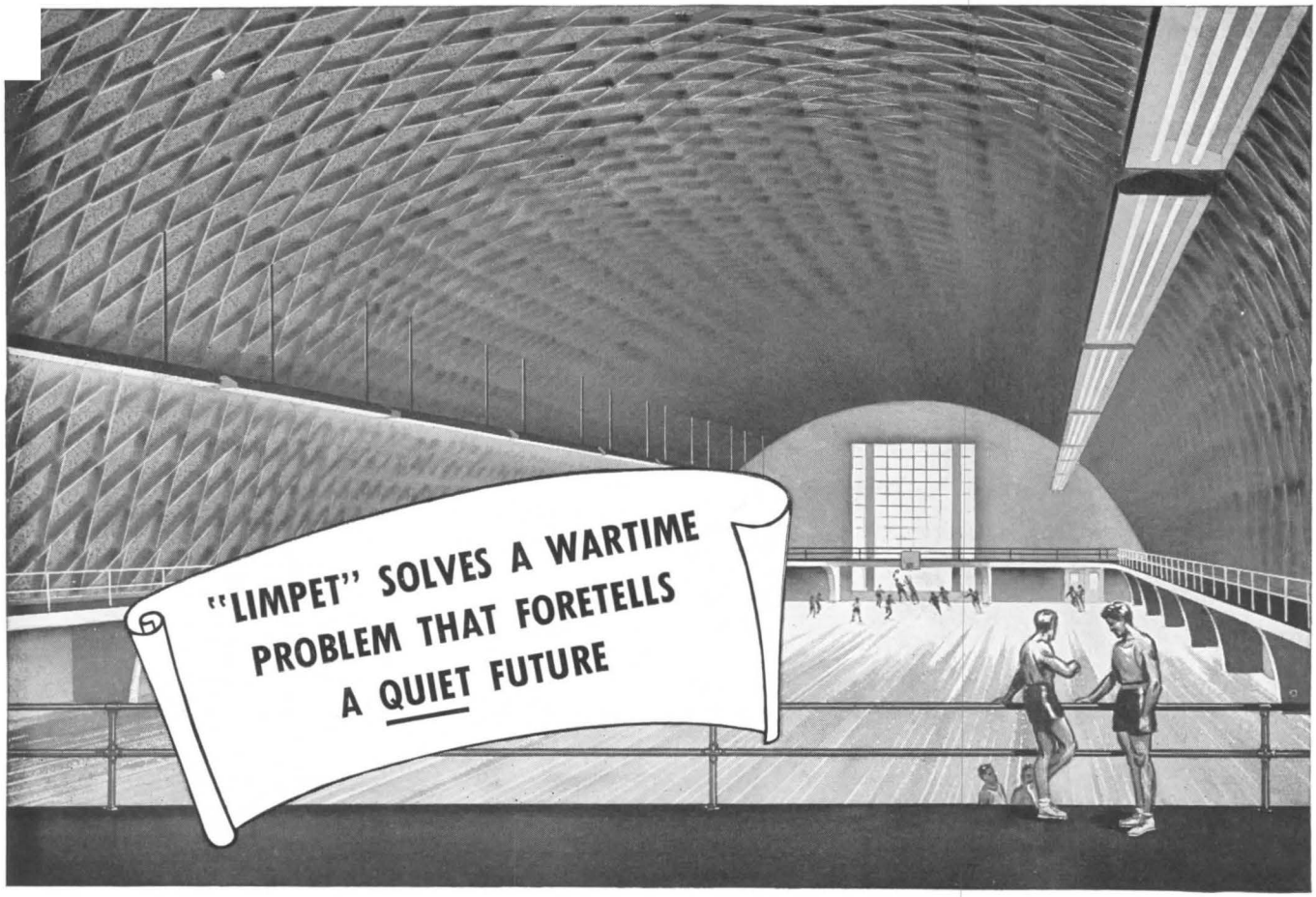
Looking ahead with Asbestos



● A USO sports arena with a lamella-type roof presented a problem in sound control. The intricate pattern of the ceiling called for an acoustical material that could be applied without the need for costly, time-consuming cutting and fitting. As in so many other war jobs, the answer was Keasbey & Mattison's Sprayed "Limpet" Asbestos.

For "Limpet" not only follows curved, recessed or irregular surfaces as readily as flat ones; not only sticks tight to any clean surface regardless of composition — but it boasts the high noise reduction coefficient of .70, ¾" thick.

Quieting the shouts of soldiers at play is just one of "Limpet's" many wartime assignments. When peace is won, "Limpet's" amazing adaptability will help architects subdue unwanted noise in gymnasiums, auditoriums, convention halls and other public meeting places where sound control is a must.

Meanwhile, K&M continues to pursue its research into asbestos, in order to make more useful still Nature's strangest mineral.

* * *

Nature made asbestos;
Keasbey & Mattison, America's asbestos pioneer,
has made it serve mankind . . . since 1873

KEASBEY & MATTISON

COMPANY, AMBLER, PENNSYLVANIA

Makers of

asbestos-cement shingles and wallboards; asbestos and magnesia insulations for pipes, boilers, furnaces; asbestos textiles; asbestos electrical materials; asbestos paper and millboard; asbestos marine insulations; asbestos acoustical material; asbestos packings; asbestos corrugated sheathing and flat lumbers; asbestos-cement pipe for water mains

The war-time need for conserving metals has spot-lighted the importance of careful planning, and careful material selection . . . but many architects and engineers regularly followed this course in peace-time construction, as this new library building illustrates.

The architects used Radiant Heating, which is unusually economical in metal requirements as compared to other "wet-type" systems. They specified "Wrought Iron" for the floor coils, to combat corrosive attacks, and eliminate the threat of early repairs and replacements.

As far as we know, this is the first library in the country to use Radiant Heating. It thus adds another to the long list of varied applications where Radiant Heating is serving, and expands the "Experience Pool" of practical knowledge that is helping architects and engineers both with current problems, and with their planning for tomorrow.

Another new job for

RADIANT HEATING

and for

BYERS WROUGHT IRON

LOOK FOR THE PIPE ... WITH THE RED SPIRAL STRIPE

Every structure built today has a "specialized" purpose: to contribute to the war effort. In many cases, this brings specialized heating problems, which cannot be properly solved with old-style methods, but which are made-to-order for Radiant Heating. If you have any such project on the boards, please feel free to write to our Engineering Service Department for factual information on how other men have handled similar jobs. Ask, also, for our technical bulletin, "Byers Wrought Iron for Radiant Heating Installations," which conveniently digests a wealth of helpful information on the subject. We will be glad to send you a complimentary copy.

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

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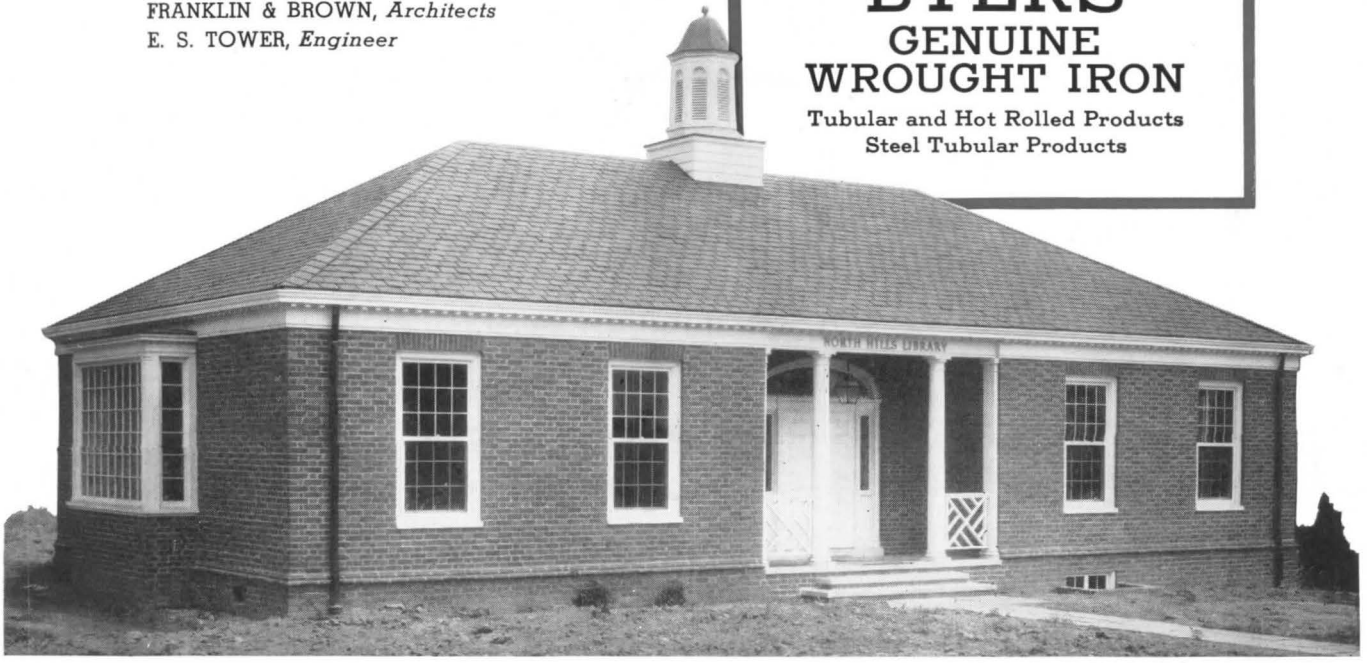

CORROSION COSTS YOU MORE THAN WROUGHT IRON

ARCHITECTURAL
RECORD
COMBINED WITH AMERICAN ARCHITECT AND ARCHITECTURE

VOL. 92 **DECEMBER 1942** No. 6

CONTENTS

NEXT MONTH

WITHOUT intentionally being isolationists, it is surprising how little we know or have heard of the progress being made in architecture and engineering by our good neighbors to the south. In the cementing of stronger ties between North and South America, and in the interests of Western Hemisphere solidarity, some eyes have been opened with both surprise and pleasure.

Recently Philip Goodwin, AIA, of the Museum of Modern Art, and George Kidder-Smith, AIA, visited Brazil. The results of their trip will be displayed next month at the exhibition of Brazilian architecture, old and new, at the Museum of Modern Art. We are privileged to present, in January also, some of the most interesting and exciting of the modern architecture which they have discovered. Buildings ranging from a casino and an airport to schools and houses offer a wealth of fresh architectural inspiration and details.

Planning for the future gives force to the war effort, and planning the future communities for America must be undertaken now. So in January, we consider both the technical and the conditioning aspects of community planning. What can be planned, by whom, and where, and how? Authorities who have done actual planning are now preparing comprehensive articles which should be of immediate use to architect-engineers in every section of the country.

F. W. DODGE CORPORATION
H. JUDD PAYNE, Vice President in charge of MAGAZINE DIVISION

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WASHINGTON NEWS

By WILLIAM J. CASEY

CMP Over Building • Housing Priorities Processing Resumed • 1942 Construction Ahead of 1941 Level • Conversion Program • Construction Price Control • Revolution in Home Building • New Ruling on Floor Covering and Roofing • Price Ceilings for Builders' Hardware • Convert or Freeze

THE CONTROLLED MATERIALS Plan is bad business news for all heavy industry which does not produce something which shoots, flies or floats. WPB's new plan to control and schedule material flow has several areas of drastic impact.

In the first place, it will mould American industry into tightly integrated vertical combines. The supply of available materials will be divided between the Army and Navy and other war agencies, with a kitty set aside for civilian use. This material will then be allotted to manufacturers of end products or prime contractors. They will be responsible for funneling their quota down to subcontractors and scheduling the production of parts for manufacturers, subcontractors and suppliers and for the economical use of the material funneled out. The relatively small group of end products manufacturers will take over huge areas of decision and make business judgments for their subcontractors.

In the second place, it will dig the priorities knife into the very marrow of a civilian economy already cut to the bone. It marks complete concentration on quick military production without concern for anything beyond bare maintenance of the essential civilian economy. Leon Henderson, who will act for non-war industries, stated that his request for steel for civilian uses for 1943 will amount to only 1½ per cent of steel output, and the copper requested will be less than ¾ of 1 per cent of available 1943 supply. What it means to building will become a lot clearer when Ferdinand Eberstadt, architect of CMP, decides whether materials for house building in military production areas will come out of Army and Navy material allotments or out of the skimpy civilian kitty. At this writing it looks as though all except direct military construction will come out of the Office of Civilian Supply civilian quota.

On the bright side of the picture, WPB has just reopened priority processing on both public and private home building, basing its allotments on the yardstick of steel supply and the allotment of certain companion materials.

Housing Priorities Processing Resumed

On the bright side of the picture, WPB has just reopened priorities on both public and private home building. Since steel supply is the chief limiting factor on building, this resumption of housing priorities processing is keyed to the 15,000 ingot tons of steel just allocated to war housing. The amounts of lumber, rubber, copper, zinc, tin, brass and lead that must go with the steel have also been allocated. Administrator Blandford will divide the available supplies between public and private housing. The new allotment of ingots, together with a residue of just below 5,000 ingot tons from the previous allotment, will boil down to about 14,000 tons of fabricated building products.

However, WPB at the same time has changed its bookkeeping methods on steel and housing. Only mill products will be charged against the housing quota, whereas fabricated building products will come from other allotments. Thus, nails and pipe will come out of the quota, while stoves and radiators will not. Roughly, this would make the quota go about twice as far as under the old bookkeeping method where both mill products and fabricated building materials were charged against the steel allotment.

1942 Construction Ahead of 1941 Level

Total new construction in the continental United States amounted to $10,500,000,000 during the first nine months of 1942, compared to $8,000,000,000 for the corresponding period of 1941. War construction brought the total for public construction up to $7,700,000,000 for the first nine months of the year—almost twice the volume for the first three quarters of 1941. This jump comes chiefly from work done on military and naval depots, stations, and airfields, and the

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"Can we take in two refugees from Thermal Zone B who didn't convert to coal?"
—Drawn for the RECORD by Alan Dunn

(continued from page 7)

expansion of industrial plants. Private construction dropped 34 per cent. War housing by Federal funds reached $352,000,000, up 11 per cent over the first three quarters of last year. Highway construction dropped 34 per cent and public utility construction rose from $577,000,000 to $604,000,000.

Since September 1, war housing construction started by private builders operating under the FHA war housing insurance program has averaged approximately 3,100 dwelling units per week. In the eight weeks ended October 24, construction of 25,100 dwelling units for war workers was started under FHA inspection. This represented an expansion of approximately 12 per cent over the average rate of building started under the FHA war housing program during July and August. This ran 33 per cent over total FHA construction started in the corresponding period of last year. Of course, these projects are in locations accessible to war plants and occupancy and priority go to war workers. A higher percentage of the projects is offered for rent than for sale.

Conversion Program

Washington is beating the drums hard. Store buildings, club meeting rooms, unused filling stations, and virtually every conceivable type of structure is being offered for conversion for war housing. Here, briefly, is how some of these details of the program shape up.

The National Housing Agency will lease existing structures from owners for conversion into additional dwelling units for war workers for seven years, or two years after the end of the war emergency, whichever is the longer. While a stated rental will be paid to each property owner, the cost of the alterations to any property is expected to amortize itself within seven years. One-seventh of the conversion costs will be deducted each year from gross rentals collected from tenants.

In deciding on what houses to take, these four tests will be applied: (1) Will conversion of the property use less critical materials; (2) will it use less manpower; (3) can the place be made available for occupancy in less time; (4) will its preparation cost less money? Property must be located within walking or convenient transportation distance from war plants and in districts where zoning laws permit conversion. If an owner is willing to lease his house, he fills out an application blank furnished by his local War Housing Center. Plans for the alteration will be submitted to him for approval before the lease is signed. NHA will advance funds for the remodeling which will be repaid out of the rents charged the war workers. The NHA will maintain the property during the period of the lease. NHA will not lease a property if the surplus rooms in it are now rented to war workers, or permit the owner to dispossess tenants in order to lease the property. NHA will keep up the mortgage, including normal debt payments and pay taxes and insurance. The owner gets the rent stipulated in the lease as soon as NHA takes possession. Rents are based on the standard rental scale, giving the owner a fair return based on the current income produced by the improved property after taxes, debt payments, and a fair charge for improvements are taken care of. The owner will get the remodeled building back when the lease expires.

Structures which will yield a large number of units will normally be converted and managed by FPHA if the completed project is large enough to require a resident manager operating as FPHA resident managers now work in the case of FPHA multiple-unit projects.

Construction Price Control

The long-pending and much-debated price ceiling in the entire construction industry has been issued. Operative builders are exempted because they are not considered as being engaged in the contracting business. Where they build on order, price ceilings apply to them. Work for Government agencies is also exempted.

The construction maximum price regulation (No. 251) covers all construction and maintenance services and sales in which contractors, builders, installers and erecters furnish building or industrial equipment or materials, together with the labor or services required for actual construction, installation or service. Ceilings established are the equivalent of those generally in effect during March, adjusted for increases in labor costs between March 31 and July 1. Different pricing formulas have been established for three types of sales:

A. *Sales of all types not in excess of $500:* on sales below $500 the seller should add to the price he would have charged in March the increases in labor costs on the job up until July 1. The result is his maximum price.

B. *Sales in excess of $500 on a cost-plus basis:* for contracts of more than $500 on a basis of cost-plus a percentage of cost, or cost-plus-a-fixed-fee, or any other basis in addition to cost, maximum prices are to be computed as follows:

1. Materials and supplies at actual cost.
2. Labor at actual cost, but in amounts not to exceed labor costs at rates in the area of installation in effect on July 1.
3. Other direct actual costs including costs of subcontracts.
4. Margin for overhead and profit at March rates, based on a comparable sale, or under certain circumstances, the seller's general experience and that of the industry.

C. *Sales in excess of $500 on a lump-sum basis:* for contracts of more than $500 on a lump-sum basis, maximum prices are to be computed as follows:

1. Estimated cost of materials and supplies.
2. Estimated labor costs on the basis of rates in the area of installation in effect on July 1.
3. Estimated other direct costs including subcontracts.
4. Estimated reserve for contingencies.
5. Estimated margin for overhead and profit at March rates, listing the method by which this is computed.

Every contract of more than $500 must be reported to OPA. In less than 10 days preceding final settlement under lump-sum contract, the contractor is required to file a fur-

(continued on page 10)

ANNIHILATE THE NOISE DEMONS

with ceilings of Armstrong's Cushiontone

MANY a hospital's plans for a new wing, or a whole new plant, are having to be postponed. But, in the meantime, there's a simple way to make many present buildings to a better job—by eliminating the noise demons which harass the staff and retard patients' recovery. Low-cost ceilings of Armstrong's Cushiontone, which effectively trap the demons of din, make even an old and crowded building seem larger and more modern.

There are 484 traps for noise demons in each square foot of Armstrong's Cushiontone—484 deep, sound-absorbing holes which bring a remarkable degree of peace and quiet to any public building. You won't need scientific tests to show you—or your clients—the difference that Cushiontone makes.

Armstrong's Cushiontone is made in 12″ x 12″ and 12″ x 24″ units which are factory-painted and ready to apply. Installation to any ceiling is fast and easy, without serious inconvenience to occupants. Maintenance is no problem at all, for Cushiontone is readily cleaned and can be repainted whenever necessary without affecting its noise-quieting efficiency in the slightest. The smooth, ivory-colored surface reflects both artificial and natural light particularly well.

LET US SEND YOU a free copy of our new booklet which gives all the facts about Armstrong's Cushiontone. Write today to Armstrong Cork Company, Building Materials Div., 1245 State St., Lancaster, Pa.

Armstrong's Cushiontone

Made by the Armstrong's Linoleum makers of *and Asphalt Tile*

THE RECORD REPORTS

(continued from page 8)

ther report with OPA setting forth the actual costs of the various items indicated in the original estimates on file. Excluded from the new regulation are most contracts with the War and Navy Departments. Certificates of compliance are mandatory in sales of more than $500 and may be demanded by purchasers in sales of less than $500.

Revolution in Home Building

Builders will be required to gear all future housing construction to meet the standards of design and material consumption of "War Housing Construction Standards." Effective October 29, WPB will not issue preference rating orders for new prefabricated or site construction housing unless such construction complies with the provisions of the standards and will not extend the terms of preference rating orders previously issued for housing projects except where: (a) The preference rating order has been applied to the purchase of materials; or (b) prefabrication or construction of the project has started; or (c) the construction of the project complies with the standards. All existing restrictions on construction materials and on limitation orders previously issued remain operative, but with the additional restrictions imposed by adoption of the War Housing Construction Standards. An analysis of these standards brings into the foreground these principal provisions and additional restrictions on new housing projects: (1) Single family dwelling units can be built only where there is a definite and immediate need, and only when the essential utilities are contiguous; (2) all structures, of whatever type, shall be built adjacent to existing utilities; (3) use of softwood lumber is allowed in reduced quantities within limits defined by permissible minimum requirements; (4) exterior walls shall be masonry or lumber substitute wherever possible; (5) use of softwood subflooring and softwood finished flooring is prohibited; (6) lumber specifications shall not be restrictive.

New Ruling on Floor Covering and Roofing

WPB clarified the construction limitation orders (L-41 and L-41-b)

(continued on page 12)

MAKE THIS TEST — Prove BRIXMENT is BEST!

1 Above: A cylinder of Brixment mortar (left) and a cylinder of mortar made with 50-50 cement and lime mortar (right). Both specimens were made at the same time, and subjected to exactly the same treatment. After curing for 30 days, ¼″ of water

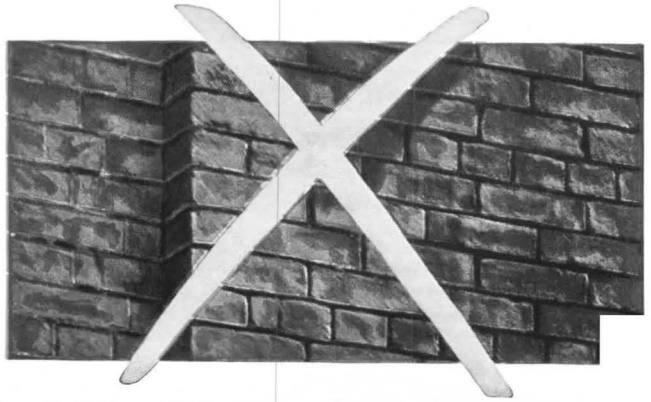
was put into the tray and the cylinders were alternately frozen and thawed 15 times. Note in photo 2 that Brixment mortar remains intact, whereas the other mortar has crumbled badly. This simple test can be made in any ice-manufacturing plant. 2

BRIXMENT *Makes More* DURABLE *Mortar!*

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

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

Walls built with Brixment mortar therefore *retain* their original strength and appearance. Even in parapet walls and chimneys, where exposure is particularly severe, Brixment mortar will almost never require re-pointing.



BRIXMENT

For Mortar and Stucco

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

THE RECORD REPORTS

(continued from page 10)

with respect to (1) floor coverings, such as asphalt tile, linotile, cork tile, rubber tile and linoleum; and (2) roofing or siding material. When a floor covering such as linoleum is made part of a structure by being cemented in place or in any way fixed to a permanent surface while building operations are in progress, the use is considered to be "construction" as defined in L-41. What is true of floor coverings likewise would be applicable in the case of siding or roofing. When siding or roofing is applied to an entire wall or an entire roof, so as to improve the appearance, the application would be classified as "construction" and would be subject to the limitations of L-41. Whenever the new siding or roofing is applied to a portion of a structure that is not in actual need of repair, the work is counted as construction. Roofing or siding materials do not come within the exceptions allowed for "insulation materials" as the term is used in L-41-b "whether or not such siding or roofing has insulating qualities."

Price Ceilings for Builders' Hardware

Maximum prices for all contract or lump sum sales of finishing builders' hardware have been established by OPA, in Maximum Price Regulation No. 261, effective November 13, as follows: (1) Ceilings for manufacturers are fixed at the highest prices received between October 1, 1941 and March 31, 1942, for delivery of finishing builders' hardware of approximately the same grade, quality and amount for a similar building project and to a purchaser recognized under trade practices as entitled to similar treatment. (2) In the case of persons other than manufacturers, maximum prices are based on actual cost of materials under each contract plus percentage mark-ups at the following maximum rates: (a) Cost of material up to $49.99—maximum mark-up 50 per cent; (b) $50.00 to $199.00—35 per cent; (c) $200.00 to $499.99—40 per cent; (d) $500.00 or above—33⅓ per cent.

Convert or Freeze

New restrictions in the issuance of fuel oil rations have been set up by OPA. Henceforth oil burning equip-

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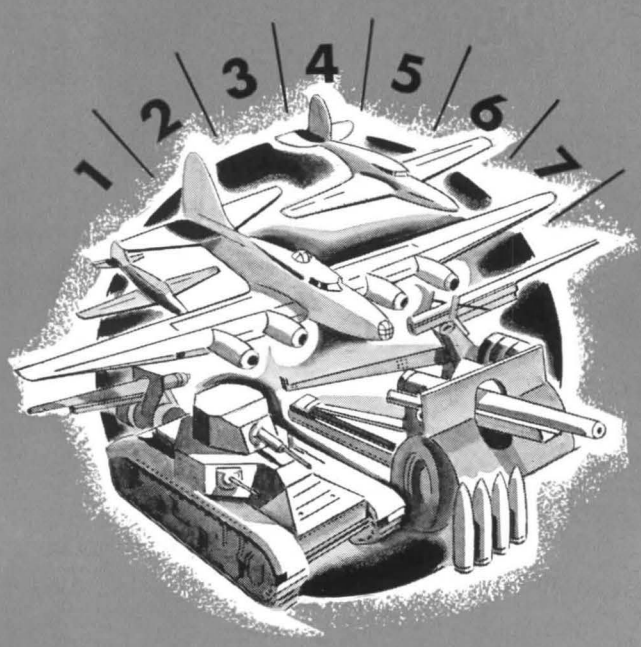
INDUSTRY IS ON AN EIGHT-DAY WEEK



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

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

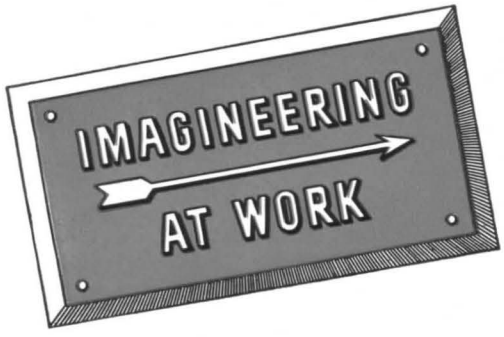
For instance:

Imagine what 1,000 pounds less weight in the automobile of the future would mean in performance, gas economy and tire life. Then engineer it down to the realization that 1,000 pounds *can* be taken off by using, say, 500 pounds of Aluminum per car.

Now translate possibilities such as these into your own business.

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

Our eighth day is devoted to helping Imagineers throughout industry use the potentialities of Alcoa Aluminum in bettering the new ideas they are dreaming up. ALUMINUM COMPANY OF AMERICA, 2167 Gulf Building, Pittsburgh, Pennsylvania.



ALCOA ALUMINUM

START PLANNING *NOW* FOR SLOAN-EQUIPPED HOMES

★ ★ ★

AFTER the war, even modest homes and inexpensive apartments will be Sloan-equipped. Heretofore, flush valve usage has been largely restricted to luxury homes, large apartments, clubs, hotels, hospitals, schools and all types of large buildings. But here is our promise to you now:—after the war is over and priorities on critical materials have relaxed, *there will be Sloan Flush Valves, with all their inherent advantages, for residences.*

What advantages? Many. For 36 years Sloan Flush Valves have proved their trouble-free durability with astonishingly low maintenance cost. They protect health by preventing back-syphonage—They save water—They are quiet—They are the accepted standard of excellence yet cost no more than others.

So start planning now for Sloan-equipped homes. With Sloan Flush Valves you provide home owners with the ultimate in convenience, health and economy. Remember: there are more Sloan Flush Valves sold than all other makes combined.

SLOAN VALVE COMPANY

4300 WEST LAKE STREET · CHICAGO

REQUIRED READING

By ELISABETH COIT, AIA

"The Market at Christmas Time" by Charles Burchfield. From "Color and Method in Painting"

COLOR AND METHOD IN PAINTING. By Ernest W. Watson. New York (330 West 42nd St.), Watson-Guptill, 1942. 141 pp. 9 by 12 in. illus. $5.00.

A SERIES of interviews by the editor of of the *American Artist* with painters of varying philosophies and experience, in an effort to show the student and the art-minded layman something of what goes on in the creative artist's mind, the sources of some ideas, the processes by which they are worked out, the techniques, the materials used.

To many people interviews suggest light personal varia. The personal is not lacking here; but Mr. Watson brings his experience as teacher, painter and editor to bear on his subject, producing an informing textbook as well as an inspiring essay on figures, portrait, still life and landscape, done in oil, pastel, tempera and water color, as practiced by twelve contemporary artists. These are: Eugene Speicher, Charles Burchfield, Robert Brackman, Stanley Woodward, Gladys Rockmore Davis, Peppino Mangravite, John F. Carlson, Ogden M. Pleissner, Andrew Wyeth, Lyon Kroll, Eliot O'Hara and Paul Sample.

The book is itself a work of art. Here the artist speaks, there Mr. Watson reports the significant in the master's work; great skill is shown in the arrangement of 150 half-tone reproductions of works in media ranging from pencil drawings to oil; there are twelve fine color reproductions; and among the features particularly valuable to painter and would-be painter are descriptions and illustrations of the successive steps between the picture as conceived and as completed, details of tools, materials and methods, such as Burchfield's ten water color brushes ranging from pointed to stubby and Wyeth's single ¾-in. brush for tempera, the colors and arrangement of the respective palettes, the manner preferred by this or that painter for cleaning his brushes, for keeping his colors moist, for managing fine detail on rough water color paper, for stretching large sheets.

PLASTICS FOR INDUSTRIAL USE. By John Sasso. New York (330 West 42nd St.), McGraw-Hill, 1942. 229 pp. 6 by 9⅛ in. illus. $2.50.

A HANDBOOK of materials and methods for the use of engineers seeking to apply plastics in production of major essential civilian and armament equipment, written by the associate editor of *Product Engineering*. To a description of types and an account of properties of plastic materials, with the uses for which each type is best adapted, its resistance to the various substances to which industrial equipment may be exposed, are added recommended procedures in handling, a list of common faults with their causes and remedies, and a directory of trade names and manufacturers. Many words associated with plastics are absent from the index: e.g., polymerization. Similarly, some familiar plastics are not mentioned. Both with good reason: for the book is concerned with the chemistry and manufacture only as they affect properties and applications; and only those types particularly well suited for industrial purposes are included.

URBAN PLANNING AND PUBLIC OPINION. By Melville C. Branch, Jr. Princeton, University Press, 1942. 87 pp. 8½ by 11 in. $1.00. (Bureau of Urban Research. Research Ser. No. 1.)

CONVINCED that efficiency depends largely upon the willingness and the ability of the citizenry to accept public policies and to share in their administration, the Bureau has made a nationwide survey of American cities to determine what people value and what they would like to see changed. Outstanding beyond all other evils—poor transportation and traffic congestion, wartime problems, unemployment and poor government—is reported the need of good housing at a reasonable price. Twice as many people want to own a home as do now; only about 25 percent of urban renters prefer renting; two-thirds of those reporting want to go on living in their familiar neighborhood with their present friendly neighbors, and especially so in the smaller cities.

Apart from the conclusions recorded, city planners and others will value the report for its appendices on method, its "survey suggestions," its detailed tables, its fine presentation by the Bureau's director, and its beautiful format.

LONDON TRIUMPHANT. By Sidney R. Jones, New York (381 Fourth Ave.), Studio, 1942. 278 pp. 6 by 10 in. illus. $4.00.

OVER 100 drawings, pictorial and diagrammatic and made from street, house- and tower-top, by the architectural draftsman chosen to record the Coronation in 1937, mostly in pencil, mostly done within the past fifteen years, and showing great variety in style. A really immense amount of information — topographical, social, philological—on London from pre-Roman times to the present war is given in the causerie which forms over

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REQUIRED READING

(continued from page 20)

By ELISABETH COIT, AIA

SAWDUST BURNERS HEAT BUILDINGS AND HOMES AUTOMATICALLY. By E. C. Willey. Heating and Ventilating, New York, (148 Lafayette St.) Oct. 1942, pp. 43-6, illus.

