

Why American Airlines ordered another Ozalid Machine



SALESMAN'S REPORT

Salesman J. A. Travis Date August 13, 1943
 Company American Airlines, Inc.
 Address LaGuardia Airport, City, N.Y.
 Interviewed Mr. P. Hayes, Engineering Dept.
Mr. Marvin Whitlock, Asst. Chief Eng.

The proof of the pudding lies in the eating. AMERICAN AIRLINES wants another machine — a faster model which will handle all of their reproduction work. They've had a Model F six months now and it's a "hit" with their Engineering Department and the men in the shop. In the future, print production will be 100% Ozalid White-prints — no blueprints.

Some of the things they like about Ozalid are:
 A. A single operator can handle large-volume production.
 B. There are no chemical baths, driers, or plumbing connections. Consequently, an Ozalid machine is compact... and may be installed in any corner of the drafting room.

C. You can make prints having blue, black, or maroon lines on a white background in one continuous operation. These are easier to read and check than blueprints.

D. You can make duplicate originals in the same manner as standard prints — without Van Dyke difficulties. These may be substituted for valuable originals in subsequent print production... or they may be employed by the draftsmen to eliminate retracing when making design changes.

E. An Ozalid machine is a "servant" and not a "master"... In other words, once you start a blueprint machine you have to keep feeding your tracings or you will waste paper. With Ozalid, however, you don't have to keep pace with a paper roller. You can use sheets cut to the size of your originals and feed as the demand arises.

All-in-all they're using Ozalid to reproduce engineering drawings, weather charts, flight analyses, office forms, and isometric drawings. What's most important — they're saving time, labor, and materials.
 Please quote delivery on Model B with AA-1 priority.

P. S. Some Ozalid users on the Production Front

1. Grumman Aircraft Engineering Corp.
2. Hazeltine Electronics Corp.
3. Republic Aviation Corporation
4. American District Telegraph Co.
5. Prudential Insurance Co. of America
6. International Telephone & Telegraph Corp.
7. Carl L. Norden, Inc.
8. Ingersoll-Rand Company
9. American Stove Company
10. Pan-American Airways System
11. Cramp Shipbuilding Co.

SEE FOR YOURSELF—SEND FOR CATALOG

OZALID PRODUCTS DIVISION

GENERAL ANILINE AND FILM CORPORATION

JOHNSON CITY, N. Y. ★ OZALID IN CANADA — HUGHES OWENS CO., LTD., MONTREAL



In Planned Anticipation

ALTHOUGH Revere's production is now entirely devoted to war demands, it has not forgotten post-war necessities. Already its technologists are preparing to meet the future demands of the building industry for better roofing, flashing, pipe, tube and architectural shapes in copper and its varied alloys.

Beyond that, Revere is currently fostering, in its national advertising, the growing interest of the public in various phases of post-war housing and community improvement by featuring the ideas of some leading American architects and designers on the subject. The project of Messrs. Stonorov and Kahn, as detailed on the opposite page, is an exact case in point.

Revere is certain that such a concerted effort to encourage an increased appreciation of what may be the building trends of after-Victory, inevitably benefits everybody concerned with the industry: architect, builder, contractor, realtor, manufacturer and financier. Naturally, Revere is convinced that the use of copper and its versatile alloys will make any building more durable, better to look at, better to live in, better to own, rent or sell.

Meanwhile, we suggest you send today for your free copy of "Why City Planning Is Your Responsibility", by Messrs. Stonorov and Kahn. Address our Executive Offices, 230 Park Avenue, New York.



How to IMPROVE Your Neighborhood —TODAY



We feel that post-war housing projects can't be considered merely as a question of overnight development through elimination and new building. It would be impossible to find all the money and manpower to do such a job everywhere at once. After all,

many urban sections need only minor adjustments to stop disintegration. Instead of waiting for the post-victory "boom", wouldn't it be more practical to develop TODAY a technique of neighborhood "face lifting"?

So we picked a declining, congested neighborhood in a big Eastern city. A modern schoolhouse provides a ready-to-use nucleus for future community effort. . . . As our sketch shows, we feature a Children's Playground, with pool. Comfort, safety and supervision are all provided. Our complete plans also envisage a Playclub for teen-age children. Provided, too, is an adult Recreation Building. It is adjacent to a modern apartment house,

with retail shops under the same roof. Ample parking space is nearby.

For the single-family house dwellers, a consolidated shopping center is provided. Backyards disappear—have become, in fact, miniature parks. Vanished, too, is through traffic—the abandoned streets have been converted to parks and recreation.

Admittedly our job can't be done in a day. It takes time to get organized. But the initiative in this—or any similar neighborhood improvement—rests with the families that live therein. Get started. Contact existent housing groups in your community and try to get their backing. It is possible to revitalize your neighborhood without destroying it!

Naturally, in any such rehabilitation, copper and its versatile alloys will play a big part in filling the builder's various requirements.

Revere offers a free booklet giving more detailed information on this neighborhood project. Write for it today.

OSCAR STONOROV
LOUIS I. KAHN

After the war, whole cities will be literally reborn, made more truly functional than ever before. Revolutionary materials and the method of their fabrication will reduce costs of building and at the same time provide a measure of comfort and convenience unheard of today.

Revere does not build houses or expect to in the future. But Revere knows that in the Buildings of Tomorrow, copper and its alloys will play a role greater than ever. Today in existing houses, Revere copper gives lasting weather protection, helps decrease heating costs. It insures rust-free water and baffles invading termites. But in post-war days ahead, there awaits a startling array of new devices and contrivances that will make our homes better to own, or rent, or sell.

Today we're working 100% for Uncle Sam. No copper is available except for war. But Revere technicians are preparing for that era of happier living that will be the award of VICTORY.

Naturally, in this limited space, Messrs. Stonorov and Kahn could describe only the high lights of their neighborhood rehabilitation project. For more information, write to Revere for free illustrated booklet.



REVERE
COPPER AND BRASS INCORPORATED
Founded by Paul Revere in 1801
Executive Offices: 230 Park Avenue, New York

This advertisement appears in Saturday Evening Post, July 3, 1943

No matter what kind of homes they want



You can still use Radiant Heating ... and

BYERS WROUGHT IRON

Large homes are "out" for the duration, and just what form the post-war taste will take can't be foretold. But one thing is sure; the houses of tomorrow, whether big or small, will still need heating, and Byers Wrought Iron Radiant Heating will do the job with maximum comfort, economy and satisfaction.

All sorts of evidence has been presented of the advantages of Radiant Heating in small homes. This installation demonstrates its excellence in large ones. The house was designed by W. N. Caton, Architect, for R. L. Hoover of Oklahoma City, Oklahoma. It has 16 rooms, two stories, and a basement under part of the house. Radiant Heating is used under the cement-flagstone floor of the basementless portion. The design was based on information in A. M. Byers Company technical bulletins, supplemented by the architect's experience with Radiant Heating in his own office building.

After a winter in which temperatures reached the 2-below level with a 25-30 mile wind, the owner reported that everything worked fine ... and that he was certainly glad he put in Radiant Heating!

The best indication of the wisdom of considering Radiant Heating for both current and contemplated projects is the enthusiasm of present users. Byers Wrought Iron "permanizes" the advantages. In most installations, the heating coils are embedded in concrete or plaster. Wrought Iron has a coefficient of expansion practically identical with these materials, so there is no threat of cracking, loss of bond, or stressing of the pipe. Wrought iron's heat transfer is excellent. It

can be readily formed and welded. Its resistance to the corrosive conditions involved has been demonstrated hundreds of times over. Technical bulletins, "Byers Wrought Iron for Radiant Heating Installations" and "A Working Method for Calculating a Floor Type Radiant Heating System," sent on request.

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



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COSTS YOU MORE THAN
WROUGHT IRON

BYERS
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ELECTRIC FURNACE ALLOY STEELS · OPEN HEARTH ALLOY STEELS
CARBON STEEL TUBULAR PRODUCTS

ARCHITECTURAL RECORD

COMBINED WITH AMERICAN ARCHITECT AND ARCHITECTURE

VOL. 94

NO. 4

OCTOBER • 1943

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H. JUDD PAYNE, Vice-President in charge of Magazine Division



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*A wartime
that serves*

*Flush valve
in two ways*



For simplified specification data on Watrous "V" Flush Valves, ask for Bulletin 858-W or see the 1943 Sweet's Catalog File, Sec. 27, Catalog No. 39.

★ The "V" Model Watrous Flush Valve (1) saves critical materials needed for the war and (2) provides a sturdy, dependable flush valve for wartime needs.

This "V" Model is strongly and substantially built and it retains Watrous time-proven construction features. Where brass and bronze have been eliminated, it utilizes principally alternate metals which have been carefully selected for strength and durability. All impor-

tant parts of the vital operating unit—the piston—remain of brass construction.

Like all Watrous Flush Valves, the "V" Model offers a water saver adjustment which enables the valve to be regulated to the MINIMUM water requirements of the fixture on which it is installed.

Built in a wide range of combinations to meet every type of application called for in wartime projects.

THE IMPERIAL BRASS MFG. CO., 1240 W. Harrison St., Chicago 7, Ill.

Watrous Flush Valves

WASHINGTON NEWS

Disposition of government owned property. Postwar construction planning. Sales of rental housing. Co-ordinated adjustment procedure. War housing standards.

The disposition of government owned property is fast taking its place as one of the leading problems both as to the present and as to postwar planning. Nearly a billion dollars worth of used and idle machinery and equipment is now ready for sale under a program recently announced by the Redistribution Division of the War Production Board, and the Federal Property Utilization Branch of Treasury Procurement. This program includes only the disposition of surplus machinery and equipment and is being accomplished by administrative action.

Emphasis at the present time is mainly on the utilization of surplus property, and efforts are being made first to discover whether some other branch of the government may not be able to use the items in question. If no branch of the armed services needs any of the surplus property, the Federal Property Utilization Branch of Treasury Procurement tries to dispose of it to other government departments. If no utilization can be made thus, disposition is being made by sale to private business.

More important than this type of sale is the disposition of surplus property in the form of government owned plants and real property. Hearings are scheduled to start within the next two weeks on the bill introduced in the House by Representative Carter Manasco of Alabama. This proposed legislation would establish a commission made up of business, government and public representatives to direct the disposition of government owned plants and lands used in the war effort. The bill has strong backing, including the endorsement of the National Association of Real Estate Boards. Members of the Public Building and Grounds Committee of the House are rather non-committal at this time, however.

Construction planning after the war

The entire construction industry may be faced with an ominous picture at the termination of hostilities. Only

limited quantities of construction machinery and equipment have been produced for private use during the past two years. For the current year almost 90 per cent of all such equipment has been allocated for military purposes.

There has been a steady decline in construction on the home front, but increasing military and Lend-Lease demands will call for about 21 per cent more construction machinery than was produced last year. With military needs requiring all types of heavy construction equipment, a fast growing scarcity of such items is already being felt by the building industry.

It is now generally conceded in most postwar planning circles that construction will play one of the leading roles in postwar developments. Officials recognize that heavy equipment is an absolute necessity before giant construction programs can get the "green light." Discussions are being held to determine future requirements for the

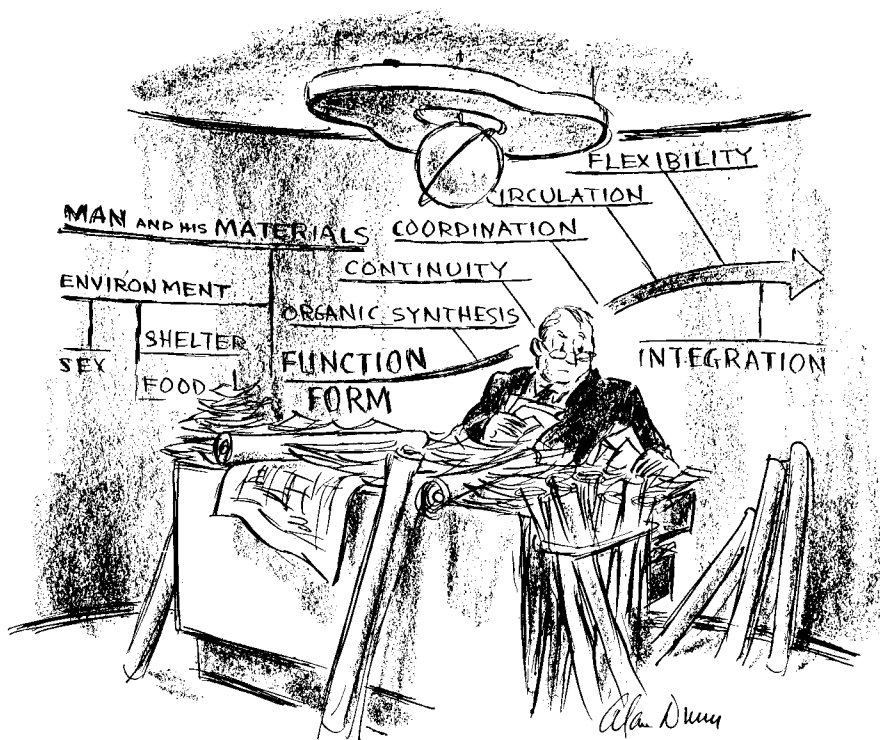
military and Lend-Lease, so that manufacturers of this type of equipment may schedule production with a view toward supplying private domestic contractors as soon as possible.

Sales of rental housing

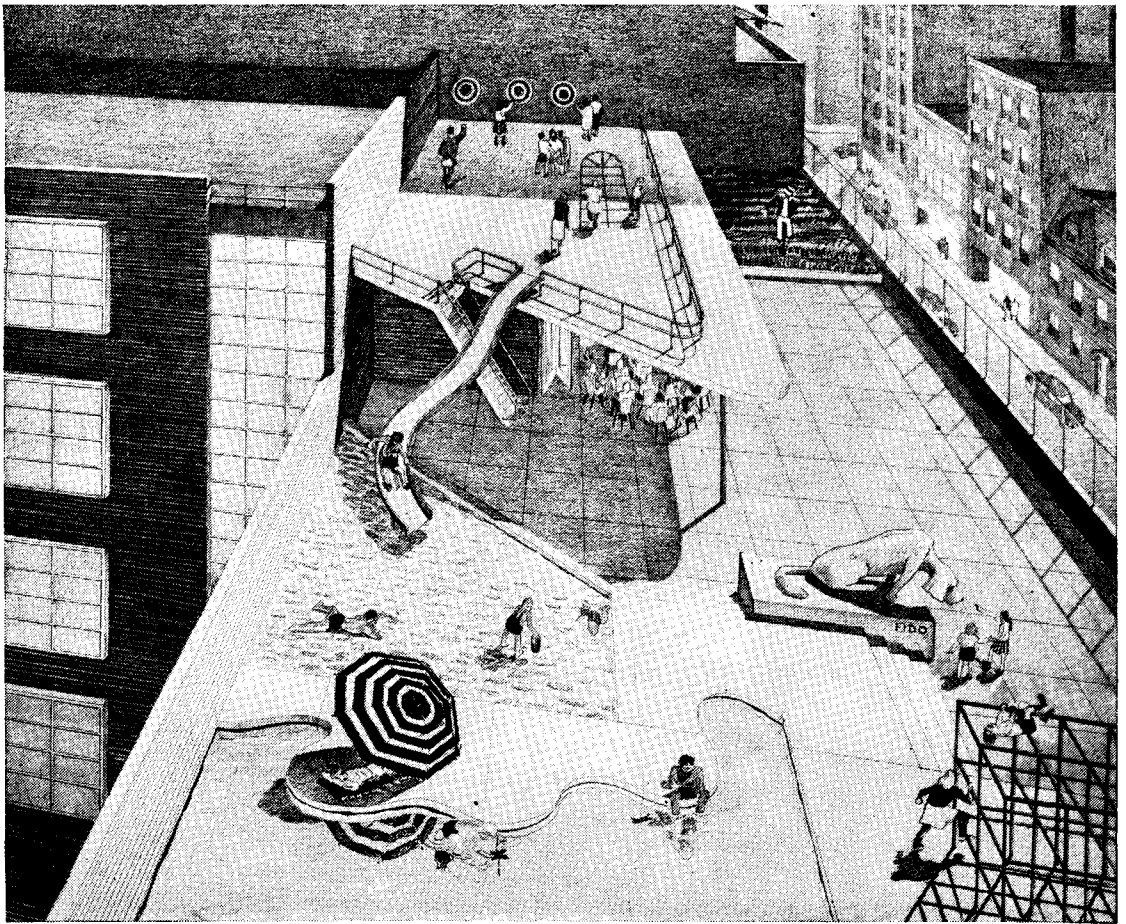
A liberalization in the regulations controlling sales of rental housing has been announced by a recent OPA action. Owners of war housing now rented may sell such property to bona fide purchasers who are war workers, upon the receipt of a down payment of 20 per cent of the full purchase price. The original requirement of a 33 1/3 per cent down payment has been under fire by private housing owners. It is believed that the new regulation will offer an incentive to more private construction.

Officials here in Washington state that the lower down payment requirement will be under close scrutiny and may be only a temporary action. If abuses are found to the extent that the liberalized requirement will allow extensive rent control evasions, the 33 1/3 per cent down payment may be re-established.

(Continued on page 10)



—Drawn for the RECORD by Alan Dunn



ELEMENTARY SCHOOL IN 194X

● Here is a lively suggestion and a practical one for broadening the facilities of the modern metropolitan school building—for bringing study and recreational activities out into the fresh air and sunlight in areas where space is limited.

By transferring the ground surface area to the top of the school structure, valuable play and study space has been provided outdoors and where the children are safe from harm. The roof development incorporates a variety of unusual features: exercise and game areas, a garden project, a wading pool and sand "beach," a shaded classroom—all separated by distances or levels which insure minimum interference. The street side is faced with a fence of transparent plastic.

In creating this original plan, the team of

J. Stanley Sharp, architect, and Jedd S. Reisner, designer, have added to a growing record of successful achievements which include prize-winning designs and, most recently, special research in prefabricated housing.

The utilization of hitherto neglected roof space is a definite trend in current architectural design. And Barrett Specification* Roofs, because of their adaptability and dependability, are ideally suited to this advanced type of construction. In fact, Barrett Roofs are already part of many modern developments, such as the famous Rockefeller Center roof gardens. Standard for flat-roof construction since 1854, Barrett coal-tar pitch and felt roofs find increasing acceptance among the practical planners of our post-war world.

*Trade-mark Reg. U. S. Pat. Off.

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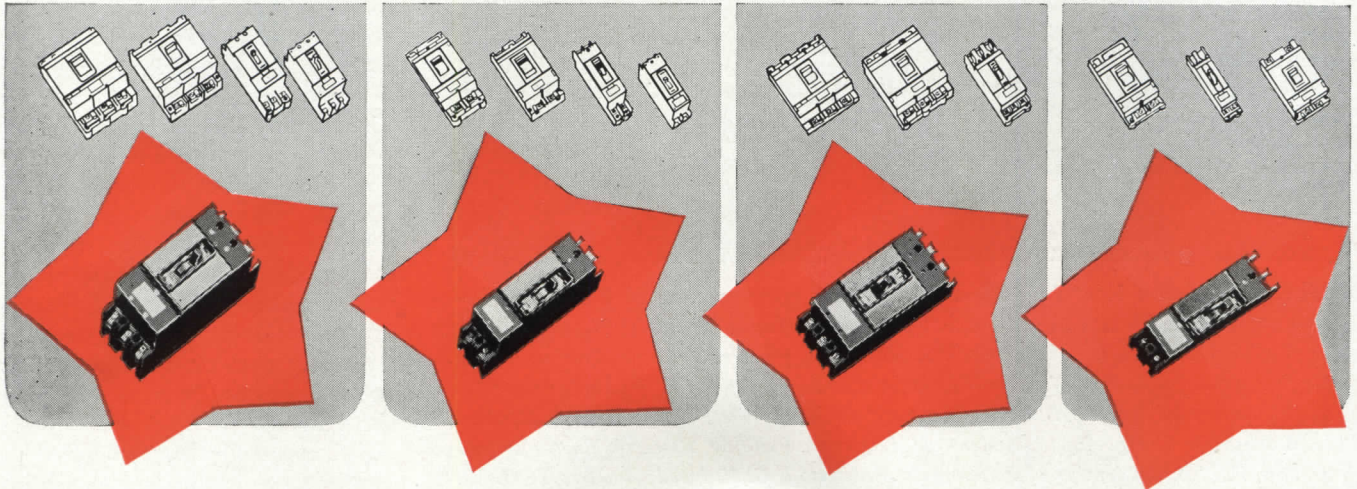
Birmingham,
Alabama



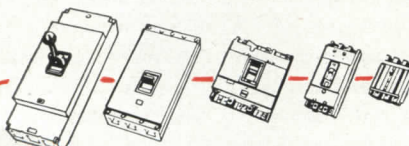


4 breakers


TAKE THE PLACE OF 14




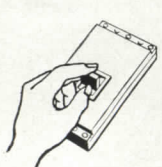
- TO SAVE 18% COPPER
- TO SAVE 38% STEEL
- TO CONSERVE SPACE
- TO IMPROVE CIRCUIT PROTECTION



Nofuze "De-ion" Breakers

 — prevent *harmless* overloads from interrupting war production.

 — protect circuits from *dangerous* overloads and "shorts."

 — restore service *instantly* with just a flip of the switch.

As a voluntary war measure, Westinghouse has "mobilized" the Nofuze line of "De-ion" Breakers. For example, all ratings from 15 to 100 amperes have been made available in one compact frame size. Instead of 14 models, 4 now serve the same purpose. Pole spacing and terminal arrangements have been made standard for interchangeability. Space is saved—vital materials are conserved.

Today, the production of Nofuze Breakers is concentrated on war requirements. Our engineering facilities are serving all branches of the war effort on a broad consulting basis.

Result: many far-reaching developments are being made . . . overload protection of low-voltage circuits has been greatly improved. If you have a war circuit problem, ask your Westinghouse representative for engineering help. Westinghouse Elec. & Mfg. Co., East Pittsburgh, Pa., Dept. 7-N. J-60523

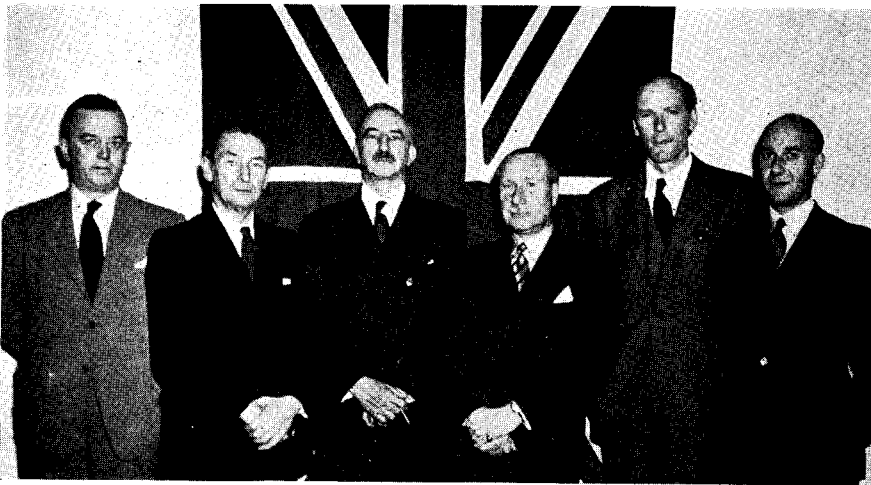


Westinghouse

PLANTS IN 25 CITIES... OFFICES EVERYWHERE

NOFUZE CIRCUIT PROTECTION

(Continued from page 7)



"Britain's Plans are bold" for postwar housing and contemplate more houses per year than ever before. To that end key men, The British Building Mission in North America, are studying U. S. building methods, materials, costs, plans and policy. Members of the Mission, photographed at a luncheon given in their honor by the F. W. Dodge Corporation (from left to right): J. B. Harris, secretary; Sir James West, Chief Architect, Ministry of Works; Sir George Burt, Builder and Engineer, Building Research Board; Alfred Bossom, F.R.I.B.A., Member of Parliament, Architect; J. C. R. Head, Builder; T. G. W. Boxall, Civil Engineer. Absent, Frank Wolstencroft, Trades Union leader.

Coordinated adjustment procedure

The WPB has devised another controlled material plan which will be known by the letters "CAP." The letters may stand for one of two plans—"Coordinated Adjustment Procedure," or "Controlled Allotment Plan." Whatever the name, it is designed to integrate the flow of critical materials other than those controlled by the present plan. The new plan probably will supercede all present procedures for applying for materials which are under special allocations.

Under the proposed plan, such critical materials as are now allocated monthly under various WPB Conservation Orders, will be doled out quarterly as are materials under the Controlled Materials Plan. The distribution of these materials not now controlled by CMP will be handled by the Industry Division with which a producer primarily deals. One of the main purposes of the plan is to provide a simplified form identical for obtaining all materials that may come under this program.

The plan eventually will include all materials now under separate allocation procedures. To procure such materials will necessitate the filing of an over-all application form. It will be

necessary for all contractors requiring any of the materials coming within the scope of this program in quantities greater than "small requirements" to apply to WPB for such materials whether or not they are now under CMP.

The new plan, which has the backing of top-ranking WPB officials, may become a great aid to the construction field. It will be necessary only to file a single quarterly application giving a contractor's needs for specific construction projects and for maintenance, repair and operating supplies for necessary repairs to existing structures. Thus far the Construction Division of WPB has given little indication as to the practical allotment of available building supplies under the proposed plan. Should the plan eventually materialize, it is admitted that all future planning and procurement for construction purposes may be placed on a par with manufacturing. The plan as it now stands will be most beneficial to users who deal primarily with a single WPB Division. This is a point in favor of construction planning. The scope and importance of the proposed plan is still in a nebulous state. Developments should be watched most carefully by construction planners.

War housing standards

As reported in last month's ARCHITECTURAL RECORD, the lumber situation has reached a critical stage. The situation has become so acute that there has been proposed a downward revision in the war housing construction standards as amended last January. Whatever changes may be made, one primary objective will be to conserve critical lumber supplies. The NHA has estimated that the entire war housing program entails the consumption of two billion feet of lumber annually. Here in Washington, men familiar with the construction industry state that housing designs must veer from frame to masonry. In revising the present standards it has been suggested that in masonry areas the maximum allowance for one-story structures be materially reduced.

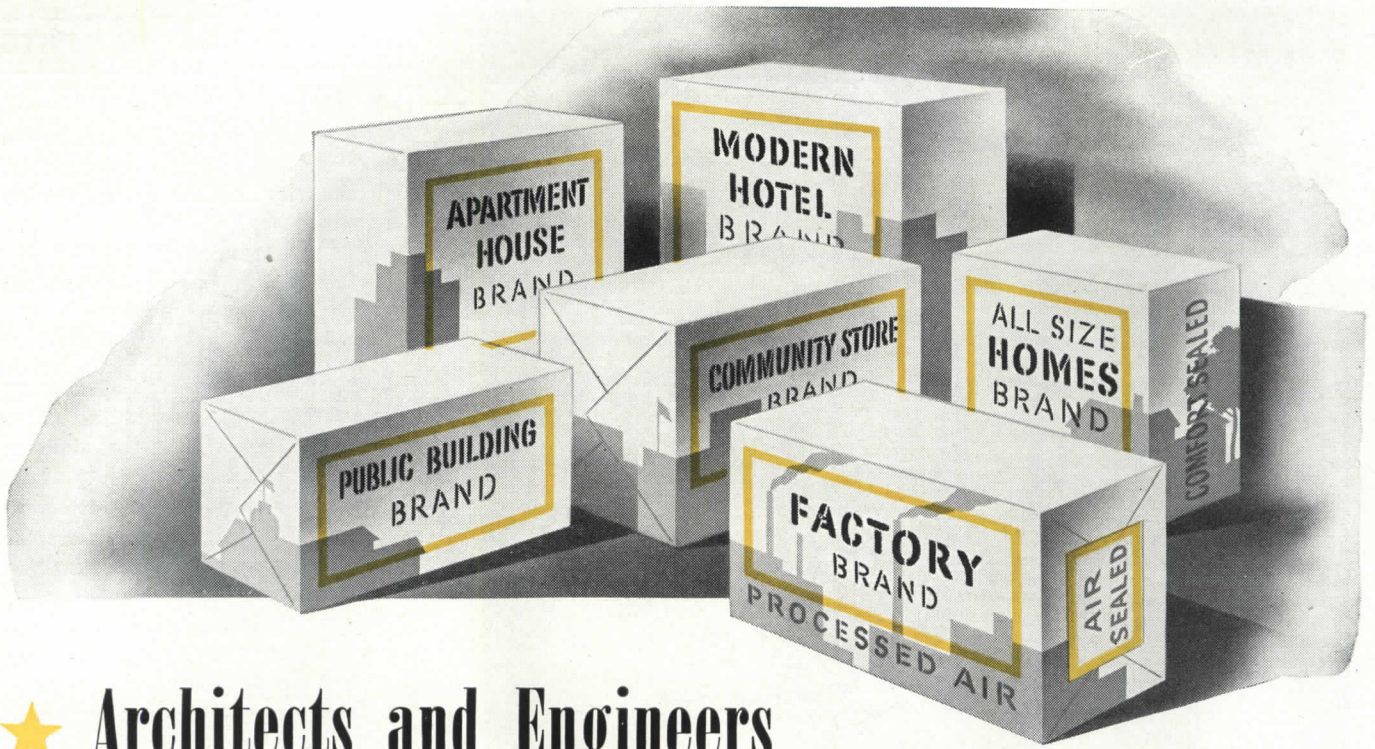
OPA apparently has recognized the necessity for a shift in construction materials. The maximum dollar and cents ceilings for sales of asbestos-cement building materials have been established for all sellers on direct shipment from a factory. The new regulation applies to such materials as roofing shingles, siding flat sheet, sheathing and wall-board. OPA realizes that there may be a sudden rush for these materials and a subsequent rise in prices. In the absence of necessary lumber products, and with the placing of ceiling prices at current levels on asbestos-cement materials, construction costs should not rise abnormally.

Future war housing

The biggest single bottleneck now appears to be the manpower situation in West Coast production areas. Recently WPB officials returned from an inspection tour of that area and reported that inadequate housing is the largest single factor in present labor difficulties. NHA Administrator Blandford states that the largest assignment of war housing quotas can be expected in the southeastern and far western sections of the country.

The surveys made by NHA and WPB on present housing conditions in various localities show the necessity for more housing during the remainder of the present fiscal year. To counter-

(Continued on page 12)



★ Architects and Engineers are in the Packaging Business, too!

"PROCESSED AIR in attractive sealed packages" . . . an arresting thought, but one which takes no undue liberties with the ultra-modern conception of the buildings that will come from your boards.

Dwellings of the past more often than not were designed around centrally located fireplaces. And with more reason the structures of the future will be built around Air Conditioning.

INDOOR COMFORT has become an essential staple commodity . . . and, like scientifically prepared food, must be sold

and delivered to the consumer in suitably protected "packages" of appealing design.

In this sense, then, Worthington and the architect, engineer and building contractor are in partnership in a unique packaging business.

Now's the time to check projected work against the pattern of far-advanced Air Conditioning developments.

And Worthington is prepared to crystallize its long experience and recent discoveries made in wartime research and production in applied designs for any building project.

CA3-46

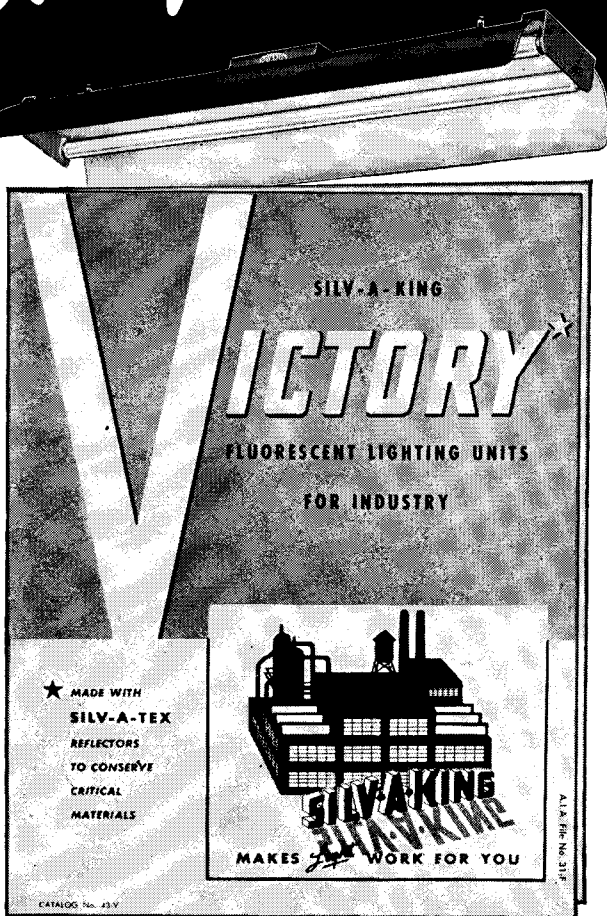
WORTHINGTON PUMP AND MACHINERY CORPORATION, HARRISON, N. J.
District Offices and Representatives in Principal Cities



WORTHINGTON AIR CONDITIONING AND REFRIGERATION

Get the facts

New, fact-packed folder tells the whole story. Send for it!



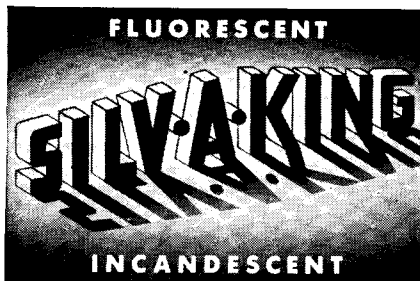
Available for prompt delivery

THESE SILV-A-KING "Victory" fluorescent lighting units are *inexpensive* and *immediately available!* Reflectors of non-critical, metal-saving Silv-A-Tex with high-gloss, baked white enamel reflecting surface are comparable in lighting efficiency to porcelain enamel and meet all RLM requirements.

If your plant, like most of those now in operation, was built for peacetime production, its lighting equipment was intended merely to supplement daylight and is *inadequate to meet the demands of full 24-hour war production!* Use Silv-A-King "Victory" units to *re-light* your plant, step up efficiency and production.

For complete specifications, write for Bulletin 43-V.

BRIGHT LIGHT REFLECTOR COMPANY, INC.
308 Morgan Avenue, Brooklyn 2, N. Y.



SILV-A-KING MAKES *Light* WORK FOR YOU

THE RECORD REPORTS

(Continued from page 10)

act the serious conditions existing in vital West Coast war production, NHA will center its activities on housing relief in that area.

J. Maxwell Dickey
Washington Correspondent

★ ★ ★

FHA SURVEY

Field offices of the Federal Housing Administration are launching an immediate survey in all important housing markets to determine the ability of the construction industry to resume home-building operations promptly after the war, Commissioner Abner H. Ferguson has announced.

The survey is regarded as an important step in NHA's program to prepare for postwar activities in the housing field. It will establish first-hand information on the prospective demand for new privately financed housing in these markets after the war, the availability of suitable sites on both developed and undeveloped land, and the probable capacity of the private building industry in each locality in the immediate postwar period.

POSTWAR BUYING

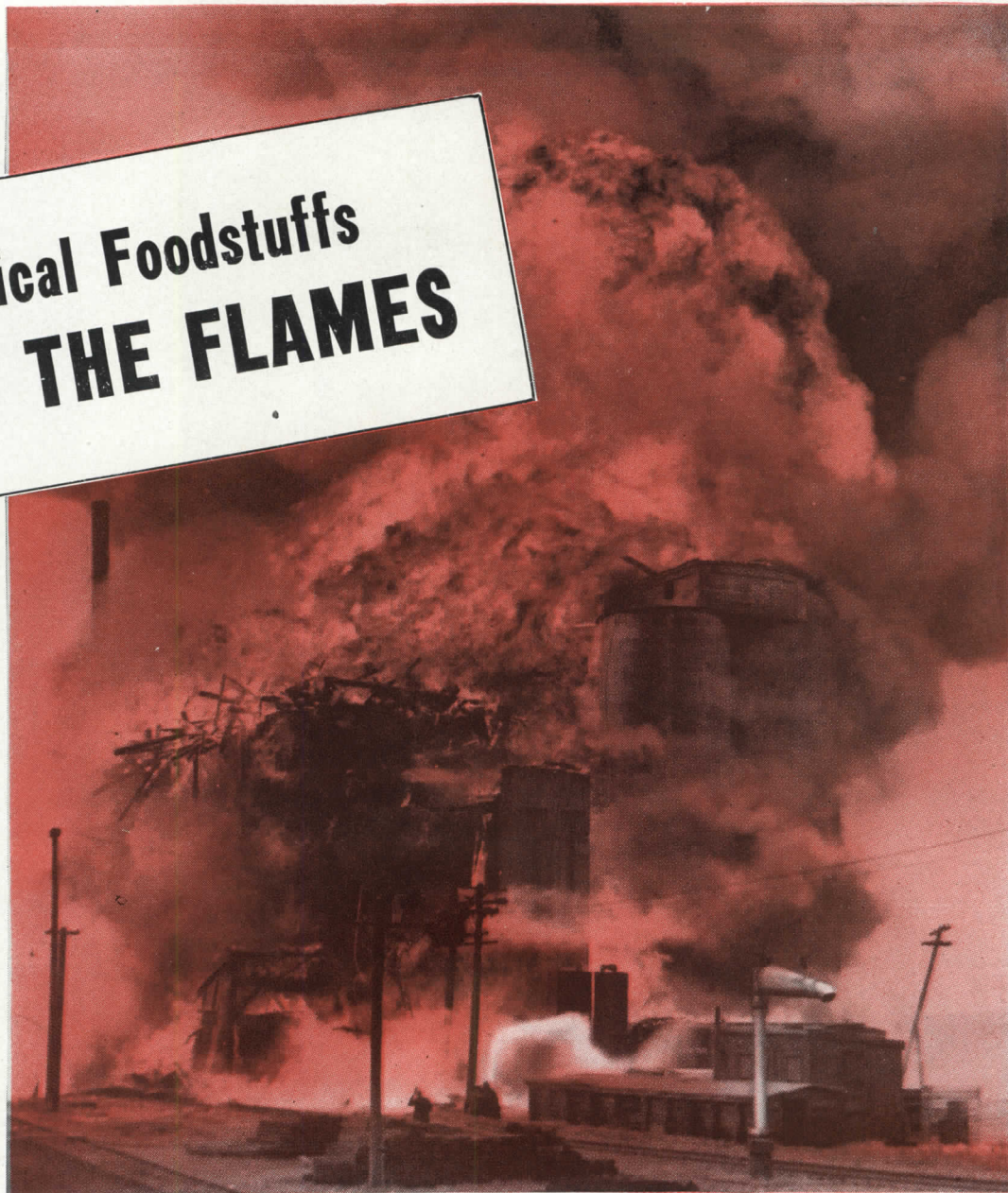
Postwar buying intentions of the nation's families are increasing almost daily and present indications are that postwar purchases will be far in excess of the billions of dollars that were in prospect last winter, the Chamber of Commerce of the United States reports, bringing a December, 1942 nationwide survey up-to-the-minute. The number of families now planning to purchase one or more major articles within six months after the return of peace has risen from 53 per cent to 64 per cent of the nation's total, the survey shows. 1,540,000 families—an increase of 50 per cent—intend to build or buy a new home within six months after the war is over, according to the survey, and the prospective investment in the building field has risen from an estimated \$5,000,000,000 to \$7,184,800,000.

HOMES FOR SOLDIERS

"Homes for veterans" could well be the theme song for a major postwar program, according to Herbert U. Nelson, executive vice president of the National Association of Real Estate Boards.

(Continued on page 86)

Critical Foodstuffs FEED THE FLAMES



A Double Calamity occurs today when a grain elevator like this is destroyed by fire. The result may be the crippling of an individual business enterprise but, even more important, it becomes a national calamity in that it deprives our people and other peoples of the world of desperately needed food.

Furthermore, such destruction becomes practically inexcusable when it is realized that *it could have been prevented.*

Fire CAN Be Controlled! Expert fire fighters will tell you the one sure way to control fire is *at the source, at the start . . .* with automatic sprinklers. Ever alert

Grinnell Company is ready to protect your warehouse or plant against fire. Experienced engineers at nearby offices will help you. Call them. Grinnell Company, Inc., Executive Offices, Providence, R. I. Branch offices in principal cities.

Grinnell Sprinkler Systems detect and check fires *automatically*, night or day, before major damage can occur.

Protection for so Little! One Grinnell Sprinkler Head protects 100 square feet of building space. Installed, it needs only about 50 pounds of pipe, fittings and valves . . . yet it can save tons of structural steel and other critical materials. This comparatively small expenditure in materials can provide the 24-hour-a-day protection against fire . . . against *interruption* of war production and loss of vital materials, today.

Get in touch with Grinnell, *before fire strikes.*



GRINNELL

AUTOMATIC SPRINKLERS

For Production Protection



They'll keep rolling—

YOU can leave that part of it up to the Army. But it's our job to "keep 'em rolling" off the production line. It's your job too, whatever your walk of life, to help put power behind this effort, whether you are engaged in actually building combat tanks or tank hulls, as we are, or the engines that drive them, the guns that arm them, the ships that carry them, or the homes that shelter the men who do any of those things. You may be doing your job by offering a word of encouragement to a tired worker, or by stepping hard on a silly rumor of the kind that Hitler would

like to hear, and—as with all of us—by buying the War Bonds that are the real power behind America's drive for freedom.

Here at Fitzgibbons we're "keeping 'em rolling"—a steady stream of huge welded steel combat tank hulls ready for the final assembly at one of the great tank arsenals. The men, women and equipment of Fitzgibbons are doing their bit in putting the ax to the Axis.

FITZGIBBONS BOILER COMPANY, Inc.
101 PARK AVENUE, NEW YORK 17, N. Y.
Works: Oswego, N. Y. • Branches in Principal Cities

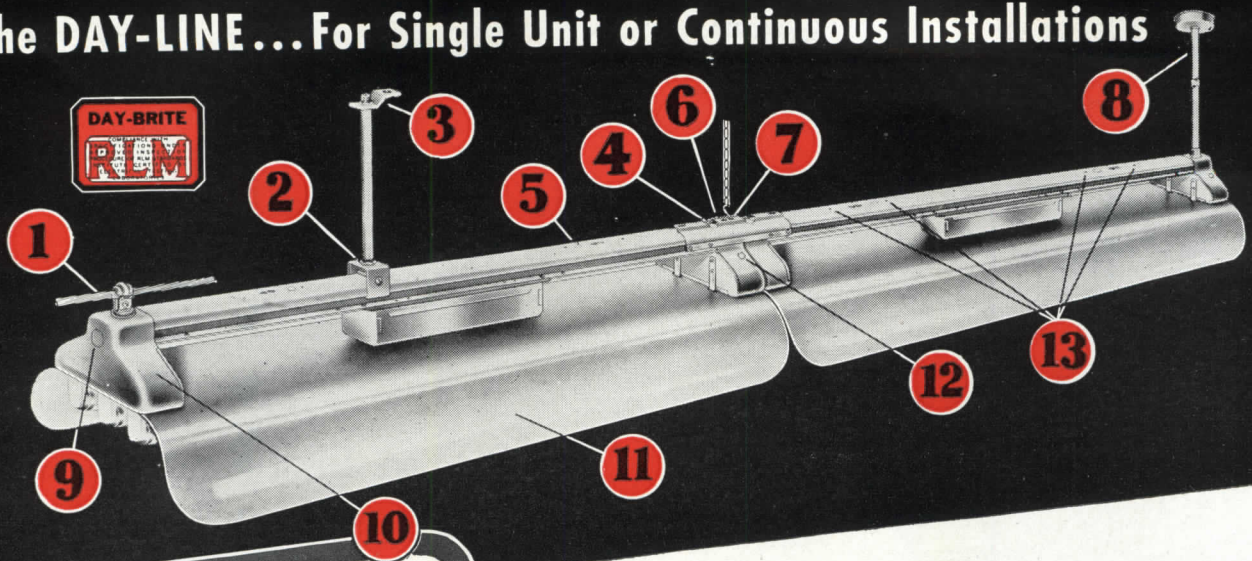
**BUY U. S. WAR
BONDS AND STAMPS**



FITZGIBBONS

STEEL HEATING BOILERS SINCE 1886

The DAY-LINE... For Single Unit or Continuous Installations



- 1 1/2" K.O. for cable clamp installation direct to fixture.
- 2 Slide channel clamps for rod or pipe hangers can be located at any point on channel.
- 3 Swivel type hanger strap is adjustable for pipe or rod alignment.
- 4 K.O.'s for pipe.
- 5 K.O. for cord.
- 6 Rigid one-piece coupling converts, single units to continuous fixtures.
- 7 Chain hanger slots in top of channel and in center of coupling.
- 8 Complete pipe hangers with ceiling canopy and all fittings.
- 9 K.O. in end for through feed.
- 10 Rigid, one-piece, die-formed end boxes welded to channel assure rigidity and proper alignment of all parts.
- 11 Non-metallic reflectors (RLM and U. S. Bureau of Standards approved). Reflection factor, 85% or more. Angle of cutoff, 14°.
- 12 K.O. for switch.
- 13 Screw holes for direct surface mounting. No couplings needed.

13 POINTS OF FLUORESCENT LIGHTING SUPERIORITY

In this new Day-Line Industrial Fluorescent Fixture, thirteen superior features give you the ultimate in lighting—now and from now on! Day-Brite's "Super-White" baked enamel finish on non-metallic reflectors assures continuously high illumination efficiency. Unusual mechanical, installation and maintenance features are illustrated above and briefly described in the panel at the left.

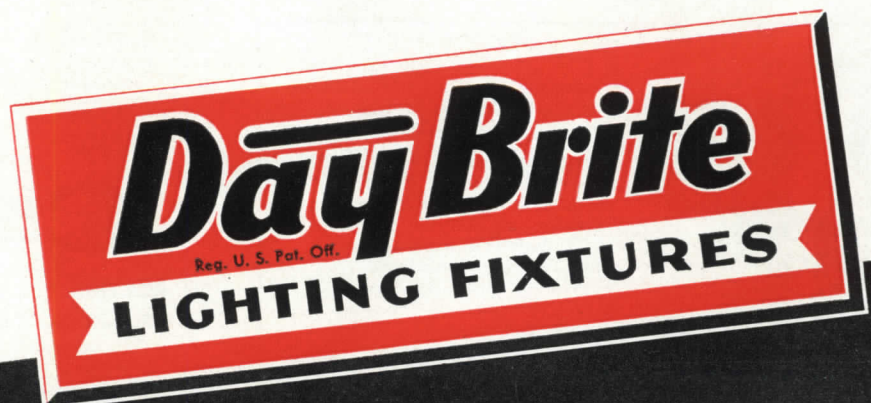
The same basic Day-Line Fixtures are supplied for single unit mounting or continuous runs for 2-40 Watt, 3-40 Watt and 2-100 Watt lamps. Send for helpful dimensional, specification, and illumination data contained in Bulletin F-69.

DAY-BRITE LIGHTING, INCORPORATED

5491 Bulwer Ave. — Saint Louis, Missouri



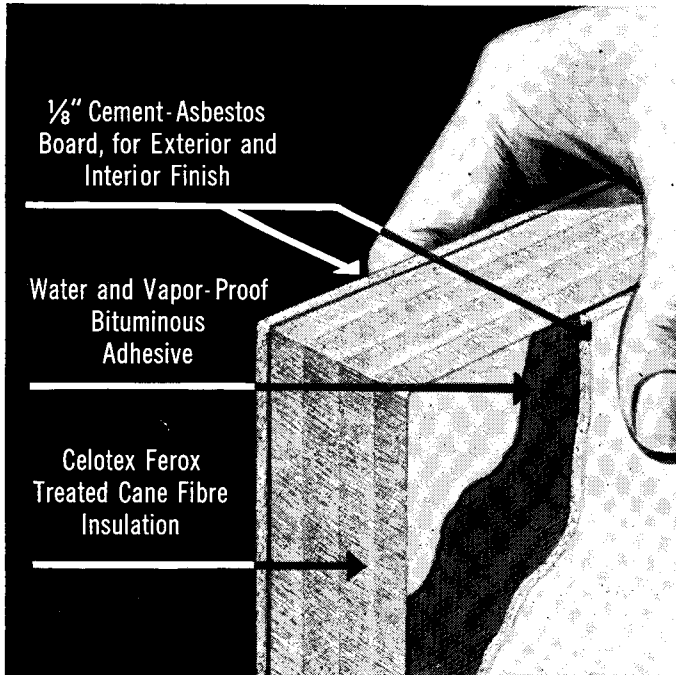
The Sign of Quality
Look for this Label



COMMERCIAL · INDUSTRIAL and SPECIAL DESIGNS *Nationally distributed through all leading electrical supply houses*

Five Tested Ways

TO MEET TODAY'S BUILDING NEEDS
WITH MINIMUM USE OF CRITICAL MATERIALS!



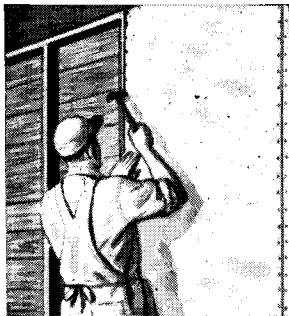
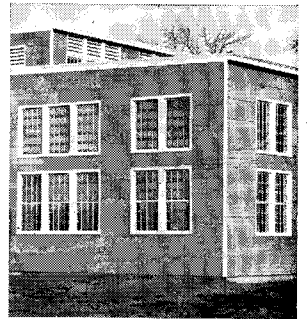
CEMESTO

**Combines Strength, Insulation,
Interior and Exterior Finish**

CEMESTO is a revolutionary building material that comes in panels from 4' x 4' to 4' x 12' to provide a complete fire-retardant wall or roof unit. Thickness ranges from 1 1/8", 1-9/16" to 2". Today, Cemesto with 12 years of research behind it is speeding construction of millions of dollars' worth of wartime homes, housing projects, factories, shops and hangars using a minimum of critical material. Can be used with either wood or steel framing. Saves time, labor, lumber and nails.

CELO-SIDING Combines Siding, Sheathing, Insulation

This new multiple-function insulating siding consists of cane fibre insulation, coated on both surfaces with moisture-proof asphalt, with a weather surface of crushed mineral granules in colors to provide a permanent exterior finish. It is applied direct to studding. Two thicknesses: 7/8" and 5/8".

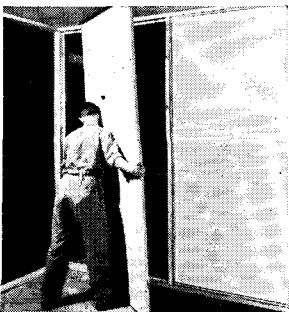
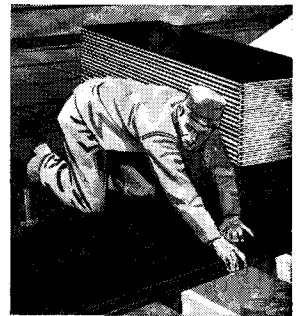


CELOTEX ASBESTOS BOARD Builds Walls Fast!

