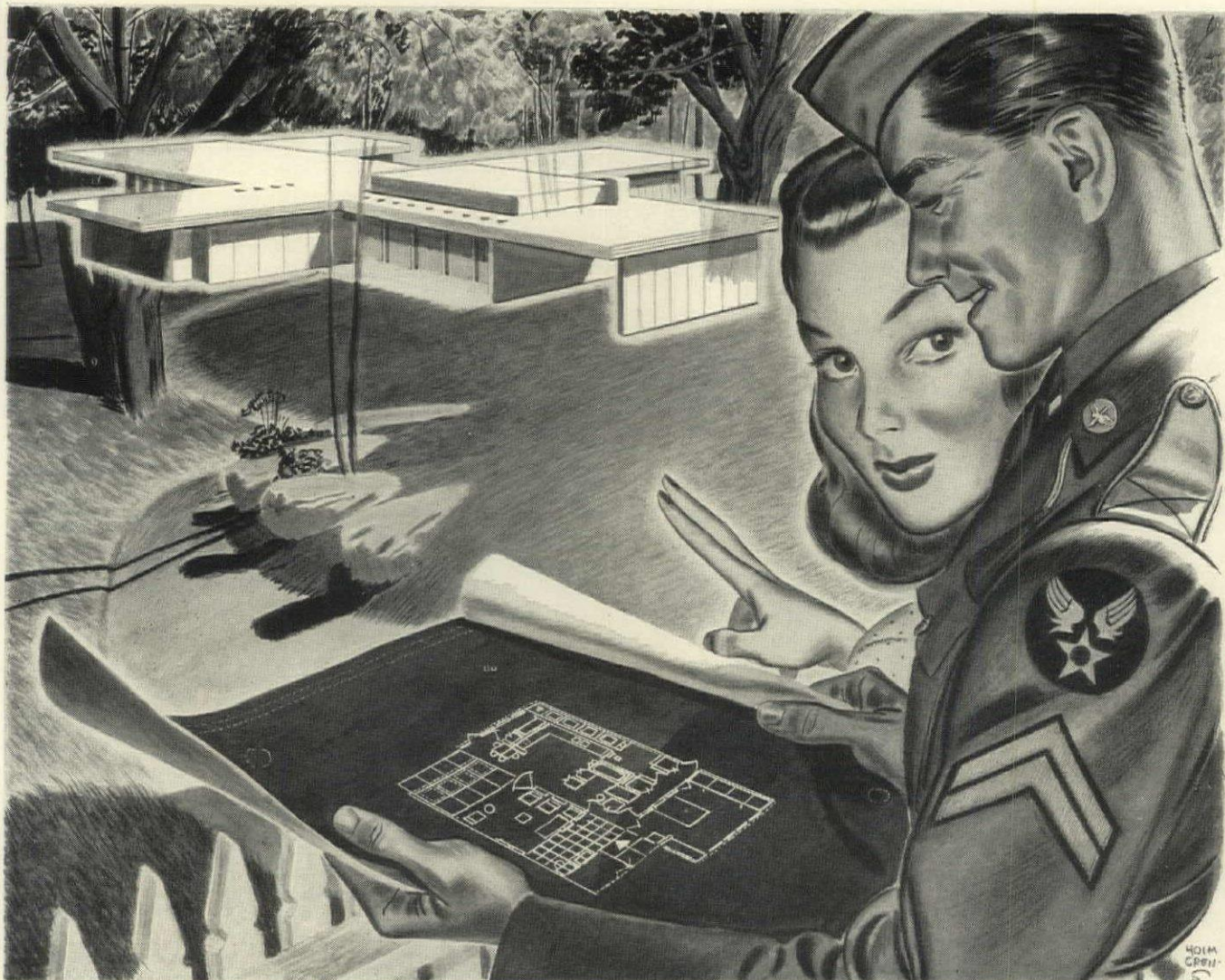
For a quicker start in 194x



America went into the war emergency with a housing shortage. It will emerge, not only with a need for many more homes, but with a pent-up demand for better homes that can offer unparalleled opportunities to the architect, the builder, the dealer, the manufacturer, the banker.

To help convert this demand for quality building more quickly into decisive action by the public, Revere presents the conception of the prominent designer, Harwell Hamilton Harris. By providing for a fine and spacious home that grows by planned stages from an exceedingly modest beginning, the Harris house can help translate the desire for building quality into prompt activity from which every factor in the building industry will gain.





The valley of war leads to . . . living

"After the last battle we can dare once again to build for happiness. And this time we can do so with a sureness that is rare in human life. For we know that better living through better homes can lie within our reach.

"Here, for instance, is a house that youth could possess.

Yet not just a house for a bride and groom, but one with a future that unfolds as husband and wife come upon new horizons. A home that begins as simply and economically as a cottage . . . a home that can grow in its spaciousness and beauty to fulfill your brightest dreams.

"It consists originally of a living room, bedroom, bathroom, kitchen-dining room, laundry and heater room. In nine more stages it can expand to provide six bedrooms and four baths, a dining room, service rooms, garage and numerous garden rooms. Always advancing according to a plan, this house can have no awkward stages, no rough or temporary aspects inside or out. And also by plan, standardization of appearance is eliminated.

In presenting various concepts of tomorrow's homes by leading architects and designers, Revere Copper and Brass Incorporated seeks only to stimulate public interest in better housing, confident in the knowledge that the greater use of copper and brass makes any house better to live in, better to own, better to rent or sell. The Revere Technical Advisors are always ready to help with your problems.



"The house is of lifetime construction. Its pipes are of copper, its metal parts of rustless alloys, its solid outer wall and roof panels sealed together with interlocking copper strips. Insulation and heating are ample for the coldest climate.

"By building methods already in wide use, the first stage of such a house could be completed, with much of the furniture built in, for less than \$3500. In this way homes of happiness can be available to all."

HARWELL HAMILTON HARRIS

For all the men who are fighting to preserve a world worth living in, life will begin when war is done. Revere does not build houses or expect to in the future, but homes such as that conceived by Mr. Harris, typify what victory can bring.

We at Revere know that such homes will have many parts made of copper and its alloys. Today it furnishes protection against weather and termites,

provides us with rust-free water, helps heat our homes more comfortably and economically. Tomorrow, copper can bring us further comforts and conveniences, can make our homes still better to own, or rent, or sell.

All of us are now working entirely for Uncle Sam. No copper is available except for winning the war. But in Revere's laboratories, research is rapidly pressing forward to help bring us new things for better living after victory.

Naturally, in this limited space, Mr. Harris could only begin to tell you about his conception. Revere has prepared an illustrated booklet giving more information. This, and former booklets on low-cost homes by other leading designers, will gladly be sent to you, free. Write to Revere.



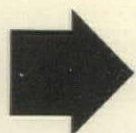
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FORUM OF EVENTS

(Continued from page 106)

DIED

SIGISMUND SCHULZ GOLDWATER, 69, doctor and architect, in New York City. Advisory construction authority for 156 hospitals in the U. S. and Canada, in 1934 consultant to the USSR government on its projected "Medical City", long-time director of Mount Sinai Hospital and Commissioner of Hospitals from 1934-1940, Dr. Goldwater was an internationally-known authority on the administration and construction of hospitals. Praised New York's Mayor, "He was a great force for progressive medicine. . . to him was due the credit for the rehabilitation of the hospital system of the City of New York."

JULIUS KAHN, 68, engineer, in Cleveland. Mr. Kahn, brother of the Detroit architect, Albert Kahn, was born in Munster, Germany, educated at the University of Michigan. He became president of Truscon Steel, formed to manufacture one of his inventions, a re-enforcing bar for concrete, and remained as vice-president of Republic Steel when they bought his company. Mr. Kahn was author of many books and articles on steel engineering.

ROGER B. WHITMAN, 67, housing expert, in Garden City, Long Island. Author and auto-fan, Mr. Whitman wrote several books on automobiles and gas engines, was among those who made the first automobile trip from St. Louis to Chicago. In later years his interest became focused on housing—he gave radio broadcasts under the pseudonym "The House Detective," wrote *Beauty in Gardens* and the *Home Owner's Fact Book*, and for several years wrote the New York *Sun's* column, "First Aid to the Ailing House."

ANNOUNCEMENTS

JOHN D. MORSE (see cut), Associate in Radio at the Metropolitan Museum of Art, originator and chairman of "Living Art," the national radio program sponsored by the Metropolitan Museum, has been



appointed to succeed F. A. Whiting Jr. as Editor of the *Magazine of Art*. His radio program will now be under the joint auspices of the Metropolitan Museum and the American Federation of Arts. THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION announced another annual bridge design competition open to students of structural engineering and architecture in the U. S. and possessions. Copies of the announcement may be obtained by application to the Executive Offices of the American Institute of Steel Construction, 101 Park Avenue, New York City.

ERRATA

FORUM, in its book review of *Modern Building Inspection* (Sept., p. 196) did not make clear that the handbook was compiled, edited and arranged by R. C. Colling. Other corrections: Clyde N. Dirham is Chief Building Inspector of the county of Los Angeles, Harold P. Huls, City Attorney of Pasadena, California.

Omitted from the construction outline for the Tabernacle Church of Christ (FORUM, Oct., p. 44) was mention of the American 3 Way-Luxfer Prism Company, responsible for the rooflight construction.

FORUM in crediting the reportage of a case history on a remodeling job in New York City (Oct., p. 100) incorrectly referred to the *Christian Science Monthly* instead of the *Christian Science Monitor*.

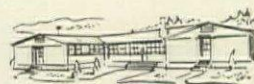


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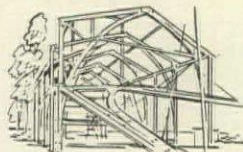
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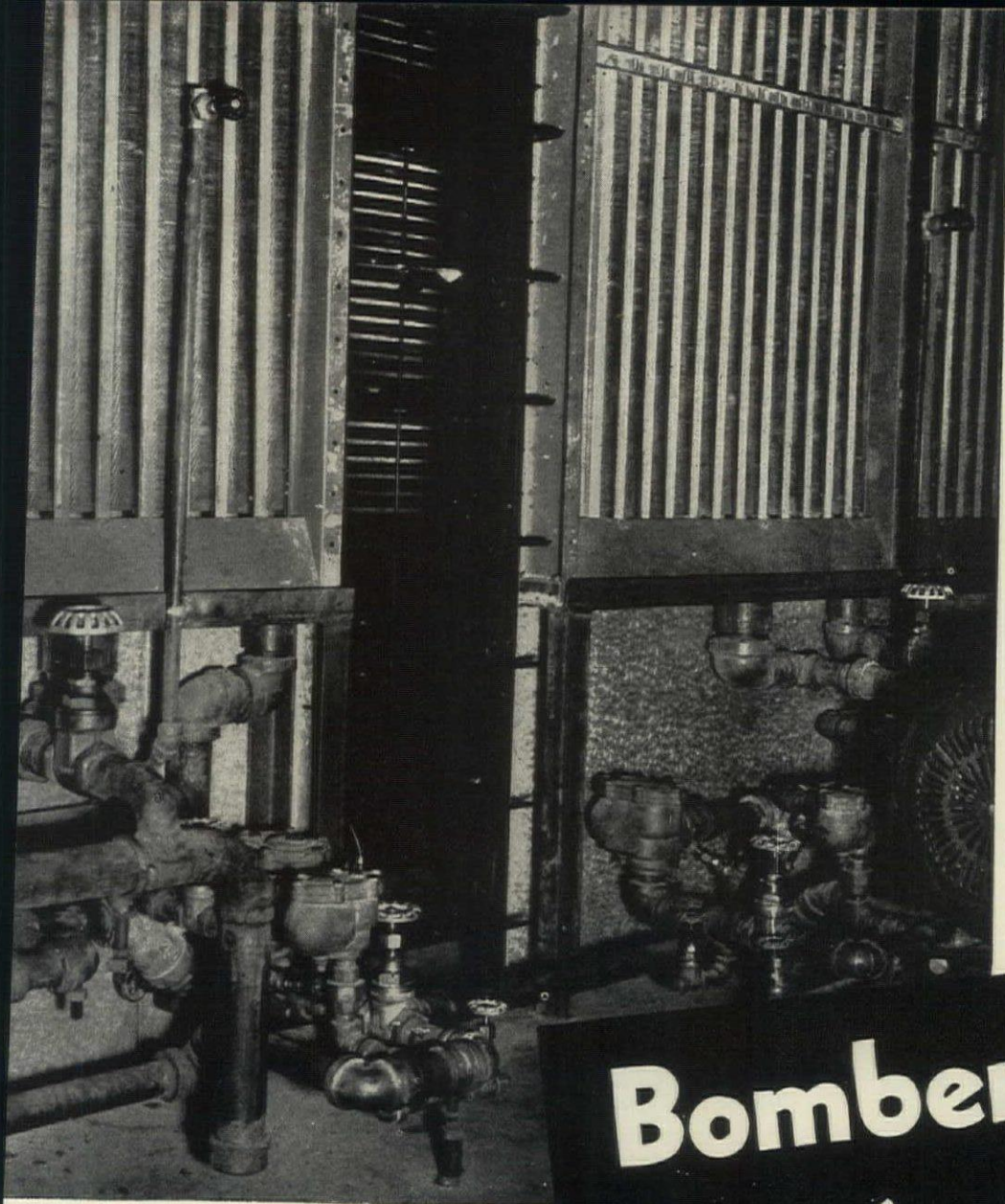
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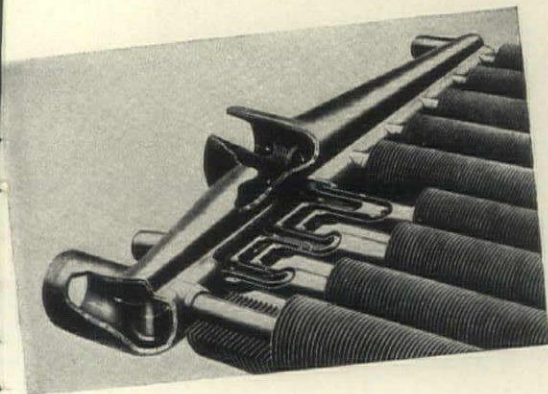
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Below: Cutaway view, showing features of Aerofin construction.