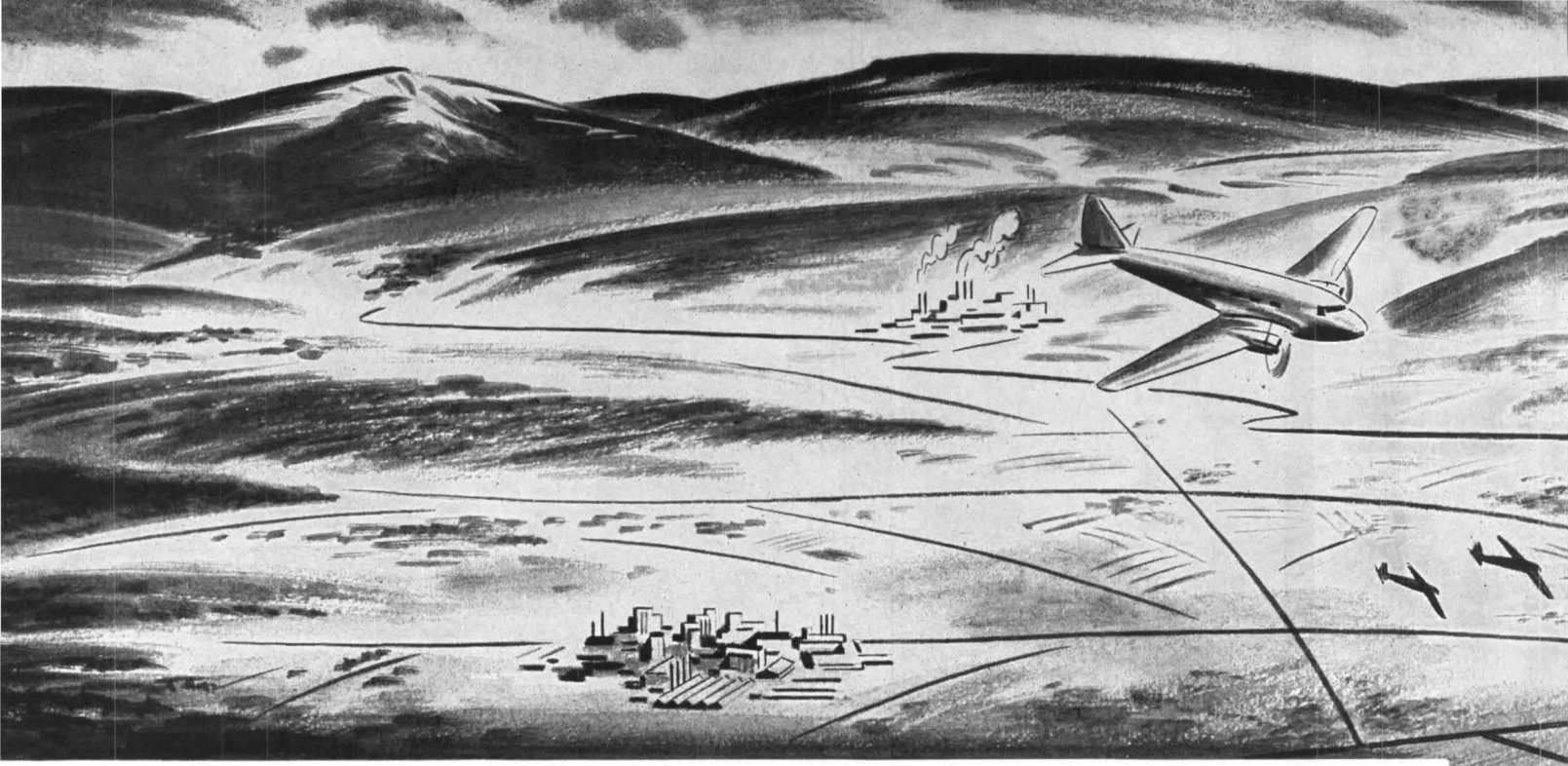
THE AVERAGE sawmill uses about 60% of its waste to generate its own power. The remaining 40% costs little, is easily cut into pieces less than an inch in diameter and mixed with sawdust, is inexpensively shipped, requires no roof covering for storage. At average moisture of Douglas fir as taken from the mill, a unit of waste (200 cu. ft.) weighs about 3,700 lb., contains 17 million Btu, which with an average installation will make available about 13 million Btu. Both large commercial and smaller domestic burners are built on the old Dutch oven principle. Automatic thermostatic control for the domestic burner can open and close the draft, make possible a very close temperature gradient, and at the same time save 25% fuel.

HOUSING SCHEMES. By G. A. Jellicoe, Architectural Review, Cheam, Eng., (45 The Avenue). Sept. 1942. pp. 58-60 illus.

THE GENERAL design of seven Government developments for factory workers in different parts of the country were made last year by Mr. Jellicoe, and details, choice of materials, etc., were left in the hands of the local supervising architects. Row and semi-detached houses were planned with special regard for privacy for the individual house, harmonious setting in different landscapes and above all with a blast- and splinter-proof shelter as an integral part of the house. The parlor was built with ceilings of approved slabs, brick walls 13½ inches thick, and a brick pier dividing the normally wide window into two narrow ones with splayed reveals to improve the lighting. Windows are metal framed; glass blocks on each side of the front door enhance the exterior effect as well as lighting the hall. To save wood, "skirtings" are of painted cement, drainboards of asbestos-covered cement, floors of asphalt with linoleum or paint finish. Light distemper is used on the walls.

PUBLIC ART AND ARCHITECTURE. By John Alford. Yale Review, New Haven, (Drawer 1729) University Press, Sept. 1942. pp. 67-78.

"ARCHITECTURE is perhaps the most socially potent of the arts, binding men together not only as sharers in common circumstances but also it may be, with common pride and loyalty" . . . "The function of a social solvent falls also to architecture and still more to the two arts of *painting* and building in collaboration. . . . Common sense and experience suggest for architecture simply a job of good building without technical or period stunts . . . based on convenience . . . liberality and proportion . . . public building planned to a larger pattern and richer finish than the private home but not essentially different in idiom."



THE FIRST FIVE YEARS OF PEACE

may be tough for some towns and cities

The prospect of a decentralization of industry and housing intrudes upon the thought of anyone who contemplates the physical and financial situation which confronts many towns and cities. Both industry and housing have a common stake in decentralization. The solution of industry's problem may bring the solution of the housing problem. In the post-victory period industry and housing may find it feasible to work together to further a movement away from urban centers into localities of decentralized industry, living, and employment.

Decentralization of industry and housing may compel the replanning and rebuilding of urban centers of population from which this movement may emanate. And, decentralization will present opportunities to smaller towns and cities for which they must immediately prepare if they are to become the benefactors of this process. The need is for research and planning by all sizes of cities and towns. Is it not logical to prepare now to attain the things for which we fight a war? Winning the peace may depend upon how *well* we prepare now to meet the conditions of peace. The time may be short. The first five years of peace may be tough on some towns and cities.

Research and planning for the rebuilding of a town or city requires trained talent such as architects and engineers and professional town and city planners. The specific task is to lessen the number of "ghost towns" in the post-victory period. Replanning must include practically everything related to the physical and financial makeup of a town or city. Among the many sources from which factual information on these subjects may be obtained are these: National Resources Planning Board, National Planning Association, American Society of Planning Officials, Federal Housing Administration, Federal Works Agency, and many others.

Many cities and towns are already engaged in researching, organizing, and planning the future town and city. This experience provides guidance for all those who are now ready to undertake this work or enlarge upon work already under way. A phase of this work of growing importance is how to organize it so that government agencies, private industry, and organized labor may *cooperate and* produce a post-war

prosperity and security. Someone in each community must become inspired to undertake this work and live it. This is work that may well initiate a new pattern of living that in turn may change the face of both industry and society. Our purpose is merely to induce and encourage the replanning of towns and cities.

By urging you and your talented fellow citizens to replan your community for the rebuilding of it in the post-victory period, Zurn is performing one of its responsibilities of leadership. Another responsibility of leadership is being fulfilled by our research and engineering activities which keep us in touch with a great deal of what is being accomplished along replanning lines. Factual information which we have collected from contact with organizations, commissions, and agencies that are active in replanning for rebuilding is available to you on request. You are also invited to send for our portfolio entitled "A New Era For Building is Only Marking Time."

J. A. ZURN MFG. CO.

Sales Office and Factory: **ERIE, PA., U. S. A.**

A—*Zurn Engineered Carriers afford 4-Point Protection for wall fixture installations.*

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ROOF TO BASEMENT

ZURN **ENGINEERS** in their specialized field are on the alert, researching, inventing, designing to meet new needs that urban reconstruction will require. They are making and testing one device after another in a continuous endeavor to improve building and plumbing drainage systems. Their job is to supply Engineered Protection for human health and modern structures. Not for one moment are they in any way neglecting the performance of a vital service to the winning of the war. Indeed, they are helping to speed the construction of war production plants and housing for war workers and ships to solve our transportation problem. But to neglect the development of new devices for a new era of building would be unthinkable. While at war, we should prepare for peace.

J. A. ZURN MFG. CO., ERIE, PA., U. S. A.

Please register my name and the names of individuals and organizations attached, to receive a copy of the portfolio entitled, "A New Era For Building is Only Marking Time," of which I understand a limited number will be available when printed.

Name ..... *Position* .....

Company .....

Address .....

City and State .....

Form No. 4228

P. S. Please attach to your business letterhead

What a challenge to tomorrow's builders!

THERE are two sides to every question. In the picture above you see the effects of wanton, tragic, useless destruction. But look further. Doesn't there begin to come to your mind the vision of how you would rebuild—of the light and air and beauty with which you could transform that ugly, crowded waste? Man's greatest claim to hope lies in his eternal urge to build again—and better.

Bombs may never level cities in our own fair land. But the hand of builders *will*. Vast, crowded areas wait to be reclaimed. Housing may be a puny orphan of the war, but fed by neglect it will emerge a giant. Sooner or later, the pent-up demand for shelter will break like a storm under a release of materials. Then, you, the creative planner, will come into your own.

And ready to your hand, will come the steel with which to build—stronger, safer, more beautiful. For war's insatiable demands have vastly stimulated research and revealed a whole new range of possibilities.

Forced as you are today by the war emergency to forego its use as fully as possible, there is no barrier to your planning for tomorrow. Steel will be back more plentiful and versatile than ever.

HOW STEEL IS IMPROVING CONSTRUCTION

Faster, cheaper construction. *Better ways to use steels have resulted in buildings being completed months ahead of schedule, with large savings in costs.*

Stronger, more flexible construction. *New methods of fabrication with steel make buildings more resistant to explosions, fire, earthquake, lightning and storms of all kinds.*

More durable construction. *Steel can be made as corrosion-resistant as you want by proper alloying or surface treatment. U·S·S Stainless Steel,* COR-TEN, *Copper Steel,* VITRENAMEL, *Paintbond, Dul-Kote, Terne plate, Galvanized steel—all have different degrees of corrosion resistance making them suitable for particular jobs.*

Better designs in steel. *Architects are contributing immeasurably to the better use of steel. Business buildings, factories, homes are not only practical, but beautiful when correctly designed with steel.*

CARNEGIE-ILLINOIS STEEL CORPORATION, *Pittsburgh and Chicago*
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United States Steel Export Company, New York

UNITED STATES STEEL

THE END OF THE BEGINNING

DESIGN FOR

DEMOCRACY.

THE end of one year marks the beginning of the next. Another chance, another change. After a year of the most drastic changes that the building industry has ever seen all eyes turn toward what 1943 will bring. Will it see Victory, an Armistice, or further building for war production, the conversion of more men and more materials? Will we be ready in '43 for the peace if it should come, or once more unprepared, our plans too little and too late? If peace is nearer than we expect, our nebulous plans to take up the unemployment through large construction projects may prove wholly inadequate.

◆ Is it possible that we will repeat the mistakes of the last war? Will the promise of the opportunity of making a better world be denied again? Will the idealism of today be lost in the rush to get back to the "normalcy" of hit-and-miss, unplanned building, patternless, self-destroying cities budding at the perimeter, decaying at the heart—or can we overnight create a practical Design for Democracy? Does this have a familiar ring? Do you have the strange feeling that we have been through this before? Some of us have. We may, with more understanding minds, consider in a new light these words written in the heat of World War I—

> **" . . . The best thing that can be said about our immediate architectural past is that it is past, for it has contributed little of value to an architecture of democracy. During that neo-feudal period the architect prospered, having his place at the baronial table; but now poor Tom's a-cold on a war-swept heath, with food only for reflection. . . .**
> **" . . . When the storm broke militant democracy turned to the engineer, who produced buildings at record speed, by the mile, with only such architectural assistance as could be first and easiest fished up from the dragnet of the draft. . . .**
> **" . . . The ideal relation between architect and engineer is that of a happily wedded pair—strength married to beauty; in the period just passed or passing they have been as disgruntled divorcees. . . .**
> **" . . . To the architect falls the task, in the new dispensation, of providing the appropriate material environment for its new life. If he holds the old ideas and cherishes the old convictions current before the war he can do nothing but reproduce their forms and fashions; for architecture, in the last analysis, is only the handwriting of consciousness on space, and materialism has written there already all that it has to tell of its failures to satisfy the mind and heart of man. . . .**
> **" . . . His problem, in other words, is not to interpret democracy in terms of existing idioms, be they classic or romantic, but to experience democracy in his heart and let it create and determine its new forms through him. It is not for him to *impose*, it is for him to be *imposed upon*."***

◆ These are no new truths; the words are as true today as they were in 1918 (except for the first sentence). Let there be no preoccupation, lack of manpower or lack of initiative now—no lack of effective leadership of the creative forces of the building industry in planning a course for the future. The architects and engineers of the country today realize as never before their responsibility. Theirs is the task of so planning now the buildings of the future that they will both "satisfy the heart and mind of man" and provide for his physical comfort, convenience and efficiency. Individually as well as collectively we must prepare *now* for the opportunities and tasks of the postwar period. The year 1943 should mark for each of us the beginning of the most intensive effort that has yet been made to solve the problems of creating an ever-developing Design for Democracy.

* ARCHITECTURE AND DEMOCRACY, PART II, During the War; Claude Bragdon, ARCHITECTURAL RECORD. August, 1918.

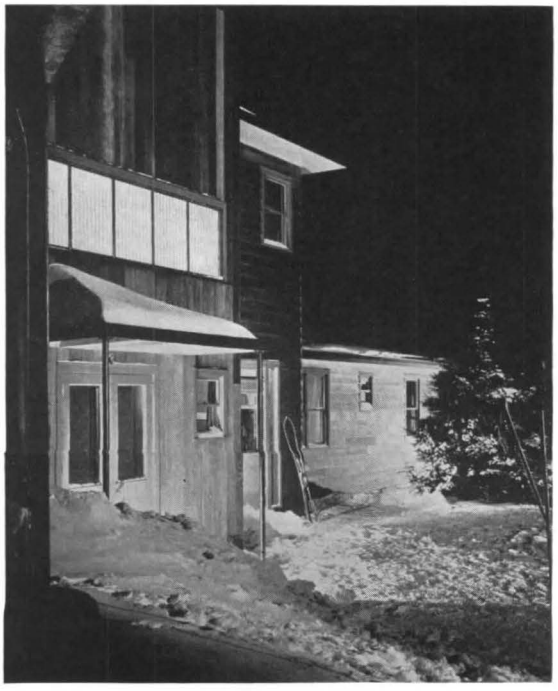
Kenneth K. Stowell

EDITOR-IN-CHIEF

SCHOOL IN THE ADIRONDACKS

DOUGLAS HASKELL, Designer. HENRY S. CHURCHILL and RODERICK S. SEIDENBERG, Associate Architects

Below: The welcoming light of the guests' entrance

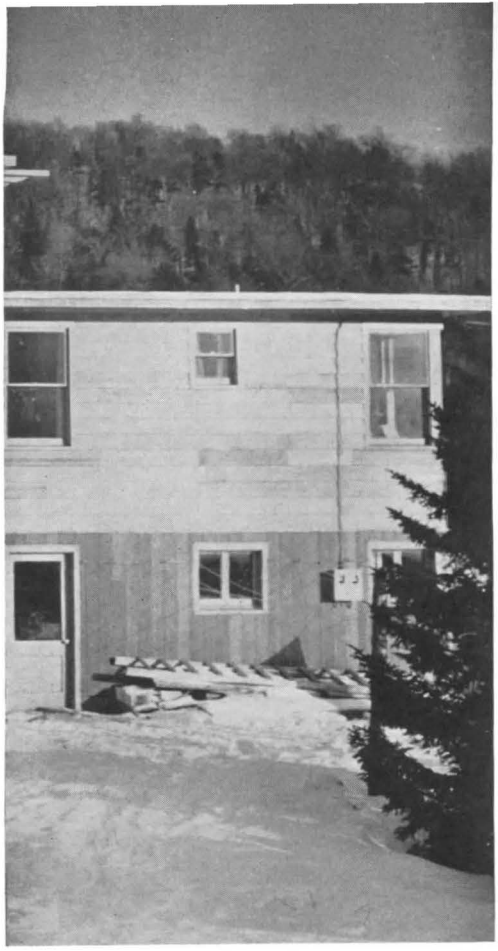


THE desire to combine the atmosphere of the home with the facilities for study and for enjoyment of outdoor life dictated the plan of the North Country School. The pupils, boys and girls in the 6-14 age group, work, play and sleep under the same roof.

The Adirondacks themselves, rising majestically above Lake Placid, where the school is located, influenced the character of the new building. The designers have imparted some of the rugged feeling of the woods into their work and the result is good contemporary design. All the elements have been reduced to their simplest terms. No effort has been made to embellish either the exterior or the interior. The building has the dignity and appropriateness characteristic of all work in which "the most direct way to do the job" is the guiding motive. Simple red cedar siding with a coat of linseed oil was used for exterior finish. A flat roof was adopted. The interior has no elaborate reception rooms, over-plumbed bathrooms or unused spaces to recall the days of wasteful luxury.

The school grounds, 160 acres, are located on the edge of the forest, near the town of Lake Placid. The region is ideal for mountain climbing, camping, fishing and the study of wild life, and practice ski-slopes, mountain trails, the famous bob run and a lake are close at hand. A path from the door leads into the wilderness of the State Forest.

The school administration wished to take advantage of the



numerous opportunities for a well rounded education offered by the countryside. The course covers the full eight years of grammar school and enables the pupils to combine useful work with study and play. On the school farm the children have regular "chores" to do, and they are counted on to accomplish them. They not only use the horses for riding, sleighing and overnight camping trips, but also take care of them. Many sports are encouraged, particularly those which the student can carry into later life. Indoors and out, boys, girls and teachers live together in friendly companionship similar to family life.

The headmaster thought that his problem of education could be solved by getting away from separate recitation buildings and dormitories which, he felt, cut off the educational process at each door. It was decided that the children should work and sleep in the same building. The designers, to solve this requirement, made each classroom the size of two bedrooms (see diagram). The plan developed from this unit of measure proved to be flexible and easily adapted to the changes that have been made from time to time.

One of the main concerns of the designers was to provide a way for the children, returning from outdoor work or sports, to shed their snowy, muddy clothes before entering the building. This was taken care of by means of a locker room through

Ezra Stoller

Patterns in the snow, and lessons in the art of healthful living

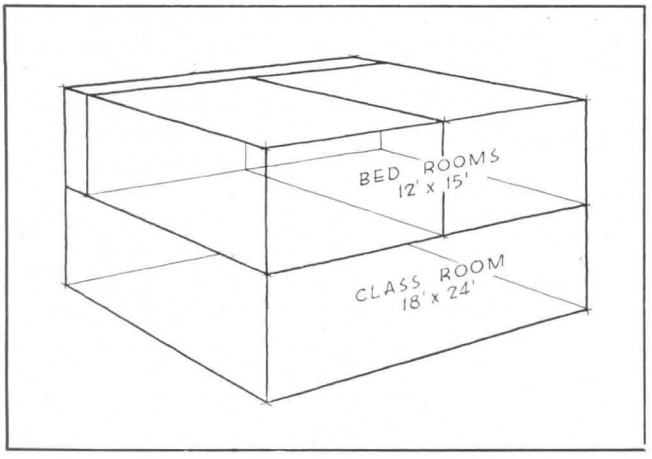


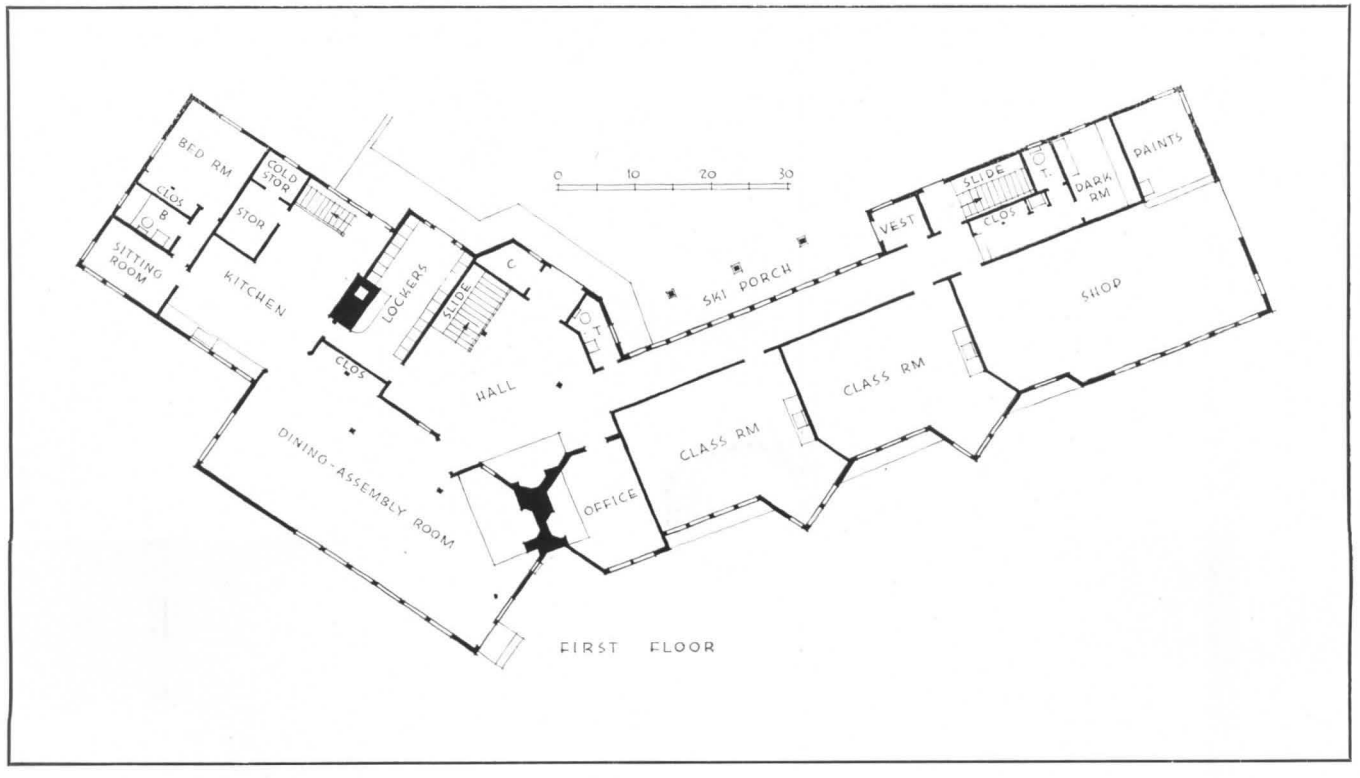
Diagram shows unit of measure used in the design of the school. The size of two bedrooms almost equals the size of one classroom

which all pupils *must* pass. The floor of the room has gutters which can be flushed out as in a cow barn. Heating coils, coming direct from the boiler, are linked to a system of air circulation to provide a means of drying the clothes and shoes.

There is also a ski porch where all the cumbersome equipment connected with this sport is stored outdoors. Admittance to it from the inside is through a small vestibule. The designers did not find it possible to place the ski porch and locker room together, but they did place the guests' entrance, the service entrance and the door to the locker room all near one another on the forecourt, greatly simplifying the problem of access. This was a wise precaution, the difficulty of plowing snow being such an important consideration.

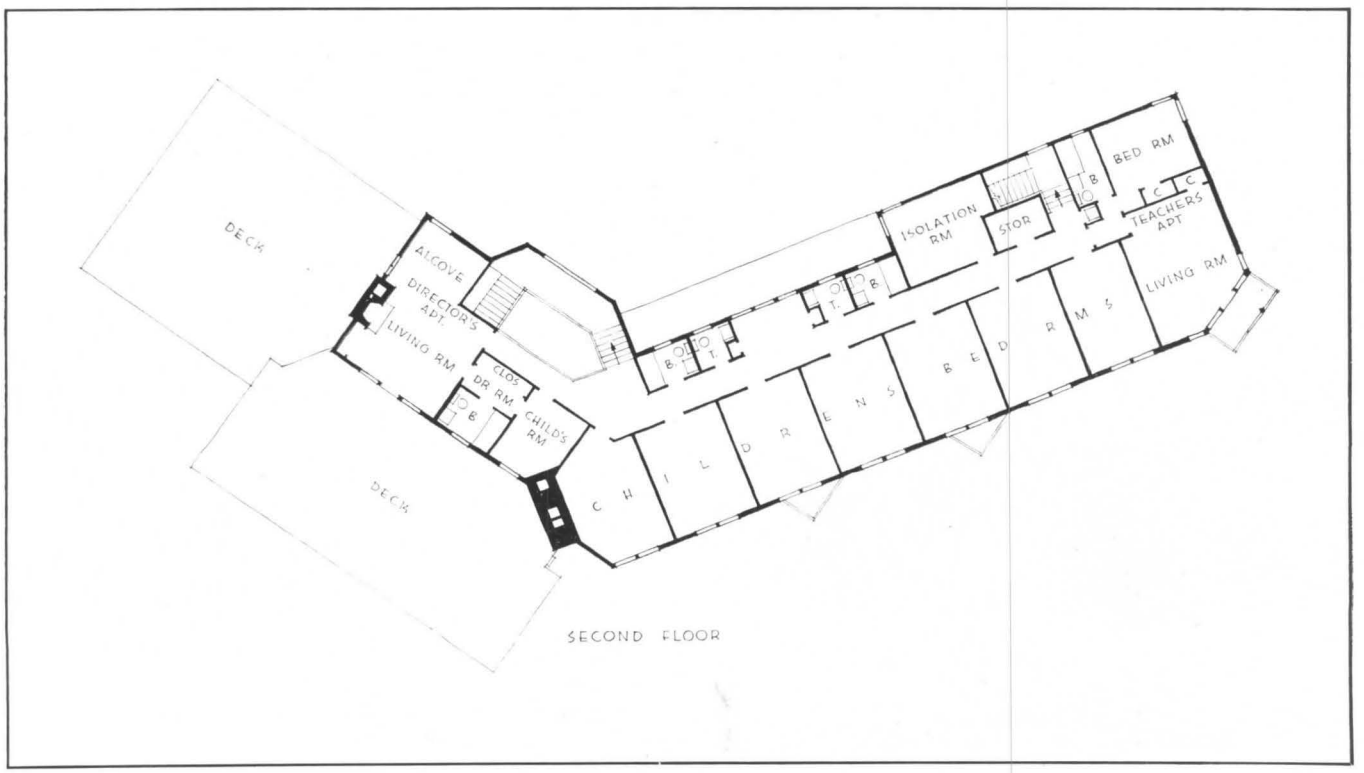
The natural center of the school life is the Hall, *located* at the intersection of the two wings of the building. Rather than using the irregular space formed by the "V plan" for washrooms and closets, the designers threw it all into one room. It made the building "easy to read." The angle of the plan, incidentally, was not drawn with a 30-60 triangle. The simple proportion, two to three—like a roof slope—was adopted and it made the execution of the work simpler for the carpenters.

Every effort was made to make the fireplace corner warm and welcoming. The tall, shallow fire-opening was chosen because it has exceptionally good radiating power. To increase efficiency still further, the back of the fireplace was made of metal, and ducts for a circulation of warm air to



Ezra Stoller

Form follows function in the design of the v-shaped alcoves which add interest to the facade and admit full sunlight to the classrooms



Looking down into the large informal entrance hall with its tall fireplace which is the natural center of all school activities

The modern wood chute, taking the place of banisters of former days, is the joy of all youngsters from the day they enter school

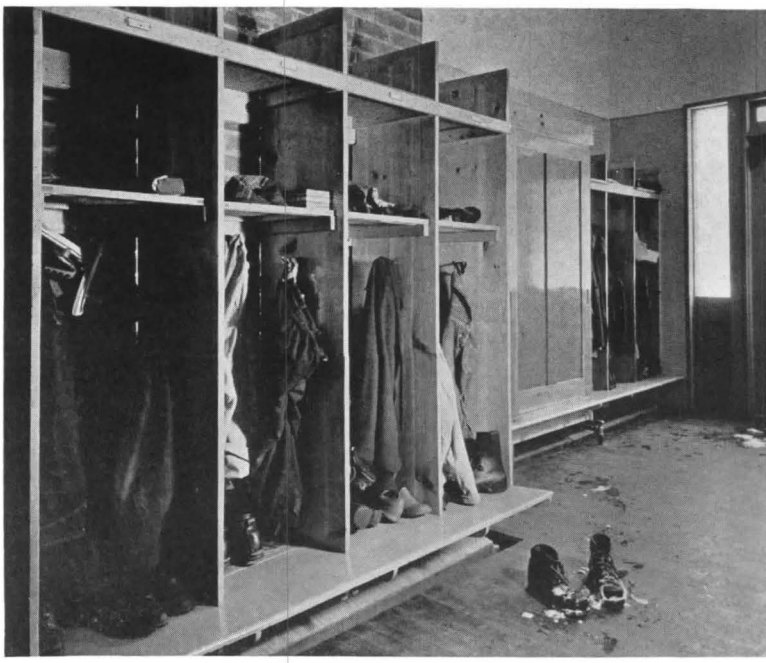
outlet grills were installed. Care was taken to provide space for people to sit around the hearth without interfering with the circulation from room to room.

The program called for sensible classrooms of reasonable cost, in which all student activities could take place. Each room was designed with three areas, each with a separate function. The center of the room was devoted to study and recitation; space for simple laboratory work was provided near one of the walls, where a sink and drawers for storage of scientific equipment were located; and each room was given an area for individual, undisturbed study, which took the form of an alcove projecting from the face of the building. These alcoves were named "sun-catchers." They have the advantage of being in full sunlight, in full view of the teacher, and offering an inspiring view of the mountain scenery.

The work-play character of the school found further expression in the Shop, which contains facilities for wood-

Classwork varies from recitation at desks to laboratory experiments near wall or individual undisturbed study in the sunlit alcoves

Snow-laden paraphernalia of children is kept in simple wood compartments. Snow on floor can be flushed to gutter



working, painting and photography. The school places emphasis on the child's ability to repair the equipment he uses for work or sports, and the shop is well fitted out for such repairs. Pipe rails were used for lumber racks. The lumber was placed in a location having easy access to the outdoors for loading and unloading.

The sleeping quarters are all placed on the sunny side of the building. The director's apartment at one end of the hall and the teacher's room at the other make good supervision of the children possible. An isolation room is provided for children who may be suspected of coming down with a cold or some other contagious illness. Good means of exit from the second floor is provided by two stairways, well separated from one another, at each end of the corridor.

The impulse to slide down the banisters, dear to the heart of every school child, was given a means of concrete expression in a slide built in the main stair well, beside the

Broad windows in the dining room look toward the mountains. Social gatherings form around the spacious hearth of the corner fireplace

The gallery-gods look down on a students' play in progress

stair. This device was considered safer than a fireman's pole, and more fun. During a period of experimentation the slope was first made the same as the slope of the stair. The headmaster, on the maiden voyage, nearly went through the wall. The slide was then made with somewhat lesser slope. It has been such a success in breaking down the initial hesitancy of the children to warm up to the life of the school, that the school *may some day* build a bigger and better slide—World's Fair style—with curves and a change of pace.

