Our "bit" for Victory has taken the form of manufacturing machine-gun mounts for U. S. Navy aircraft. We have continued to manufacture heaters and warm water heating specialties for the Maritime Commission, Army and Navy hospitals, laundries and bakeries and other essential Government and industrial projects.

Making machine-gun mounts is precision work of high order. It demands machines of extreme accuracy, workers of advanced skill. Many such machines have been added to our equipment. And our staff of workers—enlarged to about triple our peacetime force—is keyed to the highest precision standards.

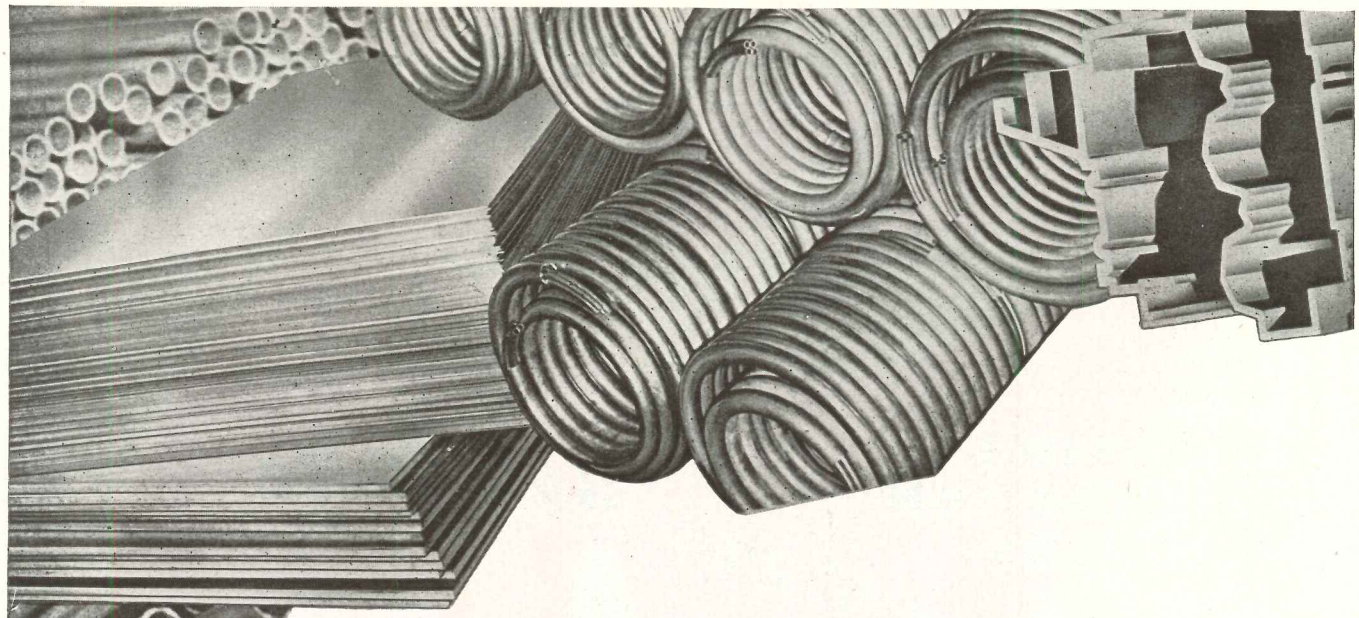
This precision equipment, training and experience will become an invaluable heritage when the war is over and we can again resume our normal operations.

It will mean that the intricate parts that comprise Taco circulators, flow checks, relief valves, reducing valves, etc., will not merely meet their former high standards, but will all be made with that extreme precision demanded in Navy machine-gun mounts. It will mean that the Taco organization will have retained to the fullest its habits of working to close tolerances.

PRIORITIES NOTE

There has been a slight liberalization in government restrictions on the manufacture of heaters of copper tubing for essential civilian use. If you are in the market for a water heater of the most modern type, consult Taco wholesalers or write us for information on the latest procedures to follow in complying with W.P.B. regulations.

TACO HEATERS, INC., 342 MADISON AVE., NEW YORK 17, N. Y.
TACO HEATERS of CANADA, LTD., 24 ADELAIDE ST. W, TORONTO



An Army of 80,000 asked

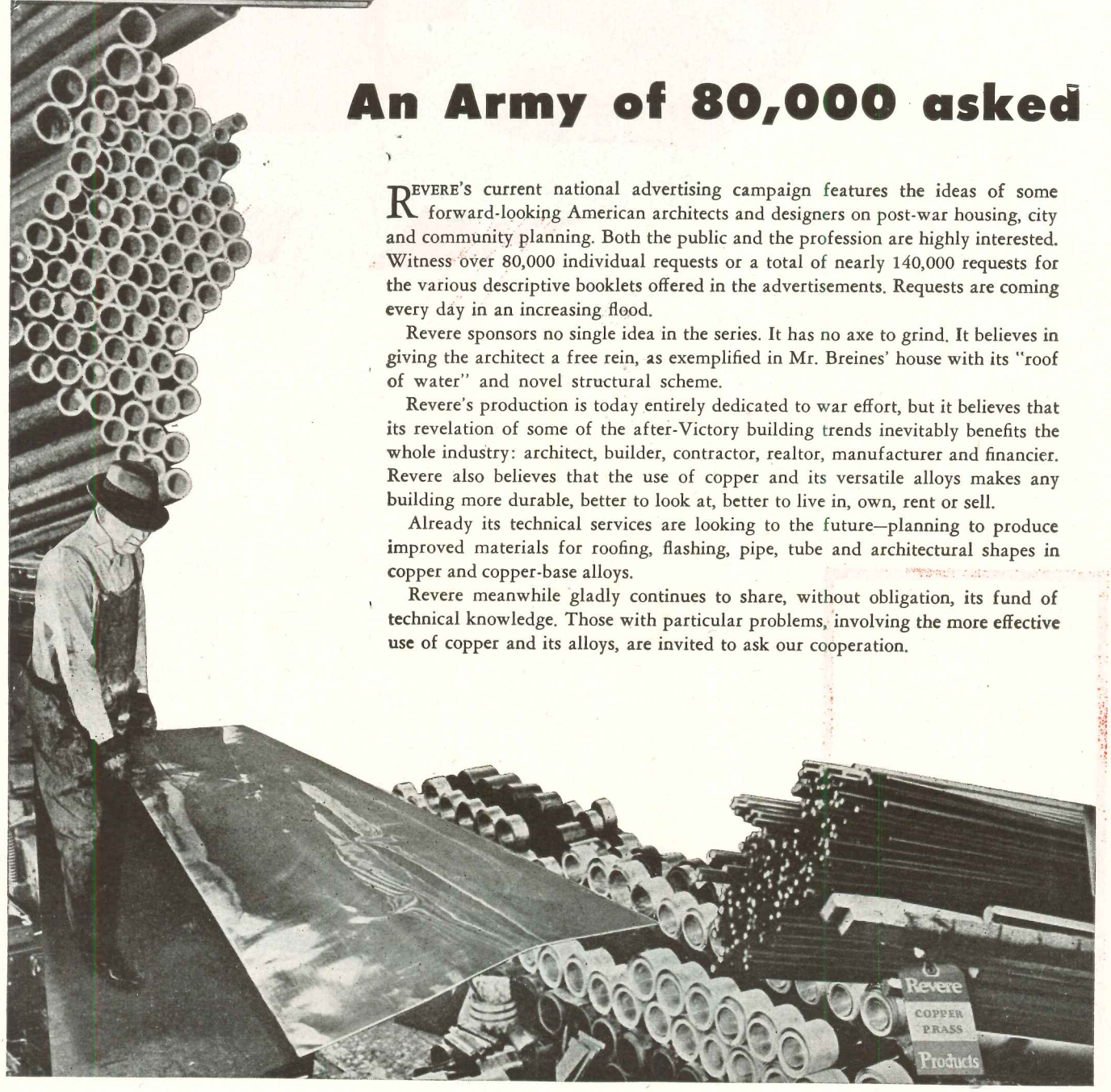
REVERE'S current national advertising campaign features the ideas of some forward-looking American architects and designers on post-war housing, city and community planning. Both the public and the profession are highly interested. Witness over 80,000 individual requests or a total of nearly 140,000 requests for the various descriptive booklets offered in the advertisements. Requests are coming every day in an increasing flood.

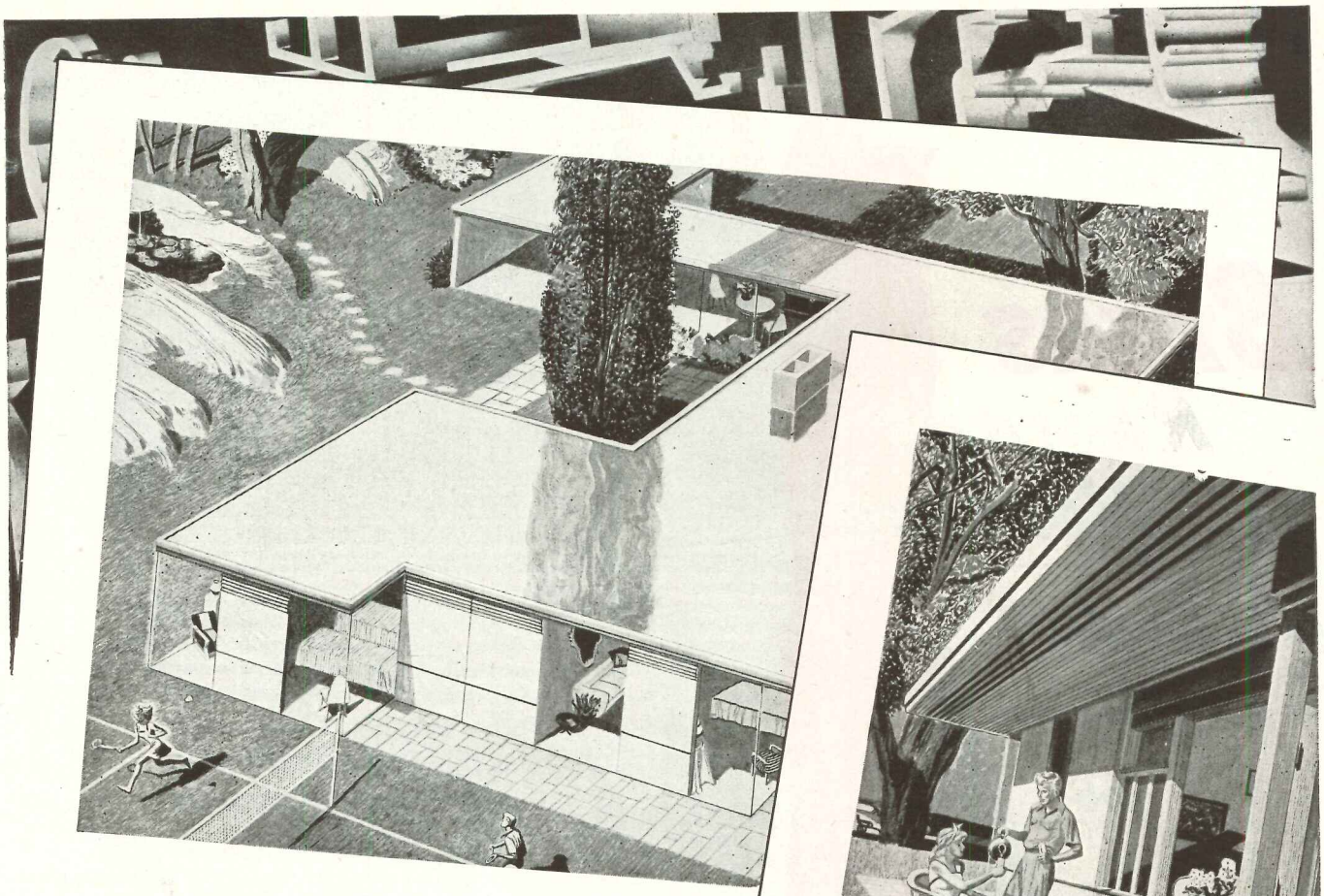
Revere sponsors no single idea in the series. It has no axe to grind. It believes in giving the architect a free rein, as exemplified in Mr. Breines' house with its "roof of water" and novel structural scheme.

Revere's production is today entirely dedicated to war effort, but it believes that its revelation of some of the after-Victory building trends inevitably benefits the whole industry: architect, builder, contractor, realtor, manufacturer and financier. Revere also believes that the use of copper and its versatile alloys makes any building more durable, better to look at, better to live in, own, rent or sell.

Already its technical services are looking to the future—planning to produce improved materials for roofing, flashing, pipe, tube and architectural shapes in copper and copper-base alloys.

Revere meanwhile gladly continues to share, without obligation, its fund of technical knowledge. Those with particular problems, involving the more effective use of copper and its alloys, are invited to ask our cooperation.





THE AIRPLANE HELPS BUIL

—Copper Protects and Make

WHEN you buy your new home in the world of tomorrow, how much will it cost you per pound?

That may seem a queer question. But it is a fact that weight is one of the most expensive things you pay for, whether it be a car, a range or a house.

It is to eliminate the cost factor of weight that I have applied to home building the principle of "stress-skin tension" as used in modern airplane construction: namely, that light-weight plywood or composition board can provide the strength of steel while it does away with much of its weight!

That is to say, a well-braced house built of plywood panels would be as strong as any you could erect. With prefabricated roof, walls and floor panels, each 10 feet by 20, you could build any type house you wished. Against these panels, either present-day or new, "completely-finished-at-factory" units for food preparation, sanitation, etc., could be arranged. And spaces for living, sleeping, playing could be thus created to suit every desire.

To this light-weight construction, I have added a feature incorporating the well-known fact that if you reflect sunshine *away* instead of absorbing it, you can keep cool. So my roof is actually a "pan" containing water. This "water roof" acts as a mirror which reflects heat and keeps the house cool.

This roof is broadly edged with copper, that priceless metal which is at once so beautiful and so useful. The roof sections permit the free circulation of air

under the roof and are b
screened to keep out in
(The features of this u
coping are described on t
posite page).

I have already built
incorporating these ideas.
Victory is won, these pri
can be adapted to endle
eties of homes and interio

For instance, a newly-married couple cou
with enough roof and floor panels to accom
the kitchen, dining, living, bedroom and ba
space. With factory-assembled prefabricate
available, the cost of such a dwelling would b
$2,800. The larger house, illustrated above
probably retail at $5,500. f.o.b. factory. (S
and labor cost extra).

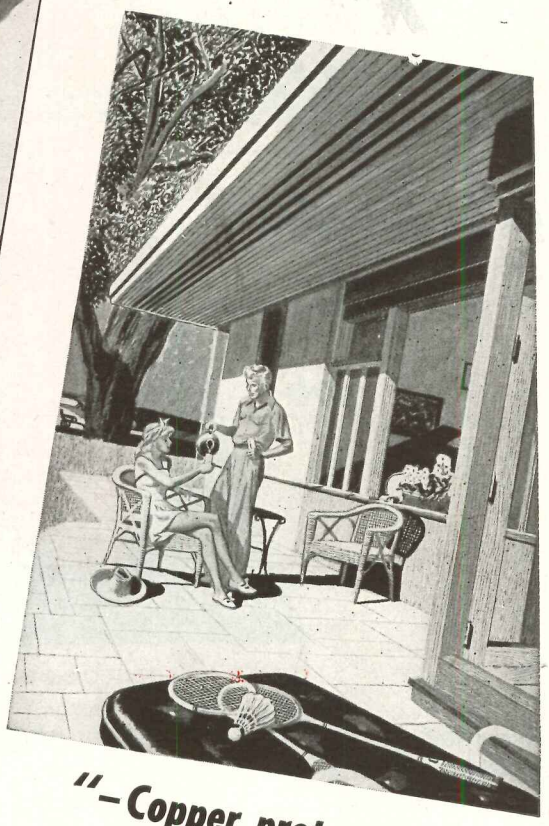
There can be no single solution of the
house, but here is one which is rather unus
tical and economical to build. I urge you t
Revere for *free* descriptive booklet giving p
trations of similar existent houses and full d

SIMO

* * *

Revere does not build houses or expect to in
nor does it entertain any pre-conceived no
an "ideal" house. It believes in giving th
a free rein in expressing their various

This advertisement appears in The Saturday Evening Post—September 25, 1943



"—Copper protects and makes it beautiful"

One of the unusual features of Mr. Breines' house described on the opposite page is the use of copper in the entirely visible flashing or coping which forms the edging of the roof. The coping is carried up and over the parapet and then down the facing boards of cypress or redwood. In the illustration above, this feature is clearly shown. The copper coping is highly protective against weather; it achieves also a striking decorative effect, especially as the copper takes on its characteristic patina. The contrast with the natural wood of the walls is most harmonious.

In this house, copper and its alloys have also other uses: flashing around sills and door saddles; the hot and cold water system; window screens; bronze-screened grilles in the roof ventilation sections.

Revere Products Are Standard

Revere copper and copper base alloys are standard for both new building and remodelling. They're specified for roofing, flashing, gutters, downspouts, weather stripping, termite-proofing. Ideal for non-rusting hot and cold water lines; heating and air conditioning lines; storage tanks; thresholds, window frames and the like. Revere copper, brass or bronze accessories add beauty inside and outside the house.

Copper gives longer life to any building anywhere, any time, because it protects, preserves, perpetuates.

* * * *

After Victory, Revere products will again be available for building. But Revere urges all those interested to begin planning NOW for post-war days. If its Technical Staff can help you in your building problems, please advise our Executive Offices. No obligation, of course.

REVERE

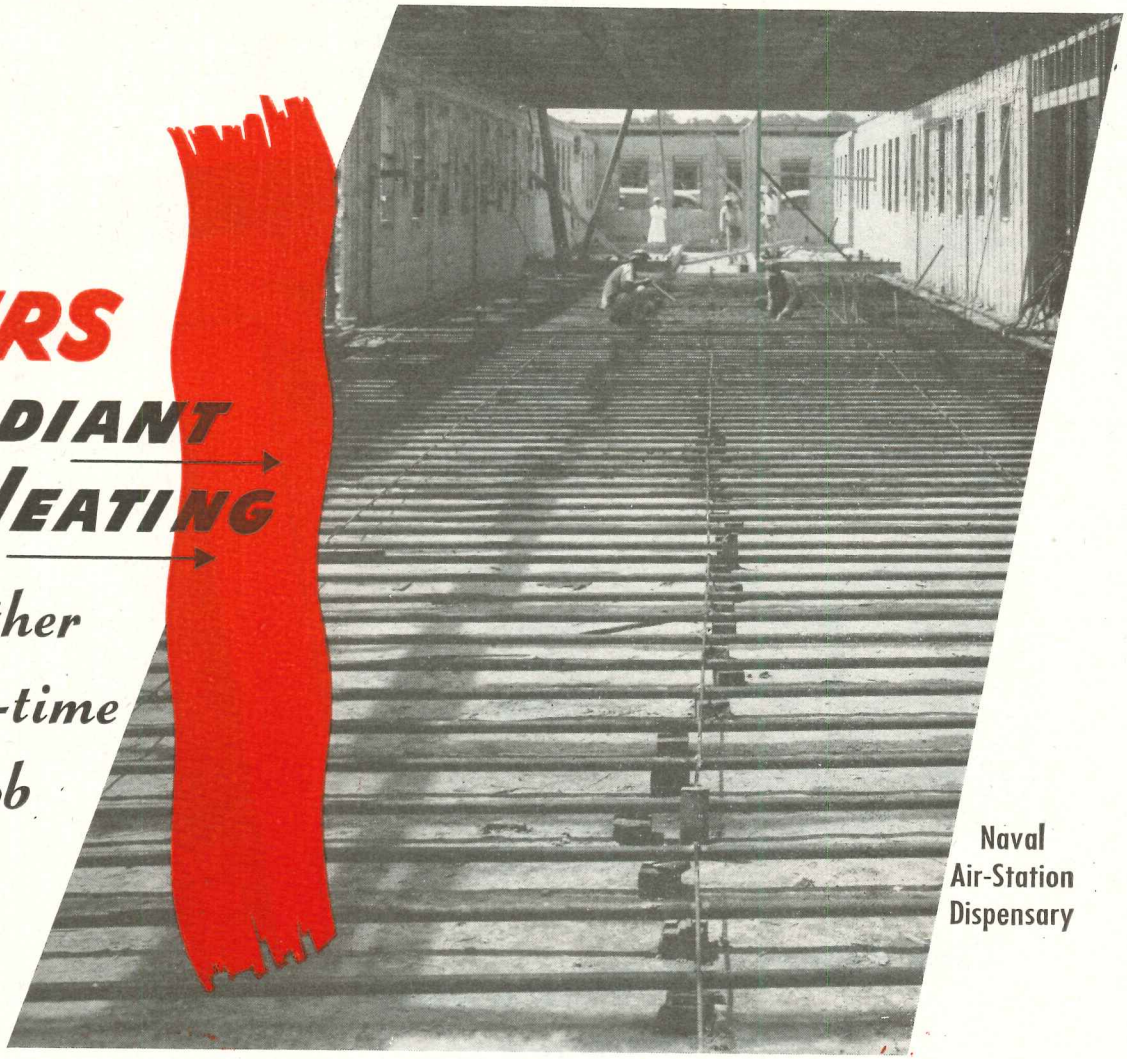
COPPER AND BRASS INCORPORATED

Founded by Paul Revere in 1801

Executive Offices: 230 Park Ave., New York 17, N.Y.

BYERS RADIANT HEATING

gets another war-time job



Naval Air-Station Dispensary

CORROSION COSTS YOU MORE THAN WROUGHT IRON

Byers Radiant Heating was again enlisted for military service when the new Naval Air Station Dispensary was built at Jacksonville, Florida. Two wards are warmed with pipe coils of Byers Wrought Iron, embedded in the concrete floor. The architects and engineers were Robert and Company, while Henley and Beckwith were the contractors and fabricators.

Coils are made up of 224 pieces of 1-inch Byers Wrought Iron pipe, each 22-feet long, welded to headers. The coils are pitched and vented, with provision for draining. Heating medium is water, warmed by a steam heat exchanger. Minneapolis-Honeywell thermostats control the temperatures.

This is the second Byers Radiant Heating Installation for the station; the first was in two chapels built about a year ago.

The widespread use of Byers Radiant Heating in all varieties of structures to meet all kinds of needs is the best evidence of its almost universal possibilities. Whether you are planning some essential structure for today, or are doing a little preliminary planning about tomorrow, radiant heating deserves a prominent part in your thinking.

This widespread use also indicates the wide professional recognition of the service qualities of wrought iron. Wrought iron's unique structure—high purity base metal, and a multitude of tiny glass-like silica slag fibers—makes it highly corrosion-resistant. The fibers act as a mechanical barrier against pitting and penetration, and anchor the surface film that protects the underlying metal. Then, too, Byers Wrought Iron combines desirable thermal properties with excellent welding and bending qualities. And it is *proven* for the job.

Do you have our technical bulletin, "Byers Wrought Iron for Radiant Heating Installations?" We will gladly send a copy. You will find it factual and helpful.

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

BYERS
GENUINE WROUGHT IRON
TUBULAR AND HOT ROLLED PRODUCTS
ELECTRIC FURNACE ALLOY STEELS • OPEN HEARTH ALLOY STEELS
CARBON STEEL TUBULAR PRODUCTS

ARCHITECTURAL
RECORD

COMBINED WITH AMERICAN ARCHITECT AND ARCHITECTURE

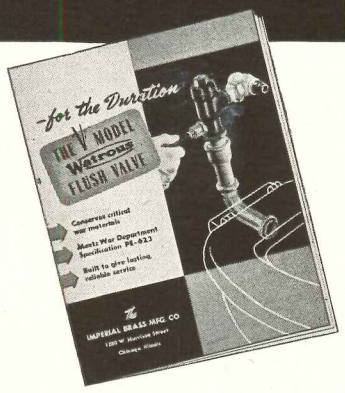
VOL. 94 NO. 6

DECEMBER • 1943

CONTENTS

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

Architectural Record (combined with American Architect and Architecture) is published monthly by F. W. Dodge Corporation, 34 No. Crystal St., East Stroudsburg, Pa., with Editorial and Executive Offices at 119 West 40th Street, New York, N. Y. Thomas S. Holden, Pres.; Howard J. Barringer, Vice-Pres. and Treas.; Irving W. Hadsell, Vice-Pres.; Chauncey L. Williams, Vice-Pres.; Sanford D. Stockton, Jr., Secy.; Walter F. De Saix, Asst. Treas.; Edwin H. Freed, Asst. Treas. Member Audit Bureau of Circulation and Associated Business Papers, Inc. Architectural Record is indexed in Reader's Guide, Art Index and Industrial Arts Index. Subscription rates: United States and Possessions, Canada, Cuba, Mexico, Central and South America, $3 the year, $5 for two years, $6 for three years; elsewhere, $5 the year; single copy, $1. Circulation Mgr.: Elisabeth Chandler. Every effort will be made to return material submitted for possible publication (if accompanied by stamped, addressed envelopes); but the editors and the corporation will not be responsible for loss or damage. Other Dodge Services: Real Estate Record & Builders' Guide, Sweet's Catalog Files, Home Owner's Catalogs, Dodge Reports & Dodge Statistical Research Service.



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 important 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 is 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

PRODUCERS' COUNCIL ADOPTS POSTWAR PLATFORM • BUILDERS DISCUSS GOALS • NEW YORK'S POSTWAR WORKS EXHIBIT

IMMEDIATE and complete preparation for postwar building is urged upon the owners and prospective owners of all types of private real estate in the Platform for Postwar Construction adopted by the Producers' Council at their semi-annual meeting last month.

Plans should be prepared immediately, sites selected, financing arranged, commitments for construction made, and such other steps taken as will make possible the prompt initiation of field construction at the end of the war, the Council declares in the first of the 21 proposals contained in the Platform.

One of the most complete programs yet offered for postwar reconversion, the Council's proposals are designed (1) to facilitate reconversion to peacetime economy; (2) to expedite technical advancement; (3) to encourage expansion of construction activity; (4) to provide adequate financing facilities; and (5) to promote protective measures for the public.

Many of the proposals are readily practical—such as that of a "work pile plan" for every community, by which the community would make an inventory of all possible repair, remodeling and new construction for initiation in the immediate postwar period and classify all such jobs to indicate the most feasible order in which they should be undertaken.

The Council calls on the federal government to remove restrictions on the manufacture and use of building products and the replenishing of inventories as fast as the war requirements for critical materials and manpower decrease. And the Council puts itself on record as opposed to government spending for non-essential public works solely for the purpose of creating employment; to the use of public funds for the erection of new housing; and to public ownership of housing projects. These are matters which the construction industry alone cannot correct, but in which the industry's opinion carries considerable weight.

The detailed program for rapid conversion or expansion of facilities for high levels of production, distribution and sales in the postwar period, which the Council recommends to the construction industry as a means of facilitating reconversion, however, the industry itself can act upon. Building product development, dimensional coordination, reduction of building costs, "aggressive merchandising of construction services," responsibility for authentic information on developments within the industry—these proposals, too, lie well within the industry's own sphere. So do the proposals advocating the training of employees and the testing of materials. Likewise the recommended extension of technical services: "The public should receive adequate technical service in the planning and building of all types of shelter and in planning of cities and regional areas."

Out of the construction industry's jurisdiction, but certainly worth working for, are the Council's proposals for advance planning of public improvements, disposal of government surpluses of building materials and equipment through established trade channels, and revision of building codes to achieve "a desirable degree of regional uniformity." Private new construction, and maintenance and improvement of residential real estate, in both urban and rural communities, should be stimulated by the provision of financing facilities adequate for postwar needs, the Council's platform declares, and encouragement should be given to the establishment of privately-owned mutual insuring facilities. Similarly, adequate financing facilities should be provided for private construction of commercial, industrial and other types of structures. Provisions should also be made, in the Council's opinion, for improving the urban and suburban environment and giving greater stability to real estate values, and public construction should be carried out through competitive contracts with private construction enterprise, not through hiring day labor or by resorting to work relief methods.

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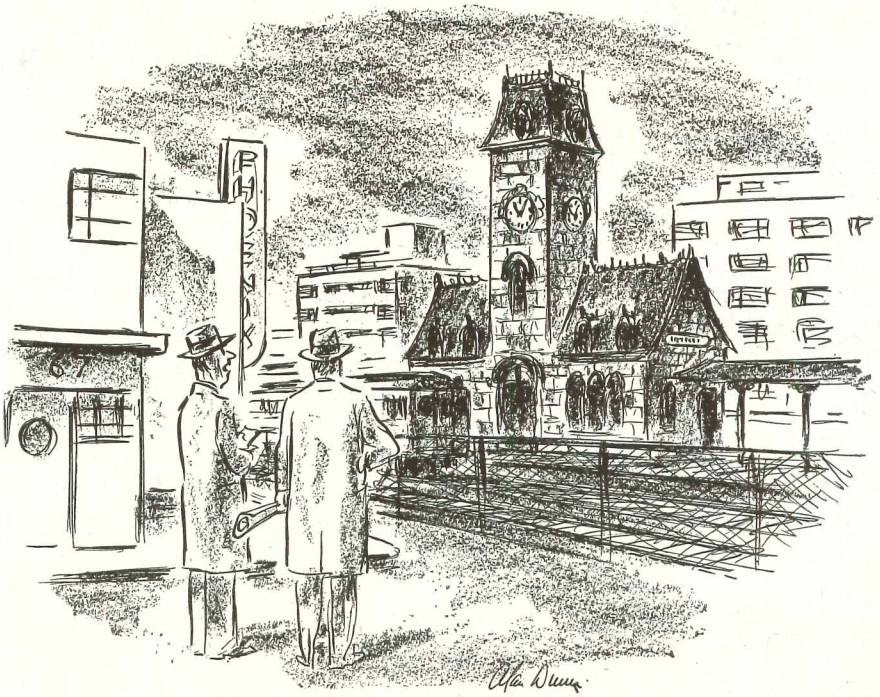


"Maybe we ought to get a new clock . . ."

—Drawn for the RECORD by Alan Dunn

HERMAN NELSON PRODUCTS

in peace and at war

HERMAN NELSON products which were used to heat and ventilate all types of public, commercial and industrial buildings in times of peace are now at war. Since our country started preparations for this war, Herman Nelson Products have been installed in all types of army, navy and war industry projects. They have produced the excellent results and have given the reliable service that they always assured in peace time installations.

In addition, Herman Nelson has been developing and producing special heating and ventilating equipment for the solution of difficult logistic problems. This equipment will find new application when available for civilian use.

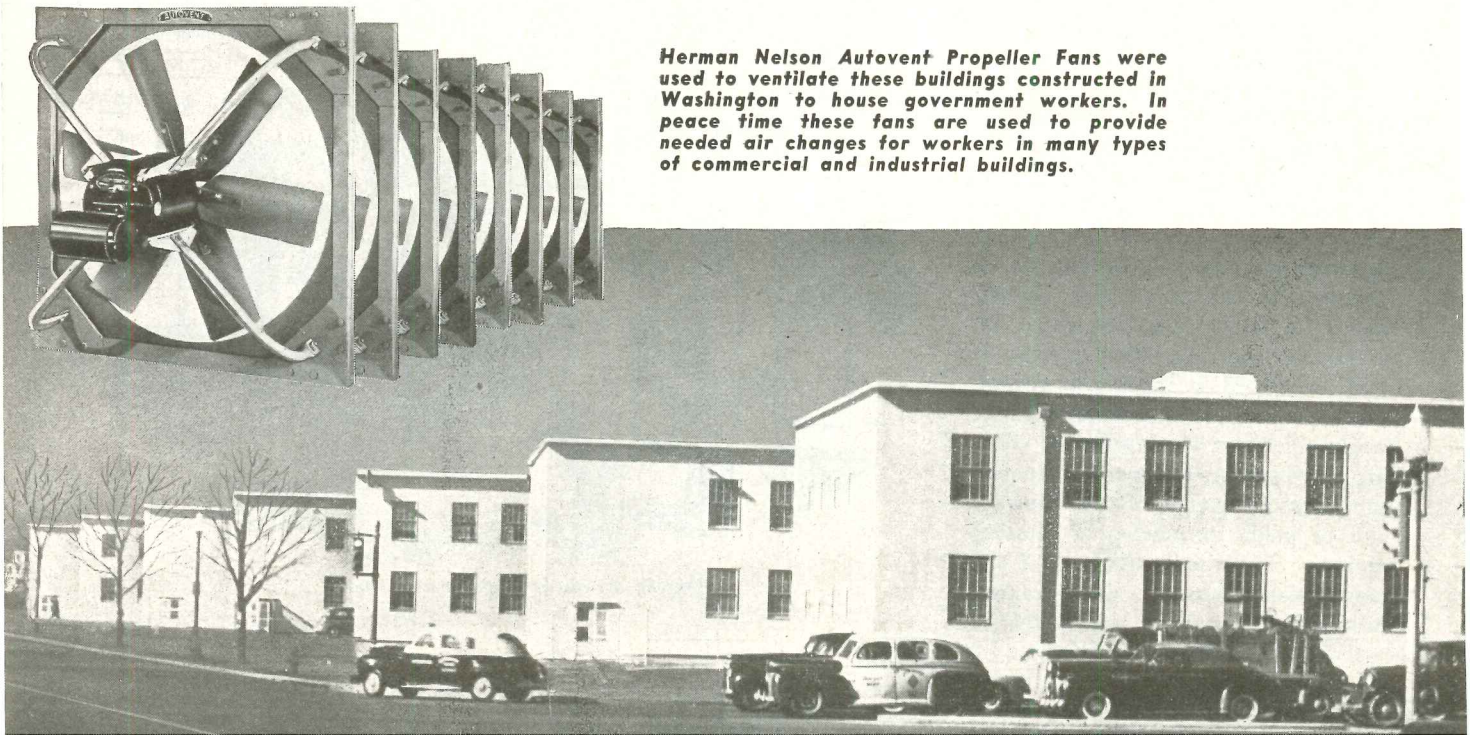
When victory has been achieved, architects, engineers and contractors can continue to look to Herman Nelson for progressively designed and well constructed heating and ventilating products.

herman nelson moline illinois

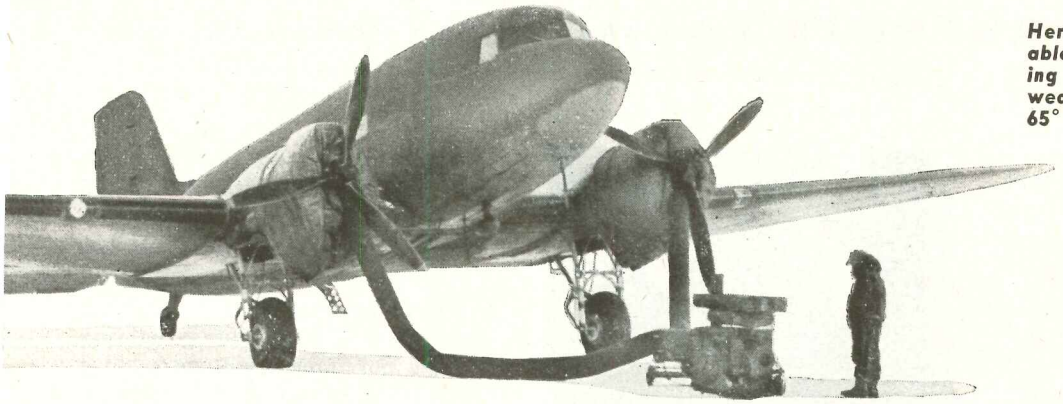
THE HERMAN NELSON CORPORATION

MANUFACTURERS OF QUALITY HEATING, VENTILATING AND AIR CONDITIONING PRODUCTS

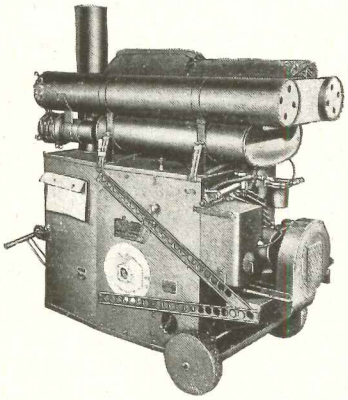
MOLINE, ILLINOIS

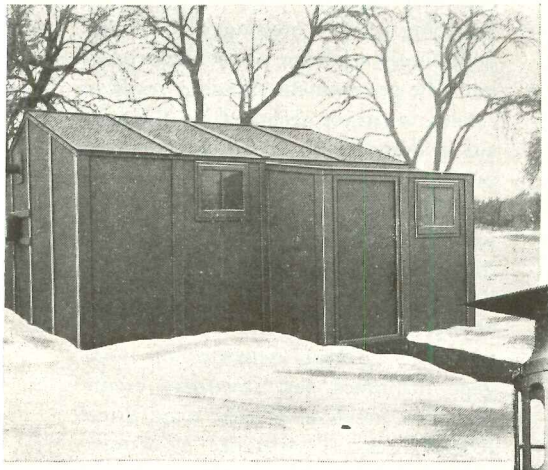


Herman Nelson Autovent Propeller Fans were used to ventilate these buildings constructed in Washington to house government workers. In peace time these fans are used to provide needed air changes for workers in many types of commercial and industrial buildings.

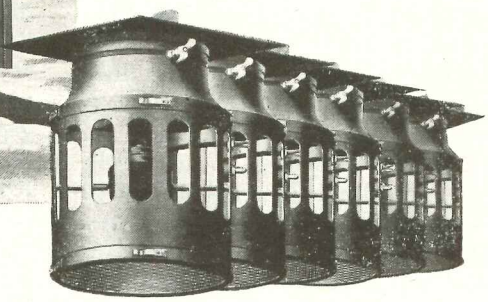


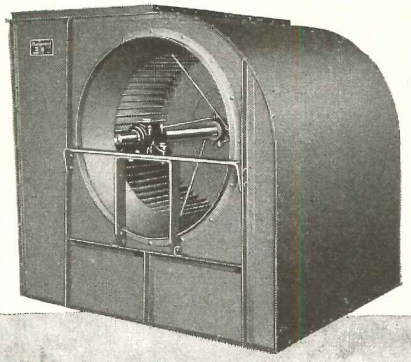
Herman Nelson developed these portable, self-powered heaters for preheating aircraft engines in severe, cold weather with temperatures as low as 65° below zero.



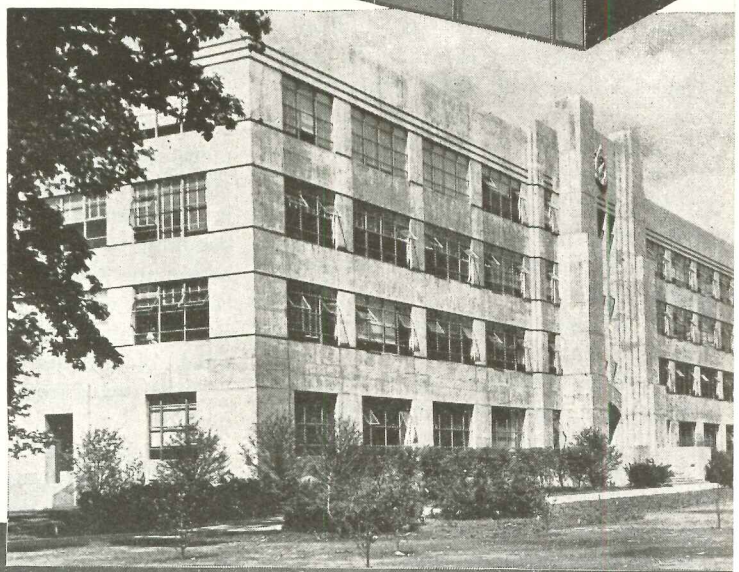


These ventilators were designed by Herman Nelson to overcome stratification in huts used by the armed forces in cold climates.

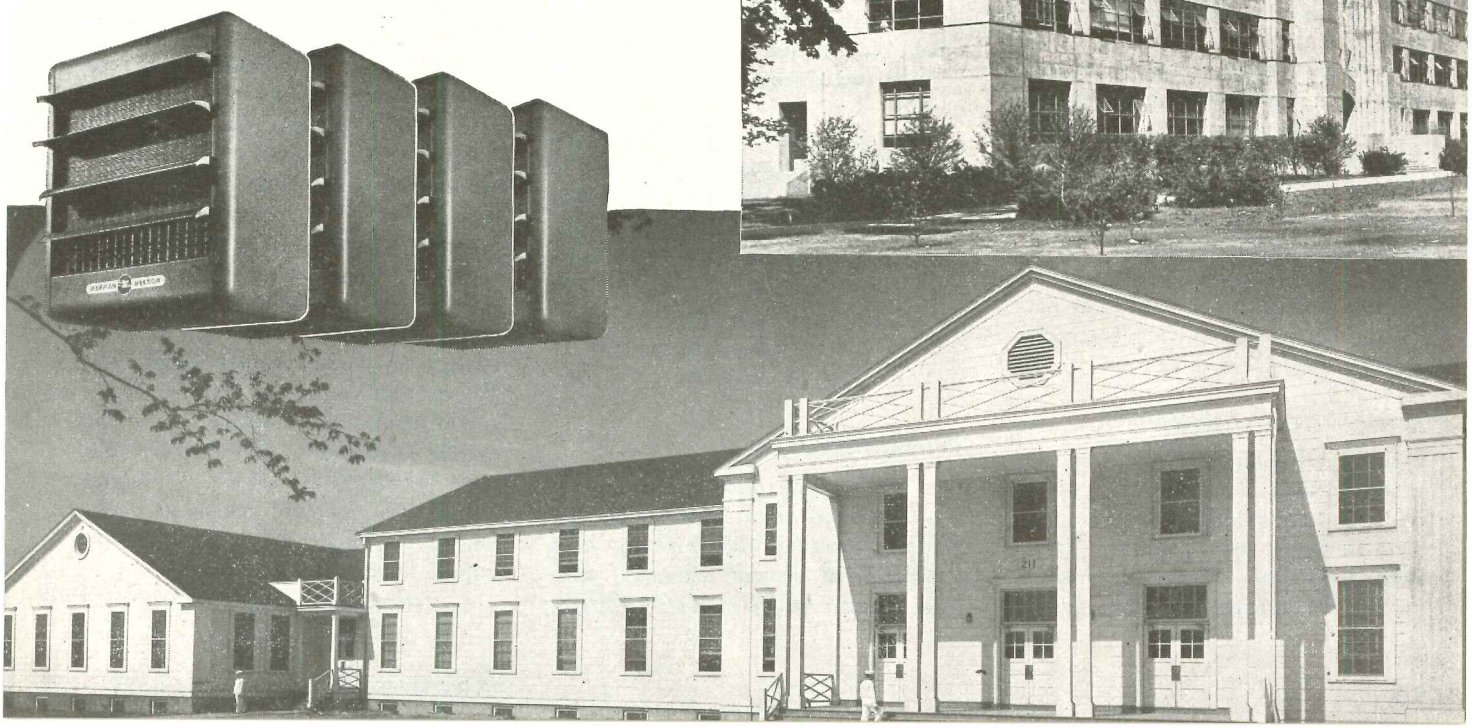




A Herman Nelson Autovent Blower provides ventilation in this Administration Building at one of our government Arsenals. In time of peace these blowers are used not only for ventilation but for many industrial process installations.



This naval station recreation building is heated with Herman Nelson hiJet Unit Heaters. After the war these heaters will provide warmth for recreational space in schools, churches, clubs and similar buildings.



(Continued from page 7)

HOME BUILDERS DISCUSS POSTWAR GOALS

Several hundred members of the lusty new National Association of Home Builders, meeting in Cleveland last month, campaigned with notable vehemence against postwar public housing, and voiced their plea for a progressive relaxation of L-41 as material shortages ease and as the postwar house market approaches. They laughed off the "miracle house," and showed small concern over the completely factory-built, but studied with interest the site fabrication methods described in the meetings.

Activities were frequently interrupted for mutual congratulations on the final uniting of two builders' national groups so that, "with this united front . . . we shall assume our proper place in the councils of Government and industry." For this gathering, attended by some five hundred builders of mass-market houses, was the first after the recent consolidation. The occasion was the annual convention of the National Association of Real Estate Boards, which provides indirect sponsorship to the builders' group. Indications are that the new consolidation, with such sponsorship, will increasingly be accepted in government circles as the "voice of the home building industry."

Its program for 1944, as outlined to the convention by Frank W. Cortright, executive vice-president, includes four major points:

"1. A rapid completion of the war housing job;

"2. Early relaxation of L-41 permitting a gradual resumption of civilian construction;

"3. An independent and completely equipped FHA, prepared to serve adequately the private building demands in the postwar period; and

"4. Vigorous opposition to the expenditure of taxpayers' funds for public housing—a job private enterprise, properly implemented, can do."

Problems in Site Fabrication

Site fabrication methods were described in some detail by various speakers who had gained experience with them in war housing projects. David Bohannon, San Francisco builder, used on-site cutting and assembly system to build 700 houses in 693 hours, which he said was much better than he could have done with factory-built houses. Both he and Carl Boester, Purdue University researcher, highlighted special problems for designers in such an operation.

John Galbreath, newly elected president, is congratulated by Cyrus Crane Willmore, outgoing president, at Realtor convention

Drawing techniques is one of the newer problems. It was emphasized that a half-dozen prints with floor plans, perspectives and sectional details were not of much use in this assembly-line system. In the first place, the house must be designed for simplest and most economical pre-cutting. Then every part of the structure must be detailed in "isometrics, perspectives, diametrics, triometrics in the exploded assembly technique." The procedure, it was pointed out, is much like the detailing of an airplane in a factory before the tooling and assembly procedure is worked down to the thousands of simple tasks for workers, and much of the drafting technique has been borrowed from the factory assembly line.

Spectacular visions of the postwar dream house were notably missing in the discussions of these practical builders, who were impressed only by the dangers to their business in publicity of the dream variety. While they did not discuss it in their meetings, when occasion did arise for public expression they took pains to scotch the idea.

Postwar Operations

In the meeting much more concern was expressed about postwar factors. National Housing Administrator John B. Blandford denied "whispers" of a huge postwar public housing program:

"It is definitely true that the NHA and its responsible officials are hopeful and confident that production of a million or more new houses a year can be attained once full production of peacetime goods is possible—provided all elements in the housing industry and the government join forces in a really concerted effort. But it is also definitely true that the production and financing of this housing will be predominantly a job for private enterprise, with the government standing ready to extend whatever technical or financial aid is desirable in order to reach full production of good housing.

"The extent of federal financial aid will be determined, I believe, by how much of the total need and market for housing can be financed by private enterprise unaided, how much will need the indirect assistance of mortgage insurance and secondary credit, and how much may need some direct federal financial assistance in acquisition of land or construction. But it should be obvious that direct public financing could be available for only a small part of a postwar housing program of the magnitude that this nation needs and should have."

Prefabricator's Progress

Reporting on Homasote's progress with its plan of selling prefabricated houses through department stores, F. Vaux Wilson, Jr., told of the huge public interest expressed in membership in the company's Own-Your-Home Clubs as a result of exhibits in 40-odd department stores. Macy's alone, he said, was signing up members at a rate of 6,000 a year, the rate for all stores totaling 60,000 a year. These are not home purchases, of course, for house types are not ready, and prices cannot be quoted, but prospective purchasers are encouraged to join savings clubs with no obligation to buy.

Asked how he calculated the percentage of houses prefabricated, Mr. Wilson said he did not think prefabrication would take a sizable slice of the market immediately after the war. But later, after perfection of techniques and mechanical detailing machines, prefabrication might reach half the volume of house construction.

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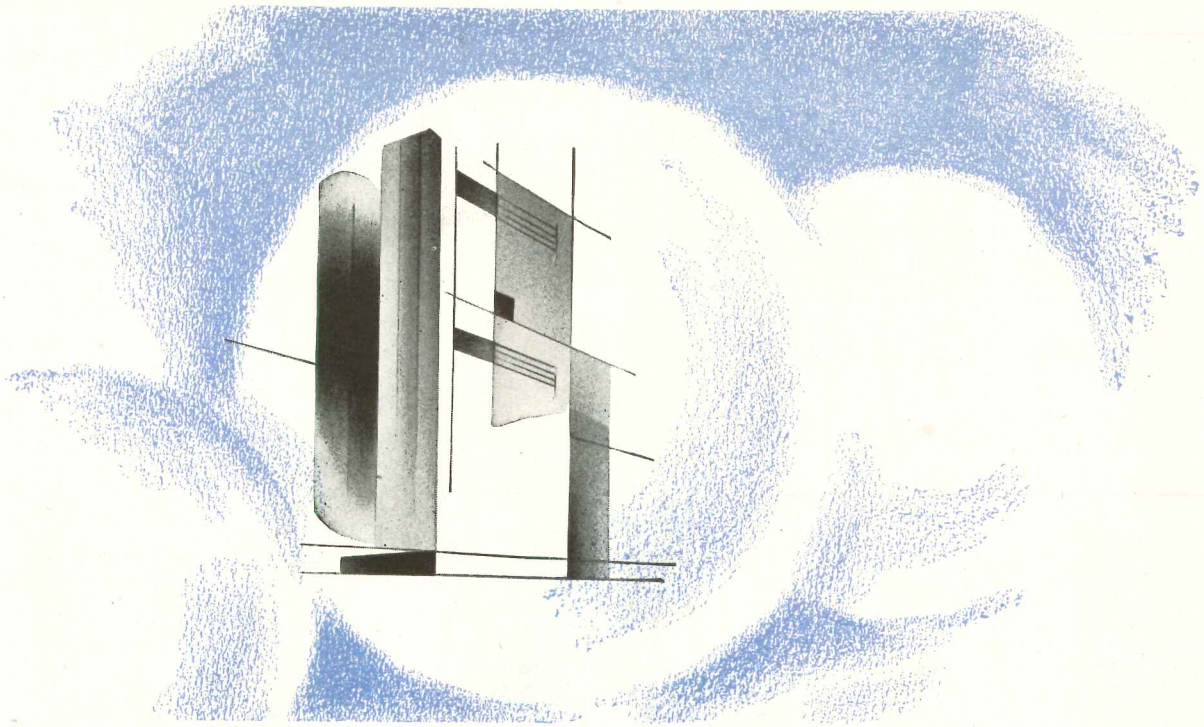


Busy Making Snowballs for You to Throw

IN your planning ahead, Air Conditioned living, working, resting space must dominate every horizon. From the factory to the salesroom, from the food market to the schoolroom—all will have conditioned air on a necessity basis.

While you are mixing concentration on present priority jobs with your visions of peacetime planning, Worthington, too, is following suit. Engineers are plotting improved machinery performance. Designers, too, are contributing, putting external beauty on a par with internal efficiency. In the midst of our manufacturing concentration on essential war orders, the Worthington line of the morrow is taking shape.

As your own planning progresses, you will be counting on incorporating the most modern air conditioning equipment. What Worthington is creating can be of material aid in your shaping up of post-war commissions. We're busy making snowballs for you to throw.

CA 3-12A

Air Conditioning
WORTHINGTON
REFRIGERATION

WORTHINGTON PUMP AND MACHINERY CORPORATION, HARRISON, N. J.

THE RECORD REPORTS

(Continued from page 10)

REALTORS ADVANCE POSTWAR PLATFORM

Gradually developing its many legislative projects into a broad land policy, the National Association of Real Estate Boards, meeting recently in Cleveland, advanced several points likely to be prominent in discussions of postwar building and planning, particularly discussions in Washington:

1. Better communities. "The Association will . . . initiate and support movements and legislation looking to the creation of better towns and cities." . . . A city should be a collection of good neighborhoods . . ."

2. Public Housing. "The public housing experiment has proved to be a mistake. . . . It has utterly failed in its first objective, namely the clearance of slums. The public housing movement as currently constituted is a social and political menace . . ."

3. Rent Subsidy Plan. "Public assistance should be given *directly* to families that cannot pay economic rents. . . . A program such as this will insure that housing assistance goes where it is needed and *only* as long as it is needed."

4. Civilian Building. "As soon as the supply of critical materials permits, we urge that the federal government permit resumption of a limited amount of civilian construction. . . . Our economy does not stand still during war years. . . . There is danger of wide unemployment in the building trades."

ON INDUSTRIAL ARCHITECTURE

"Industrial architecture can no longer be considered an art or a science sufficient unto itself," George H. Miehls, vice president, Albert H. Kahn, Associated Architects and Engineers, Inc., Detroit, told the Society of Industrial Realtors at their meeting in Cleveland last month.

Industrial architecture now must be sociological in its conception, Mr. Miehls said. "It must fit itself into the community life of the people, and assume the added responsibility devolved from the social agitation of the past few years. The industrial architect who, by his skill in the physical arrangement of plant facilities and conveniences, lessens the tendency of

(Continued on page 14)

STOP WATER HAMMER!

with the WADE Wacor Water Hammer Arrester

THAT annoying, bothersome banging it causes is ample reason for getting rid of water hammer. But far more important—today especially—is the often-overlooked, costly damage it can do.

Whenever the flow of water in a pipe is suddenly stopped, the velocity of the onrushing liquid builds up a surge of pressure that rebounds along the pipeline, weakening valves, pipe, fittings and equipment. With today's tendency toward more and more quick closing valves, the elimination of water hammer is becoming increasingly more important.

In the WADE Wacor Water Hammer Arrester you have the final answer to this problem. It is a carefully engineered arrester which has proved itself in installations all over the country. Its mechanical-pneumatic principle of operation brings permanent, positive relief—ends all the limitations of the usual makeshift attempts to control water hammer. Exhaustive fatigue tests show that its service life exceeds that of the valves and fixtures with which it is installed.

Investigate this simple, easy way to end water hammer troubles once and for all. Write for new bulletins containing simple selection charts and installation recommendations.