This new Celotex product is a hard, durable combination of Portland cement and asbestos fibre, 3/16" or 1/4" thick, available in boards 4' x 8', for fast erection of interior walls and ceilings. Can also be used for exterior finish on temporary or permanent structures.

CELOTEX GYPSUM ROOF SLABS Replace Wood Roof Decks

These new laminated gypsum roof deck slabs are offered in 1", 1 1/2", or 2" thicknesses, 2' wide, 8', 9', or 10' long, rigid, strong, light in weight and easy to handle. The big units cover roof areas quickly, saving important time. Roof covering can be applied immediately.



CELOTEX GYPSUM INTERIOR WALL UNITS Save Studding, Save Time!

These extra-thick gypsum wall boards are either 1" or 1 1/2" thick, and build strong, sturdy, good-looking interior partitions in the shortest possible time, with only a simple wood framework. Known as "single wall construction," this method saves much critical lumber.

CELOTEX

REG. U. S. PAT. OFF.

ROOFING • INSULATING BOARD • ROCK WOOL
CELO-ROCK WALL BOARD • LATH • PLASTER
SOUND CONDITIONING PRODUCTS

THE CELOTEX CORPORATION
CHICAGO

Get Complete Information on these and other new Celotex wartime developments as fast as it is released! A note on your letterhead will put your name on our mailing list of aggressive architects who want to keep up to date on modern building materials! Write today!



PRECISION

★ ★
RIGHT UP TO SHIPPING DATE . . .

● Modern equipment and mass production in the plant of the Mueller Brass Co. hasten STREAMLINE fittings and copper pipe to our Shipping Department where they are quickly transferred to our country's shipbuilding yards to be installed in victory ships, sub chasers, submarines, etc.

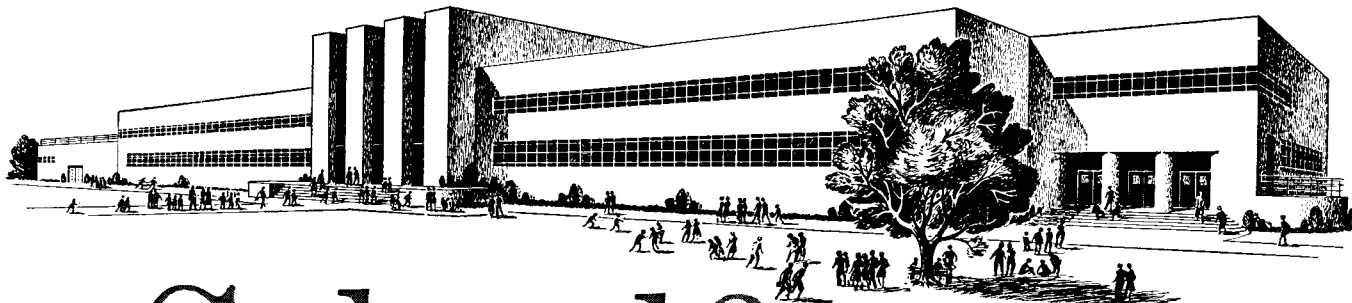
Many millions of other munitions parts leave our plant in a continuous stream for the army and air force. Throughout the entire manufacturing process, rigid laboratory control and strict inspection is maintained.

Each passing hour brings us nearer to victory, and — all our energy in manpower and machines is now directed to one purpose — that of hastening the day of victory when we can once again turn our production and improved products into peacetime channels.

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



One- Room



School?

HUNDREDS of kids. From all walks. All ages. In music class . . . and geography . . . and history . . . and English . . .

But with an RCA sound system, one voice can reach all of them as easily as can a teacher in a one-room school.

When you design RCA sound into a school, you can provide such services as:

- Eliminating special assemblies*
- Giving atmosphere to ordinary announcements*
- Paging—teachers, nurses, pupils*
- Controlling fire drills*
- Simplifying attendance reporting*
- Calling special meetings*
- Communications with play grounds*
- Teaching pupils to “learn to listen”*
- Enriching the curriculum with music and news reporting*
- Using radio programs to teach (music, domestic science, etc.)*
- Putting cooperation behind health and safety campaigns*

Controlling academic tests to give all children equal chance

Providing music for gym work

Teaching dancing

Teaching microphone technique

Amplifying or reinforcing voices in auditorium and gym

Improving teaching methods for adult classes

School administrators who have used RCA sound can tell you many more of its advantages.

RCA engineers can help you in selecting and placing sound equipment in schools—and in many other buildings as well.

RCA Sound is one of the “most-talked-about” improvements you can include in your projects.

Radio Corporation of America, Dept. 70-7, Camden, N. J.

TUNE IN “WHAT’S NEW?”

Radio Corporation of America’s great new show, Saturday nights, 7 to 8, E. W. T., Blue Network.



RADIO CORPORATION OF AMERICA



ACHIEVEMENT— on 5 Vital Points!

It is our belief that we have achieved close to minimum costs in several types of sturdy **PREFABRICATED DEMOUNTABLE** housing in use by the U. S. Government and now especially adapted, by low cubic content, for shipment abroad to the fighting forces and to foreign governments.

← 1✓

Convertible housing at a per person cost of \$37.50 to as low as \$25.00 per person has been achieved through our intensive research, new methods, and resources for creating or locating new materials not generally available in the forms required for line-production housing.

← 2✓

These new units have been outstandingly successful for War-Workers' Homes, housing In-migrant Farm Workers, Troop Barracks, Farm Security Administration, Coast Guard, Army and Navy Housing.

← 3✓

Erected in 6 minutes, without tools and highly demountable, Pemberton "All-Purpose" light-weight Standard Shelters of a new material are "convertible" to peacetime use. Several new units are "convertible" into high-grade post-war housing.

← 4✓

We believe also that this announcement marks a new era in low-cost, sturdy and adequate basic housing for the future.

The ultimate conversion of emergency war-housing into quality homes is a logical advance now made possible, since immediately required low-cost homes can be quickly and economically transformed into ample-size, permanent homes of real charm and distinction.

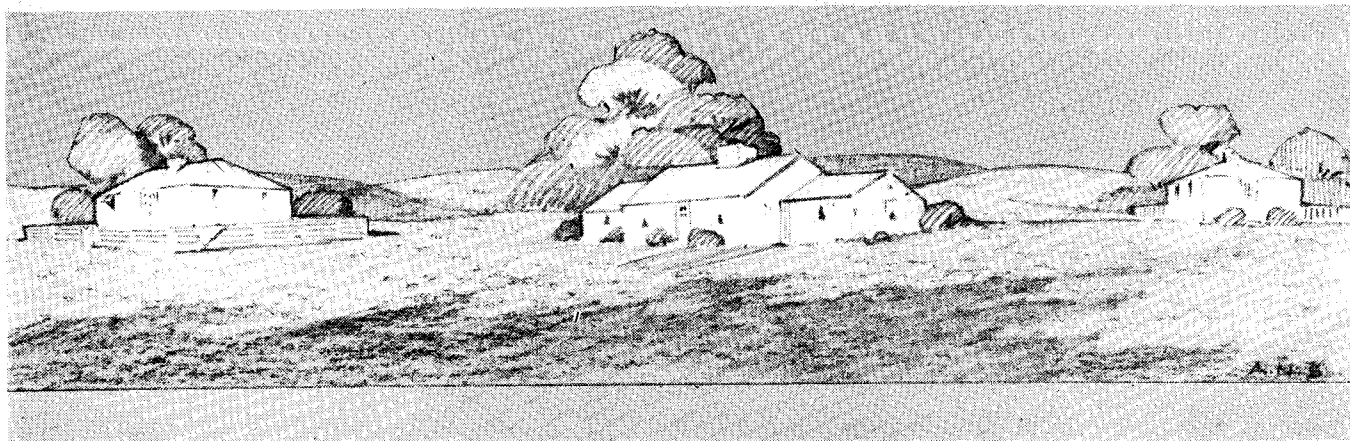
← 5✓

Send for Brochure P-38.

PEMBERTON LUMBER & MILLWORK CORP.

Pemberton . . . Tel. 8011 . . . New Jersey

Prefabricated-Demountable Industrial Buildings, Homes, Dormitories, Cantonment Barracks, Cafeterias, Field Offices, Administration Buildings, Hutments, Trusses, Sub-assemblies, etc.





there *are* such things as demons

OLD LEGENDS had it that dreadful demons lurked in the dark, and those legends weren't far wrong. Today, we know them as the Demons of Accident, Destruction, Fire, and Death . . . all of which may strike in the case of unforeseen lighting and power failure. Against them, Exide Emergency Batteries are a powerful weapon.

Despite all precautions of utility companies, catastrophes beyond their control can cause interruptions to normal electric current service. Storms, floods, fires, and street accidents strike without warning.

However, when an Exide Emergency Lighting Unit is on duty, it operates instantly and automati-

cally to ease the danger of equipment damage, materials spoilage, injury to workers, or sabotage. Architects should know about Exide protection. Write or wire your nearest Exide Branch. An experienced Exide Field Engineer is always at your service.

THE ELECTRIC STORAGE BATTERY CO., Philadelphia
Exide Batteries of Canada, Limited, Toronto

Exide
EMERGENCY
BATTERIES

BACK THE ATTACK — WITH WAR BONDS

First of a large group of huge new Naval Storehouses all equipped with Lupton Metal Windows.



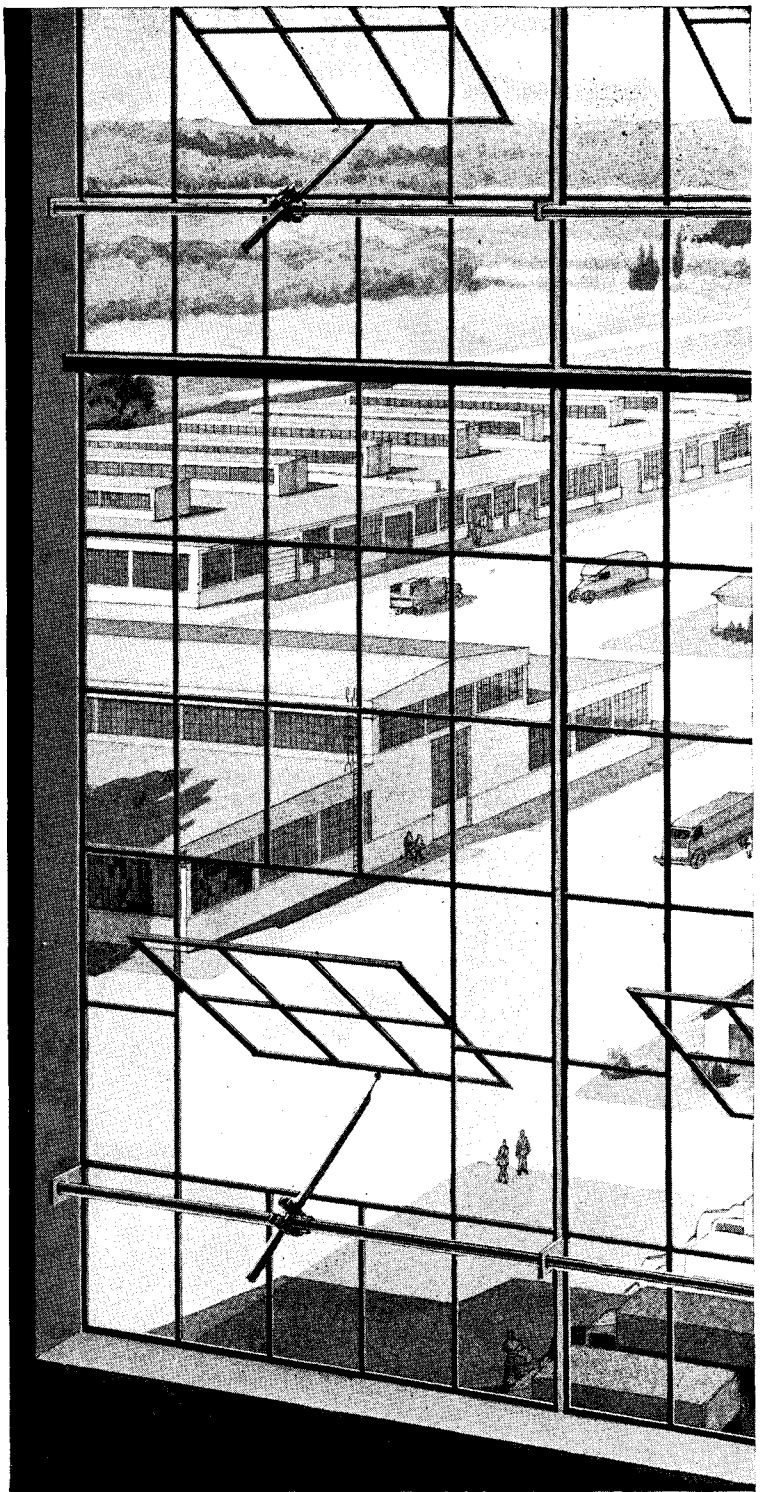
Better quality—better service

Today, Lupton is supplying to the Armed Forces, metal equipment of many kinds, meeting exacting specifications and delivery schedules . . . Tomorrow, Lupton will be better than ever equipped to serve you in the construction of the post war buildings you are now planning. Buildings equipped with Lupton Metal Windows will receive the full benefits of draftless, weather-tight ventilation. Heat losses and lighting costs will be minimized. You can depend on Lupton Metal Windows . . . There's nothing to get out of order.

Now Supplying Hangar Doors and Other Materials for the Armed Forces.

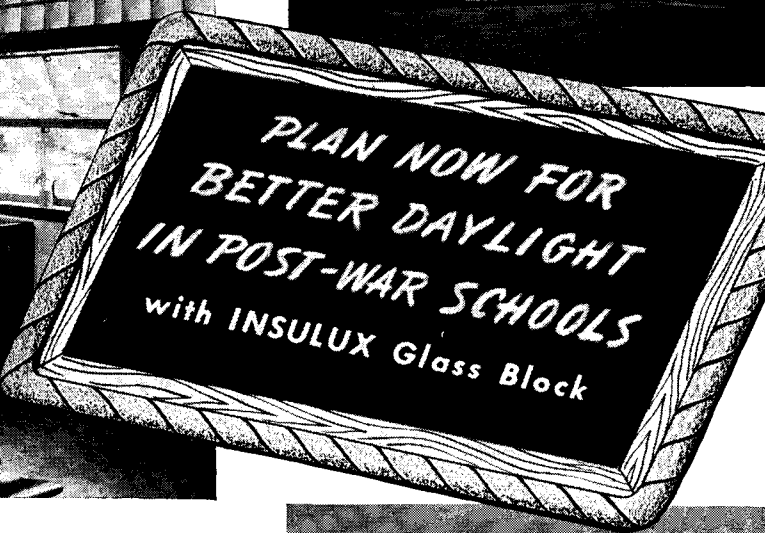
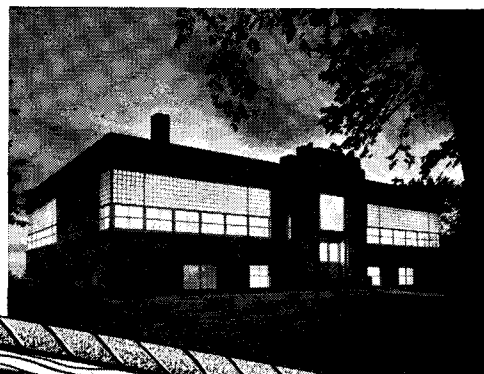
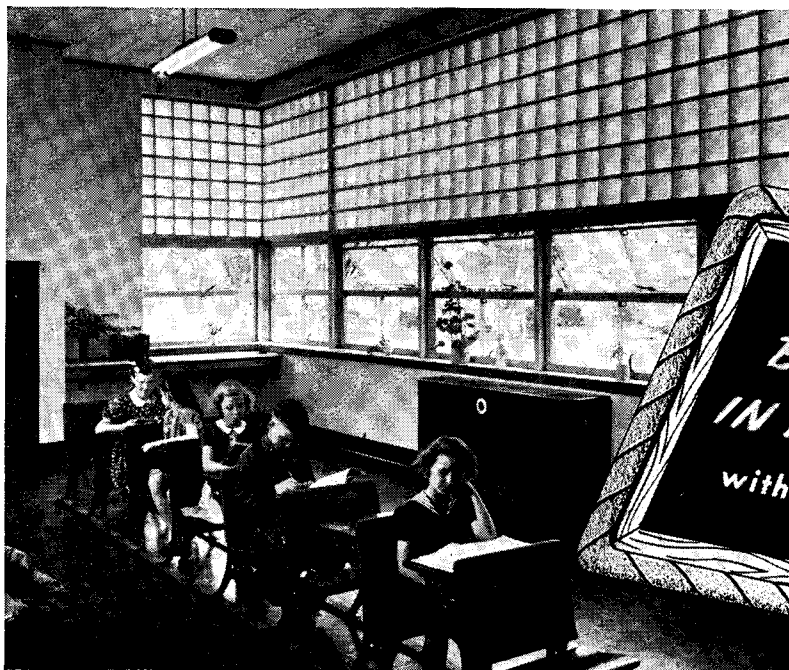
See our Catalog in Sweet's

MICHAEL FLYNN MANUFACTURING CO.
Allegheny Ave. at Tulip St., Philadelphia, Penna.



LUPTON METAL WINDOWS

CLASSROOMS get controlled daylighting from panels of INSULUX Glass Block. INSULUX also enhances the architectural beauty of modern schools. Classroom below, and exterior at right are Gridley School, Lincoln, Ill.



THE F. W. DODGE CORPORATION estimates that \$156 million will be spent on new schools after the war.

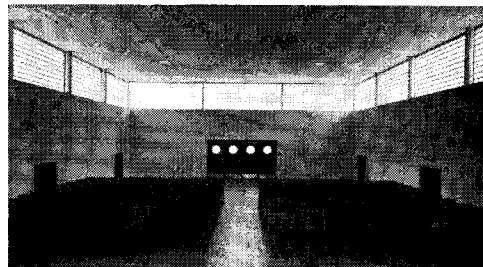
By using INSULUX Glass Block in light-transmitting areas, the schools *you* plan will get plenty of efficient daylight in classrooms, libraries, auditoriums, halls, cafeterias. INSULUX diffuses, directs, and distributes daylight *without glare*.

Heating costs, both initial and operating, are lowered by the high insulating value of INSULUX panels. Four-inch hollow glass block wall construction also prevents drafts, deadens distracting noises. INSULUX provides privacy. It is fireproof—non-combustible.

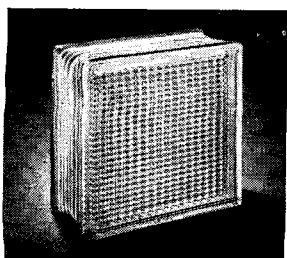
Technical data, specifications, details, can be obtained from our section in Sweet's Architectural Catalog, or by writing: INSULUX Products Division, Dept. 101, Owens-Illinois Glass Company, Toledo, Ohio.



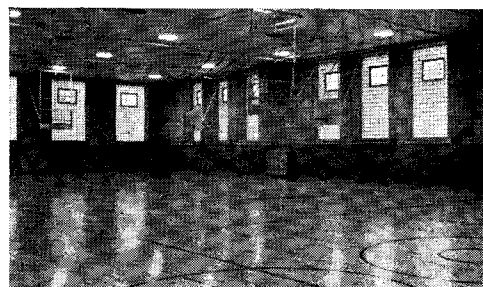
ARCHITECTS can use various combinations of INSULUX panels and windows for ventilation and vision. However they are used, INSULUX Glass Block protect young eyes from glare.



AUDITORIUM flooded with softly-diffused daylight from ceiling-high border of light-directional block. INSULUX holds in heat in winter, helps keep it out in summer.



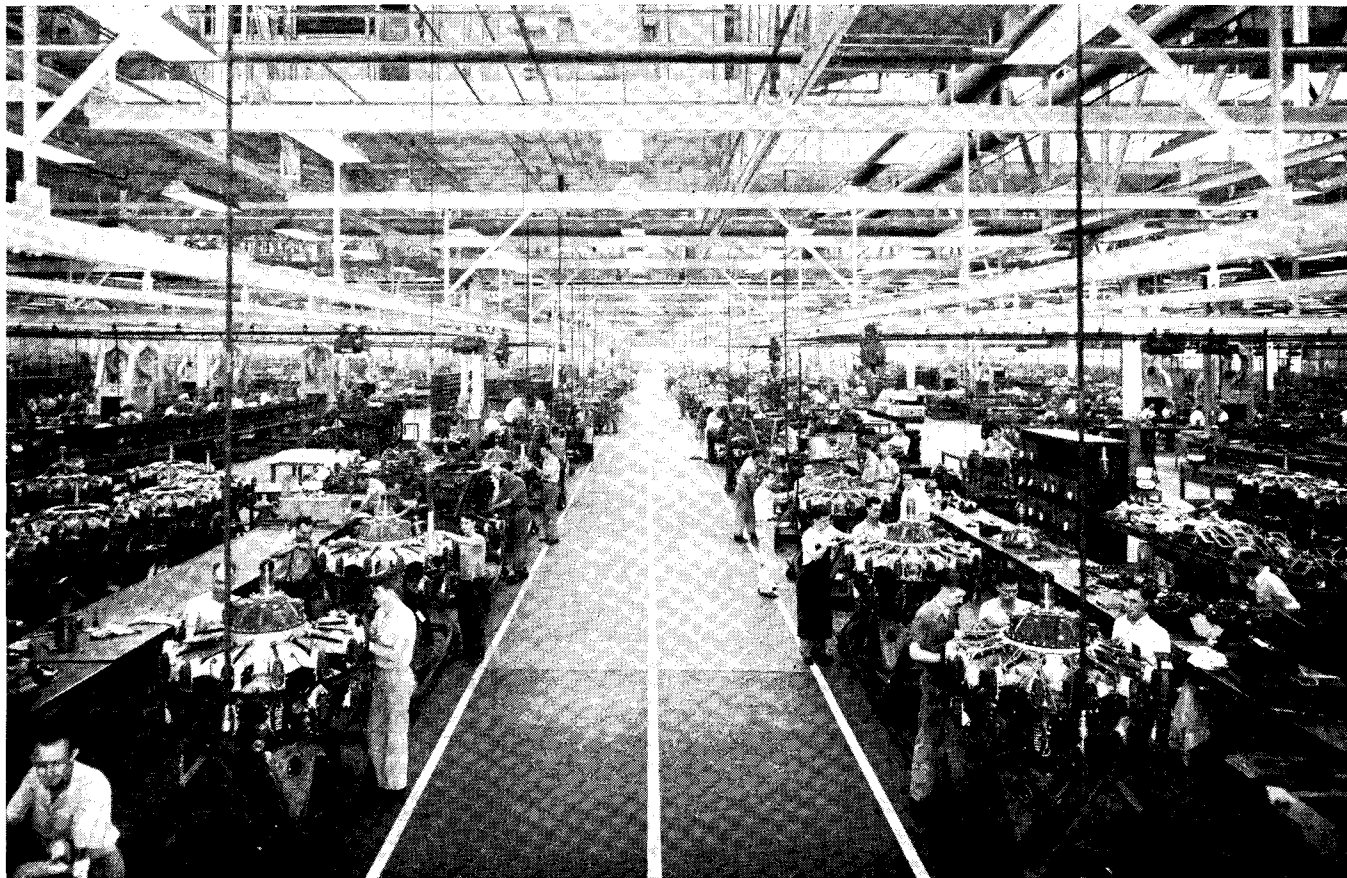
OWENS-ILLINOIS
INSULUX
GLASS BLOCK



GYMNASIUM gets full share of daylight, with privacy, from INSULUX panels. INSULUX is easy to keep clean, highly resistant to damage.

386 MILES OF *Carey* INSULATED PIPING

IN THIS GIGANTIC AIR-CONDITIONING SYSTEM for WRIGHT AERONAUTICAL CORPORATION



UNIFORM YEAR 'ROUND TEMPERATURE ASSURES MAXIMUM PRECISION IN PRODUCTION OF AIRCRAFT ENGINES

One of the nation's largest and most efficient industrial air-conditioning systems provides ideal working temperatures in this giant war plant. The plant is heated in winter and cooled in summer by circulation of hot or cold water through a single, vast piping network.

Used throughout this entire system, CAREY INSULATION insures an approximately uniform temperature the year 'round. This makes possible the extremely fine precision workmanship demanded in aircraft engine manufacture—where accuracy is measured in ten-thousandths of an inch.

Here, as in so many other plants, CAREY INSULATION plays an important part in the nation's battle of production. To conserve steel—insure better air-conditioning—specify CAREYDUCT. Write Dept. 21 for details.

The PHILIP CAREY Mfg. Company, Lockland, Cincinnati, Ohio

Dependable Products Since 1873

In Canada: The Philip Carey Company, Ltd. Office and Factory: Lennoxville, P. Q.

Interior of one of the nation's largest aircraft engine plants. Carey Insulation was used throughout. Plumbing & Heating Contractors: The Frank A. McBride Co., Paterson, N. J., and Cincinnati, Ohio. (This plant is also protected by a Carey Built-Up Roof.)

**Albert Kahn
Associated Architects & Engineers,
Inc.**

**Insulation Contractors:
Robert A. Keasbey Co., New York**

Interesting FACTS about this Huge Installation

66,000 gallons of water per minute are circulated through this piping. Temperature ranges: In summer, water cooled to 45° F., and moisture-condensation on pipes prevented by Carey cold water insulation. In winter, water heated from minimum of 90° F. to maximum of 140° F. Equipment, in addition to huge quantity of Carey-Insulated piping, includes: 5 immense water coolers, 6 hot water heaters, 6 hot-water and chilled-water pumps. Piping system is welded throughout.

MEMO FOR POST WAR PLANNING

Household operating and upkeep expenses come out of the same pocketbook as mortgage amortization payments. High-quality equipment, as supplied by General Electric, usually reduces monthly operating bills more than it increases monthly payments on the house... so actually it costs less to live better.

REMEMBER, General Electric high-quality equipment will best serve the interests of your after-Victory clients or customers.

GENERAL  **ELECTRIC**
HOME BUREAU BRIDGEPORT, CONN.



1. LAND



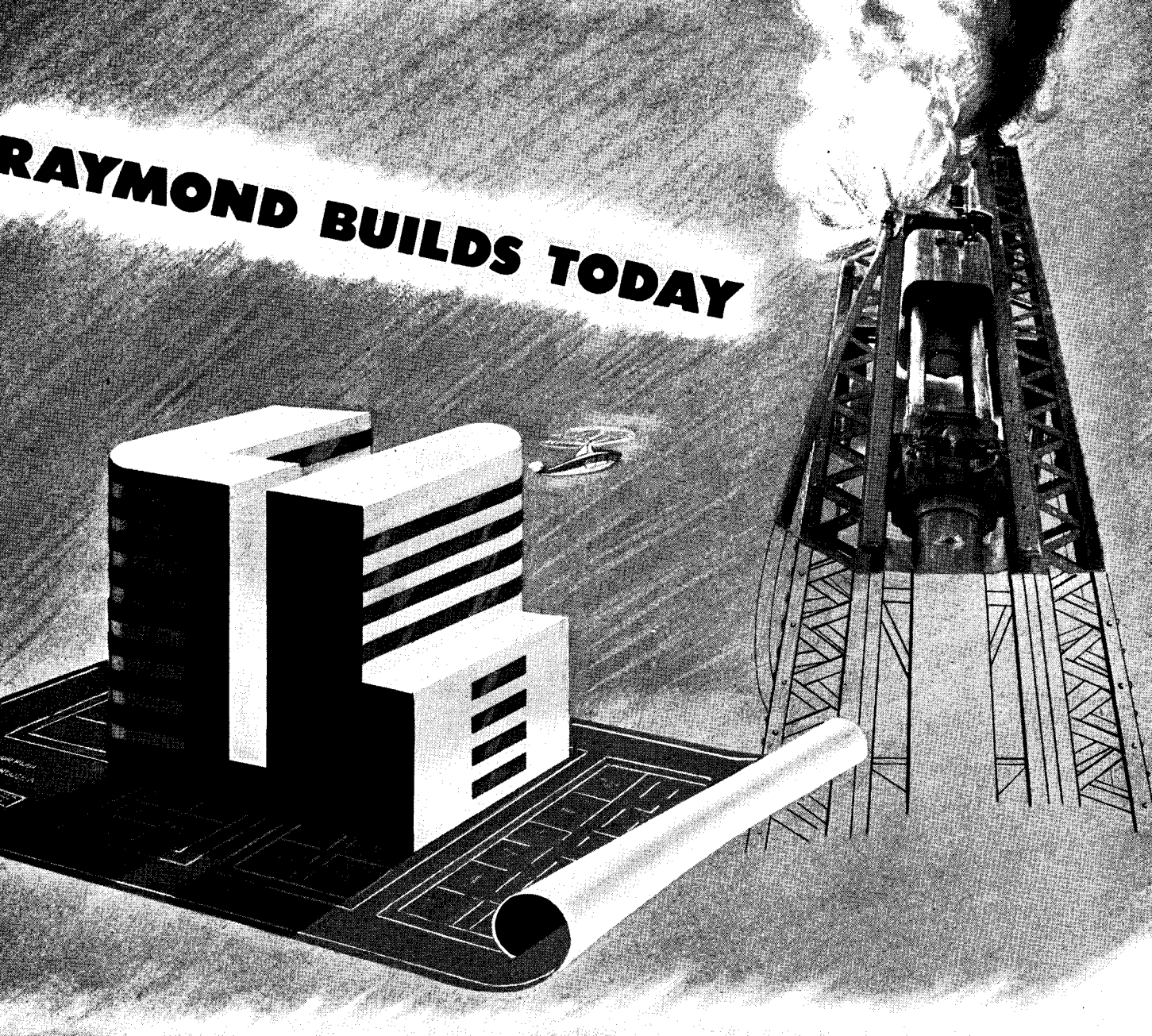
2. STRUCTURE



3. OPERATING EQUIPMENT



A HOME



RAYMOND BUILDS TODAY

... AND PLANS FOR TOMORROW

Although engaged primarily in war construction work, the Raymond Company is not too busy to give careful consideration to your foundation requirements—and today has ample equipment and skilled personnel available for work in all parts of the world. So, once your projects have been properly authorized by the government, you can count 100% on the Raymond organization being willing and ready to serve you . . . as they have been serving for the past 46 years.

Whether your project be large or small, nearby or distant, your inquiries will receive prompt and careful attention. Let us know what you are planning to do.

SCOPE OF RAYMOND'S ACTIVITIES

includes every recognized type of pile foundation—concrete, composite, precast, steel, pipe and wood. Also caissons, construction involving shore protection, ship building facilities, harbor and river improvements and borings for soil investigation.

RAYMOND CONCRETE PILE COMPANY

Branch Offices in Principal Cities

140 CEDAR ST. • NEW YORK, N. Y.

A HISTORY OF ARCHITECTURE.

By Sir Banister Fletcher. *New York (597 Fifth Ave.), Scribner's, 1943. 1033 pp. 6 7/8 by 9 3/4 in. illus. \$15.00.*

Expressions of delight have greeted each edition of the "History of Architecture on the Comparative Method" from the 300-page 12-mo of 1896 on which young Mr. Fletcher collaborated with his father, the late Professor Fletcher, and especially the sixth, greatly enlarged and completely rewritten by Sir Banister in 1921.

In the present edition the revisions consist chiefly of brief corrections and additions to record latest investigations, and the addition for all photographic illustrations of dates and references to the pages in the text dealing with the subjects pictured.

Wartime restrictions have not diminished the beauty of the well printed blue and gold volume issued in the best Batsford-Scribner tradition; and the spontaneity and freshness sustained throughout a work at once textbook and readable narrative remain a marvel even from the hand of one who decades long has been a public lecturer and a university professor, a practicing architect, a citizen prominent in public affairs, and a much-travelled observer writing descriptions and criticism "mainly from observation of the world's greatest monuments from ancient Troy to modern Chicago."

MAP SYMBOLS AND SCALES.

By Dorothy W. Schraeder. *Albany, N. Y., Division of Commerce, 1943. 32 pp. 6 by 9 in. illus.*

Suggested symbols and scales for maps and plans, prepared by the N. Y. S. Bureau of Planning, and here collected in a report to the N.Y.S. Federation of Official Planning Boards.

In small space a wealth of convenient suggestions designed primarily for maps with scale from 1 in. = 500 ft. to 1 in. = 1/2 mi., but equally suitable for use on maps of smaller scale, and aiming at inclusion of all symbols necessary for immediate and later developments. Especially useful features are the distinctive markings for existing, abandoned (or unused or temporarily out of commission) and proposed items: fences, ferries, bridges, airports, canals, beacons, political areas, etc., and

suggestions for black and white gradations so planned that each tone can be changed to a darker tone without erasure.

HOUSING ABROAD UP TO WORLD WAR II.

By Stella K. Margold. *Cambridge, Mass. (40 Massachusetts Ave.), Technology Book Store, 1942. 314 mim. ff. 8 1/2 by 11 in. \$2.00.*

This rather formidable and expansively-titled volume proves to be a concise summary of experiences and practices in countries chiefly in Central and Northwestern Europe to 1939 in regard to (1) acquisition of land; (2) standards of occupancy and of construction; and (3) reduction in basic costs of construction, "supplemented by comparisons with conditions in the U. S." to 1942: three chapters forming over one third of the work.

"This study," says the preface, "is the first to handle low-cost housing throughout the world, the first to assemble all available factors regarding land acquisition . . ., to assemble information on standards of accommodation as they should be and are, and the first to assemble all factors and methods used abroad to reduce construction costs from the technical and administrative points of view during construction. . . . [It] should prove of immense value in planning future national housing policies."

Miss Margold has indeed collected a literally immense amount of useful information. The value of her survey would have been greatly enhanced, however, not only for those directly "planning future national housing policies" but also for a much wider circle of interested readers, by some indication of the method followed in the survey, some definition of the scope more precise than "throughout the world," and by references to sources for at least the great majority of the statements.

Have all countries been canvassed regarding each of the three major chapters in the survey? And if so, in a general way, how? Presumably all available publications and other documents have been examined: those producing one or more of the items here summarized might have been listed—with paging—in addition to the rather few and mostly well-known publica-

tions which are cited here and there. Doubtless correspondents have contributed much information: at least a general statement as to the type and number of those reporting would help the reader to form a picture of housing abroad. So, too, would some idea of the extent to which "first-hand information collected by the author during travels abroad in 1936 and 1938" accounts for the many brief items, for the most part undocumented, about places in Central and South America, North Africa, the East Indies, Greece, Yugoslavia, Bulgaria and elsewhere.

In general the reader accepts the author's statement. In many places one would like, however, to make further study of the facts presented. In a few cases reference to sources would clarify or amplify a statement. One would like to know by whom "it is said that . . .," or a municipality is "said to own. . . ." Above all one would like to know the dates of decisions taken and measures carried out.

PLANNING 1943.

Proceedings of the Annual Meeting of the Amer. Soc. of Planning Officials. Chicago 37 (1313 East 60th St.), 1943. 175 pp. 6 by 9 in. \$2.00.

Papers practical and informing with supporting figures by professional planners and other leaders with well reported discussion of the plans proposed. A few points: timely preparation, definite surveys and designs, applications for funds to be available immediately after firing ceases. Consider implications of a car for every worker: even if sufficient highway can be found for all to drive to work, garage space approximately equal to the space needed by the worker on the job will be needed to park those cars. Legislation to fit present needs: New York City is still without one-way longitudinal avenues because pre-automobile franchises are still in force.

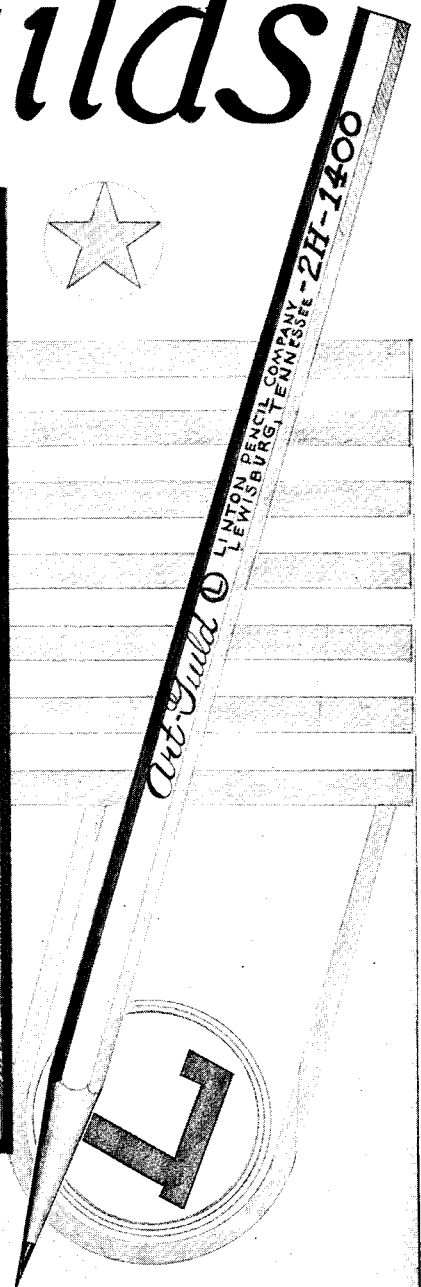
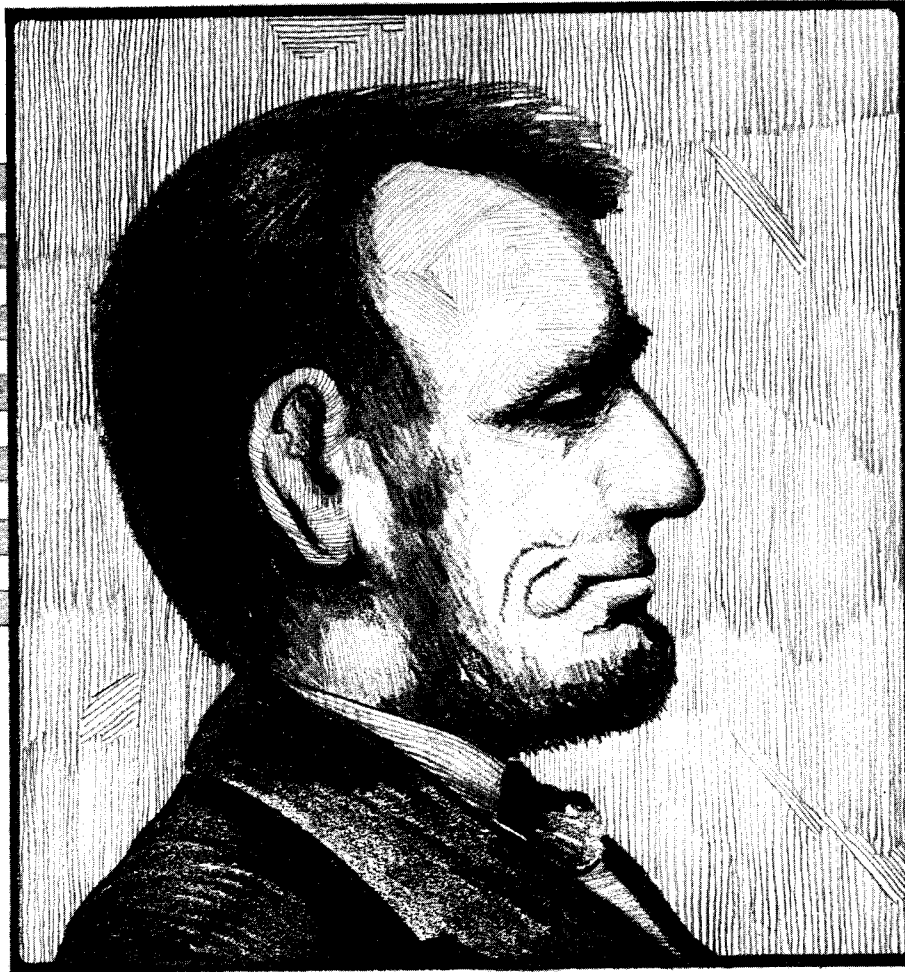
STRUCTURAL FRAMEWORK.

By Clyde T. Morris and Samuel T. Carpenter. *New York (440 Fourth Ave.), Wiley, 1943. 272 pp. 5 1/2 by 8 3/8 in. illus. \$4.00.*

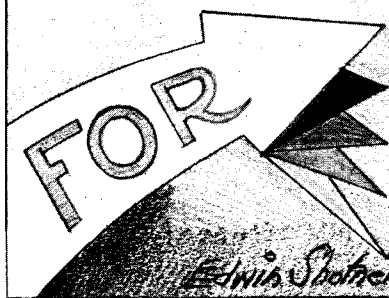
This work, by professors of civil engineering at Ohio State University and Swarthmore College, respectively, pre-

(Continued on page 28)

Quality Builds



Character Art-Guild Pencils



SHARP-OPAQUE LINES
17 UNIFORM DEGREES
BONDED LEAD
LESS SMUDGE
CLEAN ERASURES

This drawing is one of a series made with Art-Guild BONDED LEAD drawing pencils

Art Guild pencils are available in 17 precision-milled degrees—6B to 9H. Beautifully finished in green lacquer, they come neatly packed in a metal box.

Try them at our expense. We will gladly send you a few Art Guild pencils for personal test. Just drop us a note on your letterhead, specifying the degrees you prefer.

LINTON PENCIL CO., Lewisburg, Tenn.

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Los Angeles, California

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Chicago, Illinois

3525 Southwestern Boulevard
Dallas, Texas

REQUIRED READING

(Continued from page 26)

sumes a grasp of the usual methods of analysis and design and of the mechanics and strength of materials, and is designed as a text and reference book for the advanced student and the designer dealing with forces either imperfectly understood or otherwise indeterminate. "It is our purpose to indicate permissible simplifications in methods of calculation which are in accord with the elastic action of the structures and which give results of sufficient accuracy." Many examples illustrate methods for solution of the different problems; and the latest experiments and technical publications are freely quoted.

MATERIALS AND METHODS OF ARCHITECTURAL CONSTRUCTION.

By Charles Merrick Gay and Harry Parker. New York (440 Fourth Ave.), Wiley, 1943. 636 pp. 5½ by 8½ in. illus. \$6.00.

A second edition of the work published in 1932 by the former professor of Architectural Construction and the present one, known to a wide circle as the author of Kidder's Handbook.

The work was designed as both a textbook and a ready reference for the student who has not yet acquired a background of fundamentals, and who is therefore not in a position to use the many more complete and detailed works available with regard to individual materials. The present edition modernizes the first by presenting the most recent recommendations of authorities and the present practice in production regarding cements, foundations, floor and roof construction, architectural terra cotta, welded joints, plastics, pressed wood, structural glass, timber connectors, and building codes.

PERIODICAL LITERATURE

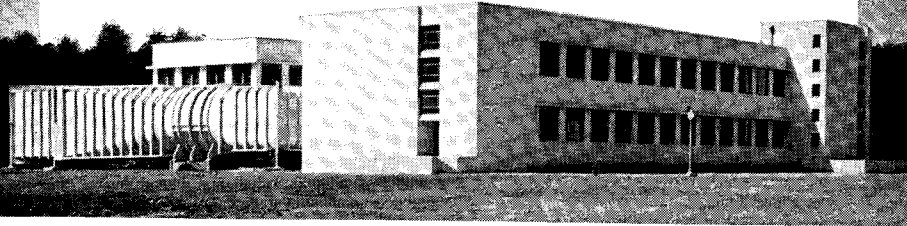
POST WAR LIVING.

Prizewinners in the recent C.A. & A. competition. California Arts and Crafts. Los Angeles 5, Calif. (3305 Wilshire Blvd.), Aug. 1943, pp. 23-37. illus.

Winners are: First prize, Eero Saarinen and Oliver Lundquist, both of the office of Strategic Services, Washington: a "pac" house (pre-assembled components) with all internal features integrated within hulls 3 by 9 meters, one,

(Continued on page 90)

STORM FACTORY!



Wind-Tunnel addition to David W. Taylor Model Basin designed by Rear Admiral Ben Moreell, Chief, Bureau of Yards and Docks, U. S. Navy. Precast Architectural Concrete Slabs made with Atlas White Cement by John J. Earley, Washington, D. C. (Official U. S. Navy Photograph.)

U. S. Navy Faces New Wind-Tunnel Building with precast Architectural Concrete Slabs

Skies may be blue over Carderock, Maryland. But inside this wind-tunnel it's almost always blowing a gale. Huge fans manufacture anything from a gentle zephyr to a savage sirocco, while distinguished scientists play with life-like models and set the standards for the U. S. S. "TOMORROW."

When they built this important addition to the David W. Taylor Model (Testing) Basin, the Navy "maintained its course." Like the main building nearby (and like the group of buildings in the Naval Medical Center) the Wind-Tunnel Building is faced with thin precast Architectural Concrete slabs made with Atlas White cement.

An ordinary stone-setting derrick set the slabs in place quickly and easily.

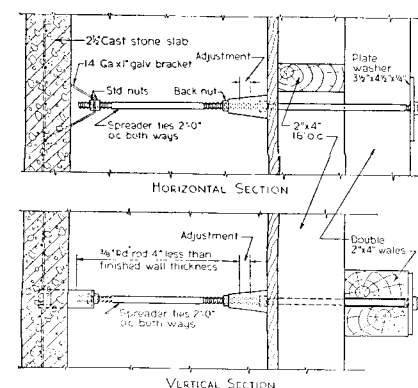
And, just as before, the panels also doubled as exterior forms for the structural concrete walls. (See sketch below.)

Thin precast Architectural Concrete Slabs are cast in any size or shape—and in a variety of textures and colors.

For additional data, see Sweet's Architectural File, Section 4-14, or send for the new 28-page book: *Architectural Concrete Slabs*. Write to Atlas White Bureau, Universal Atlas Cement Company (United States Steel Corporation Subsidiary), Chrysler Building, New York 17, New York.

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

AR-ACS-41



By using slabs both for facing and outer forms, the concrete is "poured into its own skin."

Prefabricated
**ARCHITECTURAL
CONCRETE
SLABS**

made with
ATLAS WHITE CEMENT

The Savoy-Plaza's report on *BRASS PIPE* ... after 15 years' service

**NO
FAILURES
NO
REPLACEMENTS
NO
LOST REVENUE**



The Savoy-Plaza

McKim, Mead & White, Architects; Tenney & Olson, Consulting Engineers; George A. Fuller Co., General Contractors; Jarcho Brothers, Plumbing Contractors.

THE Savoy Plaza Hotel, New York, will be permanently protected from rusty water by the use of Anaconda Brass Pipe for hot and cold water lines.

Jarcho Brothers, plumbing contractors, report that the use of this lifelong pipe with brass fittings added only 5.69% to the cost of the plumbing installation over the cost of the best grade of corrodible pipe and fittings. Anaconda Brass Pipe is trade-marked and guaranteed by The American Brass Company, General Offices: Waterbury, Connecticut. Offices and Agencies in Principal Cities.

Reprint of advertisement published by The American Brass Company in 1928

ANACONDA BRASS PIPE

That's what New York's fashionable Savoy-Plaza has to say about the Anaconda Brass Pipe installed for hot and cold water lines during construction of the hotel in 1928.

Recent years especially, with their problems of wartime maintenance and upkeep, have proved over and over again the soundness of the investment—an original increase in the total plumbing cost of less than 6% as compared with a rustable pipe installation.

No maintenance has been necessary other than that normally required by a building of this type. Also dur-

ing these years, *no* replacements have been required—*no* loss of revenue has been incurred. The copper roof, gutters, flashings, wire, cable, etc., as well as all bronze hardware have given equally creditable service.

After victory, these same advantages of rustproof copper, brass and bronze will again be available for durable peacetime service.

4324
THE AMERICAN BRASS COMPANY
General Offices: Waterbury 88, Connecticut
Subsidiary of Anaconda Copper Mining Company
In Canada: ANACONDA AMERICAN BRASS LTD., New Toronto, Ont.

Anaconda Copper & Brass



BUY ALL THE BONDS YOU CAN AFFORD . . . TURN IN ALL THE SCRAP YOU CAN FIND

PREFABRICATION VS. ARCHITECTS' ETHICS

By GERALD LYNTON KAUFMAN, A. I. A.

THE ARCHITECTURAL RECORD for June, 1943, published a list of 187 firms engaged in, or closely identified with, the production of prefabricated houses. In the case of about 30 of these the daily, monthly, or yearly output was also given. The approximate total plant capacity of these 30 together is about 40,000 houses per month. It may be assumed that 100 additional companies may enter this field or convert to it after the war, making a total of about 250 prefabricators.

In order to make a postwar building boom big enough to equal the plant capacity of 250 companies, the demand will have to be created. National advertising campaigns will be started, the Own-Your-Home idea will be spread through the newspapers, magazines and radio; through department stores, fairs, expositions and contests; and through campaigns by banks, loan companies, realtors and developers; and through high-pressure salesmanship by competing producers, helped by programs sponsored by government bur-

eous and agencies. The boom may grow to monumental proportions; the American public will be "sold" on home-building; and, quite possibly, hundreds of thousands of prefabricated units will be delivered and erected the first year after the war. In that case, the 250 companies would pay handsome dividends, their stock would soar on the Exchange, and bond issues would be floated to cover plant expansion for the "assembly-line industry of the future." But how about the second year? What will happen when production capacity reaches say three or four million units annually? How many firms will go into bankruptcy the third or fourth year, when the saturation-point is reached? Will "marketwise" analysts say that the Great Depression of the late 1940's ruined the prefabricators; or will someone dare suggest that an unhealthy home-building boom contributed to the depression?

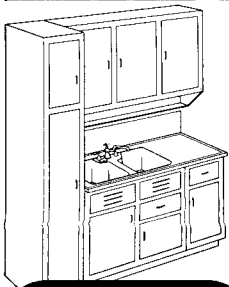
Perhaps a new type of "postwar planning," started *now*, might help

avert any such calamities as those mentioned above. Perhaps there is a fallacy in adopting all the high-pressure methods, publicity campaigns and supersalesmanship of the automobile, radio and refrigerator industries, and applying it to prefabricated homes. Perhaps there is another way.

Architects interested in residential work know that the hard part of their work is to pre-determine the exact type of house to fit the site factors, orientation, contours, and neighborhood; to fit the client's present and future needs, his habits, taste and pocketbook; to reconcile his client's demand for the best of everything, with the products available within his budget. He must determine the wisdom of recommending certain savings in materials or equipment in order to increase the number or size of rooms or vice versa. The hardest part of all is thus to be a *disinterested* professional advisor, in all that this implies, to assure the owner's getting a home that will satisfy him

(Continued on page 92)

33,000 KITCHENS MUST BE RIGHT!