To eliminate the perverse temptation to slide down the stair rail as well as the slide, a rope railing was selected. It was quite a trick to keep it in proper tension in all sorts of weather. A single piece of rope was carried down the rise of the stair through strong stanchions, made to turn at the

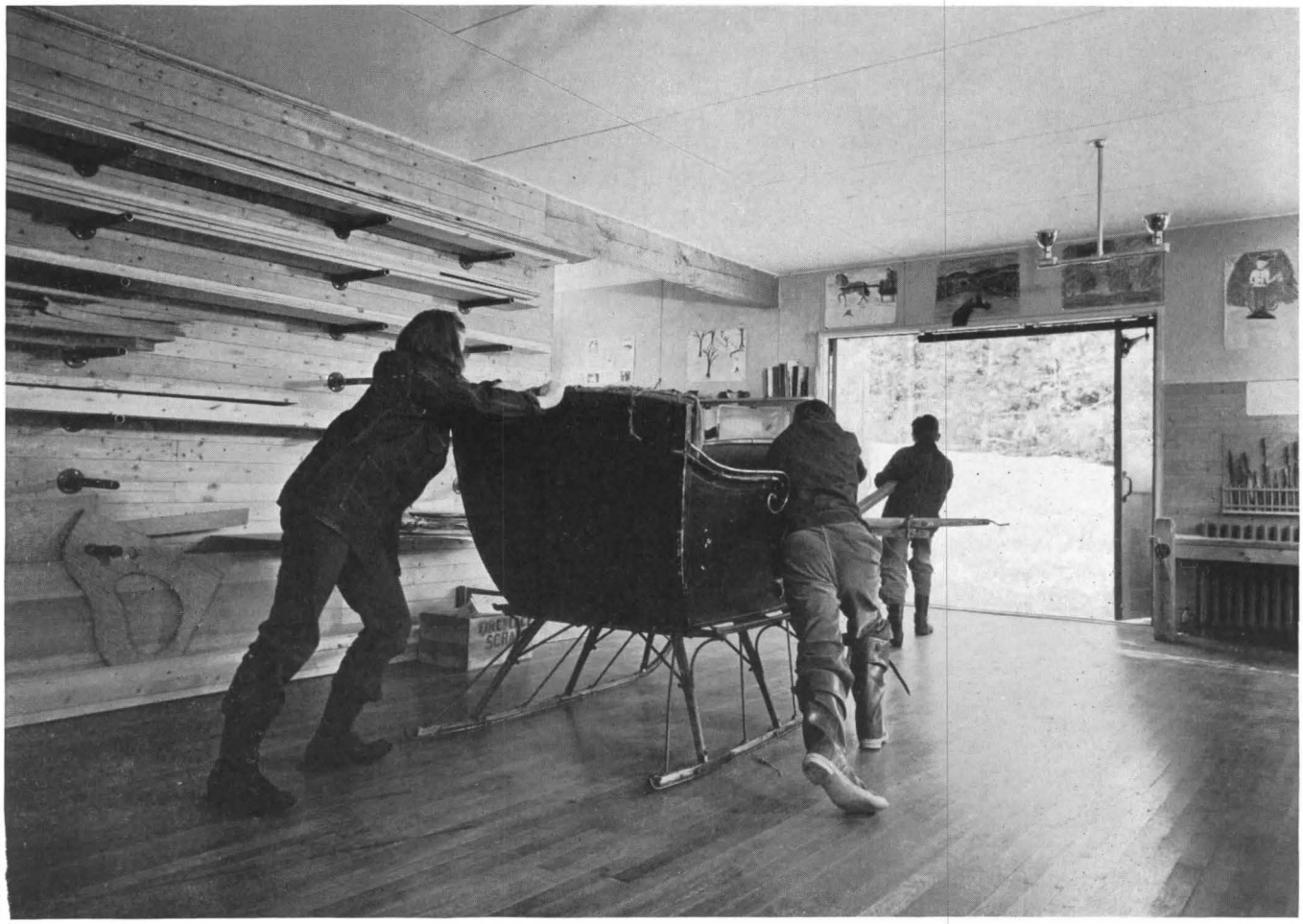
bottom by means of a curved section of pipe, and brought up to the top of the stair again. Both loose ends were attached to an "evener," like the tugs of a harness, which worked back and forth on a threaded pipe against a strong coil spring. The stretch was adjusted by means of a flange threaded on the pipe. The tension was maintained by the spring. The whole assembly was concealed behind a wall panel. The rope tends to shorten in summer, lengthen in winter.

The children's ladder-climbing instinct was satisfied by the erection of a "crow's nest," a platform built around the main chimney, with access to it by ladders from flat roofs below.

The architecture of the school is a natural expression of its function and its details have not been studied for their "effect" but for their effectiveness in performing their functions well. The school is informal but thoughtful and full of spontaneous natural life—and so is the architecture. The architecture contributes to the child's sense of the fitness of things and is a means to an end, not an end in itself.

Bedrooms have cheerful simplicity and good utilization of space

The "old barn door" is a big help in getting heterogeneous equipment used for the manual training classes in and out of the shop



Ezra Stoller

CONSTRUCTION OUTLOOK FOR 1943

By **THOMAS S. HOLDEN**, President, and
CLYDE SHUTE, Asst. Vice President,
F. W. DODGE CORPORATION

Dollar volume of construction in 1943 promises to exceed that of the average peacetime years and to be greater than 1940. The analysis takes into account the trends in wartime controls and regulations, the material and equipment situation, and the needs for essential building in the coming year

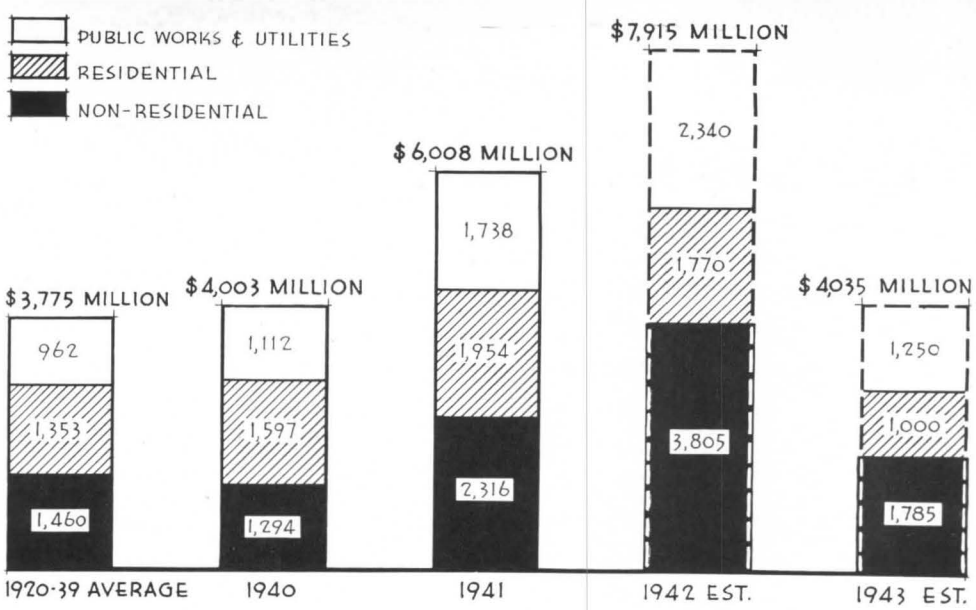
CONSTRUCTION VOLUME in 1942 has reached an all-time high record; the year's total will be from 30 to 35 per cent greater than that of 1941, and approximately 20 per cent greater than that of the previous high record year, 1928.

This record volume resulted from successive expansions of the war construction program after the country's entry into the war. As war construction mounted, there were successive curtailments of civilian construction and increasing controls and limitations with respect to critical materials. In addition to shortages of metals, the principal critical materials used in construction, a tight situation developed with respect to lumber, largely due to manpower shortages.

STREAMLINING THE VICTORY PROGRAM

In recent months the War Production Board has been fairly completely revamped in order to effect tighter controls of construction, production and materials. The purpose is to emphasize end-products in the 1942 program and to limit the creation of new facilities of all kinds by the strictest possible tests of essentiality for winning the war. Extra efforts will be made to utilize existing factories instead of building new ones; concentration of civilian production in a few selected plants is expected to release others for war work. The Smaller War Plants Corporation is expected to secure fuller utilization of small plants in war production. In the housing field, the National Housing Agency is making a strong drive for fuller use of existing housing facilities in defense areas, both in terms of persuading families to take in lodgers and by leasing, through the HOLC, existing single-family houses for a period of years and converting them to provide living facilities for two or more families. Back of this positive effort to curtail construction is the added fact that the major portion of needed larger facilities (manufacturing plants, cantonments, air and navy bases, etc.) has been completed or is near completion.

In the War Production Board, construction programs of all war agencies (including the Civilian Supply Division of WPB, which will determine essential civilian needs) will be carefully reviewed by the Facilities Bureau (Fred Searls, director) and there be rejected, curtailed



PRE-WAR CONSTRUCTION AND WAR CONSTRUCTION

The chart gives the valuation of construction contracts for 37 eastern states in millions of dollars, including the average value for 1920-39, the actual values for 1940-41, and the estimated values of 1942 and 1943. Contract awarded tabulations differ from overall Government figures in terms of territorial coverage; also (perhaps more importantly) in that contract figures represent work started and Government figures represent work in place.

or approved and there be counted in for material allotments. Within the Facility Bureau are two units, the Facility Clearance Board and the Facility Review Committee. The Facility Clearance Board will pass on all proposed new construction projects amounting to $500,000 or more; the Facility Review Committee will pass on new projects under $500,000 in value and is now in process of reviewing all current projects. Under the latter procedure, it is currently ordering numbers of projects actually being constructed but deemed unessential according to present strict interpretations, to be held up for the duration.

A CONTROLLED CONSTRUCTION PROGRAM

Obviously the strictly controlled program of 1943 will not exceed the volume permitted by the control agencies and will not result from ordinary economic demands. Consequently, the estimates here presented represent Government estimates translated into figures consistent with F. W. Dodge Corporation's recorded contract statistics.

Three sets of adjustments have been made. First, it is necessary to estimate that portion of WPB totals that will be executed within the 37 states east of the Rocky Mountains and the portion within the cost range of the contract records. Second, it is necessary to adjust Government figures for *work in place* to the *contract*, or *work started*, basis. Since much of the work to be completed in 1943 will have been started in 1942, percentage declines in contracts may be expected to be greater than the corresponding percentage declines in volume of work completed. The third adjustment is the translation into terms of the regular classifications of Dodge statistics.

The figures shown in the table indicate for 1943 a 50 per cent decline in the total value of building contracts; a 47 per cent decline in heavy engineering contracts (public works and public utilities combined); a decline of 49 per cent in total construction expenditures.

MORE THAN PRE-WAR ANNUAL AVERAGE

These percentage drops are drastic. But they represent declines from the record construction volume of all time. The estimated 1943 totals compare favorably with the 1920-1939 average figures and the

figures for 1940, which was a year in which war construction contributed a relatively small proportion to the total.

We believe these figures may safely be regarded as *minimum* figures. It is always the preference of F. W. Dodge Corporation in putting out advance estimates to err on the low side rather than on the high side. Furthermore, the estimates are being made at a time when all emphasis is being placed on curtailment of construction. It is quite conceivable that the process of curtailment may squeeze out projects which will later prove essential and may not fully provide for all the new needs that may arise during 1943. In particular, war housing needs are considerably greater than the figures shown in these estimates. While it is doubtful whether all the housing desired for in-migrant workers will be provided, there will be a constant pressure of new requirements demanding new allocations of materials for housing purposes. No relaxation of restrictions on non-war construction appears likely.

In general, the number of very large projects (running into the tens of millions of dollars) is apt to be small in 1943, in relation to the numerous huge projects of 1941 and 1942. The bulk of the year's program will consist of moderate-sized projects; relatively few large industrial plants, cantonments and bases and supply depots, many new units added for expanding existing large projects. It is to be noted that the indicated 60 per cent decline in manufacturing building contracts leaves a far larger volume of such work than was seen in any peacetime year.

Summarizing, the total dollar volume of 1943 construction promises to exceed that of the average peacetime year. As a statistical total, that does not present a too distressing prospect. However, controls will act in many ways besides curtailment of the program. Critical materials will be rationed out on an allotment plan; price controls, ceilings on contractors' charges, wage and salary controls, manpower problems—all these will complicate business procedures.

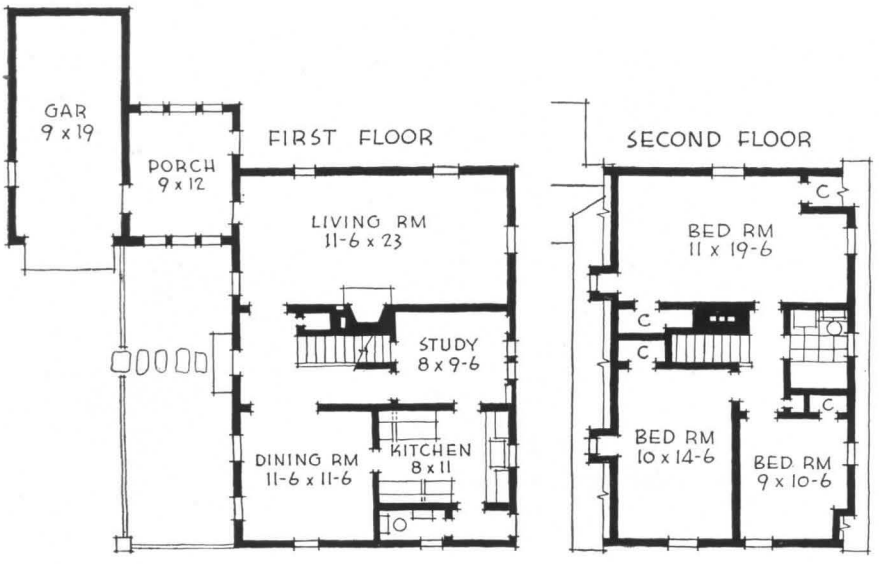
It is likely that 1943 construction in the 11 western states (not included in the table here shown) will follow the same trend as in the 37 eastern states. Overseas construction by our armed services, which has been very large in volume during the past two years, will continue, but information is not available upon which to estimate its importance; in the interest of conserving cargo space as well as materials, exports of American-made materials will be held to a minimum, and the greatest possible use be made of native materials at overseas construction sites.

The construction industry has does a superlative job in handling the record volume demanded by the war. Many designing and building organizations have handled work on a vastly larger scale than ever before, have completed many of their projects ahead of schedule, and have handled many of them with very small margins of profit. It is our observation that the industry is fully prepared to tighten its belt in 1943 and for whatever may be in prospect in any remaining war years. It will be equally ready to spring into action after the cessation of hostilities to handle the large volume of civilian work now being held in abeyance or being planned for the postwar period. Preparation of plans for postwar activity, by individuals, industries and governmental agencies, will increase greatly in 1942.

Haskell

COLONIAL DESIGN FOR A NARROW LOT

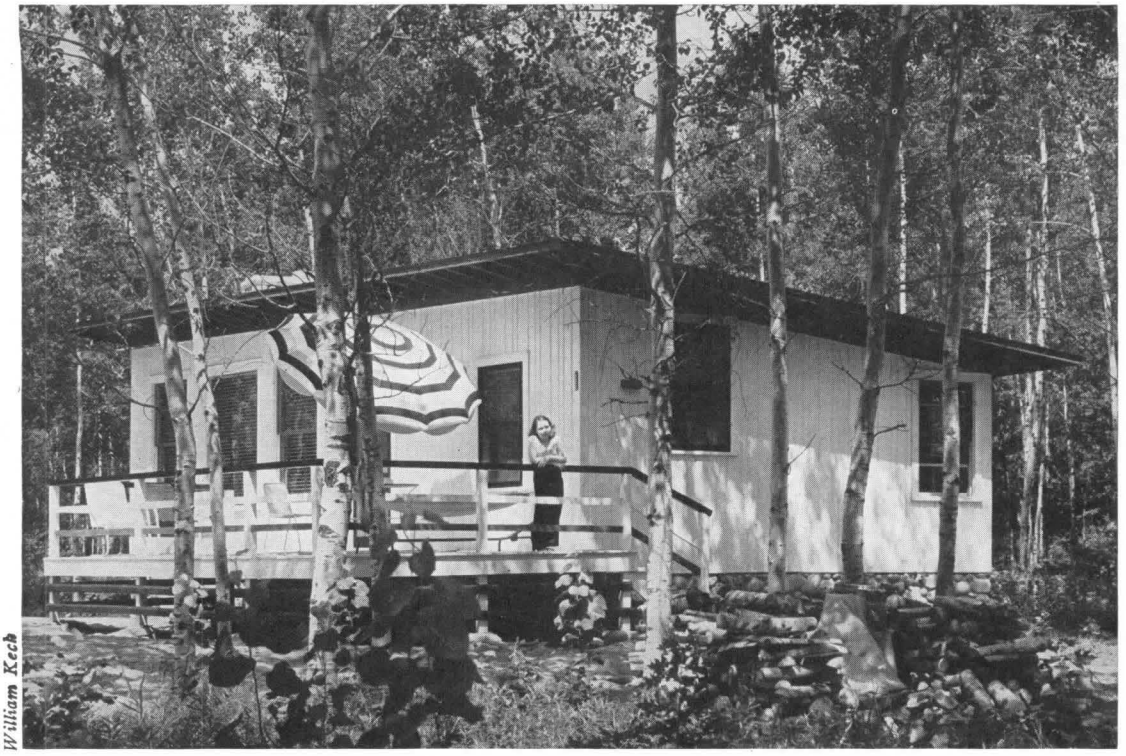
ROYAL BARRY WILLS, Architect



REMINISCENT of the early New England farmhouse, this cheerful residence was planned for three sisters. Because of the restrictions of a narrow lot, the house has been placed with its short side to the street and the main entrance opening from a fenced-in courtyard garden faces towards the South.

The plan is well-integrated in its elements and has been carefully studied to use all available space to the utmost.

Clapboards are used on the front facing the garden; shingles on the sides and rear. The color scheme is white with bottlegreen blinds. The interior rooms are plastered and papered. Stock moldings were used.



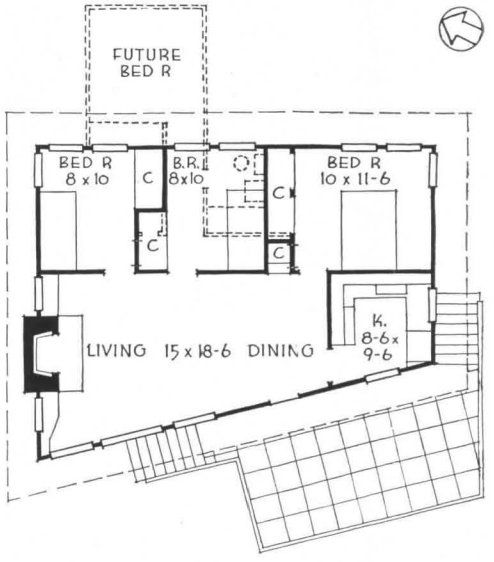
William Keck

Left. View from the lakeside, showing the cottage and raised terrace which provides access from the lake and from the road to the living quarters of the house

Below. The living room interior. Note the large windows opening towards the lake front, and the direct architectural treatment expressing simple construction

PLANNED FOR THE FUTURE

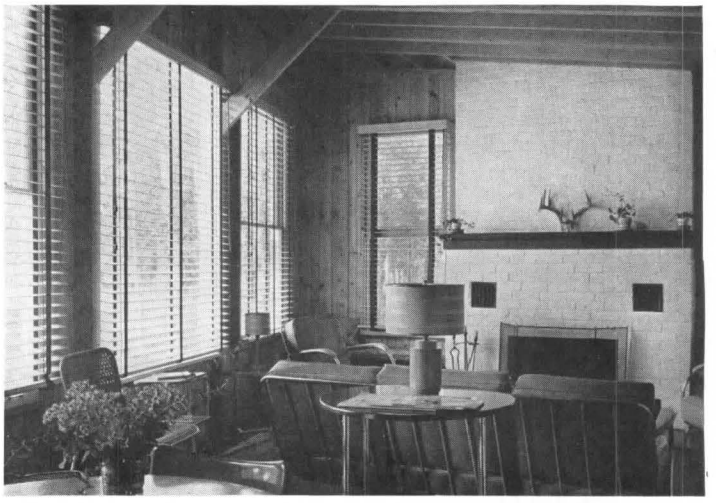
GEORGE FRED KECK, Architect
WILLIAM KECK, Associate Architect



THIS cheerful summer cottage, sheltered by the forest on the shore of a lake, has been planned with refreshing directness and simplicity. The interesting angle of the lakeside wall adds space to the living portion of the house, and in swinging around more to the south, affords more sunshine and an uninterrupted view of the lake from the living room. In addition, this unusual treatment adds interest to a shape that might otherwise be commonplace. The interior ceilings follow the roof pitch which is highest in the living and dining spaces, tapering into the bedrooms. This also gives a greater feeling of spaciousness.

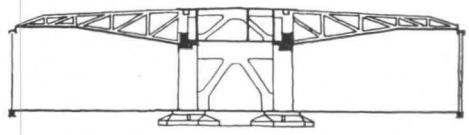
Materials used are simple local stone and pine and fir lumber. The side walls are of random width, 2-inch thick T&G material rammed and calked together. The exterior is painted and the interior is stained. Stock double-hung windows and door frames were cut in and a minimum amount of hardware used. Curtains are used in place of interior doors. Composition roll roofing covers the roof deck.

The house is unheated except for a large fireplace heating-unit, and there is as yet no interior plumbing for a bathroom. The large underfloor space, used for storage of boats, canoes, camping equipment, etc., will make the installation of future plumbing and heating possible when such materials are again available.



Kidder-Smith

CANTILEVER HANGAR



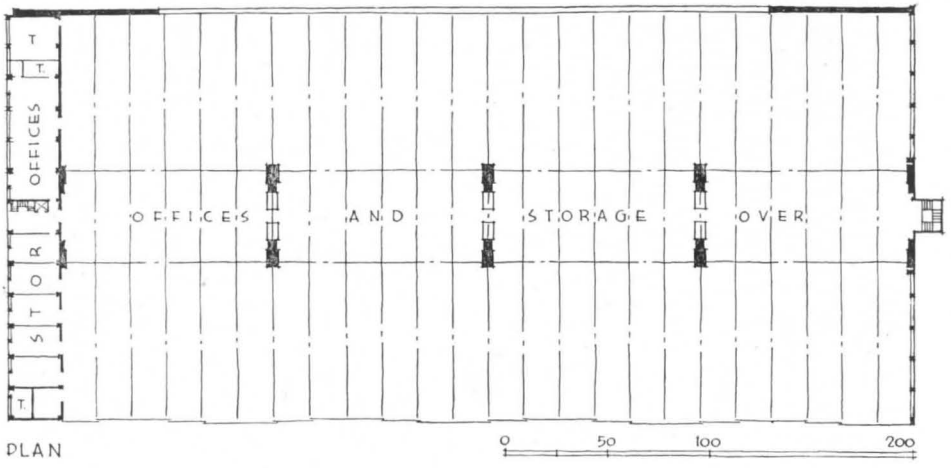
SANTOS DUMONT AIRPORT, RIO DE JANEIRO, BRAZIL

HERE IS A clean-cut solution to the problem of designing an airplane hangar with the maximum clear floor space and maximum door opening. There are no vertical column obstructions in the entire length of the building as all supports (and there are only 5) are concentrated at the center, some 75 ft. back from the doors. These central supports are about 100 ft. apart and support longitudinal trusses which, in turn, support the balanced cantilevers.

The offices are concentrated at the west end of the building which has the interesting architectural treatment shown in the illustration above. The vertical vanes are entirely func-

Marcello Roberto
Architect

Fragoso & Ness
Engineers

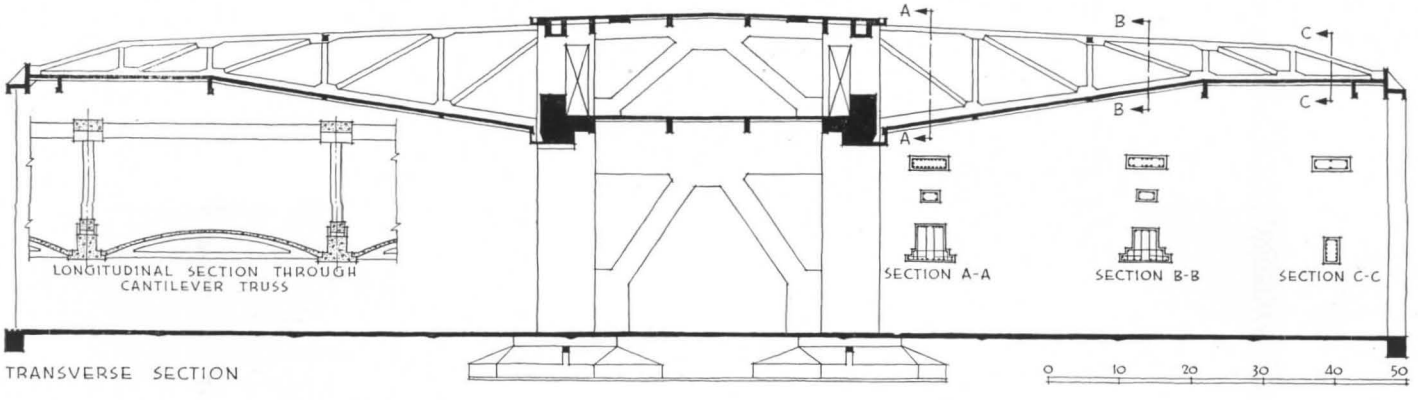


PLAN

Above. Interior of hangar looking toward the glazed end. The widely spaced columns support longitudinal trusses which carry the cantilevers. Ceiling is formed by segmental roof arches on lower chords

Left. Hangar plan showing offices, storage and services. Dotted lines indicate cantilevers and their supporting trusses

Below. Diagrammatic section showing balanced cantilevers spanning nearly 200′ with columns about 75′ from doors



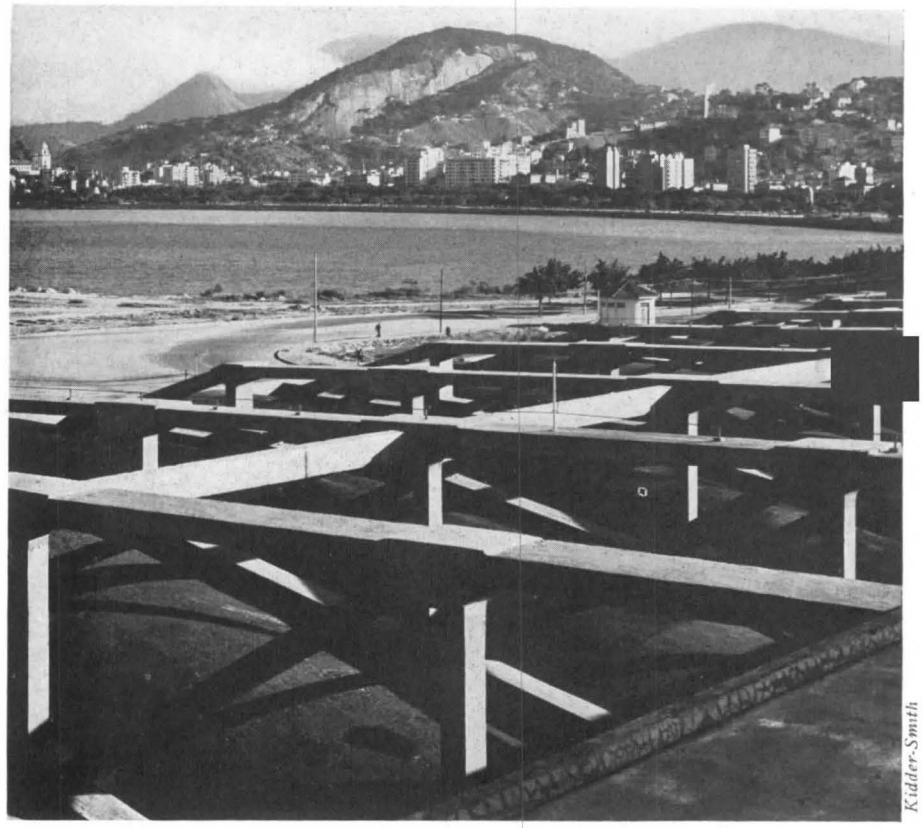
TRANSVERSE SECTION

tional as they shade the offices from the hot sun.

While a similar structural design could be produced in steel, conditions in Rio dictated the reinforced concrete construction. Brazil as yet produces no rolled steel shapes but reinforcing bars are available and easily transported and fabricated.

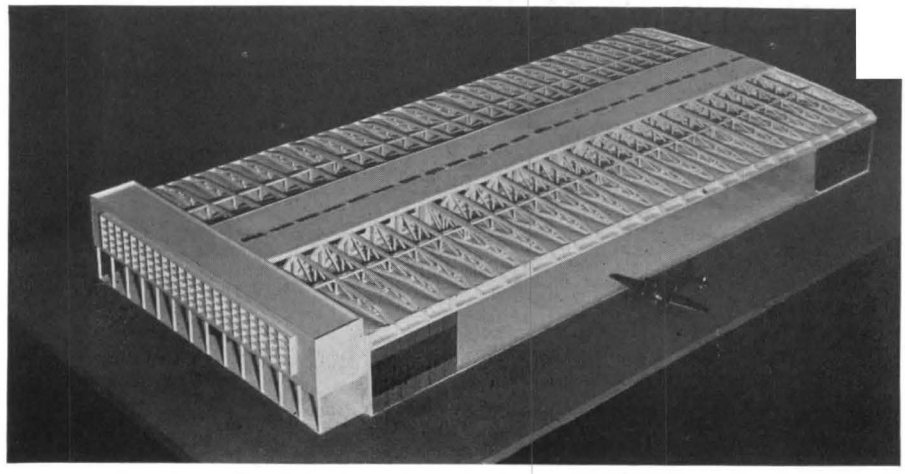
The form work for the trusses would be expensive if high labor costs were involved. However, it is possible to re-use the forms, as the trusses are repeated. Much of the success of reinforced concrete design such as this rests on the careful control of the placing of the bars, of the mix and of the tamping of the concrete. In Rio it was not necessary, naturally, to calculate any snow load, and no difficulty was to be encountered through exposed truss members.

The entire construction shows constructive imagination, engineering efficiency and a pure functional design which is not lacking in either a sense of scale or a feeling for proportion.



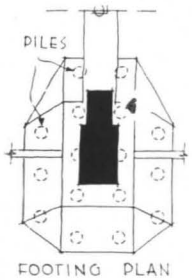
Kidder-Smith

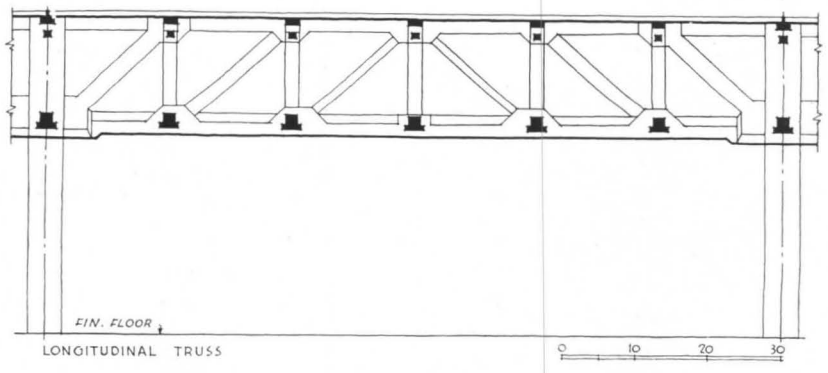
Above. View looking across the bay from the center of the roof showing exposed cantilever truss members and arched roof



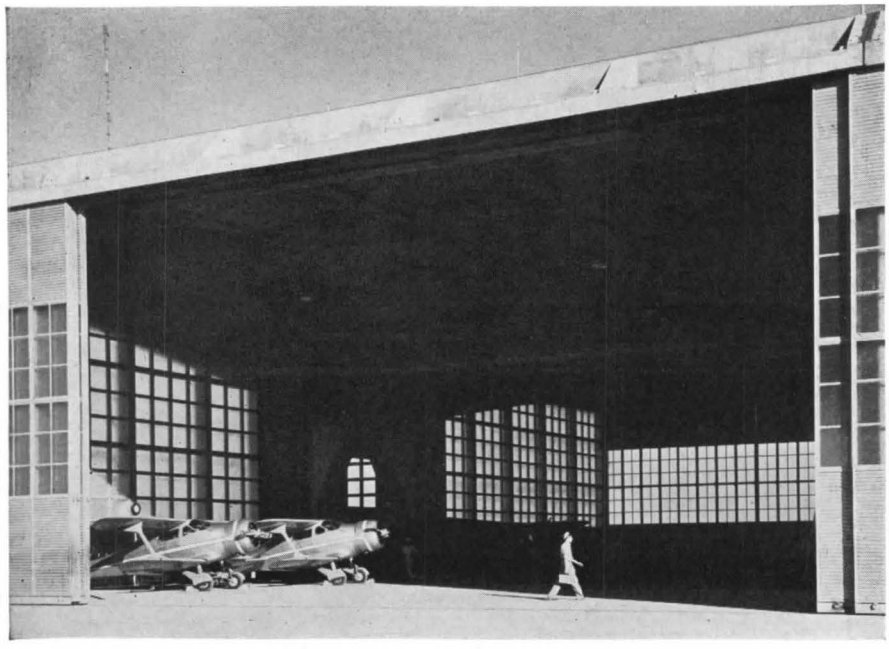
Right. A model of the building indicating the relationship of office portion to hangar proper and showing the scheme of balanced cantilever trusses exposed

Below. Diagrammatic section showing longitudinal trusses and placing of cantilevers. Space between these trusses used for offices and storage



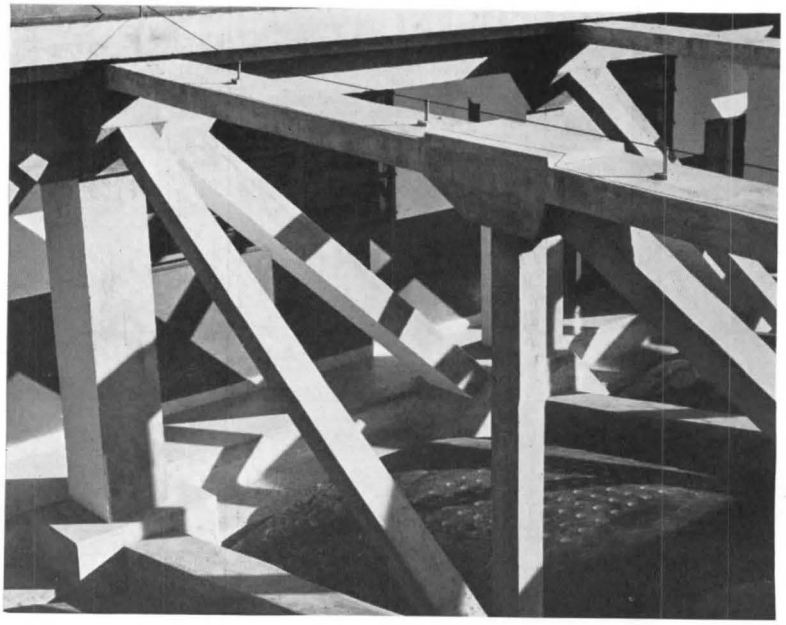


Interior of the hangar looking toward the office end of the building and showing the rolling doors which can be opened at any and all points



The size, spaciousness and flexibility of the hangar are shown in this view with the doors rolled back. The clear height of the opening and the doors is approximately 34 feet

Below. Two views of the exposed cantilever trusses and the segmental roof arches. Vault lights are shown in view at the right in which also can be seen the wall of the office and storage space with horizontal louvered windows. The sharp arrises of the truss members indicate the care with which forms were made and cement was poured



AIR-SUPPORTED ROOFS FOR FACTORIES

By **HERBERT H. STEVENS, Jr., C. E.**

Editor's Note: *A radical departure in factory design and construction has been proposed by Mr. Stevens. His theories and calculations have been carefully checked by several prominent consulting engineers without discovering fallacies in the reasoning. The practical application of the principles involved awaits further investigation and corroboration.*

THE ROOF of the factory here described is a thin, steel membrane constructed with insulation and roofing flat on the ground and fastened to a concrete anchor ring. It is then raised and stretched into a dome shape by air pressure from ordinary ventilating blowers, and thereafter is supported by a pressure of one ounce per square inch from these blowers. The effect of this pressure on the occupants is negligible as it never exceeds the difference in air pressure between the top and bottom floors of a sixty story building.