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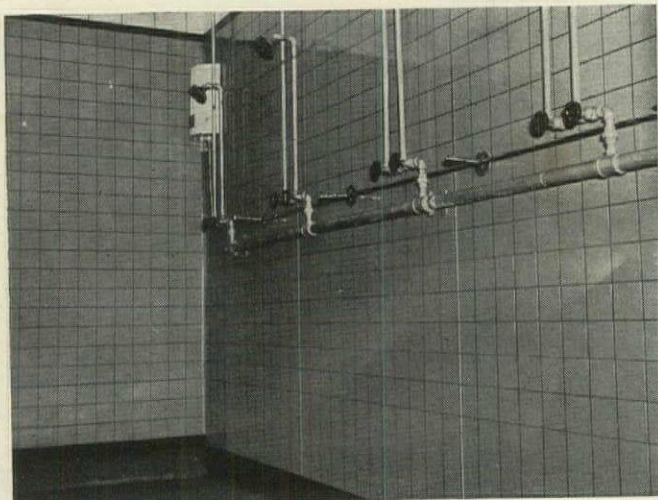
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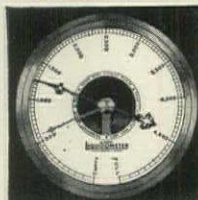


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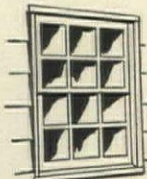
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 ★ to win the war. ★

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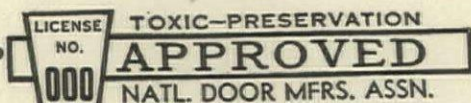


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Paint for PROTECTION



DOUBLE-WHITE house with Gloss Collopakes on blinds.
Architect: E. L. Baker, Lima, Ohio

Cabot's Collopakes are TOUGH

What makes a paint last? It's the oil—staying with the pigments—where it belongs. Cabot's Collopakes are tougher, longer lasting paints because they are made by a patented colloidal process which binds oil and pigments inseparably together. The oil cannot drain off into the wood—leaving dull, lifeless flakes of pigment on the surface.



FREE—The White Book

Write today for color card and your copy of The White Book, showing many houses painted with Cabot's DOUBLE-WHITE, Old Virginia, White, and Gloss Collopakes in white and colors. Samuel Cabot, Inc., 1279 Oliver Bldg., Boston, Mass.

Use

Cabot's Collopakes

(COLLOIDAL PAINTS)

and DOUBLE-WHITE

Building Reporter

(Continued from page 8)

Name: Win-The-War Bath Fitting.

Features: Cast iron built-in over-rim tub filler has china escutcheons, baked black plastic finish for exposed metal parts, brass renewable parts. Priority AIA is required. At present this is being used for Army and Navy contracts and war housing. Similar Kohler "Win-The-War" items: shower fittings, drains, faucets, etc.

Manufacturer: Kohler Co., Kohler, Wis.

Name: Wood Bathroom Cabinets.

Features: These new wood cabinets do not revert to the wood models of a quarter of a century ago but offer modern conveniences and incorporate structural features that resist warping, shrinking and swelling. The cabinet body is made of kiln-dried hardwood finished with three coats of baked-on white enamel. Joints are double-locked, glued and tenoned and the door back is of moisture-resistant composition board. A feature of the cabinet is the mirror frame of steel (by permission of WPB), finished to match the cabinet. Mirror is of double-strength

window glass quality. Equipment consists of two glass shelves, bar-type door stop, stainless steel door strike and bullet door catch. Also available is a line of wood-framed wall mirrors.

Manufacturer: Miami Cabinet Div., Philip Carey Mfg. Co., Middletown, Ohio.

Similar wood bathroom cabinets are being featured by The F. H. Lawson Co., Cincinnati, Ohio.

Name: Glider All-Plastic Bath Drain.

Features: Drain is made of smooth, hard, lustrous white plastic which doesn't scratch or tarnish, corrode or discolor, and which withstands not only severe water temperatures but the normal chemical content of water as well. It can be installed on any make of tub with standard drillings. Fitting entirely within the tub, only 3/4 in.



in depth, it blends with the tub, allows ample room for cleaning. As it is moved up and down, spring tension holds it in any position desired. There is no "back-of-tub" drainage piping which requires tearing up of wall for maintenance—the removal of just two screws enables it to be taken out and replaced, if necessary, without inconvenience.

Manufacturer: The Bloch Brass Co., 1900 Euclid Ave., Cleveland, Ohio.

Name: Victory Wood Septic Tank.

Features: Tank is constructed of lasting tank-grade lumber (Cypress, Redwood, Cedar, White Pine) protected from action of moisture and soil by an inside and outside coating of mineral asphalt. Openings take 4 in. pipe, either iron or tile, and the flow of sewage is directed through the tank by "U" shaped inlet and outlet baffles. Tank is equipped with 1/2 in. round, adjustable steel hoops, cut to proper length, threaded and bent to circle and fitted with necessary malleable iron lugs and hexagonal nuts. Staves are 1 1/4 x 3 in. to 1 1/4 x 6 in., convexed on the outside to give full hoop bearing, with the joints either sawed or planed on true lines in respect to the circumference of the tank. Cover is 1 1/4 in. thick. Manufacturer claims that this tank has the approval of health authorities and should last the average lifetime of the building it serves. Available in capacities of 300 to 1,000



(Continued on page 120)

In 39 Branch Offices, ILG-Men will be

AT YOUR SERVICE

for the Duration!



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Birmingham.....	3-7979
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Cleveland.....	Cherry 5122
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Denver.....	Main 1281
Des Moines.....	3-7151
Detroit.....	Temple 2-5445
Galesburg.....	Main 6440
Glens Falls.....	2-0040
Greensboro.....	6269
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Minneapolis.....	Atlantic 2623
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St. Louis.....	FR 3808
Salt Lake City.....	Was. 1989
San Antonio.....	G-4633
San Diego.....	Main 1853
San Francisco.....	Hemlock 3646
Seattle.....	Ken. 8183
South Bend.....	4-9591
Toledo.....	Main 1612
Tulsa.....	3-7244
Washington.....	National 9732

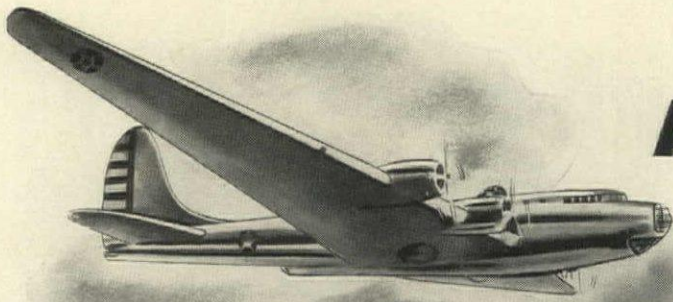
A WARTIME POLICY TO Help Solve Your Problems

In order that you may receive full-fledged ILG service in these difficult times, ILG is maintaining its extensive branch office coverage intact for the duration! In each of these branches you will find able heating and ventilating specialists eager to work with you on wartime problems, regardless of whether new equipment or repairs or relocation of present apparatus is involved. Phone the trained staff near you to save your time, speed your work.

ILG ELECTRIC VENTILATING CO.
2899 N. CRAWFORD AVENUE, CHICAGO, ILL.



VITALIZED VENTILATION
AND AIR CONDITIONING
AIR CHANGE...NOT JUST AIR MOVEMENT!



AT HOME WITH DOUGLAS

...and a topcoat of modern STUCCO



DOUGLAS Aircraft has modernized its home in Santa Monica and now is as up-to-date as its far-famed bombers. This attractive building has a top-coat of modern stucco made with Atlas White Cement.

Modern stucco adds a crisp, clean-cut appearance to large and small buildings. It also provides long-lasting protection. But there's another reason for its use today. In the Douglas Building, stucco was placed directly over monolithic concrete without reinforcing mesh. That saved steel. In homes, hospitals, hangars and similar

structures, modern stucco is applied directly over monolithic concrete, concrete block, cinder block and tile. This too saves steel... plus other materials vitally needed for our war effort.

In addition, the basic advantages of modern stucco are worth counting on. Stucco gives your building a durable facing that resists all weather. It is firesafe... an added protection. Low initial cost and little or no expense for upkeep are welcome economies. And many pleasing colors and textures may readily be applied.

Consider your own next job of fac-

Modern, 2-story office building of Douglas Aircraft Company at Santa Monica, Cal. Architect: Joe M. Estep, Santa Monica. Stucco contractor: W. D. Lindsay, Los Angeles. California stucco made with Atlas White Cement supplied by California Stucco Co., Los Angeles.

ing. Modern stucco made with Atlas White Cement, plain or water-proofed, meets many a demand today. Specify it. Universal Atlas Cement Company (United States Steel Corporation Subsidiary), Chrysler Building, New York City.

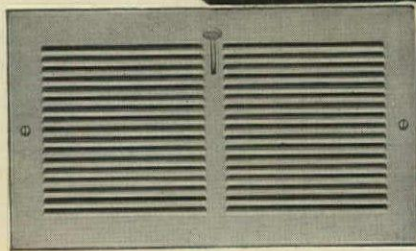
OFFICES: New York, Chicago, Philadelphia, Boston, Albany, Pittsburgh, Cleveland, Minneapolis, Duluth, St. Louis, Kansas City, Des Moines, Birmingham, Waco.

AF-S-31

ATLAS WHITE CEMENT

A UNIVERSAL ATLAS PRODUCT



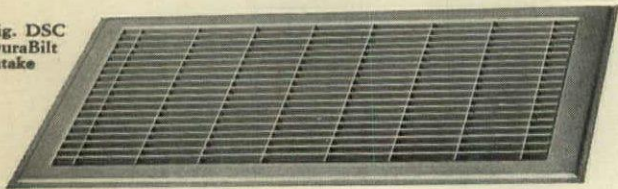


Specify AUER REGISTERS for LOW-COST HOMES

There are many Auer warm-air models well suited to low-cost house purposes. The Airo-Flex "7000" design shown above is a single louvre register with downward directional fins, bendable for other angles if desired. The DuraBilt design shown below, furnished for floor registers and intakes, has interlocked cross-bar construction, giving great strength and rigidity.

Complete Auer Register Books sent on request — also Catalog "G" on flat metal grilles.

Fig. DSC
DuraBilt
Intake



THE AUER REGISTER COMPANY, Cleveland, Ohio.

AUER REGISTERS & GRILLES · For Air Conditioning and Gravity

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACTS OF CONGRESS OF AUGUST 24, 1912 AND MARCH 3, 1933, OF THE ARCHITECTURAL FORUM, published monthly at Orange, Conn., for October 1, 1942.

State of New York } ss.
County of New York }

Before me, a Notary Public in and for the State and county aforesaid, personally appeared Henry A. Richter, who, having been duly sworn according to law, deposes and says that he is the Business Manager of THE ARCHITECTURAL FORUM and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, as amended by the Act of March 3, 1933, embodied in section 537, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business manager are: Publisher, Time Incorporated, Time & Life Building, Rockefeller Center, New York, N. Y.; Editor, Howard Myers, 19 West 44 Street, New York, N. Y.; Managing Editor, Ruth Goodhue, 19 West 44 Street, New York, N. Y.; Business Manager, Henry A. Richter, 19 West 44 Street, New York, N. Y.

2. That the owner is: Time Incorporated, Time & Life Building, Rockefeller Center, New York, N. Y., that the names and addresses of stockholders owning or holding one per cent or more of total amount of stock are: Brown Brothers, Harriman & Co., 59 Wall St., New York, N. Y.; Marine Midland Trust Co., (Account of F. Du Sojoit Duke), 12 East 45th St., New York, N. Y.; William V. Griffin, 140 Cedar St., New York, N. Y.; Louise H. Ingalls, 1658 Union Commerce Building, Cleveland, Ohio; Irving Trust Company, as Trustees (Benefit of Elizabeth Busch Pool), 1 Wall St., New York, N. Y.; Robert L. Johnson, 135 East 42nd St., New York, N. Y.; Margaret Zerbe Larsen, Time & Life Bldg., New York, N. Y.; Roy E. Larsen, Time & Life Bldg., New York, N. Y.; Henry R. Luce, Time & Life Bldg., New York, N. Y.; J. P. Morgan & Company, (Account of Henry P. Davison), P. O. Box 1266, New York, N. Y.; The New York Trust Company, (Account of Edith Hale Harkness), 100 Broadway, New York, N. Y.; The New York Trust Co., (Account of William Hale Harkness), 100 Broadway, New York, N. Y.; Cobb & Co., c/o The New York Trust Co., 100 Broadway, New York, N. Y.; Samuel W. Meek, c/o H. A. Schafuss, 14 Wall St., New York, N. Y.