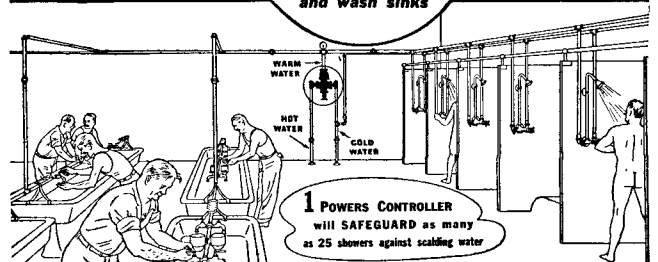
AMERICA'S LEADING
BUILDER OF
WAR-TIME CABINETS

★ As its contribution to war and defense housing, Kitchen Maid has already sold more than 33,000 kitchens for projects of all types! Such a record is further evidence that this famous factory-built cabinetry of composite construction is right for practically every application—proof that it meets the most rigid present-day requirements for adaptability, ease of installation, price, and delivery. But more than that! Kitchen Maid's wide experience in this advanced cabinetry design can be of great value to you on any war housing job. Write for facts now.

Kitchen Maid Corp., 630 Snowden St., Andrews, Ind.

KITCHEN MAID
CABINETS OF COMPOSITE CONSTRUCTION

For LOW COST INSURANCE



Use Powers thermostatic water mixing valves for Group Showers, Wash Sinks, Hot Water Line Control and Industrial Processes. Capacities up to 2,650 g.p.m. Write for Circular 3017. THE POWERS REGULATOR COMPANY, 2752 Greenview Avenue, CHICAGO—Offices in 47 Cities. 52

POWERS WATER TEMPERATURE CONTROL



Architect Marcel Breuer, now professor in Harvard's department of architecture, trained, then taught at the famed Bauhaus. To his credit are the first tubular steel chairs and some of the best examples of contemporary architecture and industrial design here and in Europe.

FROM WARTIME PLASTICS BONDED PLYWOODS... THIS "PLAS-2-POINT HOUSE" FOR POSTWAR LIVING

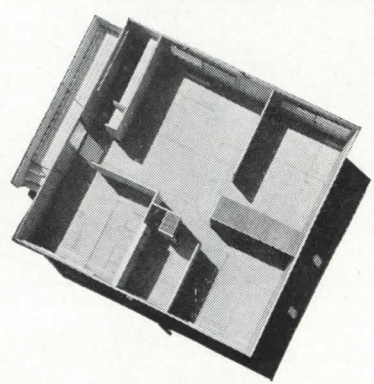
HARVARD's Marcel Breuer has pondered the skeleton of a modern bomber... probed the possibilities of war-born, new plastics-bonded plywoods... and produced this interesting and original design for postwar prefabrication which he has christened the "Plas-2-Point House."

"Compared with current prefabricated construction," Mr. Breuer estimates, "the Plas-2-Point House would weigh a third as much, cost only 70% as much and, knocked down for shipment, would occupy only 30 to 40% as much packing space. Even fully assembled houses could be trucked short distances from central assembly lines to indi-

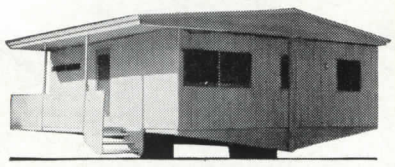
vidual building sites, then quickly anchored to foundation blocks."

Since neither walls nor partitions are load-bearing, the "Plas-2-Point House" is highly flexible. Exterior wall panels might be heavily insulated for cold climates or simply a series of screens for the tropics. They might be built up from Resinox-bonded plywood with a durable, colorful, weather-resistant melamine surface—or even from paper or fabrics impregnated with Resinox and melamine resins.

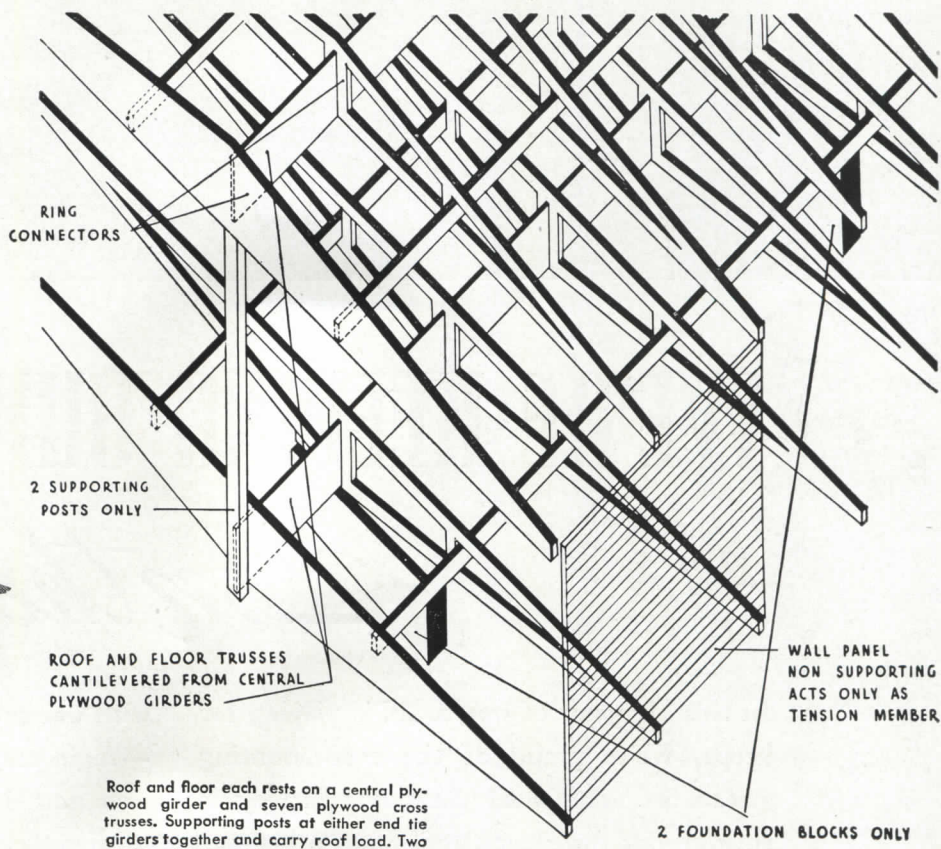
To save weight, gain production economies and add new notes of color and style, many of the house's fittings and accessories would probably be molded from plastics.



Interior partitions might be omitted, completed later. As family grows, a second complete unit might be added. Actually this house allows greater flexibility than conventional custom building.



With its narrow foundations, two-way cantilevered form and plywood skin, "Plas-2-Point" house is reminiscent of modern aircraft. Six-room house for cold climate would weigh 3 to 4 tons.



Roof and floor each rests on a central plywood girder and seven plywood cross trusses. Supporting posts at either end tie girders together and carry roof load. Two foundation blocks, four feet by eight inches, provide anchorage. Outside walls serve as tension members and give structure rigidity.

The Broad and Versatile Family of Monsanto Plastics

(Trade names designate Monsanto's exclusive formulations of these basic plastic materials)

- LUSTRON (polystyrene) • SAFLEX (vinyl acetal) • NITRON (cellulose nitrate) • FIBESTOS (cellulose acetate) • OPALON (cast phenolic resin) • RESINOX (phenolic compounds)

Sheets • Rods • Tubes • Molding Compounds • Castings • Vuepak Rigid Transparent Packaging Materials



FOR FACTS ON POSTWAR PLASTICS...

For facts on postwar plastics and ideas on what they may be able to contribute to your particular products — see the 24-page booklet prepared for product designers, "The Family of Monsanto Plastics." There you will find information on significant new wartime advances in plastics materials and fabricating techniques, such as the new, rubber-like Saflex compounds, pulp molding and low-pressure bag molding. You will also find charts of comparative properties, graphs and photographs describing the complete family of Monsanto Plastics, probably the broadest, most versatile group of plastics offered by any one manufacturer. For your copy, simply write: MONSANTO CHEMICAL COMPANY, Plastics Division, Springfield, Massachusetts.



• • • WE'RE KEEPING OUR EYE

—on the Pitcher

In this big game of war, LCN is playing for keeps. We're proud of the ever-mounting stream of vital small parts our factory is turning out for planes, tanks and other war machines.

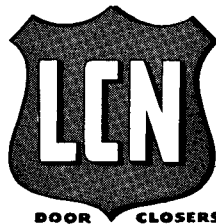
But—we're keeping our eye on the pitcher. A quick snap of the wrist isn't going to catch us flat footed . . . off the bag.

Even as our busy machines whirr and buzz

with war activity, the boys in the back room—engineers, designers, sales executives—bend over new designs for better living . . . ideas to short cut the dangerous "in between" days when war production halts.

In those days your need for goods may be great—and immediate—to meet the stored up demands of a great new era. LCN will be ready when your call comes in.

NORTON LASIER COMPANY • 466 West Superior Street • Chicago



When it
comes time
to go
**Window
Shopping**



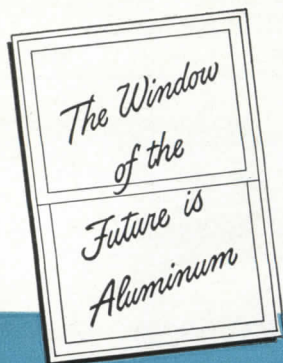
You can't buy an Aluminum Window today, of course. Manufacturers who made them before the war—others who have them on postwar-product lists—are 100% on war work. But these companies are working with aluminum, learning all there is to know about this remarkable metal, its fabrication and design possibilities.

That's why it's a *safe* bet that, when civilian building construction again gets under way,

Aluminum Windows are going to be your *best* bet. What other material offers you all of the following advantages?

Light weight with high strength, accurately matched parts that do not swell, rot or rust; these are properties that make Aluminum Windows weather-tight, easy to open and close, and keep them that way throughout the years. Narrow frames that give maximum glass area, fine appearance without the need for frequent, expensive paintings to preserve them; these things help keep owners delighted with their Aluminum Windows.

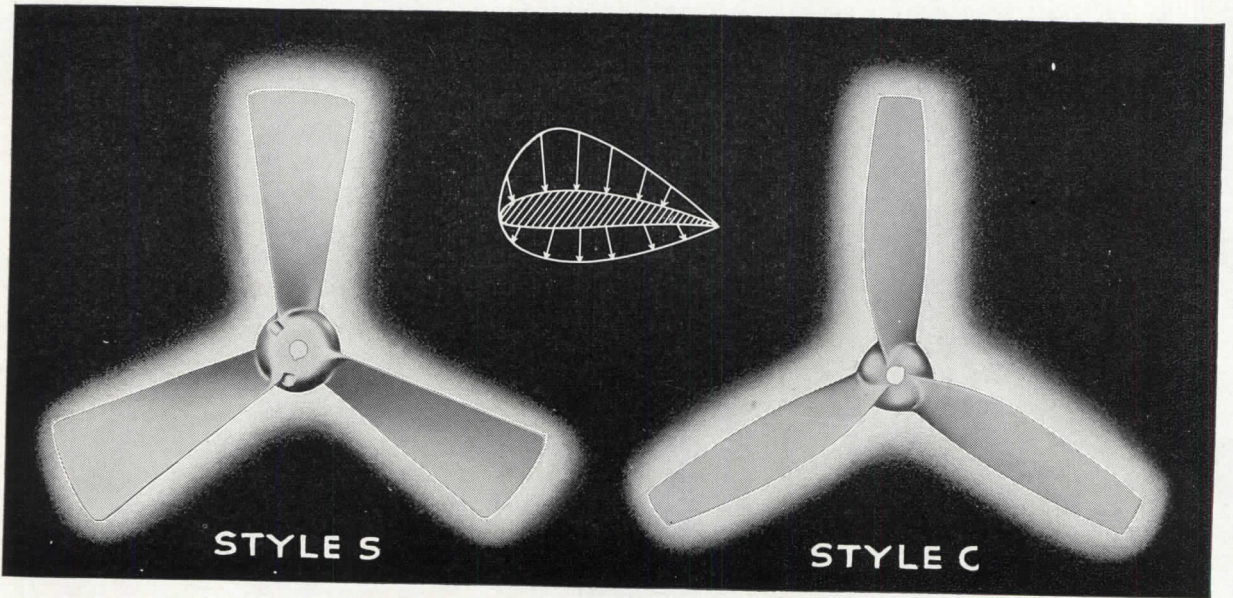
In making your postwar plans, count on using Aluminum Windows. ALUMINUM COMPANY OF AMERICA, 2167 Gulf Building, Pittsburgh, Pa.



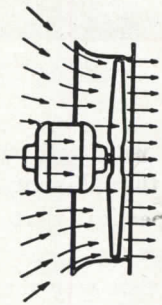
ALCOA ALUMINUM



These PROPELLAIR BLADE DESIGNS Simplify Ventilating Problems



CURVED ENTRANCE RING INCREASES BLADE EFFICIENCY



As contrasted with ordinary straight-edge rings that serve merely as mounting devices, the Propellair Curved Entrance Ring enables Propellair fans to deliver more air per horsepower. This construction permits the utilization of the Airfoil air-movement principle in the entrance ring as well as in the propeller, resulting in air-flow that is at peak efficiency.

The principles embodied in Propellair's Axial-Flow, Airfoil blade designs make it possible to calculate with assurance the result to be expected from any proposed installation. This advantage, together with the wide range of design modifications which have been developed to meet the requirements of varying applications, helps to simplify the matter of recommendations for ventilating jobs.

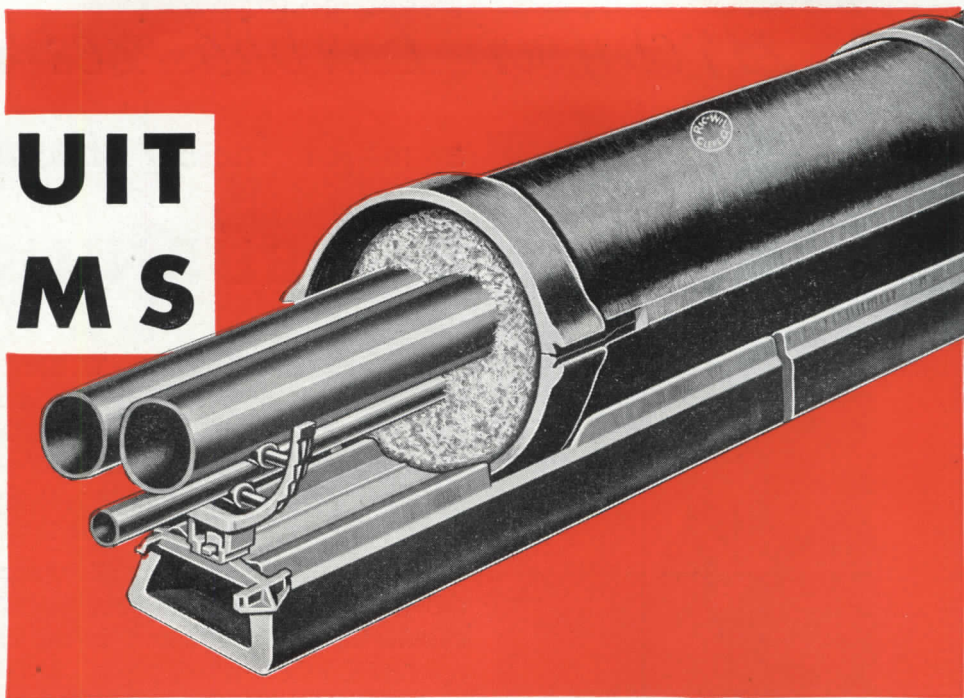
These Axial-Flow, Airfoil blades were especially designed by Propellair engineers with pitch and thickness increasing toward the hub. Thus an even air-flow is obtained throughout the entire diameter. Both surfaces of the blade are utilized in this design. The camber on the back of the Airfoil blade produces a suction or lift (see center diagram) which supplements the air produced by the flat surface of conventional blades. The fans deliver maximum air per horsepower because the whole blade surface works, not just the tips. Also, the propellers are non-overloading. Horsepower remains virtually constant, from open to complete block-off, as long as the motor speed remains constant. The number of blades and their pitch and shape depend upon the job to be done.

If you have a pressing industrial ventilating problem, you should have our Propellair catalog No. 10-T. It contains many pages of technical tables, charts, diagrams and other valuable information for architects, engineers and plant men—and of course describes and illustrates the complete Propellair line. We will mail the catalog on request or, if you prefer, we will ask the nearest Propellair ventilating specialist to deliver your copy personally and at the same time discuss your specific problems. *Write!*



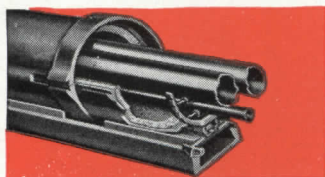
TILE CONDUIT SYSTEMS

FOR
UNDERGROUND
STEAM LINES



Ric-wil, pioneer in the tile conduit field, has served the country's needs on underground steam protection with outstanding leadership since 1910. Today, with material supply, production facilities, and plant personnel subjected to severe pressure, it is a point of pride with us that traditional standards of quality are being scrupulously maintained. In spite of heavy demands, we are well equipped to make quick deliveries on all sizes and types of Ric-wil Tile Conduit, as well as on our complete line of Prefabricated Insulated Pipe Units . . . Conduit illustrated is Ric-wil Standard Tile with filler insulation. Heavy duty Super-Tile and Cast Iron are also available for this type, and all are adaptable to single or multiple pipe systems.

RIC-WIL TILE CONDUIT FOR OIL OR PROCESS LIQUIDS

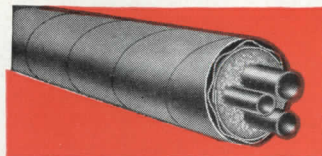


In this system, conduit is insulated from the exterior, but individual lines are not insulated from one another. A steam or hot water line can thus maintain temperature to keep liquids flowing in the other lines. Insulation is a diatomaceous earth lining, moulded and keyed to inside circumference of tile. May also be used with fibre insulation for steam heat, power and super-heated steam. Applicable to Super-Tile and Cast Iron.

RIC-WIL PREFABRICATED INSULATED PIPE CONDUIT

Completely factory-prefabricated units including pipe and insulation as specified are furnished in convenient 21 foot lengths for speedy installation. Conduit is helical corrugated, coated with asphalt and wrapped with asphalt-saturated asbestos felt. This system is also available for oil or process liquids, and is adaptable to overhead as well as underground installations.

Many other types of Ric-wil conduit are available to meet individual requirements. Write for complete information.



RIC-WIL INSULATED PIPE CONDUIT SYSTEMS
THE RIC-WIL COMPANY · CLEVELAND, OHIO
AGENTS IN PRINCIPAL CITIES

An Architect Emphasizes



a major factor of operating economy in
OIL BURNING SYSTEMS

Robert von Ezdorf, of John W. Harris Associates, is well known as a designer of many famous buildings and has collaborated with architects on such buildings as the Central Hanover Bank and Trust Company and the new building for Tiffany and Company in New York. He is now engaged in planning numerous postwar projects. Concerning oil heating he finds that,

"Architects recognize the advantages of oil burning systems for the broad postwar program ahead of us. Automatic operation eliminates labor cost, and in my experience oil heating provides comfortable heat which pleases the occupants of a building and low costs which please the management. I have found that Petro equipment measures up to the high standards demanded for sturdy, reliable heating systems."

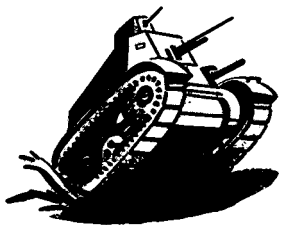
Reduced labor cost in the boiler room is a natural and expected result of automatic firing with any good equipment.

Beyond that, however, are other operating costs which make a very considerable total, and which may vary widely among different makes of any given type of equipment.

Among these are fuel costs, which are largely governed by the delivered combustion efficiency of the equipment; power costs, to operate the equipment; repair and service costs, to maintain the equipment in efficient operation; and the item of annual wear or total years of efficient life.

Lavishly documented evidence from operators of Petro equipment for many years is available to show how notably Petro Oil Burning Systems keep each of these items at a minimum.

These things must be engineered and built into the system. They will continue to be potent economy factors in post-war Petro Systems.



OIL IS AMMUNITION USE IT WISELY

Full data on Petro Industrial Burners are in Sweet's—or Domestic Engineering—catalog files, or we will gladly send copies on request.



PETRO
Cuts Steam Costs



PETROLEUM HEAT AND POWER COMPANY

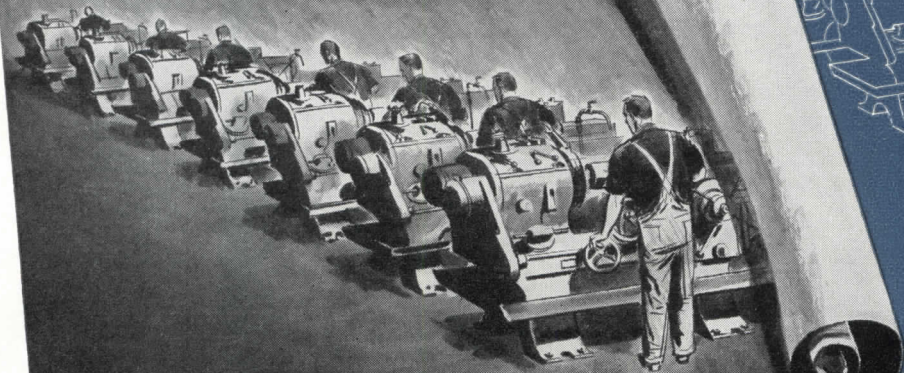
STAMFORD

—Makers of good Oil Burning Equipment since 1903—

CONNECTICUT

**TODAY
TANK PARTS**

**TOMORROW
?**



PLAN YOUR DISTRIBUTION SYSTEM

FOR *Quick Conversion*

Future demands on your plant depend on events no man can accurately foretell. Sound practice today calls for farsighted planning—to insure the ability to make quick production shifts economically.

Such shifts depend to a large extent on your plant distribution system. For on it hinges the ability to meet quickly changes in the nature, location and density of loads.

That's why we say *plan now for maximum flexibility in your plant distribution system*—to give increased efficiency and sabotage protection today, to facilitate speedy and economical conversion tomorrow.

Westinghouse has designed and built hundreds of distribution systems for all types of plants.

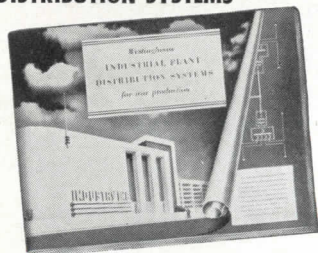
Thus our engineers are in a position to recommend the “one best” distribution system for your plant—the system that provides maximum flexibility with the least use of critical materials.

To bring this broad engineering experience to bear on your particular problem, call our local office. Or send for the helpful booklet below. Westinghouse Electric & Mfg. Co., East Pittsburgh, Pennsylvania.

J-94562

UP-TO-DATE FACTS ABOUT DISTRIBUTION SYSTEMS

Keep up-to-date on latest plant distribution systems. Send for 24-page Booklet, B-3152, which briefly describes different plant distribution systems, and points out the advantages of each.



Westinghouse
PLANTS IN 25 CITIES . . . OFFICES EVERYWHERE



PLANT DISTRIBUTION SYSTEMS

KEEPING UP *(and down)*

With The Construction Market

SOME of those who are intimately concerned with construction activity marvel at times at the efficiency and dispatch with which building and engineering projects are conceived and completed. But, quite often this feeling of surprise turns to one of chagrin—because they did not know about the job. They did not have an opportunity to figure it. They lacked timely information that would have helped them to serve themselves and the industry to better advantage. They did not keep up (and down) with the activities of the construction market.

When construction is up in volume, market information is essential to speed and coordination of effort. When volume is down, early, accurate information about specific types of projects points the way to available business. Reliable market information is the firm basis of successful operation in the construction industry.

Construction news has been continuously available for fifty-odd years—in the form of Dodge Reports—to the smallest firms in the industry, as well as the largest. Those who use Dodge Reports know about the jobs in which they are in-

terested. They know whom to see, where and when. They don't waste their own, or other peoples' time, making haphazard business calls. They plan their daily schedules with good judgment and efficiency. They have no difficulty in keeping up (and down) with the trends of the construction market.

And, when peace comes—when the bans on private construction are eased—when presently planned post-war jobs become active construction projects—when hundreds of thousands of men from the armed services are ready to be welcomed back into the industry—this policy of keeping in close touch with construction will be justified as never before. The industry will tackle the *post-war* construction program with the same efficiency that made its war-time performance successful. Dodge Reports service will help effectively through the dissemination of timely, selective information about active construction projects on which men, materials and equipment will be most urgently needed.

The members of the construction industry will be ready to help America win the Peace.

For Daily, Selective Information on Active War-Time Construction Use

DODGE REPORTS

For Daily Information About Jobs Contemplated For Post-War Construction Use

DODGE POST-WAR REPORTS

Issued by F. W. DODGE CORPORATION

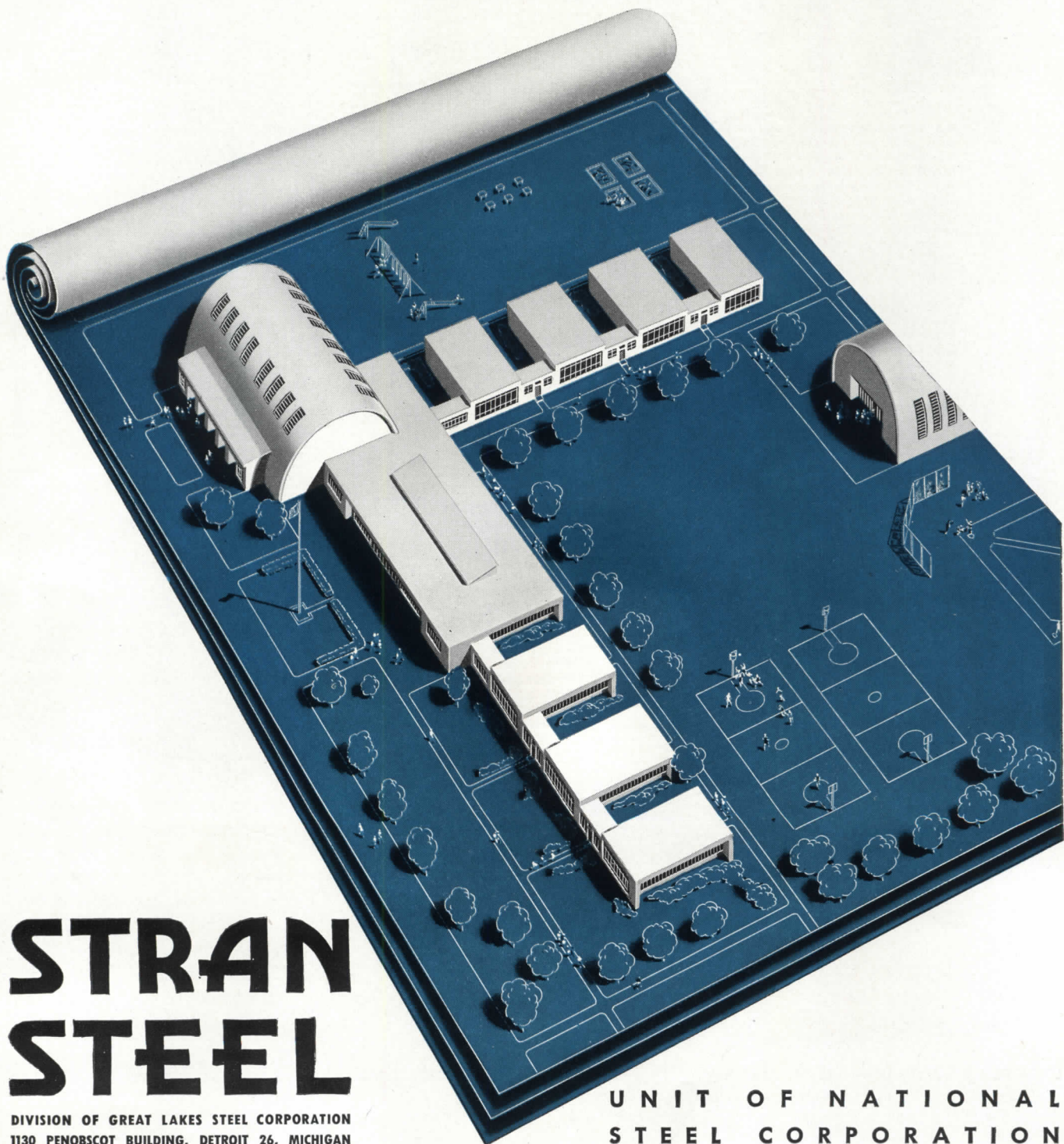
119 West 40th Street, New York 18, N. Y.—and Principal Cities East of the Rockies



Strong Ally of a Strong America

With few exceptions, the changes and developments which can be anticipated in American life after the war must depend in some measure on the building industry. Better educational opportunities will require new school buildings; decentralization of industry will necessitate new communities of homes, industrial buildings, commercial buildings and municipal buildings; social rehabilitation will call for vast programs of slum clearance; and improved living conditions will demand large numbers of homes and housing projects.

Stran-Steel is well qualified to serve a progressive building industry, strong ally of a strong America. As a key supplier of military buildings, Stran-Steel has developed new techniques and acquired valuable engineering knowledge in the use of strip steel.



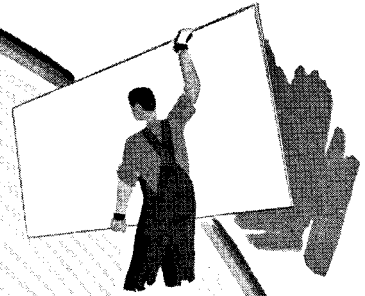
STRAN STEEL

DIVISION OF GREAT LAKES STEEL CORPORATION
1130 PENOBSCOT BUILDING, DETROIT 26, MICHIGAN

UNIT OF NATIONAL
STEEL CORPORATION



TODAY in the far northwoods, crops of trees—those not adaptable for lumber—are being harvested for many vital purposes. Many of these trees are transformed into an insulating board that fulfills a multitude of services, in many parts of the world.



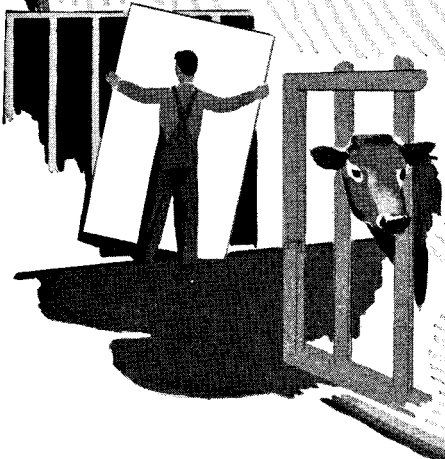
The many lives of a NORTHWOODS TREE

- Insulite is extensively used in construction of homes for defense workers. The large Insulite boards are easily and quickly applied. Covering large areas, Insulite saves precious man hours. And because it insulates, Insulite saves fuel in winter, and makes rooms cooler in summer.

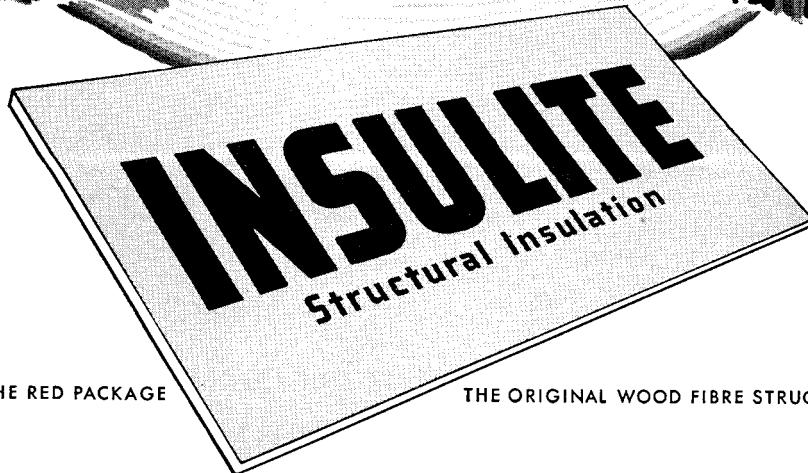
- Insulite is widely used on farms. Insulite used to line dairy barns is an aid to ventilation . . . it helps to keep cows healthier, lowers feeding costs. Hen houses and hog houses and other farm structures all can be built better with Insulite, for Insulite provides in one material wind-proofed, weather-proofed and moisture-proofed walls.

- Fabricated into Insulite Structural Insulating Board these trees have a wider usefulness than wood itself. Logs are placed into giant machines that tear them to pieces, reducing them to the wood fibres. From these fibres—the sturdy sinews of the tree—are processed the boards called INSULITE.

- Insulite gives two services—it builds stronger, and insulates as it builds. Insulite has a bracing strength four times that of ordinary wood sheathing, horizontally applied. As in 1918, Insulite has been used in the construction of many buildings for our armed forces throughout the country.



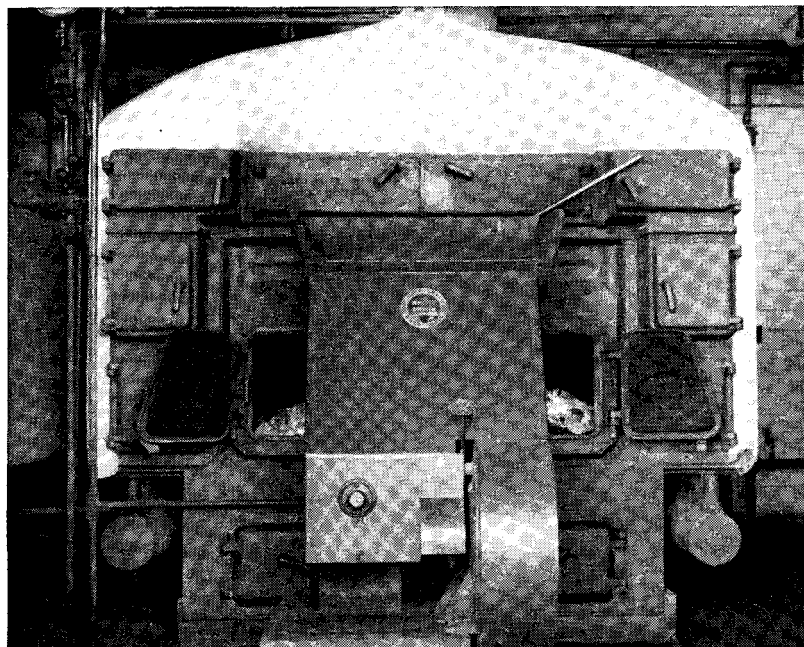
INSULITE
Division of Minnesota and
Ontario Paper Company,
Minneapolis, Minnesota



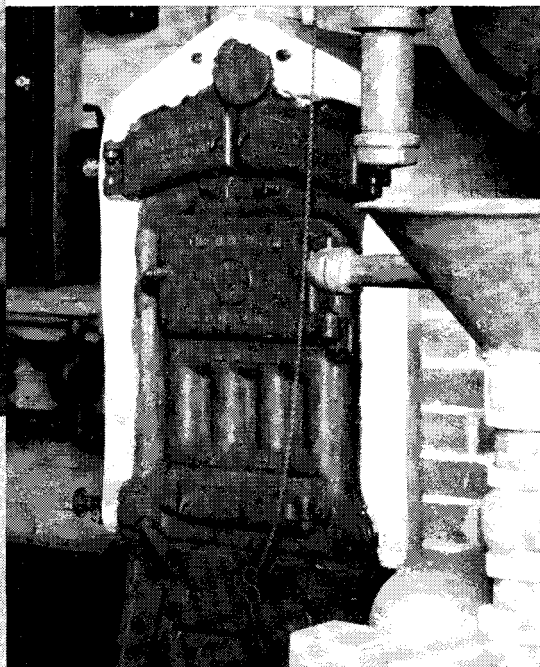
LOOK FOR INSULITE IN THE RED PACKAGE

THE ORIGINAL WOOD FIBRE STRUCTURAL INSULATING BOARD

Important War Producer Solves Process Steam Problem with "Double Purpose" Cast Iron . . .



H.B.
Smith
BOILERS



Four No. 60 SMITH BOILERS like that shown above together with one No. 41 SMITH-MILLS and two No. 17 SMITH HY-TEST Boilers (right) not only supply the necessary heat for the new industrial buildings of the New Britain Machine Co., but also supply steam for process equipment and service hot water

When two large No. 60 H. B. SMITH oil burning boilers were specified for each of New Britain (Conn.) Machine Company's "W" and "V" buildings, it was contemplated that steam requirements would be heavy. Each building is heated by two huge blower units having a combined condensation capacity of 4,000,000 B.T.U. per hour, and when both units are on at full speed a severe demand is placed on the boilers to produce and maintain adequate steam pressures.

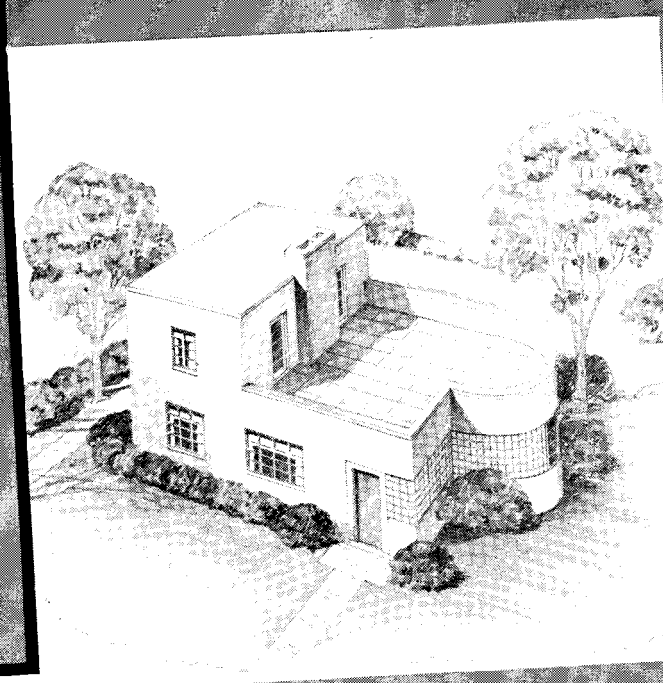
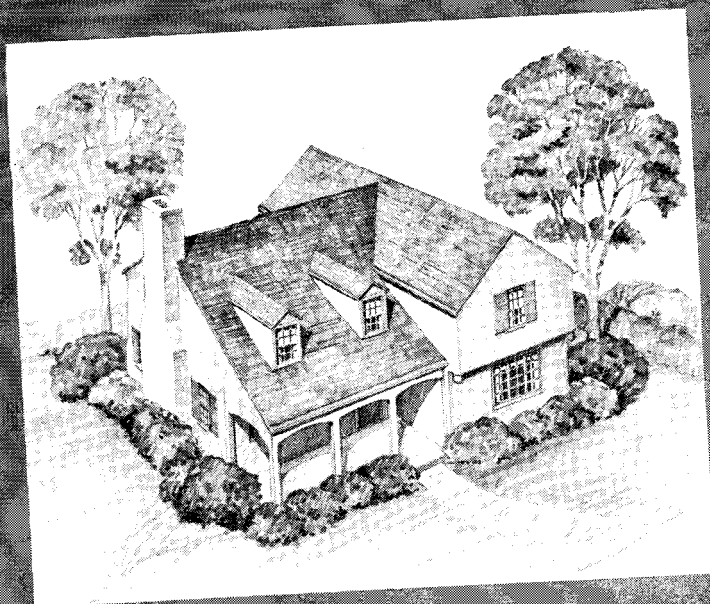
After the installation was made factors which could not have been foreseen came into play. Plant Engineer, R. D. Kimball, consulted with SMITH field engineers. Can we add a degreasing machine to the heating load? How will it affect the steaming ability of the boilers? Can steam at 25 lbs. be supplied if necessary?

The answers were all that New Britain Machine wanted. Yes, the reserve power, the extra test pressures of H. B. SMITH boilers made possible this plus job. No costly changes involving precious time on vital war contracts were needed. The degreasing machines were installed. The boilers swung into operation. Steam pressures are up . . . worries are down to zero. Another H. B. SMITH installation has proven that it pays to specify SMITH for that job that requires something *extra* in boiler performance.

THE H. B. SMITH COMPANY, INCORPORATED
BOSTON

NEW YORK

• WESTFIELD, MASSACHUSETTS
PHILADELPHIA



Marching back to ..

What?

DURING the first six months of peace, a U. S. Chamber of Commerce survey indicates that 1,015,000 families intend to build or buy new homes—592,000 intend to modernize kitchens—496,000 plan new bathrooms.

But what kinds of homes? How importantly will advanced design, improved construction and new materials influence their planning?

Architects and builders already have the answers to many such questions in the versatile performance of steel, not only in industrial buildings but also in dwellings. These qualities will serve an even more important need when it comes to designing the "homes of tomorrow." Modern construction will create many new demands for which the use of steel is a practical "must."

For no other material can serve so many purposes so well. Wherever there is need for strength, durability, resistance to the elements and fire there will be found a steel suited to that need. Mass production of prefabricated units, which seems destined to increase, is just one of the instances in which steel can serve to advantage.

We have collected a fund of valuable information concerning the most frequent uses of U·S·S Steel Products in home building. This information makes interesting reading in a fully illustrated brochure, "85 Ways to Make a Better Home." Just drop us a line and we shall be glad to forward your free copy.

★ BACK THE ATTACK . . . WITH WAR BONDS ★

U·S·S STEEL SHEETS

CARNEGIE-ILLINOIS STEEL CORPORATION, *Pittsburgh and Chicago*
 COLUMBIA STEEL COMPANY, *San Francisco*
 TENNESSEE COAL, IRON & RAILROAD COMPANY, *Birmingham*
 United States Steel Supply Company, *Chicago, Warehouse Distributors*
 United States Steel Export Company, *New York*

Properties and advantages of Special U·S·S Steels

U·S·S COPPER STEEL—Twice the atmospheric corrosion resistance of plain steel. Furnished black or galvanized for gutters, downspouts, flashings, duct work for air-conditioning systems and furnace construction.

The cost of U·S·S Copper Steel is so close to that of plain steel that it adds less than one dollar to cost of sheet metal work in average building under \$6,000.

U·S·S PAINTBOND—A galvanized Bonderized Steel. Permits immediate painting. Paint holds tighter, lasts longer. Highly recommended for all outdoor uses such as gutters, downspouts, ducts, and all sheet metal work.

In the South and West, U·S·S Dul-Kote, with properties similar to Paintbond, is available.

U·S·S VITRENAMEL—Porcelain on U·S·S VITRENAMEL has almost unlimited possibilities both for interiors and exteriors. Base metal is easily formed into attractive shapes. Porcelain finish is durable and easily cleaned.

Ideal for wall panels, roofing, shingles, shutters, tiling, and bathroom, kitchen and laundry equipment. For bathtubs, lavatories, sinks, stoves, refrigerators, washing machines, hot water heaters, laundry trays, specify U·S·S VITRENAMEL.

U·S·S STAINLESS STEEL — a "perfect metal" for sinks, drainboards, work surfaces, kitchen and bathroom trim — any place where a permanent, sanitary and beautiful service is desired.



TRENDS: ONE, TWO, THREE, FOUR

While the war has not materially changed the primary function of the architect it has temporarily altered his sphere of activity and may alter both his business organization and methods in postwar practice. For one thing, government agencies as "clients" have demanded closer cooperation between architect—engineer—contractor—manager. This has meant the formation of new firms with combined talents and broader responsibilities, or the expansion or amalgamation of old firms.

♦ Just how far the integration of the various services will go in postwar practice can only be guessed. Trends, however, are not far to seek, and have significant implications for architects now preparing for postwar practice. All indicate opportunity for increased influence and activity on the part of architects.

♦ Trend One is the response to the demand for more complete service. Most owners, like Uncle Sam, will want a single responsible firm to handle all planning and design work, all preconstruction work, including all engineering, site planning, interior design and equipment. This means better balanced, better integrated firms or associations of firms. To some it may mean a completely integrated service of both design and construction. The one-man office may be very limited in scope and effectiveness, especially in large, complex building operations.

♦ Trend Two stems from the urge of those with building problems to have an architect in their exclusive employ, with or without a staff, either as advisor, their expert, or as an operating architect.

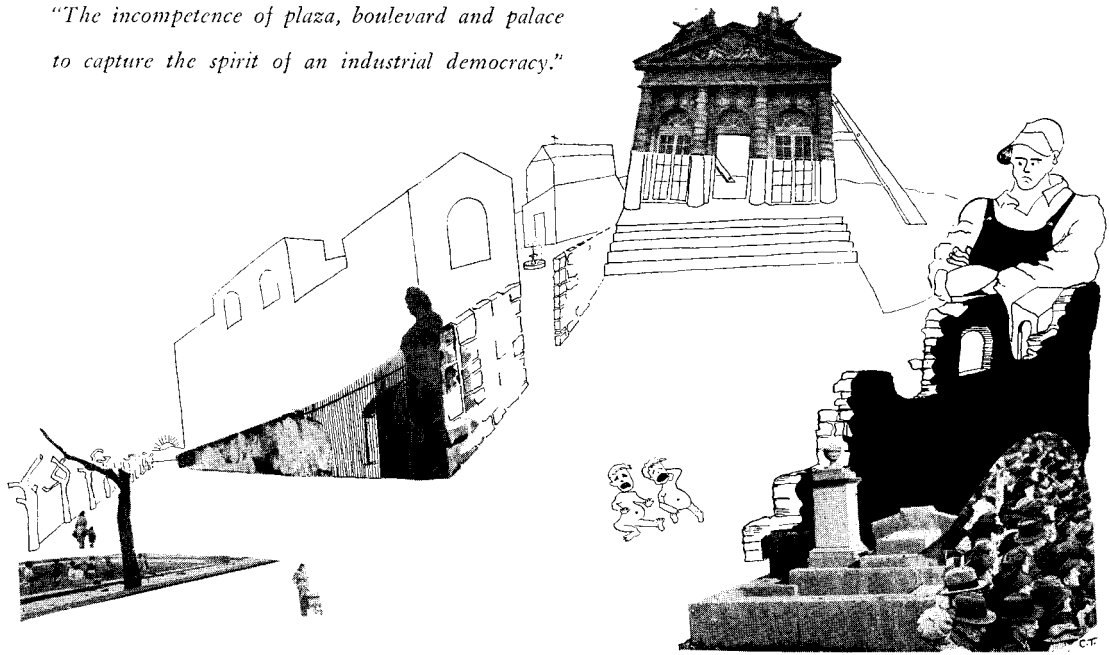
♦ Trend Three is the growth of similar salaried employees and staffs in government bureaus, municipal, state, national—perhaps originally as advisors, superintendents or inspectors, but more recently in many cases rendering full architectural services on all government financed or controlled buildings.

♦ Trend Four indicates the tendency of firms successful in some branch of building to extend their facilities to include architectural service as a part of their business, either by employing architects in salaried positions, or as firm members.

♦ All these trends have at least two things in common, first, the recognition of the importance of, and the unique function of, the trained competent architect. Second, the definite desire for greater efficiency and economy in building operations. All these trends seek, in part at least, to attain these ends through closer integration of the creative or design factors with one or more other factors from owner to contractor.

♦ The desired result, efficiency and economy—plus the best possible solution to the client's problems—may be best obtained by efforts in line with Trend One. If architects in general do not plan and act in that direction it seems inevitable that one or more of the other trends will develop in the period of intense building activity after the war. And Trend One is largely the architect's own responsibility from here in. The program for postwar planning on the part of architects, collectively and individually, would seem to be implicit in the considerations thus broadly outlined.

*"The incompetence of plaza, boulevard and palace
to capture the spirit of an industrial democracy."*



THE POLITICAL ART OF PLANNING

BY JOSEPH HUDNUT

Sketches by Christopher Tunnard

AMONG the amiable sayings of Dr. Arbuthnot, the celebrated cliché expert, is one which deserves at this moment a brief commentary—all the more so because it is one certain to be quoted wherever three architects are gathered together into a circle. "It is important," said Dr. Arbuthnot, "that planning should not be mixed up with politics."

Dr. Arbuthnot was himself earnestly, if somewhat vicariously, engaged in planning. He was one of the five eminently respectable citizens who together formed the planning board of his city and met twice each year to make many interesting suggestions. It was through Dr. Arbuthnot's influence that a Master Plan for the city was made. He engaged a young man just graduated from Yale who for a very modest fee introduced all the newest ideas of his professors. The Plan, exquisitely colored, was displayed for several weeks in the office of His Honor, the mayor.

Heaven only knows how many Master Plans are buried in the Library of Planning at Harvard. They are of every size and shape, from the great solemn plans ranged in massive cabinets along the floor and sumptuously dressed in gold and leather to the long rows of middle-shelfed plans bound in bourgeois cloth and fattened with statistics and the hundreds of eager little plans, paper-bound, which line the cornice like amorini above a rococo altar. It's hard not to be a philosopher here in this necropolis of plans, "each in his narrow cell forever laid," and to medi-

tate the fate which decreed so brief a span to so many bright beginnings. Born in hope and pride, nurtured by the very best of intentions, each basked for a moment in luxury and honeyed words, and died of starvation. They had this in common also: they did not get mixed up in politics.

Now it will not be denied that the making of Master Plans, even should this reach the proportions of an industry, can scarcely comprise the sum and substance of the art of planning cities. Master Plans embody as a rule some hope for a future translation into space and stone and tree. They are *espaliers* intended to give form and healthful growth to the vagabond vine of the city. No doubt many of their authors, like the sculptors of Reims, find a proud satisfaction in the remembering of Virgins forever hidden behind parapets; and yet it must be that in the long run even the most pietistic of planners must recognize a certain futility, however sublime, in his exertions. He will then blame the insensitive heart of our times.

Standing in the Library of Planning—which has become of late one of my favorite haunts—I have wondered if there might not be some means by which so much ingenuity and high faith might be brought to a wider usefulness. I know that the times are insensitive; and yet it may be that there is some ministrations, prenatal or in the

nursery and hitherto neglected by their parents, which, if provided, might encourage in these problem children a growth and transmutation. Could that ministration include, the erudite Arbuthnot to the contrary notwithstanding, a larger dose of political sense? Perhaps planning ought to be mixed up with politics.

Politics is an art which depends upon some knowledge, intuitive or otherwise, of those means by which things are accomplished in the life of communities. The means by which planning may be made real comprise not ideas and techniques merely but men, institutions and laws. All of these, then, might well be included among the materials and processes of planning—and some experience in these matters, by the way, might be included also in the education of planners. Whatever planning may be in theory, in practice it is a political art.

"In proposing his plans," writes a learned authority, "the town planner should take into consideration the possibilities for their achievement." The author, I think, will not be reproached for an excess of audacity.