• No. 6 Junior, above, takes care of the average-size home. Available in standard sizes to cover all service conditions, for hot or cold water or other liquids, for all residential, commercial or industrial buildings.

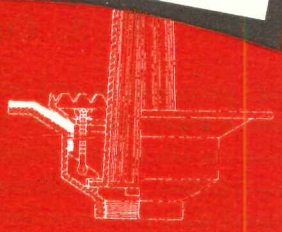
For DRAINS and PLUMBING SPECIALTIES, too — a NEW source of supply that is 75 years old.

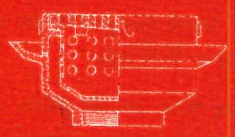
• There is nothing new about the name of Wade to buyers and specifiers of drains and similar plumbing specialties. It represents more than 75 years of experience in this specialized field.

Today, however, that name takes on a new and fuller meaning. For the Wade Manufacturing Co. has now been consolidated with Woodruff & Edwards, Inc., one of the largest jobbing foundries in the world.

This meshing of two powerful forces to serve you marks an important new source of supply for wartime America, and for the postwar years to come. To Wade "know-how" has been coupled the facilities of an organization which has had an equally long and outstanding record in the production of finest quality castings.

You can expect big things from this combination—like the Water Hammer Arrester above. Remember the name Wade . . . . for a prompt answer to your every need . . . . and for far greater dollar value.





THE WADE LINE INCLUDES:

- Floor Drains
- Roof Drains
- Back Water Valves
- Grease Interceptors
- Traps and Cleanouts
- Swimming Pool Drains and Equipment
- Marine Specialties
- Water Hammer Arresters

WADE

MANUFACTURING CO.
Elgin, Illinois

QUALITY WECO PRODUCTS

DIVISION OF WOODRUFF & EDWARDS, INC.

THE RECORD REPORTS

(Continued from page 12)

costly labor dissension and strikes, is performing a needed and valuable service for his client and a service to the community at large. He must have this larger view, and he fails in his conception of duty if he does not recognize the trend and act upon it."

POSTWAR WORKS EXHIBIT

A realistic preview of their city's postwar building program is promised to New Yorkers late this month when the City Planning Commission opens its Postwar Works Exhibit at the old Board of Education Building, Park Avenue at 59th Street.

Working drawings and specifications for a large part of the city's billion dollar program have been prepared and arrangements have been made for acquiring the necessary land for what is by far the largest city building program ever undertaken. It is on these completed plans and on those being prepared that the exhibit will be based. Maps, models, dioramas and photographs will be used. Emphasis will be laid both on the resulting improvement of the city and on the lift to be given to postwar employment and use of materials.

The exhibit will be divided into five sections, one for each borough, consisting in each case of a large, fully indexed map showing all streets, with building program projects prominently marked and identified, together with a still larger and more detailed model or diorama of a particularly interesting area, and photographs, models and information on specific projects.

POSTWAR PUBLIC WORKS CALLED VITAL

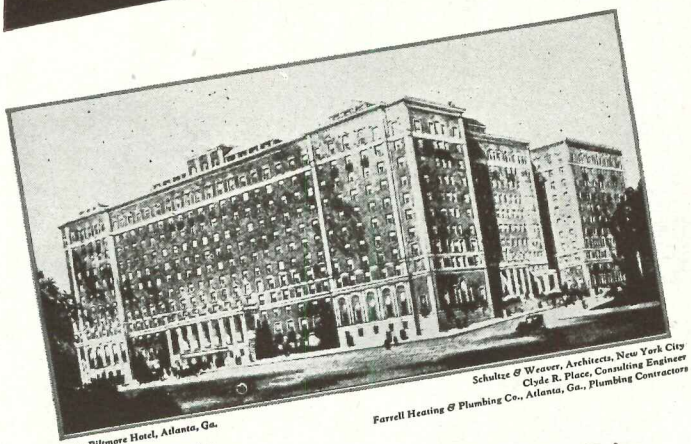
Pump-priming in the form of government-sponsored public works will be required after the war to stimulate business and stem unemployment, Robert Moses, Park Commissioner of New York City, told the American Institute of Steel Construction at their 21st annual convention last month.

"Cuts in government spending, cancellation of war contracts, and the demobilization of armed men and plant workers are bound to produce the most serious unemployment problems of our history," Mr. Moses warned in his address, read by an aide because he

(Continued on page 116)

ANACONDA BRASS PIPE

dependably serves the Atlanta Biltmore



Atlanta-Biltmore Hotel, Atlanta, Ga.
Bowman Hotels
Mr. John McE. Bowman, President

Schultze & Weaver, Architects, New York City
Clyde R. Place, Consulting Engineer
Farrell Heating & Plumbing Co., Atlanta, Ga., Plumbing Contractors

Anaconda Brass Pipe in the *newest* Biltmore

The new Atlanta-Biltmore Hotel is equipped with water service lines of Anaconda Guaranteed Brass Pipe.

It is significant that the architects to hotel owners of such wide experience in operating superior hotels have chosen Anaconda Brass Pipe to complete the perfection of the service.

"Brass Pipe for Water Service" gives valuable information on plumbing costs. Sent upon request.

THE AMERICAN BRASS COMPANY
GENERAL OFFICES: WATERBURY, CONNECTICUT

New York, Chicago, Boston, Philadelphia, Providence, Pittsburgh, Cleveland, Detroit, Cincinnati, St. Louis, San Francisco

ANACONDA from mine to consumer

Mills and Factories: Ansonia, Conn., Torrington, Conn., Waterbury, Conn., Buffalo, N. Y., Hastings-on-Hudson, N.Y., Kenosha, Wis.

In Canada: ANACONDA AMERICAN BRASS LIMITED, NEW TORONTO, ONTARIO

Reprint of advertisement published by The American Brass Company in 1924 while the Atlanta Biltmore Hotel was under construction.

When the Atlanta Biltmore was constructed 19 years ago, the hotel's policy was to employ only the most durable materials. That's why Anaconda Brass Pipe was used throughout for water service lines.

A recent checkup revealed that here, as in many similar installations, the choice proved to be a wise one—especially now when manpower and material shortages make maintenance increasingly difficult and costly. For during all these years, Anaconda Brass Pipe has served dependably, with no maintenance necessary—other than that normally required by a building of this type. Indications are that it will continue to supply the Biltmore's guests with clean, rust-free water for years to come.

Such reliability is assurance that peace-time requirements for important construction purposes will again be satisfied by time-tested Anaconda Brass Pipe and Copper Water Tube. 4326

BUY AN EXTRA WAR BOND

Anaconda Copper & Brass

ANACONDA from mine to consumer

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

Photograph by Maynard Parker

DESIGN FOR DAYLIGHT ENGINEERING

One glance at the exterior of this home tells you that it is designed *with daylight engineering* in mind. Before you step inside you know that the rooms will be bright and cheerful . . . that there will be a distinctive air of spaciousness that only a generous use of glass can provide.

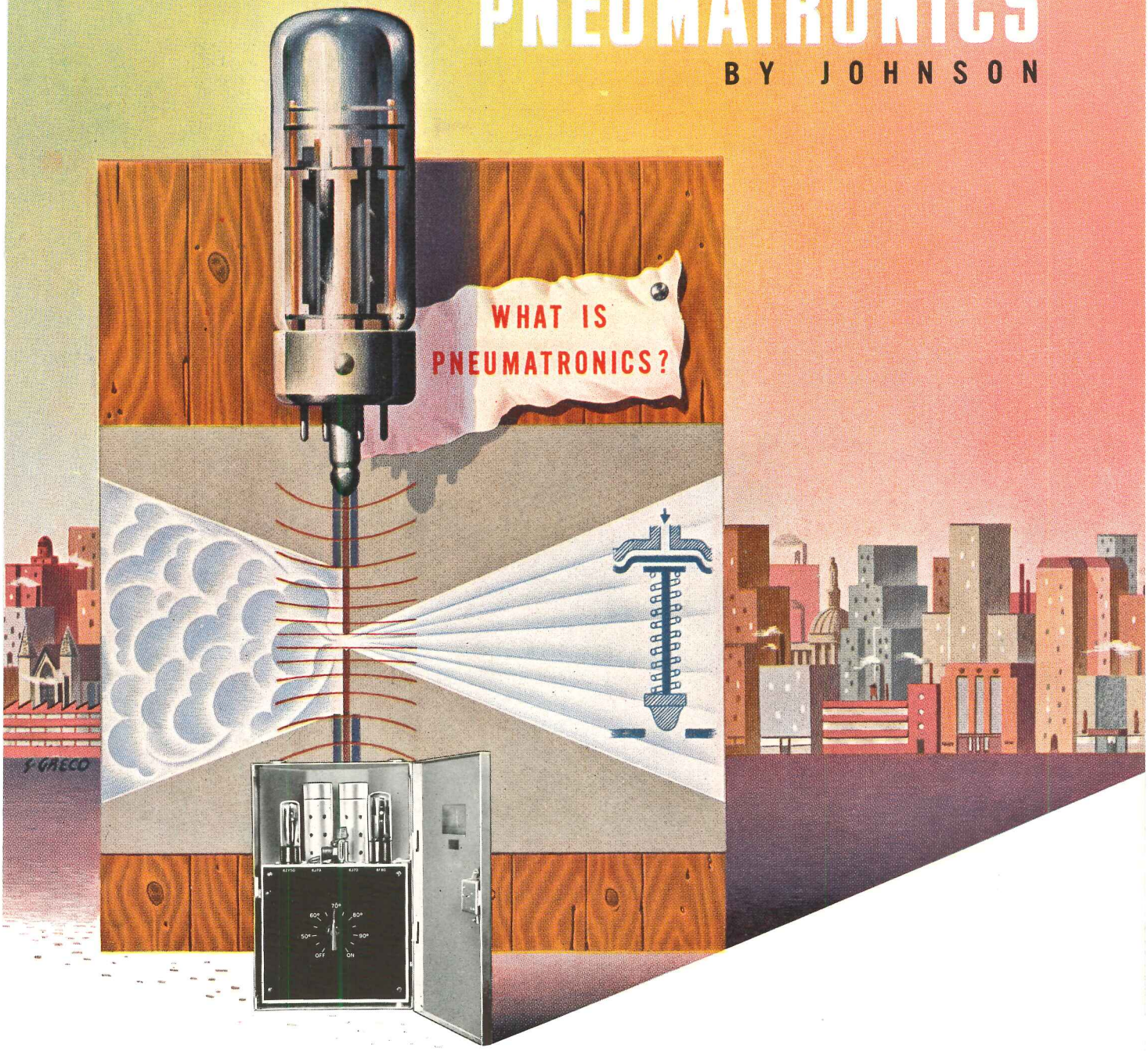
Through use of corner windows and large window areas completely around the house this home employs many of the principles of daylight engineering. Add to this exterior design the use of decorative glass in the walls inside and the home becomes flooded with welcome daylight throughout. Panel mirrors, too, materially help stimulate the effect.

Daylight engineering is one of the most important "wants" of tomorrow's home builders. And it is the one convenience that is within the means of every home. For it costs no more to build with glass than it does with any other material. High-quality Libbey·Owens·Ford Glass and Blue Ridge Decorative Glass are available for every daylight engineering need. Libbey·Owens·Ford Glass Company, 23123 Nicholas Building, Toledo 3, Ohio.

LIBBEY·OWENS·FORD
QUALITY *Flat Glass* PRODUCTS

PNEUMATRONICS

BY JOHNSON



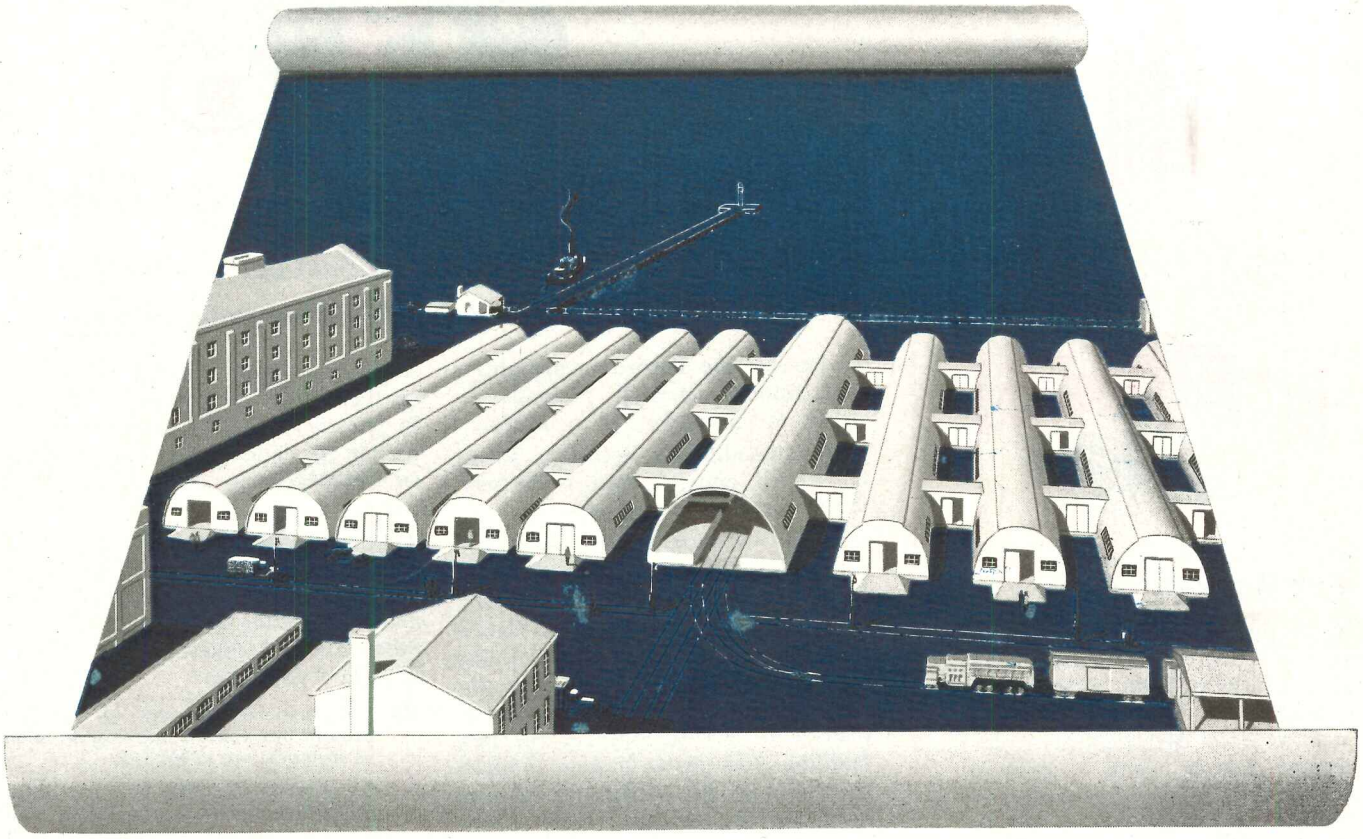
Pneu-ma-tron'-ics is a combination of the best in electronic circuits, coupled with pneumatic temperature control equipment developed by the Johnson Service Company.

Johnson Pneumatronic temperature control equipment has been in actual use in the field over three years and, for the duration, is available for a limited number of additional applications.

Most temperature control problems will continue to be solved best by standard Johnson pneumatic control systems. Pneumatronic principles, however, may be applied profitably to certain types of automatic temperature control problems in industries and in the control of steam and hot water heating systems.

PNEUMATRONICS JOHNSON SERVICE COMPANY, MILWAUKEE 2, WIS.
DIRECT BRANCHES IN ALL PRINCIPAL CITIES

EFFICIENCY FROM THE GROUND UP



There is little doubt that the high point of industrial efficiency achieved during these war years will prove an important holdover in the days of peace. Manufacturers will continue their emphasis on peak efficiency in every phase of their operations—including the very buildings in which their operations go forward.

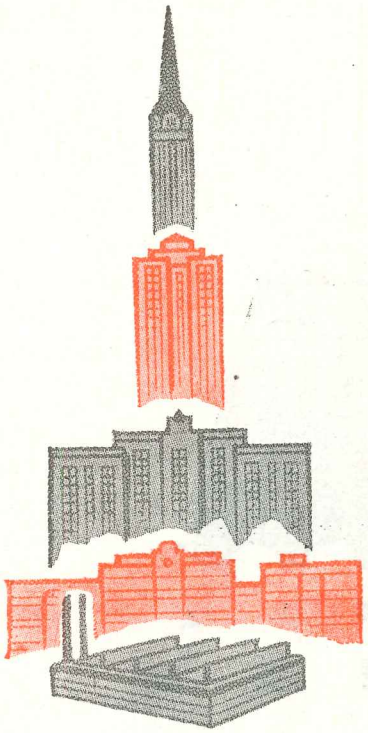
Strip steel by Stran-Steel—expanding in scope and usefulness under the stress of war—fits ideally into this postwar picture. By virtue of its efficiency of design, economy in application and great versatility, it is destined to have an important place in the plans of designers who will help reshape industrial tomorrow.

Manufacturer of the U. S. Navy's Famous Quonset Hut

STRAN STEEL

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

UNIT OF NATIONAL STEEL CORPORATION



For the year ahead . . .

With the publication, in January, of the "Hotels of Tomorrow" section which is being prepared in collaboration with the editorial staff of Hotel Management, Architectural Record begins a series of authoritative studies of twelve major building fields. Each study will be developed by the editorial staff of a leading magazine in the field under consideration, in collaboration with the staff of Architectural Record.

The types of buildings to be studied will be:

Airports
Apartments
Churches
Highway service establishments
Hospitals
Hotels
Industrial Buildings—
Mills, Factories
Office Buildings
Power plants
Schools
Stores
Theatres

—and each type will be thoroughly covered in every phase from preliminary plan to operation.

These special editorial sections will appear in both Architectural Record and the collaborating magazines—whose readers, as owners of the kinds of buildings listed above, are *your prospective clients.* So your suggestions and comments on our new editorial undertaking will be welcomed.

Introducing an Old Friend — the Client!

ARCHITECTURAL RECORD'S dual editorial studies promote planning of V-Day building projects now

In January the Record inaugurates a twelve-month editorial program designed to *sell* as well as to inform.

The commodity the Record is setting out to sell, and sell hard, is the services of the *architect-engineer.*

The man to whom the Record is selling architect-engineer services is the *building owner*—present and future.

In a few words, the Record's plan is to show more than 100,000 building owners the advantages of letting the architect-engineer go to work *now* on plans and specifications for the new building and modernization projects that need to be started the moment materials are available. Here is how the plan works:

Every month in 1944 the Record will carry a special editorial section on a type of building which ranks high in V-day planning importance on the basis of our Dodge V-day Reports, and which also represents a field for profitable architect-engineer activity.

These special monthly sections on Buildings of Tomorrow are being prepared in collaboration with the editors of leading business publications serving each of these fields. The editors of Hotel Management, for example, will work with Record editors on the "Hotel of Tomorrow" feature in January. And this section will appear in the January issues of *both Hotel Management and Architectural Record.*

This plan, tested so successfully in August 1943 with the simultaneous appearance of a "Restaurant of Tomorrow" section in Restaurant Management and Architectural Record, has important objectives:

- To stimulate planning of building projects for construction just as soon as materials are to be had.
- To give the building owner a better understanding of the important contribution the architect-engineer can make to profitable occupancy and use of the building—to the soundness of the owner's investment.
- To give the architect-engineer essential information on the owner's requirements—the features that make a building successful from the owner's viewpoint.

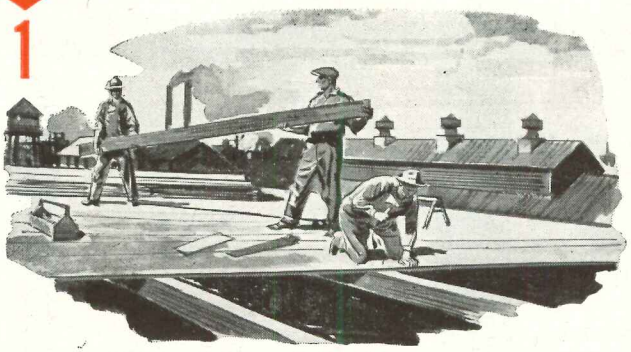
These editorial collaborations are an innovation in publishing as well as in the field of architect-engineer public relations. Their net effect, we believe, will be to make every issue of the Record even more useful to architect-engineers working on plans and specifications for V-day buildings, and to *give the 170,000 readers of the collaborating magazines a new concept of the value of architect-engineer services!*

ARCHITECTURAL RECORD, backed by the news-gathering and market gauging facilities of F. W. Dodge Corporation, provides to its Architect-Engineer readers a service of information which no other publication can render.

119 WEST 40TH STREET, NEW YORK 18, N. Y.

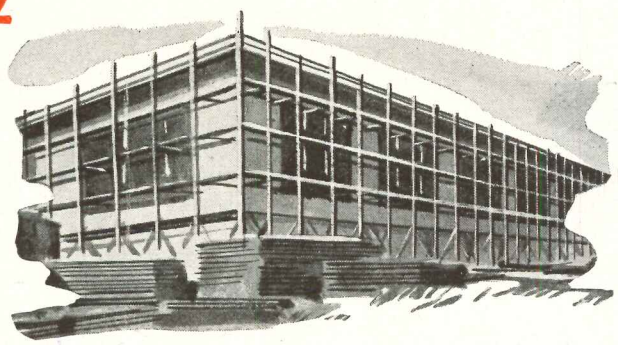
Will Construction furnish the POST-WAR "CUSHION"?

1



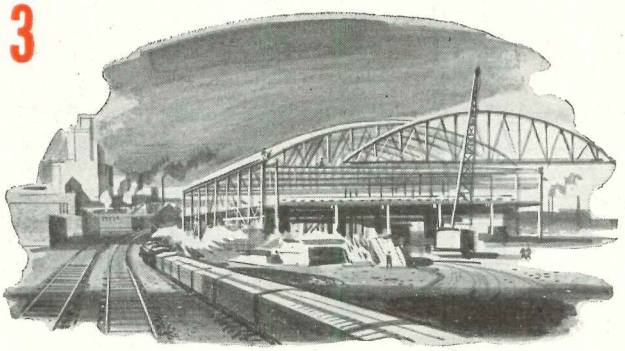
It is estimated that the people who will be engaged directly and indirectly in construction and building may be two millions *more* in the post-war period than there are right now.

2



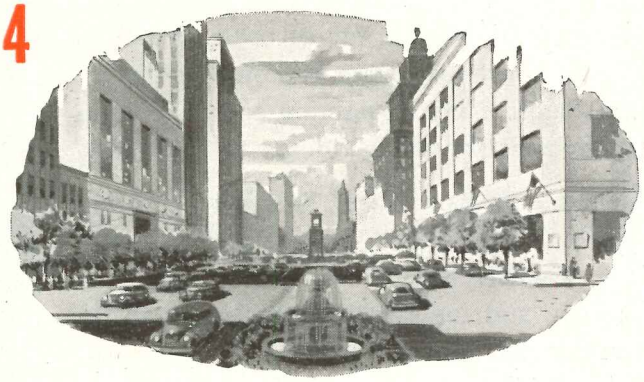
Total new construction of all kinds may run as high as ten billion dollars.

3



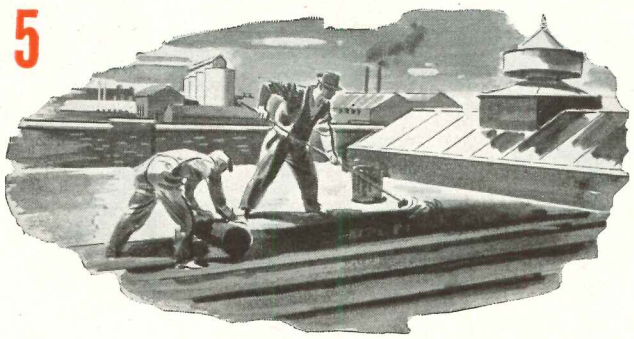
New industrial construction of around three-quarters of a billion dollars has been predicted.

4



Commercial construction may be as much as five times as great as it was in 1933.

5



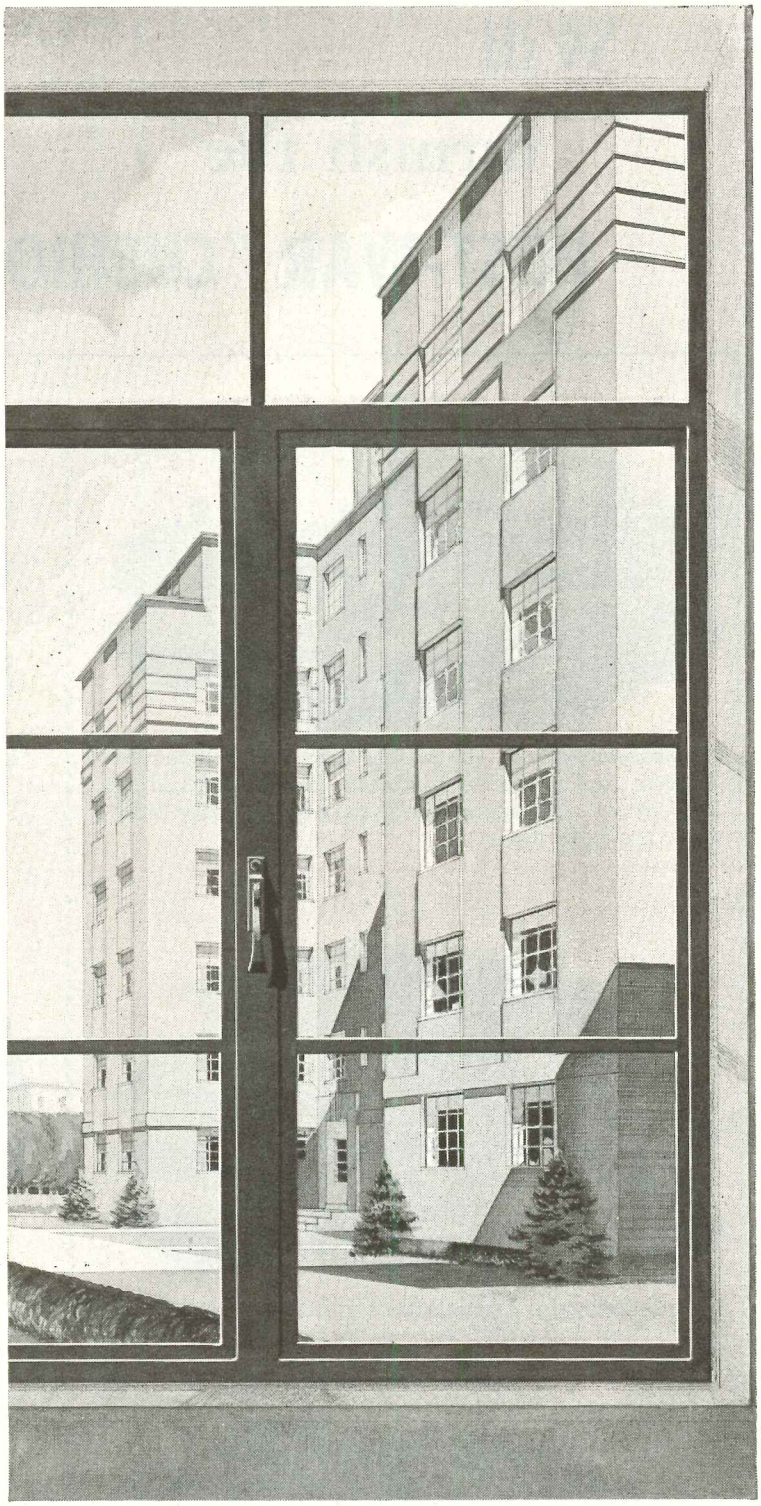
In planning for all this activity, remember that nothing in peace or war has produced any roofing or waterproofing that exceeds coal tar pitch and felt for durability, effectiveness and low maintenance.

Coal Tar Roofing
Coal Tar Waterproofing

Koppers Company and Affiliates, Pittsburgh, Pa.

KOPPERS

THE INDUSTRY THAT SERVES ALL INDUSTRY



For the buildings of tomorrow

Foresighted building owners recognize the value of Lupton Metal Windows . . . Realize the savings of maintenance as well as installation costs. With Lupton Metal Windows, there's nothing to get out of order. Weathertight, yet easy to operate, Lupton Metal Windows meet every daylighting and ventilation requirement for the buildings of tomorrow.

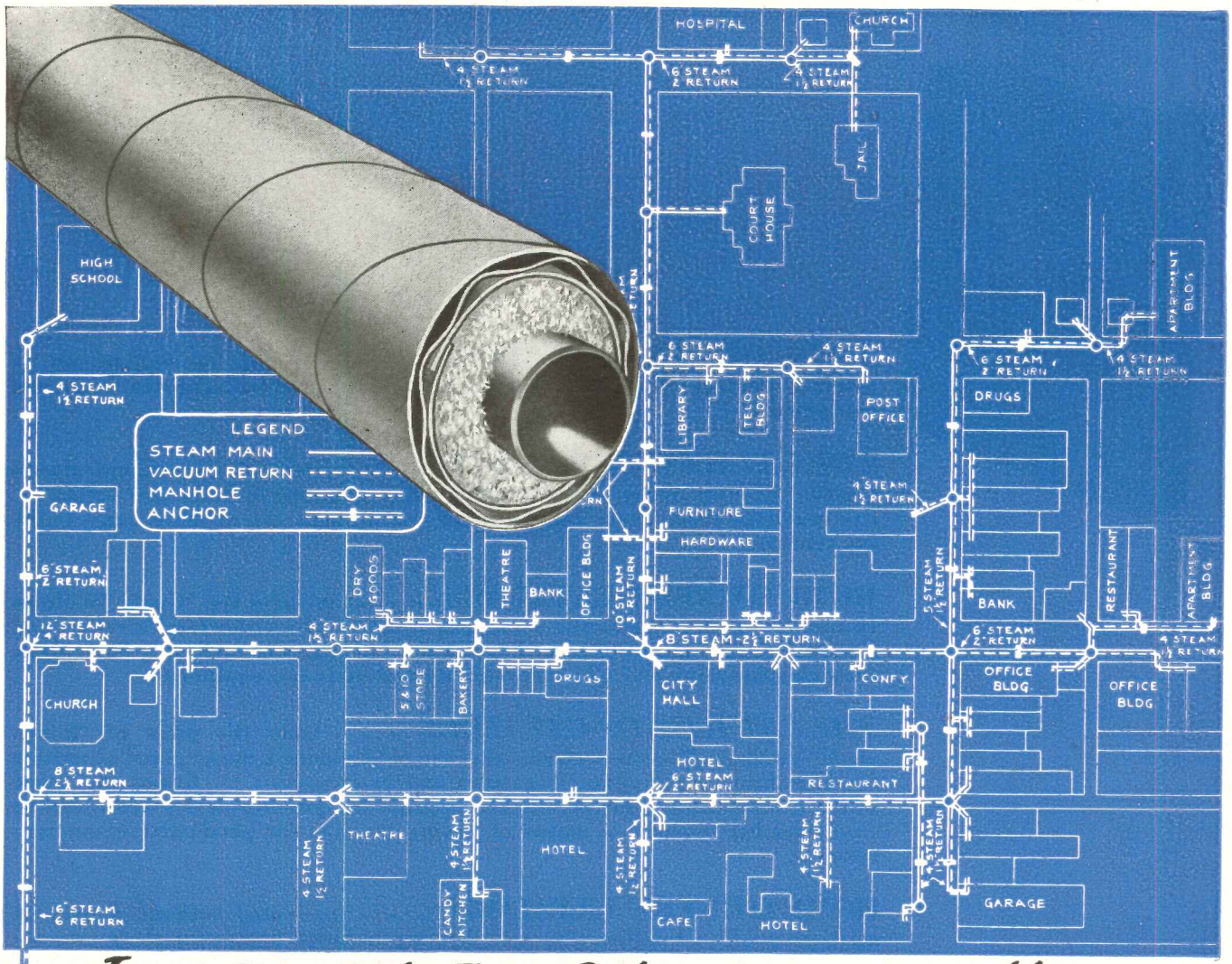
There's a Lupton Metal Window for every type building: school, hospital, office building, residence, apartment house, municipal building and industrial plant. Save time tomorrow by letting Lupton help you plan today. Write for our free catalog.

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 34, Pa.

LUPTON METAL WINDOWS



Ideal Plan For Post-War Community Heating

A CENTRAL HEATING PLANT + RIC-WIL CONDUIT

Outstanding among the advantages of community planning are the benefits gained from central heating—making it possible to purchase *heat* as a commodity like gas, electricity or city water. Ric-wiL Prefabricated Insulated Pipe Conduit provides the most easily installed, dependable, economical and efficient system of heat distribution—proven by more than a thousand miles of all types now in service.

ADVANTAGES OF CENTRAL HEATING WITH RIC-WIL PREFABRICATED CONDUIT

CONSTRUCTION ADVANTAGES:

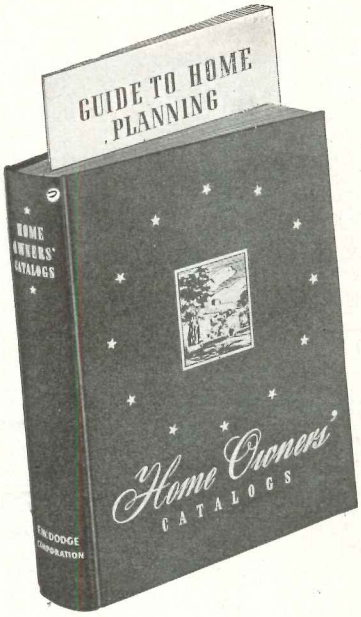
- Conduit furnished complete with prefabricated field accessories.
- Prefabrication minimizes field work.
- Conduit is accommodated in narrow, shallow trench.
- Minimum excavation and backfill.
- Little or no interference with other construction.
- 21-ft. lengths for speedy installation.
- All-weld construction provides durable, watertight system.
- System is efficient, dependable, maintenance-free.

SERVICE ADVANTAGES:

- Savings of 15% or better in overall fuel consumption.
- Elimination of furnace or boiler tending by consumer.
- Promotes cleanliness in buildings heated.
- Provides extra room in building basements.
- Decreases fire and explosion hazard.
- Reduces smoke and soot, provides cleaner, healthier community.
- Eliminates private coal delivery and ash removal.
- Gives uniform, clean heat quickly, whenever needed.

Write for detailed information on Ric-wiL Conduit for central heat distribution.

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



In 1944

HOME OWNERS' CATALOGS . . . that big, one-volume set of product catalogs of leading manufacturers of home building materials and equipment!

THE CATALOG OF CATALOGS . . . will deliver manufacturers post-war product stories *intact* to families now planning to build new homes . . . and maintain them *intact* and ready for use through one or more home building ventures.

HOME OWNERS' CATALOGS . . . includes the "Guide To Home Planning" which explains the value and economy of architectural services, and provides a ready means of recording family requirements, analyzing floor plans, arranging furniture and selecting building materials and equipment.

THE CATALOG OF CATALOGS . . . takes the place of "home-made" catalog collections—eliminating the old-fashioned, messy ritual of writing for literature and clipping magazines and newspapers . . . Brings the home owner a contrasting array of reliable, appropriate product stories which can be recommended reading—a means of paving the way for productive client conferences.

HOME OWNERS' CATALOGS . . . presented without charge, by mail, prepaid, to families who are planning to build homes for their own occupancy within 12 months or as soon as necessary materials and equipment are available. Those who receive this valuable book between now and V-Day will be among the first to start construction.

THE CATALOG OF CATALOGS . . . is on hand—ready and waiting, for the break that will start a new era of private home building. A decision to proceed with the building of homes during the pre-victory period—to the extent that manpower and materials are not required by the war effort—would find this book ready to perform its assigned duties to the owner, architect, contractor and manufacturers involved.

ARCHITECTS who have clients who expect to build after the war (or sooner) may have Home Owners' Catalogs sent now—to display the products that are available and to support the principle of advance planning.

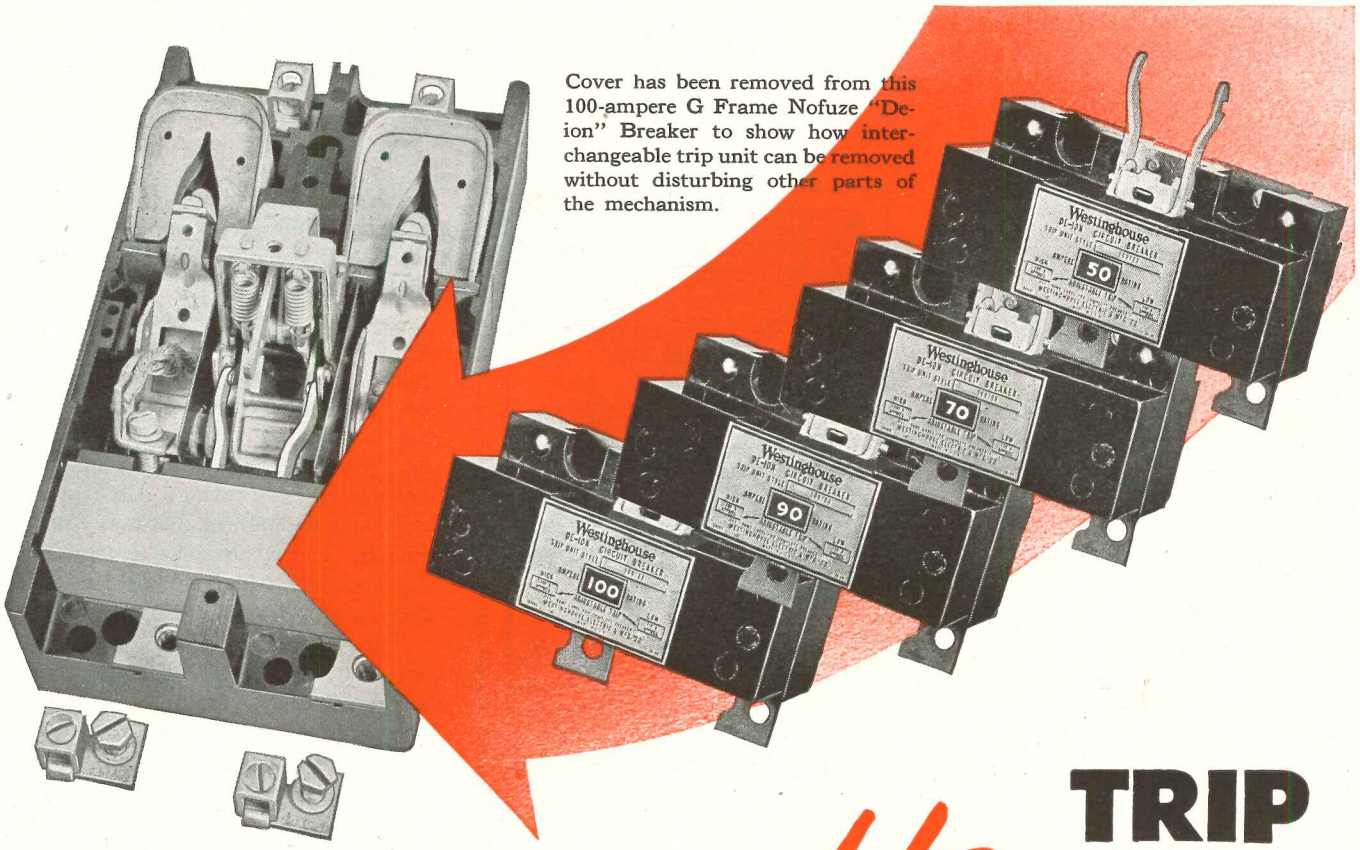
MANUFACTURERS of home building products should hasten to formulate their most comprehensive sales stories and entrust them to Home Owners Catalogs for delivery to post-war home builders.

Inquiries may be addressed to

HOME OWNERS' CATALOGS

F. W. DODGE CORPORATION

119 West 40th Street **New York 18, N. Y.**



Cover has been removed from this 100-ampere G Frame Nofuze "De-ion" Breaker to show how interchangeable trip unit can be removed without disturbing other parts of the mechanism.

Interchangeable TRIP UNITS

make NOFUZE BREAKERS adaptable for war or peace

Whether in khaki or "civvies", Nofuze Breakers provide circuit protection that can be accurately fitted to job conditions.

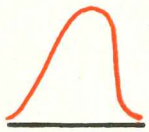
Today, when most Westinghouse Breakers are "mobilized" to protect war circuits, they are keeping current flowing *safely*, with minimum interruptions in war production.

When peace comes, with its equally great problems of conversion to civilian goods, Nofuze Breakers will permit economical and speedy change-overs. For example: In the larger frame sizes, trip units are removable and interchangeable. Thus if your conversion results in heavier or lighter loads, the present trip unit can be quickly replaced with one of the required trip rating. It's as easy as that.

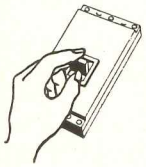
Ask your Westinghouse representatives for help on *your* war circuit problems. Or write direct to: Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pa., Dept. 7-N. J-60539

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.

Westinghouse

PLANTS IN 25 CITIES ... OFFICES EVERYWHERE

NOFUZE CIRCUIT PROTECTION

REQUIRED READING

By ELISABETH COIT, AIA

CREATIVE DEMOBILIZATION.

Principles of National Planning. By E. A. Gutkind. Case Studies in National Planning. Ed. by E. A. Gutkind. London, E. C. (68-74 Carter Lane), Kegan Paul, 1943. 331 pp., 280 pp. resp. 5½ by 8¾ in. illus. 21 s. each. (Creative Demobilization V. 1-2.)

To a large number of readers, including those architects and engineers who are concerned chiefly with physical design, the word planning in its many definite to vague to almost non-existent meanings has tended to become wearisome or worse. These two books, comprehensive and specific, will do much to remedy that feeling.

The "Principles," which has been called "the most comprehensive attempt to apply the notion of planning to the concrete problems of national life," is a general discussion looking to coordinated immediate and long-range new planning and replanning. In a book which is stiff but rewarding reading Dr. Gutkind treats in detail administrative and physical factors in such a way that the reader never loses sight of planning's objective: creation of an inspiring and diversified environment as a framework within which various satisfying activities can best be performed—work, recreation, social intercourse—activities which today call for nationwide as well as local and regional integration. The study has in view a large industrial country and, while the illustrations and examples are drawn from various modern countries, the emphasis is mostly British.

In his own book Dr. Gutkind makes no attempt to work out details; but the volume of "Case Studies," contributed by about 25 individual and group specialists, is composed of experiences in a wide variety—a mining center, a rural county, an urban center, etc.—for the most part drawn from England, Scotland and Wales, with one chapter of extracts from American publications on the Greenbelt towns and other planned communities.

LIGHTING HANDBOOK.

Bloomfield, New Jersey, Westinghouse Lamp Division, Westinghouse Electric & Manufacturing Company, 1943. 175 pp. 5 by 7½ in. illus. $1.00.

This is in every sense a handbook. It is small in size, clear and concise in its presentation, and arranged for easy reference. It makes available an immense amount of information in simple terms, and employs diagrams and tables most effectively in conveying the information.

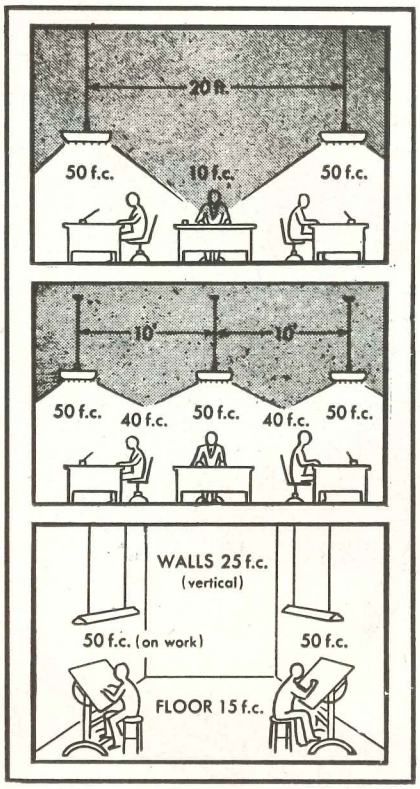


Diagram from "Lighting Handbook"

The book properly starts with considerations of the human eye in its relation to light and follows through with the nomenclature of lighting, the light sources, ways of design, necessary calculations, current methods of installation and, finally, cost. Ways of lighting different parts of many types of business are shown diagrammatically and quantitatively so that the handbook is invaluable to every architect and engineer.

FUNDAMENTALS OF ENGINEERING DRAWING.

By Warren J. Luzadder. New York (70 Fifth Ave.), Prentice-Hall, 1943. 568 pp. 6 by 9¼ in. illus. $4.00.

Students in large classes working under pressure cannot receive the individual attention they and their instructors would wish. Professor Luzadder aims, therefore, at answering all ordinary questions; and he complements a full, readable text with almost a thousand drawings and photographs. While written so simply, and going so thoroughly into detail—even to equipment and materials and how to use them, elementary engineering geometry, lettering, etc.—that it will give aid and comfort to the beginner, the book proceeds systematically with descriptive geometry from the practical draftsman's point of view, shop processes, machine elements, welding, commercial practice, patent drawings, A.S.A. standards, and symbols, so that it is equally valuable to the advanced practitioner. All necessary tables are included and there is a full classified bibliography.

This is a book typical of the best newer type technical books, with observations, hints, examples, problems and illustrations well calculated to enable the student quickly to acquire the knowledge which not long since he had to gain slowly by text book study supplemented by lengthy shop or drafting-room experience.

MODERN TIMBER DESIGN.

By Howard J. Hansen. New York (440 Fourth Ave.), Wiley, 1943. 232 pp. 5½ by 8½ in. illus. $3.00.

Designed as a text for seniors at Texas Agricultural and Mechanical College and a reference work for practicing engineers, Professor Hansen's book includes the latest data from the U. S. Department of Agriculture's Forest Products Laboratory at Madison, Wis., and from manufacturers' associations, to make a thoroughly up-to-date work on materials and methods of construction according to today's best approved standards. There are special chapters on plywood and on decay and preservation.

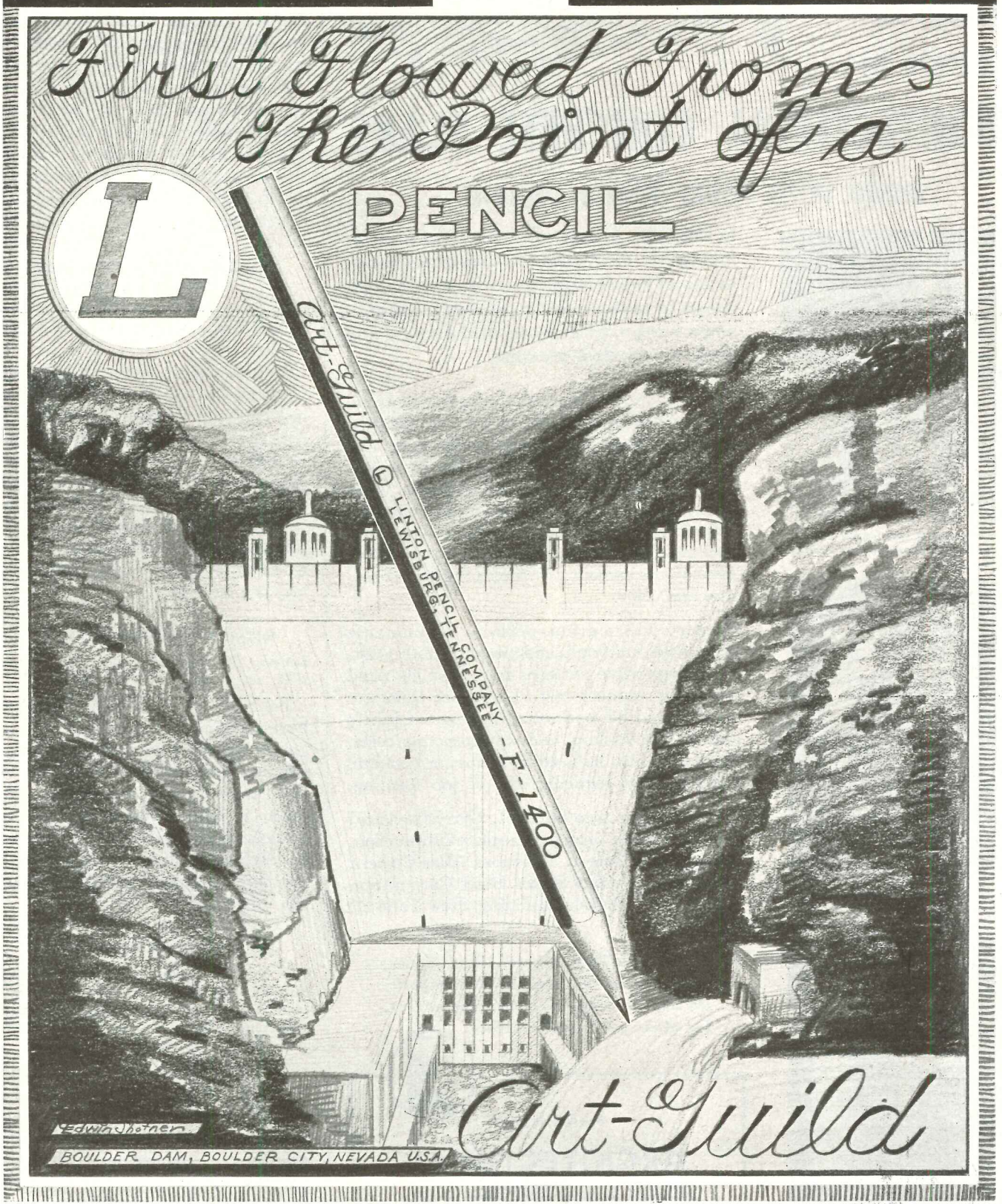
A HISTORY OF PREFABRICATION.

New York (40 West 40th St.), John B. Pierce Foundation, 1943. 80 pp. 9 by 12 in. illus. $0.75.

One of a series of publications of the Foundation covering research in materials, equipment, design and construction methods in housing, this is a preliminary edition of a study which, it is expected, the Foundation will publish later in book form, and consists mainly of six papers published in the *Architectural Forum*, Dec. 1942—May 1943. For a "history" it is factual, concise, graphic and superlatively clear.

(Continued on page 28)

WATER POWER



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REQUIRED READING

(Continued from page 26)

Typical ideas are described and illustrated by photographs and drawings of models or of examples built; principles and materials are well described; there is a directory of about two dozen wartime prefabricators; and the selected classified list of references preserves and arranges what for the architect is worth while in the abundant and confusing literature of prefabrication.

STANDARDS FOR NEIGHBORHOOD RECREATION AREAS.

New York (315 Fourth Ave.), Natl. Recreation Assoc., 1943. 16 pp. 5½ by 8½ in. $0.15.

This pamphlet, which usefully supplements the Association's "Play Spaces in New Neighborhoods" (1939, $0.25), does more than its title indicates, for, in addition to recommended minimum and desirable standards for outdoor and indoor play and rest spaces, it includes many helps toward securing results, indicates agencies concerned with recreation and shows how cooperation may best be secured.

MICHIGAN PLANNING MANUAL.

Lansing, Michigan Planning Commission, 1943. vii + 56 pp. 8½ by 11 in.

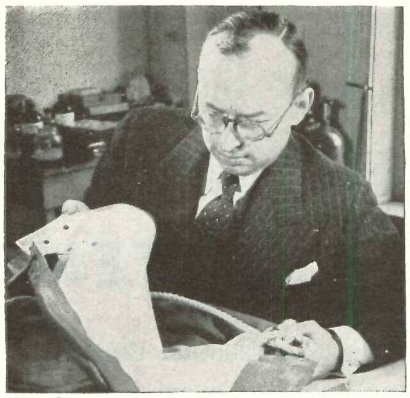
Prepared for the use of Michigan local planning officials and of citizen groups interested in community planning, the Manual will be useful also to those preparing and carrying out programs in other states having similar administrative machinery. Curiously, the detailed classification list of public improvement projects includes no housing, urban or rural.

THE EDUCATION OF PLANNERS.

The Graduate School of Design and the Education of Planners. By John Merriman Gaus. Cambridge, Mass., Harvard University Graduate School of Design, 1943. 50 pp. 5½ by 8½ in.

"In the preparation of architects and landscape architects for the work to be done in the years ahead the contributions of city planning have become essential . . . training in physical design has become more important—and at the same time more difficult. . . . I believe that there will be a continued need for and recruitment of personnel for physical design work. . . . We can usefully convey to students working

(Continued on page 126)



Richard M. Bennett examines Army water bag of Saflex-coated fabric. Pennsylvania-born, Ohio-nurtured, and Harvard-trained, he has been combining private practice with teaching at Yale and Vassar, has lately been interested in design of mass-distributed, mass-produced articles from furniture to bath fixtures and fittings.