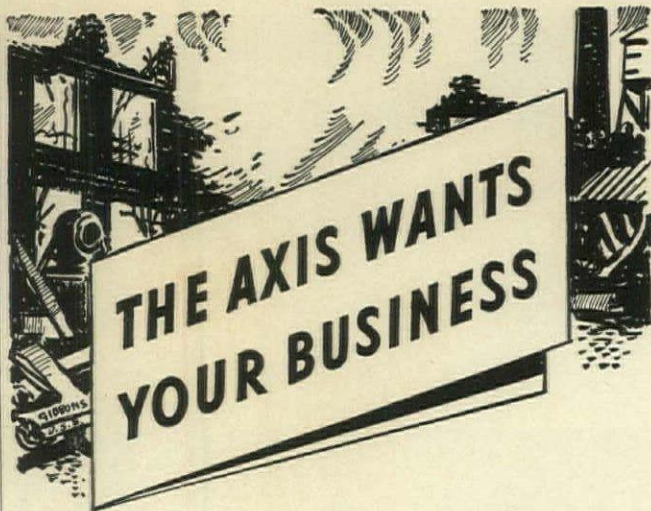
3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: None.

4. That the two paragraphs next above, giving the names of the owners, stockholders and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders, who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

(Signed) Henry A. Richter,
Business Manager.

Sworn to and subscribed before me this 25th day of September, 1942.
HERBERT H. BROWER,

Notary Public.
(My commission expires March 30, 1943)



THIS is more than a war of mechanical monsters clashing in the night . . . more than a war of production.

It is a war for markets—your markets! The Axis wants your business—wants to destroy it once and for all.

With so much at stake, there is no doubt you will want to do everything you can to meet this Axis threat. Two ways are open: Speed production and put 10 per cent of your income into WAR BONDS! The only answer to enemy tanks and planes is more American tanks and planes—and your regular, month-by-month purchases of War Bonds will help supply them. Buy now and keep buying.

THE GOAL: 10% OF EVERYONE'S INCOME IN WAR BONDS

When you install the Pay-Roll War Savings Plan (approved by organized labor), you not only perform a service for your country but for your employees. Simple to install, the Plan provides for regular purchases of War Bonds through voluntary pay-roll allotments.

Write for details today! Treasury Department, Section R, 709 12th St. NW., Washington, D. C.



War Savings Bonds

This space is a contribution to Winning the War by
THE ARCHITECTURAL FORUM

interim report on

WAR HOUSING

by THE ARCHITECTURAL FORUM

1ST

we urged the Government to get Housing started early

IT DID!

2ND

we urged the employment of private architects and experienced home builders

YES AND NO

3RD

we urged that prefabrication be given a chance

IT WAS!

4TH

we urged that the complicated Government Housing set-up be reorganized

IT WAS!

5TH

we urged that the same priorities be given to War Housing as to the War Plants the Housing was to serve

**IT WAS
BUT TOO LATE!**

AND 6TH

SEE OTHER SIDE

AND 6TH

we urged in June 1942

\$600 MILLIONS FOR WHAT?

The President has asked Congress to appropriate six hundred million dollars for additional war housing. It is almost a foregone conclusion that Congress will do so. What is not a foregone conclusion is that two times six hundred million dollars will do the job. Much more than money is needed.

It is no longer enough to reorganize the housing program. We must also reorganize our concept of housing. Great confusion persists.

2. It must be designed for rapid construction.
3. It must be within walking distance of plants, stores and other essential facilities.
4. It must satisfy minimum requirements of health and safety.
5. It must be designed to put workers as well as men into housing.

It is clear that \$600 million can be used to house twice that number. It can collapse already in the time frame.

There is but one choice for those charged with prosecution of the war housing program. This choice is to organize housing on a realistic war basis or to see vital war production curtailed.

In some cases the solution may not be a matter of houses at all. Each community presents its own needs. In one case the need may not be to build a single house but to conscript every single car and tire. In another case transferring nonwar workers from their present homes and making these near-plant accommodations available to war workers may prove the fastest and best solution. In a third instance it may be a combination of billeting and rent control and in a fourth the building of a new reservoir.

Sixty days have passed since THE FORUM said in its April issue . . . "Mr. Blandford, it is time to take down your calendar and look at your watch!"

THE ARCHITECTURAL FORUM Published by Time Inc.
Time & Life Building Rockefeller Center New York, N. Y.

... and 4 months later
in October

NEW YORK
Herald Tribune

U. S. to Lease Housing for War Workers

Asks Owners to Rent Their Houses in Production Areas for the Duration

To 'Commandeer' If Volunteers Fail

Byrnes Moves for Law to Extend Rent Controls to Business Properties

Nicholas P. Gregory

The New York Times.

DRASTIC U. S. MOVE TO HOUSE WORKERS

Government Is Planning to Lease Private Houses, Remodel Hotels and Warehouses

MIGHT REQUISITION SOME

Legislation Will Be Asked to Permit Seizures if Other Methods Do Not Avail

Special to THE NEW YORK TIMES.
Oct. 13—The
ed to le

The SOMETHING HAPPENS

magazine of Building

THE ARCHITECTURAL FORUM

DIVISION OF TIME INC.

19 WEST 44TH STREET, NEW YORK, N. Y.



Thomas F. Gallor, Psychiatric and Diagnostic Clinic, Memphis, Tenn.
MINWAX WEATHERCAP, CAULKING COMPOUND and
SPANDREL WATERPROOFING FABRIC used.

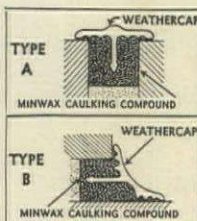
You can't have a waterproofed building without

PERMANENTLY WATERPROOFED JOINTS

and, as many of the leading architects and contractors have discovered, the surest, safest way to assure lifetime water tightness is to specify for coping and other horizontal joints —

MINWAX WEATHERCAP

— a formed strip of pure soft lead imbedded in MINWAX Caulking Compound. Creates a permanent, waterproof seal for horizontal and sloping joints in masonry.



And for joints around window openings —

MINWAX CAULKING COMPOUND

— used for sealing joints around window or door frames to prevent the penetration of moisture or air. The permanence of the elastic seal created by this material is proved by Pittsburgh Testing Laboratory Report of inspection of actual field installations. Send for your copy.



NOTE: Minwax Spandrel Waterproofing Fabric was used at all spandrel beams and for cut-offs for the above structure.

MINWAX COMPLETE WATERPROOFING SERVICE

These and other specialties are included in the MINWAX COMPLETE WATERPROOFING SERVICE. Literature on any of these products will be sent on request. MINWAX CO. INC., 11 West 42nd Street, New York.



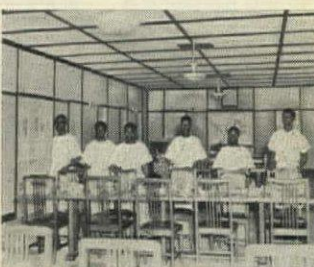
Waterproofings • Dampproofings • Caulkings
Wood Finishes • Waxes • Protective Coatings
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A COMPLETE WATERPROOFING SERVICE



WEATHERPROOFING

for Pan American Airways'
overseas flying bases



Pan American Airways was building an overseas base in an Equatorial Turkish Bath! The average temperature in this part of the world is 95 degrees Fahrenheit—the average humidity a dripping 90%—the annual rainfall 170 inches—and the monthly rainfall as high as 40 inches!

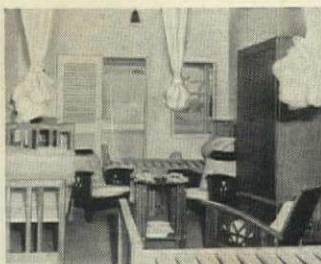
Sote Board, which is a synthetic rock material made of asbestos and cement, seemed to be ideal for the exteriors of the buildings. And Homasote Building Board was wanted for the interiors.

But would Sote Board and Homasote be weatherproof in this climate? Homasote Company's engineers thought so—but they proceeded to make sure with a series of stringent tests. One of them was to leave an 8' x 14' sheet of Homasote overnight in a steam bath where the temperature was 212 degrees Fahrenheit and the humidity 100%, and then dry it out—repeating the operation three times.

The tests proved conclusively that both Sote Board and Homasote can stand up under Equatorial weather—and delivery was made to Pan American. The same month, another shipment of Homasote was sent to Alaska!

This is an example of the kind of war-created building problems Homasote Company products and techniques have solved. Another was the building of 5,000 complete homes in the record time of five months for Navy Yard workers at Portsmouth, Virginia. The scope and speed of this project were made possible by Homasote Precision-Built Construction—a system of prefabrication based on the use of large (8' x 14') panels of Homasote Building Board.

Homasote products and Homasote Precision-Built Construction are pioneering a new era in construction history—better housing at lower cost than ever before; industrial and commercial building of greater efficiency than ever before. Write today for complete details.



HOMASOTE COMPANY ... TRENTON, N. J.

Building Reporter

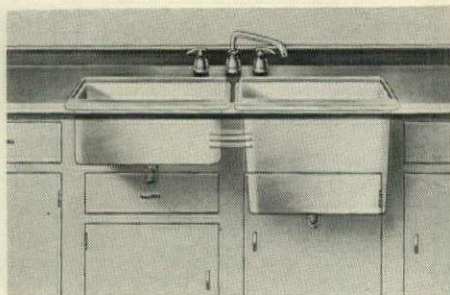
(Continued from page 114)

gals., with dimensions ranging from 48 x 48 in. to 54 x 120 in.

Manufacturer: Carey Associated Industries, 715 Seeley Rd., Syracuse, N. Y.

Name: Vitreous China Sink and Laundry Tray.

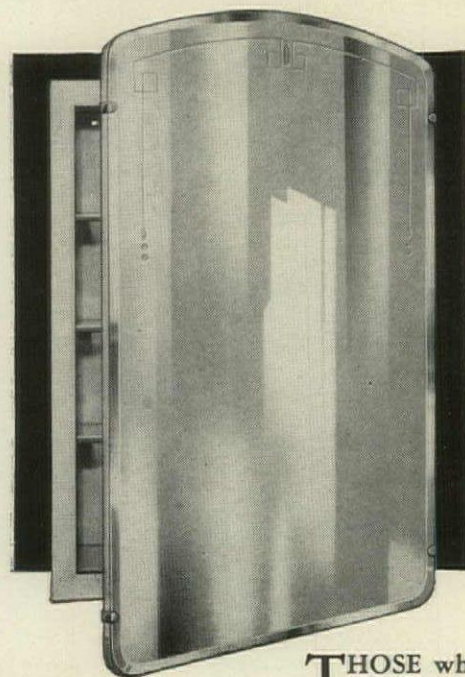
Features: Designed for use in wood kitchen cabinets in place of enameled cast iron, these vitreous china sink and laundry tray units are available in standard



sizes. Easy to clean, acid resisting, impervious to stain. Measure 20 x 18 in. each outside, sink 6 in. deep, laundry tray 12 in. deep.

Manufacturer: Eljer Co., Ford City, Pa.

Have YOU Seen the New



LAWSON

WARWOOD

CABINETS?

—THE WOODEN CABINETS
THAT LOOK LIKE STEEL

THOSE who have thought that a wooden bathroom cabinet must necessarily look mid-Victorian will be truly surprised when they see the beautiful line of Lawson Warwood Cabinets. These cabinets, made of wood and other non-critical materials, are designed for the home of today and styled in accordance with the latest architectural trends in home and apartment design. As can be seen from the illustration, they are definitely *not* old-fashioned.

No matter what your requirements may be, you can continue to specify a Lawson cabinet with the full assurance that it is the finest available from the standpoint of design and construction.



THE F. H. LAWSON COMPANY
Bathroom Cabinet Division • CINCINNATI, OHIO

Lawson "Know How" Is Based Upon 126 Years of Experience

Name: Malta Self-Seal Window Frame.

Features: Noiseless, airtight frame contains a minimum of critical materials. No weatherstrip is needed on the jambs or head—a wood weatherstrip is used on the sill. In many cases weights or balances can be eliminated entirely on small windows. On larger windows, 4 Self-Seal springs to the sash are recommended (2 on each side). Illustration "A" shows side rail with a $\frac{7}{8}$ in. diameter cutaway ready for the spring steel ring which is shown installed in illustration "B". "C" shows complete assembly—top sash in permanent position and held firmly against the blind stop by ring. (Bottom sash, by same method, is held against parting stop.) Self-Seal feature can also be applied to stock sash by local mill.