In all of its great traditions the art of planning was integral with the practice of government, or at any rate an adjunct to that practice. The Baron Haussman, for example, nonpareil of planners, can scarcely be imagined disentangled from the regime of the Second Empire, so closely were his achievements knit to that prestigious contraption. The Baron made as great a use of men and the machinery of government as of paper and crayon. Committees, senates, and constitutions, finance, law and human necessities were the prime components of his art. Paris was his pie and he sliced it not with his pencil but with the more caustic edge of a gold napoleon. He could flatter an emperor and he knew also how to bribe an *échevin* and bully a landowner. John Nash, architect and prince of British planners, also knew a thing or two about men and parliaments. Being English, he went around these (and obstacles) rather than through them; nevertheless, Regent Street, which twisted about churches and bowed before ducal mansions, became, as every Londoner knows, "the finest street in the world." And for the patron saint of planners I give you Nero, Emperor of Rome. His

method of slum clearance was impetuous but very thorough. In a Sahara of paper plans I share across the centuries the joy that must have been his as the swift astringent flames ate their way into acres of vile tenements and opened to the sun the dark and diseased streets of Rome. On a clean page of grey ash the calm emperor then drew the broad, magnificent line of the Sacred Way, companioned with ordered and porticoed streets, laid out at its end the garden that was a fragment of Paradise, and set there the Golden House, *astra colossus et crescunt*. A planner with so majestic a will could scarcely have deserved the character which history has given him. It was some real estate man who invented that story about the fiddle.

I know a quiet professor who has nonchalantly erased Philadelphia. I know a lawyer, law-abiding as a rule, who has cut broad, ruthless boulevards through the heart of St. Louis and lifted from their beds the Missouri and Mississippi Rivers. They did these things, I regret to say, only in their dreams. Repressed by an uncongenial politic, their noble rage is sublimated in Master Plans.

* * *

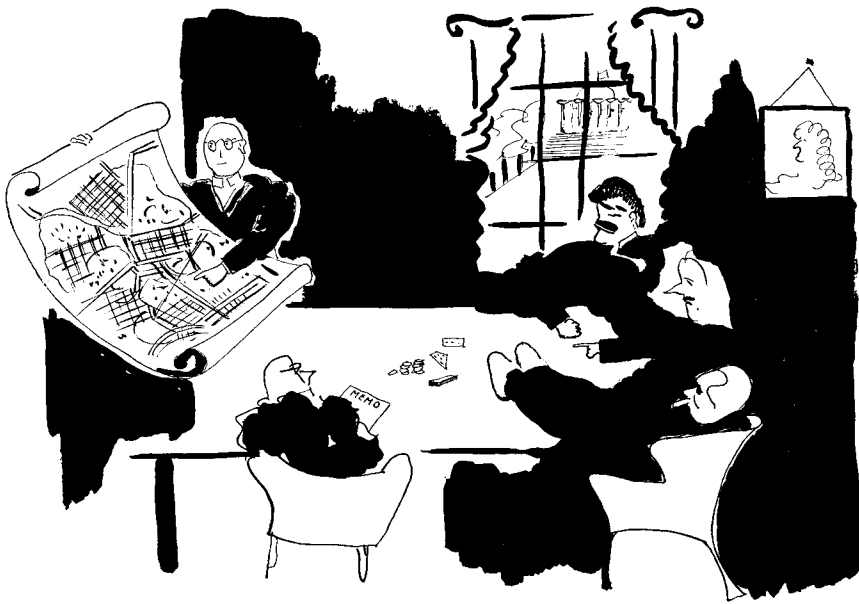
The feats of planning which illumine most brilliantly the pages of the historic architectures were elements in political absolutisms. The intention of the art of planning was clearly to affirm and celebrate the principle of absolutism. Its practice was integral to the practice of that peculiar form of political art congenial always to the monumental project. The Golden House and Garnier's Opera, gorgeous flowers of imperial policy, were, with the complex of streets and squares around them, the instruments of that policy. Nero, as I remember it, was not embarrassed by a hostile majority in the Ways and Means Committee, and the Baron's dictatorial talents were not, as Mr. Robert Moses somewhat wistfully informs us, "subject to the accident of vote."

I do not suggest, therefore, that we are in need of a Nero or a Haussman, refreshing as these might be, and I am aware also of the incompetence of plaza, boulevard and palace to capture and exhibit the spirit of an industrial democracy. It should be understood that I am not pleading for the beautiful antique patterns, still less for the methods, technical or political, by which these were arrived at, but only for the vision and purpose and realism which were built into these.

It is a great pity that the term *city planner* has come to have so nebulous a meaning nowadays. If I had my way, so imperative a title should never be given to the makers of Utopias; nor should it be given, on the other hand, to that very vocal person, the "planning expert," child of the scientific spirit, who opposes to the generous antique tradition bleak wildernesses of data, tabulation and diagram—and solemnly describes these to earnest Garden Clubs and innocent Chambers of Commerce as *city planning*. And those squirrel-like folk who inhabit the municipal planning agencies and lay up such store of data and digits: are they not officially classified by the Civil Service as *city planners*, junior and senior, first- second- and third-class? Of course I know that surveys and reports, statistics and maps, are necessary instruments of planning but these, like the data and calculations of engineers, might be kept for the discreet and understanding eye of profession-

"Each in his narrow cell forever laid."





"In proposing his plans the town planner should take into consideration the possibilities for their achievement."

als. Most harmful to the cause of planning is that air of satisfied accomplishment with which these are paraded before the public. Propaganda for planning? That is a vicious propaganda which encourages a pride in means—and leaves ends to the coming generation.

People invent too many words nowadays: otherwise I should suggest the word *architects-of-cities* to distinguish that city planner who both conceives and executes his plans from the dreamer-reformer on the one hand and the juggler of techniques on the other. I should call the art of city planning, which is not the same thing as its scientific basis, the *architecture-of-cities*. That is a sound tradition which entrusted city planning to architects, a term which, for our present purpose will include landscape architects, and its authority is surely not menaced by the growing dependence of architecture upon its technologies. I know that every architect cannot design a city and certainly I would not limit the practice of planning to architects. What I have in mind is not so much the colorations of architectural practice but rather that quality of thought and action, peculiar to architects, which habitually translates patterns of ideas into patterns of performance and for that purpose uses not techniques merely but men and institutions. I mean the kind of thought and action which creates skyscrapers, cathedrals, and the giant power stations of the T.V.A. Architecture also is a political art.

An eminent critic has classified planners as "creative" and "executive." That classification has been long implied in the commentaries of critics and is one of the causes of that dream-like character which informs our most ambitious planning projects: the *Plan of Chicago*, for example, and the recent *Royal Academy Plan for London*. The creative planner is the creator of phantoms; the executive planner is that fabulous person who will give these reality. I have never met that sculptor who could design a Venus "in the mind's eye" with the expectation that a collaborator would free her from the marble block; and he would be a strange architect who would expect contractors and workmen to capture his thought in steel and stone except under his own strict supervision. Among the *architects-*

of-cities there should be only two categories: *master* and *apprentice*, both of whom should be mindful of the truth, so often demonstrated in the arts, that imagining and making are, in practice, parts of a single process.

By city planning (since I must use the accepted term) I mean that art which is concerned with the form and disposition of the physical elements of cities. The principle that social health can be promoted by healthful environment sustains this art in our time together with the need, confirmed by the centuries, of form and order in that environment. Whereas imperial planning maintained the power and authority of the state, and mediaeval planning the power and authority of the Church, modern planning, like modern architecture, is addressed to the happiness of populations. That theme implies not merely social research, precedent and parallel to physical change, not merely scientific processes applied to street patterns, land use, and traffic, but beyond these a social ideal clearly conceived and resolutely fought for.

What is needed to give consequence and direction to our art of planning is a political process more definite, understood, and resourceful than any which now obtains. That process must be consonant with the spirit and habits of our culture—of that brave, romantic culture we call democracy. We must discover such a process and use it.

* * *

What reasons are there for supposing that an art of city planning, in the sense herein implied, can be successfully practiced in American cities?

Consider, first of all, the present achievements of this art. I will mention two: the Metropolitan Park System of Boston and the Lake Front Development of Chicago. For the first of these Charles Eliot and Charles Francis Adams invented a political instrument "whereby forty municipalities obtained the power and means to do for all what no one could do for himself." As for the second, was not Professor Merriam, a member of the city council, "active in obtaining official support?"

This idea of a civic playground, designed in the popular

taste, open to all the people, is one of the fecund ideas attributed to Louis Napoleon. As a political expedient it left little to be desired since it menaced no landed interests, made use of areas which at the time had no apparent usefulness, and was incontrovertible proof of the Emperor's solicitude for his people—a sentiment underlined by the assignment of the royal parks, Boulogne, Vincennes, Monceaux, to popular use. Everyone understands a park; and it is no misprizement of our landscape architects to say that they encountered political difficulties less formidable than those encountered by persons who sponsored projects more disturbing to economic complacency.

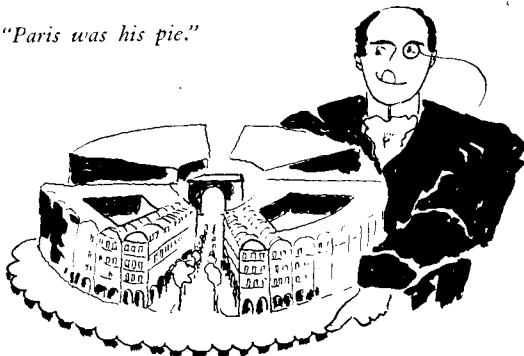
That is true in part of those who conceived and carried to completion our parkways, radial highways, and bridges—which I shall also claim as examples of the city planner's art. Everybody wants to go somewhere: a desire to which our politicians, prompted by the manufacturers of automobiles and Portland cement, have been exceptionally sensitive. We have also *civic centers*, a notion which seems oddly outmoded at this moment, and waterfront developments, partly developed; but for a political art, comprehensive, persistent and effective, the shining example is that of the advocates of public housing. The housers knew what they wanted. Their art rested almost from the beginning upon political adjustments, local and national, and, favored by circumstance, was practiced with an adroitness which might well be compared (in means, of course, and not in objectives) with that superlative political adroitness which has maintained, year after year, the governmental purchase of silver or the geodetic immobility of the tariff on Newfoundland cod. The home, with its environment, is certain to be the central theme of planning in our time and there could be no clearer proof of this than the controversies which housing policies provoke. Everybody is in favor of the express highway along the Hudson which raises real estate values at each of its ends and abbreviates so admirably the space between Wall Street and Westchester County; but divergent in the extreme are our estimates of the Queensboro and Harlem housing projects which, if multiplied, might make express highways unnecessary.

Said a banker who read this article—and when a banker speaks let no dog bark: "These housing schemes seem to have a socialistic tinge." Socialistic is a *political* epithet.

* * *

We have thus, already established, a political art of planning. This growing habit of political action is at once the cause and the consequence of a growing number

"Paris was his pie."



"The patron saint of planners"

of political agencies which have been useful instruments of planning and which promise a wider usefulness. These, in turn, rest upon new bases, made progressively firm, of law precedent and usage.

Not long ago, these agencies were uniformly unofficial in character. They were associations, societies, charitable foundations, chiefly engaged in research or propaganda. Today, there are to these added many bureaus, committees or boards fitted, somewhat uncertainly, to be sure, into the structure of government or fluttering about its edges "in an advisory capacity." Tomorrow these will be dressed in authority—as in some instances they are today.

It must be admitted that those very empiric persons who control the machinery of government in our cities show no very ardent desire to divide their hegemony with planning boards, and these boards in turn rarely offer to grasp such a hegemony either by force or guile. We know with what furious efficiency planning boards sometimes operate within their walls, creating programs vaster and more vast, arming these with the formidable profits of social and economic research; and yet how atrophied are these on the threshold of political performance.

An agency having no other function than the accumulation of the instruments of planning, with no power to use them other than for the formulation of advice uniformly ignored, might, it seems to me, be given a name less equivocal than that of *planning board*. If I had my way, that name should be applied only to agencies so integral with a municipal administration as to stand or fall with that administration. The responsibility of such planning boards to the people should be immediate and acknowledged. That "guarantee of political independence" of which these boards are so solicitous, that philosophic remoteness from the purblind herd, robs them of dignity and prohibits more than a precarious usefulness.

I am referring, of course, to the policy-making members of planning boards and especially to the chief executive officer (in those rare instances where he can be found). I should think that a planning agency might include a considerable number of "career planners"—like the career diplomats in the State Department—who would carry on



"... lifted from their beds the Missouri and Mississippi Rivers."

from year to year the routine business of planning and would build up that funded body of knowledge and experience which might form the common, ever-renewed tools of planning. Nearly every bureau of government has such men who owe their appointments and promotions to the accepted methods of the Civil Service. I do not suggest that technological problems and the day-to-day difficulties of administration should be resolved by popular vote, nor do I take lightly the work of those engineers, statisticians, budget-makers and investigators who sustain the functioning of cities. There are people, however, who mistake this work for the art of city planning: the same people, no doubt, who mistake air conditioning for architecture.

As for the policy-making planners, the *architects-of-cities*, these should be as directly responsible to public opinions as are mayor and aldermen. Their policies should originate in election pledges and should endure the searching absurdities of campaign oratory. They should give and take blows; and they should now and then be spat-tered with mud. One year Republican and the next year Democratic, the policies of the planning board should, if I had my way, attain that lack of continuity which, however costly in practical terms, is the certain evidence of vitality in the democratic process; and if it should happen that the people of a city preferred bad planning to good, then, God bless them, they should have it.

Many people believe that the National Resources Planning Board died when a petulant senate refused its an-

nual appropriation. On the contrary, it was then that the NRPB came to life. From that time forth, the programs of this agency will live in politics—to win and lose elections, to make and unmake the careers of senators—and in the end the NRPB in some form or other will be reconstructed. No doubt it will be given another name.

* * *

This formulation of political instruments of planning, however hesitant, sustains a faith in an architecture of cities; but there is, besides this formulation—and the many successes of our planners in practice—a deeper and more persuasive witness of that faith. I mean those currents in the public mind which almost daily are becoming more favorable to planning. In this, the final court of appeal, there is a growing consciousness of the art of planning, a growing comprehension of its purposes and its promise, and, what is more important, a growing discontent with that outrageous calumny which our present cities offer a proud democracy. These are necessarily formative influences in the politics of our day—and in the end will not be denied.

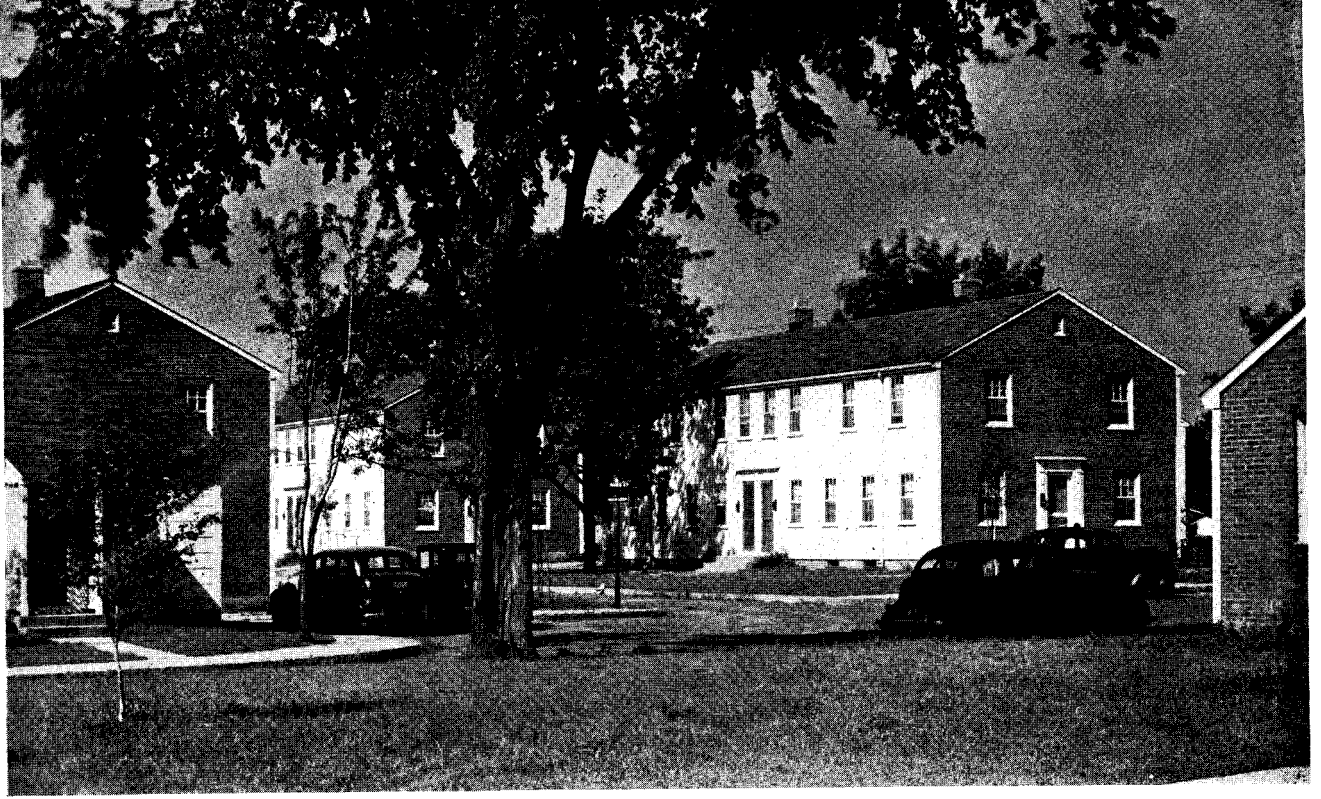
These currents of thought have their origin in the conception of society as an organic whole and are sustained by that conception. We are conscious of a participation in great tides of human behavior: and with what distinctness and force the great war brings that home to us! A habit of collective thought and action is daily confirmed as we face together the collective destiny which, in peace as in war, we shall share together. Since our lives are to be lived, our happiness attained, as parts of a collective whole, we will inevitably become increasingly alert to whatever is of significance in the life of our community. Certainly city planning will be among those factors: and not as a biological science of shelter and physical health merely but as an art, interpreter of the human spirit.

It appears then that we need not despair of an *architecture-of-cities*. We need not despair of a principle of form as consonant to our industrial democracy as was the Renaissance principle to the eighteenth century. We have already discovered and practised some elements of that new architecture; we have created and strengthened the political tools which are necessary for its continued practice; and in all of this we are sustained by a public opinion increasingly enlightened.

The colors are ground. The canvas is taut. The brushes lie ready on the tabouret. We await the master.



"The express highway . . . which raises real estate values."



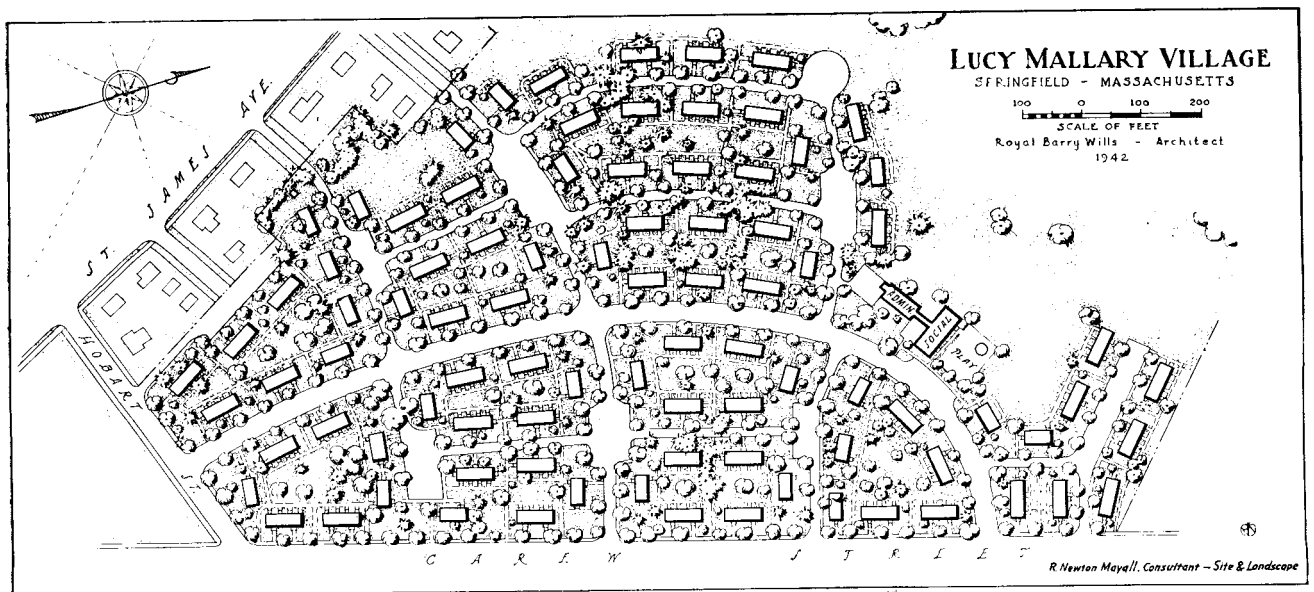
PERMANENT HOUSING FOR NEW ENGLAND

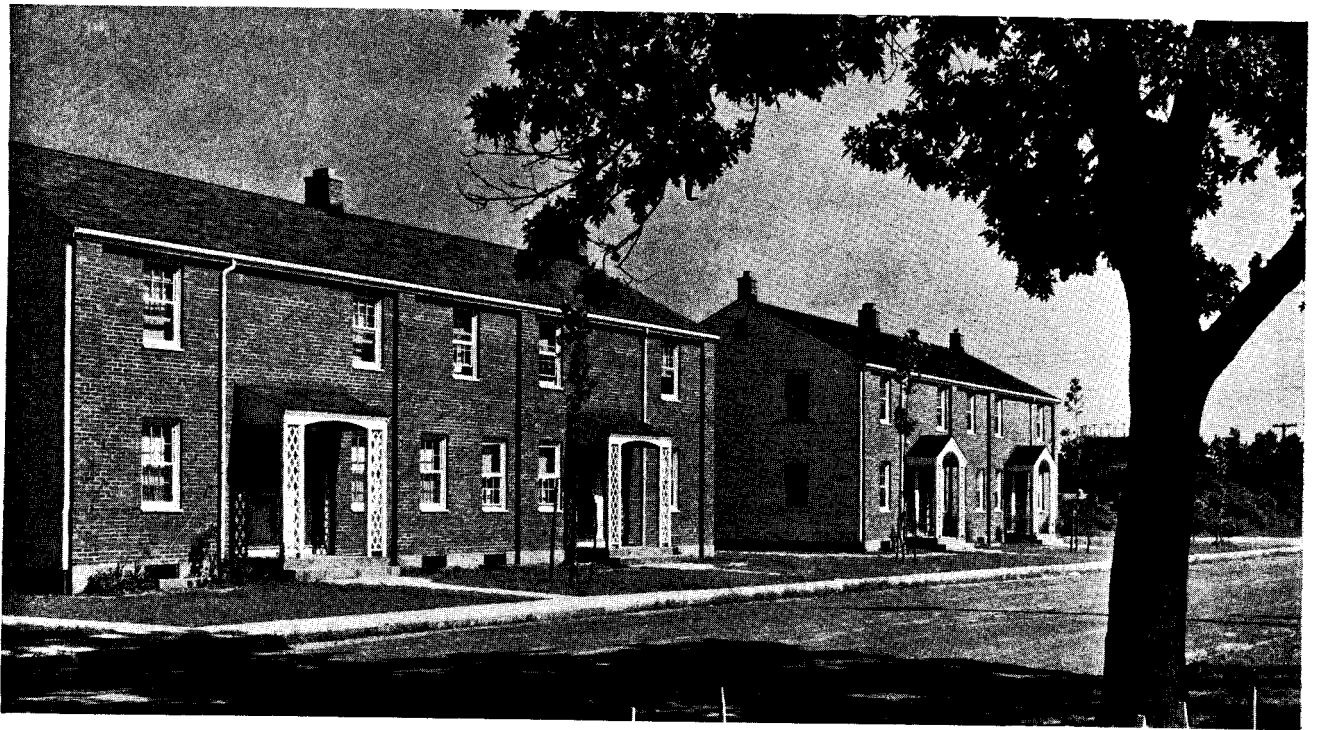
LUCY MALLARY VILLAGE, SPRINGFIELD, MASS.

FOR FEDERAL WORKS AGENCY

ROYAL BARRY WILLS, ARCHITECT

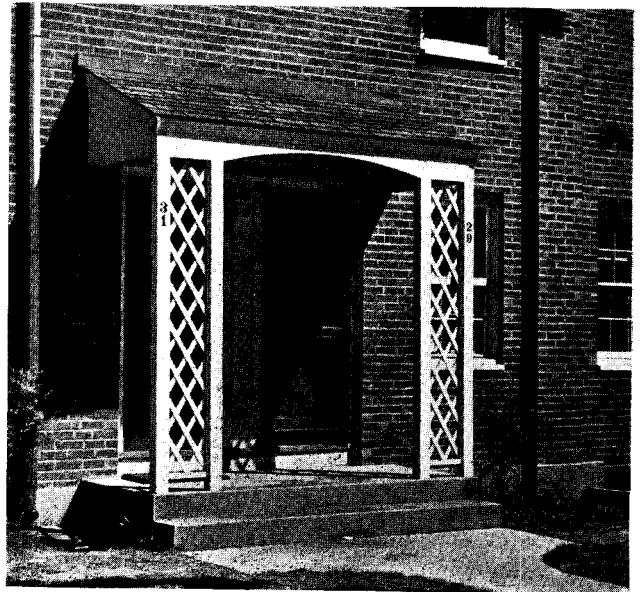
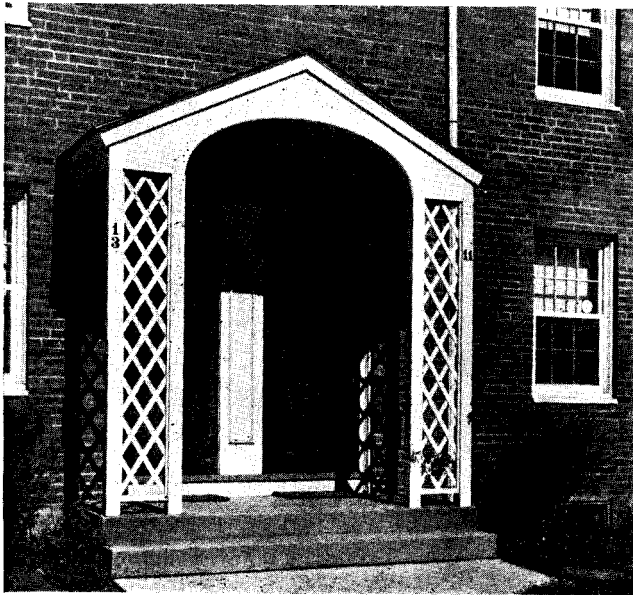
To BUILD enduring housing for a New England community, with an allotment of \$3,000 per family, was the challenge to the designer of this development. Though war industry was a factor in the need for its 300 units, the project was intended to be permanent, and its sponsors were particularly anxious to avoid any barracks suggestion. Thus, while of course the plans are standardized, the designer worked many variations in exterior finish materials



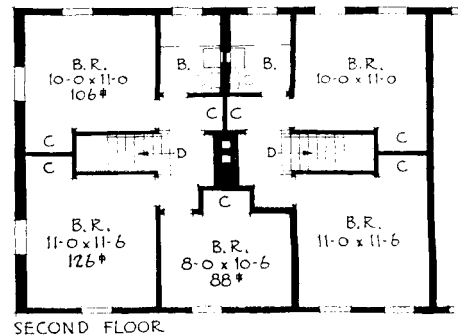
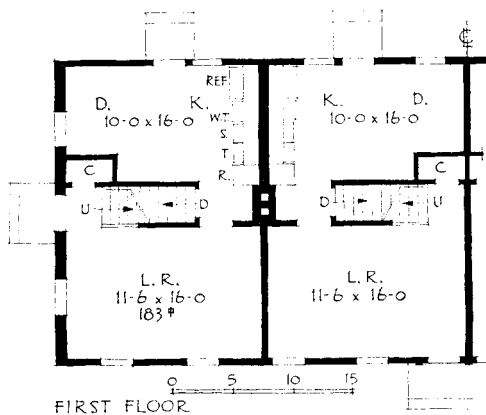


Photos by Haskell

Different combinations of facing materials and different entrance designs lend variation in two-story units



Principal variation in plan of two-story, four-unit buildings is placement of entrance. Each apartment has its own basement under the living room

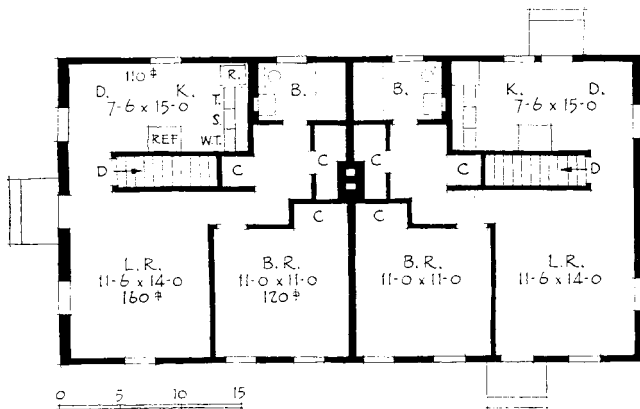




Single-story buildings are identical in plan, one apartment opening to the front, the other at the end. Each has basement under the kitchen-dining room portion, with its own furnace

and doorways. He also used the device of opening the last units in some buildings at the end instead of the front; the two-unit buildings have but a single door on the front. For the four-unit ones there are two schemes—two double entrances in one; in the other, one double door at the front and a single at each end.

There are 90 buildings in all: 30 two-unit, one story buildings, 60 of the two-story, four-unit type. There is also a social and administration group, with playgrounds. The single-story buildings all have one-bedroom units; the two-story ones alternate two and three bedrooms. Dining space is combined with kitchens in all. Each unit has its own heater, in a basement of approximately half its ground area. And each has electric refrigerator and gas range. Car storage space is provided in the parking areas.



BEAUTY PLUS UTILITY

By JOHN R. TODD*

TODD & ROBERTSON

SINCE 1895 I have been continuously engaged in promoting, planning, building and operating structures of various kinds. I have worked with many architects. I cannot, however, speak as an architect, for my background is legal, engineering and building. I know from personal experience what architects can do and have done—their genius and abilities—and also their foibles and their shortcomings.

Since 1929 architects have been having a tough time. Tough, because the volume of architectural work has been far below normal; because many industrialists have been employing engineers without architects; and because the federal government, in its war work, has almost ignored the architects in giving contracts to engineers.

This "tough time" is partly due to changed conditions in the whole building field and partly to failure of the architects to readjust themselves to these new conditions.

Going back, not so many generations, we find buildings were fairly simple shells requiring few, if any, engineers. The architect headed the work, designed the exterior and the interior, and directed the laborers, the carpenters and the stone masons. That was about all there was to it and the architect was pretty much the whole show.

That has changed. Skeleton steel fireproof construction—high-speed elevators—high buildings—foundations under air—water supply and plumbing and controlled heating—electricity in all its multitude of uses—refrigeration—air conditioning—ventilation—sound control—indirect lighting—etc., etc., plus a violent competition among buildings, have all meant increases in specialists of all sorts—engineers with special training and experience in dealing with particular parts of buildings and their equipment.

This has brought the engineers more and more into prominence, until at the moment they seem to be in the saddle. It has led to considerable competition between the architects and the engineers, which is an unhealthy and most undesirable condition. Both architects and engineers are absolutely necessary. And they must work together in cordial and complete understanding, if we are to get the best results.

It must be kept in mind that architects and engineers are fundamentally different. To be a really great architect, a man must be essentially an artist. He must be able to plan—that is, to *organize* space so that it will serve its purpose best, so that it will *work*, (or "function" as the modernists say), so that it will be convenient and economical to build, use, operate and maintain. But in his planning he must do more. He must create out of these

* During his long career of actively directing major building operations, Mr. Todd has had a unique opportunity of knowing and analyzing every factor of successful building. Among the many buildings which have had the benefit of the executive control of Mr. Todd and his firms are Cunard, Graybar, Postum, the Rockefeller Center group in New York, and the Williamsburg Restoration.

elements a building, or a group, that satisfies men's souls. The great art of the architect lies in so designing his buildings that they will not only serve their purposes well, but that they are attractive, even inspiring, in their form and color and texture.

Engineers can design buildings which will endure and be useful. They can equip them with all the modern mechanical and scientific devices. But it takes more than that to make buildings what they should be. I can hardly imagine what the Cunard Building or the Rockefeller Center group might have been without the architects, to mention only two of the projects that I know most intimately. But there are endless illustrations. Name for yourself the ten finest buildings you know—and what they would have been without the genius of the architect?

The question is, has beauty a real and important value? Or are engineering and utility the only things which count?

The answer seems plain to me. Beauty IS real. It is inspiring. We react to it whether we are conscious of it or not. The world needs more of it—not less. And don't we all know that we can get architectural beauty only from men with natural talent who are thoroughly trained and experienced as architects?

It takes more than commercial success to make a nation real and lasting. There are spiritual values which count.

We like to think of our great national advance in civilization. Have electric lights, automobiles, faster trains, telephones, radios, high buildings, airplanes, submarines, and a hundred other smart inventions really advanced civilization? I doubt it!

Can we advance civilization other than by improving the ideals and the character of our people? The demand for, and appreciation of, beauty is a measure of any civilization—beauty in its music, its literature, its entire man-made environment—its painting, sculpture and all its buildings.

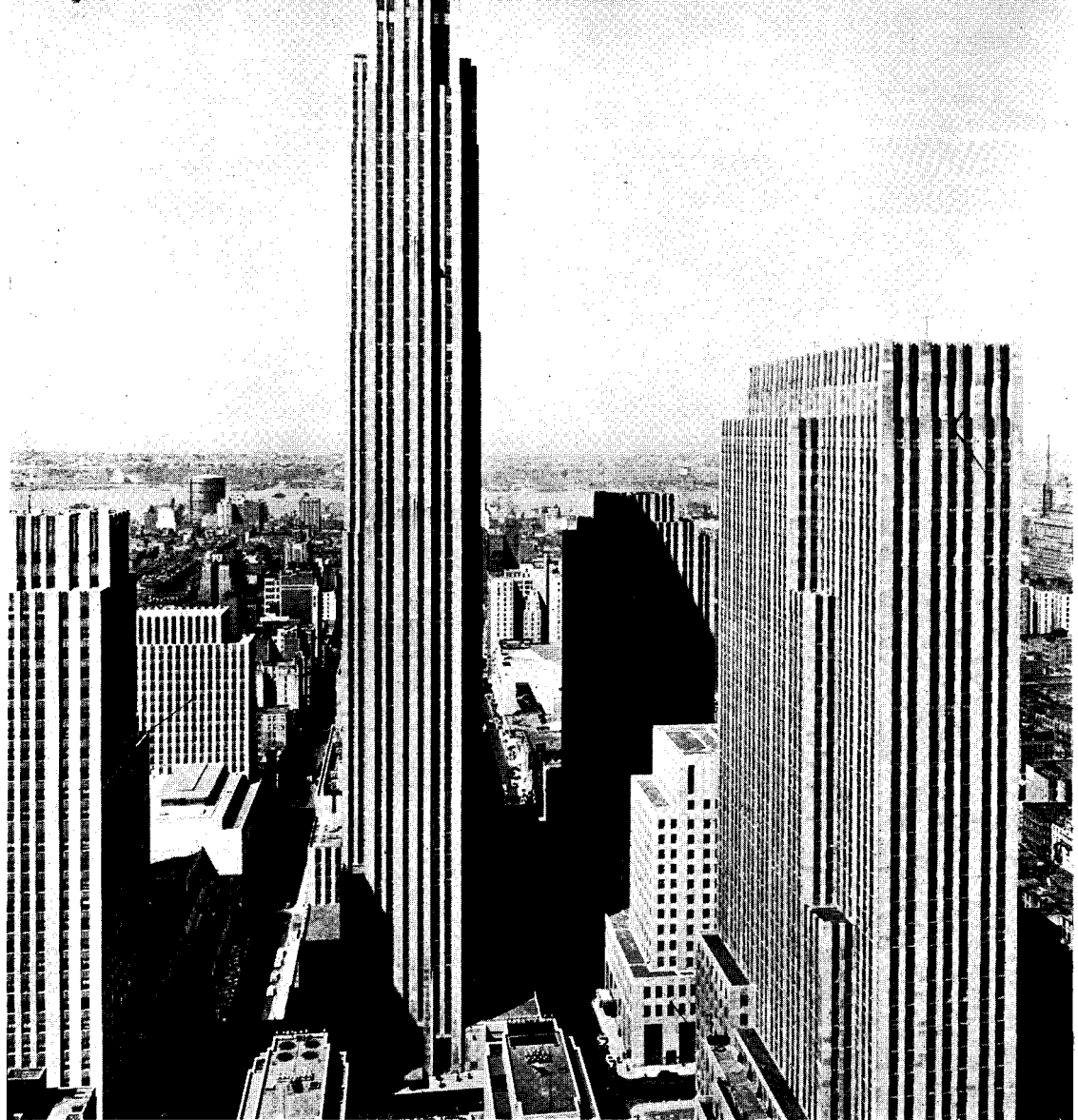
* * *

But architects must be interested in more than beauty if they are to give the country their maximum contribution.

They must realize that every job has an owner. And all owners are interested in *Utility, Cost, Completion*—and *Looks*. If the owner depends on the architect for looks only, and on the engineer for utility, cost and completion, it won't require a wizard to tell who will have the owner's ear.

Some architects realize the importance of utility, cost and completion dates, but too few. It is too much fun to make pictures. But I believe that architects are becoming more and more practical and realistic. Let me illustrate.

At one of the meetings with Rockefeller Center architects, the late Ray Hood burst out about as follows: "What's the matter? Do we as architects want to be just a bunch of milliners who simply put on the trimmings?"



Gottso-Schleisner

It's up to us architects to get into the game in a big way and really help make this development not only good looking but profitable." And one could scarcely exaggerate the importance of the work the architects did on the utility problems.

Another illustration. Before we began with Rockefeller Center, we were preparing to build an office building in a large city. The plans were pretty well along, when a young architect said, "May I make a further study of the plans? I think they might be better."

In a few days he told us we were trying to get too much building—too much floor area—with the result that our space was not the top quality which would be full when other competing space was vacant. He showed us how to get more income with less floor area, and lower building cost.

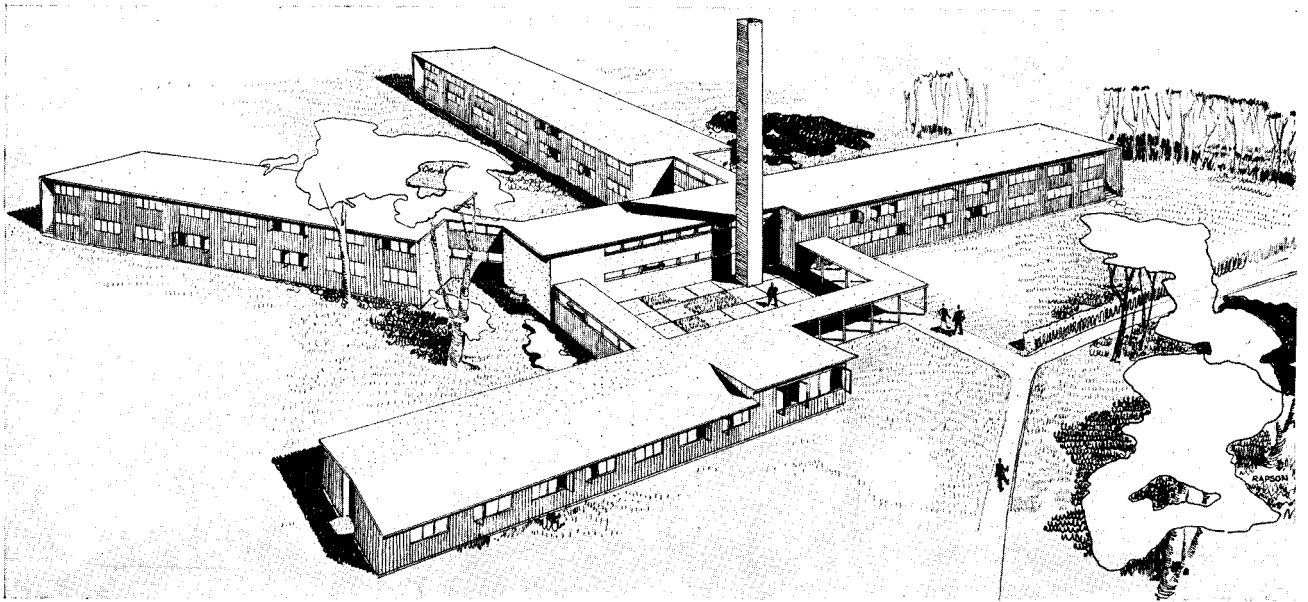
Those illustrations give the picture which I like to think is the true picture of the approach of all architects.

It seems to me that with such an attitude on the part of architects, proving to owners their abilities to do their part in creating maximum utility, at minimum cost with greater dispatch—they will have less difficulty in convincing owners of the value of looks,—of beauty. And by

"beauty" I don't mean trimming, but that quality which a building has that even the layman can sense when he looks at it. Just what that quality is you architects know instinctively and can say better than I. It comes from a sense of the fitness of things, I guess—and results from good straightforward planning—from simple direct solutions of the problems involved—and their expression in appropriate materials, proportions and details. The beauty of simplicity is at last being recognized—clean-cut buildings with no needless ornamentation. That, it seems to me, is the great contribution of the better "modern" architecture—simplification.

* * *

To sum up. The complexity of building today requires teamwork—and the sooner the teams that serve the owner and the public become closer united, the better. Architects need to work for closer cooperation among themselves and with their teammates, the engineers and the builders. When the members of the team understand better the part each much play they can really work together to produce significant buildings, and more civilized, harmonious cities. The answer for both the architect and the engineer is—greater utility *plus* more beauty.



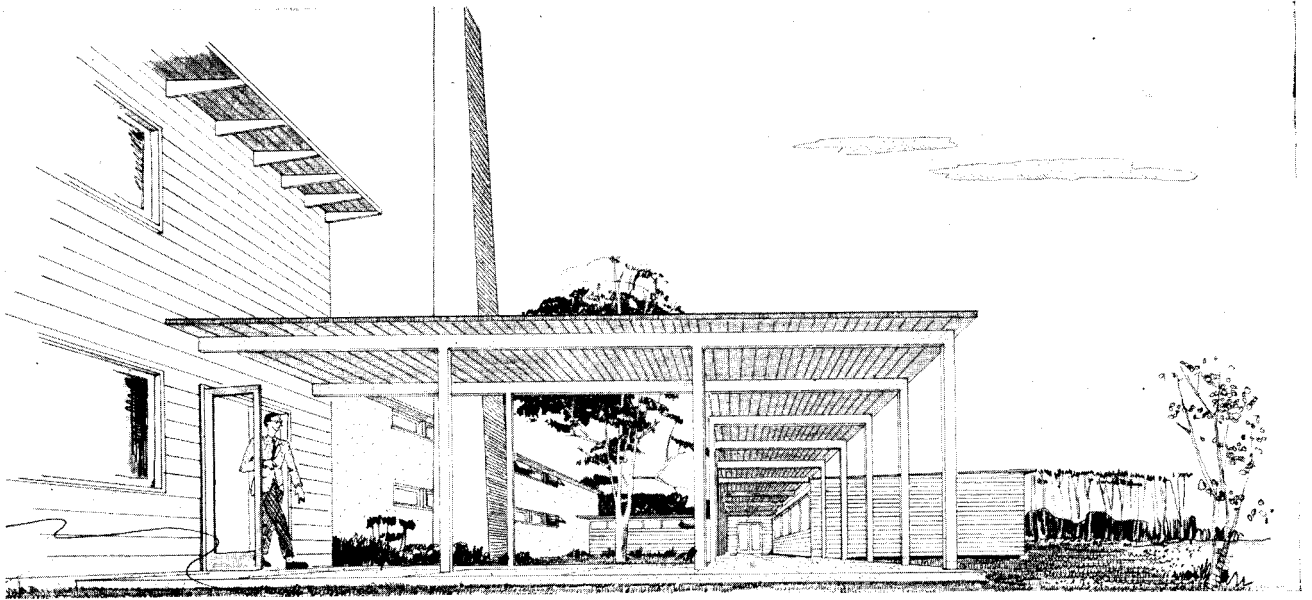
A DORMITORY PLAN IN TWO VERSIONS

Groups of four dormitories, as shown at the head of the page, were the basic component of Willow Lodge. The two sketches suggest how the galleries have been used to form a charming court. The diagonal arrangement of one dormitory block is a variant of the plan as built

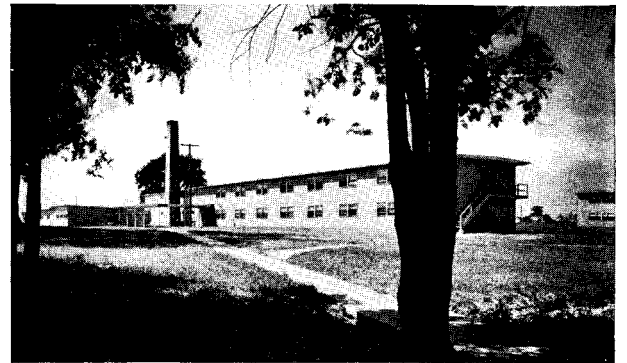
In the model, the bright patches are driveways and parking space for two community buildings

Cranbrook Academy of Art photo





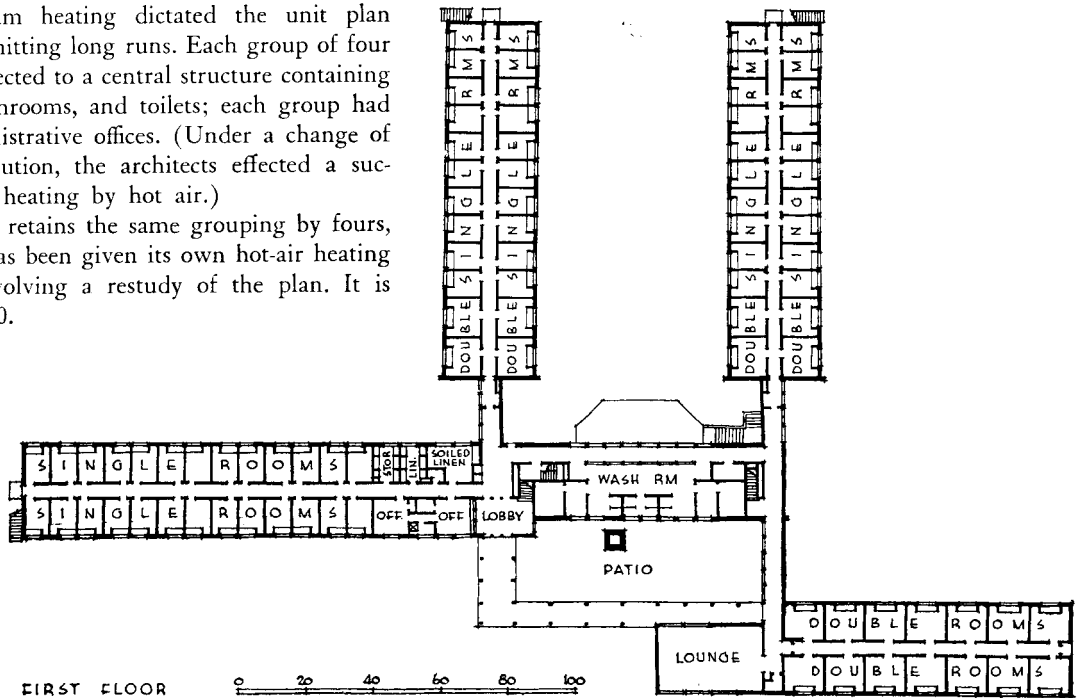
PART I: FIRST WILLOW LODGE
PROJECT NEAR YPSILANTI, MICHIGAN
SAARINEN AND SWANSON, ARCHITECTS

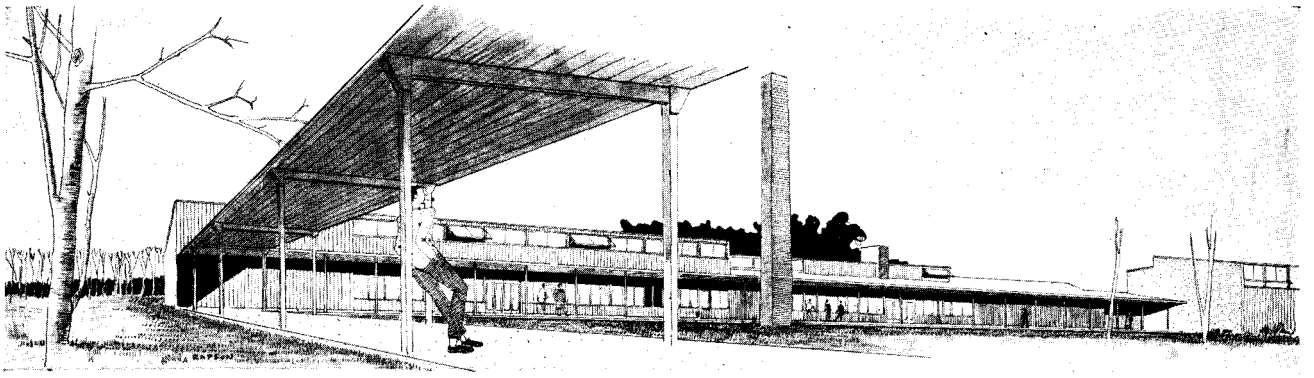


John S. Coburn

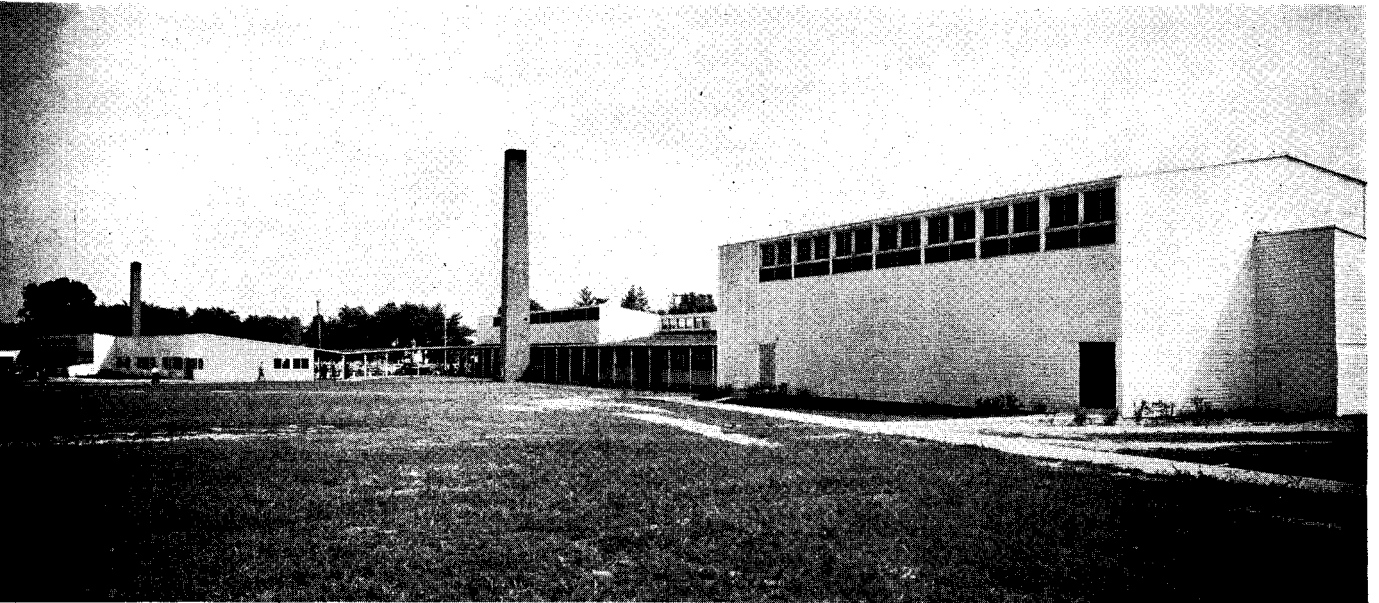
An outstanding feature in the Willow Lodge dormitories is the difference between the unit plans in the first and second projects. Steam heating dictated the unit plan shown herewith, permitting long runs. Each group of four dormitories was connected to a central structure containing the boiler room, washrooms, and toilets; each group had its lounge and administrative offices. (Under a change of program during execution, the architects effected a successful conversion to heating by hot air.)