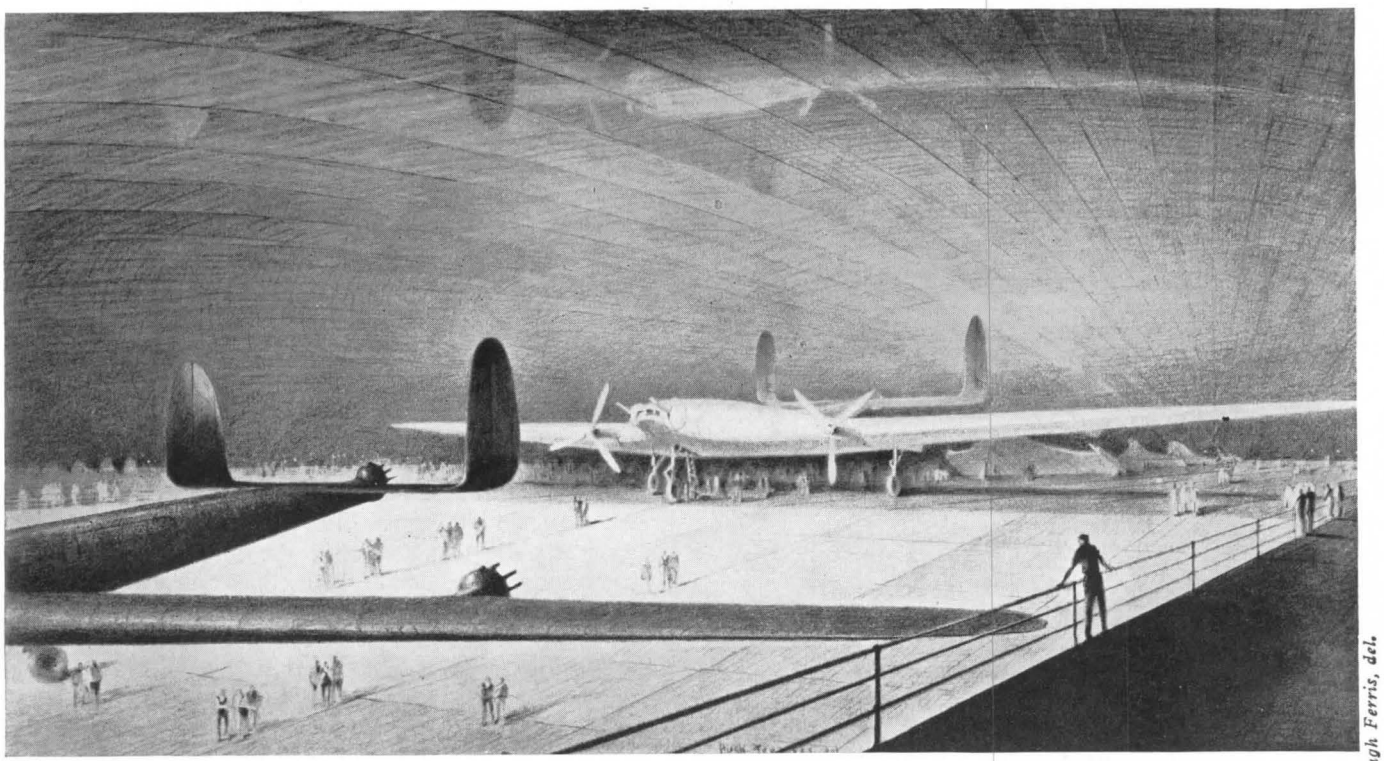
The working area within the factory is completely free of columns and other structural obstructions which interfere with production in ordinary buildings. The structure uses one tenth the amount of steel and other priority materials ordinarily used.

The factory is well protected against air leakage. All doors are double, forming airlocks, with the exception of revolving doors for personnel and the single door where railroad trains enter. In the last case the bulk of the car fills the opening and air loss is not great. Leakage is so slight that the fans could be stopped for several days before the roof would settle seriously, and in case of shut-down periods a single relatively small fan can keep the roof supported indefinitely.

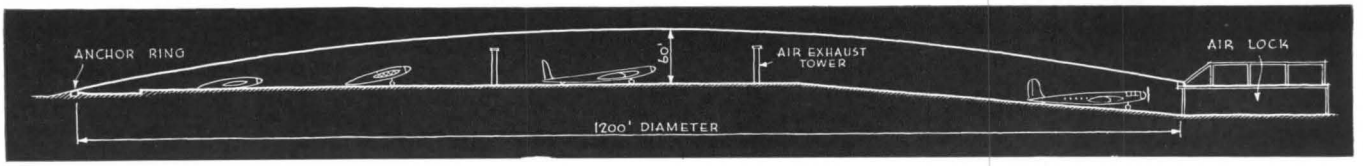
The roof is 18 gauge steel sheet about 3/64 in. thick, which is unrolled on the leveled ground in strips 90 in. wide and up to 600 ft. long. The edges are welded together electrically, and the ends are seam-welded to a steel plate fastened to reinforcing rods buried in the concrete anchor ring. One-inch insulating board is laid with hot asphalt on the steel membrane and three-ply 20-year roofing covers it. Meanwhile, blower stations and airlocks are constructed outside the ring, and when completed, air is forced under the roof.

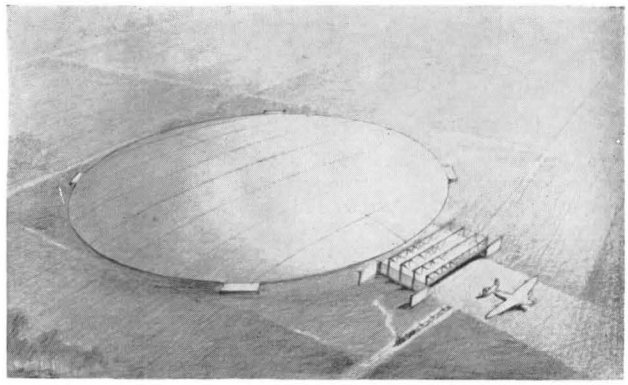
Mathematical analysis and tests with models show that the roof will rise evenly from its initial flat shape on the ground and will draw into a dome shape as if actually stretched on a die. The stretch is one per cent, and the soft deep-drawing steel used can be safely stretched up to 20 per cent.

Excess pressure is always carried to prevent the roof from fluttering in the wind. The slight positive pressure exerts a damping effect that prevents ripples from starting. Since the roof is a perfect form to resist internal

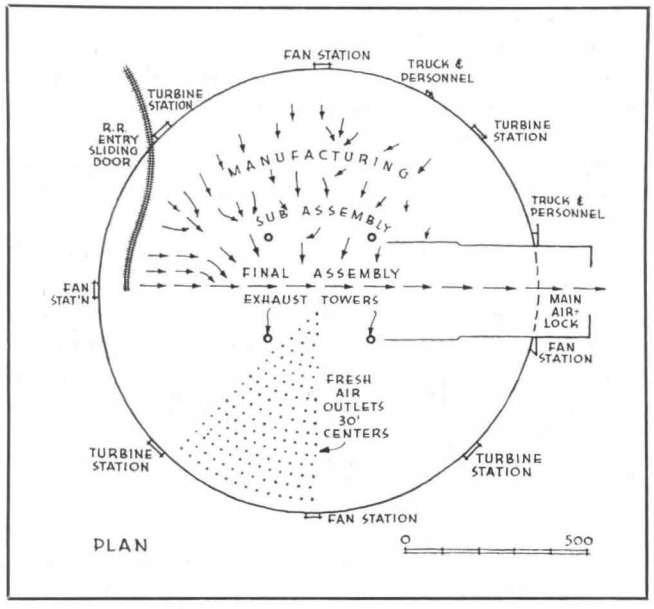


Hugh Ferris, del.

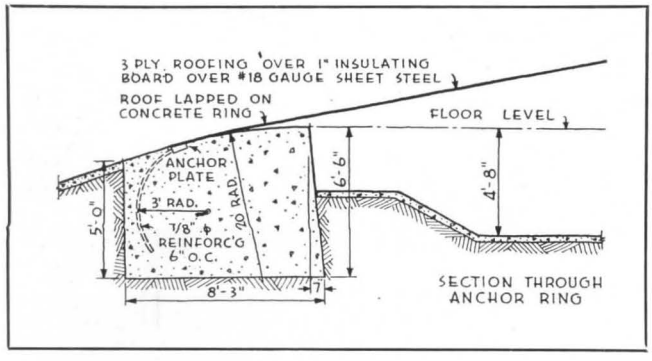




Airplane view of proposed circular factory indicates the main airlock and the fan stations. Further development, as shown on the plan below, indicates the additional turbine stations, entrances for trucks and personnel and the railway entry



Diagrammatic plan of the circular plant with its 1200' clear span. Raw materials and finished parts as well as tool, storage and other services can be located near the perimeter where the ceiling height is relatively low. The four exhaust towers under the shell are shown here as well as in the diagrammatic section on the previous page. These towers would be some 40' in height. Fresh air inlets at the floor are shown (in the lower part of the above plan) spaced some 30' on centers



A detail of the heavy circular concrete anchorage, for the roof, which is continuous around the perimeter except for entrance, exits and other airlocks

pressure, the suction effect of the wind on the roof is not excessive.

The air supply system is composed of 16 fans distributed about the anchor ring and forcing air into a system of concrete ducts beneath the floor. Outlets occur in the floor at every 30 ft. to create a cool fresh air zone in the working area while heat from the lights, workmen, and machinery rises and collects under the roof. Four exhaust towers 40 ft. high collect the heated air at this level and carry it down under the floor to a duct going under the anchor ring. It is exhausted through an air turbine which extracts enough work from the pressure remaining in the air to pump nearly half as much fresh air back into the dome. The fans driven by the air turbine may also be driven by standby gasoline engines in case of electric power failure or in case of large scale air leakage from the dome. Under air leaking conditions the combined fan system will keep the roof supported with a nineteen foot diameter hole in it.

The danger of complete collapse is more a psychological problem than actual one. Any one of the 16 ventilating fans comprising the ventilating system is sufficient to keep the roof inflated, and half of these are driven by gasoline engines independent of power failure. This extra capacity is required to take out heat in the summer, as air lost by leakage and operation of the air locks is very slight. The air is compressed only half of one per cent, and operation of the large airlock would reduce the pressure in the entire dome only 3 per cent were no additional air introduced. Should the roof actually collapse, it would settle on the air exhaust towers and lighting standards near the anchor ring without much hampering the work below. The roof probably could not stand much wind or snow load in this condition.

Operating cost of the blower system is greater than ordinary ventilation systems because of the greater pressure, but this is halved by the use of the air turbines and the total operating cost of roof support and ventilation probably will not exceed five cents per square foot per year. This is about one sixth the lighting cost, and because the underside of the dome is smooth and without structural interferences that cast shadows and absorb light, the lighting system probably would be 15 per cent more efficient and thus largely offset the increased ventilation expense.

The use of a reflecting ceiling to prevent heat radiation downwards and collection of exhaust air from the hot strata in the upper part of the dome, will also improve the lighting and assist the cooling system should complete air conditioning be used. The factory is ideally suited for complete air conditioning, and a simple piping system using the pressure in the dome will conduct to the outside dust and fumes of manufacturing operations or processes that contaminate the air.

The factory saves nine out of ten tons of steel used in other construction systems, and the total amount of material which must be transported to the site is considerably less. The factory is easily and rapidly built, and will have low overhead and upkeep costs. It is suitable for all kinds of manufacturing operations with its clear unobstructed working area. It is easy to camouflage, and suitable for 24-hour-a-day blackout.

AN ISLAND-TYPE BUS TERMINAL

AT WINSTON-SALEM, N. C., for the ATLANTIC GREYHOUND CORPORATION

GEORGE D. BROWN, Architect

Ballinger's

The exterior design and color make the station an easily distinguished landmark

THE NEW BUS STATION at Winston-Salem, N. C., is planned for maximum efficiency in handling traffic with a minimum of confusion since it serves both as a terminus and as a transfer point. It can handle 225 scheduled trips per day, as well as double and triple departures during rush hours. The plan of the building, which permits loading and unloading of passengers on both sides of a central island, allows one-way circulation of both passengers and baggage. The exterior, in keeping with functional plan, is of pre-cast architectural concrete, blue for the first story, ivory for the second. The station likewise is equipped in thoroughly modern fashion: all entrance doors have photo-electric cells; there is a public-address system with speakers in all public spaces and rest rooms; clocks and baggage time-stamps are all controlled from a master electric clock. The illumination is by high fluorescent and recessed lighting and by skylight. Air-conditioning is installed throughout. The public spaces have terazzo floors and wood wainscots trimmed with stainless steel moulding. The walls of the octagonal waiting room are

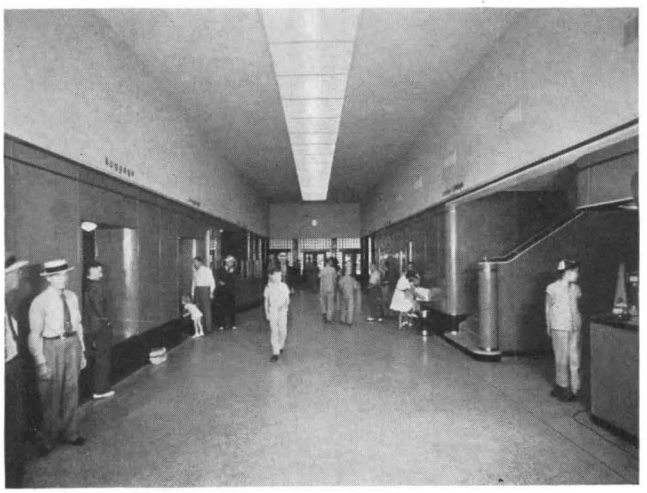
Above: Natural light enters the waiting room through a skylight and clerestory windows. Telephone booths and parcel lockers are made integral parts of the interior design

Right: Main entrance. Traffic to waiting room is separated from entry to stores

Bollinger's

decorated with hand-colored photographic murals of the city and surrounding country. Both the waiting room and the foyer are two stories high and are exceptionally well lighted. The shops on the streets are leased to concerns catering to travellers.

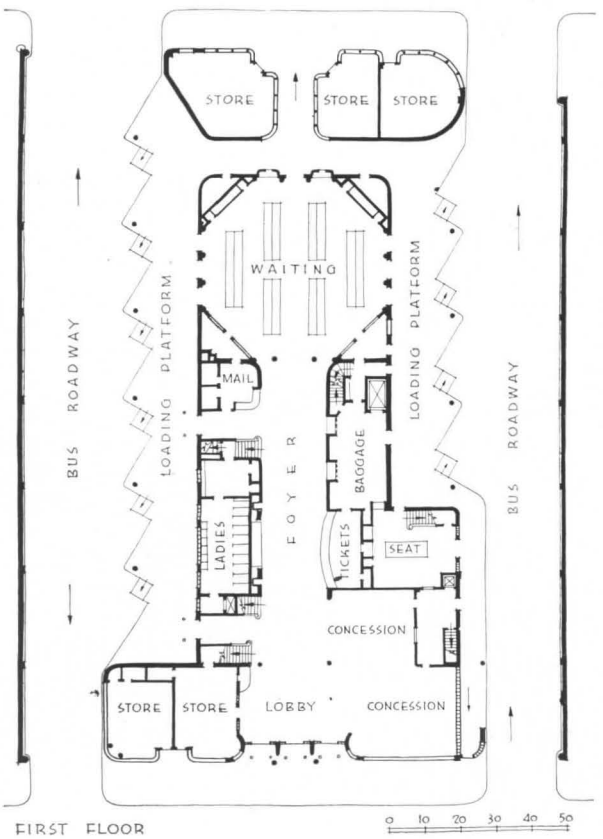
The restaurant, one of the concessions, accommodates about 70 people at the tables and counters. Nearby is a combination news, cigar and novelty stand. The spacious ticket office is large enough to accommodate five agents at one time. The baggage room, with express and checking facilities, has two counters which are accessible from the foyer and more bag-



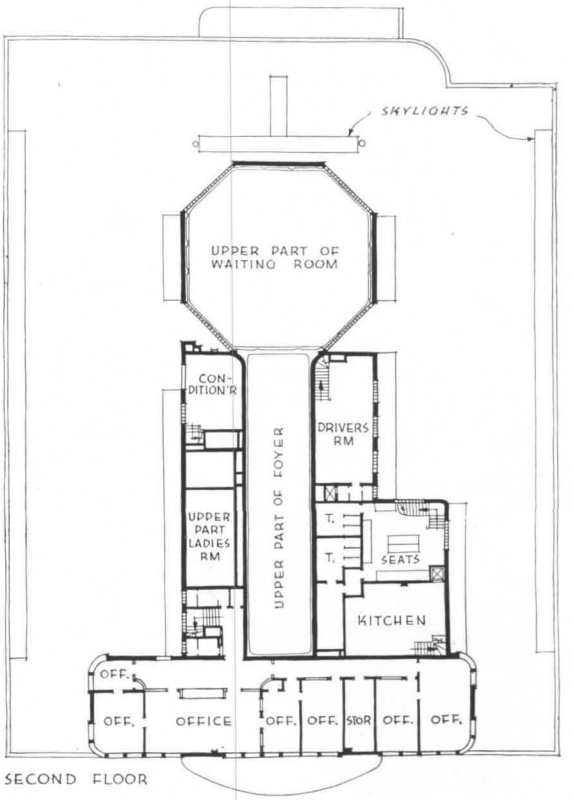
Interiors are designed simply and effectively to serve heavy traffic quickly and economically. Daylight is used where possible

gage storage space is provided in the basement. The Dispatcher's office, in the waiting room, can also be reached from the baggage room and from loading platform. In the waiting room, individual coin-lockers and telephone booths for passengers' convenience. The second floor is devoted to the offices.

The workability of the plan is due to the careful study of direct and natural passenger circulation. Arriving busses enter the driveway on left (see plan), and stop with their front-entrance doors touching the unloading platform. Passengers enter the foyer where mail clerk, restaurant, ticket office, rest rooms and baggage room are conveniently located in relation to platforms and waiting room.



FIRST FLOOR



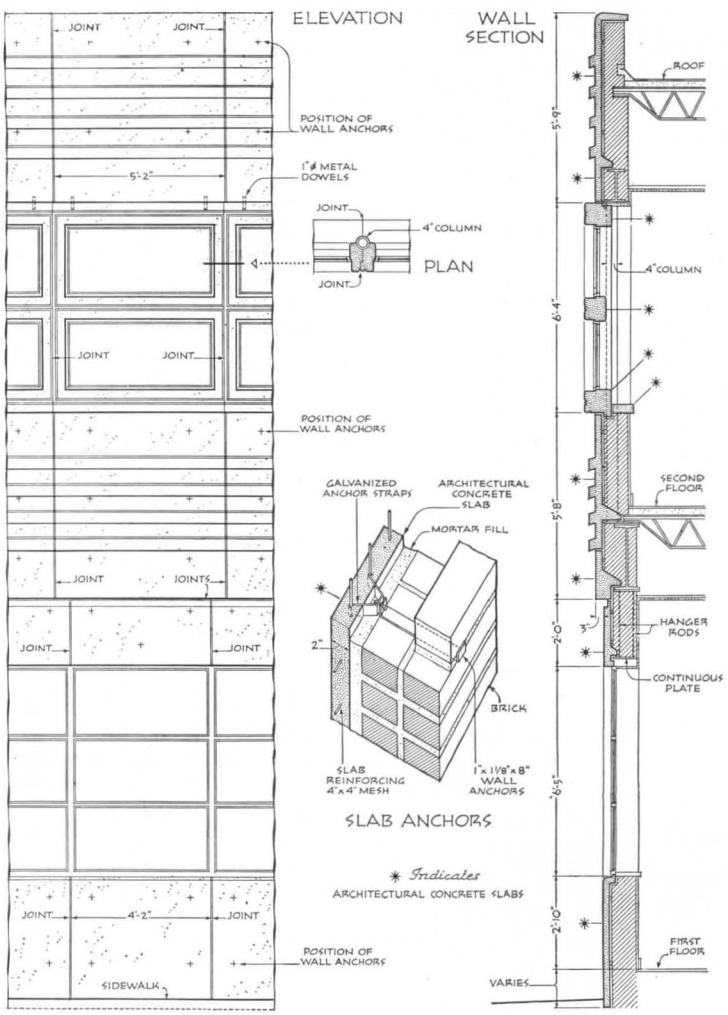
SECOND FLOOR

Bollinger's

Above: Loading platforms sheltered from weather and placed at angles to facilitate scheduled arrival and departure

Right: Section and elevation showing the precast reinforced concrete slab facing and method of anchoring it to structure and backing

Below: Glass block is used to separate the executive offices on the second floor from their reception room and to give light to the latter



WARTIME CONSTRUCTION OF FACTORY BUILDINGS

Hedrich-Blessing

SUDDEN and sweeping changes in industrial building design represent both the climax of a shift to ever-larger factories and a wartime scramble to save materials. Of the three factors in factory planning—plant layout, plant mechanical and electrical systems, and building construction—the third has experienced the greatest changes as a result of wartime material shortages. Covered quickly in succeeding pages are the latest innovations in factory design and construction to use wood and concrete in place of the familiar steel.

In an earlier day the old problem of supporting the roof was fairly simple, for the 20 by 20 ft. bay was satisfactory and economical. But today spans are large, and the structure must support heavy loads on monorails or crane bays. Steel, being a flexible material and one well adapted to truss work, was the typical solution for the larger plants, with bays 40 by 40 or 40 by 60 ft. And for airplane plants and hangars, spanned with steel trusses, the spans went up to 300 ft.

Prior to the critical material situation, the building industry was having no trouble whatsoever in satisfying such requirements. But with the building of war plants—however vital to the country's war effort—feeling the curtailment of critical materials, notably steel, industrial buildings challenged the ingenuity of the building industry. The problem, as a matter of fact, became three sided: (1) critical materials had to be eliminated; (2) speed of the construction was of the essence; (3) the buildings had to be built at minimum cost.

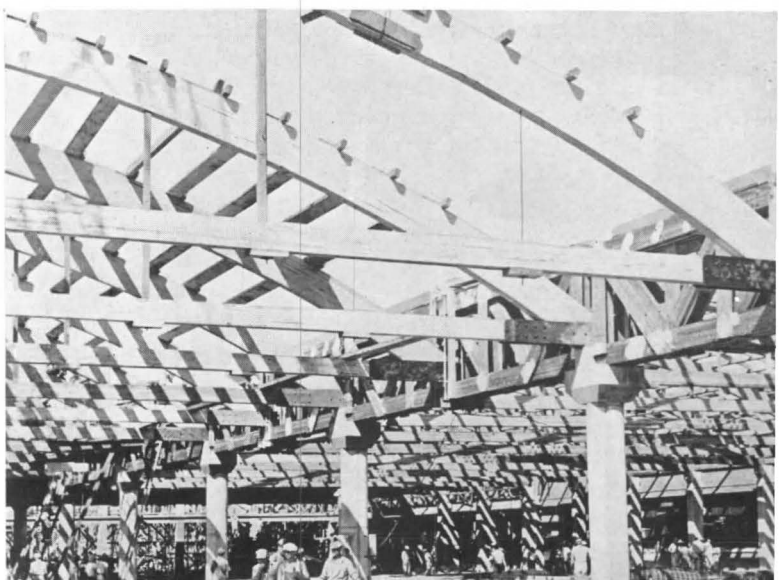
Once the problems of required spans, overhead loading, column spacing, possible fire proofing, etc., have been worked out by the architects and engineers, in cooperation with the plant operators (with due consideration of the manufacturing process) a selection must be made from various structural schemes, using non-critical concrete or wood or a combination of both. Architects, engineers and contractors, as well as plant operators in many cases, have devoted considerable resources to this study, and as a result the building industry has been able to deliver vitally needed industrial plants with a speed never before equalled.

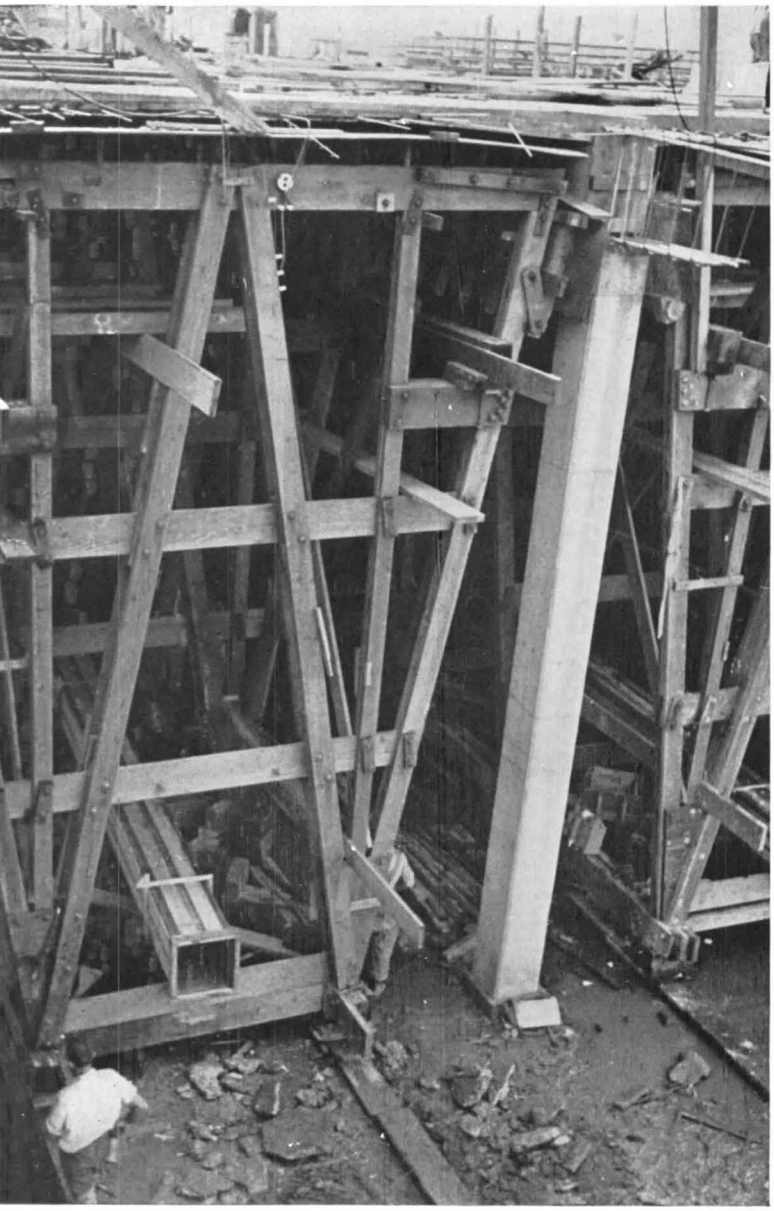
Both old and new forms of wood and concrete construction have been investigated to their fullest extent with regard to the amount of critical material necessary, the speed of construction and the cost. Many of the older systems have been given new adaptations which have added to their usefulness during the present crisis. The new systems now being devised should prove of lasting significance in the industrial construction field.