Manufacturer: The Malta Mfg. Co., Malta, Ohio.

SASH AND SCREEN combination remains in place all year.

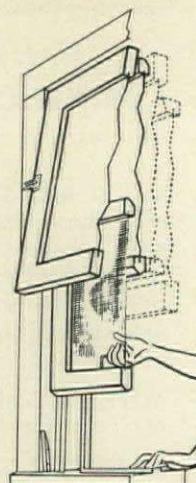
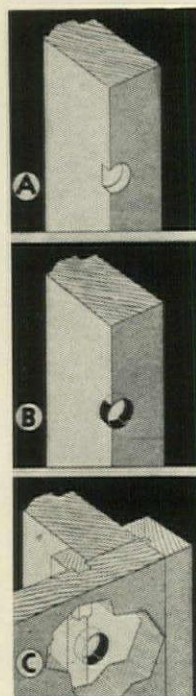
Name: Pella Weather-ready Combination Storm Sash and Screen.

Purpose: For low-cost homes.

Features: Installed by drilling two holes and setting four screws per unit. In winter the screen is "stored" behind the upper storm sash; in summer the storm sash is "stored" inconspicuously at the top and can be lowered to serve as an insulator against heat. Screen and storm panels are raised like regular windows. Inconspicuous frames, designed to admit maximum light, are made of clear white pine, toxic-treated and water-repellent. All corners are mortised and tenoned, held by steel pins and waterproof glue. The 16-mesh screen is uniformly woven and has a rust-resisting zinc coat finish. Entire unit is held in place by spring tension which eliminates rattle from wind and vibration noises from traffic.

Manufacturer: Rolscreen Co., Pella, Iowa.

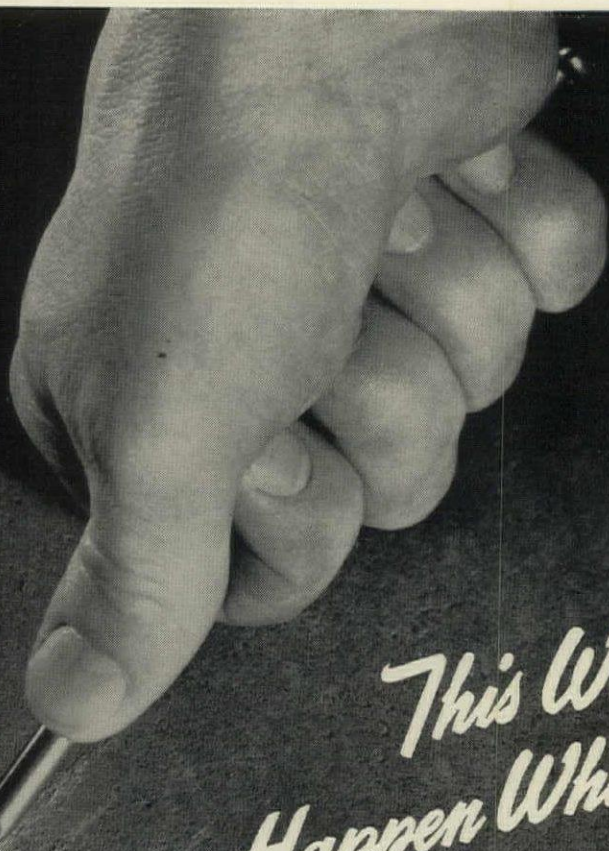
(Continued on page 122)



SONNEBORN'S

**LAPIDOLITH
LIQUID**

Patented
Concrete Hardener
and Dustproof



*This Won't
Happen When You
Specify LAPIDOLITH
LIQUID*

TODAY—more than ever, you have to be sure that the concrete floors in the building you are designing will stand up under heavy-duty use.

Once production begins, hours lost, whether due to the necessity of repairs or to the labor expended in keeping concrete floors dust-free—means money lost.

A twenty-five year performance record shows that a Lapidolized concrete floor is capable of withstanding the hardest punishment to which industrial floors are exposed.

The new patented features found only in Lapidolith assure even greater effectiveness

—deeper penetration, and greater hardness.

Tests conducted in outside engineering laboratories amply demonstrate that Lapidolized concrete is more than twice as hard as untreated concrete.

Lapidolith Liquid is easy to apply and its use on new or old floors will not interfere with the occupation or use of a floor.

Write today for the free booklet, "Concrete & Lapidolith," with a Lapidolized sample which is suitable for a paperweight. It gives accurate, factual performance data. It shows why Lapidolith Liquid is the wisest choice for protecting old and new concrete floors.

Where Results Count—Count on Sonneborn

L. SONNEBORN SONS, Inc.

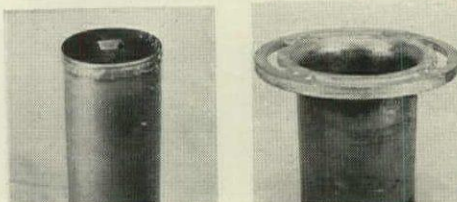
88 LEXINGTON AVENUE

NEW YORK, N. Y.

Building Reporter

(Continued from page 120)

TRAP AND FLANGE made of lead save brass without sacrificing durability.



Name: Drum Trap—Floor Flange.

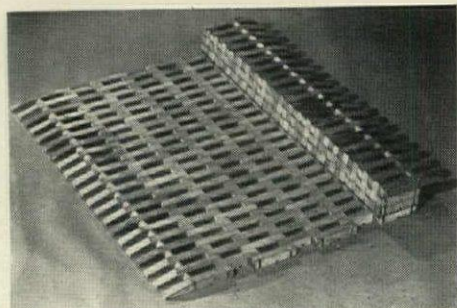
Purpose: To expedite plumbing installations.

Features: Drum Trap threaded ring and cover are die-cast of hard lead. Ring is welded to body of trap instead of soldered thus also saving tin. If ring is damaged by accidental abuse it can be restored to shape by screwing on to standard pipe thread, but is strong enough to withstand all normal handling.

Floor Flange has 4 bolt slots instead of 3, with reinforcing bar between. This new pattern allows greater adjustment of bolts than previous models. Can be soldered to lead bend in customary manner.

Manufacturer: Lead Industries Assn., 420 Lexington Ave., New York, N. Y.

MAT of wood links is light in weight, can be rolled or folded for easy handling and cleaning.



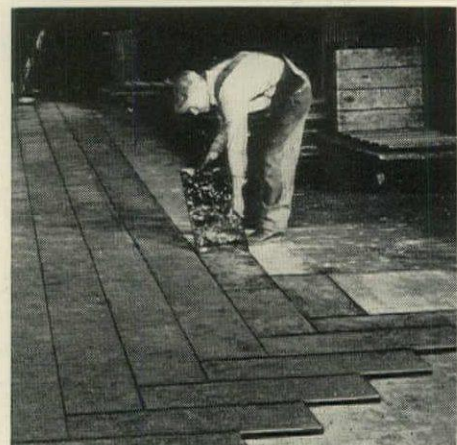
Name: Flexible Wood Link Matting.

Purpose: To continue the safety, sanitation and comfort features of matting without the use of critical materials.

Features: Substantially constructed of wood links, mat lies flat—follows the contour of floor. It makes for safety underfoot, is comfortable to stand on, and affords good drainage. Beveled ends reduce the danger of tripping. Mat comes in natural wood color, is 1 in. thick, and is available in stock sizes: 18x32 in., 24x38 in., 30x44 in., but can also be obtained in special sizes of any length and up to 36 in. in width.

Manufacturer: American Mat Corp., 1703 Adams St., Toledo, Ohio.

FLOORING of asphalt planks.



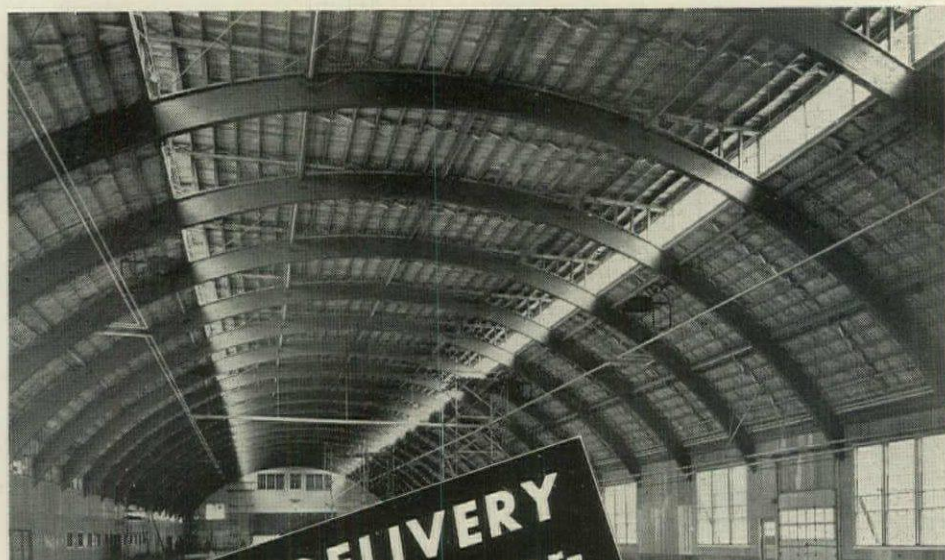
Name: Industrial Flooring.

Purpose: To provide the advantages of asphalt tile flooring in plank form.

Features: Waterproof, non-slip surface, acid-resistant, durable, quiet, resilient. Arrives in conveniently sized planks of required widths, lengths and thicknesses. Can be installed easily (without interruption of plant operation) over concrete or wood. Manufacturer states that it absorbs vibration, being practically noiseless under truck wheels, and that it is especially appropriate for loading platforms, freight houses, storage plants, etc.

Manufacturer: Serviced Products Corp., 6051 West 65th St., Chicago, Ill.

(Continued on page 126)



QUICK DELIVERY
of fire-resistant, permanent roof structures

... big savings of
time and money with
UNIT GLUED LAMINATED **ARCHES & BEAMS**

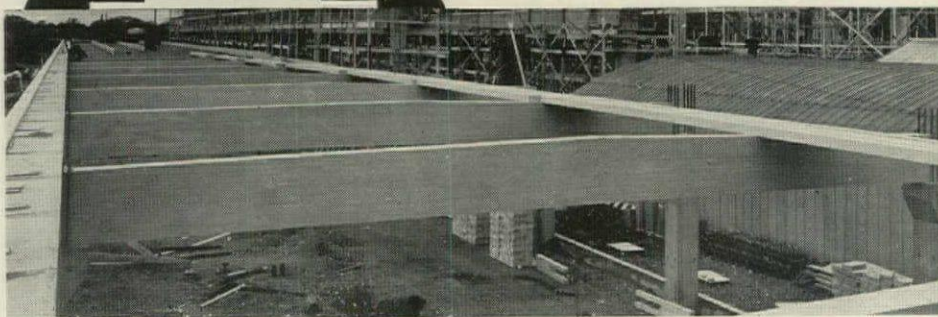
Above: One of several U. S. Navy drill halls built with "UNIT" Glued Laminated Arches.

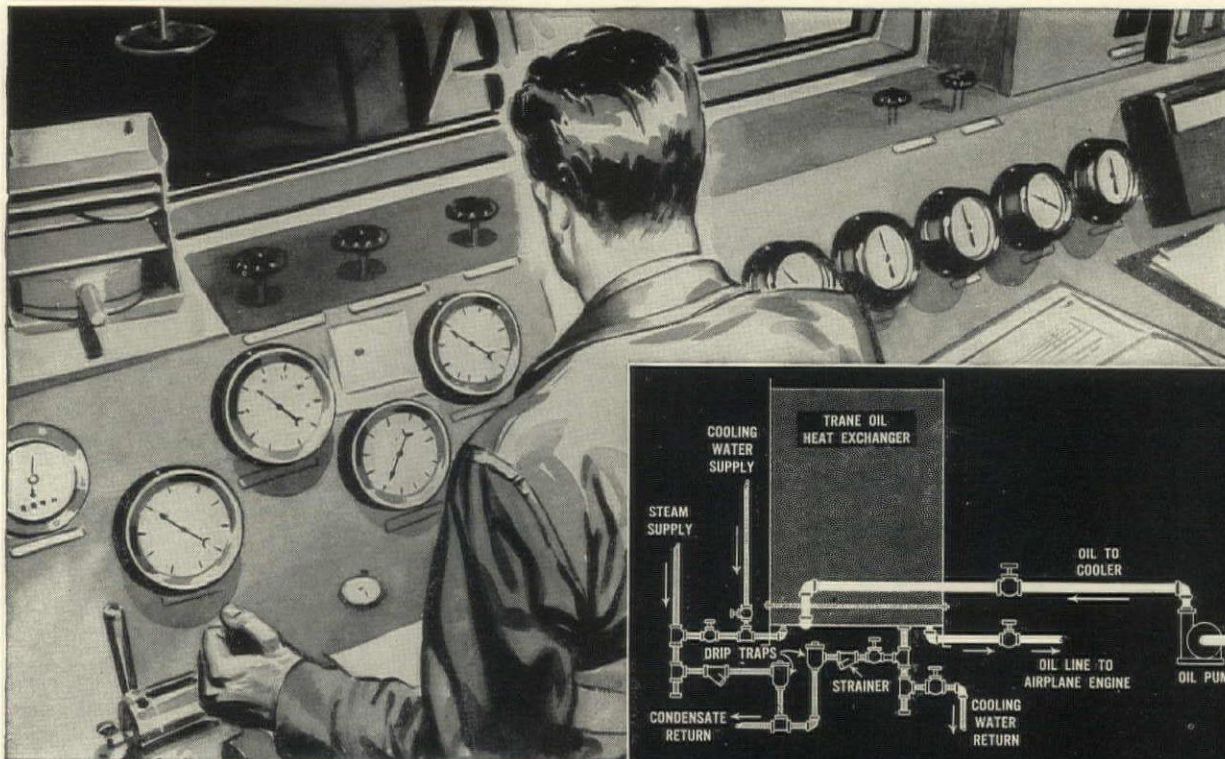
Below: 9½ x 29" "UNIT" Glued Laminated Beams in low bay of machine tool plant.