The second project retains the same grouping by fours, but each dormitory has been given its own hot-air heating plant and toilets, involving a restudy of the plan. It is shown on pages 58-60.





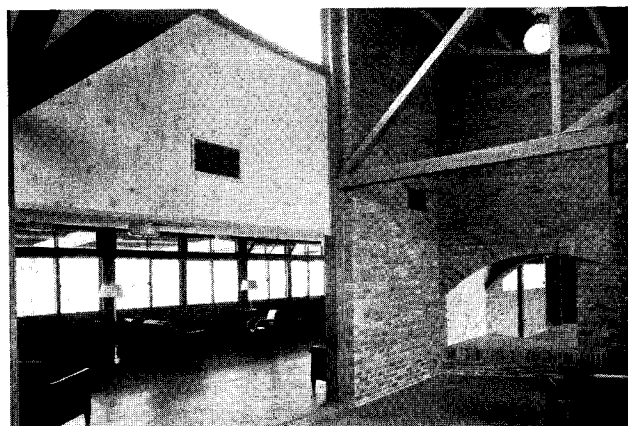
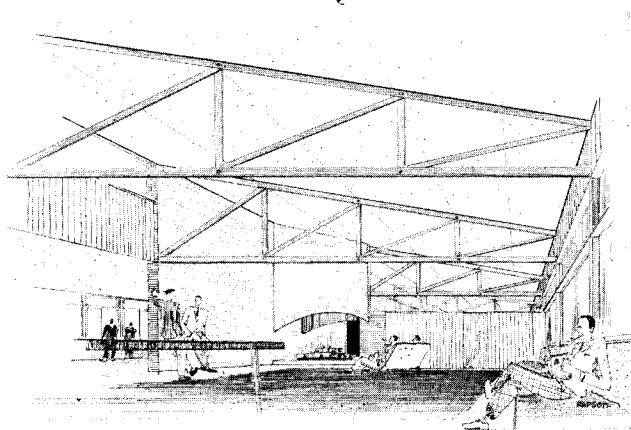
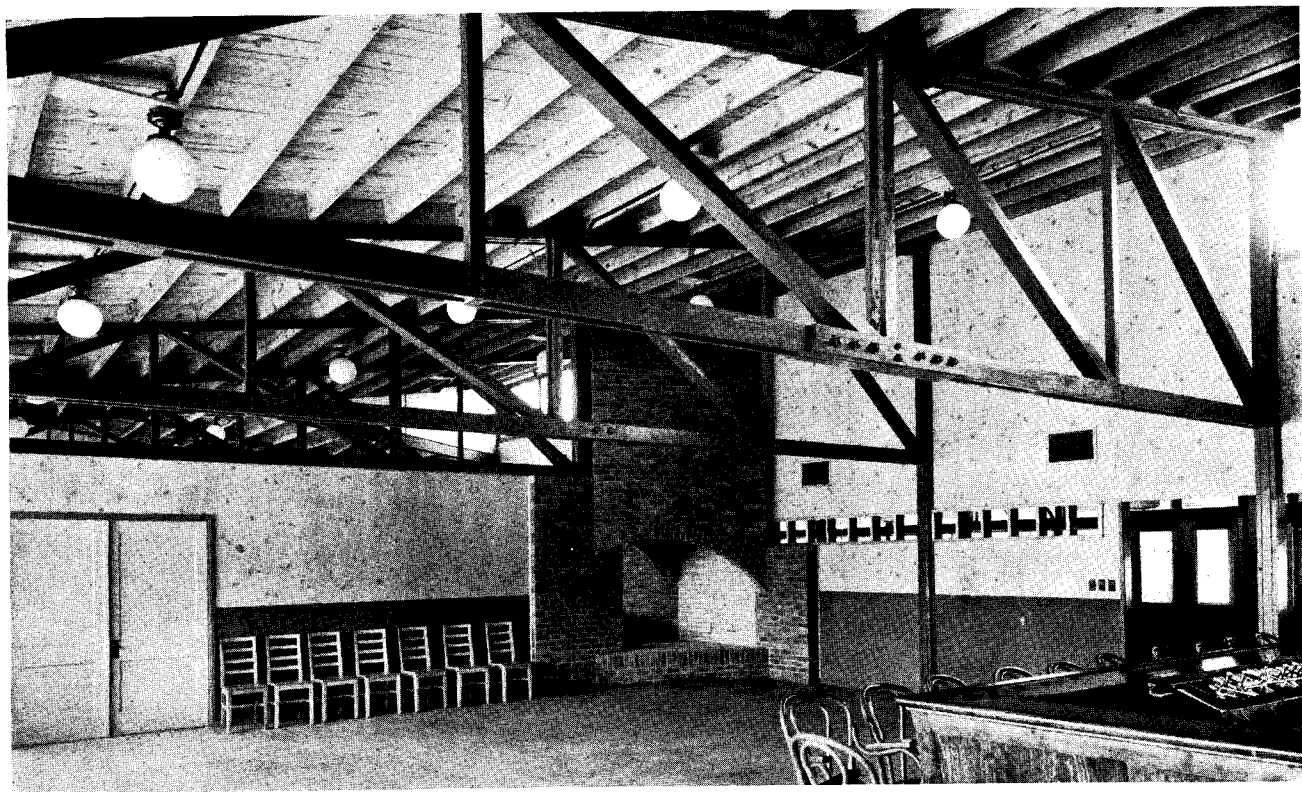
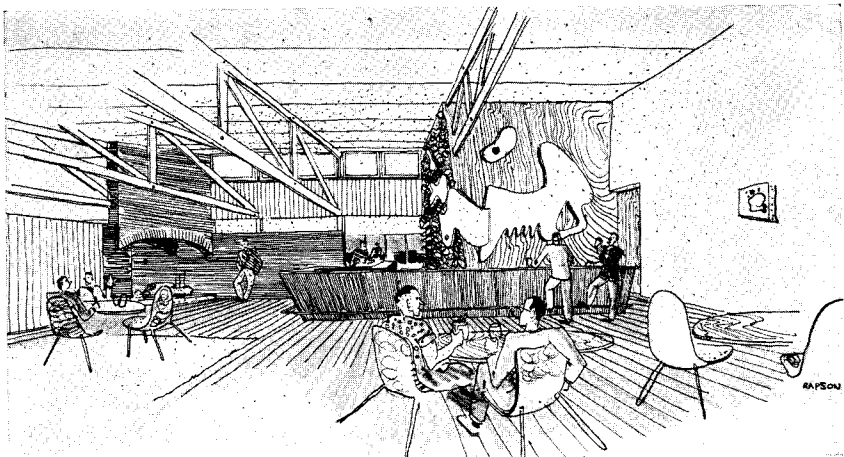
Above: The cafeteria and lounge, making up a community house as finally built



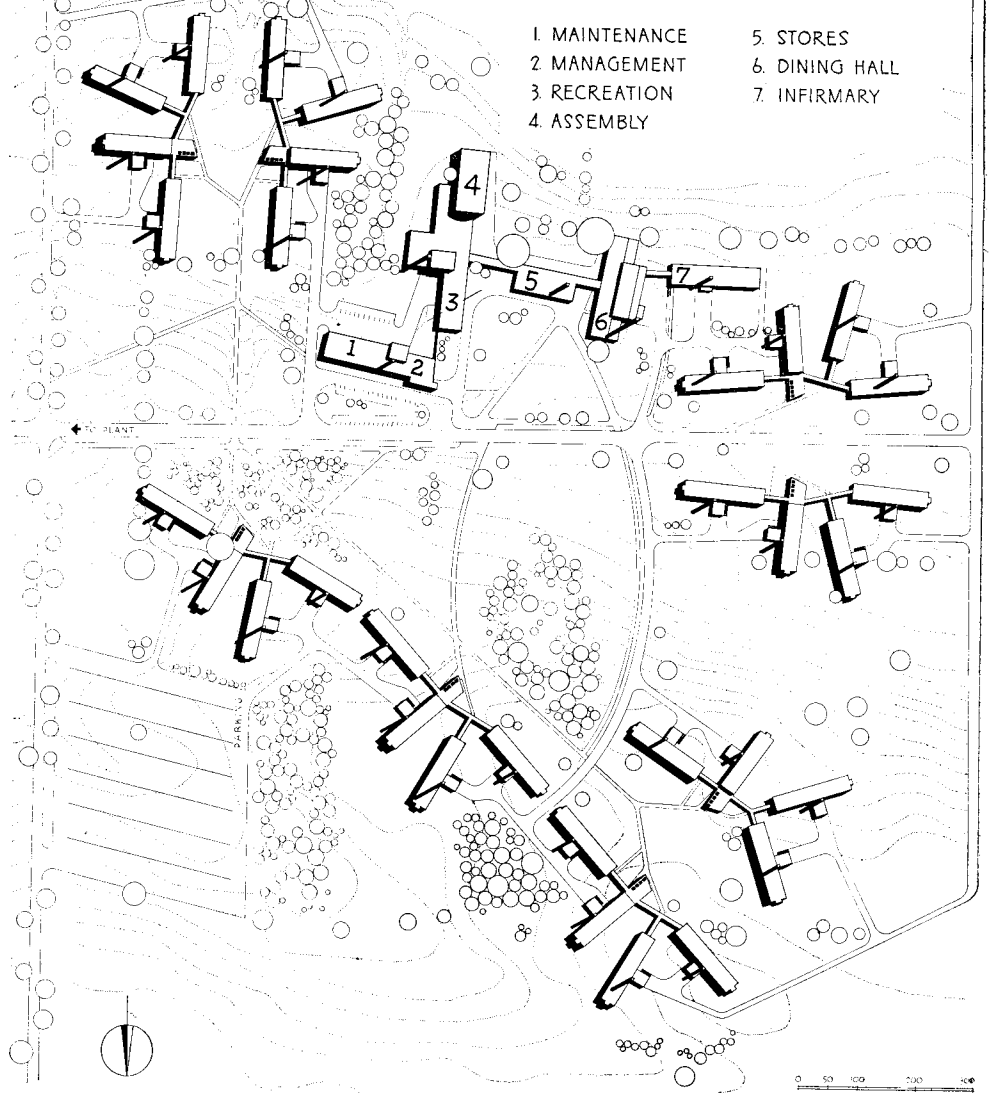
The auditorium is in the foreground of the general view; in sequence come the lounge, cafeteria, and, at extreme left, the maintenance and administration building. Below, interiors of the assembly hall (left) and the cafeteria (right). Note the gusset-like light shields of plywood attached beneath the cafeteria ceiling beams



A remarkable three-way fireplace, placed not against an outside wall but in the middle of the recreation building, creates a fluid division of space. To the right is the tap room (see top drawing and large view below); to the left the lounge (bottom drawing); the connecting passage behind the fireplace forms a reading room

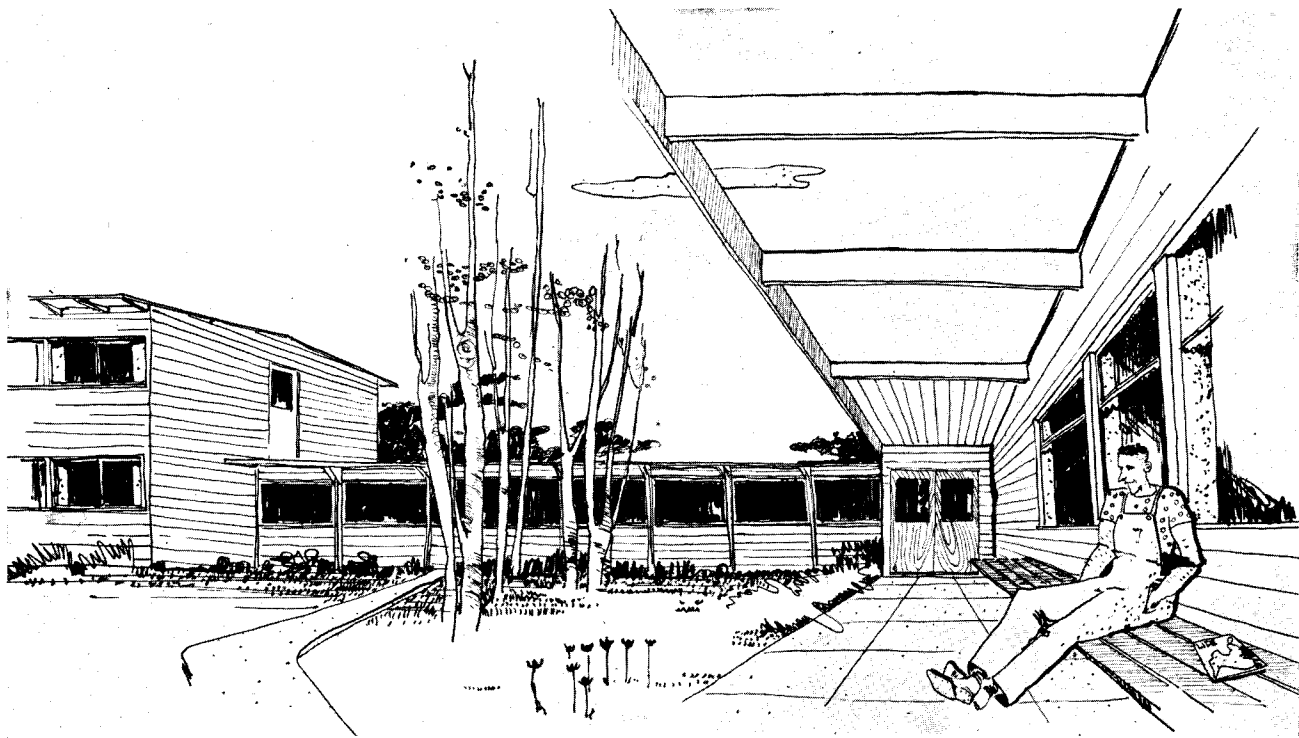


**PART II:
SECOND WILLOW LODGE
PROJECT
SAARINEN AND SWANSON
ARCHITECTS**



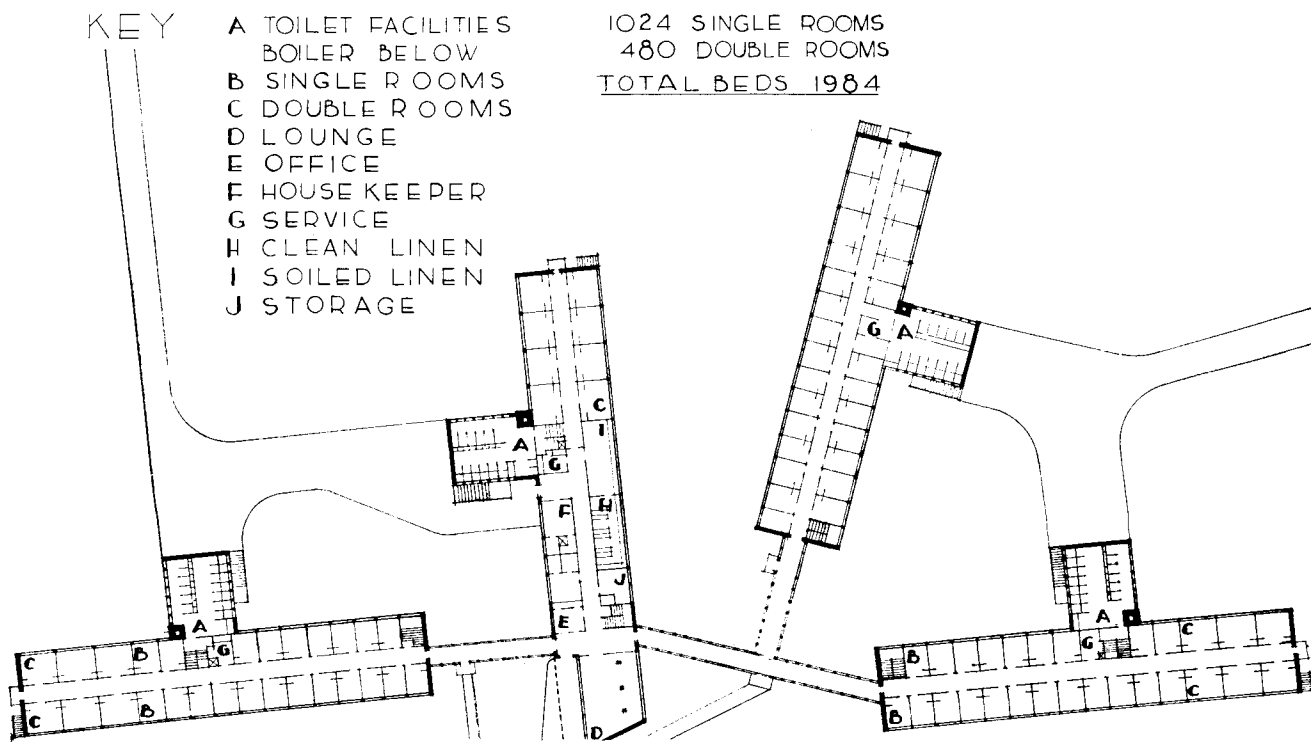
Cranbrook Academy of Art

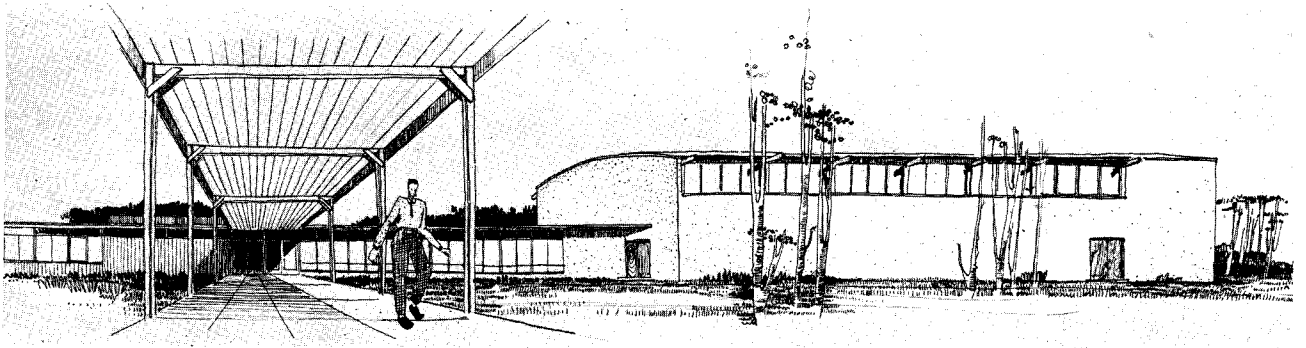




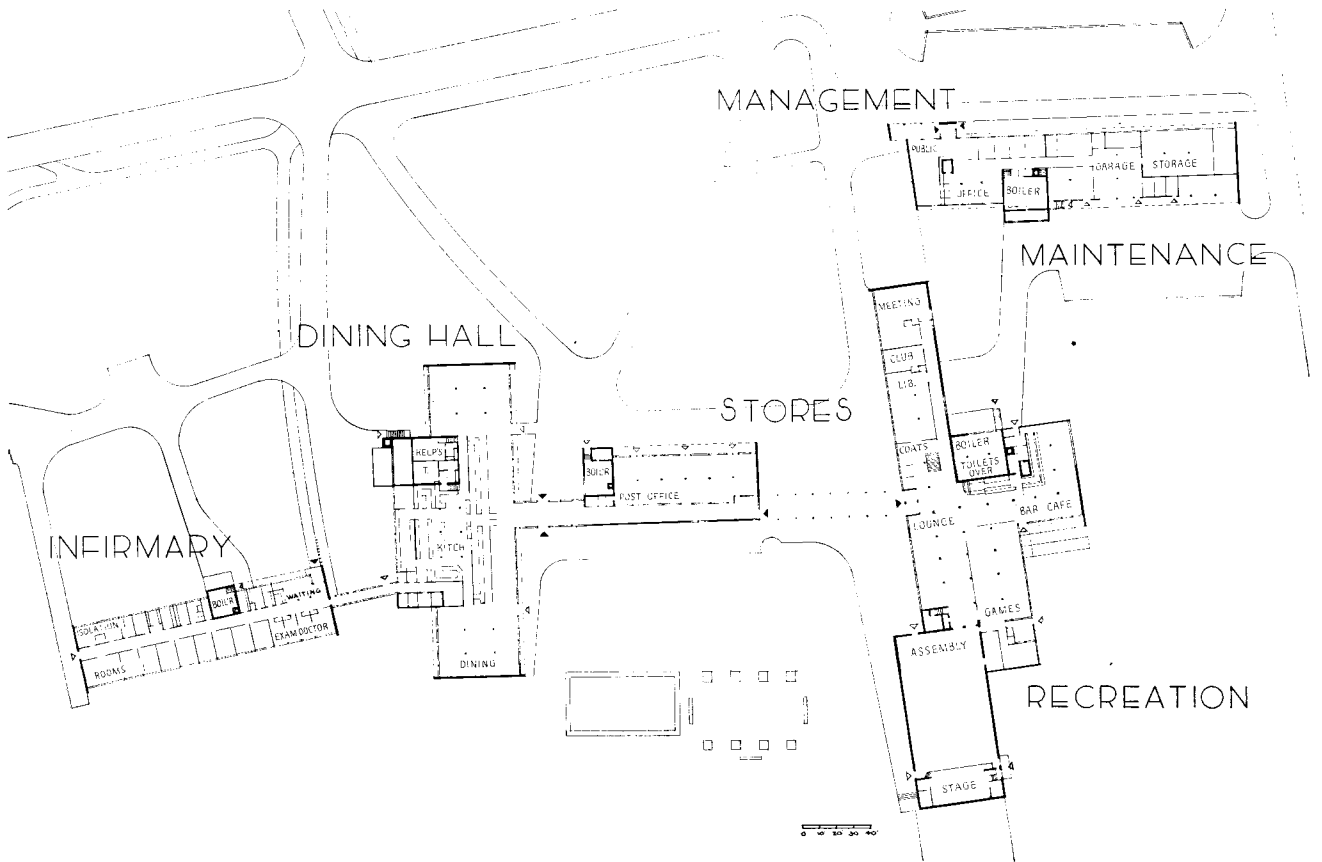
The second group of Willow Lodge dormitories gave the architects an opportunity to restudy the type and arrangement and to concentrate on the problem of saving critical materials. Separate hot-air heating plants for each dormitory block were housed in the basement of annex structures attached to the center of the block. The ground floor of this adjunct was given over to the toilets. This resulted in

shorter distances and greater convenience for the tenants, and the architects reported a greater economy in materials. In the earlier version, the dormitory blocks in each group of four were in parallel or right-angle arrangement. In this later version, off-angles and a looser arrangement make for flexibility. Despite the informal placement on the contours, it is to be noted that the unit plan is standard.

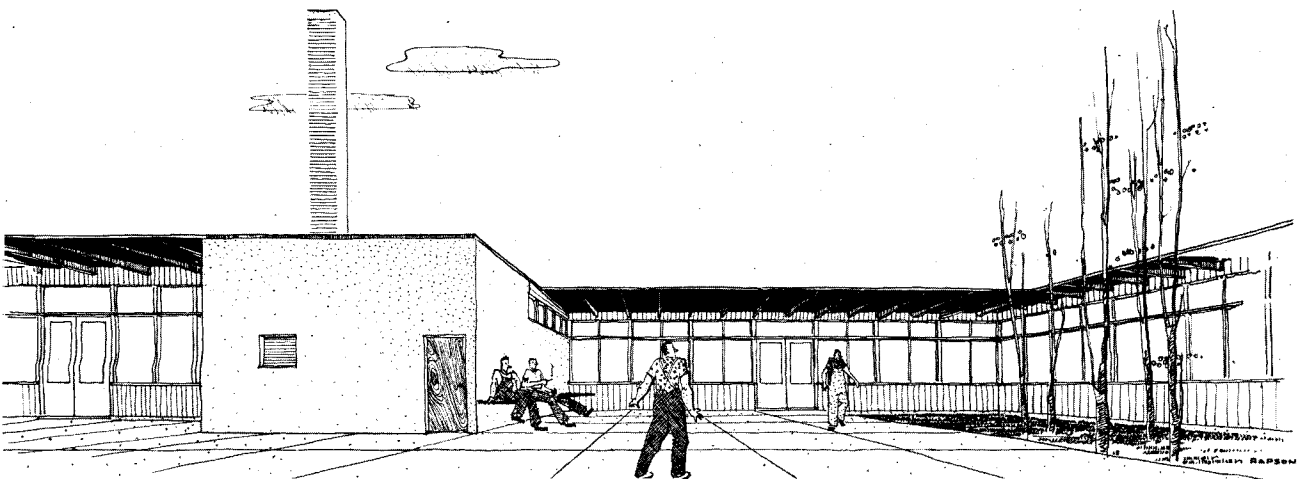




Above: The assembly room of the project is distinguished by its arched roof



Below: Washroom over the boiler room blends with dormitory and passageway



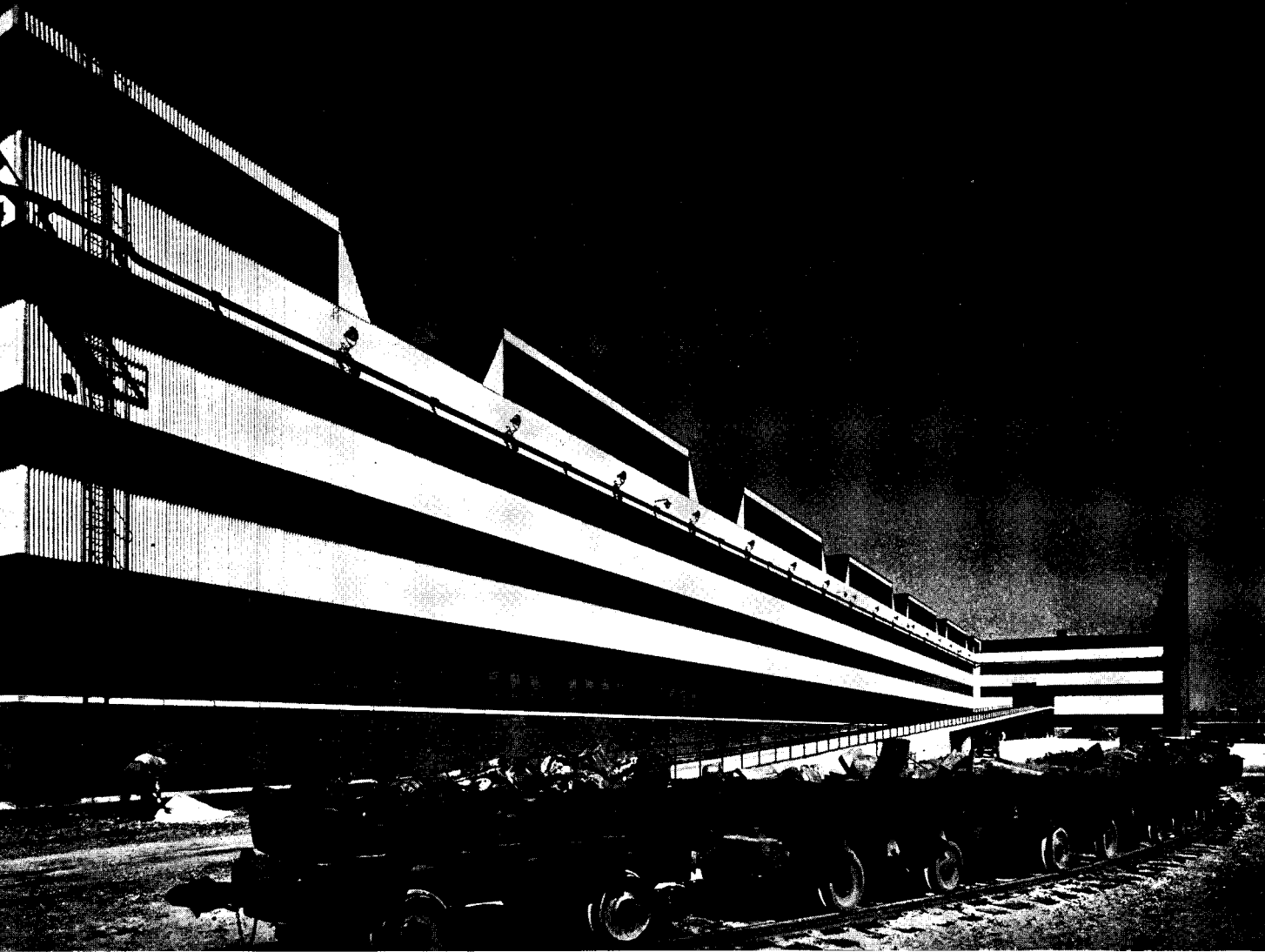
INDUSTRIAL BUILDINGS

BACK THE ATTACK



AMERICAN STEEL FOUNDRIES COMPANY
ACE CARTON CORPORATION
JOHNSON SUTURE CORPORATION
SCIAKY BROTHERS

ARCHITECTURAL RECORD'S BUILDING TYPES STUDY NO. 82



NEW PATTERN FOR A STEEL FOUNDRY

PLANT GROUP FOR AMERICAN STEEL FOUNDRIES COMPANY

ALBERT KAHN ASSOCIATED ARCHITECTS AND ENGINEERS

ONE OF THE LAST great industrial projects to engage the personal architectural interest of the late Albert Kahn was that erected a year ago for operation by the American Steel Foundries Company.

As might be expected, this project symbolizes to a high degree the "Kahnese" architectural technique, despite the restriction on materials in effect at the time the plans were drawn.

Horizontal lines are pronounced in the exterior design and this same motif extends to all subsidiary buildings, giving the development the illusion of much less height

than is actually the case, and tying the appearance of all structures into one unified pattern.

This over-all design plan was evolved after a study of lighting requirements from a three-fold objective: First, to get sufficient light into the foundry; second, to arrange the sash so as to beautify the design; and, third, to provide for immediate blackout in the event of an air alert.

The natural light in the interior is sufficient to require no artificial amplification for most foundry operations. The third factor—blackout—was accomplished by providing a rail around the full perimeter of the main building above



Hedrich-Blessing Photos

the top band of sash for the suspension of blackout materials. Even though it has never been used for this purpose, the rail is now performing its secondary function—it is an ideal anchorage for the bosun's chair in window cleaning.

Of steel, concrete and brick construction, the main building (which is in fact several interconnected buildings on the same plan) has a steel frame construction with com-

mon brick walls to the sills, 8 ft. above grade, surmounted by alternate rows of sash and siding. The roof is cement tile covered with tar and gravel. The charging floor is conventional $\frac{1}{4}$ in. steel with brick top, but the main foundry floor is 8 in. concrete instead of the dirt floor common in foundries.

Included in the main building are an open hearth building and three foundry buildings totaling 1600 by 363 ft., three cleaning and finishing buildings, each 960 by 177 ft., six heat-treat buildings each 240 by 110 ft., and a maintenance building 700 by 76 ft.

Steel framework includes many very heavy sections which are made necessary by the several cranes of 15 to 50 tons capacity. In addition to these cab-operated cranes, there are innumerable ones that are operated by remote control, including many of the gantry type.

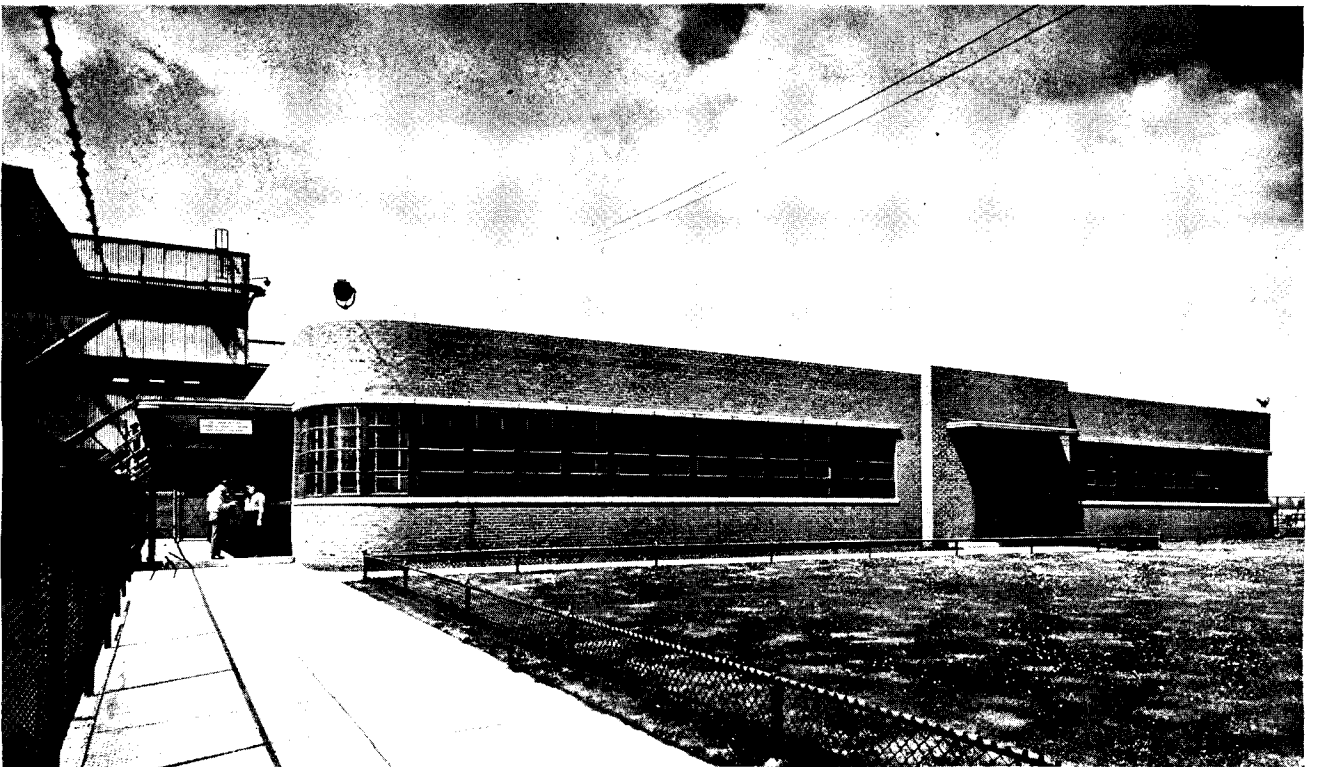
An unusual feature is the location of toilet, lunch and locker rooms around the sides of the main building, where employees enter and leave. There are ten such units, each of two-story construction, with glazed hollow tile walls, cement floors, and metal partitions. The main locker rooms and showers are on the second floor of each unit and ample provision is made for all employees who wish to take a shower bath and change clothes before leaving the plant.

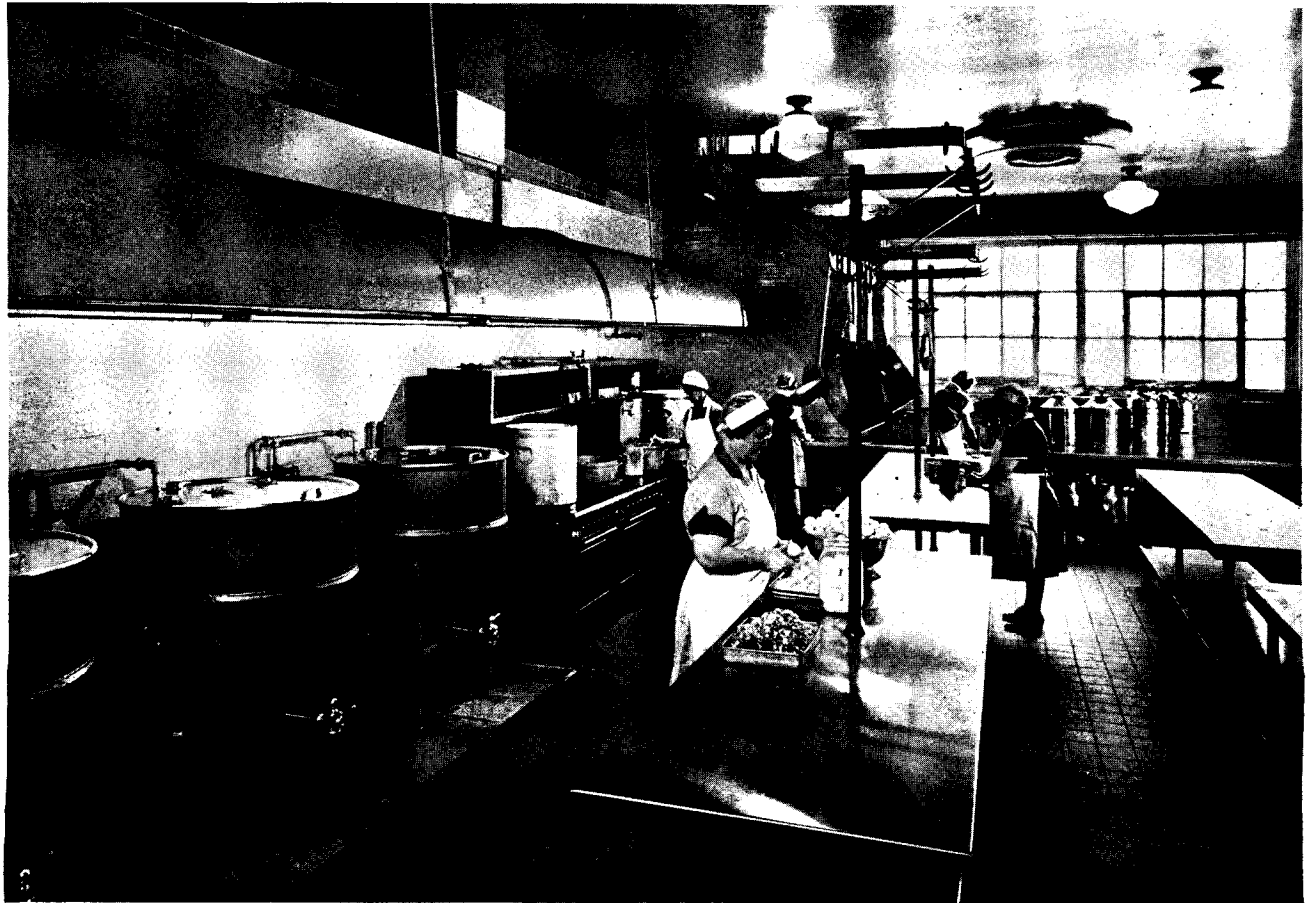
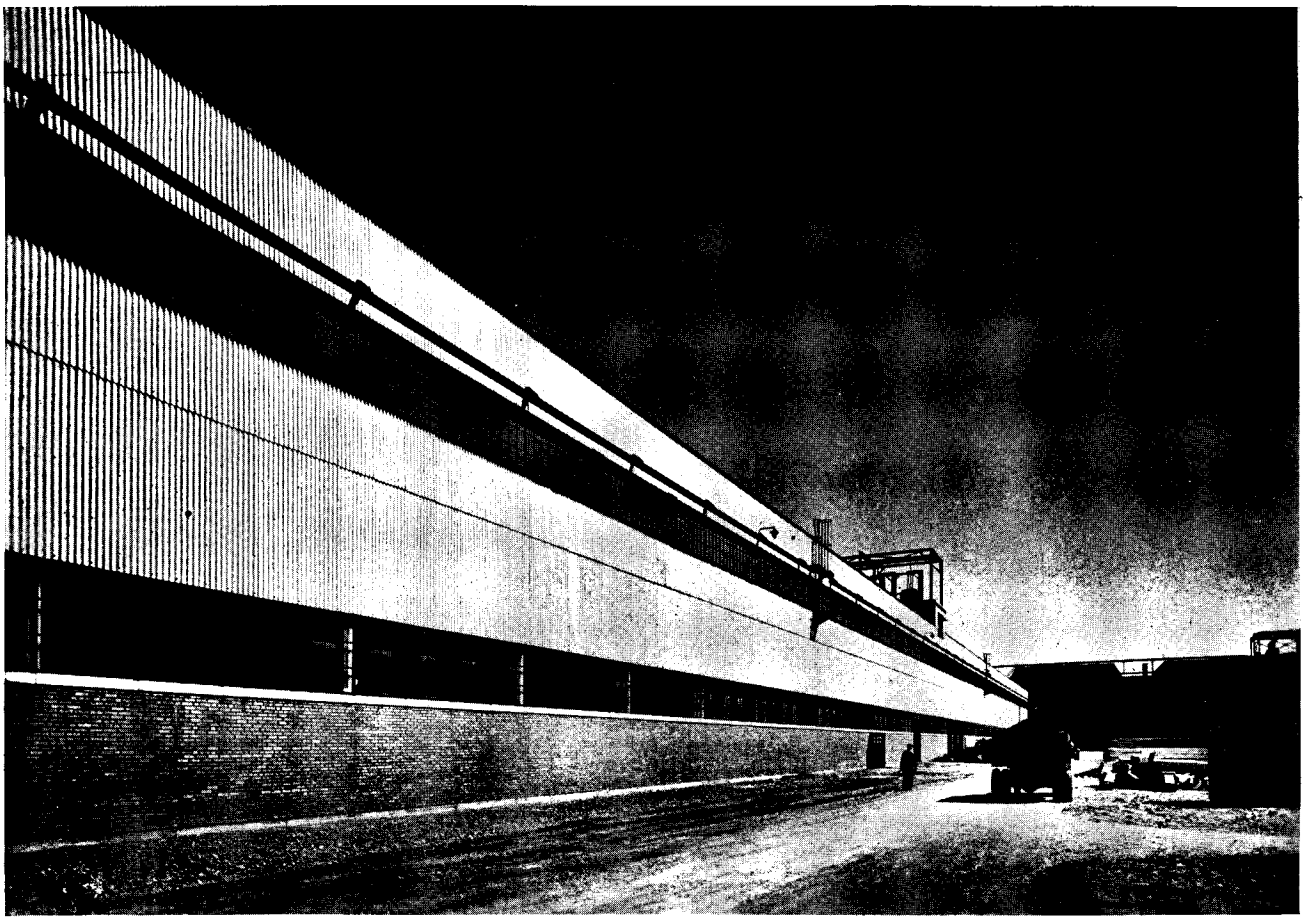
There are also many inside toilets, of course, and facilities recently have been added for women, of whom a considerable number are now employed in the plant.

Food is brought to the ten lunch rooms from a commissary building, 98 by 62 ft., which is of reinforced concrete and brick construction. This building houses the kitchen, storage room, wagon room, toilets and lockers.

The personnel building, 125 by 80 ft., is of steel frame and brick walls, one story high. It houses the employment department, plant police, first aid and a hospital unit.

The office building, 150 by 60 ft., is built of reinforced







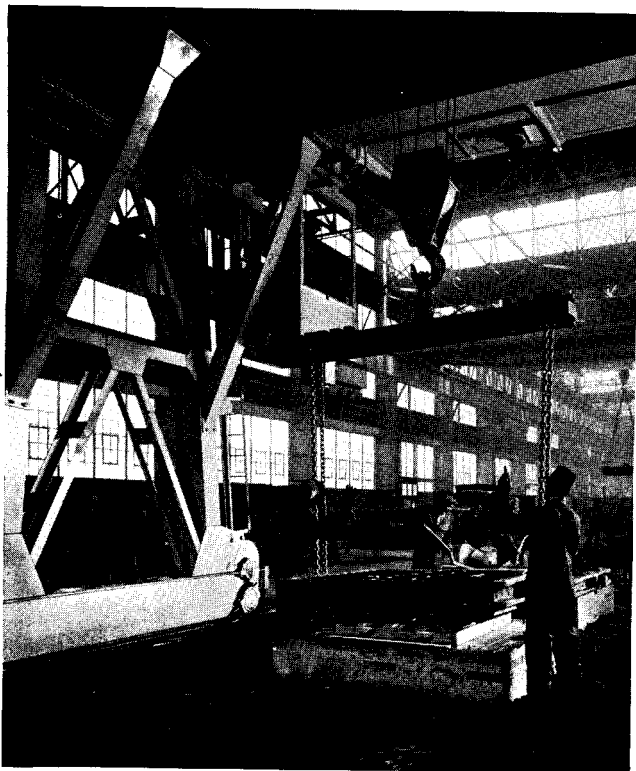
concrete and brick, as are all subsidiary buildings except the boiler house. The office building is two stories and basement. In the basement is a garage which accommodates ten or twelve cars, a kitchen, dining room, toilets for both sexes and room for mechanical equipment. The first and second floors are devoted to offices.

The boiler house is of concrete frame to the boiler room floor, with steel frame, brick and sash above that. Coal bunkers are of concrete as are those for ore and scrap. Stacks are of the induced-draft type, 18 ft. high. Platforms are of concrete and ladders are of wood.

The main heating line is supplied with exhaust steam from the compressors and is piped through an underground tunnel into the main building. Entering the cleaning and finishing sections, this line rises to the ceiling and distribution from this point extends throughout the plant. At times when there is insufficient exhaust steam, an auxiliary high-pressure line which cross-connects to the ends of the heating main is used to provide ample pressure. Processing steam used in the plant is also provided from the high-pressure line.

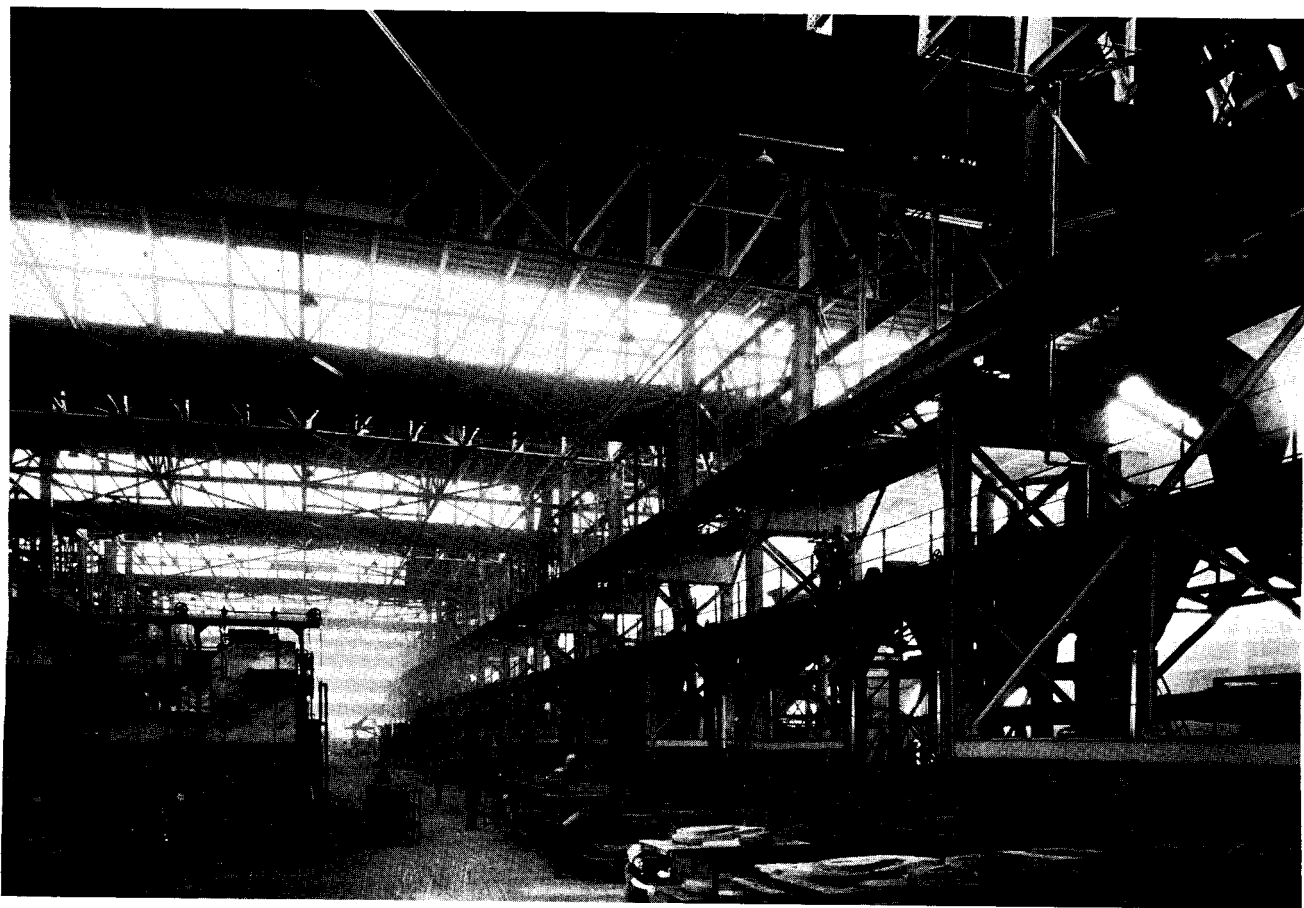
Due to lack of overhead space, it was necessary to run





Dozens of cranes, of both track and gantry types, introduced many design complications

An ingenious double column provides supports for double crane rails, also for a cat-walk





One of the smaller structures in the main group, the maintenance building measures 700 by 76 ft.

the return mains through the double columns along the outside walls, and this necessitated cutting a slot through the supporting web between the columns, and it was necessary to use corrugated expansion joints in the return mains, as no other type was practical under the circumstances. All condensate goes to condensate pumping receivers located in the locker room units, whence it is pumped through the tunnel, back to the boilers.

Along the outside walls of the building, high-velocity, blower-type unit heaters are suspended from the bottom of the crane rails; in the center of the cleaning and finishing wings, vertical projection unit heaters are used and are mounted about 50 ft. above the floor requiring specially designed equipment. This type is also used in the open hearth building where the heaters are mounted over the charging room floor.