FROM A SAFLEX ARMY WATER BAG . . . A COMPACT, ALL-PURPOSE BATH UNIT

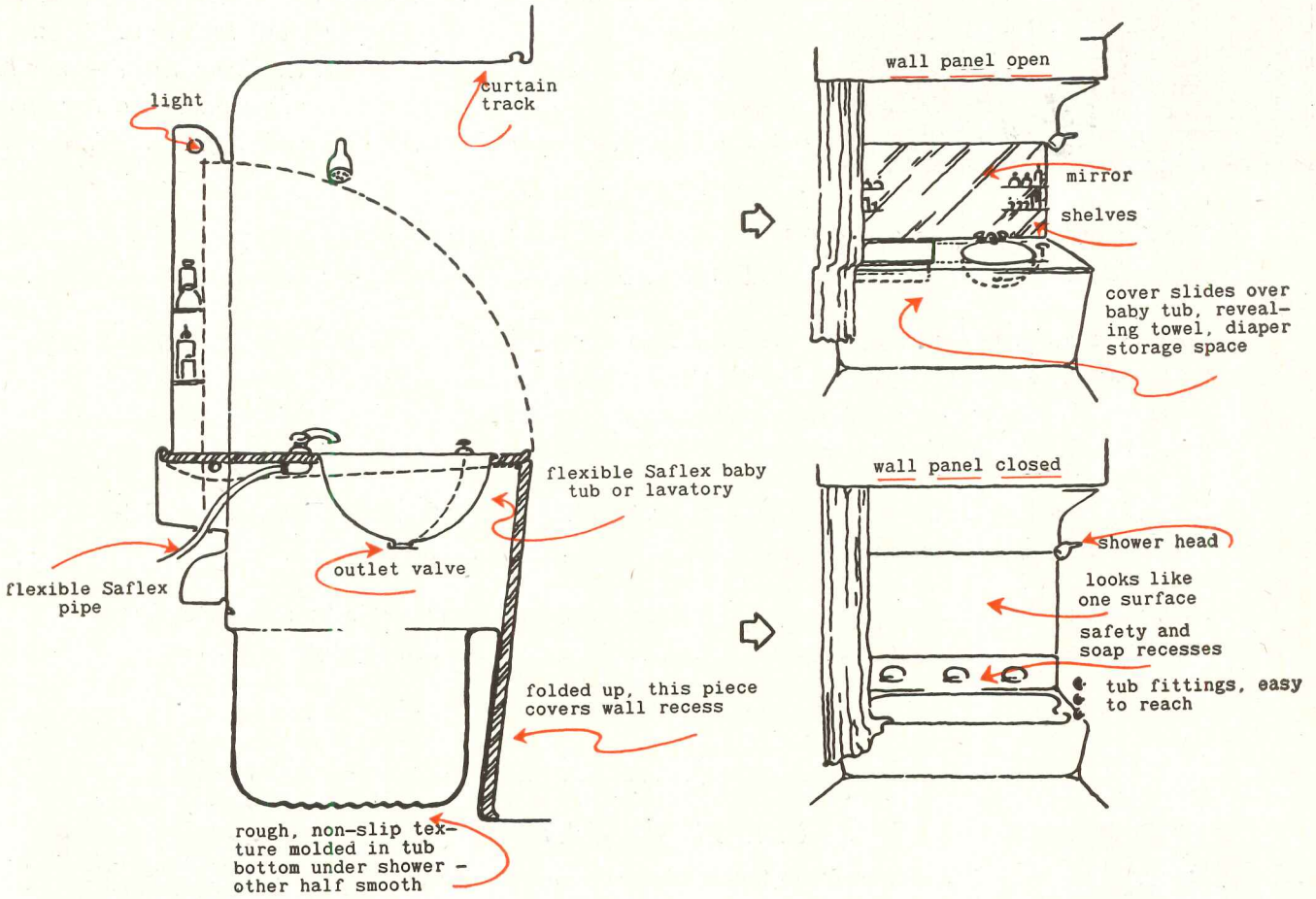
In working out his ideas for this work-and-space-saving bath unit, Architect Richard M. Bennett has taken ingenious advantage of several new war-born plastics materials and fabricating techniques.

His flexible baby bath (or washbasin) and its piping make use of Monsanto's Saflex*, the pre-war safety glass binder which was transformed almost overnight into the most rubber-like of modern plastics to fill the need for Army water bags and scores of similar items formerly made with rubber.

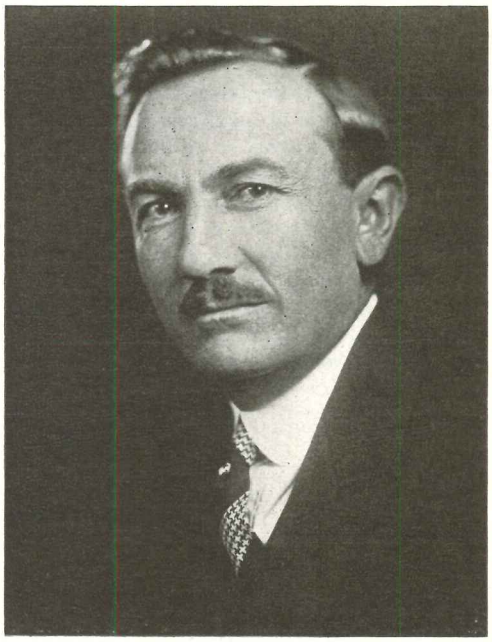
His vari-textured bath tub would be molded from amazingly strong but light-weight Resinox*-impregnated pulp—a development just barely out of the laboratory stage even now.

His wall sections and most of the folding lavatory unit would be equally light, strong Resinox-bonded plywood of the types so successfully used in today's aircraft.

Finally, the surfaces of his bath tub, walls and lavatory unit would incorporate Monsanto's newly developed melamine resins so that they could be any attractive, opaque color and would be hard, durable, resistant to alkalis and boiling water yet warmly pleasant to touch.



A Builder Comments



on the simplicity and efficiency of

OIL BURNING SYSTEMS

Anthony Campagna, of the Campagna Construction Corporation, is well known as a builder and has planned many of New York's outstanding apartment buildings. He expresses these ideas on oil burning systems:

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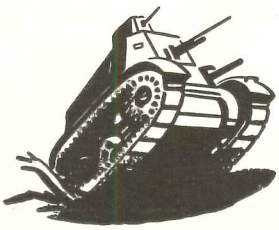

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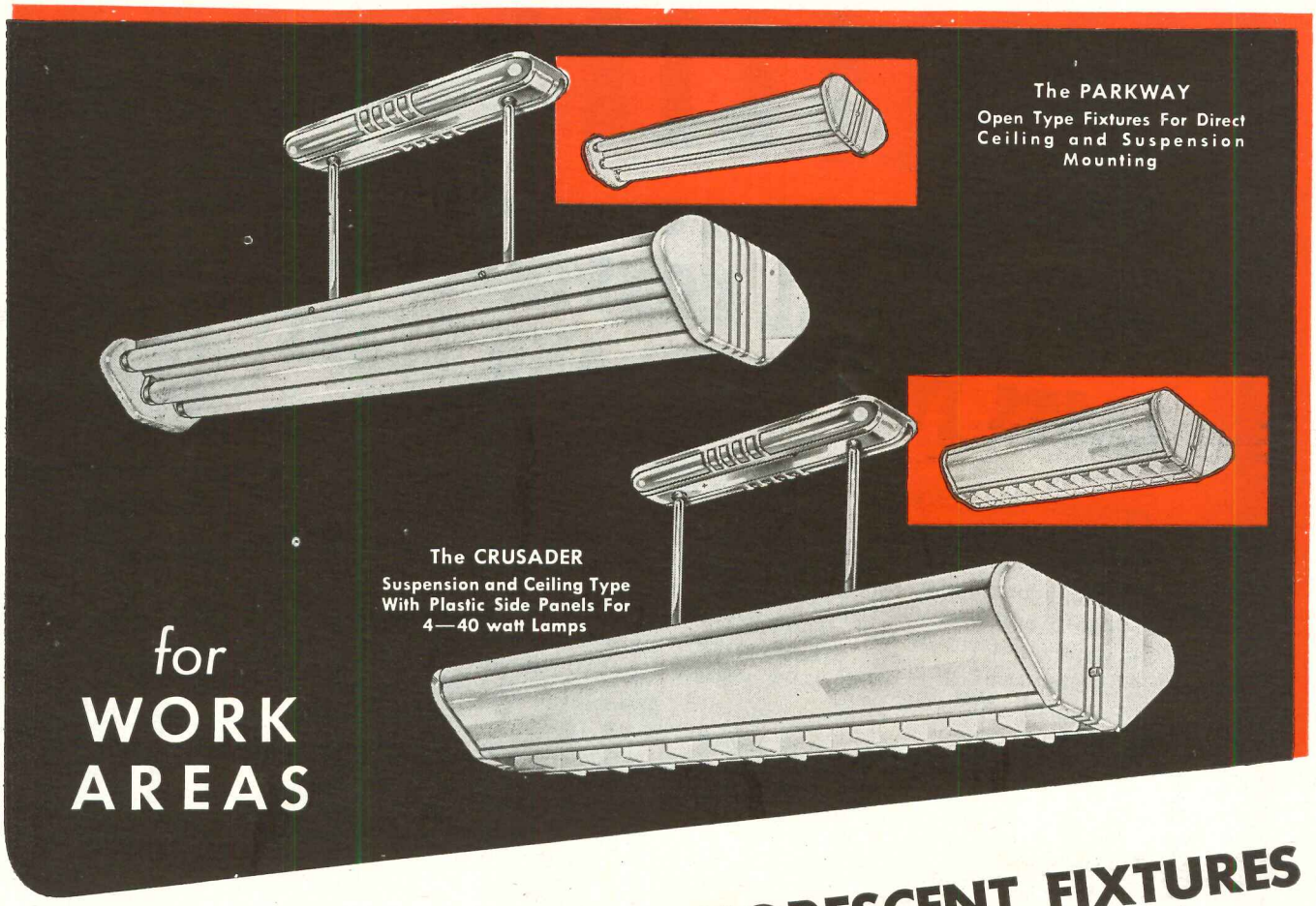

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2. Removing billet from chill
3. Skelping the billet
4. Billet being removed from furnace to piercer

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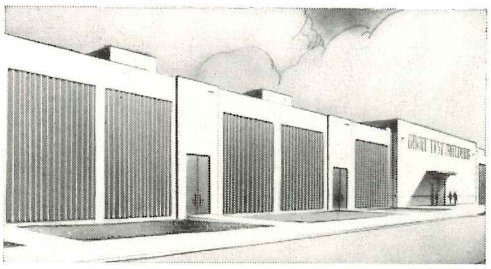

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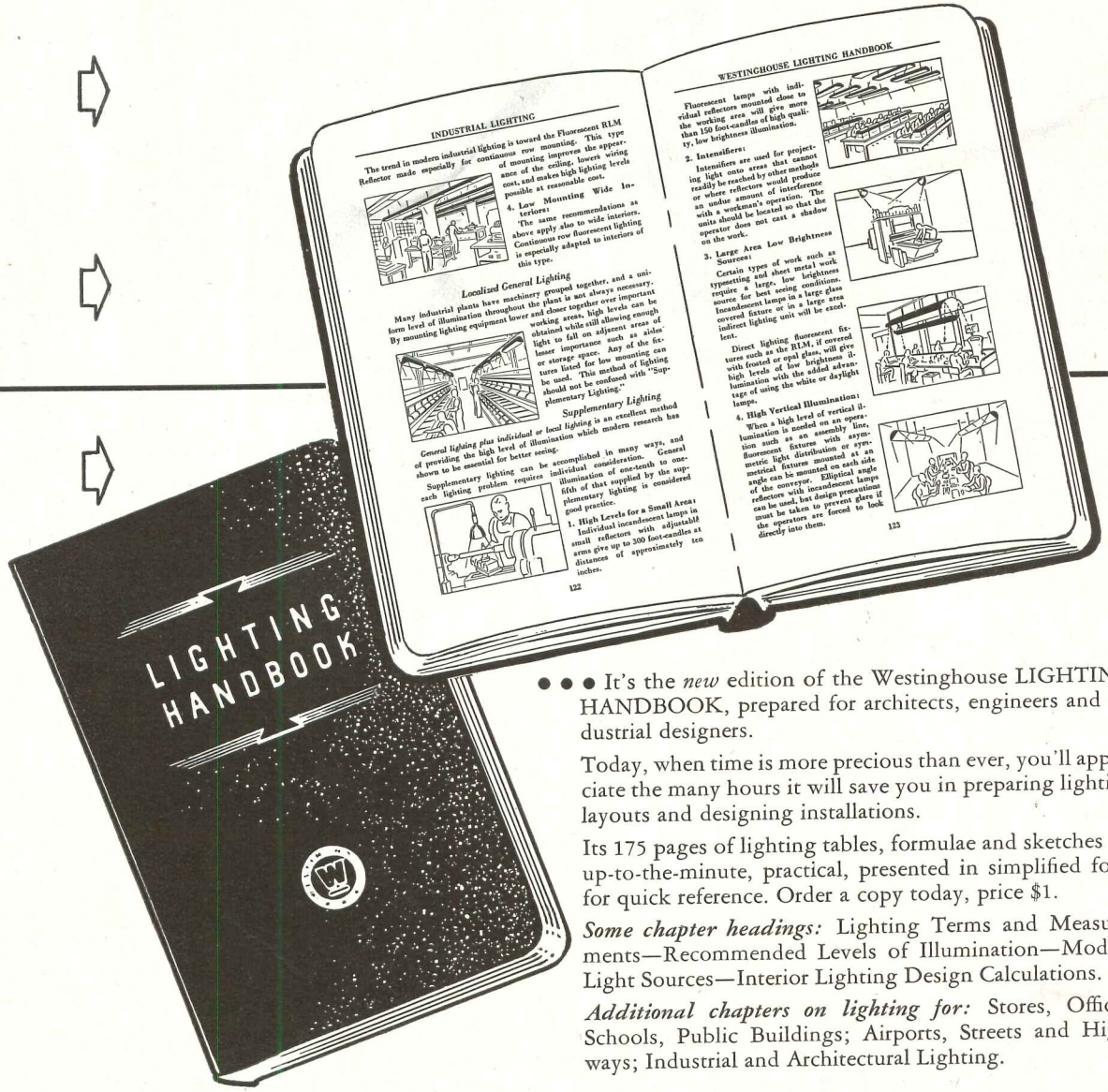

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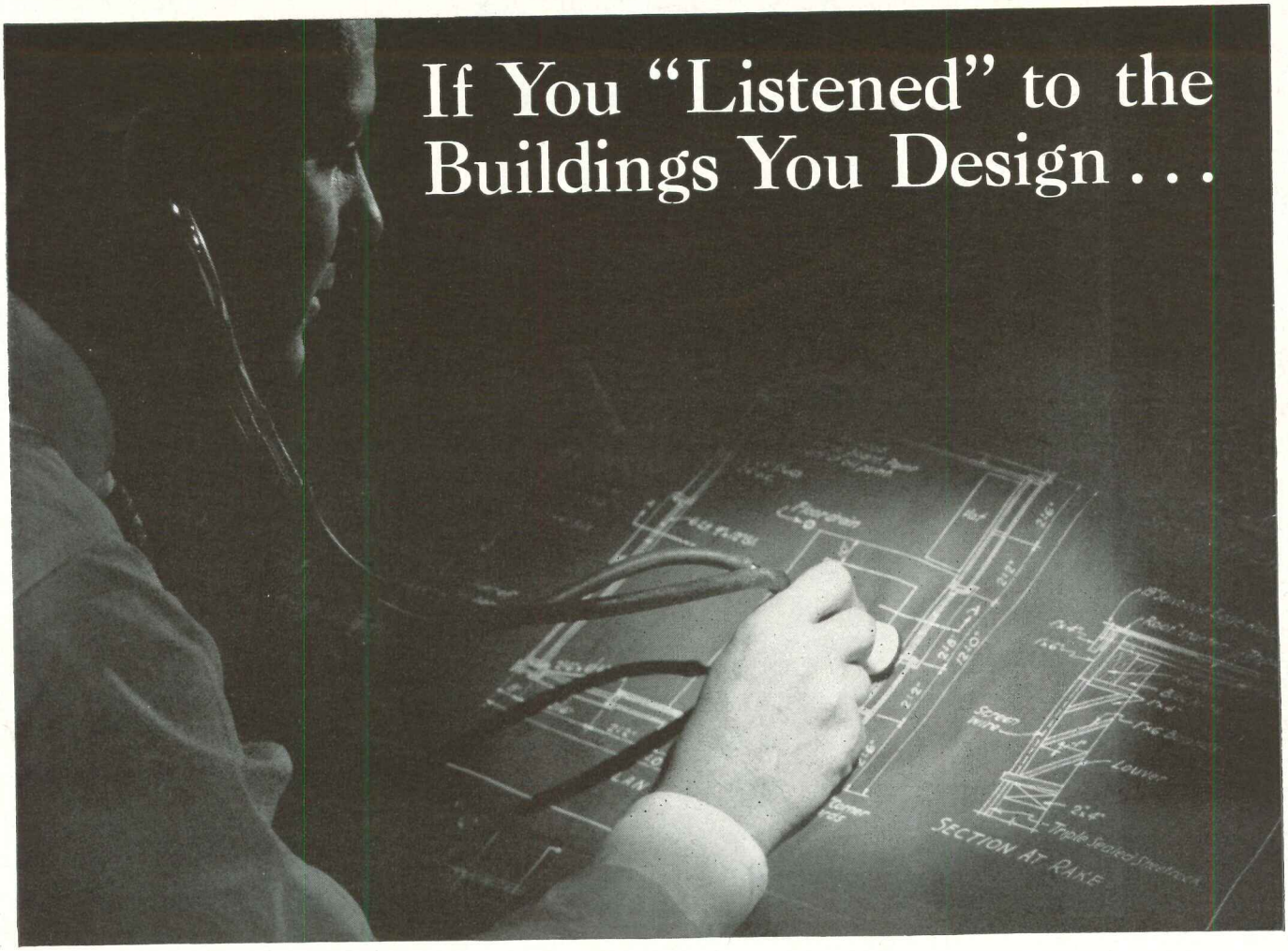

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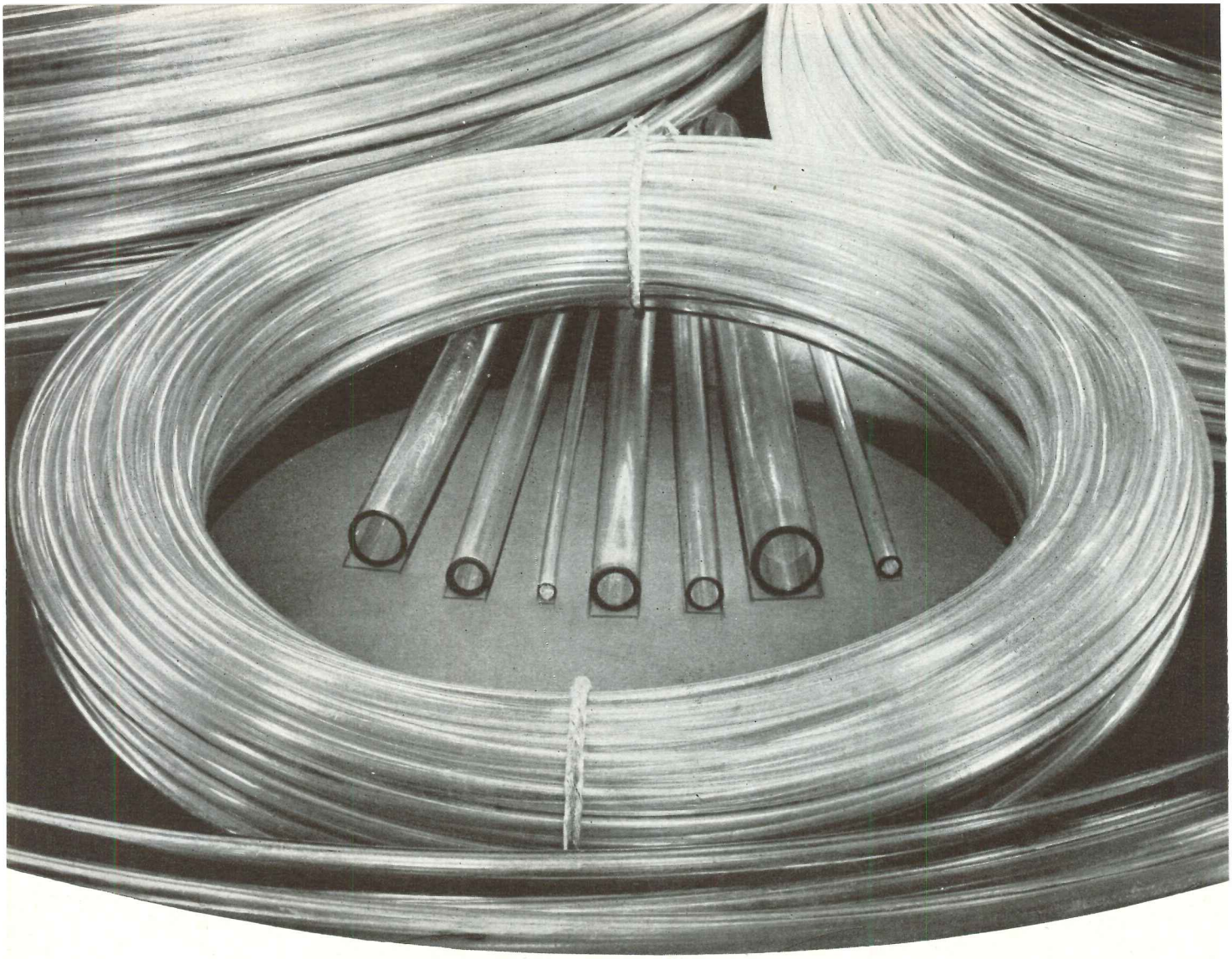

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An Eastman Plastic

THERE'S NO PLACE LIKE HOME!

NOW THAT world leaders have met and decided on the defeat of the Axis, and how it will be brought about, all that remains is to win the war—and the peace. Then we will be in the postwar period that everyone is talking about planning for. Gradually then the fighting forces will be coming home. And they want to come, and as quickly as they can. They are thinking of home, dreaming of home, and all that it means, remembering all they have been deprived of, visualizing all they hope for in that home-of-their-own.

✦ Just what will home be like, what sort of house are they setting their hearts on? Travel, sights of many lands, may broaden their point of view. Exposure to other ways of living, to other types of houses may alter their ideas of the house they want to live in. It may liberalize their minds to accept new ways of living, new "machines for living," modern or ultra modern designs. Or the reaction may be nostalgic, sentimental, escapist and the desire for the "little gray home in the west," cute and cosy, charming and "colonial." They'll want it comfortable and convenient, at any rate, after their hardships. And they will want what they want, and what the girls they left behind them want.

✦ New homes will be wanted too by those who have worked in war plants, lived in shacks, boarding houses, trailers, and barracks. What will their wants be? And who will provide them? Who will design them and build them? What part will architects play—prefabricators, developers, and operative-builders?

✦ Surveys have been conducted and their findings distributed. The results seem to indicate certain conservative desires, in spite of "miracle house" publicity. They seem to indicate a sentimental rather than an intellectual approach, on the part of prospective home builders, aside from the insistence on creature comforts.

✦ The evidence of this is further seen in the activities of most of the prefabricators who are preparing to merchandise new homes to meet the public demand. Their designs, for the most part, are hardly revolutionary. The fact is, they stem largely from Colonial-with-variations, and the home buyer can select such "architecture" as pilasters, quoins, shutters, and "Dutch hoods" from the catalog at so much above the base price.

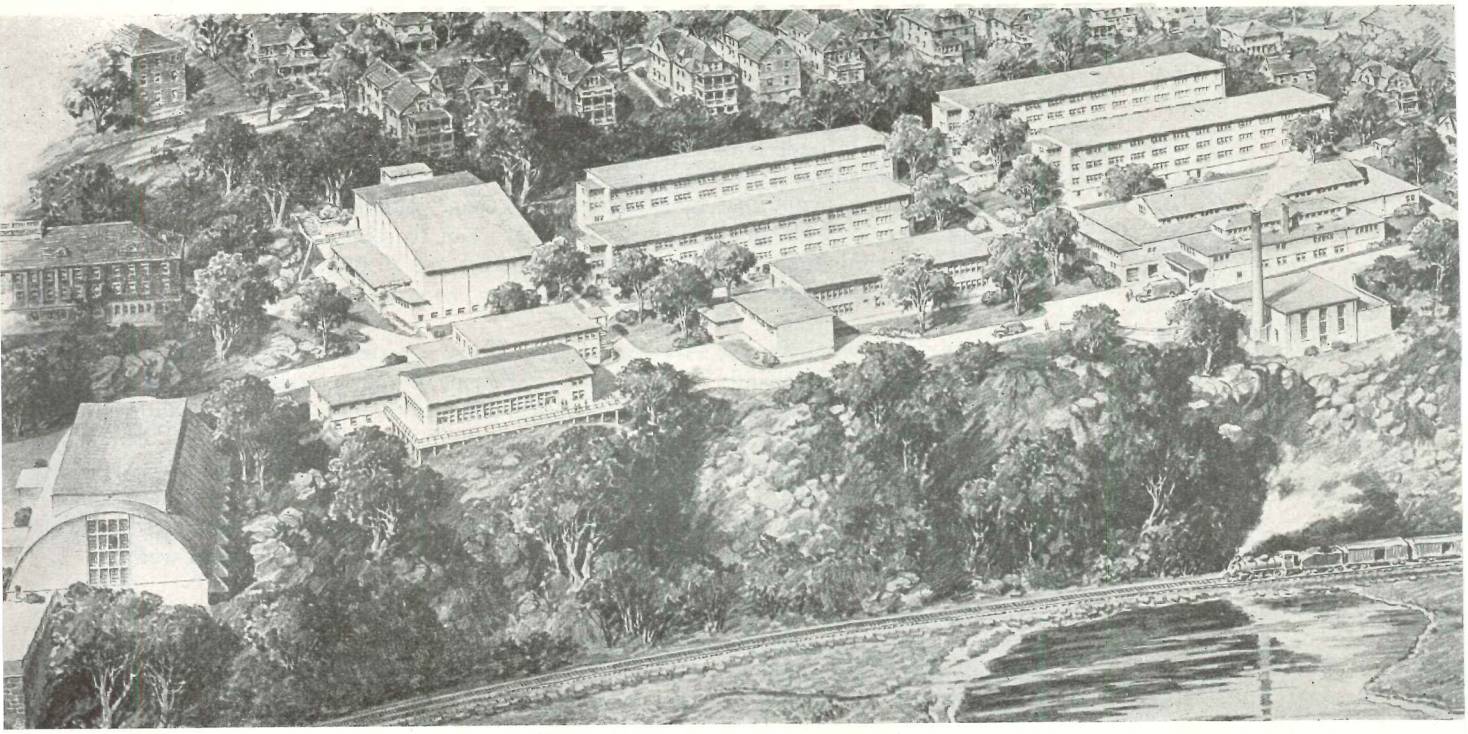
✦ And the operative builders, with sales uppermost in their minds, are working with the designs that sold best before the war, with new gadgets and talking points, of course. Rarely, in either of these groups, does one find the men who are going out to meet the market, the purveyors of habitation, ready to go all-out with radical departures from already accepted designs. These hard-headed, practical men are placing their bets on the emotional rather than the rational appeal—on what home buyers and home builders *like* rather than what they logically need, on the fancied rather than the wholly functional. They are following the lead of automobile merchandisers in this, with their chromium and their plastic ornament, their emphasis on eye appeal, on style desires rather than form derived from engineering function. They are following all other successful merchandisers in producing evolution in design.

✦ But why bring this up? Is it barely possible that architectural design is too far ahead of public acceptance? Is it possible that those who cater to the benighted public's whims may be most successful in providing the public with homes? Is the necessity for making architecture desirable and desired—as well as rational and advanced—fully realized? Is the public being educated or persuaded fast enough to accept the products of advanced architectural thinking? How fast can the tempo of evolution be accelerated? The postwar competitive market will provide the answers and the opportunity to prove the value of modern home design. There is no place like home in which to find out how effectively and how quickly new ideas can be sold and absorbed.

ARCHITECTURAL
RECORD
DECEMBER 1943

Kenneth K. Stowell

EDITOR-IN-CHIEF

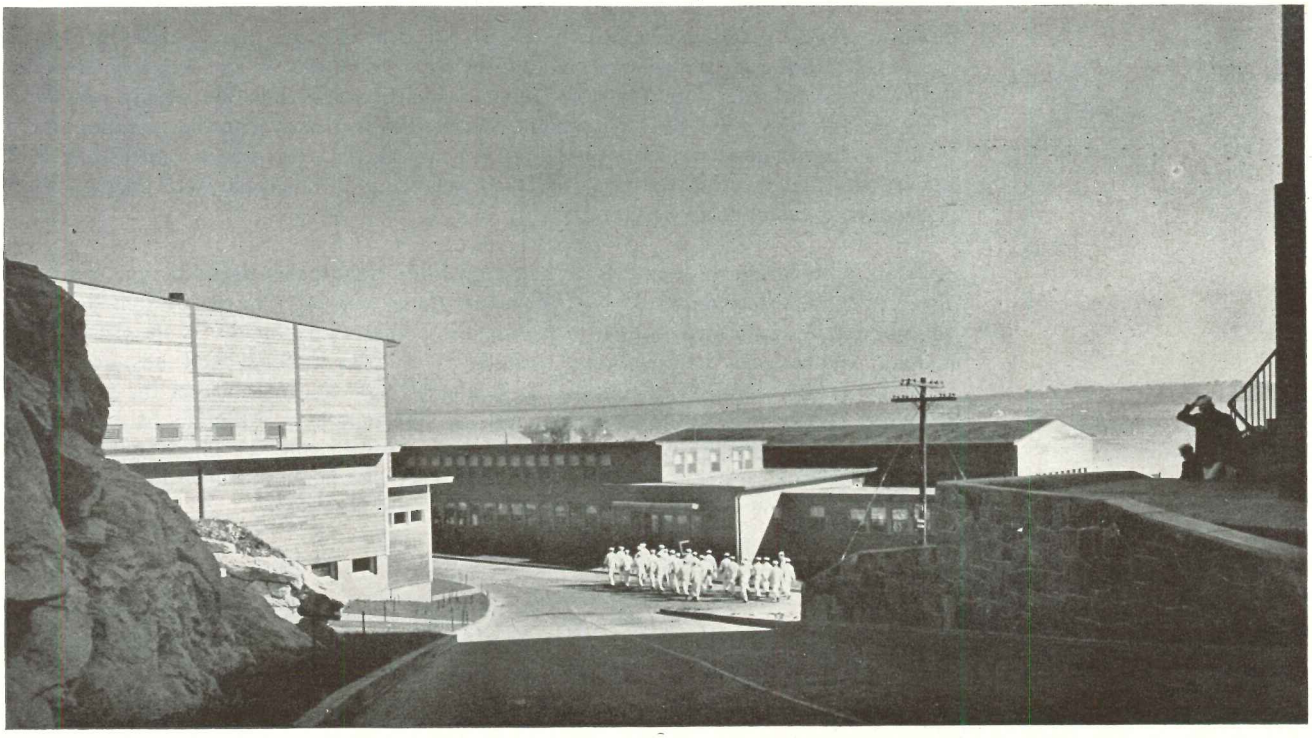


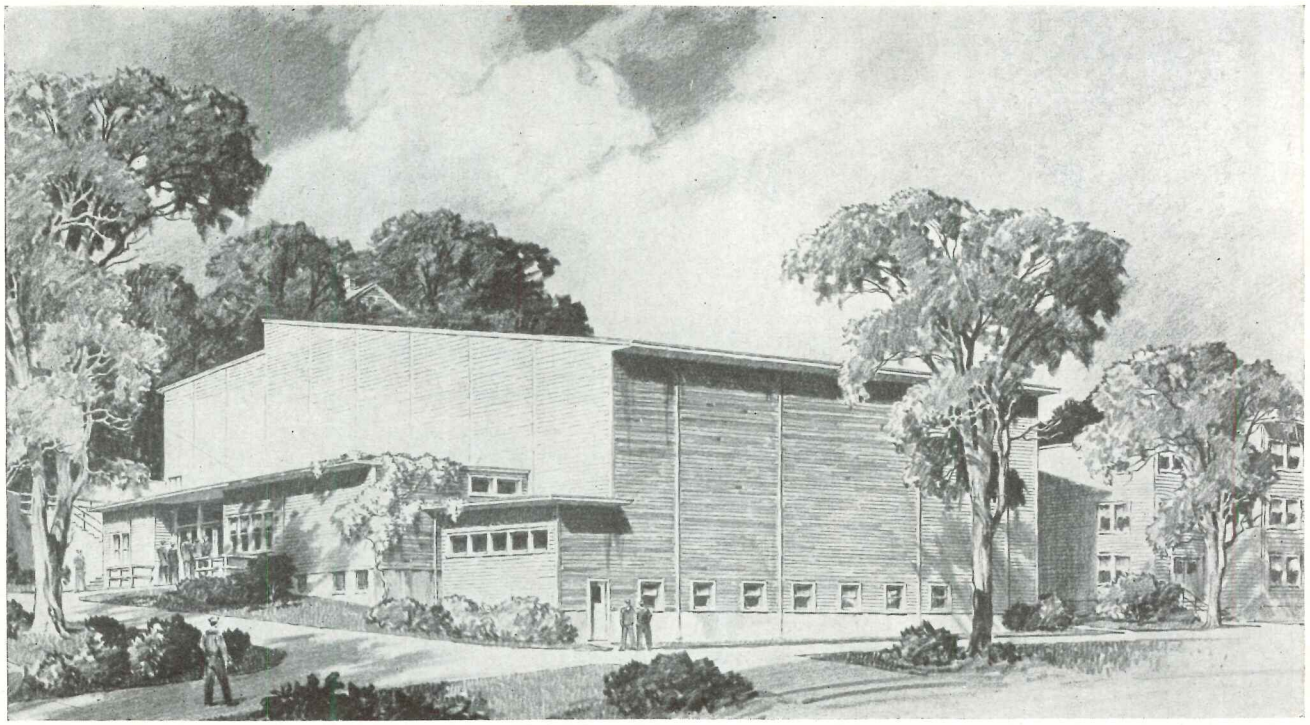
All renderings by Schell Lewis

RESERVE CADET SCHOOL
UNITED STATES COAST GUARD ACADEMY

ARTHUR DEIMEL ARCHITECT

Gottscho-Schleisner photos

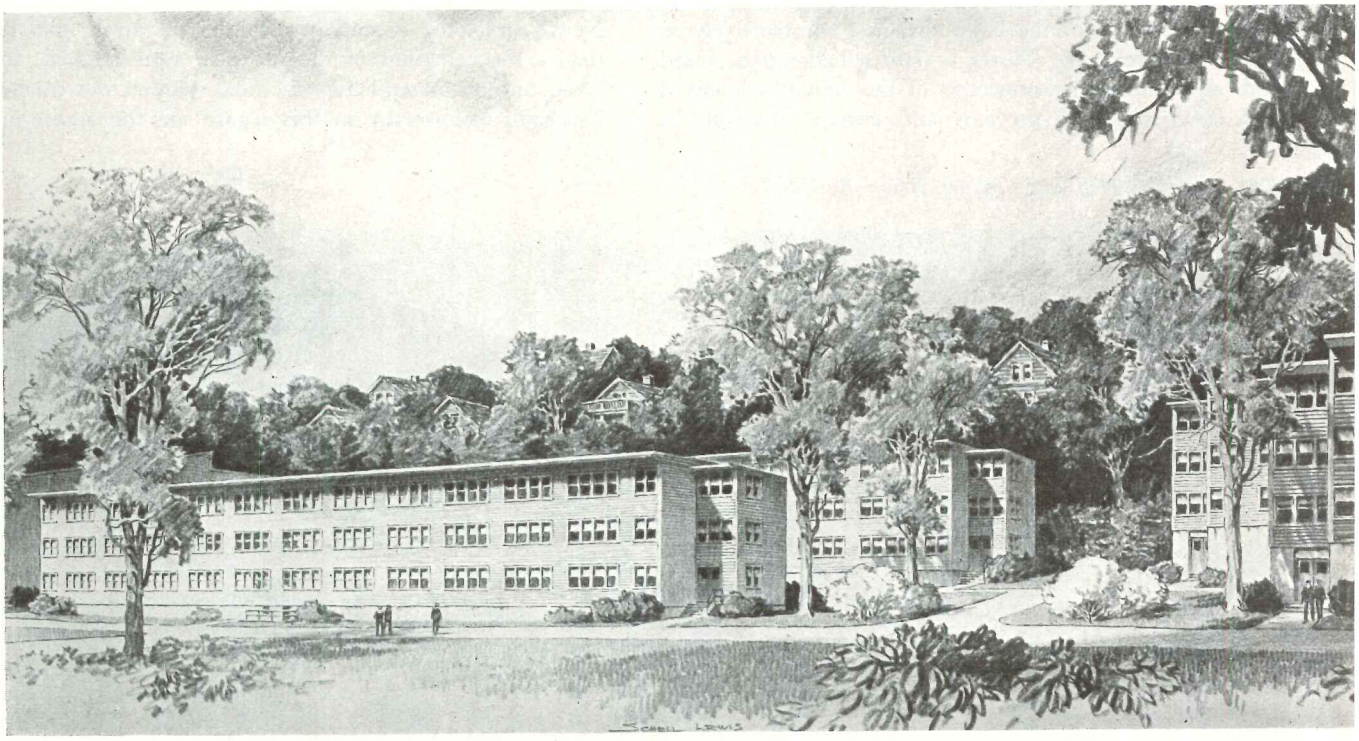


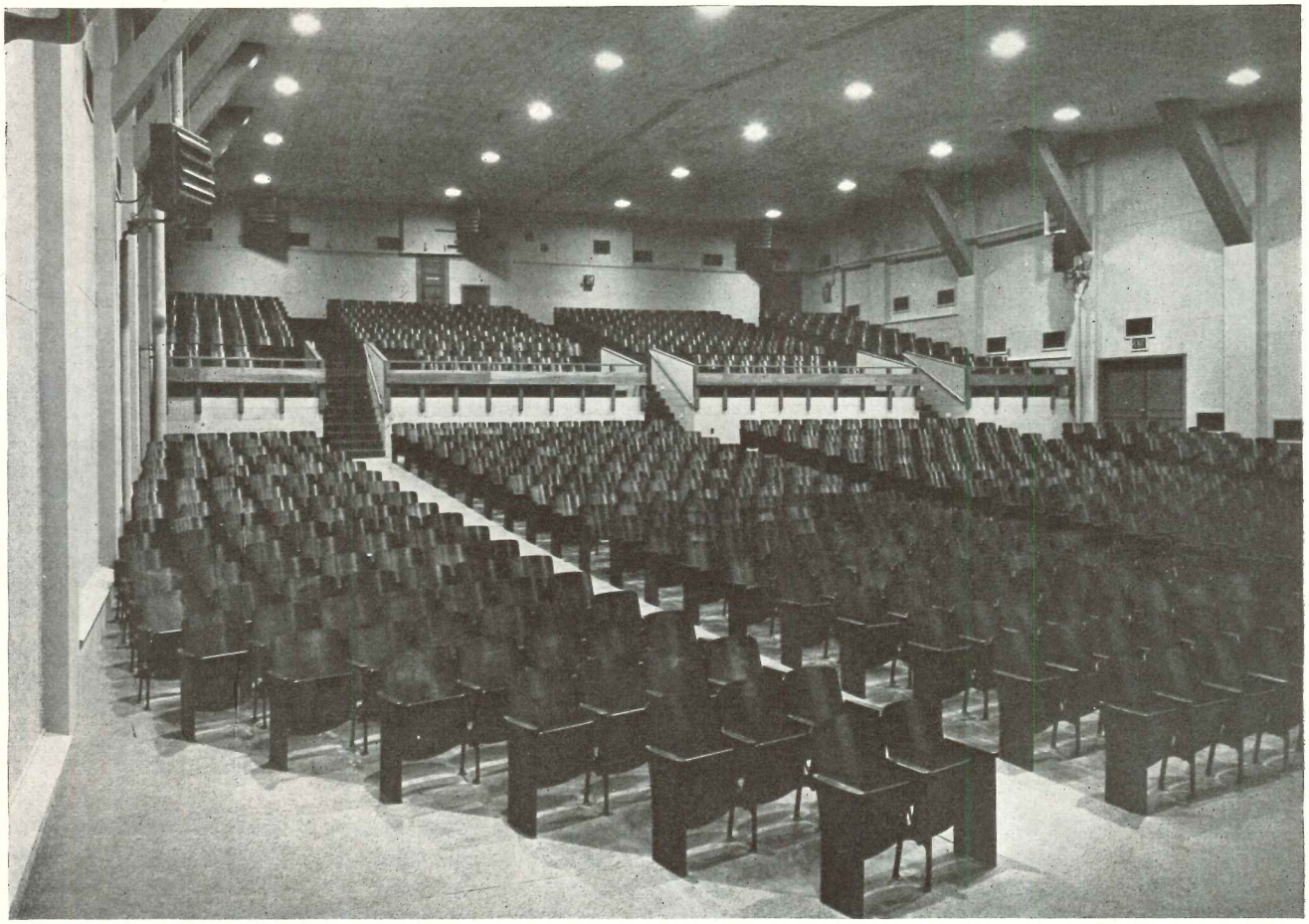


Assembly Hall and Lecture Room Building

"TIME is the essence of the contract!" The contract to win the war has meant speed in building up the personnel of the armed services, and to the Coast Guard it meant training new officers in record time. At the United States Coast Guard Academy this involved the building of the Reserve Cadet School to house a thousand trainees at one time. The men are given an intensive course of study and training, and the buildings provide for all the student activities—classroom work, lectures, demonstrations, individual study, drill, physical activity, recreation, dining, and eight hours' sleep. The group of buildings, therefore, is made up of dormitories, lecture and recitation buildings, mess hall, auditorium or assembly building, administration and service building, drill hall, and a heating and incinerator plant. The buildings are all temporary, and are constructed with a minimum of critical

The Dormitories





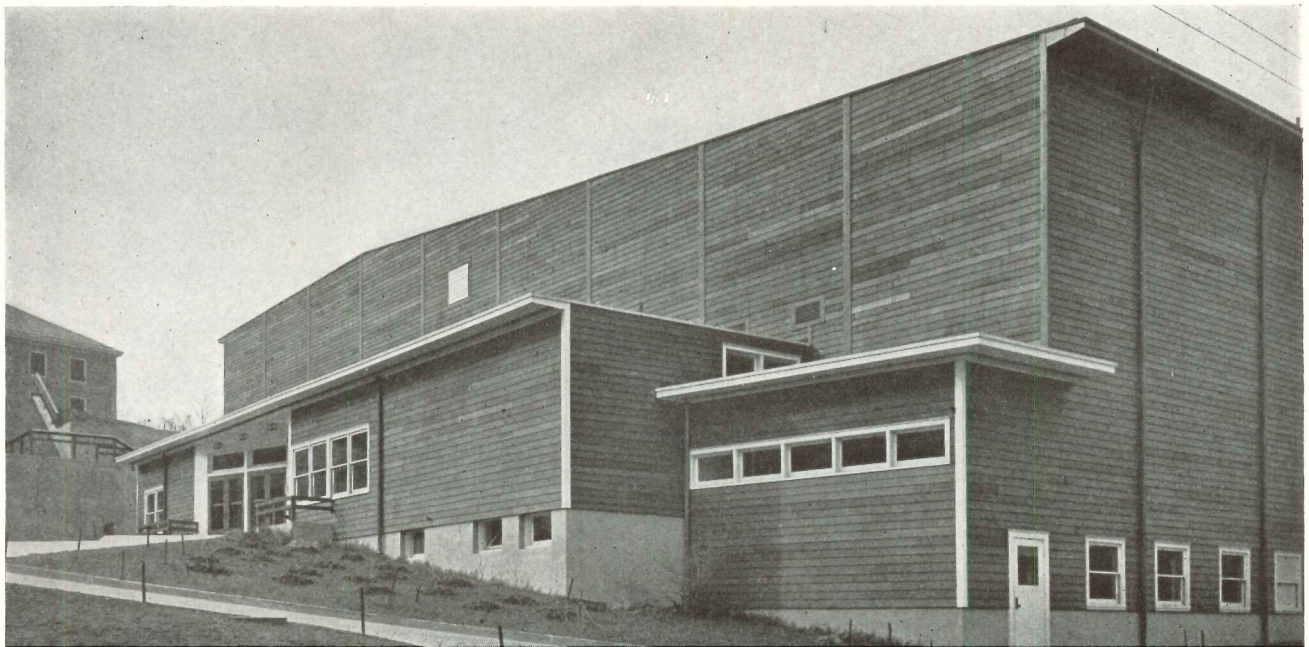
The Assembly Hall

materials as well as with a maximum of speed.

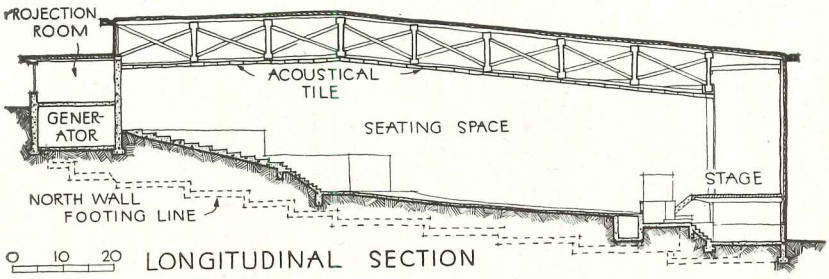
The architect was fortunate in having an established school to serve as a basis for the new construction. The Academy staff was able not only to define thoroughly the requirements of the program but also to contribute to the design and detail of the buildings most constructively as the plans developed. Through their collaboration, based both on a thorough knowledge of the activities involved and on a study of previous and current solutions to similar problems, an unusually efficient group of buildings was achieved.

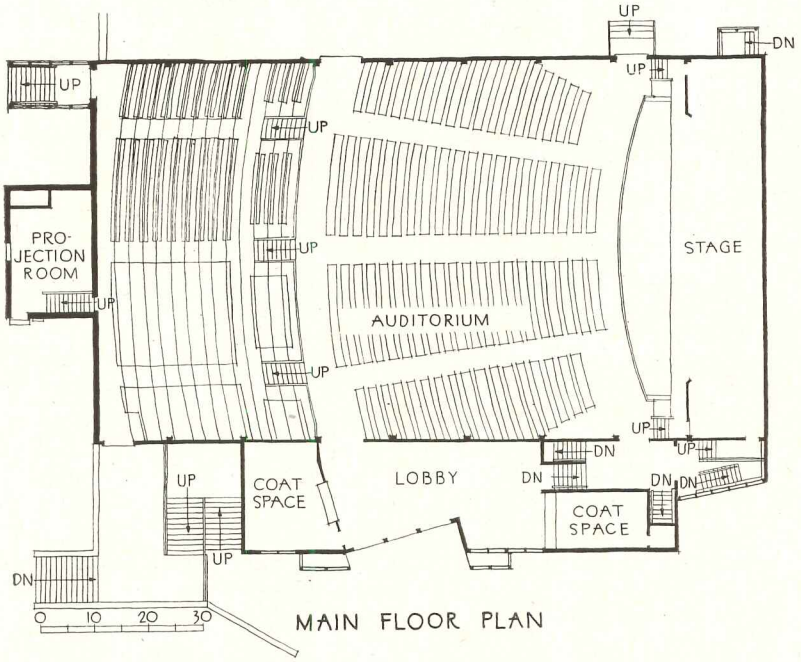
Time was saved by the functional grouping of buildings to take advantage of the contours of the site. The land is adjacent to the permanent Coast Guard Academy at New London on a bluff overlooking the river. No less than eight variations of the site plan were studied, analyzed, and compared before the final solution was reached. Especially noteworthy in this regard are the auditorium

The Assembly Hall and Lecture Room Building

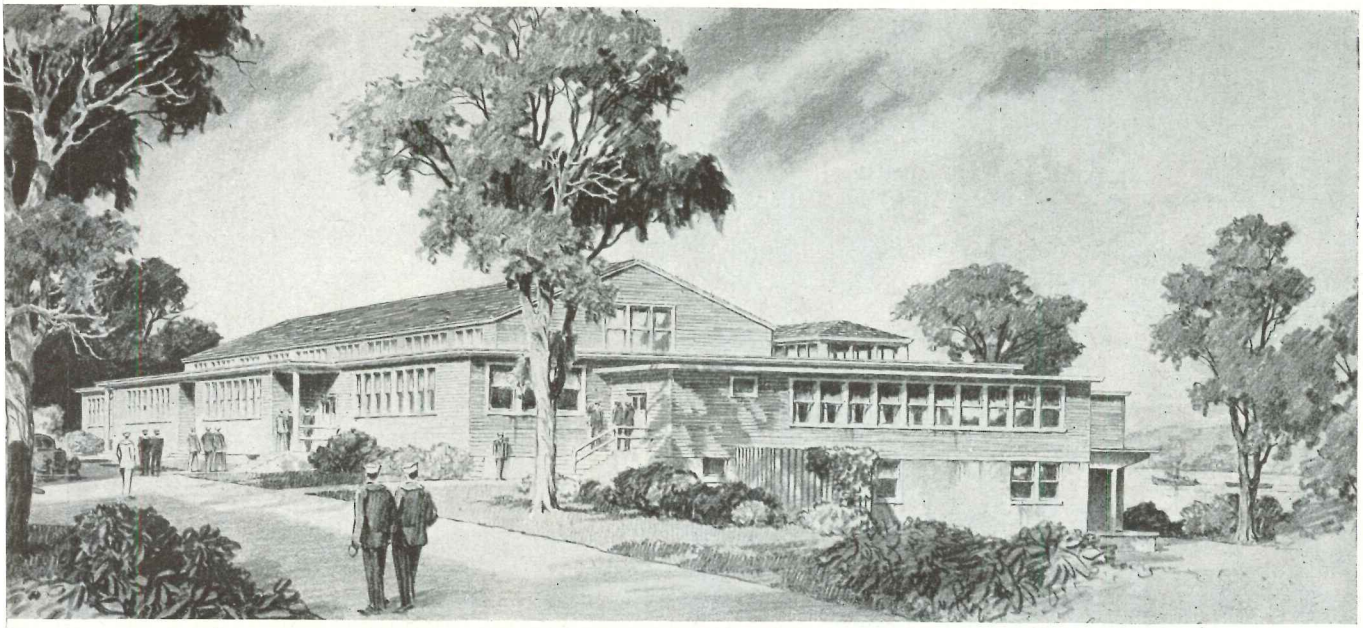


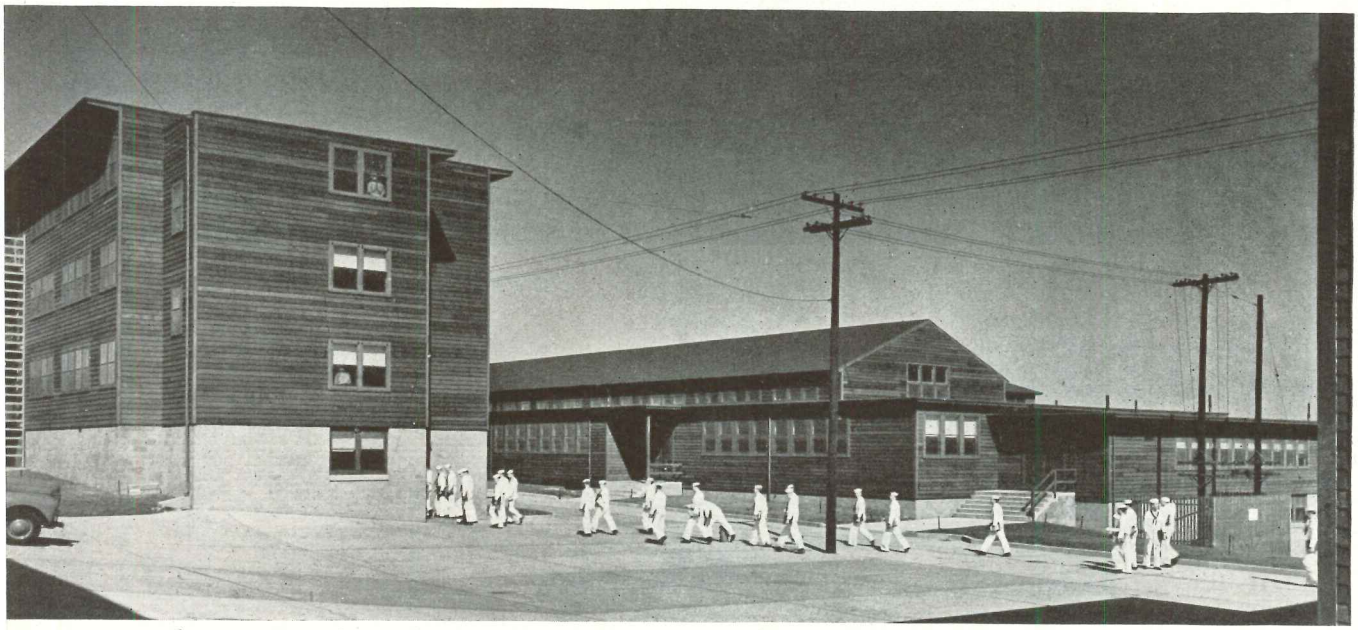
Looking toward the stage of the Assembly Hall





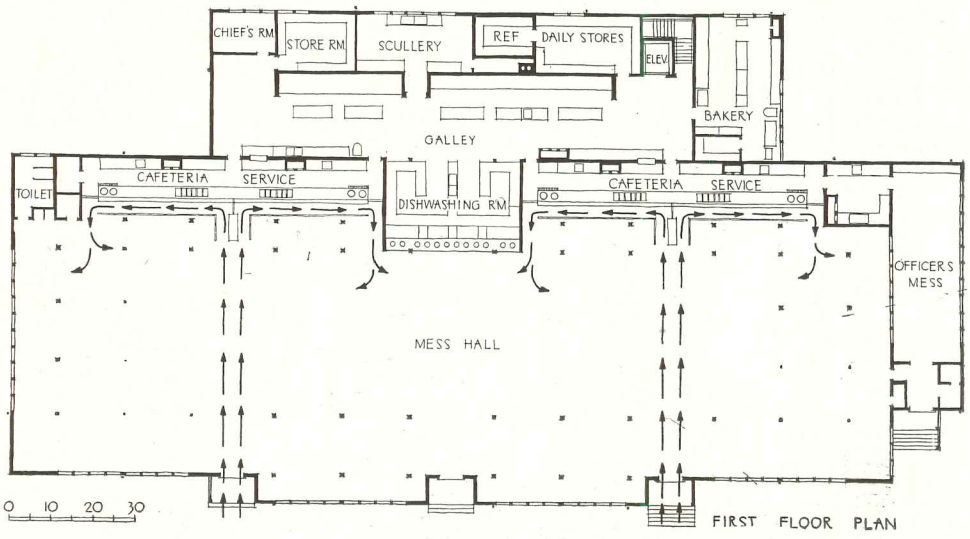
Diagrammatic section and plan of the Assembly Hall showing the simplicity of structural form and the way in which the natural slope of the site was adapted to obtain most effective sight lines. Unit heaters were used to conserve critical materials





The Mess Hall, in rendering and in actuality

Comfort, convenience, straight-line production (and consumption), minimum of confusion, economy of effort, result from thoughtful planning. Arrows on the plan indicate the paths of the four lines of trainees which are served simultaneously



and the relationship of the administration-and-service building to the drill hall. Another feature of the plan is the efficiency of traffic distribution permitting trucks to serve the various buildings at basement levels, again taking advantage of the sloping site. The service road runs along the cliff side of the group at the rear of the mess hall, lecture building, and administration-and-service building. It is at the upper level of the heating and incinerator plant so that coal is delivered at the top of the bunkers.