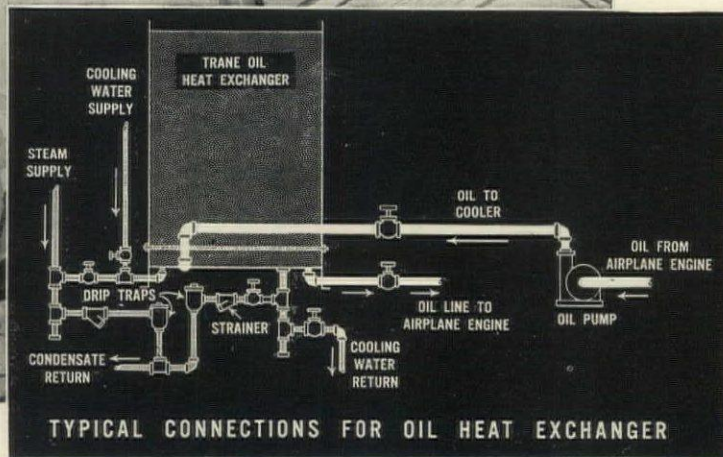
Increased capacity now enables you to get quick action on this proved method of roof support, widely used since 1934 for spans up to 170 ft. and wider. Shorter designing time due to simpler detailing (engineering service available) plus quicker fabrication from readily available material (by patented process, U. S. Patents Nos. 2177395 and 2172093) plus faster erection equals a saving vital in wartime, desirable anytime. Fire-resistance, beauty of over-all functional design and detail of finishing, other basic advantages are amazing to those accustomed to older methods. Used by leading war-construction firms. Get your job under cover fast, with "UNIT" structures. (Deliveries subject to prior commitments). Write, wire, or phone Unit Structures, Inc., Peshtigo, Wis. Plants at Peshtigo, Wis. and Sayville, Long Island, N. Y.

Copyright 1942 Unit Structures, Inc.



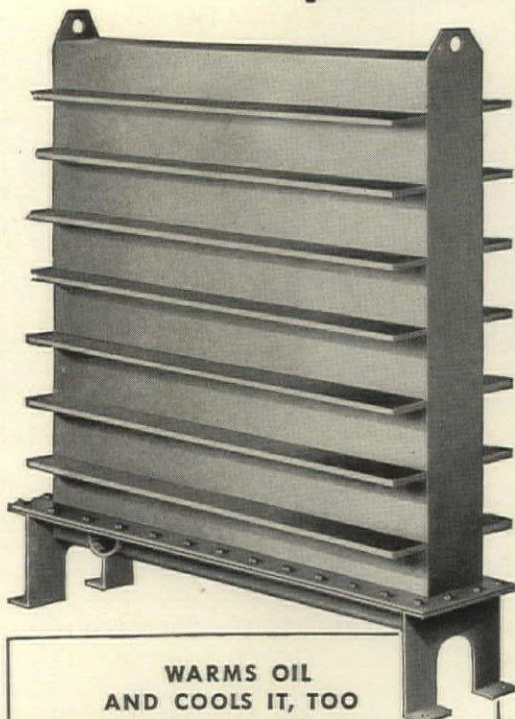


Showing piping connections which make it possible to use the Exchanger for warming oil as well as cooling it.



NEW TRANE OIL HEAT EXCHANGER

speeds aircraft engine testing



WARMS OIL AND COOLS IT, TOO

This Trane Oil Heat Exchanger warms the oil with steam, cools it with water. Externally ribbed to enable the flat surfaces to withstand the necessary pressure without excessive weight. This represents another of the many problems solved through the use of Trane heat transfer equipment of both standard and special design.

AN IMPORTANT producer of airplane engines needed a combination unit to control oil temperature of engines on test. During the starting-up period, the unit was required to deliver warm oil to the engine, and during the running period the unit was required to hold the temperature below a certain limit.

Specifications called for a light, compact, durable heat exchanger that would be easy to mount and take down for cleaning. It had to have a casing that would withstand 30 pounds oil pressure, and, finally, only a limited amount of cooling water could be used.

The Oil Heat Exchanger illustrated here was designed by Trane engineers to fill the requirements. Going a step beyond the letter of the specifications, Trane engineers produced a unit that could be thoroughly cleaned without disconnecting any of the heating, cooling, or oil line piping.

Ask the Trane Man

The facilities of the Trane design engineering department are at the disposal of government and industry in the design of new and refined equipment to meet the many demands created by a nation at war. Because standard Trane heating, cooling, drying, air handling and related products are used in so many fields of industry, Trane engineers have a thorough knowledge of the equipment requirements of industry. Your nearby Trane field office will be glad to furnish additional details.

THE TRANE COMPANY

LA CROSSE, AIR⁷ WISCONSIN

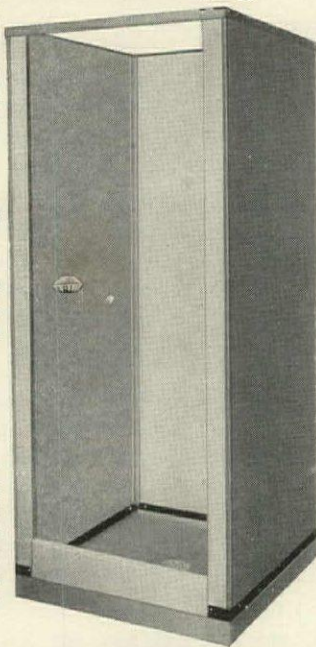
Also TRANE COMPANY OF CANADA LTD., TORONTO, ONTARIO
HEATING • COOLING • AIR CONDITIONING EQUIPMENT FROM 85 OFFICES

Bathe-Rite SHOWER CABINETS

Help you finish
War Building Projects
ON TIME!

Today, when time and labor are precious commodities, Contractors are saving hundreds of vital MAN-HOURS by using BATHE-RITE SHOWER CABINETS on their multiple-shower installations. Attractively styled, made of NON-CRITICAL materials, Bathe-Rites provide truly modern bathing facilities that quickly meet the critical standards of home owners as well as Industrial Plants and Government Departments. Today, thousands are going into War Housing, Camps, Barracks, Factories and other Wartime Building Projects.

Even with unskilled help, BATHE-RITE SHOWER CABINETS can be installed in 25% less time than ordinarily required. Exclusive quick-assembly features make this possible. They're the result of Bathe-Rite's years of experience in developing prefabricated Shower Cabinets of outstanding quality, value and beauty . . . Experience now offered as a valuable contribution to wartime building speed.



WRITE OR WIRE FOR PRICES AND DETAILS

Give name of project and quantity required. Delivery assured on any quantity, when and where needed.

Two Standard Models
Fits Every Need . . .

Bathe-Rite Prefabricated Cabinets come in two sizes (30 x 30 x 75", 32 x 32 x 75", and meets ALL Wartime specifications of U. S. War Department, and Federal Public Housing Authority. Packed for easy handling and assembly.

Bathe-Rite division
MILWAUKEE STAMPING COMPANY

8275 South 72nd Street • Milwaukee, Wisconsin

...QUARTER-CENTURY *Prefabricating experience*



Working
NOW FOR **U.S.**
BUT LATER FOR *You!*

For more than a quarter-century we have specialized in the industrial housing field; we were in the vanguard, too, in establishing the validity of the prefabrication principle.

Now—we are in full production, serving industry in its war requirements . . . After VICTORY, we'll be on the alert to serve industry again in its post-war civilian needs.

BUY A HOME IN THE PEACE TO FOLLOW—WITH THE BONDS YOU BUY TODAY

HOUSTON *Ready-Cut* **HOUSE CO.**
25 years Prefabricating Houses
POLK AVENUE HOUSTON, TEXAS



For Victory today . . . and prosperity tomorrow, keep the War Bond Pay-roll Savings Plan rolling in your firm. Get that flag flying now! Your State War Savings Staff Administrator will gladly explain how you may do so.

If your firm has not already installed the Pay-roll Savings Plan, now is the time to do so. For full details, plus samples of result-getting literature and promotional helps, write or wire: War Savings Staff, Section F, Treasury Department, 709 Twelfth Street NW., Washington, D. C.

**A leading aircraft company
needs engineers, architects, draftsmen,
designers and other technicians . . . and at once**

A LONG ESTABLISHED major aircraft company in Maryland has positions immediately available in the Engineering Department which can be filled by engineers who have *not* had previous aircraft experience or training.

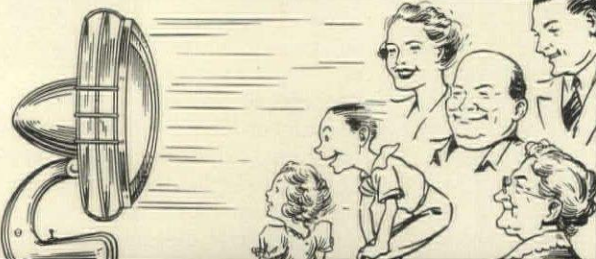
STRUCTURAL, CIVIL, MECHANICAL, AND ELECTRICAL ENGINEERS AND DRAFTSMEN, ARCHITECTS, MACHINE DESIGNERS, ETC., if properly qualified, can be satisfactorily fitted into certain positions in our Drafting, Stress Analysis, and Weights Department.

Our minimum requirements for consider-

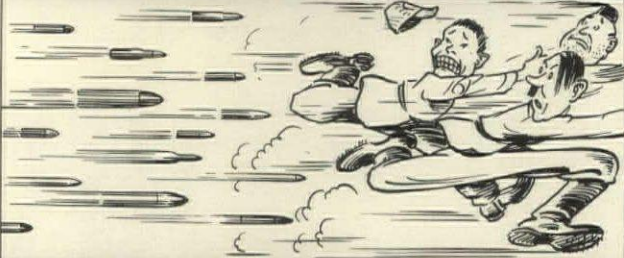
ation for these positions are: high school education (college preferred); age range 28 to 50; five years of actual engineering or drafting experience; American citizens only. Those now employed at their highest skills in war work not considered.

Our present Engineering Department is not large. The opportunities for varied aircraft experience and advancement are great.

Replies should include full details of experience, education, and other background; must include a small non-returnable photograph, and should be addressed to: Box No. F92.



**WE FORMERLY WERE IN THE BUSINESS
OF MAKING IT COOL FOR AMERICANS...**



**OUR WHOLE JOB NOW IS MAKING
IT HOT FOR THE NAZI-JAPS!**

★ Victor Electric Products, Inc. ★
★ CINCINNATI, OHIO ★
★ ★ ★ ★ ★

**PREFABRICATED HOME
MANUFACTURERS
ASSOCIATION**

AFFILIATED WITH THE
NATIONAL INDUSTRIAL COUNCIL
OF THE
NATIONAL ASSOCIATION OF MANUFACTURERS

*Dedicated to the advancement of health,
happiness and security for increasing num-
bers of families by making available
Homes of greater quality, comfort and
economy through the application of modern
mass-production methods.*

Membership by invitation only.

UNION TRUST BLDG.
WASHINGTON, D. C.

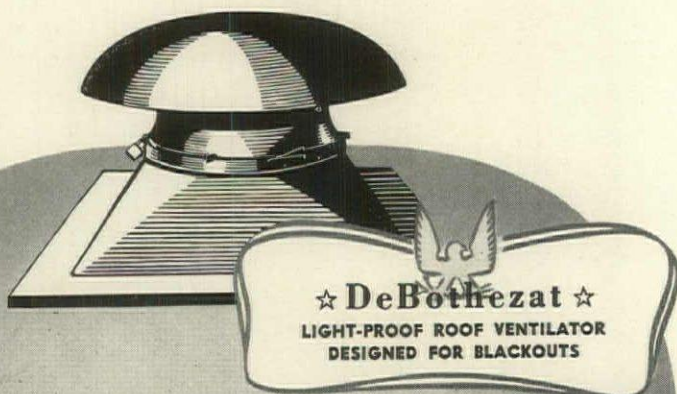
Building Reporter

(Continued from page 122)

STATIC-CONDUCTIVE LINOLEUM. Non-sparking. Provides protection against accidental grounding from service voltages.

Name: Nairn Static-Conductive Linoleum.
Purpose: To overcome the hazard caused by static electricity in the presence of vapors from combustible substances, dust from explosives or any substance which combines with oxygen.