Excessive heat is exhausted through roof exhaust units, each having a capacity of 20,000 cfm and spaced to serve about 1800 sq. ft. of floor area, except over the pouring floor, where their capacity is 40,000 cfm.

Light and power are provided by one master transformer station and ten sub-stations, the latter located at different points in the foundry and adjacent buildings. Incoming primary voltage is 34,500, stepped down to 4,160 volts for distribution to the sub-stations. Power voltage for motors is 440, for lighting 120/208.

The general lighting in the offices in the administration building consists of individual, 4-tube, fluorescent lighting fixtures mounted against the ceiling; other lighting in this building is incandescent. In the personnel building, 3-tube fluorescent fixtures mounted against the ceiling provide ample illumination. In the main plant, high-intensity mercury and incandescent lighting fixtures are mounted on messenger cable just below the bottom chord of the trusses.

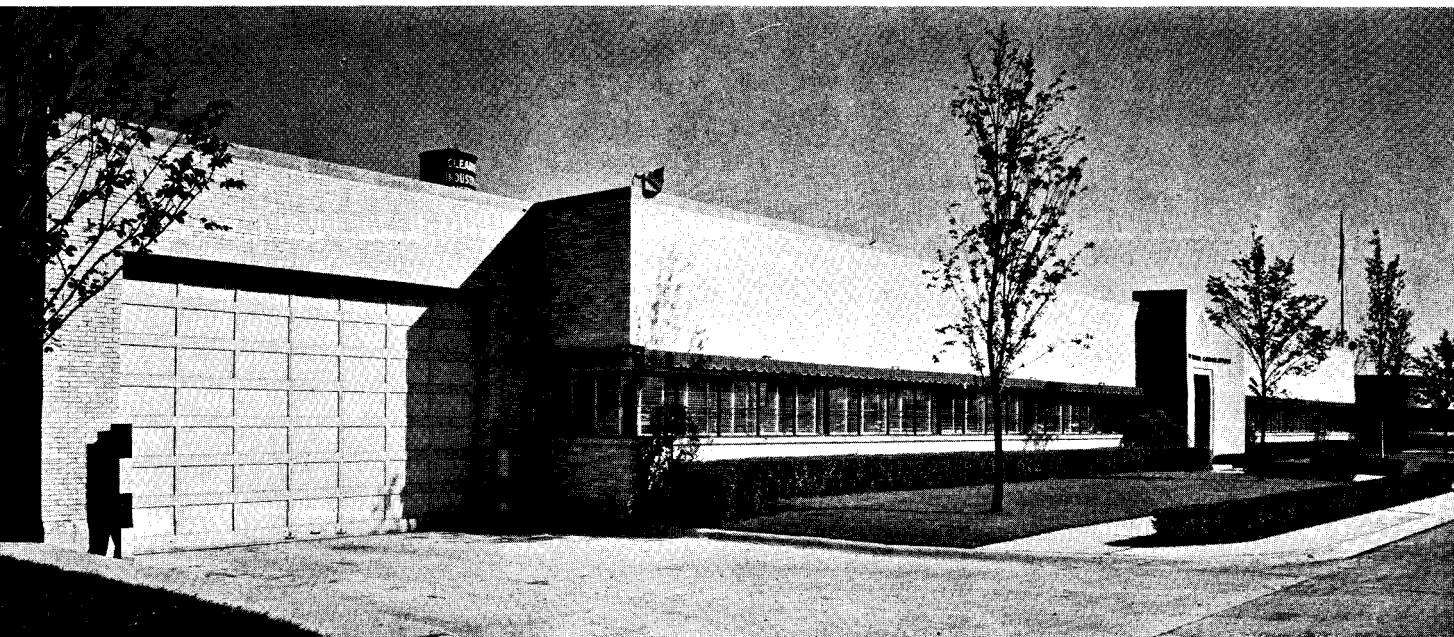
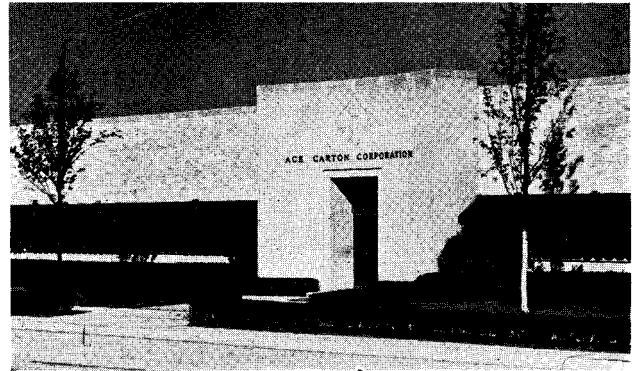
The entire plant is surrounded by a protective lighting system covering the fence and yards by means of fence lights and flood lights mounted on the buildings. Other electrical installations include auto-call, fire alarm, watchman's circuit, sprinkler and clock system throughout.



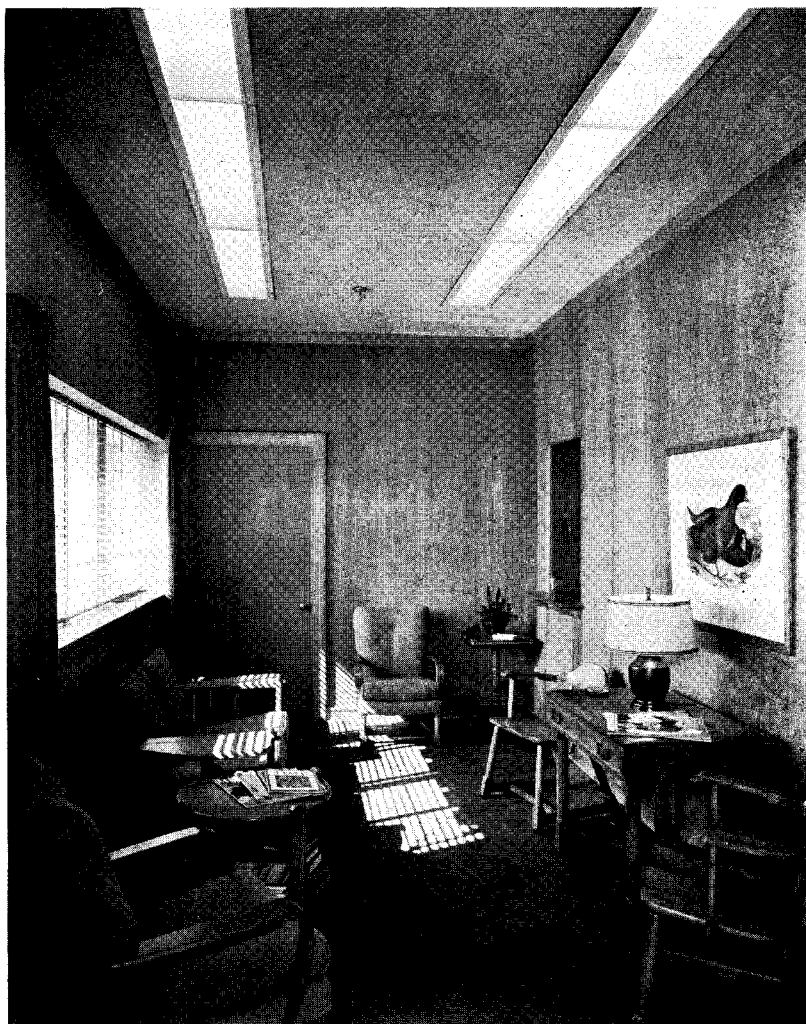
PRINTING PLANT FOR PAPER CARTONS

COMPLETED just in time to be ready for the strain of wartime demands on the paper carton industry, and just in time to escape the heavy hand of priorities, this plant is one of several noteworthy additions to the huge industrial development in the Clearing district of Chicago. (Two others, page 72 and page 74.) Its note of enlightened efficiency adds further to the carefully tended environment that surrounds this group of "small" plants.

Factory space in this building is windowless, the neat band of steel windows seen in the photographs outlining the office space at the front. Offices have year 'round air conditioning, fluorescent lighting, acoustic ceilings, asphalt tile floors. Facilities also include dining room for



FACTORY FOR ACE CARTON
CORPORATION, CHICAGO, ILL.
JOHN CROMELIN, ARCHITECT
CLEARING INDUSTRIAL DISTRICT,
INC., GENERAL CONTRACTORS



Right: Entrance lobby, in natural-finish rift-oak wood wall covering. Below: President's office, in teak wood finish. Blinds disappear into recess at head of window

Peter Fish photos





General office space has complete air conditioning, acoustic ceilings, asphalt tile floors, fluorescent lighting

executives, conference room, general and private offices, and carton design department.

Air conditioning was of especial importance in the factory space, not only because of the lack of windows but also because of the printing and handling problems of

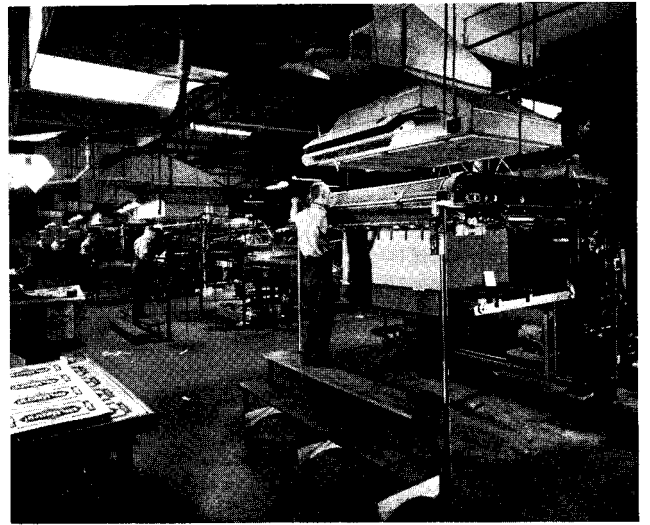
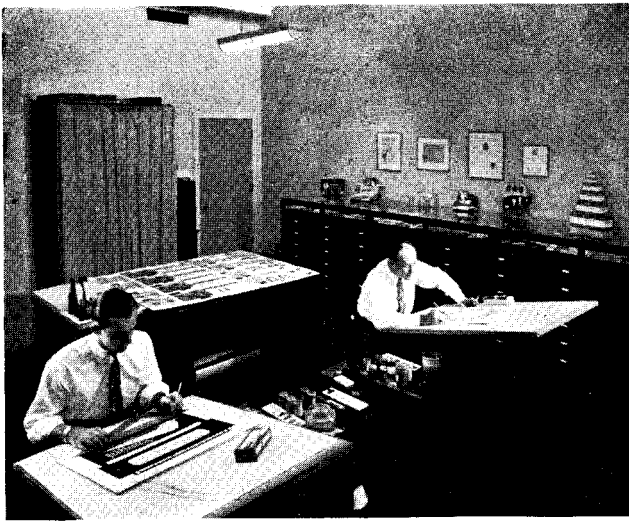
the industry. The units are of a type designed for textile mills, which have a similar humidity control requirement. The humidification system for winter, spring and fall operation consists of a number of individual units designed for ceiling suspension, each with automatic controls.

Vice-president's office, finished in "plum pudding" mahogany



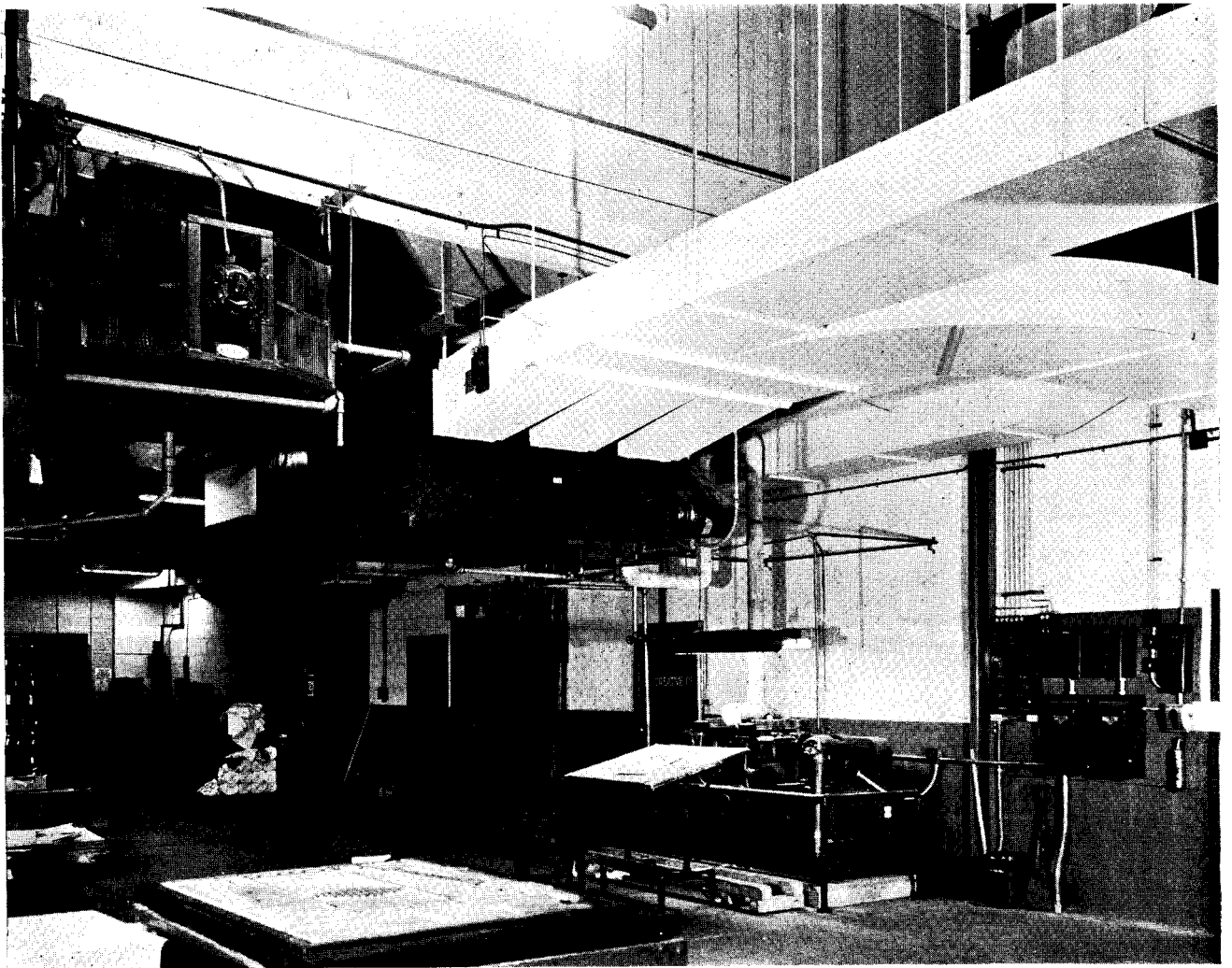
The partitioned offices are finished like the general offices





Left: carton design department. Right: printing processes need complete humidity control

Below: unit type humidity control equipment keeps expensive duct work at a minimum



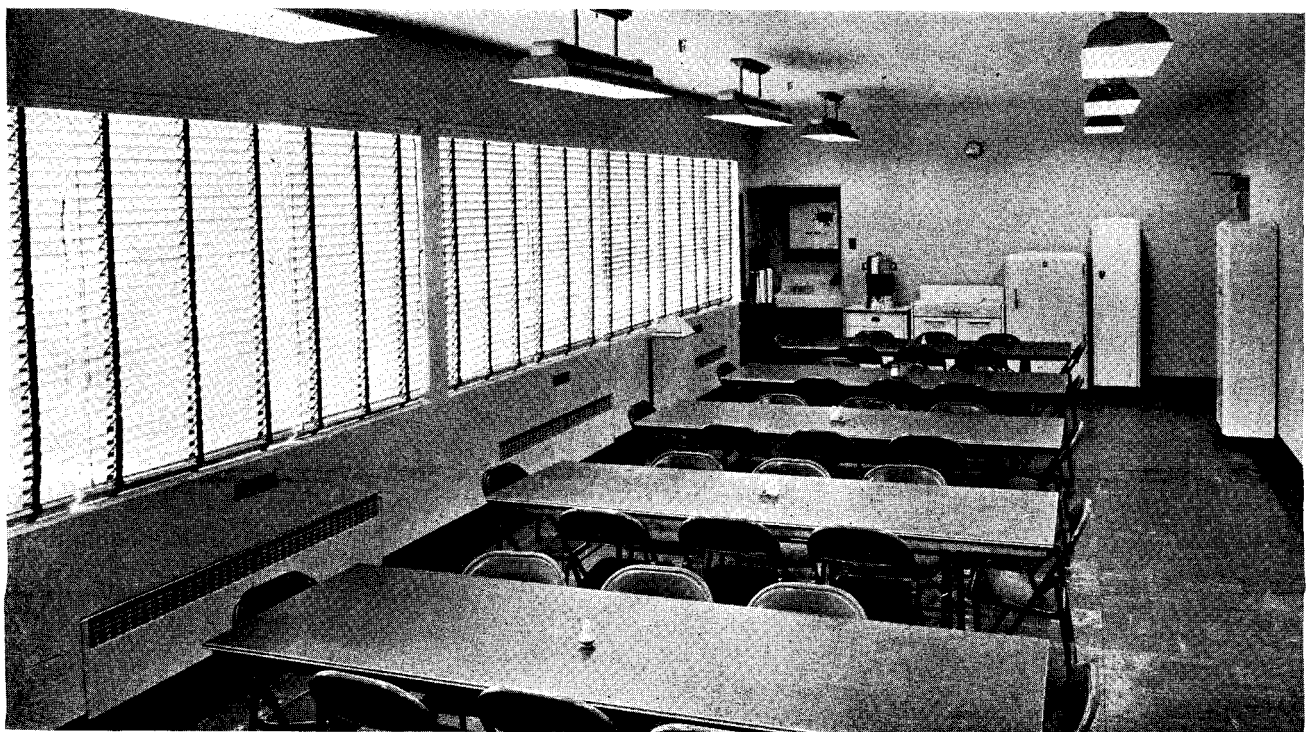


Architectural Photography Co.

PROCESS PLANT FOR SURGICAL SUTURES

FACTORY FOR JOHNSON SUTURE CORPORATION, CHICAGO, ILL.

JOHN CROMELIN, ARCHITECT • CLEARING INDUSTRIAL DISTRICT, INC., GENERAL CONTRACTORS

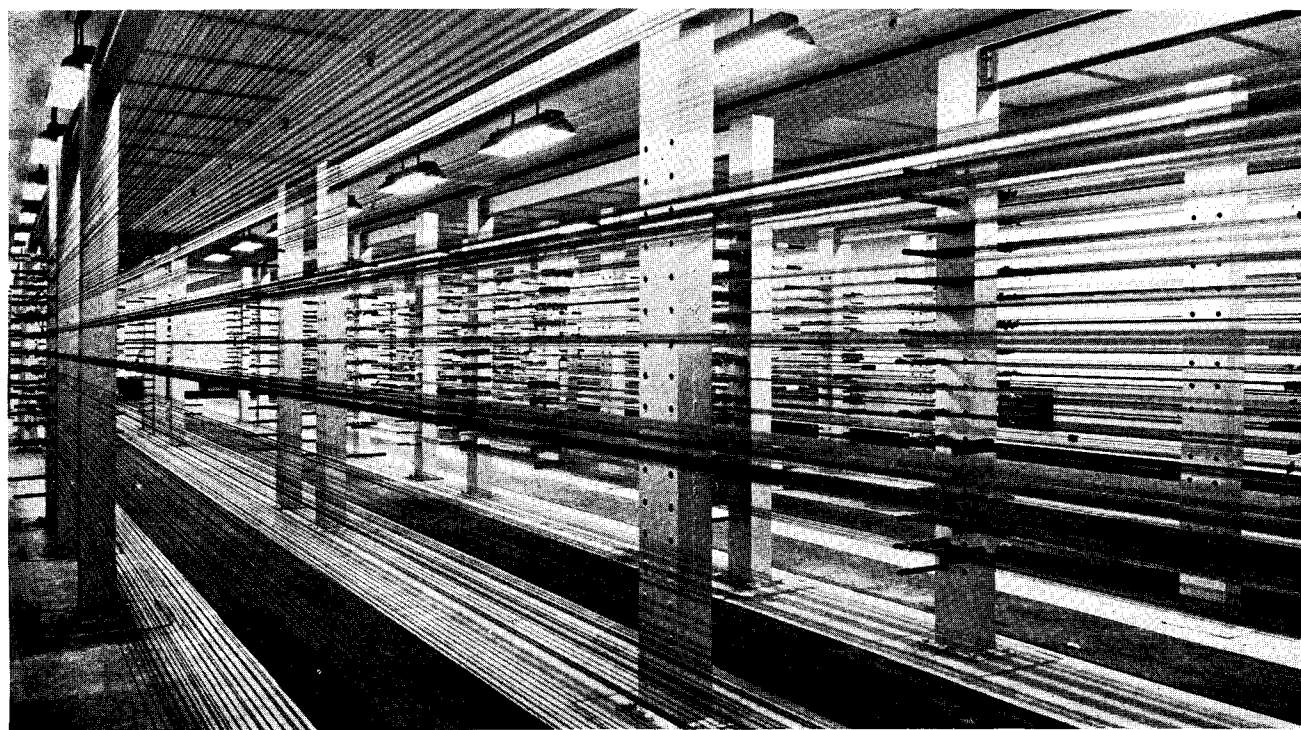


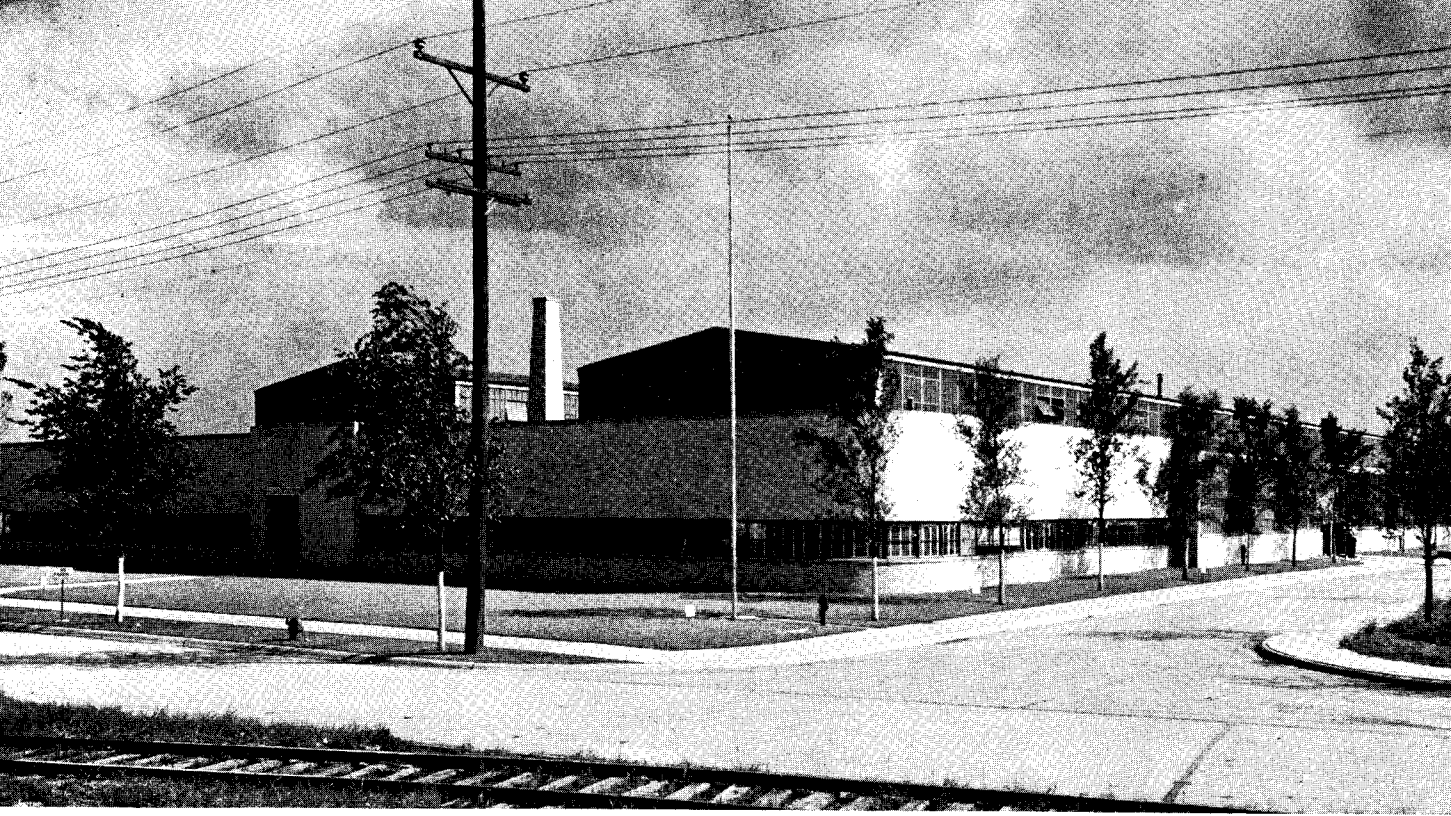


All-Events Photos

ANOTHER of the just-barely-prewar plants in Clearing is this one for the manufacture of surgical sutures. Raw materials (sheep intestines) come from Chicago's stockyards. Processes include repeated washings, tanning, drying, polishing and gauging, after which the sutures go elsewhere to be sterilized and packed. Hospital cleanliness is required throughout. Building is air conditioned, with very close tolerances in certain areas, such as the drying

room (photo below). Frames in this room are designed to resist tension of 22 tons developed by the drying sutures. Air is filtered by an electrostatic system. The wet room has walls of ceramic tile, non-slip concrete floor; it is hosed down ten times an hour. Gauging room is a windowless air conditioned space, with 50-foot-candle fluorescent lighting. In addition to offices there is also a laboratory, engineering department, machine shop and lunchroom.



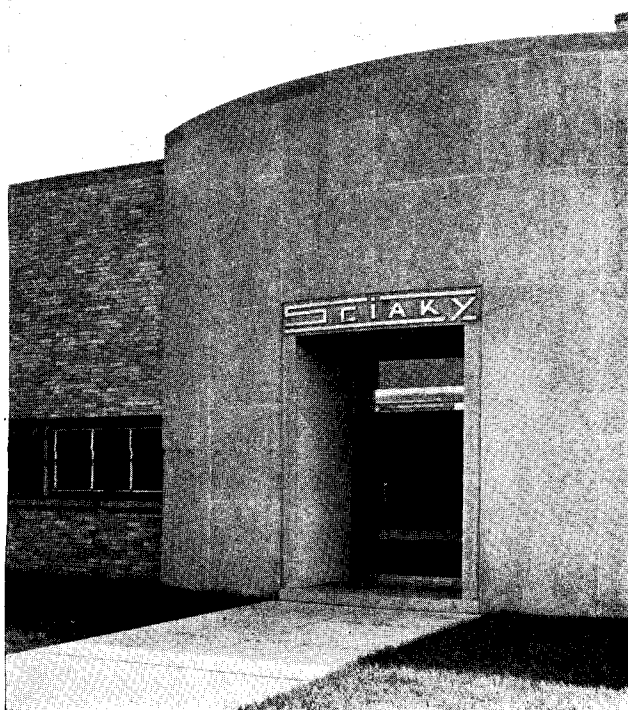


WAR PLANT FOR WELDING MACHINES

FACTORY FOR SCIAKY BROTHERS, CHICAGO, ILLINOIS

JOHN CROMELIN, ARCHITECT; PIERRE MOREL, DECORATOR

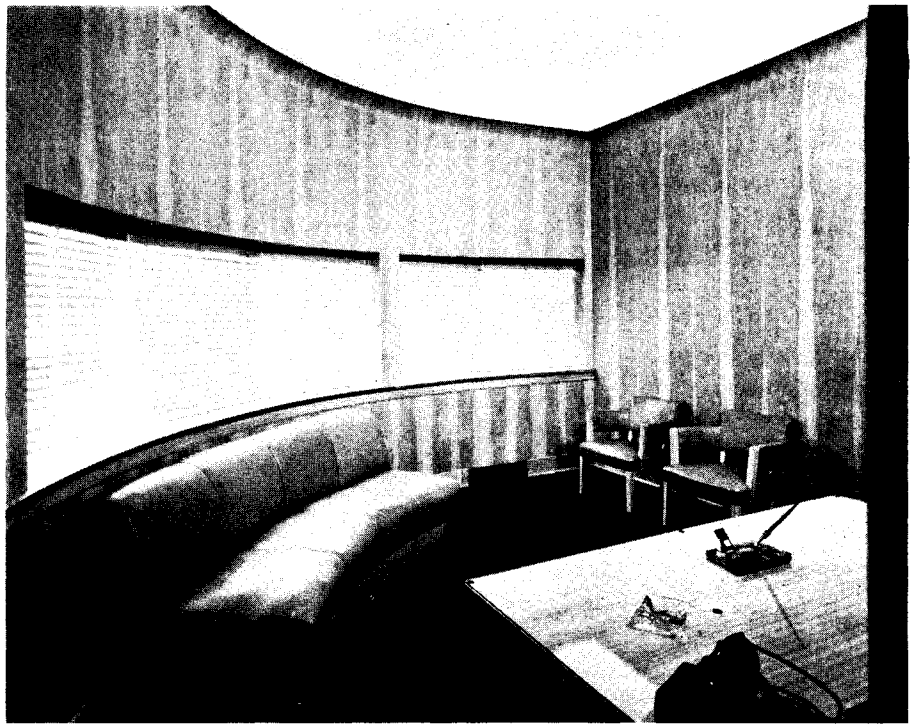
CLEARING INDUSTRIAL DISTRICT, INC., GENERAL CONTRACTORS



A LATER ADDITION to the Clearing group, this plant for the manufacture of electric resistance welding machines was definitely not pre-priorities, but was rushed to completion for its part in the war program. While in the office portion at the front, the building has the fresh simplicity of the plants shown on preceding pages, the factory section houses a different type of manufacturing; thus is anything but windowless. Maximum daylight is provided with great window areas of steel sash, supplemented by large monitor windows.

The factory section has an eight-inch concrete floor, heavily reinforced, and steel frame with supports for a 10-ton crane. Switch tracks and truck dock are not depressed, as in some of these buildings, since here trucks and freight cars come in at grade to run under the cranes. Heating in the factory portion is by four individual oil-fired units.

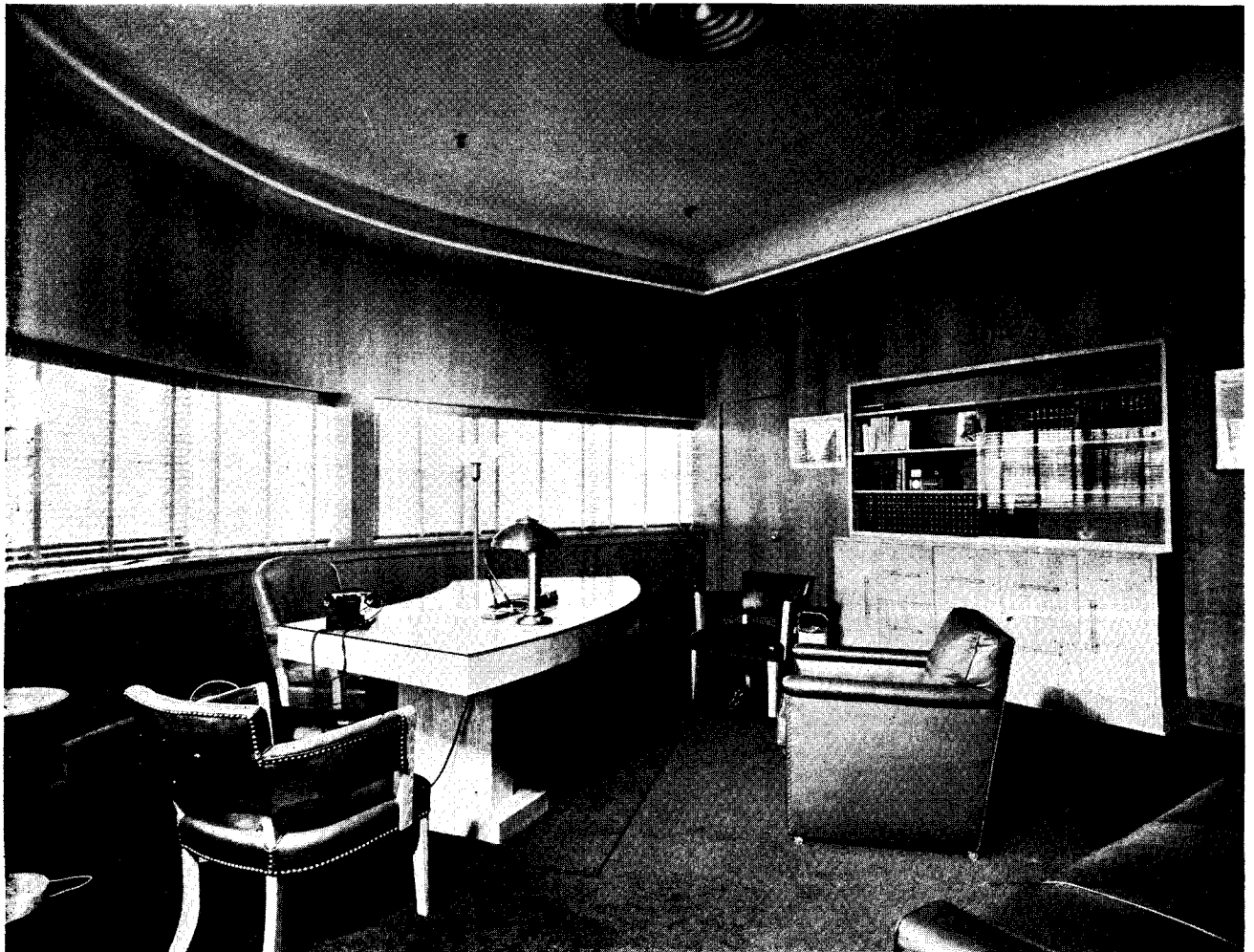
The office section includes general and private offices, accounting office, laboratories, and drafting and engineering department. There are also lunchrooms for men and for women, photographic dark rooms, and an X-ray department. All office space is air conditioned, with fluorescent lighting and acoustic treatment on ceilings. The exterior is finished with face brick and limestone trim.



*Private office, right, finished in
matched birch; below, in rift
oak. Both have cove lighting.
All furniture specially designed*

*Hedrich-Blessing
Courtesy United States Plywood Corp.*

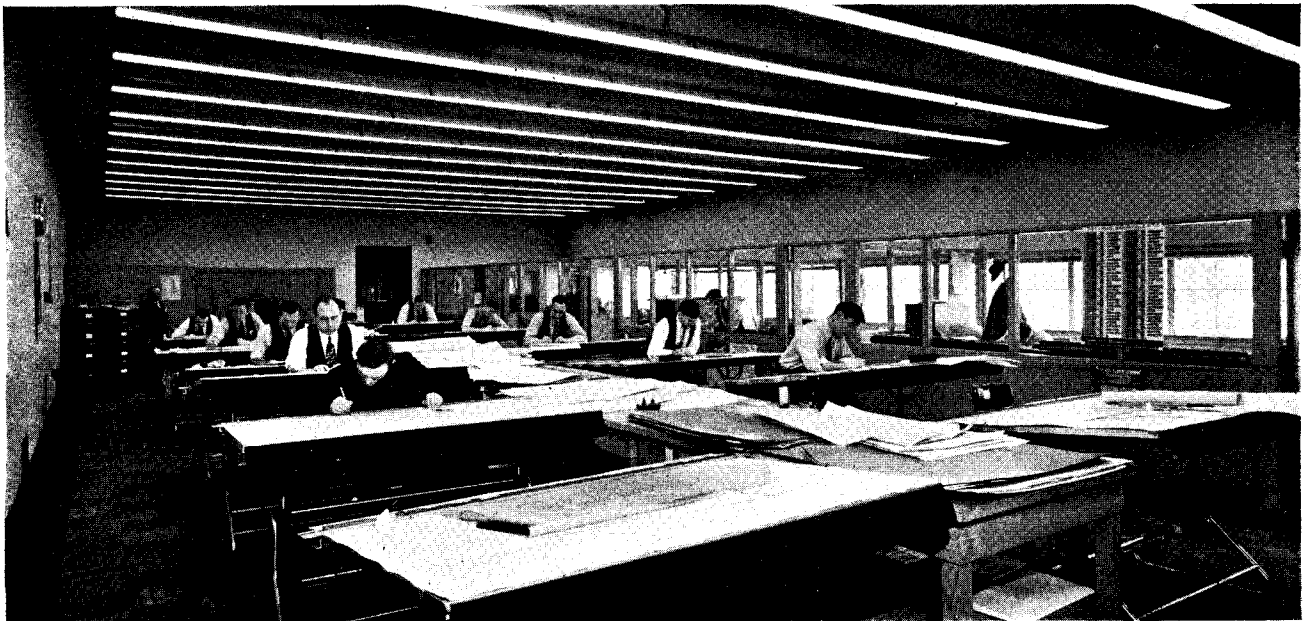
Chicago Architectural Photographing Co.





Maximum window areas, coupled with clean structural design, contribute much to usefulness of space

Forty-ft. steel joists keep drafting room free of columns. Fluorescent lighting gives 50 foot-candles



DRY-WALL CONSTRUCTION

PART 2: GYPSUM, PLYWOOD, MISCELLANEOUS By Harold R. Sleeper, A.I.A.

ARCHITECTURAL RECORD
**TIME-SAVER
STANDARDS**
OCTOBER, 1943

GYPSUM WALLBOARD: Our war housing gave a tremendous impetus to gypsum board interior finish and this has resulted in new developments which promise to live after the war.

The prime assets of gypsum are its inert character and the fact that it is fireproof. Its stability makes filling of cracks less of a problem and hence it is a good base for applied finishes.

Sizes and types: "The Federal Specification SS-W-51a Wallboard; Gypsum" is a fair standard for sizes and thickness, etc.

Type A, square edges (With or without recess) for butted joint. (Recessed joints are for taping.)

Type B, with rounded edge for filled joint.

Thickness: $\frac{3}{8}$ in. standard, $\frac{1}{4}$ in. and $\frac{1}{2}$ in. available. (Note: $\frac{1}{2}$ in. usually used to cover old wall surfaces; $\frac{1}{2}$ in. is used where unusual fire protection or rigidity is required. Elsewhere, use $\frac{3}{8}$ in. standard board. T. & G. edge is also available in the $\frac{1}{2}$ in. thickness.)

Widths: 32 in., 36 in., 48 in. Type B sheets are $\frac{1}{4}$ in. less than these dimensions. (Note: All manufacturers do not list the 32 in. width.)

Lengths: 4 ft. to 12 ft.

Special types: Besides the usual boards, there are wallboards available having imitation wood factory finish, and boards with scoring to imitate tile (unfinished); all of which are $\frac{3}{8}$ in. thick standard with $\frac{1}{4}$ in. and $\frac{1}{2}$ in. thickness as specials, and varying in width from 32 in. to 48 in. according to type and manufacturer.

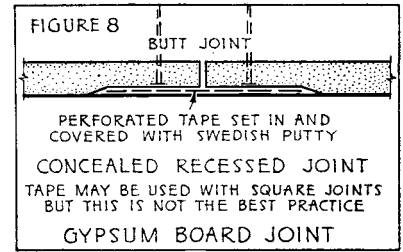
Erection: Framing to be not less than 16 in. o.c. for standard thickness. Apply ceiling first at right angles to joists. Start walls at top snugly fit to ceiling. Span entire wall where possible and cut out for openings. Place end joints over openings. and stagger all joints, walls and ceilings.

Horizontal application is more economical. Vertical joints on opposite sides of partitions shall not come opposite each other on the same stud.

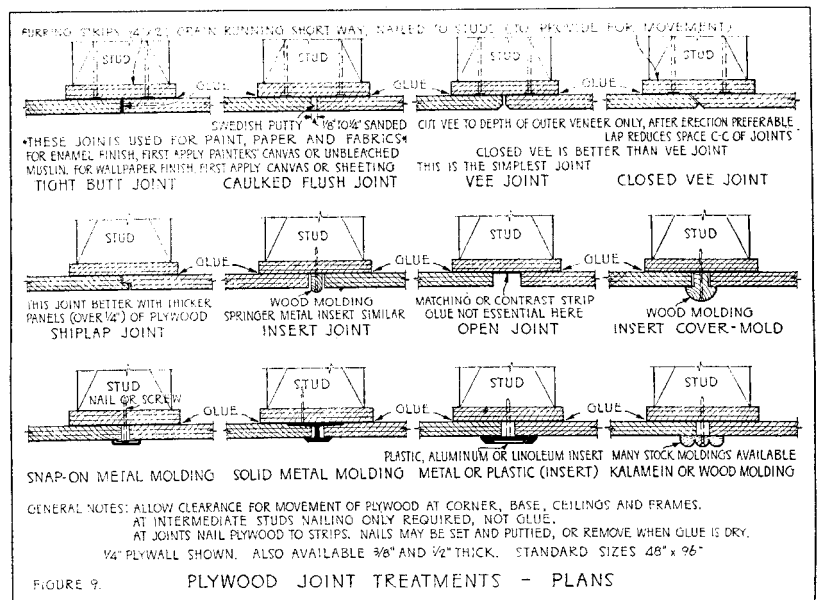
Joints: Concealed joints in gypsum board are best made with recessed edge board and a perforated tape to cover the joint (as made by several board manufacturers). This type of horizontal joint has been

successfully used without a header to back it. The molds and trim used for other types of dry-wall construction are, therefore, not necessary for gypsum board unless they are required for some reason of design. (See Figure 8.)

Applying tape to recess joints: Spread cement on joint, $\frac{1}{2}$ in. beyond recess, apply tape in recess with



GYPSUM WALLBOARD NAILING			Notes
Board Type, Thickness & Edge	Type of Nails	Spacing of Nails	Nail $\frac{3}{8}$ " in from edges & ends
$\frac{1}{4}$ " Square edge and $\frac{3}{8}$ " Recessed edge	4d, $1\frac{3}{8}$ ", coated, 14 ga. flathead	Ceilings: 5" to 7" Walls: 6" to 8"	Drive nail home, making hammer mark for sparkling.
$\frac{1}{2}$ " Recessed edge and Tile-board	5d, $1\frac{5}{8}$ ", Coated, 13 $\frac{1}{2}$ ga. flathead	Ceilings: 5" to 7" Walls: 6" to 8"	Drive nail home, making hammer mark for sparkling.
$\frac{3}{8}$ " Factory Finished	4d, $1\frac{3}{8}$ ", coated, 14 ga. flathead under trim, and 4d, $1\frac{1}{2}$ ", 15 ga. brad head diamond point finishing at 45° in field	Ceilings: 5" to 7" Walls: 6" to 8"	Do not mar board in field. Set head slightly.
$\frac{3}{8}$ " Scored board	4d, $1\frac{3}{8}$ ", coated, 14 ga. flathead	Walls: 6" to 8"	Nail in field, not scoring.
$\frac{1}{4}$ " Over Old Wall	6d, $1\frac{7}{8}$ ", coated, flathead	Ceilings: 5" to 7" Walls: 6" to 8"	



DRY-WALL CONSTRUCTION

PART 2: GYPSUM, PLYWOOD, MISCELLANEOUS By Harold R. Sleeper, A.I.A.

putty knife, forcing cement through holes in tape. Apply thin coating of cement to hide tape. Feather edges. Intermediate nail holes should be filled flush. Sand both joint and nail holes smooth, when dry.

For structural partitions of thick gypsum board, see heading: "Composite and Self Supporting Walls and Assemblies."

Fire partitions: Fire partitions are built by the application of two layers of gypsum wallboard, either $\frac{3}{8}$ in. or $\frac{1}{2}$ in. thickness applied with staggered joints and extra long nails.

PLYWOOD: Plywood is perhaps the most used of dry wall finishes for prefabricated buildings. Recently, fir plywood standards have been generally adopted, and also new

standards have been issued for hardwood plywood. As this material becomes more generally used in construction work, hardwood finishes may give architects more latitude in the design of the finer rooms.

Fir plywood wallboard (called Plywall) is the type generally used for dry-wall construction; the $\frac{1}{4}$ in. thickness is satisfactory, but the $\frac{3}{8}$ " thickness may be used on better work.

Panel type fir plywood (called plypanel) is used where both faces of the wood are exposed, such as in cabinet work, doors, and self-supporting partitions.

Curved surfaces are practical. The following are minimum radii of thin and thick panels:

$\frac{1}{4}$ in. thick panels (crosswise) 15 in.

$\frac{3}{4}$ in. thick panels (lengthwise) 12 ft. 0 in.

Decorating fir plywood: The busy or wild grain of fir has worked against its use until the recent development of finishes which subdue this grain.

"Douglas Fir Plywood," issued by the Douglas Fir Plywood Association, gives details of steps for various finishes which are in general as follow:

A.—Toning to subdue grain and to preserve wood effect: (1.) white under coater (2.) shellac (3.) blending oils wiped (4.) flat varnish rubbed.

B.—Toning: (1.) thinned tinted white under coat (2.) shellac or varnish.

C.—Stain: (1.) resin sealer (2.) stain (3.) shellac (4.) varnish.

D.—Natural appearance: (1.) white shellac (2.) dull varnish, steel wooled (3.) wax, optional.

E.—Enameled: (1.) canvas or muslin, (hung as wall paper) (2.) glue size (3.) enamel finish as desired.

F.—Stippled finish: (1.) resin sealer or shellac (2.) thin primer spread with large wall brush (3.) stipple.

G.—Wallpaper: preparation: closely butt joints and fill with Swedish putty. (1.) flour paste and gelatin glue size (2.) $\frac{3}{4}$ lb. felt, canvas or sheeting (3.) wallpaper.

HARDWOOD PLYWOOD: As the demand for hardwood plywood increases, no doubt its cost will decrease. We have all seen the cost of hardwood flooring drop to such a low point that little softwood flooring is used, even in homes of the cheaper class. Signs of this happening to hardwood plywood are now evident.

Grades, Classes and Sizes: The Federal Specification NN-P-521 applies to both soft and hard woods. This specification incorporates portions of both the Douglas Fir Plywood and the Plywood (Hardwood and Eastern Red Cedar) Commercial Standards. It sets up five grades as follow:

- Grade 1. Good two sides.
- Grade 1. Good two sides; special high strength.
- Grade 2. Good one side.
- Grade 3. Sound two sides.
- Grade 3. Sound two sides; special high strength.
- Grade 4. Sound one side.
- Grade 5. Unsanded.

TYPES, GRADES AND SIZES OF DOUGLAS FIR PLYWOOD

Summary and excerpts from "Douglas Fir Plywood (Fifth Edition) Commercial Standard CS 45-42," which relate to plywood for dry-wall construction:

Type: Moisture-resistant. Sanded smooth both sides unless specified otherwise. ("Exterior Type", the ultimate in moisture resistance, is not covered herein.)

Grades: Standard Panels:

Sound two sides (SO2S)—Suitable for painting, both sides.

Sound one side (SO1S)—Face suitable for painting.

Wallboard (WB): Face suitable for painting.

Door Panels:

No. 1 Door panel (No. 1 D.P.)—Each face of one piece, 100% heartwood.

No. 2 Door panel (No. 2 D.P.)—Each face of one piece, 100% heartwood.

Plywood is grade marked.

Standard Douglas Fir Plywood Size—Moisture-resistant Type

Item	Width (Inches)	Length (Inches)	Thickness (Inches) (After sanding)	Grade Mark Name
Standard Panel (SO2S) (SO1S)	24	60	1/8 —(3 ply)	"Plypanel"
	30	72	3/16—(3 ply)	
	36	84	1/4 —(3 ply)	
	48	96	3/8 —(3 ply)	
			1/2 —(5 ply)	
Wallboard	48	60	5/8 —(5 ply)	"Plywall"
			3/4 —(5 ply)	
			1/4 —(3 ply sanded 2 sides)	
			3/8 —(3 ply sanded 2 sides)	
			1/2 —(5 ply sanded 2 sides)	
		96		

Specify in following order: Plies, Width, Length, Grade, Moisture resistance, Whether sanded or unsanded, Finished thickness.

Example: Douglas Fir Plywood: 3-ply, 48" x 96", wallboard grade, moisture resistant, sand 2 sides to $\frac{1}{4}$ " thickness.

DRY-WALL CONSTRUCTION

PART 2: GYPSUM, PLYWOOD, MISCELLANEOUS

By Harold R. Sleeper, A.I.A.

ARCHITECTURAL RECORD
TIME-SAVER
STANDARDS
OCTOBER, 1943

Sizes: Plywood Panels:

Thickness: 3/16 in. up to 1 1/4 in. by 1/16 in. increment; above 1 1/4 in. by 1/8 in. increments.

Widths: 12 in. up to 30 in. by 2 in. increments and 30 in. to 48 in. by 6 in. increments.

Class: Four classes are applicable to all of the grades, as follows:

Class A—Low water resistance (no water resistance).

Class B—Moderate water resistance.

Class C—High water resistance.

Class D—Very high water resistance.

Types, Grades and Sizes: Digest of and extracts from: Plywood (Hardwood and Eastern Red Cedar) (Second Edition) Commercial Standard CS 35-42.

Types (3) refer to the degree of moisture resistance:

Type 1—High resistance.

Type 2—Moderate resistance.

Type 3—Low resistance.

Grades vary with the several types of wood, and are: Grade A, selected for color; Grade A, unselected for color; Grade A; Grade No. 1; Grade No. 2; and Grade No. 3. Not all grades occur in all species.

Backs of plywood panel should be specified as well as the face, i.e. "AA" grade would designate both surfaces as of "A" grade. Special grade for backs are No. 2 or sound backs (machine sanded or removal of tape required) and No. 3 or reject backs. (Sand and removal of tape not required.)

If banding (rails) is required, specify width and material.