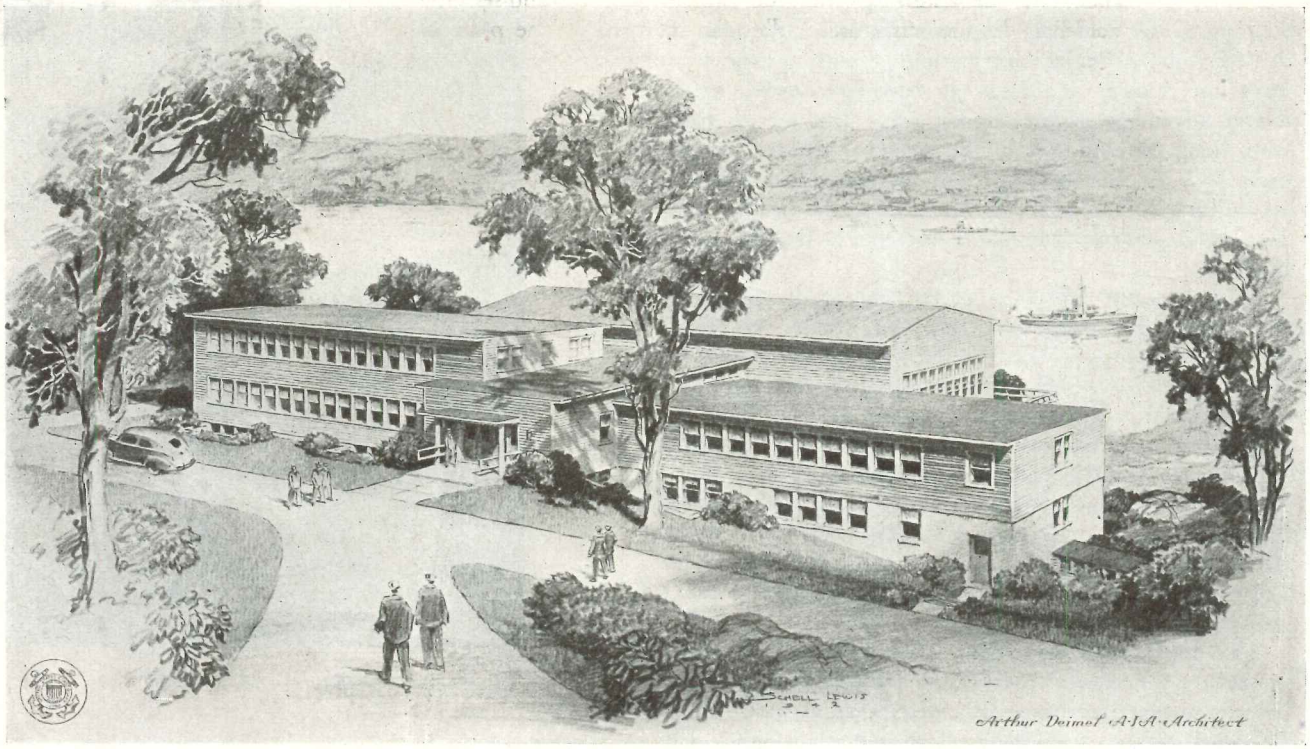
Because of the limitation of the size of the site, four three-story dormitories were necessary. Since the rooms are used for study as well as for sleeping, ordinary barracks would not suffice. The rooms have been carefully planned and the arrangement of desks, beds, and lockers, was ingeniously worked out from studies and sketches prepared by the Academy, and in conformity with Coast Guard requirements. All dormitory rooms are identical except for orientation. The arrangement of the double-decker cots at right angles in the corner of the room (with the closet of adjoining room projecting into that corner) was a space-saving feature.

The auditorium seats the entire school. The floor capitalizes the natural contours of the solid-ledge rock of the site so that excavation costs were saved as well as time in construction. The floor slope and the raised rear section provide excellent sight lines from every angle. The contours also permitted various rooms to be placed under the stage without involving excavation. The arrangement of the curtain and screen on the stage allows for great flexibility in use for lectures, religious services, moving pictures, and other functions. The laboratory pit can be used for an orchestra or band on occasion.

The Galley parallels the Mess Hall

A thousand men can be served simultaneously in the mess hall as four cafeteria serving counters, each serving 250 men, are provided. The straight-line planning of the mess hall is especially worthy of study as it provides for a maximum of time-saving efficiency and a minimum of confusion in circulation. Aisles lead directly from the doors to the serving counters, dividing the room con-

The Mess Hall is bright, cheerful, clean. Note sound-absorbing ceiling



The Administration and Service Building

The large hall of the Administration Building serves many functions

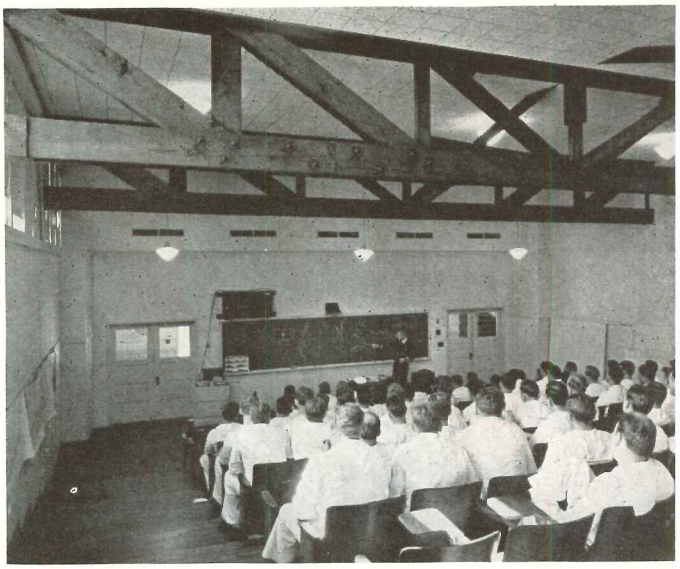
veniently. Garbage disposal is provided at the center as left-over food is scraped directly from dishes into hoppers opening into the refuse containers below. The galley and its preparation and storage rooms are parallel to the cafeteria serving counters to provide a step- and time-saving arrangement for the preparation and serving of meals. There is an officers' mess hall at one end of the building.

The administration-and-service building provides, in addition to the necessary offices and services, an extremely attractive hall for large gatherings and for recreational purposes. The beauty of design-in-structure is well illustrated in this room with its large laminated "rigid-bent" arches. The basement of this building contains the lockers and showers for the drill hall which is adjacent at a lower level. A ramp connects the two buildings. In this way, existing sewer mains could be used.

The recitation and lecture building is provided with large and small classrooms, and lecture halls. Two of the classrooms at one end of the building can be thrown into one by sliding back folding partitions.

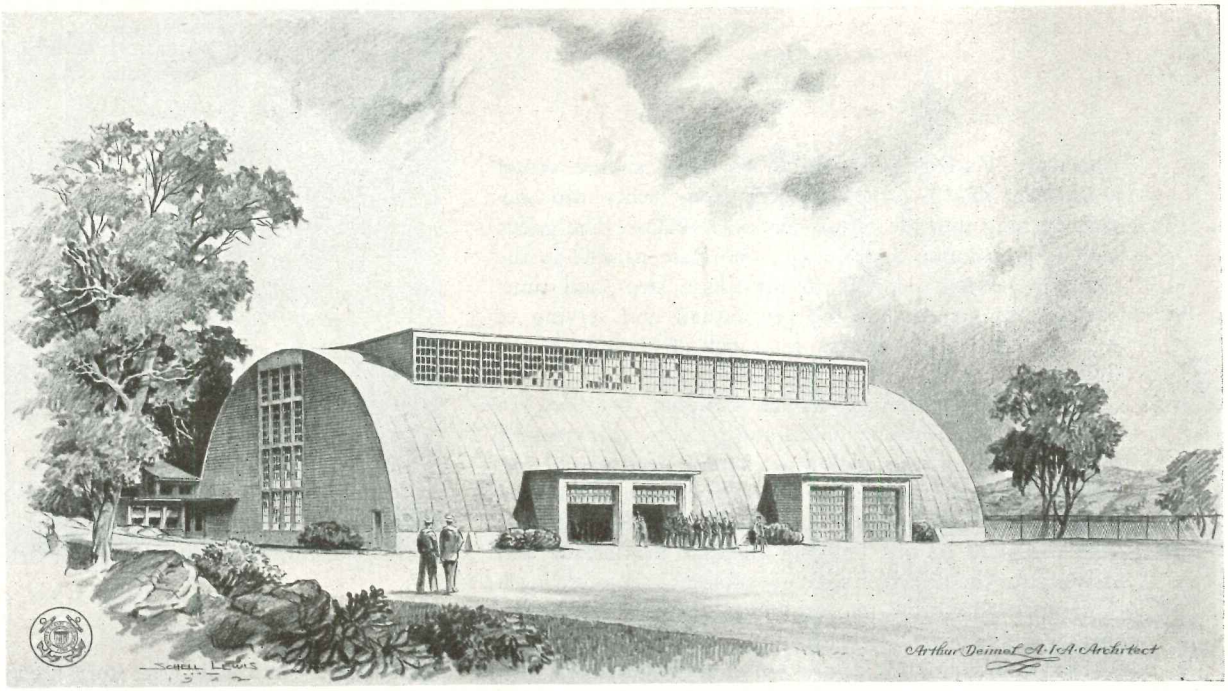
The drill hall, placed at one end of the drill field, is lighted by a continuous clear-story monitor as well as by banks of windows at either end.

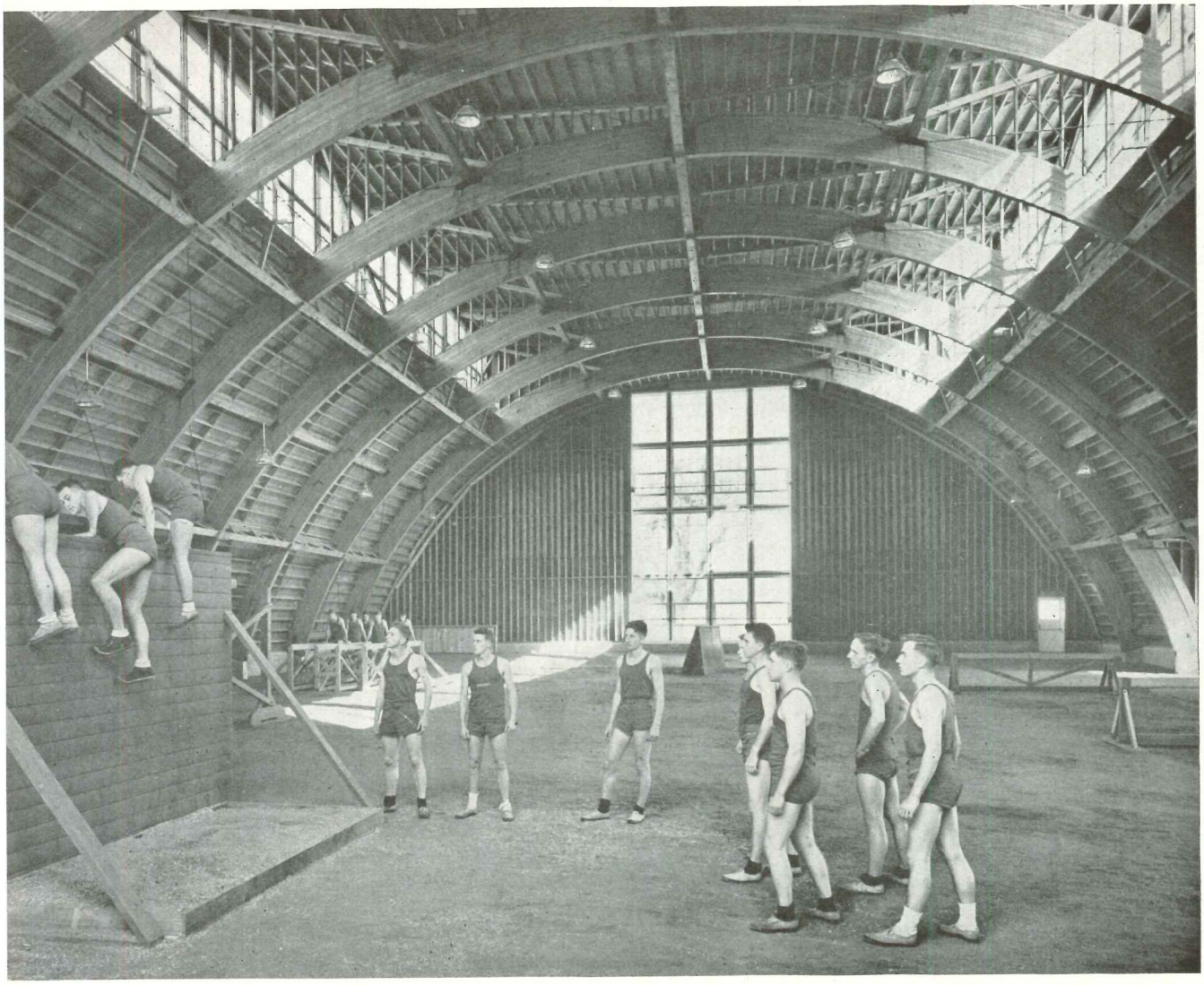
The heating and incinerator plant is located at the edge of the cliff and is of course entirely fireproof, being built of concrete and concrete blocks, with the usual brick stack.

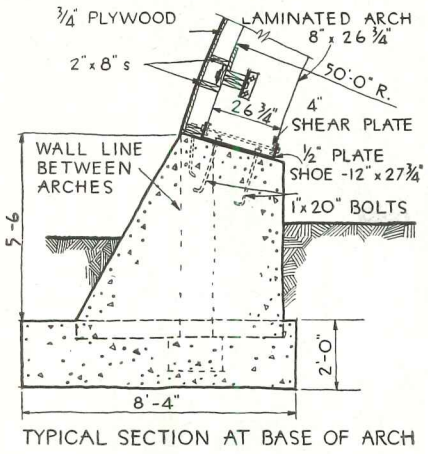


A lecture room in the Academic Building

Graceful laminated arches give character to the large hall

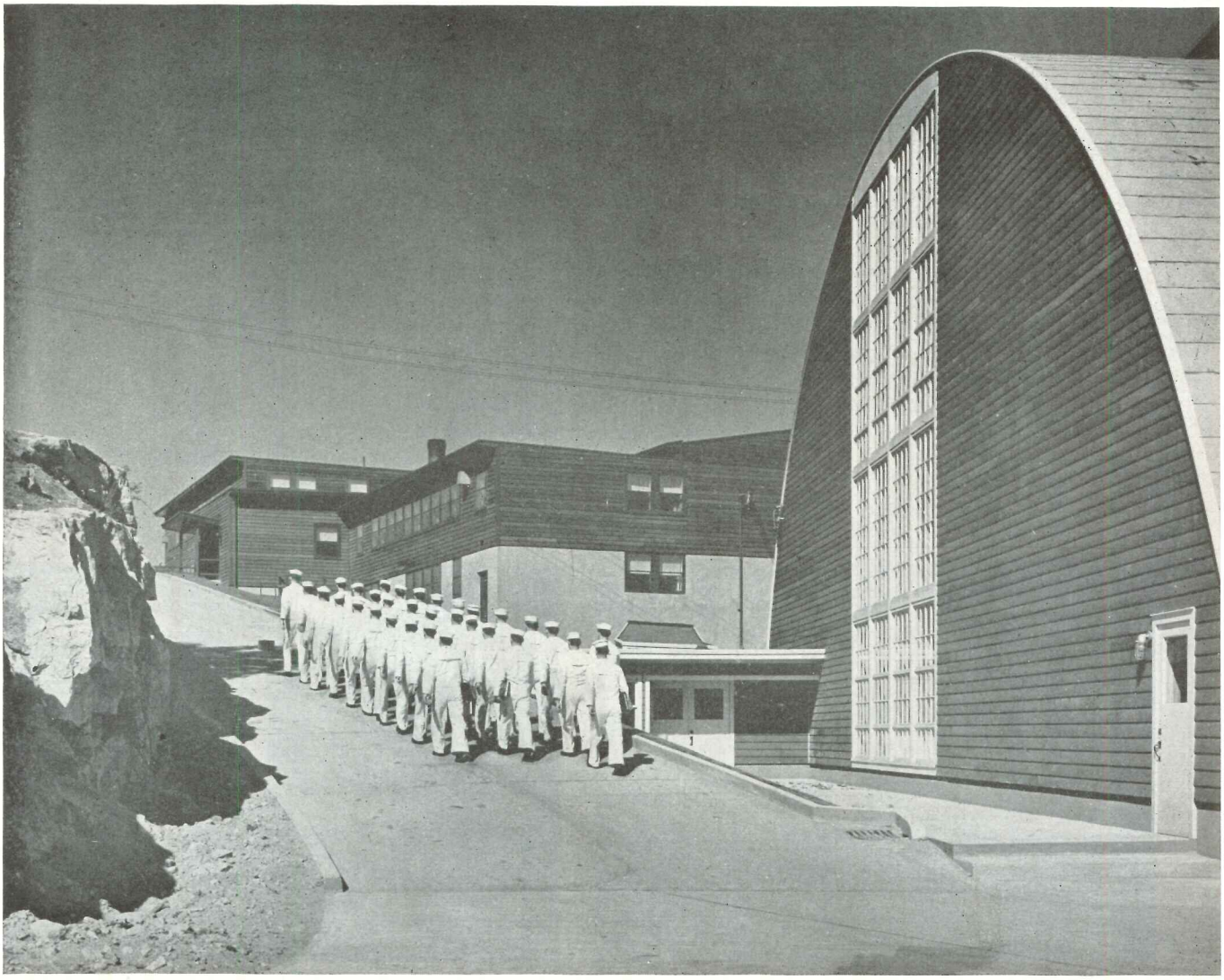

Arthur Deimel A.I.A. Architect

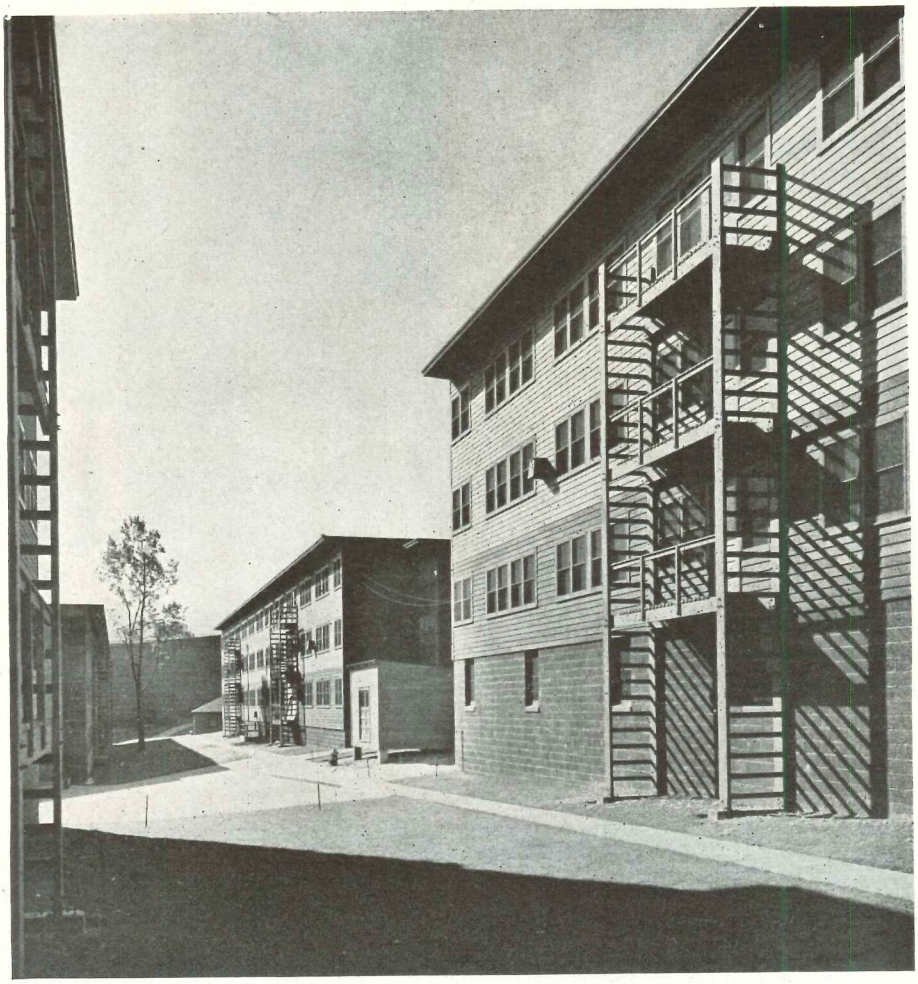




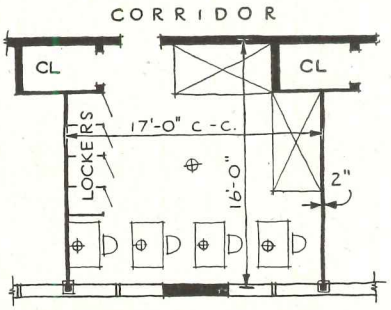
TYPICAL SECTION AT BASE OF ARCH

The Drill Hall measures approximately 100 by 150 ft. in plan. It is connected, by a covered ramp, to the lockers and showers in the Administration and Service Building. Entrance to the latter at the right

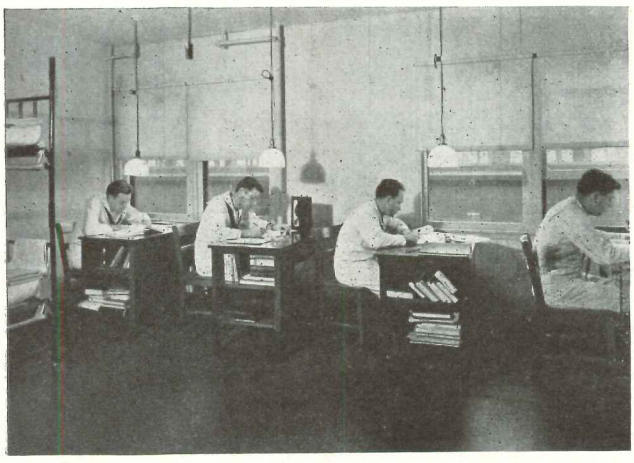


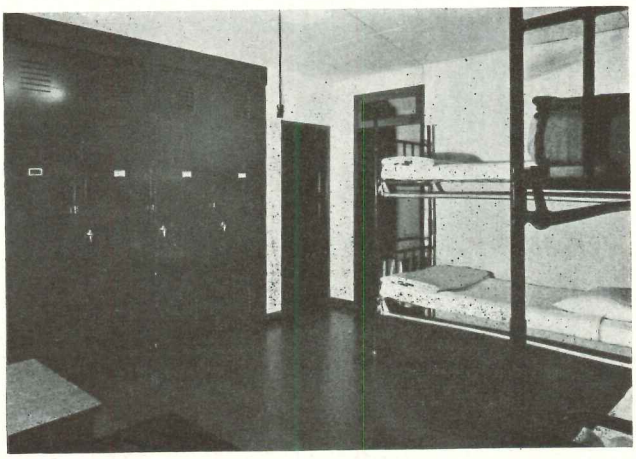


The Dormitories have many interesting features. All rooms are alike in size and arrangement, each accommodating four students. The arrangement of furniture leaves a maximum of centralized free space in the room. The fire escapes (shown above) are ingenious, simply composed of two heavy ladders with platforms between at each floor. Sailors take ladders in their stride where civilians would need stairs and railings



TYPICAL DORMITORY ROOM





CONSTRUCTION POTENTIALS

POSTWAR PROSPECTS AND PROBLEMS

A BASIS FOR ACTION

FOREWORD To help all factors in the construction industry to get down immediately to brass-tack planning aimed at specific objectives—is the aim of this study. To this end, the report includes:

A. Specific suggestions for action now (see particularly Chapter VII).
B. Indications of the probable size and character of postwar construction demand (Chapters I, II, V, VI).
C. Brief discussions of certain overall economic problems as they will affect construction (Chapters I, III, IV, VIII, IX, XII-IV).
D. Indications of possible legislative action important to construction. (Chapters I, III, IX-XIII).

The nation wants early construction revival after wartime restrictions are modified or lifted. V-Day may come sooner than we think. Will the construction industry be ready? Will construction demand be hampered by unfavorable conditions, or will it be free to assert its full force and effectiveness? What can be done now?

This report, aiming to answer such questions, is the result of study and discussion by this committee during the past eighteen months. It is hoped that it will serve as a basis for making definite decisions, plans, and commitments now on the part of all who have a stake in the postwar construction market—designers, manufacturers, owners, builders, merchandisers, postwar committees. Such action now will contribute toward a rapid transition to peacetime reconstruction and prosperity.

F. W. DODGE CORPORATION

Committee on Postwar Construction Markets

THOMAS S. HOLDEN, Chairman

L. V. BROOKS • C. C. DUNNELLS, JR. • GEORGE E. FOLLETT • GRAHAM FORD • IRVING W. HADSELL
RALPH HAIRSTON • JOHN F. HOOVER • BENTON ORWIG • JUDD PAYNE • CLYDE SHUTE
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Also submitted to the Postwar Planning Committee of the Commerce and Industry Association of New York, by Thomas S. Holden, construction division chairman of that Committee

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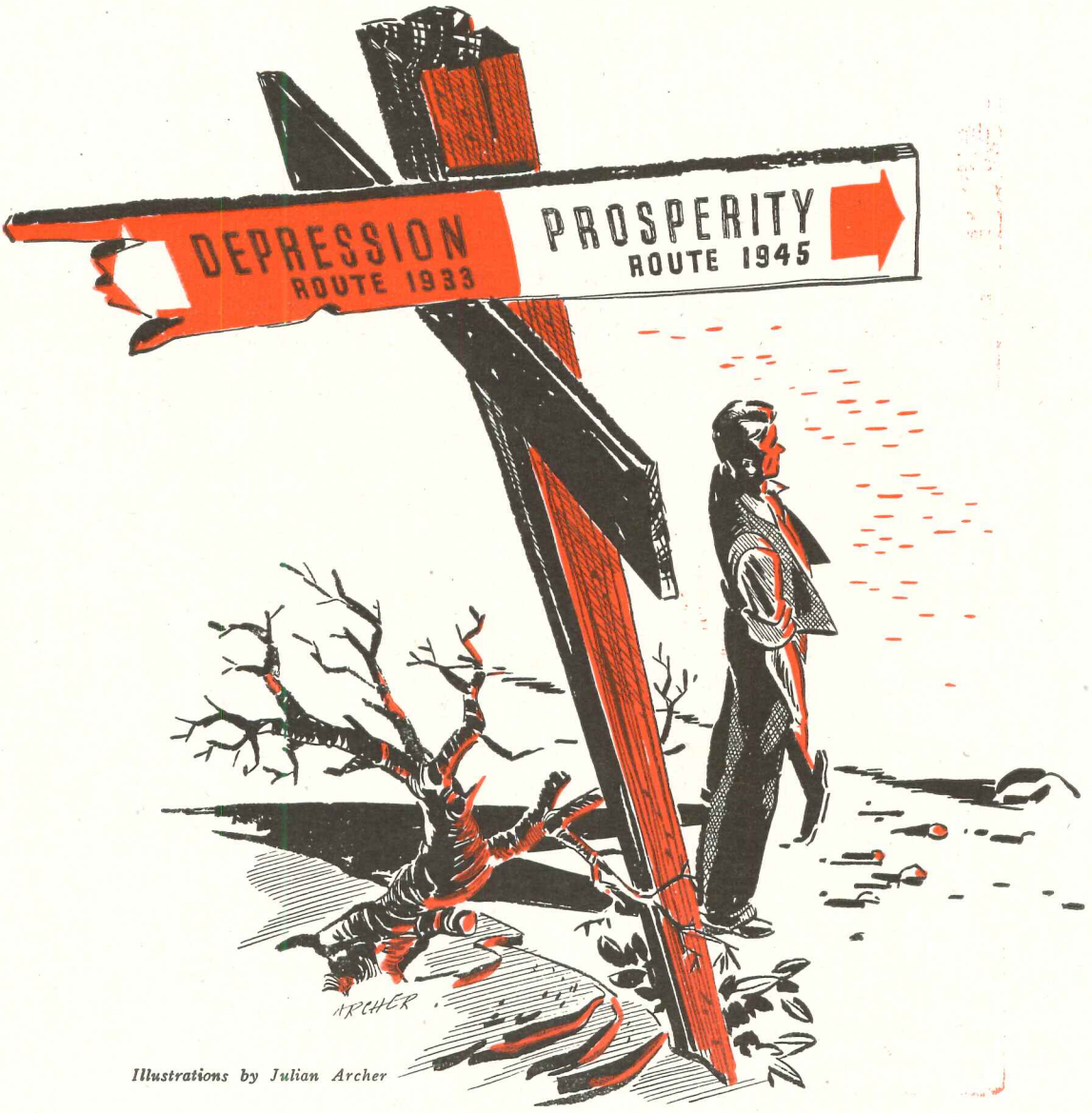


Illustrations by Julian Archer

CHAPTER 1

NATURE OF CONSTRUCTION DEMAND

EMPLOYMENT implications of postwar construction volume are recognized as having vital significance. Yet *the basic point of view of this report is that the approach to postwar construction potentials should be through appraisal of postwar construction needs, of probable trends, and of major obstacles to be removed in order that a sound construction demand may fully assert itself.* If business and government address themselves earnestly to removal of every obstacle in the way of fully supplying the legitimate construction needs of a wholesomely expanding economy, there is ample reason to expect that the construction industry will employ its full manpower quota without work-relief programs.

Construction demand arises from two important sources:

(a) Needs for replacements, modernization, maintenance, repairs.

(b) Needs for new facilities.

The first category of needs is always present even in a static economy or a depression period. It employs the construction industry on a moderate scale only.

The second category of needs arises when new economic factors encourage vast investments of capital in new facilities—facilities for industry, trade, family and

community life. Periods of general economic expansion are periods of prosperity and full employment of the construction industry. There is a question whether construction of itself creates expansion, but in exercising its essential function of embodying the factors of expansion in physical form it is inextricably tied up with expansion, as is indeed our whole capitalist, or enterprise, system.

1. Historical Background—The coming postwar period will resemble in important particulars the period that followed World War I.

During World War I, as now, a system of priorities and restrictions almost eliminated ordinary civilian construction, thus causing a great accumulation of deferred demands. Then, as now, price inflation and price and rent controls became highly important factors affecting construction demand.

After World War I, it was six years (to the end of 1924) before deferred construction demands had been met. This six-year period was not, however, a period of continuous construction recovery; on the contrary it was interrupted in 1920 and 1921 by a depression which accompanied the severe deflation of all prices which followed the wild price inflation of 1919-1920. Thus the net period of construction recovery based upon accumulation of deferred demands was about four years.

Construction demands did not, however, fall off after 1924, but increased greatly, producing four record-breaking annual volumes (1925-1928).

New construction demands arose in connection with a great wave of economic expansion. This was a many-sided development, the most important phase of which was expansion of the automotive industry and allied industries (rubber, oil, etc.)

The automotive industry, by developing cheap cars and installment credit, created a revolution in transportation. This expansion demanded factories, service stations, filling stations, private garages, hard-surfaced highways, and many other kinds of structures. Transformations required for adapting community patterns to the motor age have not yet been completed.

The cheap automobile enlarged the daily cruising radius of the average man threefold, from 5 miles to 15 miles. This meant a ninefold increase in the effective area of urbanization, from less than 80 square miles to more than 700 square miles. Commercial and industrial prosperity was bringing people to the cities and the cities were overflowing into suburbs and outlying community areas. These population movements created demands for various types of construction. (The decentralization problems they created were ignored in the 1920's, and passed on for solution to a later time).

Record-breaking construction volume and general prosperity of the late 1920's accompanied a great wave of economic expansion.

Therefore, an inquiry into the construction potentials of the coming postwar period resolves itself first into an inquiry into the extent of deferred demands and, second, an inquiry into the possibilities of general economic expansion after deferred demands have been met.

2. Sources of Postwar Construction Demand—Postwar construction demand in Continental United States will include the following five categories, which are arranged in the approximate chronological order in which they are likely to arise:

(a) Deferred maintenance, repairs, modernization (of both privately and publicly owned property, with house and store modernization bulking large).

(b) Conversion of war structures to peacetime standards, including replacement in war buildings of inferior substitute materials and equipment with standard materials and equipment.

(c) Deferred new construction:
Houses over $6,000 (with land) everywhere.
Houses of all valuations outside war centers.
Apartment buildings (suburban and urban types).
Commercial buildings.
Industrial plants for non-war industries.
Public buildings.

Public utilities and public works.
Farm buildings, etc., etc.
NOTE—In the residential field the order in which effective demands will arise is likely to be as follows:
First, houses to be built on order for owner occupancy.
Second, single-family houses for sale.
Third, investment (rental) housing.

(d) Continuing demands of a prosperous economy, including housing demands of growing population, improved terminal facilities, etc., etc.

(e) New demands caused by such potential expansion factors as:
Resumption of motor-age expansion.
Commercial aviation.
New product developments.
Improved cost-reducing construction methods.
Housing and urban redevelopment.
Foreign trade.
New public improvement needs.
Other expansion factors.

3. External Factors— Factors external to the construction industry which will affect the magnitude of postwar construction demand will include:

(a) Recovery and expansion of private industry, trade, agriculture.
(b) Locations of postwar industrial and commercial activity, distribution centers, shipping centers, internal migration of population, etc.
(c) New financial instrumentalities.
(d) Policies and programs of government at all levels.

4. Internal Problems of the Industry— In an important but lesser degree the magnitude of the market can be affected by factors within the industry and by the rate of adaptation of the industry to new conditions and new opportunities.

Included in the internal problems of the industry will be the following:

(a) Reconversion problems of some building-product manufacturers.
(b) Maintenance of construction costs in sound relationship to the general price level.
(c) Ready acceptance by designers, builders, building labor and the public of new products, and new technical developments.
(d) Improved labor relations.
(e) Improved distribution methods.
(f) Modernization and liberalization of building codes (to the extent that industry factors can bring this about).
(g) And, over all, progressive reduction of construction costs by a combination of improved practices all along the line.

Some of these problems will be progressively met by alert sales and marketing activities of construction industry factors. Some of these problems, the existence of which is daily in the consciousness of construction industry people, have in recent years brought upon the industry much criticism.

A large part of the competence of our great American builders consists in the ability to overcome these handicaps so frequently cited by outside critics. Some of them become intensified in periods of depression and lose significance when construction volume is large. Abuses and uneconomic practices within the industry have never stopped it from accomplishing the purposes and programs laid down for it by the American people, as witnessed by the industry's great performance in carrying out the recent war-construction program, most stupendous in all history.

So, this report will concentrate upon an appraisal of the next great job ahead in the coming peacetime era. The most important thing is for the industry to know as much as it can about the job to be done, hoping that reforms of uneconomic practices can be effected as the job itself progresses.

CHAPTER II

POSTWAR CONSTRUCTION VOLUME

A DECADE of high-volume construction markets is indicated by even the most conservative appraisal of postwar possibilities. This promise is unmistakable in any realistic analysis of the following factors:

(a) Measures of deferred demands.
(b) Housing needs of new families and probable replacement demand.
(c) Prospects of industrial and commercial expansion.
(d) Anticipated needs for community developments and public improvements.
(e) Prospective postwar national income.
(f) As a check, comparisons with the postwar period that followed World War I (1920-1929), with careful consideration of similarities and differences.

Against the prospect of much higher national income and the probable carryover of greater accumulations of purchasing power than after World War I, must be balanced the fact that 1920-1929 was the decade of largest numerical increase in population this country ever had; it was also the decade of largest increase of urban population. The decade 1940-1949 will have only half the numerical increase in total population that actually took place in the 1920-1929 decade. According to Department of Commerce estimates, new family formations will be one-sixth less in number during the current decade than in the decade 1920-1929. These population factors have a direct bearing on residential building demand, and some indirect bearing on construction of facilities that supplement new residential building.

1. F. W. Dodge Corporation Estimates— F. W. Dodge Corporation has conservatively estimated that total construction volume in the ten years following the war will average approximately double the average annual volume of the 1930-1939 decade (the decade of depression and slow recovery). This would be an increase of about 5 per cent over the prosperous 1920-1929 decade. The estimate expresses postwar volumes in terms of prewar cost levels.

Within this increase, residential building volume is expected to average *three times* the average residential building volume of the 1930-1939 period; non-residential building would increase about 70 per cent over its 1930-1939 average; heavy engineering construction would increase about 50 per cent. In detail these figures break down as shown in the accompanying table.

If the estimated rates of increase shown in the Dodge table are applied to the Department of Commerce figures, which purport to be overall estimates of all construction volume in continental United States, the following figures result:

TOTAL NEW CONSTRUCTION

Annual Averages

1920-1929	$9,158,000,000
1930-1939	4,843,000,000
Postwar Decade	9,623,000,000*

*These figures based on Department of Commerce overall estimates would include farm building at a rate some two and a half times the average annual rate of the 1930-1939 decade. Statistics of farm building are not reported currently in comprehensive fashion. American agriculture will doubtless remain highly prosperous so long as world food shortages are being made up; it remains to be seen whether there will later be a severe deflation of agriculture similar to that which took place in the 1920's.

The assumed postwar figure here shown was exceeded in each of the boom years 1925-1929; it was also exceeded in the war years 1941 and 1942. It was not reached in any other year. Therefore, it has taken, up to the present time, either a construction boom accompanying a great wave of economic expansion or a vast governmental program of preparation for a global war to cause this assumed postwar figure to be exceeded.

2. Some Estimates are Higher— Postwar estimates are current which greatly exceed the Dodge estimates. Dodge considers that arguments about the rightness of advance estimates, considered as predictions of what will happen in the future, are futile. The Dodge organization merely says:

(a) That it believes strongly that the postwar economy will hold opportunities for broad economic expansion after wartime shortages have been caught up, but that it sees at this time no clear indication as to what set of economic factors will dominate such expansion (as the automotive and related industries dominated the expansion of the late 1920's) or as to the character and volume of construction demand that will accompany it.

(b) That later developments in terms of solutions of certain transitional and postwar problems and of actual postwar trends as they become estab-

CONSTRUCTION CONTRACT VOLUME BY DECADES

(37 Eastern States)

Annual Averages in Millions of Dollars

	1920-1929	1930-1939	20 Peacetime Years	Postwar Decade	Increase Over 1930-1939
Commercial	730	247	488	475	92%
Manufacturing	400	158	279	210	33%
Educational	346	196	272	300	53%
Hospitals and Institutions	118	81	100	150	85%
Public Buildings	59	108	84	120	11%
Religious Buildings	115	38	76	95	150%
Social and Recreational	176	73	124	145	99%
Miscellaneous	49	25	37	80	220%
NON RESIDENTIAL	1,993	926	1,460	1,575	70%
RESIDENTIAL	1,987	719	1,353	2,157	200%
Total Building	3,980	1,645	2,813	3,732	127%
Heavy Construction	970	950	962	1,425	50%
TOTAL CONSTRUCTION	4,950	2,595	3,775	5,157	99%

These average figures would naturally be exceeded in some years; they would probably not be reached in the first year or two of peace.

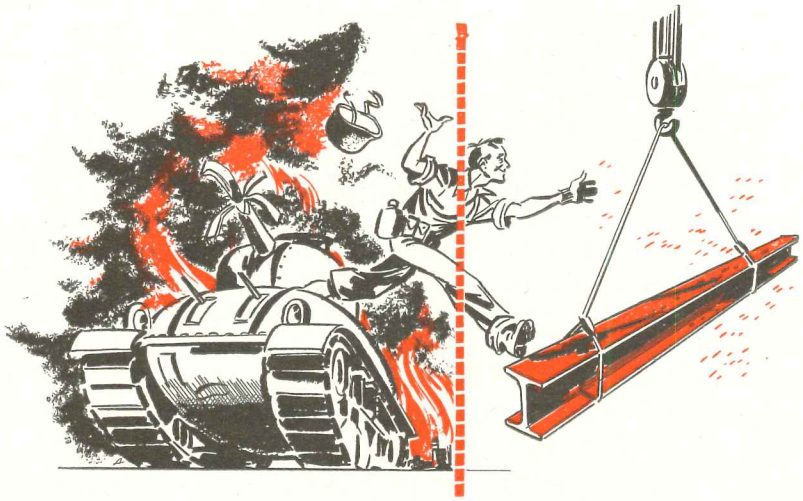
Postwar figures assumed to be on basis of prewar costs.

Postwar decade assumed as beginning with the January nearest the date of cessation of hostilities in Europe, provided relaxation of construction restrictions starts at that time.

The residential building estimate, translated into terms of new non-farm dwelling units comparable with the estimates of the U. S. Bureau of Labor Statistics, would indicate an average of 820,000 units a year. For a complete discussion of this estimate see article by Thomas S. Holden, "How Many Postwar Houses," in the September 1943 ARCHITECTURAL RECORD (reprinted in F. W. Dodge Corporation's brochure "When Better Homes Are Built . . .").

lished are rather likely to require upward revision of some or all of the present Dodge estimates.

(c) That, given the great adaptability and flexibility of the construction industry, programs made now for the postwar period (either marketing programs or programs for expanding facilities for production of materials), on the basis of moderate estimates, can later be stepped up quite easily to meet demands larger than those anticipated, whereas cutting back for a smaller volume is always more difficult. In short, a moderate under-expansion of the construction industry for meeting actual postwar demands is much easier to correct later and much less likely to create future troubles than would be a great over-expansion. (NOTE—In 1942 the industry was able to carry through, with minimum difficulty and delay, the largest program in history, more than double the volume of 1939; on the other hand, the construction industry has in the past gotten into serious difficulties through over-expansion based on over-optimistic estimates of future potentials, as in the abortive residential building boom of 1937).



CHAPTER III

PROBLEMS OF TRANSITION

THERE IS no conversion problem for the construction industry as such. Quick adaptation of techniques and facilities to new types of projects is part of the regular stock-in-trade of the industry. Architects, engineers and contractors engaged on the war construction program were able to expand their organizations overnight and to carry out the largest construction program in the history of this or any other country with the utmost speed, overcoming unusual difficulties and in a vast number of cases completing projects ahead of schedules. The fact that many war projects were different in character and much larger in scale than those customarily handled in peacetime presented no particular difficulty. There will be, however, in the period of transition to peacetime, certain very definite problems affecting the rate with which the industry will swing into its full peacetime volume.

1. Two Stages of Transition— The transition to peace may be expected to fall into two principal stages:

(a) The period immediately following the end of hostilities in Europe.

(b) The period following defeat of Japan.

It has been stated on good authority (but not officially by any one in government) that about 80 per cent of the necessary reconversion of manufacturing industry is likely to come in the interim period between the ending of the European and the Far Eastern phases of the war. This statement is probably based on the fairly common assumption, by no means certain, that the interim period will last about a year.

Changes in the war program after defeat of Germany and the transition back to a full peacetime economy will be largely controlled by government. It is not expected or desired that all wartime economic controls be suddenly abolished the day after hostilities cease; the disastrous postwar price inflation after World War I is well remembered and there is general agreement that any repetition of it must be avoided.

Consequently, the speed with which the construction industry begins to meet its peacetime demands and swings into the full stride of peacetime activity will depend largely on the program of relaxing war controls that the government will adopt.

2. Transition problems will include:

(a) Release of critical raw materials to building product manufacturers.
   1. Before defeat of Germany.
   2. After defeat of Germany.
   3. After defeat of Japan.

(b) Reconversion problems of some building product manufacturers.

(c) Manpower problems.

(d) Release of price, wage and rent controls.

(e) Disposal by government of surplus property.

3. Release of Critical Raw Materials—Official policy of the War Production Board at this writing is to maintain wartime restrictions on non-essential civilian construction without relaxation. However, it has been represented to the War Production Board that some relaxation could be made with respect to releasing materials to take care of deferred maintenance; it is contended that supplies of materials are adequate for this purpose without detracting from war production. Reduction of total construction volume by 50 per cent in 1943 and by 75 per cent in 1944 (as compared with the peak war construction year 1942 in both cases) has greatly eased the strain of critical war materials. It is entirely possible that the War Production Board may modify its restrictions on non-essential construction to some extent at an early date, in spite of its present policy of standing pat on existing regulations.

Since it is generally recognized that there is a backlog of construction demand and that early resumption of construction is highly desirable for balancing our whole economy (in terms of business activity and employment), government authorities may be expected to give ample consideration to the claims of the construction industry for raw materials in programming all phases of the transition.

4. Reconversion Problems of Building Product Manufacturers—Generally speaking manufacturers of non-metallic structural materials have no reconversion problem. During the war most of them have continued to produce their customary materials for the war-construction program, for permitted civilian uses, and for overseas shipment on account of the armed forces.

Lumber is the principal non-metallic material in which shortages have developed, due very largely to manpower shortages. It is likely that it will take some months to get lumber production up to peactime requirements. The lumber industry will offer large employment opportunities.

Metallic raw materials will be at peak production, seeking peacetime markets. Production of copper wire, nails, pipe, reinforcing bars, and structural shapes can be resumed very quickly.

Principal reconversion problem will be that of manufacturers of more highly fabricated metal products such as metal windows, heating and ventilating, and plumbing equipment, refrigerators, stoves and other mechanical conveniences. Some manufacturers of such products converted entire capacity to war production, some converted a sizeable proportion. Since most of them will resume with 1942 models and since most of them are now planning for the changeover to peacetime production, the conversion problem of these industries is not a great one. It should not be sufficient to delay in a serious way the resumption of building activity, which, for other reasons, is apt to take a few months to reach large volumes.

5. Manpower Problems—First resumption of construction activity will employ those older construction men who have been out of work since war construction

tapered off and who have gone neither into other war production activities nor into overseas construction units of army and navy. Construction men released from war production and from army and navy units are likely to find ready employment.

At some stage, perhaps after the transition period is past and construction activity is in full peacetime stride, there will almost surely be shortages of skilled labor. This will be due largely to the reduction in union membership incident to the depression, when unions admitted few members and there was almost no training of apprentices. Thus the problem of adequate supply of trained mechanics is apt to become acute.

6. Release of Price, Wage and Rent Controls—It is generally expected that release of controls will be gradual, in order to ease the transition to a free economy and avoid, if possible, a period of chaos. Whenever ceilings are finally lifted, demand for construction, as well as for practically all classes of consumer goods, will tend to rise and reach a new peacetime level which will undoubtedly be substantially higher than the prewar level.

A well-known economist estimates conservatively that the general commodity price level (Bureau of Labor Statistics index of wholesale prices of all commodities) will be, at the end of 1946 (assumed as being two years after the end of the European phase of the war), 70 to 75 per cent over the 1939 average. Other economists have estimated the increase as high as 100 per cent.

The program of releasing controls will determine whether the postwar price level will be reached in an orderly manner, or by way of spectacular inflation, deflation and reflation.

At all stages the relationship between construction costs (material prices and wages) and general commodity prices, and, to an even greater extent, the relationship of construction costs to rents, will condition current construction demand.

The latter relationship is the principal factor determining demand for investment building; until the postwar relationships and trends are fairly clearly established, demand for investment building is likely to lag.

That is why demands for deferred maintenance and modernization, deferred building of houses for owners' occupancy and deferred public works of an urgently needed character are likely to come first in the postwar construction revival.

The importance of maintaining sound relationships between building material prices, building trades wages, overall construction costs and the general price level cannot be emphasized too strongly. Confusion as to probable price trends was a principal factor causing hesitation about new building ventures directly after World War I. It is likely that the future postwar construction market will be very sensitive to disproportionate rises in construction costs, probably much more so than in the 1920's. In that earlier postwar period construction costs rose above prewar levels by higher percentages than did general commodity prices; it is by no means certain that this can happen again without serious impairment of construction demand.

7. Surplus Property Disposal—The government's program of disposal of surplus property will not only affect the construction market by reason of the terms and procedures of such disposal. Until the policies and program are known, uncertainty will overshadow the market, and will cause hesitation as how such disposal will affect prices, values and the actual magnitude of local construction demand.

Principal categories of govenment-owned property to be disposed of, which will affect peacetime construction demand, are:

(a) War plants.
(b) War housing.
(c) Airplane landing fields.
(d) Construction materials.
(e) Land.

In the case of war plants, the problem will affect particular industries and particular localities. New plants will in any case be needed for non-war industries, and in new locations.

In the case of war housing, facilities provided for second and third-shift war workers may become surpluses. An effort was made to anticipate this by dividing the war housing program as between housing of permanent and of temporary types.

Actual removal of the temporary buildings, in accordance with the original intent, will tend to minimize local surpluses.

Conversion of some military landing fields to the uses of commercial aviation will affect the future demand for airport terminal buildings.

Construction materials held on inventory by the military services should preferably be released for civilian use in the early stages of construction revival, when new production volume will be low.

The federal government is said to own land exceeding all of New England in area. The program of disposal of this land, and making suitable acreage available for peacetime development will affect construction demand and real estate values in the affected localities.

CHAPTER III

TECHNICAL CHANGES

MUCH romantic nonsense has been written and talked about radical new technical developments destined to revolutionize at an early date the methods of producing and marketing houses. Much romantic literature of this character has emanated from persons with little experience in building or prefabrication and little apparent knowledge of the economics of real estate. Just as it has been necessary to debunk the dream car of the future and the dream washing machine of the future, it has been necessary to debunk the dream house of the future.

1. Realism vs. Romance— A realistic appraisal of the present status of prefabrication is contained in a brochure recently published by F. W. Dodge Corporation under the title, "When Better Homes Are Built. . . ." It consists of a symposium in print, the participants being a number of the best informed practical people in the fields of prefabrication, housing research, housing agencies of government, real estate, house architecture, housing finance and manufacture of building products.

With almost surprising unanimity these experts agree that future development of housing design will be evolutionary as in the past, that radical innovations are not expected, and that the postwar house will, like the postwar automobile, be to all intents and purposes a 1942 model.

Most people see the principal role of prefabrication as a progressive development in shop fabrication of sub-assemblies (started years ago with such procedures as the making of window frames in the planing mill). As one leading prefabricator puts it: "It is not a question of how many prefabricated houses there will be; it is a question of how much prefabrication there will be in each house."

This particular prefabricator (one of the leaders in the field) looks to development

of prefabrication within the framework of the existing building industry, with gradual modifications of existing procedures. Others, believing more strongly in the virtues of assembly-line methods, expect a greater degree of industrialization of house building with radical changes in market procedures, but even these do not expect such developments to come at once. Prefabricators hold varying views as to the prospective market for complete houses in middle and higher price ranges.

2. Origins of Fallacious Thinking—Fallacies regarding the prefabricated house and the supposed early possibility of turning the housing business into a mass-production industry have arisen from lack of appreciation of the following facts:

(a) That the established construction industry is already an efficient modern mass-production industry when it has a mass-production job to do—e.g., Boulder Dam, Empire State Building, Chicago Merchandise Mart, army cantonments, military bases, large-scale housing projects. The construction industry (meaning, here, the units that do the assembling job for structures) is necessarily organized in many mobile units of varying size, in order to meet widely varying demands; naturally, there are variations in competence among the many construction organizations.

(b) That the house, a multi-purpose space enclosure with many functions, is in many respects different from the customary products of mass-production, practically all of which are single-purpose commodities (radios, automobiles, vacuum cleaners, bathtubs, etc.).

(c) That the problem of mass-producing houses involves technical problems of minor significance and is mainly a problem of finding mass markets for standard types of buildings, with quantity orders in reasonable continuity.

(d) That prefabrication of sub-assemblies and of complete buildings is not particularly new, i.e., factory and mill assembled window and door frames, ready-cut houses and other ready-cut buildings.

(e) That recent successes of prefabricated houses have been due almost entirely to the sudden appearance of one large wholesale buyer (the government) in the market; no proof now exists that other quantity buyers will appear in large numbers in peacetime.