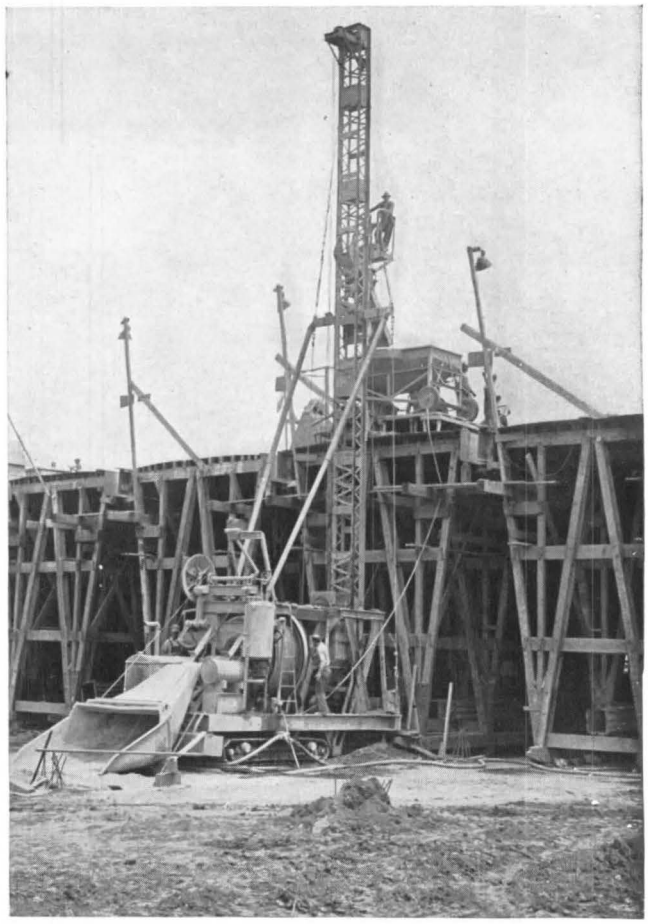
ARCHITECTURAL RECORD'S

BUILDING-TYPES STUDY

NO. 72







"WARSPEED" SYSTEM OF

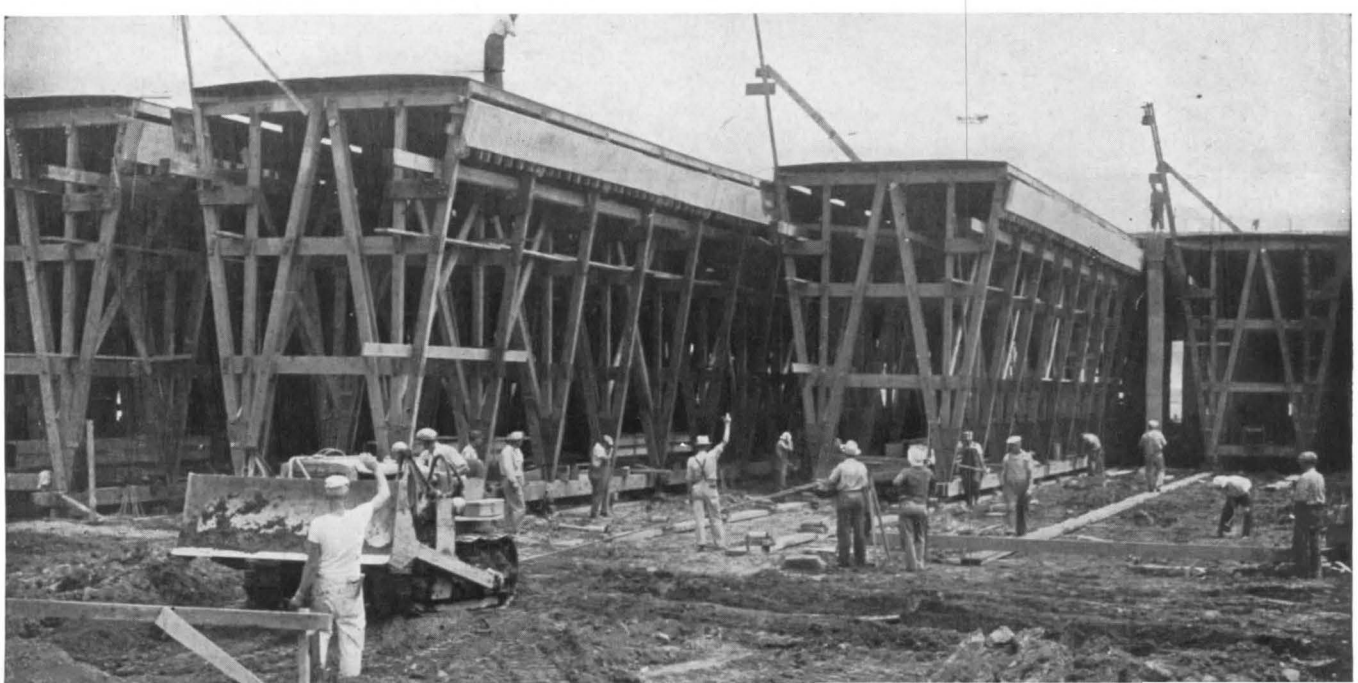
1. AS FIRST USED FOR A NEW AIRCRAFT PLANT

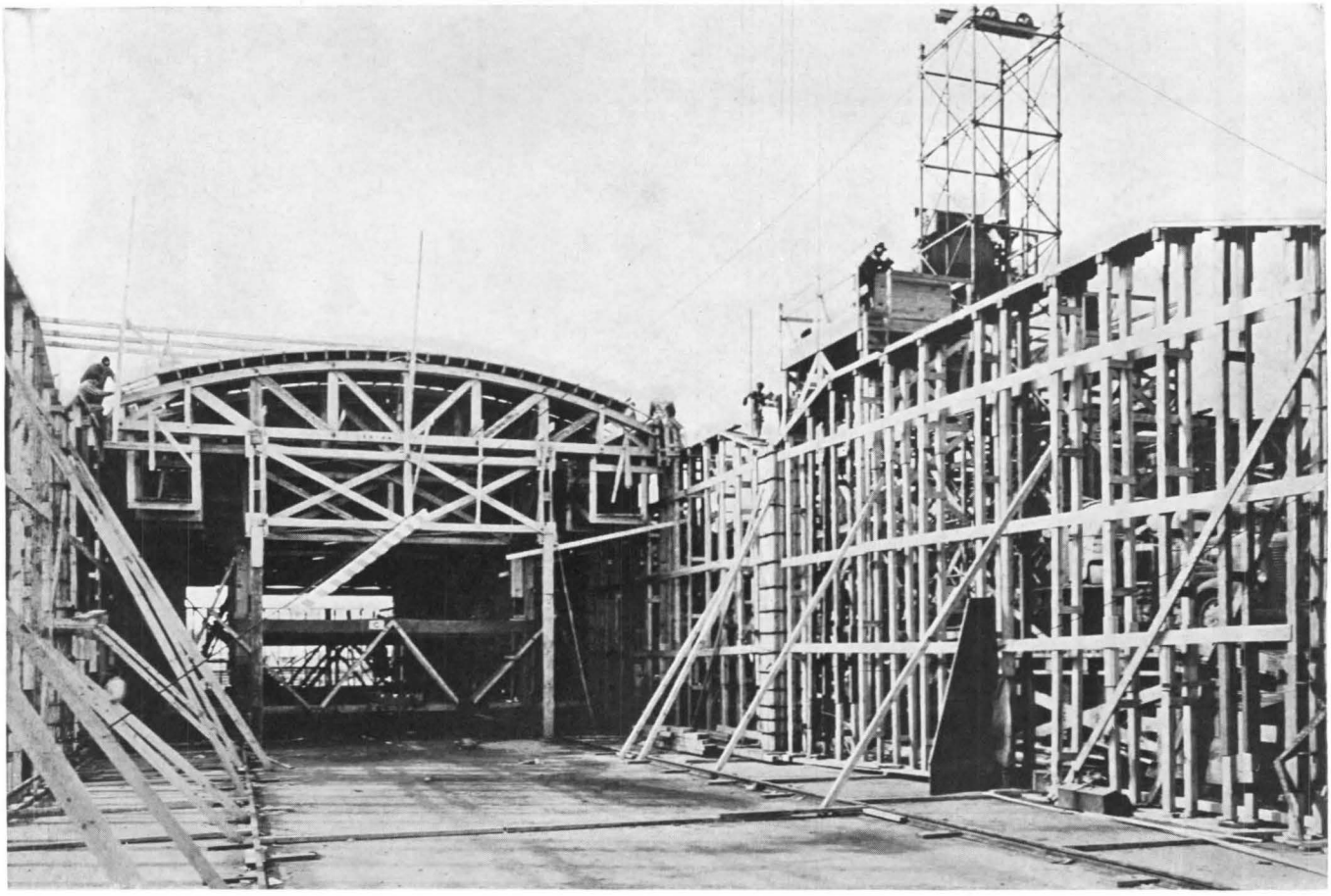
WITH the idea of saving critical materials, keeping down costs, and also of developing a form of concrete construction which could be put up with great speed, Albert Kahn Associated Architects and Engineers and Mahony-Troast Company, contractors, developed, after considerable study, the now famous "warspeed" construction. A system of cantilever slab design was nothing new and had long since been discarded for so-called modern forms of concrete construction. What was new, however, and very successful, was the concept of building the structural system about the form work rather than designing first the structure and then somehow the form work which would enable it to be built.

Once the 20 by 38 ft. column spacing was decided upon as ideal for the manufacturing process, a system of form work was scientifically developed—form work which was drawn over previously laid rails by tractors and which could be used over and over again to form each succeeding unit of construction. This form work, then, was capable of accounting for the structure of a particular unit, and the architects took great care that their factory would be so designed that this unit could be repeated again and again. There were no changes in dimensions once the unit was established. Beams were slightly tapered so that the form work could be easily stripped. The columns were set in from the beams so that they would be out of the way of the advancing form work. This system of construction worked out so successfully that 1,500,000 sq. ft. of roof area was constructed at the almost unbelievable rate of 220,000 sq. ft. each week. The concrete roof slab is mopped with hot pitch, fiber glass insulation is laid on, and a 3-ply built-up composition roofing is applied.

CONSTRUCTION IN CONCRETE

ALBERT KAHN
Associated Architects & Engineers, Inc.
Mahony-Troast Construction Company,
General Contractors



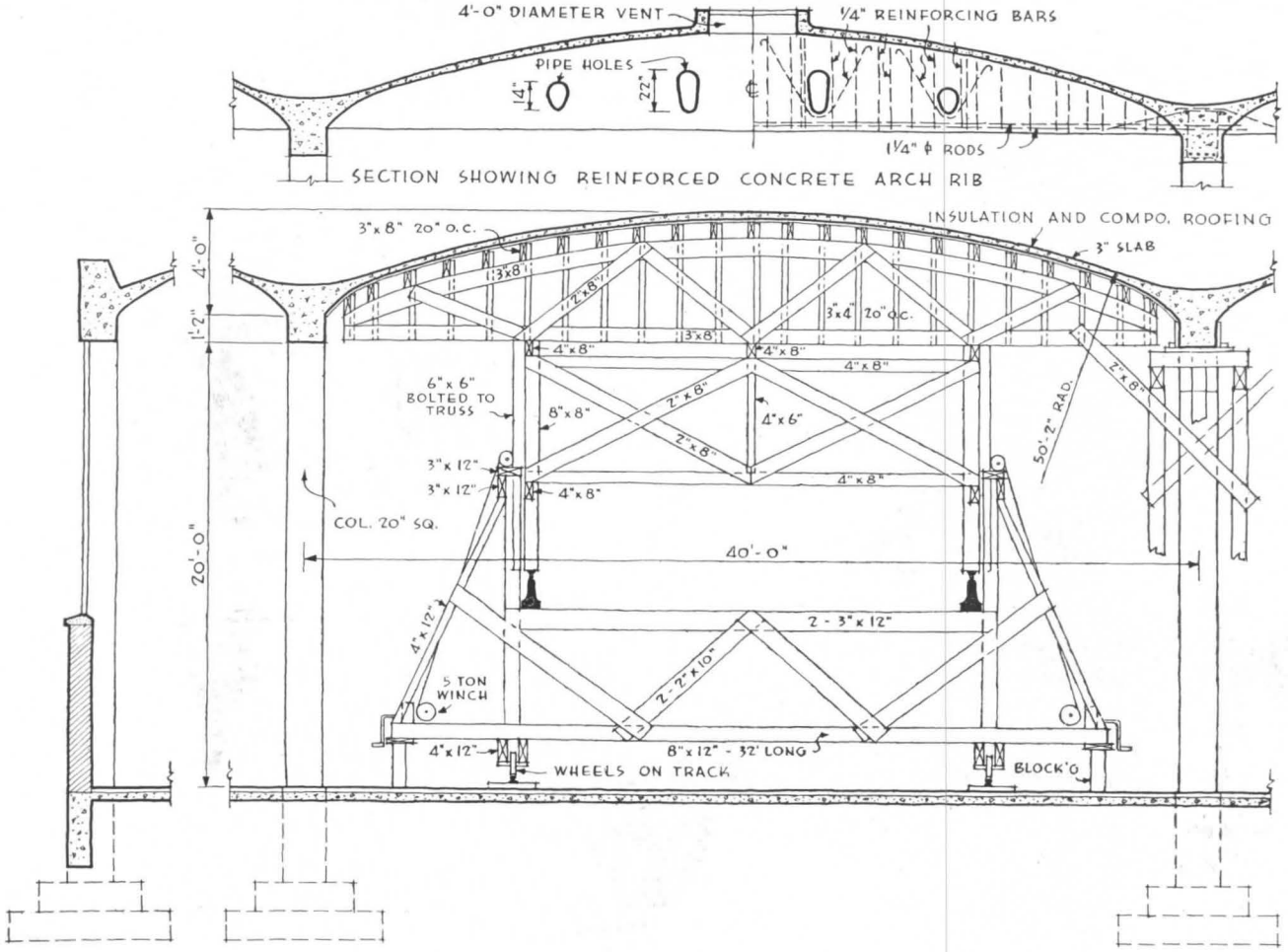


2. TRAVELING FORM SYSTEM AS USED FOR LONGER SPANS

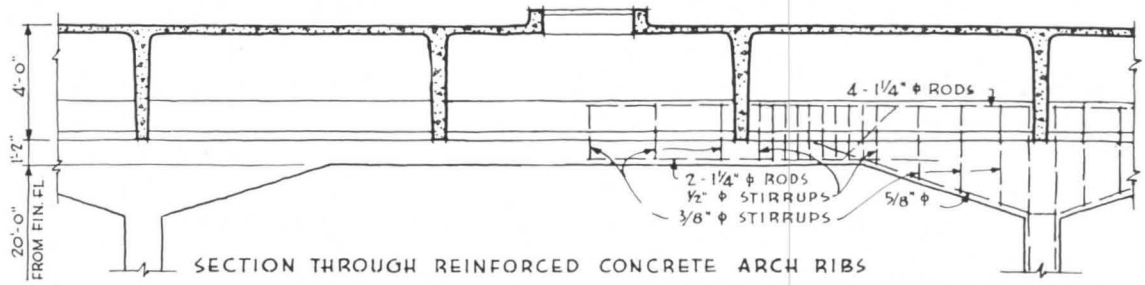
Albert Kahn Associated Architects & Engineers, Inc.

Long-Turner Construction Company, General Contractors

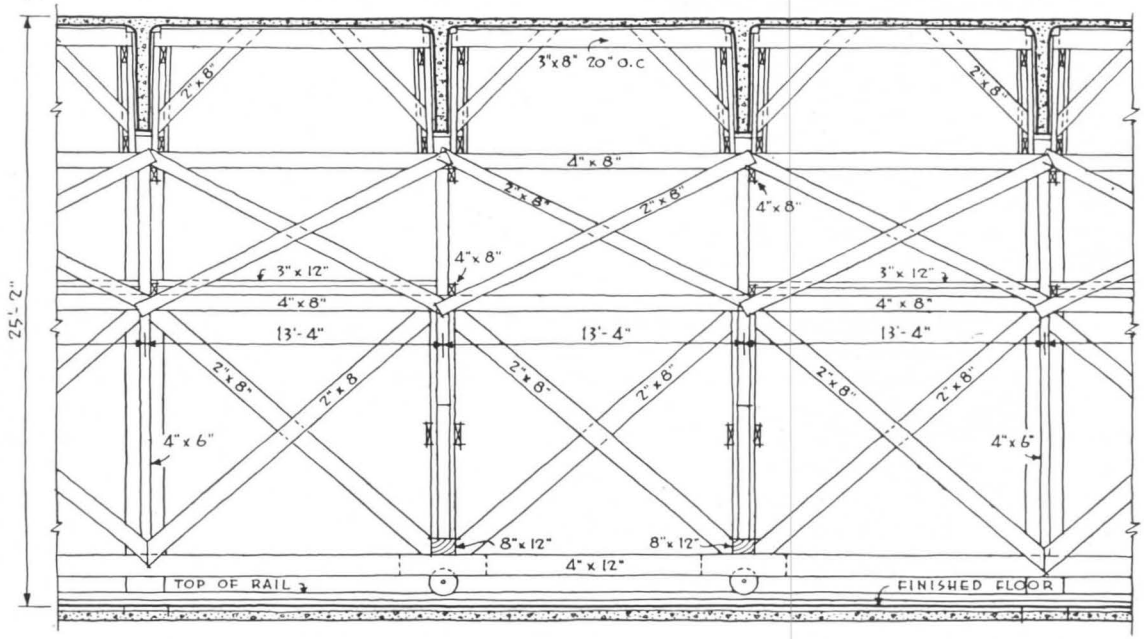
THE Kahn organization developed, this time with the Turner Construction Company of New York and the Long Construction Company of Kansas City, another type of reinforced concrete construction which has been adapted to assembly line production. Longer spans and fewer columns were necessary than for 20 by 38 ft. column spacing. With the requirement of 40 by 40 ft. column spacing with provision for 2 monorails of 500 lb. each per bay, an arched concrete design was developed. This longer span design was carefully studied with respect to the moving assembly line form work construction, permitting the building of 200,000 sq. ft. of roof area each working week. This roof is made up of arch slabs spanning 40 ft. between concrete girders. These girders are supported by concrete columns every 40 ft., thus dividing the building up into 30 by 38 ft. bays. The arch slabs are 3 in. thick except for special thickening where they spring from the girders. They are built to a uniform radius of 50 ft. 2 in., and are reinforced with one line of welded wire mesh. Each 40-ft. length of arch roof is divided into 3 panels by concrete ribs. These ribs run through at the column points and at the third points of the girder spanning between columns. Under the arches the ribs are solid webs except for 4 oval-shaped holes for the passage of piping. In addition there are 1-in. pipe leads through each rib just above the bottom steel to serve as hanger inserts. Incorporated into these ribs and acting as bottom steel are continuous tie-rods which take the thrusts of the vaulted construction. The concrete ribs act as fire-proofing for the tie-rods. Tie-rods are welded together at the girders. Slabs and ribs frame into girders 20 in. wide and 33 in. deep. Columns supporting the girders are 20 in. square. From the floor to bottom of girders, the lowest point of roof frame, is a clear height of 20 ft. The amount of steel used in this construction was 3.1 lb. per sq. ft. as compared with about 5.8 lb. for concrete frame slabs and 14 lb. for structural steel.



Above: section showing traveling form-work in place, and section showing reinforced concrete rib and vent



Right: a section taken longitudinally showing side view of traveling form, and section of slab without vent



WOOD AND CONCRETE FOR HEAVY LOADING

Albert Kahn Associated Architects & Engineers, Inc.

Brown & Matthews, Inc., General Contractors

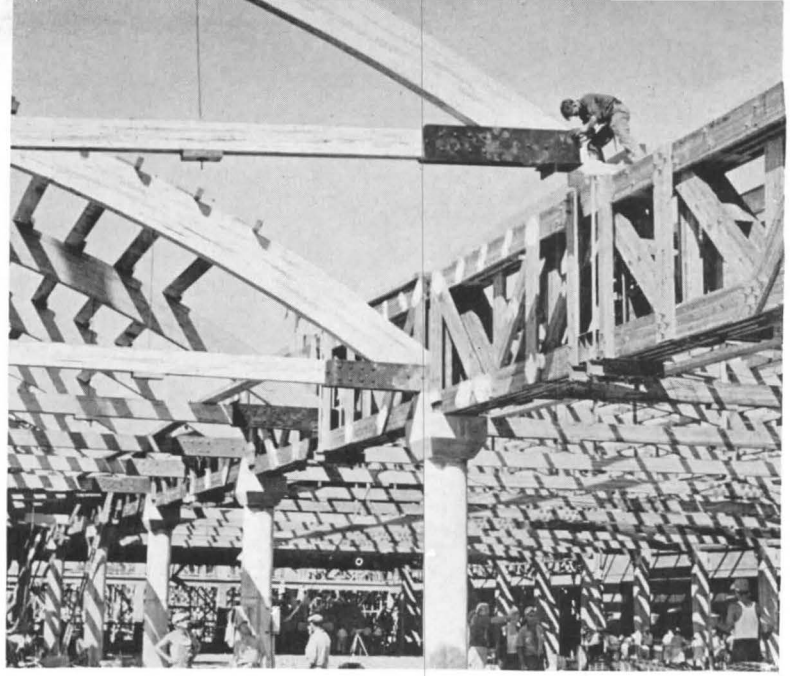
AN EASTERN airplane factory presented the problem of a 40 by 100 ft. column spacing, with a roof structure designed to carry heavy overhead loads at any point within the manufacturing area. Since the plant was to be completely blacked out, no monitors were required. But, as in all war plants, critical materials had to be saved wherever possible.

The solution was found in a combination of concrete columns and wood trusses and girders. Round concrete columns support a roof made up of wood trusses spaced 20 ft. on centers and spanning 100 ft. These trusses are carried at intermediate points between columns by wood truss girders spanning 40 ft. from column to column. The round concrete columns were used because wood would have been too clumsy and would have taken up too much space. Laminated wood was employed for the structural members of the trusses because it was more easily formed to the required shape and because greater unit stresses, in bending, compression and tension, could be figured with the laminated wood construction.

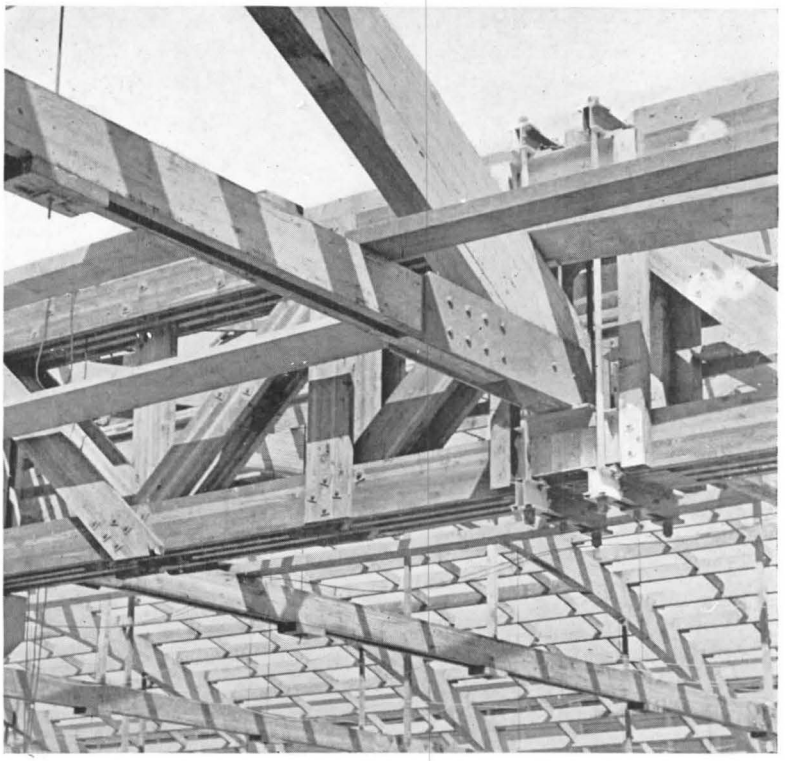
The intermediate trusses between the columns are received by an especially designed steel hanger at the center point of the wood truss girder. Otherwise 60 tons, 30 from each side, would rest directly on the bottom, tension member of the girder.

Note the form of the concrete column caps. The heavy flanges receive the truss girders at either side, and the higher center portion takes the roof truss at the level of the bottom chord of the truss girder.

Roof purlins are securely anchored to the roof trusses with wood clips, which are screw-bolted to the purlins. Note also (photo, lower right) the heavy wood members between the purlins. These were used not only to add strength to the roof, but also to provide a means of nailing for the wood and cement composition blocks which were specified for the roofing material.

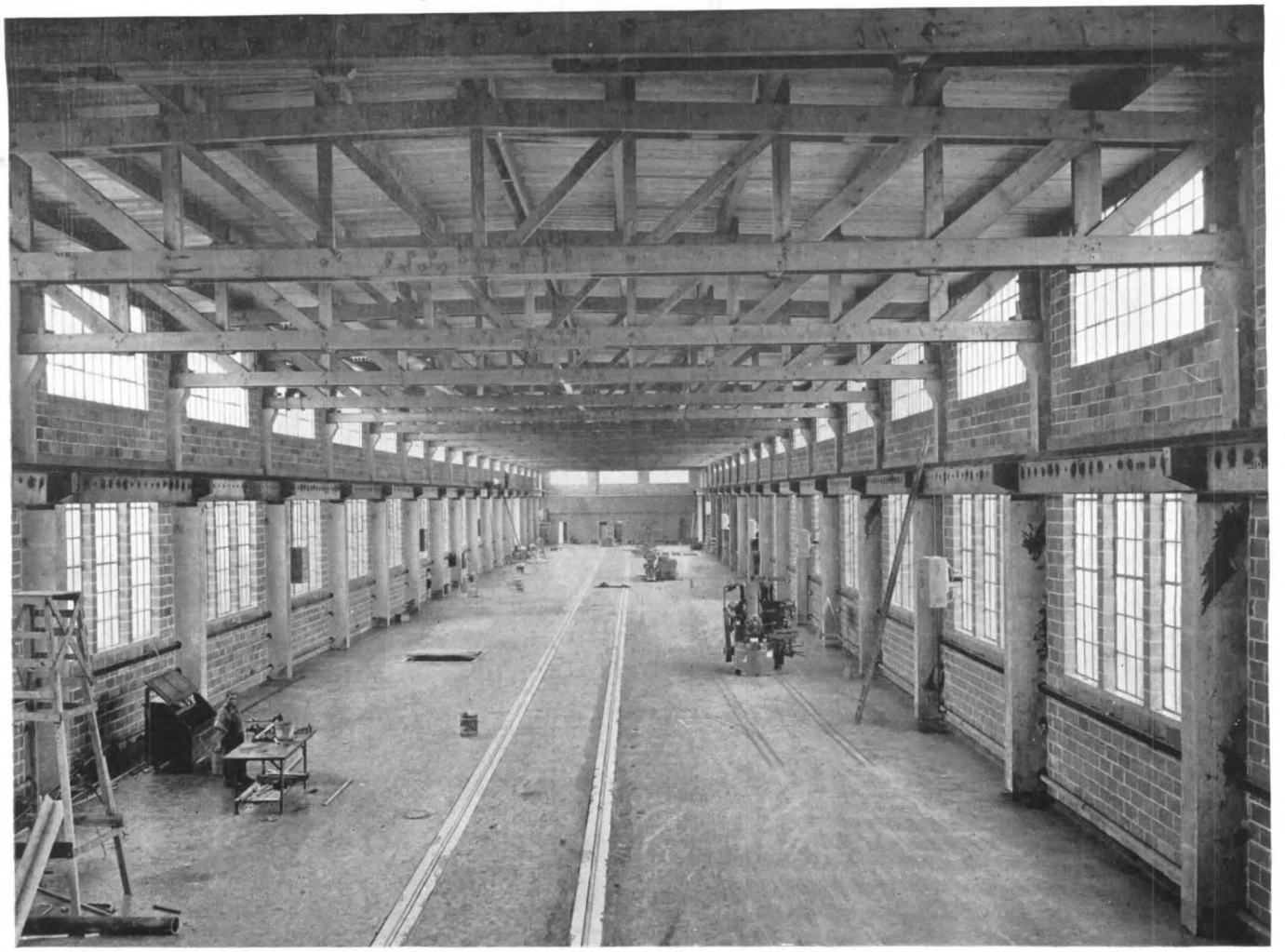


Laminated wood, easily formed and allowing great unit stresses, was used for roof trusses. Roof spans are 100 ft., and the trusses are placed 20 ft. apart. Between the columns, which are spaced at 40 ft., the trusses are carried by heavy wood truss girders



Roof trusses at the intermediate points rest in especially designed steel hangers, thus distributing the load over the truss members. The girders must support two roof trusses, one on either side, each transmitting to the girder a load of 30 tons

Purlins are anchored to roof trusses with wood clips, screw-bolted to the trusses. The heavy wood members between the purlins add strength to the roof and also provide a means of nailing the roofing material, which is wood and cement composition



PRECAST CONCRETE COLUMN FOR CRANE BAY

Giffels & Vallet, Inc., L. Rossetti, Architects and Engineers

Roy Buck, General Contractor

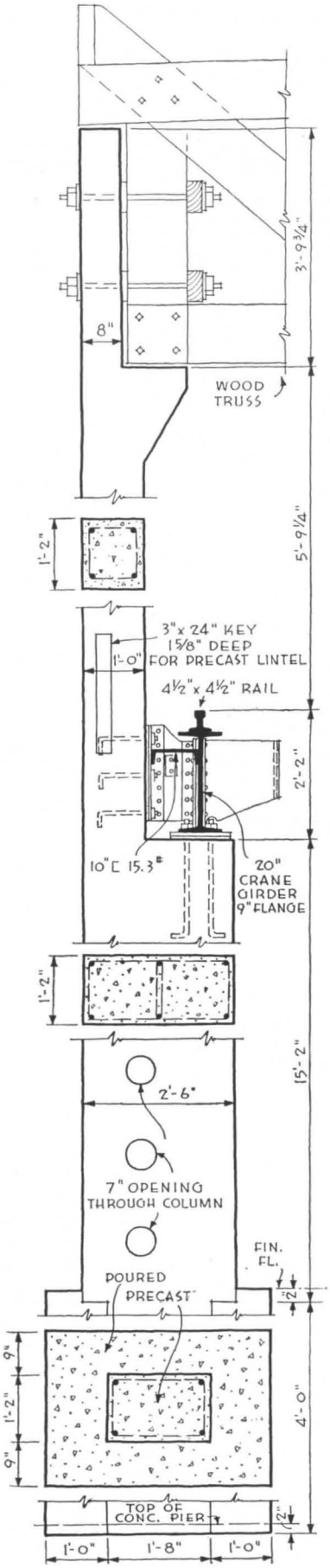
A SMALL manufacturing building, to be built with all possible speed and a minimum of critical materials, with nothing extraordinary about spans or column spacing but with provision for an overhead crane. That was the problem for which the designers found a rather unusual solution.

The essential feature of their scheme is a precast concrete column combining roof and crane bay support. This column saved a considerable quantity of steel, much time and labor on the job, and provided a logical support for the crane. A wood truss and wood roof, and concrete masonry side walls, completed a structure using negligible quantities of steel.

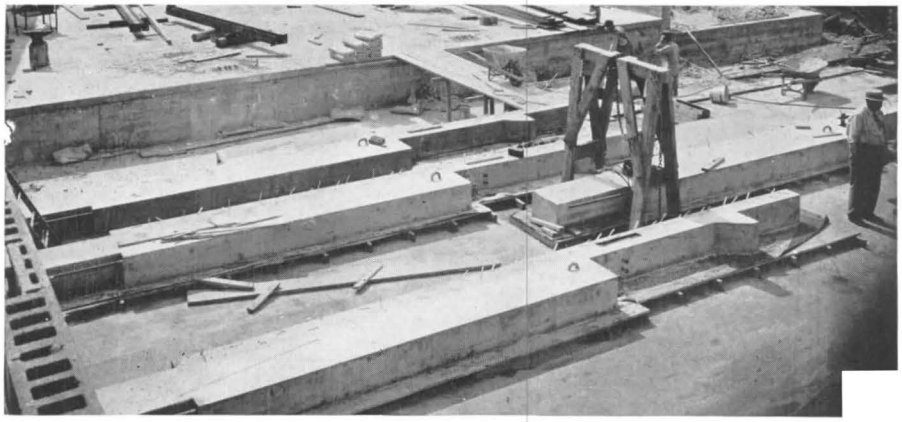
Besides the saving of steel, a notable advantage of the precast column is the saving of time. It could be cast, on the job, as soon as excavation work was completed, and while footings were being poured. The footings were poured with an opening at the top, into which the column is set. There is the further advantage that, with the pouring of the columns done in a horizontal position, the formwork was considerably simplified. The method does require, however, lifting equipment heavy enough to handle rather massive columns on the job. But against that is the great saving in time and labor when placing them. The assembly job is not complicated by the many separate ties and braces of more conventional construction systems.

As indicated in the section on the next page, the column is shaped to receive the crane girder with only a simple bolting operation, anchor bolts being cast in the concrete. The roof truss is similarly accommodated. And, near the base, the column has three 7-in. round openings through which utility piping can be run, just at the inside wall.

In conjunction with the precast column, a precast concrete lintel was also used. The column is slotted at the side to match a similar slot in the end of the lintel. When the lintel is set, grout is poured in to form a firm key.



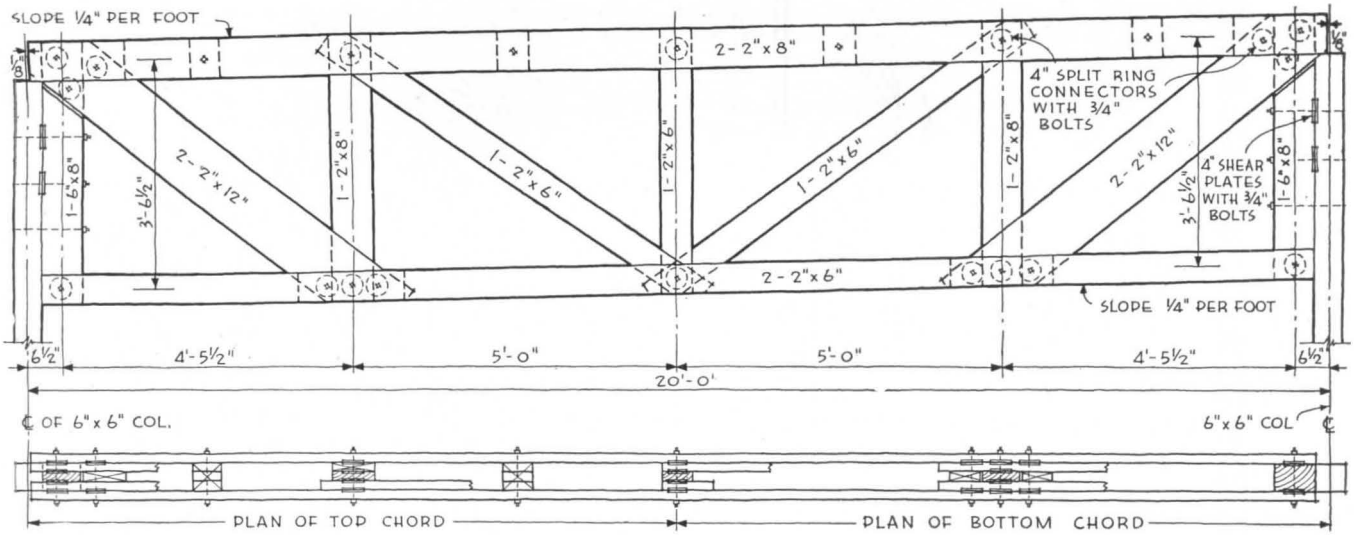
PRECAST CONCRETE COLUMN



Precast concrete columns cast on the ground in horizontal position

With the columns set in place, work can proceed quickly at all points

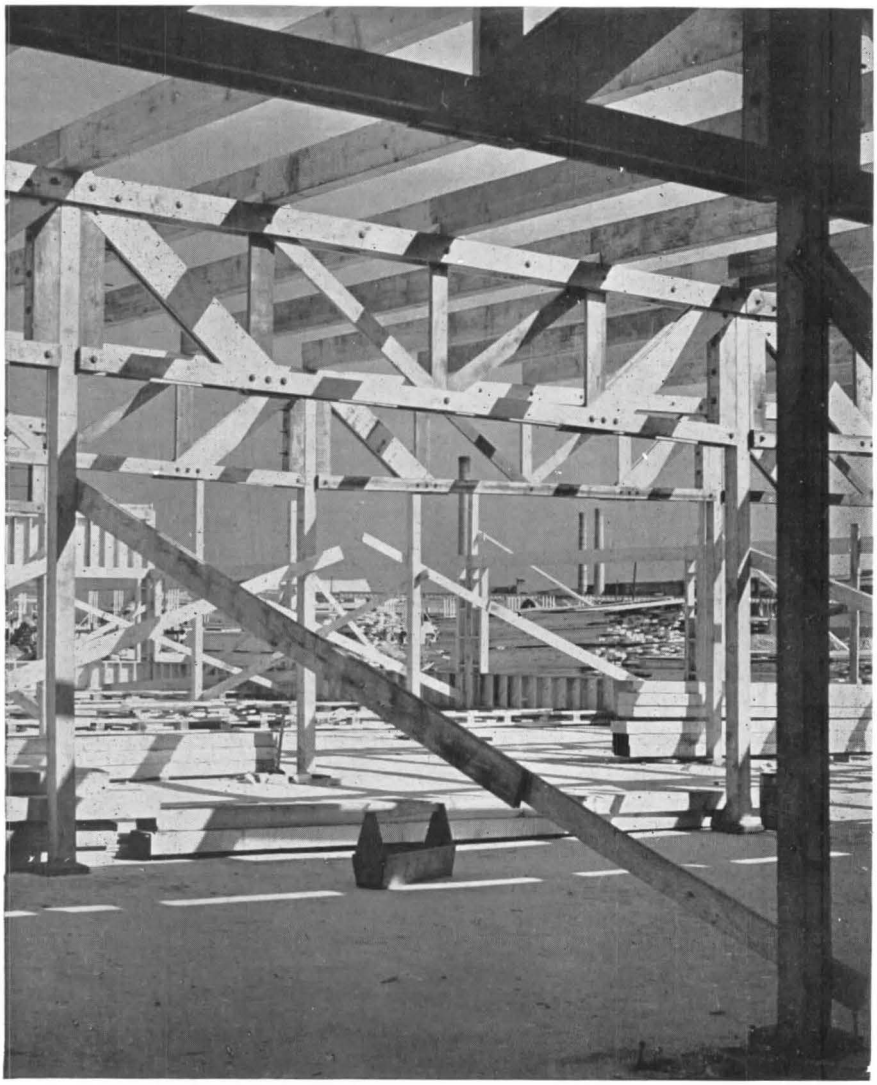
With the structural elements precast, walls and roof require minimum labor



ALL-WOOD DESIGN FOR A SMALL FACTORY

Giffels & Vallet, Inc., L. Rossetti, Engineers and Architects

S. N. Nielsen Company, General Contractors



IN these days of great airplane plants with long assembly lines to handle whopping bombers, it is easy to forget that for a long period a 20 by 20 ft. bay was almost standard for industrial buildings. It was generally satisfactory and economical in construction. Not all factory structures even today need the great spans now associated with modern assembly methods. And with steel so critical and time so short, there is good reason for using economical spans wherever the factory operation permits.