Features: Produced especially for use on floors and tables in powder and loading plants, but is equally useful in other locations such as in hospital operating rooms where explosive mixtures of ether and air may occur. Congoleum-Nairn claims that it meets fully all specifications of Ordnance Dept. Safety Bulletin No. 25, Change No. 1, issued May 28, 1942, for floor and table covering in explosive operations. Other claims include high wear resistance, flexibility, resilience, smoothness and freedom from cracking. Available in a standard width of 6 ft.
Manufacturer: Congoleum-Nairn, Inc., Kearney, N. J.



De Bothezat VENTILATING EQUIPMENT

installed in

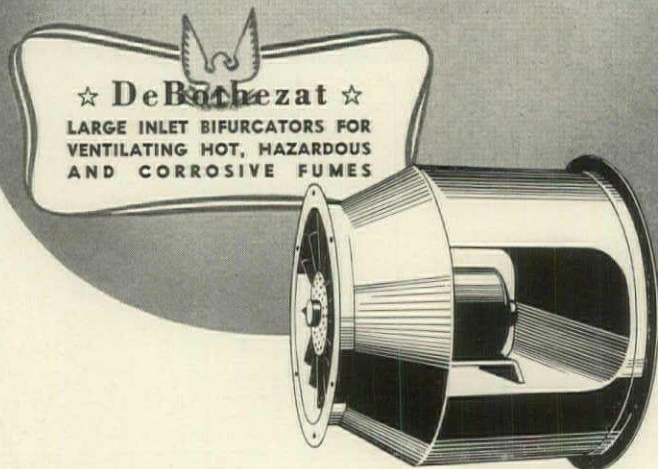
RECENT PLANTS

designed and engineered by

SMITH, HINCHMAN & GRYLLS



AMERICAN MACHINE AND METALS, INC., East Moline, Illinois



WOOD-SWIVELED CHAIRS. Wood swivel replaces metal parts, requires no lubrication.
Name: Velveturn All-Wood Business Chairs.
Purpose: To conserve metal.

Features: Chair spindles made of straight-grain maple revolve in laminated wood hubs fitted with two plastic bearings. The plastic bearings promise to be continuously self-lubricating due to 1) graphite impregnation of bearings, 2) specially processed spindle, and 3) reserve lubrication packed in spindle. Velveturn chairs are available in both executive and clerical models.

Manufacturer: The Sikes Co., Inc., 20 Churchill St., Buffalo, N. Y.

SIGNS, PLAQUES are made of polished black Carrara glass.

Name: Glass Signs and Plaques.

Purpose: To release critical metals for war needs and to provide permanent nameplates and memorials that are impervious to the elements, retain their sparkling finish, do not craze, cannot tarnish.

Features: The plaque has the dual advantage of providing both a temporary and permanent record of names of those serving their Country. As employees or members depart for service their names are painted on the plaque with white or gold paint. When the list is complete the names can be inscribed permanently by sand-blasting, rearranging them in alphabetical order if desired. Emblem is sand-carved and filled with varnish-protected gold leaf.

Manufacturer: Pittsburgh Plate Glass Co., Grant Bldg., Pittsburgh, Pa.

MIRROR AND SHELF combination.

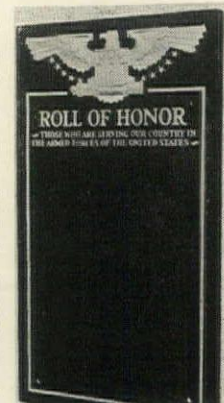
Name: Mirror-Shelf.

Purpose: For use in war houses, trailers and Army barracks.

Features: Consists of a 14x18 in. mirror to the bottom of which is attached an angle of Herculite heat-strengthened plate glass that serves as a convenient shelf. Only 4 bolts are used in its assembly. Price: under \$10.

Manufacturer: Pittsburgh Plate Glass Co., Grant Bldg., Pittsburgh, Pa.

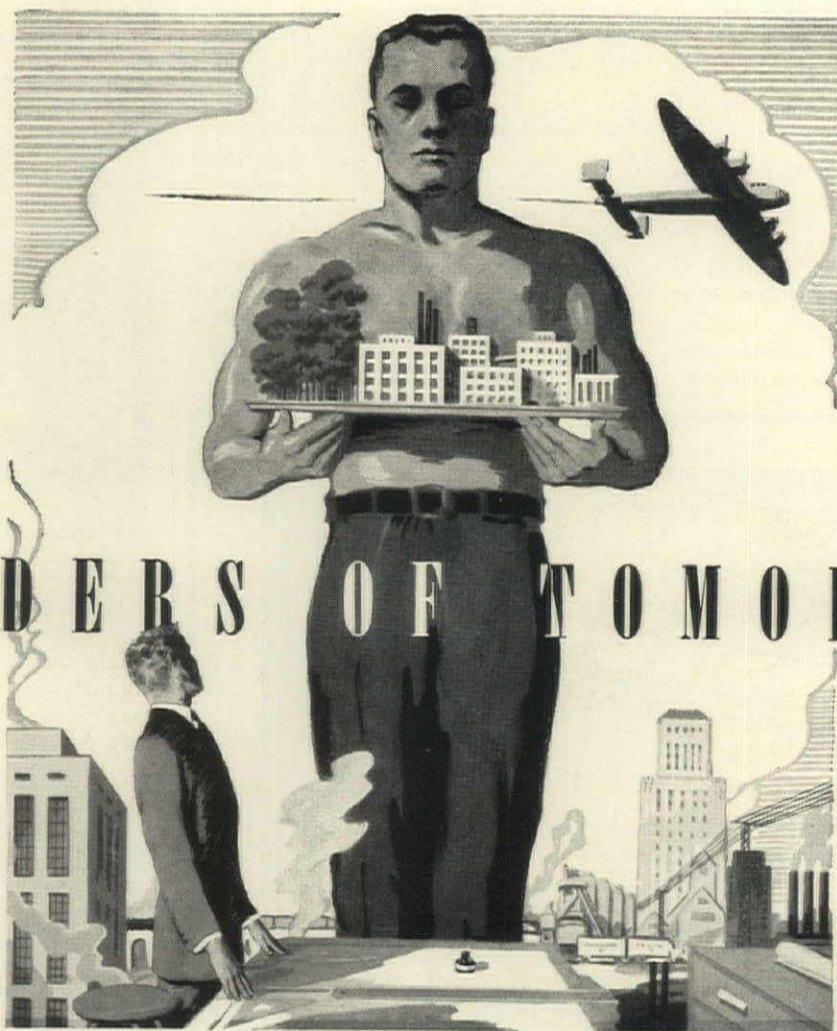
(Continued on page 128)



...TO

YOU

BUILDERS OF TOMORROW



With all the world locked desperately in War, today may seem an odd time to speak of Tomorrow. But tomorrows always come. And while we now devote ourselves almost exclusively to the productions of *War*, we know that today the exciting new world of the Future is taking shape. . . .

Exciting? Yes!—a world not only of amazing automobiles and family airplanes, but also of better living. . . . Economical houses built in mass production to serve mankind as no house has ever served before. Homes, offices, factories of such comfort and convenience as we have never known.

For this new world, we of The Mengel Company will offer many contributions. Our famed Mengelbord and other Plywoods, now being used in ships and war

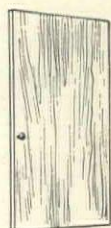
boats and airplanes as well as in famous housing projects will undoubtedly become a staple material. Our Mengel Grid-Core Flush Doors, now being used in many War Housing jobs, may easily grow tomorrow into entire wall-sections. Our vast factories now engaged almost exclusively in War work will unquestionably help to fashion the New World's finer, better houses.

Feeling thus the enormity of tomorrow's opportunity and challenge, we of The Mengel Company know that we see eye-to-eye with all you builders and planners who are now, perhaps subconsciously, designing Tomorrow. And when this War ends, you can count on every facility of production and distribution available from Mengel—America's Largest Producer of Hardwood Products.

THE MENGEL COMPANY

INCORPORATED

LOUISVILLE, KENTUCKY



Mengel Flush Doors are fine hollow grid doors, resin-bonded in hot-plate presses and sealed against both dirt and moisture. All wood parts are *genuine hardwood*. Faces of Gum, Mahogany, Walnut, Birch and Oak.



Mengel Furniture is mass-produced to the specifications of several of America's greatest furniture merchandisers, which makes us one of the largest producers of special-order furniture suites in the world.

Mengelbord is *genuine hardwood plywood*, $\frac{3}{4}$ " thick, in big 4' x 8' sheets. Resin-bonded in hot-plate presses. Faces of Gum, Mahogany, Walnut, Birch and Oak.



Building Reporter

(Continued from page 126)

GLASS treated so as to lower light loss due to reflection.

Name: Non-Reflecting Glass.

Purpose: New and practical method of treating glass to cut down lost light normally reflected from both surfaces. (Light rays passing through a single pane of ordinary glass lose 8% of their intensity

as the result of reflecting as they strike first the outside surface and then the inside surface of the other side as they make their exit through the pane.)

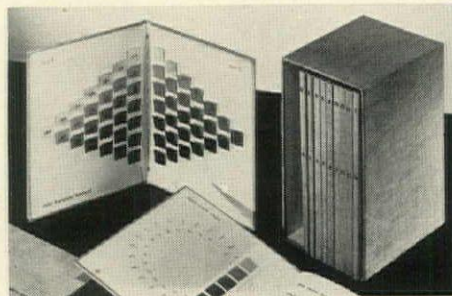
Features: Chemical film on the surfaces of the glass "captures" the light rays which would ordinarily be reflected and adds them to the transmitted rays for their exit through the second surface or other side. The coating, being only six-millionths of an inch in thickness, is so equally applied that there is no distortion of vision. Glass having this new chemical treatment has not yet been placed on the market.

Manufacturer: Libbey-Owens-Ford Glass Co., Nicholas Bldg., Toledo, Ohio.

MANUAL AND INDEX provide easy, sure guides to color selection, furnish an organized way in which to check color matches.

Name: Color Harmony Manual and Index.

Purpose: Standardization of color.



Features: Manual consists of 13 linen-bound handbooks containing 680 movable color chips.* Each chip is marked with a simple notation. They are easily taken out for matching and making color combinations with other chips, are readily returned to their marked positions. Price: \$50 for complete set of 13 books.



Index is made up of 6 bakelite units which open out to a length of 28 in. when in use. Cover snaps up when button is pressed and reveals proper color card. Eight chips* are placed on every card in such a way that exact complements are adjacent. Thus when you find a color, you also locate its harmonious contrast. There are 14 cards (made of celluloid) in each of the 6 compartments, and the number of harmonious color combinations which can be found is infinite. Index comes in a specially-fitted black leather case which also contains a 24-page illustrated book (bound in linen) and two large die-cut charts (also bound in linen). As you read, you insert the chips in these diagrams, and learn by actual manipulation of the colors. Price \$325 for complete 5-piece kit. **Manufacturer:** Container Corp. of America, Color Laboratories Div., 111 West Washington Blvd., Chicago, Ill.

* Color chips (based on the Ostwald color system) were prepared by applying a pigmented film of appropriate color to a base of clear transparent cellulose acetate. This provides a color standard with a dull surface on the side of the coating and a glossy surface on the other side, an advantage in comparing flat colors with inks or wet paint samples.

(Continued on page 130)



Standard Side Wall Sash. One or all may be operative. Note sight lines are the same for fixed glazing and operative sash.

Cypress INDUSTRIAL SASH

*The Most Durable and Practical
Window Units Available*

BUILT for lasting service and minimum upkeep. Sash of clear heart Tidewater Cypress—tank grade. Frames of clear heart California Redwood, complete with hardware and mechanical operators. Everything for the window opening ready for quick installation with the least amount of carpentry work on the job.

Sash are top hung swinging out for trouble-free operation. Extra-heavy hinges at the top, and operator bearers at the bottom, support the sash in a straight plane from

its strongest members. It cannot warp, twist or bind.

Time-Tested—We have installed hundreds of miles of this sash on greenhouses and other buildings where minimum heat losses and weather-tight construction are essential. Installations made more than 50 years ago are in excellent operating condition.

Engineering service available at all offices. Catalogs and detailed drawings give time-saving information. . . . Ask for copies.

LORD & BURNHAM COMPANY

Established Since 1856

420 Lexington Avenue, New York, N. Y.

Irvington, N. Y.
Boston, Mass.

Philadelphia, Pa.

Des Plaines, Ill.
Cleveland, Ohio

Specialized

INDUSTRIAL FLOORING

More than 1/2 million square feet of Kompolite Industrial Sparkproof Flooring installed under specifications and supervision of Smith, Hinchman & Grylls, Inc. All work completed on schedule with finest materials and workmanship . . . without defect or failure.

Kompolite Co. provides a completely engineered flooring service to meet every use with materials which give you rugged, good-looking floors. Low initial cost and minimum upkeep save you dollars on every installation.

Since flooring is the most used and abused part of any building it demands your most careful consideration in writing specifications—KOMPOLITE OFFERS COMPLETE FLOOR ENGINEERING FOR EVERY REQUIREMENT.