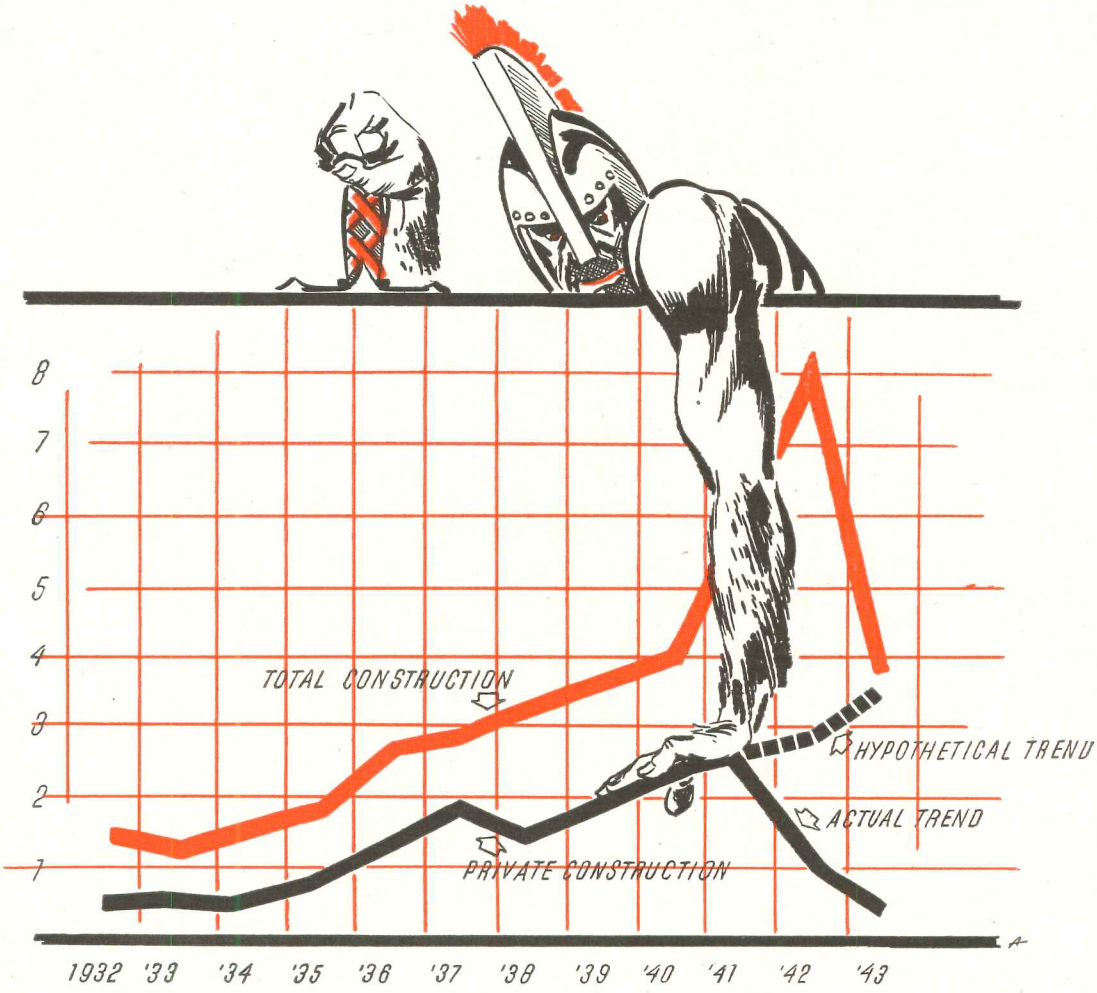
(f) That no proof exists that prefabricated houses are better or cheaper than builder-built houses.

(g) That substantial progress has been made in the past ten years by regular builders in producing better houses for less money.

3. An Appraisal of Actual Potentialities—It can be concluded on the basis of present evidence, that there will continue to be evolutionary progress in producing new materials (plastics, light metals, prefabricated sub-assemblies) and in devising new time-saving construction methods; that these new materials and methods will compete in the market with established materials and methods; that there will be continued emphasis on the need for producing better houses for less money; and that present indications point rather to gradual progress due to accumulation of economies in materials and their use rather than to radical innovations.

Continued improvement and cost reduction will undoubtedly do much to broaden the house market and to sustain it at high levels after accumulated deferred demands have been met.

While the major interest and the major research effort have inhered in the small house, progressive developments in materials and techniques will more than likely have applications to many types of structures.



CHAPTER V

PRIVATE CONSTRUCTION DEMAND

EVIDENCES of a large latent demand for private construction, indicating much larger volumes of actual work in postwar years than in the poverty decade of the 1930's, are practically incontrovertible.

1. Recent Trends of Private Construction— The trend of private construction activity is shown in the accompanying chart.

Following the depression of 1932, 1933 and 1934 there was a steady recovery with only one setback, the recession of 1938 that followed the abortive minor boom of 1937. The upward direction of the recovery trend, with the exception of the 1938 setback, was practically uniform; recovery of private construction paralleled an upward trend of national income.

The decline of 1942 and 1943 is the obvious result of wartime restrictions. Since national income rose in the war years at a greatly accelerated rate, it is obvious that, if there had been no limitations or restrictions, private construction activity would have continued on the uptrend, probably at an accelerated rate.

The broken line labeled "hypothetical trend" is a straight-line prolongation of the 1938-40 recovery trend.

On the "might-have-been" assumption (admittedly unscientific) that unrestricted activity would have followed this hypothetical trend line (if indeed it would not have been accelerated), the spread between this line and the actual trend of 1942 and 1943 may be considered as a theoretical measure of accumulated demand. In figures it amounts to nearly $4,500,000,000, rather more than double the 1940 volume of private construction.

2. Evidences of Accumulated Private Demand—This chart illustration affords a strong presumption of accumulated deferred private construction demand. Supporting evidence has been afforded by numerous surveys, such as those of the Chamber of Commerce of the United States and the National Association of Real Estate Boards. Indications from both these surveys are that there is a housing shortage of approximately 1,000,000 new family dwelling units. If only a third of the existing dwelling units of the country (which numbered 37,000,000 in 1940) require deferred maintenance expenditures averaging $100 each, that would add up to a demand of more than a billion dollars, which would be easily doubled or trebled if we add probable deferred maintenance and modernization demands of a large proportion of the private and public non-residential buildings of the country and of the railroads, utilities, highways and other engineering facilities.

F. W. Dodge Corporation has tabulated data on 24,721 specific projects contemplated for the time when lifting of restrictions permits them to go ahead; their aggregate total cost is $5,521,800,000. Of these projects, 11,941 with an estimated cost of $2,635,837,000 are in the designing stage; these projects in the designing stage break down as follows:

	Number	Estimated Cost	Average Cost
Private			
Residential	5,250	$ 344,598,000	$ 65,638
Non-Residential	3,046	394,529,000	129,524
Total	8,296	$ 739,127,000	$ 89,094
Public	3,645	1,896,710,000	520,359
ALL	11,941	$2,635,837,000	.....

This tabulation does not purport to be comprehensive. It is not presented as a measure of relative demands for public and private construction, but it illustrates some interesting points.

It indicates that, if this were to be on V-Day the pattern of planned new construction ready to go ahead, public construction would then offer a much larger immediate market for materials and a much larger number of immediate employment opportunities than would the amount of private work ready to go ahead (assuming that the planned public projects can be readily financed).

It indicates that, in order for private construction projects to outweigh public construction as much as 2 to 1 in dollar volume (which although double the ratio that prevailed in the poverty decade of the 1930's is somewhat less than the normal ratio for prosperous times) the number of planned private projects should outnumber planned public projects 11 or 12 to 1 (assuming the relative sizes of public and private projects as shown in the table to be typical).

3. Two V-Day Questions—In terms of effective market demand, the two essential questions on V-Day will be:

(a) Will there be a large enough volume of planned private work ready to swing quickly into a broad recovery movement?

(b) Will public construction be financed in volume commensurate with the aggregate of planned public projects and how will it be financed?

These questions are critical for the transition period from war economy to peace economy. The success with which this transition is bridged and the means employed to bridge it will in large part determine the character of our peacetime economy. Once the transition period is successfully passed, the volume of deferred demands and the prosperity that can be reasonably anticipated on the basis of pent-up demands for many classes of consumer goods (both accompanied by vast accumulations of purchasing power) may be expected to create enormous volumes of private construction.

4. Prospective Private Construction— If (as stated in Chapter II) total construction in the ten years following the war is likely to average double the average annual volume of the 1930-1939 decade, private construction volume should average *between two and one-half and three times* the average annual volume of private construction of that prewar decade.

CHAPTER VI

WHY IS THE PUBLIC WORKS RESERVE SO FAR OUT IN FRONT?

PUBLIC AGENCIES started planning first. In Chapter V an indication was given that public planning agencies have stepped out ahead of private agencies in developing specific construction projects for execution when restrictions are lifted.

This came about partly as a result of a promotional program initiated jointly in 1941 by the Federal Works Agency and the recently-liquidated National Resources Planning Board.

This program had for its objective the building up of a public works reserve of planned non-federal projects. A field staff contacted state and local government officials, urging them to survey needs, lay out programs, and secure appropriations for making plans and blueprints.

1. The Non-Federal Works Reserve— As long ago as March 1942, the National Resources Planning Board summarized prospectuses then in hand which had been received from 46 states, 755 cities and 391 other local governmental jurisdictions. These programs included 26,791 projects valued at $5,191,287,000. At the same time NRPB reported an estimated additional programmed but untabulated volume amounting to another $4,500,000,000. At that time only a minor proportion of the total non-federal program was in the designing stage. Since then many state and local programs have been augmented in scope and much is being currently put into blueprints and specifications.

2. The Federal Works Reserve—In addition to all this non-federal work, the National Resources Planning Board, in its "National Resources Development Report for 1943," reported $7,695,000,000 in postwar projects proposed by federal construction agencies that build for the federal government's own account. This volume of programmed work breaks down as follows:

Projects authorized or requiring only presidential authorization	$2,966,500,000
Requiring future congressional authorization	3,378,500,000
Projects involved in surveys under way at time of report	1,350,000,000
TOTAL FEDERAL PROGRAM	$7,695,000,000

The public works reserve represented by these combined federal and non-federal programs represents a total aggregating approximately $17,000,000,000. Much of it is in some stage of actual design, most of it programmed to spread over a period of years. (One of the very useful things accomplished by the promotional program of the Federal Works Reserve was popularizing among local governments the idea of long-range public works planning tied to the six-year capital budget.)

3. Large Federal Appropriations Hoped for—Doubtless much of the public-works planning was undertaken by state and local officials with the expectation of large federal grants. Even though Congress has thus far made no commitments for postwar spending, and has liquidated the WPA, the PWA and the NRPB, many public officials continue to hope for large federal spending for construction on its own account and generous federal subsidies for non-federal projects.

Astute local officials, anxious to carry out vast improvement projects, play up fears of postwar unemployment and dangle before labor the prospect of jobs and before suppliers prospective orders for materials, all with the hope of gaining public support for federal deficit-spending programs. While this is, fortunately, far from being universally true (many state and local programs have been projected without reference to federal aid), it illustrates how far the promotion of public construction for V-Day has run ahead of the promotion of private construction.

The private works reserve, in terms of planned projects, is far behind the public works reserve, although potentially much greater.

4. The Value of Advance Planning—Public officials and planning agencies are to be highly commended, certainly not criticized, for the energy they have shown in developing long-range programs and blueprints for specific projects. Taxpayers will benefit by reason of the time spent in careful advance study that is being made of specific projects and of capital budgets, provided sound methods of financing the most needed projects are worked out and a proper balance is struck between public and private programs. Ample advance study by architects and engineers on any kind of construction project will practically always result in a better structure, more economical as to first cost and more efficient in its functioning, than the project hurriedly blueprinted to meet an early deadline.

CHAPTER VII

WANTED:

A PRIVATE WORKS RESERVE

A PRIVATE works reserve is highly necessary. Obviously, a large private works reserve of planned projects is greatly needed, for the following reasons:

(a) To have an adequate volume of work that can be started promptly in the critical transition period.

(b) To develop an overall program soundly balanced as between private and public work.

(c) To assure to prospective owners sound value in their investments by reason of careful advance planning.

Some private planning is going on, but not enough. It can be encouraged by members of the construction industry in various ways.

1. Manufacturers of Construction Materials and Equipment can do much in preparation for V-Day of an adequate private works reserve and of the means for assuring prompt execution of projects.

(a) They can advertise to the public the many practical advantages of early consultation with architects and engineers, the advantages of time spent on careful planning, the many reasons for planning now; some manufacturers are doing this.

(b) They can, where possible, inform the public as to how soon after V-Day they expect to have their products on the market.

(c) They can tell the designers and the public in their catalogs and periodical advertising, just what their postwar products are going to be; many of them are doing this. It is very necessary to counteract fanciful predictions of radically new products which are not likely to come on the market but popularly supposed to be just in the offing and likely to outmode in the early postwar period building designs made before V-Day.

(d) They can make specific marketing plans, reconstitute their sales organizations and their distribution outlets.

Such immediate action by manufacturers would be good business, not philanthropy. The postwar construction market will be highly competitive, and those ready with advance marketing plans will have the advantage of a head start. There will not only be stiff competition among established producers and suppliers, but also from overexpanded war-baby industries attracted to the postwar construction field by current predictions of record-breaking volumes.

Emphasis in most postwar discussion has been on full production and full employment. These highly desirable ends cannot be realized unless manufacturers take early initiative in getting orders for their products and in employing those means which produce orders in large volume at low cost.

2. Trade and Professional Associations and the Business Press within the construction field can in many ways parallel the promotional activities of the manufacturers.

Other trade and professional associations, representing owner groups (industrials, hospitals, hotels, churches, chain stores, etc.) can promote the PLAN NOW FOR V-DAY idea among their memberships. Trade periodicals in these various fields can do their part.

3. Much Can Be Done by local chambers of commerce, CED committees, and

other business organizations in developing local work-piles. For example, the San Francisco Chamber of Commerce, with a well-organized postwar committee, has surveyed the San Francisco metropolitan area and ascertained, along with the post-war employment programs of the industry and commerce of the area, the specific projects of plant expansion, new structural facilities and building modernization that will be required. Some other chambers of commerce have similar programs under way; more can do it. An excellent pattern of procedure for smaller cities has been set by Albert Lea, Minnesota, where a substantial prospective volume of commercial, residential and farm building, and much needed modernization work, has been listed.

Most of the business organizations of the country, (national, regional and local) have postwar committees. Great emphasis has been put on the need for postwar jobs; more emphasis needs to be put on postwar business opportunities. It is a striking fact that, when a group as broadly representative of general business interests as a chamber of commerce surveys business opportunities, it always concentrates a major part of its attention on potential construction activity.

4. The Need is Primarily for Planned Projects that can go ahead: Secondarily, for Listings and Statistics that can be Publicized for Useful Purposes. The national private works reserve will consist of the sum total of all the private local work-piles developed in the thousands of cities and towns throughout the country. None of the suggested activities need in any way interfere with war production or the prosecution of the war. V-Day is an unknown date; it *can* come sooner than we think. Even if it is 12 months or more from now, the present is not a day too soon to start intensifying our plans for meeting the business problems it will precipitate.

CHAPTER VIII

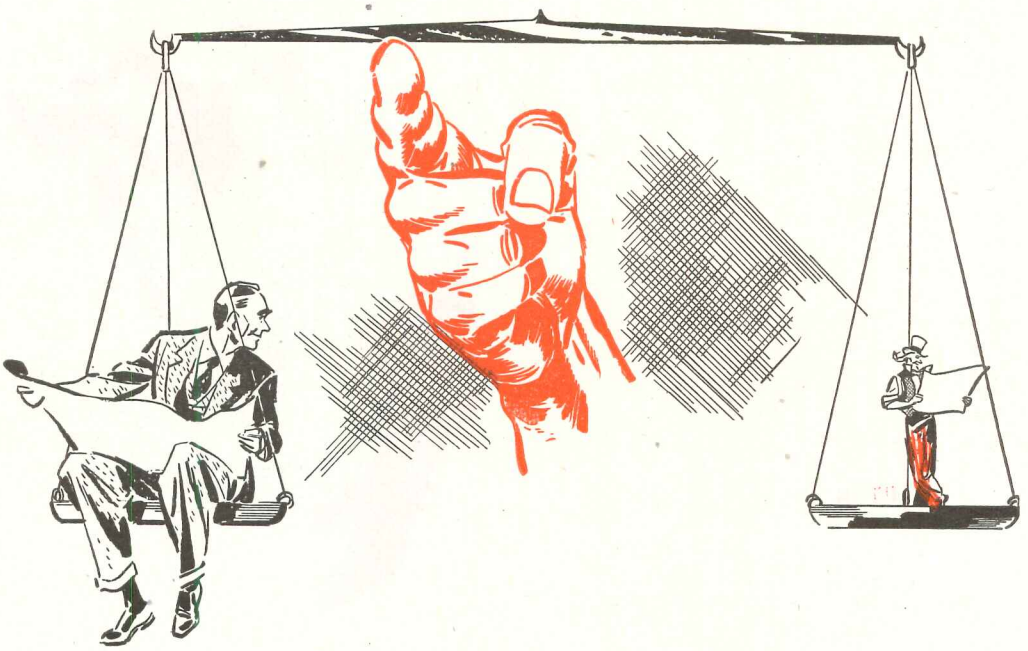
NORMAL PUBLIC WORKS PROGRAMS

THERE IS far from being any conflict between public works *per se* and private construction. Normally, public and private construction supplement each other. Few private construction projects could go ahead if necessary supplementary public facilities did not already exist or were not expected to be provided. When Congress appropriated funds for war housing it was also obliged to provide funds for necessary community facilities. Sound development of construction activity, is a question of an adequate, balanced program of public and private construction, soundly conceived and soundly financed in both its component parts.

1. Emergency Programs of the 1930's Confused the Issue—In the 1930's emergency public works programs were so tied up with deficit spending, with some work-relief projects of a boondoggling or leaf-raking character and others of the nature derisively described as pyramid building, that many people acquired a prejudiced view relative to all improvement programs involving the spending of public money.

It is necessary to have a balanced view of public works programs, as normally carried out by agencies of our various governmental jurisdictions.

2. Federal—Departments of the federal government build post offices, custom houses, internal revenue offices, agricultural experiment stations, army posts, navy yards, airfields, arsenals, river and harbor developments, flood control and reclamation projects and occasional special projects like Boulder Dam; such projects have usually been financed as current expenditures provided for in regular appropriation bills.



One special project, the Panama Canal, was financed by special bond issues, for which tolls were pledged to meet interest and sinking-fund requirements.

3. State—State governments undertake such works as highway programs, grade-crossing eliminations, state parks, building projects for state departments and state institutions.

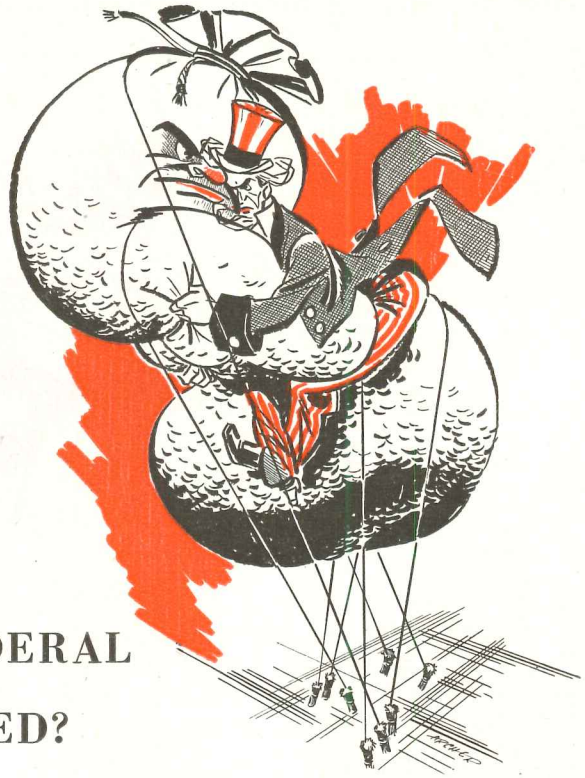
4. Local Governments—To counties, municipalities, local improvement districts, school districts and other local agencies falls the responsibility for financing most of the public service facilities that are in daily use by or for the people of the communities: these include streets, street lighting, water supply, sewerage systems, fire and police stations, schools, public hospitals and health centers, and public recreation facilities.

State and local governments finance their improvement projects partly by current appropriations and partly with bond issues.

5. Federal-aid Highways—An important joint program of federal and state governments, which has been going continuously since 1916, is the federal-aid highway program. Under it the federal government shares with states, on a fifty-fifty basis, the construction cost of the principal traffic arteries of the country. Responsibility of the federal government to provide for construction of an adequate national system of highways is recognized in Article I, Section 8 of the Constitution, which lists among the powers of Congress the power "to establish post offices and post roads." Thus this federal-state partnership program is entitled to be considered as quite separate and distinct from any emergency program in which the federal government subsidizes projects which are normally and properly state or local projects. Facilities provided in the federal-aid highway program are parts of a national system, not purely local conveniences such as sewers or fire-stations which serve only the people of the locality where they are built.

6. Postwar Demands for Public Improvements—Strong public pressure exists today and will continue to be exerted upon government at all levels, and very particularly upon municipal governments, to provide public improvements of increasing variety, size and cost. Extension of public health services, improvement of street patterns to meet modern traffic conditions, public recreation facilities are all types of improvements in great demand. They are part of the necessary program of creating civilized communities in which there will be the greatest possible stimulus to private improvements.

The problem of meeting public improvement demands on the basis of sound financing will be one of the major problems of the postwar period.



CHAPTER IX

EMERGENCY FEDERAL SPENDING NEEDED?

INFLATION control will be a major postwar problem. In the transition period and in the postwar period, the biggest problems of the federal government, in managing its fiscal policy for maximum benefit to our economy, will be controlling inflation and controlling the postwar boom. Purchasing power will be distributed through systematic redemption of war bonds, by ordinary distribution of income to persons then gainfully employed, and, to some extent, by payment of unemployment benefits. Whenever price, rent and wage ceilings are lifted, purchasing power will continue to be, as it is today, greatly in excess of available goods and services; the threat of inflation will thus be far greater after the war than during the war. Unnecessary federal spending at that time would simply increase the inflation pressure, thus aggravating a major economic problem of the time rather than solving any.

1. Purchasing Power Will Exceed Available Goods—It has been estimated that liquid savings in the hands of individuals will amount to $50,000,000,000 by the end of 1943; this total includes an estimated $24,000,000,000 of war bonds, other savings amounting to $18,000,000,000 and potential consumer credit of $8,000,000,000. The Treasury Department estimated some months ago that there were then 50,000,000 individual holders of war bonds, half of them employed persons who have bought bonds out of payroll deductions. States and cities, like individuals, have been saving money and reducing debt; some have built up postwar reserves, some have bought war bonds. (Later estimates cite higher figures than those quoted here).

2. A Different Kind of Emergency— No emergency such as the one that existed in 1932 and 1933, which was characterized by drastic deflation of prices, wages and capital values and shrinkage of purchasing power, will exist after V-Day. If the problems of transition are considered as constituting an emergency, it will not be a purchasing power emergency to be met by lavish spending, but an emergency whose solution will depend upon good management for its solution—good management by government and industry in making the speediest possible adjustment to peacetime conditions. Awkwardness and delay in effecting the transition could result in distress situations that would strengthen political pressures for unsound relief measures contrary to the actual economic necessities of the situation.

3. Apparent Attitude of Congress— Congress has tacitly recognized the facts of the situation. It has liquidated the WPA, the PWA, the CCC and NYA, all emergency agencies created for spending and relief programs. It has also liquidated the National Resources Planning Board, a long-range planning agency which did much valuable work; apparently, too wholehearted adoption by NRPB of theories

of unlimited federal spending strongly influenced Congress to this action.

Congress has thus far taken no favorable action on any of the numerous proposals for postwar public works or urban redevelopment programs which have been placed before it and which would commit it to a policy of emergency federal spending in the postwar period. It would appear that the odds are against adoption of such programs by Congress unless and until there arises an emergency similar to that of 1932 and 1933. Prevailing opinion in Congress seems to be strongly against the theory that the public debt can be increased indefinitely without becoming unmanageable.

4. Everybody Wants to Avoid Work-Relief—It should be stated that even the most ardent proponents of federally-subsidized public works and urban redevelopment programs do not advocate work-relief programs or a revival of the WPA. In fact, they argue for their programs of planned projects as insurance against the WPA type of program, and cite this in bidding for construction industry support of the spending programs they advocate.

5. Political Dangers—Federal spending programs for the postwar period (other than special measures to relieve particular distress situations) are unsound, not only as economic and fiscal policies promoting extravagance and waste, but they are also very dangerous politically. Continued financial dependence of local governments upon the federal treasury tends strongly to political subservience of local political organizations to the party which happens to be in power in Washington.

CHAPTER X

URBAN REDEVELOPMENT

LARGE-SCALE rehabilitation of blighted areas in cities and towns has been widely discussed for ten years as a major real estate problem to be solved. During the past two years it has been put forward frequently as a postwar construction opportunity, by some as a convenient vehicle for large federal spending.

1. First Attack on this Problem was with the program of federally-subsidized public housing. In its earlier phases this program was called a slum-clearance program, by reason of the fact that much substandard housing in blighted areas was occupied by low-income families unable to pay an economic rent for decent living accommodations. The dual purpose of the program (economic on the real estate rehabilitation side and philanthropic on the family welfare side) led to confusion in policy and many times to difficulties in site selections. It became increasingly evident that much blighted property should be redeveloped for purposes other than public housing, and in many instances that the most favorable sites for public housing projects are not in the most completely rundown areas of the city. By common consent, these two problems are today considered separately, though they may overlap in particular instances.

2. Proposed Federal Bills—Two urban redevelopment bills have been introduced in the U. S. Senate this year. They are the Thomas Bill (S. 953) and the Wagner Bill (S. 1163). Both bills provide for federal loans to municipalities for the purpose of acquiring land in blighted areas for rehabilitation purposes, land so acquired to be partly improved for public uses by the municipality and partly leased or sold for private development. Under both bills the only security for the loans would be the property acquired (most of it at prices inflated above true values), since both bills expressly state that municipalities shall not pledge their faith and credit as security for loans. Under such circumstances, many of the loans would not be repaid; it is only realistic to characterize these proposals as providing camouflaged subsidies. Consequently, all the objections to federal subsidy for non-federal public works apply to these two urban redevelopment proposals.

3. State Legislation— Various state urban redevelopment laws have been enacted to encourage rehabilitation of blighted areas by private capital. These laws all provide for use of powers of eminent domain for the purpose of assembling property into large enough plottage for modern economic development. In other respects these laws follow four different patterns.

(a) The Principles of Business Reorganization. (The 1941 New York law, the Michigan law, the Wisconsin law). Under these laws depreciated property would be treated as insolvent enterprises, to be reorganized financially and as to management and improved physically. Special inducements are made to attract venture capital for subordination of existing mortgages, for refinancing with moderate amounts of new capital. In addition to great flexibility in permitted capital structure of redevelopment corporations, cities are permitted to make contributions in the form of limited tax exemptions.

(b) The Principles of Granting Powers of Eminent Domain for Redevelopment, without Tax Exemption. (Illinois and Kentucky laws). These laws are sound in principle. There is a question whether venture capital will be attracted without some financial inducement, such as the tax exemptions provided in other state laws.

(c) The Principles of Limited-Dividend Housing Corporations. (The New York 1942 law with 1943 amendments, the Missouri law and the proposed Massachusetts law.) These laws limit redevelopment to large-scale limited-dividend housing. They may on such a basis attract institutional or semiphilanthropic capital, but do not seem to be designed to attract venture capital. The widely publicized Stuyvesant Town project of the Metropolitan Life Insurance Company is projected under the 1942 New York law, which is very different in principle, though similar in name, from the 1941 New York law, pioneer state enactment in this field.

(d) The Principle of Bailing Out with Subsidies. (The Maryland law). This law simply authorizes the City of Baltimore to create an agency to receive federal loans and grants, expected to be forthcoming if S. 1163 (the Wagner Bill) is enacted by Congress.

Numbers of other states have considered legislative proposals for this purpose, and the effort to find a sound technique for accomplishing these purposes through local initiative and local responsibility deserves every encouragement and the most painstaking study. Existing laws should be studied further in order to assure their workability in the postwar period.

The revaluation of real estate which will take place when rent ceilings are lifted and when general prices reach their postwar level may tend to make feasible many redevelopment projects that previously seemed impossible of accomplishment under conditions of general depression.

A review of state urban redevelopment legislation appears in the November 1943 issue of ARCHITECTURAL RECORD, in an article by Thomas S. Holden, entitled "Practical Urban Redevelopment."

CHAPTER XI

PUBLIC HOUSING

PUBLIC HOUSING advocates undoubtedly will urge a large program of subsidized housing after the war. Others will contend that public housing is both unnecessary and undesirable, and that some other means be found of improving the housing of low-income groups. Public housing bulked large in certain prewar years. In 1939, prewar year with the largest volume of public housing construction, there were produced 56,542 new family units in public housing projects, or 11 per cent of the total new non-farm dwelling units produced.

1. Federal and State Programs—Public housing generally means housing built on account of local housing authorities, with subsidies from federal or state government, to rent below cost for accommodation of low-income families.

The federal program was regularized under the United States Housing Act of 1937, under which the United States Housing Authority was set up. For war purposes this agency, with its name changed to Federal Public Housing Authority, was in February 1942 made a part of the National Housing Agency. Its wartime function has been procurement of war housing built on account of the federal government.

New York State, by constitutional amendment and legislative act, has also adopted a program of subsidized low-rent housing. New York City has also subsidized some public housing directly, using for the purpose proceeds of a special tax.

2. Revived Programs Will Be Urged—It is expected that public housing advocates will urge upon Congress resumption of the federal public housing program in the postwar period, with additional financial commitments. As stated in Chapter X, this program is nowadays considered separate from slum-clearance or urban redevelopment. If the volume of private construction and of ordinary public works is as large as is generally expected, the argument for public housing as a creator of jobs loses weight. Furthermore, a period of great prosperity should materially reduce the number of families forced by low earning power to live in substandard housing. Consequently, a renewed public housing program will probably have to be sold to Congress and the public strictly on its merits as a program of social betterment for improving the condition of families on the lowest income levels.

Many criticisms were leveled at the public housing program as provided for and administered in peacetime under the United States Housing Act.

3. Methods of Applying Subsidies—The prewar method of applying federal subsidy, by pledging to local housing authorities annual grants large enough to meet interest and amortization on the capital cost of projects, and thus charge rents (actually about half the economic rent) to cover only maintenance and operating costs, came in for very strong criticism. Under this system, and the provision in the law that only families were eligible as tenants whose income was not more than five times rent, anomalous situations arose when war activities increased employment and improved incomes. Families required to move out by reason of their improved financial status were forced into less desirable quarters at higher rents than they had paid in the subsidized buildings.

Many business groups who have given sympathetic consideration to the social problem public housing seeks to solve have advocated a different procedure in applying subsidies. It is proposed that subsidies given to a local housing authority be pooled into a fund out of which allowances be made to families in amounts necessary to make up the differences between economic rent (which would be the official rent scale of the project) and amounts that could be paid by the low-income families. This plan was in use by a large and increasing number of local housing authorities in England before the war; it was there called the rent-rebate plan.

4. Arguments for Rent-Rebate Plan—It is argued that the rent-rebate plan fits public housing into the general rent-pattern of the community, obviating the anomalous situation of good new housing being rented at figures considerably lower than less desirable private housing in the immediate neighborhood. It requires the public housing projects to be operated at least on a break-even basis. It obviates many of the eleemosynary-institution aspects of public housing, by permitting assisted families (the extent of assistance being given them being unknown to their neighbors) to live side by side with unassisted families.

Such a system could be applied to families using private housing facilities as well as to those occupying quarters in buildings owned by public housing authorities. However, to accomplish the social purpose for which public housing is advocated, subsidies for rent to be paid to private landlords should be so applied only if a system is devised to insure that such private facilities meet reasonable decent minimum standards, and only if private housing meeting such standards is available in adequate amount.

When proposals for resumption of public housing come before Congress, it seems vitally necessary that the possibilities of the rent-rebate plan be fully explored, in order that any new public housing program be fitted as soundly as possible into our economy and removed from the realm of continuous agitation and controversy.

CHAPTER XII

TAXATION

BOTH PUBLIC and private construction demand are strongly affected by local as well as by federal taxation. States and local governments seeking new sources of revenue to offset desirable reductions in real estate taxes find most of these sources are preempted by the federal government. One argument being advanced for heavy federal subsidies for local public works and urban redevelopment in the postwar period is, that since the federal government will continue to preempt most of the tax revenues, the only hope for states and local governments is to lobby for as generous handouts from Congress as they can get.

1. Impacts of Federal Taxes—The impacts of high income surtaxes, taxes on corporate income, and capital gains taxes upon investment incentives are subjects of wide discussion and study. These tax burdens tend to discourage investment in various types of private construction (such as utility improvements, industrial plants, commercial buildings, rental housing) just as they discourage investment of risk capital in new industrial and commercial enterprises.

Consequently, every recurring federal tax enactment is fraught with significance with respect to future construction demand. The program and policies Congress will adopt with respect to federal taxation in the postwar period will greatly affect such private construction as represents new business ventures of any kind.

2. State and Local Taxes—Construction, however, has also a very special stake in state and local taxation. Income derived from the rent or the use of buildings is taxed as income by the federal government and by some states; the capital value of privately owned structures is also taxed as real estate by local governments, and to some extent by state governments. There were in the United States in 1941 more than 165,000 governmental jurisdictions with power to levy taxes and contract debt. Most of them collect the bulk of their revenues from property taxes; it is a matter of record that, in 1939, property taxes constituted 87 per cent of the total tax revenues of municipalities of more than 100,000 population.

3. Tax Problems of the 1930's—It was drastic deflation of real property values in the early 1930's that made it impossible for local governments to carry out public improvement programs at the customary rate on their own financial responsibility and thus made necessary federal grants in order to get a volume of work going. This situation is much improved today. However, it is generally admitted that real estate taxes are for the most part so high as to be very burdensome upon property owners and very discouraging to new investors.

4. The Postwar Tax Problem—Consequently, the country's postwar tax problem involves the following:

(a) Reduction of heavy federal war taxes as speedily as possible.

(b) Provision in federal tax programs for removal of deterrents to private initiative and private investment of risk capital.

(c) Provision of adequate tax sources for state and local governments, so that they can render their necessary services and construct their necessary facilities on their own initiative and responsibility. It is no exaggeration to say that preservation of local fiscal autonomy and local initiative in those public affairs properly within the jurisdiction of local governments is just as important as preservation of private enterprise in industry and business, if the American way of life is to be maintained.

5. Efforts for Solution— Viewing with alarm the steady encroachment of federal authority upon state and local prerogatives, thirteen state legislatures have passed resolutions demanding an amendment to the Constitution of the United States limiting federal income tax levies to 25 per cent of income.

Another approach to solution of this problem is exemplified in the Coffee Resolution (H. J. R. 56) now before Congress. This resolution seeks to create a National Commission on Tax Integration to study the whole crazy-quilt tax-pattern of the country and make recommendations to Congress as to legislation which would simplify and clarify the tax powers of all governmental jurisdictions. Creation of such a commission has been advocated in the past by both President Roosevelt and Mr. Wendell Willkie. It is understood that the Coffee resolution has strong backing among governors and mayors.

The Coffee Resolution does not appear to be moving in Congress. Business men should urge that Congress, in considering federal tax measures, take prompt action on the Coffee Resolution or upon some other measure devised to accomplish its purposes.

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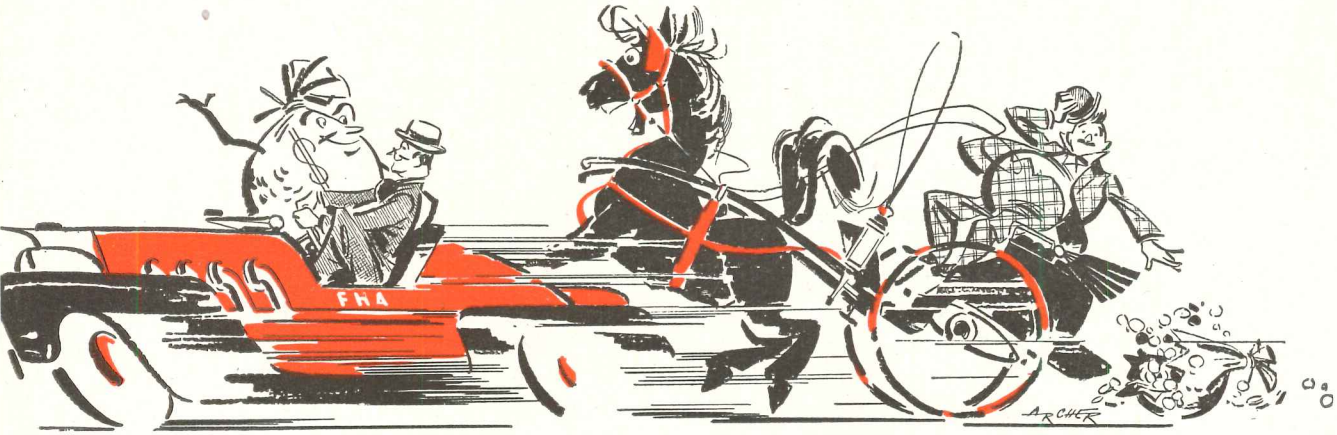


CHAPTER XIII

FINANCE

MORTGAGE-BANKING reforms of the 1930's, as exemplified in creation and improvement of the Home Loan Bank System and the mortgage-insurance operations of FHA, set the general pattern of mortgage lending for the future. Popularization of the long-term amortized mortgage transformed the pawnbroking system of horse-and-buggy days to a streamlined long-term credit system. Elimination of emergency wartime expedients and, perhaps, improvements in detail of these operations are the principal changes in prospect in the home-mortgage field. The influence of these changed concepts of home-mortgage lending has spread and there is general acceptance of the idea that practically all mortgages should provide for periodic and reasonably rapid amortization. There is no prospective dearth of mortgage money.

Two important fields of needed construction which may require new financing procedures are the fields of rental-income property and of state and local public works.

1. Equity Capital for Income Property—In depression years equity capital for investment in income real-estate was almost non-existent. Types of real estate securities that were sold widely in the boom times of the 1920's (mortgage bonds, mortgage certificates, preferred and common stocks) were sadly deflated in the depression, some of them down to the value of waste paper. The fact that there was not devised any new acceptable type of real estate security representing equity investment was probably due to the fact that depression rent-levels did not in many cases offer an adequate return on capital costs; in many cities there were surpluses of office building space and of middle and high-rental apartment space, and a meager demand for new facilities.

Section 207 of the National Housing Act authorized FHA mortgage insurance on large-scale rental housing projects, and a limited number of meritorious projects were built under it. However, for the most part the entrepreneurs of proposed projects wished to finance them in the old speculative way by securing such high appraisals based on prospective earnings that the 80 per cent mortgages would cover most if not all capital costs, leaving the equity interest to represent principally a prospective earning power and a minor or zero investment of cash. People willing and competent to undertake such projects were usually not those with enough capital of their own to permit leaving it in the operation during the period of amortizing the mortgages.

The requirement for periodic mortgage amortization radically changes the character of equity interest and equity earning possibilities. As mortgage debt on a property is reduced, an ever-increasing proportion of gross earnings is available for

distribution to equity investors. Thus, in theory at least, so long as property is not under economic compulsion to reduce rents and operating profits as fast as it reduces debt and debt service, it might conceivably pay dividends on some class of equity stock at an increasing rate. There is a problem of finding investors willing to put in equity money on the basis of this kind of long-term equity appreciation.

The interest of such an investor would be different from that of the usual operative builder who is under compulsion to get his own money out quickly, often in so doing skimming the cream of future earnings.

Perhaps there is indicated an opportunity for a type of equity financing that would offer one class of security to the investor willing to accept a moderate return at first with a prospect of an increasing dividend rate in the future and to the entrepreneur a security that could under favorable circumstances be retired out of earnings at a comparatively rapid rate. Some sound plan of combining these two types of investment interest may be what is needed to attract venture capital into real-estate investment in the postwar era. Opportunity for this kind of combined equity financing of urban redevelopment projects is provided under the 1931 New York Urban Redevelopment Corporations Law, and Michigan and Wisconsin laws.

Under the limited-dividend principle, which provides no reward to an investor for amortizing debt out of earnings, there is little appeal to venture capital. Large institutions or private investors interested principally in a moderate income return and ultimate recovery of capital, would appear to be the only investors attracted to limited-dividend housing projects.

2. Yield Insurance—Some people hold that the whole scheme of mortgaging rental-housing properties is outmoded and should be replaced by 100 per cent ownership financing. They propose that FHA be authorized to offer yield insurance, guaranteeing a minimum yield of 2½ per cent per annum on the amount of "established investment which remains in the property in any year;" total benefits collectible under the proposed plan would be limited to 10 per cent of the original established investment.

The needs and the possibilities of future financing of rental income property, on the basis of development of new type equity securities or, possibly, of yield insurance, deserve careful exploration and study.

3. Credit Facilities for States and Local Governments—Fiscal problems of state and local governments are touched on in Chapter XII. The question should be explored as to whether these governmental jurisdictions may require, in addition to better defined tax resources, special credit facilities. Such credit facilities may be needed by non-federal governments for financing both public works and that portion of urban redevelopment which will in the future provide public facilities. It is not to be expected that private redevelopment corporations can do more than redevelop urban property for income-producing occupancy and use.

In connection with the emergency public works programs of the 1930's certain rudimentary banking facilities were provided for non-federal governmental units. Non-federal public works were financed with a combination of 45 per cent grants and 55 per cent loans. In many cases local governments put up their bonds with the Public Works Administrator, to cover their 55 per cent share of project costs; these bonds were sold to the RFC, which in turn placed them at more favorable times with private investors. This was a banking service.

It appears that Congress, in determining postwar fiscal policies, will be obliged to make a comprehensive study of the many existing lending agencies and other fiscal agencies of the federal government and of their relation to the future long-term credit needs of the country.

Such a study might reveal a need for providing, either by private capital or with federal funds, regular banking facilities, on a permanent instead of an emergency basis, for states and local governments. It may be of some significance that the Crédit Foncier of France, national mortgage banking system which has formed a pattern for our own recent developments in the home-loan field, had as one of its functions the making of direct loans to municipalities.

In view of the extension of long-term credit concepts exemplified on the one hand

by recent developments in mortgage banking and on the other hand by the varied operations of the RFC, it may be discovered that extension of these new credit principles could obviate in the future the supposed necessity of large-scale federal spending to meet depression emergencies.

The question of possible application of new long-term credit concepts to the field of non-federal public finance deserves careful exploration by qualified people in public and private finance.

CHAPTER XIV

WHAT ABOUT A POST WAR DEPRESSION?

REALISM requires that ups and downs be anticipated; but a realistic appraisal of economic trends in the United States between World War I and World War II, does not support the theory that another depression of the kind, severity and duration of the one of the 1930's is *inevitable*.

1. Dislocations of War have in the past usually produced unmanageable economic crises which have resulted in economic depressions. Two periods of economic depression followed World War I.

The depression of 1920 and 1921 was caused by a spectacular postwar price inflation and consequent deflation. It was severe while it lasted. Throughout the period of depressed activity there was a continuing though temporarily ineffective demand for construction. It is hoped, even confidently expected by many people, that by judicious management in the period of relaxing wartime economic controls, such an inflation and consequent deflation can be avoided after World War II.

2. Immediate Consequence of War is a Boom—The immediate economic consequence of World War I, in the United States, was the postwar boom which lasted through 1929. Failure to control the boom had much to do with the depression of the 1930's.

The recovery period of 1920-1924 was followed by a period of rapid economic expansion accompanied by speculative excesses—a boom. Such factors as the expansion of automotive industries and allied industries (rubber, gasoline, oil, etc.) and the new construction generated by such expansion were sound enough in themselves. Among the unsound features were the following:

(a) Failure to modernize financial concepts in order to adjust to our change of status from debtor to creditor nation.

(b) Expansion of foreign trade by making unrecoverable loans to foreign countries.

(c) Unrealistic policies with respect to tariffs and foreign debts.

(d) Speculation in real estate and securities; boom psychology led to appraisals of value in terms of fanciful anticipations of future earnings instead of realistic appraisal of current earning capacity; there was widespread desire to get rich quick by skimming the cream off the future.

Boom psychology ignored important internal economic changes of far-reaching importance to our domestic economy, changes that were visible at the time but appraised as unimportant. Among these changes were:

(a) The nation's change from debtor to creditor status.

(b) A lessened rate of population growth, ushered in by immigration restriction in 1924.

(c) Completion of our railroad system, with respect to mileage, and other

factors previously dominant in our economic expansion.

(d) Rapid growth and coming of age of the automotive industry.

(e) The revolutionary impacts of all these factors upon real estate values, which constitute the largest single item of national wealth and the underlying security of a very high proportion of the savings of the country; it is no exaggeration to state that the motorization of America affected in one way or another the value of practically every parcel of real estate in the United States.

In general, the American people cherished the delusion that the world upheaval had not appreciably changed this country's status, the delusion that economic ideas based upon observation of 19th century experience applied without modification to 20th century facts, the delusion that success and prosperity had been guaranteed by the efforts and hardships of past generations and required a minimum of new energy, of adaptation to change and of acceptance of the adult responsibilities of a full-grown nation.

In particular, there was the delusion that, since commodity prices had remained at generally stable levels after the 1920-1921 depression, highly speculative values of real estate (already undermined by the automotive revolution) and of stock market securities constituted no inflation threat.

The mistakes that were made by the people of the United States not only brought on drastic deflation and drastic corrective measures in this country in the 1930's; undoubtedly, they also contributed to the economic instability in other countries which led to World War II.

These mass mistakes, as always happens in boom times, were accompanied by individual mistakes of judgment and miscalculations which led to more business failures and real estate foreclosures than our shell-shocked economy could at the moment withstand.

3. Mistakes of the Past Do Not Have to Be Repeated—Certainly, some of the lessons gained from past experience will be remembered.

Certainly, we have available far more comprehensive and more intimate knowledge of current economic trends than ever before and readier means of assembling vital information quickly.

Certainly, we have streamlined one important department of long-term finance (real estate mortgages) and lessened future dangers of prolonged financial difficulties in that sector; we have set up other financial machinery readily adaptable to meet emergency situations quickly.

Certainly, government has assumed a responsibility that was never before 1929 assumed by private finance, the responsibility for keeping the economic system going at reasonably high levels in periods when it is in danger of slowing down too much; and government can implement emergency policies very quickly. The threat of government intervention in future economic emergencies should prove a strong incentive to private finance and private business to avoid boomtime mistakes and excesses.

The corrective measures applied in the 1930's (including deflation of speculative values plus new mechanisms that have been created and can be improved to meet changing conditions) have accomplished much toward preparing our economic system for future stresses and strains.

If we have gained wisdom from our experiences, as well as more information and improved economic machinery, we stand a very good chance of avoiding the more serious troubles that we experienced before.

In short, the most probable result of the war for the United States is a postwar boom following the reconversion period. The extent to which such a boom may result in a reaction will depend largely upon whether the boom can be successfully controlled so that it will not lead to speculative excesses.

At any rate, to plan and work for prosperity and to hope that any unsound elements in that prosperity may be recognized and controlled is a better attitude toward the future than fear of prosperity based upon vague anticipations of future disasters. The proper time to worry about prosperity is when we have it.

CHAPTER XV

WILL CONSTRUCTION EXPAND AFTER DEFERRED DEMANDS HAVE BEEN MET?

WHEN the deferred demand for construction and automobiles and household goods and machinery for peacetime production has been taken care of in the coming postwar period, the stage will be set for expansion. In order to carry our big debt load, to maintain reasonably full employment, and to utilize our vastly improved and augmented industrial plant capacity, government will be obliged to adopt policies that will encourage wide scale investment in new enterprise.

1. Potential Expansion Factors—It is almost impossible to measure in advance the significant developments that make for general economic expansion. People were skeptical about the first steam railroads; the early automobiles were rich men's toys. Few people knew in 1919 what the automotive industry would accomplish in the following decade. In the deep depressions that preceded these and other tremendously vital expansion factors, people were very pessimistic, freely predicting long periods of stagnation and distress; up to now people have generally not been able to forecast what the next big expansion factor would be.

However, a period of great business and construction activity, in which shortages are made up after an extended period of stagnation or postponement of buying, builds up national income, savings and investment confidence, thus paving the way for expansion.

It is only possible to sketch in general terms the types of expanding activities that may become important in a genuine expansion era.

(a) *RESUMPTION OF MOTOR-AGE EXPANSION*—The transformations in our modes of living and our community patterns wrought by the automobile have not been completed. Much is yet to be done in developing bus and truck terminals, hard-surfaced highways, revamping street and open-space patterns of cities and towns.

(b) *COMMERCIAL AVIATION*—Commercial aviation, including fast freight service, is due for considerable expansion; private planes and helicopters may become really important transportation factors. Whether this development in transportation, practically certain to come on a large scale, will become as great a stimulus to general industrial and business expansion as railroads and automobiles have been, remains to be seen. Aviation is generally expected to supplement surface transportation rather than supplant it. In any case hangars of many varieties and sizes, airports, passenger and freight terminals and many as yet unknown accessory buildings will be required.

(c) *LIGHT METALS AND SYNTHETIC MATERIALS*—War needs have caused enormous expansion of aluminum production; they have practically created a magnesium industry; they have brought into being new plastic materials and expanded production of others; they have created a synthetic rubber industry. Producers of all these materials are at this moment conducting product and market research in peacetime uses of these goods. These materials will be used in industrial products, airplanes, automobiles, household conveniences, art objects and in many other ways. Their development as structural materials might in time considerably modify construction methods, architectural style, and furniture design. It is very difficult to set any limits to the long-range

expansion possibilities of these materials, newly available in vast quantities at low prices. It has been said that the machine age has progressed into the chemical age; this statement suggests new developments of great future significance.

(d) *NEW CONSTRUCTION MATERIALS AND METHODS*—New materials and new construction methods, producing greater values per building-dollar, will inevitably tend to increase demand for low-cost buildings of every classification, particularly houses. War construction requirements, with the paramount needs of speed and economy in use of scarce materials, have modified traditional design ideas and construction procedures.

Undoubtedly, developments in prefabrication will have lasting effects upon construction methods and procedures, though it has become increasingly apparent that changes will be evolutionary in character, except possibly in houses and other structures of the simplest design and lowest cost-classifications.

In any case, many of the technical developments of the war period will persist; to the extent that they will provide better buildings for less money they will contribute largely to expanding the construction market of the future.

(e) *HOUSING*—The housing revival of the late 1930's, interrupted during the period of war restrictions except for buildings in the war-housing classification, will doubtless be resumed. In part, the housing program will make up deficiencies of the last depression period; its continuation will depend upon the degree of general prosperity (high national income and full employment) the country will enjoy. If national income averages over 100 billion annually in the 1940 decade, as seems highly probable, housing demands will be very great and will continue for an extended period. There will be a much greater demand, proportionally, for houses to cost (with land) over $6,000 than in the 1930 decade, not only because there will be some surpluses of lower-priced houses directly after V-day, but also because higher national income means more families moving into higher income brackets and demanding better houses than they lived in before. The expanded housing market will be largely a

market for private buildings and investors; the possible extent of any government-subsidized public housing program is purely conjectural at this time.

(f) *URBAN REDEVELOPMENT*—Redevelopment of blighted urban areas, talked about a great deal during the past decade, is more than likely to develop into real large-scale programs. A number of people are advocating that this should be done on a national scale, with subsidies for local communities by the federal government. Other people, equally impressed by the necessity of doing this job on a large scale, believe that it can be done and done more soundly through local initiative and private investment; to this end six states (New York, Illinois, Michigan, Kentucky, Wisconsin and Missouri) have enacted enabling legislation to encourage private initiative and private investment. (See Chapter X.)

(g) *FOREIGN TRADE*—Expanded foreign trade would undoubtedly call for new and improved port facilities, terminals, warehouses, and the like.

(h) *NEW PUBLIC IMPROVEMENT NEEDS*—Prospective postwar development of the national highway system is said to be quite large; replanning of city traffic arteries, with provision of access to airports and other terminals, would augment construction volume; expansion of cultural facilities (schools, colleges, libraries, research laboratories, theaters, community centers, recreation centers) will be possible on a large scale in a truly prosperous period.

2. Prospects of Economic Expansion—Following victory, the potentialities of great economic expansion and prosperity for the United States, with its great resources, technological development, enlarged productive facilities, high level of income and outstanding position in world affairs, are enormous. With sound policies and good management, with reference to our domestic affairs and to international relationships, this country should enjoy hereafter a greater prosperity than it or any other country has ever had. Prof. Sumner H. Schlichter, a leading economist, has said that controlling the boom is apt to be the major economic problem for as long as fifteen years after the war.

Such prosperity cannot be achieved without enormous construction activity. Careful appraisal of long-range prospects indicates that the decade following the war is likely to have a larger volume of construction than any previous decade in our history.