For the pattern shop of a small steel casting plant the designers took the old 20 by 20 ft. column spacing, and did the whole building in simple wood construction. In this case the roof problem was not complicated by a crane support, so the building might be considered typical of a wide variety of small factory structures.

The solution was found in a simple wood roof truss, supported by 6 by 6 wood columns. The truss, detailed above, has a slope of ¼ in. to the foot, and a ½-in. camber.

ALL-WOOD CONSTRUCTION WITH CRANE BAY

Smith, Hinchman & Grylls, Inc., Architects and Engineers

O. W. Burke Company, Contractors

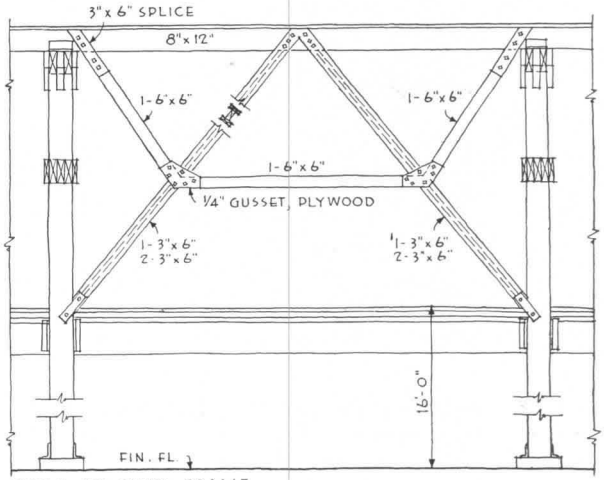
HERE is another fairly typical problem in industrial building design, also solved with all-wood construction. In this case—a building for a die shop and industrial offices—the lesser column spacing was not possible, and the requirements included overhead crane supports. The span called for was 48 ft. with columns spaced 20 ft. apart in the longitudinal direction. But here again the all-wood construction solved all problems, with a minimum of critical materials.

Interior columns are 12 by 12 in. timbers, exterior columns 10 by 12 in. The crane support problem was handled simply by adding separate 8 by 12 in. posts, tied to the columns with 2 by 6 wood members.

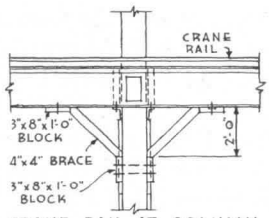
The roof construction was designed for a total live and dead load of 45 lb. per sq. in., and the crane is of the 5-ton capacity.

The roof truss was originally designed for the use of timber connectors, but was finally done, as shown in the drawing, with bolts, as in this case bolts were more readily available than connectors. Note also the plywood gussets— of ¾ in. plywood at the top of the columns, and of ¼ in. in the sway frame.

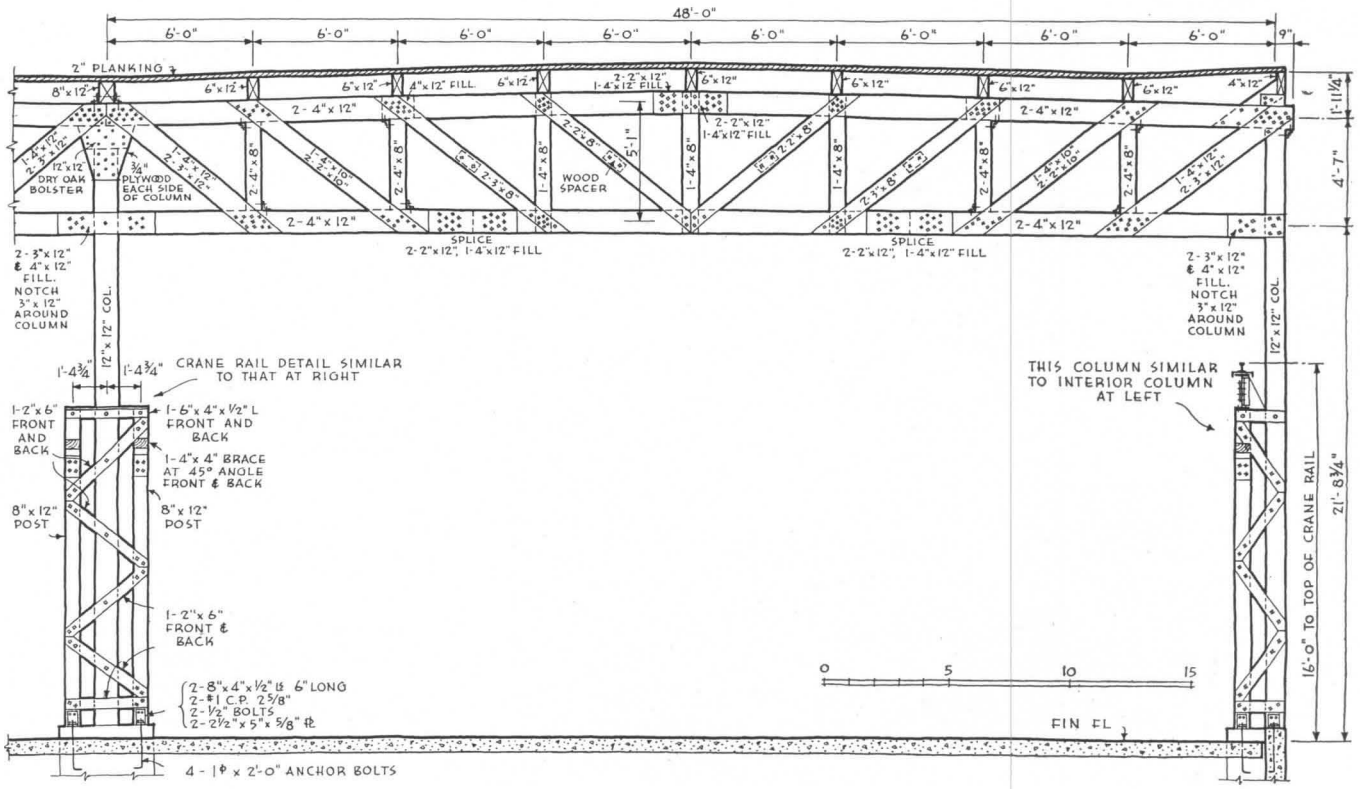
The sway frame, to take the longitudinal thrusts of the crane movements, occurs in alternate bays. The braces below the crane rail are at each column.

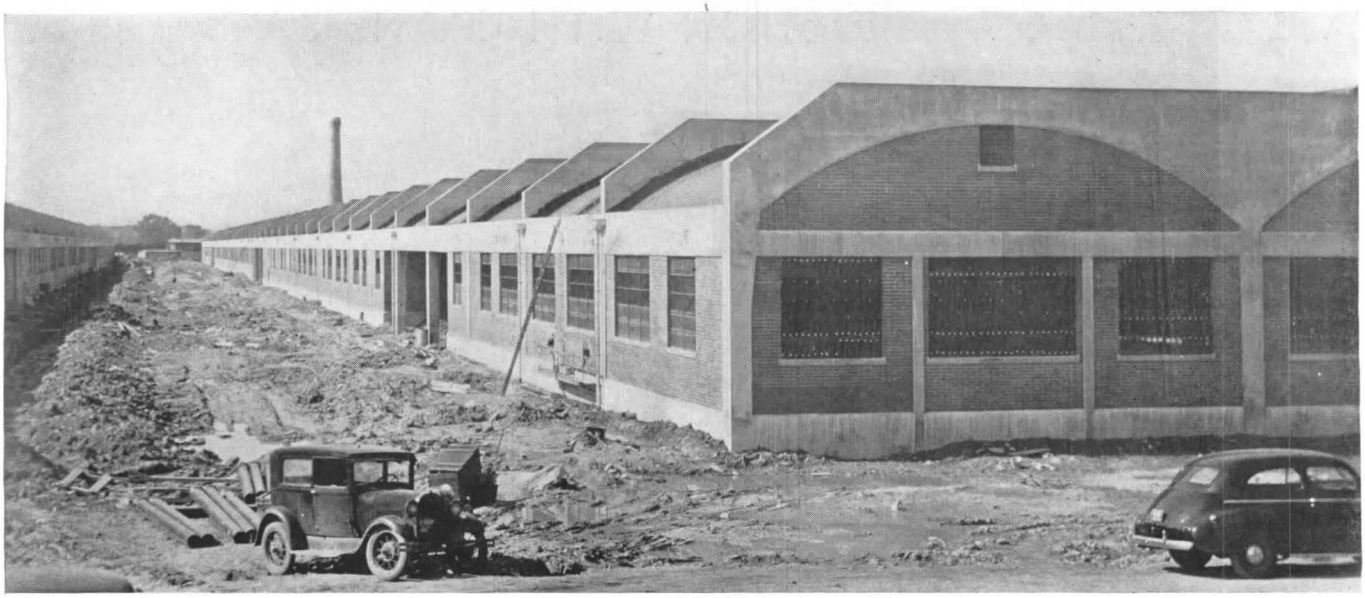


DETAIL OF SWAY FRAME



CRANE RAIL AT COLUMN, TO SHOW BRACING

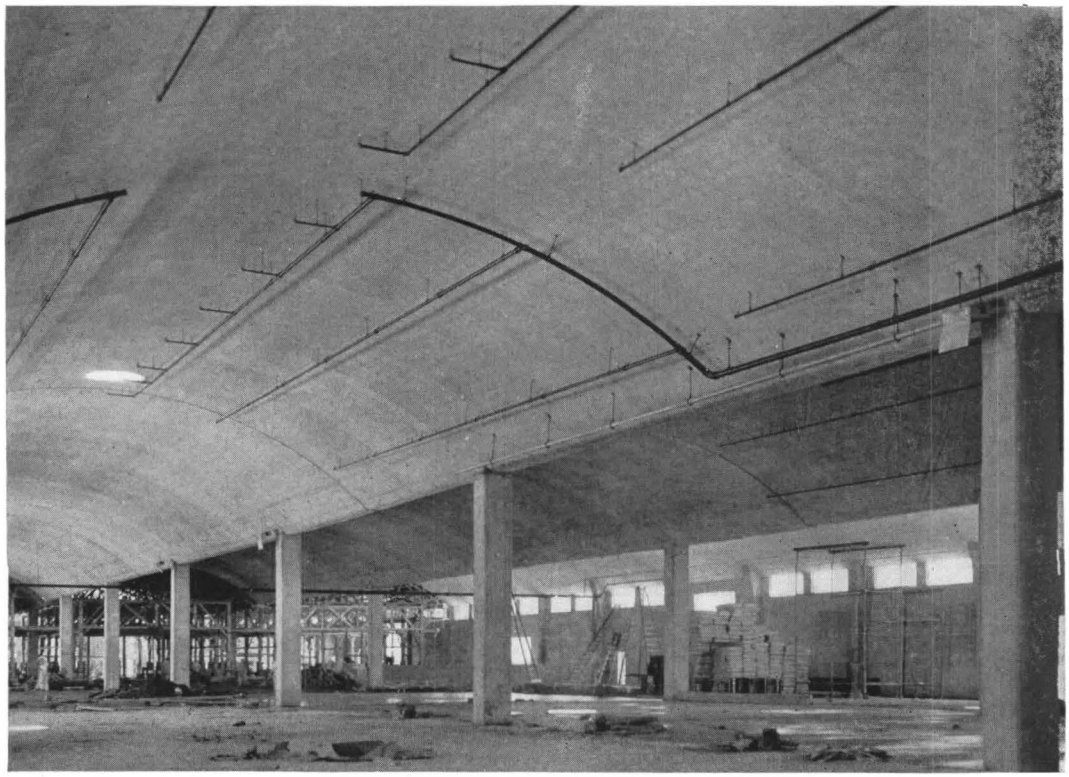




NEW SPEED TECHNIQUE FOR THIN-SHELL CONCRETE

WIDELY used for wartime industrial buildings is the Roberts and Schaefer system known as "barrel-shell," or "Z-D" type of roof construction. Although not new, this patented system has wartime variations that have saved considerable time as well as steel. Another wartime advantage claimed for it is an exceptional ability to withstand bomb action, for the dome feature of the curved roof slab prevents collapse when a bomb hits.

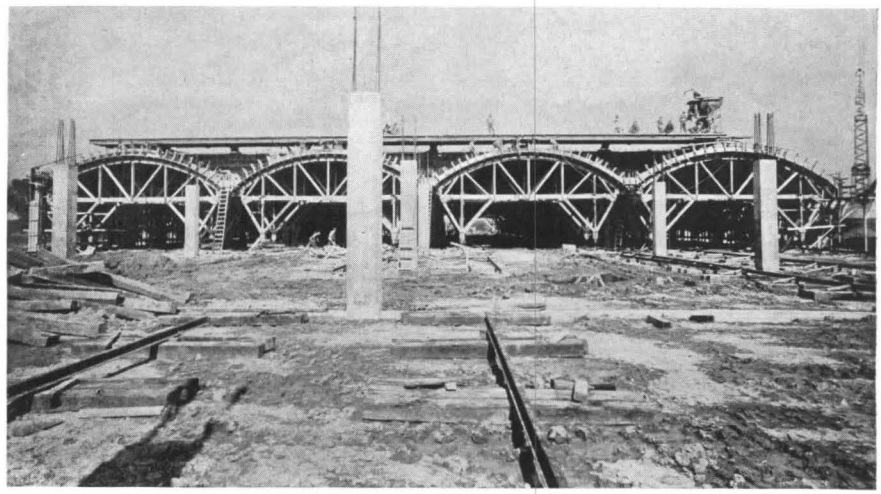
Developments that make for wartime speed in extensive operations are a system of traveling forms that move on tracks, and a scheduling method that approaches mass production of building units, particularly for such structures as the warehouses here illustrated.

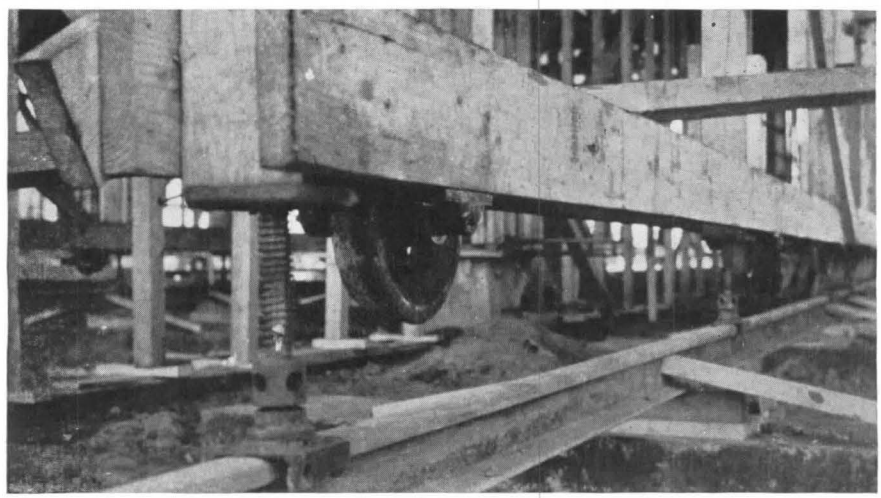


For these buildings, each of which measures 180 by 1560 ft., six sets of forms were built, each to be used ten times, one erected at the end and one at the center of each building. Using six sets of forms enabled the contractor to build one unit each day by cycling his operation. The complete cycle on each form was completed in six working days. Six major crews were set up; each performing its own job each day.

Duties of each crew were: Crew 1, pour and finish concrete, shift scaffolding to next pour; Crew 2, strip exterior rib forms preparatory to decentering; Crew 3, decenter (by jacking) shell forms, roll to next position, jack in place; Crew 4, place lower layers of reinforcing steel in roof slab; Crew 5, place rib steel and upper layers of steel in roof slab; Crew 6, erect exterior rib forms, prepare for concreting.

Several contractors on various jobs, including White Construction Company of New York, Corbetta Construction Company of New York, Wark Company of Philadelphia, and Wigton-Abbott, Mahony-Troast of New Jersey, made valuable contributions to the technique and methods of this type of construction, Roberts and Schaefer Company being the designing and supervising engineers.





WARTIME DESIGNS FOR EXPANSION JOINTS AND SASH

By JOHN SCHURMAN

Albert Kahn Associated Architects and Engineers, Inc.

DURING this war period we are all called upon to do our utmost to conserve critical materials. In all forms of building construction metal in some form has played an important role. It would take a volume to cover all phases of metal saving construction, and I will attempt only to cover the substitutions for various forms of metal as used in expansion joints, flashings, and sash as hitherto used in industrial building construction.

Due to the mammoth war manufacturing programs, industrial plants have become larger and more complicated as more processes are carried out under a single roof. We now have single buildings covering as much as 87 acres in the process of construction. Due to the shortage of steel, such buildings are being constructed of reinforced concrete and usually without roof monitors. The large areas of comparatively level roof construction present a problem of expansion and contraction which must be carefully considered.

In buildings of this character our practice is to divide the buildings into units of approximately 400 ft. square. The exact size of units depends on various conditions of the design, such as the profile of the roof, the coefficient of expansion of the material of construction, either wood, concrete or steel; if concrete, the expansion requirements vary for beam and slab, flat slab, and also depend on the direction in which the main girders are framed. The profile of the roof also affects the location and design of expansion joints, the requirements being different for a monitor type roof than for flat or domed roofs. Also of major importance in proper expansion joint design is the height of the roof above the floor.

In our experience we have found that the average steel building will expand from 2 to 2½ in. The temperature ranges affecting the building when occupied average from 30 to 80 degrees unless long periods of extreme temperature occur. At the lower end of the scale the inside room temperatures prevent the structural members from reaching outside temperatures.

In considering expansion and contraction we must also consider the story height of the building. The roof will expand or contract the same whether high or low. Assuming an expansion of 2 in. at the roof and possibly a compensating contraction, this will cause considerable distortion or bending of the sidewall construction toward the end of each building unit in a building 15 ft. high but will cause only slight bending in a building 50 ft. high. This point is important when considering the materials of which the building walls are to be constructed (see figure 1).

The building units are connected by means of expansion joints. We had developed two types of expansion joints—the inverted V type with accordion joins at bends or corners and the Kahn type. The V type is particularly adapted to long and comparatively narrow buildings in which the expansion movement is in one direction. The

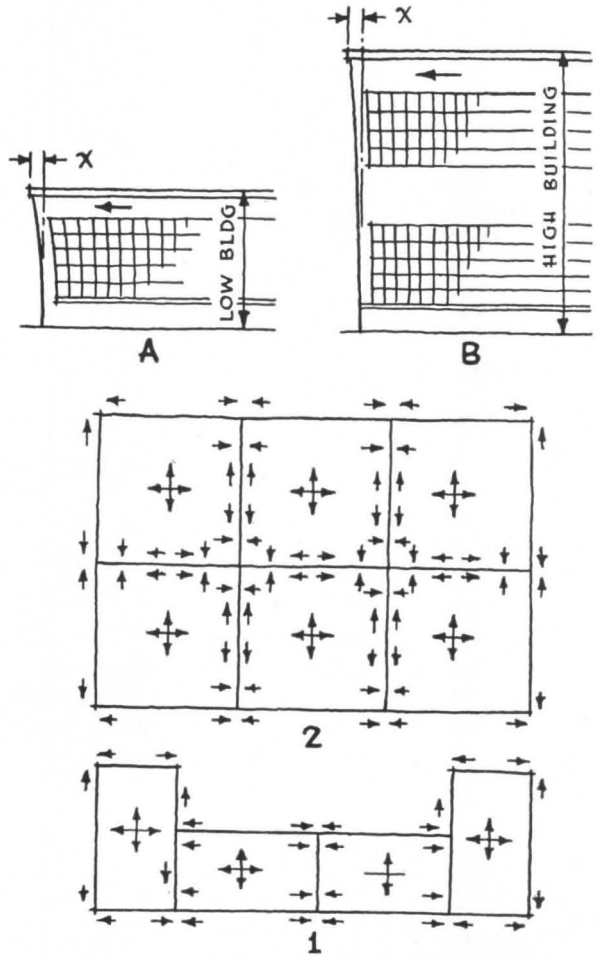


Figure 1: Expansion at the roof is the same whether the building is high or low, but the distortion is much greater for the low building. Lower sketches show expansion action for symmetrical building units, of same construction

Kahn type is slightly more elaborate but is adaptable to any type, size or shape of building and will absorb movement in all directions, including vertical, at the same time. These two types as originally designed were normally constructed of copper and bronze respectively. The V type in horizontal runs must be of soft copper only, as this is the only material from which the accordion bends can be made. The Kahn type normally is most cheaply made of bronze, hard copper, soft copper, galvanized iron, black iron and lastly of roofing and flashing material.

Figure 2 shows the V joint as used in vertical sidewalls. It is made up of *available non-critical* materials. The wood supporting members have rounded edges. The diaphragm is made up of two layers of 3-ply white-top asbestos roofing for flexibility and bound with a narrow metal strip at the point of the V for rigidity. The white side (asbestos surface) is faced out on the outer layer for weathering and appearance, and on the outside of the inside layer to prevent sticking—the double layer having the strength and insulation of a heavy sheet and the flexi-

EXPANSION JOINTS FOR LARGE BUILDINGS

Details by John Schurman

ARCHITECTURAL RECORD
TIME-SAVER STANDARDS
DECEMBER, 1942

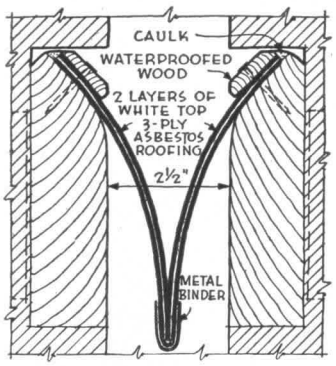


Figure 2: The V-type expansion joint for vertical sidewalls, as made of non-critical materials. Before metals got so scarce, this type of joint was made with soft copper. Now it has only a narrow metal strip for binding, the diaphragm being made of a double layer of 3-ply asbestos roofing material, which gives it both flexibility and strength

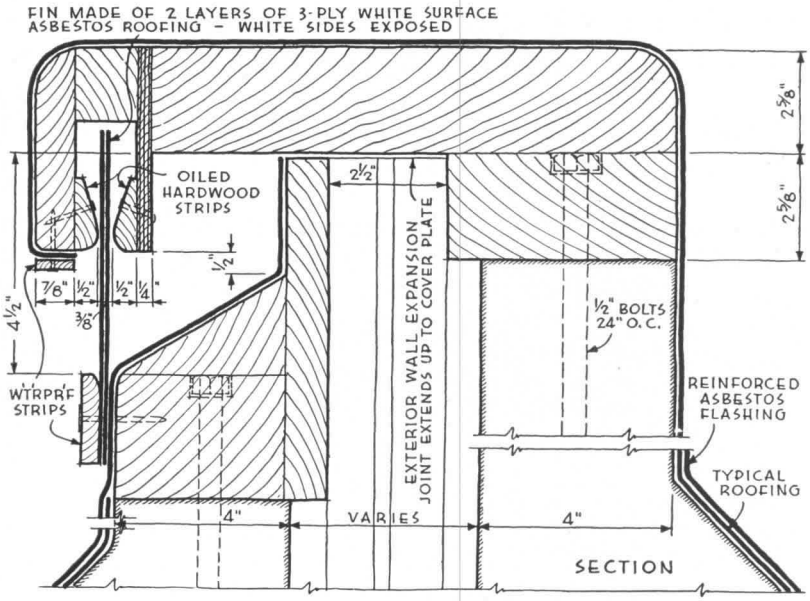


Figure 4: The Kahn type of expansion joint for horizontal runs, as developed for non-critical materials. Two raised curbs are built up on adjacent roof edges, and flashed water-tight with reinforced asbestos flashing material

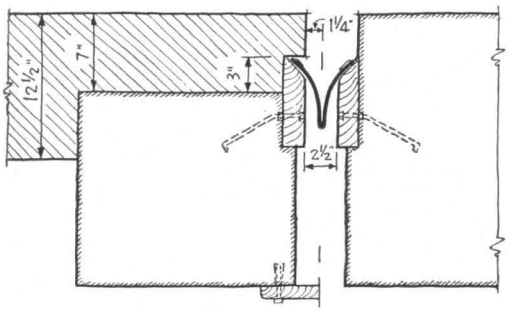


Figure 3: The V-type vertical expansion joint as mounted with concrete and with brick facing. Here it is completely assembled before installation; where it is to be exposed, only the wood pieces are built in, the V-joint added later

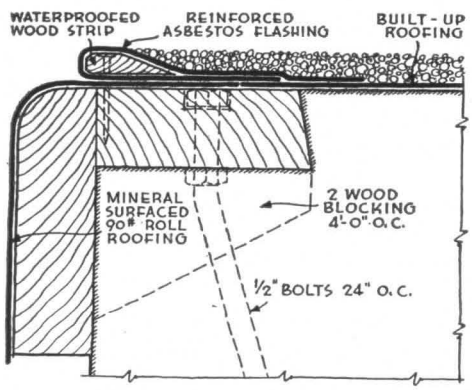


Figure 6: A very satisfactory substitute for metal cornices and fasciae, with gravel stop of reinforced asbestos flashing on wood strip

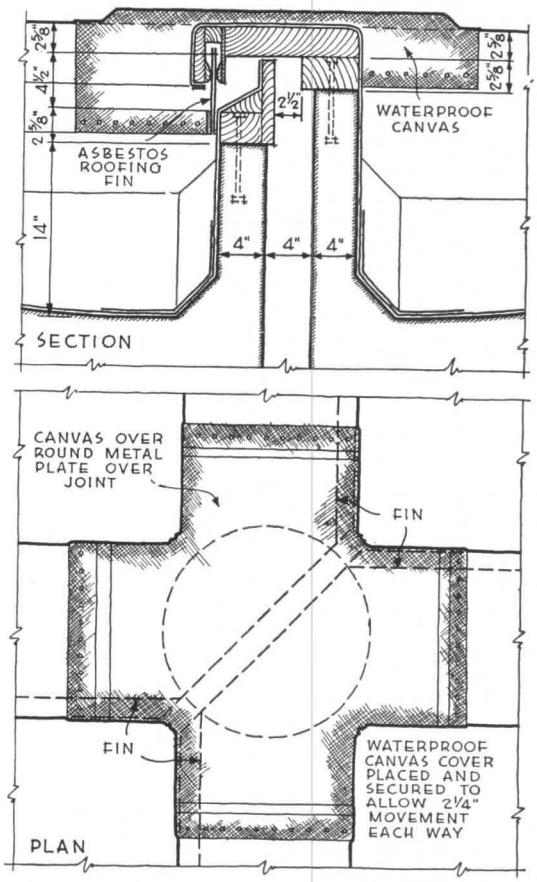


Figure 5: Plan and section of the horizontal expansion joint as it is installed at corners of building units, with waterproof canvas covering

bility of a thin sheet. Due to the curved surface, no sharp bends will occur when joint is completely closed. If joint is to be faced with brick it is completely assembled and built in, but if it is to be exposed, wood pieces only are built in the masonry construction and the V joint added later (see figure 3).

The Kahn type joint as constructed of non-critical materials is shown on Figure 4. It consists primarily of two raised curbs built up on adjacent roof edges of sufficient strength and height and flashed water-tight to a level to prevent water overflow with an approved type of flexible roofing.

REVISED VICTORY SASH

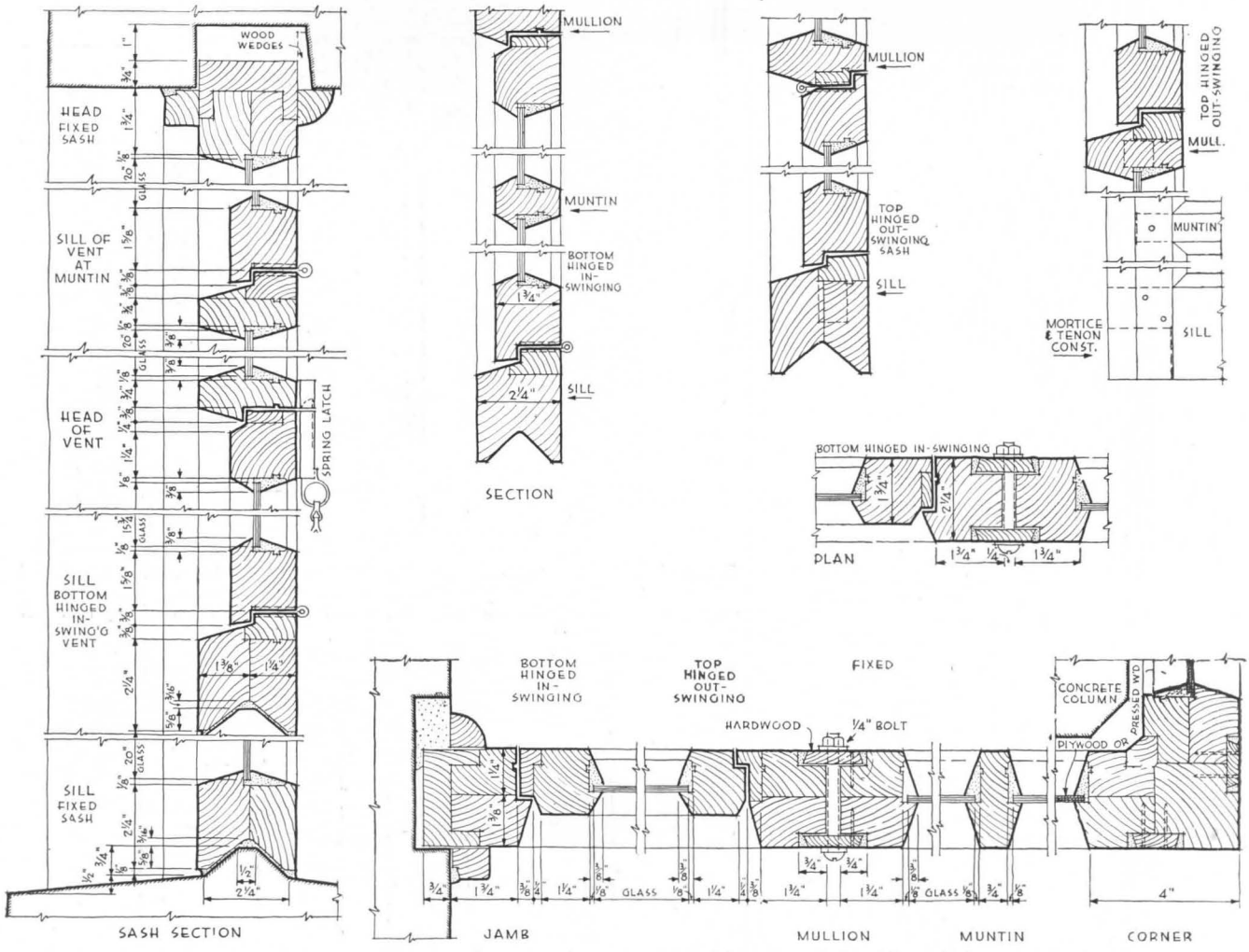


Figure 7: Details of the revised Victory wood sash as developed by John Schurman of the Albert Kahn organization

The fin or diaphragm is of the same material as used in the V joint, but in this case the smooth asbestos or white sides are on the exposed friction surface. Here again two layers are used for flexibility. All edges of engaging wood members are rounded to avoid friction and sharp bends. The double diaphragm in actual installations becomes slightly separated at the top forming perfect weathering. In longitudinal or vertical movement the lower diaphragm slides between the upper grip members of adjacent building units while in a sideways movement the diaphragm assumes an easy curve, in which position a 3-point contact is provided. This type of joint may run vertically or follow the contour of roof and monitors. Metal cornices and fasciae are out for the duration, and a very satisfactory solution is shown on Figure 6. The mineralized roofing surface forms a smooth, pleasing finish of any desired color, the gravel stop preventing the roof tar from spilling over.