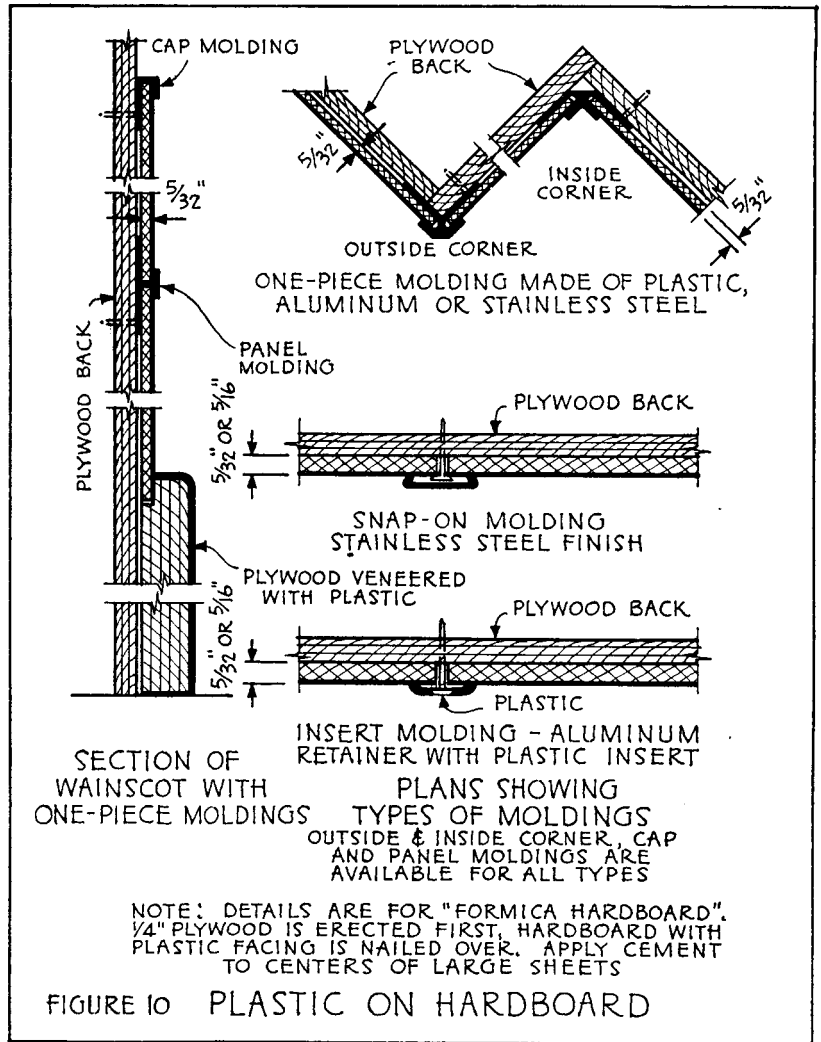
Standard width 2 1/2 in., for plywood 13/16 in. and thinner.

Cores and crossbanding may be made of any suitable wood unless specially designated.

Sizes:

Lengths	48 in., 60 in., 84 in., 96 in.
Widths	24 in., 30 in., 36 in.,
Thicknesses	1/4 in. 3-ply rotary core 3/8 in. 5-ply rotary core 1/2 in. 5-ply rotary core 13/16 in. 5-ply lum- ber core

Specify if special panels are required such as special matching-diamond, matching off-center, center matching, combination of various woods, balanced matching, matching in pairs or sets.



Application: Apply either vertically or horizontally with framing maximum 16 in. o.c. It is advisable to install header in framing 4 ft. 0 in. above floor as brace, but not to be used for nailing.

Nailing: (Galvanized nails are advisable under wallpaper.)

1/4 in. Panels 4d finish or casing nails 6 in. o.c.

3/8 in. Panels 6d finish or casing nails, 6 in. o.c.

Joints: Joints may be butted flush, Vee grooved, covered with a molding or have an inserted mold. Never butt joints directly on framing. Flush joints may be made according to the following methods:

First: Nail plywood strips to framing, cover these with casein or

cold resin glue and butt panels over strips, using nails 6 in. to hold until dry.

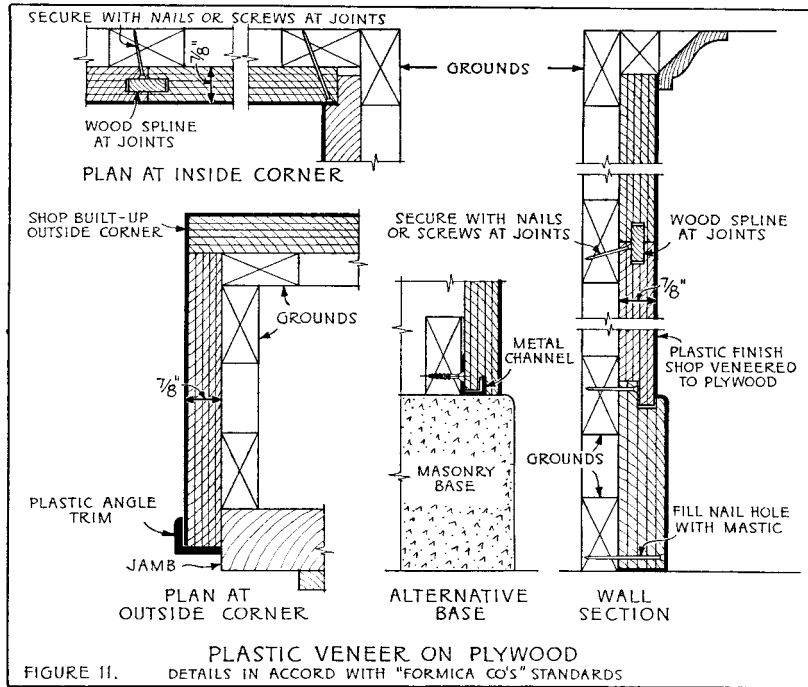
Second: One-quarter inch may be ripped off the studs, at joints only, and 1/4 in. x 2 1/2 in. furring strips nailed to studs. Apply panels as in first method.

Third: (Best method) Nail horizontal furring strips (3 in.) on about 24 in. center and glue panels on strips with joints over strips.

CEMENT ASBESTOS: Cement asbestos boards are valuable as a dry-wall material for special uses. Being unaffected by high temperatures, they are useful behind ranges, to fireproof spaces near flue or ducts. Their low water absorption quality (certain types only) makes them available for

DRY-WALL CONSTRUCTION

PART 2: GYPSUM, PLYWOOD, MISCELLANEOUS By Harold R. Sleeper, A.I.A.



bathrooms, showers and other spaces where dampness and moisture might disintegrate other materials.

Types and Sizes: As yet none of the government agencies nor associations have standardized this product, and so it is difficult to classify the various types produced by the several manufacturers. The only Federal Specification for asbestos is Fed. Spec. SS-S-291 which is for cement asbestos roofing shingles—maximum absorption for this material is 17½ per cent and thickness 5/32 in. and ¼ in.

However, certain generalizations as to types and sizes are possible. The dense material, for use both on exterior and interior, is manufactured by several companies under various names such as "Asbestos Wood," "Asbestos Cement Board," "Asbestos Sheathing," in addition to the trade names used. This material generally requires drilling for nail and screw holes and does not work like wood.

Standard thicknesses are ¼ in., 3/16 in., ¼ in., 5/16 in., ¾ in., ½ in., ¾ in., ¾ in., 7/8 in., 1 in., 1¼ in., 1½ in., 1¾ in. and 2 in. These sheets are made in various sizes up to 48 in. x 96 in., but all sizes are not made in all the foregoing thicknesses.

The next type, generally called

"Asbestos Cement Wall-Board," is less dense and may usually be nailed and cut as wood, although drilling before nailing is necessary for some makes. Sizes: 3/16 in., ¼ in., ¾ in. and sizes up to 48 in. x 96 in. The strength and water absorption of these boards varies considerably and some manufacturers make them in two grades. Scored, imitation tile sheets are also available.

The third type may be termed the "Flexible Type of Asbestos Board" which is made in ½ in. and 3/16 in. thickness. One company produces a "Decorated Flexible Board" and tile scored sheets are available. These flexible boards, having a smooth, even surface, are for use without further finishing.

Installation: Cement asbestos board may be nailed or screwed to studs, not over 16 in. o.c. in all cases with the exception of the ½ in. thick flexible type board. This latter material should be applied by cementing or nailing to a solid backing of plywood or wood sheathing.

For use at tubs and shower walls, asphalt saturated felt should be laid on walls under the board and the board joints set in non-staining, caulking compound. Flexible board may be nailed with ½ in. thick No. 1 x 1 in. polished,

button head, drive-screw nail, 3/16 in. No. 1 x 1 in. polished, casing-head, drive-screw nail. Nail 16 in. o.c. vertically or horizontally, except 8 in. for all edges.

All of these boards may be erected with molding or trim of any one of the various types and/or materials. Asbestos battens to cover joints are fabricated by several manufacturers.

Painting: Before painting, remove all dirt and stains. Where moisture is likely to occur, the exterior type of oil paint is recommended. Prime all asbestos with a heavy coat of boiled linseed oil well brushed in.

Cement asbestos board in combination with fiber insulating board is discussed under the heading "Composite and Self-Supporting Walls and Partitions."

PLASTICS

Use: Plastic for interior finishes, as now generally used, is in the form of 1/16 in. thick plastic sheets veneered on plywood, or thinner sheets applied to hardboard, or on asbestos panels (for complete fire-proofing). Plastic may have a genuine wood veneer finish which, in itself, has all the durability and resistance to stains and abrasions of the plastic. The decorative possibility of this laminated finish is unlimited in view of the fact that self inlays of metals, wood, etc., can be easily incorporated. Finishes imitate wood, linen, leather, marble, etc.

Hardboard with plastic covering is factory made in standard sheets 5/32 in. or 5/16 in. thick. Sheet sizes are:

Width: 24 in., 30 in., 36 in.
 Length: 60 in., 72 in., 84 in., 96 in.

Panels of plastic on plywood cores are fabricated to any size as required, within limitations of the above maximum sizes, with plywood of any thickness. The usual plywood panels are 7/8 in. thick.

Erection: The hardboard type is usually erected with joint and corner cover-molds. However, flush butt joints may be used if 7/8 in. plywood panel is used with wood splines at joints. Factory assembled bases of wood faced with plastic are available. Factory built-up outside corners with plywood construction are made to simplify this joint. (See Figures 10 and 11).

DRY-WALL CONSTRUCTION

PART 2: GYPSUM, PLYWOOD, MISCELLANEOUS

By Harold R. Sleeper, A.I.A.

ARCHITECTURAL RECORD
**TIME SAVER
 STANDARDS**
 OCTOBER, 1943

COMPOSITE, AND SELF-SUPPORTING WALLS AND PARTITIONS

In view of the fact that prefabrication is dependent on the acceptance of dry-wall finishes, the two interlock to a great extent.

This article makes no pretense of discussing prefabrication. Nevertheless, much of what is covered concerns an important phase of prefabrication. We may use dry-wall without prefabrication, yet prefabrication is primarily dependent on dry-wall finishes. Certain material combinations have been used in prefabricated houses and form both the interior and exterior finishes.

"Cemesto," 1/2 in. thick cement asbestos board cemented with asphaltum to both sides of an insulation fiber board core, is one example. This built-up panel, 4 ft. 0 in. wide, is 1 9/16 in. or 2 in. thick for exterior walls. For use as interior self-supporting partitions, the panel is made 1 1/2 in. thick. Lengths are 4 ft., 6 ft., 8 ft., 10 ft. and 12 ft. Such board may be left unfinished in the natural, gray, asbestos color, or painted as described under "Cement Asbestos Board." This wall has the great advantages of low maintenance combined with insulation, ease of erection and fire resistance. (See Figure 12).

Laminated Gypsum Partitions: The lamination of gypsum boards is a "war baby" which may cause a revolution in partition construction. These panels, made of two or three sheets of 1/2 in. gypsum board cemented together, are proving very rigid and easy of erection. Today they are generally erected with wood studs and nailing strips to secure them to the studs. Later, metal studs may be used to improve the appearance of the partitions. Experiments have shown that the three-ply partitions with T. & G. joints may be erected with supports at ceiling and floor only. Salvage for such partitions is practically 100 per cent.

Office partitions should be included in dry-wall construction inasmuch as they are, more or less, the forerunner of this development.

Johns-Manville fabricates two types: First, the "De Luxe" which consists of steel studs faced on both sides with Transite panels, total thickness 4 in.; second, the less expensive type which is formed of a core of wood with Transite ve-

neered to both sides, 1 1/4 in. thick.

Many all wood partitions have been developed for the duration period. Before the war, many types of steel partitions, as well as wood, were commonly used. Perhaps the less essential element of movability can be eliminated, and other features of these partitions adapted to more general partition work, after the war. (See Figure 13).

MISCELLANEOUS: Certain finishes are well adapted for use over dry-wall construction. The recently developed, washable wall fabrics are good for use over plywood or gypsum and at a small cost. This material was included in the Federal Public Housing Authority's Dry-Wall Construction DW-D-13A. Certain savings in joint treatment are possible when using fabric on gypsum as joint tapes may be omitted.

Linoleum wall covering is also suitable over nearly all of the dry-wall constructions, except insulation fiber board.

Glass: Structural glass may be secured in prefabricated panels (Vitolite) consisting of 11/32 in. thick structural glass cemented to 1/2 in. plaster board. Edge nailing is provided by plaster board flange. Panels are furnished up to 48 in. in height. This material is suitable for tub surrounds or other wet locations.

Now that glass blocks may be erected with wood strips (for interior use), this material becomes

a dry-wall type of partition. Strips are colored as desired and the entire assembly is demountable.

A new material, under the heading of "Structural Glass," has recently been placed on the market. It is, in fact, corrugated glass similar to the corrugated wire glass, but without the wires. It is made in both clear and etched surfaces, and is recommended for screens and partitions.

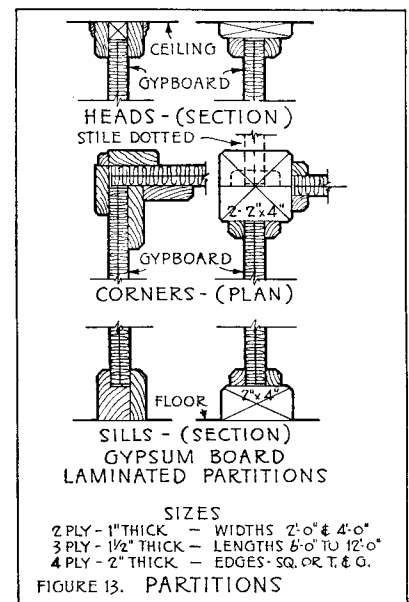
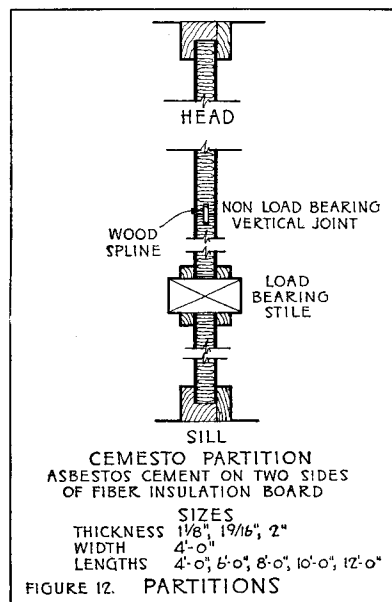
"Flexglass," the glass that bends, may be applied on dry-wall backing and is especially adaptable to application on curved surfaces.

"Flexwood" is a very thin, real wood veneer, factory mounted on fabric. It is applied in the same manner as wall paper and it, also, is suitable for curved walls and often is used in combination with plywood veneered walls of same wood finish veneer.

"Leatherwall" is a colored, lacquer finished, leather. This may be cemented to plywood (special cement). Joints in the leather (50 in. wide) are spliced to make a strong, hidden seam.

Thin cork sheets, as well as rubber sheets, may be mounted on the more stable types of dry-wall finishes.

CONCLUSION: Dry-walls now definitely have their place in the scheme of building. When the results of construction during this war period have been digested, perhaps we shall have new information upon which to make our decisions.



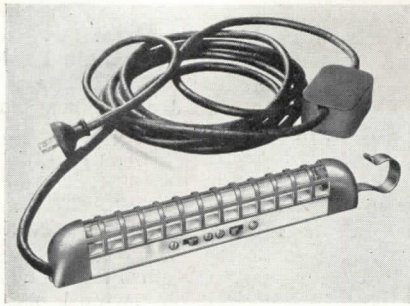


Figure 1.

**FLUORESCENT
EXTENSION CORD UNIT**

The fluorescent extension cord unit known as P-7 has now been streamlined, it has been announced by the manufacturers. Changes in design permit lightning fast lamp change, the manufacturers report; ends have been rounded; rigid hanging hook is riveted to the end cap. (Figure 1) Sylvania Electric Products Inc., Ipswich, Mass.

RUBBERLESS BUILDING WIRE

Recently announced is a new type of building wire called Hazapak, whose insulations and protective coverings contain no critical materials. The copper conductor is insulated with a synthetic (cellulose-acetate butyrate) tape and further protected with a heavy layer of moisture-proof compacted Kraft paper. As no rubber insulation is involved, tin coating is no longer necessary.

The full N.E.C. wall of insulation is protected by a flame and moisture resistant fibrous covering made to the well-known Dilec specifications, the finished wire being approved by the Underwriters Laboratories, Inc. Without the final covering Hazapak is approved for neutral conductors. The fully covered wire is approved for the "hot" wire in open wiring and non-metallic-sheathed cables. Hazard Insulated Wire Works Division, The Okonite Co., Wilkes-Barre, Pa.

**PROTECTION FOR
BLUEPRINTS AND MAPS**

A new plastic product recently announced is Presto-Seal, a protective covering for maps, charts, blueprints, tracings and other papers constantly handled in drafting rooms.

A thin, flexible, transparent film, Presto-Seal is said to adhere instantly

to any surface, and to be moisture-, dirt- and grease-proof. Pencil, ink, crayon or typewriter can be used to write on the finished surface. Such marking can be wiped off with a damp cloth, the manufacturers report.

Presto-Seal comes in rolls. Application is simple. After being cut to size, the backing is stripped off and the film pressed down firmly on the surface to be covered. Arthur Brown & Bro., 67 West 44th St., New York.

CONVERTIBLE PANEL PLAN

Offered as a solution to the problem of replacing old-style panelboards because of increased light and power demands, the Multi-breaker Convertible Panel Plan provides for the complete conversion of obsolete fusible panelboards to circuit breakers. This change permits considerable increase in the number of circuits, as well as in the circuits and mains capacities, it is claimed.

The conversion is said to be relatively simple. The old trim and interior are removed from the box and the existing wiring pulled out if it cannot be utilized. By employing thin-wall wire, the existing conduit may be wholly or partially used. Square D Co., 6060 Rivard St., Detroit 11, Mich.

**PLASTIC PAINT
COMBATS ACID FUMES**

How the use of plastic paint to protect the surfaces of air handling equipment solved a difficult problem in a textile mill was described recently by an official of Carrier Corp., Syracuse, N. Y., manufacturers of air conditioning and refrigeration equipment. The acid fumes from the dye vats had a corrosive effect upon the metals in the air handling system of the dye house, it was explained. To protect the surfaces of the air conditioning equipment, plastic paint was adopted throughout, and the results were highly satisfactory, it is claimed.

PIPE GAGE

Recently announced is a new pocket size Three-Point Pipe Gage for instantaneous measurement of all sizes of pipe from 1/8 in. to 12 in.

Patented in Canada, with patents

pending in the U. S., this gage consists of two pivoted steel plates with edges curved at three points for contact with the pipe to be measured, together with a scale which automatically registers not only the pipe size in terms of inside diameter, but the drill size for tapping. It is necessary to contact only a small section of the pipe contour, it is claimed; the gage will measure pipe in any position, even against the wall or in a corner. Three-Point Gage Co., 3821 Broadway, Chicago.

BASIC GLASS FIBERS

Seven basic types of glass fibers are now being offered by the Owens-Corning Fiberglas Corp. as raw materials for use with other fibers and with plastics and cements, and for use in various types of industrial and chemical process equipment, it has been announced.

Fiberglas fibers are now being used in combination with plastics where they serve as reinforcement for lightweight, high-strength structural parts for aircraft, the company reports. The Fiberglas-plastic parts can be molded at low pressures, reducing fabrication costs and man-hours. Experience indicates, the company says, the adaptability of the fibers to similar use as reinforcement for certain cements and plaster-like materials where their high tensile strength may give improved physical properties to the resulting product.

The seven basic glass fibers now available are distinguished by differences in fiber diameter, tensile strength and the glass compositions employed. Four glass compositions are used to provide different properties required for different applications. These properties, each of which is found in a substantial degree in all the fibers, and to a maximum degree in some, include resistance to acids and weak alkalis, to high temperatures, and to severe exposure to weathering.

**PREFABRICATED
CHIMNEY FLUE**

The Vitroliner Flue, a complete assembly replacing the masonry chimney in venting the products of combustion in coal, oil or gas heating equipment, is now listed by Underwriters Labora-

(Continued on page 96)

The background of the advertisement is a collage of various TECO timber connectors and tools. At the top, there are circular connectors with 'TECO PAT.' stamped on them. Below these are several large, heavy-duty metal brackets with multiple holes and slots. In the center, there are more circular connectors, some with 'TECO' and 'PAT.' markings. At the bottom, there are more circular connectors and a large, jagged-edged metal tool, possibly a grooving bit. The overall aesthetic is industrial and technical.

TECO CONNECTORS

and the services that go with them

TECO Design Service

Teco has available for distribution to architects and engineers complete data on all phases of timber design, including tables and charts on timber beams, columns, floors, connector loads, bolt loads, stresses, etc.

TECO Consulting Service

Teco maintains a staff of engineers to consult with architects and engineers on their design problems. Teco Connector distributors and fabricators in all parts of the country also render helpful services to architects and engineers.

TECO Typical Design Service

"Typical Designs of Timber Structures"—a 100 page book—is available to architects and engineers free upon request. Copies of several hundred other designs of typical Teco Timber Structures are also available on request.

TECO Research Service

Teco conducts a continuous research program as well as sponsoring research at outstanding engineering colleges and laboratories to increase the design knowledge of timber designers. The benefits and results of this research are passed on to interested individuals in the form of design data and improved products.

Specifications: Specify Teco Connectors and grooving tools by name. They are endorsed by leading lumber manufacturers and fabricators.

TIMBER ENGINEERING CO.

National Manufacturers of **TECO** Timber Connectors and Tools

WASHINGTON

CHICAGO

PORTLAND

MINNEAPOLIS

Specify Them!

A LIST OF PREFABRICATORS

Additional names and supplementary information on certain prefabricators listed

in June ARCHITECTURAL RECORD

Bell Lumber Co. 158 N. Main Blvd., Green Bay, Wis. Manufacturers of prefabricated grain bins for Commodity Credit Corp. before the war. Now prefabricating Temporary Defense Housing of the T.D.U. Series for the Federal Public Housing Authority. In the prefabrication field for approximately one and a half years, the company's present rate of production is 14 to 16 units per day.

Braden Steel Corp. Tulsa, Okla. Manufacturers of industrial type steel buildings for individual projects since 1925. Do not produce prefabricated dwellings.



City Lumber Co. 75 Third St., Bridgeport, Conn. Manufacturers for the past five years of prefabricated residence housing, industrial, farm, military buildings, structural arches and trusses, crating, ships. Have built defense houses at Burnside Village, Conn., and 250 homes for New London war workers. Not now producing houses, but a new plant is being set up and plans for postwar houses are being made. Plants at Groton and Bridgeport.

Cincinnati Mfg. Co., The. Gest & Evans Sts., Cincinnati, Ohio. In business for 99 years, this firm has been making prefabricated steel houses for the past 10 years. Complete structures, also units or panels. Present work consists of frameless steel acoustical panels. Largest installation of this kind ever made has just been completed at Wright Field. Rate of production is approximately 100,000 sq. ft. of units per month, and output could be increased almost indefinitely.

Columbian Steel Tank Co. 1401-1621 W. 12th St., Kansas City, Mo. Factory fabrication of metal buildings for 28 years. Products are panel type, mostly for filling stations or dwellings, and warehouse type construction. Plant at present converted to 100 per cent war production.

Connors Steel Co. P.O. Drawer 952, Birmingham, Ala. Manufacturers of steel prefabricated buildings since 1936, discontinued operation in 1940 and will probably remain out of production for the duration. Product was suitable for warehouses, machine shops, garages, etc.

Crescent Panel Co., The. 3131 W. Market St., Louisville, Ky. Pioneers in prefabricated construction of houses, along with the Dulaney-Fuller-Wilson Co. of New Albany, and the Indiana Veneer & Panel Co. of New Albany. These companies presently engaged in production of aircraft plywood, but plan to re-enter the prefabricated house field after the war.

Dulaney-Fuller-Wilson Co. New Albany, Ind. See Crescent Panel Co.



Allison-Lighthall

General Fabricators, Inc. Attica, Ind. Experiments in prefabrication of build-

ings for 13 years. Present production is complete dwellings, brooder houses, hog houses and parachute drying lockers. Rate of production, four houses a day. Capacity is 100 to 200 houses per month.

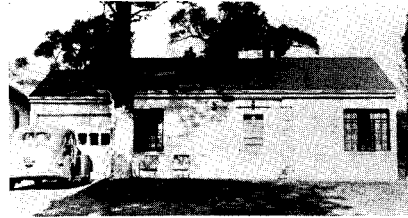
Grand Rapids Mobile House Corp. Grand Rapids, Mich. Company succeeded by Woodworking Industries, Inc.

Globe-Wernicke Co., The. Cincinnati, Ohio. Manufacturers of prefabricated steel walls, partitions and roof decks.

Harnischfeger Corp. 6785 Greenfield Ave., Milwaukee, Wis. Their housing division has been disbanded for the duration.

Hauserman, E. F., Co., The. Cleveland, Ohio. Erected groups of prefabricated steel homes on Fisher's Island, N. Y., and at Indian Head, Md., in 1941. Also experimental houses. Principal pre-war products were movable steel partitions and wall linings. Now engaged in war production. Their current movable wood partitions are produced in a separate plant.

Indiana Veneer & Panel Co. New Albany, Ind. See Crescent Panel Co.



Individual Homes. 234 Talbot Bldg., Dayton, Ohio. Eight years' experience in development and use of system. "Product" is construction system to speed erection and eliminate common faults of metal house. Can be used with any architect's plans. No production at present because of material restrictions. Expanded facilities are now being sought for postwar activities.

J. & B. Mfg. Co. 6th and Bowman Sts., Mansfield, Ohio. Formed early in 1942 to fulfill certain War Department contracts for prefabricated portable type barracks. Have since also manufactured prefabricated wood grain bins for the Department of Agriculture, and sectional panels for defense housing. Designers of "Jaybee" Military Hut. Rate of production is 25 buildings per day. Actual capacity produces up to 2,500 portable barracks per month, 1,000 grain bins, or 500 complete defense housing units.



Johnson, John A., Contracting Corp. 270 41st St., Brooklyn, N. Y. See ARCHITECTURAL RECORD, June, 1943. Photo above.

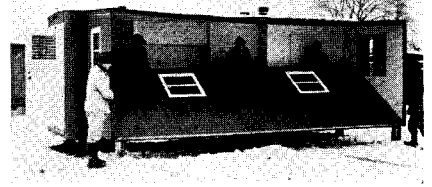
Kozy Coach Co. 1804 Reed St., Kalamazoo, Mich. Pre-war manufacturers of better-grade automobile trailers, the firm is now building the Kalamazoo Portable Home, which in a space 20 by 8 ft. incorporates a three-room, all furnished apartment. Designed for war workers now, the house can be used after the war as lake cottage or tourist cabin.

Lewis Mfg. Co. Bay City, Mich. Manufacturers of Liberty Ready Cut Homes since 1907. Facilities at present devoted to war work which does not include

housing. The firm plans to resume production of houses immediately after restrictions on building are removed and are now taking orders for postwar delivery.

Martin Steel Products Corp. Mansfield, Ohio. Manufacturers of prefabricated farm service buildings for well over a quarter of a century. Have made concrete and steel reinforced wall panels for all-steel framing for homes. Little activity due to war restrictions.

Mengel Co., The. Louisville, Ky. Post-war plans include manufacture of prefabricated wall sections, plywood wall panels—"Mengelbord"—Mengel doors, Kemper kitchen cabinets, individual and built-in furniture and related lines. See also ARCHITECTURAL RECORD, Sept., 1943, p. 90.



Palace Travel Coach Corp. Hemphill Rd., Flint, Mich. See ARCHITECTURAL RECORD, June, 1943. Photo above.

Palisade Structures, Inc. 420 Lexington Ave., New York, N. Y. Makers of an all-plank house. Now engaged in the development of the Hurricane Brace in behalf of the manufacturers, Structural Specialties, Inc.

Porete Mfg. Co. Porete Ave., N. Arlington, N. J. Plan to manufacture precast fireproof houses, but are not yet in production.

Schult Trailers, Inc. 1730 S. Main St., Elkhart, Ind. Manufacturers of 100 prefabricated two-unit trailer houses for the TVA in North Carolina. The manufacture and construction of the houses is patterned after regular Schult house trailer construction plus a new type of stress-skin construction. The houses will represent, the company reports, a major program of postwar development.

Southwest Mfg. Co. West Madison St., Phoenix, Ariz. "We do not prefabricate houses or any part thereof. . . . We receive frequent inquiries from various sources over the country regarding prefabricated houses, but have never been in that line of business."

Takapart Products Co. 28-36 Brooklyn Ave., Freeport, N. Y. The company has specialized in sectional building products for the past 20 years, and manufactures complete houses, composed of wall, floor and roof units. Present rate of production is 10 houses per month, with a capacity of about 15 per month. After producing for FPFA, now also builds to FHA requirements, to provide flexibility of layout and selection in size of building and individual character.

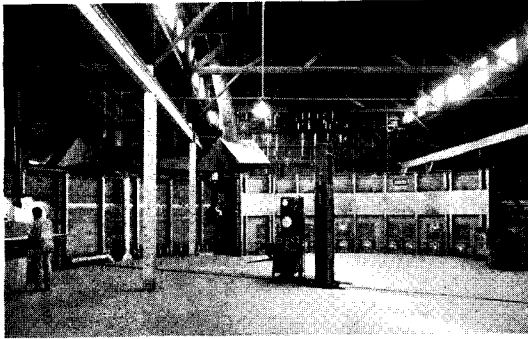
Wheeling Steel Corp. Wheeling, W. Va. Due to war restrictions on materials, these makers of steel floors and roof decks are not producing at this time, but plan to continue after the war.

Woodworking Industries, Inc. Grand Rapids, Mich. Successors to Grand Rapids Mobile House Corp., this company has been in the field of prefabrication for approximately one year. Products are housing for the Army Air Corps (for export), grain storage bins for U. S. Commodity Credit Corp., dog crates for Signal Corps, and barracks for War Department. Present rate of production is 12 barracks (size 20 by 48 ft.) daily. Now producing to capacity.

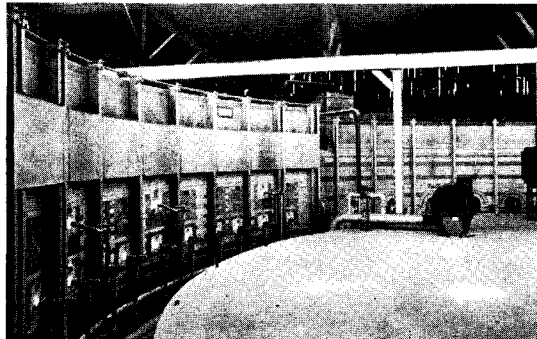
BETTER WALLS

WITH AR-KE-TEX CERAMIC GLAZED STRUCTURAL TILE

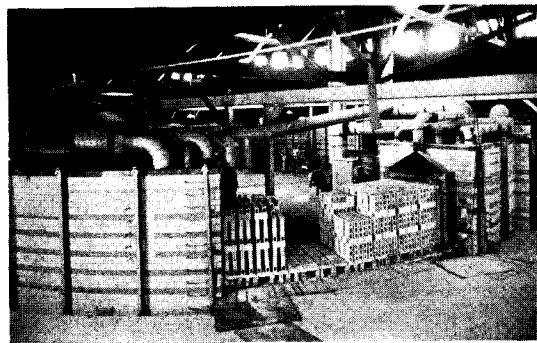
PUBLISHED MONTHLY FOR THE INFORMATION OF ARCHITECTS AND ENGINEERS



The pictures on the left tell part of the inside story of AR-KE-TEX Ceramic Glazed Structural Tile. They are actual unretouched photographs of our continuous circular kiln that contributes so much to the efficiency, speed, economy and quality with which AR-KE-TEX products are produced.

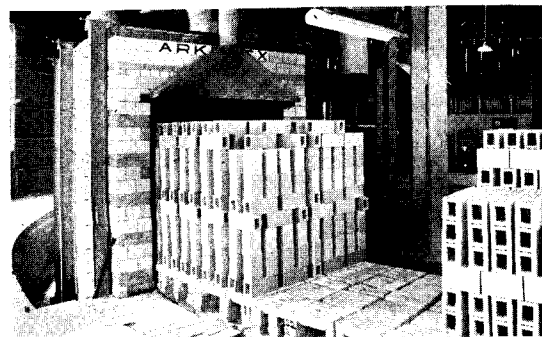


It is up-to-date production equipment like this that enables us to turn out glazed structural tile that is perfect in every way. Here are just a few of the advantages which only this latest type of equipment offers: Time required for production is reduced to $\frac{1}{3}$ because of continuous firing. Variations in sizes and color tones are eliminated due to constant control of fire chambers. No under-burn and no non-vitrified pieces can ever come out of this kiln. A permanent, impervious glaze that is non-absorptive and a finish that will not craze or peel is guaranteed.



In addition to maintaining only the most advanced production equipment we have developed a detailed record and control system which enables us to give accurate shipping promises within 24 hours after your inquiry is received. We also have an Engineering Research Department which is at your service whenever we can be of assistance on any of your design or application problems.

AR-KE-TEX Ceramic Glazed Structural Tile is available for either interior or exterior walls in more than a dozen everlasting colors, a variety of textures, and a number of sizes and shapes. Decorative insets in many colors are also available for special effects.



For many years AR-KE-TEX Ceramic Glazed Structural Tile has been used repeatedly by architects for creating original wall effects in their buildings. It is impervious to moisture, acids, alkalis, grease, or oil, and the cost of a finished wall is frequently less than that of materials which have neither its beauty nor its permanence.

Write for further information and detailed specifications or see our catalog in Sweets.

ARKETEX CERAMIC CORPORATION
BRAZIL, INDIANA

(Continued from page 12)

Mr. Nelson says that there are already three bills before Congress on this subject and that there will be many more. It is his belief that ex-servicemen should be encouraged by the government to own homes and farms as part of rehabilitating them into civilian life, and that a program conceived around getting jobs and helping soldiers to get homes is better for them and for

the country than a program which thinks in terms of a cash bonus alone.

"There is nothing new about the idea," Mr. Nelson said. "After the Civil War, under the Homestead Act of 1862, the West was largely developed by soldiers who established their homes there. Following the Spanish-American War and World War I, 21 states took action to aid

veterans in home ownership. None of this legislation gave anything away. It merely aided the ex-serviceman and guided his steps."

Recently Canada, New Zealand and Australia have passed laws along similar lines.

DEFENSE HOUSING

The House on September 23 passed the Steagall bill (H.R. 3291) which would authorize an additional \$400 million for insurance of residential housing loans in defense areas under Title VI of the National Housing Act, raising the aggregate limit on such insured loans to \$1.6 billion, and extending until July 1, 1946 the period in which the NHA may make insured loans under Title I of the Housing Act, with increase in the insurance fee to 1 per cent. A companion bill (S. 1369) is already pending before the Senate Banking and Currency Committee.

LIGHTING FORUM

Anticipating rapid postwar expansion in the field of home lighting, the New York Residence Lighting Forum is planning a series of educational meetings for the coming year, beginning this month. Home lighting specialists are devoting most of their time at present to problems of eyesight conservation under conditions of blackout, dimout and electricity conservation. The Forum meetings will give members an opportunity to obtain information on new lighting developments and their application in the home, and thereby prepare themselves to render a service to the public which will be as valuable after the war as it always has been.

The New York Residence Lighting Forum is affiliated with the Illuminating Engineering Society, New York Section.

PREFABRICATORS

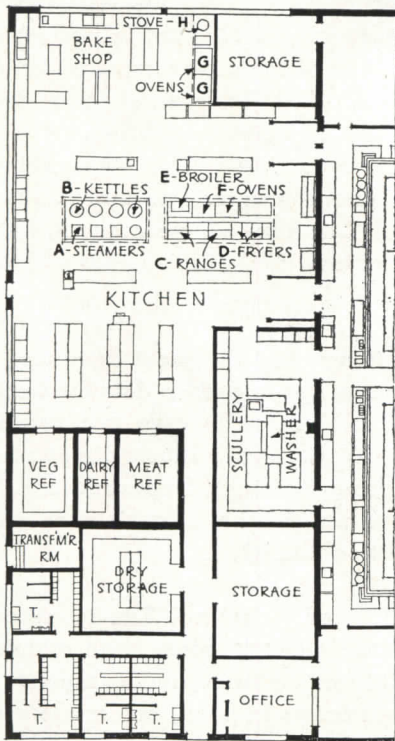
FORM INSTITUTE

Announcement has been made of the formation of the Prefabricated Home Manufacturers Institute, whose activities are "dedicated to the advancement of health, happiness and security for increasing numbers of families by making available homes of greater quality,

(Continued on page 88)

KITCHEN PLAN NO. 4: Fourth of a series of successful mass-feeding kitchen plans.

This compact kitchen feeds a civilian mess in a Naval Station—designed for 2000, feeding 1500 at present.



KEEP FOR HANDY REFERENCE!

COOKING EQUIPMENT USED:

- (a) 3 Steamers
- (b) 4 Kettles
- (c) 3 Ranges
- (d) 4 Fryers
- (e) 1 Broiler
- (f) 2 No. 959 BLODGETT GAS-FIRED ROASTING OVENS
- (g) 2 No. 963 BLODGETT GAS-FIRED BAKING OVENS

Designed by P. B. Polhemus Co., Inc., for U. S. Navy.



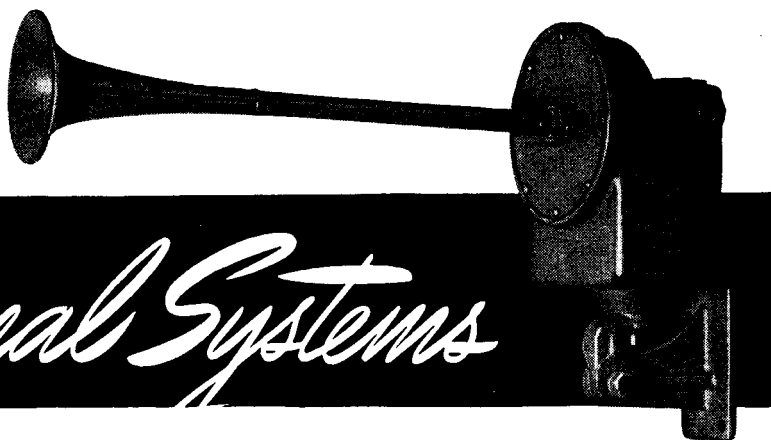
THE TWO No. 959 BLODGETT ROASTING UNITS in this kitchen provide two 12"-high and four 7"-high compartments in four sections, with shelf area of 55 sq. ft., and loading capacity of over 900 lbs. THE TWO No. 963 BLODGETT BAKE OVENS have six individually controlled compartments, with 12-pan, 72-pie capacity. For details and specifications of Blodgett Ovens, consult your equipment house or write

The G. S. BLODGETT CO., Inc.

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SIGNALS THAT GET ACTION!

That's what you want in industrial plants now,—that's what you will want when they swing back into peace-time production.

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There's a SCHWARZE-FARADAY Audible Electrical Signal for every industrial need. From their wide range of styles, and great variety of tone, you can select the signals to do YOUR job;—for warning, communication, shift change, fire alarm, etc. (Our signal engineers will assist, if this service is desired.)

MAINTENANCE PROBLEMS ARE "OUT"!

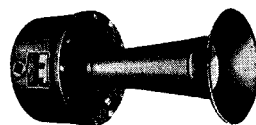
The many new industrial signals of advanced design, developed by this pioneer manufacturer, are rendering valuable service in war plants today. Extra performance, **EASIER INSTALLATION**, positive dependability, are their outstanding qualities.

Schwarze-Faraday Signals include Horns, Bells, Buzzers, Sirens, Air-Trumpets, Kodaires, Chimes, in wide variety of tone size and style. For example:



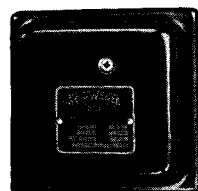
UNI-PACT BELL

Latest advancement in signal design. Special mounting features make this bell signal interchangeable with horns and Kodaires. Just "plug in."



STANDARD HORN

One of many styles and shapes, which include megaphone, two-way, drum, short and flush. Supplied for either A.C. or D.C.; vibrating, single-stroke types, etc.



HEAVY DUTY BUZZER

Chosen for signal work of vital importance on control equipment of U. S. Army and Navy. Many other types.

Architects will find extreme convenience in selecting signal systems and signal equipment from the current Schwarze-Faraday Catalog. This famous book is clearly sectionalized by colors, has easy-to-use section-and-page-captions, and double cross-indexing. Your copy free on request, of course.

SCHWARZE ELECTRIC COMPANY

2170 CHURCH ST. • ADRIAN, MICHIGAN

(Continued from page 86)

comfort and economy through the application of modern mass-production methods."

The new Institute was formed for the purpose of bringing together the leading plant prefabricators of the country. It is estimated that the membership represents over 60 per cent of the industry's production capacity.

**SOUTH AMERICAN
CONSTRUCTION ACTIVE**

Latest news of the expanding building field in South America comes from Dean Leopold Arnaud of the Columbia University School of Architecture.

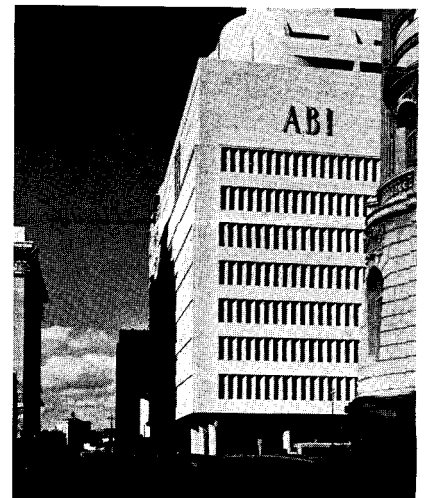
Dean Arnaud has just returned from South America, where he was

sent by the United States Department of State as lecturer at the Escuela Libre de Estudios Superiores in Buenos Aires. He was also appointed visiting professor by the Carnegie Endowment for International Peace for the duration of the lecture period, and spoke before architectural societies in Ecuador, Chile, Uruguay, Argentina, Bolivia and Peru.

Building activity in South America is stimulated rather than curtailed by the war, Dean Arnaud reports, because of the Latin American's increasing tendency to invest in real estate the capital his North American neighbor would invest in stocks and bonds.

**SOUTH AMERICAN PICTURES
WIN MERIT AWARD**

That South America's building activity (Dean Arnaud, above) is producing some noteworthy architecture was abundantly demonstrated this year by the portfolio of photographs taken by G. E. Kidder Smith (the ABI Building below, for example) on his tour with Philip Goodwin. These photographs were exhibited at the Museum of Modern Art and published by ARCHITECTURAL RECORD in its January number, under the title, "Architecture of Brazil." The portfolio won additional recognition last month when ARCHITECTURAL RECORD was given an Award of Merit in the Sixth Annual Competition for Editorial Achievement conducted by *Industrial Marketing*. This award, in the classification for the best illustrative technique, is the third such to be won by the RECORD.



G. E. Kidder Smith

**WANTED:
ARCHITECTS
ENGINEERS**

for interesting, important war work

If you're a graduate engineer or architect... if you're not now devoting all of your capabilities to vital war work... probably you can qualify for interesting, important work at Bell Aircraft. Machine design or mechanical drawing experience is highly desirable.

This is a sound, progressive,

fast-growing company. It has a splendid record of achievement in design and construction of military aircraft. Working conditions are excellent. We're located near a metropolitan area, yet out far enough to permit living in the country if desired.



Just send a brief outline of your education and experience to

ENGINEERING PERSONNEL DEPARTMENT

BELL AIRCRAFT CORPORATION
NIAGARA FALLS, NEW YORK

BUILDERS' HARDWARE FOR THOSE EARLY POST-WAR JOBS —

You can specify it Today!

On many of the 17,450* actual V-Day building jobs now projected, Lockwood Builders' Hardware has already been specified.

Here is post-war planning with the accent on practicality . . . thanks to the foresight of American architects, and their confidence in Lockwood resources and proved engineering accomplishments.

While our men and machines are at *war*, our production plans are set to put them quickly to work for you, when *peace* says "go ahead." You can make certain now of early post-war availability of those outstanding hardware engineering developments that will best meet your V-Day requirements.

You can be ready to go, with the jobs now on your boards, by using the Lockwood special planning service, in which our engineers help you to select hardware.

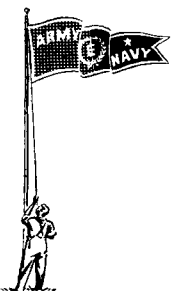
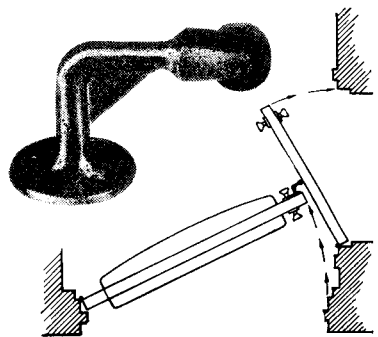
Just call in a Lockwood representative. He will explain how we can serve you now, while serving on the war-production front.

*On the basis of a partial round-up of V-Day projects, by F. W. Dodge Corporation.

N

LOOK TO LOCKWOOD

for the practical answers to problems connected with builders' hardware. An example is shown in the unique roller bumpers designed for Washington's Hotel Statler. Closet and bath doors "step aside" when the corridor door is opened — thus avoiding damage and expensive maintenance.



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The man behind the ELDORADO is a threat to the Axis. His lead is proving as deadly as the kind used by the man behind the gun. His job is that of creating the blueprints of destruction to destroy said Axis.

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Pencil Sales Dept. 225-J10
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Jersey City, N. J.

**TYPHONITE
ELDORADO**

REQUIRED READING

(Continued from page 28)

two or more of which can be assembled to form a home, row houses, etc. The designers point out that units 8 by 24 ft. would allow adequate space.

Second: I. M. Pei, of Walter Gropius' office, and E. H. Duhart, recently of Chile and last year a Gropius student at Harvard.

Third: Raphael Soriano, formerly of Rhodes, now a Californian architect, whose house measuring 1,000 sq. ft. weighs but 10 tons, has no bearing walls, no studs, floor joists, rafters, plates, window frames, roofing and no nails—furthermore it requires practically no upkeep.

DOWNTOWN AIR TERMINAL— FANTASTIC?

By Earle K. Radford. *American City, New York* 6 (470 Fourth Ave.), Aug. 1943, pp. 49-50. *illus.*

The Kansas City Plan Commission has selected a centralized site, on city-owned property near the Municipal Auditorium, for the air terminal which with taxi-planes of the helicopter type "can reach ports adjacent to the City in 5 or 10 minutes and . . . might easily service all airports within a hundred miles."

POST WAR HOUSE HEATING.

By John E. Haines. *Heating and Ventilating, New York* 13 (148 Lafayette St.), Aug. 1943, pp. 67, 84.

"Things are not going to be different" in the postwar period except insofar as there may be "an acceleration in the improvement of things we knew before."

Relatively old well-known engineering principles might long since have been generally used in home design as they have been in commercial buildings at a low cost. If steam is used in commercial buildings, orifice plates are normally installed at each radiator, a constant supply of steam is available and the supply can be regulated. For hot water, a continuous flow with temperature changed by means of a 3-way mixing valve or otherwise. For warm air, constant operation of the fan, outlets at or near the ceiling, and sectional control giving, say, for the smaller house, separate control for living and sleeping quarters, and for the larger one, separate control for sleeping, living and service quarters, or for individual rooms.

LIGHT FROM FLOORS

*makes your
lighting system
more efficient*



Human eyes are industry's finest and best tools. But they are useless without light. And the amount and quality of light depend not only upon the light source but also upon reflection and diffusion.

Light-colored walls and ceilings long have been used to reflect and diffuse light. Today, light-colored floors also are being used to salvage waste light.

These new light-reflecting floors are built of concrete. They are made with Atlas White portland cement instead of gray portland cement or other darker materials. Hence they reflect more light—salvage waste light. This improvement in illumination—

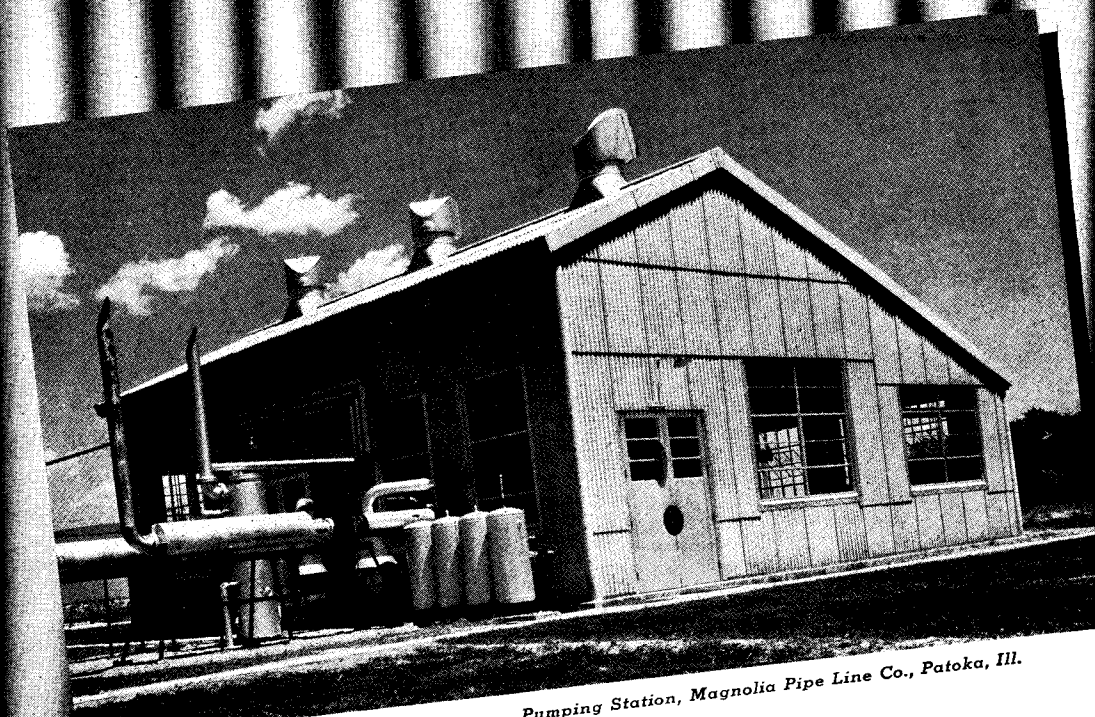
- ▶ reduces eyestrain, headaches, and absenteeism;
- ▶ decreases accidents, errors and spoilage;
- ▶ increases quality and quantity of production.

Maintenance of white-cement floors is simple—frequent sweeping, occasional damp mopping, periodic scrubbing.

Send for new book, "Light From Floors." Write Universal Atlas Cement Company (United States Steel Corporation Subsidiary), Chrysler Building, New York City.