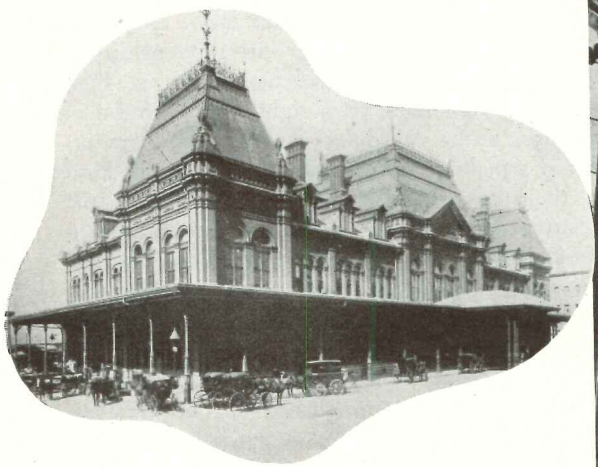
RAILROAD STATIONS

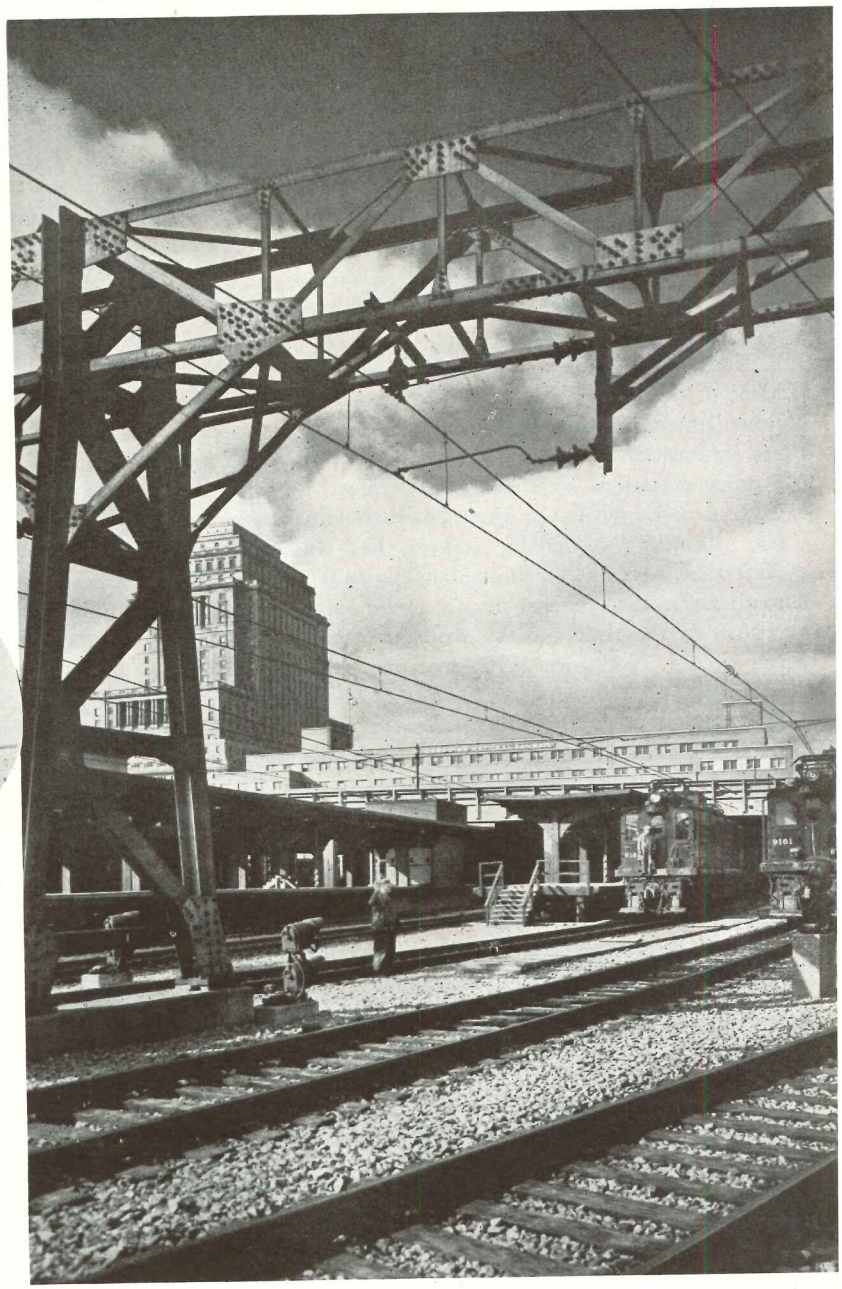
A NEGLECTED OPPORTUNITY

"Slums" and "mausoleums" are an unwanted inheritance that suggest a "dying industry"

Air and motor competition will not eliminate rail travel but will wholly change its face

Even on two trains a day, a new passenger station is often the most prudent investment





PRESENTING STATIONS OF

CANADIAN NATIONAL, Montreal

BURLINGTON, Burlington, Iowa

NEW HAVEN, Meriden, Connecticut

MILWAUKEE, Austin, Minnesota

ARCHITECTURAL RECORD'S BUILDING TYPES STUDY NO. 84

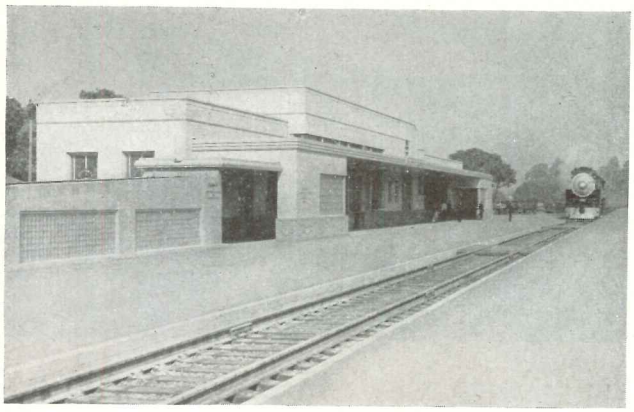
RAILROAD STATIONS—a Neglected Opportunity

By DOUGLAS HASKELL, ASSOCIATE EDITOR, ARCHITECTURAL RECORD

RAILROAD BUILDINGS are a great architectural opportunity, the more so because they have been neglected to death. The stations, in particular, are often a kind of industrial slum. In the wartime emergency, the public has rediscovered them with a shock. The contrast between the modern streamliner and the typical decrepit railroad station has been made the subject of a report by the Committee on Buildings of the American Railway Engineering Association. Policy-making executives, in their unofficial utterances, divide their condemnation between two pet anathemas among stations. One is the monumental "mausoleum" inherited from the balmy days and eating its head off in carrying charges. The other is the series of small Victorian "depots" with their characteristic malodor, dim lights, hard benches, pot-bellied stoves, peeling paint, and unsolicited frescoes.

The first step after the war, says F. E. Williamson, president of the New York Central System, will be the continued modernization of the railroad plant. Of this plant, the stations constitute the most backward single element. Strings of stations were being modernized by some midwestern roads when war interrupted. A large eastern system, according to reliable sources, has whole series of station plans ready for immediate postwar action. Other roads are in the phase of intense preliminary study.

Now is the time for the roads to capitalize on their war record. Not since 1920 have they enjoyed as much public attention and prosperity. The estimate made by the National City Bank of total passenger travel for 1943 is 80,000,000,000 passenger miles, almost double the old war figure for 1918, and three times the figure for 1939. For 1944 there is expected a further 15 per cent increase, limited only by capacity. Not only have more passengers been carried, but the average trip has almost exactly doubled in length, from 36 miles in 1921 to 80 in 1942. While the impression of a "come-back" is still fresh in the public mind is the time for the roads to give evidence they they intend to hold by quality what they have won by the windfall of emergency.



Southern Pacific Station at Palo Alto, California, Wm. H. Kirkbride, chief engineer. The stations of this big passenger road combine many facilities under a single roof

AIR AND BUS COMPETITION

Airlines and buses after the war will operate out of terminals most of which will be new and up to the minute, whereas the big majority of the 59,300 railroad stations, serving 46,000 communities, were built before 1890. Nevertheless, the thought that air and bus travel will relegate railroad travel to limbo is as faulty as the thought that tanks and planes in war would permit commanders to dispense with infantry, artillery, and war ships. What is implied for the older services in both instances is a radical overhauling of design, strategy, and tactics.

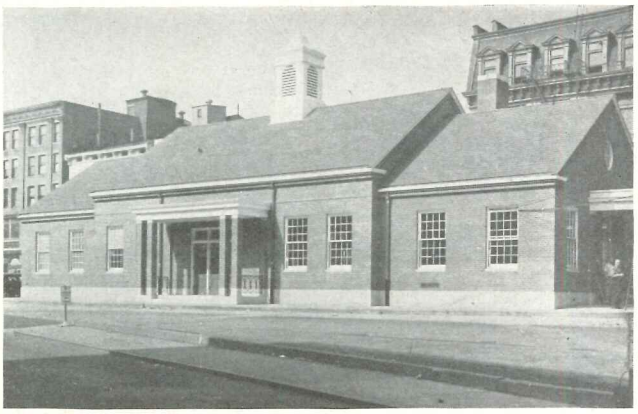
The more wide-awake railroad men are planning a special kind of service with which buses or planes would find it difficult to compete. This program involves carrying masses of people, for medium distances, from city center to city center, without weather interruptions, in the new light-weight "streamliner" coaches drawn at high speed by Diesel locomotives, on a right-of-way cleared of grade crossings, under schedules expedited by new developments in signaling and control. In meeting this kind of service, the buses will find their chief obstacle in the cluttered nature of their right-of-way, and the airlines in higher initial cost, in the space-consuming, outlying position of their terminals, and in the terminal delays produced by bad weather.

In making comparisons, realistic thinking must not share the popular fallacy of accepting the "airline of the future" as if it were an accomplished fact of the past, while the railroad of the past is accepted as the only possible form of railroad for the future. Nor should architects continue to neglect the railroad station problem on the assumption that "passenger service does not pay." The best opinion gathered by the RECORD was, "if passengers are to be carried at all it will pay best to carry them well" — and public policy insists that they be carried. Again, the current battle for future control of the air presages no ascertainable change in station planning. If the railroads are debarred from the air, they may concentrate more heavily on improving their accustomed medium.

PUBLIC RELATIONS AND CIVIC POLICY

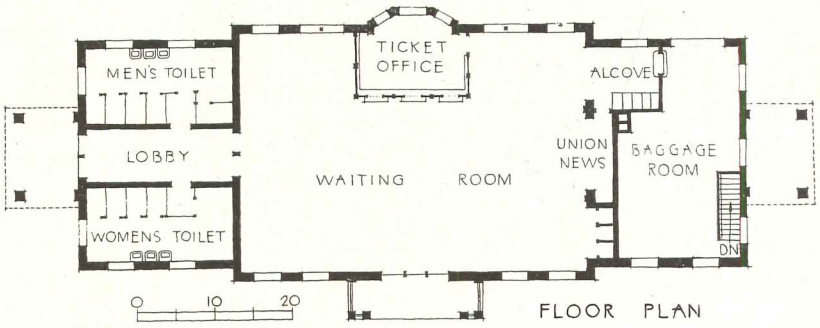
The station is the railroad's storefront, its public face —at present the face of a "dying industry."

The station is more: it is always a civic building. At the railroad station is where the broadest railroad interests and public interests meet. The old railroad giants such as Cassatt of the Pennsylvania knew this when they linked



The Shaw Studio

Station of the New Haven Road at Meriden, Connecticut; F. J. Pitcher, engineer of design and structures, Lurelle Guild, consultant. The rest-room lobby is so arranged that it can be locked off from the station at night and is maintained by the town



themselves with architects such as White in the "City Beautiful" movement. The grandiloquence of that epoch is gone, but the underlying service elements that were involved are everlasting factors in town planning.

A railroad station affects surrounding streets, public places, parking areas, mercantile districts or residential neighborhoods directly. At Montreal the new Central Station has given the city two new and better streets connecting the upper and the lower city; the station is conceived as the very heart of a new mercantile and civic development. Even in a small town, the station is a civic center for good or for bad. At Meriden, Connecticut, the new station of the New Haven road includes a much needed centrally located comfort station, which is of such importance to the town that the town has taken over the maintenance. At La Crosse, Wisconsin, the women's clubs discovered that the new station lounge was the best meeting place in town.

A fresh station program will invariably enlist the cooperation of chambers of commerce, mercantile organizations, civic groups, and women's clubs, and they can be used to organize discussion, promote competitions, display drawings. In this context, not to be forgotten is that powerful new pseudo-civic organization, the department store.

COST OF MODERNIZING VS. NOT MODERNIZING

The cost of the new Central Station at Montreal (presented on succeeding pages), although the station is handsomely done, thoroughly equipped, and amply commodious, was less than one-fifth the cost of a station of comparable size, as it might have been built by the railroads during the heyday of their architectural ostentation. Architecture, to be proud, need not be rotundly "monumental," any more than effective speech need be florid.

The cost of renovating or rebuilding stations in general is to be balanced against the cost of losing all public interest and patronage by not renovating or rebuilding. Again, it is to be measured against direct gains and savings which arise out of (1) more efficient train operation; (2) more efficient terminal operation; (3) reduction of inflated carrying charges on older oversized stations.

New Stations for Quicker Trains, Better Terminals Fifteen minutes' running time was cut from the schedules of Seaboard Line trains running through Raleigh, North Carolina, when the station was moved to a new yard. The old station was of the "stub" type which requires excessive backing and filling and the yard was too short, so standing trains of modern 12-17 car length fouled the main line. The new Eugene Bagwell Station is on a main-through-track yard with full facilities.

Even where a town is served by only two passenger trains a day in each direction, building a new station may be more economical than operating the old. At the Austin, Minnesota, station shown on page 105, the Milwaukee Road recombined under one roof the passenger, freight, baggage and express facilities previously scattered. This recombination is becoming standard practice on such roads as the Southern Pacific.

Remodeling to Cut Down Waste Most old stations in larger towns are too big. By hanging new ceilings to cut down the vast overhead height of their old lobbies, sometimes it is possible to gain a new second floor. Old unprofitable restaurants may be converted, as was done by the Rock Island at Des Moines, Iowa, into administrative quarters. Old smoking rooms may be eliminated or con-

Union Terminal, Cincinnati. Fellheimer and Wagner, Architects, the famous railroad station built in the early thirties. A feature is the excellent handling of buses and rapid transit. The front is toward the city; tracks to the rear are parallel to its face; an opportunity for a monumental frontal approach

verted into needed lounges for women. Revenue can be obtained in some instances from the old waste spaces.

New Stations for Decentralization. It may sometimes be cheapest for a road to cut down radically, or abandon altogether, a central station in favor of decentralized new locations. W. H. Kirkbridge, chief engineer of the Southern Pacific, summarizes the reasons why decentralized locations must be considered in the future: *Land* cost for the station, and especially for needed parking, is excessive at the center; *great distances* are involved for outlying residents coming to a central station; *foot travel* of excessive length is required within any central station large enough to serve a big city.

NEW FACTORS IN STATION PLANNING

There are three main causes of major change in station planning. The first and strongest is the changed tempo of modern life, coupled with the emancipation of women since the 1880's when ruling station concepts were formulated. The second is the longer train drawn by the more powerful locomotive. The third is the higher standard of technical performance in other public buildings, by comparison with which the old stations look like a slum.

The faster tempo of modern life calls for stations in which all facilities may "be found at a glance and quickly reached." Of all considerations this is the most important.

This trend is strikingly illustrated in the large central type of station. The monumental old Pennsylvania Station in New York gets the traveler to the train through a long sequence of (1) entrance hall, (2) lobby, (3) waiting room area, (4) concourse. In the excellent Cincinnati Union Station this is cut down to (1) a traffic rotunda, (2) lobby, (3) combined waiting room and concourse over the tracks. In the new Central Station at Montreal, presented in this issue, there is only (1) the large room combining lobby, waiting room, and concourse, with access to traffic on all sides—a funnel from streets to tracks.

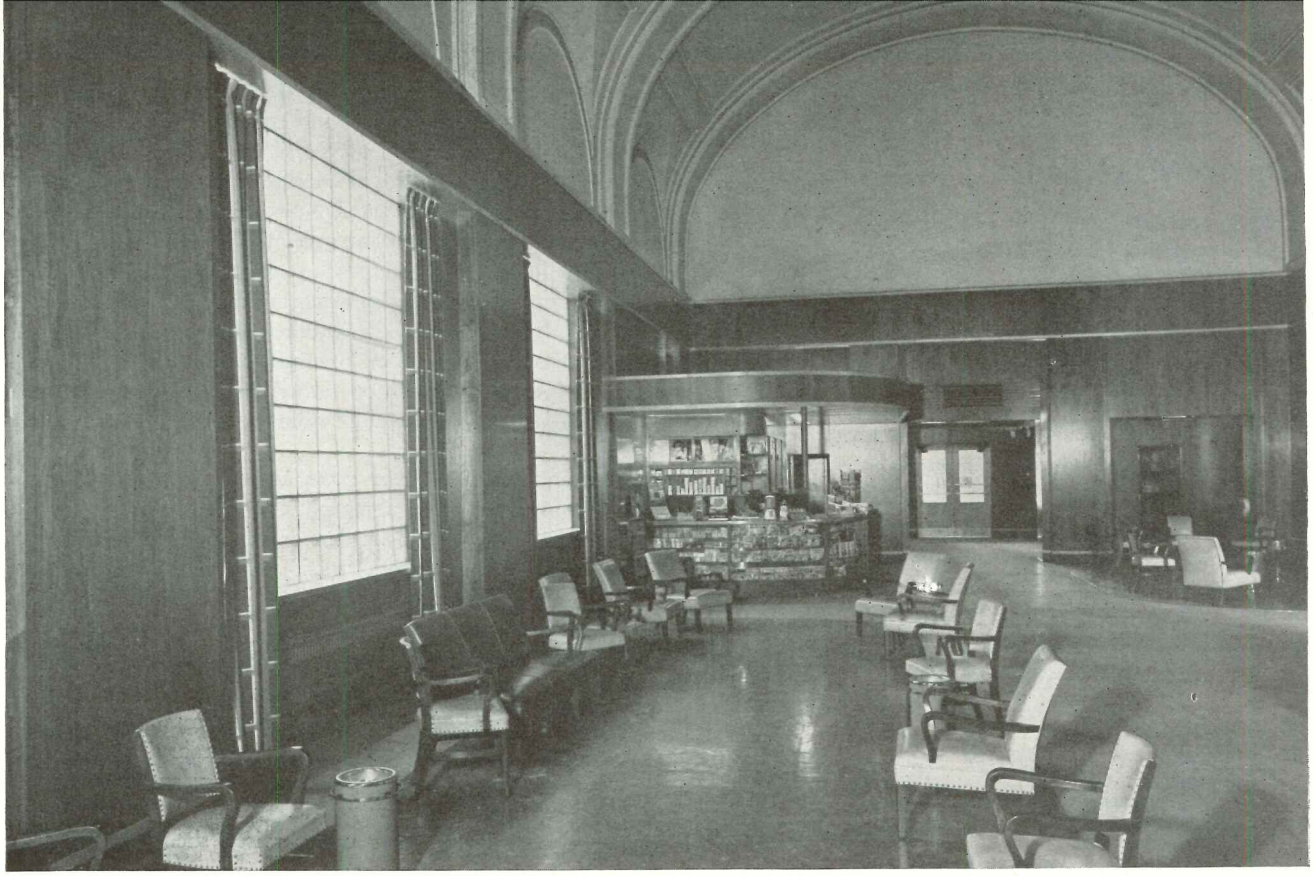
In all cases, the first requisite of a station is *good parking space,* and after that the *shortest possible line from entrance to train.* Directly contiguous to this line is the place for *ticket booths,* and for the *newsstand* where the traveler picks up his smoke or story for the trip. It is a chronic shortcoming among existing stations that the ticket counters are located for no purpose but symmetry, and the newsstands, run by a concessionaire, are allowed to sprawl over space that ought to be selling the travel service of the railroad.

Waiting room areas, where possible, are handled as a quiet reservoir *off to one side of the major rapid flow line.* Insufficient care is often exercised, even when this principle is observed, in *avoiding cross-currents* where this is possible. *Telephone booths* for last-minute calls are liberally distributed, not all bunched; this is true also of *coin-box lockers* for the lighter smaller baggage of the times. These coin boxes can be the ugliest thing in the station unless extremely ample recessed space for them has been provided in advance. *Informal lounge furniture,* though more expensive to maintain, makes the station a more inviting place in which to meet friends, and is less obstructive to progress through the station. Only the largest stations can support a full-fledged restaurant. Of these even the largest tend to be of the open counter type, so arranged as to give passengers a clear view of the concourse. In smaller stations and in suburban train areas of large ones, food bars and soda fountains serve the quick snacks. Other concessions in large stations are not dealt with in this article.

To repeat, it is a cardinal principle that public facilities be not only within quick reach but within easy sight, so that the station may be "read" at a glance.

Women's facilities testify to the emancipation of women since the tough early days of railroads. Powder rooms and rest rooms for women are a necessity in place of the old smoking room. In the future, a nursery and first-aid room will be considered indispensable even in smaller stations. The civilizing influence of women has permeated even the men's quarters: coin-locked full-tub bath rooms are being introduced so that the absent husband may return home fully scrubbed.

The new long trains affect track length and track access. The immediate effect is to hasten obsolescence of the "stub" type of station where the train is approached from the rear end. The occupant of a seat in the front car of a future 20-car train must walk past 19 17-ft. cars, or just over a quarter of a mile. The *Manual* goes into the complex problems involved in separating track access for passenger and baggage or express. These complexities are

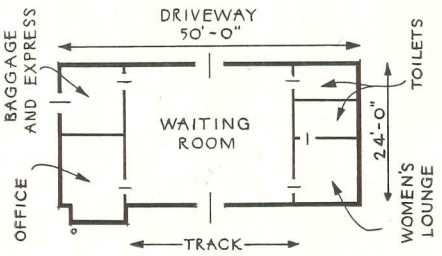


This modernization of the Rock Island station at Des Moines is typical of the kind of change that can be made in countless other railroad stations. The ticket window that shows at the end of the lower picture was removed and an open counter placed at the center of the long wall, right, next to train platforms. The sloppy newsstand, front below, was removed. Instead, a newsstand was placed in one angle where it may be seen in the view above, balanced by a lunch counter in the opposite angle, both so designed as to remain within proper confines. The long benches, which so manifestly block progress through the station, were replaced by lounge furniture. Fluorescent cove lighting replaced the hung lights. Although the tile wall previously in use was easy to maintain, it was covered by walnut veneer, far less glaring for passengers to look at. The glass block panels introduce light from the street side, where it was decided to exclude the view. Work was done under direction of D. A. Ruhl, chief engineer; Otto Kuhler, consultant

so great that we might well ask whether the stub station has not survived its usefulness.

LIGHT, HEAT, ACOUSTICS

Lighting standards are the particular in which average railroad stations fall farthest behind the accustomed standard of other public buildings. Apart from the question of actual practice, it is perhaps a question whether the recommended standards of the American Railway Engineering Association are high enough in themselves. These suggest only 2 to 4 footcandles in the waiting room—hardly very good light to read a time-table by. In rest rooms, toilets, and smoking rooms the recommended strength is 1 to 3 foot-candles, in the ticket office 6 to 10, baggage room 3 to 6, concourse 1 to 2, train platforms 0.5 to 1. In new stations, it is more likely that roads and architects alike will want to follow the precedent of the Montreal Central Station, and provide enough light so that passengers can read a time-table without strain anywhere except on the train platform. This would demand a minimum of 15



Standard plan for a one-man station (Redrawn from A.R.E.A. Manual)

foot-candles. For more details of modern lighting, see the notes on the new Burlington Station, on page 102.

Lighting of train platforms has to be planned in consultation with operating officials because real or imagined glare in the face of engineers bringing in trains is a prominent factor. In general, railroad station lighting standards are so low as to constitute a weak spot in the railroads' campaign for safety.

For heating purposes, the station may be considered as a combined public building and industrial plant. In a large building, such as the new station at Montreal, modern practice is to use a forced air system. Entering the main concourse through outlets close to the ceiling, the warm air is forced downward with sufficient velocity to reach the floor. The exhaust air is drawn off through wall outlets near floor level, and is reconditioned. Separate warm air circuits supply secondary areas.

Unit heaters serve not only for local heating in big stations but for general heating in small stations where the waiting room is occupied only intermittently.

The Committee on Building of the A.R.E.A. advises the use of automatic fuel feed, whether for coal or oil, in even the smaller stations. The *Railway Engineering and Maintenance Cyclopedia* estimates that modern equipment and insulation would save 25 to 75 per cent of the fuel being consumed in wood-frame stations.

Acoustic treatment of buildings has made enormous progress since the time when most stations were designed. Referring again to the most prominent modern example, the new Central Station at Montreal, the treatment of the vast concourse ceiling with 75-per cent absorptive acoustic tile plays a most important part in creating that air of unhurried quiet which calms even a big crowd in the station. Acoustic treatment is also important in holding the clarity of speech achieved in the public address systems that replace the "wah-wah" of the old station caller. Special rooms such as telegraph operators' offices, are isolated from noise by the heaviest type of acoustic office partion.

Vibration proofing, like good acoustic treatment, makes the station far more agreeable for the staff to work in. Vibration isolation, in the best examples, entirely separates building structure from track structure. (Time-Saver Standards, page 107.)

SMALL STATIONS

Small railroad stations differ from large ones in just the way that a small gasoline station differs from a large public garage. Problems of circulation are secondary except at the parking lot, and the top problem is easy supervision and maintenance by very few people.

Stations that are mere unsupervised sheds would seem to be obsolete, because a modern train is too heavy a piece of equipment to stop at such points.

The plan (left) for a one-man station, is redrawn from the standard type of the A.R.E.A. It admirably places all public facilities in the line of view of the agent in his office.

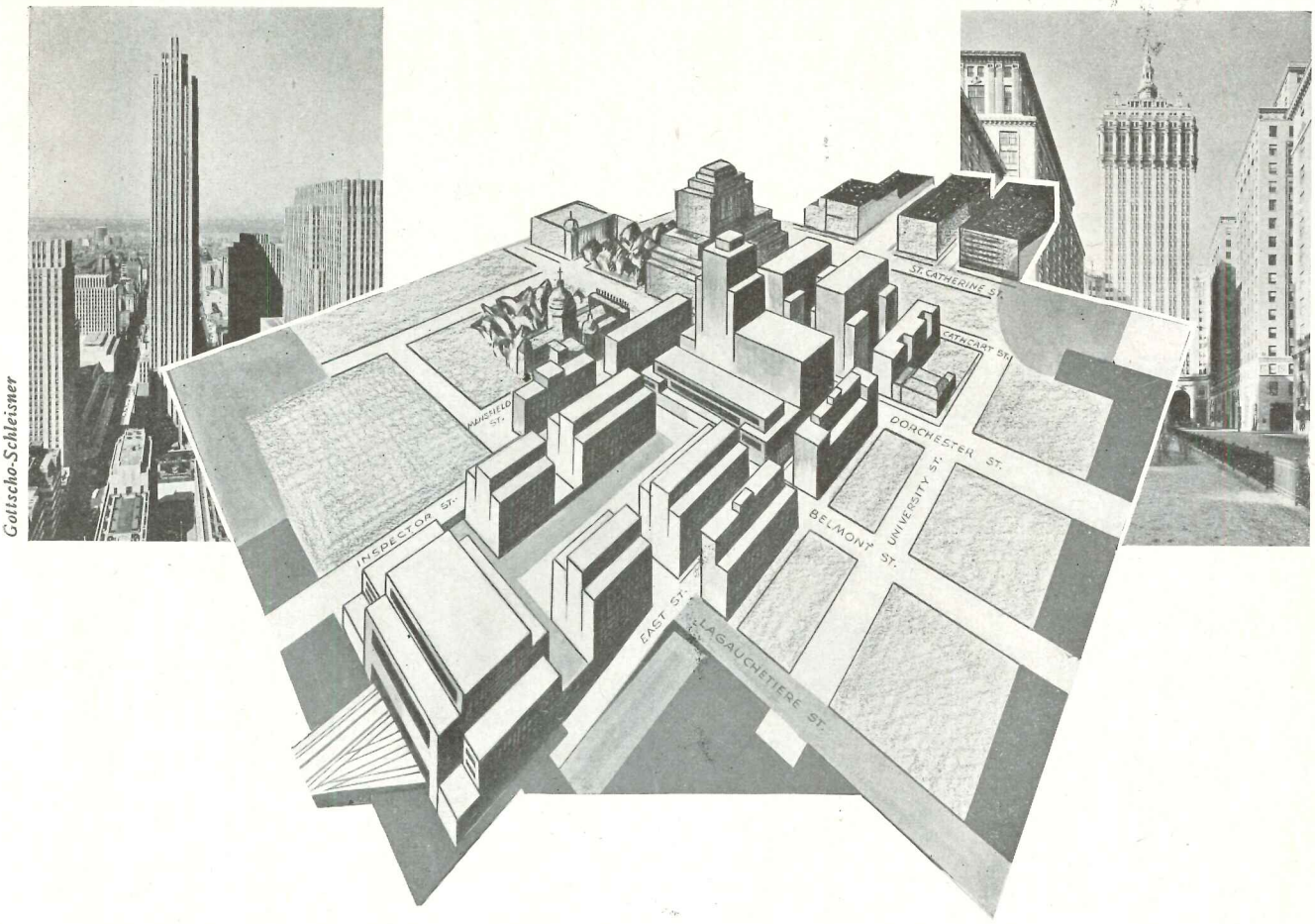
The most glaring deficiencies of the smaller stations are to be found in their finish, their heating, lighting, plumbing, and their furniture. Economy in first cost has guided their design, with scant reference to labor-saving maintenance, and still less reference to pleasing customers.

In general, small railroad stations would be making a very decisive advance, were they to reach the accepted standard of customer convenience achieved in the small gas station. This would mean doubling or tripling the intensity of lighting, installing agreeable lounge furniture, and above all, learning what the gas station has to teach on the subject of the importance of rest rooms.

ACKNOWLEDGMENTS

Grateful acknowledgment is made to the many architects and engineers who, in one form or another, have given aid to this study. Among them may be mentioned John Schofield, chief architect, George R. Drummond, his assistant, and John Wood of the CNR, as well as C. B. Brown and A. O. Stewart, CNR engineers. Others are F. J. Pitcher of the New Haven, W. H. Kirkbride of the Southern Pacific; also John Root of Holabird & Root, architects; and industrial consultants Henry Dreyfuss, Otto Kuhler, and Lurelle Guild. Executive vice-presidents of various leading roads were kind enough to discuss railroad problems.

In conclusion, the railroad of the future is what the railroad man will make it. Despite depression, the roads added $5,000,000,000 net to road and equipment from 1923 to 1941. "Our buildings shape us," said Churchill; better railroad buildings will make prouder railroad men.



Gottscho-Schleisner

Brown Brothers

"Combining features of Rockefeller Center, Grand Central, multi-level highways, in a 27-acre development"

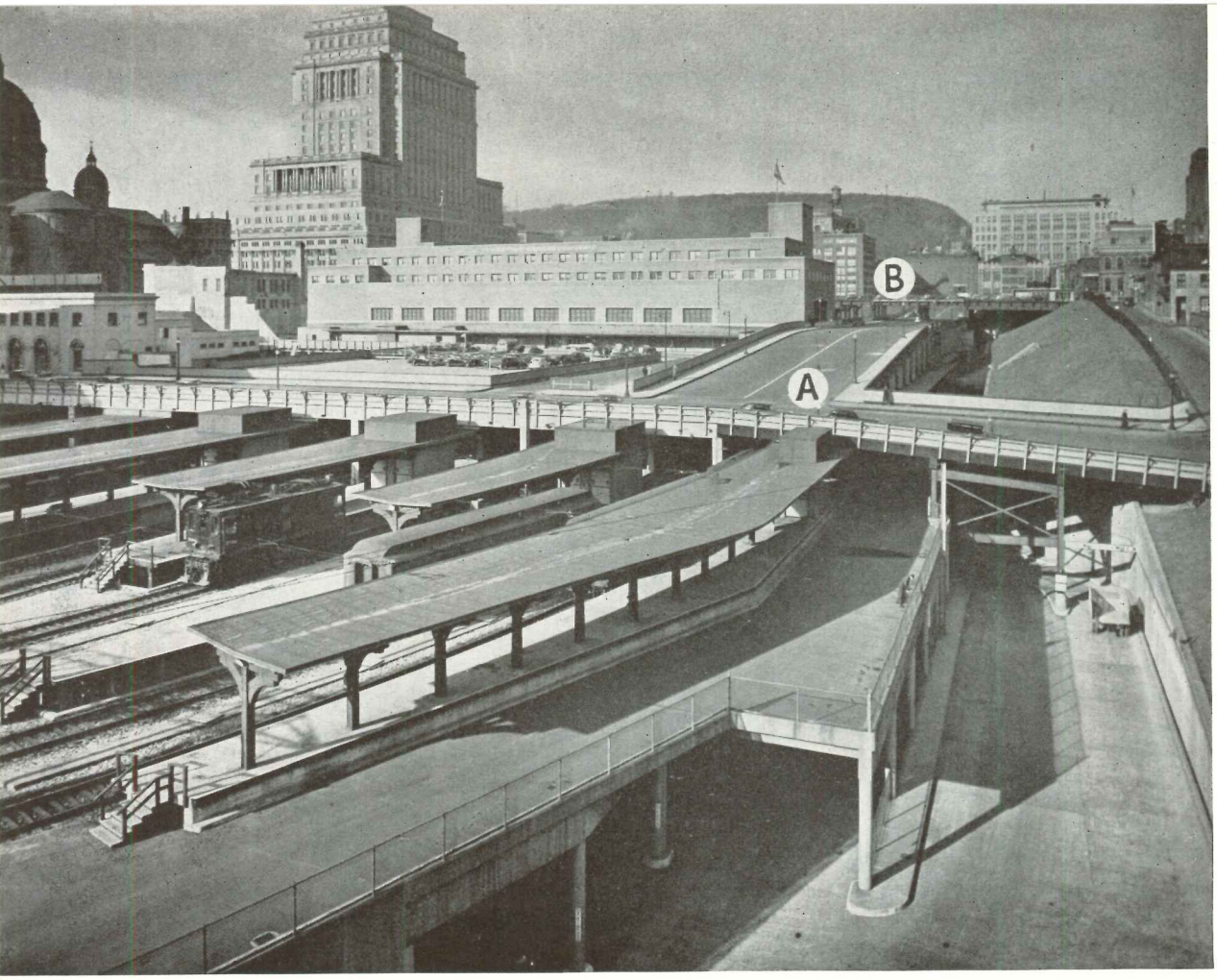
A MODERN STATION FOR MONTREAL

CANADIAN NATIONAL CENTRAL STATION • JOHN SCHOFIELD, CHIEF ARCHITECT, CNR

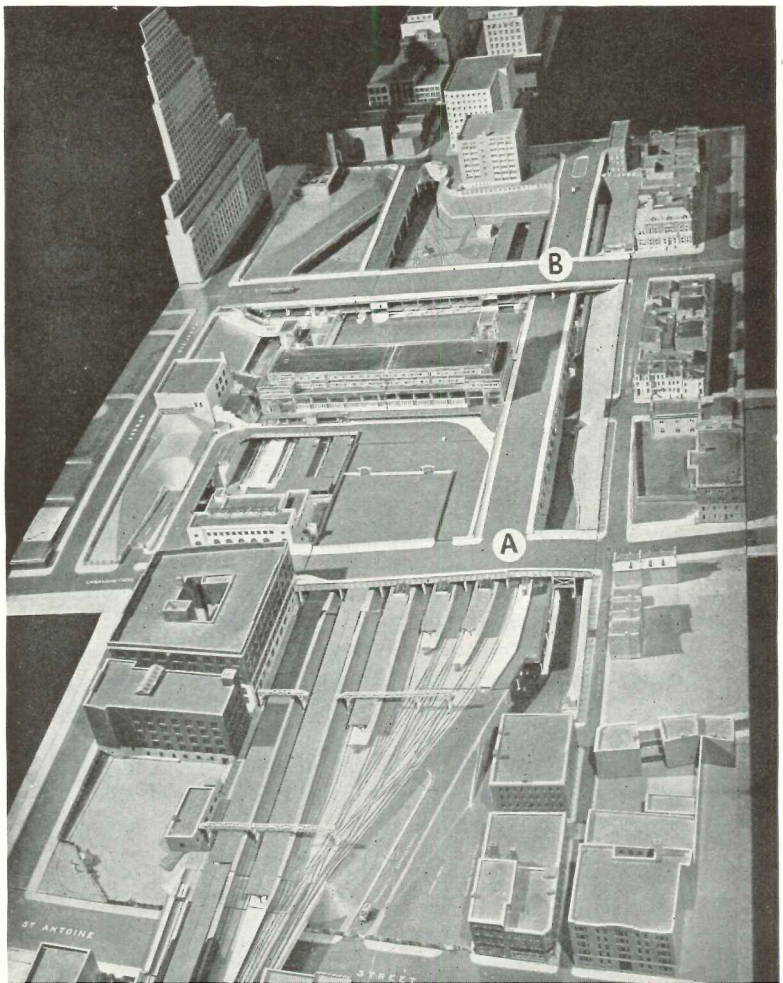
MONTREAL's new Canadian National Railways' Central Station is the largest passenger terminal to be built on the North American Continent in a decade. Work had progressed so far when war came that it was decided to carry the station to the point of opening; service was begun on July 15, 1943.

The station is the focal point of a $27,000,000 terminal unification project. Architecturally, the "one large room" concourse carries the planning of large stations a decisive step forward in simplification. In commercial terms, the 27 acres of property are situated at the heart of the city, and the station itself is merely the door-step of a projected "Grand Central" building scheme, involving some 670,000 sq. ft. of area to be leased as ground or as "air rights." On the precedent of Rockefeller Center, the concourse has been treated as the nucleus of a vast possible future understreet area of connected passages and spaces. Modern multi-level highway technique has been used at the sloping site to provide entrances and exits in every convenient direction. It is a new sensation to approach a large city railroad station through an improved version of the familiar subway kiosk.

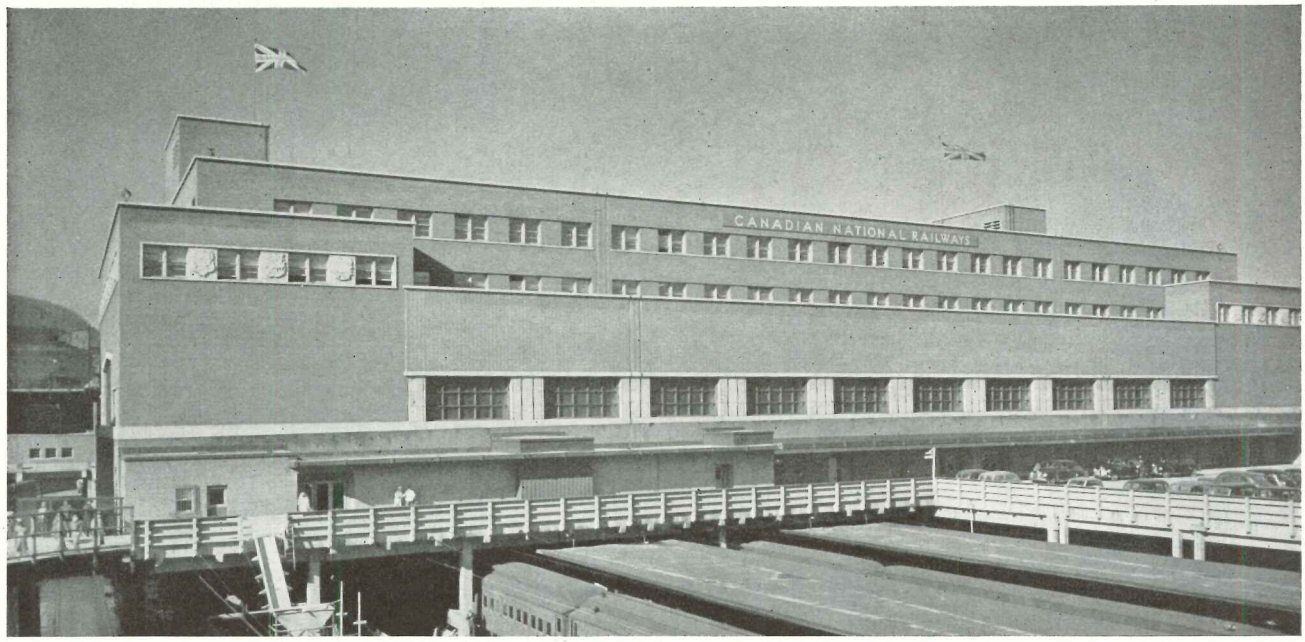
Rodney McCay Morgan photos



All views on these two pages are from the south. Circled (A) and (B) mark the same two street intersections on photograph, two models and plan

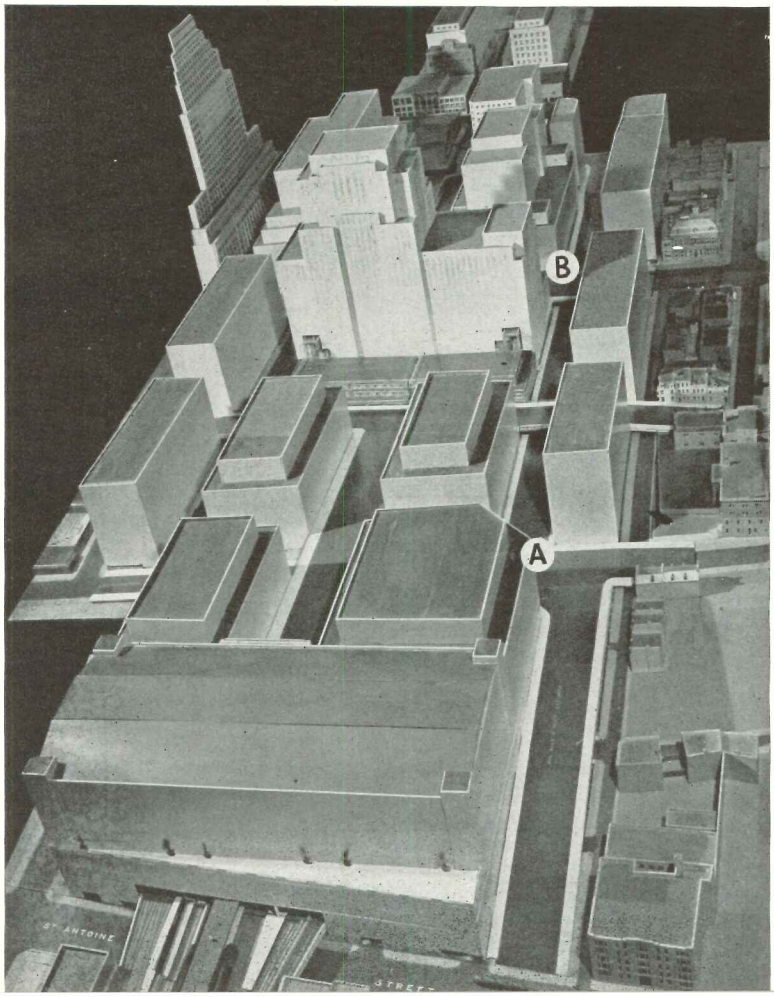


ACCESS. In the street plan a sloping site was converted into a positive asset. The tracks enter the station out of the Mount Royal Tunnel to the north (top in every view) and leave to the south on viaducts toward the St. Lawrence River. The main streets run east-west (horizontally in every view). Lagauchetiere (at A) is at concourse level and furnishes the southern taxi access and parking. Dorchester (at B) is about 20 ft. higher. From Dorchester, rapid-transit passengers enter the station by kiosks, escalators, and passages. Taxis from the north enter by the ramp *under* Dorchester, from Cathcart. Lagauchetiere, below, and Cathcart, above, are to be connected by two new up-and-down streets. East Street (A-B) is already completed; its companion to the west is projected. Both will be cross-linked, as shown on the plan, by the future North Street, and the traffic led into the future vehicular tunnel directly above the train tunnel to the north.



FINAL PHASE. In the ultimate phase of development, shown in the model and plan below, the station itself is expected to be a mere half-buried footstool or buttress to taller office buildings. In the foreground of the model is a proposed municipal auditorium, splendidly placed for out-of-towners. Preparations are already made for linking existing stores, hotels, office buildings under-street at concourse level. Garages will replace present-day parking spaces. At an average ground value of $20 a sq. ft., land and air-right rentals would eventually free the station of carrying charges. Rental space under the viaducts and new streets is already earning between 6 and 7 per cent independently of railroad operations.

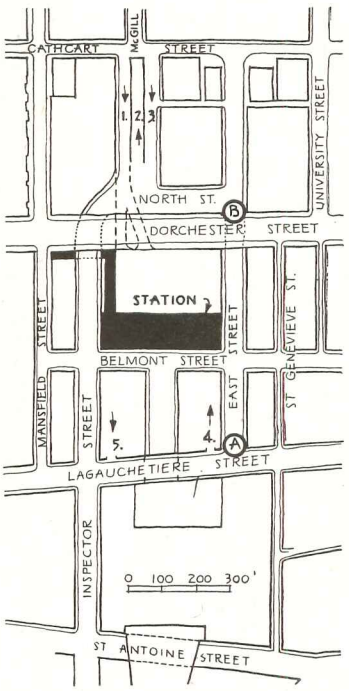
The remarkable 27-ft. celluloid sectional demountable model, welded with acetate and showing every column, was the work of Mr. Flower, and was invaluable for study.



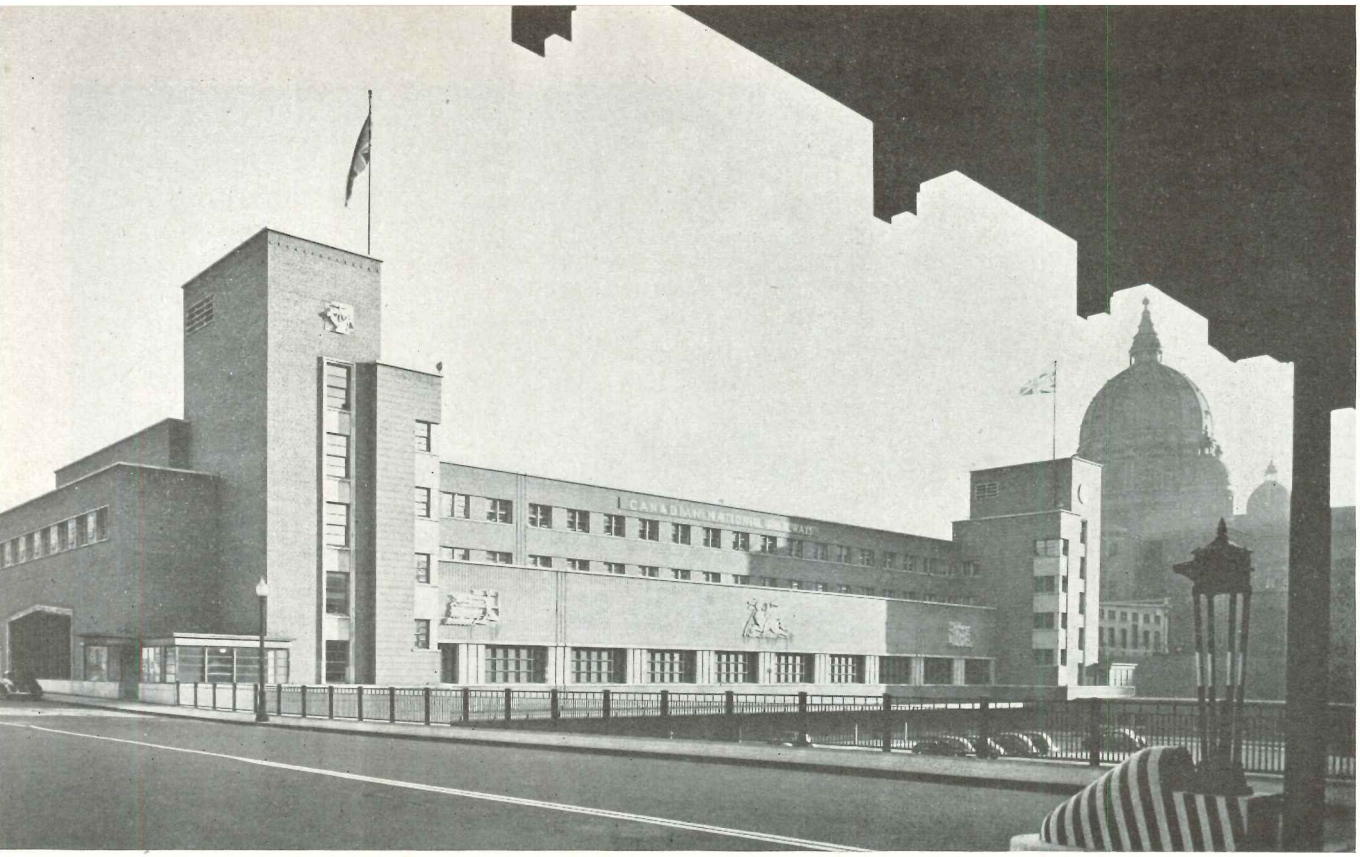
The sectional model, as set up in the photograph to the left, shows the proposed Central Station scheme in its ultimate development. See also plan below

B
Dorchester Street over East Street

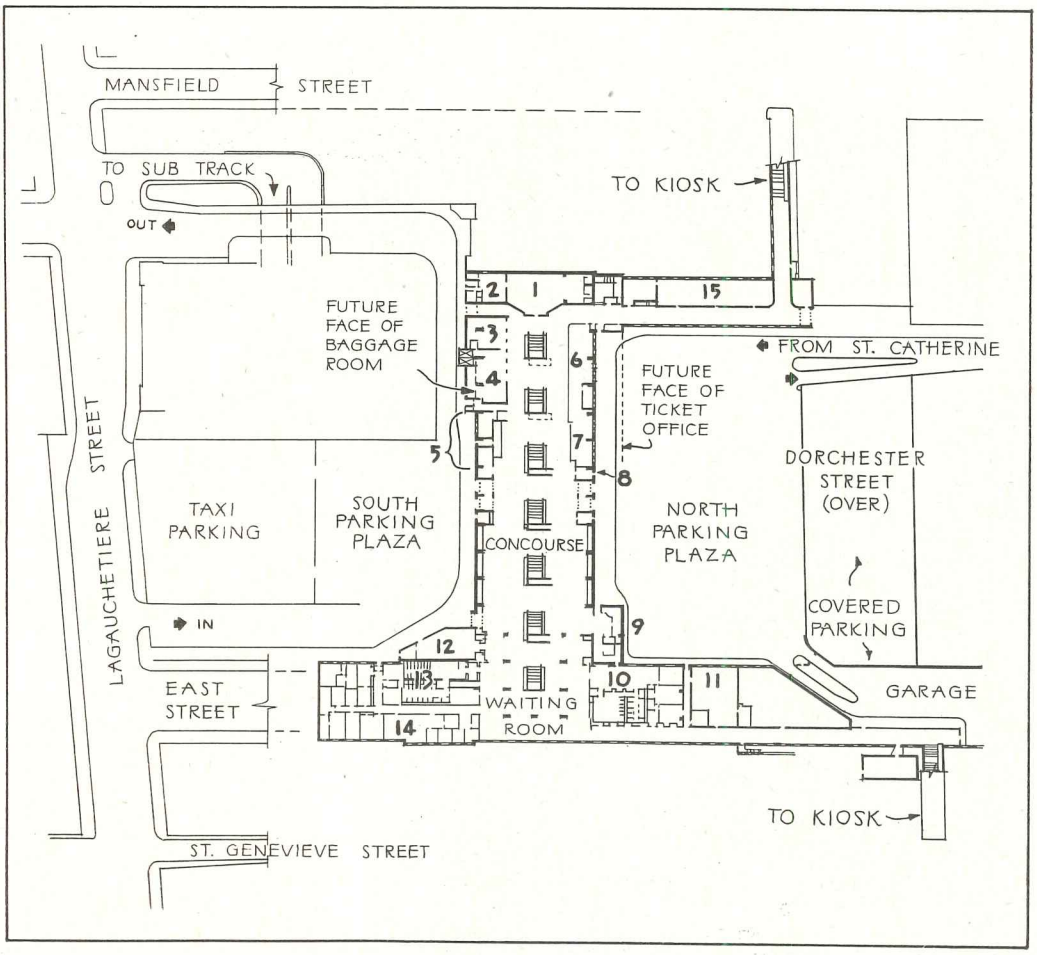
A
Lagauchetiere St. and East Street



1. PRESENT NORTH TAXI RAMP
2. FUTURE ENTRANCE TO VEHICULAR TUNNEL
3. FUTURE THIRD LANE
4. SOUTH TAXI APPROACH
5. SOUTH TAXI EXIT



1. Restaurant
2. Kitchen
3. Parcels
4. Baggage
5. Elevator to customs
   Baggage Agent
   Transfer
   News Stand
   Telephones
6. Tickets
7. Information
   Telegrams
8. Station Agent
9. Service Men's
   Lounges
10. Women's Lounge
    Wash Rooms
    Quiet Room
    Nursery
    Medical Room
11. Service Men
12. Drug Store
13. Men's Wash Room
    and Barber Shop
14. Immigration Offices
15. Service Men's Dining
    Room



EXTERIOR. Shorn of all adventitious monumentalism, the outward shape is that of a great covered bridge thrown across the tracks. Eventually, the two end faces with their large windows lighting the full-length concourse may be the only ones to show at a distance. The twin towers house the elevators. The exterior facing is Laprairie gray brown brick, handled with variety in the bond and type of jointing. This brick will present designers of surrounding buildings with no special problem in color. Trim is of Deschambault stone. Two expansion joints are handled as part of the design, dividing the length into three panels, marked off in the brick.