The Revised Victory Sash

Several changes have been made in our original design of this sash. These changes were made to save even the small amount of critical metal used and to permit standardization for large scale production, to reduce the original cost and to speed up delivery and field erection.

This sash is rapidly becoming standard for all new work in this country and has aroused considerable interest in Canada, England, and Mexico as well. The reaction to the use of Victory Sash in the numerous buildings now being built or completed has been very favorable.

To overcome the present shortage of heavy lumber the top, side and bottom rails are now laminated, a process which actually increases the strength of the completed unit. Steel mullion plates and sill clips have been eliminated. Generally standard sash is composed of only three standard sections, the head and jamb, the sill and the muntin. Separate members are added at head rail and special side rails of end sash. Wood ventilators are typical, hinged to swing either in or out, stops being added for the two conditions. This allows stocking of sash members.

Sill detail has been improved to facilitate field erection, it being necessary only to raise the sash into lintel slot and drop over the lug at stone sill.

Glass reveal has been changed to place the glass on the center of the sash permitting it to be reversed for outside glazing—a condition frequently required in front of wide columns, beams and trusses. Both sides of sash are identical after paneling.

Victory sash is now being manufactured by some of the largest mills in the country, who are equipped for speedy delivery. The larger manufacturers furnish completed sash factory protected by water repellent toxic oil dip and in sizes up to 16 ft. high.

The accompanying details show the new type of construction.

THOMAS JEFFERSON WAS *Years Ahead*

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

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

It is interesting to note that one feature of these double windows is that they are a permanent part of the window frame . . . a feature that is destined to be an important new convenience in the home of tomorrow.

Permanent installation of window conditioning is but one of many practical improvements with glass that will be possible in postwar homes. The many new and unusual types of glass, developed by Libbey·Owens·Ford, open entirely new fields of design for the architect. Libbey·Owens·Ford Glass Company, 1214-A Nicholas Building, Toledo, Ohio.

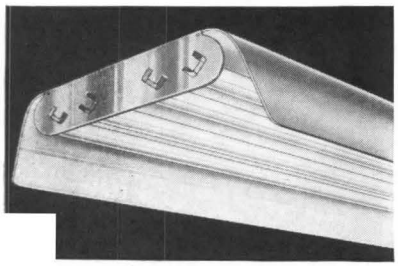


Figure 1

WOOD-REFLECTOR FIXTURE

A POWERFUL lighting unit called Super-Maze-Lite has been designed to furnish high-intensity lighting for industrial inspection areas, and to produce illumination for high-bay areas. Conforming with the WPB order L-78, Oct. 19, 1942, eliminating steel reflectors from fluorescent lighting equipment, this new unit features the use of a non-metallic reflector. It is available for 265 volts as well as for 110-125 and 220-250 volt circuits, for 4-40 watt or 4-100 watt fluorescent lamps. "Bump-Proof" ends protect lampholders against abuse and insure correct distance between lamps. (See Figure 1) The Edwin F. Guth Company, 2603 Washington Avenue, St. Louis, Mo.

CORRUGATED ASPHALT SIDING

RAGS AND RESIN have been combined into an emergency building material substitute for corrugated steel sheets. Called corrugated asphalt siding, the new product is designed for wartime application on industrial, commercial and farm buildings. It can replace corrugated steel sheets for covering outside walls of temporary structures of all kinds, including factory buildings, warehouses, storage and machine sheds, dairy barns and drying sheds.

Corrugated Asphalt Siding consists of two sheets of heavy felt saturated with a recently developed resino-bituminous compound. The sheets are bound together with a high melting-point asphalt adhesive and corrugated under high pressure.

According to the manufacturers, the finished sheets are hard, rigid, light in weight and moisture-proof, and contain no critical raw materials. The Celotex Corporation, 120 S. LaSalle Street, Chicago.

STATIC-CONDUCTIVE LINOLEUM

PRODUCED ESPECIALLY for use on floors and tables in powder and loading plants where static electricity is a constant hazard, Nairn Static-Conductive Linoleum is claimed to be non-sparking and highly conductive of static, and to produce adequate protection against accidental grounding from service voltages. It is said to be of value also in areas where solvent vapors or dust constitute fire hazards, and for hospital operating rooms where explosive mixtures of ether and air may occur. It comes in a standard width of 6 ft., and is installed like ordinary linoleum. The manufacturers say that it is highly resistant to repeated washings with hot and cold water, and is substantially unaffected by ordinary solvents such as alcohol, ether, petroleum derivatives and acids. Congoleum-Nairn Inc., 195 Belgrove Drive, Kearny, N. J.

VENTILATING GRILLE

NEW ON THE MARKET is the Uni-Flo Sight-Tite Grille, a ventilation unit which cannot be seen through from any angle. The fins are of an inverted V shape, and overlap. Diffusers on the edges of the fins add rigidity and a pleasing appearance. The manufacturers recommend this grille for ventilation openings in doors, walls, panels, baseboards, etc., and, as it provides an effective barrier to rain and snow, for exterior fresh air intake openings as well. Sizes up to and including 36 x 36 in. Larger sizes pre-fabricated in two or more sections and assembled into a common frame. (See Figure 2) Barber-Colman Company, Rockford, Ill.

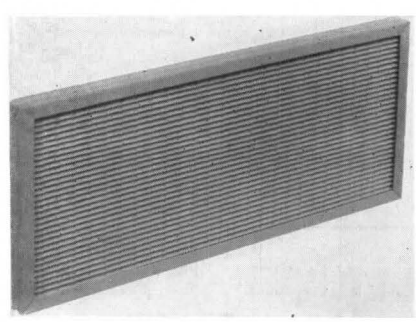


Figure 2

ZINC-COATED LAMP BASES

TO PROVIDE a more positive protection against rust, Sylvania Electric Products Inc. announces the use of a zinc-coated steel base on some sizes of fluorescent lamps and the extension of this type base to all fluorescent lamps as rapidly as practicable.

The use of a zinc coating on the base eliminates the necessity of applying rust prevention measures which were required with the plain steel bases. Sylvania Electric Products Inc., Salem, Mass.

DRYING LAMP

THE USE OF A 250 watt R-40 bulb reflector drying lamp is said to speed up the work of a draftsman by 10 per-

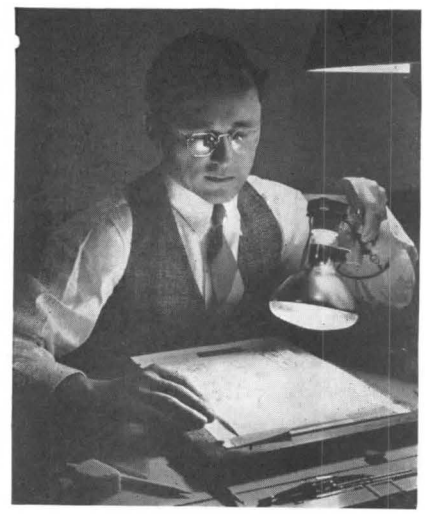


Figure 3

cent. The infra-red lamp, turned on the drawing for about a minute, takes all the moisture out of the ink and paper. Thus after the pencil marks are erased the ink lines remain sharp and black, and a second tracing with ink is not necessary. (See Figure 3) Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa.

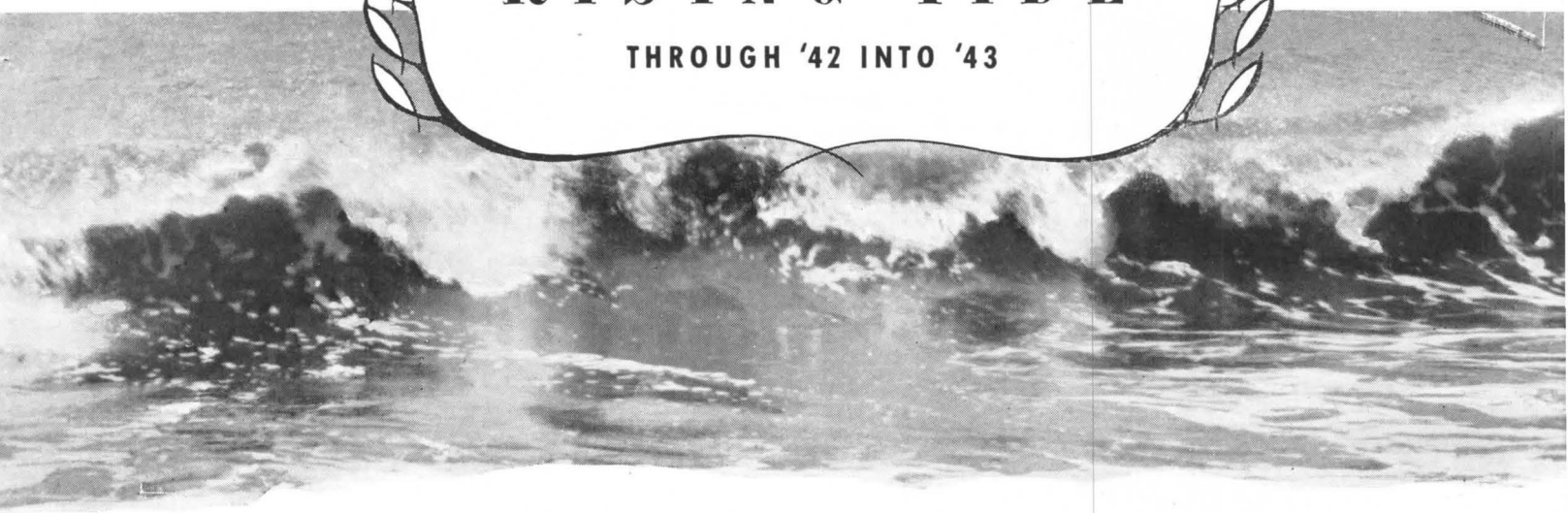
LEAD FLOOR FLANGE AND DRUM TRAP

A FLOOR FLANGE is now being made of non-critical hard lead to expedite plumbing installations and save brass. Not subject to priority delays, this water closet connection, according to the manufacturers, is strong and non-corroding. Of new pattern, it has

(continued on page 70)

RISING TIDE

THROUGH '42 INTO '43



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

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

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

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

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

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

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

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

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

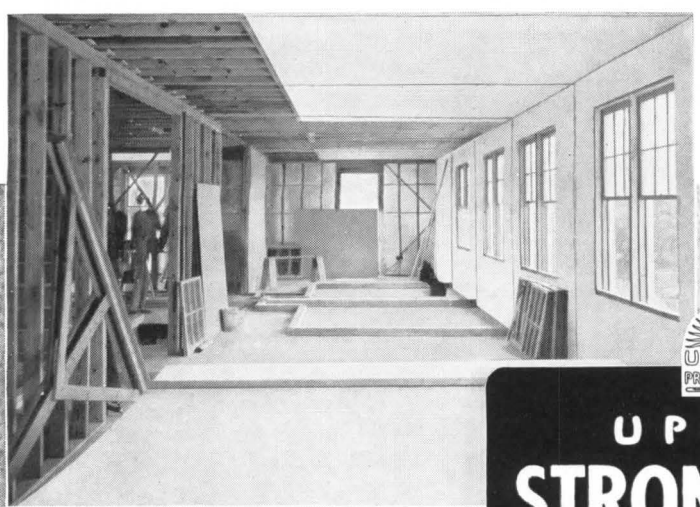
▶ **STRONG AND RIGID:** Stands impact test six times boards with a mineral core.

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

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

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

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



UPSON PRODUCTS

UPSON
STRONG-BILT
PANELS

THE BEAUTY SURFACE FOR WALLS AND CEILINGS

(continued from page 68)

four bolt slots instead of three, with reinforcing bar between. It can be soldered to lead bend in the customary manner, or welded if tin-lead solder is unavailable.

MADE BY the same company is a new drum trap of lead, designed to save brass without sacrificing durability. Both threaded ring and cover are die-cast of hard lead. To save tin, the ring is welded to the body of the trap instead of being soldered. Lead Industries Association, 420 Lexington Avenue, New York City.

STEAM GENERATOR

A STEAM generator needing only fuel and water for automatic operation has just been announced. A new principle of water feeding, incorporating Jet Control, automatically and without the use of thermostats or motor driven pumps, furnishes feed water in direct proportion to the amount drawn off as steam. Once the generator has been lighted it is completely operated by the steam throttle valve or load.

This new generator has only three moving parts, and is shipped complete ready to operate. Burners are provided for either gas or oil fuel. No pit is required, and no fire boxes or electrical connections need be installed. According to the manufacturer the generator is explosion-proof because the steam is carried entirely in an overlapping, continuous coil, tested to 1,000 lb. Lodi Steam Generator, *Super* Mold Corporation, Lodi, Calif.

CLIP SYSTEM PARTITION

A CLIP SYSTEM partition, consisting of a gypsum lath core held together with wire clips, is said to save approximately 97½ per cent of the steel required for the usual solid plaster partition. The core or plaster base is a standard panel of ⅜ or ½ in. gypsum plaster board, 16 in. wide, perforated or plain as desired. The wire clips are made in three types: combination, corner, and wood stud. They are formed at the factory, and packed according to type, with direction sheets included. Olsen Clip System Partition, The Patent and Licensing Corporation, 30 Rockefeller Plaza, New York City.

PORTABLE BLOWER

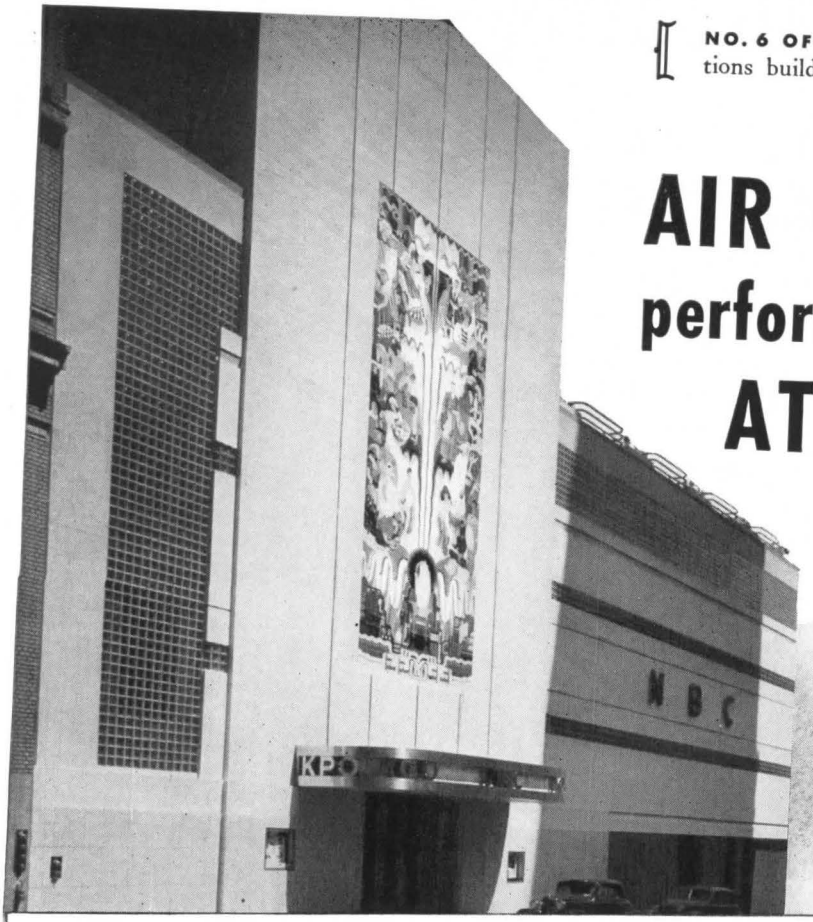
A SMALL portable unit to eliminate gases, fumes, etc., from closed-in places such as tunnels, vaults and basements, operates in any position and weighs only 70 lb. Called the "Octopus, Jr.," this new exhauster and blower is powered by a ¾ H.P. ball bearing motor, and sucks or blows 2,000 C.F.M. Chelsea Fan & Blower Company, Inc., 1206 Grove Street, Irvington, N. J.

NON-SLIPPERY FLOORING

DESIGNED to produce non-skid floors, wet or dry, there is now being offered an emery aggregate, a mixture of scientifically graded large and small sharp, hard particle of mineral, rating

(Continued on page 72)

NO. 6 OF A SERIES of advertisements on controlled conditions buildings by the makers of "Freon" *safe* refrigerants



AIR CONDITIONING performs essential service AT NEW N.B.C. STUDIOS

Architectural Supervisor, Joseph Arnone, *stresses importance of "sound control" in San Francisco's "Radio City"*

IN THIS ultra-modern, windowless building, housing the studios of radio stations KPO and KGO, air conditioning is more than merely an added comfort factor. For unless temperature and humidity were maintained absolutely uniform every minute of the day and throughout all studios, the musical instruments used by radio performers would quickly become out of tune in the interval between rehearsals and broadcasts, or when moved from studio to studio.

In order that air conditioning could perform this essential service in N. B. C.'s San Francisco headquarters, it was necessary to meet several requirements peculiar to broadcasting. Concerning these, Joseph Arnone, Architectural Supervisor for N. B. C. on the project, says: "In addition to the usual problems of proper temperature and humidity control, sound and vibration control were of paramount importance. Not only must there be a total absence of noise or vibration due to operation of the air conditioning equipment, but the elimination of intercommunicated sound between adjoining studios through the air conditioning ducts, was of major consideration. The complete isolation of the equipment foundations from the building structure itself was desirable since such vibration transmitted into the building would surely result in disturbances in the studio areas."

Briefly, the problem of equipment vibration was solved by mounting all refrigeration equipment on a single concrete slab which was isolated from the floor and the building proper by "floating" it on 300 steel coil springs. To solve the second problem—the intercommunication of sound between studios—the duct system for each studio was designed to be a complete unit in itself.

Throughout their design the creators of San Francisco's "Radio City" have provided in every possible way for the safety of the building and its occupants. Thus it was only natural that they should specify a "Freon" refrigerant for the air conditioning system—for "Freon," because of its unique safety properties, has been used almost exclusively in the new air conditioning systems installed in recent years. Kinetic Chemicals, Inc., Tenth and Market Streets, Wilmington, Delaware.

KINETIC

FREON

REG. U. S. PAT. OFF.

safe refrigerants

"Freon" is Kinetic's registered trade mark for its fluorine refrigerants

(continued from page 70)

next to the diamond in hardness. For application the product is mixed with portland cement and water for the floor topping, and, it is claimed, provides a firm, non-slip gripping surface that improves with wear. The flooring is said greatly to increase the load-bearing qualities and to possess high tensile strength. Walter Maguire Company, Inc., New York City.

NYLON WINDOW SCREENS

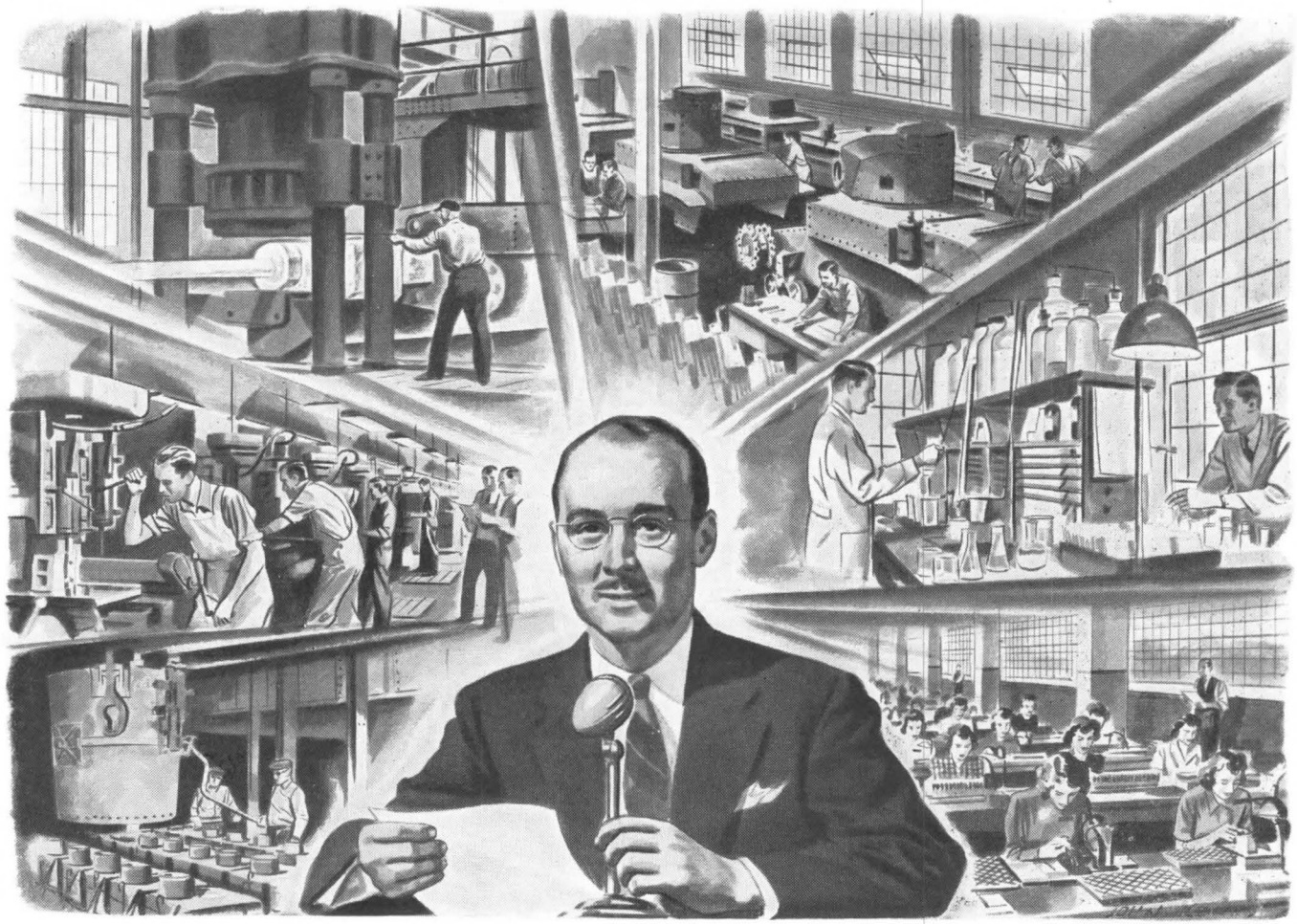
CORROSION-PROOF, no-paint window screens made of heavy single-strands of nylon are promised by DuPont for postwar production. Experimental nylon screens, fabricated before the war, have stood up at the seashore and even in the tropics, according to DuPont. Pigments are added to the molten nylon material before it is spun and drawn out into "wires," making the color a permanent part of the screen. Absence of rust or corrosion makes for less deposit of dirt, and no metallic stains, upon the glass and sills, it is said. The nylon is claimed to be so strong and resilient that bumps generally do not leave bulges, and a hole made by poking a pencil through the screen is completely closed by rubbing the fingers over the displaced strands. E. I. du Pont de Nemours & Company (Inc.), Wilmington, Del.

ASPHALT MEMBRANE

CREATED especially for waterproofing and flashing purposes, Sandell Asphalt Membrane is not made from woven cotton or felt, but is composed of approximately 85 per cent asphalt and 15 per cent cotton fibres, each fibre being thoroughly coated, protected and surrounded by asphalt. The manufacturers point out that asphalt heretofore could be applied for waterproofing only in its pure state, in hot or cut-back form, and the basic principle in back of the new development, therefore, was to provide a sheet of asphalt, as nearly pure as possible, in a clean, readily-usable form. Sandell Asphalt Membrane has been designed for use wherever a material is needed which is impervious to water, tough and pliable, non-curling, non-shrinking unaffected by atmospheric chemicals or electrolysis, and one that will not stain or discolor the masonry. Sandell Manufacturing Company, Inc., 70 Phillips Street, Watertown, Mass.

PLASTIC-FINISHED WALL PANELS

A NEW line of plastic-finished interior wall panels is offered for all types of wartime construction. The low installed cost is said to make the product practical even for temporary buildings. Standard thickness is 1/8 in., and heavier thickness panels are available for direct application to studding. No painting or finishing is required. The surface is cleanable with dampened cloth and said to be highly resistant to scuffing, scrubbing, acids, stains, etc. Sizes 4 by 4 in., 4 by 6 in., 4 by 8 in., 4 by 10 in., 4 by 12 in. Marsh Wall Products, Inc., Dover, Ohio.



How RCA Sound Systems Help Plants Do Bigger Jobs . . . *Better!*

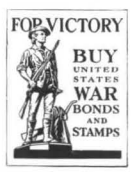
The bigger the plant, the harder it is to coordinate activities and keep in close touch with all the workers.

One practical, proven way of linking all production effort together and bolstering morale, is the use of RCA Sound Systems.

Installed to meet the specific needs of each particular industry or plant, RCA Industrial Communication Systems act not only as a unifying force, but serve to help speed production and increase efficiency. No time need be lost in paging individuals . . . maintenance and service crews can be directed efficiently . . . important messages from management can be relayed instantly to every corner of the plant.

Through RCA Industrial Communication Systems, war news or selected music can reach the workers during those "fatigue periods" when production sags, and the monotony of tedious effort may be relieved throughout the day.

Whether *your* client has in mind a large or small plant, an RCA Industrial Communication System, engineered to meet his needs, can be a valuable aid in improving and increasing his war output . . . Send the coupon *today* for complete data.



Mail Today for More Information!

RCA Manufacturing Co., Dept. 2-3
Camden, New Jersey

Please send me complete information about an RCA Sound System.

Name .....

Company .....

Address .....

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

RE-12

RCA

RCA SOUND SYSTEMS

MUSIC • PAGING • COMMUNICATING

RCA Manufacturing Company, Inc., Camden, New Jersey

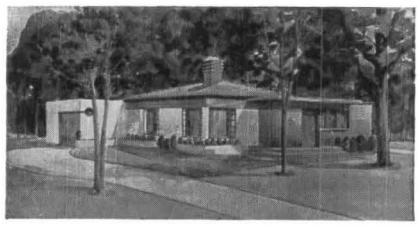
(continued from page 12)

ment furnishing heat or heat and hot water for apartments, office buildings, institutions, etc., will be regarded as convertible to an alternate fuel unless satisfactory proof to the contrary is furnished by the applicant. Rations for fuel oil will be issued until conversion is completed, but this period of grace now is limited to the end of the second heating period (about January 20.)

★ ★ ★

WELDING AWARD STUDY

In the 2½-year, $200,000 welding study program sponsored by The James F. Lincoln Arc Welding Foundation, Cleveland, Ohio, an award of $150 has been made to Lawrence Blazey, of Cleveland, and George B. Rogers, Lakewood, Ohio, for a paper describing the steel-framed residence pictured below. The house was designed by Mr. Blazey. To reduce erection costs the bolt and nut technique was replaced by arc welding. On a 12-gauge angle fastened to the concrete foundation, the 16-in. prefabricated panels of full height were assembled by starting at one corner where aligning and plumbing was done. Z sections were bolted on the top and bottom of the panels into which the ceiling and floor sections were laid and tack welded. Flexibility and speed of arc welding methods were the principal factors in helping to reduce the erection costs.



COPPER INSTALLATION PROHIBITED

An amendment to Supplementary Conservation Order M-9-c-4 practically prohibits installation of copper in buildings, by preventing the purchase, sale, delivery and use of copper for such installation. This means that existing stocks of copper products in stores, warehouses, etc., may be acquired by the Government and remelted for war use.

CORK FLOORING TILE

A special WPB ruling on the use of cork flooring tile has been given David E. Kennedy, Inc., permitting the use of current inventories of cork tile for whatever purpose necessary in order to liquidate these inventories. The ruling amends *WPB limitation* order L-39.

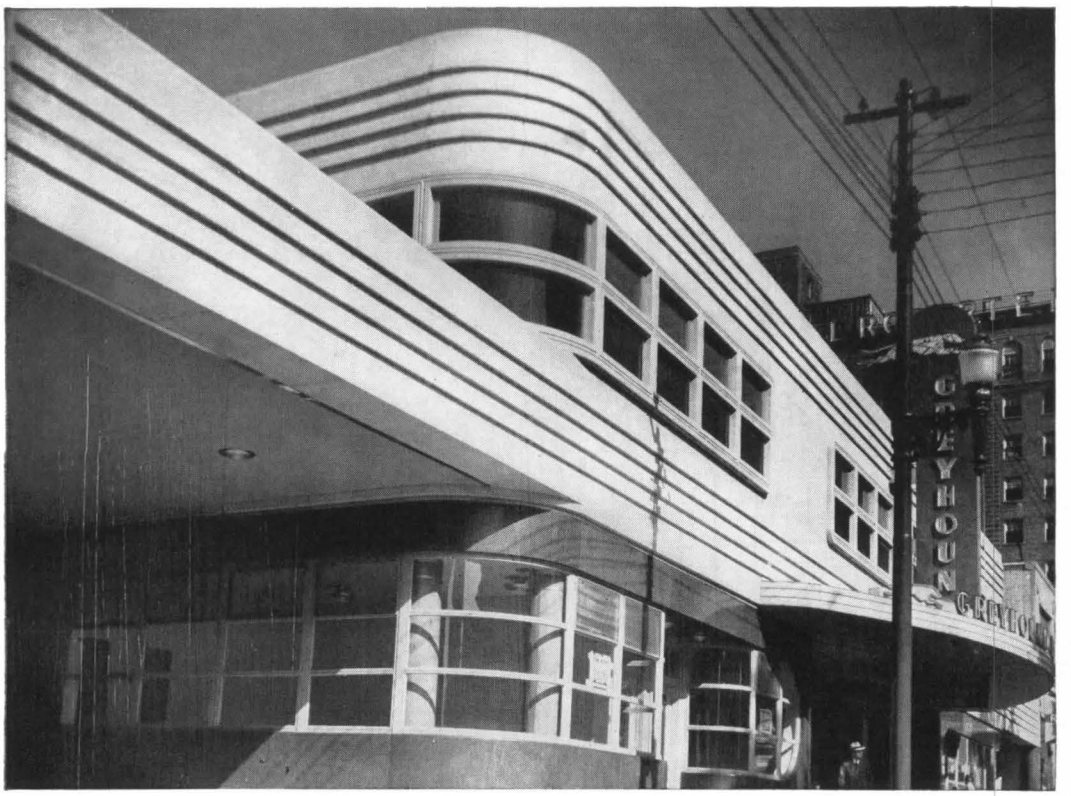
POSTWAR PLANNING ACT

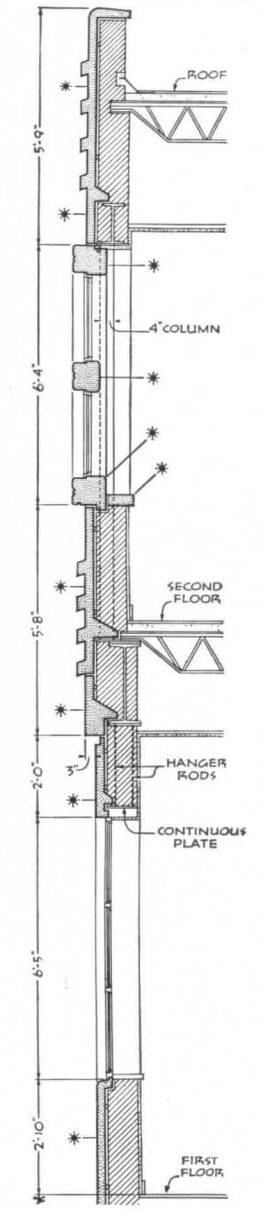
A bill entitled "First Post-War Planning Act of 1942," introduced in the House of Representatives by Repre-

(continued on page 76)

MODERN, PRECAST CONCRETE FACING

for Streamlined Bus Terminal





ARCHITECTURAL CONCRETE SLABS PROVIDE VERSATILE CONSTRUCTION MATERIAL

in opinion of Architect George D. Brown, Atlantic Greyhound Corporation

MR. BROWN has been designing terminals for Atlantic Greyhound Lines for over twelve years. Recently completed example is Winston-Salem Terminal, faced with Architectural Concrete Slabs made with Atlas White cement.