Chemically-resistant flooring, Sparkproof flooring for Ordnance Plants and rooms containing explosive gases . . . dustless and sanitary floors for instrument rooms . . . laboratory floors . . . germicidal floors for curbing athlete's foot in locker rooms . . . general purpose industrial floors and decorative floors for office areas.

For the finest of specialized flooring—consult Kompolite.

KOMPOLITE CO., INC.

110 Clay Street

Brooklyn, N. Y.



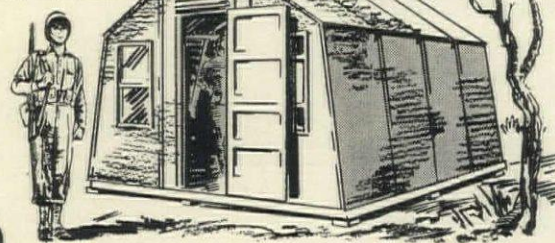
**ANOTHER RU-BER-OID PRODUCT
FIREPROOF, CORROSION-PROOF,
WEATHERPROOF... ECONOMICAL**

For the roofs and sidewalls of industrial buildings, we suggest Corrugated Eternit Asbestos Sheets. Dense, tough, structurally strong, they are fireproof, corrosion-proof, weatherproof—and may be economically applied directly over the skeleton steel or wood framework of buildings. The sheets never require painting—in fact, there is virtually no maintenance cost.

Ideal for chemical, smelting and paint plants, oil refineries, fertilizer works, railways, utility companies. Get all the facts. Write for free catalog . . . Address Dept. AF-12. The Ruberoid Co., Executive Offices, 500 Fifth Ave., New York, N.Y.

**CORRUGATED-ETERNIT
ASBESTOS-CEMENT SHEETS**

Stewart & Bennett
PORT-O-BARRAKS
Write for Information



PREFABRICATION PIONEER

IN February, 1941, Stewart & Bennett mass-produced dormitories of plywood for the F. S. A. in San Diego, forerunner of many such projects. Their early experience in "PRESSURE-GLUED" application of modern synthetic resin plywoods and substitute materials, assures quality production and rapid delivery in quantity.

STEWART & BENNETT

PREFABRICATORS



National City, California



1000 Homes of plywood in 70 working days! Started August 21st, 1941.



BUILDINGS to house War Workers

The workers who move to busy war plant areas must be properly housed, if health and morale are to be preserved. In most localities, new construction is the only answer. The hundreds of thousands of these homes take a vast amount of Stanley Hardware for doors, windows, cabinets, garages.

Because manufacture of hardware has been restricted to release metals for vital war needs, and because existing stocks are of necessity earmarked for defense housing and other government approved projects, the supply available for normal needs is severely limited. The Stanley Works, New Britain, Connecticut.

STANLEY
Trade Mark

STANLEY HARDWARE

Building Reporter

(Continued from page 128)

NEW PRODUCT LITERATURE

ARP. *Blackout, Air Raid Damage and Glass Splinter Protection for Industrial Plants.* Bulletin, 10 pp., 8½x11, well illustrated, describes the effects of bombings and air raids, makes suggestions as to possible precautions. Includes descriptions of Ozite Air Raid Safety Blanket and Ozite Blackout Blanket, either of which assures full blackout protection plus high degrees of protection against flying glass splinters. Clinton Carpet Co., Merchandise Mart, Chicago, Ill.

CALENDAR. 1943 *Weekly Calendar*, 52 sheets, 15½x24½ overall, with elephant-size dates. A section of technical data for the engineer and draftsman is included with charts on wire and sheet metal gauges, screw threads,

etc. Top illustration is printed in six colors. Frederick Post Co., Hamlin & Avondale Aves., Chicago, Ill.

COLOR FOR VICTORY. *Three Dimensional Seeing-Booklet*, 12 pp., 8½x11, explains this new science of Color and Light developed by Arthur A. Brainerd, Supervisor of Lighting Service Section, Philadelphia Electric Co., in collaboration with E. I. du Pont de Nemours & Co., Inc. For years, in industrial plants light has been blotted up by dingy walls, ceilings, floors and—more particularly—by machines which have been generally black or dark gray. They absorbed much of the light that fell upon them and there was no distinction between the machine and the dangerous moving parts. Now, when the bodies of the machines are painted in Horizon Gray, and the working areas in a contrasting hue (Spotlight Buff or Spotlight Green), these danger points show up clearly. Results of research are discussed in the booklet and other industrial uses and advantages of color are presented—such as: for Floors where color reflects light upward; for Safety Markings where it indicates areas of machinery, overhead hazards, exits; for Dados where it provides an “artificial horizon” at which operators

may look to seek eye relief and overcome retinal fatigue; for Piping where it serves as a ready identification for heat, air, water, fuel, and electrical lines. Accompanying the booklet is a *Color Selector for Three-Dimen-*



sional Seeing, 4¼x9¼, (see illustration) and a folder, *How to Use the Color Selector for Three-Dimensional Seeing*, 8 pp., 4½x9. E. I. du Pont de Nemours & Co., Inc., Wilmington, Del.

ELECTRICAL. *Industrial Circuit Control Switches.* Folder, 4 pp., 8½x10. Toggle and push button switches shown are for use in signalling equipment, communication apparatus, instrument panel boards, utility lighting systems, specialized lighting equipment, aircraft circuit control systems, etc. Wiring diagrams of all switches, and specifications of assembly parts are given. General Electric Co., Bridgeport, Conn.

TRACTOR OPERATION. *Keep 'Em Working, Form No. 7609.* Handbook, 44 pp., 5¼x8¼, supplements *Operator's Instruction Book*. Designed to aid owners of “Caterpillar” products in getting the most out of their machines. Gives reasons behind maintenance and operation instructions. Attractive format. Caterpillar Tractor Co., Peoria, Ill.

FIRE RETARDANT. *The New Weapon Against Fire.* Brochure, 18 pp., 11x14, outlines the war dangers of fire and introduces Firepel, an aqueous solution of fire retardant chemicals designed for application by brush or spray on unfinished wood surfaces to retard the spread of fire and allow time to organize effective fire fighting. One gallon will cover approximately 200 sq. ft. with two coats, and the treated wood will maintain its fire retardant properties indefinitely when not exposed to weather. Brochure is lavishly illustrated. Albi Chemical Corp., 9 Park Pl., New York, N. Y.

PAINT. *The National Paint Dictionary*, Second Edition, by Jeffrey R. Stewart, Editor of *The National Paint Bulletin*. Reference volume, 224 pp., 9x12, bound in green Fabrikoid, price \$7.50. Contains, in one alphabet, definitions of terms used in the paint and allied industries, along with information regarding names of chemicals, raw materials, methods of analysis, equipment and apparatus employed. Numerous illustrations, charts, tables. Stewart Research Laboratory, 1340 New York Ave., N. W., Washington, D. C.

PLYWOOD. Two new pieces of basic literature on Douglas Fir Plywood, in looseleaf form with attractive, durable cloth covers: (Additional material to fit the binders will be mailed to those receiving them as it becomes available.)

1) *Technical Data on Plywood*, 39 pp., 9x12¼. In this folder are four sections: Physical Properties of Fir Plywood, Designing with Plywood, Preventing Condensation in Walls and Roofs, Deflection. Supplementing the text are many illustrations, a table of approximate methods for calculating the strength of plywood, a table of moments of inertia, and charts and diagrams relating to strength properties under tension, compression, flexure and shear.

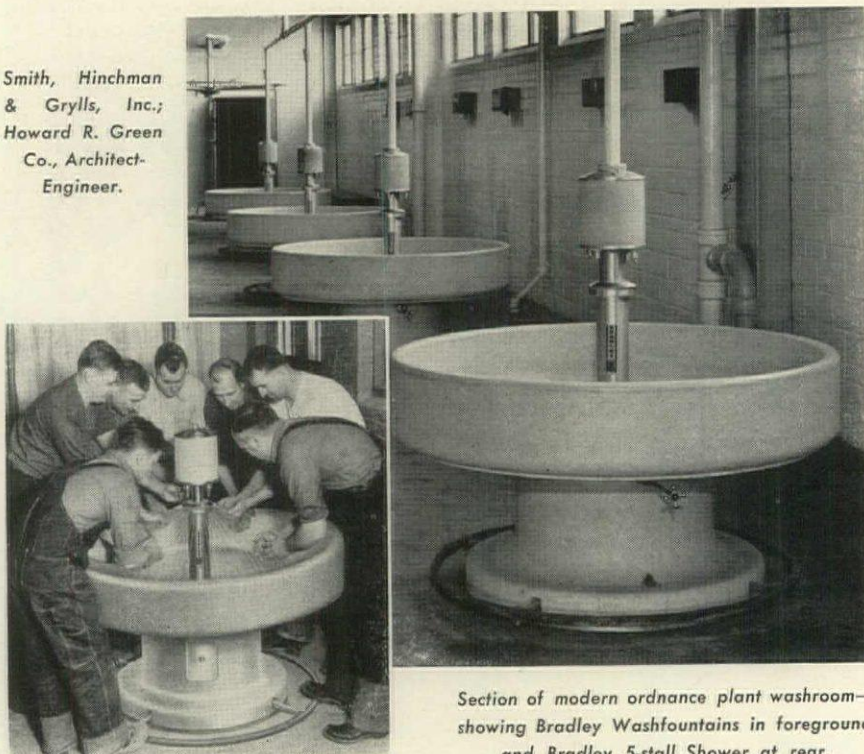
2) *Handbook of Industrial Uses of Plywood*, 76 pp., 9x12¼. Comprised mostly of reprints of articles depicting and describing in detail the part plywood is playing in building barrels, assembly racks, crates, railroad cars, grain bins, dehydrating plants, trailers, signs, blackout panels, marine parts, etc. Douglas Fir Plywood Assn., Tacoma Bldg., Tacoma, Wash.

SAFETY SWITCHES. *Bulletin No. 42-10*, 8 pp., 8½x11, sets forth features and advantages of the new Federal Weatherproof, Dust-Tight, Heavy-Duty Safety Switches. Includes illustrations, a cross-section photo, a table of various models, list prices. Federal Electric Products Co., 50 Paris St., Newark, N. J.

WALL PANELS. *The Perfect Answer to America's Need for Greater Speed in War Housing.* Booklet, 21 pp., 8½x10½, illustrates and describes Upson Strong-Bilt Panels for interior wall and ceiling linings which are being used in war housing projects by large prefabricators. The Upson Co., Lockport, N. Y.

WINDOWS. *Cypress Sash for Industrial Building.* Catalog, 14 pp., 8½x11. Carefully prepared array of technical data on practical, durable window units with sash of Tidewater Red Gulf Cypress, frame of clear-heart California Redwood, furnished complete with mechanical operators ready for installation. Lord & Burnham Co., 420 Lexington Ave., New York, N. Y.

Smith, Hinchman
& Grylls, Inc.;
Howard R. Green
Co., Architect-
Engineer.



Section of modern ordnance plant washroom—
showing Bradley Washfountains in foreground
and Bradley 5-stall Shower at rear.

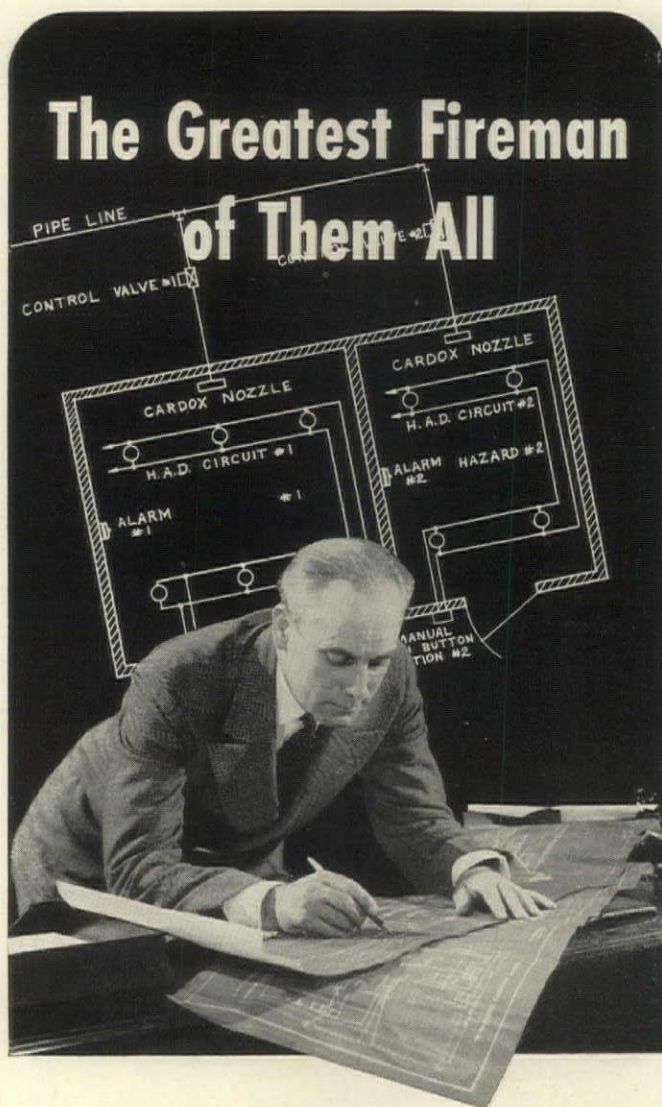
How Leading Architects—Engineers Solve the Washing Problem

In ordnance and munitions plants of all kinds—in essential war plants, modern washrooms are considered vital to production, because physicians experienced in industrial work consider sanitary washing an important Dermatitis preventive.