PLAN. The Central Station carries forward the simplification of large stations by combining (1) the lobby, (2) the waiting space, and (3) the concourse, all in one large articulated interior over the tracks. The plan at sub-track level shows provision for long (20-car) trains. The ramps for baggage and express are held toward the ends, away from passenger lines of travel. Trucking corridors connect together the sub-track level, with its full provision for personnel and for station operations. (See page 101.)

CONCOURSE. This is a splendid large room whose vast size of 105 by 450 ft. is humanized by excellent low proportions and warm color. The soft pervasive blue atmospheric effect is conveyed chiefly by the terrazzo covering of the splayed piers along the side-walls. These piers are at 25-ft. intervals and express the rigid-frame arches. The floor is more reddish than the piers, the walls above the booths are buff stucco, the ceiling with its lens-lights and loudspeaker outlets is of acoustic tile in various light shades of buff, which is also the color of the low-relief murals placed against end-walls of luminous red. Such colors are very practical as well as highly harmonious.

Since access to the concourse is from the long sides, the stair-wells to trains, placed 50 ft. apart, go down center. Note that the escalator across the end of each stair-well carries incoming passengers out of the way of outgoing ones.

The "waiting room" is a mere extension of the concourse out under East Street (see photograph) and those waiting have unobstructed view of all that goes on. Despite this, the benches along the stair-well parapets are preferred.

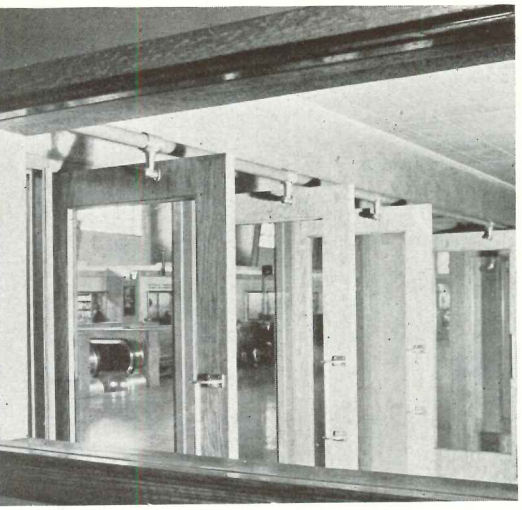
The grouping of passenger facilities is such that waiting rooms and rest rooms are thrown to the east end where long-distance trains are brought in, while ticket wickets, baggage checking, and the like, composing the "business end," are to the west where suburban travelers are expected to occupy the station a shorter time and take less room. Eventually these booths will be pushed back with their face flush to the main exterior wall, leaving the concourse unobstructed and spacious throughout its length.

Across-page: North face of the station, from East Street under Dorchester. The main entrance is directly opposite the cars in the parking lot, and is utterly devoid of fuss. Below, concourse looking toward the waiting room, with the same entrance at the left. "A vast covered bridge"

Courtesy Canadian National Railways

Below, in sequence: (1) Train stair entrance with removable guard rails, shatter-proof glass gates, bulletin and signal-box behind the guard

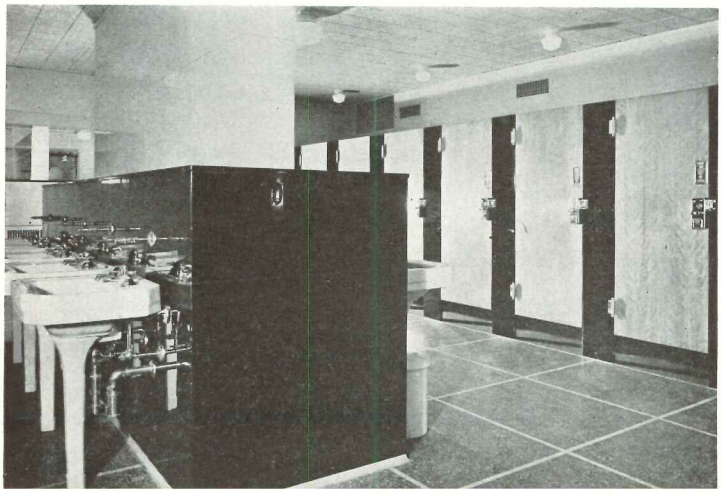
(2) The battery of entrance doors is held open in simple positive fashion by hooks attached to snubbers strung on overhead rail. Window in foreground gives a view to vestibule from porters' room adjoining, which opens to sidewalk and station, permitting efficient movement

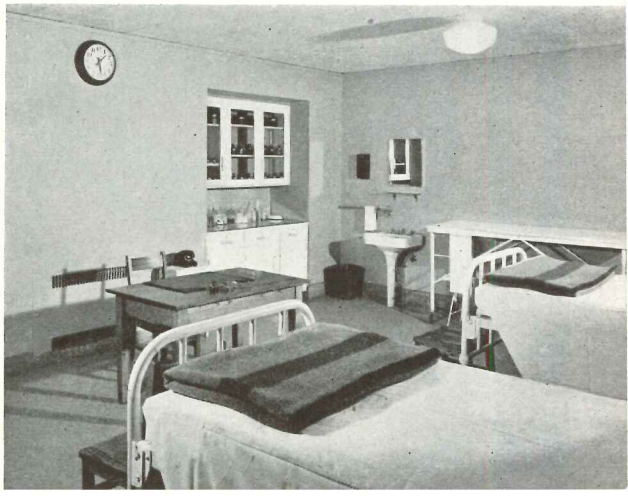


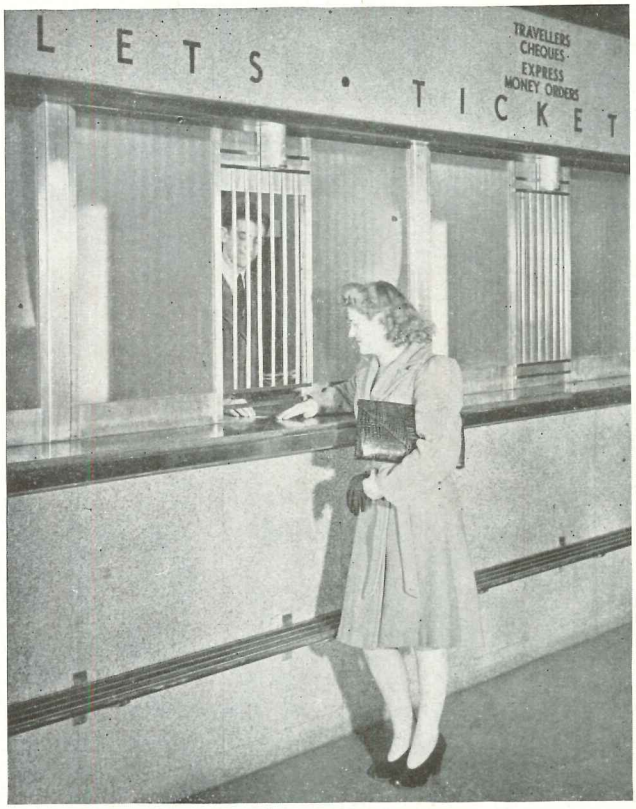
The large view above, and small views across the bottom of both pages, show waiting-room facilities. Above, the unobstructed view across concourse from the waiting room end

Courtesy Canadian National Railways

Below, starting at left, across-page: 1. Restaurant, at opposite end from waiting room, has well-detailed glass partition confining odors but giving free view; it is obliquely placed to steer outgoing passengers toward exit passages. 2. Waiting room has sturdy well-detailed benches. 3. Women's facilities are unusually developed, including lounge, powder room, the toilet facilities shown below (finished in rose beige and black vitrolite), a nursery room, and the hospital room to the right below, where the CNR can even extend its loving care to a woman passenger blessed by a happy event. Attractive extra rooms are devoted during the emergency to the use of the armed forces, as may be seen on the plan on page 92

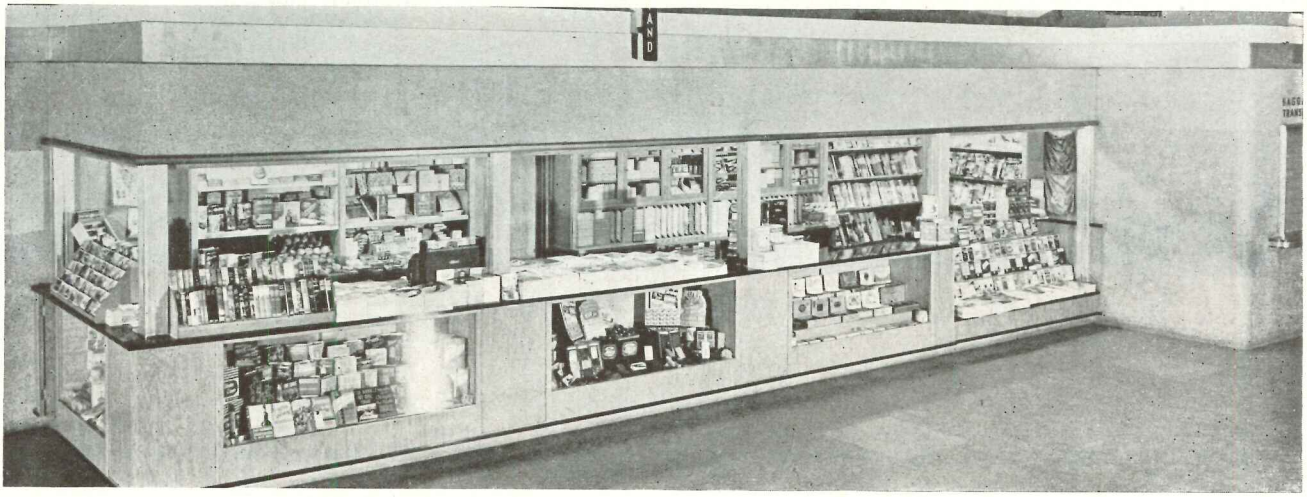






Despite a current trend toward open ticket counters, the CNR adheres to its belief in the bank-window type flanked by translucent glass. At open counters, it is said, crowding customers can more easily confuse the ticket-seller in making change, causing him serious losses. Space under counter (right) is equipped for waste basket, drawers of rubber stamps, and room for train guides in addition to the locked till. A common stock of tickets is kept in a case (right) moving on track. Only the western half of the station is devoted to booths of various kinds for passengers transacting business. At the eastern end, toward the waiting room, where it is presumed that passengers have more leisure, the wall space is treated to a series of show windows. The "diorama" display technique converts these into a kind of railroad museum advertising Canada

The best store-front practice characterizes all booths, held to uniform height, with uniform lettering and handsome continuous extruded brass moldings surrounding openings. The newsstand, below, is cunningly designed with sloping rack that earns the premium for "full-face" magazine display without letting the goods spill over the front in the manner that often cheapens stations



Pedestrian circulation is handsomely attended by means of numerous stairs and escalators, like the one shown acrosspage, which leads to East Street. Below is the Dorchester and St. Catherine Street corridor, showing the acoustic ceiling. To the right, stair to offices above station. Beside it is the elevator to the sub-track baggage room and customs

Tail-gate parking at sub-track level of station

SUB-TRACK LEVEL. Three main problems were involved in the clean handling of the sub-track area, shown in the photograph above.

The smooth ceiling, free of projecting beams, and placed at minimum height, was obtained by pouring the track-slab "inverted." This means that the supporting beams, instead of being cast first, *under* the slab they carry, were cast last, *on top* of the slab for which they furnish the support. The reinforcement of slab and beam is of course interlocking. Cleavage planes were shot full of waterproofing. (See *Time-Saver Standards,* page 107.)

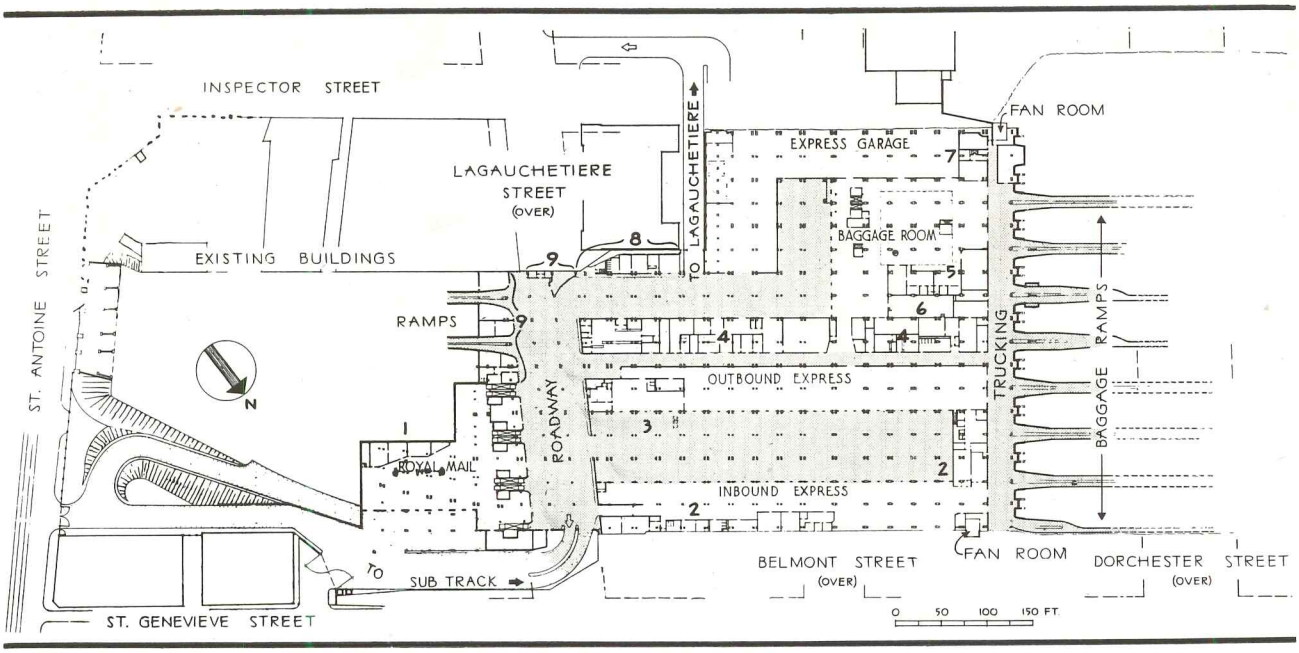
Separation of track structure and building structure was obtained by means of the clusters of columns, as they are seen in the picture. The round ones support only track slab and the square ones only the building. The square columns are steel, encased in concrete, and resting on a "vibration pad" composed of two layers of transite separated by a layer of steel and enclosed in a lead envelope. Two inches of cork wrapping isolate the steel building columns from the track structure at all points of intersection. Round columns supporting the track are of reinforced concrete encased in steel. (See *Time-Saver Standards,* page 107.)

Tail-gate parking for the trucks of the Canadian National Express was worked out by actual experiment. The driving diagram is given in *Time-Saver Standards* on page 107.

STRUCTURAL PROBLEMS. The Central Station is, in effect, a structure on stilts. Because the building columns were designed to be isolated from the track structure, it was not considered that there was any lateral bracing for these columns, from foundation level to the level of the concourse floor. In some cases this was a distance of 54 ft. Lateral bracing was supplied by means of trusses above track level, parallel to the tracks and transverse to the main building axis. Despite the firm attachment of columns to steel grillage, no "fixture" was figured for the columns. In addition to the normal wind load, a lateral moving load was allowed for, equal to 2 per cent of the vertical axial load.

DESIGN BACKGROUND. The general conception of the station was developed prior to 1929, by the architects Hugh G. Jones and John S. Archibald, in collaboration with the company's chief engineer, C. B. Brown. Work was suspended late in 1931 due to depression conditions, and for a number of years the project was known simply as "the big hole," some 4,000,000 cu. yd. of material having been removed in the interim. The job was resumed in 1938, with the character, in part, of a relief project. Modifications were introduced to meet new conditions. Work was carried forward in the office of the chief architect of the CNR, and the office of the chief engineer. John Schofield is the chief architect who has been in charge of the finished plan; George L. Drummond the assistant chief architect, A. O. Stewart the assistant chief engineer.

It is of interest that the chief architect's office in the Canadian National system has charge of designing the streamliners of the line as well as the many buildings.

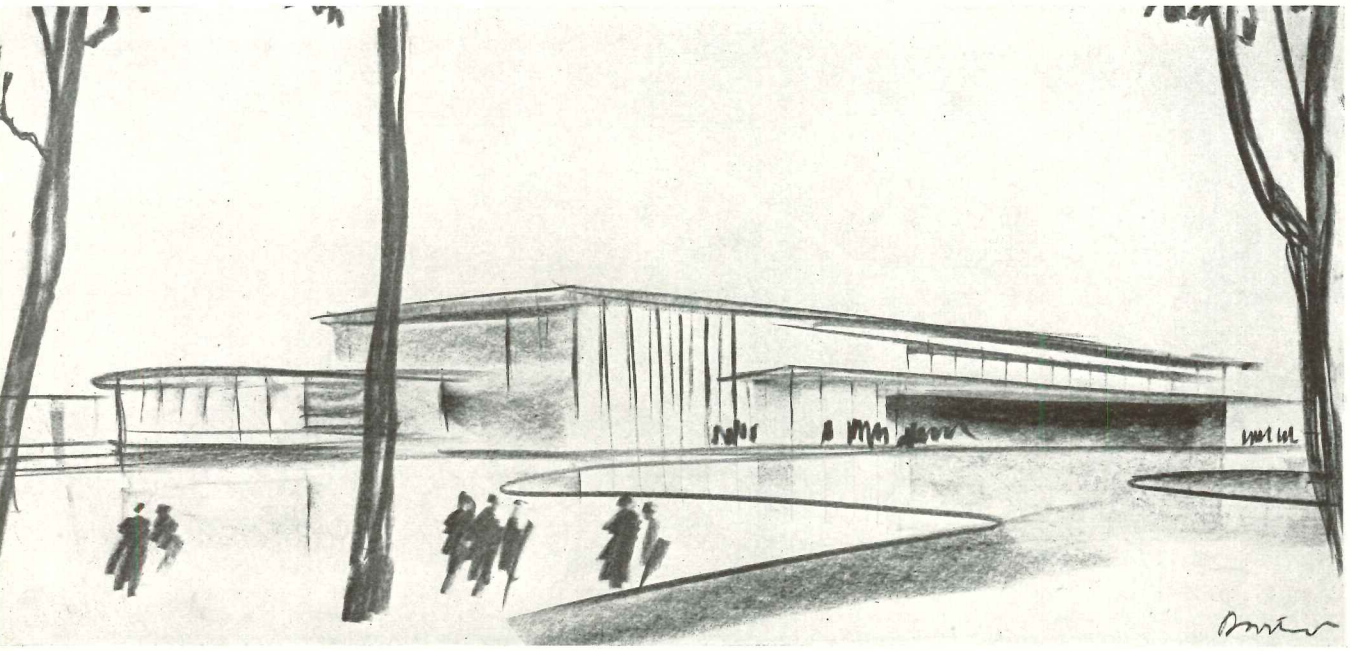


PLAN AT SUB-TRACK LEVEL

1. *Railway mail clerks, supervisor, transfer agent, locker and lunch room, toilet*
2. *Lunch room, locker room, time office, women's locker room and toilet, men's toilet, fan room, foreign department, on hand, inquiry, intrip, investigation department, master of transportation, switch board*
2. *(cont.) Value room, money room, settlement clerk, general office, terminal clerk, bad order room*
3. *Railway express agency, fan room, toilet, U. S. Customs, office, cashier*
4. *Canada Railway News, sleeping car porters' room, toilet, commissary, pressing room, dining car employees, Pullman conductors' lockers, work room, sleeping car conductors' lockers, storage, shipping, sleeping and dining car department, refrigerators, general receiving room, trainmen's kit boxes*
4. *(cont.) Telegraph stores, signals supervisor, electrical maintenance, station master, baggage and red-caps' lockers, book-in and term. teleg. operator, conductors' locker room, general toilet, trainmen's lockers, fan room, ticket examiners*
5. *Trainmen's waiting room, ticket examiners, Canadian bond room, Canadian Customs, U. S. Customs, U. S. examining room*
6. *Transformer room*
7. *Railway mail, elevator to concourse, lunch room and lockers*
8. *Garage, express office, lunch room, lockers, toilet*
9. *Ice house, coal and coke, battery charging and truck repair shop, lunch and locker rooms, store room*

Entrance to the station is not through monumental portals but through convenient "kiosks" such as this one at the east end of the Dorchester Street bridge. Pedestrian passages to the station are cunningly worked into the multi-level street system, and escalators are used for all climbing.

Courtesy Canadian National Railways



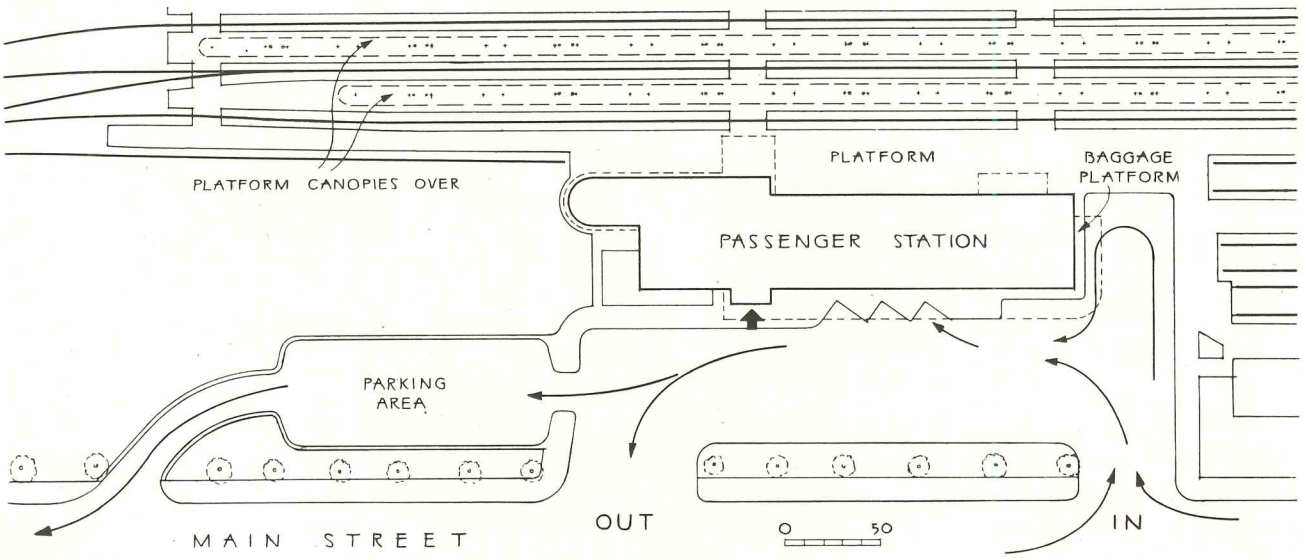
WARTIME VERSION OF POSTWAR STATION

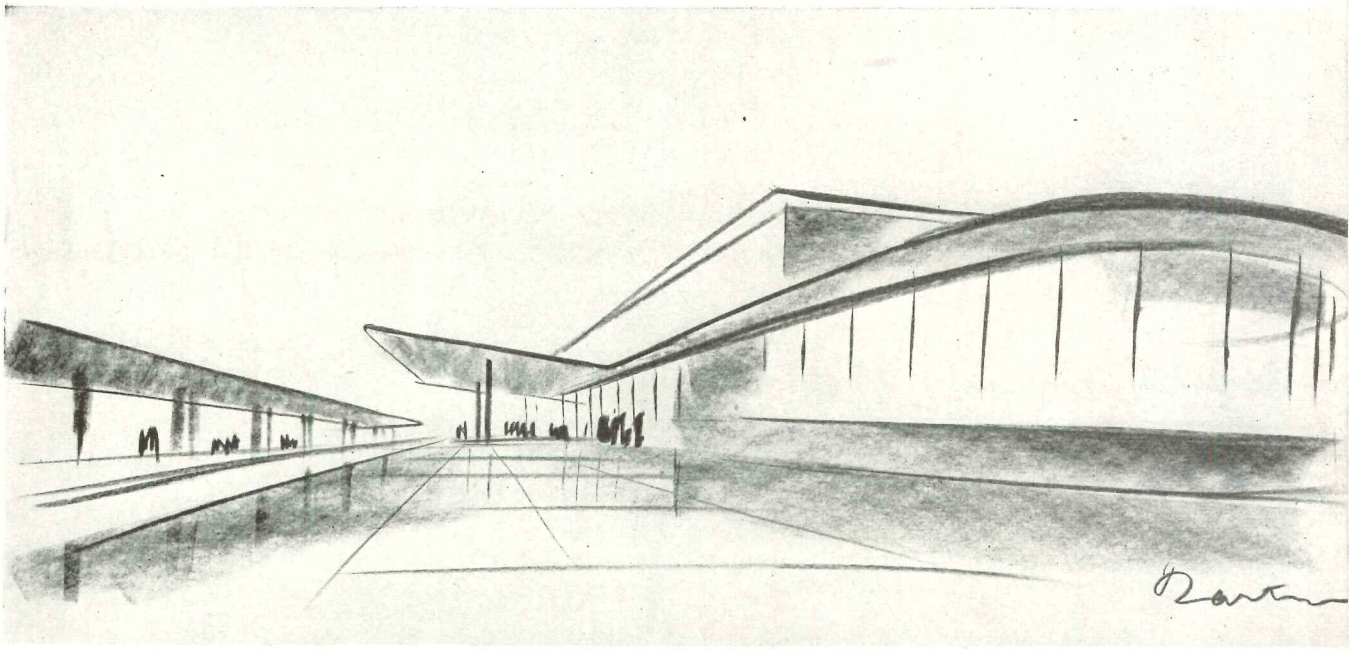
BURLINGTON STATION, BURLINGTON, IOWA — HOLABIRD AND ROOT, ARCHITECTS

DESTRUCTION by fire of the Burlington Route's station at Burlington, Iowa, an important intermediate terminal point, made it imperative to rebuild the combined rail and bus station at once despite the war, with special conservation of critical materials. Short, straight passage has been provided for passengers, between train, bus, parking lot. The modern, lobby-type waiting room looks out through a huge window on landscaping built around magnificent old trees. The restaurant is made freely accessible from street, station, train. All vehicular access is from right, as shown on plan below.

War limitations have cut present acoustical treatment to the waiting room ceiling, telegraph room, restaurant, kitchen. Future air conditioning can use present personnel rest room (2d floor) as fan room. Illumination is far in advance of usual station practice, and looks toward postwar installation of latest fluorescent types when materials restrictions are lifted.

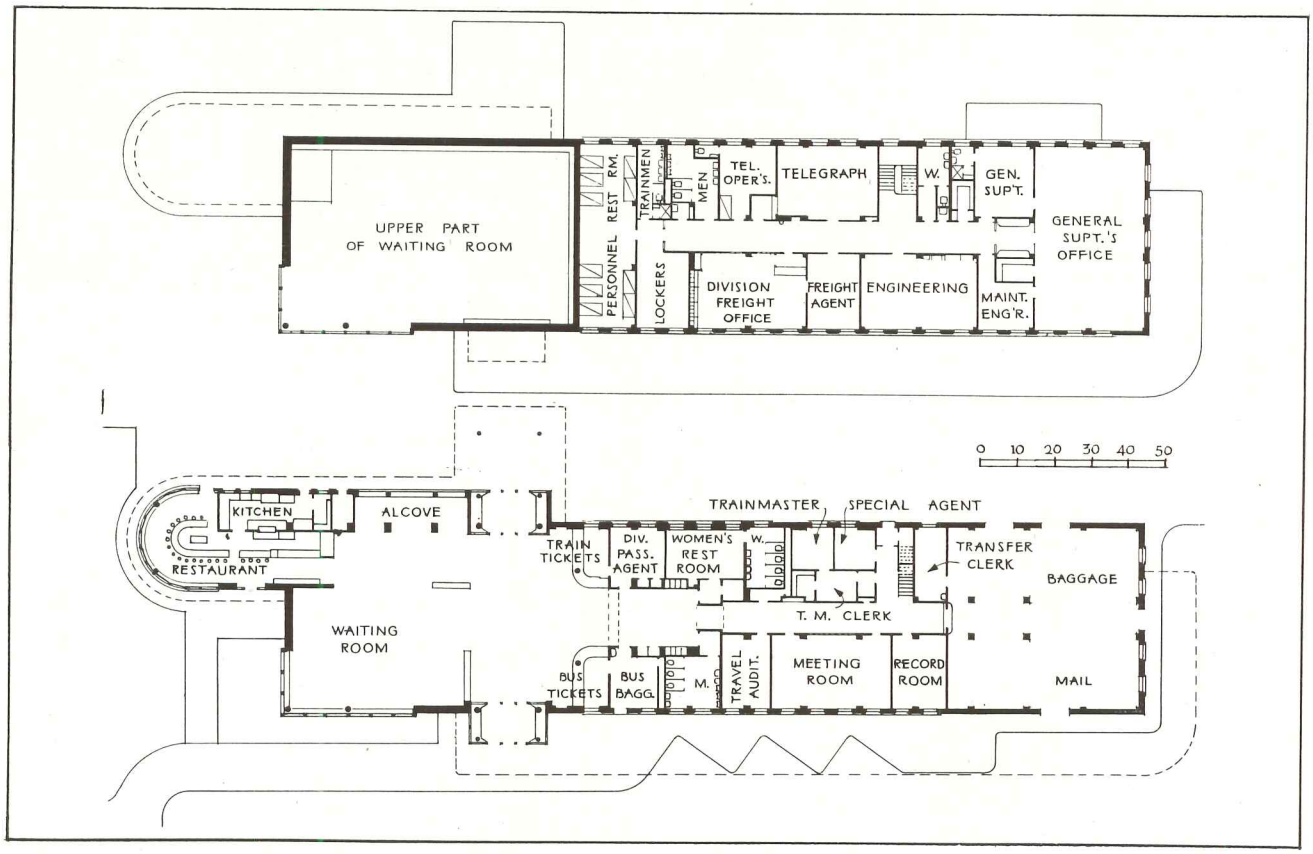
Structurally the station is of reinforced concrete, with cornices and the 16-ft. cantilevered canopy all monolithic. The facing is of Wisconsin Lannon stone, which has the characteristic of being "self-cleaning." Platform canopy details conserving critical materials are shown in *Time-Saver Standards* on page 108.

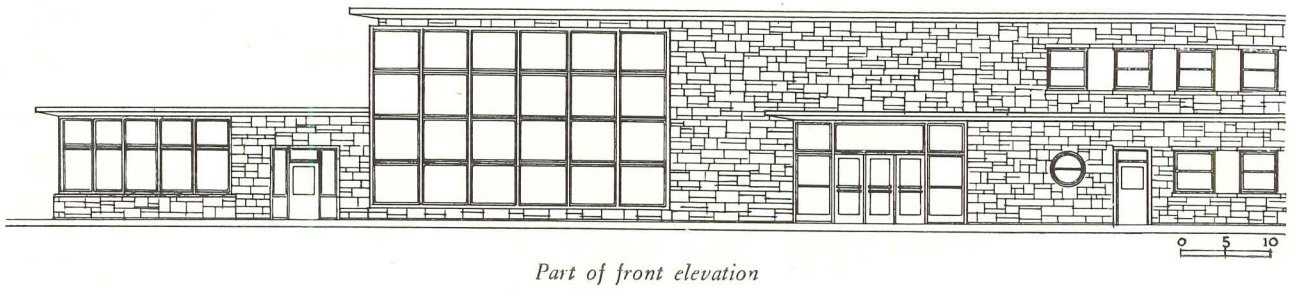




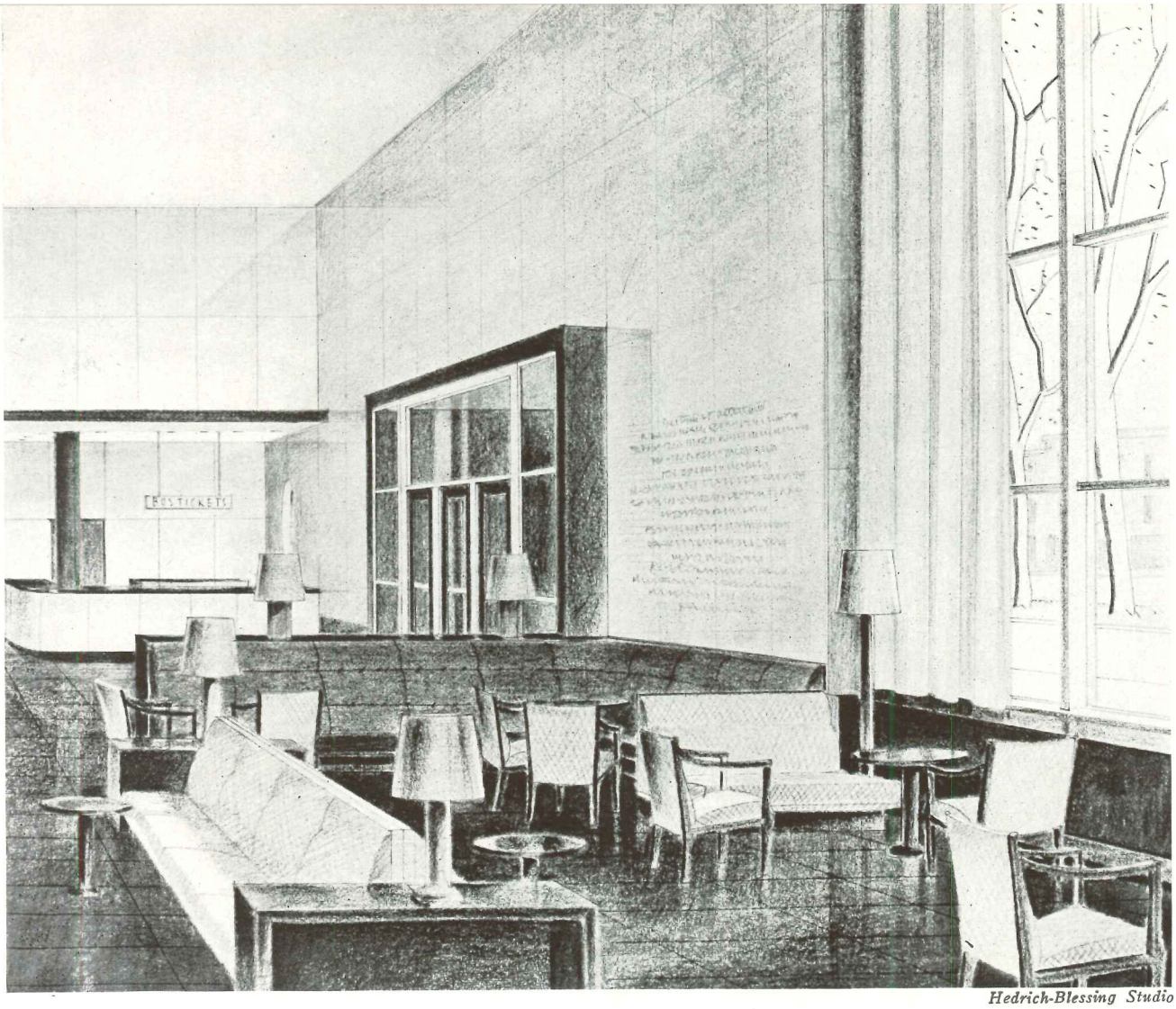
Renderings by Helmuth Bartsch

Looking toward restaurant wing from train platform



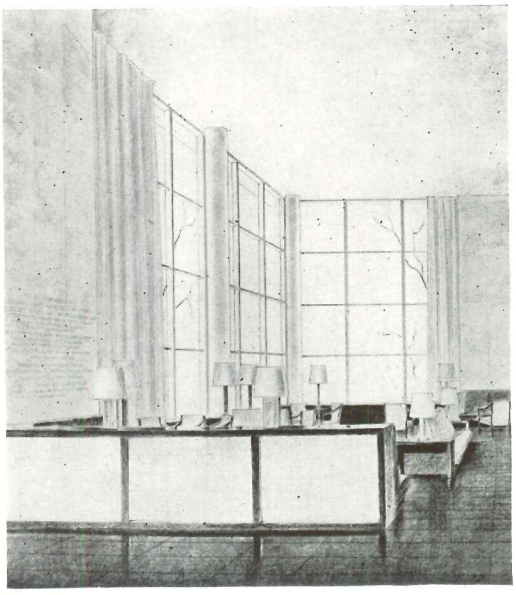


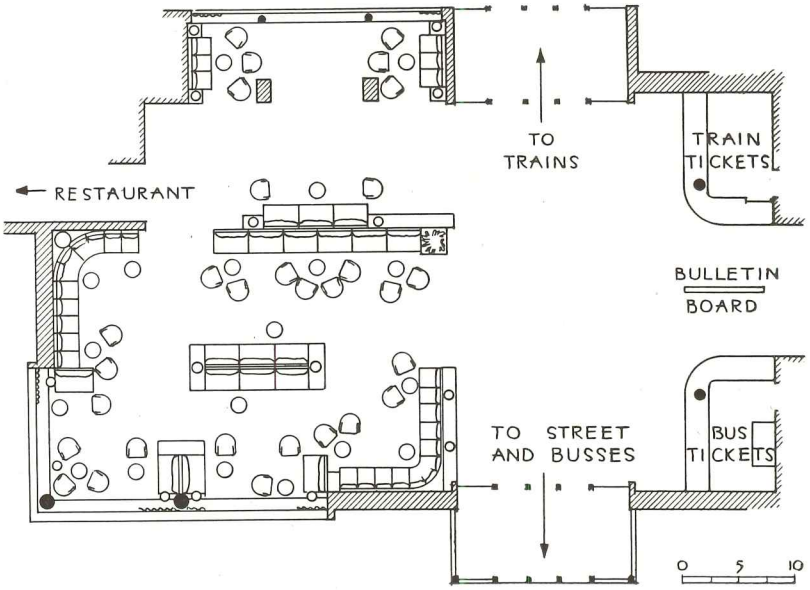
Part of front elevation

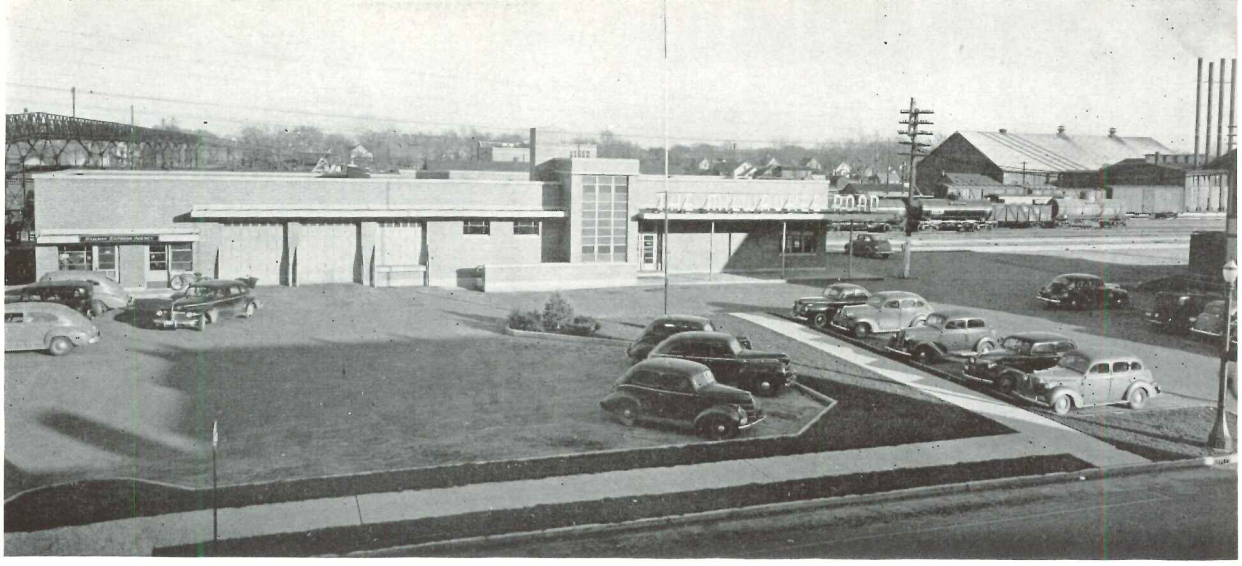


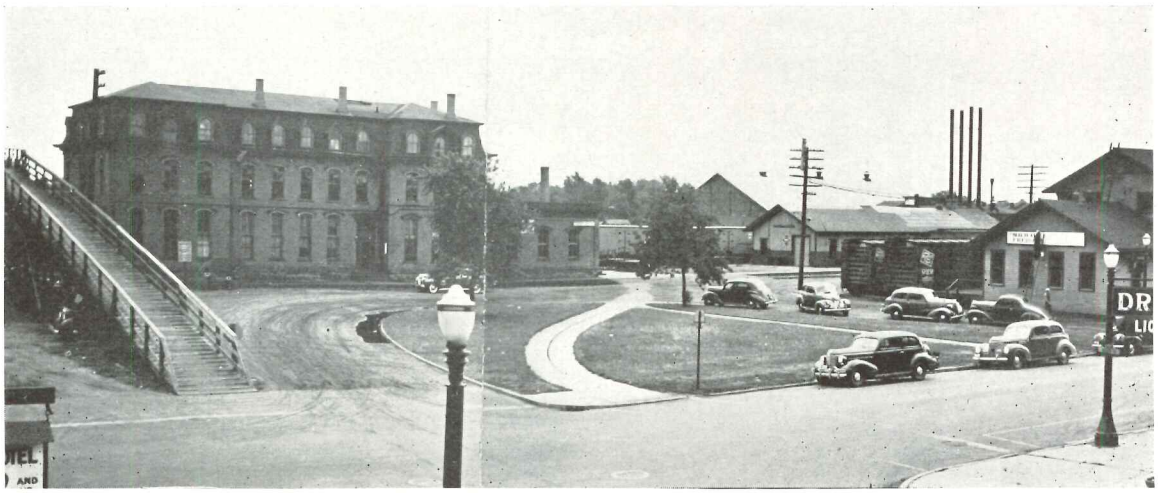
Hedrich-Blessing Studio

LOBBY AND WAITING ROOM. Above, looking toward street entrance and bus ticket counter. Below, left, looking toward large view window opening on landscaped approach. Projecting light shelf, at distance of 12 ft. above floor, binds together counter space. Pin-lighting over counters. Floor and table lights have heavy bases, use strong upward reflectors and down lighting. To give height to large window, ceiling slab is only 1 ft. 9 in. thick including beams. Note use of radiator enclosures in view at lower left









STATION COORDINATES FACILITIES

MILWAUKEE ROAD STATION, AUSTIN, MINN., BY C.M.ST.P.&P.R.C.

GENERAL ENGINEERING DEPARTMENT, OTTO KUHLER CONSULTANT

LIKE many another thriving American community, Austin, a town of 18,000 population, has a main industry. In Austin this is the production of the famous "Hormel" hams. Like many another proud American business proprietor, Mr. Hormel is civic-minded about his home town, and devoted to its improvement.

Quite manifestly the Milwaukee did not hurt its position, or the feelings of its leading shippers, when it decided to clean up the old passenger "depot." There are two other lines servicing Austin freight besides the Milwaukee.

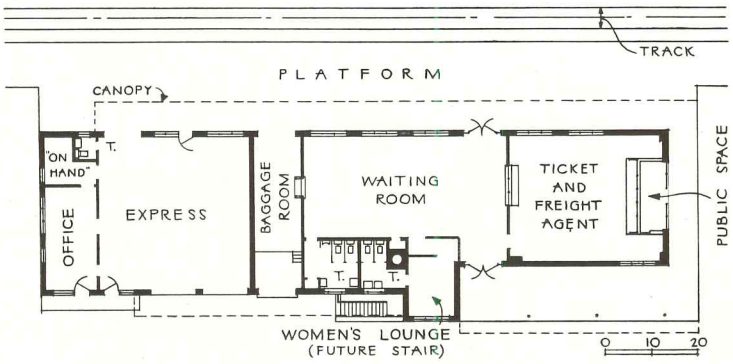
Eventually it was found best to erect an entirely new building. It was placed in a better position in relation to the tracks. As may be seen in the illustrations above, the nondescript area in front of the station was converted into a neat enlarged parking lot. A consultant who had designed the road's streamliners was called in to aid the staff in securing a new design agreeable to the public.

The new station has the lounge-like waiting room of modern design idiom. Passage from car to train is short and direct. Women have the requisite powder room.

The railroad will find the new station as convenient as passengers do. Tickets and freight can be handled by the same agent. Freight, express and baggage enter and leave conveniently. The building was justified, in fact, because it combines under one roof and over one heating plant freight and baggage provisions formerly separate. Division offices will eventually occupy a second floor to be added, when this prewar project is completed later.

Austin is a good example of the kind of wise railroad modernizing that serves civic interests as well as commercial ones, and does both with operating economy.

Glass block partition in the view above acts as a screen to the ladies' powder room. Note that a station interior of today tends to have free-standing furniture, and fluorescent lighting. Telephone booth (right, below) is recessed, as are coin-lock luggage lockers which are not shown in the photographs



RAILROAD STATION DETAILS

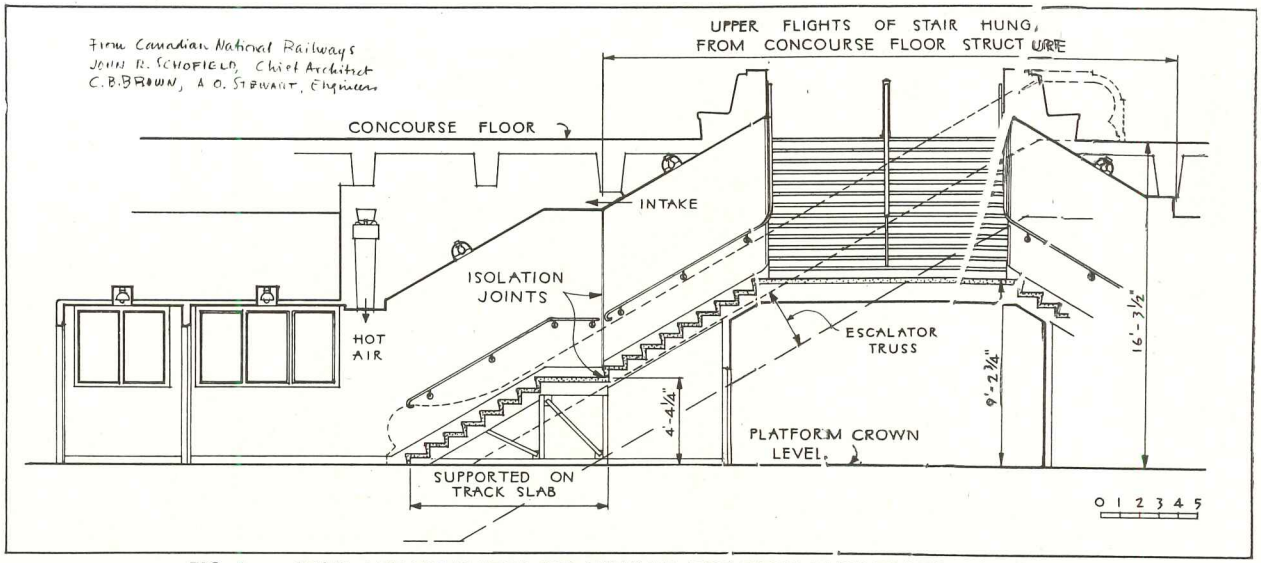


FIG. 1. STAIR AND ESCALATOR FOR MINIMAL RISE FROM HIGH TRACK PLATFORM

Details on this page are all taken from Canadian National Railways' Central Station at Montreal, by CNR architects and engineers.

Stair and escalator section reproduced above is intended to achieve minimal climbing distance for passengers from a high (car-floor level) train platform to an exit centrally located in the concourse above. Escalator is carried entirely on track slab and isolated from building.

Stair is carried one-third its length on track, two-thirds hung from floor above. Incoming and outgoing traffic are separated in the concourse by this plan.

"Inverted" track slab is shown in Fig. 2. Smooth ceiling at sub-track level is obtained by placing supporting beams on top of the slab they carry. Reinforcements for slab and beam are placed before pouring; slab poured first, then beam; cleavage plane filled with waterproofing.

Clearance of high platform at track. Drawing gives distance from track base to approx. top of platform edge as 4 ft. 6 in. Exact measurements are actually taken from top of track; vary with track gauge and equipment used. Distance of platform edge from center of track also varies with equipment, from 5 ft. 2 in. min. to 5 ft. 6 in. max.

Vibration Isolation between track structure and building structure involves use of vibration pad under bldg. column footing. Pad is 2 layers transite ⅜ in. thick separated by steel plate 1/16 in. thick, all enclosed in lead envelope. Two-in. cork column wrapping at intersections is held by toothpicks until concrete is poured. A single accidental fin of concrete breaking the isolation would destroy effect.

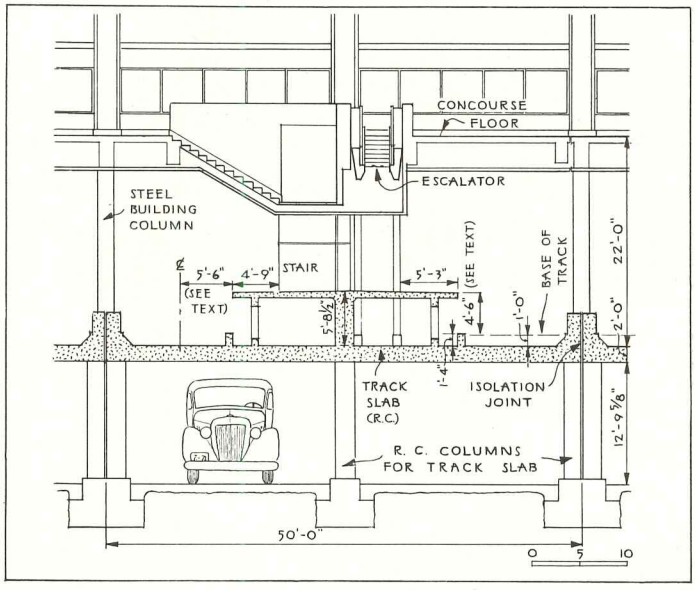


FIG. 2. A. PLATFORM CLEARANCES B. INVERTED TRACK SLAB

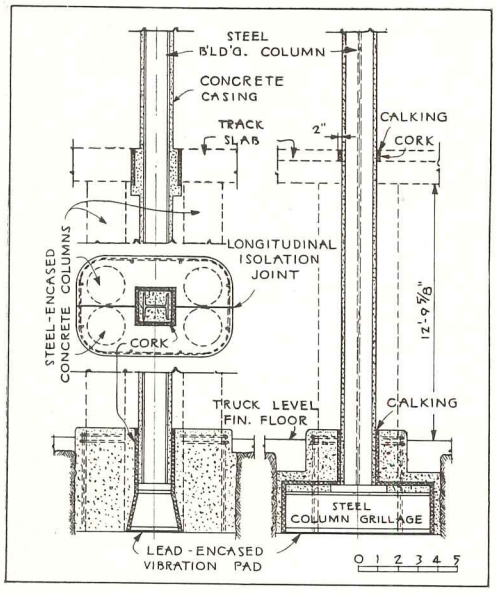


FIG. 3. VIBRATION ISOLATION

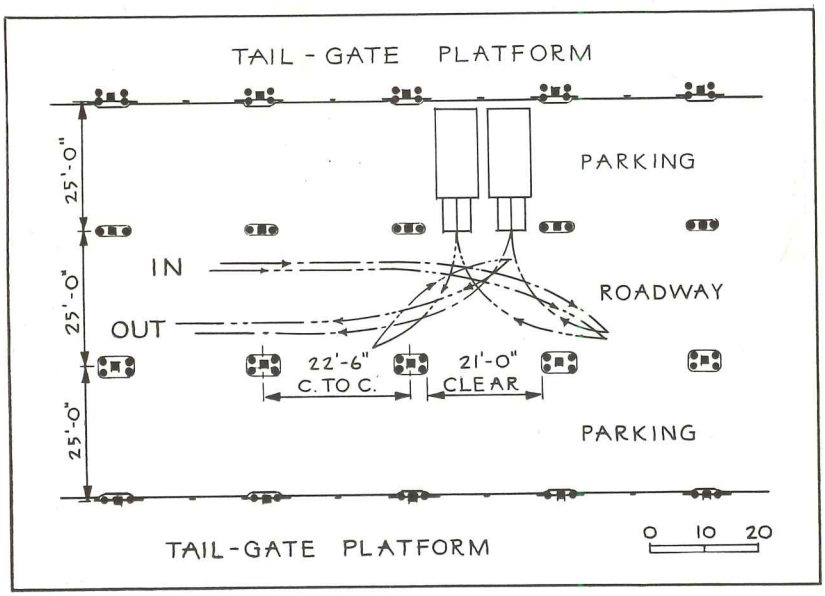
RAILROAD STATION DETAILS

Canadian National details, continued.

Tail-gate parking clearances for express trucks at sub-track level are shown at right. Column spacing across tracks was unchangeable at 25 ft. center to center. Longitudinal spacing was obtained from full-scale experiments. Drivers of reasonable skill were able to clear columns spaced 1 ft. closer than the spacing finally used.

Diagram shows approximate path followed by two trucks sharing the same parking bay. Car to the left in the drawing must back up once on its way out.