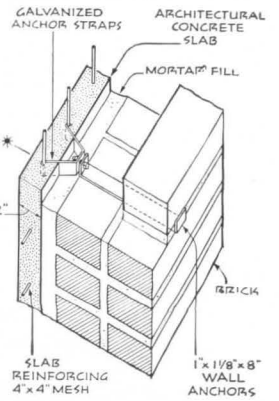
Writing of this new terminal, Mr. Brown states:

"I believe that precast slabs are readily made to conform to any architect's most exacting requirements and fill a most universal need for versatile facing or construction material."

Thin, precast slabs are decorative and structural units for interiors and exteriors of buildings and engineering structures. From 2 to 2½" thick, slabs are cast in sizes up to 100 sq. ft. or more. Design, shape, color, size, thickness, and weight are subject to the architect's control. Carefully controlled manufacturing methods assure uniformity and high strength in accordance with architect's specifications.

Write for "Architectural Concrete Slabs," a profusely illustrated 28-page book containing data, plans, and color patterns showing how this versatile product made with Atlas White Cement is used in modern structures of many different types. Mail the coupon today. Universal Atlas Cement Company (United States Steel Corporation Subsidiary), Chrysler Bldg., New York City.

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



Cross-section shows variety of sizes and shapes. Note also how band courses, coping and anchoring lugs are cast integrally with facing slabs. Isometric view shows another method of anchoring by tie rods to imbedded slab reinforcing. Slabs manufactured by the Arnold Stone Co., Greensboro, N.C.

*INDICATES ARCHITECTURAL CONCRETE SLABS.

ARCHITECTURAL CONCRETE SLABS

MADE WITH ATLAS WHITE CEMENT

Universal Atlas Cement Company
Chrysler Bldg., New York City

Please send me a free copy of the 28-page book, "Architectural Concrete Slabs."

Name_____

Address_____

City_____ State_____

AR-ACS-36

THE RECORD REPORTS

(continued from page 74)

sentative Alfred F. Beiter of New York, declares it to be "the policy of the Congress to provide for the preparation now of such plans as may be necessary to facilitate and expedite the selection and inauguration during the post-war period of those public works and improvements that will assist in providing employment opportunities and demands for industrial products when the Nation's men and machines are demobilized." The bill stipulates that this declaration of policy does not commit the Congress to any appropriation of funds, but authorizes a total appropriation of $100,000,000 for allotment to Federal agencies; and advances to State and local agencies for plan preparation. The bill further stipulates that allotments and advances may be made only when the plan preparation "is for either (a) planning a project which, when constructed, will be in accord with, or (b) developing a long-term plan for community, State, regional, or national development."

ARCHITECT EMPLOYMENT

A proposed plan to prepare unemployed practicing architects to take position in vital war industries is reported by the N. Y. Chapter, A.I.A., in a special bulletin sent recently to all its members.

The plan proposed by Professor Johnstone, Head of the Department of Architecture at Pennsylvania State College, calls for three months of intensive training. According to Dean Johnstone, some 70,000 men with engineering training are needed by industry at once, and architects, because of their general training and experience, could fill many of these positions following a short course of specialized instruction. The A.I.A. Committee on Education is conducting a nation-wide canvass of architects as a first step toward putting Dean Johnstone's plan into operation.

BROOKLYN MUSEUM EXHIBIT

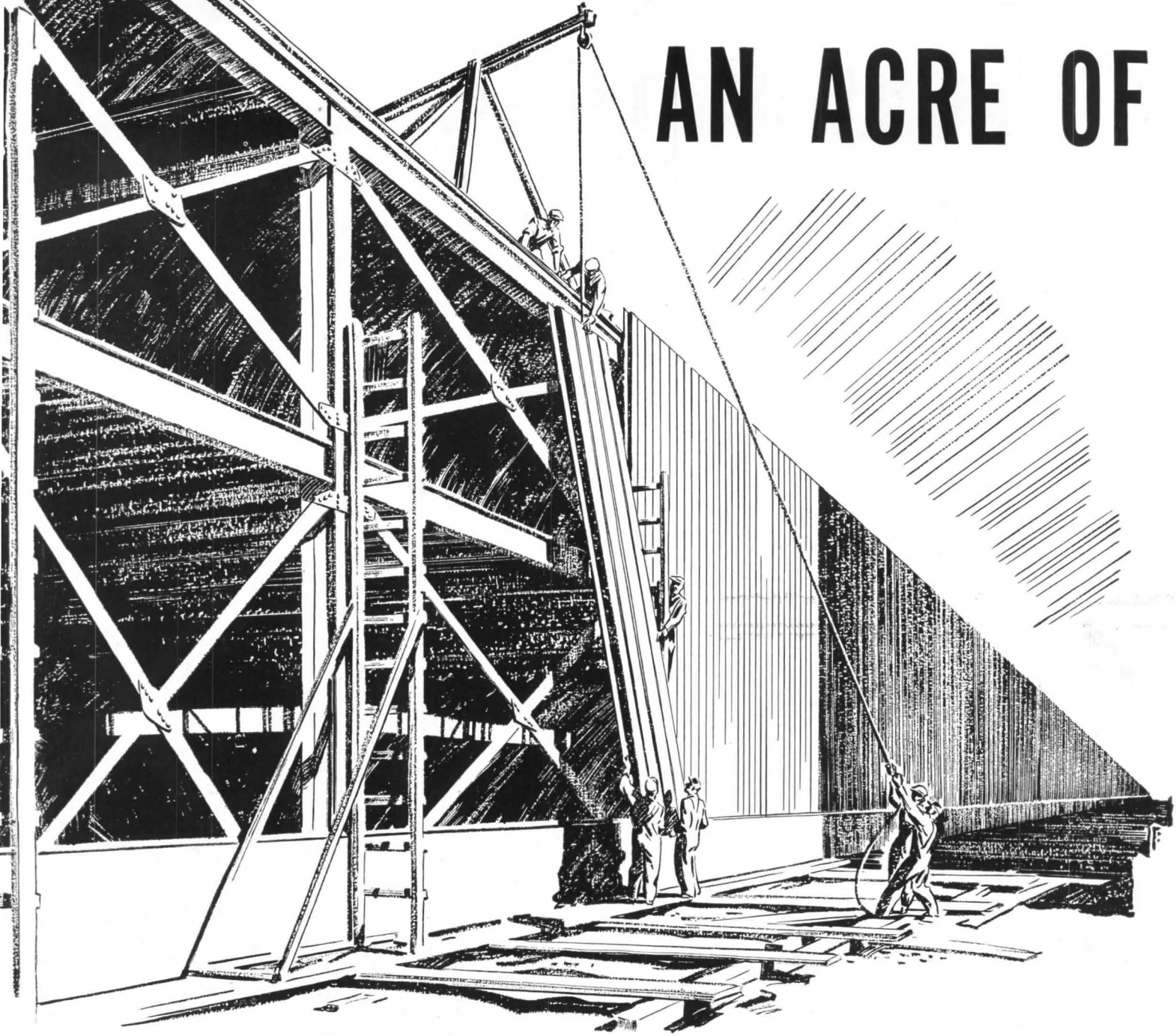
"Inventions for Victory," the first major exhibition of the current season at the Brooklyn Museum, Brooklyn, N. Y., will be on view through Sunday, Jan. 3, 1943.

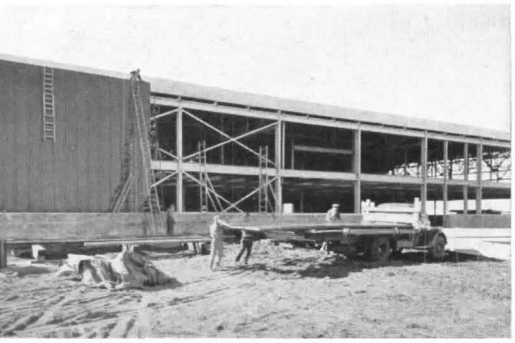
Presented by the Museum's Industrial Division, "Inventions for Victory" is an exhibition of new materials and new uses of familiar materials resulting from the needs of wartime production, in the fields of architecture, house furnishings and equipment, textiles, clothing and accessories. A special feature is a section of a prefabricated house, showing two half rooms and accompanied by blueprints of various possible arrangements of the panel units.

WAR POSTER EXHIBITION

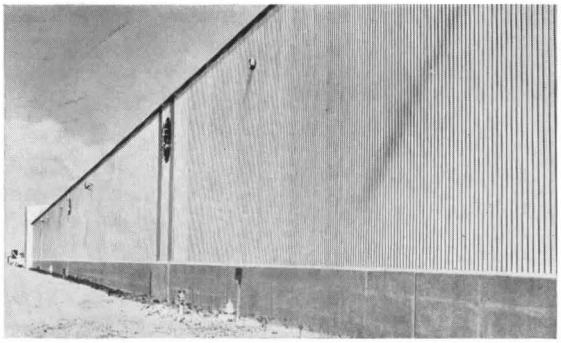
An exhibition of 200 posters, selected from the 2,224 entries in the National War Poster Competition, will be on view at the Museum of Modern Art, New York City, through Sunday, January 3. Although the competition closed in October, and the prizes already have been awarded, the public will be given an opportunity to exercise its own judgment in the poster exhibition. An additional prize of a $50 war bond will be awarded by the Museum to the artist whose poster receives the most votes in answer to the question, "Which poster makes you want to do more to help win the war?"

AN ACRE OF





Speed With Prefabricated Units — Units (up to 50 square feet of wall area) arrive at the job site in a truck . . . ready to be erected at the rate of one every nine minutes. No delays because of weather; no waiting for wet materials to set.



Fine Architectural Appearance — Q-Panels offer a wide variety of designs. They consist of flat and fluted steel plates (either surface may be used outside) with insulating board sandwiched between. With 1½-inch of insulation, these panels have an insulating value of .14 Btu's per square foot, per degree temperature difference, per hour.

Good-looking, Easily Cleaned Interior Walls — are provided by the flat plate of the Q-Panel. Nothing needs to be added except paint. Architectural relief may be had where desirable, by turning the fluted side of the unit to the interior.

ROBERTSON Q

FACTORY WALL IN 3 DAYS

that's Quick

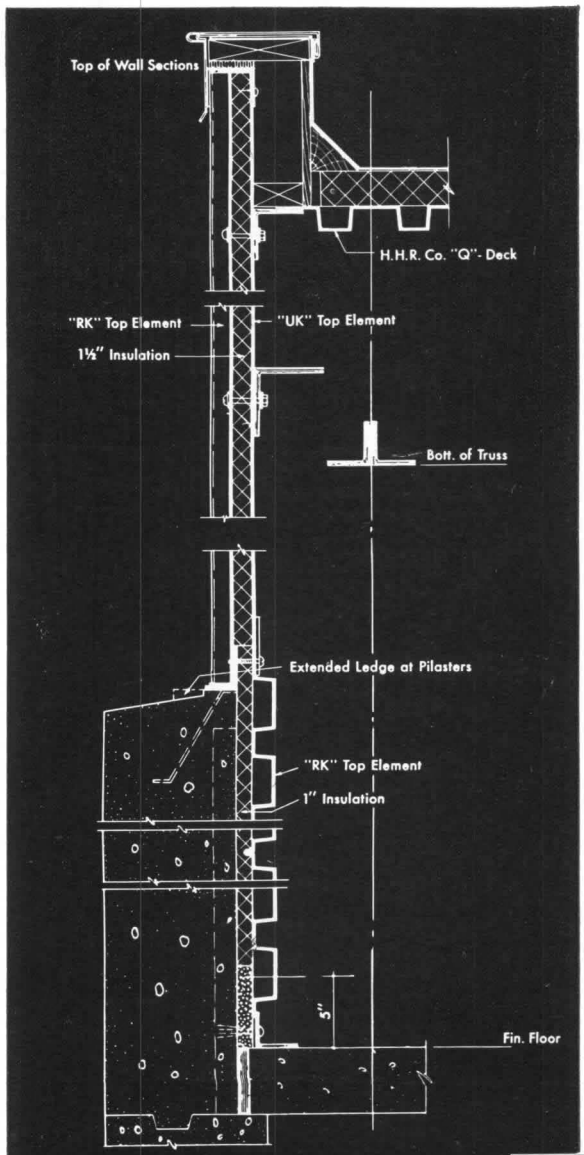
YES, but none too quick to meet the "All-Out" production demands of American Industry today. Because Q-Panels can be quickly delivered and quickly erected, they are being specified and used in one urgent plant project after another. Although they are ideal for "Blackout" plants and additions, they also meet the design and engineering needs of Daylighted Structures.

Every Q-Panel section is a complete insulated structural unit for wall or partition. It is provided in standard two-foot widths and in any length up to 25 feet. Thus, one section (which can be placed in 9 minutes) is equal to 50 square feet of wall. Interlocking joints at the edges of the units are caulked to make airtight, weathertight walls.

SPEED characterizes Q-Panel construction from the very beginning. The units arrive at the job site, prefabricated, ready to take off the truck and erect. Only six bolts are necessary to fasten a unit to the structural frame. Q-Panels constitute "dry" construction . . . which facilitates winter building. There is no waiting for wet materials to set, no hazards from combustible forms. It is a permanent form of construction; yet, Q-Panels may be salvaged and used again, an important factor for peacetime adaptations of war production plants.

The cross section at the right indicates the salient features of Q-Panel wall construction. Further details, estimates, etc., will be gladly furnished. Usually, plants incorporating Q-Panels for walls and partitions also use Q-Floors and Q-Roof Decks.

Versatility of Use—Q-Panel construction is well suited to use in a wide variety of structures . . . aircraft buildings, munitions plants, warehouses, powerhouses and other types of manufacturing buildings.



TYPICAL WALL SECTION

SEE OUR CATALOG IN SWEET'S

H. H. ROBERTSON COMPANY
FARMERS BANK BUILDING . . . PITTSBURGH, PA.

-PANELS

H. H. Robertson Company,
Farmers Bank Building, Pittsburgh, Pa.

( ) Please send me literature regarding Q-Panels and Q-Units for Walls, Roofs and Floors.

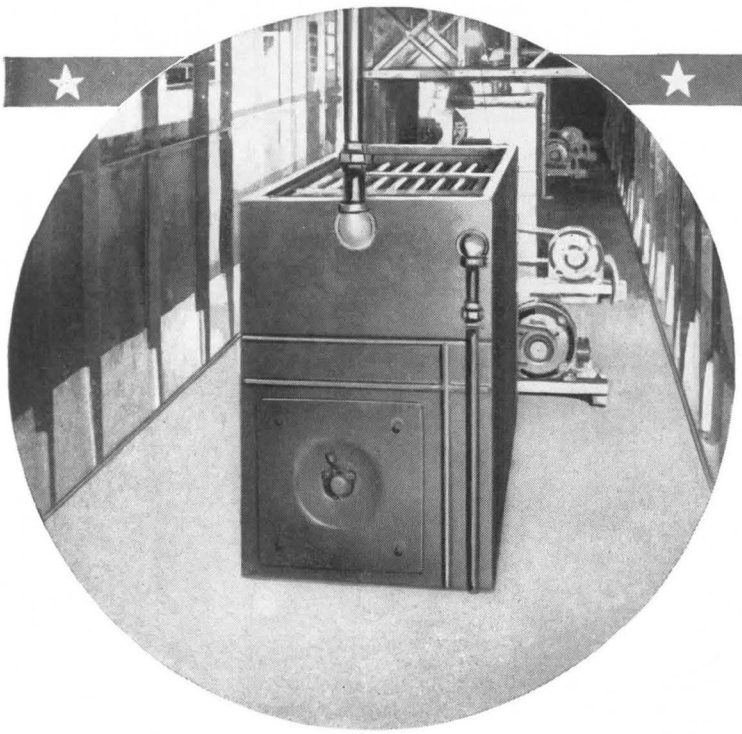
( ) Have a Robertson Field Engineer give me Engineering Data.

Name_____

Firm_____ Address_____

City_____ State_____

46,500 pounds of scrap metal salvaged by change to unit heating



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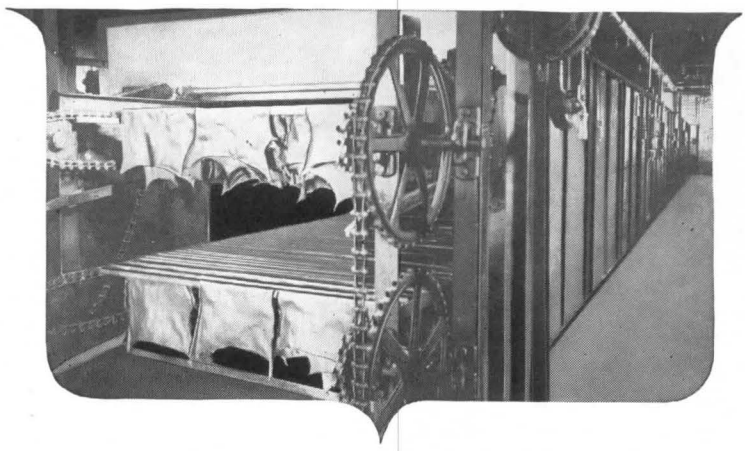
(Above) **CARRIER HEAT DIFFUSERS** at plant of John R. Evans and Company, Camden, New Jersey. Air is drawn through louvers at top of tunnel by 4 of the units, heated and blown into a plenum chamber beneath the tunnel.

(Right) **DRYING TUNNEL** through which hides pass. One of the unit heaters is arranged to supply air from above and discharges it into top of tunnel for thorough drying of hides.



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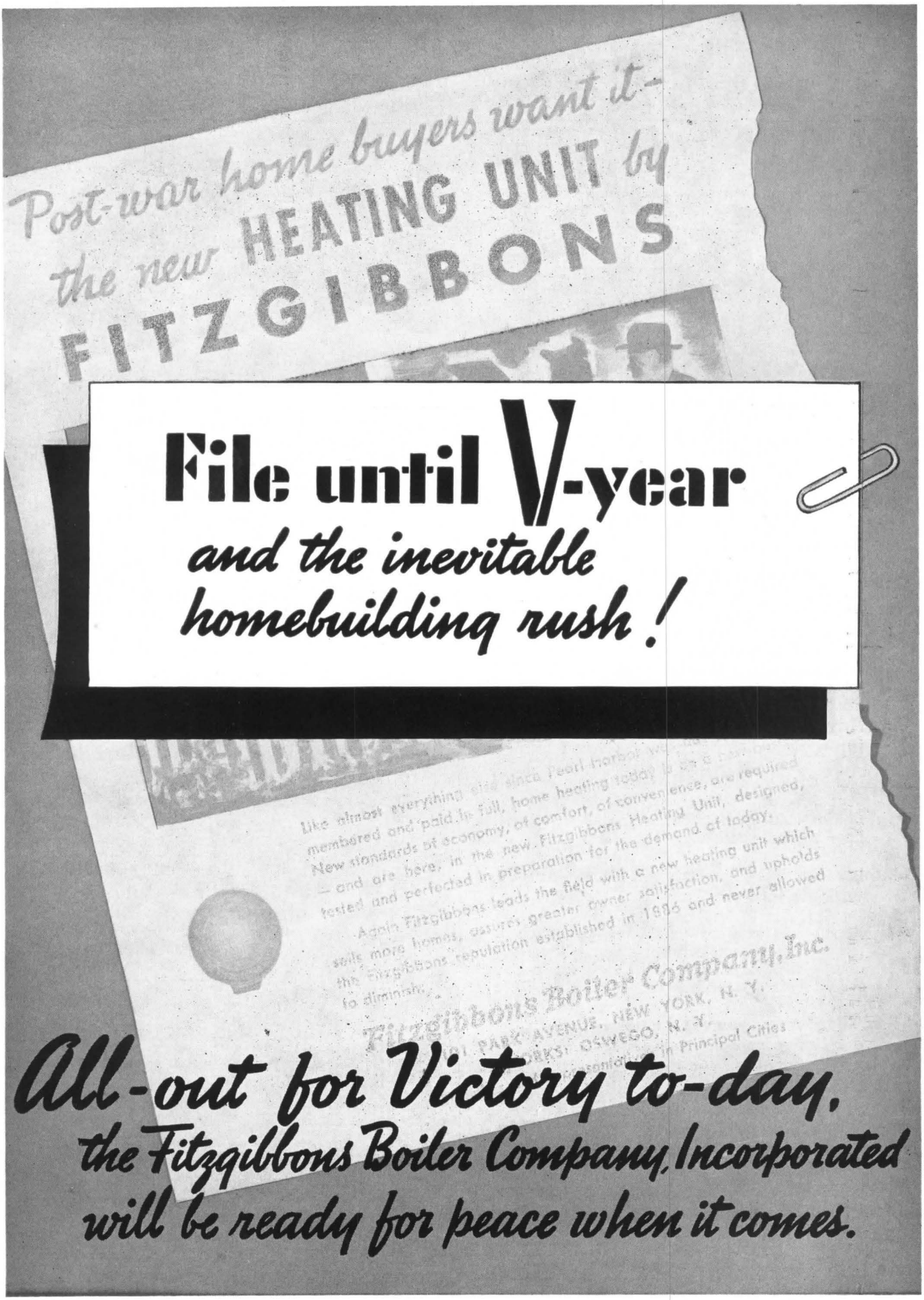
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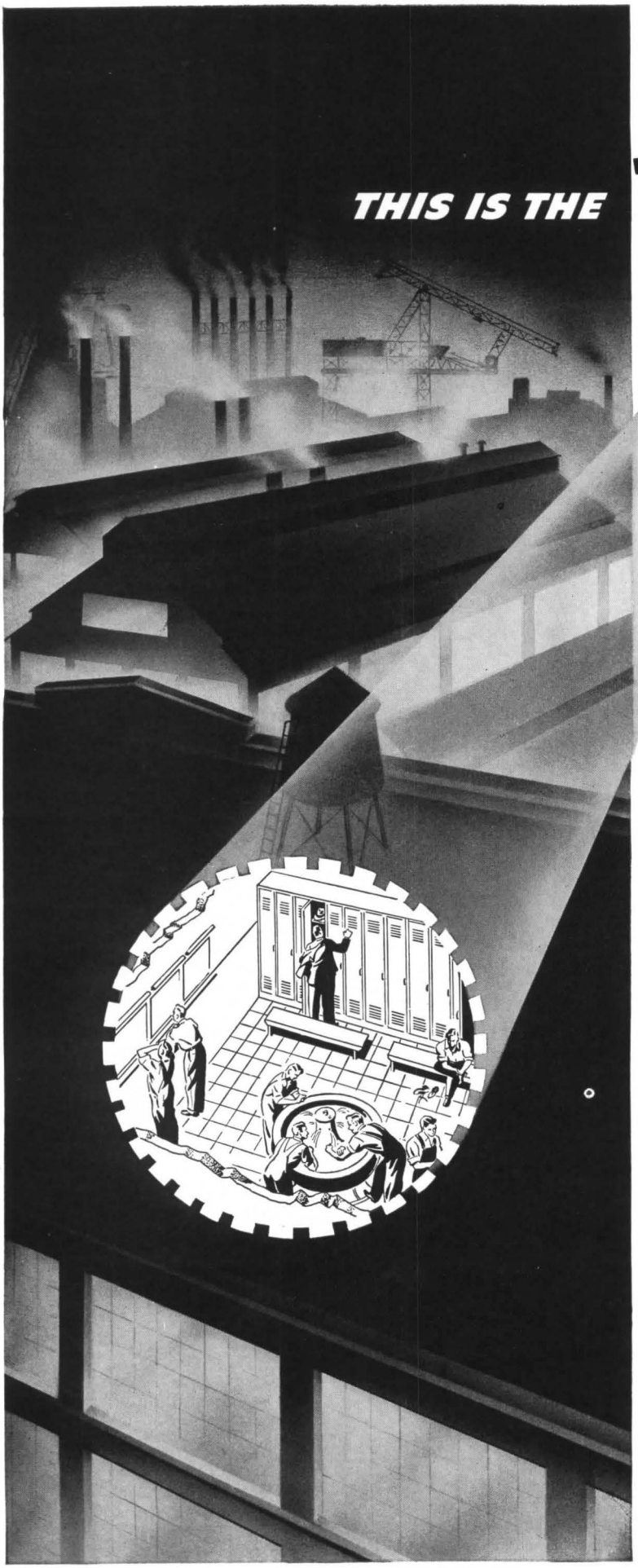

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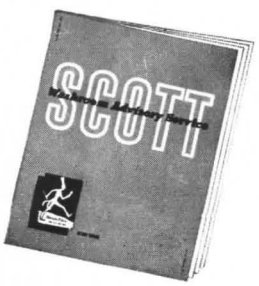

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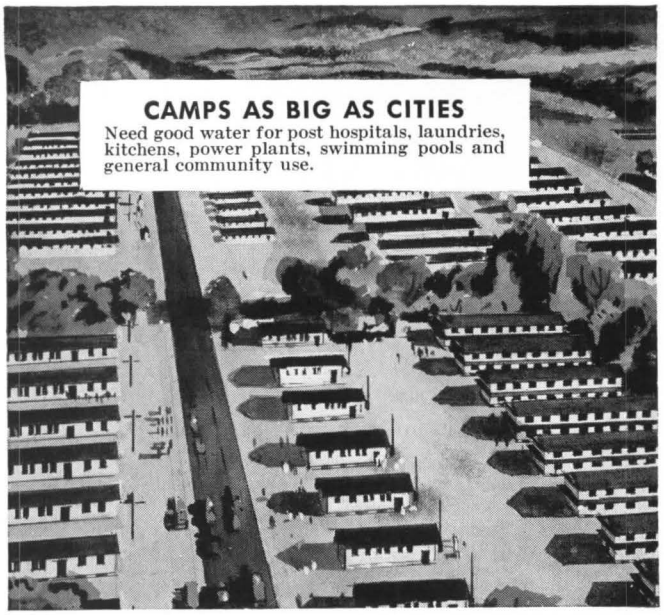

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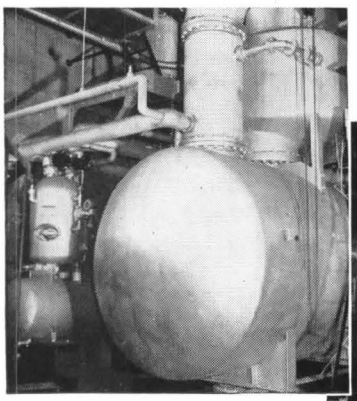

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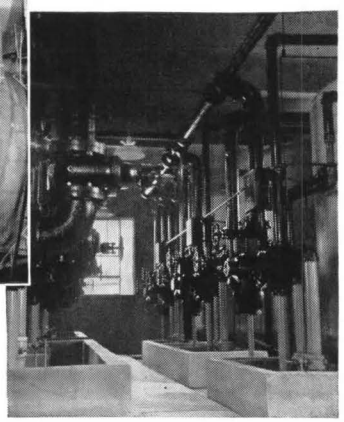

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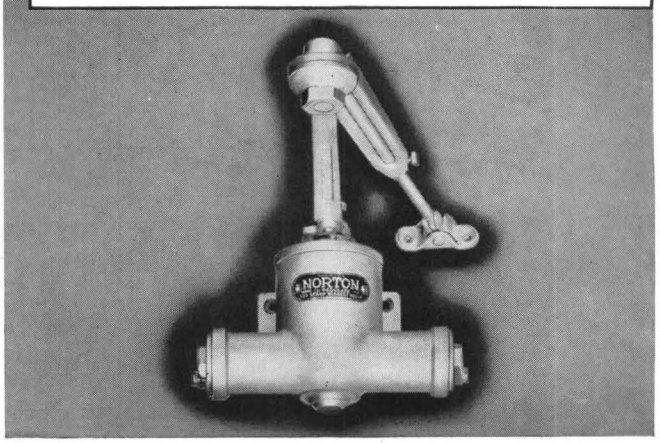

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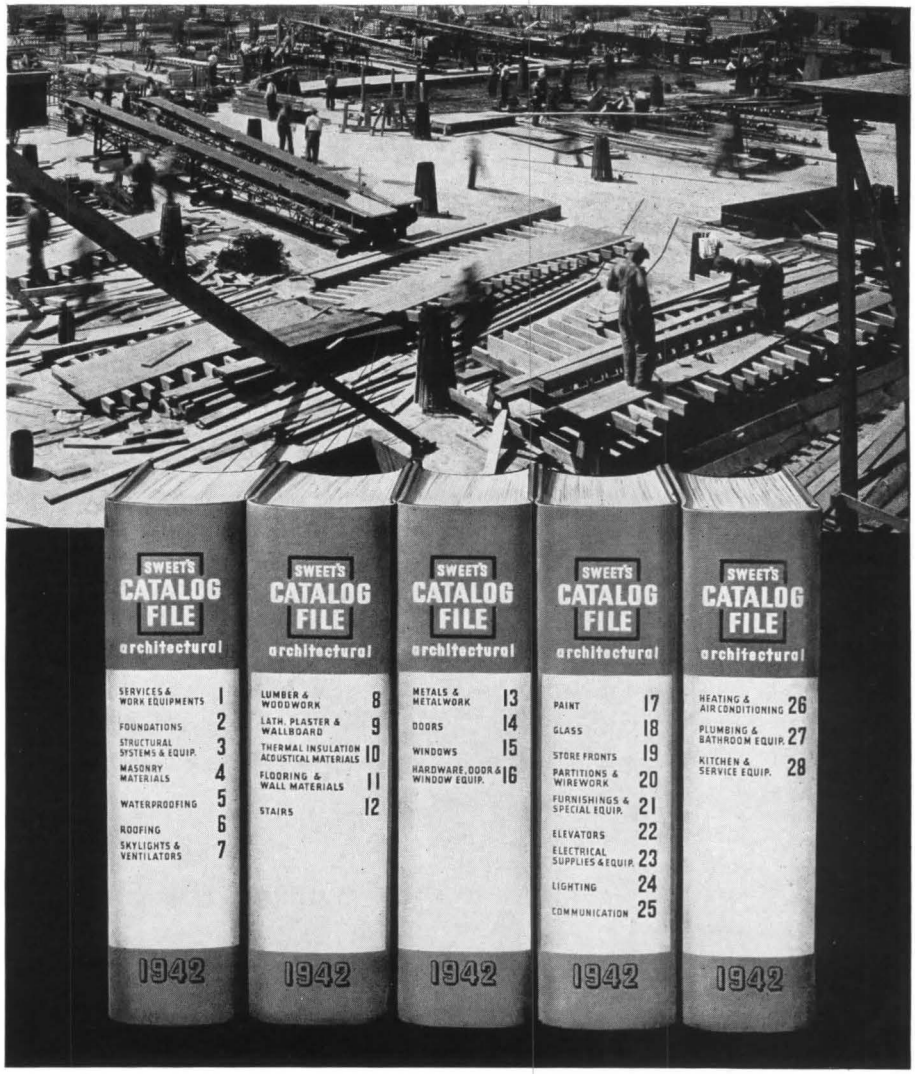

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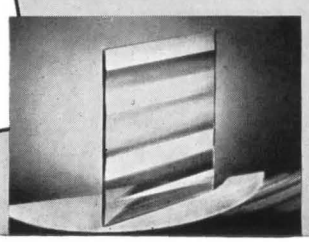

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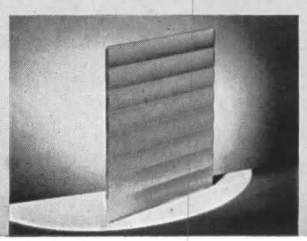

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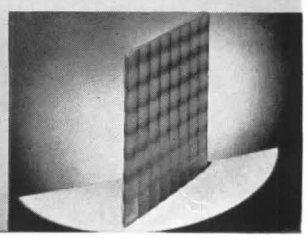

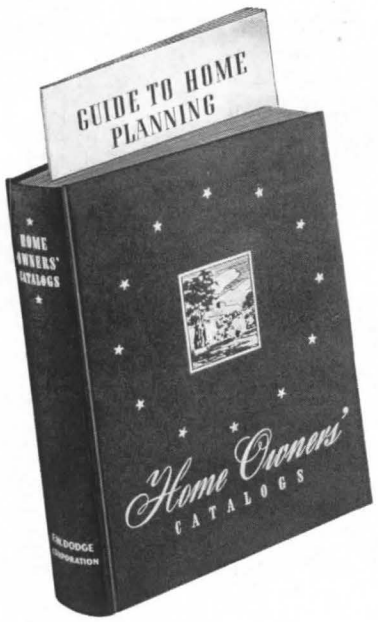

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