AR-F-16

**ATLAS
WHITE CEMENT**
For Light-Reflecting Floors



Pumping Station, Magnolia Pipe Line Co., Patoka, Ill.

BUILT IN A HURRY ... BUILT TO LAST

with tough, durable sheets of fireproof asbestos

THESE big, tough asbestos sheets are ideal for wartime or peacetime construction. They can be quickly applied over light framing; and for this reason alone they are well worth using. But, in addition, they have another big advantage.

J-M Corrugated Transite sheets will last for years with little if any maintenance expense. Made of asbestos and cement, they cannot burn, will not rot or rust. They never need painting or other preservative treatment. They are ideal for chemical plants because of their high resistance to acids and gaseous fumes and because they can withstand severe temperatures. Moreover, they can be salvaged and re-used with a minimum of loss.

Get the facts on this economical J-M Asbestos sheeting. Send for complimentary brochure, TR-12A. Johns-Manville, 22 East 40th Street, New York 16, N. Y.

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- MAGAZINE WAREHOUSES
- ORDNANCE DEPOTS
- MINE BUILDINGS
- NAVAL BASES

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CORRUGATED *Asbestos* **TRANSITE**

J-M Corrugated Transite and J-M Asbestos Built-Up Roofing are making an important contribution to the protection of our industrial plants in wartime.



PREFABRICATION VS. ARCHITECTS' ETHICS

(Continued from page 30)

for years to come and prove a sound investment, easily marketable.

Some architect-members of prefabricating firms know this; but they are unable to be wholly disinterested while concerned with selling a product. They conscientiously strive to make it the best product of their technical skill and ingenuity, but they must perforce let the salesmen (interested in a commission) determine whether it is the best product for a particular client in a par-

ticular district, with particular conditions. Even if they are free to make recommendations and revisions, to be adapted by the Technical Service Department to fit a patented unit-system, module system, panel system, or what not, they are still *not disinterested*, since they must temper their judgment to the exigencies of their companies' machines and processes, in order to make a sale.

All of which may sound like war;

a war between prefabricators' architects, with outside architects battling them all—and with the customer-client as the innocent victim, and a depression as the final outcome. If it does, here are the Peace terms, involving "postwar planning" by prefabricators and architects together, each surrendering a little of his own immediate interest for the ultimate good of all; even including the client!

Suppose that a "National Association of Prefabricators," with the consent of all its members, decided to publish or underwrite a great catalog illustrating every type of mass-production home on the market. Assume that this catalog is distributed free to all architects, with a letter along these shocking lines:

"Dear Architect: The member-corporations of this National Association believe that the homes illustrated herein will satisfy the requirements of 90 per cent of your clients, at lower cost and in less time than any similar houses that can be built by individual contractors from designs prepared by your office. We are anxious to cooperate with you and to have you cooperate with us, for the benefit of these clients.

"If after you give your time and technical experience to a thorough analysis of a client's problems, you should become convinced that you will best serve his interests by recommending his purchase of a prefabricated house, you should, in our opinion, be entitled to compensation.

"We therefore offer a 5 per cent commission, payable to architects only, on the completed cost of any house purchased through a registered architect, from any of our member-companies. This commission will be paid by the manufacturer, with the full knowledge of your client; it will in no way increase his cost, since no discounts are allowed to any of our customers. You will have earned this commission through having given unbiased professional service to your client; and you will not, in our opinion, be violating any of the ethics of your profession, since under a uniform 5 per cent commission you cannot favor one producer over another on a monetary basis.

"We can afford to offer this compensation because we are convinced that so many architects will find themselves conscientiously obliged to recommend our houses, that we can cut down considerably on our technical staffs and our sales forces. Trusting that you

(Continued on page 94)



Operate Garage Doors by Barber-Colman **RADIO CONTROL**

JUST press a button on the instrument panel of the car—and the garage door opens, or closes, from a radio impulse. The car can be standing still in the garage or moving down the driveway. Now this is no new gadget; it was played up in the feature sections way back in 1928. But it has been vastly improved and simplified since then, to the point where it is reliable, easy to install and service, and so lowered in cost that owners of even modest homes can afford it. Get our literature now, describing the operation and the safety and privacy features . . . so that you will be ready to specify "Barber-Colman RADIO CONTROL" for garage doors when the right time comes . . .



FACTORY-TRAINED SALES and SERVICE REPRESENTATIVES IN PRINCIPAL CITIES

BARBER-COLMAN COMPANY

102 MILL ST.

• ROCKFORD, ILL.



Bring the outdoors inside with **DAYLIGHT ENGINEERING**

What features do postwar home builders want in their homes? Next to the top in a long list of wants, a recent study revealed, are larger windows and more natural light indoors.

The answer to this desire is found in *daylight engineering*, a new development that promises to revolutionize building design.

Through daylight engineering cramped rooms become spacious in feeling... dark and dreary interiors brighten and cheer up. It's accomplished by using large areas of transparent glass on outside walls and translucent or

decorative glass on interior walls. Mirrors properly placed inside add to the atmosphere of light and spaciousness. Nature's own out of doors becomes a living room picture, and its welcome light is transmitted throughout the home.

Libbey-Owens-Ford Glass for windows, mirrors, wainscoting and work surfaces, and Blue Ridge Glass for partitions are available in a wide variety of types and colors. Opportunities for designing and building with glass are multiplied many times by this modern glass L·O·F now provides. Libbey-Owens-Ford Glass Company, 23103 Nicholas Building, Toledo 3, Ohio.



LIBBEY · OWENS · FORD

QUALITY *Flat Glass* PRODUCTS

PREFABRICATION VS. ARCHITECTS' ETHICS

(Continued from page 92)

will come to agree as to the ethical propriety of this arrangement, as well as its *advantage* to many of your clients, we are, etc., etc.

(Signed) National Association of Prefabricators."

From the manufacturer's viewpoint, such a proposition should appeal to any firm that considers its own product superior to its competitors'. It should appeal to any firm that desires national sales without maintaining a salaried

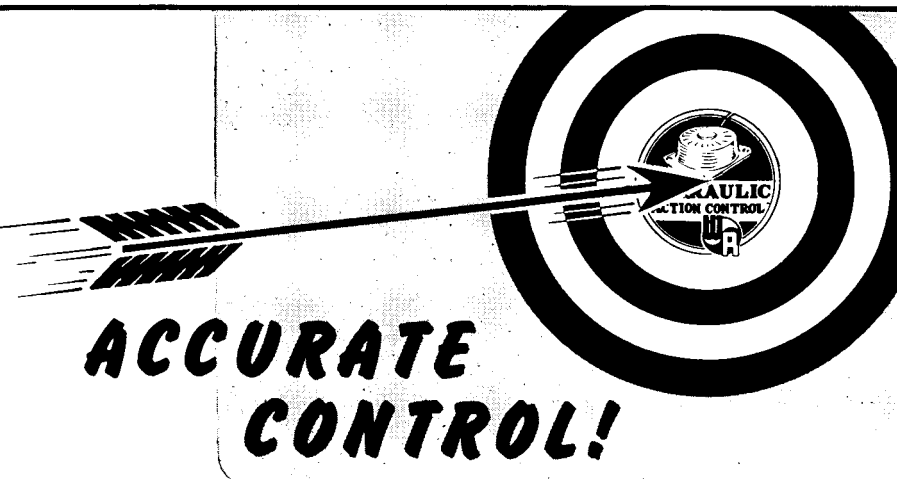
nation-wide sales force. Although it entails a risk that numerous sales may be lost to competitors, this may be offset by many other orders that will come from regions or districts otherwise not covered by local representatives. It means a huge saving in advertising cost, in technical staffs, and in overhead of all kinds. But most important of all, it might possibly keep irresponsible concerns that favor high-pressure salesmanship over sound construction, from

flooding the market with jerry-prefabricated homes. It might build up enough good will for the entire industry, to offset the dangers of boom, collapse, bankruptcy, and the Great Depression of the late 1940's.

But the architects are profoundly shocked by this letter; to accept a commission from a manufacturer would lower their ethical standards. But wait a minute. If a careful study of the technological progress in home-building actually convinces you that a certain client's interests can best be served by a certain prefabricator, is it not more ethical to tell him so than to try to "sell" him the traditional service of your own office, for a traditional 10 per cent fee? If with your client's knowledge and approval, you use your time and training for his benefit; and, acting as his professional advisor, find the exact house or system to solve his problem, is it unethical to accept a fixed and uniform commission, at no cost whatever to him?

Last of all (as usual) consider the customer-client. Instead of being high-pressured by a half-dozen competing salesmen, each trying to prove his own company's prefabricated houses the best; instead of being bewildered by endless technical talk and snowed under by a shower of folders and brochures, he can simply call on his local architect, go over his entire problem just as in the good old days, and get a truly disinterested opinion—at no cost whatsoever. He is no longer afraid of an architect.

This suggestion for a Prefabricators' Association, a comprehensive catalog, a 5 per cent commission, etc., is not put forth as a complete solution. It is tentative, preliminary, over-simplified, and, it is hoped—provocative. It is intended to invite discussion, followed by some new kind of postwar planning in which prefabricators and architects may work together for the greatest good of both. Although admittedly open to much criticism, perhaps some of this will be constructive. The first move, it seems, should come from the prefabricators. It is hoped that some of them can find a more tactful approach to the architectural profession than that suggested here. On the other hand, if residential architects wish to do some postwar planning on their own account, they might do worse than consider a partnership plan based on a 5 per cent commission on their share of "1,000,000 homes per year!"



If your post-war product or service requires accurate temperature control it will pay you to know that the White-Rodgers Hydraulic-Action principle provides dependable accuracy regardless of:

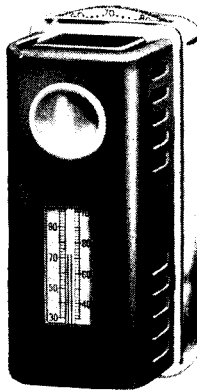
- Changes in ambient temperature.
- Changes in altitude.
- Off-level mounting of control or its sensitive bulb.

Today the White-Rodgers Hydraulic-Action principle of temperature control is at work for the Army, the Navy, and firms engaged in essential wartime activities. Tomorrow its advantages will again be available for peacetime service.

Consult us on your post-war control problems and we'll gladly show you how Hydraulic-Action can be applied.

SERIES 150

Heavy duty line voltage room thermostat for use on unit heaters and air conditioning installations. No relay necessary on most installations.

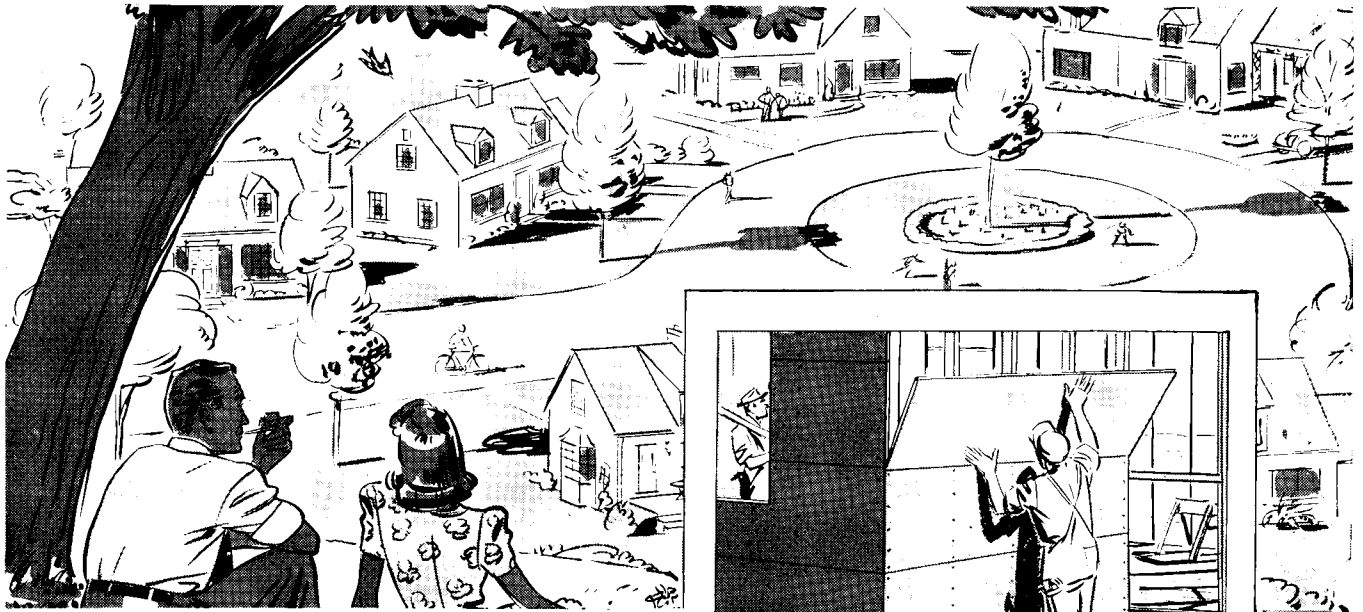


WHITE-RODGERS ELECTRIC CO.

1202½ CASS AVE.

ST. LOUIS, MO.

Controls for Heating • Refrigeration • Air Conditioning



PROBLEM: FIND THE MIRACLE IN THIS POSTWAR PICTURE

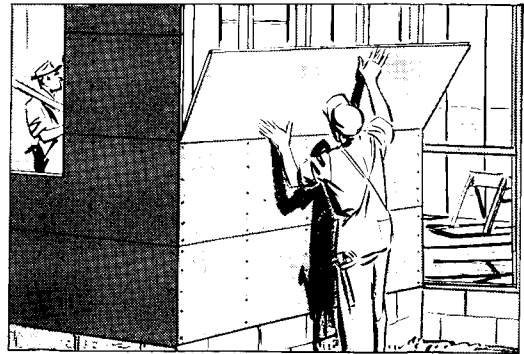
THE miracle lies in speed, comfort and low cost with which these new postwar houses will be built. As far as we can find out there will be no drastic changes in over-all design. But there will be lots of improvement in construction methods and materials.

Take the two Gold Bond products shown here, for instance. Gold Bond Gypsum Sheathing has proved itself a thousand times over on big government emergency jobs. It will be a must in many of the millions of homes which will be built after the war.

Gold Bond Rock Wool Insulation is another of over 150 Gold Bond products for walls and ceilings which will take their place in the postwar building boom. It, too, is doing "war work", keeping barracks warm in the Arctic and food fresh in the tropics. Both of these improved Gold Bond products are available now for any wartime buildings for which you may be specifying material. Write today for complete information.

Plenty of Gold Bond Gypsum Boards Available!

For emergency duration building and repair there are still plenty of Gold Bond Gypsum Building Boards available. These amazing Gold Bond wartime developments build fire-resistant roof decks, exterior walls and interior partitions in a hurry. Gold Bond Roof Plank is fireproof and forms the base over which the roofing is applied. No waiting for material to dry. Gold Bond Exterior Board builds complete outside walls, sheathing and siding, in one operation. Solid Partition Panels for quickly erected permanent or demountable partitions in offices, plants, etc.



GOLD BOND GYPSUM SHEATHING. These husky rock-like panels cost no more than ordinary sheathing. They build the exterior walls in less time and provide effective fire protection for wood framing.



GOLD BOND ROCK WOOL INSULATION for postwar building. For the first time, even low-cost houses will enjoy the comforts and savings of new high-efficiency home insulation.

BUILD BETTER WITH

Gold Bond

Everything - for walls & ceilings

More than 150 different products for
MODERN CONSTRUCTION
AND WAR PRODUCTION

WALLBOARD...LATH...PLASTER...LIME
METAL PRODUCTS...WALL PAINT
INSULATION...SOUND CONTROL



NATIONAL GYPSUM COMPANY . . EXECUTIVE OFFICES, BUFFALO, N. Y.

21 Plants from Canada to the Gulf . . . Sales offices in principal cities

(Continued from page 82)

tories, the manufacturers announce, and is being used extensively in defense housing, over 17,000 installations already having been made.

Easily assembled, and demountable if desired, Vitroliner is made in stock sizes from 3 to 10 in. in diameter, standard length sections of 6, 12 and 24 in., 45° and 90° elbows, standard tees with cleanout cap and drain con-

nection. Joints are bell and spigot.

Safety is not dependent on air circulation between flue and insulation, the manufacturers report. A patented slip joint allows for expansion and contraction of flue. A spacer ring in roof jack automatically provides adequate clearance from wood. The Condensation Engineering Corp., 2515 Archer Ave., Chicago.

STOVE RATIONING

Nation-wide stove rationing became effective on August 24, with consumers being required to get certificates from War Price and Rationing Boards before buying most types of domestic cooking and heating stoves.

The rationed stoves are: Coal and wood heating stoves and laundry stoves (except water heating laundry stoves); coal and wood ranges and cooking stoves and heaters; gas ranges; gas cooking stoves; oil and kerosene heating stoves and heaters; oil, kerosene and gasoline ranges and cooking stoves; and conversion range oil burners (the sale of which is not limited by quota since no more are being manufactured). Purchase certificates will be issued on a basis of need.

REVISED RADIATOR RECOMMENDATION

Printed copies of Simplified Practice Recommendation R174-43, Cast Iron Radiators, are now available, according to an announcement of the Division of Simplified Practice, National Bureau of Standards.

This recommendation consists of a simplified schedule of radiators commonly known to the industry as small-tube, and supersedes Recommendation R174-41, Large-Tube Cast-Iron Radiators, originally promulgated in 1940. This change has been made in view of the fact that a WPB order establishes the maximum weight in lb. per sq. ft. of heating surface for these radiators.

The revised recommendation lists the number of tubes per section, catalog rating, and dimensions for 10 sizes of radiators. This figure, compared with 17 sizes heretofore manufactured, represents a reduction of 41 per cent.

HEATING EQUIPMENT ORDER REVISED

The complete revision of the Extended Surface Heating Equipment Order, L-107, recently announced by WPB, established an extensive simplification program for production of unit heaters, unit ventilators, convectors and heating coils.

Schedule I to Limitation Order L-107 reduces the number of sizes and types of extended surface heating equipment which may be produced.

(Continued on page 98)

POWER USERS are demanding
AUTOMATICALLY CONTROLLED ENGINES



Gas, gasoline and diesel engines equipped with SYNCHRO-START AUTOMATIC ENGINE CONTROLS are being demanded by power users to insure that dependable power is instantly available wherever and whenever required.

In tomorrow's apartments, hotels, public buildings, industrial plants, oil, irrigation and flood control projects, highway underpasses, etc., SYNCHRO-START controlled inherent power units will be producing the power for refrigeration, air conditioning, elevators, pumping, production, fire protection and other required services. That's because they can do it more dependably, more economically, more efficiently and AUTOMATICALLY.

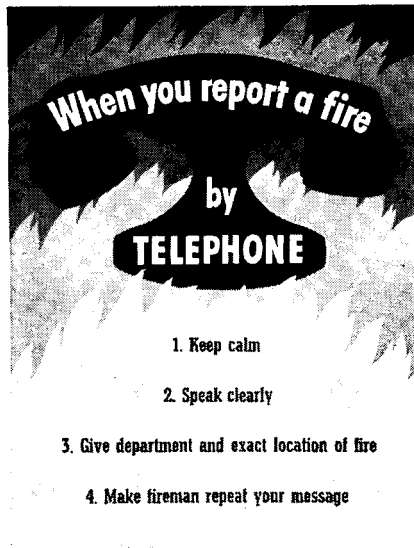
Modern construction demands modern methods of power production and control. Consult practically any leading engine manufacturer about fully automatic engines or write us for complete information.

SYNCHRO-START PRODUCTS, INC.

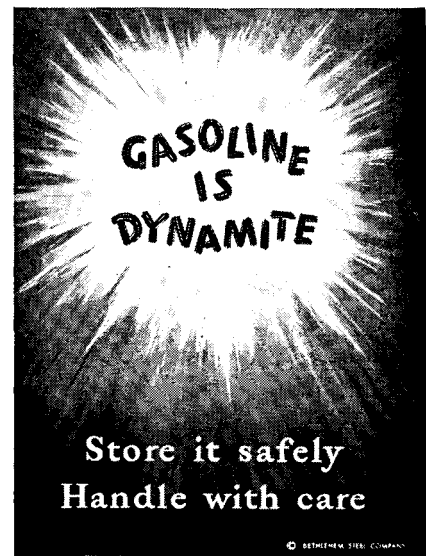
221 East Cullerton St.

Chicago, Ill.

SYNCHRO-START AUTOMATIC ENGINE CONTROLS



*fighting
fires
with*



POSTERS

Bethlehem has long had an efficient fire-fighting organization. But war conditions multiply normal fire hazards. Thousands of new employees have come to work. Large additions have been made to existing facilities, and entire new departments set up. At the same time, war needs have intensified the pressure for production.

Since the start of the war emergency Bethlehem has redoubled its effort to keep down production loss due to fires. Much new equipment has been provided: extinguishers, alarm boxes, sprinkler

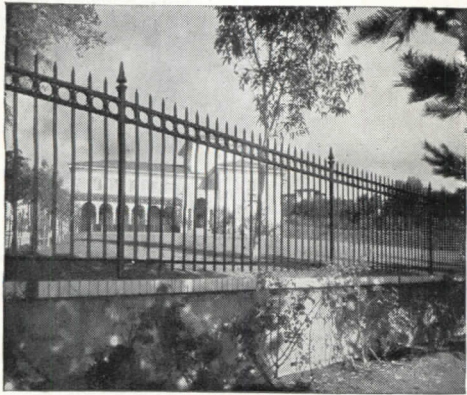


systems, hose outlets and fire engines. And as plants grew, fire-fighting personnel was expanded, and given special training.

A poster campaign, of which a few representative samples are shown on this page, is one im-

portant detail of this program. Each poster registers in the employee's mind a single, specific point in fire-fighting or fire-prevention. Prominently displayed in steel plants, shipyards, fabricating shops, these posters are helping to maintain a favorable fire-loss record through the war years.

A fire on the production front can cost American lives on the battlefronts. Even seemingly trivial fires have a grave cumulative effect. The aim is to prevent fires from occurring at all—and, if they do occur, to make them die young.



3 reasons why

ANCHOR FENCE BELONGS IN YOUR POST-WAR PLANS

- 1. For Beauty.** Anchor-Weld Iron Fence harmonizes with the building it surrounds — completes your architectural picture. The unusual strength of Anchor-Weld Iron Fence makes center-supports and cross-bracing unnecessary. Each panel will support one ton of distributed load. Made in a wide selection of standard designs or to your own individual needs.
- 2. For Strength.** Anchor-Weld Iron Fence is electrically welded under high pressure to insure permanent, inseparable joints. Pickets and rails cannot loosen or sag!
- 3. For Permanence.** Welded construction plus rails which are as heavy as the pickets assure permanent alignment. Anchor Copper-Bearing Steel assures maximum resistance to weather and moisture.

FREE BOOK

Plan now to make Anchor-Weld Iron Fence add "the final touch" to your post-war projects. Get the facts about Anchor Fences . . . see how they give extra protection, long life, low maintenance costs. Mail the Coupon below for free Anchor-Weld Iron Fence Catalog and a Sample Weld (makes an attractive paper weight). No obligation, of course.

Anchor Post Fence Co., Baltimore, 24, Maryland

NATION-WIDE SALES AND ERECTING SERVICE

MAIL THIS COUPON TODAY!



ANCHOR POST FENCE CO.
6600 Eastern Ave., Baltimore-24, Md.

Send me () Anchor-Weld Iron Fence Catalog () Anchor-
Weld Sample () Name of nearest Anchor Fence Engineer.

Name.....
Firm.....
Address.....
City..... State.....

FOR BETTER BUILDING

(Continued from page 96)

In the case of unit heaters, a total of four types and 24 actual sizes or models may be produced, and there are restrictions on numbers of sizes or models permitted in each type and in BTU capacities. Unit ventilators are limited to six sizes, convectors to 20 sizes, and specifications are established for lengths of tubes and fin spacings for blast heating elements.

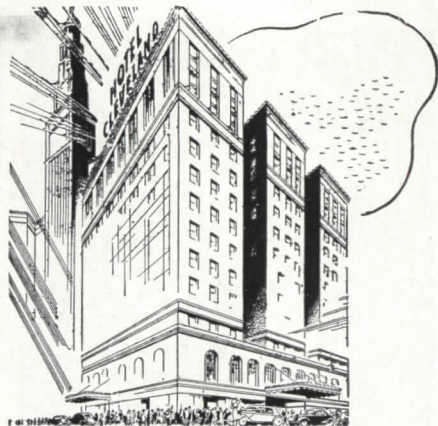
Although sizes and types of equipment have been reduced, the range of sizes permitted is adequate to meet any reasonable requirement, WPB reports. The object of the simplification program is to increase production and on-time deliveries by the industry.

STANDARDS

Structural Fiber Insulating Board (Third Edition) Commercial Standard CS42-43, is effective for new production from Aug. 25. The new standard is a minimum specification for five classes of structural fiber insulating board: Class A, Building Board; Class B, Lath (for plaster base); Class C, Roof Insulating Board; Class D, Interior Board (Factory finished); Class E, Sheathing. It also covers physical requirements and tests for thermal conductivity, strength, absorption, and expansion and sets forth the standard commercial sizes, tolerances, and methods of packing and labeling.

Effective for new production from October 25, Homogeneous Fiber Wall-board Commercial Standard CS112-43 provides minimum specifications for one grade of homogeneous fiber wall-board of a nominal thickness of 5/16 in., 4 ft. wide, and from 6 to 12 ft. long. It covers physical requirements and tests for tensile and transverse strength, deflection, water absorption and linear expansion and sets forth the standard commercial sizes, tolerances, and methods of packing and labeling.

A Commercial Standard for Earthenware (Vitreous-Glazed) Plumbing Fixtures, CS111-43, is effective for new production from October 15. The standard covers such items as bath tubs, lavatories, kitchen sinks and laundry trays. The requirements cover properties of the material, methods of test, method of inspection, grading, definitions, and labeling of items which meet the standard.



What is Cleveland's Most Convenient Hotel?

HOTEL CLEVELAND OF COURSE

And where is Hotel Cleveland?

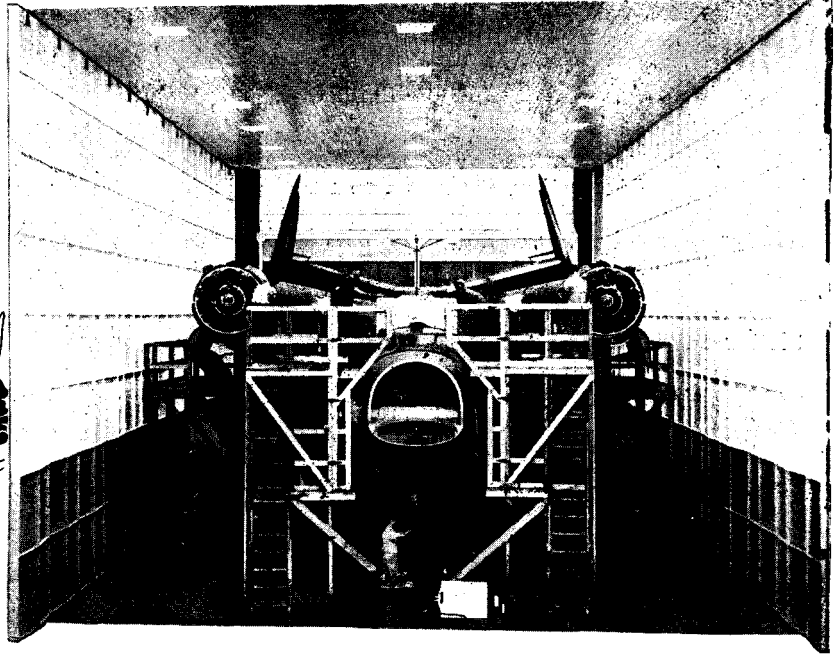
On the Public Square, and connected by covered passage to the Union Terminal and Terminal Garage . . . close to stores, theatres, office buildings, Federal buildings, piers, Public Auditorium, Stadium, sporting events.

Is Hotel Cleveland Modern?

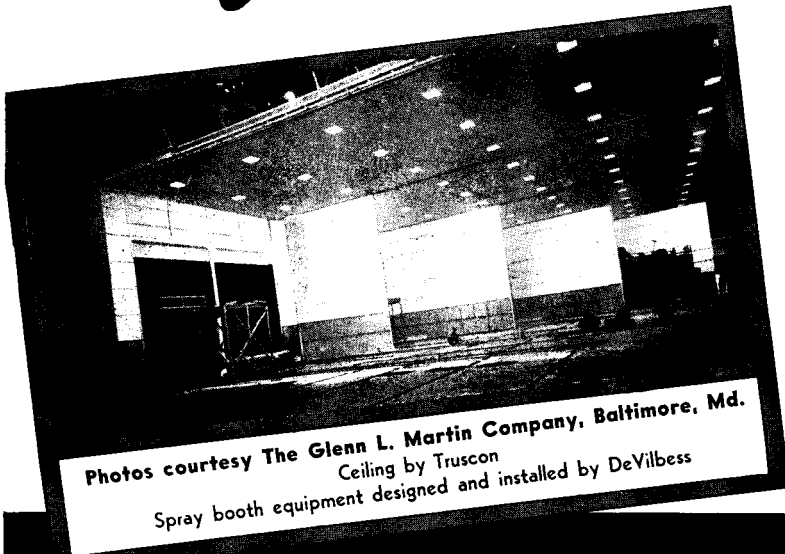
Yes, indeed! Most of its rooms have been recently modernized . . . its restaurants are air-conditioned, and one of them, the Bronze Room, has become famous — it always has a "big name" band playing for dancing.

Hotel Cleveland is comfortable, too, and has a cheerful welcome within its friendly doors. Let us prove our hospitality on your next trip here. We'll enjoy it and we think you will, too.

HOTEL CLEVELAND
Cleveland, Ohio



*What goes on
behind Horn
doors?*

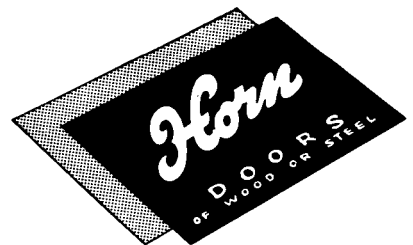


Photos courtesy The Glenn L. Martin Company, Baltimore, Md.
Ceiling by Truscon
Spray booth equipment designed and installed by DeVilbiss

Activities of Victory and of Peace are going on behind HORN Doors installed in Army, Navy, and Municipal Hangars, Laboratories, and Factories. Horn Doors, designed by Horn Engineers to meet the requirements of special installations, are the efficient solution to problems of use and production.

HORN Folding Doors of steel form the "dressing rooms" in which giant flying ships are sprayed. The doors are completely automatic, adaptable from fully nested to completely open positions. No floor tracks are required. This is one of the many unusual problems solved by Horn Engineers.

Horn Engineers, located in all principal cities, will gladly supply complete engineering data, layouts, and cost estimates to fit any problem.



Horn Manufacturing Company
Fort Dodge, Iowa

One Thing

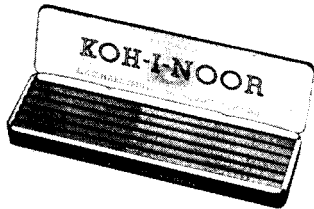
THE WAR WON'T CHANGE

When Limitation Orders are rescinded after the war, and KOH-I-NOOR Drawing PENCILS become available to everyone, there won't be any new designs or new models.

Pencil users will be chiefly interested in the life of a pencil — its uniform quality — its ability to produce clear, smooth and sharply defined lines.

KOH-I-NOOR will continue as it has done for more than 50 years, to deliver the same fundamental quality that has made it one of the best Drawing Pencils that money can buy.

KOH-I-NOOR Drawing PENCILS are available in 17 degrees of uniform hardness — smartly packaged — one dozen to the container.



NO. 930 AVIATOR COLORED PENCILS — A complete range of smooth working colors. Ideal for rendering, photo coloring, map work, etc. At your dealer in single colors or sets of 12 or 24 assorted colors.

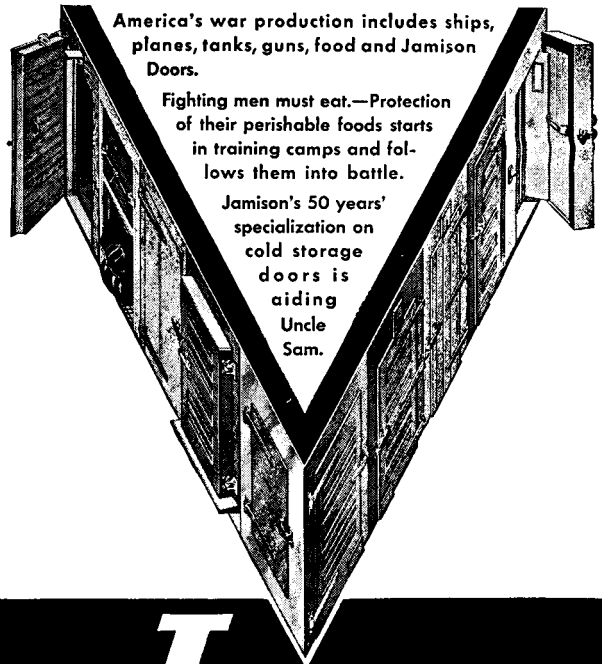
Send for Booklet No. 3



The RIGHT pencil for the RIGHT job

KOH-I-NOOR PENCIL COMPANY, INC.,
BLOOMSBURY, NEW JERSEY

ON VICTORY'S PRODUCTION LINE



America's war production includes ships, planes, tanks, guns, food and Jamison Doors.

Fighting men must eat.—Protection of their perishable foods starts in training camps and follows them into battle.

Jamison's 50 years' specialization on cold storage doors is aiding Uncle Sam.

JAMISON-

BUILT COLD STORAGE DOORS

Jamison, Stevenson and Victor Doors
HAGERSTOWN MARYLAND

See our Catalog in Sweet's Catalog File.

FOR THE PIPING YOU ARE PLANNING

SPECIFY
CRANE VALVES
AND
FITTINGS

CRANE...

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

**Only M. I. D. Graduates
Need Apply**



● **M.I.D.** — Material Inspection Department — is the first of many watchdogs that guard the quality of Sylvania Fluorescent Lamps. Before graduation from M.I.D. all materials must pass tough electrical, mechanical, chemical and visual tests.

Here an M.I.D. inspector is checking the quality of hair-fine tungsten, with a microscope, before it is released for fab-

rication into fluorescent cathodes.

The same painstaking care oversees each step of precision manufacture. When a finished Sylvania Fluorescent Lamp is ready for shipment to the war production front, it has to answer 49 quality questions. To pass this post-graduate course, it has to be the finest in fluorescent.

But the Sylvania standard of quality is

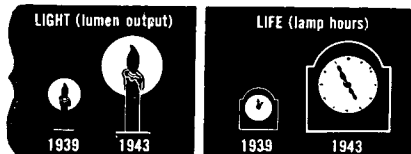
not frozen into production. There are constant specifications and processing changes. Many of them, like the "Mercury Bomb" method of ultra-precise measurement, conserve metals and man power, but all of them serve to step up fluorescent performance.

Research results are more lumens per watt, longer life, a finer coating and more uniform light color. These are the good reasons why Sylvania Fluorescent Lamps can be specified, with full confidence, for replacements and for new installations authorized to promote visual efficiency in war plants.

FAR MORE LIGHT AND LIFE FOR YOUR MONEY

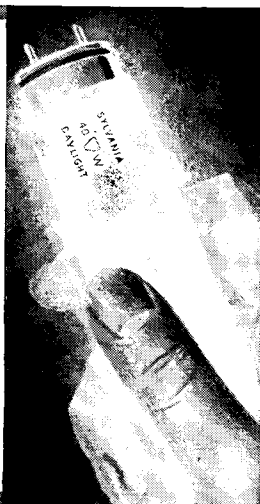
Compared with 1939, a dollar invested today in Sylvania Fluorescent Lamps buys more than four times the lumen output and approximately five times the lamp life.

**SYLVANIA
FLUORESCENT
DOLLAR
BUYS:**



(Based on decreasing price and increasing efficiency and durability of Sylvania 40-Watt White Fluorescent Lamp)

Even on existing circuits, a change-over to fluorescent—Sylvania Lamps, Fixtures and Accessories—will probably more than double the light you get for the same wattage.



SYLVANIA

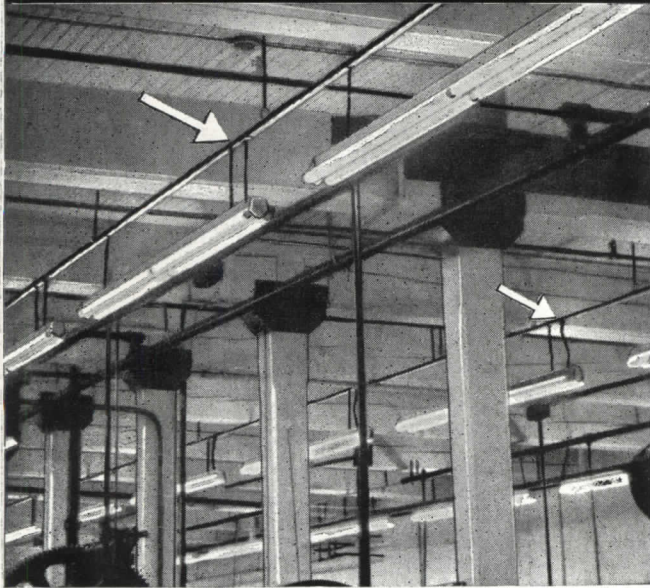
ELECTRIC PRODUCTS INC.

Formerly Hygrade Sylvania Corporation
Salem, Mass.

**INCANDESCENT LAMPS, FLUORESCENT
LAMPS, FIXTURES AND ACCESSORIES,
RADIO TUBES, CATHODE RAY TUBES,
ELECTRONIC DEVICES**

WIREMOLD

WAR PLANT WIRING EXPERIENCE



offers a suggestion
for POST-WAR PLANNING

The photograph above shows an interesting new use of No. 2100 PLUGMOLD as a wiring system for fluorescent lighting. The rigidity of No. 2100 made it possible to span factory beams and to suspend fluorescent units from the channel itself. Wiremold polarized outlets No. 2127 P, spaced on approximately 10-foot centers, provide for easy disconnection of individual units for maintenance. By means of this polarized receptacle it is possible to satisfactorily ground the fluorescent units.

Wiremold Wiring Systems and Methods, extensively used to save time and assure greater efficiency in equipping both old and new buildings to meet war production demands, have resulted in many new applications that have an important bearing on future installations. Immediately available on suitable priority. Conform to Federal Specification W-R-32. Listed by U. L.

Architects and Engineers are invited to use the facilities of the Wiremold Engineering Department for consultation on plant wiring layout. Wiremold literature listed below will be sent to you promptly on request. The Wiremold Company, Hartford 10, Connecticut.



WIREMOLD



IS HELPING AMERICA PRODUCE FOR WAR AND PLAN FOR PEACE!

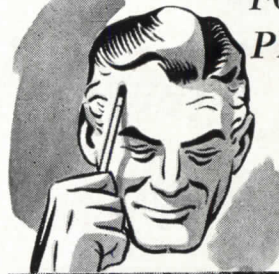
"HELPING HAND" LITERATURE FOR ARCHITECTS

- | | |
|---|--|
| <input type="checkbox"/> Bulletin, "Wiremold Industrial System-Wiring Speeds War Production". | <input type="checkbox"/> Engineering Data Sheets No. "3000" System Wiring for Industrial plants. |
| <input type="checkbox"/> Engineering Data Sheets, Plugmold Multi-Outlet Wiring Systems. | <input type="checkbox"/> "Pancake" Wiremold Overfloor Wiring System for Office and factory. |
| <input type="checkbox"/> Wiremold Catalog and Wiring Guide | |

CHECK and return with your name and address

*** here's inspiration

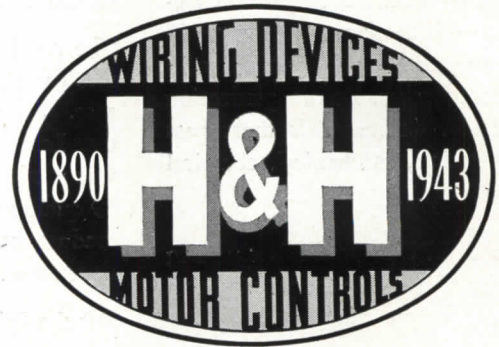
FOR YOUR POST-WAR PLANNING



This charming china closet is typical of Curtis authentic styling in stock architectural woodwork.

Are you thinking of ways to make the homes of tomorrow more livable, more appealing? Then you'll find Curtis Woodwork a source of inspiration! Curtis has designed many new pieces of woodwork that will bring fresh charm to the homes of tomorrow—large or small. Curtis research is working on the type of woodwork construction that will definitely be in demand for the houses of 194X. For beauty—lasting value—and low cost—keep up to date on Curtis stock woodwork. We'll gladly send you literature and information on the Curtis line—write us, there's no obligation.

Curtis Companies Service Bureau
Dept. AR 10-R, Curtis Building, Clinton, Iowa



SYMBOL OF QUALITY IN WIRING DEVICES AND CONTROL APPARATUS

for 53 years

Available now for dependable control of light, heat and power if ordered with proper priorities . . . Send for current Catalogs for war service installations.

HART & HEGEMAN DIVISION
ARROW-HART & HEGEMAN ELECTRIC COMPANY, HARTFORD, CONN.



RIDING ROUGHSHOD OVER NAZI WOLFPACKS

A caravan of ships . . . fat and heavy with cargo . . . plows along steadily, relentlessly. All around it, sleek escort ships race hither and yon, like bird dogs, sniffing every wave for enemy U-boats. Perhaps a wolfpack will attack. Maybe it will tag a few of these sturdy freighters. But it will pay dearly. And for every ship the subs manage to sink, American industry sends **many more* out to take its place.

One of the factors that is putting an end to the Axis submarine menace is the overwhelming numerical weight of the ships we are sending to sea. To achieve such a stupendous output, American industry has revolutionized shipbuilding methods . . . is speeding ship repair at a record-breaking pace.

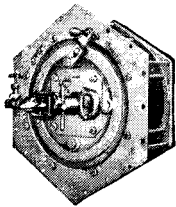
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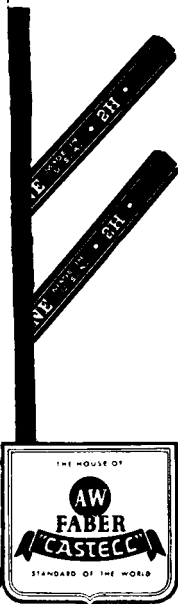
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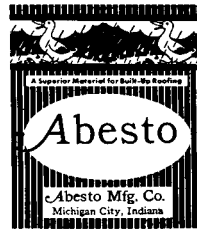


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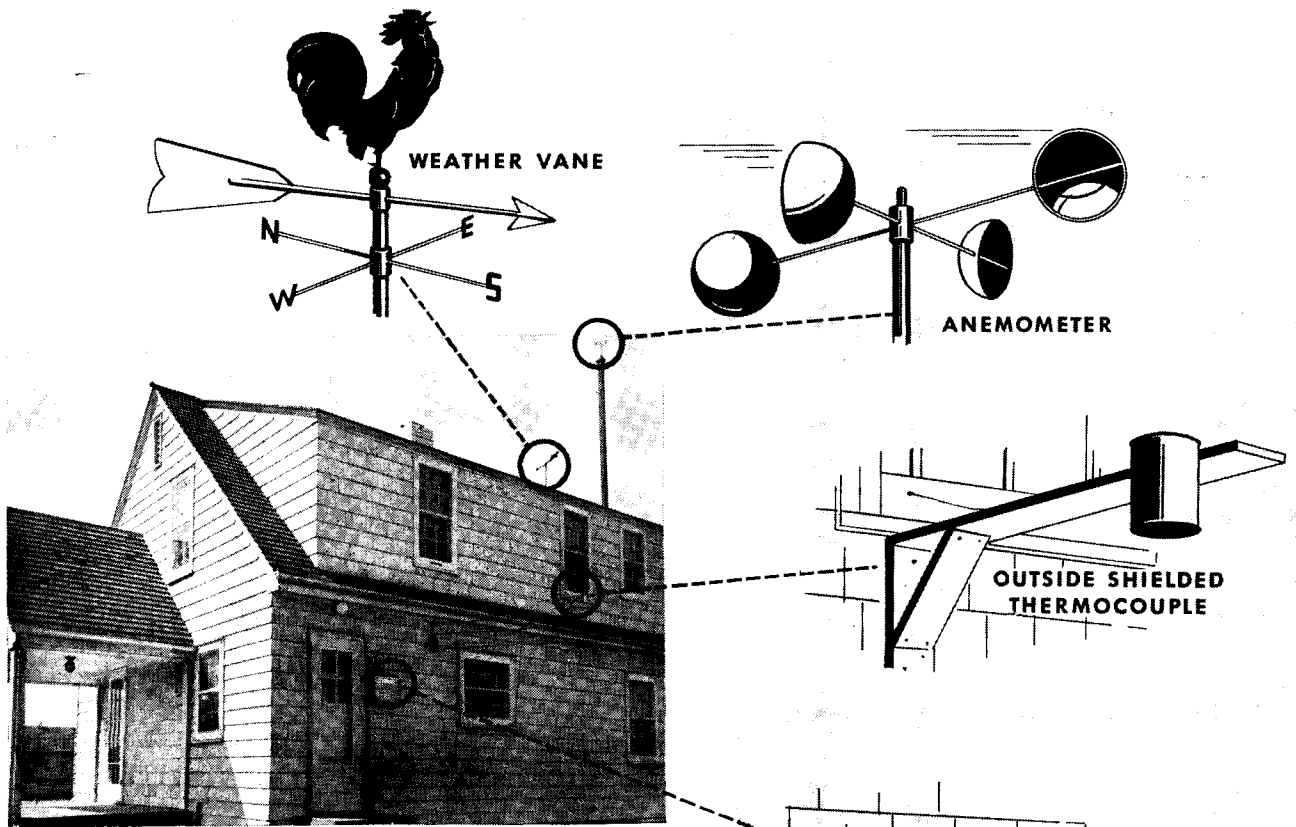
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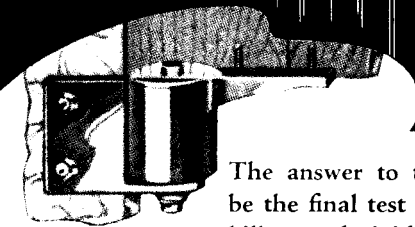
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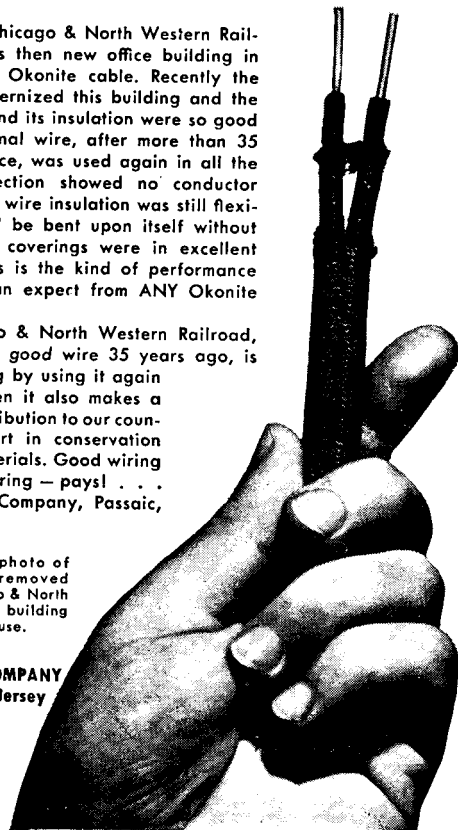
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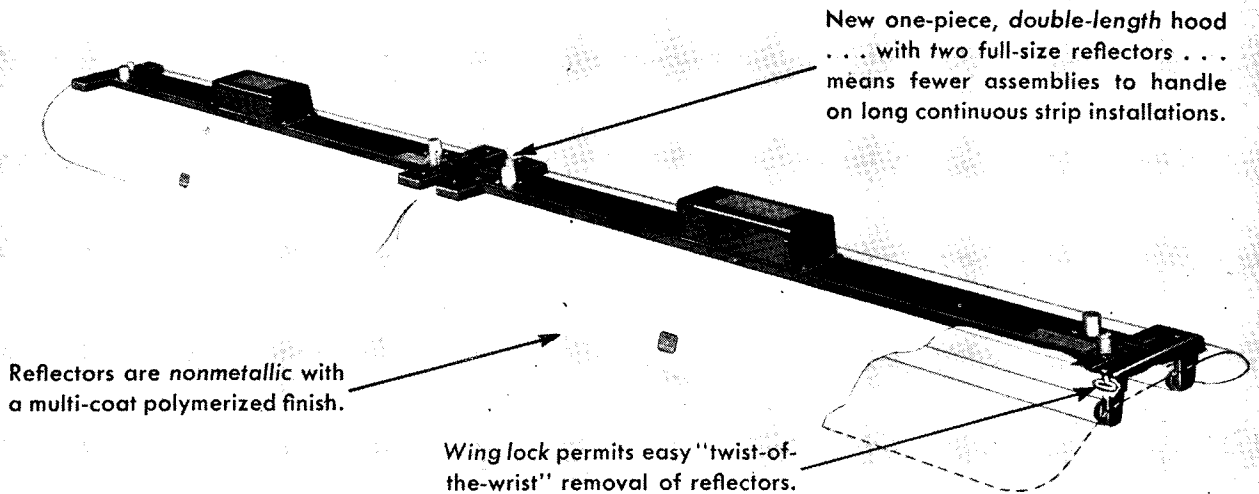
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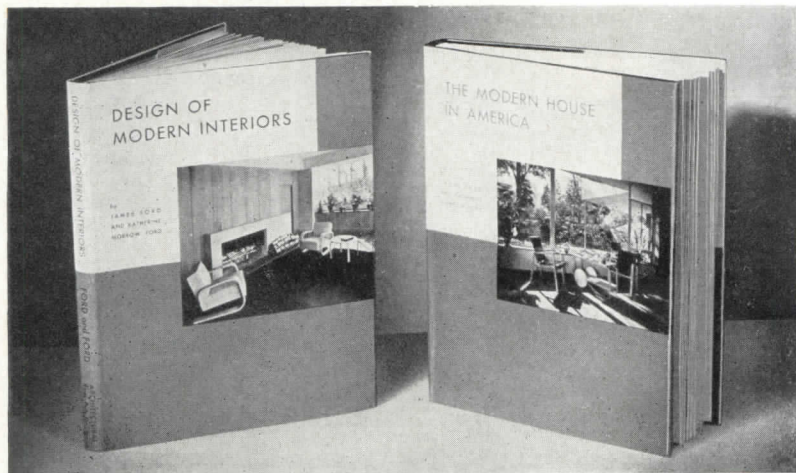
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