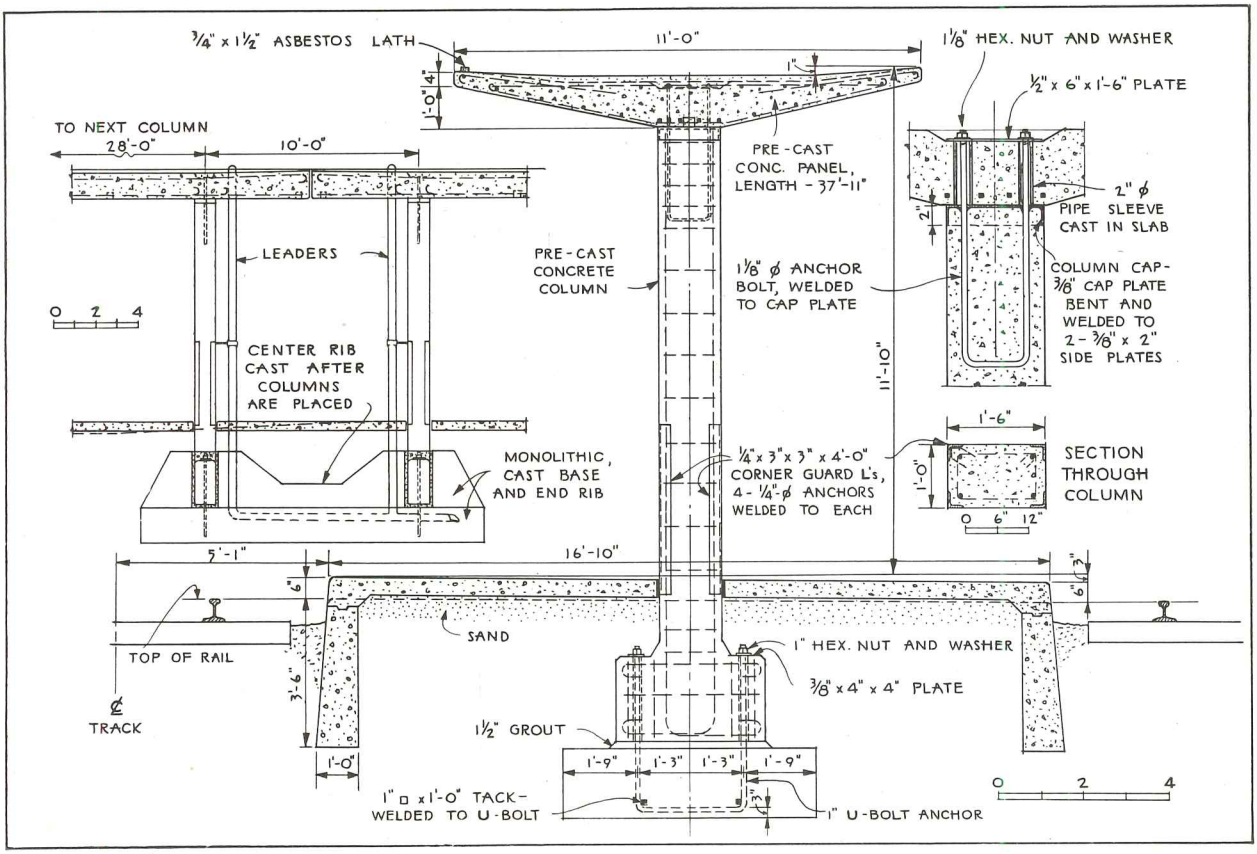
Isolation joint is advisable all around each pair of drop doors at tail-gate, to minimize collision damage. Vertical rails set 1 ft. deep in concrete floor serve as adequate bumpers.

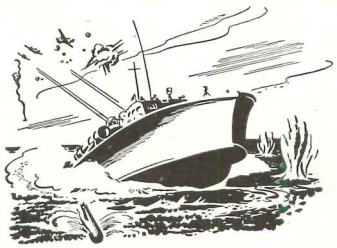


PLATFORM CANOPY OF PRE-CAST CONCRETE

Details below are from the station of the Burlington Route at Burlington, Iowa, Holabird & Root, arch's.

Canopy section shown below uses reinforced concrete (pre-cast), conserving scarce war materials and reducing profiles so as to increase visibility along the platform. The weight of typical roof panel in light silica-aggregate concrete is 32,650 lb.; of end-panel with rounded end, 33,200 lb.; of column, 2,700 lb. Specify 3,000 lb. per sq. in. ultimate strength. At track crossings a special dropped section of platform is used. Due to topography, drainage is one-way.



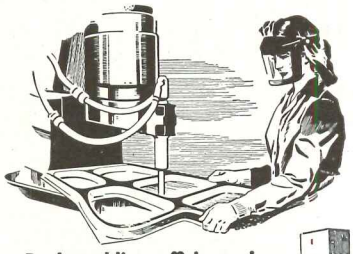


Fresh food on the high seas during long, heavy-action periods away from port is the result of compact, efficient refrigeration.

Self-Contained
¼ h.p. Refrigerating Unit

Cool, clean air protects the life of the wounded in Army hospitals. Special aircraft refrigerators safeguard serums and plasma.

Aluminum
Aircraft Refrigerator



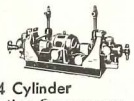
Peak welding efficiency is made possible by cooling of welding tips with water or brine held at the right temperature.

Spot Welder
Tip Cooling Unit

Tool life is increased and rejections are fewer when cutting oils used in high-speed machining are properly cooled.

Refrigerating Unit

The health of our armed forces is protected by dependable refrigeration in cantonments, huts, barracks, and on ships.



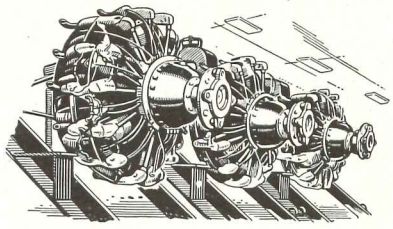
14 Cylinder
Refrigerating Compressor

Super accuracy in gauge rooms is possible when the air is clean, dehumidified, and maintained at a constant temperature.

3 h.p. "Packaged"
Air Conditioner

Protection in the tropics against the ravages of humid atmosphere and vermin is necessary to preserve food and equipment.

Portable Panel
Refrigeration Unit



Identical performance of aircraft engines is assured by operation tests with carburetor air kept at the same temperature.

14 Cylinder
Air Conditioning Compressor

Clean, dry atmosphere is vital for machining sensitive metal surfaces where a spot of rust would ruin high-precision products.

5 h.p. "Packaged"
Air Conditioner

★ CHRYSLER AIRTEMP AT WAR ★

From tiny, fractional horsepower to big 75 horsepower units, Chrysler Airtemp Radial Compressors are performing a major war job on both the production and battle fronts.

The science of air control is built around the compressor. Chrysler Airtemp's *exclusive* Variable Capacity Radial Compressor provides a new efficiency and accuracy in indoor climate regulation. The radial cylinders cut in or out automatically, one at a time, to meet varying load requirements. This flexibility eliminates the peaks and valleys resulting from abrupt starting and stopping of ordinary compressors . . . holds temperature and humidity at a constant level.

Years spent in building delicate mechanisms, have developed high-precision, versatile skills at Airtemp, now devoted to war production. Backed by Chrysler Corporation research and engineering, when peace comes, these skills will again create heating, cooling and refrigeration units for homes and commercial use that will set new, high standards of efficiency and performance.

The lessons learned during peace in free competitive enterprise—freedom of the individual to produce and compete—today bring strength to a nation at war.

War Products of Chrysler Corporation

Tanks • Tank Engines • Navy Anti-Aircraft Guns • Army Anti-Aircraft Guns • Bomber Fuselage Sections • Bomber Wings • Bomb Racks • Bomb Shackles • Fighter Landing Gears • Aluminum Alloy Forgings • Aluminum Alloy Castings • High-Powered Aircraft Engines • Cycleweld Cement • Wide Variety of Ammunition • Anti-Tank Vehicles • Command Reconnaissance Cars • Troop and Cargo Motor Transports • Ambulances • Weapons Carriers • Gyro-Compasses • Navy Pontoons • Marine Tractors • Harbor Tugs • Marine and Industrial Engines • Smoke Screen Generators • Air Raid Sirens and Fire Fighting Equipment • Powdered Metal Parts • Cantonment Furnaces • Tent Heaters • Refrigeration Compressors • Field Kitchens • and Other Important War Equipment

Tune in Major Bowes every Thursday, C B S, 9 P. M., E. W. T.

Chrysler Corporation

PLYMOUTH • DODGE • DE SOTO • CHRYSLER • AIRTEMP • AMPLEX

BACK THE ATTACK—BUY WAR BONDS

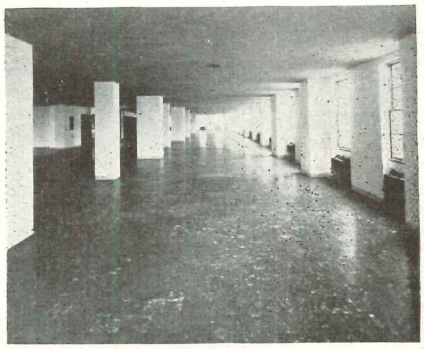
(Continued from page 112)

plastic and fits entirely within the tub. Sheffield Construction Co., 429 Fourth Ave., Pittsburgh, Pa.

UNUSUAL INSTALLATION

In an unusual installation of asphalt tile in the new Mercantile National Bank Building at Dallas, Texas, the flooring was laid solid from building wall to building wall before partitions were installed. Approximately 86,000 sq. ft. of Armstrong's Asphalt Tile were laid in this manner on seven floors of the 30-story building.

Walter W. Ahlschlarger, architect, planned this type of installation so that changes in office arrangements could be made without disturbing the tile floors. Henger Construction Co., Dallas, was the contractor for the building.



Asphalt tile flooring was laid solid from wall to wall in Mercantile Bank Building, Dallas, before partitions were installed

CIRCUIT BREAKERS

Recently announced are large air circuit breakers in individual metal enclosures, for public utility and heavy industrial service. These are the I-T-E type LG, available in ratings from 2,000 to 10,000 amperes, with interrupting ratings of 75,000 and 100,000 amperes. Standard voltage ratings are 600 volts a-c and 250 volts d-c. Operation may be either manual or electric.

The enclosures are built of heavy-gauge, bonderized, sheet steel and can be supplied for either indoor or outdoor service. Either type is said to give full protection for the circuit breaker, which may be opened or closed without opening the enclosure. Large doors at front and rear provide access to the breaker and the connection studs. Connecting cables may enter the enclosure at the top, bottom or sides. I-T-E Circuit Breaker Co., 19th and Hamilton St., Philadelphia 30.

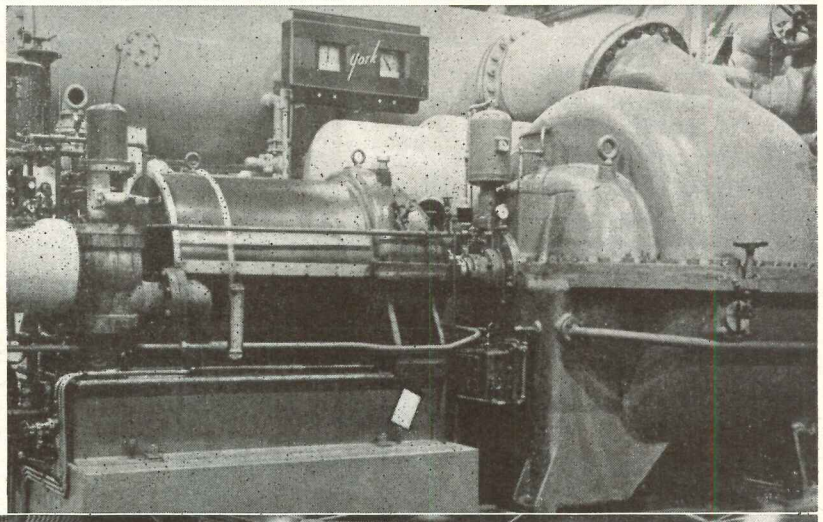
HARDENING TREATMENT FOR CEMENT FLOORS

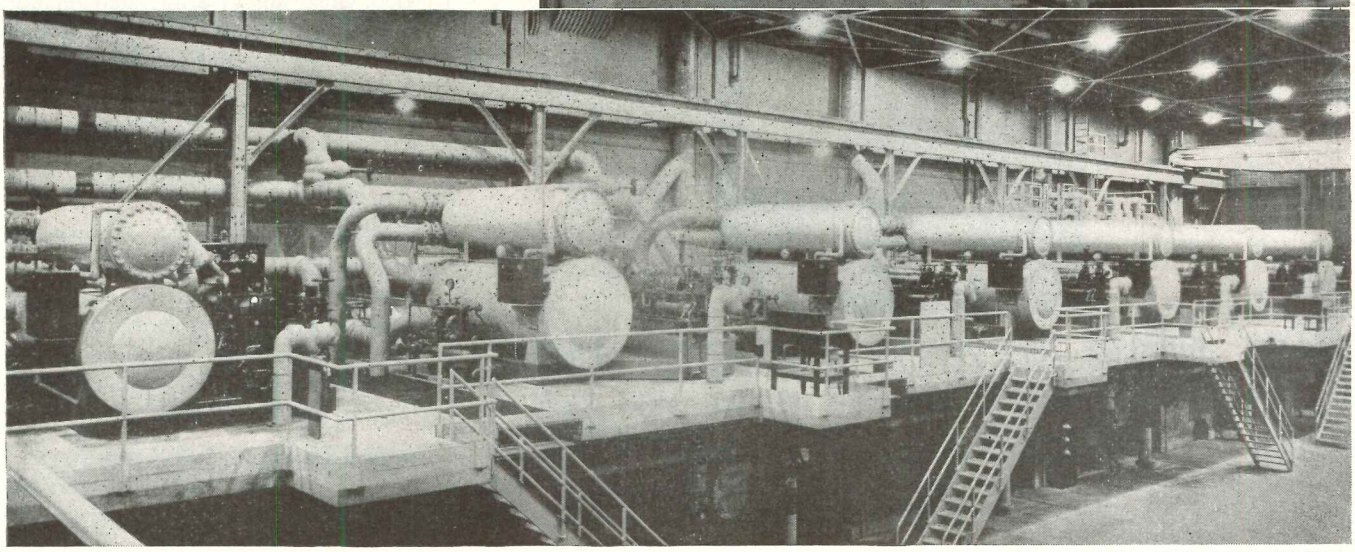
Developed to overcome the menace of cement dust, a new material known as "Synkrete" is said to be fast acting and to last indefinitely. It is easily applied with mop or brush to any clean cement floor. A single coat, the manufacturers report, is sufficient to allay dusting, but for permanent treatment two coats are recommended, and on particularly bad floors additional coats may be required.

Synkrete is said not to affect the appearance of floors since it is almost colorless. According to the manufacturers it can also be applied over worn painted surfaces. Synthex Products Co., 2 West 45th St., New York 19.

7,000 TONS OF REFRIGERATION

help blackout bomber plant to breathe





COURTESY DOUGLAS AIRCRAFT CORP.

AIR CONDITIONING, vital to any blackout plant, maintains even temperature and humidity day and night, summer and winter in this mile-long bomber hatchery. Seven steam-driven York Allis-Chalmers turbo compressor water cooling systems chill 14,000 gallons of water per minute . . . providing an efficient climate for top speed production of these vital weapons. Whether your mechanical cooling problem involves vast areas, a department, a single room, process or machine, a huge strato-chamber or a small test cabinet, York engineering experience will have anticipated your need. Throughout industry today, York air conditioning is cutting rejects and permitting close tolerance manufacturing through accurate control of temperature and humidity. York Corporation, York, Pennsylvania.

york refrigeration air conditioning

YORK REFRIGERATION AND AIR CONDITIONING FOR WAR

HEADQUARTERS FOR MECHANICAL COOLING SINCE 1885

(Continued from page 14)

was unable to be present.

"There is a tendency on the part of big business to assume that if government restrictions are released after the war, private initiative and capital can take care of the entire postwar employment problem," Mr. Moses said. "The sooner your industry and others get away from this hokum, the better off you will be. . . . Your industry will need public works for stimulation, pump priming and retooling in the slump period of at least eighteen months following the end of the war.

"I am strongly in favor of applying every possible stimulus to private business and industry, big and small, to make plans now for postwar expansion. Public works, however necessary and however compressed to afford employment, are not a permanent solution of our postwar economic problems, but they are a very necessary incident if we are to avoid relief and the inevitable disappointment and recriminations which are bound to result from the assumption that bankers and businessmen, all by themselves and without any government help, can be trusted to meet the challenge."

FHA ESTIMATES BUILDING PROSPECTS

One of the most recent estimates of postwar construction activity comes from the Federal Housing Administration, whose survey of privately financed home construction indicates that between 350,000 and 500,000 privately built dwelling units, with an average value of $5,000 and a total cost of from $1 3/4 to $2 billion can be expected in the first year after removal of wartime restrictions.

Results of this survey further indicate as much as a three billion dollar total of home repair and modernization work during the first postwar year, and a total employment on and off the site of from three to four million men by the end of the year.

PREFABRICATED HOUSING TO BE MOVED

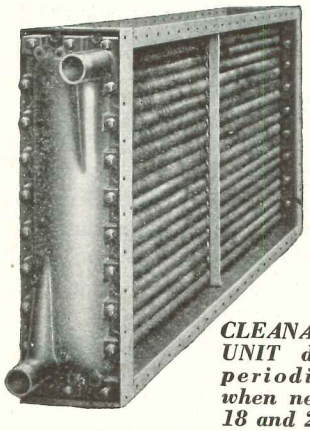
One of the disputed points in connection with the use of prefabricated housing—the cost of moving such housing—may soon have at least one precise answer based on experience. One thousand of the units erected in the Kingsbury-LaPorte, Ind., area are being moved to Iowa. The project was scheduled originally to house some 30,000 people, but the actual population did not go above the 10,000 mark. The units being moved are part of the surplusage.

Cost per unit so far is reported to be running about $1200 for labor in demounting, shipping, etc. The housing agency with jurisdiction over the job is preparing a report on the work. If costs should run as high as at present indicated, there is evidently much still to be done before the low cost and ease of moving one's residence from one section of the country to another can be advertised as one of the attractions of prefabricated housing.

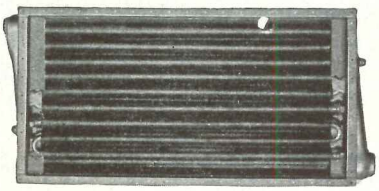
(Continued on page 118)

POST WAR PLANNING DEMANDS

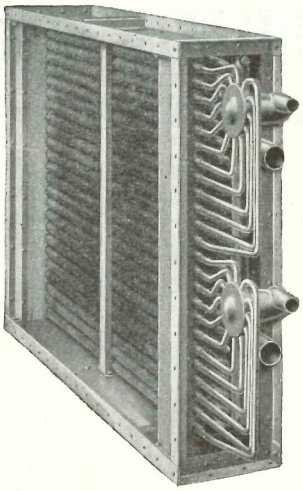
AEROFIN
Heat-Exchange Surface



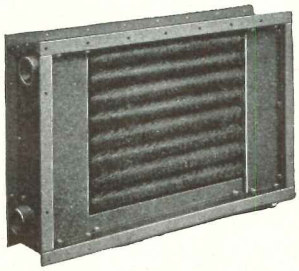
CLEANABLE TUBE UNIT designed for periodic cleaning when necessary. 12, 18 and 24 tube face.



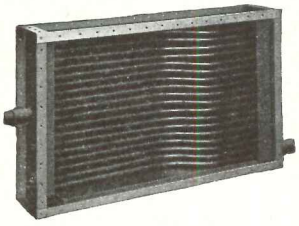
UNIVERSAL UNIT, 1-Row and 2-Row Units. "S" bend construction—headers on opposite ends.



CENTRIFUGAL HEADER UNIT, showing 2 inlet and 2 outlet headers for a 37-7/16 inch Unit.



BOOSTER UNIT designed for either vertical or horizontal air-flow and for working Steam-Pressures up to 200 lbs. gauge.



FLEXITUBE UNIT, designed for either vertical, horizontal or flat position. 12 and 18 tube face.

Write for complete technical literature on your specific problem.

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Chicago Detroit New York Philadelphia
Dallas Cleveland Toronto

(Continued from page 116)

CONSTRUCTION CONTRACTS

Construction contracts awarded during October totaled $213,529,000 in the 37 eastern states. This tabulation by F. W. Dodge Corporation represents an increase of $38,414,000, or 22 per cent, over the preceding month, but is 71 per cent below October last year. All major types of construction showed an improvement.

All classifications of non-residential building, with the exception of miscellaneous non-residential buildings, equaled or exceeded the prior month's contract valuation. The total of $80,304,000 for the month is 13 per cent ahead of September, although only a little more than one-fifth of October a year ago.

Residential building valuation for the month showed a substantial increase of 29 per cent over September, but was 57 per cent behind October, 1942. During the month contracts were let for 20,081 new dwelling units as compared with 15,091 in the preceding month and 21,954 in October 1942. The wide deviation in the comparison with last year on a valuation and a dwelling unit basis is due to the fact that over 50 per cent of the valuation in October 1942 was for other shelter which did not provide dwelling units.

Contracts let during October for heavy-engineering work amounted to $63,486,000, as compared with $50,136,000 in September and $246,199,000 in October of last year.

WPB NOTES

Allotments of Controlled Materials

Beginning with the first quarter of 1944, all allotments of controlled materials for construction and facilities, save to certain specified military, naval and other programs, will be made from a central materials reserve to be established for this purpose by the Requirements Committee and administered by the Facilities Bureau, J. A. Krug, Program Vice Chairman of the War Production Board, has announced.

Within the reserve to be established, maximum quantities of controlled materials will be earmarked for each claimant agency, including firm allotments for approved programs and a modest allowance for miscellaneous non-programmed requirements. The central reserve will exceed the aggregate earmarked quantities of controlled materials by an amount calculated to satisfy emergency requirements that might arise during the quarter.

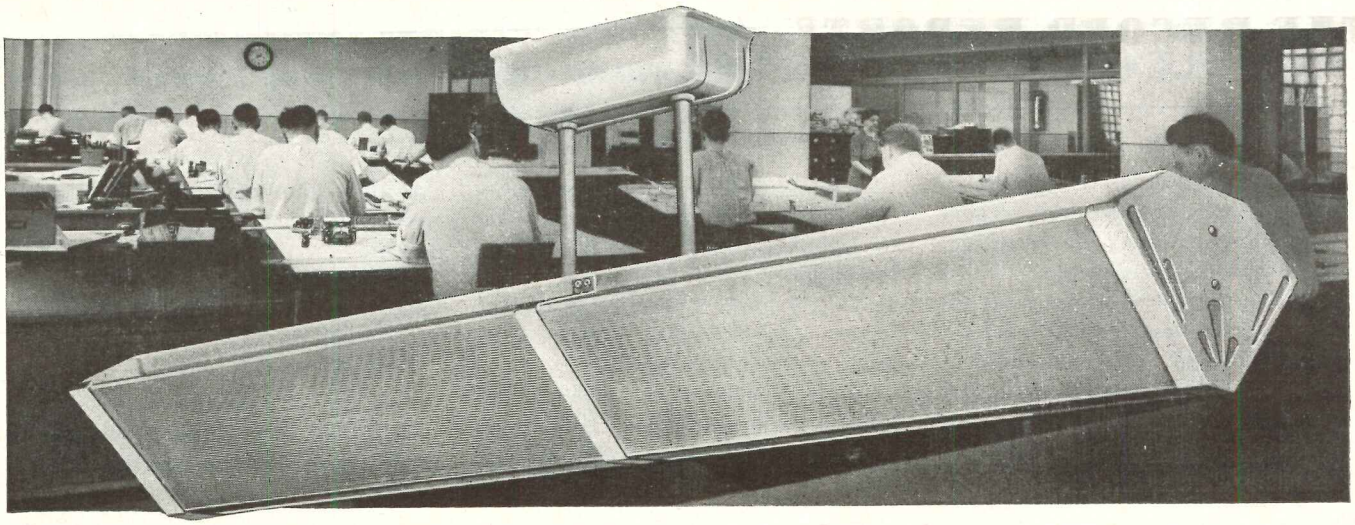
Redrafted L-41

Clarity is the keynote of the completely redrafted construction-limiting Order L-41 just issued in simplified form by the War Production Board, with the expressed intention of making the restrictions more easily understandable by the public.

The revised order also makes several substantive changes, among them:

1. The limit on farm construction,

(Continued on page 120)



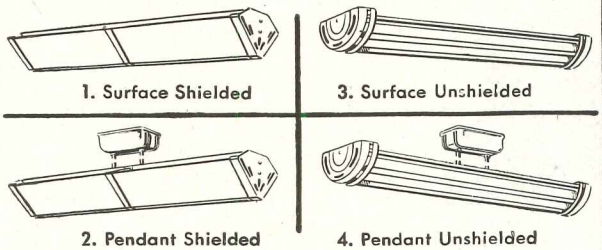
FOR THE FIRST TIME SINCE JUNE 1942

an improved fluorescent fixture

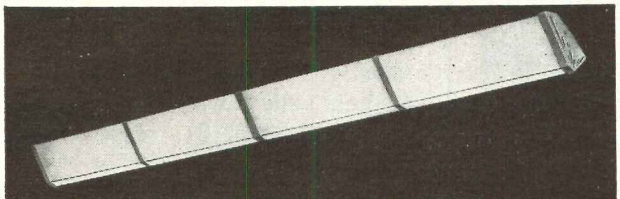
FOR DRAFTING ROOMS AND OFFICES

SYLVANIA-ENGINEERED ADAPTABILITY OF THIS NEW FIXTURE

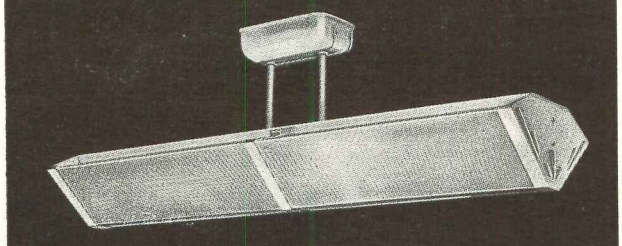
HANG IT ANY WAY YOU WANT



1. Surface Shielded
3. Surface Unshielded
2. Pendant Shielded
4. Pendant Unshielded



CONTINUOUS ROW MOUNTING



INDIVIDUAL MOUNTING

"EVERYTHING THAT'S FINEST IN FLUORESCENT"

A RECENT WPB order makes it possible to release this new Sylvania commercial fixture, which offers you outstanding flexibility of installation.

Simple, smart, and modern in design, this new model is ideal for factory offices, drafting rooms, schools, and hospitals.

Its semi-direct light distribution provides real visual comfort through shadowless and glare-free illumination.

Light in weight, easy to install and maintain, it has a relatively small load (200 watts), which is seldom heavy enough to require the rewiring of existing circuits.

And you get a complete, pretested package of light — with 40-watt Sylvania Lamps, Mirastat Starters, and high-power-factor Dualamp auxiliary — completely wired and ready for installation.

This model — unshielded C-200R and shielded C-201R — is available to you on a priority of A-1-J or better, with specific WPB approval required for continuous row installations. It carries Underwriters' Laboratories inspection label and Sylvania's own guarantee. Write for further details, specifications, and prices.

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ELECTRIC PRODUCTS INC.

Ipswich, Mass.

INCANDESCENT LAMPS, FLUORESCENT LAMPS, FIXTURES AND ACCESSORIES, RADIO TUBES, OTHER ELECTRONIC AND ELECTRICAL DEVICES

(Continued from page 118)

including residential, is placed at $1,000. Previously there were separate limits, farm residences not being considered part of the farm unit.

2. A limit of $200 is placed on any type of construction for which a higher specified limit is not authorized by the order. This over-all limit formerly was $1,000.

3. In calculating costs to determine if a job is within specified L-41 limits, the cost of used materials, or the value of labor furnished free, need no longer be included.

4. Cost limits now refer to the calendar year, instead of to any consecutive twelve-months period.

With issuance of the revised L-41, Orders L-41a, L-41b, L-41c, and Interpretation No. 1 are revoked, inasmuch as their provisions are either incorporated into, or altered by, the new order.

FHA REPORT

Insured financing for approximately 100,000 additional family dwellings to be produced by private builders under NHA's war housing program is made available by President Roosevelt's recent approval of legislation increasing the Federal Housing Administration's war housing mortgage insurance authorization by $400,000,000.

The legislation expands the FHA's insurance authorization under Title VI of the National Housing Act to $1,600,000,000 from $1,200,000,000 and extends the FHA's authority to insure under that title from July 1, 1944 to July 1, 1945. War housing mortgages already insured under Title VI plus outstanding insurance commitments have now reached close to the previous $1,200,000,000 ceiling.

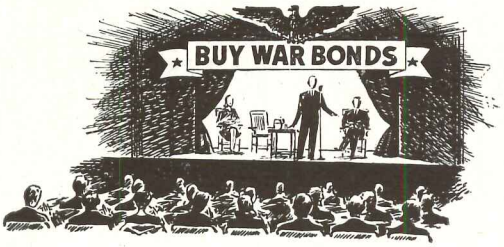
WAR HOUSING REPORT

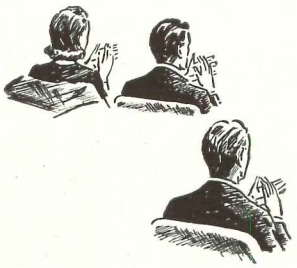
With the completion of 52,480 war housing units in September, the total number of units completed in the first nine months of 1943 has been raised to 423,317, NHA Administrator John B. Blandford, Jr., has announced. In the comparable period of 1942 a total of 203,680 units was completed under local NHA war housing quotas.

Construction was started on 31,795 units during September, Mr. Blandford stated. This brought the nine months total of units placed under construction to 349,033, as compared with 390,574 in the same period of 1942. A total of 227,984 units was under construction on September 30.

NHA has programmed almost 500,000 new war housing accommodations —enough to house more than 1,500,000 persons—in ten war industry areas alone, where hundreds of thousands of new workers have been recruited for war jobs from distant points, Mr. Blandford reported. These areas of heavy labor in-migration are Los Angeles, San Diego, the San Francisco Bay area, Portland-Vancouver, Seattle, Detroit-Willow Run, the Hampton Roads area in Virginia, Mobile, Baltimore, and Washington, D. C. More than three-fifths of the war housing

(Continued on page 122)





How to Take a Back Seat and Like It!

There are still a lot of auditoriums whose back seats are just plain useless because sounds from the platform can't be heard.

But in an auditorium equipped with an RCA Sound System, anybody can "take a back seat" and really enjoy himself.

There is scarcely a new building that does not have a logical, time-saving, and often vital use for RCA sound equipment . . . and a good sound installation is one of the "most-talked-about" improvements you can include in a building project.

RCA sound specialists—experienced in the selection and application of sound systems—are "on call." Get in touch with the one near you, or write, stating your problem, to Radio Corporation of America, Dept. 70-8, Camden, N. J.

TUNE IN "WHAT'S NEW?"—*RCA's Great New Show, Saturday Nights, 7 to 8, E. W. T., Blue Network.*

RCA

RADIO CORPORATION OF AMERICA

(Continued from page 120)

for these key points had been completed by October 1, with 81,856 units under construction and 76,340 scheduled for early starting.

ALBERT KAHN AWARD MADE

The first award of the Albert Kahn Scholarship at the College of Architecture and Design of the University of Michigan, open to students of architecture or of engineering, has been made to James H. Blair, Jr., senior student in architecture from Gary, Ind. This scholarship, established in 1941 by gift of Albert Kahn Associated Architects and Engineers, Inc., of Detroit, through Mr. Kahn, provides that emphasis be placed on candidates' records as to interest in the mechanical and electrical equipment of buildings.

PLASTICS SEMINAR

Wartime research developments in laminated plastics and the postwar applications of the same to industrial and consumer needs supplied the theme of a three-day seminar held by the Formica Insulation Company, October 28-30, at the plant in Cincinnati.

Discussed at the conference "with peacetime objective" was a variety of laminated products expected to have new importance and application after the war. These items included glass base, Permaprints, Pregwood, Forming Sheets, Rayon and Textile applications, wallboard, Terraza strips, drain boards, refrigeration applications and collateral products.

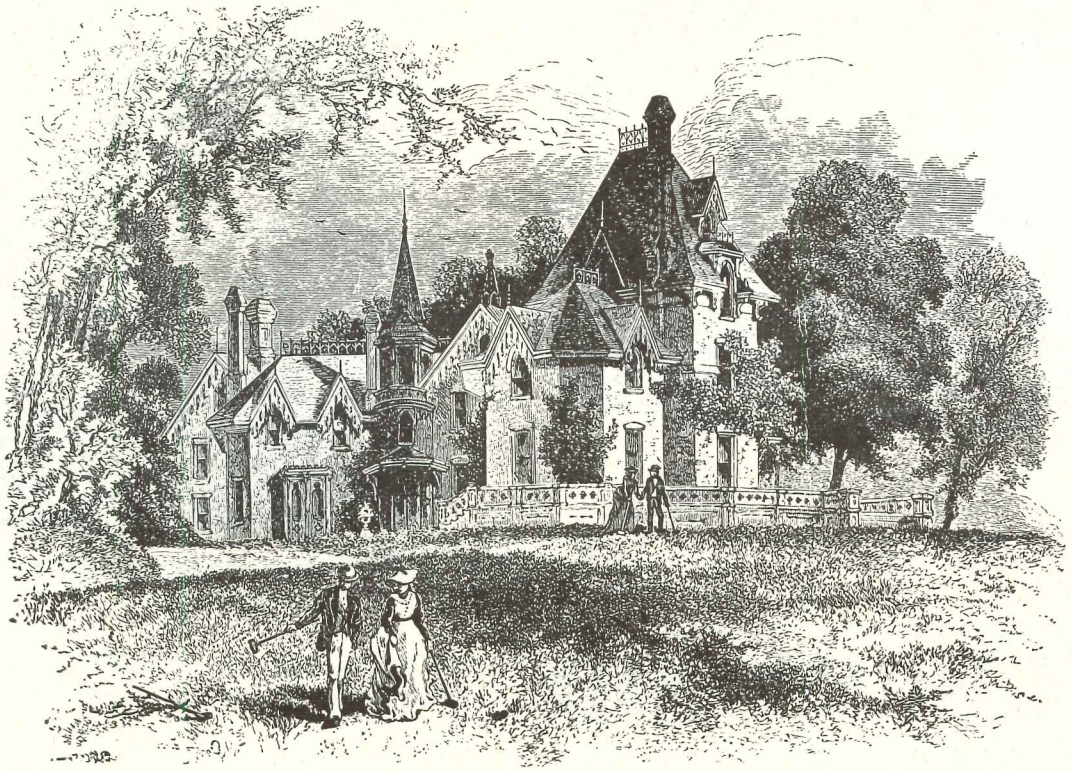
ENGINEERS' COUNCIL ELECTS

Everett S. Lee, engineer, General Engineering Laboratory, General Electric Company, Schenectady, N. Y., was elected chairman of Engineers' Council for Professional Development at its 11th annual meeting held recently in New York City.

The Council is a conference organized to enhance the professional status of engineers through the cooperative efforts of eight national engineering organizations. Objectives are to coordinate and promote efforts to attain higher professional standards of education and practice, greater solidarity of the engineering profession, and greater effectiveness in dealing with technical, economic and social problems. Headquarters are maintained in the Engineering Societies Building, 29 West 39th St., New York 18.

FURNITURE EXHIBIT

An "Exhibit of Furniture Ideas for Postwar Homes" will be held in Grand Rapids, Mich., in January under the sponsorship of the Grand Rapids Industries, Inc. A competitive showing intended to stimulate the creative impulses of the country's leaders in the field of design, styling and decoration, the exhibit will consist of the selected ideas from furniture designers, store decorating departments, advanced students of decoration, schools, editors, illustrators and movie studios, and manufacturing interests in all related fields, for the furnishing of seven postwar rooms.



Post-War Home

This is a post-war home...post-Civil War. It represented the most advanced thinking of its day. About the only functions it performed well were to keep the weather out, and proclaim its owner's economic status. But for all its long roster of shortcomings by present-day standards, this "General Grant Gothic" showplace was its owner's pride and joy.

American families and those who expect to have families in the years to come are today looking forward to the new, better homes that have been promised for after the war. Homes equipped with all kinds of marvelous, toil-saving devices, and making use of new materials and bending tried-and-proved materials to new uses.

Steel, alone in the combination of valuable properties that it possesses, has much to offer the architect with an advanced home design on his board. Steel is strong as no other material is strong. It is compact, durable, fireproof. It can be pressed, drawn, welded, into almost any conceivable shape.

Steel has always been recognized as the supreme material for structural purposes. Thanks to new techniques and developments made under the spur of wartime necessities, it will have even greater versatility in the post-war years. Not only in framework and other integral parts of the house itself, but in many items of equipment that contribute so much to convenience and livability, steel is a staunch ally of the architect in providing better homes for post-war America.

★ ★ ★ BETHLEHEM STEEL ★ ★ ★

PLASTICS IN FUTURE HOME BUILDING

Acme photo

Alden B. Dow introduces his proposed plastic house to the Society of the Plastics Industry

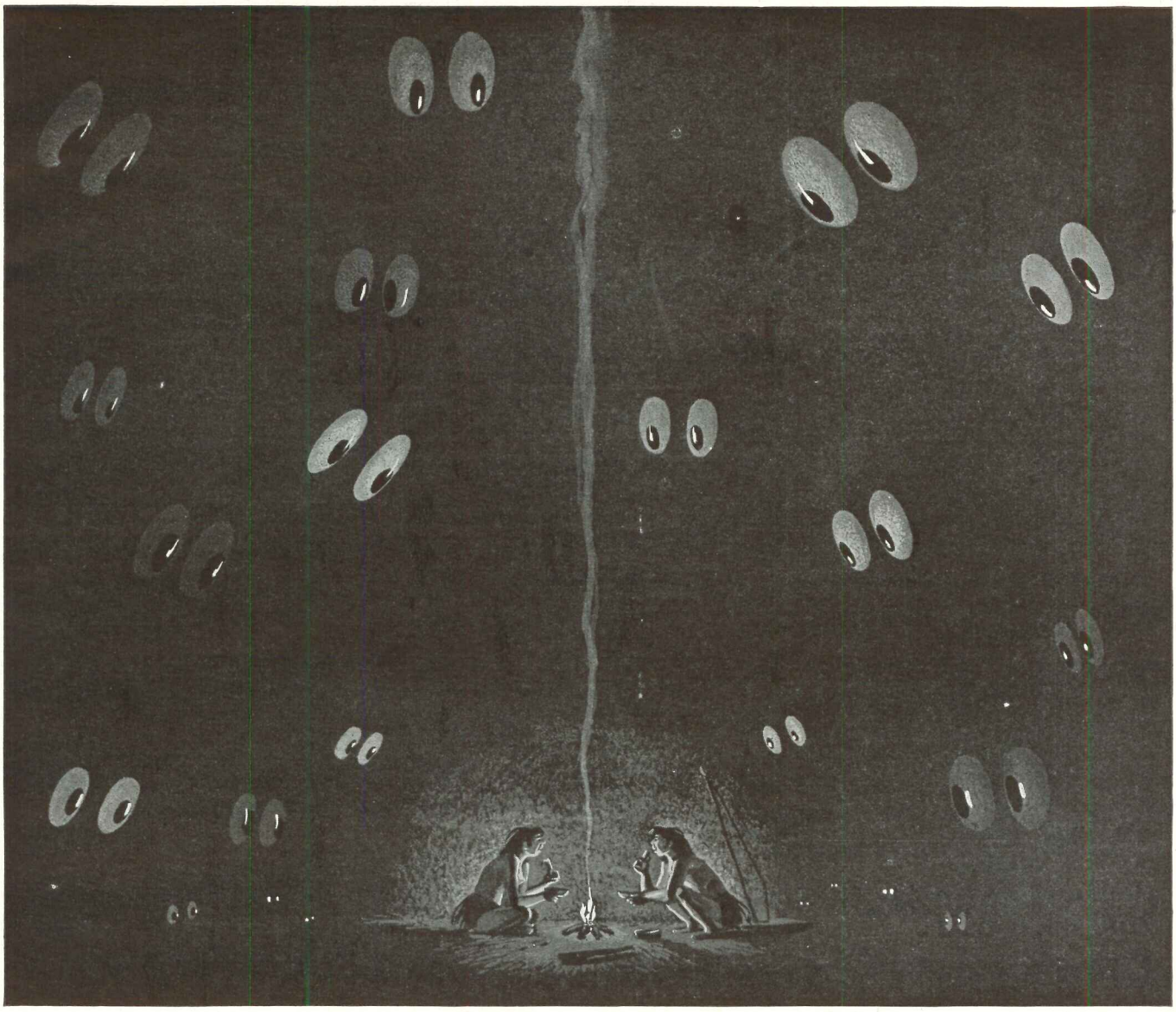
REACHING far into the imaginative, Alden B. Dow, Michigan architect, has devised an all-plastic, circular-unit house, a model of which he exhibited at a recent meeting of the Society of the Plastics Industry.

"I chose the circle as the main motif of the plan," Mr. Dow said in exhibiting the model, "because in curved lines there is a sense of spaciousness not achieved by straight lines." All-plastic building materials were selected, he explained, because of their flexibility and variety of form, color and texture.

The proposed house would be a colorful one: soft pink exterior walls and floors; clear yellow roofs with brilliant turquoise trim; bright orange columns along the covered walkways. The outside walls and floors would be made of a phosphorescent plastic, Mr. Dow said, "whose soft glow at night will provide exterior beauty and serve as a guide to the various units of the house."

"We do not want buildings, one a replica of the other, rolling from a mass production line across our country," Mr. Dow told the Society. "We do not want stock houses that can be traded in on a new model every year or so. We want a flexible material, varied in color and texture, from which the individual may build, as simply as a child with blocks, anything his heart desires and add to it as the years go by. This may sound like wishful thinking, but it seems to me that the plastics industries have the materials that may meet every requirement for a simpler and more flexible way of building."

The emphasis of the two-day plastics conference was on the war and industrial aspects of the plastics industry and the interchange of information on new materials and processes of manufacture. Included on the agenda was an exhibit of the war applications of plastics, to which only members of the Society and registered guests were admitted, and a discussion by N. J. Rakas of the Chrysler Corporation of the classification of plastics by engineering properties rather than chemical composition, a project undertaken by the SPI Technical Committee.



. . . why is DARKNESS terrifying?

SINCE prehistoric times, the dangers which confronted mankind have always struck most savagely in darkness. The dark of night is associated with disaster, and that's as true today as it was 10,000 years ago.

Despite all precautions of utility companies, accidents beyond their control can cause interruptions of normal electric current. Storms, floods, fires, and collision strike without warning to lead to damage of materials, injuries to employees, sabotage, and equipment damage.

That's why every architect should know the importance of an Exide Emergency Lighting Unit to his clients. It operates instantly and automatically to give full protection. Write or wire your nearest Exide Branch, and let an Exide Field Engineer show how this service works.

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EMERGENCY
BATTERIES

REQUIRED READING

(Continued from page 28)

primarily in design . . . some sense of comradeship with the social analysts." This report, by Harvard's Charles Dyer Norton Professor of Regional Planning, outlines the development of the entire field of planning in this country as well as making recommendations in respect to a wider curriculum for the Graduate School in cooperation with other schools and departments.

THE GREEK REVIVAL IN THE UNITED STATES.

New York (Fifth Ave. at 82nd St.), Metropolitan Museum of Art, 1943. 48 pp. 7½ by 10 in. illus. $0.50.

Reproductions of some 70 photographs from the Museum's current loan exhibition (ARCHITECTURAL RECORD, Nov. 1943, p. 10) with an illuminating foreword by Joseph Downs, Curator of the American Wing, showing the origins and the extent of the Revival and indicating the architects, builders and designers in centers far apart who contributed to it. A beautiful little guide to be owned and mastered by that large part of the public not in a position either to own or to master Professor Talbot Hamlin's eagerly awaited "Greek Revival Architecture in America" (New York, Oxford Univ. Press, $7.50; ready about the end of the year.)

PERIODICAL LITERATURE

REBUILDING EDINBURGH.

By E. L. Westwater. Journal of the R.I.B.A., London W. 1 (66 Portland Place) Sept. 1943. pp 249; 250-254.

A report on the Rebuilding Edinburgh exhibition promoted recently by the Edinburgh Architectural Association to arouse public interest in replanning Scotland's capital, "a city of unique natural beauty . . . which has suffered less than almost any city in this country from war attack. . . ." This "romantic town," to interfere with which would be an insult to tradition and to ideal beauty, is at the same time a city in which the residential New Town — "a series of facades revealing chaos" — is not a stone's throw from slums of the worst description.

Great interest was aroused by the

(Continued on page 128)

STRIKE!

THEN WE'LL *SET 'EM UP IN THE OTHER ALLEY*

The armed forces are good enough to say that we are really mowing 'em down—in our war time job of making small parts for planes, tanks, guns—fighting units of all kinds.

But even as our factory hums with this vital war production, our engineers are laying plans to quickly "set 'em up in the other alley" when war is done.

In those days we know there will be many doors to close quietly . . . a hundred and one demands for door closers. Plans LCN is making today mean we will be ready then to supply you with products to sell . . . products geared to a new era whose outlines are just beginning to appear.

By this preparation, LCN will contribute not only to the further success of your business and ours . . . but to the upspeeding of an American economy of plenty . . . plenty of jobs . . . plenty of opportunity in a truly free America.

NORTON LASIER COMPANY, 466 West Superior Street • Chicago

LCN

REQUIRED READING

(Continued from page 126)

extensive use of effective models, among them the one room dwelling common today, realistically contrasted with the good quarters possible after the war, and the block models showing winter and summer sun. The response from public and press was so great that the Association feels well justified in its decision "to depart some way from academic orthodoxy."

PLASTICS FOR THE ARCHITECT.

By Henry O. Belleville. Architect and Engineer, San Francisco (68 Port St.), Oct. 1943. pp. 12-18 illus.

Examination of certain plastics as after-war building material, with brief discussion of some types and their uses: Lucite for kitchen and bathroom furnishings such as towel racks, wardrobe hooks and soap trays, as well as for handles, door knobs, wall plates, cold light ducts; Fabrikoid and Nylon for upholstery; Nylon also for non-rusting roll-up window screens; Plastacele for Louverplus directors for fluorescent lighting; and others.

THE GRATUITOUS SEMICIRCLE.

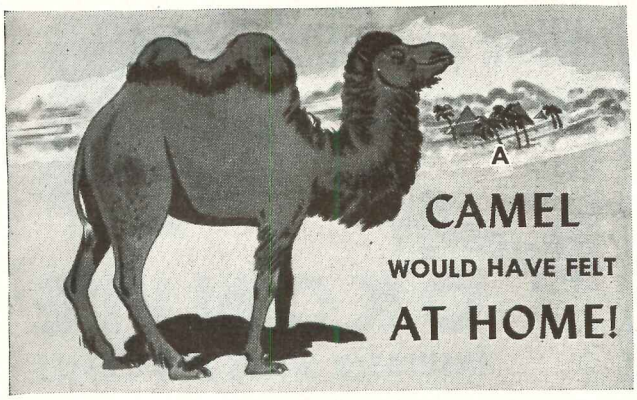
By John Piper. Architectural Review, Cheam, Surrey, Eng., Oct. 1943. pp. 112-113. illus.

The semicircle with a horizonal diameter is a piece of plain-man's self-assertion, the simplest kind of contrast in a four-square building, with a misunderstanding and approving nod at Classicism and a disapproving nod at anything Gothic or fancy—the enemy of good taste—in bad proportion, ungainly, having nothing to do with the refined fanlight and little with the round-headed door or window, simple, vulgar, plain, direct and proud of the fact, suitable for shops and public houses which need to attract customers.

ZOOT HOUSE.

News Week. Dayton, Ohio (350 Dennison Ave.), Nov. 1. p. 84. illus.

The 200-year old Mexican Society of Architects is trying to secure architect-designed houses in a country where 99 per cent of the smaller houses are amateur-planned or the work of engineers. As part of its campaign it offers a prize to the person who sends in a photograph of the ugliest house in Mexico City, whole districts of which are built in a poor-type fake colonial.



Until Allen Engineers Took Over...

In a certain drop forge plant, under-roof temperatures in summer hit 170° to 190° Fahrenheit. Floor working temperatures were upward of 120°. O. K. for camels—tough on men intent on high production.

Allen men, wise to the ways of air movement, studied the situation. Seven 60 inch cowl ventilators that had been loafing on the job came off pronto. Equally fast, with the cooperation of local sheet metal men, seven 54-B Type "H" Allen Roof Fans went onto the ridge. With 60 air changes an hour, floor working temperatures moved down within reason, fumes and smoke that had been troublesome also took to their heels.

Allen men are always available to cooperate with you in determining ventilation needs and installing the proper equipment to meet the specific situation. The Allen Corporation, 9751 Erwin Ave., Detroit 13, Mich.

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PORTLAND CEMENT ASSOCIATION

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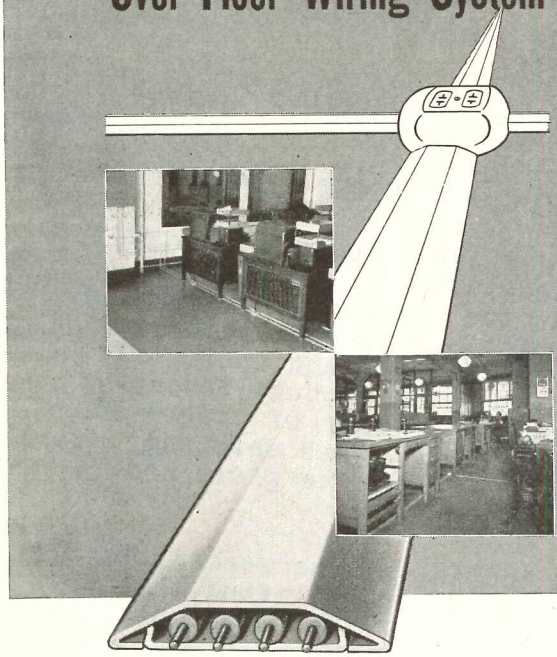
PANCAKE WIREMOLD Over-Floor Wiring System



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This safe, simple, easily installed Overfloor Wiring System solves problems of this kind with minimum use of critical materials . . . without channeling of floors or breaking into plaster of walls . . . without, in most cases, disturbing people at work. Pancake is neat, unobtrusive in appearance . . . "flat as a pancake; strong as a bridge"; trip-proof and crush-proof . . . with fittings for telephone, light or power service connections and for interconnections to existing wiring or other Wiremold Raceways.

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"HELPING HAND" LITERATURE FOR ARCHITECTS

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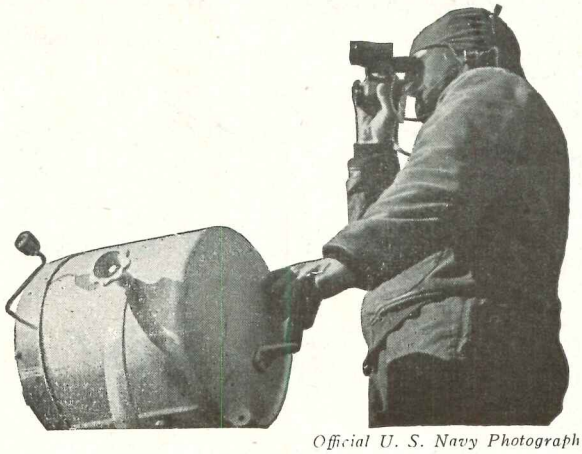
- ☐ Engineering Data Sheets No. "3000" System Wiring for Industrial plants.
- ☐ Engineering Data Sheets, Plugmold Multi-Outlet Wiring Systems.
- ☐ "Pancake" Wiremold Overfloor Wiring System for Office and factory.
- ☐ Wiremold Catalog and Wiring Guide

CHECK and return with your name and address



Official U. S. Navy Photograph

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WHEN VICTORY COMES, we'll solve YOURS.

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Jamison, Stevenson and Victor Doors

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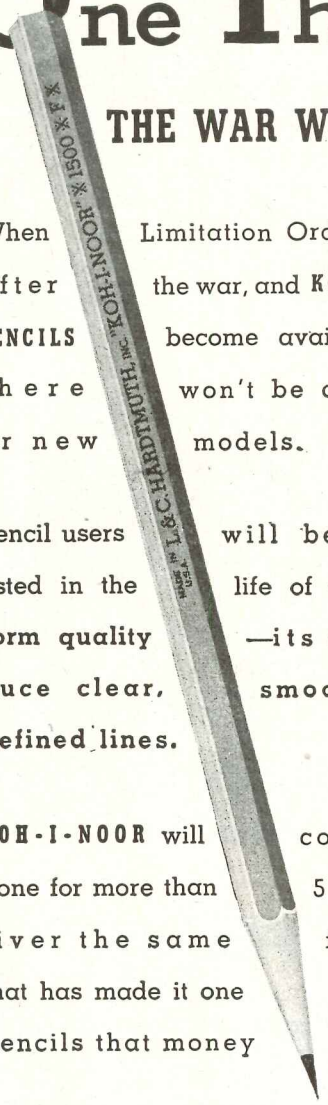
Free **"White Book" interesting colorful, factual. Filled with prize-winning houses painted with Cabot's Old Virginia White, Double White and Gloss Collopakes. Write for your copy. Samuel Cabot, Inc., 1233 Oliver Bldg., Boston, Mass.**

Cabot's

DOUBLE WHITE AND GLOSS COLLOPAKES

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.

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

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