Bradley Group Washfountains as shown above are the fixtures universally installed. Eight to 10 wash simultaneously at one Bradley, the central sprayhead supplying each person with his own clean running water. Bradleys provide more washing facilities in a given space—reduce the number of piping connections by over 80%. Only three are needed for a Bradley serving nine persons as against 27 required for nine conventional “single-person” washbasins,—a big saving in critical materials, installation labor and maintenance.

Our experienced Washroom Consultants are ready to make floor plan suggestions and “Washroom Layout Booklet” containing a dozen or more floor plans will be mailed on request . . . BRADLEY WASHFOUNTAIN CO., 2235 W. Michigan Street, Milwaukee, Wisconsin.

BRADLEY
Washfountains



The Architect "Who Puts Out Fires" When His Work Is in the Specification Stage

Architects who check into it generally recognize this:

Built-in Cardox Systems with large CO₂ capacity (tons, if necessary) are the MODERN means of saving buildings from big fires, little fires, multiple fires, without damage by the extinguishing medium.

They know the idea has been OUT-MODED that "fire extinguishers" are something to be added casually after the building has been completed.

Cardox Systems, specified for the job, engineered to the job, afford protection to many of the largest

war production plants. Under most severe hazards, Cardox application of mass discharge of cold carbon dioxide, stored at controlled low temperature for uniform fire-extinguishing characteristics, has proved to be today's answer to fire prevention.

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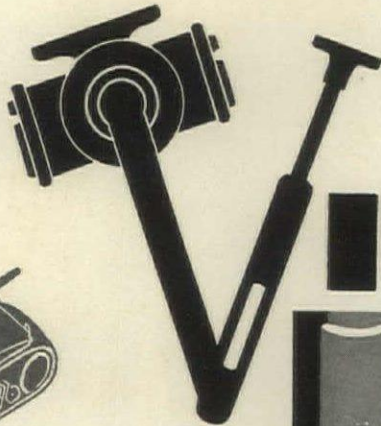
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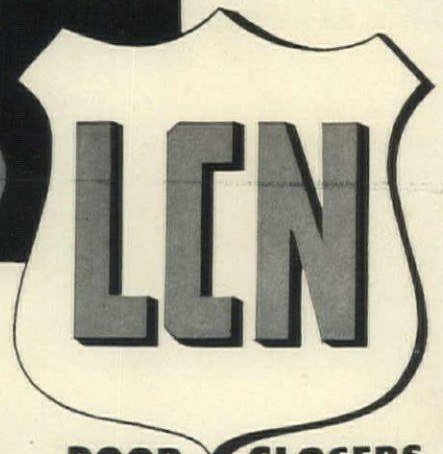
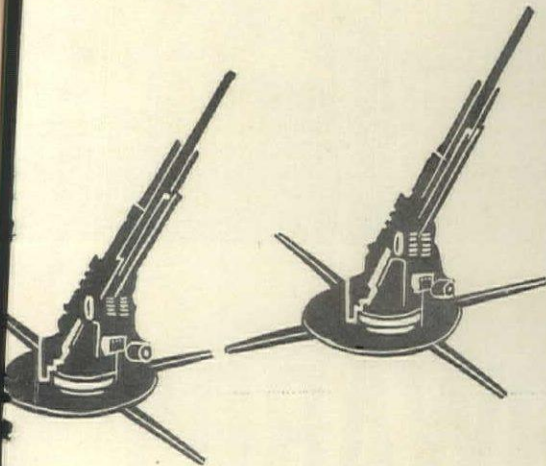
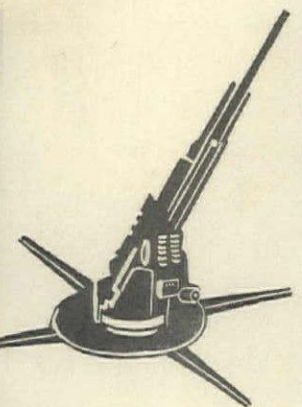
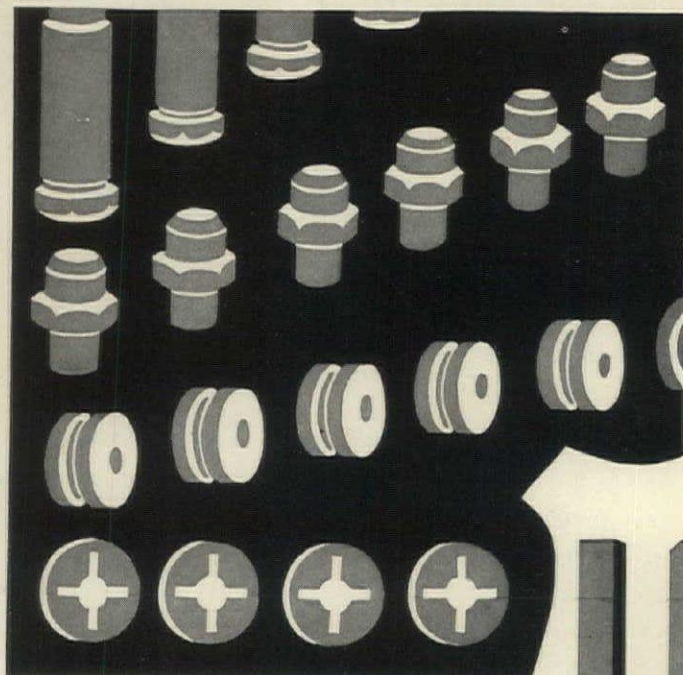
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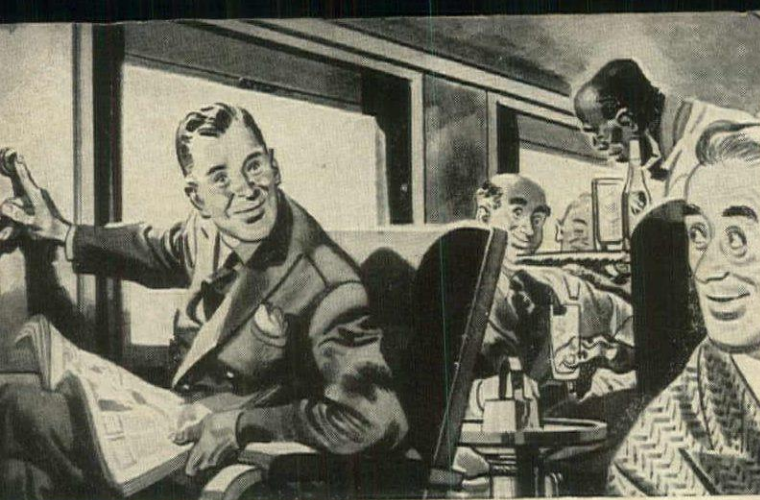


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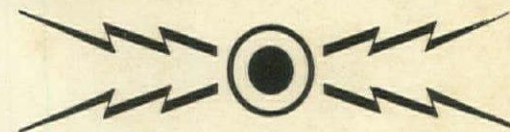


● The giant mechanical ears pick up the distant drone of enemy planes. The control station buzzes a signal... sweeping shafts of light probe the blackness of the sky. Suddenly the searchlights find their prey. Again the Edwards buzzer sounds... and the ack-ack begins its deadly work. To anti-aircraftmen, to pilots, to tankmen, to men in our merchant marine, Edwards signaling equipment performs significant service assuring the utmost in reliability when life and death are in the balance...

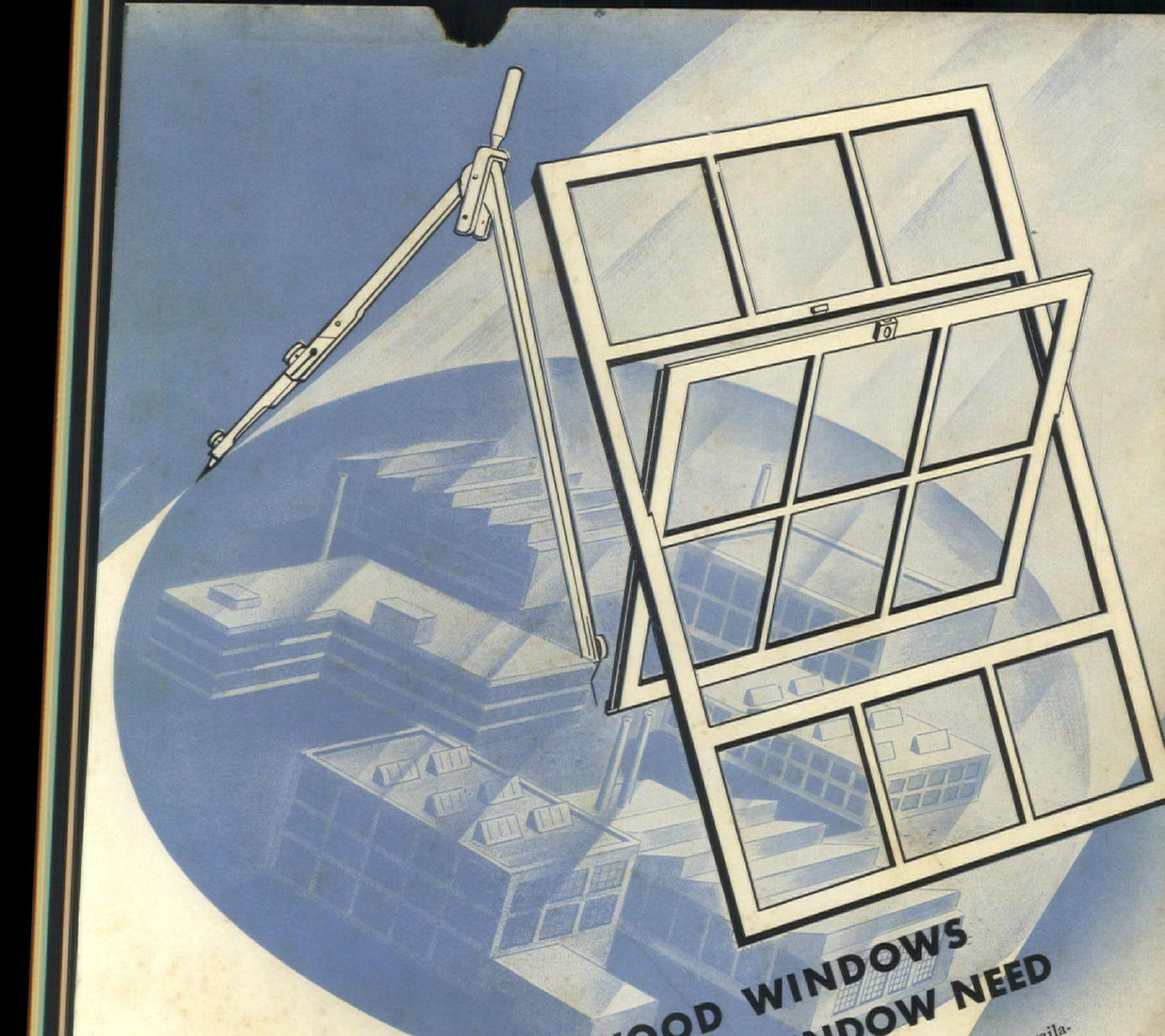
194?... Today's production at Edwards is at fever pitch for war... but research for tomorrow goes steadily on to assure distributors the best in peacetime signaling for the contractors and industrialists who will reconstruct a war-torn world.

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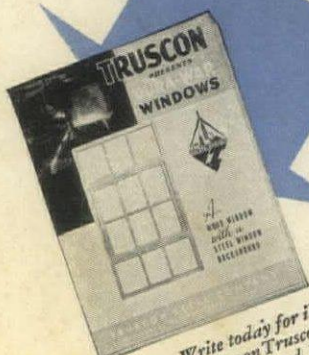
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When Minutes Count-
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IMPORTANT!**

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and STAMPS**



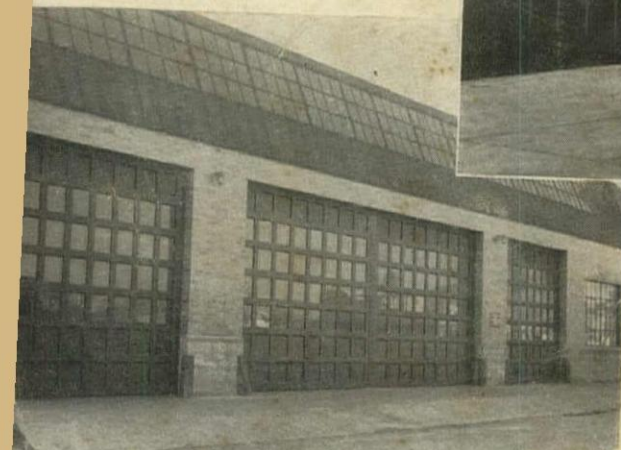
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